NEVADA RARE PLANT ATLAS

compiled by the

Nevada Natural Heritage Program
Nevada Department of Conservation and Natural Resources
Carson City, Nevada, U.S.A.

and edited by

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Lathyrus grimesii (Grimes vetchling) flowers and leaves, by James D. Morefield

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DEDICATION

This work is dedicated to the pioneers of rare plant conservation and data compilation in Nevada: Margaret J. Williams (1917-2000), Ann Pinzl, Arnold Tiehm, Hugh N. Mozingo, N. Duane Atwood, Ken Genz, Sherel Goodrich, James L. Reveal, Janice C. Beatley, Susan A. Cochrane, and the many other early members of and contributors to the Northern Nevada Native Plant Society and its Rare Plant Committee.

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The process of compiling and editing this atlas would have been impossible without the efforts and contributions of numerous individuals, organizations, and institutions over many decades. This atlas is an ongoing and unfinishable synthesis of the hard work of hundreds of dedicated botanists and biological professionals from within and far beyond the borders of Nevada. The risk in trying to acknowledge all of them here is that some will inadvertently omitted. To any who are left out, please know that your contributions are a valued part of this document.

First and foremost is Teri A. Knight, first Botanist for the Nevada Natural Heritage Program and my predecessor, who for five years jump-started and amassed the botanical databases on which it has been my privilege to build. She handed over to a neophyte the product of her labors, with grace and gentle support for which I was and remain grateful.

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All the data represented in this atlas were entered and are maintained using the Biological and Conservation Data System (BCD) software, 1996 version, created by The Nature Conservancy (TNC) and now supported by their offshoot organization, the Association for Biodiversity Information (ABI). ABI serves as the umbrella organization for the international network of national, state, and provincial Natural Heritage Programs and Conservation Data Centers, of which the Nevada Natural Heritage Program (NNHP) is a member. Most of the plant data forming this atlas were researched, assembled, analyzed, and entered into BCD by present and past staff of NNHP, including Eric Miskow, Jennifer Newmark, Eric Peterson, Carrie Carreño, Kim Goodwin, Tom Jenni, Michael Strathdee, Kevin Cooper, Teri Knight, Kris Kuyper, and Glenn Clemmer. Eric Miskow in particular was also most gracious in allowing me many hours of access to his BCD workstation for further data entry, often on very short notice. In many cases, these people also gathered, or assisted me in gathering, new data during field surveys.

Beyond NNHP, a substantial amount of the general species information compiled herein was researched and entered by the staff of other state Natural Heritage Programs, Conservation Data Centers, and of the central Heritage databases of ABI and TNC. This information is generally considered reliable, though in the context of Nevada some may be outdated, or otherwise may not yet have been reviewed by NNHP for relevance or accuracy within Nevada. Especially helpful have been the Natural

Heritage Program botanists in our neighboring states: California (Roxanne Bittman), Oregon (Sue Vrilakas, Jimmy Kagan), Idaho (Michael Mancuso, Robert Moseley), and Utah (Ben Franklin).

Nevertheless, most of the data assembled in Natural Heritage Program databases, in Nevada and elsewhere, originated outside those programs from the selfless contributions of numerous researchers and field workers interested in the timely conservation of species at risk. It is to these people and their organizations that I and NNHP are most especially grateful and indebted, and of whom it is most difficult to compile a comprehensive list. Many are acknowledged herein by the hundreds of literature citations of which they are authors. Many more, but probably not all, are included on the acknowledgments page of the Nevada Natural Heritage Program web site, (URL: http://www.state.nv.us/nvnhp/thanks.htm), or are listed as participants in recent Nevada Rare Plant Workshops (URL: http://www.state.nv.us/nvnhp/workshop.htm). A comprehensive listing of the collectors and authors of type specimens of Nevada plants can be found in Tiehm (1996). In addition to those already mentioned above, the following have been especially generous in their recent contributions and/or personal assistance (listed by organization if affiliated):

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Deborah Mattie and Glenn Clemmer provided invaluable help in duplicating and assembling the paper copies. Eric Peterson assisted in compiling and editing some of the map data layers, and shared programming ideas that helped automate the production of maps. All of the maps in this Atlas were designed and printed using ArcView® version 3.2a software by Environmental Systems Research Institute, Inc. (ESRI). The various data layers included on the maps were created and/or edited using this same software, and were in most cases based on data supplied by ESRI, the U.S. Geological Survey, the Biological Resources Research Center of the University of Nevada, Reno, or the Bureau of Land Management.

INTRODUCTION AND DEFINITIONS

This Nevada Rare Plant Atlas is extracted directly via automated means from the Biological and Conservation Data System databases maintained at the Nevada Natural Heritage Program. It includes 249 taxa of vascular plants, mosses, and lichens, out of 297 total taxa on the Nevada Natural Heritage Program's Sensitive and Watch tracking lists, for which substantial location information has been entered to date. Because data entry is in various stages of completion for different taxa, many of the maps and accompanying fact sheets do not reflect all that is known about particular taxa in Nevada. This will always remain true, as new data on Nevada's rarest plants are continually generated, gathered, and processed. For this reason, this atlas was produced in loose-leaf format to facilitate replacement and addition of pages as new information becomes available.

The last, and to my knowledge the only other, attempt to produce a comprehensive atlas of Nevada's rarest and/or most imperiled plant species occurred 21 years ago with the publication of *Threatened and Endangered Plants of Nevada: an illustrated manual* (Mozingo and Williams, 1980). This went somewhat beyond the current work by providing excellent and detailed line drawings of most taxa, and consistent, detailed descriptions and information on habitat and threats. This information has been updated for many, but not all, taxa included in the current atlas, and so it is inconsistent from one page to the next. As information continues to be entered, these pages will be updated periodically. While the emphasis of Mozingo and Williams (1980) was to provide an identification manual, the focus of the Nevada Rare Plant Atlas is to provide a synopsis of geographic distribution and current status information for each taxon. The illustrations are therefore absent (but cited from the literature, along with sources for photographs, when known to exist), and the maps are greatly expanded. Mozingo and Williams (1980) has become outdated with respect to the taxa currently of concern, and to our knowledge of their distribution and status, but remains an excellent (and often virtually the only) reference for illustrations and descriptions of many taxa.

Many other useful references for identifying Nevada's rarest (and common) plants are listed in the General References section below. Several rare plant field guides have been produced by the U.S. Forest Service and cooperating agencies for Nevada and the Intermountain Region (Anderson *et al.* 1991; Atwood *et al.* 1990, 1991; Fertig *et al.* 1994; Weixelman and Atwood 1990). The ongoing *Intermountain Flora* series (Barneby 1989; Cronquist *et al.* 1972-1997), though technical in approach, is and will remain the foremost descriptive source for most of Nevada's common and rare vascular plants. The floras of neighboring states (Hickman 1993; Kearney and Peebles 1960; Welsh *et al.* 1987, 1993) are immensely useful for taxa not included in the *Intermountain Flora* series. There are many (mostly rare) taxa endemic to Nevada, though, for which no modern floristic coverage exists. For these taxa, Mozingo and Williams (1980) and the present atlas may represent most of the recent information available. The current list of all plant taxa tracked by the Nevada Natural Heritage Program is maintained as the Detailed Rare Plant List on the Program's web site (URL: http://www.state.nv.us/nvnhp/plantdet.htm). The 297 taxa currently on this list represent about 10% of the vascular plant taxa known to grow without cultivation in Nevada.

The atlas maps, and many of the items on the accompanying rare plant fact sheets, are self-explanatory. In the Status section, the following abbreviations are used: **USFWS/ESA** = status under the Endangered Species Act as administered by the U.S. Department of the Interior, Fish and Wildlife Service; **BLM** = U.S. Department of the Interior, Bureau of Land Management; **USFS** = U.S. Department of Agriculture, Forest Service; **NNNPS** = Northern Nevada Native Plant Society.

Occasionally a Nevada plant species has status assigned under **IUCN** (International Union for the Conservation of Nature) or **CITES** (Convention on International Trade in Endangered Species), in which cases these statuses are also shown. More information on all status designations, ranks, and codes is available on the Nevada Natural Heritage Program web site listed on the inside front cover.

In the **Population Census** section, numbers of entered occurrences are provided at two different scales if the numbers differ: **0.1 mile** (0.16 km) minimum separation between mapped locations, which is the minimum mapping scale at which separate records are maintained by the Nevada Natural Heritage Program internally, and **1 km** (0.6 mile) minimum separation, which is an emerging nationwide standard for estimating Heritage ranks. Other Natural Heritage Programs currently use standards somewhere between these two extremes, so both are provided as indications of the minimum and maximum number of "reportable" Nevada occurrences for each taxon. The total **estimated individuals and area**, when provided, are simply totals of the available numbers entered in BCD for Nevada occurrences. In many cases these numbers are not available for the majority of occurrences, and numbers followed by a + symbol reflect moderate to large underestimates of the true totals.

In the **Phenology** section, the **survey months** are given as a **range that includes the 1-4 months in which the greatest number of surveys recorded for this taxon occurred.** For example, at taxon with surveys recorded only in May and July would be shown as May-July, surveys recorded in March, April, June, and July would be shown as March-July, and surveys recorded in May, June, July, August, September, and October, with the fewest in May and September, would be shown as June-October. This range provides an **indication only of when additional surveys are most likely to be successful**; i.e., when the taxon is most easily detected and identified, **not necessarily** when the taxon is in flower or any other particular phenologic stage.

The references cited for each taxon are divided up into sections. References for known **photographs** and **illustrations** are cited first, and may refer either to the general references listed separately at the end of this introductory section, or to specific references listed at the bottom of the fact sheet. These listings are not necessarily complete, and sometimes additional references not cited under these two headings may also contain photographs or illustrations. Any **other general references** not already cited are then listed, followed by **specific references** for each taxon that are **not** included in the general references. The **general references** are listed separately starting on page xvii of this introductory section. Therefore, to find the full citation for a reference, look **first** in the specific references on the fact sheet for the taxon in questions (if any), **then** in the **general references**.

As mentioned above, the information in some of the text sections of the fact sheets was in some cases entered by other state Natural Heritage Programs or Conservation Data Centers, and has not in all cases been reviewed for accuracy or currency relevant to Nevada. Any errors or discrepancies noted should be brought to the attention of the Nevada Natural Heritage Program for further review.

LIST OF 249 MAPPED VASCULAR PLANTS, MOSSES, AND LICHENS

Heritage Tracking List (S=Sensitive List; W=Watch List)	Scientific Name	Common Name	Family
S	***Angelica scabrida***	rough angelica	*Apiaceae*
S	***Antennaria arcuata***	meadow pussytoes	*Asteraceae*
S	***Antennaria soliceps***	Charleston pussytoes	*Asteraceae*
S	***Arabis bodiensis***	Bodie Hills rockcress	*Brassicaceae*
S	***Arabis falcatoria***	Grouse Creek rockcress	*Brassicaceae*
S	***Arabis falcifructa***	Elko rockcress	*Brassicaceae*
S	***Arabis ophira***	Ophir rockcress	*Brassicaceae*
S	***Arabis pinzliae***	Pinzl rockcress	*Brassicaceae*
S	***Arabis rectissima* var. *simulans***	Washoe tall rockcress	*Brassicaceae*
S	***Arabis rigidissima* var. *demota***	Galena Creek rockcress	*Brassicaceae*
W	***Arabis shockleyi***	Shockley rockcress	*Brassicaceae*
S	***Arabis tiehmii***	Tiehm rockcress	*Brassicaceae*
S	***Arctomecon californica***	Las Vegas bearpoppy	*Papaveraceae*
S	***Arctomecon merriamii***	white bearpoppy	*Papaveraceae*
S	***Arenaria kingii* ssp. *rosea***	rosy King sandwort	*Caryophyllaceae*
S	***Arenaria stenomeres***	Meadow Valley sandwort	*Caryophyllaceae*
W	***Artemisia packardiae***	Packard mugwort	*Asteraceae*
W	***Artemisia papposa***	Owyhee sagebrush	*Asteraceae*
S	***Asclepias eastwoodiana***	Eastwood milkweed	*Asclepiadaceae*
S	***Aspicilia fruticulosa***	rim lichen	*Hymeneliaceae*
S	***Astragalus ackermanii***	Ackerman milkvetch	*Fabaceae*
S	***Astragalus aequalis***	Clokey milkvetch	*Fabaceae*
S	***Astragalus amphioxys* var. *musimonum***	Sheep Mountain milkvetch	*Fabaceae*
S	***Astragalus anserinus***	Goose Creek milkvetch	*Fabaceae*
S	***Astragalus beatleyae***	Beatley milkvetch	*Fabaceae*
W	***Astragalus callithrix***	Callaway milkvetch	*Fabaceae*
S	***Astragalus calycosus* var. *monophyllidius***	one-leaflet Torrey milkvetch	*Fabaceae*
S	***Astragalus cimae* var. *cimae***	Cima milkvetch	*Fabaceae*
W	***Astragalus convallarius* var. *finitimus***	Pine Valley milkvetch	*Fabaceae*
S	***Astragalus convallarius* var. *margaretiae***	Margaret rushy milkvetch	*Fabaceae*
S	***Astragalus diversifolius***	meadow milkvetch	*Fabaceae*
S	***Astragalus eurylobus***	Needle Mountains milkvetch	*Fabaceae*
S	***Astragalus funereus***	black woollypod	*Fabaceae*
S	***Astragalus geyeri* var. *triquetrus***	threecorner milkvetch	*Fabaceae*
S	***Astragalus gilmanii***	Gilman milkvetch	*Fabaceae*
S	***Astragalus johannis-howellii***	Long Valley milkvetch	*Fabaceae*
S	***Astragalus lentiginosus* var. *latus***	broad-pod freckled milkvetch	*Fabaceae*
S	***Astragalus lentiginosus* var. *sesquimetralis***	Sodaville milkvetch	*Fabaceae*
S	***Astragalus mohavensis* var. *hemigyrus***	halfring milkvetch	*Fabaceae*
W	***Astragalus mohavensis* var. *mohavensis***	Mojave milkvetch	*Fabaceae*
S	***Astragalus mokiacensis***	Mokiak milkvetch	*Fabaceae*
S	***Astragalus nyensis***	Nye milkvetch	*Fabaceae*
S	***Astragalus oophorus* var. *clokeyanus***	Clokey eggvetch	*Fabaceae*
S	***Astragalus oophorus* var. *lavinii***	Lavin eggvetch	*Fabaceae*
S	***Astragalus oophorus* var. *lonchocalyx***	long-calyx eggvetch	*Fabaceae*

S	***Astragalus phoenix***	Ash Meadows milkvetch	*Fabaceae*
W	***Astragalus porrectus***	Lahontan milkvetch	*Fabaceae*
S	***Astragalus pseudiodanthus***	Tonopah milkvetch	*Fabaceae*
W	***Astragalus pterocarpus***	winged milkvetch	*Fabaceae*
S	***Astragalus pulsiferae* var. *pulsiferae***	Pulsifer milkvetch	*Fabaceae*
S	***Astragalus pulsiferae* var. *suksdorfii***	Suksdorf milkvetch	*Fabaceae*
S	***Astragalus remotus***	Spring Mountains milkvetch	*Fabaceae*
S	***Astragalus robbinsii* var. *occidentalis***	Lamoille Canyon milkvetch	*Fabaceae*
W	***Astragalus serenoi* var. *sordescens***	squalid milkvetch	*Fabaceae*
S	***Astragalus solitarius***	lonesome milkvetch	*Fabaceae*
S	***Astragalus tiehmii***	Tiehm milkvetch	*Fabaceae*
S	***Astragalus toquimanus***	Toquima milkvetch	*Fabaceae*
S	***Astragalus uncialis***	Currant milkvetch	*Fabaceae*
S	***Astragalus yoder-williamsii***	Osgood Mountains milkvetch	*Fabaceae*
S	***Botrychium ascendens***	upswept moonwort	*Ophioglossaceae*
S	***Botrychium crenulatum***	dainty moonwort	*Ophioglossaceae*
S	***Calochortus striatus***	alkali mariposa lily	*Liliaceae*
S	***Camissonia megalantha***	Cane Spring suncup	*Onagraceae*
W	***Camissonia nevadensis***	Nevada suncup	*Onagraceae*
W	***Castilleja martinii* var. *clokeyi***	Clokey paintbrush	*Scrophulariaceae*
S	***Castilleja salsuginosa***	Monte Neva paintbrush	*Scrophulariaceae*
S	***Caulanthus barnebyi***	Barneby stemflower	*Brassicaceae*
S	***Centaurium namophilum***	spring-loving centaury	*Gentianaceae*
S	***Chrysothamnus eremobius***	remote rabbitbrush	*Asteraceae*
S	***Cirsium clokeyi***	Clokey thistle	*Asteraceae*
S	***Cirsium virginense***	Virgin River thistle	*Asteraceae*
S	***Collomia renacta***	Barren Valley collomia	*Polemoniaceae*
S	***Cordylanthus tecopensis***	Tecopa birdsbeak	*Scrophulariaceae*
S	***Crossidium seriatum***	seriate crossidium	*Pottiaceae*
S	***Cryptantha insolita***	unusual catseye	*Boraginaceae*
S	***Cryptantha schoolcraftii***	Schoolcraft catseye	*Boraginaceae*
W	***Cryptantha tumulosa***	New York Mountains catseye	*Boraginaceae*
S	***Cryptantha welshii***	White River catseye	*Boraginaceae*
S	***Cusickiella quadricostata***	Bodie Hills draba	*Brassicaceae*
S	***Cymopterus basalticus***	intermountain wavewing	*Apiaceae*
S	***Cymopterus cinerarius***	gray wavewing	*Apiaceae*
S	***Cymopterus goodrichii***	Goodrich biscuitroot	*Apiaceae*
W	***Cymopterus ripleyi* var. *ripleyi***	Ripley biscuitroot	*Apiaceae*
S	***Cymopterus ripleyi* var. *saniculoides***	sanicle biscuitroot	*Apiaceae*
S	***Didymodon nevadensis***	Gold Butte moss	*Pottiaceae*
S	***Draba arida***	desert whitlowgrass	*Brassicaceae*
S	***Draba asterophora* var. *asterophora***	Tahoe draba	*Brassicaceae*
S	***Draba brachystylis***	Wasatch draba	*Brassicaceae*
S	***Draba californica***	California draba	*Brassicaceae*
W	***Draba cusickii* var. *pedicellata***	stalked Cusick whitlowgrass	*Brassicaceae*
S	***Draba jaegeri***	Jaeger whitlowgrass	*Brassicaceae*
S	***Draba oreibata* var. *serpentina***	Snake Range whitlowgrass	*Brassicaceae*
S	***Draba paucifructa***	Charleston draba	*Brassicaceae*
S	***Draba pennellii***	Pennell draba	*Brassicaceae*
S	***Draba subumbellata***	White Mountains cushion draba	*Brassicaceae*
W	***Dudleya pulverulenta***	chalk liveforever	*Crassulaceae*

W	***Elodea nevadensis***	Nevada waterweed	*Hydrocharitaceae*
S	***Enceliopsis argophylla***	silverleaf sunray	*Asteraceae*
S	***Enceliopsis nudicaulis* var. *corrugata***	Ash Meadows sunray	*Asteraceae*
S	***Entosthodon planoconvexus***	planoconvex entosthodon	*Funariaceae*
S	***Epilobium nevadense***	Nevada willowherb	*Onagraceae*
S	***Ericameria cervina***	Antelope Canyon goldenbush	*Asteraceae*
S	***Ericameria compacta***	Charleston goldenbush	*Asteraceae*
W	***Ericameria watsonii***	Watson goldenbush	*Asteraceae*
S	***Erigeron latus***	broad fleabane	*Asteraceae*
S	***Erigeron ovinus***	sheep fleabane	*Asteraceae*
W	***Erigeron uncialis* var. *conjugans***	inch high fleabane	*Asteraceae*
W	***Erigeron uncialis* var. *uncialis***	limestone daisy	*Asteraceae*
S	***Eriogonum ampullaceum***	Mono buckwheat	*Polygonaceae*
S	***Eriogonum anemophilum***	windloving buckwheat	*Polygonaceae*
S	***Eriogonum argophyllum***	Sulphur Springs buckwheat	*Polygonaceae*
S	***Eriogonum beatleyae***	Beatley buckwheat	*Polygonaceae*
S	***Eriogonum bifurcatum***	Pahrump Valley buckwheat	*Polygonaceae*
S	***Eriogonum concinnum***	Darin buckwheat	*Polygonaceae*
W	***Eriogonum contiguum***	Amargosa buckwheat	*Polygonaceae*
W	***Eriogonum corymbosum* var. *glutinosum***	golden buckwheat	*Polygonaceae*
S	***Eriogonum crosbyae***	Crosby buckwheat	*Polygonaceae*
W	***Eriogonum darrovii***	Darrow buckwheat	*Polygonaceae*
S	***Eriogonum esmeraldense* var. *toiyabense***	Toiyabe buckwheat	*Polygonaceae*
S	***Eriogonum heermannii* var. *clokeyi***	Clokey buckwheat	*Polygonaceae*
S	***Eriogonum holmgrenii***	Holmgren buckwheat	*Polygonaceae*
W	***Eriogonum lemmonii***	Lemmon buckwheat	*Polygonaceae*
S	***Eriogonum lewisii***	Lewis buckwheat	*Polygonaceae*
W	***Eriogonum ovalifolium* var. *caelestinum***	heavenly buckwheat	*Polygonaceae*
S	***Eriogonum ovalifolium* var. *williamsiae***	Steamboat buckwheat	*Polygonaceae*
S	***Eriogonum phoeniceum***	scarlet buckwheat	*Polygonaceae*
S	***Eriogonum prociduum***	prostrate buckwheat	*Polygonaceae*
S	***Eriogonum robustum***	altered andesite buckwheat	*Polygonaceae*
S	***Eriogonum* sp.**	Churchill Narrows buckwheat	*Polygonaceae*
S	***Eriogonum tiehmii***	Tiehm buckwheat	*Polygonaceae*
S	***Eriogonum viscidulum***	sticky buckwheat	*Polygonaceae*
S	***Frasera gypsicola***	Sunnyside green gentian	*Gentianaceae*
S	***Frasera pahutensis***	Pahute green gentian	*Gentianaceae*
S	***Galium hilendiae* ssp. *kingstonense***	Kingston Mountains bedstraw	*Rubiaceae*
W	***Gilia heterostyla***	Cochrane gilia	*Polemoniaceae*
W	***Gilia nyensis***	Nye gilia	*Polemoniaceae*
W	***Gilia ripleyi***	Ripley gilia	*Polemoniaceae*
S	***Glossopetalon clokeyi***	Clokey greasebush	*Crossosomataceae*
S	***Glossopetalon pungens* var. *glabrum***	smooth dwarf greasebush	*Crossosomataceae*
S	***Glossopetalon pungens* var. *pungens***	rough dwarf greasebush	*Crossosomataceae*
S	***Grimmia americana***	American grimmia	*Grimmiaceae*
S	***Grindelia fraxinopratensis***	Ash Meadows gumplant	*Asteraceae*
W	***Hackelia cusickii***	Cusick stickseed	*Boraginaceae*
W	***Hackelia ophiobia***	rattlesnake stickseed	*Boraginaceae*
S	***Helianthus deserticola***	desert sunflower	*Asteraceae*
S	***Hulsea vestita* ssp. *inyoensis***	Inyo hulsea	*Asteraceae*
S	***Ionactis caelestis***	Red Rock Canyon aster	*Asteraceae*

S	***Ipomopsis congesta* var. *nevadensis***	Toiyabe gilia	*Polemoniaceae*
S	***Ivesia aperta* var. *aperta***	Sierra Valley ivesia	*Rosaceae*
S	***Ivesia arizonica* var. *saxosa***	rock purpusia	*Rosaceae*
S	***Ivesia cryptocaulis***	hidden ivesia	*Rosaceae*
S	***Ivesia jaegeri***	Jaeger ivesia	*Rosaceae*
S	***Ivesia kingii* var. *eremica***	Ash Meadows ivesia	*Rosaceae*
S	***Ivesia pityocharis***	Pine Nut Mountains ivesia	*Rosaceae*
S	***Ivesia rhypara* var. *rhypara***	grimy ivesia	*Rosaceae*
S	***Ivesia webberi***	Webber ivesia	*Rosaceae*
S	***Jamesia tetrapetala***	waxflower	*Hydrangeaceae*
S	***Lathyrus grimesii***	Grimes vetchling	*Fabaceae*
S	***Lathyrus hitchcockianus***	Bullfrog Hills sweetpea	*Fabaceae*
S	***Lepidium davisii***	Davis peppergrass	*Brassicaceae*
S	***Lepidium montanum* var. *nevadense***	Pueblo Valley peppergrass	*Brassicaceae*
S	***Leptodactylon glabrum***	Bruneau River prickly phlox	*Polemoniaceae*
W	***Lesquerella goodrichii***	Goodrich bladderpod	*Brassicaceae*
W	***Lesquerella hitchcockii***	Hitchcock bladderpod	*Brassicaceae*
S	***Lewisia maguirei***	Maguire bitterroot	*Portulacaceae*
W	***Lomatium graveolens* var. *alpinum***	Clark parsley	*Apiaceae*
S	***Lomatium packardiae***	Succor Creek parsley	*Apiaceae*
S	***Lomatium roseanum***	adobe parsley	*Apiaceae*
W	***Machaeranthera grindelioides* var. *depressa***	rayless tansy aster	*Asteraceae*
W	***Mentzelia candelariae***	Candelaria blazing-star	*Loasaceae*
S	***Mentzelia leucophylla***	Ash Meadows blazingstar	*Loasaceae*
S	***Mentzelia mollis***	smooth stickleaf	*Loasaceae*
S	***Mentzelia packardiae***	Packard stickleaf	*Loasaceae*
S	***Mimulus ovatus***	Steamboat monkeyflower	*Scrophulariaceae*
S	***Nitrophila mohavensis***	Amargosa niterwort	*Chenopodiaceae*
S	***Opuntia pulchella***	sand cholla	*Cactaceae*
S	***Opuntia whipplei* var. *multigeniculata***	Blue Diamond cholla	*Cactaceae*
S	***Oryctes nevadensis***	oryctes	*Solanaceae*
W	***Oxytheca watsonii***	Watson spinecup	*Polygonaceae*
W	***Pedicularis semibarbata* var. *charlestonensis***	Charleston pinewood lousewort	*Scrophulariaceae*
S	***Pediomelum castoreum***	Beaver Dam breadroot	*Fabaceae*
S	***Penstemon albomarginatus***	white-margined beardtongue	*Scrophulariaceae*
S	***Penstemon arenarius***	Nevada dune beardtongue	*Scrophulariaceae*
S	***Penstemon bicolor* ssp. *bicolor***	yellow twotone beardtongue	*Scrophulariaceae*
S	***Penstemon bicolor* ssp. *roseus***	rosy twotone beardtongue	*Scrophulariaceae*
S	***Penstemon concinnus***	Tunnel Springs beardtongue	*Scrophulariaceae*
S	***Penstemon floribundus***	Cordelia beardtongue	*Scrophulariaceae*
S	***Penstemon fruticiformis* ssp. *amargosae***	Death Valley beardtongue	*Scrophulariaceae*
S	***Penstemon leiophyllus* var. *francisci-pennellii***	Pennell beardtongue	*Scrophulariaceae*
S	***Penstemon leiophyllus* var. *keckii***	Charleston beardtongue	*Scrophulariaceae*
S	***Penstemon moriahensis***	Mount Moriah beardtongue	*Scrophulariaceae*
S	***Penstemon pahutensis***	Pahute Mesa beardtongue	*Scrophulariaceae*
S	***Penstemon palmeri* var. *macranthus***	Lahontan beardtongue	*Scrophulariaceae*
S	***Penstemon patricus***	dad's penstemon	*Scrophulariaceae*
S	***Penstemon pudicus***	bashful beardtongue	*Scrophulariaceae*
S	***Penstemon rhizomatosus***	rhizome beardtongue	*Scrophulariaceae*
S	***Penstemon rubicundus***	Wassuk beardtongue	*Scrophulariaceae*
S	***Penstemon thompsoniae* ssp. *jaegeri***	Jaeger beardtongue	*Scrophulariaceae*

S	***Penstemon tiehmii***	Tiehm beardtongue	*Scrophulariaceae*
W	***Perityle intricata***	delicate rockdaisy	*Asteraceae*
W	***Phacelia anelsonii***	Aven Nelson phacelia	*Hydrophyllaceae*
S	***Phacelia beatleyae***	Beatley scorpion plant	*Hydrophyllaceae*
W	***Phacelia glaberrima***	Reese River phacelia	*Hydrophyllaceae*
S	***Phacelia inconspicua***	obscure scorpion plant	*Hydrophyllaceae*
S	***Phacelia inundata***	playa phacelia	*Hydrophyllaceae*
S	***Phacelia minutissima***	least phacelia	*Hydrophyllaceae*
S	***Phacelia monoensis***	Mono County phacelia	*Hydrophyllaceae*
S	***Phacelia mustelina***	weasel phacelia	*Hydrophyllaceae*
S	***Phacelia parishii***	Parish phacelia	*Hydrophyllaceae*
S	***Phacelia* sp.**	overlooked phacelia	*Hydrophyllaceae*
S	***Pinus washoensis***	Washoe pine	*Pinaceae*
S	***Plagiobothrys glomeratus***	altered andesite popcornflower	*Boraginaceae*
S	***Poa abbreviata* ssp. *marshii***	Marsh bluegrass	*Poaceae*
S	***Polemonium chartaceum***	White Mountain skypilot	*Polemoniaceae*
S	***Polyctenium williamsiae***	Williams combleaf	*Brassicaceae*
S	***Porophyllum pygmaeum***	pygmy poreleaf	*Asteraceae*
S	***Potentilla basaltica***	Soldier Meadow cinquefoil	*Rosaceae*
S	***Potentilla cottamii***	Cottam cinquefoil	*Rosaceae*
S	***Primula capillaris***	Ruby Mountains primrose	*Primulaceae*
S	***Primula cusickiana* var. *nevadensis***	Nevada primrose	*Primulaceae*
S	***Psorothamnus kingii***	Lahontan indigobush	*Fabaceae*
S	***Rorippa subumbellata***	Tahoe yellowcress	*Brassicaceae*
S	***Salvia dorrii* var. *clokeyi***	Clokey mountain sage	*Lamiaceae*
S	***Salvia funerea***	Death Valley sage	*Lamiaceae*
S	***Sclerocactus blainei***	Blaine pincushion	*Cactaceae*
S	***Sclerocactus nyensis***	Tonopah fishhook cactus	*Cactaceae*
S	***Sclerocactus polyancistrus***	hermit cactus	*Cactaceae*
S	***Sclerocactus schlesseri***	Schlesser pincushion	*Cactaceae*
W	***Scutellaria holmgreniorum***	Ravendale skullcap	*Lamiaceae*
S	***Selaginella utahensis***	Utah spikemoss	*Selaginellaceae*
S	***Silene clokeyi***	Clokey catchfly	*Caryophyllaceae*
S	***Silene nachlingerae***	Nachlinger catchfly	*Caryophyllaceae*
S	***Smelowskia holmgrenii***	Holmgren smelowskia	*Brassicaceae*
S	***Sphaeralcea caespitosa***	Jones globemallow	*Malvaceae*
S	***Sphaeromeria compacta***	Charleston tansy	*Asteraceae*
S	***Spiranthes diluvialis***	Ute lady's tresses	*Orchidaceae*
S	***Spiranthes infernalis***	Ash Meadows lady's tresses	*Orchidaceae*
S	***Streptanthus oliganthus***	Masonic Mountain jewelflower	*Brassicaceae*
S	***Stroganowia tiehmii***	Tiehm stroganowia	*Brassicaceae*
S	***Synthyris ranunculina***	Charleston kittentails	*Scrophulariaceae*
S	***Tonestus alpinus***	alpine tonestus	*Asteraceae*
S	***Tonestus graniticus***	Lone Mountain tonestus	*Asteraceae*
S	***Townsendia jonesii* var. *tumulosa***	Charleston grounddaisy	*Asteraceae*
S	***Trichostomum sweetii***	Sweet trichostomum	*Pottiaceae*
S	***Trifolium andinum* var. *podocephalum***	Currant Summit clover	*Fabaceae*
S	***Trifolium leibergii***	Leiberg clover	*Fabaceae*
S	***Trifolium rollinsii***	Rollins clover	*Fabaceae*
S	***Viola lithion***	rock violet	*Violaceae*
S	***Viola purpurea* var. *charlestonensis***	Charleston violet	*Violaceae*

LIST OF MAPPED TAXA BY MAJOR GROUP AND FAMILY

Heritage Tracking List	(S=Sensitive List; W=Watch List) Scientific Name	Common Name
Bryophytes (mosses and allies)		
family: Funariaceae		
S	***Entosthodon planoconvexus***	planoconvex entosthodon
family: Grimmiaceae		
S	***Grimmia americana***	American grimmia
family: Pottiaceae		
S	***Crossidium seriatum***	seriate crossidium
S	***Didymodon nevadensis***	Gold Butte moss
S	***Trichostomum sweetii***	Sweet trichostomum
Pteridophytes (ferns and allies)		
family: Ophioglossaceae		
S	***Botrychium ascendens***	upswept moonwort
S	***Botrychium crenulatum***	dainty moonwort
family: Selaginellaceae		
S	***Selaginella utahensis***	Utah spikemoss
Gymnosperms (conifers and allies)		
family: Pinaceae		
S	***Pinus washoensis***	Washoe pine
Flowering Dicots		
family: Apiaceae		
S	***Angelica scabrida***	rough angelica
S	***Cymopterus basalticus***	intermountain wavewing
S	***Cymopterus cinerarius***	gray wavewing
S	***Cymopterus goodrichii***	Goodrich biscuitroot
W	***Cymopterus ripleyi* var. *ripleyi***	Ripley biscuitroot
S	***Cymopterus ripleyi* var. *saniculoides***	sanicle biscuitroot
W	***Lomatium graveolens* var. *alpinum***	Clark parsley
S	***Lomatium packardiae***	Succor Creek parsley
S	***Lomatium roseanum***	adobe parsley
family: Asclepiadaceae		
S	***Asclepias eastwoodiana***	Eastwood milkweed
family: Asteraceae		
S	***Antennaria arcuata***	meadow pussytoes
S	***Antennaria soliceps***	Charleston pussytoes
W	***Artemisia packardiae***	Packard mugwort
W	***Artemisia papposa***	Owyhee sagebrush
S	***Chrysothamnus eremobius***	remote rabbitbrush
S	***Cirsium clokeyi***	Clokey thistle
S	***Cirsium virginense***	Virgin River thistle

S	***Enceliopsis argophylla***	silverleaf sunray
S	***Enceliopsis nudicaulis* var. *corrugata***	Ash Meadows sunray
S	***Ericameria cervina***	Antelope Canyon goldenbush
S	***Ericameria compacta***	Charleston goldenbush
W	***Ericameria watsonii***	Watson goldenbush
S	***Erigeron latus***	broad fleabane
S	***Erigeron ovinus***	sheep fleabane
W	***Erigeron uncialis* var. *conjugans***	inch high fleabane
W	***Erigeron uncialis* var. *uncialis***	limestone daisy
S	***Grindelia fraxinopratensis***	Ash Meadows gumplant
S	***Helianthus deserticola***	desert sunflower
S	***Hulsea vestita* ssp. *inyoensis***	Inyo hulsea
S	***Ionactis caelestis***	Red Rock Canyon aster
W	***Machaeranthera grindelioides* var. *depressa***	rayless tansy aster
W	***Perityle intricata***	delicate rockdaisy
S	***Porophyllum pygmaeum***	pygmy poreleaf
S	***Sphaeromeria compacta***	Charleston tansy
S	***Tonestus alpinus***	alpine tonestus
S	***Tonestus graniticus***	Lone Mountain tonestus
S	***Townsendia jonesii* var. *tumulosa***	Charleston grounddaisy

family: Boraginaceae

S	***Cryptantha insolita***	unusual catseye
S	***Cryptantha schoolcraftii***	Schoolcraft catseye
W	***Cryptantha tumulosa***	New York Mountains catseye
S	***Cryptantha welshii***	White River catseye
W	***Hackelia cusickii***	Cusick stickseed
W	***Hackelia ophiobia***	rattlesnake stickseed
S	***Plagiobothrys glomeratus***	altered andesite popcornflower

family: Brassicaceae

S	***Arabis bodiensis***	Bodie Hills rockcress
S	***Arabis falcatoria***	Grouse Creek rockcress
S	***Arabis falcifructa***	Elko rockcress
S	***Arabis ophira***	Ophir rockcress
S	***Arabis pinzliae***	Pinzl rockcress
S	***Arabis rectissima* var. *simulans***	Washoe tall rockcress
S	***Arabis rigidissima* var. *demota***	Galena Creek rockcress
W	***Arabis shockleyi***	Shockley rockcress
S	***Arabis tiehmii***	Tiehm rockcress
S	***Caulanthus barnebyi***	Barneby stemflower
S	***Cusickiella quadricostata***	Bodie Hills draba
S	***Draba arida***	desert whitlowgrass
S	***Draba asterophora* var. *asterophora***	Tahoe draba
S	***Draba brachystylis***	Wasatch draba
S	***Draba californica***	California draba
W	***Draba cusickii* var. *pedicellata***	stalked Cusick whitlowgrass
S	***Draba jaegeri***	Jaeger whitlowgrass
S	***Draba oreibata* var. *serpentina***	Snake Range whitlowgrass
S	***Draba paucifructa***	Charleston draba
S	***Draba pennellii***	Pennell draba
S	***Draba subumbellata***	White Mountains cushion draba

S	***Lepidium davisii***	Davis peppergrass
S	***Lepidium montanum* var. *nevadense***	Pueblo Valley peppergrass
W	***Lesquerella goodrichii***	Goodrich bladderpod
W	***Lesquerella hitchcockii***	Hitchcock bladderpod
S	***Polyctenium williamsiae***	Williams combleaf
S	***Rorippa subumbellata***	Tahoe yellowcress
S	***Smelowskia holmgrenii***	Holmgren smelowskia
S	***Streptanthus oliganthus***	Masonic Mountain jewelflower
S	***Stroganowia tiehmii***	Tiehm stroganowia

family: Cactaceae

S	***Opuntia pulchella***	sand cholla
S	***Opuntia whipplei* var. *multigeniculata***	Blue Diamond cholla
S	***Sclerocactus blainei***	Blaine pincushion
S	***Sclerocactus nyensis***	Tonopah fishhook cactus
S	***Sclerocactus polyancistrus***	hermit cactus
S	***Sclerocactus schlesseri***	Schlesser pincushion

family: Caryophyllaceae

S	***Arenaria kingii* ssp. *rosea***	rosy King sandwort
S	***Arenaria stenomeres***	Meadow Valley sandwort
S	***Silene clokeyi***	Clokey catchfly
S	***Silene nachlingerae***	Nachlinger catchfly

family: Chenopodiaceae

S	***Nitrophila mohavensis***	Amargosa niterwort

family: Crassulaceae

W	***Dudleya pulverulenta***	chalk liveforever

family: Crossosomataceae

S	***Glossopetalon clokeyi***	Clokey greasebush
S	***Glossopetalon pungens* var. *glabrum***	smooth dwarf greasebush
S	***Glossopetalon pungens* var. *pungens***	rough dwarf greasebush

family: Fabaceae

S	***Astragalus ackermanii***	Ackerman milkvetch
S	***Astragalus aequalis***	Clokey milkvetch
S	***Astragalus amphioxys* var. *musimonum***	Sheep Mountain milkvetch
S	***Astragalus anserinus***	Goose Creek milkvetch
S	***Astragalus beatleyae***	Beatley milkvetch
W	***Astragalus callithrix***	Callaway milkvetch
S	***Astragalus calycosus* var. *monophyllidius***	one-leaflet Torrey milkvetch
S	***Astragalus cimae* var. *cimae***	Cima milkvetch
W	***Astragalus convallarius* var. *finitimus***	Pine Valley milkvetch
S	***Astragalus convallarius* var. *margaretiae***	Margaret rushy milkvetch
S	***Astragalus diversifolius***	meadow milkvetch
S	***Astragalus eurylobus***	Needle Mountains milkvetch
S	***Astragalus funereus***	black woollypod
S	***Astragalus geyeri* var. *triquetrus***	threecorner milkvetch
S	***Astragalus gilmanii***	Gilman milkvetch
S	***Astragalus johannis-howellii***	Long Valley milkvetch
S	***Astragalus lentiginosus* var. *latus***	broad-pod freckled milkvetch
S	***Astragalus lentiginosus* var. *sesquimetralis***	Sodaville milkvetch

S	***Astragalus mohavensis* var. *hemigyrus***	halfring milkvetch
W	***Astragalus mohavensis* var. *mohavensis***	Mojave milkvetch
S	***Astragalus mokiacensis***	Mokiak milkvetch
S	***Astragalus nyensis***	Nye milkvetch
S	***Astragalus oophorus* var. *clokeyanus***	Clokey eggvetch
S	***Astragalus oophorus* var. *lavinii***	Lavin eggvetch
S	***Astragalus oophorus* var. *lonchocalyx***	long-calyx eggvetch
S	***Astragalus phoenix***	Ash Meadows milkvetch
W	***Astragalus porrectus***	Lahontan milkvetch
S	***Astragalus pseudiodanthus***	Tonopah milkvetch
W	***Astragalus pterocarpus***	winged milkvetch
S	***Astragalus pulsiferae* var. *pulsiferae***	Pulsifer milkvetch
S	***Astragalus pulsiferae* var. *suksdorfii***	Suksdorf milkvetch
S	***Astragalus remotus***	Spring Mountains milkvetch
S	***Astragalus robbinsii* var. *occidentalis***	Lamoille Canyon milkvetch
W	***Astragalus serenoi* var. *sordescens***	squalid milkvetch
S	***Astragalus solitarius***	lonesome milkvetch
S	***Astragalus tiehmii***	Tiehm milkvetch
S	***Astragalus toquimanus***	Toquima milkvetch
S	***Astragalus uncialis***	Currant milkvetch
S	***Astragalus yoder-williamsii***	Osgood Mountains milkvetch
S	***Lathyrus grimesii***	Grimes vetchling
S	***Lathyrus hitchcockianus***	Bullfrog Hills sweetpea
S	***Pediomelum castoreum***	Beaver Dam breadroot
S	***Psorothamnus kingii***	Lahontan indigobush
S	***Trifolium andinum* var. *podocephalum***	Currant Summit clover
S	***Trifolium leibergii***	Leiberg clover
S	***Trifolium rollinsii***	Rollins clover

family: Gentianaceae

S	***Centaurium namophilum***	spring-loving centaury
S	***Frasera gypsicola***	Sunnyside green gentian
S	***Frasera pahutensis***	Pahute green gentian

family: Hydrangeaceae

S	***Jamesia tetrapetala***	waxflower

family: Hydrophyllaceae

W	***Phacelia anelsonii***	Aven Nelson phacelia
S	***Phacelia beatleyae***	Beatley scorpion plant
W	***Phacelia glaberrima***	Reese River phacelia
S	***Phacelia inconspicua***	obscure scorpion plant
S	***Phacelia inundata***	playa phacelia
S	***Phacelia minutissima***	least phacelia
S	***Phacelia monoensis***	Mono County phacelia
S	***Phacelia mustelina***	weasel phacelia
S	***Phacelia parishii***	Parish phacelia
S	***Phacelia* sp.**	overlooked phacelia

family: Lamiaceae

S	***Salvia dorrii* var. *clokeyi***	Clokey mountain sage
S	***Salvia funerea***	Death Valley sage
W	***Scutellaria holmgreniorum***	Ravendale skullcap

family: Loasaceae

W	***Mentzelia candelariae***	Candelaria blazing-star
S	***Mentzelia leucophylla***	Ash Meadows blazingstar
S	***Mentzelia mollis***	smooth stickleaf
S	***Mentzelia packardiae***	Packard stickleaf

family: Malvaceae

S	***Sphaeralcea caespitosa***	Jones globemallow

family: Onagraceae

S	***Camissonia megalantha***	Cane Spring suncup
W	***Camissonia nevadensis***	Nevada suncup
S	***Epilobium nevadense***	Nevada willowherb

family: Papaveraceae

S	***Arctomecon californica***	Las Vegas bearpoppy
S	***Arctomecon merriamii***	white bearpoppy

family: Polemoniaceae

S	***Collomia renacta***	Barren Valley collomia
W	***Gilia heterostyla***	Cochrane gilia
W	***Gilia nyensis***	Nye gilia
W	***Gilia ripleyi***	Ripley gilia
S	***Ipomopsis congesta* var. *nevadensis***	Toiyabe gilia
S	***Leptodactylon glabrum***	Bruneau River prickly phlox
S	***Polemonium chartaceum***	White Mountain skypilot

family: Polygonaceae

S	***Eriogonum ampullaceum***	Mono buckwheat
S	***Eriogonum anemophilum***	windloving buckwheat
S	***Eriogonum argophyllum***	Sulphur Springs buckwheat
S	***Eriogonum beatleyae***	Beatley buckwheat
S	***Eriogonum bifurcatum***	Pahrump Valley buckwheat
S	***Eriogonum concinnum***	Darin buckwheat
W	***Eriogonum contiguum***	Amargosa buckwheat
W	***Eriogonum corymbosum* var. *glutinosum***	golden buckwheat
S	***Eriogonum crosbyae***	Crosby buckwheat
W	***Eriogonum darrovii***	Darrow buckwheat
S	***Eriogonum esmeraldense* var. *toiyabense***	Toiyabe buckwheat
S	***Eriogonum heermannii* var. *clokeyi***	Clokey buckwheat
S	***Eriogonum holmgrenii***	Holmgren buckwheat
W	***Eriogonum lemmonii***	Lemmon buckwheat
S	***Eriogonum lewisii***	Lewis buckwheat
W	***Eriogonum ovalifolium* var. *caelestinum***	heavenly buckwheat
S	***Eriogonum ovalifolium* var. *williamsiae***	Steamboat buckwheat
S	***Eriogonum phoeniceum***	scarlet buckwheat
S	***Eriogonum prociduum***	prostrate buckwheat
S	***Eriogonum robustum***	altered andesite buckwheat
S	***Eriogonum* sp.**	Churchill Narrows buckwheat
S	***Eriogonum tiehmii***	Tiehm buckwheat
S	***Eriogonum viscidulum***	sticky buckwheat
W	***Oxytheca watsonii***	Watson spinecup

family: Portulacaceae

S	***Lewisia maguirei***	Maguire bitterroot

family: Primulaceae

S	***Primula capillaris***	Ruby Mountains primrose
S	***Primula cusickiana* var. *nevadensis***	Nevada primrose

family: Rosaceae

S	***Ivesia aperta* var. *aperta***	Sierra Valley ivesia
S	***Ivesia arizonica* var. *saxosa***	rock purpusia
S	***Ivesia cryptocaulis***	hidden ivesia
S	***Ivesia jaegeri***	Jaeger ivesia
S	***Ivesia kingii* var. *eremica***	Ash Meadows ivesia
S	***Ivesia pityocharis***	Pine Nut Mountains ivesia
S	***Ivesia rhypara* var. *rhypara***	grimy ivesia
S	***Ivesia webberi***	Webber ivesia
S	***Potentilla basaltica***	Soldier Meadow cinquefoil
S	***Potentilla cottamii***	Cottam cinquefoil

family: Rubiaceae

S	***Galium hilendiae* ssp. *kingstonense***	Kingston Mountains bedstraw

family: Scrophulariaceae

W	***Castilleja martinii* var. *clokeyi***	Clokey paintbrush
S	***Castilleja salsuginosa***	Monte Neva paintbrush
S	***Cordylanthus tecopensis***	Tecopa birdsbeak
S	***Mimulus ovatus***	Steamboat monkeyflower
W	***Pedicularis semibarbata* var. *charlestonensis***	Charleston pinewood lousewort
S	***Penstemon albomarginatus***	white-margined beardtongue
S	***Penstemon arenarius***	Nevada dune beardtongue
S	***Penstemon bicolor* ssp. *bicolor***	yellow twotone beardtongue
S	***Penstemon bicolor* ssp. *roseus***	rosy twotone beardtongue
S	***Penstemon concinnus***	Tunnel Springs beardtongue
S	***Penstemon floribundus***	Cordelia beardtongue
S	***Penstemon fruticiformis* ssp. *amargosae***	Death Valley beardtongue
S	***Penstemon leiophyllus* var. *francisci-pennellii***	Pennell beardtongue
S	***Penstemon leiophyllus* var. *keckii***	Charleston beardtongue
S	***Penstemon moriahensis***	Mount Moriah beardtongue
S	***Penstemon pahutensis***	Pahute Mesa beardtongue
S	***Penstemon palmeri* var. *macranthus***	Lahontan beardtongue
S	***Penstemon patricus***	dad's penstemon
S	***Penstemon pudicus***	bashful beardtongue
S	***Penstemon rhizomatosus***	rhizome beardtongue
S	***Penstemon rubicundus***	Wassuk beardtongue
S	***Penstemon thompsoniae* ssp. *jaegeri***	Jaeger beardtongue
S	***Penstemon tiehmii***	Tiehm beardtongue
S	***Synthyris ranunculina***	Charleston kittentails

family: Solanaceae

S	***Oryctes nevadensis***	oryctes

family: Violaceae

S	***Viola lithion***	rock violet
S	***Viola purpurea* var. *charlestonensis***	Charleston violet

Flowering Monocots

family: Hydrocharitaceae

W	***Elodea nevadensis***	Nevada waterweed

family: Liliaceae

S	***Calochortus striatus***	alkali mariposa lily

family: Orchidaceae

S	***Spiranthes diluvialis***	Ute lady's tresses
S	***Spiranthes infernalis***	Ash Meadows lady's tresses

family: Poaceae

S	***Poa abbreviata* ssp. *marshii***	Marsh bluegrass

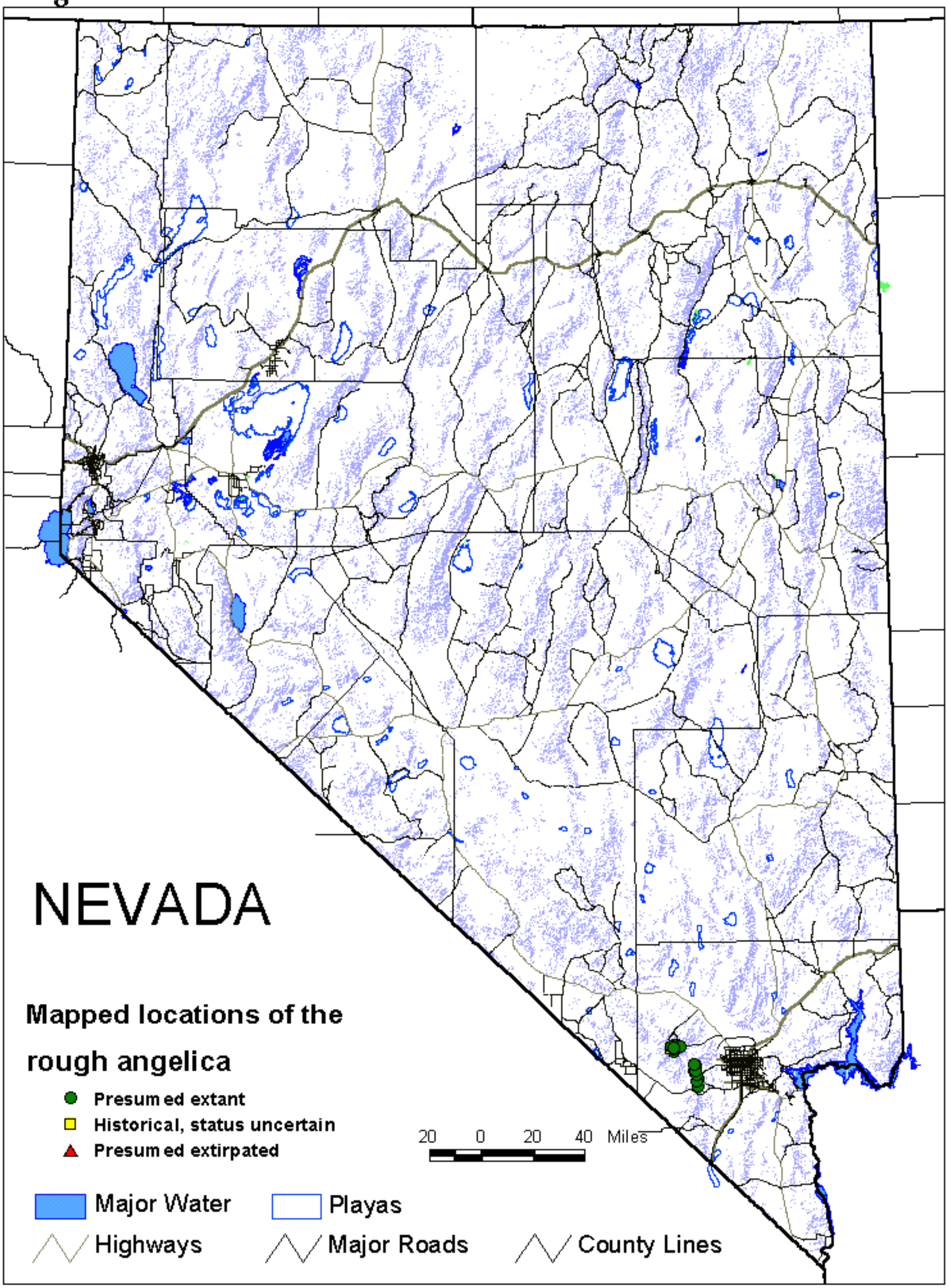
Lichens

family: Hymeneliaceae

S	***Aspicilia fruticulosa***	rim lichen

NEVADA RARE PLANT ATLAS

Angelica scabrida



Angelica scabrida Clokey & Mathias ex Clokey (1938) ROUGH ANGELICA

FAMILY: *Apiaceae*, the carrot family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** THREATENED.

POPULATION CENSUS: 12 occurrences mapped at 1.0 km (0.6 mi) separation, OR **21 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 3781+**, total estimated **area 55.3+ ha (137+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Recreational use of the area where species is found.

INVENTORY EFFORT: Surveys have been extensive and are largely complete. Most recent entered survey 1995, average year of last survey 1985. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 57.1%; **11-20 yrs:** 14.3%; **21-30 yrs:** 9.5%; **31-50 yrs:** 19%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, Humboldt-Toiyabe National Forest, private lands, designated wilderness, Nevada state lands (?).

RANGE: Clark County, Nevada. Endemic to the Spring Mountains. Maximum **range dimension 27.7 km (17.2 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 4040-9350 feet (1231-2850 meters).

HABITAT: Moist rocky calcareous drainages, canyon bottoms, or seepy or north-facing slopes over carbonate or sandstone rock in the interior chaparral, mountain brush, and montane coniferous forest zones. Aquatic or wetland-dependent.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** June-August.

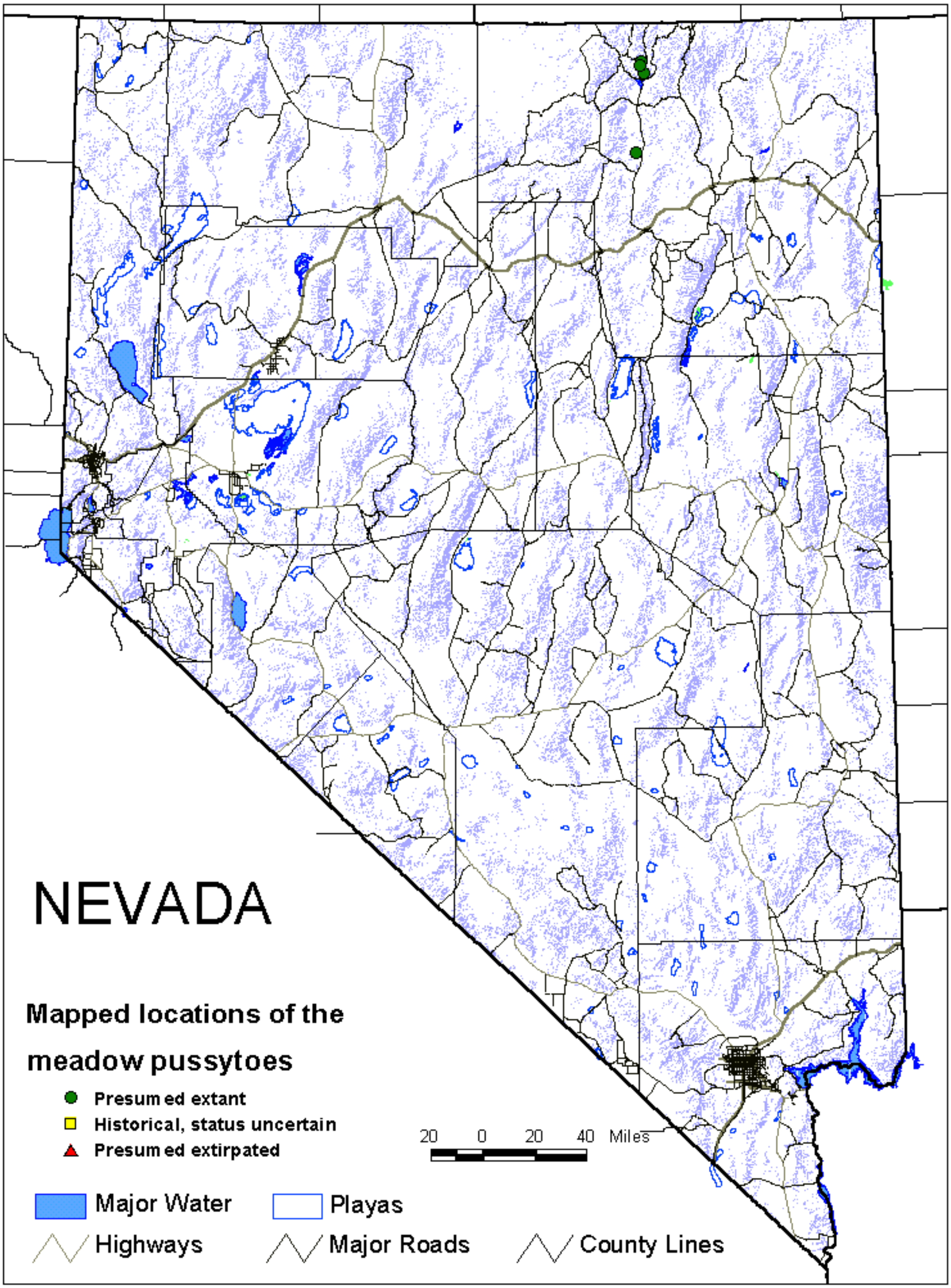
LIFE-FORM AND HABIT: robust perennial herb.

DESCRIPTION: A tall perennial herb, up to 15 dm high, with globular clusters of white flowers blooming July-September. This species is a nectar source for the endemic Carole silverspot (Speyeria zerene carolae).

PHOTOGRAPHS: Nachlinger (1994), Weixelman and Atwood (1990); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Sada and Nachlinger (1996).
SPECIFIC REFERENCES:

Atwood, N. D. 1980. Status report for Angelica scabrida. Provo, Utah: U. S. Forest Service, Region 4. 5 pages.
Clokey, I. W. 1938. Notes on the Flora of the Charleston Mountains, Clark County, Nevada. Bulletin of the Southern California Academy of Sciences 37: 1-11.
WESTEC Services, Inc. 1980. Field research of rare plants in Las Vegas ES area, Clark County, Las Vegas, Nevada. Las Vegas: Bureau of Land Management.

Antennaria arcuata



Antennaria arcuata Cronquist (1950) MEADOW PUSSYTOES

FAMILY: *Asteraceae*, the sunflower family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 4 occurrences mapped; total estimated **individuals 1002+**, total estimated **area 0.82+ ha (2.0+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Livestock grazing and trampling, water diversions and impoundments, and resulting long-term hydrology alterations, hay mowing, competition with invasive weeds, mineral extraction developments.

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada, but most potential habitat has been examined. Most recent entered survey 1984, average year of last survey 1981.
Years since last entered survey (percent of mapped records at various survey ages)**: 11-20 yrs:** 50%; **21-30 yrs:** 50%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, Nevada state lands, private lands (?).

RANGE: Elko County, Nevada; also in ID and WY. Maximum Nevada **range dimension 7.8 km (4.8 mi)** excluding most disjunct record. **Type specimen** collected in Blaine County, Idaho.

ELEVATIONS RECORDED (NEVADA): 6200-6500 feet (1890-1981 meters).

HABITAT (NEVADA): Bare, periodically disturbed soil in marginal, seasonally dry parts of moist, often hummocky, alkaline meadows, seeps, and springs, surrounded by sagebrush and grassland associations. Aquatic or wetland-dependent in Nevada.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** July-August.

LIFE-FORM AND HABIT: stoloniferous short-lived perennial herb.

DESCRIPTION: Antennaria arcuata is a loosely white-woolly perennial herb with conspicuously arching stolons. Stolons extend up to 1 dm long and give rise to new plants. Plants are dioecious (either staminate or pistillate). Basal leaves are few, wider at the top, and several cm long. Flowering stems are solitary, 3 to 4 dm tall, with well-developed, and gradually reduced stem leaves. The flower heads are moderately numerous and arranged in a close terminal cluster. Male and female plants vary slightly in size of flowers, involucre (bracts at base of flower head), and pappus (modified calyx on top of ovary/fruit) (Lorain 1990). **Distinguishing features:** The most distinctive feature of Antennaria arcuata is its conspicuously arching, woolly stolons (hence its common name). This feature is diagnostic. Other characters to look for are the single flowering stem, white-woolly pubescence, and preference for damp meadow habitats.

PHOTOGRAPHS: Anderson et al. (1991), Fertig et al. (1994), Smith and Curto (1995); Nevada Natural Heritage Program slide collection (1986-present) and files.

ILLUSTRATIONS: Anderson et al. (1991), Cronquist (1994), Fertig et al. (1994), Hitchcock and Cronquist (1973), Mozingo and Williams (1980).

SPECIFIC REFERENCES:

Cronquist, A. 1950. Notes on the Compositae of the northwestern U. S. Leaflets of Western Botany 6: 41-50.

Dorn, R. D. 1980. Illustrated guide to special interest vascular plants of Wyoming. Cheyenne, Wyoming: U. S. Fish and Wildlife Service and Bureau of Land Management. 67 pages.

Fertig, W. 1996. Status report on Antennaria arcuata in central Wyoming. Laramie: Wyoming Natural Diversity Database, prepared for the Bureau of Land Management, Wyoming State Office. 126 pages.

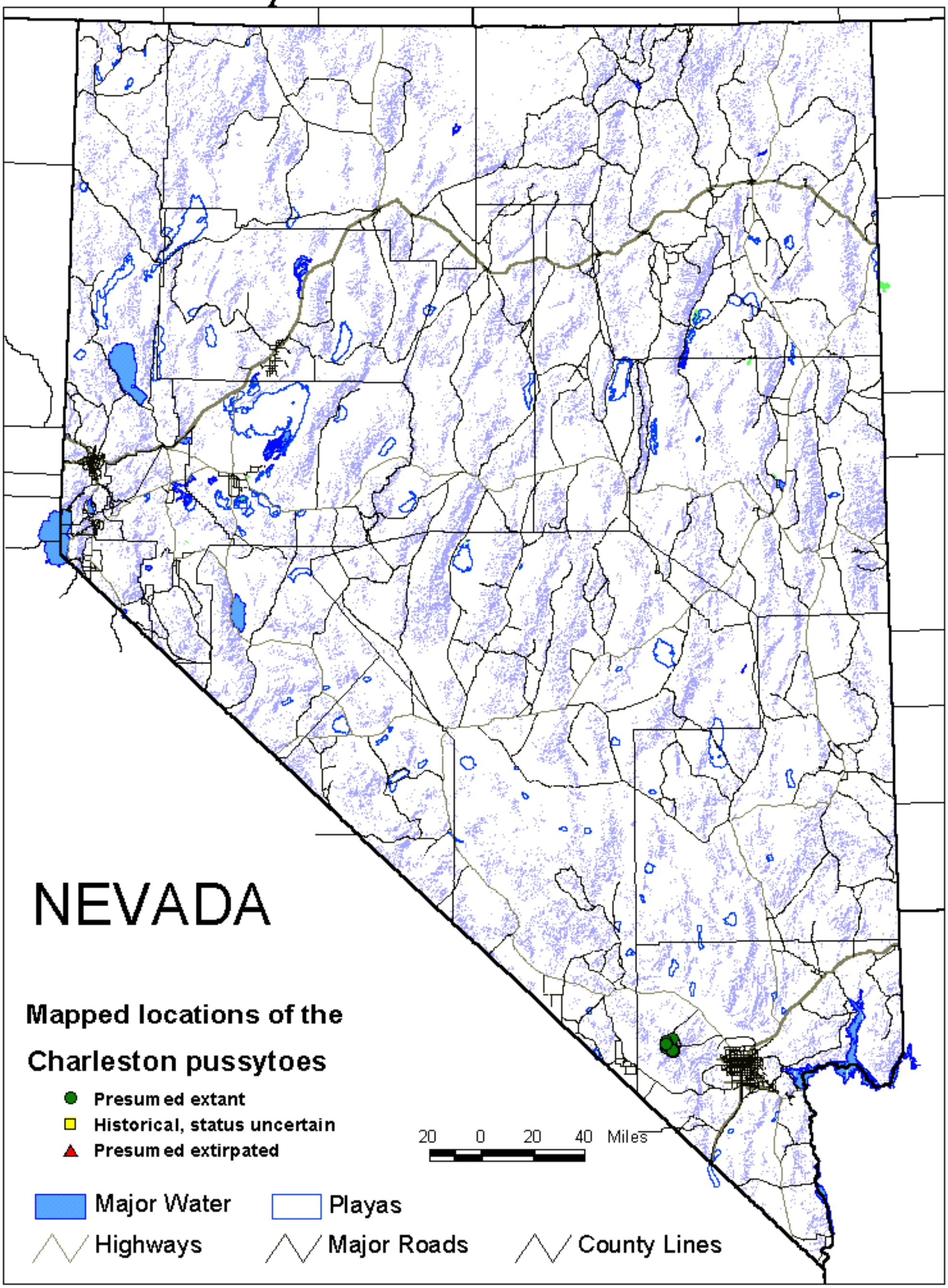
Lorain, C. C. 1990. Report on the conservation status of Antennaria arcuata in Idaho. Boise: Idaho Department of Fish and Game.

Marriott, H. 1986. Status report on Antennaria arcuata. Laramie: Wyoming Natural Diversity Database, prepared for the U. S. Fish and Wildlife Service. 42 pages + appendices.

Steele, B., F. Johnson, and S. Brunsfield (editors). 1981. Vascular plant species of concern in Idaho. Moscow, Idaho: Forest, Wildlife and Range Experiment Station. 161 pages.

OF FURTHER INTEREST: Individual plants are usually in small, dense, unisexual clusters. Populations generally consist of equal proportions of staminate and pistillate plants (Fertig 1996). Distinct, although no studies have been done to show that the Wyoming, Idaho and Nevada (all significantly disjunct) populations represent the same taxon.

Antennaria soliceps



Antennaria soliceps Blake (1938) CHARLESTON PUSSYTOES

FAMILY: *Asteraceae*, the sunflower family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1G2 S1S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 7 occurrences mapped at 1.0 km (0.6 mi) separation, OR **25 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 122,000+**, total estimated **area 72.1+ ha (178+ ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS: Free roaming horses, mountain biking, hiking on scree slopes, and expansion of other recreational use in the Spring Mountains, extreme rarity, climate warming.

INVENTORY EFFORT: Surveys have been extensive and are largely complete. Most recent entered survey 1994, average year of last survey 1994. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 96%; **11-20 yrs:** 4%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, private lands.

RANGE: Clark County, Nevada. Endemic to the Spring Mountains. Maximum **range dimension 7.6 km (4.7 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 8660-11650 feet (2640-3551 meters).

HABITAT: Open carbonate scree, talus, gravel, and crevices in the subalpine conifer, lower alpine, and upper montane conifer zones.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** July-September.

LIFE-FORM AND HABIT: small matted stoloniferous perennial herb.

DESCRIPTION: A perennial herb that forms mats to 4.5 dm wide. Leaves are white-wooly. Flowering stems each bear a single flower head surrounded by bracts with conspicuous blackish-brown spots. Blooms in July and August. Reproduces exclusively vegetatively.

PHOTOGRAPHS: Knight (1990), Weixelman and Atwood (1990); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Knight (1992), Nachlinger (1994).
SPECIFIC REFERENCES:

Atwood, D. 1980. Status report for Antennaria soliceps. Provo, Utah: U. S. Forest Service, Region 4.

Bayer, R. J., and G. L. Stebbins. 1987. Chromosome numbers, patterns of distribution, and apomixis in Antennaria (Asteraceae: Inuleae). Systematic Botany 12: 305-319.

Bayer, R. J., and T. M. Minish. 1993. Isozyme variation, ecology and phytogeography of Antennaria soliceps (Asteraceae: Inuleae), an alpine apomict from the Spring Mountains, Nevada. Madroño 40(2): 75-89.

Blake, S. F. 1938. Two new Asteraceae from the Charleston Mountains, Nevada. Proceedings of the Biological Society of Washington 51: 7-10.

Harper, K. T., D. C. Freeman, W. K. Ostler, and L. G. Klikoff. 1978. The flora of the Great Basin mountain ranges: diversity, sources, and dispersal ecology. Great Basin Naturalist Memoirs 2: 81-103.

Knight, T. A. 1990. Status report for Antennaria soliceps, "Charleston pussytoes. " Carson City: Nevada Natural Heritage Program, prepared for the Toiyabe National Forest, Las Vegas Ranger District. 25 pages.

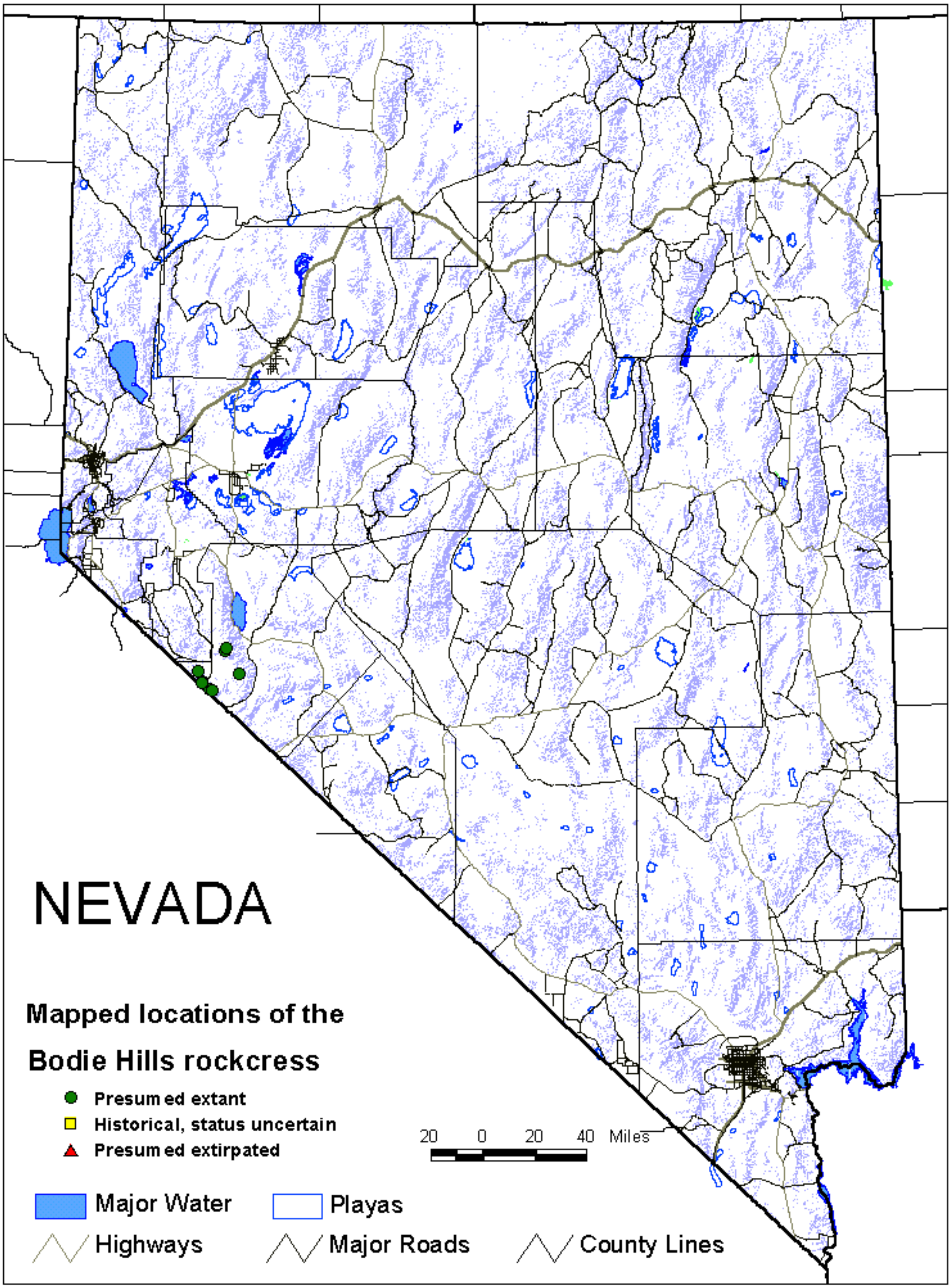
Smith, F. 1995. Status report for Antennaria soliceps. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 11 pages + two appendices.

Smith, F. 1995. Status report for Ivesia cryptocaulis. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 11 pages + two appendices.

Smith, F. 1995. Status report for Sphaeromeria compacta. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 10 pages + two appendices.

OF FURTHER INTEREST: All populations appear to represent a single female genotype that reproduces asexually (Bayer and Minish 1993). The absence of genetic variation poses a challenge to the long-term survival of the species, particularly in the face of potential climatic warming.

Arabis bodiensis



Arabis bodiensis Rollins (1982) BODIE HILLS ROCKCRESS

FAMILY: *Brassicaceae*, the mustard family. **SYNONYMS:** *Arabis fernaldiana* var. *stylosa* (misapplied)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada and California. **USFS:** Humboldt-Toiyabe NF and Inyo NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 7 occurrences mapped at 1.0 km (0.6 mi) separation, OR **8 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 2048**, total estimated **area 54.1 ha (134 ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Mineral exploration and development, road construction and maintenance.

INVENTORY EFFORT (NEVADA): Surveys extensive but incomplete. Most recent entered survey 1993, average year of last survey 1993. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, U. S. Department of Defense, private lands (?).

RANGE: Mineral County, Nevada; also in CA. Known in Nevada from the Wassuk Range, Brawley Peaks, and Bodie Hills. Maximum Nevada **range dimension 27.5 km (17.1 mi)** excluding most disjunct record. **Type specimen** collected in Mono County, California.

ELEVATIONS RECORDED (NEVADA): 6720-9970 feet (2048-3039 meters).

HABITAT (NEVADA): Dry, open, rocky, high or north-facing slopes or exposed summits of granitic or rhyolitic material, on moisture-accumulating microsites in sagebrush associations within the pinyon-juniper and mountain sagebrush zones.

PHENOLOGY: flowering early-spring. Range of most frequent **survey months:** June-July.

LIFE-FORM AND HABIT: perennial herb.

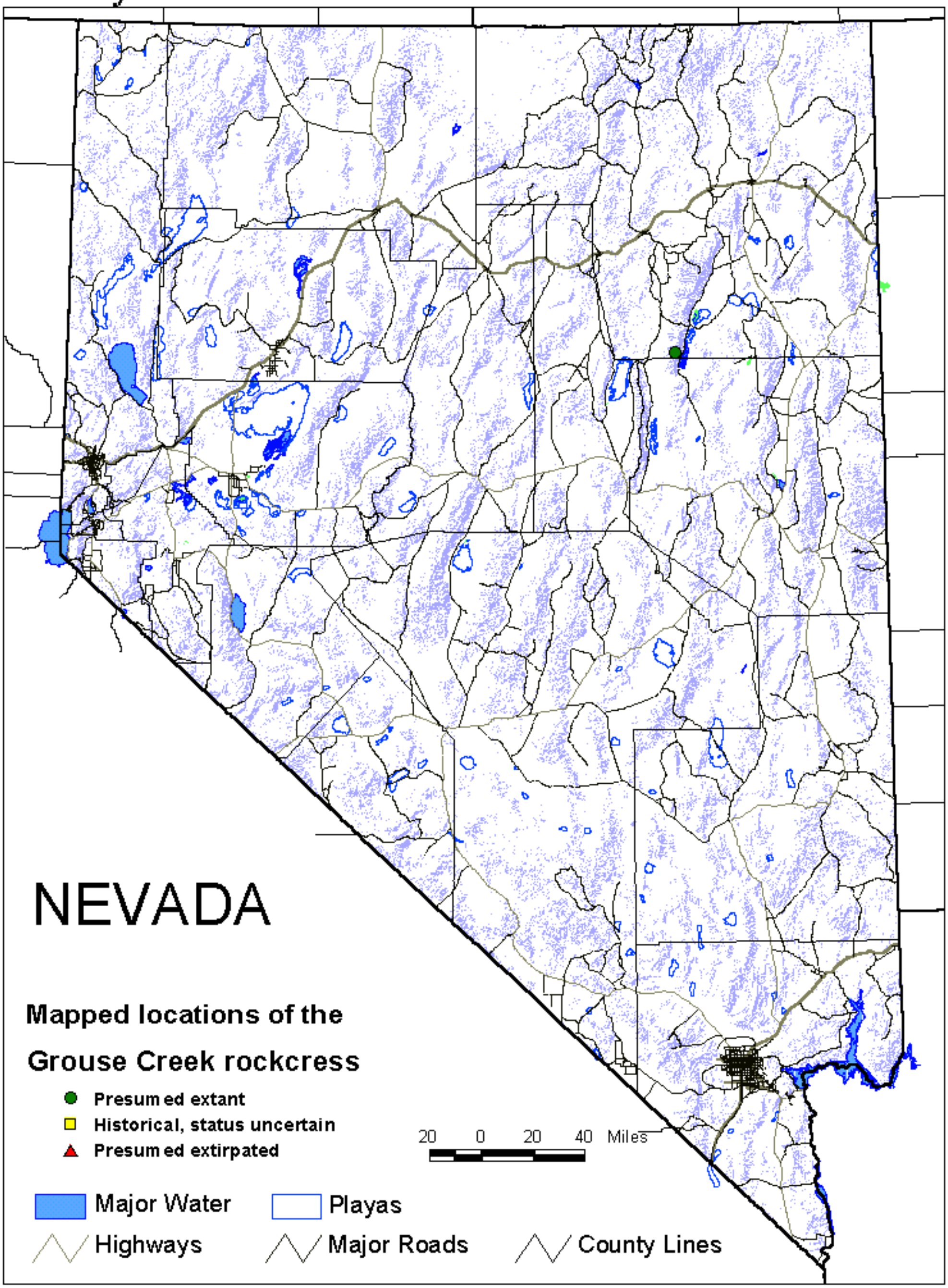
DESCRIPTION: A perennial herb, 1.5-3.5 dm tall, with white to pinkish flowers blooming April-June.

PHOTOGRAPHS: Morefield (1994); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Hickman (1993), Rollins (1993).
SPECIFIC REFERENCES:

Morefield, J. D. 1994. Current knowledge and conservation status of Arabis bodiensis Rollins (Brassicaceae), Bodie Hills rockcress, in Nevada. Carson City: Nevada Natural Heritage Program, status report prepared for the U. S. Fish and Wildlife Service, Reno.

Rollins, R. C. 1982. Studies on Arabis (Cruciferae) of western North America II. Contributions from the Gray Herbarium 212: 103-114.

Arabis falcatoria



Arabis falcatoria Rollins (1982) GROUSE CREEK ROCKCRESS

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 1 occurrence mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Recently surveyed in eastern Nevada, but more probably needed. Most recent entered survey 1981. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Fish and Wildlife Service (?).

RANGE: Elko County, Nevada; also in UT. In Nevada known only from the southern Ruby Mountains.

ELEVATIONS RECORDED (NEVADA): 8600 feet (2621 meters).

HABITAT (NEVADA): Immediately west of an exposed gravelly ridge-line saddle where regularly blown clear of snow, often in the shelter of low shrubs, with Artemisia arbuscula, Eriogonum kingii, Cymopterus ibapensis, and Oenothera caespitosa, in the mountain mahogany zone. Absent from adjacent snow drift areas.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** June.

LIFE-FORM AND HABIT: perennial herb.

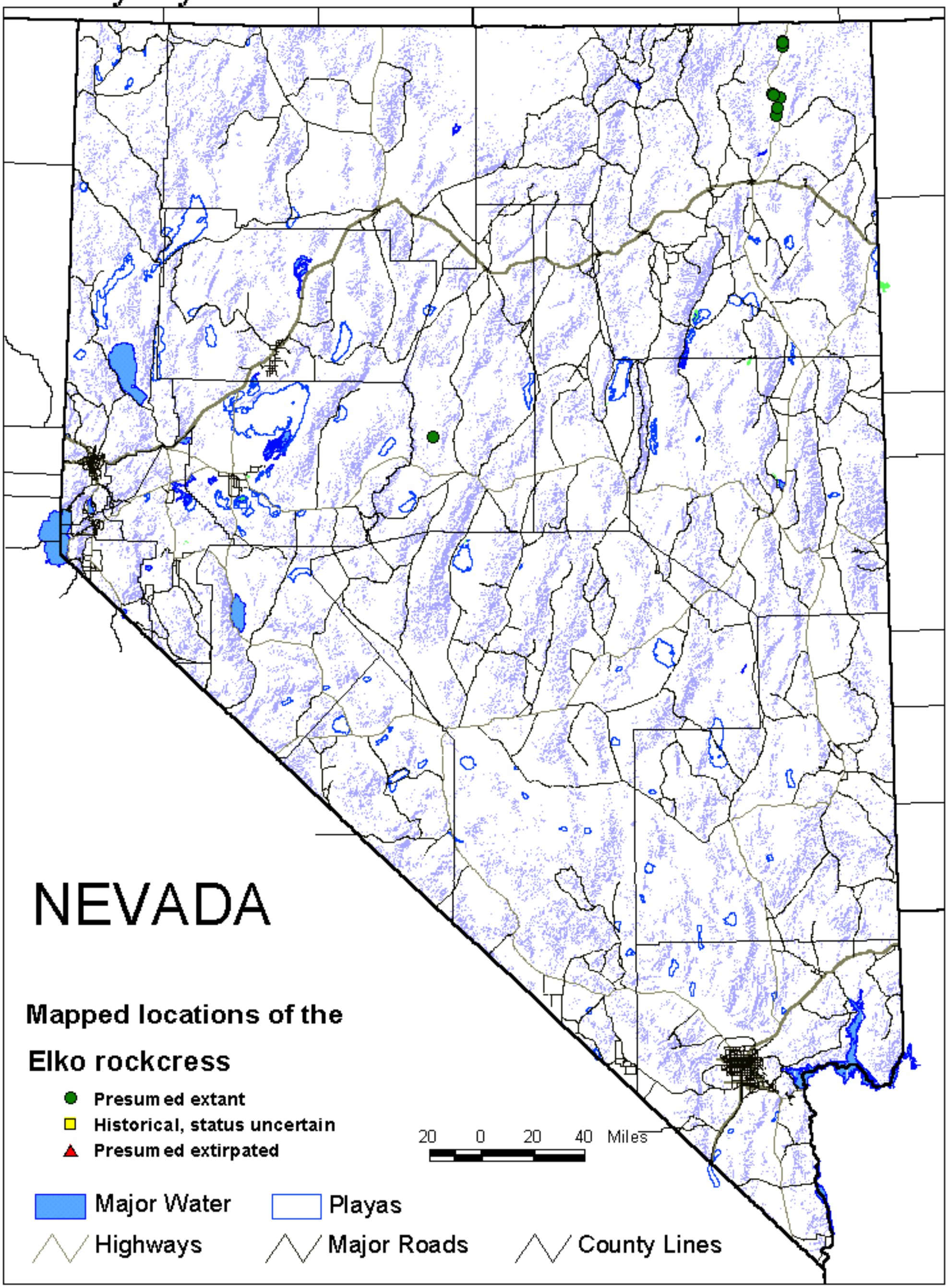
DESCRIPTION: A perennial herb, 1-3 dm tall, with densely hairy lower leaves and white to pale lavender flowers in bloom May-June.

PHOTOGRAPHS: Atwood et al. (1991).
ILLUSTRATIONS: Atwood et al. (1991).
OTHER GENERAL REFERENCES (listed separately): Rollins (1993).
SPECIFIC REFERENCES:

Holland, R. F. 1998. Current knowledge and conservation status of Arabis falcatoria Rollins (Brassicaceae), the Grouse Creek rock cress, in Nevada. Carson City: Nevada Natural Heritage Program, DRAFT status report prepared for the U. S. Fish and Wildlife Service, Reno.

Rollins, R. C. 1982. Studies on Arabis (Cruciferae) of western North America II. Contributions from the Gray Herbarium 212: 103-114.

Arabis falcifructa



Arabis falcifructa Rollins (1982) ELKO ROCKCRESS

FAMILY: *Brassicaceae*, the mustard family. **SYNONYMS:** *Arabis cobrensis* (misapplied)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1G2 S1S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 8 occurrences mapped at 1.0 km (0.6 mi) separation, OR **9 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 539+**, total estimated **area 13.8+ ha (34.1+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Threatened by trampling of soil crust by grazing animals, fires and consequent cheatgrass replacement, fire suppression activities, and road construction and maintenance.

INVENTORY EFFORT: Systematic surveys have been conducted, but much potential habitat remains to be examined. Most recent entered survey 1992, average year of last survey 1990. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 88.9%; **21-30 yrs:** 11.1%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, Nevada state lands (?).

RANGE: Elko and Lander counties, Nevada. **Nevada endemic.** Maximum **range dimension 46.6 km (28.9 mi)** excluding most disjunct record. **Type specimen** collected in Elko County.

ELEVATIONS RECORDED: 5300-6100 feet (1615-1859 meters).

HABITAT: Dry, densely vegetated, relatively undisturbed, light-colored silty soils with a high cover of moss and other soil crust components on moderate to steep north-facing slopes in the sagebrush zone, dominated by moss, Artemisia tridentata var. wyomingensis, Chrysothamnus viscidiflorus var. puberulus, and Poa secunda var. secunda. Also reported but not confirmed from rock crevices.

PHENOLOGY: flowering early-spring. Range of most frequent **survey months:** June-July.

LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: A perennial herb, 2-4.5 dm tall, with densely hairy lower leaves and pale purple flowers, fruiting in May and June.

PHOTOGRAPHS: Morefield (1997); Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: Morefield (1997).
OTHER GENERAL REFERENCES (listed separately): Rollins (1993).
SPECIFIC REFERENCES:

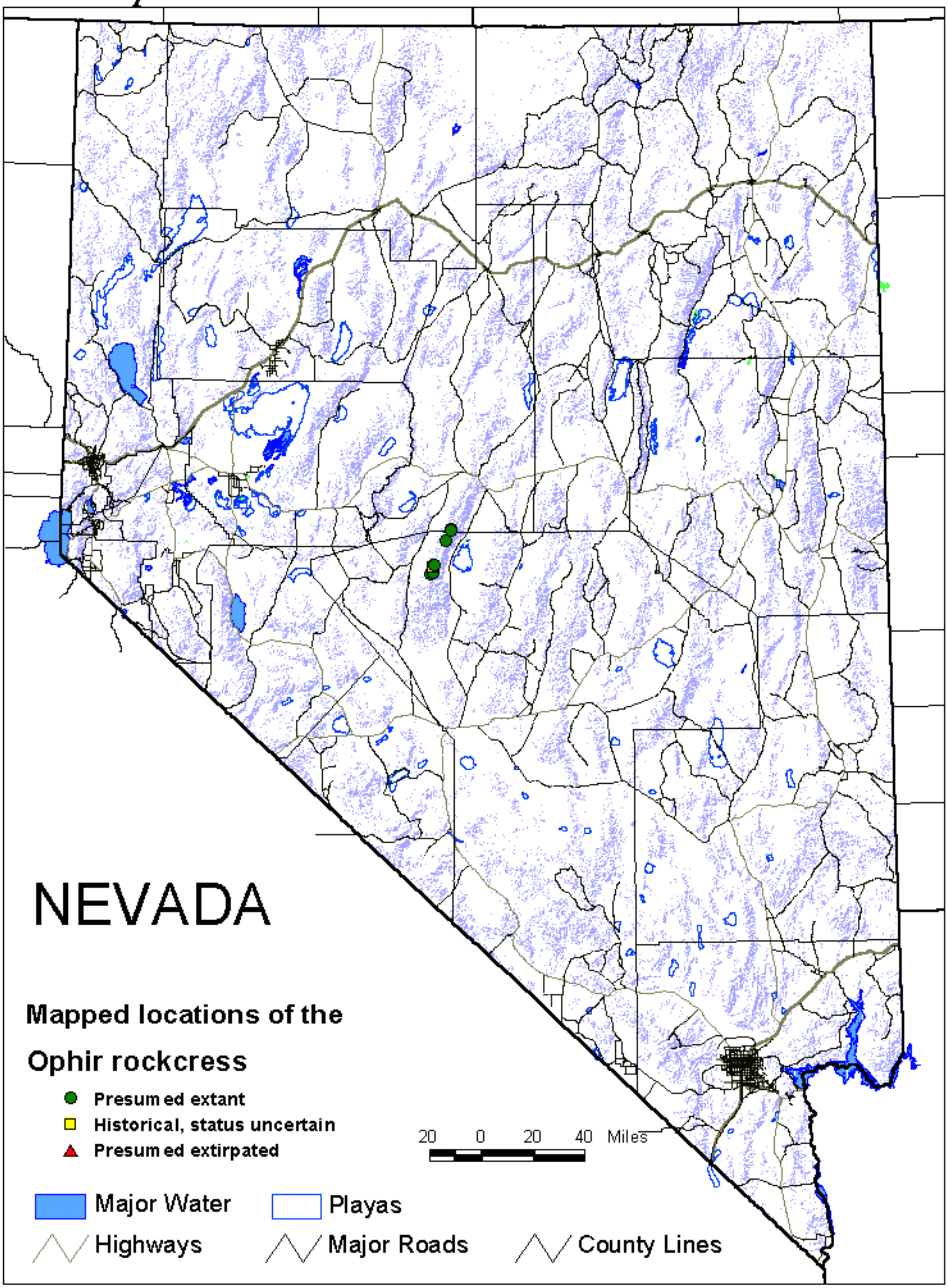
Lesica, P. and J. Shelly. 1992. Effects of cryptogamic soil crust on the population dynamics of Arabis fecunda (Brassicaceae). American Midland Naturalist 128: 53-60.

Morefield, J. D. 1997. Current knowledge and conservation status of Arabis falcifructa Rollins (Brassicaceae), the Elko rockcress. Carson City: Nevada Natural Heritage Program, status report prepared for the Bureau of Land Management, Reno.

Rollins, R. C. 1982. Studies on Arabis (Cruciferae) of western North America II. Contributions from the Gray Herbarium 212: 103-114.

OF FURTHER INTEREST: Moss cover may be important for survival of older plants (Lesica and Shelly 1992), and has been substantially impacted by livestock trampling. Closely related to another rare Nevada species, Arabis bodiensis Rollins.

Arabis ophira



Arabis ophira Rollins (1981) OPHIR ROCKCRESS

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1G2 S1S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 5 occurrences mapped at 1.0 km (0.6 mi) separation, OR **13 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 188**, total estimated **area 2.8+ ha (6.9+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Mineral exploration and development, trampling from recreational trail use, small population numbers and areas, one site vulnerable to off-road vehicle use.

INVENTORY EFFORT: Surveys extensive but incomplete. Most recent entered survey 1997, average year of last survey 1997. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 84.6%; **6-10 yrs:** 15.4%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness.

RANGE: Lander and Nye counties, Nevada. Endemic to the Toiyabe Range. Maximum **range dimension 29.3 km (18.2 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 9960-10520 feet (3036-3206 meters).

HABITAT: Loamy soil pockets in dry, exposed quartzitic scree, colluvium, and outcrops on south- to west-facing ridge lines and upper slopes, often in seasonal solifluction areas. Widely scattered in, and often under canopy of, sparse associations of Artemisia arbuscula, Leptodactylon pungens, and grasses in the mountain sagebrush and subalpine conifer zones.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-July.

LIFE-FORM AND HABIT: small perennial herb.

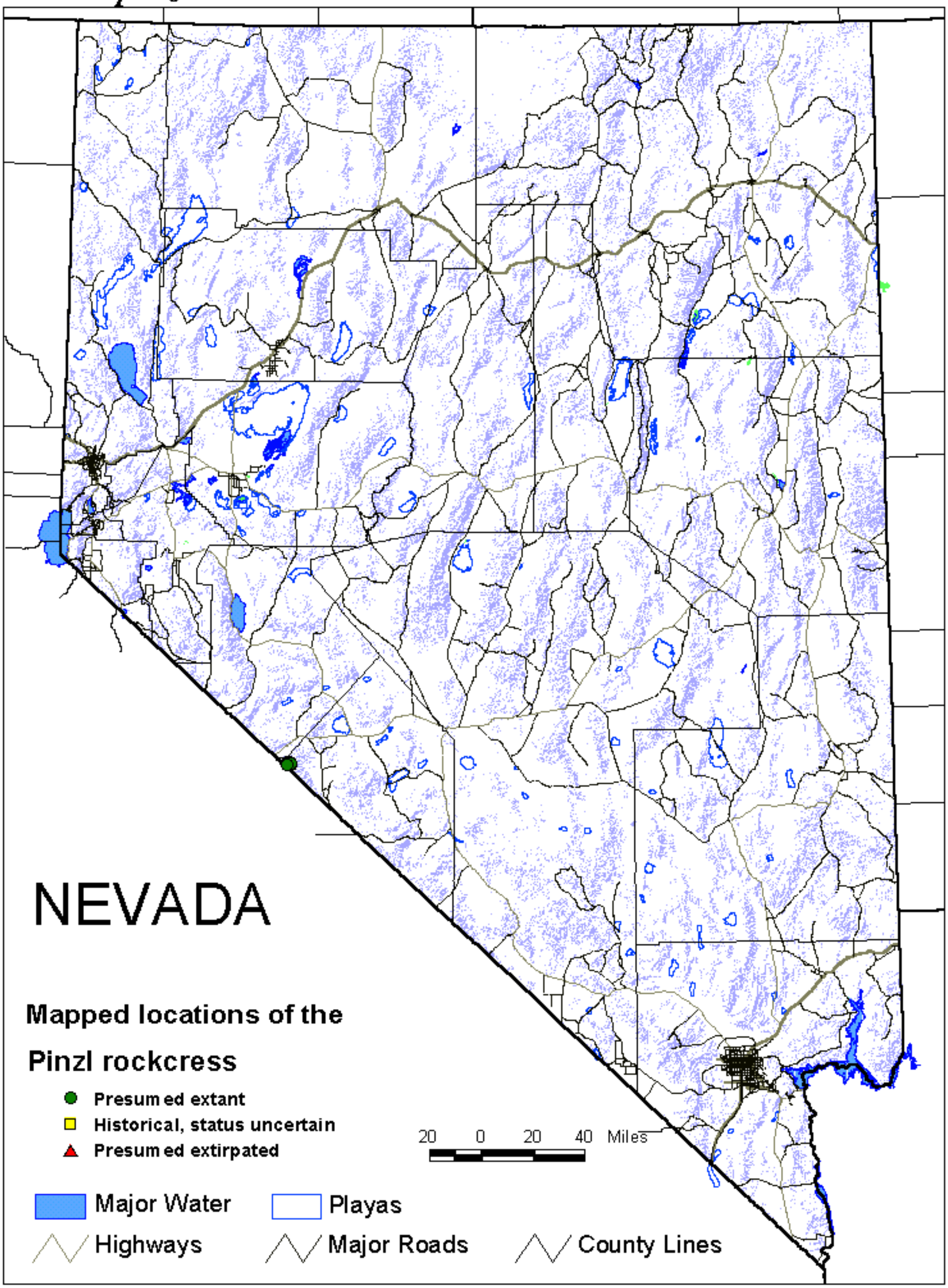
DESCRIPTION: A perennial herb, 4-10 cm tall, with purple flowers in bloom June-July.

PHOTOGRAPHS: Weixelman and Atwood (1990); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Rollins (1993), Spahr et al. (1991).
SPECIFIC REFERENCES:

Morefield, J. D. 1992. Interim status report for Arabis ophira Rollins. Carson City: Nevada Natural Heritage Program, prepared for the Toiyabe National Forest, Sparks, Nevada.

Rollins, R. C. 1981. Studies on Arabis (Cruciferae) of western North America. Systematic Botany 6: 55-64.

Arabis pinzliae



Arabis pinzliae Rollins (1982) PINZL ROCKCRESS

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Inyo NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 2 occurrences mapped at 1.0 km (0.6 mi) separation, OR **9 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 2350**, total estimated **area 15.8 ha (39.0 ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Minimal due to inaccessible habitat, limited to foot traffic from recreationists, pack horses, and feral horses, and small population numbers and areas. The species has some tolerance for loose shifting soils.

INVENTORY EFFORT (NEVADA): Surveys in Nevada are substantially complete; more work is needed in California. Most recent entered survey 1993, average year of last survey 1993. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: designated wilderness, Inyo National Forest.

RANGE: Esmeralda County, Nevada; also in CA. In Nevada known only from the Boundary Peak area of the White Mountains. Maximum Nevada **range dimension 2.1 km (1.3 mi)** excluding most disjunct record. **Type specimen** collected in Esmeralda County.

ELEVATIONS RECORDED (NEVADA): 9880-11540 feet (3011-3517 meters).

HABITAT (NEVADA): Deep, loose, sandy to gravelly granitic scree or alluvium in mostly steeply-sloped dry drainages, avalanche chutes, and snow depressions on north to east aspects, with a sparse cover of other species such as Ericameria suffruticosa, Eriophyllum lanatum var. integrifolium, Erysimum capitatum, Arabis platysperma, and Raillardella argentea, in the subalpine conifer forest, subalpine sagebrush, and alpine fell-field zones.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** July.

LIFE-FORM AND HABIT: small perennial herb.

DESCRIPTION: A small perennial herb, 3-8 cm high, with disproportionately large purple fruit (pods), which are sometimes as large or larger than the entire plant. Flowers are purple tinged; fruits in July and August.

PHOTOGRAPHS: Morefield (1994), Weixelman and Atwood (1990); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993), Rollins (1993).
SPECIFIC REFERENCES:

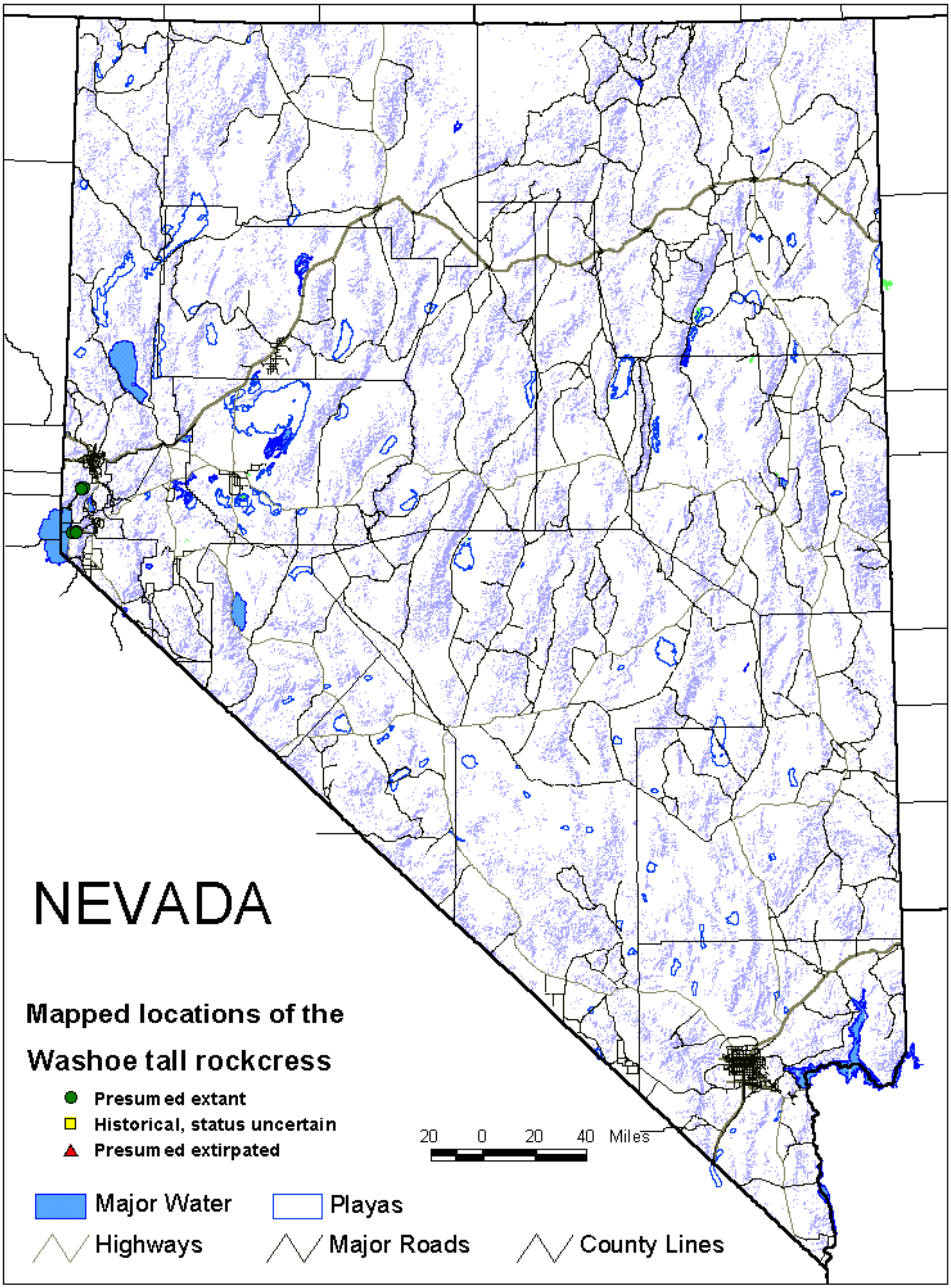
Morefield, J. D., and D. W. Taylor. 1990. Noteworthy collections, California. Madroño 37: 64-65.

Morefield, J. D. 1994. Status report for Arabis pinzlae Rollins. Carson City: Nevada Natural Heritage Program, prepared for the Inyo National Forest, Bishop, CA.

Rollins, R. C. 1982. Studies on Arabis (Cruciferae) of western North America II. Contributions from the Gray Herbarium 212: 103-114.

OF FURTHER INTEREST: May be only varietally distinct from Arabis platysperma.

Arabis rectissima var. simulans



Arabis rectissima E. Greene var. *simulans* Rollins (1993) WASHOE TALL ROCKCRESS

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4G5 T1Q S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** THREATENED.

POPULATION CENSUS: 3 occurrences mapped at 1.0 km (0.6 mi) separation, OR **8 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 1128**, total estimated **area 10.7 ha (26.4 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Recreational development and use, timber harvest, fire suppression and lack of normal forest succession, catastrophic fire, hybridization with Arabis holboellii.

INVENTORY EFFORT: Surveys in progress. Most recent entered survey 1996, average year of last survey 1996.
Years since last entered survey (percent of mapped records at various survey ages)**: 0-5 yrs:** 100%.

LAND MANAGEMENT in decreasing predominance: county lands, private lands, Humboldt-Toiyabe National Forest, Nevada state lands, U. S. Forest Service Lake Tahoe Basin Management Unit (?).

RANGE: Douglas and Washoe counties, Nevada; also in CA (?). Endemic to the northern Carson Range. Maximum **range dimension 28.4 km (17.7 mi)** excluding most disjunct record. **Type specimen** collected in Washoe County.

ELEVATIONS RECORDED (NEVADA): 6035-7350 feet (1839-2240 meters).

HABITAT: Dry, sandy, granitic or andesitic soil on mostly gentle slopes of all aspects, in full or filtered sunlight of thinly-littered openings in mature, open Pinus jeffreyi - Abies concolor forests. Densities highest on very light and recovered disturbances, excluded from areas of bare ground, deep litter, dense tree or shrub cover, or intense disturbance.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** June-July.

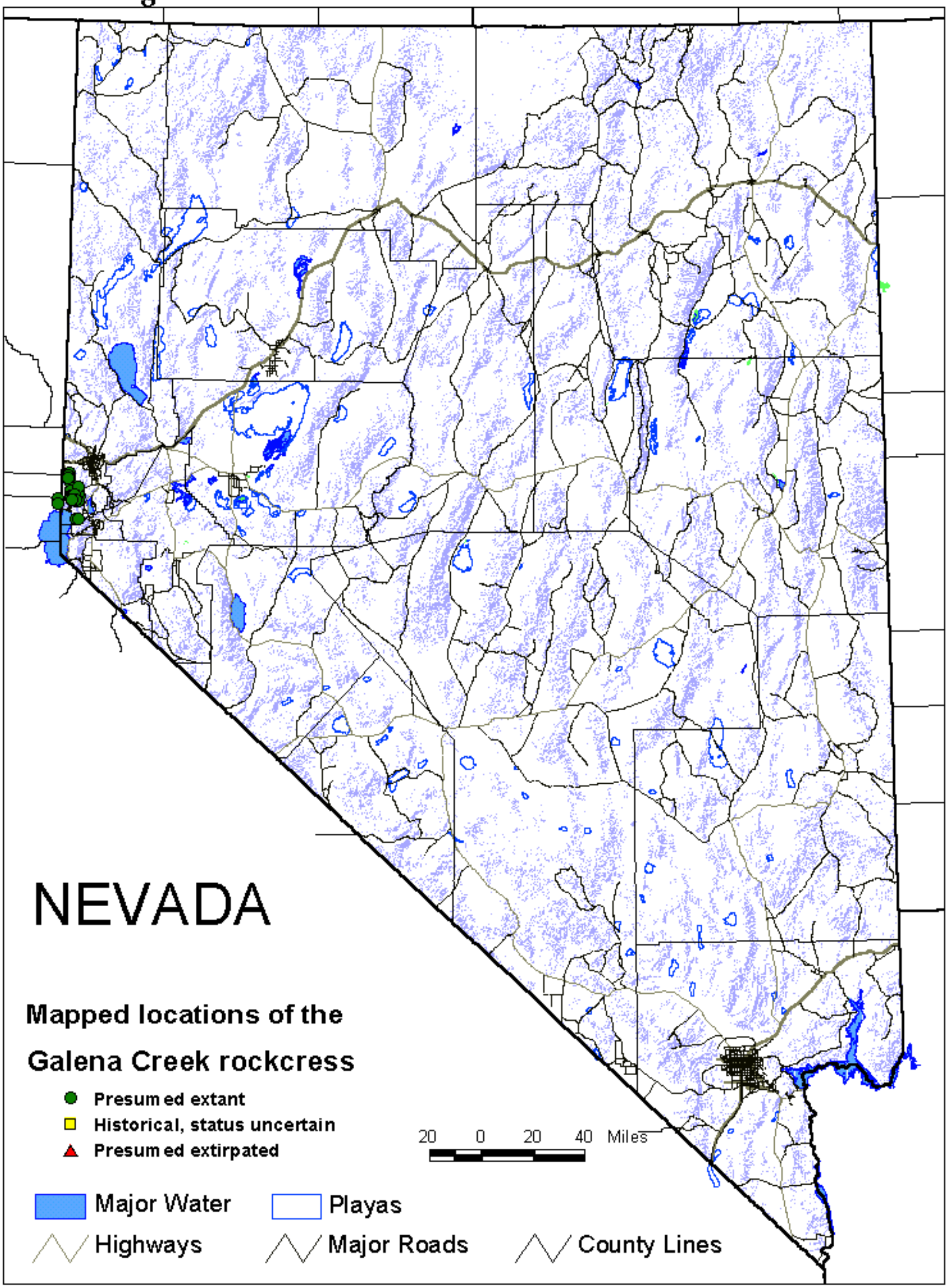
LIFE-FORM AND HABIT: biennial or short-lived perennial herb.

DESCRIPTION: Perennial herb to 12 dm high with white flowers, coarsely and sparsely hairy basal leaves with some teeth, and straight, strictly reflexed fruits.

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Rollins (1993).

OF FURTHER INTEREST: Appears to intergrade with one or more varieties of Arabis holboellii at some locations, and may better be treated as a variety of that species.

Arabis rigidissima var. demota



Arabis rigidissima Rollins var. *demota* Rollins (1983) GALENA CREEK ROCKCRESS

FAMILY: *Brassicaceae*, the mustard family. **SYNONYMS:** *Arabis platysperma* (?)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 T2Q S2**
USFWS/ESA: species of concern, formerly CANDIDATE or PROPOSED. **STATE OF NEVADA:** none.
BLM: none. **USFS:** Humboldt-Toiyabe NF and Lake Tahoe Basin Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 18 occurrences mapped at 1.0 km (0.6 mi) separation, OR **39 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 10,000+**, total estimated **area 52.0+ ha (128+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Recreational developments and trail use, road construction and maintenance, logging or other forestry practices, fire suppression activities.

INVENTORY EFFORT: Surveys have been extensive and are fairly complete. Most recent entered survey 2000, average year of last survey 1990. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 17.9%; **11-20 yrs:** 82.1%.

LAND MANAGEMENT in decreasing predominance: private lands, Humboldt-Toiyabe National Forest, Nevada state lands, designated wilderness, U. S. Forest Service Lake Tahoe Basin Management Unit, U. S. Bureau of Land Management (?).

RANGE: Washoe County, Nevada; also in CA. Apparently restricted to the northern Carson Range. Possible or probable **Nevada endemic.** Maximum **range dimension 28.3 km (17.6 mi)** excluding most disjunct record. **Type specimen** collected in Washoe County.

ELEVATIONS RECORDED (NEVADA): 7020-10020 feet (2140-3054 meters).

HABITAT: Sandy to rocky soils or outcrops derived from granitic or volcanic materials, mostly on moderate to steep northerly aspects, often in drainage ways, near meadow edges, or in other moisture accumulating microsites, generally in dry openings in Abies - Pinus - Populus tremuloides associations.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** July-August.

LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: not available (see references).

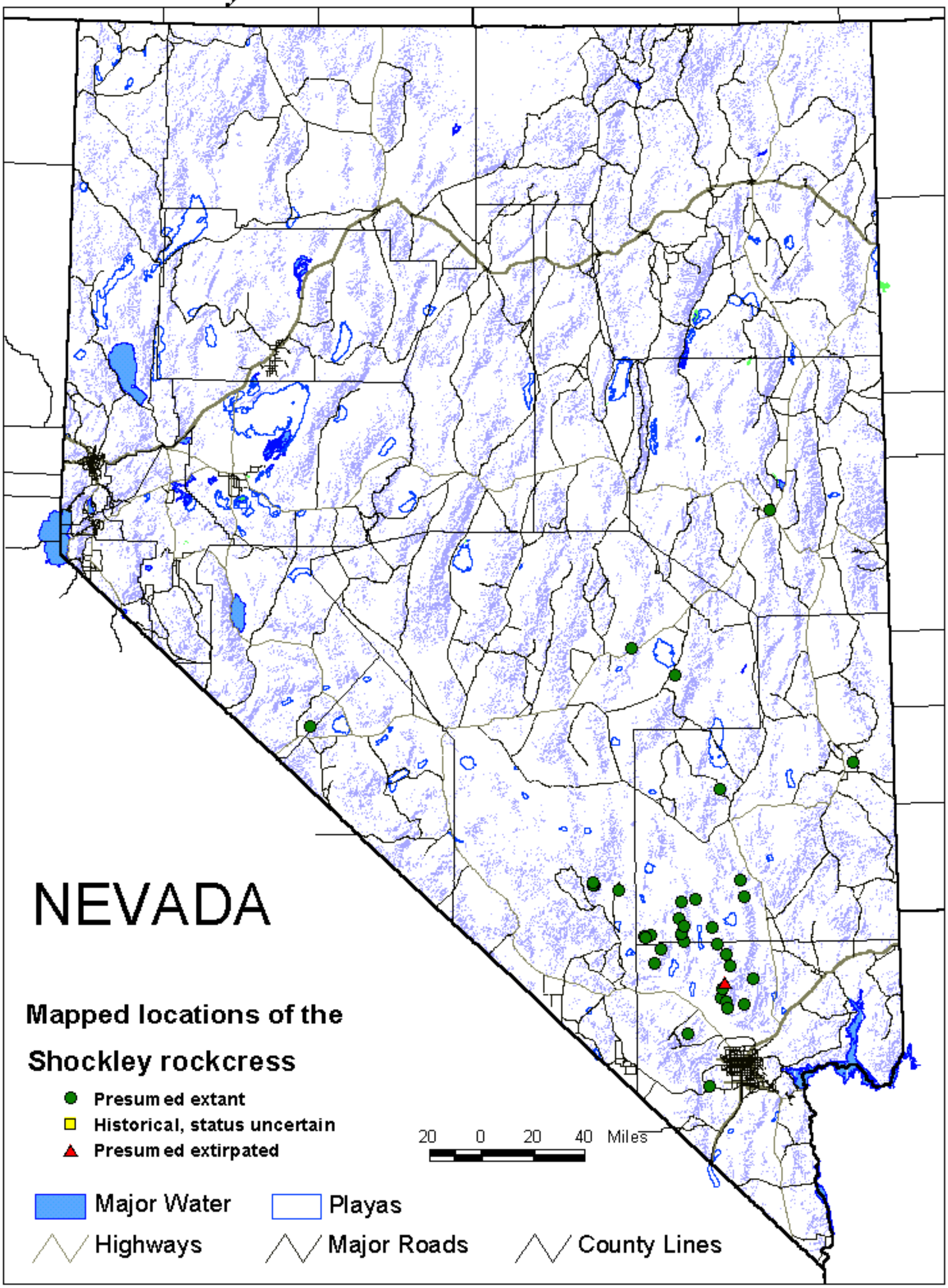
PHOTOGRAPHS: Tiehm (1989), Weixelman and Atwood (1990); Nevada Natural Heritage Program files.
ILLUSTRATIONS: Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Rollins (1993), Spahr et al. (1991).
SPECIFIC REFERENCES:

Nelson, L. 1989. Survey findings on Arabis rigidissima var. demota, Galena rock-cress. Reno, Nevada: Galena Resort Corporation.

Rollins, R. C. 1983. Studies in the Cruciferae of western North America. Journal of the Arnold Arboretum 64: 491-510.

Tiehm, A. 1989. Status report for Arabis rigidissima var. demota. Carson City: Nevada Natural Heritage Program.

Arabis shockleyi



Arabis shockleyi Munz — SHOCKLEY ROCKCRESS

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program WATCH LIST, ranks: G3 S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Region 5 (California) Sensitive Species. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 33 extant occurrences mapped at 1.0 km (0.6 mi) separation, OR **38 extant and 1 extirpated occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 745+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys have been conducted in Nevada but remain very incomplete. Most recent entered survey 1993, average year of last survey 1977. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 2.6%; **11-20 yrs:** 25.6%; **21-30 yrs:** 66.7%; **31-50 yrs:** 2.6%; **51+ yrs or unknown:** 2.6%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Fish and Wildlife Service, U. S. Department of Defense, U. S. Bureau of Land Management, U. S. Department of Energy, Humboldt-Toiyabe National Forest, private lands (?), designated wilderness (?).

RANGE: Clark, Esmeralda (?), Lincoln, Mineral, Nye, and White Pine counties, Nevada; also in CA and UT. Maximum Nevada **range dimension 360.4 km (223.9 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 4000-8600 feet (1219-2621 meters).

HABITAT (not yet reviewed for Nevada): "Shadscale-galleta, ephedra-matchweed, sagebrush, mountain mahogany, and pinyon-juniper communities mostly 1430 to 1900 m (Welsh 1993)."

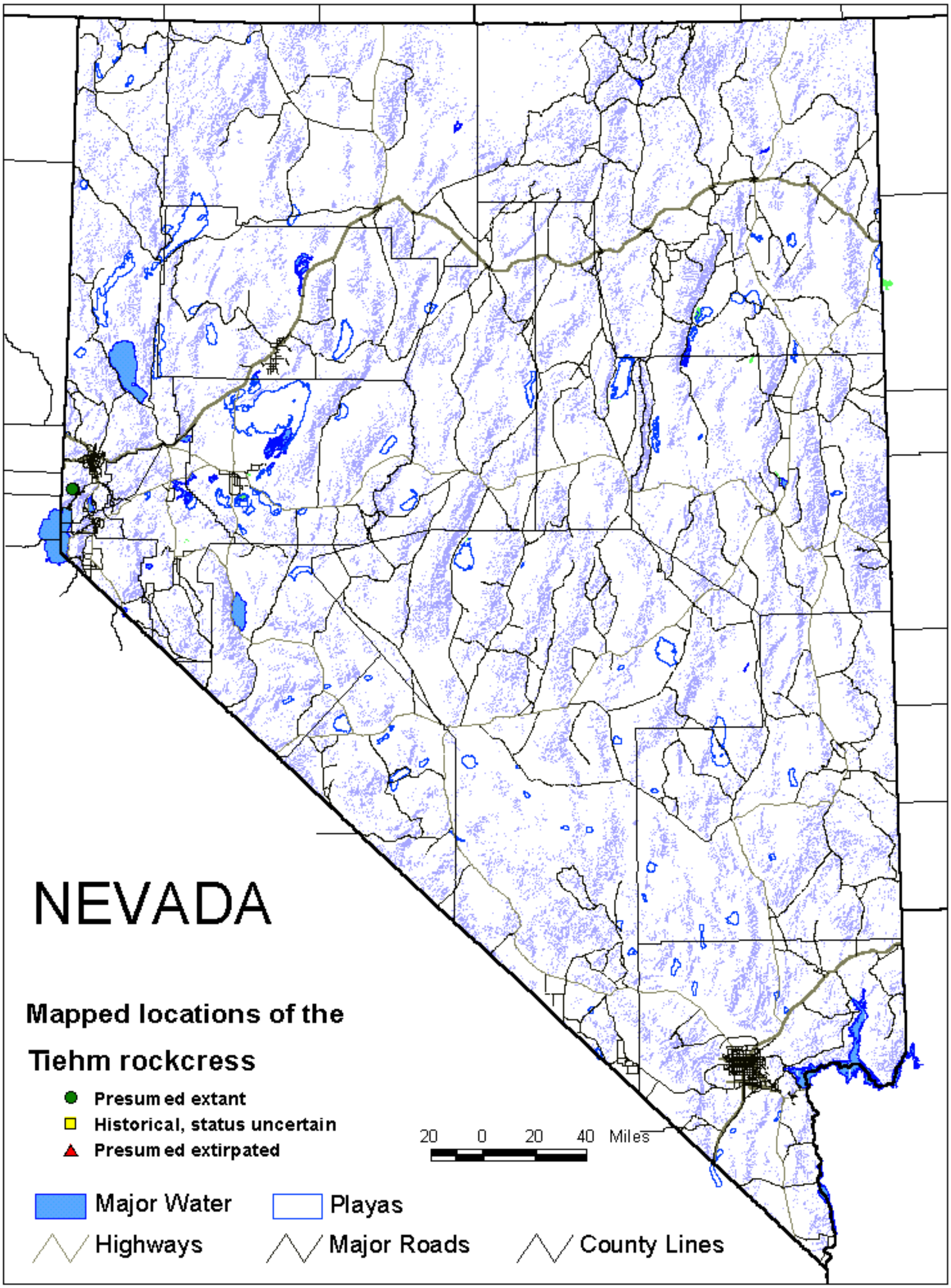
PHENOLOGY: no summary available. Range of most frequent **survey months:** April-June.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Knight and Smith (1994); Nevada Natural Heritage Program images web page (1998-present) and files.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Ackerman (1981), Beatley (1976), Beatley (1977), Cochrane (1979), Hickman (1993), Rollins (1993), Welsh et al. (1993).
SPECIFIC REFERENCES:

Krantz, T. P. 1979. Status report on Arabis shockleyi. Portland, Oregon: U. S. Fish and Wildlife Service.
Rollins, R. C. 1981. Studies on Arabis (Cruciferae) of western North America. Systematic Botany 6(1): 55-64.

Arabis tiehmii



Arabis tiehmii Rollins (1983) TIEHM ROCKCRESS

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Inyo NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 1 occurrence mapped at 1.0 km (0.6 mi) separation, OR **2 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 2100**, total estimated **area 10.9 ha (26.9 ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Minimal due to inaccessible habitat, occasional off-trail foot traffic possible. The Nevada sites are on steep terrain in designated wilderness away from established trails.

INVENTORY EFFORT (NEVADA): Surveys in Nevada substantially complete. Most recent entered survey 1993, average year of last survey 1993. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: designated wilderness, Humboldt-Toiyabe National Forest.

RANGE: Washoe County, Nevada; also in CA. In Nevada known only from the Mount Rose area in the northern Carson Range. Maximum Nevada **range dimension .5 km (.3 mi)**. **Type specimen** collected in Washoe County.

ELEVATIONS RECORDED (NEVADA): 9820-10560 feet (2993-3219 meters).

HABITAT (NEVADA): Steep outcrops, talus, and scree of weathering andesitic volcanic and metavolcanic (and possible metasedimentary) deposits, sometimes on adjacent decomposed granite or carbonates, on ridge tops or on steep, mostly west to north aspects, frequently in dry drainages, with a sparse cover of other subalpine to alpine species.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** July-August.

LIFE-FORM AND HABIT: perennial herb.

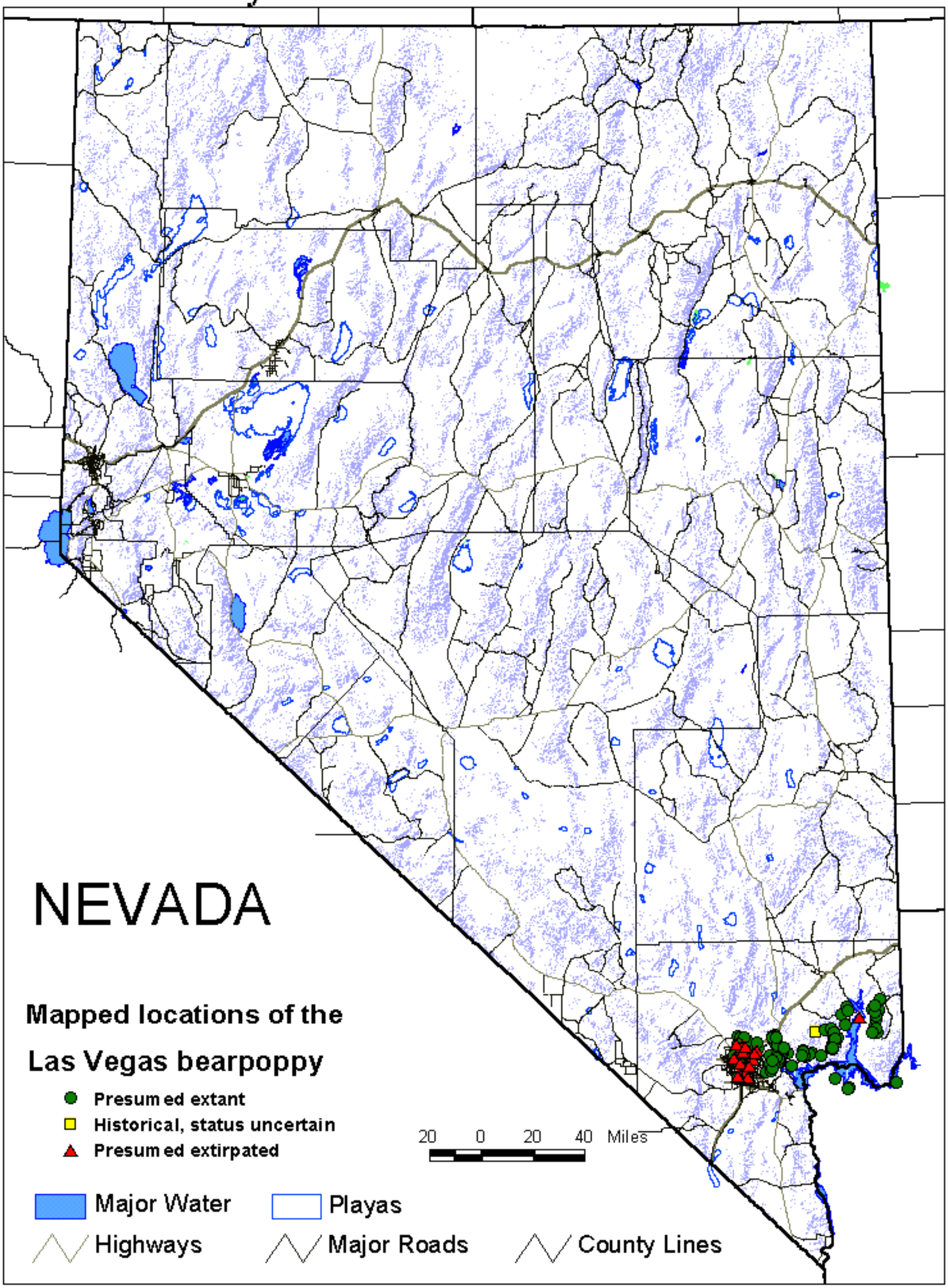
DESCRIPTION: not available (see references).

PHOTOGRAPHS: Morefield (1994), Weixelman and Atwood (1990); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993), Rollins (1993).
SPECIFIC REFERENCES:

Morefield, J. D. 1994. Status report for Arabis tiehmii Rollins (1983). Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

Rollins, R. C. 1983. Studies in the Cruciferae of western North America. Journal of the Arnold Arboretum 64: 491-510.

Arctomecon californica



Arctomecon californica Torrey & Fremont — LAS VEGAS BEARPOPPY

FAMILY: *Papaveraceae*, the poppy family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species in Nevada. **USFS:** none. **NNNPS:** THREATENED.

POPULATION CENSUS (NEVADA): 63 extant occurrences mapped at 1.0 km (0.6 mi) separation, OR **92 extant and 22 extirpated occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 445,000+**, total estimated **area 8342+ ha (20,614+ ac)**. **TREND:** DECLINING RAPIDLY.

IMPACTS AND MAJOR THREATS (NEVADA): Habitat clearing for urban and residential development, highway construction and maintenance, flood control, gypsum mining, etc., off-road vehicle use, dumping, pollinator declines due to habitat fragmentation. Impoundment of Lake Mead inundated a large area of habitat, but the remaining populations there are large and relatively well-protected.

INVENTORY EFFORT (NEVADA): Surveys are substantially complete. Most recent entered survey 2000, average year of last survey 1992. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 35.9%; **6-10 yrs:** 55.6%; **11-20 yrs:** 2.6%; **21-30 yrs:** .9%; **31-50 yrs:** 1.7%; **51+ yrs or unknown:** 3.4%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands, National Park Service, Nevada state lands, U. S. Department of Defense, U. S. Fish and Wildlife Service (?).

RANGE: Clark County, Nevada; also in AZ and UT (introduced). Maximum Nevada **range dimension 97.7 km (60.7 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 1060-3642 feet (323-1110 meters).

HABITAT (NEVADA): Open, dry, spongy or powdery, often dissected ("badland") or hummocked soils with high gypsum content, often with well-developed soil crust, in areas of generally low relief on all aspects and slopes, with a sparse cover of other gypsum-tolerant species surrounded by Larrea tridentata, Atriplex, and Coleogyne ramosissima associations. On appropriate soil types, will often revegetate disturbances that have been allowed to recover if a soil seedbank remains.

PHENOLOGY: flowering spring. Range of most frequent **survey months:** February-July.

LIFE-FORM AND HABIT: evergreen perennial cushion.

DESCRIPTION: A short-lived perennial herb with showy yellow flowers in bloom April-May. Flower stalks are 2-4 dm tall.

PHOTOGRAPHS: Mistretta et al. (1996); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Flora of North America editorial Committee (1997), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Holland et al. (1979), Holland et al. (1980), Niles et al. (1997), Niles et al. (1996).
SPECIFIC REFERENCES:

Baepler, D. H. 1994. A biological assessment of the Lamb Boulevard/I-15 interchange for the Nevada Department of Transportation. Las Vegas: University of Nevada, Harry Reid Center for Environmental Studies.

Douglas, C. L. 1977. Biota of Lake Mead National Recreation Area, project report no. 1, annotated checklist and bibliography, March 1977. Las Vegas: University of Nevada, Department of Biological Sciences, Cooperative National Park Resources Studies Unit, contribution No. CPSU/UNLV 15.

Hickerson, L. L. and P. G. Wolf. 1998. Population genetic structure of Arctomecon californica Torrey and Fremont (Papaveraceae) in fragmented and unfragmented habitat. Plant Species Biology 13: 21-33.

Holland, J. S. 1979. Status report for Arctomecon californica. Denver, Colorado: National Park Service.

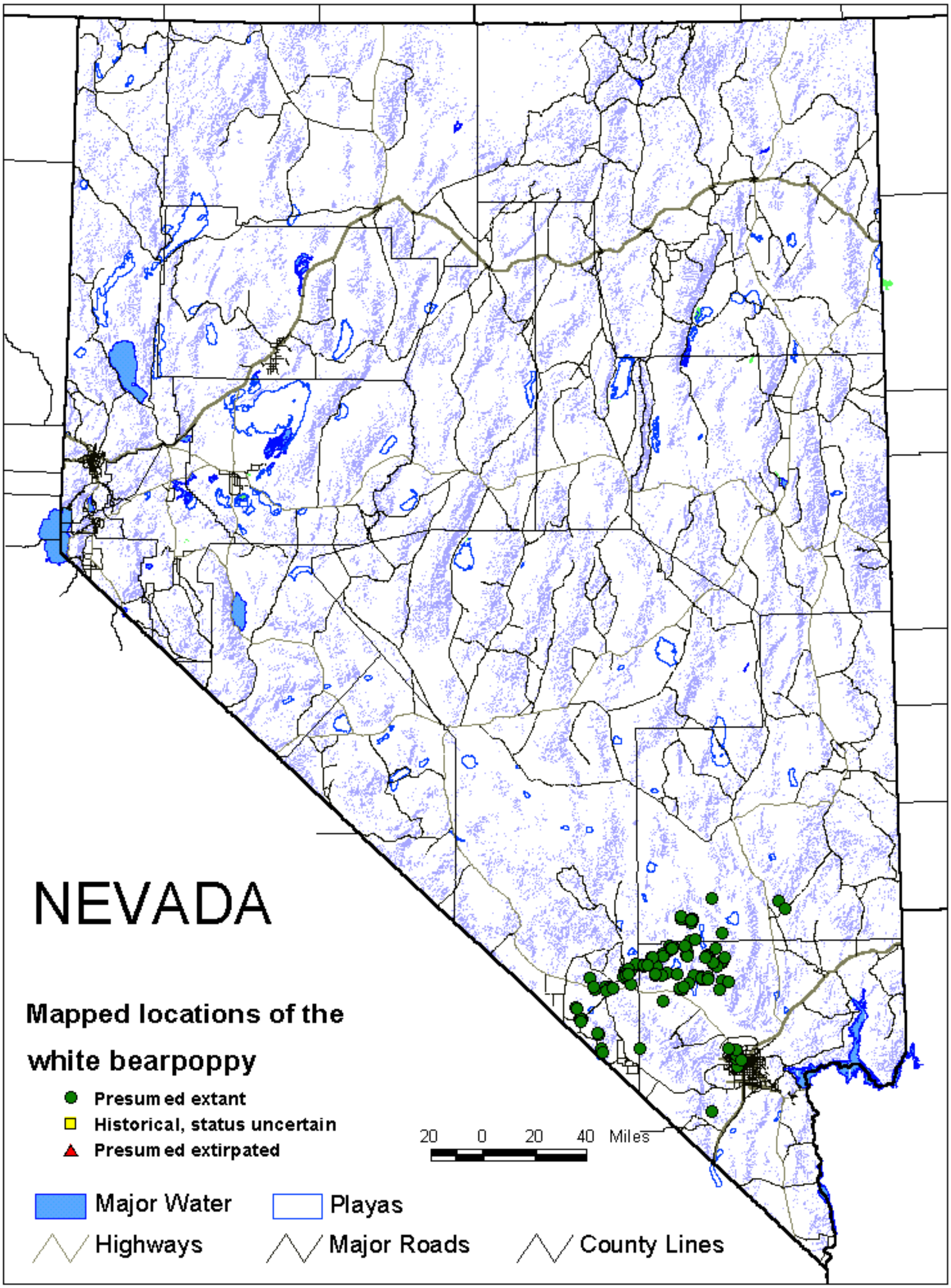
Mistretta, O., R. Pant, T. S. Ross, J. M. Porter, and J. D. Morefield. 1996. Current knowledge and conservation status of Arctomecon californica Torrey and Fremont (Papaveraceae), the California bearpoppy. Carson City: Nevada Natural Heritage Program, status report prepared for the U. S. Fish and Wildlife Service, Reno.

Nelson, D. and S. Walsh. 1993. Taxonomic revision of Arctomecon Torr. and Frem. Rhodora 95: 197-213.

Phillips, B. and A. Phillips III. 1988. Status report for Arctomecon californica. Albuquerque: U. S. Fish and Wildlife Service.

Thompson, S. K. S., and S. D. Smith. 1997. Ecology of Arctomecon californica and A. merriamii (Papaveraceae) in the Mojave Desert. Madroño 44(2): 151-169.

Arctomecon merriamii



Arctomecon merriamii Coville — WHITE BEARPOPPY

FAMILY: *Papaveraceae*, the poppy family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 71 occurrences mapped at 1.0 km (0.6 mi) separation, OR **129 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 20,000+**, total estimated **area 394+ ha (974+ ac)**. **TREND:** DECLINING.

IMPACTS AND MAJOR THREATS (NEVADA): In localized portions of range.

INVENTORY EFFORT (NEVADA): Systematic surveys have been extensive but likely remain incomplete in Nevada. Most recent entered survey 1998, average year of last survey 1985. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 2.1%; **6-10 yrs:** 73%; **11-20 yrs:** 2.8%; **21-30 yrs:** 9.9%; **31-50 yrs:** 5%; **51+ yrs or unknown:** 7.1%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Fish and Wildlife Service, U. S. Department of Defense, U. S. Bureau of Land Management, U. S. Department of Energy, private lands, National Park Service.

RANGE: Clark, Lincoln, and Nye counties, Nevada; also in CA. Maximum Nevada **range dimension 145.3 km (90.3 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 2000-6280 feet (610-1914 meters).

HABITAT (NEVADA): On a wide variety of dry to sometimes moist basic soils, including alkaline clay and sand, gypsum, calcareous alluvial gravels, and carbonate rock outcrops.

PHENOLOGY: flowering spring. Range of most frequent **survey months:** April-July.

LIFE-FORM AND HABIT: evergreen perennial herb.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Blomquist et al. (1995), Knight and Smith (1994), Knight et al. (1997); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Beatley (1977), Clokey (1951), Cochrane (1979), Flora of North America editorial Committee (1997), Hickman (1993), Niles et al. (1998), Rhoads and Williams (1977).
SPECIFIC REFERENCES:

Coville, F. V. 1892. Descriptions of new plants from southern California, Nevada, Utah, and Arizona. Proceedings of the Biological Society of Washington 7: 65-80.

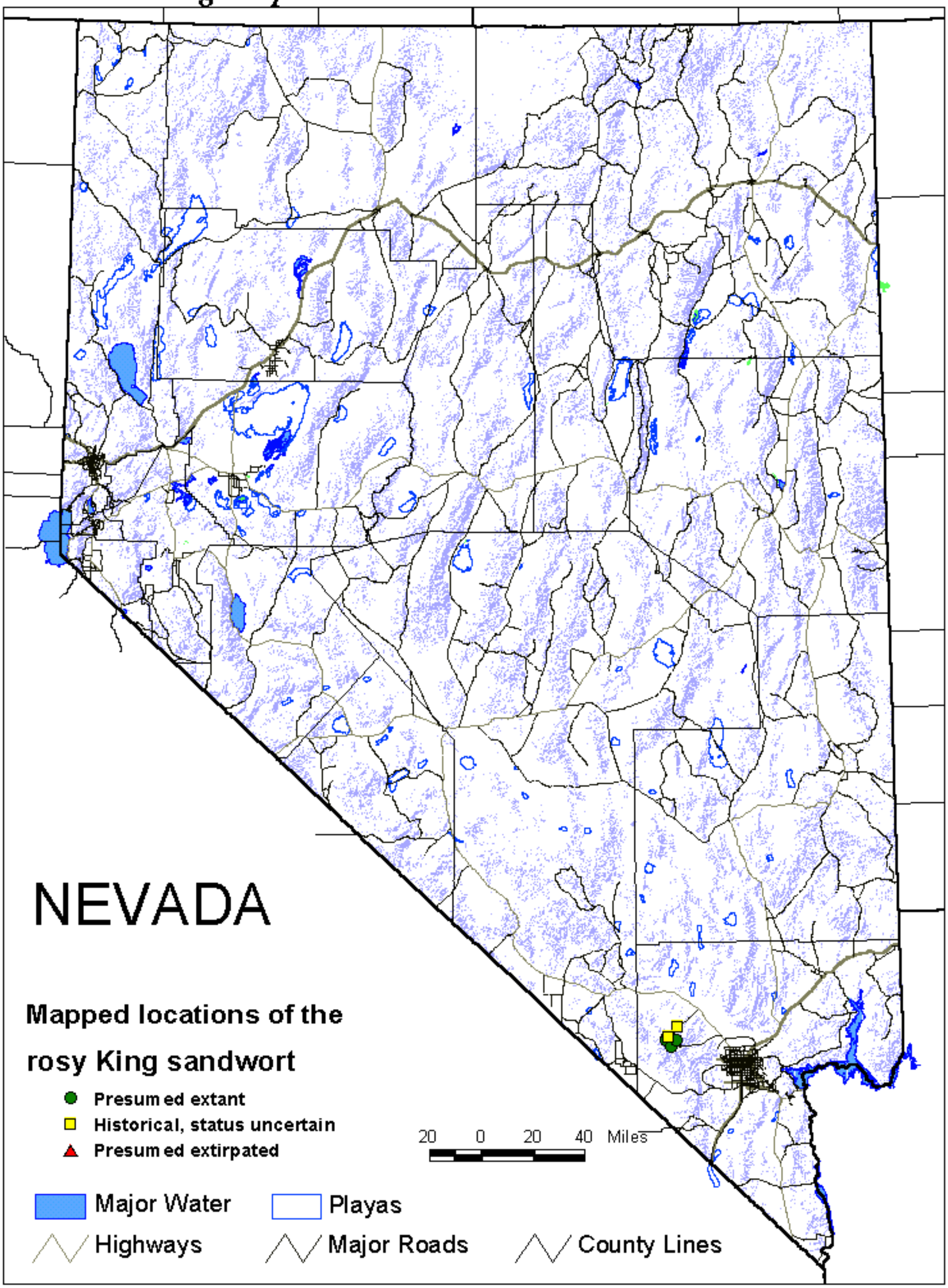
Dames and Moore. 1994. Herpetological study in the Indian Springs Valley and Three Lakes Valley, Nellis Air Force Range. Las Vegas, Nevada. Report No. RKME 94-6028.

Nelson, D. and S. Walsh. 1993. Taxonomic revision of Arctomecon Torr. and Frem. Rhodora 95: 197-213.

Sheldon, S. K. 1994. Life history biology and soil characteristics of two species of Arctomecon (Papaveraceae). Las Vegas: University of Nevada, Department of Biological Sciences, M. S. thesis.

Thompson, S. K. S., and S. D. Smith. 1997. Ecology of Arctomecon californica and A. merriamii (Papaveraceae) in the Mojave Desert. Madroño 44(2): 151-169.

Arenaria kingii ssp. rosea



Arenaria kingii (S. Watson) M. E. Jones **ssp. *rosea*** Maguire — ROSY KING SANDWORT

FAMILY: *Caryophyllaceae*, the pink family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4 T2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 6 occurrences mapped at 1.0 km (0.6 mi) separation, OR **10 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 883+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: USFS: expanding population and recreation use of the Charleston Mts. poses a threat. Excess numbers of wild horses are potential threats.

INVENTORY EFFORT: Systematic surveys have been conducted and are largely complete. Most recent entered survey 1993, average year of last survey 1968. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 50%; **11-20 yrs:** 10%; **51+ yrs or unknown:** 40%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, private lands (?), U. S. Bureau of Land Management (?).

RANGE: Clark County, Nevada. Endemic to the Spring Mountains. Maximum **range dimension 6.9 km (4.3 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 6560-9550 feet (1999-2911 meters).

HABITAT: Dry, shallow, gravelly to rocky carbonate soils on wooded slopes and ridges in the upper pinyon-juniper, montane coniferous forest, and lower subalpine coniferous zones.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** June-August.

LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: not available (see references).

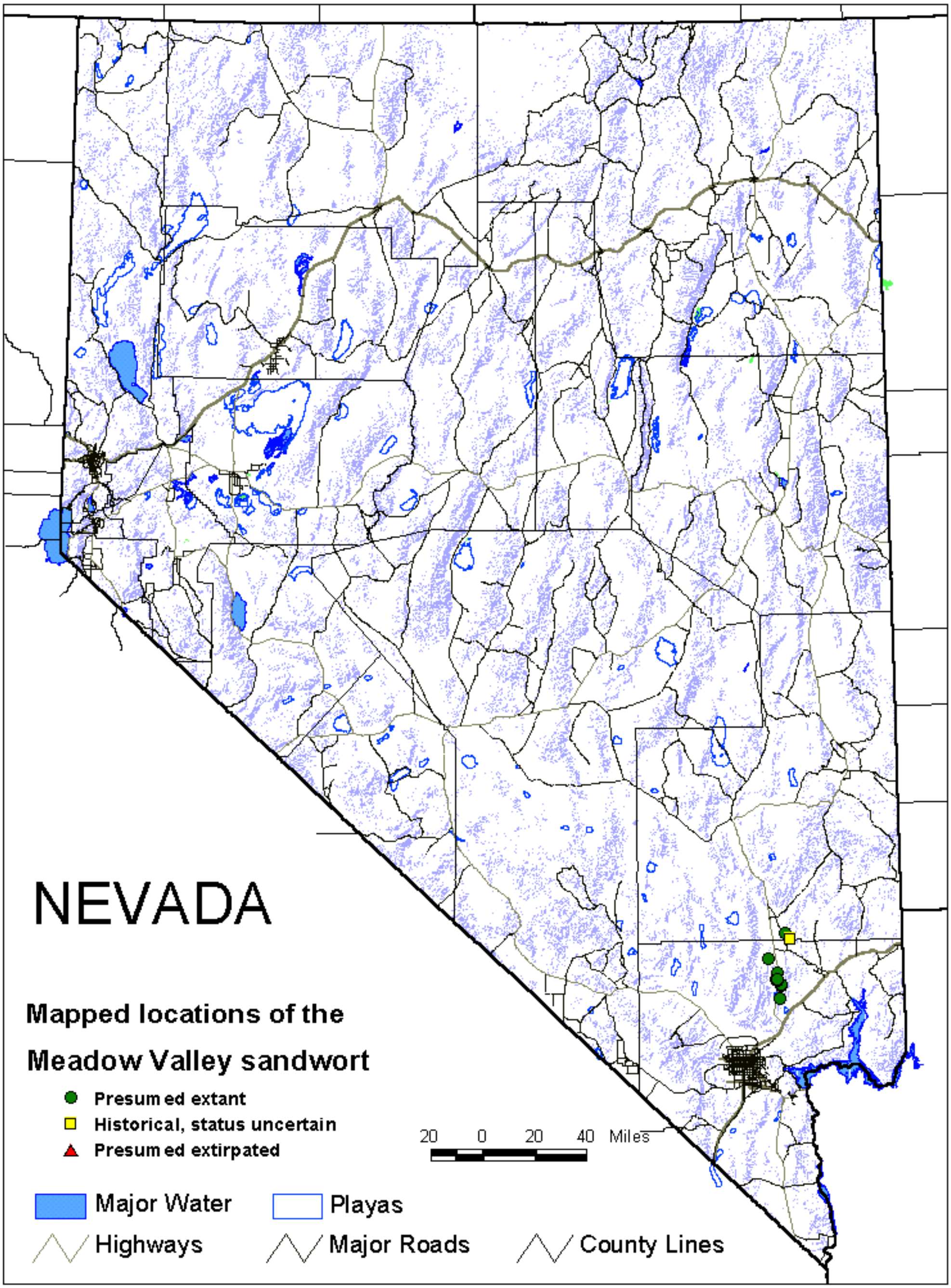
PHOTOGRAPHS: Nachlinger and Sheldon (1999), Weixelman and Atwood (1990).
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Knight (1992), Nachlinger (1994), Spahr et al. (1991).
SPECIFIC REFERENCES:

Maguire, B. 1946. Studies in the Caryophyllaceae I. Bulletin of the Torrey Botanical Club 73: 326.

Maguire, B. 1951. Studies in the Caryophyllaceae V. Arenaria in America North of Mexico. American Midland Naturalist 46: 493-511.

Nachlinger, J. and S. K. Sheldon. 1999. Conservation status of Arenaria kingii (S. Wats.) M. E. Jones ssp. rosea Maguire (Caryophyllaceae), rosy King sandwort, Clark County, Nevada, U. S. A. Reno: The Nature Conservancy, status report prepared for the U. S. Fish and Wildlife Service, Las Vegas.

Arenaria stenomeres



Arenaria stenomeres Eastwood — MEADOW VALLEY SANDWORT

FAMILY: *Caryophyllaceae*, the pink family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 7 occurrences mapped at 1.0 km (0.6 mi) separation, OR **10 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 574+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Habitat unsuitable for man-caused modifications.

INVENTORY EFFORT: Some targeted surveys have been conducted but have not been comprehensive. Most recent entered survey 1997, average year of last survey 1983. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 40%; **11-20 yrs:** 40%; **21-30 yrs:** 10%; **51+ yrs or unknown:** 10%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, U. S. Fish and Wildlife Service.

RANGE: Clark and Lincoln counties, Nevada. **Nevada endemic.** Maximum **range dimension 32.9 km (20.5 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 2900-3600 feet (884-1097 meters).

HABITAT: Carbonate cliffs, ledges, canyon walls, and rocky slopes on all aspects, above the Larrea tridentata zone.

PHENOLOGY: flowering early-spring. Range of most frequent **survey months:** April-May.

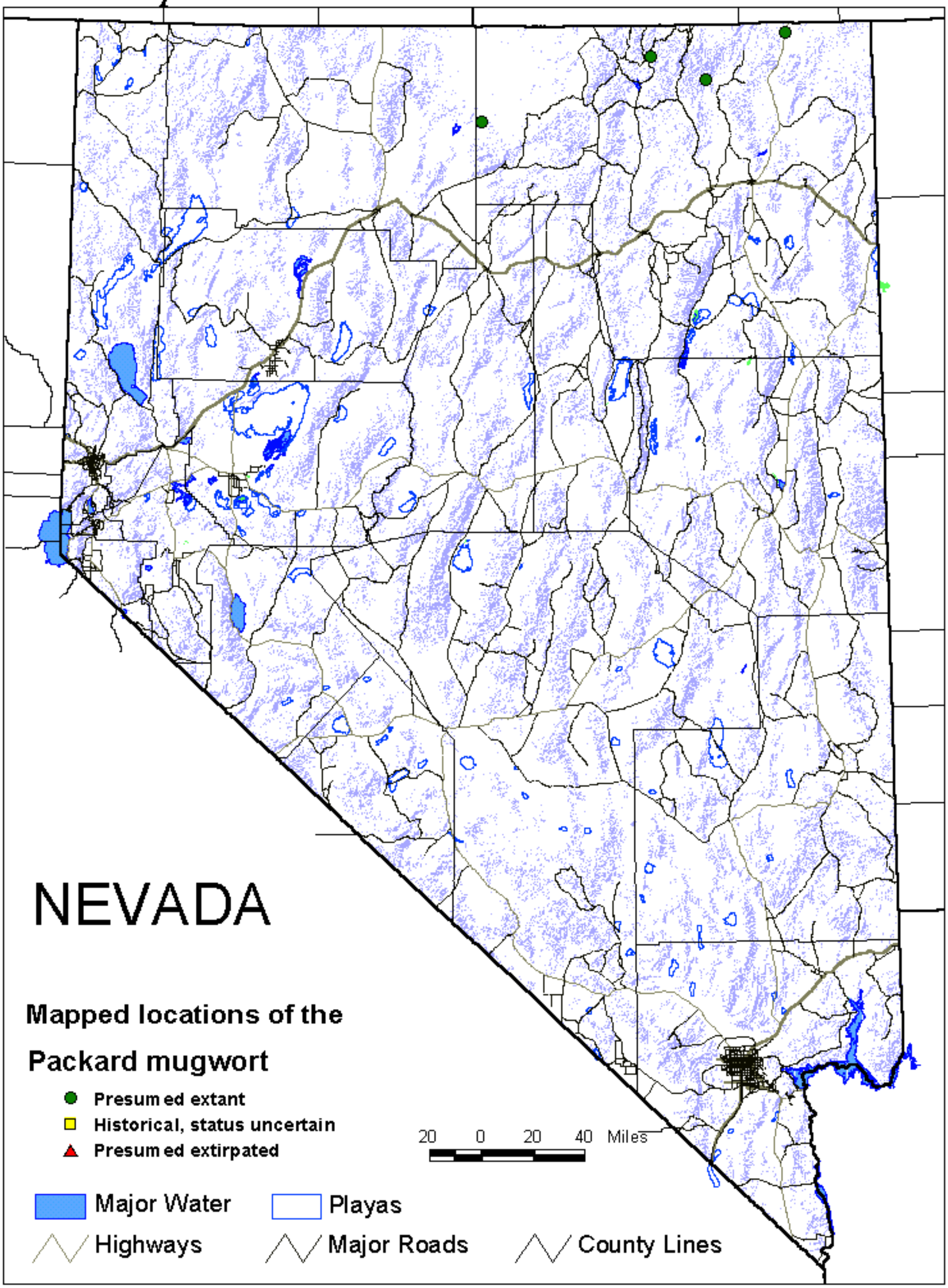
LIFE-FORM AND HABIT: long-lived perennial cushion.

DESCRIPTION: A clump-forming perennial herb, 1-2 dm tall, with stiff, linear leaves. Blooms in May - flower petals are white; sepals are long and pointy (even longer than the mature capsule).

PHOTOGRAPHS: Niles et al. (1997), Weixelman and Atwood (1990).
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Ackerman (1981), Niles et al. (1996).
SPECIFIC REFERENCES:

Eastwood, A. 1944. New western plants V. Leaflets of Western Botany 4: 63-64.
Tiehm, A. 1981. Status report on Arenaria stenomeres. Portland, Oregon: U. S. Fish and Wildlife Service.

Artemisia packardiae



Artemisia packardiae J. Grimes & Ertter (1979) PACKARD MUGWORT

FAMILY: *Asteraceae*, the sunflower family.

STATUS: **Heritage Program WATCH LIST, ranks: G3 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 4 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Inventory based on existing collections. Much more potential habitat could be surveyed. Most recent entered survey 1985, average year of last survey 1984.
Years since last entered survey (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, private lands, U. S. Bureau of Land Management (?).

RANGE: Elko, Humboldt, and Washoe (?) counties, Nevada; also in ID and OR. Maximum Nevada **range dimension 85.2 km (52.9 mi)** excluding most disjunct record. **Type specimen** collected in Malheur County, Oregon.

ELEVATIONS RECORDED (NEVADA): 5000-7800 feet (1524-2377 meters).

HABITAT (NEVADA): Talus and crevices of shaded, steep to vertical volcanic cliffs in canyons in the sagebrush steppe, juniper, and lower mountain sagebrush zones.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** June-August.

LIFE-FORM AND HABIT: rhizomatous perennial herb from a buried root crown.

DESCRIPTION: Fragrant, upright, hairless, glandular, bright green perennial herb with many stems, alternate lobed leaves, and numerous small rayless heads with bright yellow flowers. **Distinguishing features:** Distinguished from Artemisia michauxiana and A. ludoviciana by a complete absence of tomentose hairs and the presence of numerous sessile glands.

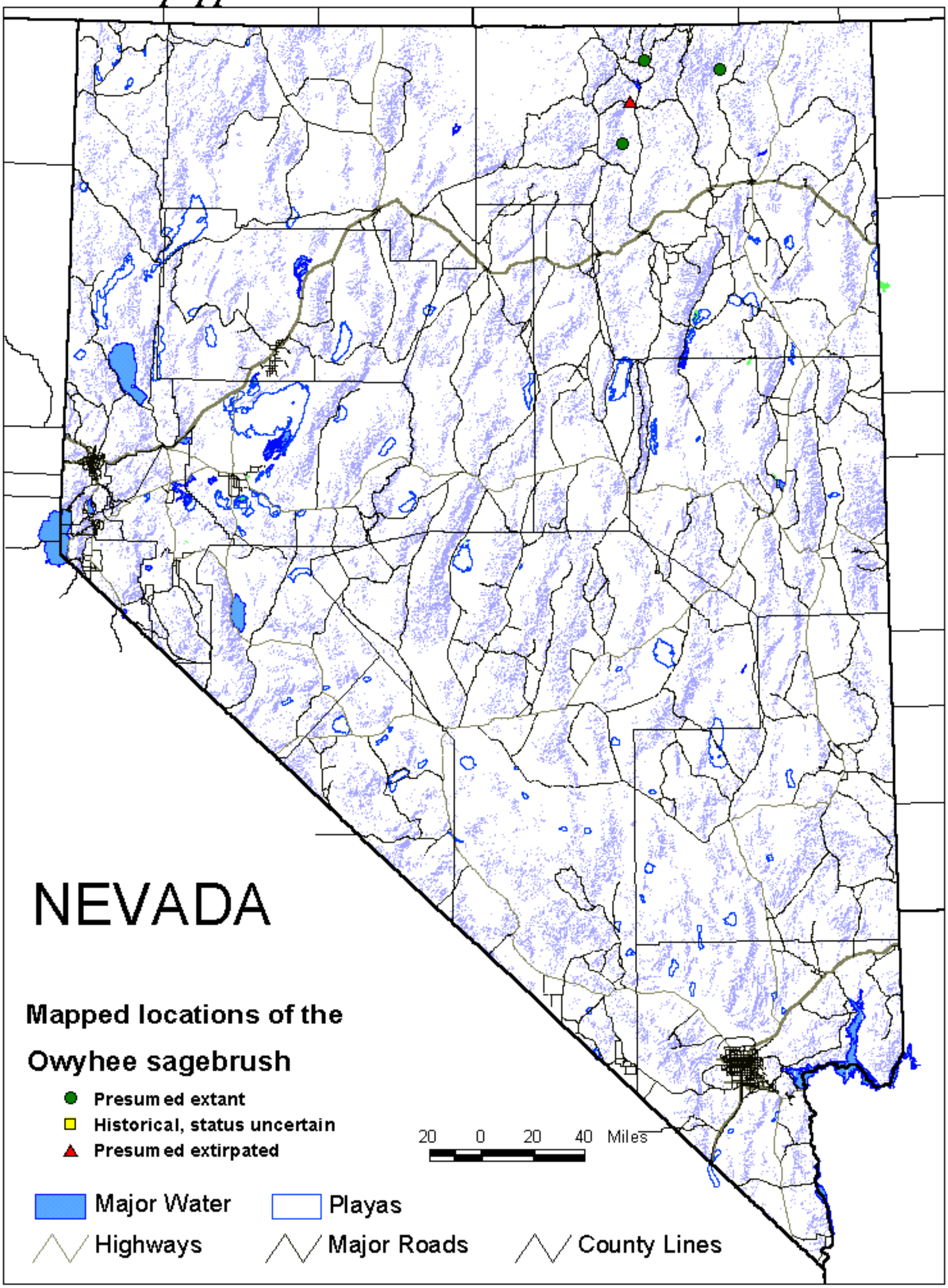
PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist (1994), Grimes and Ertter (1979).
SPECIFIC REFERENCES:

Grimes, J. W. and B. Ertter. 1979. A new species of Artemisia (Asteraceae: Anthemideae) from southeastern Oregon. Brittonia 31: 454-458.

Patterson, R. and M. Yoder-Williams. 1984. Leptodactylon glabrum, a new intermountain species of Polemoniaceae. Systematic Botany 9: 261-262.

OF FURTHER INTEREST: Distinct taxon, related to the more northern A. michauxiana; one of many taxa in a large genus.

Artemisia papposa



Artemisia papposa Blake & Cronquist (1950) OWYHEE SAGEBRUSH

FAMILY: *Asteraceae*, the sunflower family.

STATUS: **Heritage Program WATCH LIST, ranks: G4 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 3 extant and 1 extirpated occurrences mapped; total estimated **individuals 202+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Inventoried by existing collections only. More habitat and populations likely exist. Most recent entered survey 1986, average year of last survey 1983. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 50%; **21-30 yrs:** 50%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, Humboldt-Toiyabe National Forest.

RANGE: Elko and Humboldt (?) counties, Nevada; also in ID and OR. Maximum Nevada **range dimension 76.5 km (47.5 mi)**. **Type specimen** collected in Owyhee County, Idaho.

ELEVATIONS RECORDED (NEVADA): 6300-6700 feet (1920-2042 meters).

HABITAT (NEVADA): Drying meadow margin areas and moist clay bottoms.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-July.

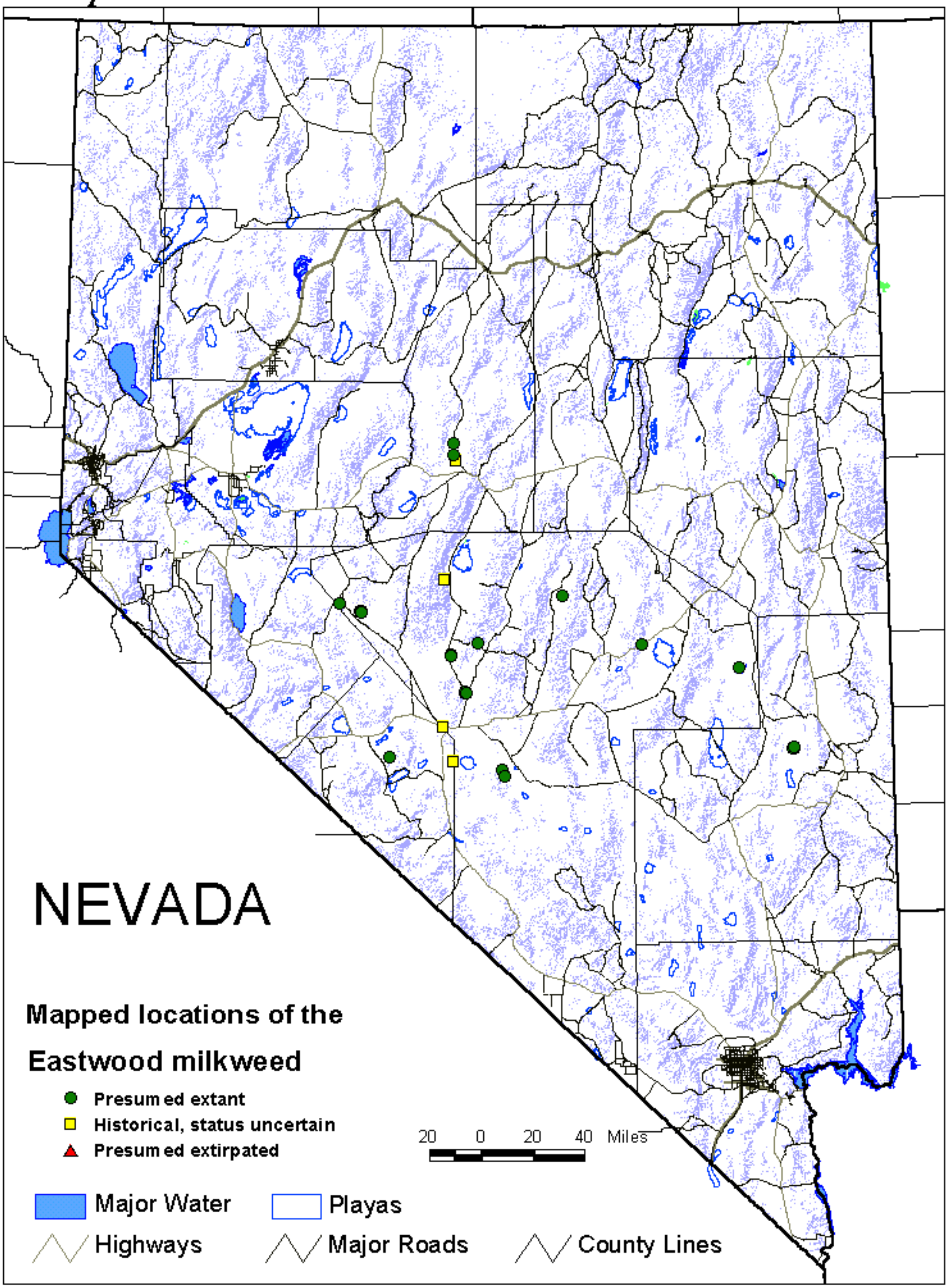
LIFE-FORM AND HABIT: long-lived subshrub.

DESCRIPTION: Aromatic subshrubs about 1 foot high with grayish-green leaves toothed or lobed toward tip or a few unlobed, and few small rayless heads broader than high on unbranched shoots. **Distinguishing features:** Differs from all other relatives in its region by the presence of pappus on the fruit.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: Cronquist (1994), Hitchcock and Cronquist (1973), Mozingo and Williams (1980).
SPECIFIC REFERENCES:

Cronquist, A. 1950. Notes on the Compositae of the northwestern U. S. Leaflets of Western Botany 6: 41-50.
Tiehm, A. 1984. Noteworthy collections, Nevada. Madroño 31: 123-127.
Woodbury, K. 1980. Status report for Artemisia papposa. Portland, Oregon: U. S. Fish and Wildlife Service.

Asclepias eastwoodiana



Asclepias eastwoodiana Barneby (1945) EASTWOOD MILKWEED

FAMILY: *Asclepiadaceae*, the milkweed family. **SYNONYMS:** *Asclepias uncialis* ssp. *ruthiae* (?)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2Q S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 19 occurrences mapped at 1.0 km (0.6 mi) separation, OR **28 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 1475+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: USFS: Trampling by cattle and habitat loss due to mining and road construction are major threats.

INVENTORY EFFORT: Not yet systematically surveyed in Nevada. Most recent entered survey 1991, average year of last survey 1976. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 3.6%; **11-20 yrs:** 39.3%; **21-30 yrs:** 46.4%; **51+ yrs or unknown:** 10.7%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, Humboldt-Toiyabe National Forest, U. S. Department of Defense, Nevada state lands, private lands (?), designated wilderness (?).

RANGE: Esmeralda, Lander, Lincoln, and Nye counties, Nevada. **Nevada endemic.** Maximum **range dimension 283.8 km (176.3 mi)** excluding most disjunct record. **Type specimen** collected in Lander County.

ELEVATIONS RECORDED: 4680-7080 feet (1426-2158 meters).

HABITAT: In open areas on a wide variety of basic (pH usually 8 or higher) soils, including calcareous clay knolls, sand, carbonate or basaltic gravels, or shale outcrops, generally barren and lacking competition, frequently in small washes or other moisture-accumulating microsites, in the shadscale, mixed-shrub, sagebrush, and lower pinyon-juniper zones.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: long-lived perennial herb from a buried root crown.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Weixelman and Atwood (1990); Nevada Natural Heritage Program slide collection (1986-present) and files.

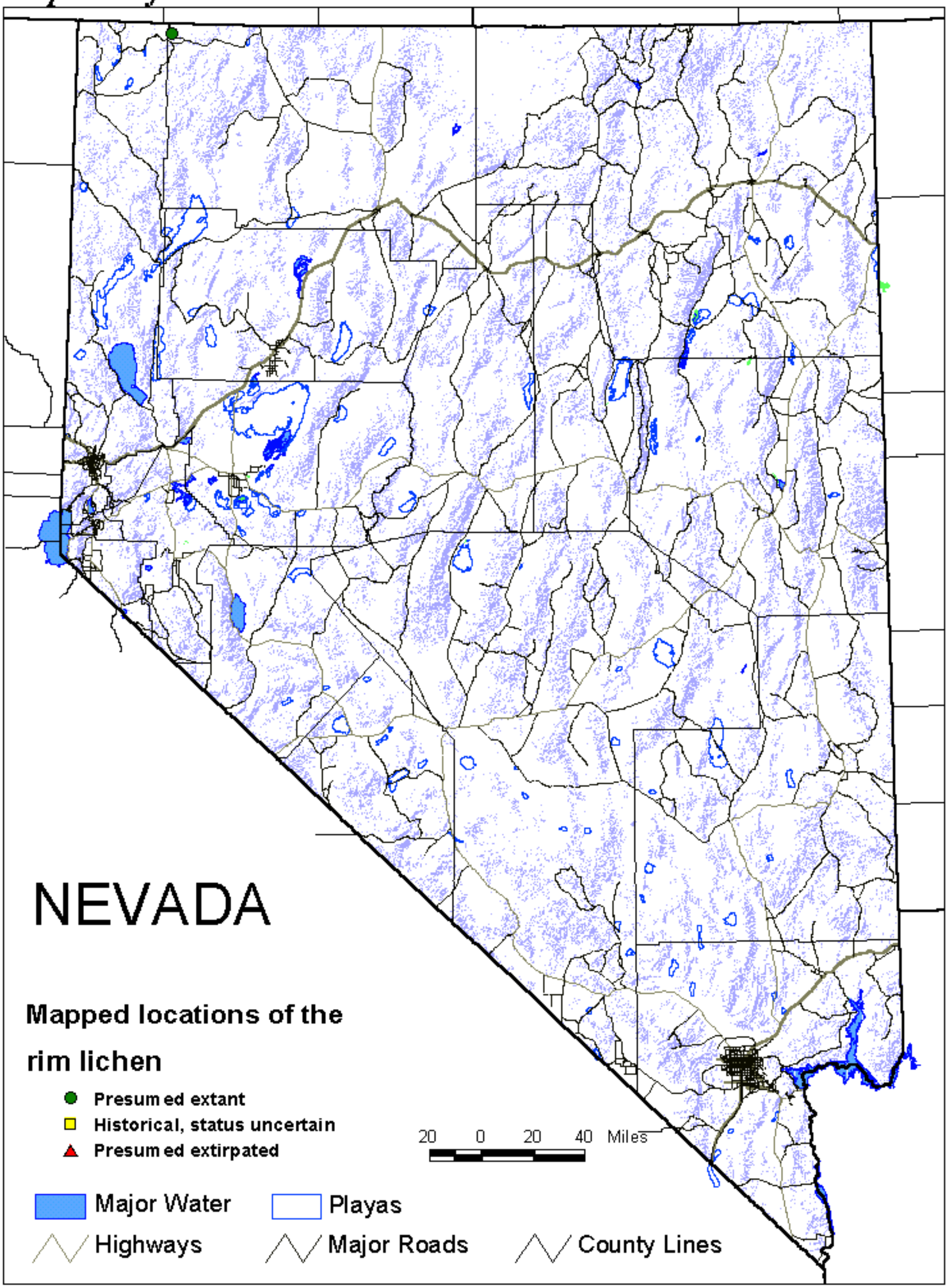
ILLUSTRATIONS: Cronquist et al. (1984), Mozingo and Williams (1980), Weixelman and Atwood (1990).

OTHER GENERAL REFERENCES (listed separately): Goodrich (1981), Rhoads et al. (1979), Spahr et al. (1991).

SPECIFIC REFERENCES:

Barneby, R. C. 1945. A new species of Asclepias from Nevada. Leaflets of Western Botany 4: 210-211.
Welsh, S. 1981. Status report for Asclepias eastwoodiana. Portland, Oregon: U. S. Fish and Wildlife Service.
Woodbury, K. 1980. Status report for Asclepias eastwoodiana. Portland, Oregon: U. S. Fish and Wildlife Service.

Aspicilia fruticulosa



Aspicilia fruticulosa (Eversm.) Flagey — RIM LICHEN

FAMILY: *Hymeneliaceae*. **SYNONYMS:** *Lecanora fruticulosa*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 1 occurrence mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Very sensitive to grazing and other ground disturbances.

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1997.
Years since last entered survey (percent of mapped records at various survey ages)**: 0-5 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Fish and Wildlife Service, Nevada state lands (?).

RANGE: Elko (?), Humboldt, and Washoe (?) counties, Nevada; also in CO, ID, MT, OR, UT, WY, Asia, and Africa. Potential habitat through Columbia Plateau Ecoregion where grazing is light.

ELEVATIONS RECORDED (NEVADA): 6290 feet (1917 meters).

HABITAT (NEVADA): Areas of high soil pH, often in Artemisia nova and Sphaeromeria argentea habitats. Also in calcareous badlands of volcanic ash deposits. Vagrant lichens often do best in slight depressions where liquid water collects and may keep the lichens hydrated for long periods. Vagrant lichens are usually found among shrubs less than 0.5 m tall, possibly due to inhibition of wind dispersal by larger shrubs. One author has noted very low annual precipitation, but cold, windy, foggy, and overcast winters.

PHENOLOGY: fertile early-spring.

LIFE-FORM AND HABIT: lichen.

DESCRIPTION: not available (see references).

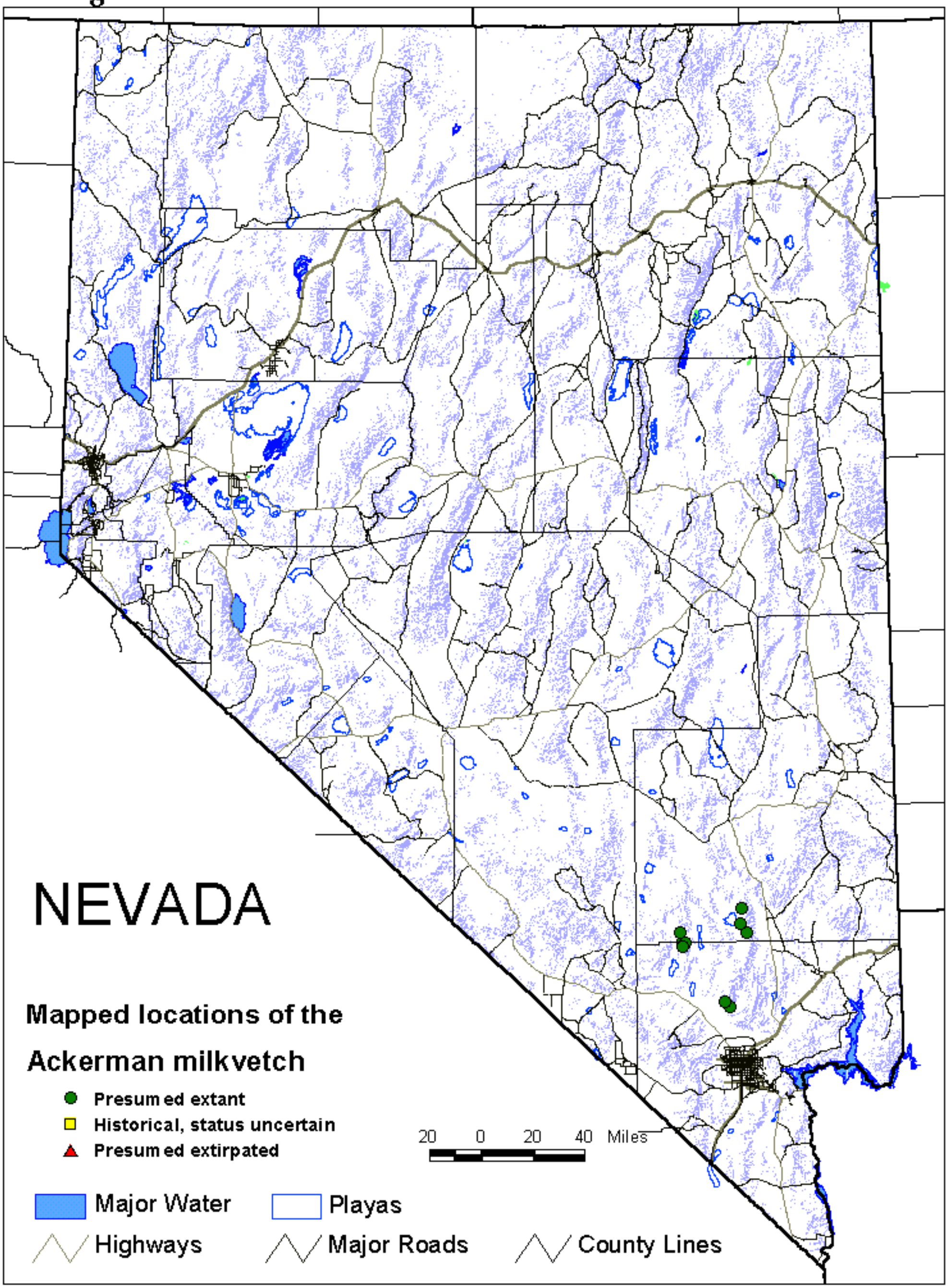
PHOTOGRAPHS: none known.
ILLUSTRATIONS: McCune and Goward (1995).
SPECIFIC REFERENCES:

McCune, B. and Goward, T. 1995. Macrolichens of the northern Rocky Mountains. Eureka, California: Mad River Press. 208 pages.

Rosentreter, R. 1997. Conservation and management of vagrant lichens in the northern Great Basin, USA. Pages 242-248 in: Kaye, T. N., Liston, A., Love, R. M., Luoma, D. L., Meinke, R. J., and Wilson, M. V. (editors). Conservation and Management of Native Plants and Fungi. Corvallis: Native Plant Society of Oregon.

OF FURTHER INTEREST: Reported new for North America in The Bryologist 96(3), 1993, pp. 333-338.

Astragalus ackermanii



Astragalus ackermanii Barneby — ACKERMAN MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 9 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Targeted surveys have been conducted, but are old and likely very incomplete. Most recent entered survey 1993, average year of last survey 1982. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 11.1%; **11-20 yrs:** 22.2%; **21-30 yrs:** 66.7%.

LAND MANAGEMENT in decreasing predominance: U. S. Fish and Wildlife Service, U. S. Department of Defense.

RANGE: Clark and Lincoln counties, Nevada. Apparently endemic to the Sheep and Pintwater ranges. Maximum **range dimension 56.1 km (34.9 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 4000-6200 feet (1219-1890 meters).

HABITAT: Crevices and ledges of carbonate cliffs in the mixed shrub, sagebrush, and juniper woodland zones.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-October.

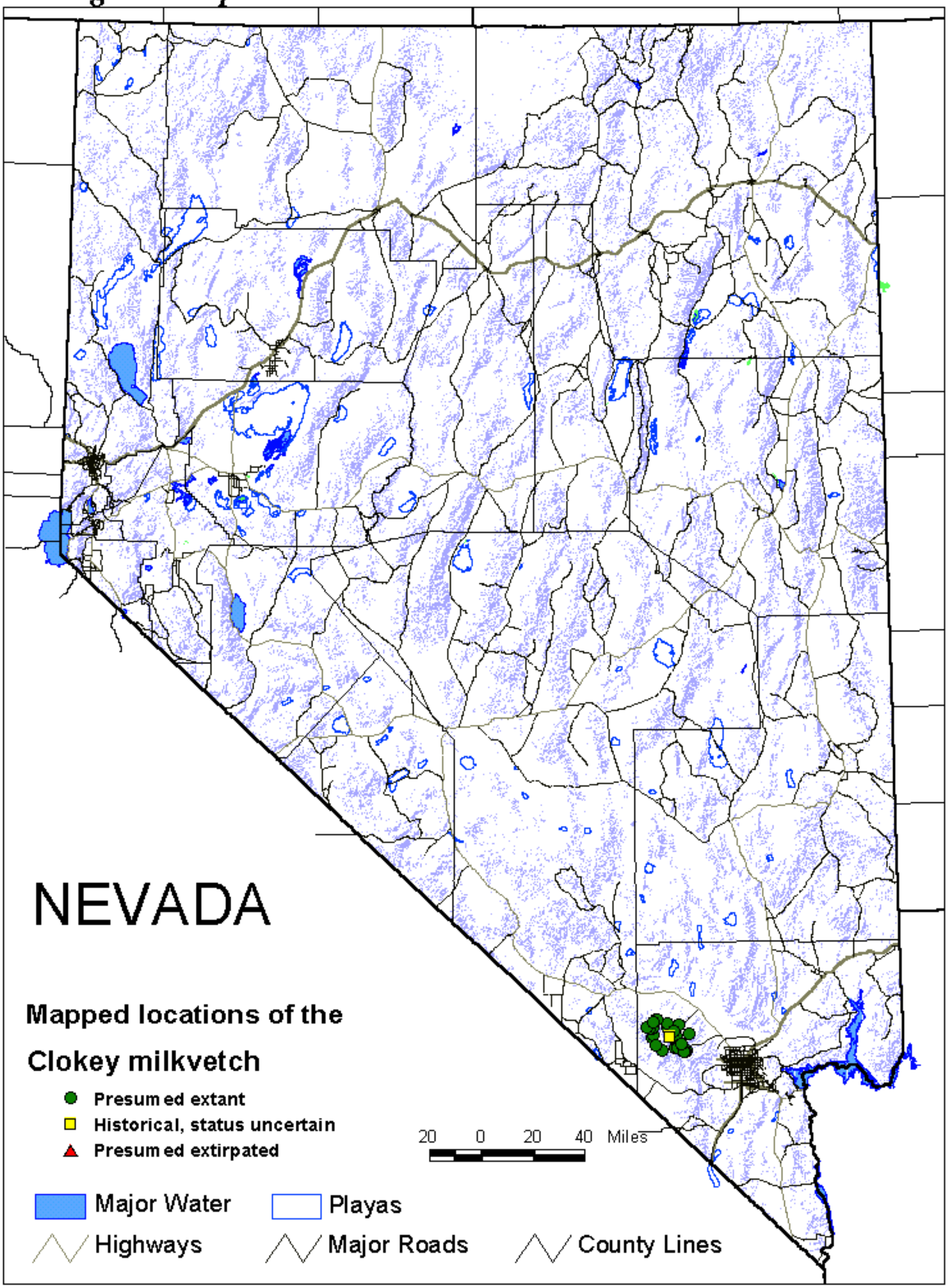
LIFE-FORM AND HABIT: semi-woody long-lived perennial herb.

DESCRIPTION: A perennial herb, 1-5 dm tall, with an intricately entangled, tuft-forming habit and bell-shaped flowers.

PHOTOGRAPHS: Knight and Smith (1994), Knight et al. (1997); Nevada Natural Heritage Program files.
ILLUSTRATIONS: Barneby (1980).
OTHER GENERAL REFERENCES (listed separately): Ackerman (1981).
SPECIFIC REFERENCES:

Barneby, R. C. 1980. Dragma hippomanicum V. Two new Astragali from intermountain United States. Brittonia 32: 24-29.

Astragalus aequalis



Astragalus aequalis Clokey — CLOKEY MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 23 occurrences mapped at 1.0 km (0.6 mi) separation, OR **26 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 2621+**, total estimated **area 55.1+ ha (136+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Human impact is great in certain areas.

INVENTORY EFFORT: Some targeted surveys have been conducted, but substantial potential habitat likely remains unexamined. Most recent entered survey 1994, average year of last survey 1982.
Years since last entered survey (percent of mapped records at various survey ages)**: 6-10 yrs:** 61.5%; **11-20 yrs:** 3.8%; **21-30 yrs:** 19.2%; **31-50 yrs:** 3.8%; **51+ yrs or unknown:** 11.5%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, designated wilderness, private lands.

RANGE: Clark County, Nevada. Endemic to the Spring Mountains. Maximum **range dimension 27.4 km (17.0 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 5970-8400 feet (1820-2560 meters).

HABITAT: Calcareous gravelly flats, hillsides, and open ridges, often sheltering under sagebrush (Artemisia tridentata), pines (Pinus monophylla or P. ponderosa), or Gambel oak (Quercus gambelii). Other common associates include Utah juniper (Juniperus osteosperma) and curl-leaf mountain mahogany (Cercocarpus ledifolius var. intermontanus).

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-August.

LIFE-FORM AND HABIT: perennial herb from a buried root crown.

DESCRIPTION: A perennial herb, up to 7 dm tall, with small yellow flowers blooming in May and June, followed by inflated, mottled fruiting pods.

PHOTOGRAPHS: Nachlinger (1994), Weixelman and Atwood (1990); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964), Beatley (1976), Beatley (1977), Beatley (1977), Clokey (1951), Niles et al. (1998).
SPECIFIC REFERENCES:

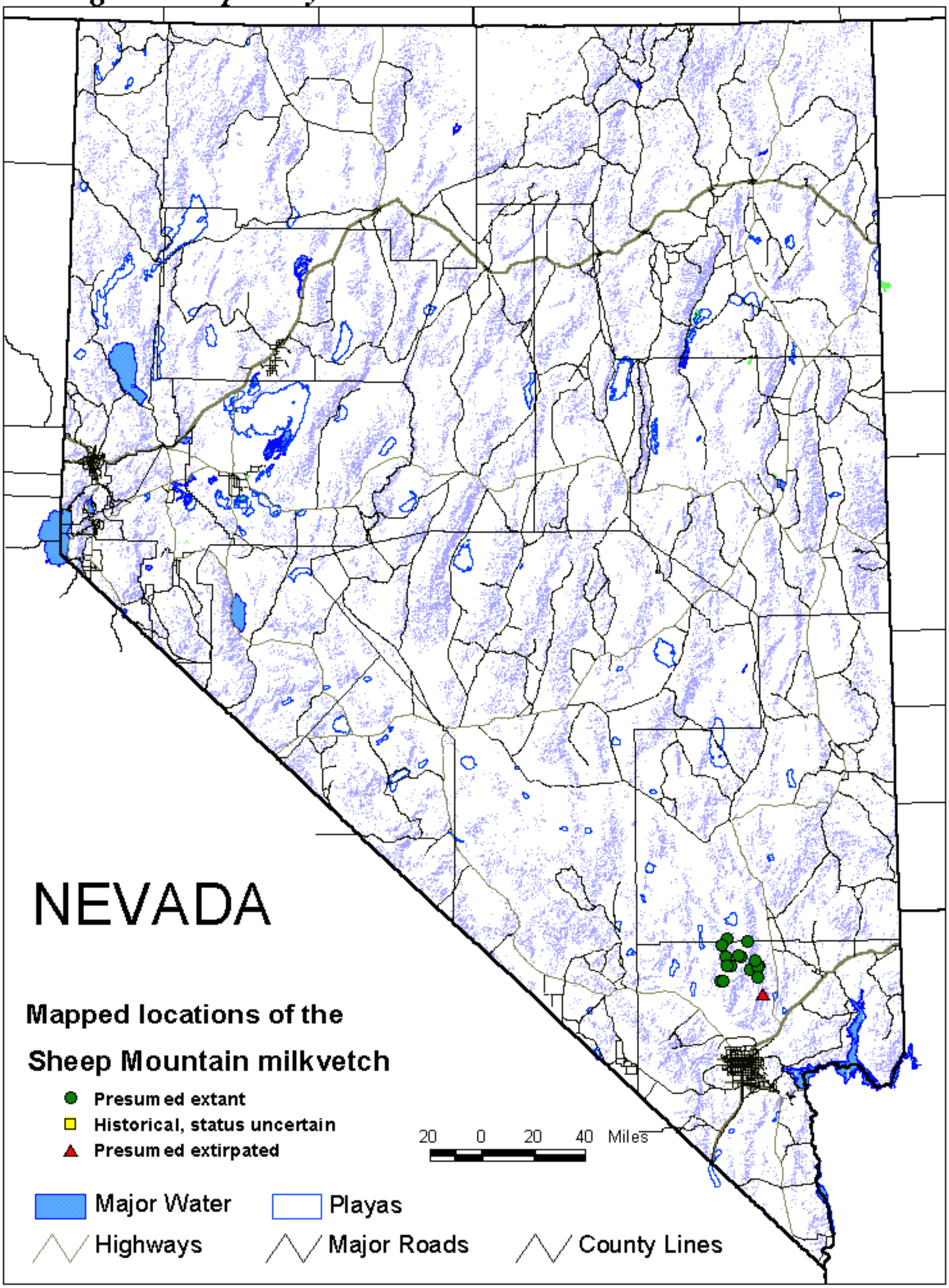
Clokey, I. W. 1942. Notes on the flora of the Charleston Mountains, Clark County, Nevada. IV. Astragalus. Madroño 6: 211-222.

Crosby, V. 1978. Status report for Astragalus aequalis. Portland, Oregon: U. S. Fish and Wildlife Service.

WESTEC Services, Inc. 1980. Field research of rare plants in Las Vegas ES area, Clark County, Las Vegas, Nevada. Las Vegas: Bureau of Land Management.

Woodbury, K. 1980. Status report for Astragalus aequalis. Portland, Oregon: U. S. Fish and Wildlife Service.

Astragalus amphioxys var. musimonum



Astragalus amphioxys A. Gray var. *musimonum* (Barneby) Barneby

SHEEP MOUNTAIN MILKVETCH

FAMILY: *Fabaceae*, the legume family. **SYNONYMS:** *Astragalus musimonum*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G5 T2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 15 extant and 1 extirpated occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Extensive surveys have been conducted in Nevada but likely remain incomplete. Most recent entered survey 1983, average year of last survey 1974. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 31.3%; **21-30 yrs:** 56.3%; **51+ yrs or unknown:** 12.5%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Fish and Wildlife Service, U. S. Department of Defense.

RANGE: Clark and Lincoln counties, Nevada; also in AZ. Maximum Nevada **range dimension 30.1 km (18.7 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 4400-6000 feet (1341-1829 meters).

HABITAT (NEVADA): Carbonate alluvial gravels, particularly along drainages, roadsides, and in other microsites with enhanced run-off, in mixed desert shrub communities.

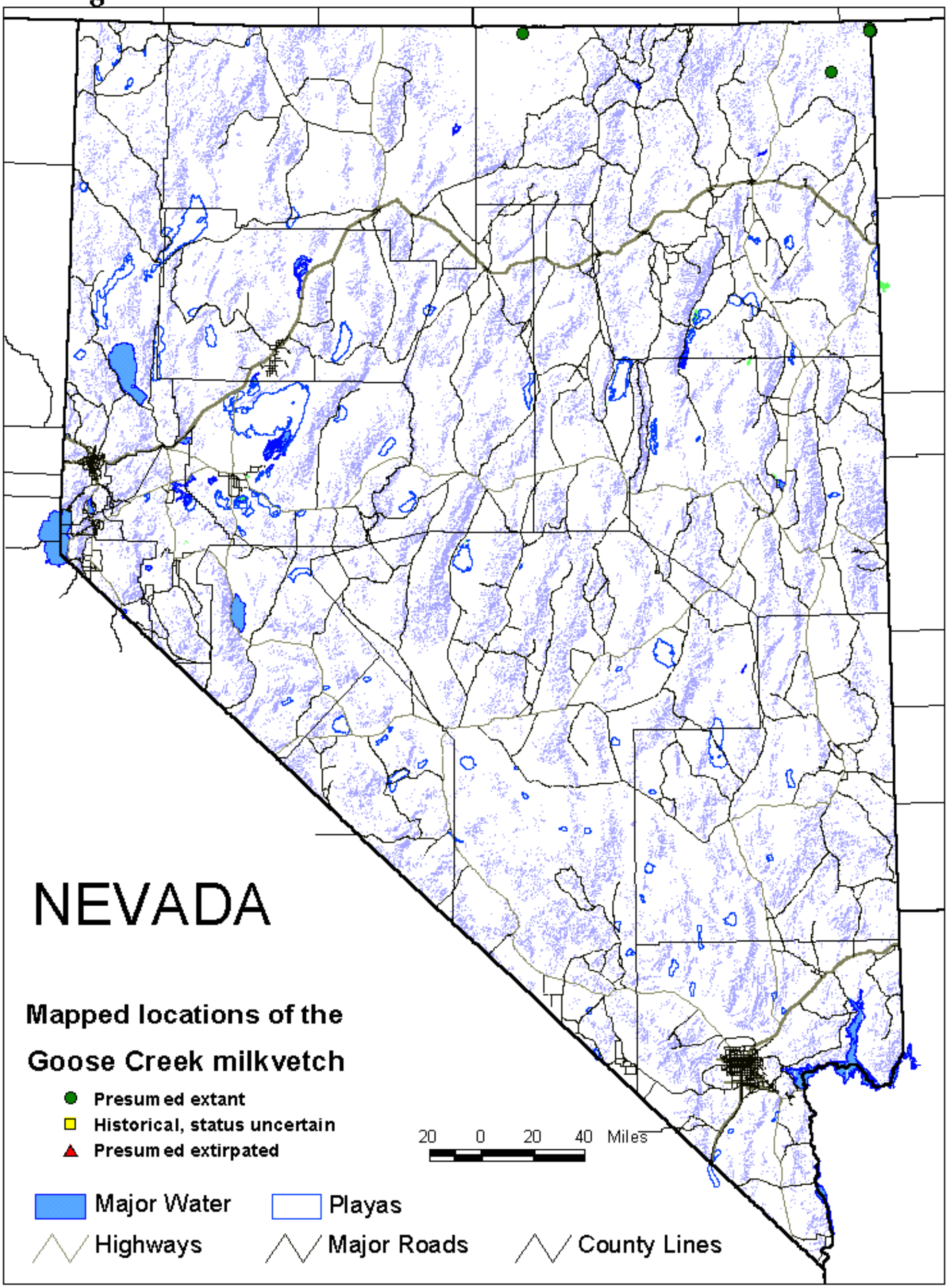
PHENOLOGY: flowering spring. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: small short-lived perennial herb.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Knight et al. (1997).
ILLUSTRATIONS: Barneby (1989), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Ackerman (1981), Barneby (1964).

Astragalus anserinus



Astragalus anserinus Atwood, Goodrich & Welsh — GOOSE CREEK MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 4 occurrences mapped at 1.0 km (0.6 mi) separation, OR **5 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 827**, total estimated **area 18.7 ha (46.2 ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Road building and maintenance, livestock trampling, mineral exploration and development, competition with invasive weeds, impacts to insect pollinators, small population numbers and areas.

INVENTORY EFFORT (NEVADA): Surveys appeared substantially complete, but a recent disjunct discovery in the Owyhee Desert area of Nevada suggests that much potential habitat remains to be surveyed. Most recent entered survey 1999, average year of last survey 1993. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 20%; **6-10 yrs:** 80%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands.

RANGE: Elko County, Nevada; also in ID and UT. Known in Nevada from the Goose Creek drainage, Delano Mountains, and Owyhee Desert. Maximum Nevada **range dimension 35.8 km (22.3 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 4830-5880 feet (1472-1792 meters).

HABITAT (NEVADA): Dry, open, deeply weathered sandy rhyolitic ash of an overall grayish color derived from the Salt Lake Formation, consisting of white rhyolitic ash overlain by a thin veneer of black glassy gravel of apparent volcanic origin, mostly on south to west aspects, in sparse Juniperus osteosperma woodland.

PHENOLOGY: flowering late-spring, on average probably begins in early to mid May and continues through most of June; fruit begins to mature and disperse in early to mid June and continues through mid August. Range of most frequent **survey months:** June-July.

LIFE-FORM AND HABIT: small short-lived perennial herb.

DESCRIPTION: A tuft- or mat-forming perennial herb, the spreading stems 3-11 cm long. Herbage is covered with soft hairs, giving the plant an overall gray-green color. Plants bloom in June-July. The flowers are pink-purple, only 9-11 mm long, and are not elevated above the rest of the plant. The brownish-red fruit pods are soft-hairy, have a curved shape, and appear to be lying under the edge of the low-spreading stems. **Distinguishing features:** Astragalus purshii and A. newberryi are distinguished by their usually larger flowers and fruit with dense spreading hairs concealing the fruit surface. A. calycosus has mostly close, straight, silvery hairs, larger yellowish to purple flowers, and narrower fruit divided into 2 chambers.

PHOTOGRAPHS: Atwood et al. (1991), Atwood et al. (1990); Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: Atwood et al. (1991), Atwood et al. (1990), Barneby (1989).
OTHER GENERAL REFERENCES (listed separately): Spahr et al. (1991).
SPECIFIC REFERENCES:

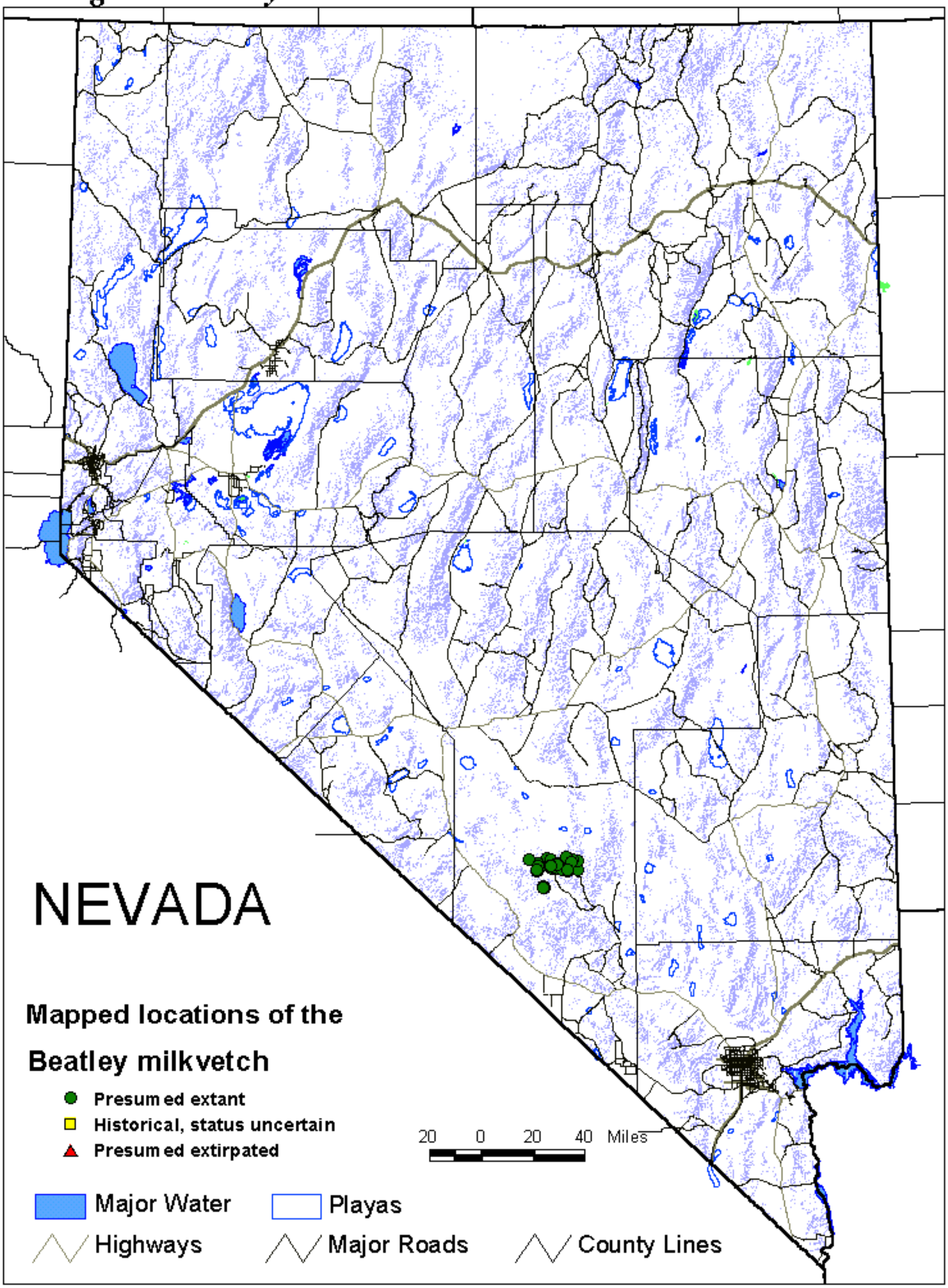
Atwood, N. D., S. Goodrich and S. Welsh. 1984. New Astragalus (Leguminosae) from the Goose Creek drainage, Utah-Nevada. Great Basin Naturalist 44: 263-264.

Baird, G. I., J. Tuhy, and M. A. Franklin. 1991. Report for the 1990 Challenge Cost share project USDI Bureau of Land Management. Target species: Astragalus anserinus Atwood, Goodrich, and Welsh, Penstemon idahoensis Atwood and Welsh, Potentilla cottamii Holmgren. Salt Lake City: Utah Natural Heritage Program files, Utah Department of Natural Resources.

Mancuso, M. and R. K. Moseley. 1991. Report on the conservation status of Astragalus anserinus, in Idaho and Utah. Boise: Idaho Department of Parks and Recreation, prepared for the U. S. Fish and Wildlife Service, Region 1, Portland, Oregon.

Morefield, J. D. 1992. Interim status report for Astragalus anserinus Atwood, Goodrich, and Welsh. Carson City: Nevada Natural Heritage Program, prepared for the Bureau of Land Management, Elko District, Elko, Nevada.

Astragalus beatleyae



Astragalus beatleyae Barneby — BEATLEY MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S3**
USFWS/ESA: species of concern, formerly CANDIDATE or PROPOSED. **STATE OF NEVADA:** none.
BLM: Special Status Species. **USFS:** none. **NNNPS:** watch list. **IUCN:** endangered.

POPULATION CENSUS: 19 occurrences mapped at 1.0 km (0.6 mi) separation, OR **39 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 77,000+**, total estimated **area 138+ ha (341+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Few current threats, populations actively monitored and avoided by DOE and contractors. Past impacts from nuclear testing activities and associated surface clearing and roads. Potentially vulnerable to habitat disturbance from commercial developments on the Nevada Test Site, military activities, or resumption of weapons testing or other DOE missions.

INVENTORY EFFORT: Systematic surveys have been conducted and appear largely complete. Most recent entered survey 1994, average year of last survey 1992. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 100%.

LAND MANAGEMENT in decreasing predominance: U. S. Department of Energy, U. S. Department of Defense.

RANGE: Nye County, Nevada. **Nevada endemic.** Maximum **range dimension 27.0 km (16.8 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 5180-6920 feet (1579-2109 meters).

HABITAT: Thin, dry, open residual soils on flat to gently sloping volcanic tuff, mostly in pinyon-juniper woodland with Artemisia nova, Ericameria nana, etc.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: small short-lived perennial herb.

DESCRIPTION: A perennial herb that forms circular mats 5-20 cm in diameter. Flowers (May-June) are blue-violet.

PHOTOGRAPHS: Knight and Smith (1995), Knight et al. (1997); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Barneby (1989), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Beatley (1977), Beatley (1977), Cochrane (1979), Rhoads and Williams (1977).
SPECIFIC REFERENCES:

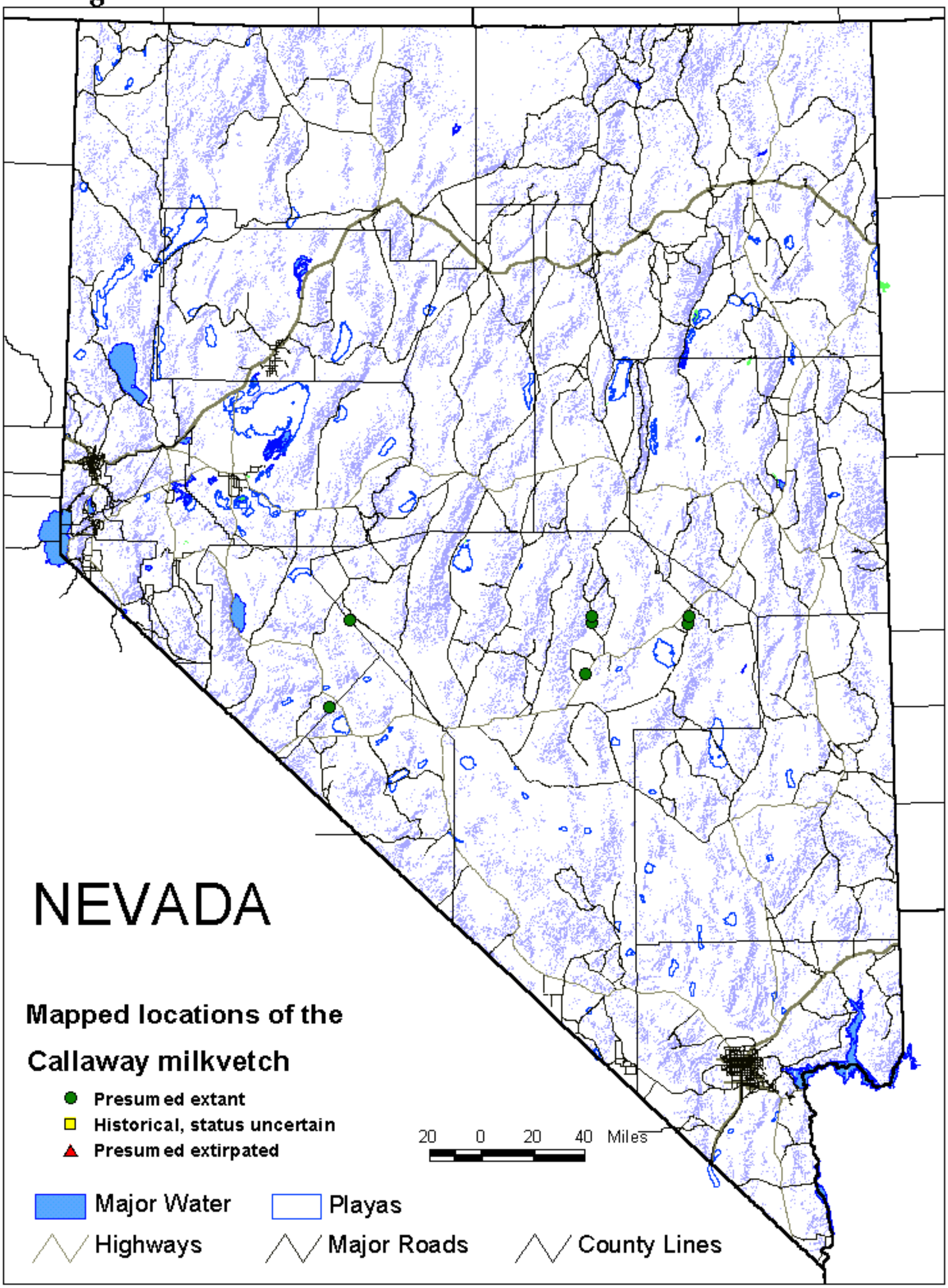
Barneby, R. C. 1970. A new Astragalus from Nye County, Nevada. Aliso 7: 161-163.

Blomquist, K. W., C. A. Wills, W. K. Ostler, K. R. Rautenstrauch, and T. P. O'Farrell. 1992. Distribution, life history, management, and current status of Astragalus beatleyae on the U. S. Department of Energy's Nevada Test Site. Santa Barbara, California: EG and G/EM report 10617-2187.

Fisher, J. 1981. Sensitive plant survey. Nellis Air Force Range, Nevada. Las Vegas, Nevada: WESTEC Services, Inc., Contract 1130-0237-80.

O'Farrell, T. P. and E. Collins. 1984. Surveys for Astragalus beatleyae on Nellis Bombing Range, Nye county, Nevada. Santa Barbara, California: EG and G Report # 10282-2032 S-765-R.

Astragalus callithrix



Astragalus callithrix Barneby — CALLAWAY MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program WATCH LIST, ranks: G3 S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 7 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1981, average year of last survey 1980. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 71.4%; **21-30 yrs:** 28.6%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, Nevada state lands (?), private lands (?), Humboldt-Toiyabe National Forest (?).

RANGE: Mineral and Nye counties, Nevada; also in UT. Maximum Nevada **range dimension 210.7 km (131.0 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 4880-5900 feet (1487-1798 meters).

HABITAT (not yet reviewed for Nevada): "Deep, sandy soil on the valley floor or on dunes in barren openings with Atriplex, Grayia, Chrysothamnus, and Artemisia; 1550 - 1710 m (Kartesz, 1988)."

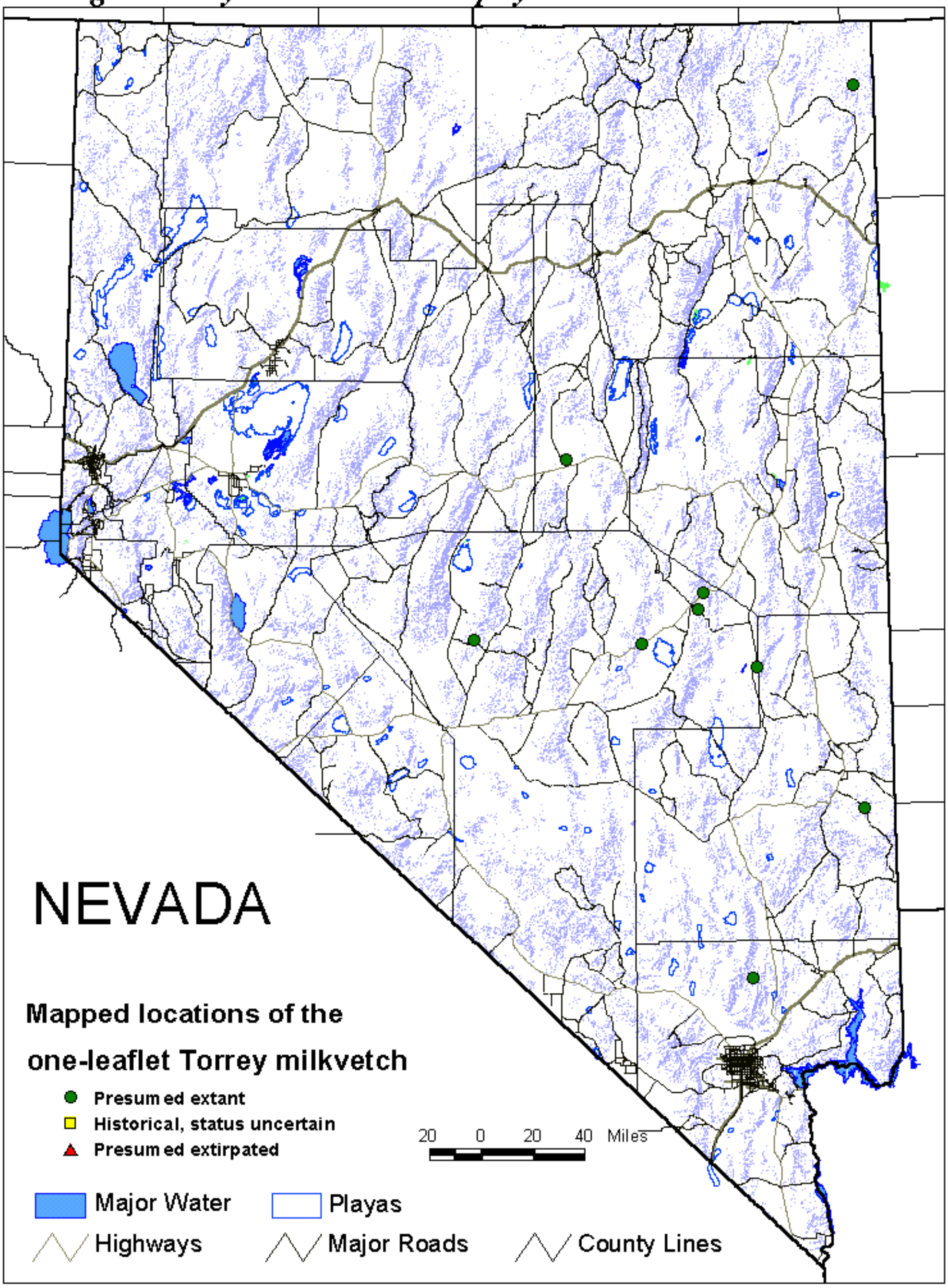
PHENOLOGY: no summary available. Range of most frequent **survey months:** May-June.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: Barneby (1989), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964), Goodrich (1981), Welsh et al. (1993).
SPECIFIC REFERENCES:

Welsh, S. L. 1981. Species information for Astragalus callithrix. Carson City: Nevada Natural Heritage Program files.

Astragalus calycosus var. monophyllidius



Astragalus calycosus Torrey ex S. Watson var. *monophyllidius* (Rydberg) Barneby
ONE-LEAFLET TORREY MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G5 T2 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 9 occurrences mapped; total estimated **individuals 508+**, total estimated **area 7.3+ ha (18.0+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1991, average year of last survey 1976. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 11.1%; **11-20 yrs:** 11.1%; **21-30 yrs:** 66.7%; **51+ yrs or unknown:** 11.1%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, Humboldt-Toiyabe National Forest, U. S. Fish and Wildlife Service.

RANGE: Clark, Elko, Eureka, Lincoln, and Nye counties, Nevada; also in UT. Maximum Nevada **range dimension 343.3 km (213.3 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 5350-7465 feet (1631-2275 meters).

HABITAT: no summary available (see references).

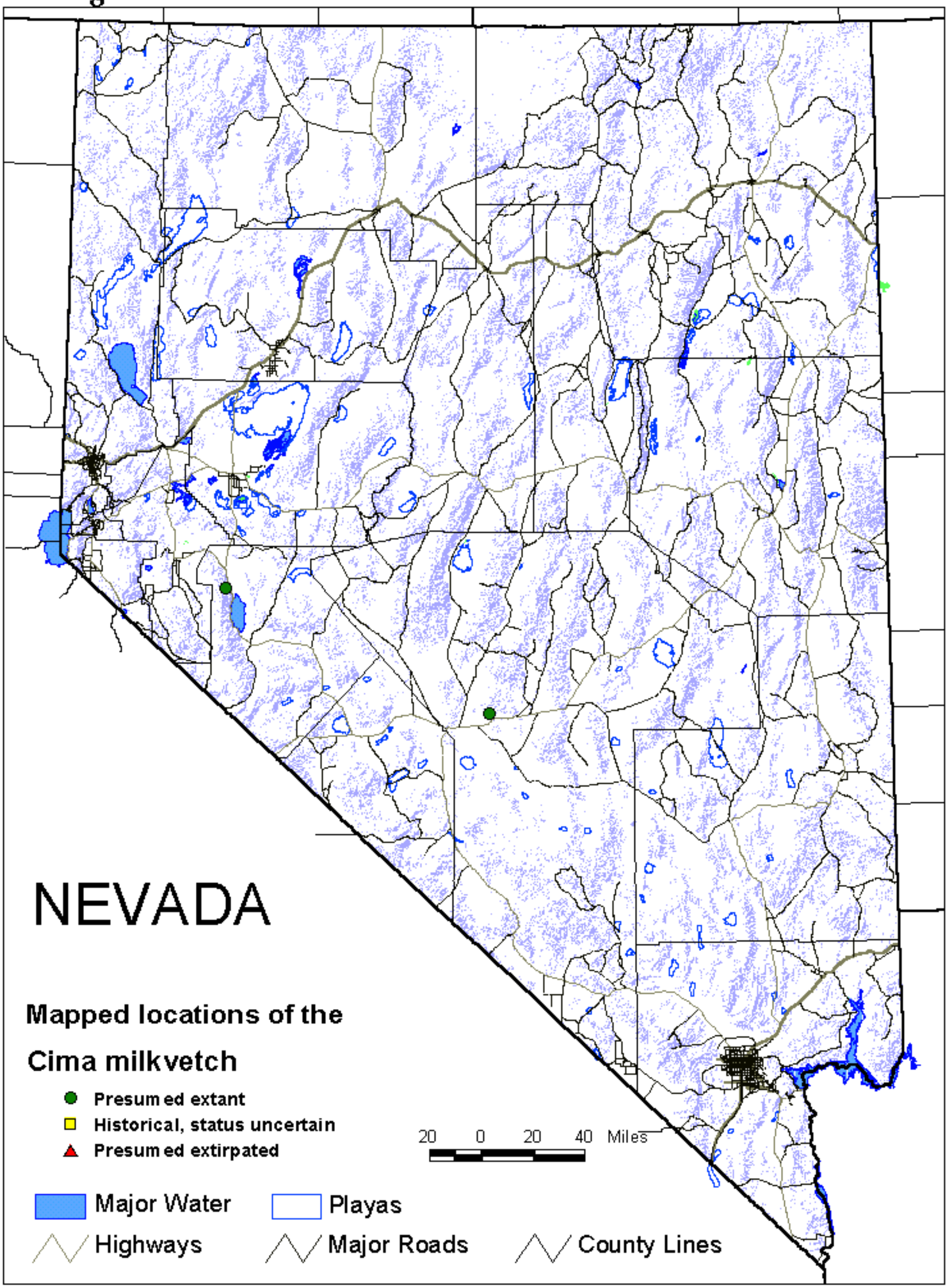
PHENOLOGY: no summary available. Range of most frequent **survey months:** May-June.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nevada Natural Heritage Program files.
ILLUSTRATIONS: Barneby (1989), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964).
SPECIFIC REFERENCES:

Morefield, J. D. 1992. Interim status report for Frasera pahutensis Reveal. Carson City: Nevada Natural Heritage Program, prepared for the Toiyabe National Forest, Sparks, Nevada.

Astragalus cimae var. cimae



Astragalus cimae M. E. Jones **var. *cimae*** **CIMA MILKVETCH**

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 T2 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 2 occurrences mapped at 1.0 km (0.6 mi) separation, OR **3 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 151+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1983, average year of last survey 1979. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 33.3%; **21-30 yrs:** 66.7%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, Native American lands (?).

RANGE: Mineral and Nye counties, Nevada; also in CA. Maximum Nevada **range dimension 180.9 km (112.4 mi)**.

ELEVATIONS RECORDED (NEVADA): 5100-6416 feet (1554-1956 meters).

HABITAT (NEVADA): Dry, open, relatively barren calcareous gravel slopes or clay hills.

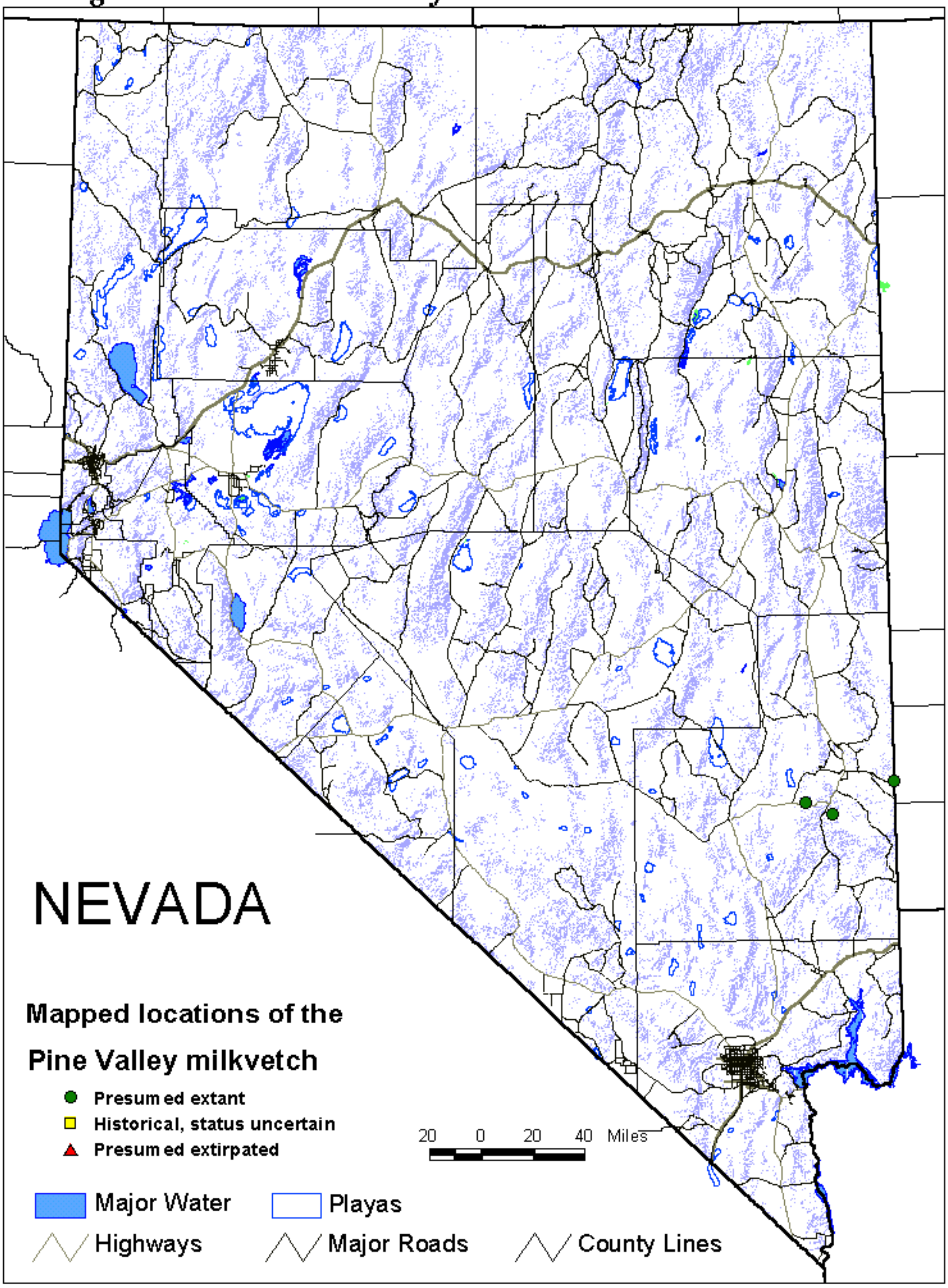
PHENOLOGY: flowering spring. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Barneby (1989).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964), Hickman (1993).

Astragalus convallarius var. finitimus



Astragalus convallarius E. Greene var. *finitimus* Barneby PINE VALLEY MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program WATCH LIST, ranks: G5 T3 S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 3 occurrences mapped; total estimated **individuals 202+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1983, average year of last survey 1983. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT (NEVADA): U. S. Bureau of Land Management.

RANGE: Lincoln County, Nevada; also in UT. Maximum Nevada **range dimension 56.3 km (35.0 mi)**.

ELEVATIONS RECORDED (NEVADA): 5600-5900 feet (1707-1798 meters).

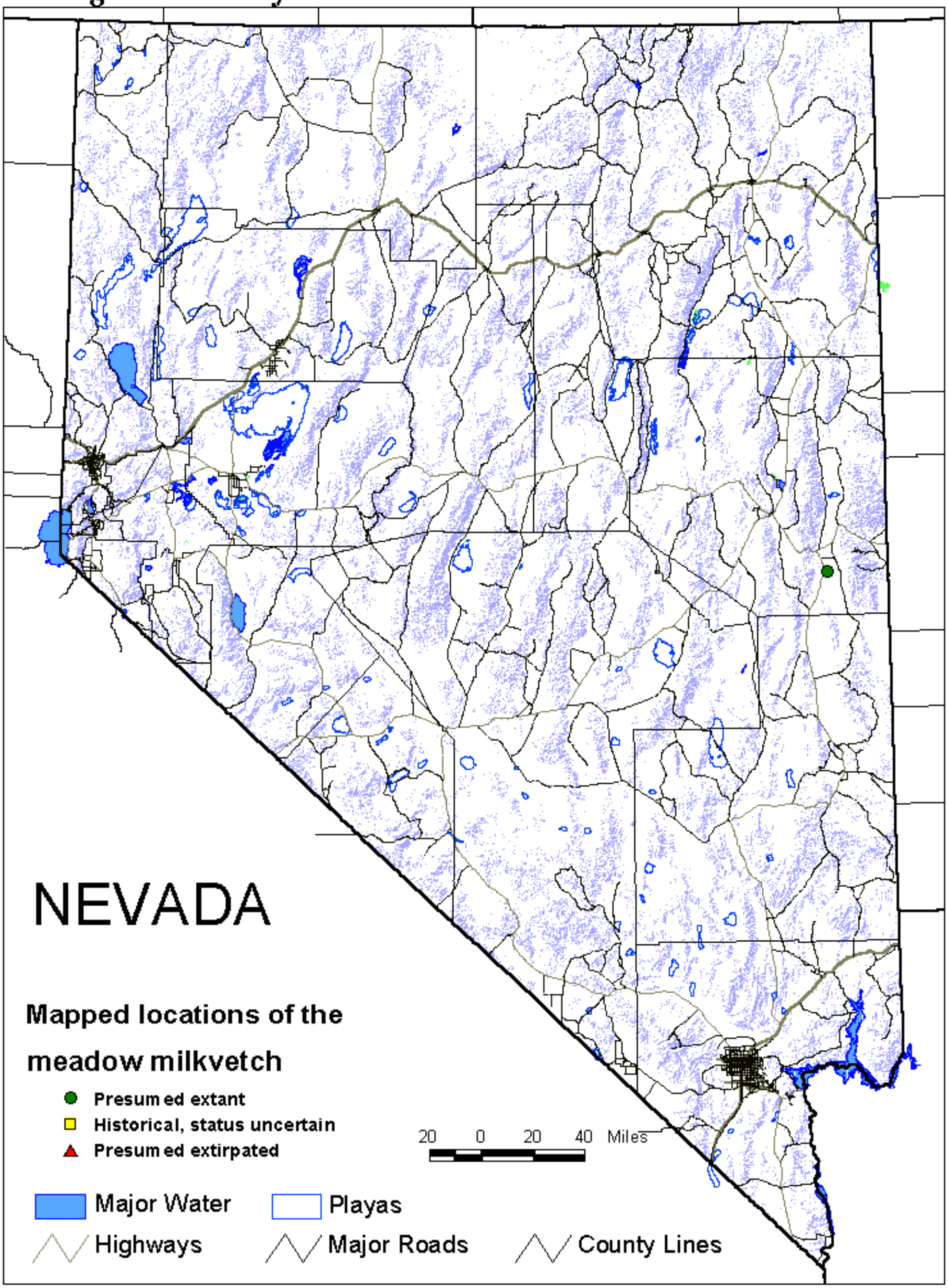
HABITAT: no summary available (see references).

PHENOLOGY: no summary available. Range of most frequent **survey months:** June.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Barneby (1989), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964).

Astragalus diversifolius



Astragalus diversifolius A. Gray — MEADOW MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 1 occurrence mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1982.
Years since last entered survey (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT (NEVADA): private lands.

RANGE: White Pine County, Nevada; also in ID and UT.

ELEVATIONS RECORDED (NEVADA): 5760 feet (1756 meters).

HABITAT (NEVADA): Edge of an alkaline seepage area with Chrysothamnus. Aquatic or wetland-dependent in Nevada.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-July.

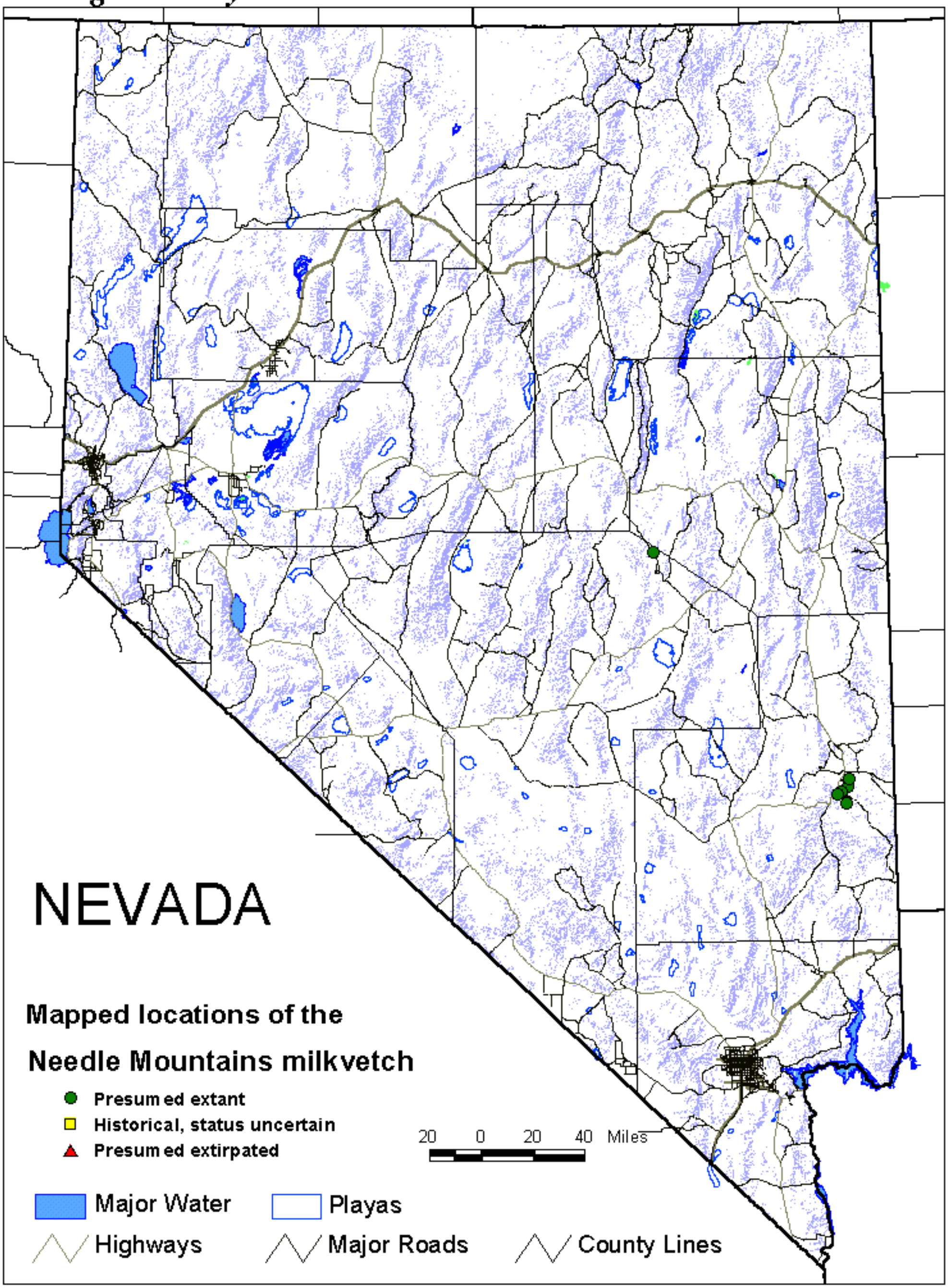
LIFE-FORM AND HABIT: perennial herb from a buried root crown.

DESCRIPTION: Plant, legume.

PHOTOGRAPHS: Fertig et al. (1994).
ILLUSTRATIONS: Barneby (1989), Fertig et al. (1994), Hitchcock and Cronquist (1973).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964).
SPECIFIC REFERENCES:

Tiehm, A. 1984. Noteworthy collections, Nevada. Madroño 31: 123-127.

Astragalus eurylobus



Astragalus eurylobus (Barneby) Barneby — NEEDLE MOUNTAINS MILKVETCH

FAMILY: *Fabaceae*, the legume family. **SYNONYMS:** *Astragalus tephrodes* var. *eurylobus*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 6 occurrences mapped; total estimated **individuals 6273+**, total estimated **area 527+ ha (1302+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1986, average year of last survey 1985. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT (NEVADA): U. S. Bureau of Land Management.

RANGE: Lincoln and Nye counties, Nevada; also in AZ and UT. Maximum Nevada **range dimension 14.9 km (9.3 mi)** excluding most disjunct record. **Type specimen** collected in Lincoln County.

ELEVATIONS RECORDED (NEVADA): 4600-5750 feet (1402-1753 meters).

HABITAT (NEVADA): Generally deep, barren, sandy, gravelly, or clay soils derived from sandstone or siliceous volcanics, frequently in or along drainages.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: perennial herb.

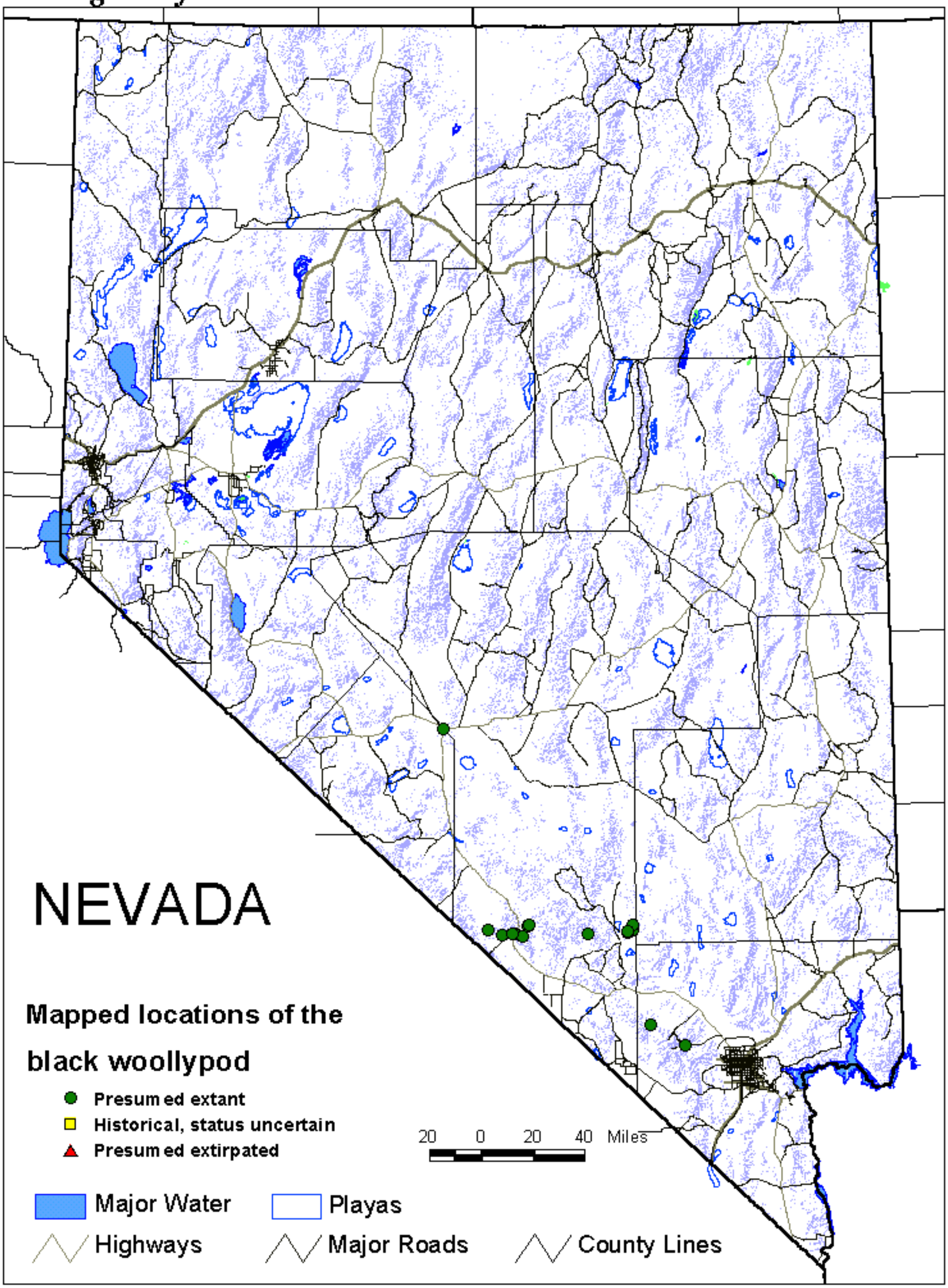
DESCRIPTION: A perennial herb, stem and leaves lax, together about 24 cm long. Clusters of pink-purple flowers bloom from late April to early July. **Distinguishing features:** Differs from A. tephrodes in having a well-developed septum in the pod (Barneby 1989).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Barneby (1989), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964).
SPECIFIC REFERENCES:

Barneby, R. C. 1984. Dragma hippomanicum X: Astragali (Leguminosae) nevadenses novi criticive, singulo peruviano adjecto. Brittonia 36: 167-173.

Nichols, R. 1985. Botanical inventory: Astragalus eurylobus Barneby. Caliente, Nevada: Bureau of Land Management, Caliente Resource Area.

Astragalus funereus



Astragalus funereus M. E. Jones — BLACK WOOLLYPOD

FAMILY: *Fabaceae*, the legume family.

SYNONYMS: *Astragalus newberryi* var. *funereus*
Astragalus purshii var. *funereus*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 12 occurrences mapped at 1.0 km (0.6 mi) separation, OR **17 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 1514+**, total estimated **area 460+ ha (1137+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Gold mining potential; threats in Bullfrog Hills and construction on Nevada Test Site.

INVENTORY EFFORT (NEVADA): Surveys have been conducted in Nevada but remain largely incomplete. Most recent entered survey 1992, average year of last survey 1983. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 52.9%; **11-20 yrs:** 17.6%; **21-30 yrs:** 23.5%; **51+ yrs or unknown:** 5.9%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Department of Energy, U. S. Bureau of Land Management, private lands, Humboldt-Toiyabe National Forest, National Park Service, U. S. Fish and Wildlife Service (?), U. S. Department of Defense (?).

RANGE: Clark, Lincoln (?), and Nye counties, Nevada; also in CA. Maximum Nevada **range dimension 141.8 km (88.1 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 3200-7680 feet (975-2341 meters).

HABITAT (NEVADA): Dry, open scree, talus, or gravelly alluvium derived from light-colored volcanic tuff, on east, south, less commonly west, rarely north aspects.

PHENOLOGY: flowering early-spring. Range of most frequent **survey months:** March-June.

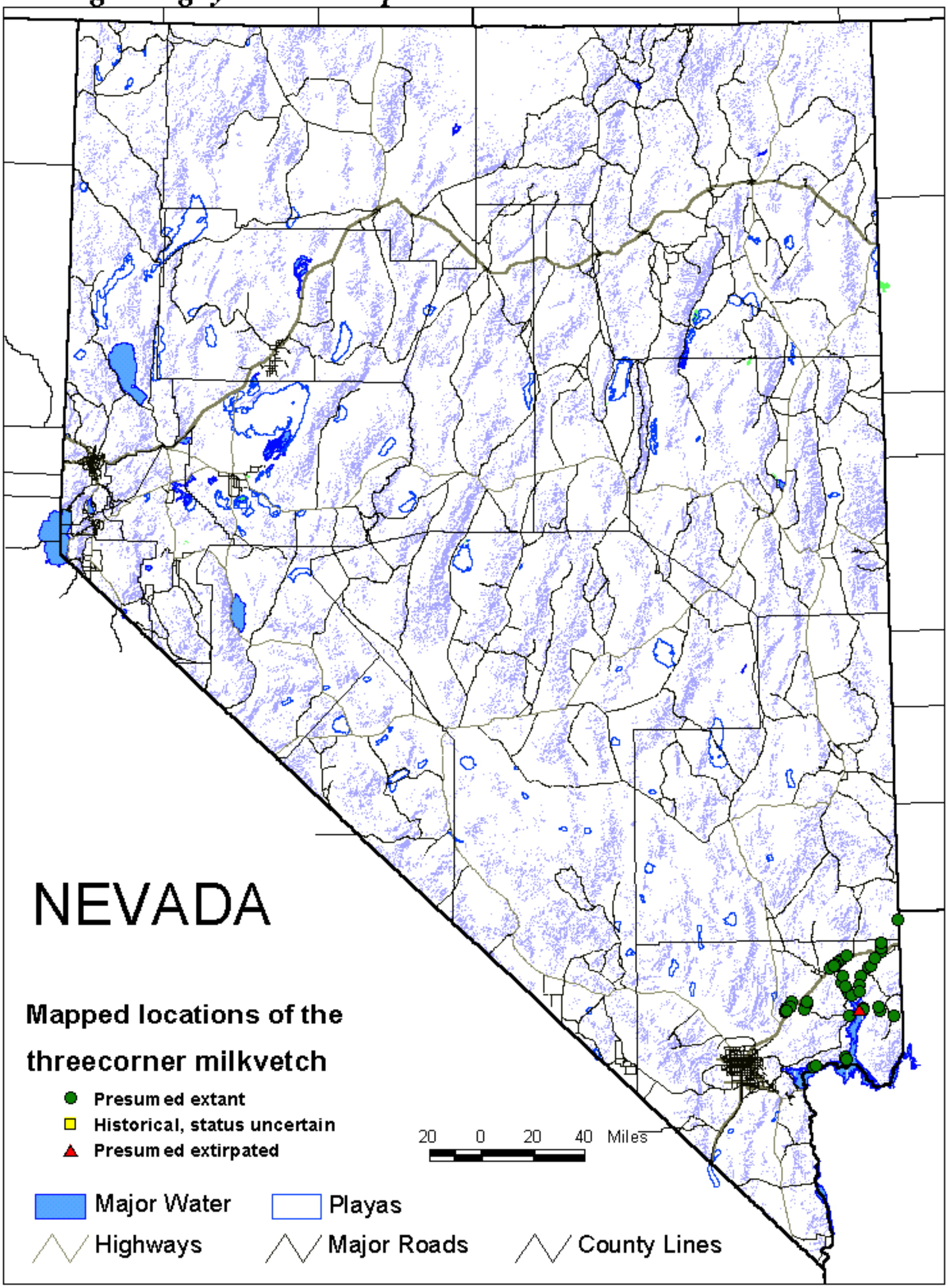
LIFE-FORM AND HABIT: small perennial herb.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Blomquist et al. (1995), Knight and Smith (1995), Knight et al. (1997), Weixelman and Atwood (1990); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Ackerman (1981), Barneby (1964), Beatley (1977), Clokey (1951), Cochrane (1979), Hickman (1993).
SPECIFIC REFERENCES:

Crosby, V. 1978. Status report for Astragalus aequalis. Portland, Oregon: U. S. Fish and Wildlife Service.
Crosby, V. 1978. Status report on Astragalus funereus. Portland, Oregon: U. S. Fish and Wildlife Service.
Knight, T. A. 1989. A rare plant survey of Bare Mountain, Battle Mountain District, Bureau of Land Management, Nye County, Nevada. Carson City: Nevada Natural Heritage Program, prepared for the Battle Mountain District, Bureau of Land Management.

Astragalus geyeri var. triquetrus



Astragalus geyeri A. Gray var. *triquetrus* (A. Gray) M. E. Jones

THREECORNER MILKVETCH

FAMILY: *Fabaceae*, the legume family. **SYNONYMS:** *Astragalus triquetrus*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4? T2T3 S2S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species in Nevada. **USFS:** none. **NNNPS:** THREATENED.

POPULATION CENSUS (NEVADA): 39 extant occurrences mapped at 1.0 km (0.6 mi) separation, OR **45 extant and 1 extirpated occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 4094+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Off-road vehicles and other recreational use of the habitat, residential expansion, sand and gravel mining, utility developments and corridors, etc. An unknown but potentially significant amount of habitat was lost to inundation by Lake Mead. The species germinates only in wetter years, potentially resulting in accidental losses of undetected populations.

INVENTORY EFFORT (NEVADA): Surveys in Nevada have been extensive but likely remain incomplete. Most recent entered survey 1997, average year of last survey 1987. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 4.3%; **6-10 yrs:** 52.2%; **11-20 yrs:** 21.7%; **21-30 yrs:** 17.4%; **51+ yrs or unknown:** 4.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, National Park Service, Nevada state lands, private lands, Native American lands (?).

RANGE: Clark and Lincoln counties, Nevada; also in AZ. Maximum Nevada **range dimension 105.0 km (65.3 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 1100-2400 feet (335-732 meters).

HABITAT (NEVADA): Open, deep sandy soil or dunes, generally stabilized by vegetation and/or a gravel veneer. Dependent on sand dunes or deep sand in Nevada.

PHENOLOGY: flowering late-winter to early-spring. Range of most frequent **survey months:** February-May.

LIFE-FORM AND HABIT: annual.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Niles et al. (1995); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Barneby (1989), Mozingo and Williams (1980), Niles et al. (1995).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964), Holland et al. (1980), Kearney and Peebles (1960), Niles et al. (1997).
SPECIFIC REFERENCES:

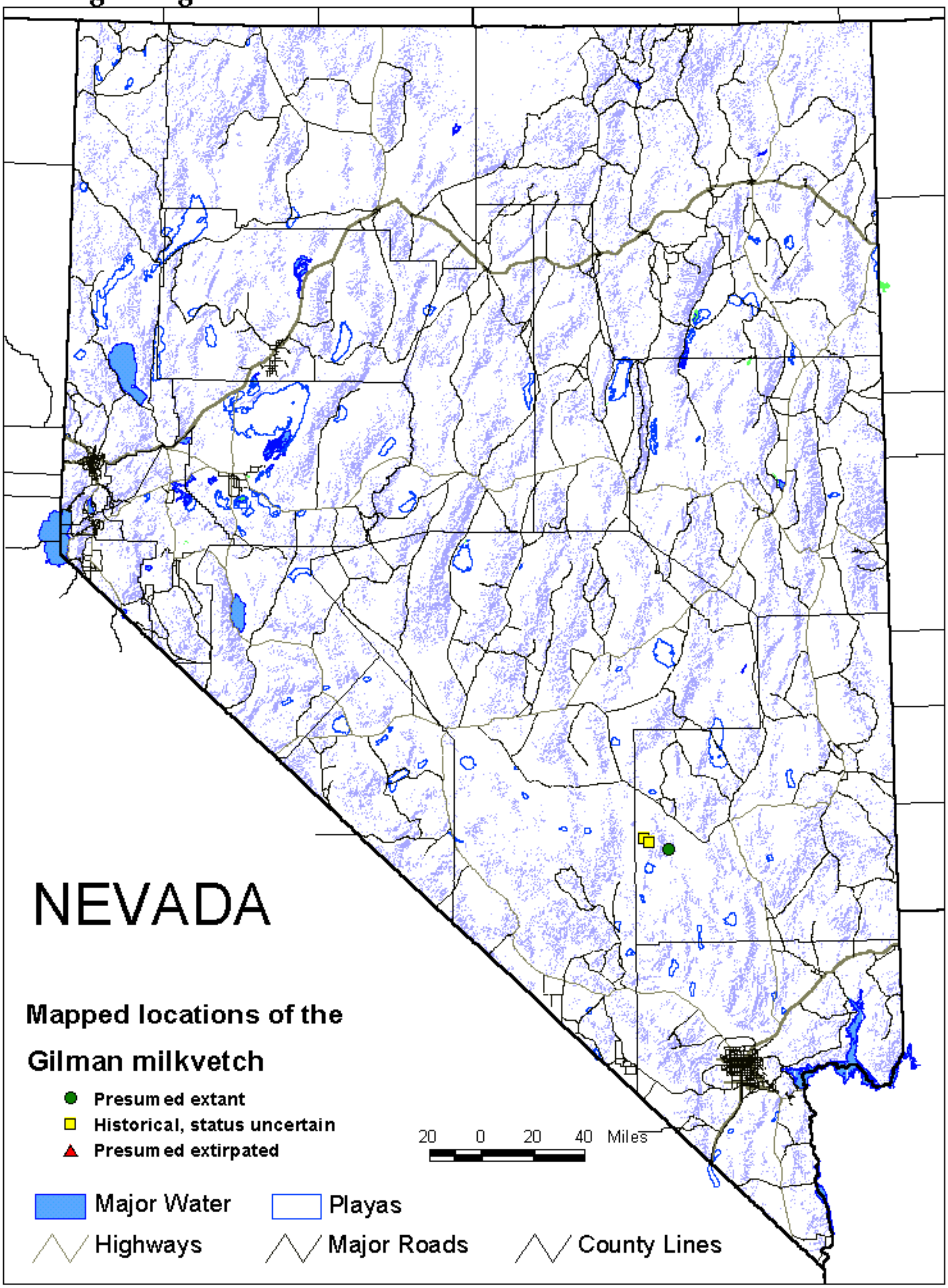
Knight, T. A. 1990. Status report for Astragalus geyeri A. Gray triquetrus (A. Gray). Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

Leary, P. J. 1987. Survey of endangered plants, Joshua Tree National Monument. Las Vegas: University of Nevada report CPSU/UNLV 037/01. 26pp.

Niles, W. E., P. J. Leary, J. S. Holland, F. H. Landau. 1995. Occurrence and distribution of Astragalus geyeri var. triquetrus (three-cornered milkvetch) and Eriogonum viscidulum (sticky buckwheat) in Lake Mead National Recreation Area and adjacent regions of Nevada and Arizona. Las Vegas: University of Nevada, prepared for the Lake Mead National Recreation Area.

Swearingen, T. A. 1981. The vascular flora of the Muddy Mountains, Clark County, Nevada. Las Vegas: University of Nevada, M. S. thesis.

Astragalus gilmanii



Astragalus gilmanii Tidestrom — GILMAN MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 3 occurrences mapped; total estimated **individuals 52+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1985, average year of last survey 1985. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Department of Defense, U. S. Department of Energy (?).

RANGE: Lincoln County, Nevada; also in CA. Maximum Nevada **range dimension 16.7 km (10.4 mi)**.

ELEVATIONS RECORDED (NEVADA): 5383-6000 feet (1641-1829 meters).

HABITAT (NEVADA): On light-colored volcanic tuff slopes in pinyon-juniper woodland.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May.

LIFE-FORM AND HABIT: annual.

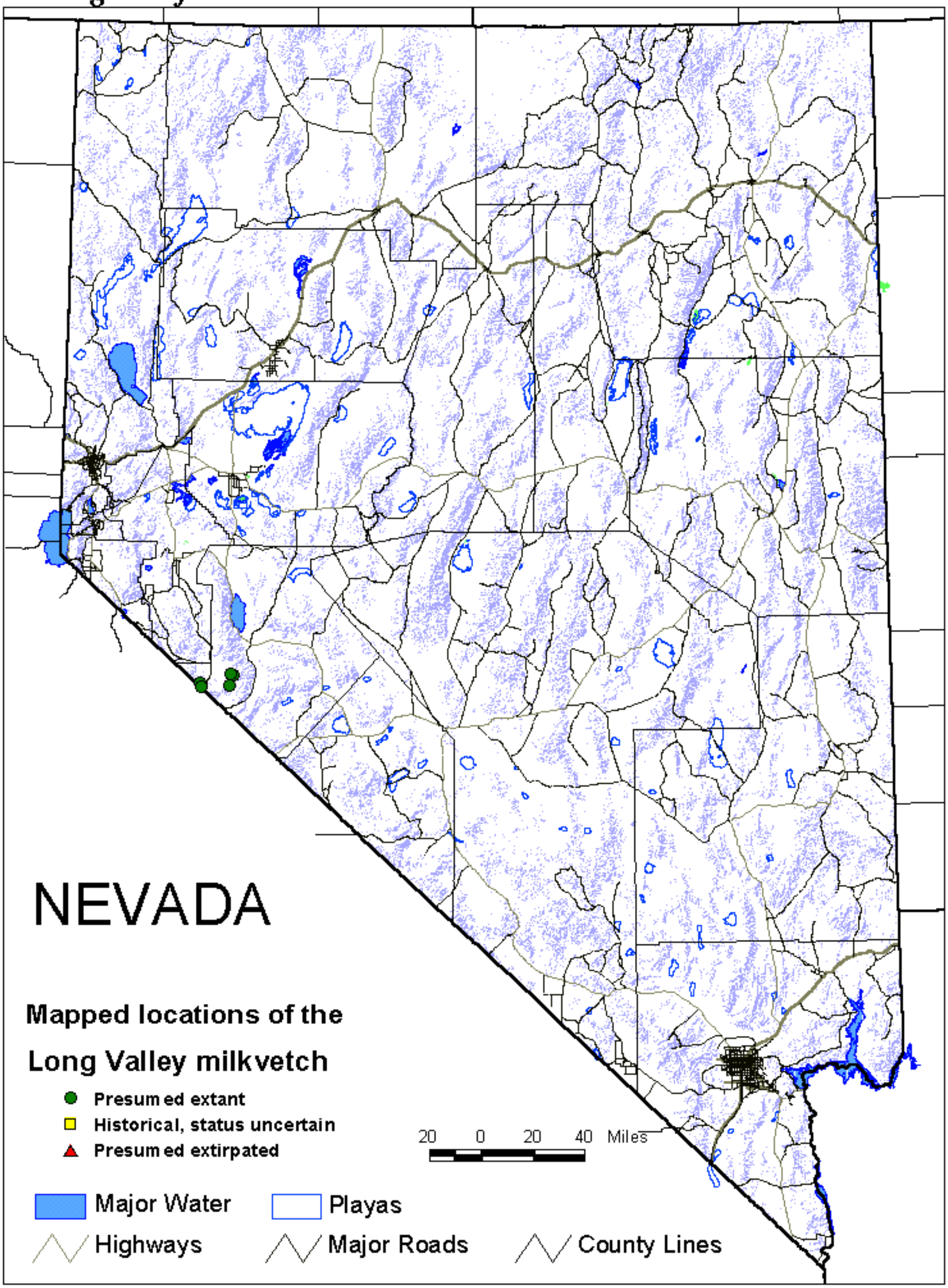
DESCRIPTION: not available (see references).

PHOTOGRAPHS: Knight and Smith (1996), Knight et al. (1997).
ILLUSTRATIONS: Barneby (1989).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964), Hickman (1993).
SPECIFIC REFERENCES:

Marrs-Smith, G. and J. Nachlinger. 1987. Noteworthy collections. Madroño 34: 382-383.

Nellis Air Force Base. 1985. Draft environmental impact statement on the Groom Range, Lincoln County, NV. Las Vegas: prepared for the Bureau of Land Management.

Astragalus johannis-howellii



Astragalus johannis-howellii Barneby — LONG VALLEY MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** Special Status Species in California. **USFS:** Inyo NF watch list. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 5 occurrences mapped; total estimated **individuals 5282+**, total estimated **area 12.6+ ha (31.1+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1993, average year of last survey 1984. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 20%; **11-20 yrs:** 80%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management.

RANGE: Mineral County, Nevada; also in CA. Maximum Nevada **range dimension 20.2 km (12.5 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 7080-8430 feet (2158-2569 meters).

HABITAT (NEVADA): Sandy rhyolitic soils on flats and gentle slopes of mountain sagebrush (Artemisia tridentata var. vaseyana).

PHENOLOGY: flowering summer. Range of most frequent **survey months:** June-July.

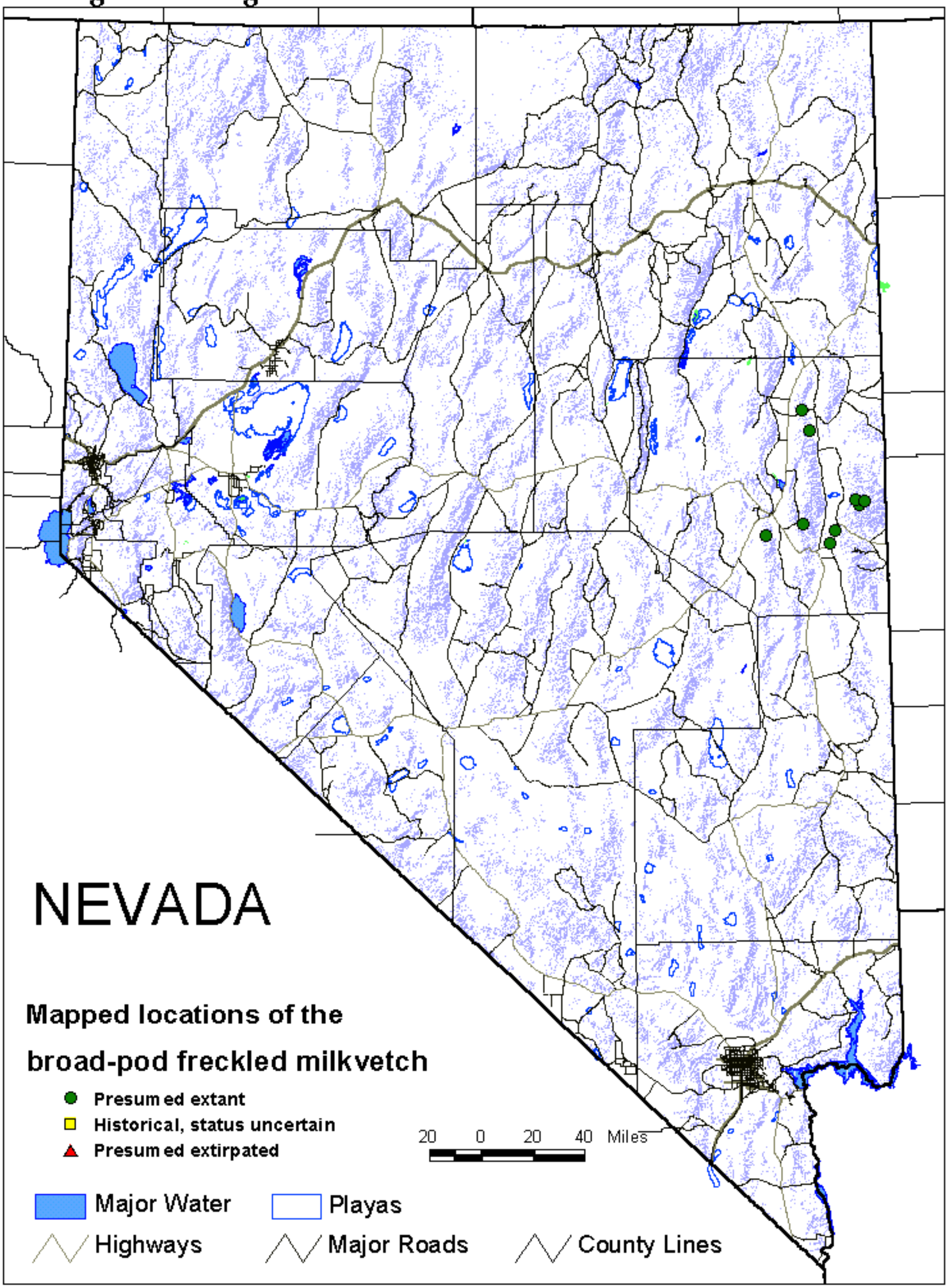
LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: Barneby (1989).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964), Hickman (1993).
SPECIFIC REFERENCES:

Morefield, J. D. 1994. Current knowledge and conservation status of Arabis bodiensis Rollins (Brassicaceae), Bodie Hills rockcress, in Nevada. Carson City: Nevada Natural Heritage Program, status report prepared for the U. S. Fish and Wildlife Service, Reno.

Astragalus lentiginosus var. latus



Astragalus lentiginosus Douglas ex Hooker var. *latus* (M. E. Jones) M. E. Jones
BROAD-POD FRECKLED MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G5 T1 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 9 occurrences mapped; total estimated **individuals 538+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1990, average year of last survey 1972. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 33.3%; **21-30 yrs:** 44.4%; **31-50 yrs:** 11.1%; **51+ yrs or unknown:** 11.1%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, designated wilderness, private lands.

RANGE: Elko and White Pine counties, Nevada. **Nevada endemic.** Maximum **range dimension 84.7 km (52.6 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 5700-9900 feet (1737-3018 meters).

HABITAT: Gravelly or sandy calcareous soils, generally on moderate to steep slopes, associated with the zonal vegetation.

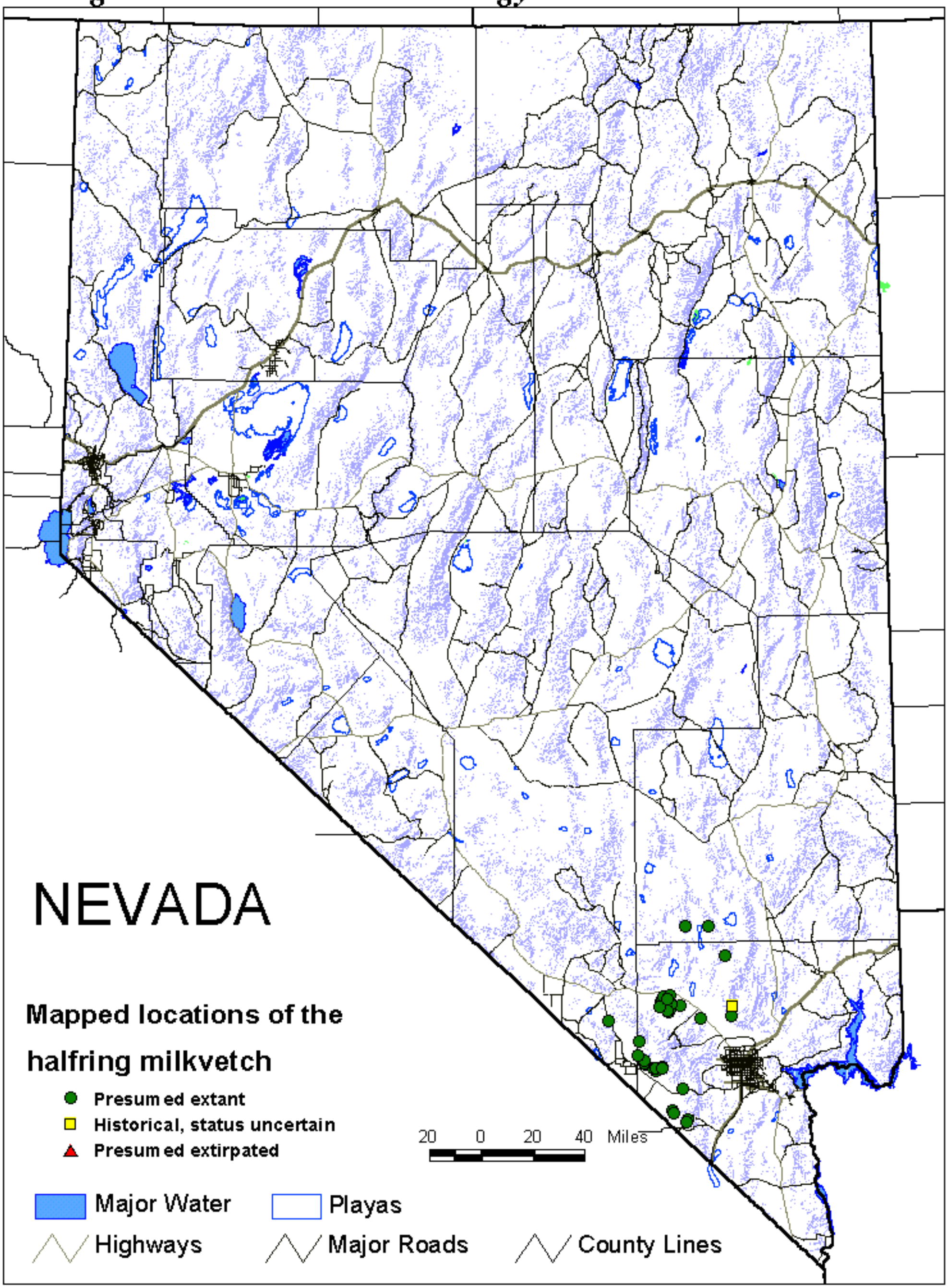
PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-August.

LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: Plant, legume.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Barneby (1989), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964).

Astragalus mohavensis var. hemigyrus



Astragalus mohavensis S. Watson var. *hemigyrus* (Clokey [1942]) Barneby

HALFRING MILKVETCH

FAMILY: *Fabaceae*, the legume family. **SYNONYMS:** *Astragalus hemigyrus*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 T2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** ENDANGERED.

POPULATION CENSUS: 30 occurrences mapped at 1.0 km (0.6 mi) separation, OR **42 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area 163+ ha (403+ ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS: Some habitat is vulnerable to off-road vehicle use and other recreational activities, dumping, and feral horse and burro trampling.

INVENTORY EFFORT: Most recent entered survey 1999, average year of last survey 1993.
Years since last entered survey (percent of mapped records at various survey ages)**: 0-5 yrs:** 69.8%; **6-10 yrs:** 4.7%; **11-20 yrs:** 18.6%; **21-30 yrs:** 4.7%; **51+ yrs or unknown:** 2.3%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, U. S. Fish and Wildlife Service, U. S. Department of Defense, Humboldt-Toiyabe National Forest, private lands (?).

RANGE: Clark, Lincoln, and Nye counties, Nevada; also in CA (extirpated). **Nevada endemic.** Maximum **range dimension 123.7 km (76.9 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 3000-5600 feet (914-1707 meters).

HABITAT: Carbonate gravels and derivative soils on terraced hills and ledges, open slopes, and along washes in the creosote-bursage, blackbrush, and mixed-shrub zones.

PHENOLOGY: flowering early-spring. Range of most frequent **survey months:** April-June.

LIFE-FORM AND HABIT: annual or short-lived perennial herb.

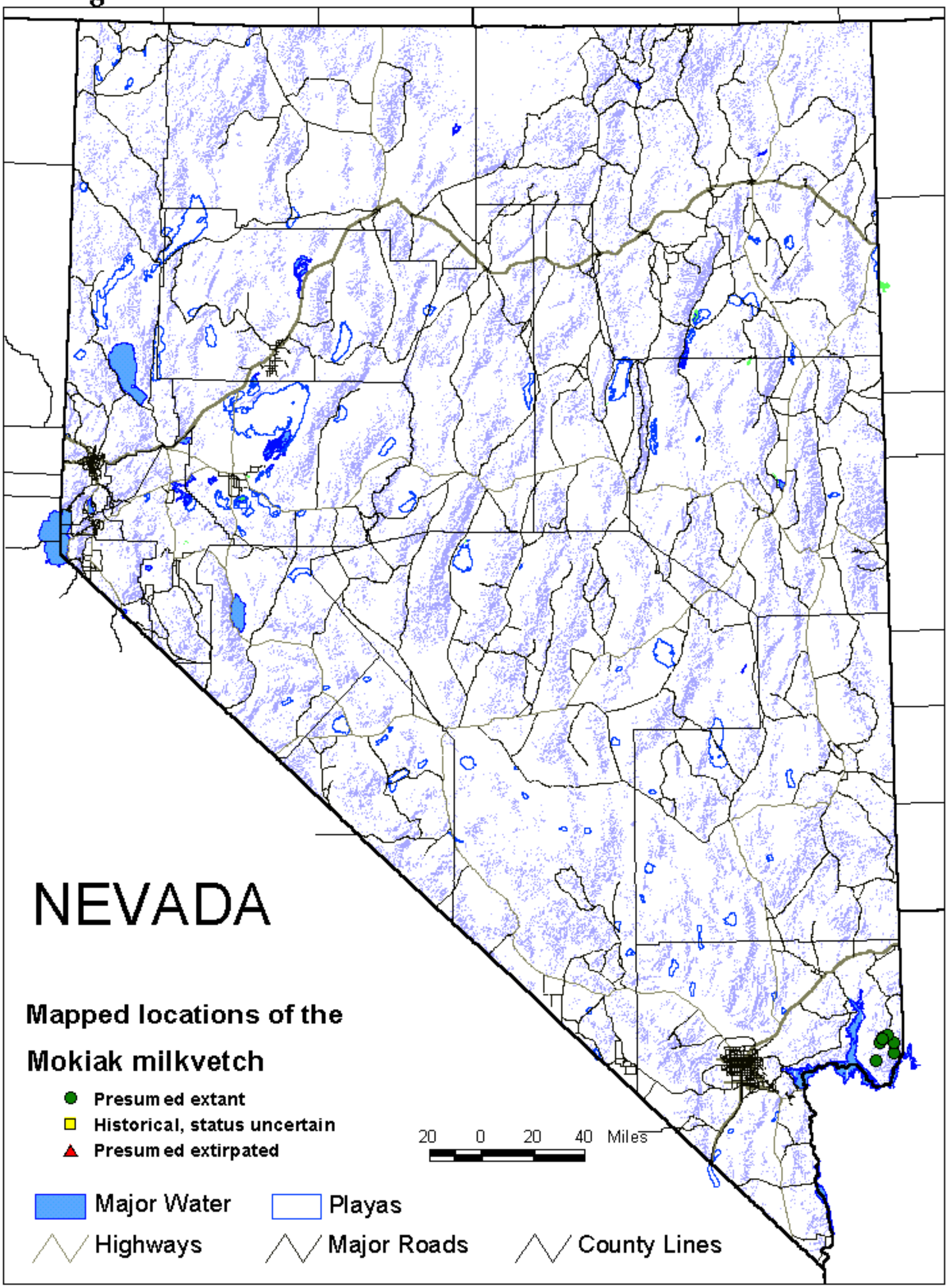
DESCRIPTION: This variety is similar to Astragalus mohavensis var. mohavensis, but has slightly smaller flowers, and shorter, curved or coiled fruits.

PHOTOGRAPHS: Knight and Smith (1994), Knight et al. (1997), Niles et al. (1999), Weixelman and Atwood (1990); Nevada Natural Heritage Program files.
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964), Clokey (1951), Hickman (1993), Niles et al. (1998).
SPECIFIC REFERENCES:

Barneby, R. C. 1950. Pugillus astragalorum XII. Some problems in California. Aliso 2: 203-215.
Clokey, I. W. 1942. Notes on the flora of the Charleston Mountains, Clark County, Nevada. IV. Astragalus. Madroño 6: 211-222.
Jones, M. E. 1923. Revision of North American Astragalus. Salt Lake City, Utah: privately published. 288 pages.
Knight, T. A. 1989. Status report for Astragalus mohavensis S. Watson var. hemigyrus (Clokey) Barneby. Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.
Welsh, S. 1982. Status report for Astragalus mohavensis var. hemigyrus. Portland, Oregon: U. S. Fish and Wildlife Service.

OF FURTHER INTEREST: Hickman (1993) and CAHP spell this A. MOJAVENSIS.

Astragalus mokiacensis



Astragalus mokiacensis A. Gray — MOKIAK MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 S1S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 6 occurrences mapped at 1.0 km (0.6 mi) separation, OR **7 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 585+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1998, average year of last survey 1995. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 85.7%; **11-20 yrs:** 14.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, National Park Service.

RANGE: Clark County, Nevada; also in AZ and UT. Maximum Nevada **range dimension 11.8 km (7.4 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 2461-5020 feet (750-1530 meters).

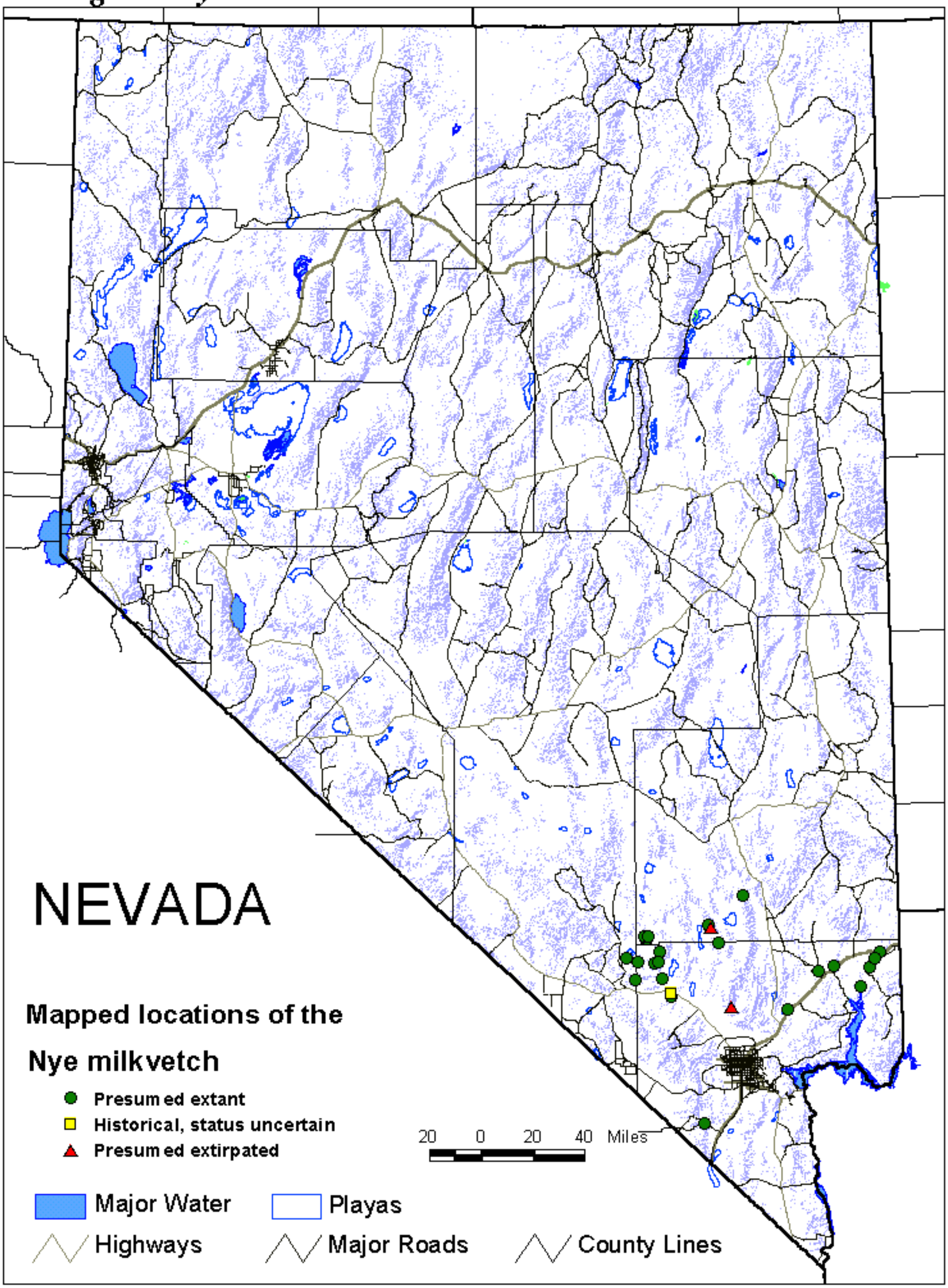
HABITAT (not yet reviewed for Nevada): "Sandy soils. Bluffs, cliff terraces, gullied badlands, disturbed areas along streams. 610-1280 m elevation."

PHENOLOGY: no summary available. Range of most frequent **survey months:** March-April.

DESCRIPTION: A perennial herb with erect stems, 1-4 dm tall, and with purple flowers in bloom April-June.
Distinguishing features: Flowering stage essential for correct identification. Species is related to A. preussii. A. preussii var. laxiflorus grow close together and there is no obvious was to distinguish between the two until fruits have formed.

PHOTOGRAPHS: Niles et al. (1996).
ILLUSTRATIONS: Barneby (1989).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964), Niles et al. (1997), Niles et al. (1998).

Astragalus nyensis



Astragalus nyensis Barneby — NYE MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 24 extant and 2 extirpated occurrences mapped; total estimated **individuals 1126+**, total estimated **area 171+ ha (423+ ac)**. **TREND:** DECLINING.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Some targeted surveys have been conducted, but are old and remain incomplete. Most recent entered survey 1988, average year of last survey 1973. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 11.5%; **21-30 yrs:** 76.9%; **51+ yrs or unknown:** 11.5%.

LAND MANAGEMENT in decreasing predominance: U. S. Fish and Wildlife Service, U. S. Department of Defense, U. S. Bureau of Land Management, U. S. Department of Energy, private lands, Nevada state lands (?), National Park Service (?).

RANGE: Clark, Lincoln, and Nye counties, Nevada. **Nevada endemic.** Maximum **range dimension 158.0 km (98.2 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 1100-5600 feet (335-1707 meters).

HABITAT: Foothills of desert mountains, calcareous outwash fans and gravelly flats, sometimes in sandy soil. Associated plants are Larrea tridentata, Ambrosia dumosa, Oryzopsis hymenoides, Hymenoclea salsola, Coleogyne ramosissima, Hilaria rigida, Krameria parvifolia, Astragalus geyeri var. triquetrus, etc.

PHENOLOGY: flowering spring. Range of most frequent **survey months:** April-May.

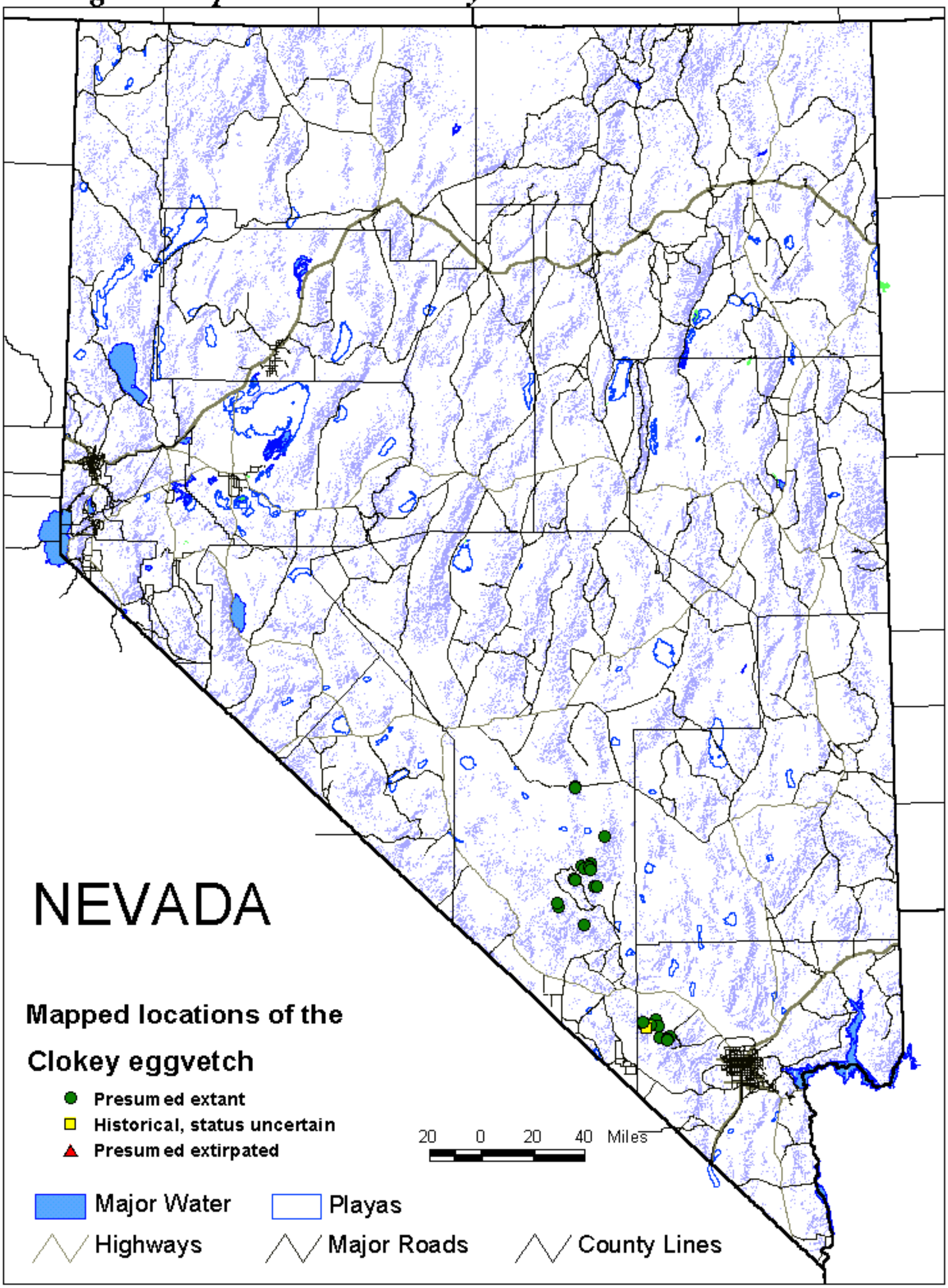
LIFE-FORM AND HABIT: annual.

DESCRIPTION: Herbaceous annual; one to four whitish flowers with the upper petal faintly lilac-tinted (Mozingo and Williams 1980).

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Ackerman (1981), Barneby (1964), Beatley (1976), Cochrane (1979), Isely (1998).
SPECIFIC REFERENCES:

Woodbury, K. 1980. Status report for Astragalus nyensis. Portland, Oregon: U. S. Fish and Wildlife Service.

Astragalus oophorus var. clokeyanus



Astragalus oophorus S. Watson **var.** *clokeyanus* Barneby **CLOKEY EGGVETCH**

FAMILY: *Fabaceae*, the legume family. **SYNONYMS:** *Astragalus artipes* (misapplied)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4 T2 S2**
USFWS/ESA: species of concern, formerly CANDIDATE or PROPOSED. **STATE OF NEVADA:** none.
BLM: Special Status Species. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 23 occurrences mapped at 1.0 km (0.6 mi) separation, OR **32 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 4313+**, total estimated **area 111+ ha (274+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Populations are small in numbers and area, increasing their vulnerability to intense disturbance by hiking, skiing, camping, and other recreation uses or developments, feral horse and burro trampling, commercial developments and DOE activities on the Nevada Test Site, military activities, fire suppression activities, etc. Modern fire suppression may be curtailing the natural maintenance of appropriate habitats.

INVENTORY EFFORT: Systematic surveys have been conducted, but substantial potential habitat likely remains to be examined. Most recent entered survey 1998, average year of last survey 1994.
Years since last entered survey (percent of mapped records at various survey ages)**: 0-5 yrs:** 56.3%; **6-10 yrs:** 34.4%; **11-20 yrs:** 6.3%; **31-50 yrs:** 3.1%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Department of Defense, U. S. Department of Energy, U. S. Bureau of Land Management, designated wilderness, private lands.

RANGE: Clark and Nye counties, Nevada. Considered endemic to the Spring Mountains until recent discoveries farther north on the Nevada Test Site. Maximum **range dimension 167.2 km (103.9 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 5400-8990 feet (1646-2740 meters).

HABITAT: Dry to slightly moist open slopes, flats, or drainages on gravelly soil derived from limestone or rhyolitic volcanics, in openings or under shrubs in Pinus ponderosa forest, old burns with Quercus gambelii, and in pinyon-juniper woodland.

PHENOLOGY: flowering late-spring, in late May and June with fruit and seed set by late June or July. Range of most frequent **survey months:** May-August.

LIFE-FORM AND HABIT: small perennial herb.

DESCRIPTION: This variety is differentiated from var. oophorus by its smaller flowers and lesser number of ovules (28/pod, for Clokey's eggvetch and 41-53/pod for egg milkvetch).

PHOTOGRAPHS: Anderson (1998), Knight and Smith (1996), Knight et al. (1997), Weixelman and Atwood (1990); Nevada Natural Heritage Program files.
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964), Beatley (1976), Beatley (1977), Beatley (1977), Clokey (1951), Nachlinger (1994), Spahr et al. (1991).
SPECIFIC REFERENCES:

Anderson, D. C. 1998. Distribution of Clokey's Eggvetch (Astragalus oophorus var. clokeyanus) on The Nevada Test Site. Las Vegas: Bechtel Nevada, prepared for the U. S. Department of Energy under contract DE-AC08-96NV11718.

Barneby, R. C. 1954. Pugillus astragalorum XVI: Minor novelties from Nevada. Leaflets of Western Botany 7: 192-196.

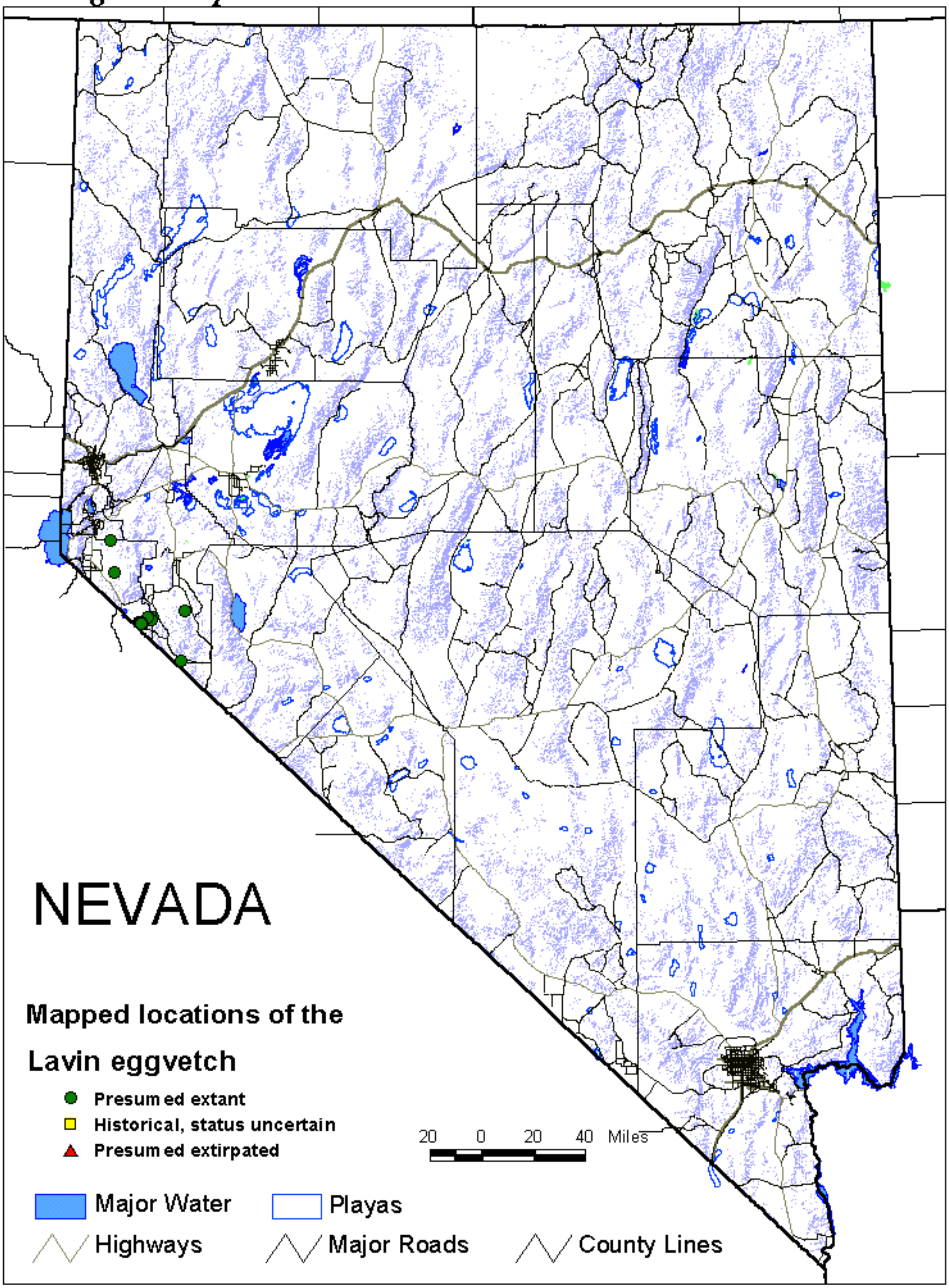
Morefield, J. D. 1993. Status report for Astragalus oophorus var. clokeyanus Barneby. Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

Nachlinger, J. and S. Sheldon. 1995. Status report for Astragalus oophorus var. clokeyanus. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 20 pages + two appendices.

U. S. Fish and Wildlife Service. 1998. Notice of reclassification of four candidate taxa. Federal Register 63(63): 16217-16218.

Woodbury, K. 1979. Status report for Astragalus oophorus var. clokeyanus. Portland, Oregon: U. S. Fish and Wildlife Service.

Astragalus oophorus var. lavinii



Astragalus oophorus S. Watson **var. *lavinii*** Barneby (1984) **LAVIN EGGVETCH**

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4 T2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species, Inyo NF watch list. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 8 occurrences mapped at 1.0 km (0.6 mi) separation, OR **12 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 5325+**, total estimated **area 37.9+ ha (93.7+ ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Mineral exploration and development, road construction and maintenance, rangeland treatment of pinyon-juniper-sagebrush communities.

INVENTORY EFFORT (NEVADA): Targeted surveys have been conducted in Nevada but remain substantially incomplete. Most recent entered survey 1996, average year of last survey 1989.
Years since last entered survey (percent of mapped records at various survey ages)**: 0-5 yrs:** 41.7%; **6-10 yrs:** 8.3%; **11-20 yrs:** 41.7%; **21-30 yrs:** 8.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, private lands.

RANGE: Douglas, Lyon, and Mineral (?) counties, Nevada; also in CA. Maximum Nevada **range dimension 63.8 km (39.6 mi)** excluding most disjunct record. **Type specimen** collected in Douglas County.

ELEVATIONS RECORDED (NEVADA): 5700-7467 feet (1737-2276 meters).

HABITAT (NEVADA): Open, dry, relatively barren gravelly clay slopes, knolls, badlands, or outcrops, derived from volcanic ash or carbonate, usually on northeast to southeast aspects, in openings in the pinyon-juniper or sagebrush zones.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: perennial herb.

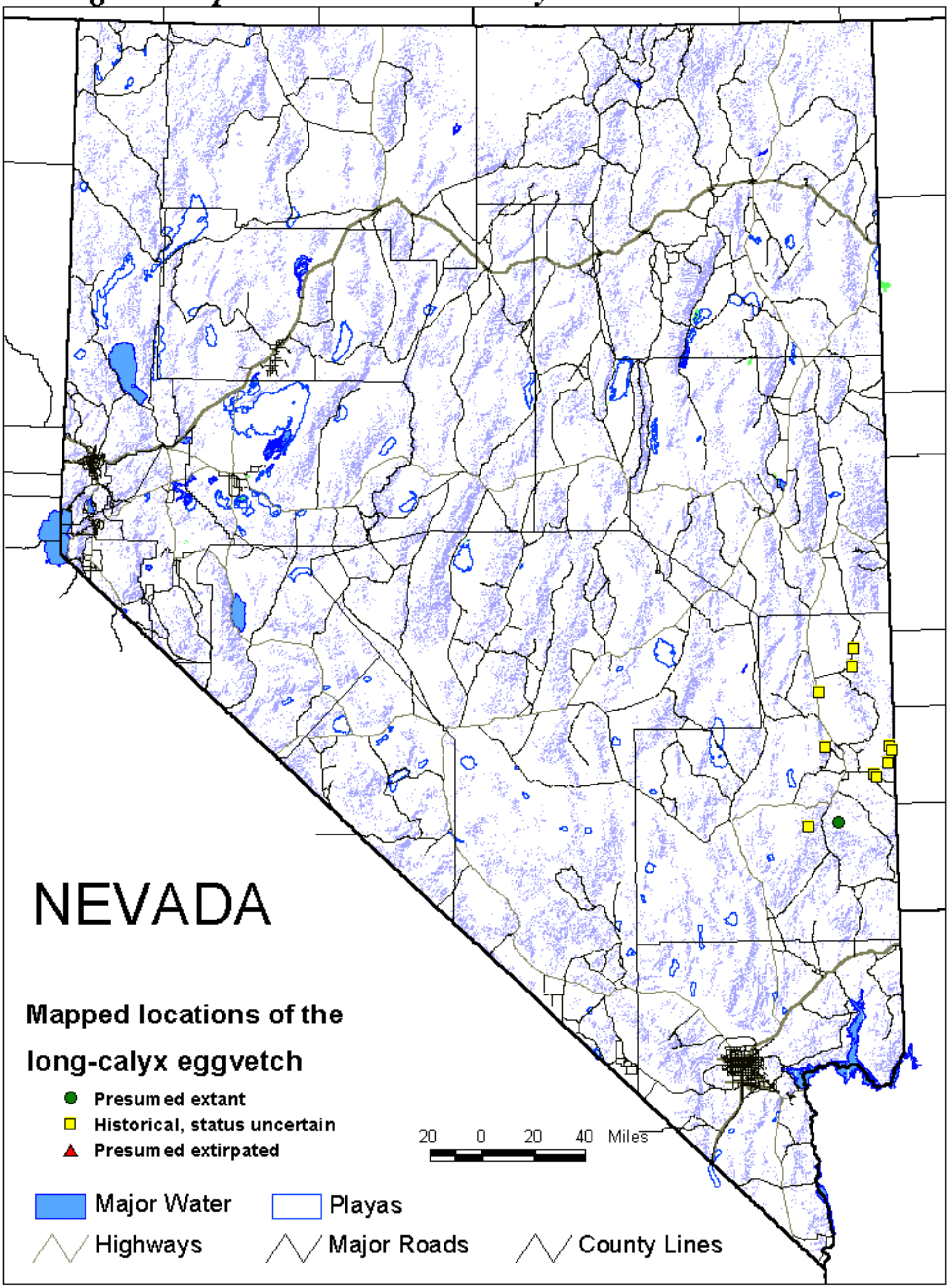
DESCRIPTION: not available (see references).

PHOTOGRAPHS: Weixelman and Atwood (1990).
ILLUSTRATIONS: Barneby (1989), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993), Spahr et al. (1991).
SPECIFIC REFERENCES:

Barneby, R. C. 1984. Dragma hippomanicum X: Astragali (Leguminosae) nevadenses novi criticive, singulo peruviano adjecto. Brittonia 36: 167-173.

Lavin, M. 1981. The floristics of the headwaters of the Walker River, California and Nevada. Reno: University of Nevada, M. S. Thesis.

Astragalus oophorus var. lonchocalyx



Astragalus oophorus S. Watson var. *lonchocalyx* Barneby LONG-CALYX EGGVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4 T2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 11 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1989, average year of last survey 1968. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 36.4%; **21-30 yrs:** 27.3%; **31-50 yrs:** 9.1%; **51+ yrs or unknown:** 27.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands, Nevada state lands.

RANGE: Lincoln County, Nevada; also in UT. Maximum Nevada **range dimension 104.0 km (64.6 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 6000-7480 feet (1829-2280 meters).

HABITAT: no summary available (see references).

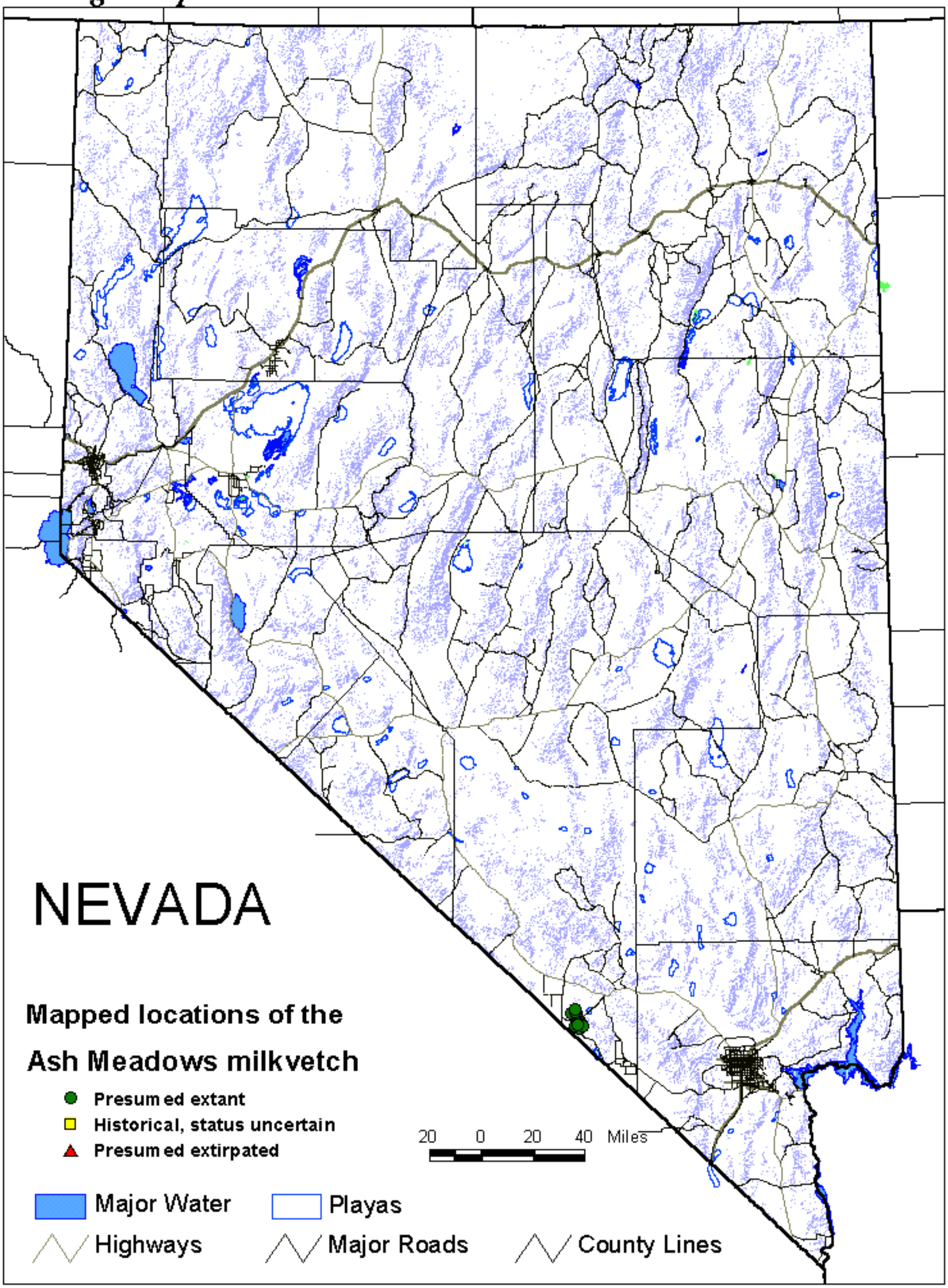
PHENOLOGY: no summary available. Range of most frequent **survey months:** April-June.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Atwood et al. (1991); Nevada Natural Heritage Program files.
ILLUSTRATIONS: Atwood et al. (1991), Barneby (1989), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964), Welsh et al. (1993).
SPECIFIC REFERENCES:

Barneby, R. C. 1954. Pugillus astragalorum XVI: Minor novelties from Nevada. Leaflets of Western Botany 7: 192-196.

Astragalus phoenix



Astragalus phoenix Barneby (1970) ASH MEADOWS MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: LISTED THREATENED. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** THREATENED. **IUCN:** endangered.

POPULATION CENSUS: 10 occurrences mapped at 1.0 km (0.6 mi) separation, OR **13 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 1943+**, total estimated **area 3.7+ ha (9.1+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Development, mitigated by TNC acquisition of major tract. Also rabbit grazing, horses, dust from disturbed soil.

INVENTORY EFFORT: Surveys substantially complete. Most recent entered survey 1986, average year of last survey 1976. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 30.8%; **21-30 yrs:** 30.8%; **31-50 yrs:** 38.5%.

LAND MANAGEMENT in decreasing predominance: U. S. Fish and Wildlife Service, private lands, U. S. Bureau of Land Management.

RANGE: Nye County, Nevada. Endemic to the Ash Meadows area. Maximum **range dimension 11.5 km (7.1 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 2200-2350 feet (671-716 meters).

HABITAT: Dry, hard, seasonally moist, white, barren flats, washes, and knolls of calcareous alkaline soils with Distichlis spicata, Atriplex confertifolia, Mentzelia leucophylla, Haplopappus acradenius, and Enceliopsis nudicaulis corrugata.

PHENOLOGY: flowering spring. Range of most frequent **survey months:** April-August.

LIFE-FORM AND HABIT: small long-lived perennial cushion.

DESCRIPTION: A low, mat-forming perennial herb; mats up to 5 dm in diameter. Purple flowers are borne on tiny erect stems from April to early May.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.

ILLUSTRATIONS: Mozingo and Williams (1980).

OTHER GENERAL REFERENCES (listed separately): Barneby (1964), Beatley (1976), U. S. Fish and Wildlife Service (1983).

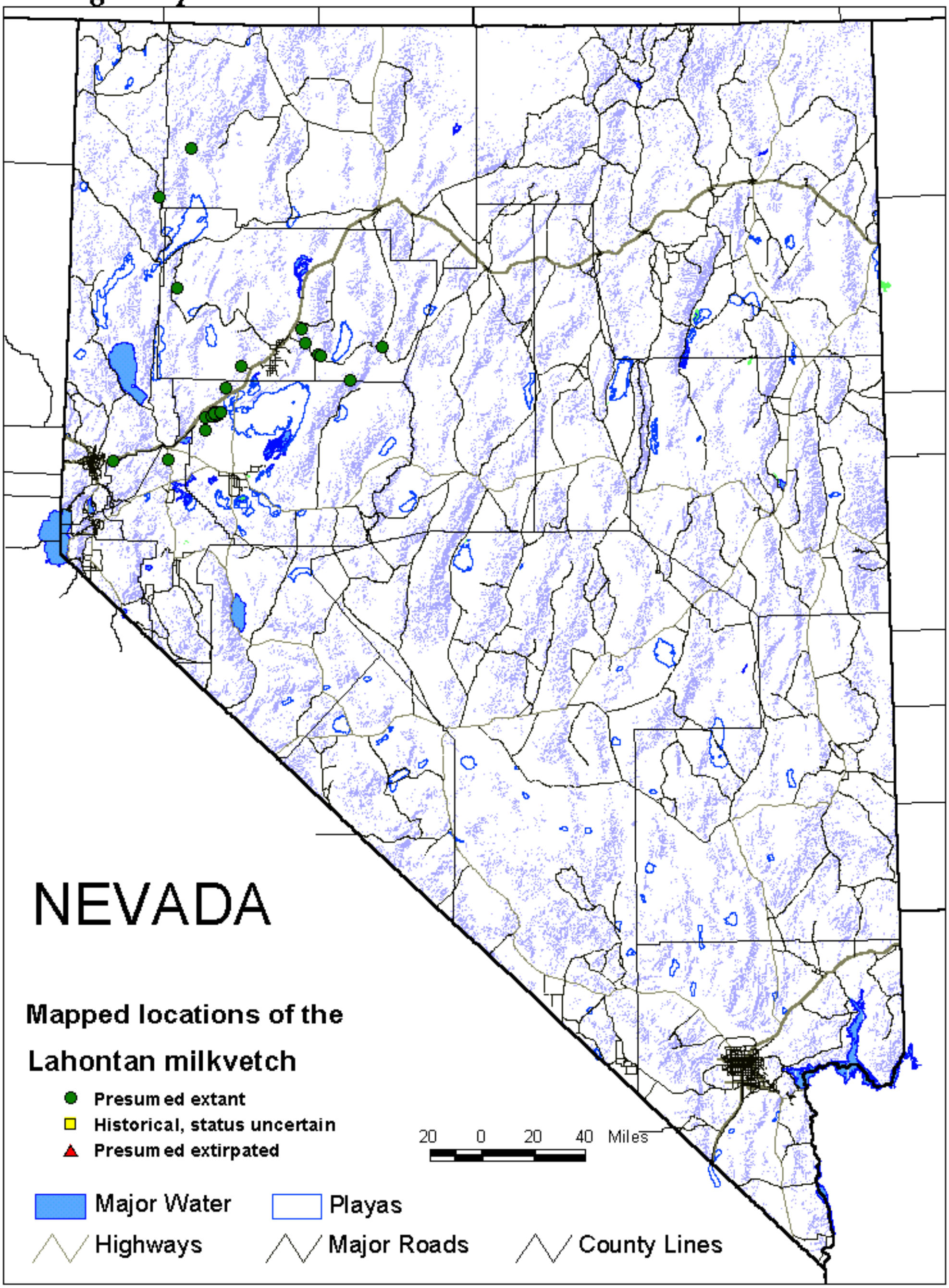
SPECIFIC REFERENCES:

Barneby, R. C. 1970. A new Astragalus (Fabaceae) from Nevada. Madroño 20: 395-398.

Kruckeberg, A. R., and D. Rabinowitz. 1985. Biological aspects of endemism in higher plants. Ecological Systems 16: 447-479.

Reveal, J. L. 1978. Status report on Astragalus phoenix. Portland, Oregon: U. S. Fish and Wildlife Service.

Astragalus porrectus



Astragalus porrectus S. Watson — LAHONTAN MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program WATCH LIST, ranks: G3? S3?**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 19 occurrences mapped at 1.0 km (0.6 mi) separation, OR **29 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 15,000+**, total estimated **area 15.7+ ha (38.8+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1989, average year of last survey 1978. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 79.3%; **21-30 yrs:** 13.8%; **51+ yrs or unknown:** 6.9%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, private lands.

RANGE: Churchill, Humboldt, Lyon, Pershing, and Washoe counties, Nevada. **Nevada endemic.** Maximum **range dimension 181.9 km (113.0 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 4020-5200 feet (1225-1585 meters).

HABITAT: Open, calcareous or alkaline, sandy to gravelly washes, alluvium, or gullies on clay badlands, knolls, or playa edges in the shadscale zone.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: A stiffly branched perennial herb with stems to 4 dm long. Prominent field characters include thin, dry sheathing structures (stipules) at the base of the leaves and broad, leathery leaflets borne some distance apart on the leaf axis.

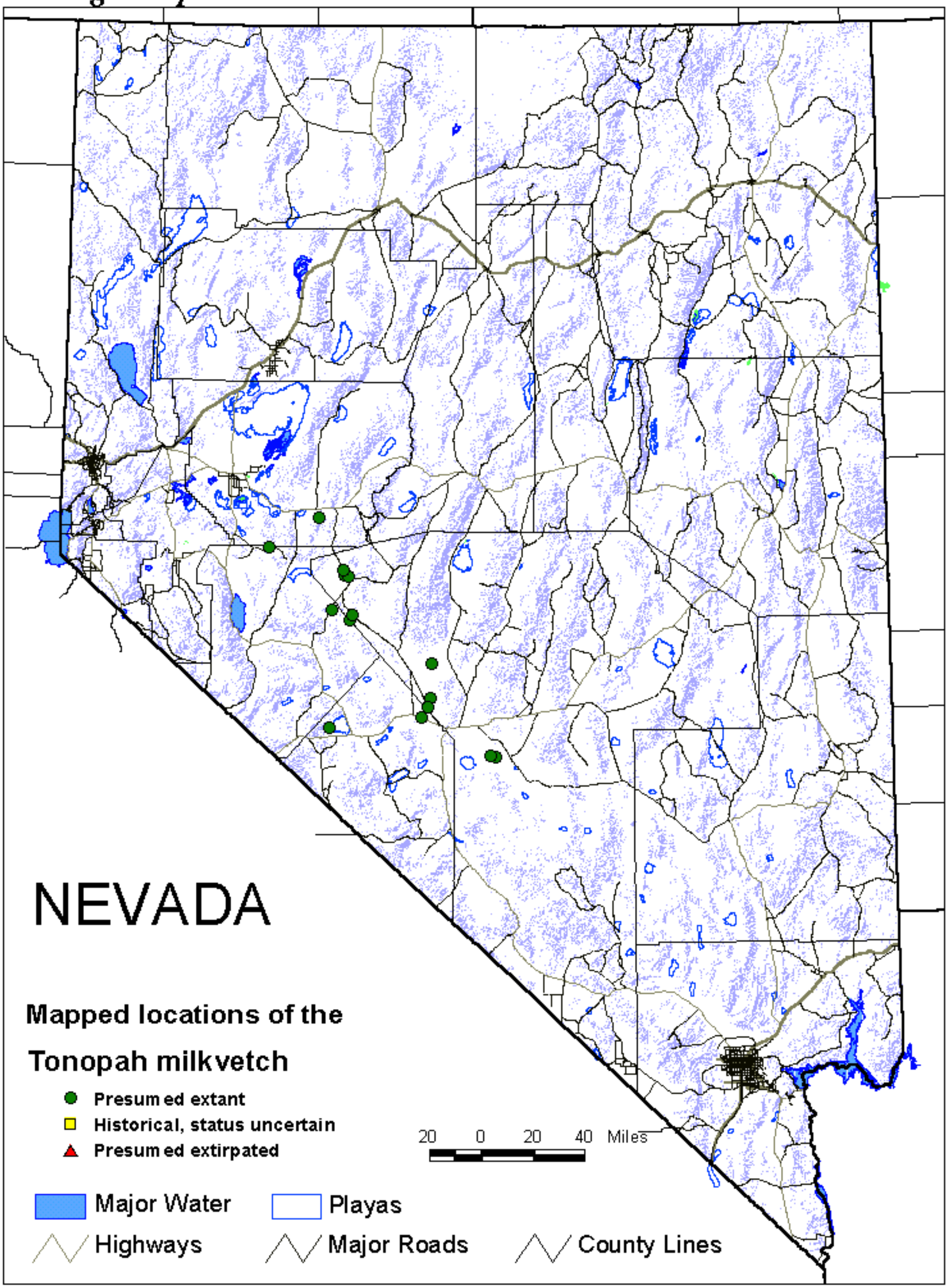
PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Barneby (1989), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964).
SPECIFIC REFERENCES:

Holmgren, A. H., L. M. Shultz and J. S. Shultz. 1977. Herbarium search and literature review: survey of proposed sensitive species in Humboldt and Pershing Counties. Logan: Utah State University, Intermountain Herbarium.

Tiehm, A. 1983. Field search for proposed threatened and endangered plants on Phillips Petroleum lease unit in the Desert Peak area of Churchill County, Nevada. Carson City: Nevada Natural Heritage Program files.

Tiehm, A. 1989. Proposed threatened and endangered plants of the Humboldt Range, Pershing County, Nevada. Carson City: Nevada Natural Heritage Program.

Astragalus pseudiodanthus



Astragalus pseudiodanthus Barneby — TONOPAH MILKVETCH

FAMILY: *Fabaceae*, the legume family. **SYNONYMS:** *Astragalus iodanthus* var. *pseudiodanthus*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2Q S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** Special Status Species in California. **USFS:** Inyo NF watch list. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 15 occurrences mapped; total estimated **individuals 1420+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Substantial surveys have been conducted in potential habitat, but likely remain incomplete in Nevada. Most recent entered survey 1998, average year of last survey 1977.
Years since last entered survey (percent of mapped records at various survey ages)**: 0-5 yrs:** 6.7%; **11-20 yrs:** 33.3%; **21-30 yrs:** 46.7%; **51+ yrs or unknown:** 13.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, Nevada state lands, Native American lands, private lands, U. S. Department of Defense (?), Humboldt-Toiyabe National Forest (?).

RANGE: Churchill, Esmeralda, Lyon (?), Mineral, and Nye counties, Nevada; also in CA. Maximum Nevada **range dimension 184.5 km (114.7 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 4535-6000 feet (1382-1829 meters).

HABITAT (NEVADA): Deep loose sandy soils of stabilized and active dune margins, old beaches, valley floors, or drainages, with Sarcobatus vermiculatus and other salt desert shrub taxa. Dependent on sand dunes or deep sand in Nevada.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: perennial herb from a buried root crown.

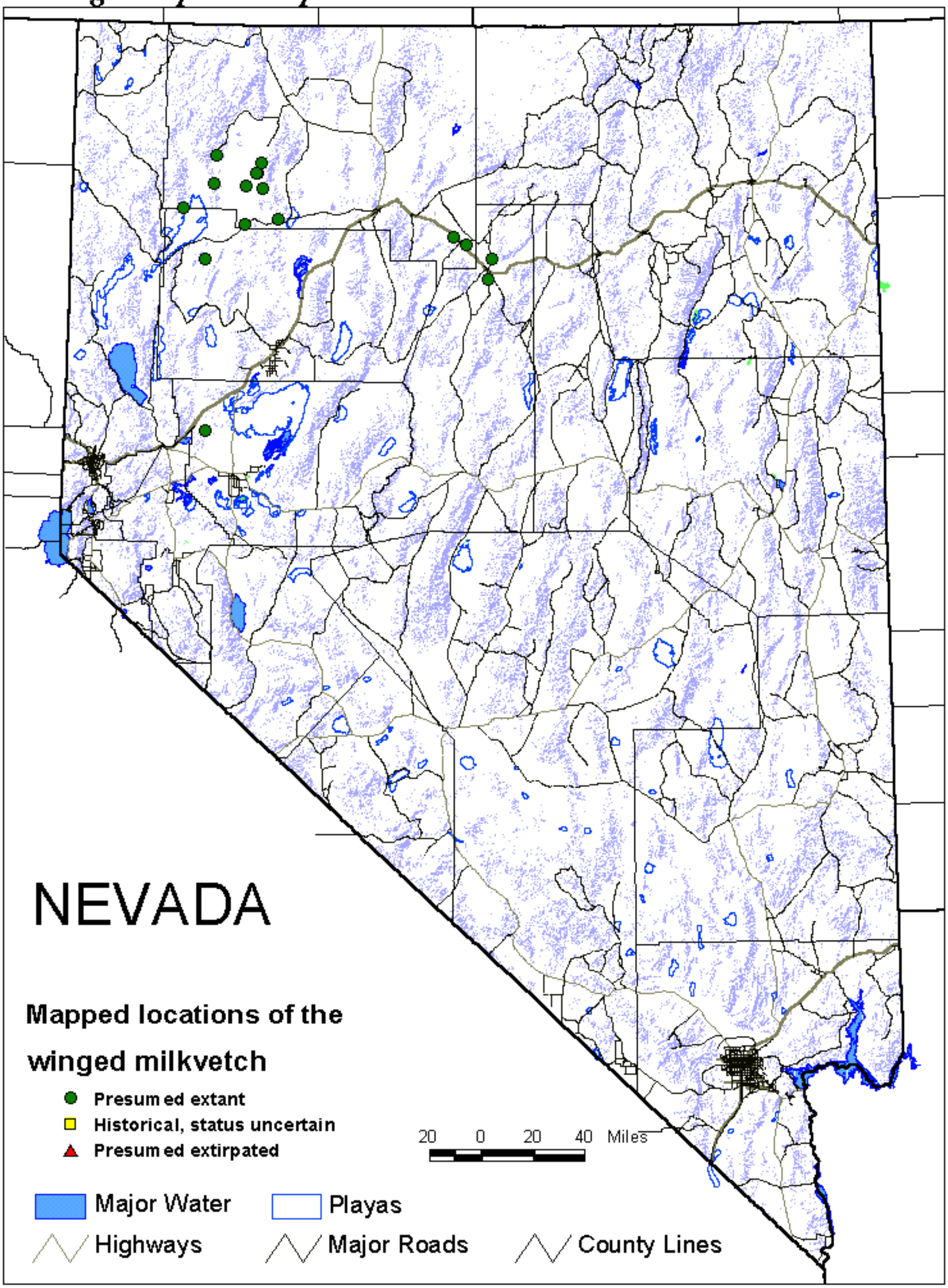
DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Barneby (1989), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964), Goodrich (1981), Hickman (1993), Isely (1998), Rhoads et al. (1979).
SPECIFIC REFERENCES:

Barneby, R. C. 1942. Pugillus astragalorum nevadensium. Leaflets of Western Botany 3: 97-114.
Pavlik, B. 1985. Sand dune flora of the Great Basin and Mojave Deserts of California, Nevada, and Oregon. Madroño 32: 197-213.
Pavlik, B. M. 1989. Phytogeography of sand dunes in the Great Basin and Mojave deserts. Journal of Biogeography 16: 227-238.

OF FURTHER INTEREST: Isely (1998) treats this taxon as a variety of A. iodanthus.

Astragalus pterocarpus



Astragalus pterocarpus S. Watson — WINGED MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program WATCH LIST, ranks: G3 S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 16 occurrences mapped; total estimated **individuals 265+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1984, average year of last survey 1967. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 37.5%; **21-30 yrs:** 25%; **31-50 yrs:** 18.8%; **51+ yrs or unknown:** 18.8%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, U. S. Bureau of Reclamation.

RANGE: Churchill, Humboldt, Lander, and Pershing counties, Nevada. **Nevada endemic.** Maximum **range dimension 194.7 km (121.0 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 4000-4900 feet (1219-1494 meters).

HABITAT: Light-colored, alkaline, often seasonally moist sandy silt or clay soils of saltgrass meadows, shrubby bottomlands, and low knolls, often in washes or gullies, in the shadscale and lower sagebrush zones with Elymus cinereus, Artemisia spinescens, A. tridentata, Sitanion hystrix, Sarcobatus vermiculatus, Sphaeralcea grossulariaefolia, Tetradymia glabrata, Distichlis spicata var. stricta, Suaeda moquinii, Thelypodium sagittatum, etc. Dependent on wetland margin areas.

PHENOLOGY: flowering spring. Range of most frequent **survey months:** May-June.

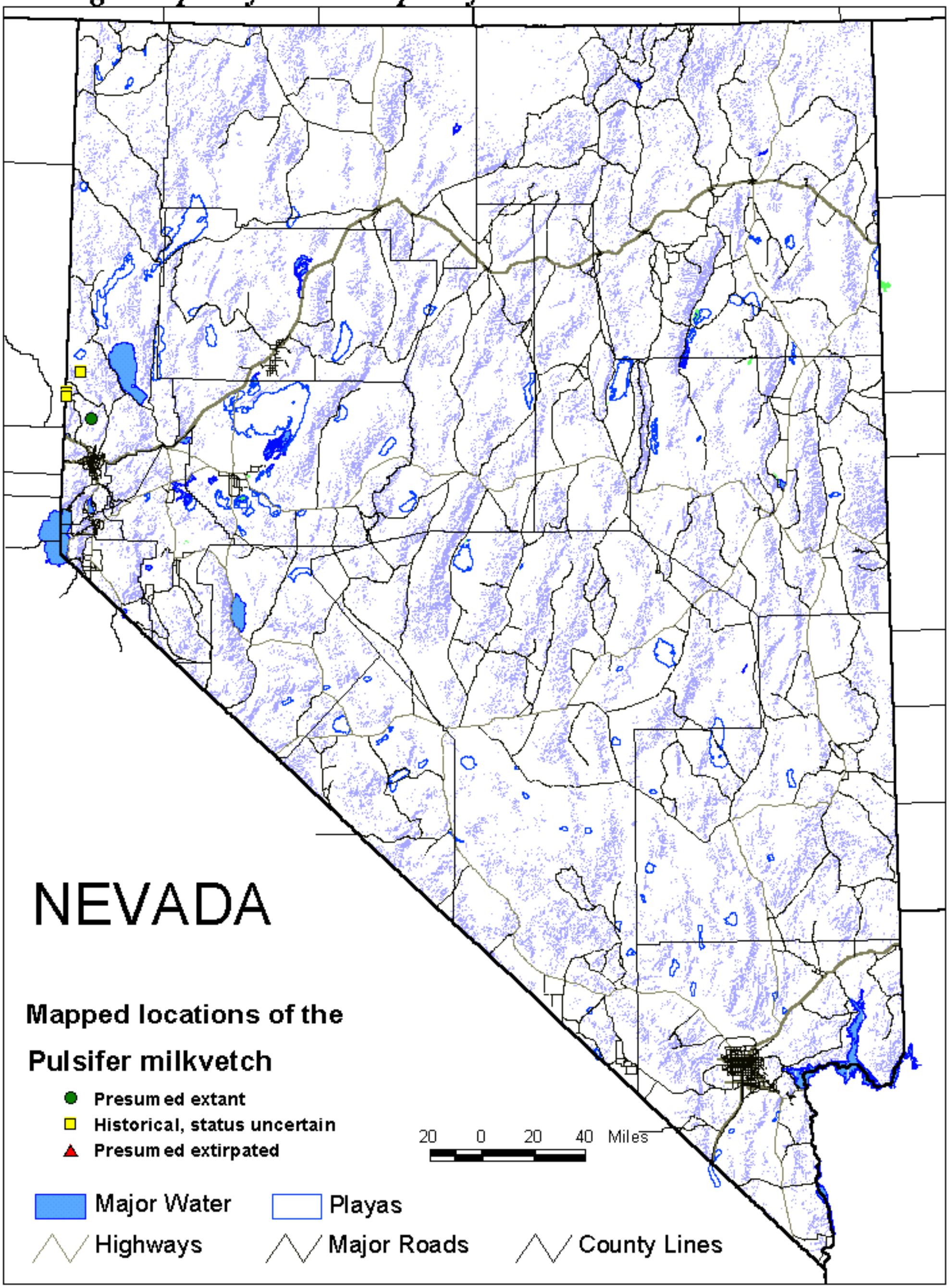
LIFE-FORM AND HABIT: perennial herb from a buried root crown.

DESCRIPTION: A perennial herb with silvery pubescent leaflets, purplish flowers, and winged pods (Mozingo and Williams 1980).

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Barneby (1989), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964), Isely (1998).
SPECIFIC REFERENCES:

Holmgren, A. H., L. M. Shultz and J. S. Shultz. 1977. Herbarium search and literature review: survey of proposed sensitive species in Humboldt and Pershing Counties. Logan: Utah State University, Intermountain Herbarium.

Astragalus pulsiferae var. pulsiferae



Astragalus pulsiferae A. Gray var. *pulsiferae* PULSIFER MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4 T2 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** Special Status Species in California. **USFS:** Region 5 (California) Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 4 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1980, average year of last survey 1959. **Years since last entered survey** (percent of mapped records at various survey ages)**: 21-30 yrs:** 75%; **51+ yrs or unknown:** 25%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: private lands, U. S. Bureau of Land Management (?).

RANGE: Washoe County, Nevada; also in CA. Maximum Nevada **range dimension 17.5 km (10.8 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 4625-5200 feet (1410-1585 meters).

HABITAT: no summary available (see references).

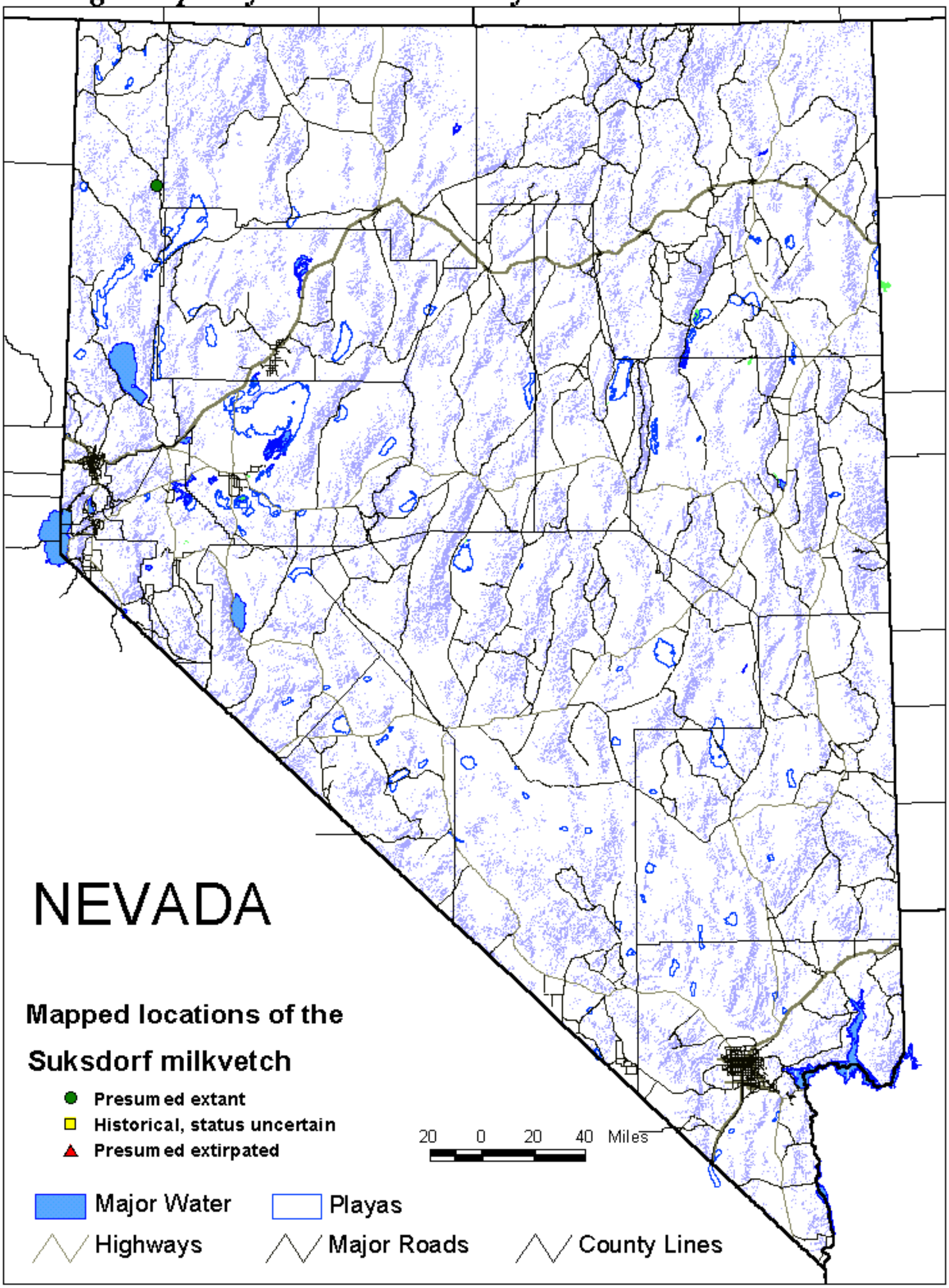
PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: perennial herb from a buried root crown.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present) and files.
ILLUSTRATIONS: Barneby (1989).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964), Hickman (1993).

Astragalus pulsiferae var. suksdorfii



Astragalus pulsiferae A. Gray **var. *suksdorfii*** (T. J. Howell) Barneby

SUKSDORF MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4 T3? S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in California.
USFS: Region 5 (California) Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 1 occurrence mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1983.
Years since last entered survey (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT (NEVADA): U. S. Bureau of Land Management.

RANGE: Washoe County, Nevada; also in CA and WA.

ELEVATIONS RECORDED (NEVADA): 5480 feet (1670 meters).

HABITAT (NEVADA): With Artemisia on rocky basalt hills.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** June.

LIFE-FORM AND HABIT: perennial herb.

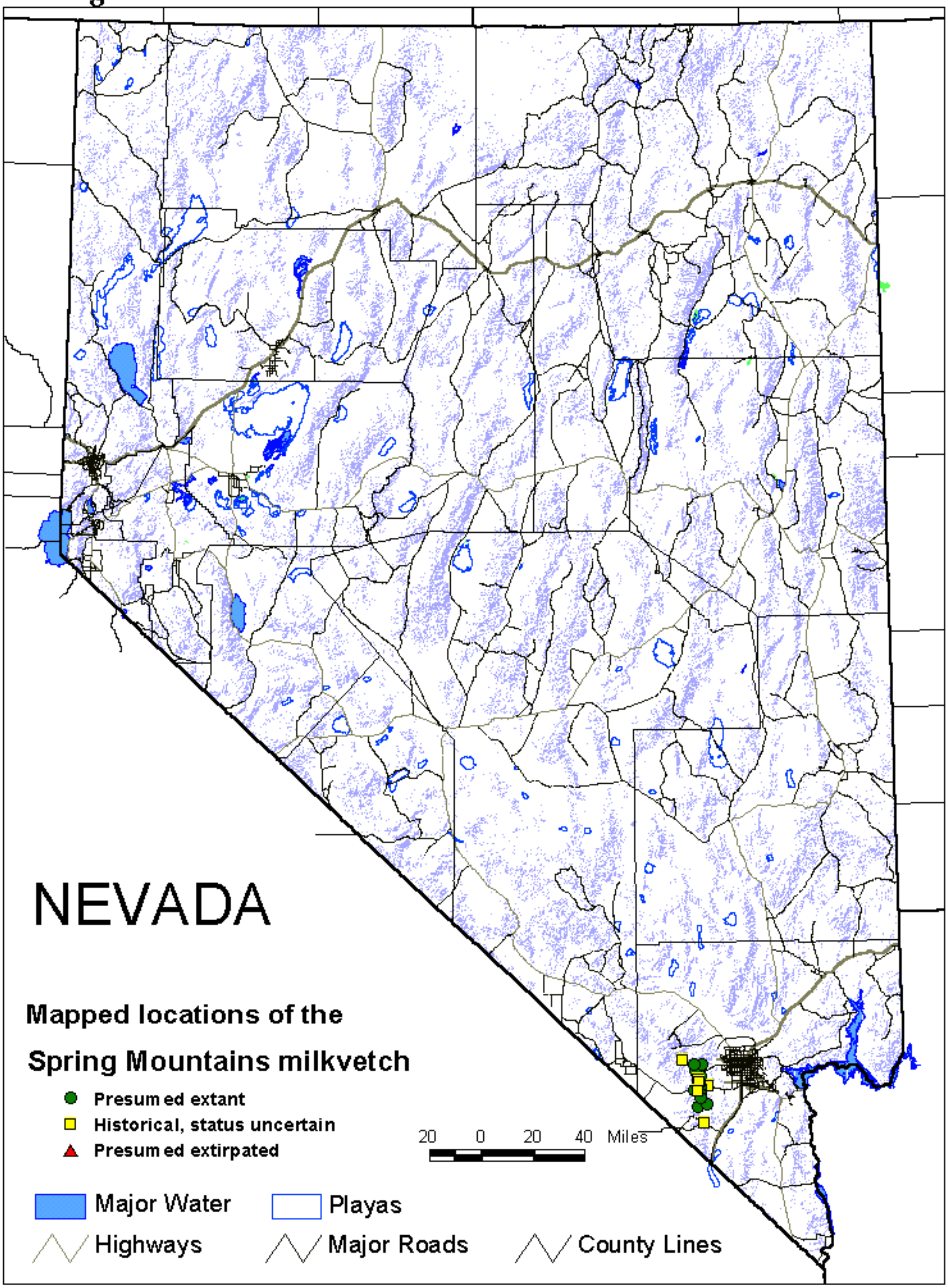
DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: Barneby (1989).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964), Hickman (1993).
SPECIFIC REFERENCES:

Tiehm, A. 1984. Noteworthy collections, Nevada. Madroño 31: 123-127.

OF FURTHER INTEREST: Nevada EO may represent an undescribed variety, per Glenn Clifton, 1999-04-06.

Astragalus remotus



Astragalus remotus (M. E. Jones) Barneby — SPRING MOUNTAINS MILKVETCH

FAMILY: *Fabaceae*, the legume family. **SYNONYMS:** *Astragalus arrectus* var. *remotus*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 17 occurrences mapped; total estimated **individuals 5018+**, total estimated **area 202+ ha (499+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: U.S. Forest Service: existing threats include livestock and wild horse grazing, heavy recreation use of the mountains from the Las Vegas population, and frequent fires in the area.

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1998, average year of last survey 1968. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 5.9%; **6-10 yrs:** 17.6%; **11-20 yrs:** 5.9%; **21-30 yrs:** 29.4%; **31-50 yrs:** 11.8%; **51+ yrs or unknown:** 29.4%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, Humboldt-Toiyabe National Forest, private lands, Nevada state lands (?).

RANGE: Clark County, Nevada. Endemic to the southeastern slopes of the Spring Mountains. Maximum **range dimension 31.8 km (19.8 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 3400-7050 feet (1036-2149 meters).

HABITAT: Rocky, gravelly, and/or sandy calcareous soils derived from carbonate or sandstone, in washes and drainages, or on hillsides or rocky ledges, with the zonal desert shrub or desert wash communities.

PHENOLOGY: flowering spring. Range of most frequent **survey months:** April-May.

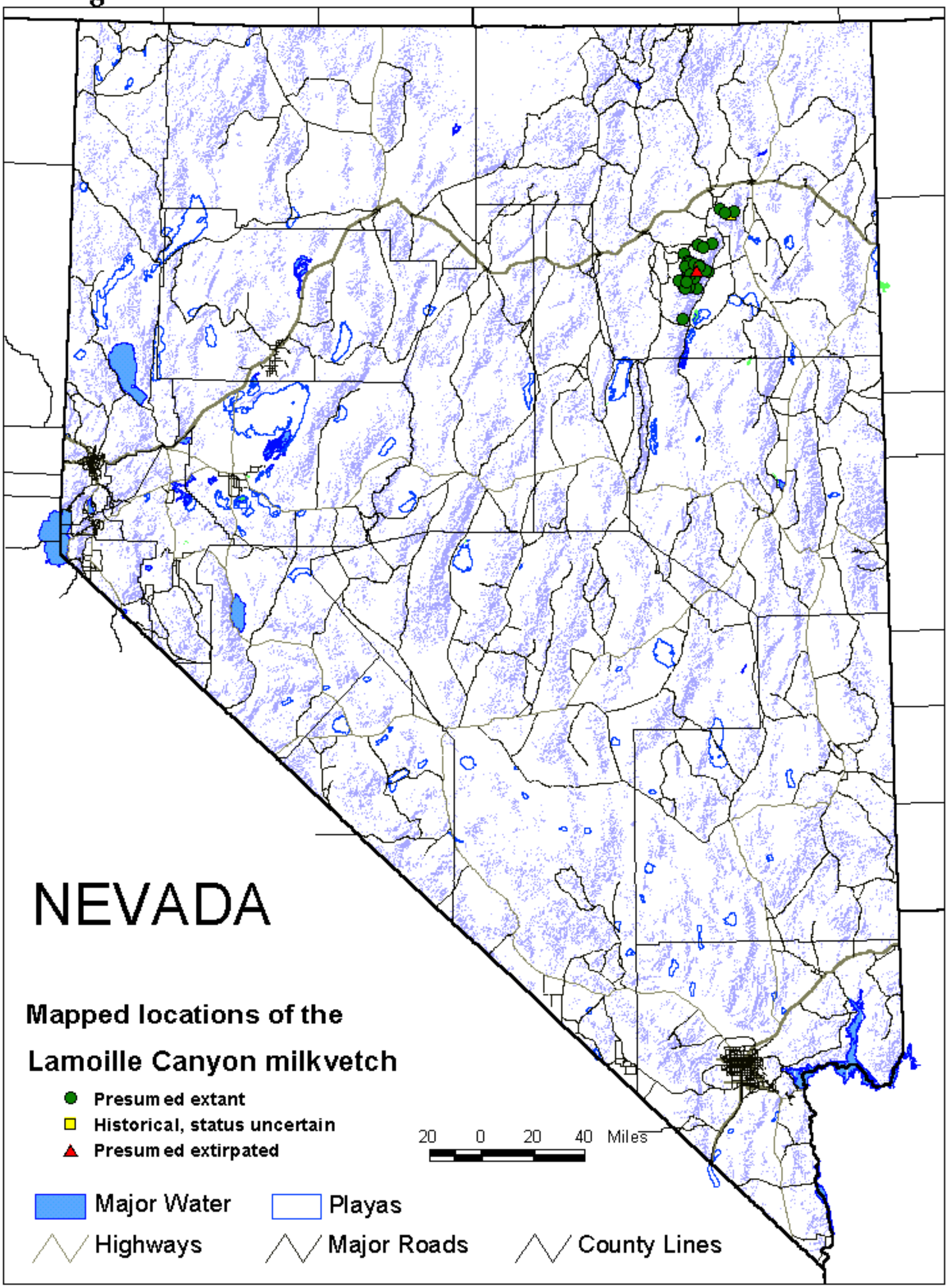
LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: A perennial herb with several erect stems, 1.5-4 dm long, and with buff-colored, lilac tinged flowers in bloom April-early June.

PHOTOGRAPHS: Weixelman and Atwood (1990); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964), Clokey (1951), Nachlinger (1994), Niles et al. (1998), Spahr et al. (1991).
SPECIFIC REFERENCES:

Barneby, R. C. 1944. Pugillus astragalorum III. Leaflets of Western Botany 4: 49-63.
Morefield, J. D. 1992. Status report for Opuntia whipplei Engelmann and Bigelow var. multigeniculata (Clokey) L. Benson. Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.
WESTEC Services, Inc. 1980. Field research of rare plants in Las Vegas ES area, Clark County, Las Vegas, Nevada. Las Vegas: Bureau of Land Management.

Astragalus robbinsii var. occidentalis



Astragalus robbinsii (Oakes) A. Gray **var. *occidentalis*** S. Watson

LAMOILLE CANYON MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G5 T2T3 S2S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 30 extant occurrences mapped at 1.0 km (0.6 mi) separation, OR **37 extant and 1 extirpated occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 3214+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Habitat outside wilderness area vulnerable to recreational use and development, livestock grazing and trampling and resulting long-term habitat degradation, road construction and maintenance, possible mineral exploration and development.

INVENTORY EFFORT: Surveys have been substantial, but considerable potential habitat likely remains to be examined. Most recent entered survey 1997, average year of last survey 1985. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 7.9%; **6-10 yrs:** 34.2%; **11-20 yrs:** 50%; **21-30 yrs:** 2.6%; **51+ yrs or unknown:** 5.3%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, private lands, Nevada state lands (?), U. S. Bureau of Land Management (?).

RANGE: Elko County, Nevada. Endemic to the Ruby Mountains. Maximum **range dimension 57.2 km (35.6 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 6050-10000 feet (1844-3048 meters).

HABITAT: Moist to seasonally dry sandy loam soils in seeps, riparian strips or edges, near stream banks, or higher-elevation meadow margins, in Salix, Populus, and/or Potentilla fruticosa communities with Carex, Juncus, etc. Aquatic or wetland-dependent.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** July-October.

LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Anderson et al. (1991), Smith (1988); Nevada Natural Heritage Program slide collection (1986-present) and files.

ILLUSTRATIONS: Anderson et al. (1991), Barneby (1989), Mozingo and Williams (1980).

OTHER GENERAL REFERENCES (listed separately): Barneby (1964).

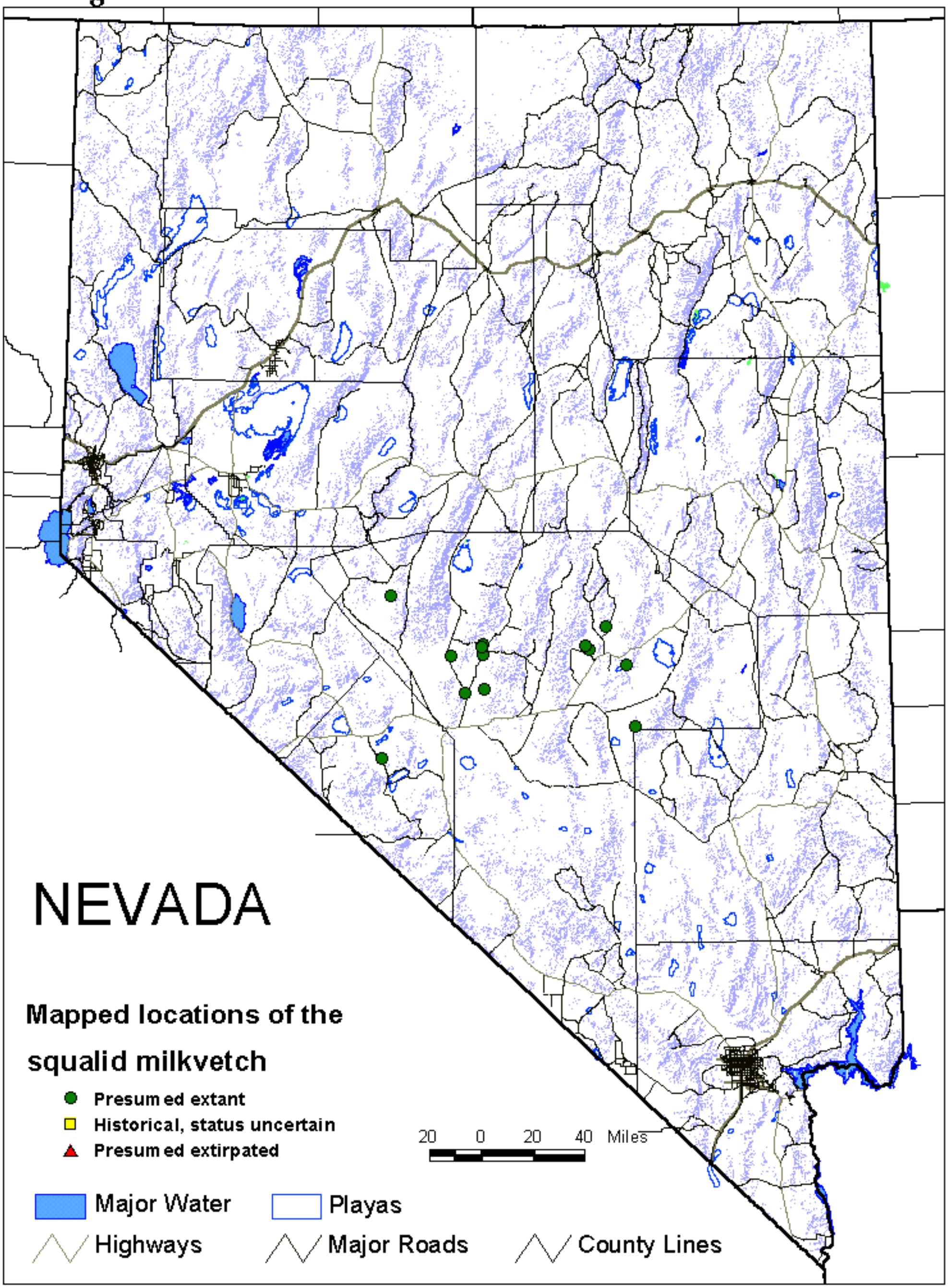
SPECIFIC REFERENCES:

Goodrich, S. 1979. Status report on Astragalus robbinsii var. occidentalis. Portland, Oregon: U. S. Fish and Wildlife Service.

Smith, F. J. 1988. Status report for Astragalus robbinsii var. occidentalis Wats. Carson City: Nevada Natural Heritage Program.

OF FURTHER INTEREST: Distinct taxon.

Astragalus serenoi var. sordescens



Astragalus serenoi (Kuntze) Sheldon var. *sordescens* Barneby — SQUALID MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program WATCH LIST, ranks: G4 T2 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 13 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1982, average year of last survey 1979. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 23.1%; **21-30 yrs:** 76.9%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, Humboldt-Toiyabe National Forest.

RANGE: Esmeralda and Nye counties, Nevada. **Nevada endemic.** Maximum **range dimension 171.8 km (106.8 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 5040-6840 feet (1536-2085 meters).

HABITAT: Dry, open, gravelly or sandy soils on gentle slopes of alluvial fans or light-colored clay hills, in the mixed-shrub, sagebrush, and lower pinyon-juniper zones, most frequently with Artemisia nova.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** June-July.

LIFE-FORM AND HABIT: perennial herb.

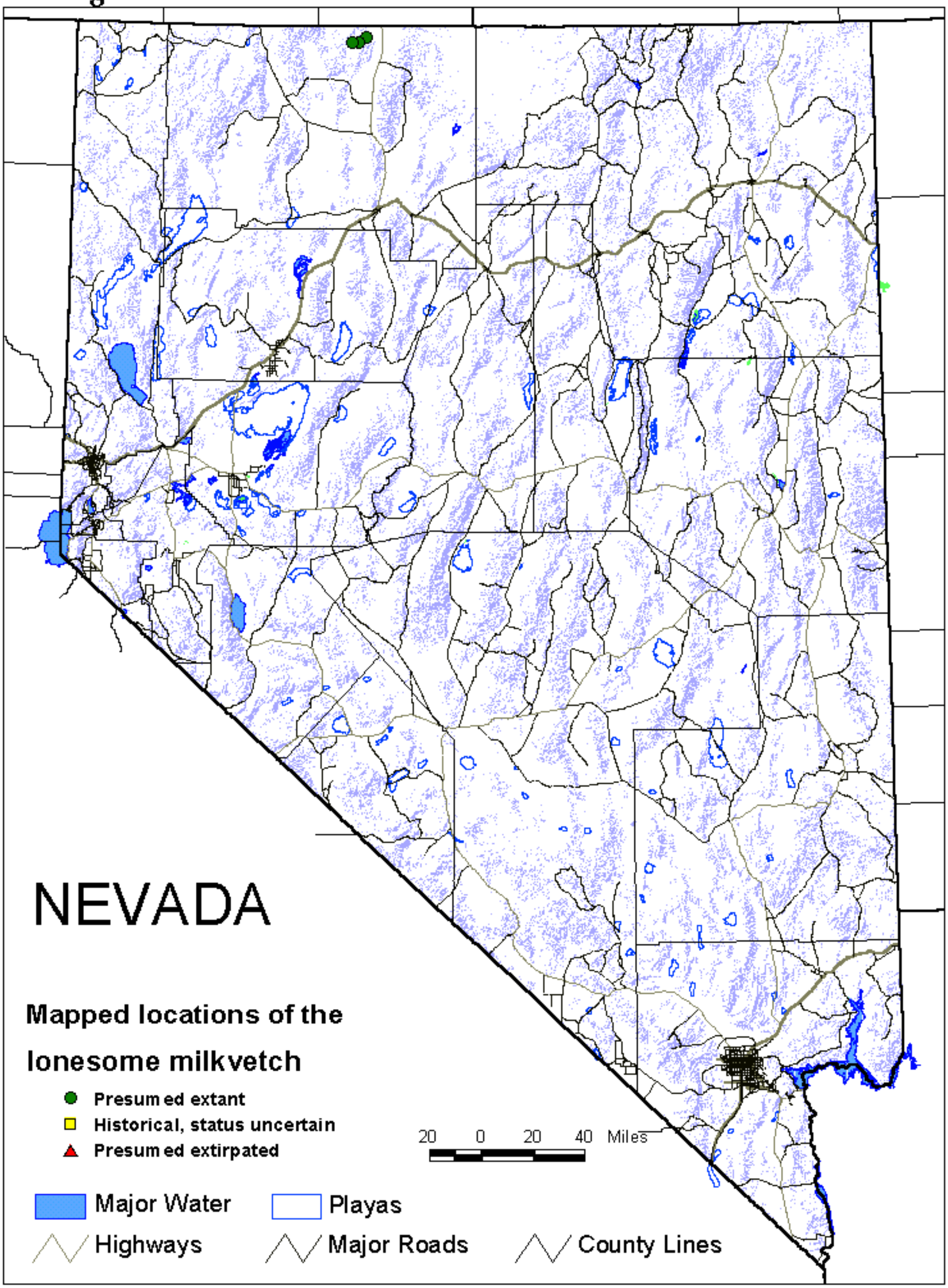
DESCRIPTION: Plant, legume.

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: Barneby (1989), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964), Goodrich (1981).
SPECIFIC REFERENCES:

Barneby, R. C. 1984. Dragma hippomanicum X: Astragali (Leguminosae) nevadenses novi criticive, singulo peruviano adjecto. Brittonia 36: 167-173.

Goodrich, S. 1979. Status report on Mertensia toyabensis. Portland, Oregon: U. S. Fish and Wildlife Service.

Astragalus solitarius



Astragalus solitarius M. E. Peck — LONESOME MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 3 occurrences mapped; total estimated **individuals 192**, total estimated **area 45.3 ha (112 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1983, average year of last survey 1981. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 33.3%; **21-30 yrs:** 66.7%.

LAND MANAGEMENT (NEVADA): U. S. Bureau of Land Management.

RANGE: Humboldt County, Nevada; also in OR. Maximum Nevada **range dimension 9.1 km (5.6 mi)**.

ELEVATIONS RECORDED (NEVADA): 4600-5200 feet (1402-1585 meters).

HABITAT (NEVADA): Washes and banks of shallow soils on volcanic flat-rock with Artemisia arbuscula, A. tridentata, Tetradymia glabrata, Poa sandbergii, Atriplex confertifolia, Chrysothamnus nauseosus, etc.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** June.

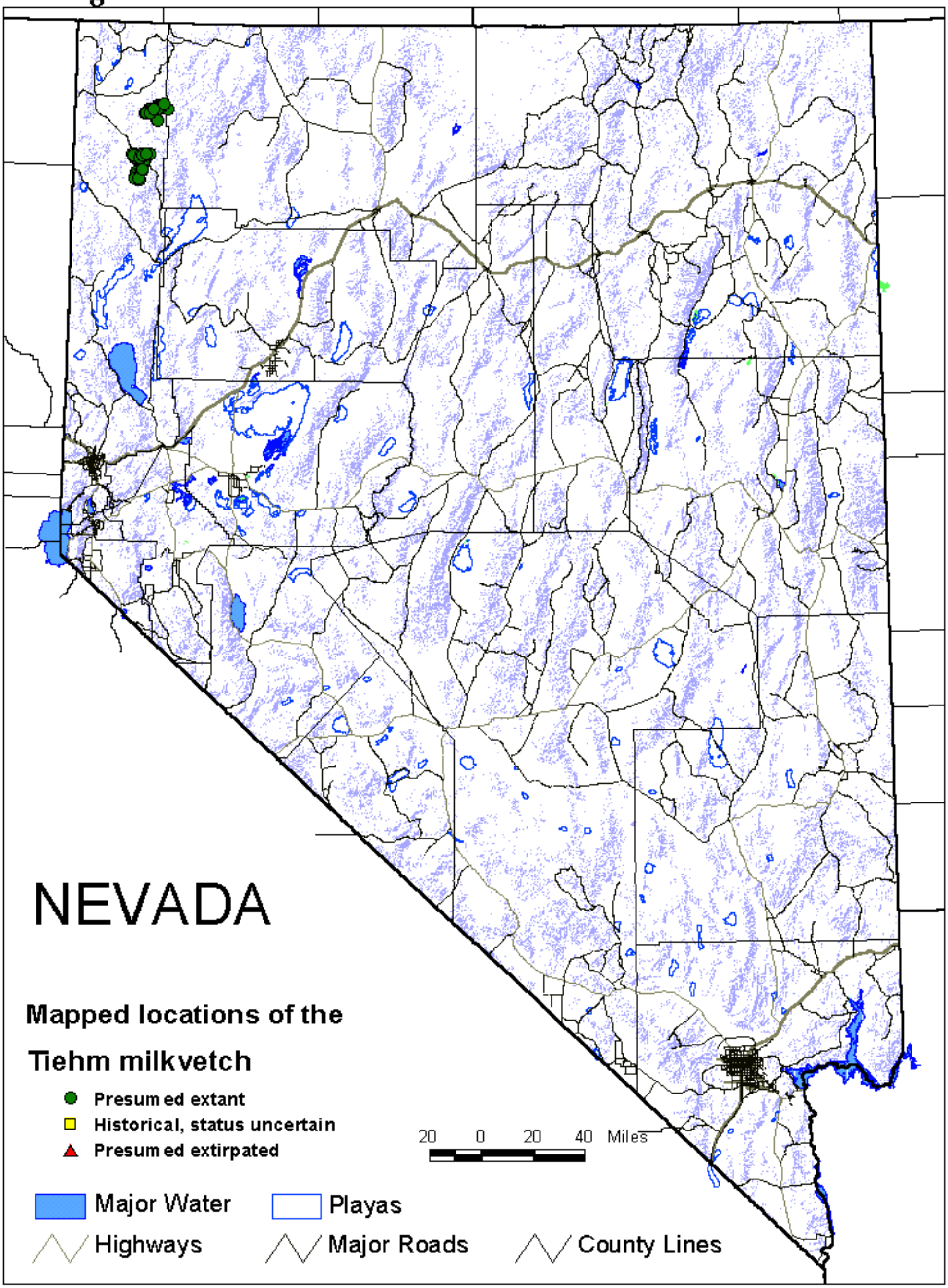
LIFE-FORM AND HABIT: perennial herb from a buried root crown.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Barneby (1989), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964).
SPECIFIC REFERENCES:

Yoder-Williams, M. 1980. Status report for Astragalus yoder-williamsii. Portland, Oregon: U. S. Fish and Wildlife Service.

Astragalus tiehmii



Astragalus tiehmii Barneby (1984) TIEHM MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 26 occurrences mapped at 1.0 km (0.6 mi) separation, OR **85 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 671,000+**, total estimated **area 163+ ha (403+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Surveys are substantially complete. Most recent entered survey 1998, average year of last survey 1991. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 1.2%; **6-10 yrs:** 80%; **11-20 yrs:** 18.8%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, private lands.

RANGE: Humboldt and Washoe counties, Nevada. **Nevada endemic.** Maximum **range dimension 49.4 km (30.7 mi)** excluding most disjunct record. **Type specimen** collected in Washoe County.

ELEVATIONS RECORDED: 5280-5750 feet (1609-1753 meters).

HABITAT: Whitish fluviolacustrine volcanic ash deposits weathering to deep clay soils, generally on gentle slopes of any aspect, with Chrysothamnus, Sphaeralcea, Stanleya viridiflora, etc., and frequently with Cryptantha schoolcraftii and/or Eriogonum crosbyae.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-August.

LIFE-FORM AND HABIT: small short-lived perennial herb.

DESCRIPTION: A diminutive, prostrate perennial herb that forms dense mats of pallid foliage, 1-4.5 dm in diameter. Whitish flowers bloom in June and July.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.

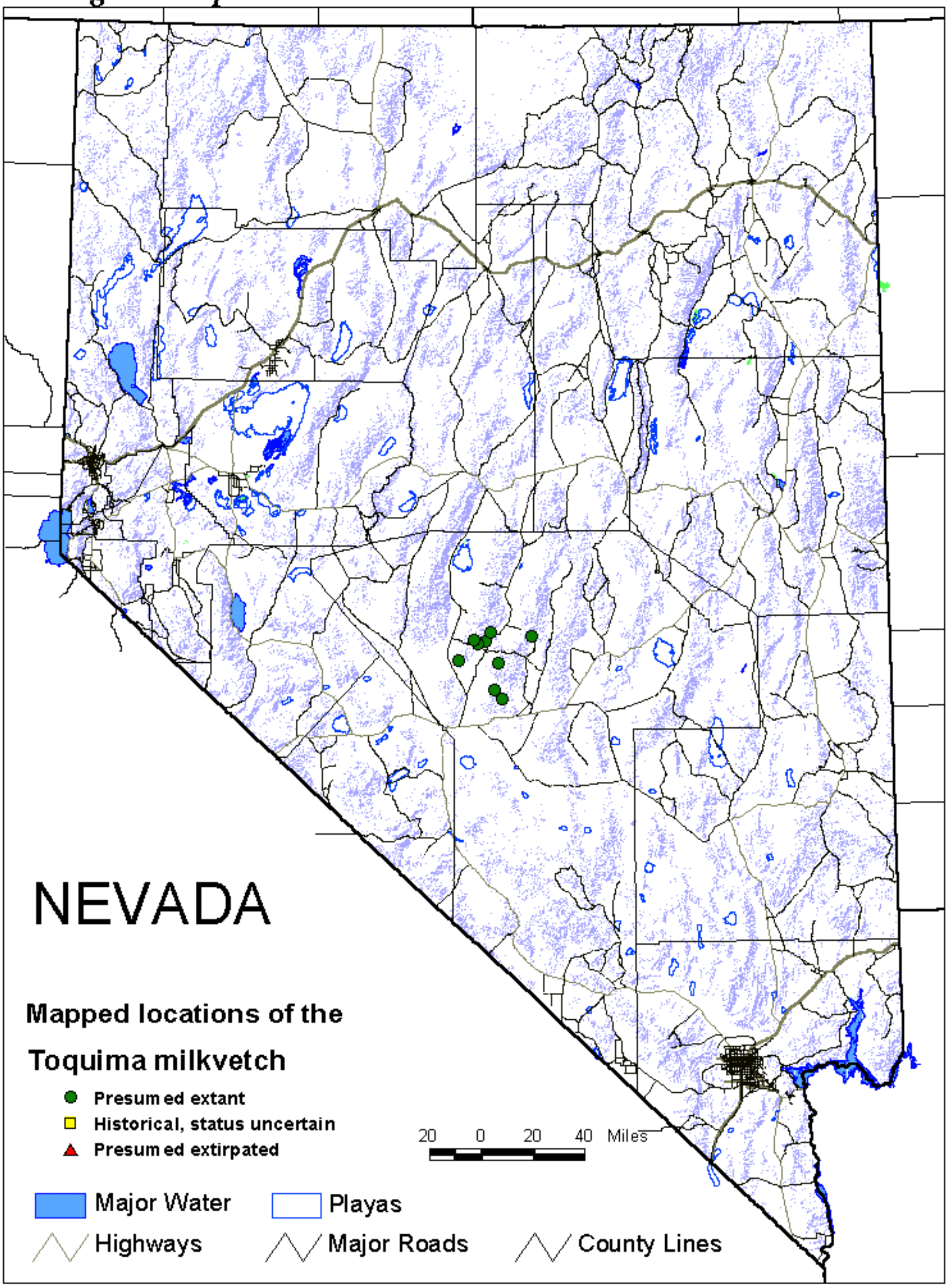
ILLUSTRATIONS: Barneby (1989).

SPECIFIC REFERENCES:

Barneby, R. C. 1984. Dragma hippomanicum X: Astragali (Leguminosae) nevadenses novi criticive, singulo peruviano adjecto. Brittonia 36: 167-173.

Schoolcraft, G. 1989. Species management guide for Eriogonum crosbyae. Susanville, California: Bureau of Land Management.

Astragalus toquimanus



Astragalus toquimanus Barneby — TOQUIMA MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 9 occurrences mapped; total estimated **individuals unknown**, total estimated **area 9.3+ ha (23.0+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1991, average year of last survey 1982. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 22.2%; **21-30 yrs:** 77.8%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management.

RANGE: Nye County, Nevada. **Nevada endemic.** Maximum **range dimension 42.6 km (26.5 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 6480-7520 feet (1975-2292 meters).

HABITAT: Dry, stiff, sandy to gravelly, generally somewhat basic or calcareous soils in Pinus monophylla, Juniperus osteosperma, and/or Artemisia communities, mostly on flats or gentle slopes, frequently growing under or up through shrubs.

PHENOLOGY: flowering spring. Range of most frequent **survey months:** May-July.

LIFE-FORM AND HABIT: perennial herb.

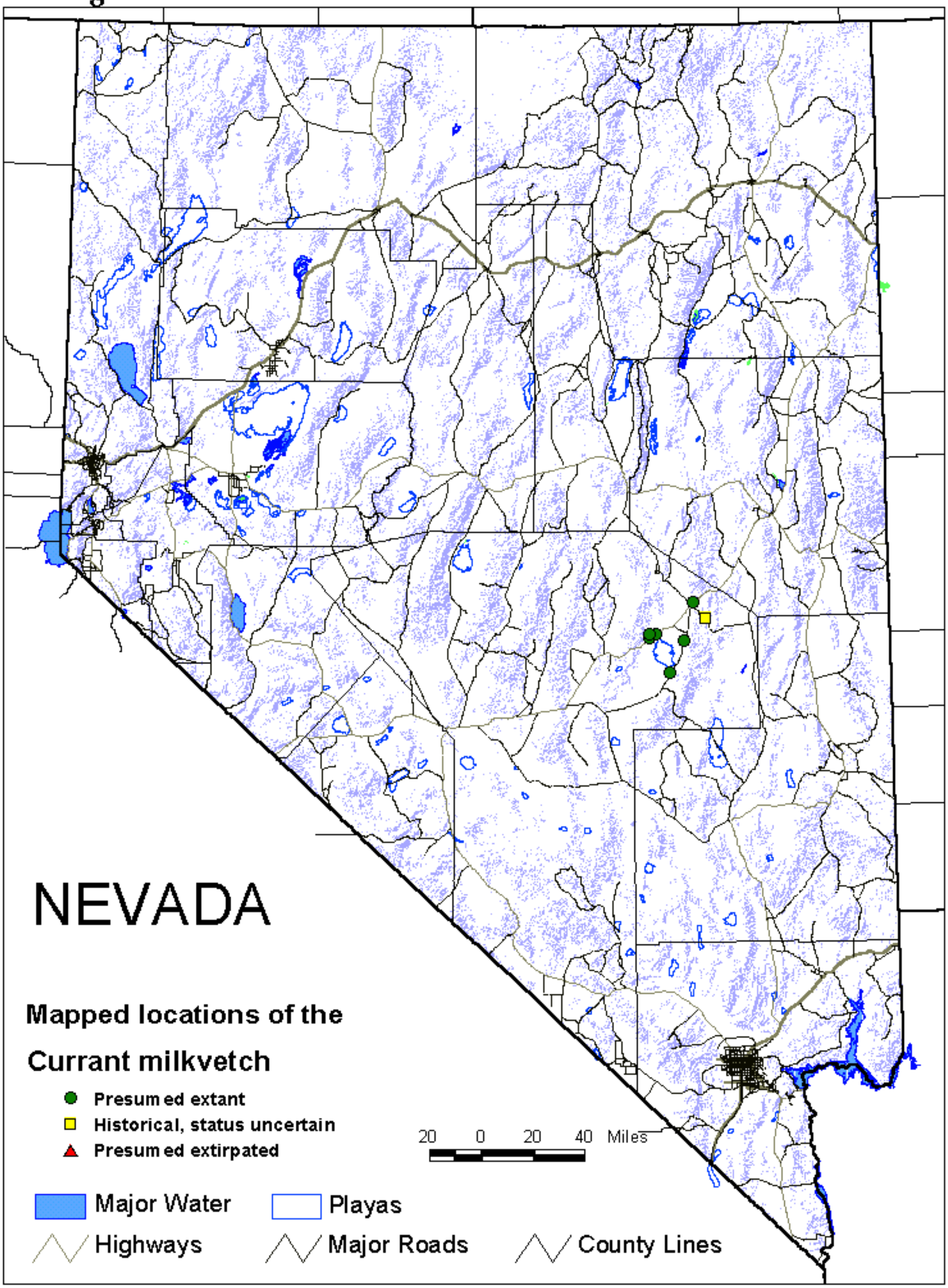
DESCRIPTION: A wiry perennial herb. Stems 1-2.5 dm tall. Flowers (May and June) pale yellow, tinged and veined with lilac.

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Barneby (1989), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964), Goodrich (1981).
SPECIFIC REFERENCES:

Morefield, J. D. 1992. Interim status report for Frasera pahutensis Reveal. Carson City: Nevada Natural Heritage Program, prepared for the Toiyabe National Forest, Sparks, Nevada.

Woodbury, K. 1980. Status report for Astragalus toquimanus. Portland, Oregon: U. S. Fish and Wildlife Service.

Astragalus uncialis



Astragalus uncialis Barneby — CURRANT MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 7 occurrences mapped; total estimated **individuals unknown**, total estimated **area 3.7+ ha (9.1+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Not very threatened in Utah; unknown in Nevada.

INVENTORY EFFORT (NEVADA): A few surveys have been conducted but remain largely incomplete in Nevada. Most recent entered survey 1983, average year of last survey 1975. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 57.1%; **21-30 yrs:** 28.6%; **51+ yrs or unknown:** 14.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands, Nevada state lands (?), Humboldt-Toiyabe National Forest (?).

RANGE: Nye County, Nevada; also in UT. Maximum Nevada **range dimension 37.7 km (23.4 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 4800-6050 feet (1463-1844 meters).

HABITAT (NEVADA): Dry, open, sparsely-vegetated, calcareous sandy-clay soils on flats and gentle slopes of hillsides and alluvial fans.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

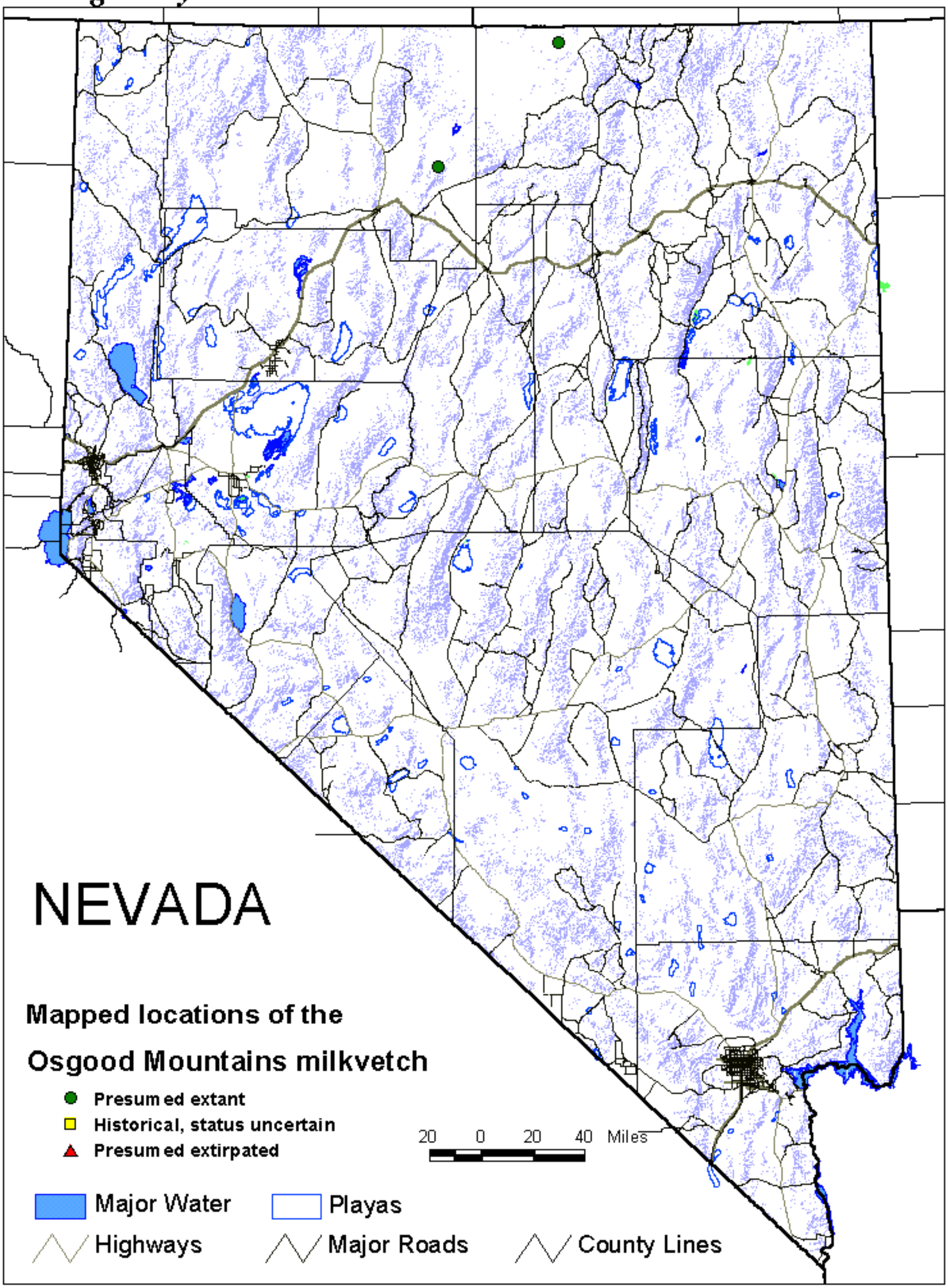
LIFE-FORM AND HABIT: small matted long-lived perennial herb.

DESCRIPTION: A low perennial that forms a dense tuft, up to 1 dm in diameter. Foliage is silvery. Flowers (May-June) are purple and disproportionately large for the size of the plant.

PHOTOGRAPHS: Anderson et al. (1991), Atwood et al. (1991); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Anderson et al. (1991), Atwood et al. (1991), Barneby (1989), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964).
SPECIFIC REFERENCES:

Goodrich, S. 1979. Status report on Astragalus uncialis. Portland, Oregon: U. S. Fish and Wildlife Service.
Williams, M. 1981. Status report on Astragalus uncialis. Portland, Oregon: U. S. Fish and Wildlife Service.

Astragalus yoder-williamsii



Astragalus yoder-williamsii Barneby (1980) OSGOOD MOUNTAINS MILKVETCH

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species in Nevada. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 2 occurrences mapped; total estimated **individuals 3625**, total estimated **area 8.9 ha (22.0 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Mineral exploration and development, road maintenance and off-road vehicle use, trampling by livestock and feral animals, competition from invasive weeds.

INVENTORY EFFORT (NEVADA): Extensive targeted surveys have been conducted but remain largely incomplete in Nevada. Most recent entered survey 1999, average year of last survey 1998. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands (?), Native American lands (?).

RANGE: Elko and Humboldt counties, Nevada; also in ID. Maximum Nevada **range dimension 107.4 km (66.8 mi)**. **Type specimen** collected in Humboldt County.

ELEVATIONS RECORDED (NEVADA): 5660-7300 feet (1725-2225 meters).

HABITAT (NEVADA): Dry, open, coarse decomposed granodiorite soils among boulders on flats and gentle slopes (recently also found in loose silty soils on a moderate south slope) in healthy sagebrush steppe vegetation with Artemisia arbuscula, A. tridentata ssp. vaseyana, Chrysothamnus nauseosus, Poa secunda var. secunda, Agropyron spicatum, Stipa thurberiana, Stipa comata, Festuca idahoensis, Elymus cinereus, etc.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-July.

LIFE-FORM AND HABIT: small perennial herb.

DESCRIPTION: A dwarf perennial herb that forms dense clumps up to 7 cm tall, Flowers (summer) are inconspicuous, whitish.

PHOTOGRAPHS: Anderson et al. (1991), Knight (1991); Nevada Natural Heritage Program images web page (1998-present) and files.

ILLUSTRATIONS: Anderson et al. (1991), Barneby (1980), Barneby (1989).

SPECIFIC REFERENCES:

Barneby, R. C. 1980. Dragma hippomanicum VI: A new Tragacanthoid Astragalus from Nevada and Idaho. Brittonia 32: 30-32.

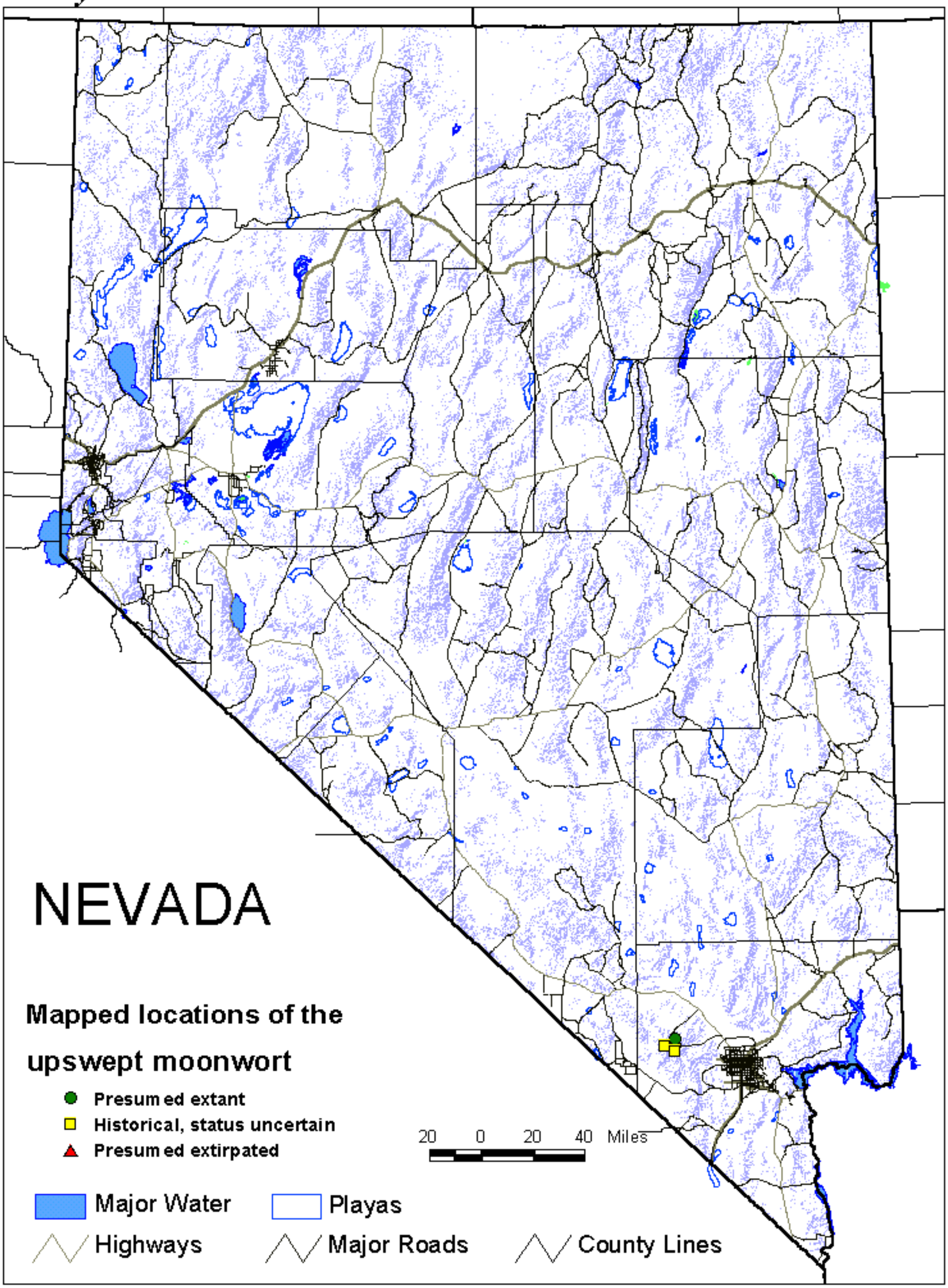
Barneby, R. C. 1980. Dragma hippomanicum V. Two new Astragali from intermountain United States. Brittonia 32: 24-29.

Knight, T. A. 1991. Status report for Astragalus yoder-williamsii Barneby. Carson City: Nevada Natural Heritage Program, prepared for the Bureau of Land Management, Winnemucca District, Winnemucca, Nevada.

Rosentreter, R. 1986. Sensitive and uncommon plants in the Boise District Bureau of Land Management. Boise, Idaho: Bureau of Land Management Technical Bulletin. 87 pages.

Yoder-Williams, M. 1980. Status report for Astragalus yoder-williamsii. Portland, Oregon: U. S. Fish and Wildlife Service.

Botrychium ascendens



Botrychium ascendens W. H. Wagner — UPSWEPT MOONWORT

FAMILY: *Ophioglossaceae*, the adder's-tongue family. **SYNONYMS:** *Botrychium lunaria* var. *onondagense* (misapplied)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF and Region 5 (California) Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 3 occurrences mapped; total estimated **individuals unknown**, total estimated **area 2.0+ ha (4.9+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1998, average year of last survey 1966. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 33.3%; **51+ yrs or unknown:** 66.7%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: designated wilderness, Humboldt-Toiyabe National Forest, private lands (?).

RANGE: Clark County, Nevada; also in AB (?), AK, BC, CA, MT, ON, OR, WY, and YT. In Nevada known so far only from the Spring Mountains. Maximum Nevada **range dimension 7.2 km (4.5 mi)**.

ELEVATIONS RECORDED (NEVADA): 8891-11155 feet (2710-3400 meters).

HABITAT (NEVADA): Moist ground of spring head area in deep shade on north-facing slope with Dodecatheon redolens, Smilacina stellata, Pinus monophylla, Pinus ponderosa, Pinus flexilis, Aquilegia formosa, and Pinus longaeva. Aquatic or wetland-dependent in Nevada.

PHENOLOGY: fertile late-spring to summer. Range of most frequent **survey months:** August.

LIFE-FORM AND HABIT: small cormous fern-ally.

DESCRIPTION: Upward-lobed Moonwort is a small, perennial fern with a single aboveground frond. The frond is usually about 10 cm tall, yellow-green, and divided into two segments which share a common stalk. The mostly sterile segment is once pinnatifid with up to six pairs of strongly ascending, narrowly triangular pinnae which have deeply lacerate margins. The sterile segment often has a few sporangia on the margins of the pinnae or on small branches. The fertile segment is longer than the sterile segment, is branched, and bears grape-like sporangia. Spores germinate underground and develop into minute, subterranean, non-photosynthetic gametophytes which depend on an endophytic fungus for nourishment. **Distinguishing features:** Strongly ascending pinnae with lacerate margins and a yellow-green color are diagnostic of B. ASCENDENS. It may be easily confused with B. CRENULATUM, B. MINGANENSE, and B. MONTANUM. Reliable field determination of moonworts depends on the careful use of technical keys and on comparison with silhouette outlines of verified specimens. Identification can be complicated because there is often a high degree of morphological variability between individuals in a population and between populations of the same species; several species may grow together at the same site. Also, the few diagnostic characters may not be apparent in small plants.

PHOTOGRAPHS: Fertig et al. (1994); Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: Fertig et al. (1994).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Flora of North America editorial Committee (1993), Hickman (1993).
SPECIFIC REFERENCES:

Wagner, W. and F. Wagner. 1986. Three new species of moonworts (Botrychium subgenus Botrychium) endemic in western North America. American Fern Journal 76(2): 33-47.

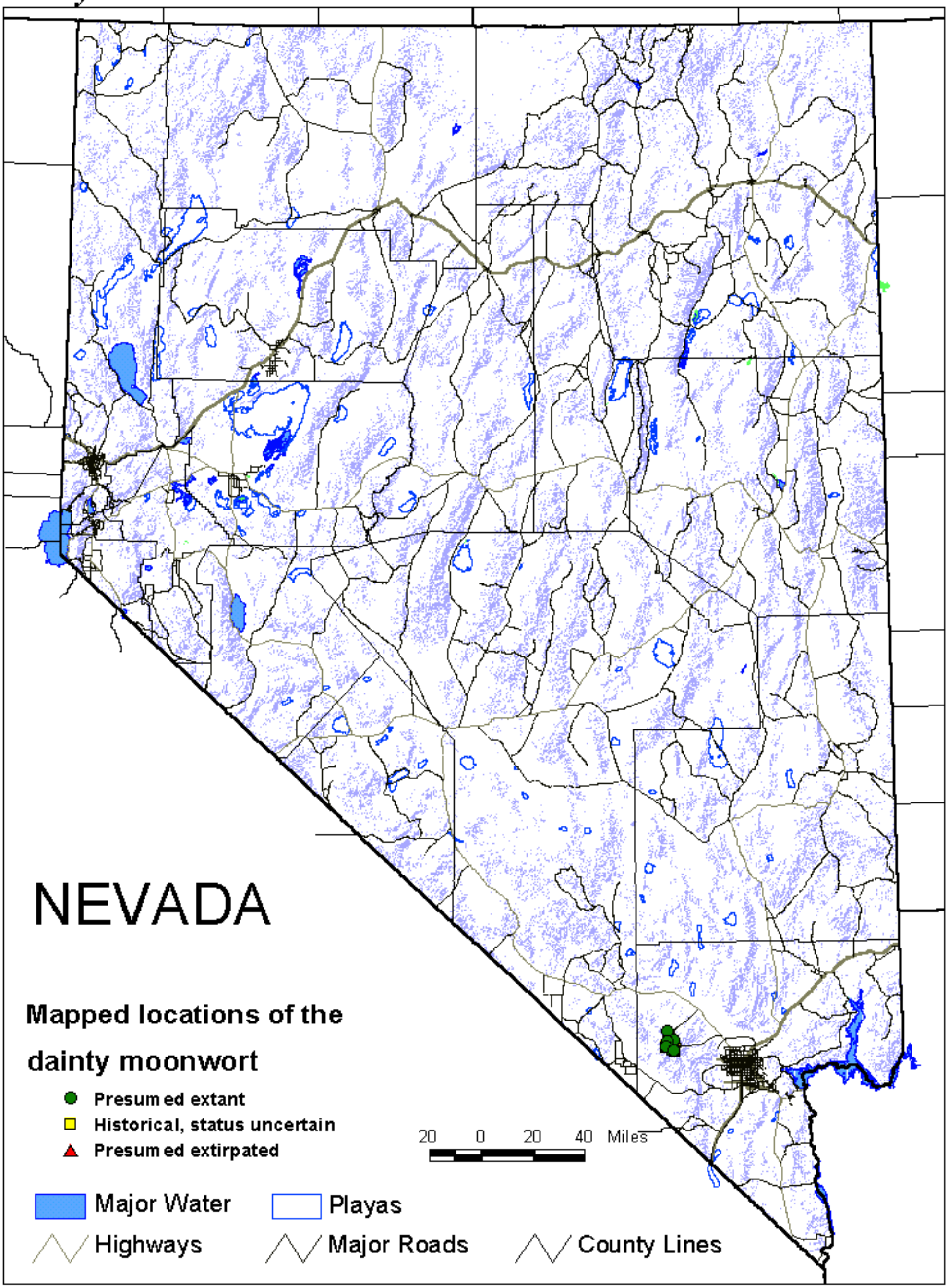
Wagner, W. H., Jr., and F. S. Wagner. 1981. New species of moonworts, Botrychium subg. Botrychium (Ophioglossaceae), from North America. American Fern Journal 71: 20-30.

Wagner, W. H., Jr. and F. S. Wagner. 1990. Notes on the fan-leaflet group of moonworts in North America with descriptions of two new members. American Fern Journal 80: 73-81.

Wagner, W. H. and F. S. Wagner. 1993. Ophioglossaceae. Pages 85-106 in: Flora of North America editorial Committee. Flora of North America vol. 2. New York: Oxford University Press.

OF FURTHER INTEREST: Wagner (in FNA Vol.2) notes that B. ascendens is a distinctive species "that grows with B. crenulatum, B. lunaria, and B. minganense. This species and B. pedunculosum [which has a similar range, but is not known from Alaska] are the only grapeferns that often have extra sporangia on the proximal pinnae.".

Botrychium crenulatum



Botrychium crenulatum W. H. Wagner — DAINTY MOONWORT

FAMILY: *Ophioglossaceae*, the adder's-tongue family. **SYNONYMS:** *Botrychium lunaria* (misapplied)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S1?**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF and Inyo NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 6 occurrences mapped at 1.0 km (0.6 mi) separation, OR **8 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area 1.7+ ha (4.2+ ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1998, average year of last survey 1982. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 37.5%; **6-10 yrs:** 37.5%; **51+ yrs or unknown:** 25%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness.

RANGE: Clark, Elko (?), Esmeralda (?), Lander (?), Lyon (?), Mineral (?), Nye (?), and White Pine (?) counties, Nevada; also in AZ, CA, ID, MT, OR, UT, WA, and WY. Likely occurs in isolated pockets in many of the higher and wetter mountains of Nevada. Maximum Nevada **range dimension 7.1 km (4.4 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 8202-11150 feet (2500-3399 meters).

HABITAT: Aquatic or wetland-dependent in Nevada.

PHENOLOGY: fertile late-spring. Range of most frequent **survey months:** July-August.

LIFE-FORM AND HABIT: small cormous fern-ally.

DESCRIPTION: Wavy Moonwort is a small, perennial fern with a single aboveground frond. The frond is usually 10 cm or less tall, yellow-green, and divided into two segments which share a common stalk. The mostly sterile segment is once pinnatifid with usually three or four well separated pairs of thin textured, broadly fan-shaped pinnae which have distinct veins and crenulate margins. The fertile segment is longer than the sterile segment, is branched (often like a tiny Christmas tree), and bears grape-like sporangia. Spores germinate underground and develop into minute, subterranean, non-photosynthetic gametophytes which depend on an endophytic fungus for nourishment.
Distinguishing features: Yellow-green color and well separated, thin textured, broadly fan-shaped pinnae with crenulate margins and prominent veins are diagnostic of B. CRENULATUM. It may be easily confused with B. ASCENDENS, B. LUNARIA, and B. MINGANENSE. Reliable field determination of moonworts depends on the careful use of technical keys and comparison with silhouette outlines of verified specimens. Identification can be complicated because there is often a high degree of morphological variability between individuals in a population and between populations of the same species; several species may grow together at the same site, and the few diagnostic characters may not be apparent in small plants.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Flora of North America editorial Committee (1993), Hickman (1993), Sada and Nachlinger (1996).
SPECIFIC REFERENCES:

Paris, C. A., F. S. Wagner and W. H. Wagner, Jr. 1989. Cryptic species, species delimitation, and taxonomic practice in the homosporus ferns. American Fern Journal 79: 46-54.

Wagner, W. and F. Wagner. 1986. Three new species of moonworts (Botrychium subgenus Botrychium) endemic in western North America. American Fern Journal 76(2): 33-47.

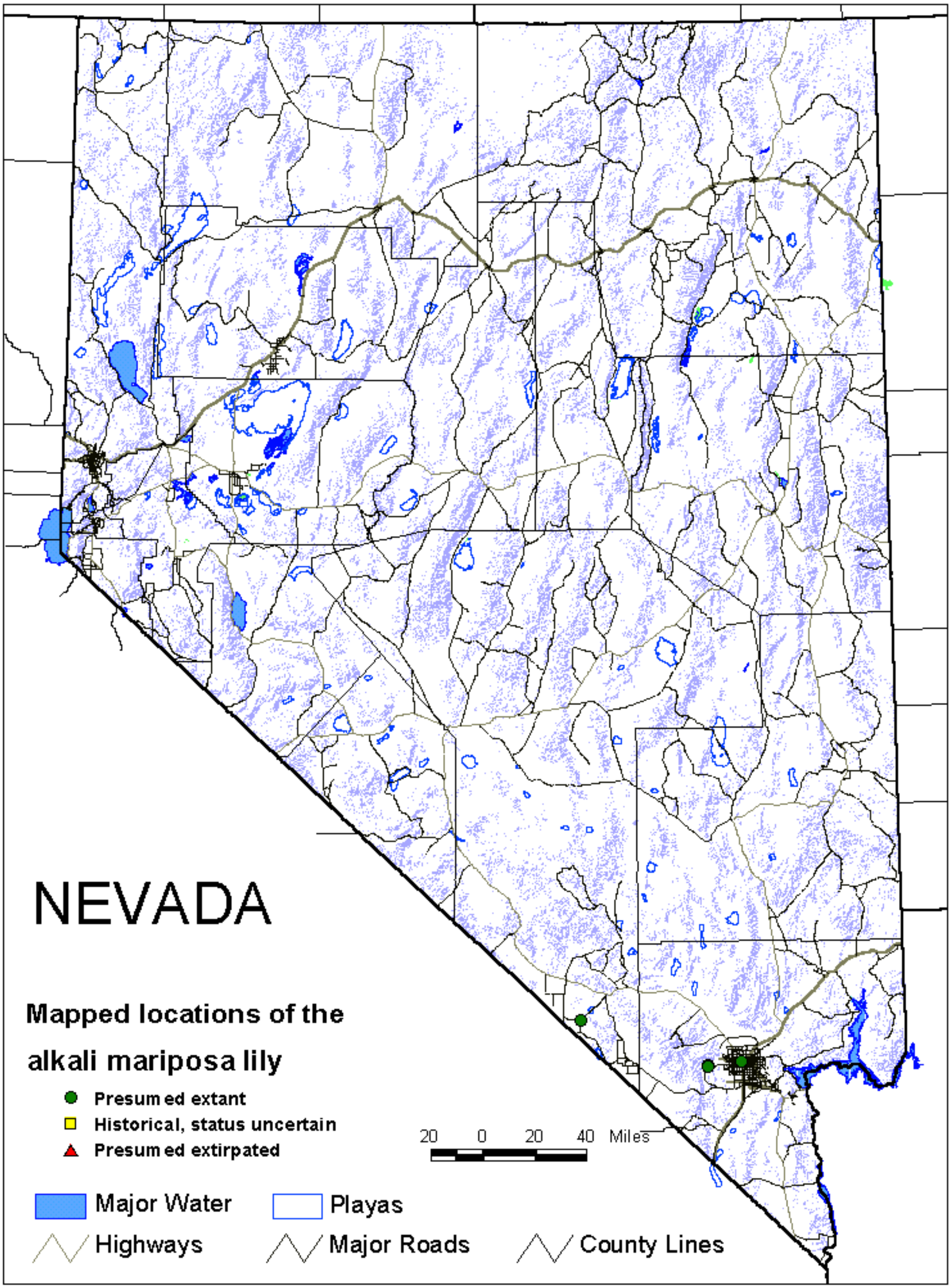
Wagner, W. H., Jr., and F. S. Wagner. 1981. New species of moonworts, Botrychium subg. Botrychium (Ophioglossaceae), from North America. American Fern Journal 71: 20-30.

Wagner, W. H., Jr. and F. S. Wagner. 1990. Notes on the fan-leaflet group of moonworts in North America with descriptions of two new members. American Fern Journal 80: 73-81.

Wagner, W. H. and F. S. Wagner. 1993. Ophioglossaceae. Pages 85-106 in: Flora of North America editorial Committee. Flora of North America vol. 2. New York: Oxford University Press.

Wagner, W. H., Jr., F. S. Wagner, C. Haufler and J. K. Emerson. 1984. A new nothospecies of moonwort (Ophioglossaceae, Botrychium). Canadian Journal of Botany 62: 629-634.

Calochortus striatus



Calochortus striatus Parish (1902) ALKALI MARIPOSA LILY

FAMILY: *Liliaceae*, the lily family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada and California. **USFS:** Region 5 (California) Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 3 occurrences mapped at 1.0 km (0.6 mi) separation, OR **4 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area 1.2+ ha (3.0+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1986, average year of last survey 1962. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 25%; **21-30 yrs:** 50%; **51+ yrs or unknown:** 25%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, U. S. Fish and Wildlife Service, private lands (?).

RANGE: Clark and Nye counties, Nevada; also in CA. Maximum Nevada **range dimension 21.2 km (13.2 mi)** excluding most disjunct record. **Type specimen** collected in California, San bernardino County, Rabbit springs.

ELEVATIONS RECORDED (NEVADA): 2100-3700 feet (640-1128 meters).

HABITAT (NEVADA): Moist alkaline meadows around springs, creosote bush zone with Distichlis spicata, Cleomella brevipes, Iva acerosa, Anemopsis californica, Dodecatheon pulchellum, etc.

PHENOLOGY: flowering spring. Range of most frequent **survey months:** April-August.

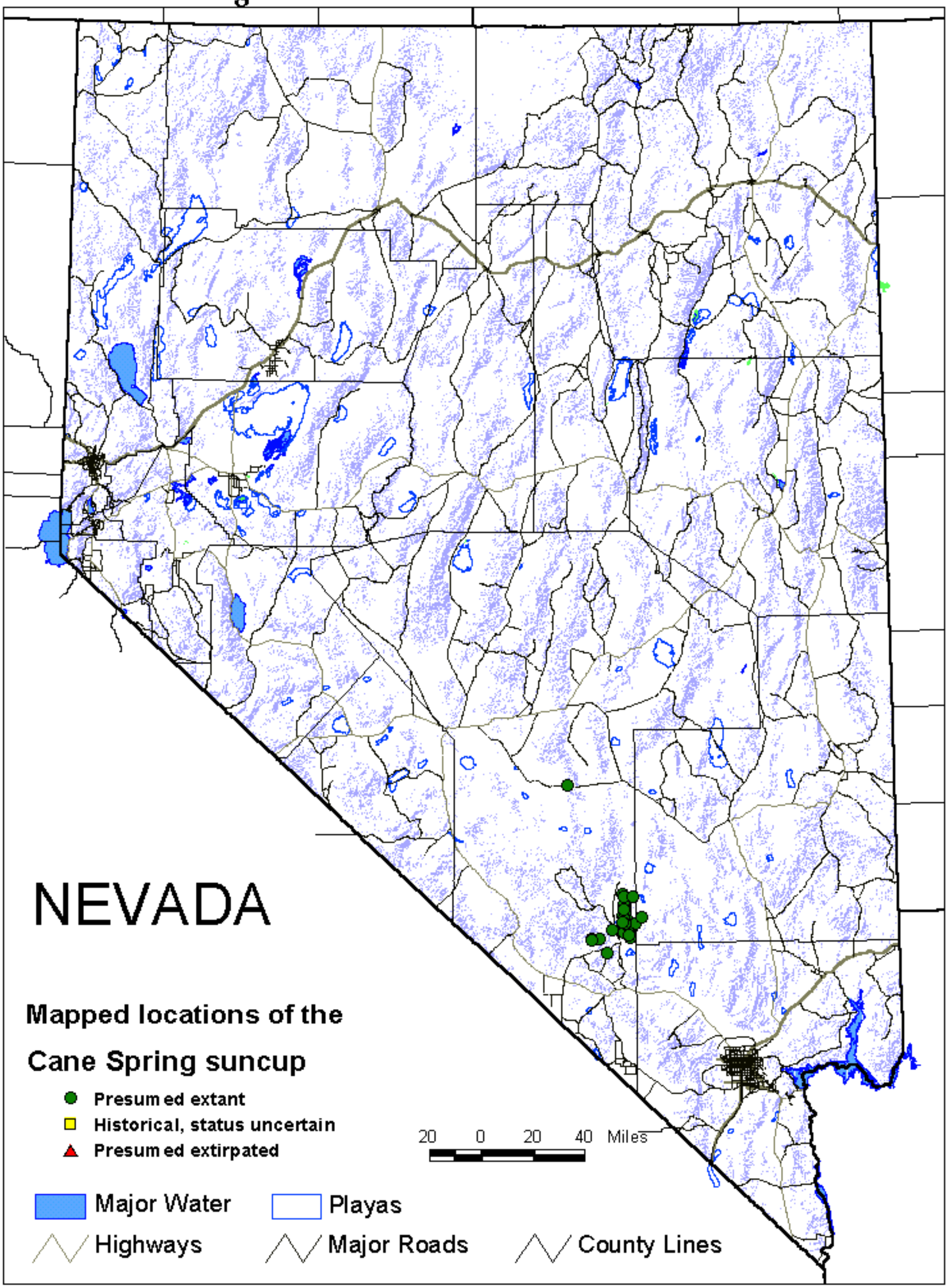
LIFE-FORM AND HABIT: small perennial bulb.

DESCRIPTION: A perennial herb arising from an underground bulb. Stems are 1-5 dm tall. Flower petals are white to pale lavender, striped with purple. Blooms April-June. **Distinguishing features:** Can be distinguished from other Calochortus species by subumbellate inflorescence and the oblong shape of the petal gland (nectary).

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993), Skinner and Pavlik (1994).
SPECIFIC REFERENCES:
Fiedler, P. L. 1996. Rare lilies of California. Sacramento: California Native Plant Society Press. 154 pages.
Ownbey, M. 1940. A monograph of the genus Calochortus. Annals of the Missouri Botanical Gardens 27: 371-560.

OF FURTHER INTEREST: Element is located in springs and alkaline meadows.

Camissonia megalantha



Camissonia megalantha (Munz [1941]) Raven — CANE SPRING SUNCUP

FAMILY: *Onagraceae*, the evening-primrose family.

SYNONYMS: *Oenothera megalantha*
Oenothera heterochroma var. *megalantha*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3Q S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 22 occurrences mapped at 1.0 km (0.6 mi) separation, OR **29 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 85,000+**, total estimated **area 417+ ha (1030+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: In 1975, Nevada sites threatened by proximity to an ammunition dump and a new-found Utah site by possible road construction.

INVENTORY EFFORT: Surveys have been extensive and are largely complete, but a few undocumented occurrences may remain. Most recent entered survey 1993, average year of last survey 1989. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 72.4%; **21-30 yrs:** 24.1%; **31-50 yrs:** 3.4%.

LAND MANAGEMENT in decreasing predominance: U. S. Department of Energy, U. S. Department of Defense, U. S. Fish and Wildlife Service.

RANGE: Lincoln and Nye counties, Nevada. **Nevada endemic.** Maximum **range dimension 38.3 km (23.8 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 3380-6500 feet (1030-1981 meters).

HABITAT: Generally dry, open, loose soils on sandy to gravelly flats, slopes, or scree, sometimes in outcrop crevices, derived mainly from whitish to brownish volcanic tuff or tuffaceous sedimentary deposits, usually in places with frequent light disturbance such as shifting slopes, washes, roadsides (or in lightly used road beds), or on older recovering disturbances, mainly in salt desert shrub communities.

PHENOLOGY: flowering summer to early-fall. Range of most frequent **survey months:** May-October.

LIFE-FORM AND HABIT: annual.

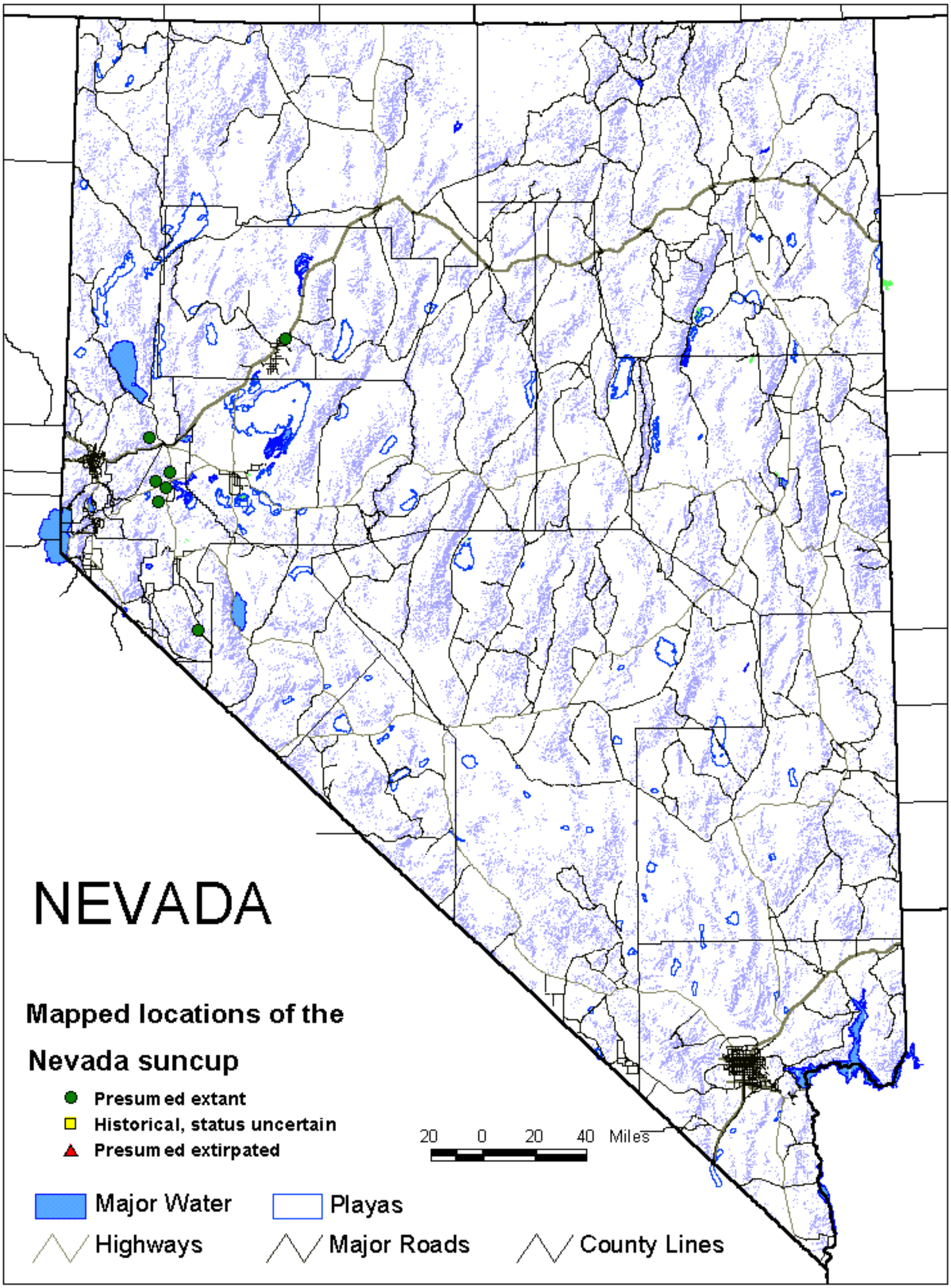
DESCRIPTION: A robust, 0.1-2 m tall annual that produces lavender flowers in the fall.

PHOTOGRAPHS: Blomquist et al. (1995); Nevada Natural Heritage Program files.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Ackerman (1981), Beatley (1976), Beatley (1977), Cochrane (1979), Rhoads and Williams (1977), Rhoads et al. (1979).
SPECIFIC REFERENCES:

Collins, E. and T. P. O'Farrell. 1984. Surveys for plant species of concern on northern and eastern Yucca Flat, Nevada Test Site, Nye County, Nevada. Santa Barbara, California: EG and G/EM report 10282-2039.

Munz, P. A. 1941. Interesting western plants. Leaflets of Western Botany 3: 49-53.

Camissonia nevadensis



Camissonia nevadensis (Kellogg [1862]) Raven — NEVADA SUNCUP

FAMILY: *Onagraceae*, the evening-primrose family.

SYNONYMS: *Oenothera nevadensis*
Sphaerostigma tortuosa

STATUS: **Heritage Program WATCH LIST, ranks: G3 S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 7 occurrences mapped; total estimated **individuals 506+**, total estimated **area unknown**.
TREND: unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Systematic surveys have not yet been conducted. Most recent entered survey 1989, average year of last survey 1980. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 14.3%; **21-30 yrs:** 85.7%.

LAND MANAGEMENT: U. S. Bureau of Land Management.

RANGE: Carson City, Churchill, Douglas, Lyon, Pershing, Storey, and Washoe counties, Nevada. **Nevada endemic.**
Maximum **range dimension 128.3 km (79.8 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 4050-5250 feet (1234-1600 meters).

HABITAT: Open, sandy, gravelly, or clay slopes and flats in the salt-desert, shadscale, and lower sagebrush zones.

PHENOLOGY: flowering spring. Range of most frequent **survey months:** April-May.

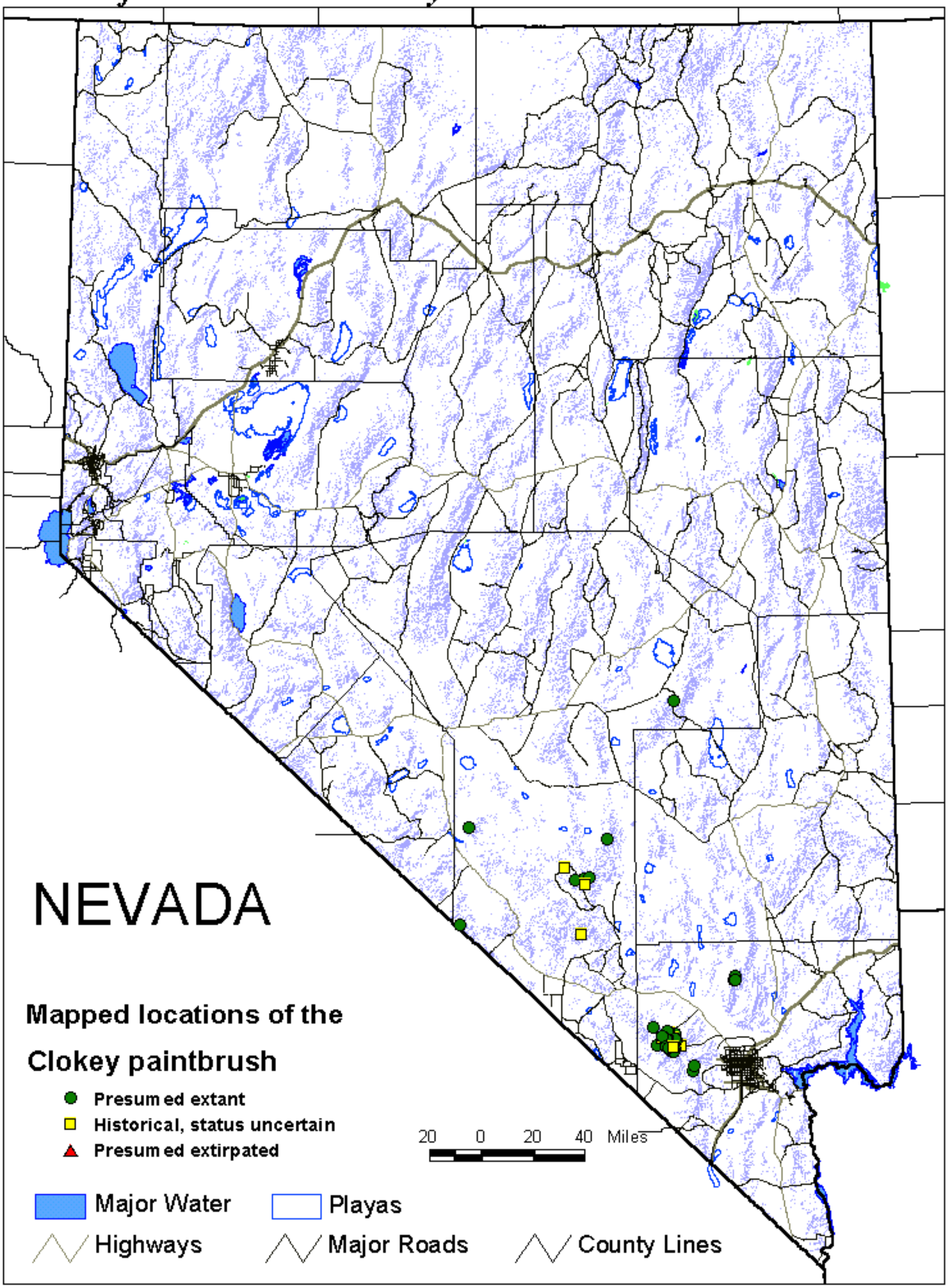
LIFE-FORM AND HABIT: small annual.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: Cronquist et al. (1997), Mozingo and Williams (1980).
SPECIFIC REFERENCES:

Kellogg, A. 1862. [Untitled]. Proceedings of the California Academy of Sciences 2: 179, 185-201, 224-232.

Castilleja martinii var. clokeyi



Castilleja martinii Abrams var. *clokeyi* (Pennell) N. Holmgren CLOKEY PAINTBRUSH

FAMILY: *Scrophulariaceae*, the figwort family.

SYNONYMS: *Castilleja applegatei* ssp. *martinii* (in part)
Castilleja clokeyi

STATUS: **Heritage Program WATCH LIST, ranks: G3Q T3Q S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 38 occurrences mapped at 1.0 km (0.6 mi) separation, OR **51 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 3031+**, total estimated **area unknown**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys have been sporadic and remain largely incomplete. Most recent entered survey 1999, average year of last survey 1976. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 3.9%; **6-10 yrs:** 37.3%; **11-20 yrs:** 3.9%; **21-30 yrs:** 9.8%; **31-50 yrs:** 31.4%; **51+ yrs or unknown:** 13.7%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, U. S. Department of Energy, U. S. Fish and Wildlife Service, U. S. Department of Defense, U. S. Bureau of Land Management, private lands, National Park Service.

RANGE: Clark and Nye counties, Nevada; also in CA. Maximum Nevada **range dimension 205.1 km (127.5 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 2730-11500 feet (832-3505 meters).

HABITAT: no summary available (see references).

PHENOLOGY: no summary available. Range of most frequent **survey months:** May-August.

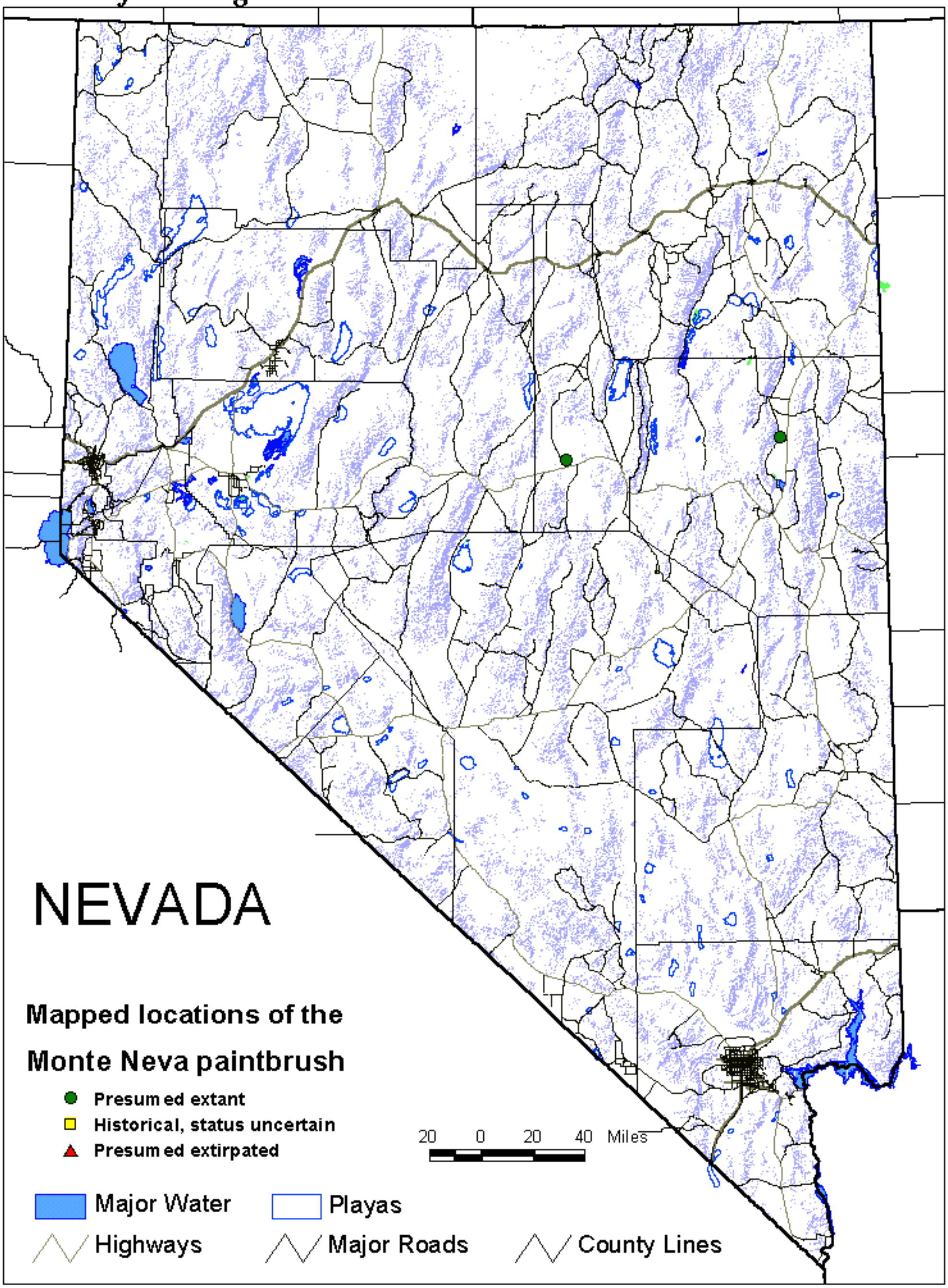
DESCRIPTION: not available (see references).

PHOTOGRAPHS: Hall (1991), Knight and Smith (1995); Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: Cronquist et al. (1984).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Clokey (1951), Hickman (1993), Nachlinger (1994), Niles et al. (1999).
SPECIFIC REFERENCES:

Holmgren, N. H. 1971. A new species of Penstemon from Nye County, Nevada. Aliso 7: 351-356.
Holmgren, N. H. 1971. A taxonomic revision of the Castilleja viscidula group. Memoirs of the New York Botanical Garden 21(4): 55-56.
Kurzius, M. 1981. Vegetation and flora of the Grapevine Mountains, Death Valley National Monument, California/Nevada. Las Vegas: University of Nevada, M. S. thesis.
Nachlinger, J. and S. Sheldon. 1995. Status report for Astragalus oophorus var. clokeyanus. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 20 pages + two appendices.
Smith, F. 1995. Status report for Antennaria soliceps. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 11 pages + two appendices.
Smith, F. 1995. Status report for Ivesia cryptocaulis. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 11 pages + two appendices.
Smith, F. 1995. Status report for Sphaeromeria compacta. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 10 pages + two appendices.
Woodbury, K. 1980. Status report for Draba jaegeri. Portland, Oregon: U. S. Fish and Wildlife Service.

OF FURTHER INTEREST: The species and variety are recognized in Intermountain Flora (Cronquist et al. 1984), but are submerged in Castilleja applegatei ssp. martinii in the Jepson Manual (Hickman 1993).

Castilleja salsuginosa



Castilleja salsuginosa N. Holmgren (1973) MONTE NEVA PAINTBRUSH

FAMILY: *Scrophulariaceae*, the figwort family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1Q S1**
USFWS/ESA: none. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** ENDANGERED.

POPULATION CENSUS: 2 occurrences mapped; total estimated **individuals 275**, total estimated **area 9.1 ha (22.5 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Private or commercial habitat development, dredging, hydrothermal energy development, and other water diversions, animal grazing and trampling, off-road vehicle use, small population numbers and area.

INVENTORY EFFORT: Surveys are largely complete, with the great majority of potential habitat having already been examined. Most recent entered survey 1997, average year of last survey 1996.
Years since last entered survey (percent of mapped records at various survey ages)**: 0-5 yrs:** 50%; **6-10 yrs:** 50%.

LAND MANAGEMENT in decreasing predominance: private lands, U. S. Bureau of Land Management.

RANGE: Eureka and White Pine counties, Nevada. **Nevada endemic.** Maximum **range dimension 134.0 km (83.3 mi)**. **Type specimen** collected in White pine County.

ELEVATIONS RECORDED: 5965-6130 feet (1818-1868 meters).

HABITAT: Damp, open, alkaline to saline clay soils of hummocks and drainages on travertine hot-spring mounds with Sarcobatus vermiculatus, Chrysothamnus nauseosus, Sporobolus airoides, etc. Aquatic or wetland-dependent.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June.

LIFE-FORM AND HABIT: short-lived perennial terrestrial hemiparasite from a buried root crown.

DESCRIPTION: A perennial herb, to 1.8 dm tall. Probably somewhat parasitic. The plant, including the inflorescence, is mostly purplish-brown (sometimes appearing grayish), but the inflorescence is tinged with cream and rose colored bracts and petals. Blooms June-July. **Distinguishing features:** Very similar to Castilleja nana, from which it is distinguished by corollas 18-24 mm long (vs. 10-16[19] mm long) and corolla tubes 13-18 mm long (vs. 9-13 mm).

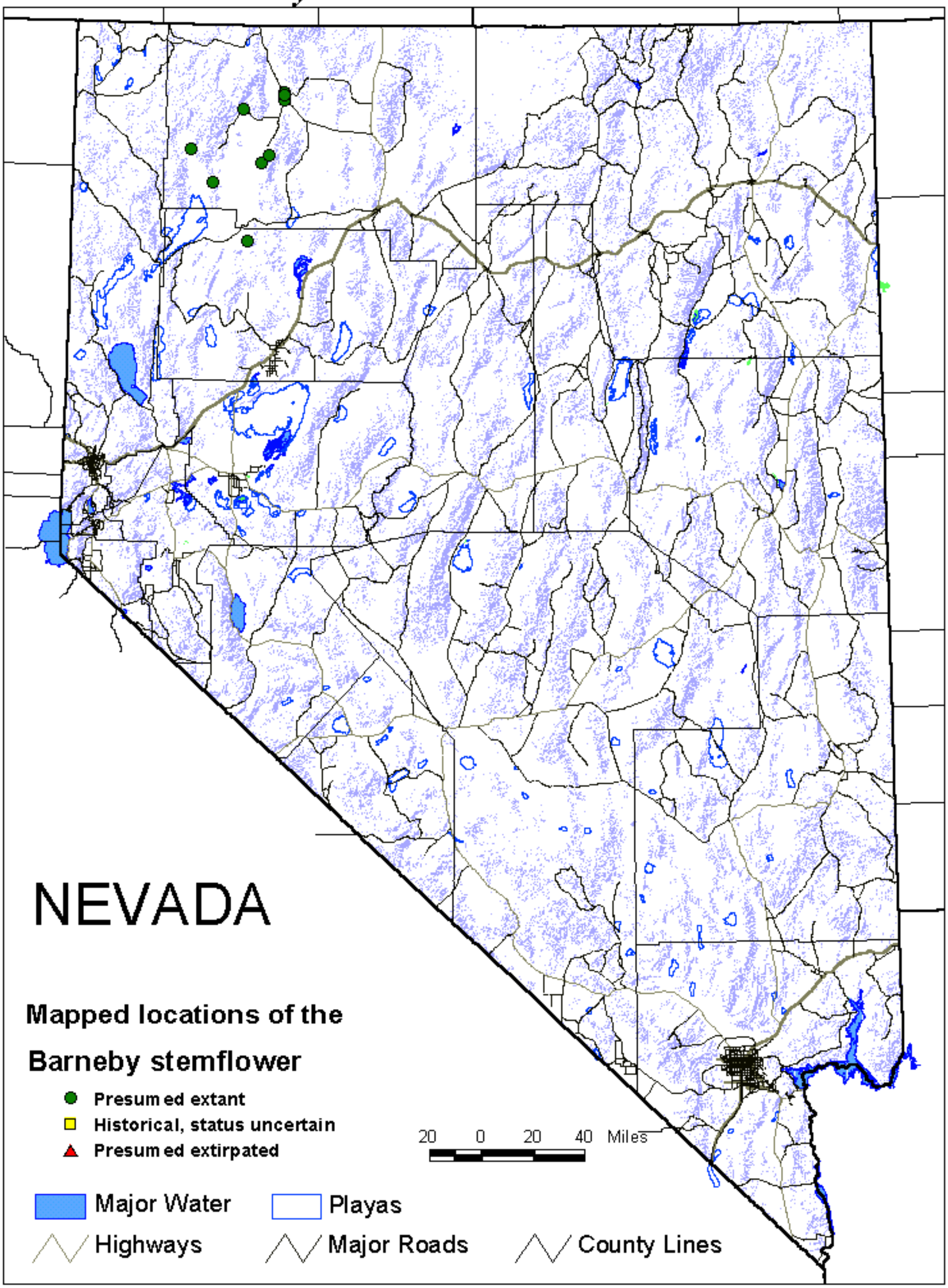
PHOTOGRAPHS: Morefield (1993); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Cronquist et al. (1984), Holmgren (1973), Mozingo and Williams (1980).
SPECIFIC REFERENCES:

Holmgren, N. H. 1973. Five new species of Castilleja (Scrophulariaceae) from the Intermountain Region. Bulletin of the Torrey Botanical Club 100: 83-93.

Morefield, J. D. 1993. Status report for Castilleja salsuginosa N. Holmgren. Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

OF FURTHER INTEREST: Distinction from Castilleja nana is currently uncertain and under investigation.

Caulanthus barnebyi



Caulanthus barnebyi Rollins & P. Holmgren (1980) BARNEBY STEMFLOWER

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 9 occurrences mapped; total estimated **individuals 243+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed in Nevada. Most recent entered survey 1987, average year of last survey 1980. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 33.3%; **21-30 yrs:** 55.6%; **31-50 yrs:** 11.1%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, private lands.

RANGE: Humboldt and Pershing counties, Nevada. Known from the Black Rock and Pine Forest ranges, Jackson Mountains, and Black Rock Desert. **Nevada endemic.** Maximum **range dimension 71.7 km (44.5 mi)** excluding most disjunct record. **Type specimen** collected in Humboldt County.

ELEVATIONS RECORDED: 4080-5000 feet (1244-1524 meters).

HABITAT: Open, dry to moist, steep rocky soils of talus, scree, rock ledges, or adjacent drainage bottoms, derived from basalt, tuff, or other calcareous volcanic or volcano-sedimentary deposits in the shadscale, mixed shrub, and lower sagebrush zones.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** April-September.

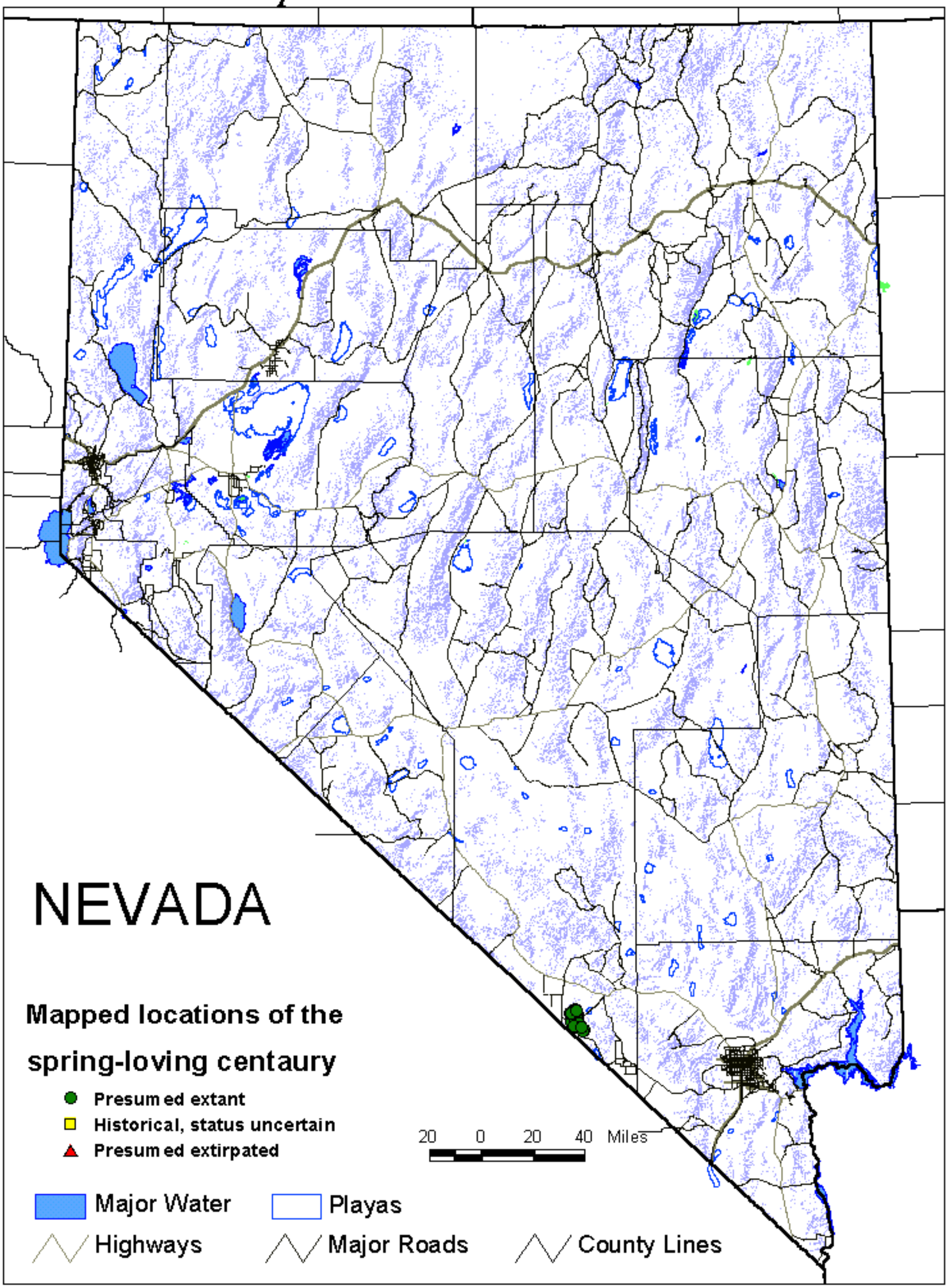
LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: An erect perennial herb, 5-10 dm tall. Flower petals purple to purplish-green with prominent maroon-colored veins. Flowers May-June.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Rollins and Holmgren (1980).
OTHER GENERAL REFERENCES (listed separately): Rollins (1993).
SPECIFIC REFERENCES:

Rollins, R. C. and P. K. Holmgren. 1980. A new species of Caulanthus (Cruciferae) from Nevada. Brittonia 32: 148-151.

Centaurium namophilum



Centaurium namophilum Reveal, Broome & Beatley (1973) SPRING-LOVING CENTAURY

FAMILY: *Gentianaceae*, the gentian family. **SYNONYMS:** *Centaurium namophilum* var. *namophilum*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2Q S2**
USFWS/ESA: LISTED THREATENED. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** THREATENED. **IUCN:** vulnerable.

POPULATION CENSUS: 14 occurrences mapped at 1.0 km (0.6 mi) separation, OR **19 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 4230+**, total estimated **area 10.5+ ha (25.9+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Regional groundwater pumping, competition from invasive weeds, impacts from past agricultural conversion and water diversion.

INVENTORY EFFORT: Surveys are largely complete, but a few more undocumented occurrences are likely to exist in the Ash Meadows area. Most recent entered survey 1986, average year of last survey 1983.
Years since last entered survey (percent of mapped records at various survey ages)**: 11-20 yrs:** 78.9%; **21-30 yrs:** 5.3%; **31-50 yrs:** 15.8%.

LAND MANAGEMENT in decreasing predominance: U. S. Fish and Wildlife Service, U. S. Bureau of Land Management, private lands.

RANGE: Nye County, Nevada. Endemic to the Ash Meadows area. Maximum **range dimension 14.3 km (8.9 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 2100-2350 feet (640-716 meters).

HABITAT: Open, moist to wet, alkali-crusted clay soils of seeps, springs, outflow drainages, meadows, and hummocks, with Distichlis spicata, Pyrrocoma, Juncus balticus, Anemopsis californica, Nitrophila occidentalis, Atriplex, Cordylanthus tecopensis, Fraxinus, Prosopis, Tamarix, Baccharis, Typha, Cirsium, Iva, etc. Aquatic or wetland-dependent.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** July-August.

LIFE-FORM AND HABIT: annual.

DESCRIPTION: not available (see references).

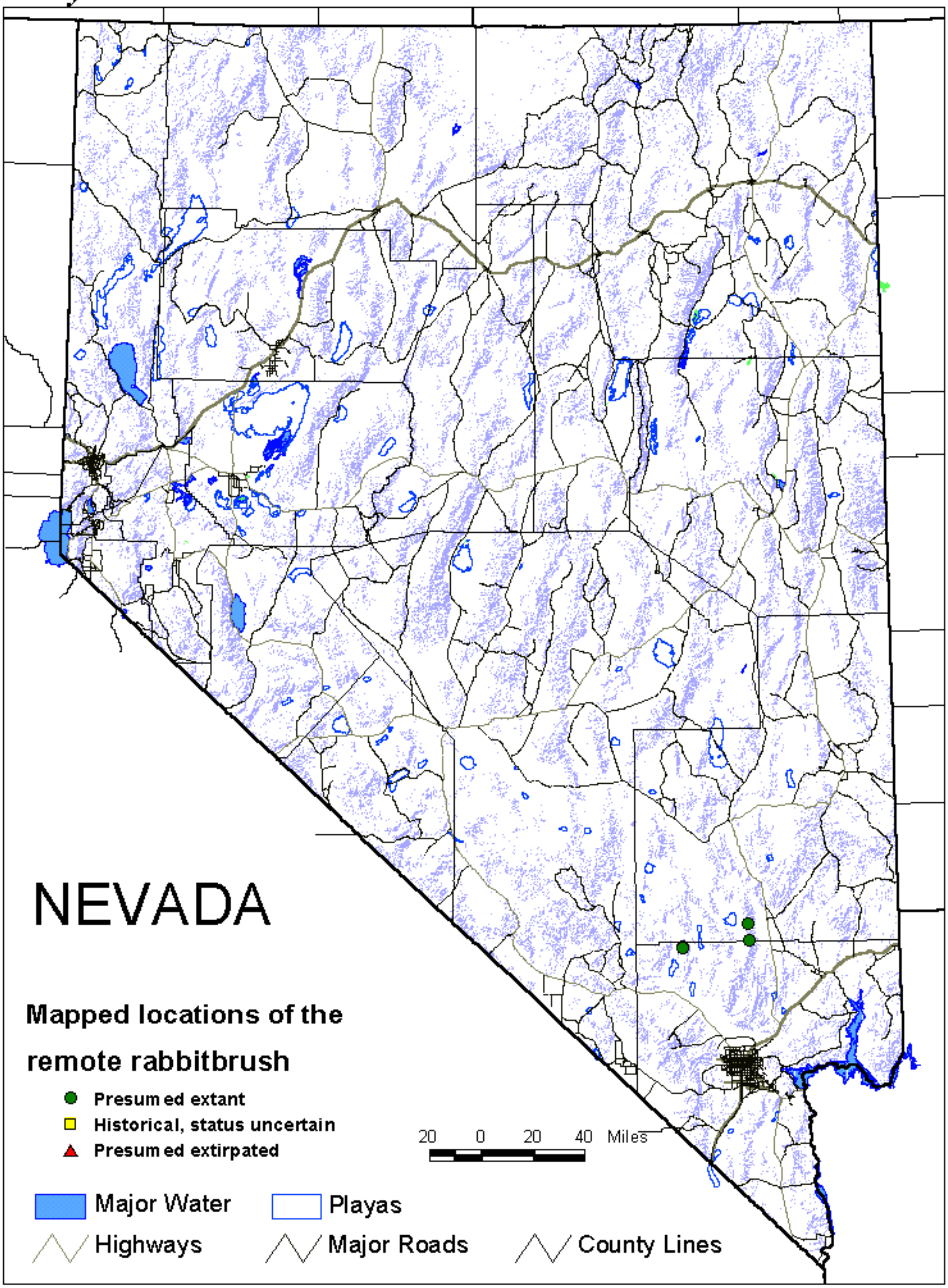
PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976).
SPECIFIC REFERENCES:

Broome, C. R. 1981. A new variety of Centaurium namophilum (Gentianaceae) from the Great Basin. Great Basin Naturalist 41: 192-197.

Reveal, J. L., C. R. Broome and J. C. Beatley. 1973. A new Centaurium (Gentianaceae) from Death Valley region of Nevada and California. Bulletin of the Torrey Botanical Club 100: 353-356.

OF FURTHER INTEREST: Reports of Centaurium namophilum from California are apparently based on collections of the Centaurium namophilum var. nevadense Broome, which many botanists consider to be the same species as Centaurium exaltatum (Grisebach) W. Wight. The rare taxon in Nevada would be named Centaurium namophilum var. namophilum if the var. nevadense is also recognized.

Chrysothamnus eremobius



Chrysothamnus eremobius L. C. Anderson (1983) REMOTE RABBITBRUSH

FAMILY: *Asteraceae*, the sunflower family. **SYNONYMS:** *Ericameria eremobia*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 3 occurrences mapped at 1.0 km (0.6 mi) separation, OR **4 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 131+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Some targeted surveys have been conducted, but more potential habitat likely remains unexamined. Most recent entered survey 1993, average year of last survey 1984.
Years since last entered survey (percent of mapped records at various survey ages)**: 6-10 yrs:** 25%; **11-20 yrs:** 50%; **21-30 yrs:** 25%.

LAND MANAGEMENT in decreasing predominance: U. S. Fish and Wildlife Service, U. S. Department of Defense.

RANGE: Clark and Lincoln counties, Nevada. Known only from the Sheep and Pintwater ranges. **Nevada endemic.** Maximum **range dimension 42.1 km (26.1 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 4850-6400 feet (1478-1951 meters).

HABITAT: Crevices or rubble of north-facing carbonate cliffs in and just below the pinyon-juniper-Artemisia zone with Cercocarpus intricatus, Hecastocleis shockleyi, Rhus trilobata, Petradoria, etc.

PHENOLOGY: flowering summer to early-fall. Range of most frequent **survey months:** August-October.

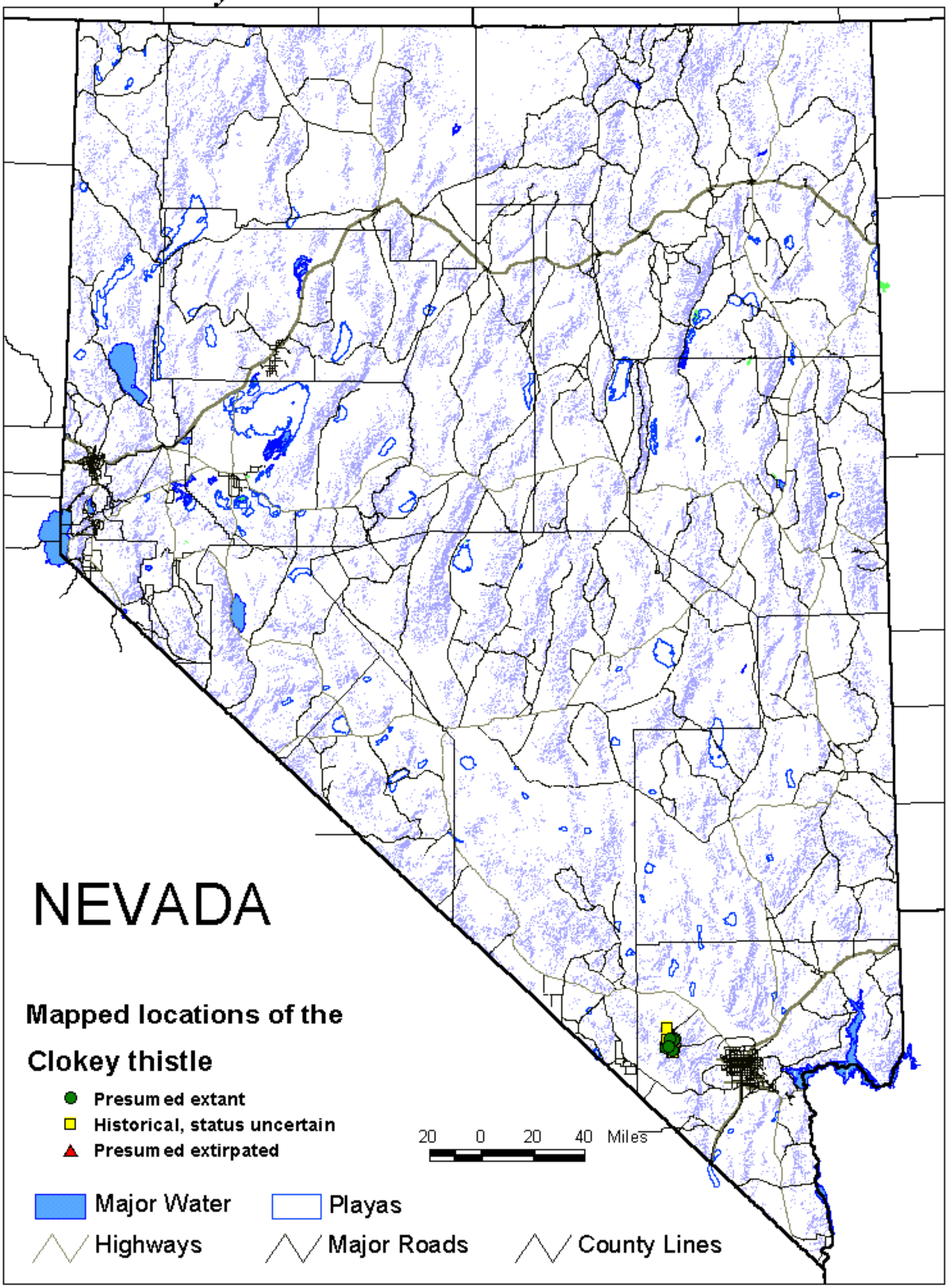
LIFE-FORM AND HABIT: subshrub.

DESCRIPTION: A low shrub, up to 4 dm tall, dying back to within about 2 dm to the ground each year. Clusters of yellow flower heads bloom atop the stems in August and September.

PHOTOGRAPHS: Knight and Smith (1994), Knight et al. (1997); Nevada Natural Heritage Program files.
ILLUSTRATIONS: Anderson (1983), Cronquist (1994).
OTHER GENERAL REFERENCES (listed separately): Ackerman (1981).
SPECIFIC REFERENCES:

Anderson, L. C. 1983. Chrysothamnus eremobius (Asteraceae): a new species from Nevada. Brittonia 35: 23-27.
Anderson, L. C. 1995. The Chrysothamnus-Ericameria connection (Asteraceae). Great Basin Naturalist 55: 84-88.
Nesom, G. L. and G. I. Baird. 1995. Comments on "The Chrysothamnus-Ericameria Connection. " Phytologia 78: 61-65.

Cirsium clokeyi



Cirsium clokeyi Blake (1938) CLOKEY THISTLE

FAMILY: *Asteraceae*, the sunflower family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 S2S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 12 occurrences mapped at 1.0 km (0.6 mi) separation, OR **27 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 9422+**, total estimated **area 238+ ha (588+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: In alpine habitat adjacent to hiking trails.

INVENTORY EFFORT: Surveys have been extensive but remain substantially incomplete. Most recent entered survey 1998, average year of last survey 1992. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 25%; **6-10 yrs:** 64.3%; **11-20 yrs:** 7.1%; **51+ yrs or unknown:** 3.6%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, private lands, U. S. Bureau of Land Management (?).

RANGE: Clark County, Nevada. Endemic to the Spring Mountains. Maximum **range dimension 13.1 km (8.1 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 7159-11650 feet (2182-3551 meters).

HABITAT: Dry to moist, rocky, carbonate soils of spring and seep areas, talus slopes, drainage bottoms, snow depressions, avalanche chutes, and other moisture-enriched microsites in openings of mixed conifer and bristlecone pine forests.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** June-July.

LIFE-FORM AND HABIT: biennial.

DESCRIPTION: A biennial or perennial herb, 1-2 m tall, with long, deeply lobed leaves covered with large yellow spines. Flower heads (July-August) are rose-purple, subtended by spiny bracts. The species is a nectar source for the endemic Spring Mountains comma skipper (Hesperia comma ssp. 1) and the regional endemic Nevada admiral (Limenitis weidemeyerii nevadae).

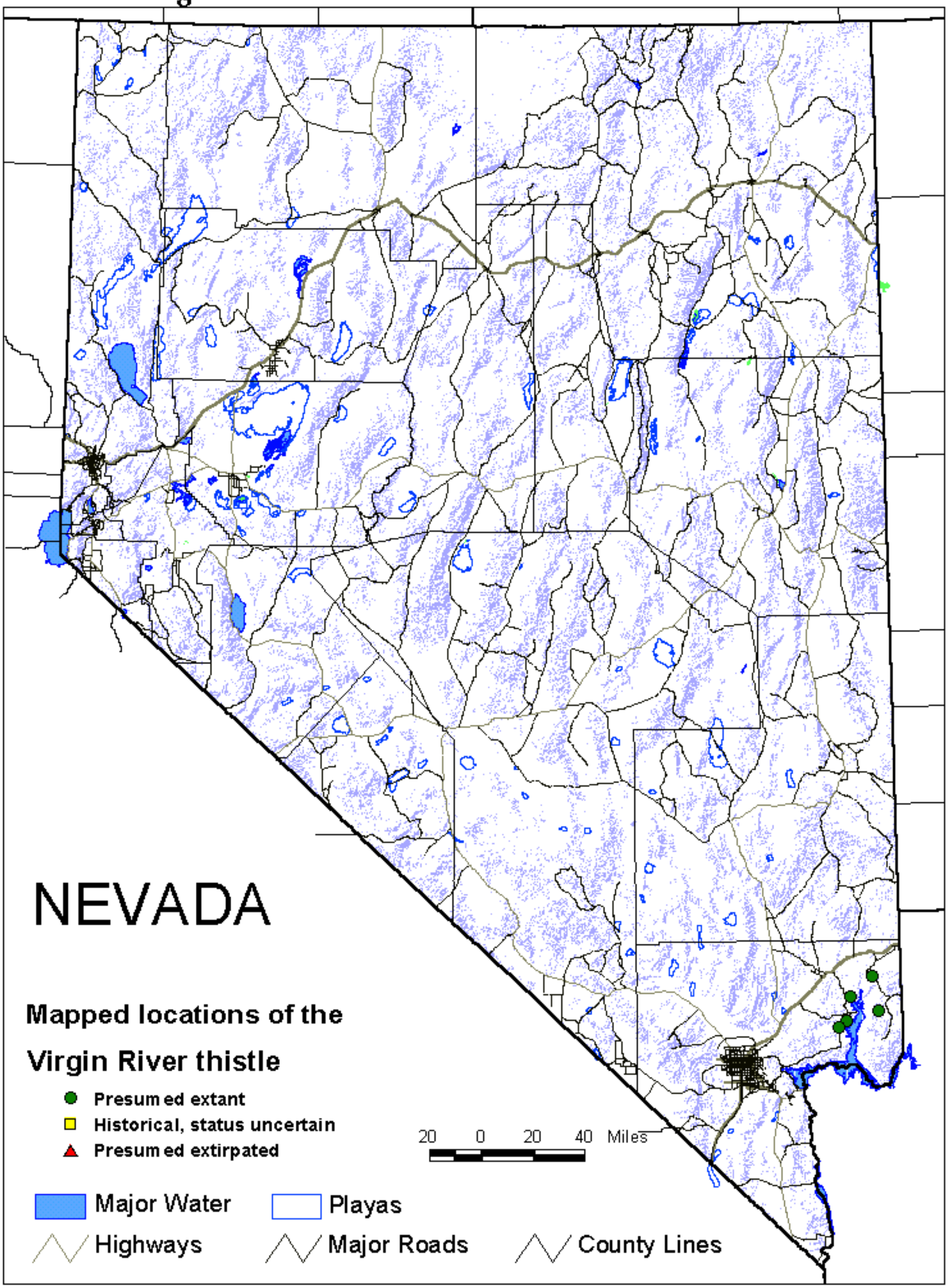
PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Knight (1992), Nachlinger (1994), Sada and Nachlinger (1996).
SPECIFIC REFERENCES:

Blake, S. F. 1938. Two new Asteraceae from the Charleston Mountains, Nevada. Proceedings of the Biological Society of Washington 51: 7-10.

Smith, F. 1995. Status report for Antennaria soliceps. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 11 pages + two appendices.

Woodbury, K. 1980. Status report for Cirsium clokeyi. Portland, Oregon: U. S. Fish and Wildlife Service.

Cirsium virginense



Cirsium virginense Welsh (1982) VIRGIN RIVER THISTLE

FAMILY: *Asteraceae*, the sunflower family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 5 occurrences mapped at 1.0 km (0.6 mi) separation, OR **6 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 105+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Some targeted surveys have been conducted but remain incomplete for Nevada. Most recent entered survey 1997, average year of last survey 1991. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 33.3%; **6-10 yrs:** 33.3%; **11-20 yrs:** 33.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: National Park Service, U. S. Bureau of Land Management, private lands, Nevada state lands (?).

RANGE: Clark County, Nevada; also in AZ and UT. Maximum Nevada **range dimension 27.4 km (17.0 mi)** excluding most disjunct record. **Type specimen** collected in Washington County, Utah.

ELEVATIONS RECORDED (NEVADA): 1246-2165 feet (380-660 meters).

HABITAT (NEVADA): Open, moist, alkaline clay soils of seep and spring areas or gypsum knolls. Aquatic or wetland-dependent in Nevada.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** April-November.

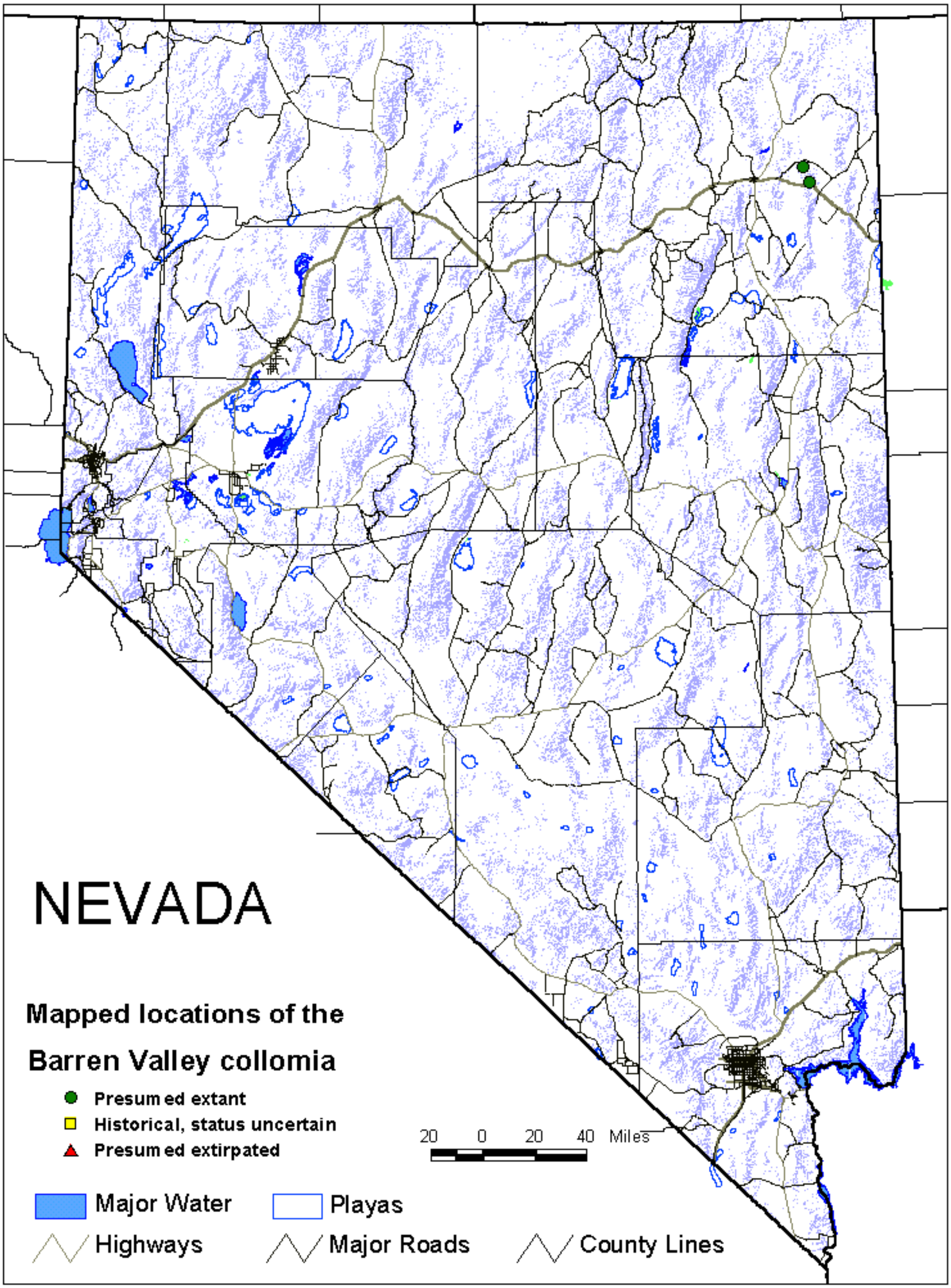
LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: A spiny perennial herb, 6-20 dm tall, mostly covered with white-wooly hairs. Produces small, pale purple flower heads from June to September.

PHOTOGRAPHS: Atwood et al. (1991).
ILLUSTRATIONS: Atwood et al. (1991), Cronquist (1994).
OTHER GENERAL REFERENCES (listed separately): Niles et al. (1997), Welsh et al. (1993).
SPECIFIC REFERENCES:

Welsh, S. L. 1982. New taxa of thistles (Cirsium; Asteraceae) in Utah. Great Basin Naturalist 42: 199-202.

Collomia renacta



Collomia renacta E. Joyal — BARREN VALLEY COLLOMIA

FAMILY: *Polemoniaceae*, the phlox family. **SYNONYMS:** *Collomia linearis* (?)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1Q S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 2 occurrences mapped; total estimated **individuals 126+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Road building, maintenance, and off-road vehicle use, trampling by livestock and feral animals, mineral exploration and development, fire and fire suppression activities, competition with invasive weeds, apparently small population numbers and area.

INVENTORY EFFORT (NEVADA): Systematic surveys with uncertain results have been conducted. Many more are needed, but are difficult to plan due to the annual habit of the species. Most recent entered survey 1983, average year of last survey 1962. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 50%; **51+ yrs or unknown:** 50%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands (?).

RANGE: Elko County, Nevada; also in OR. In Nevada known only from the Pequop Range. Maximum Nevada **range dimension 9.6 km (5.9 mi)**.

ELEVATIONS RECORDED (NEVADA): 6800-7200 feet (2073-2195 meters).

HABITAT (NEVADA): Lightly disturbed north-sloping rocky soil near drainage bottom, ecotone between Artemisia tridentata and A. arbuscula associations.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: small annual.

DESCRIPTION: An inconspicuous winter annual, 2-6 cm tall, that produces small blue flowers with white throats in early spring.

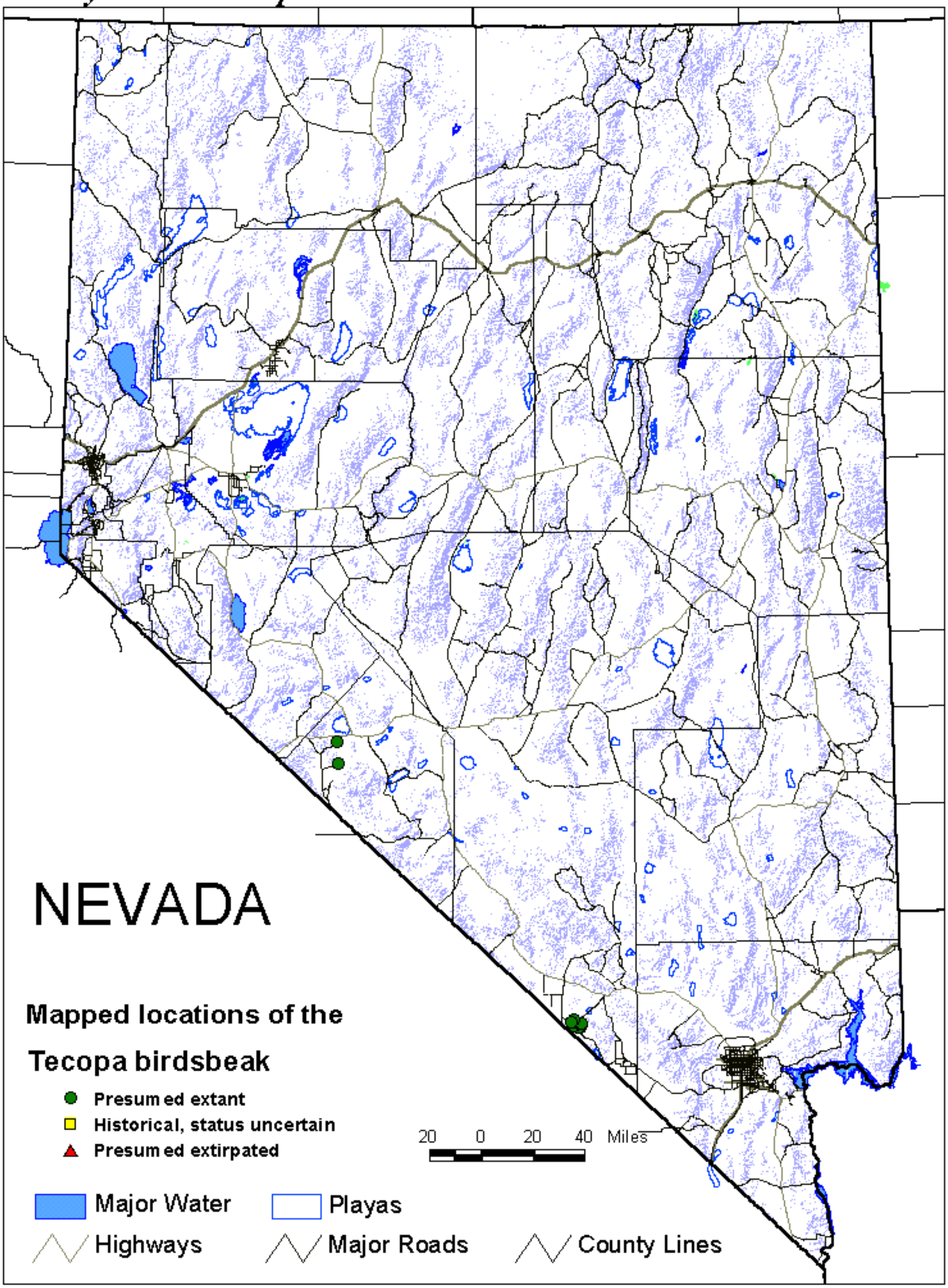
PHOTOGRAPHS: none known.
ILLUSTRATIONS: Joyal (1986).
SPECIFIC REFERENCES:

Daubenmire, R. 1970. Steppe vegetation of Washington. Washington Agricultural Experiment Station Technical Bulletin 62.

Joyal, E. 1986. A new species of Collomia (Polemoniaceae) from the Great Basin. Brittonia 38: 243-248.

Morefield, J. D. 1992. Interim status report for Collomia renacta Joyal. Carson City: Nevada Natural Heritage Program, prepared for the Bureau of Land Management, Elko District, Elko, Nevada.

Cordylanthus tecopensis



Cordylanthus tecopensis Munz & Roos — TECOPA BIRDSBEAK

FAMILY: *Scrophulariaceae*, the figwort family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: none. **NNNPS:** THREATENED.

POPULATION CENSUS (NEVADA): 9 occurrences mapped at 1.0 km (0.6 mi) separation, OR **10 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 4379+**, total estimated **area 4.5+ ha (11.1+ ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Most potential habitat has been surveyed. Most recent entered survey 1986, average year of last survey 1983. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 70%; **21-30 yrs:** 20%; **31-50 yrs:** 10%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Fish and Wildlife Service, U. S. Bureau of Land Management, private lands, Nevada state lands (?).

RANGE: Esmeralda and Nye counties, Nevada; also in CA. In Nevada known only from the Ash Meadows area and in Fishlake Valley. Maximum Nevada **range dimension 222.8 km (138.5 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 2100-4900 feet (640-1494 meters).

HABITAT (NEVADA): Open, moist to saturated, alkali-crusted clay soils of seeps, springs, outflow drainages, and meadows, with Distichlis spicata, Juncus balticus, Eleocharis, Spiranthes infernalis, Centaurium namophilum, Typha, Cirsium, Ivesia kingii eremica, Ericameria albida, etc. Dependent on wetland margin areas in Nevada.

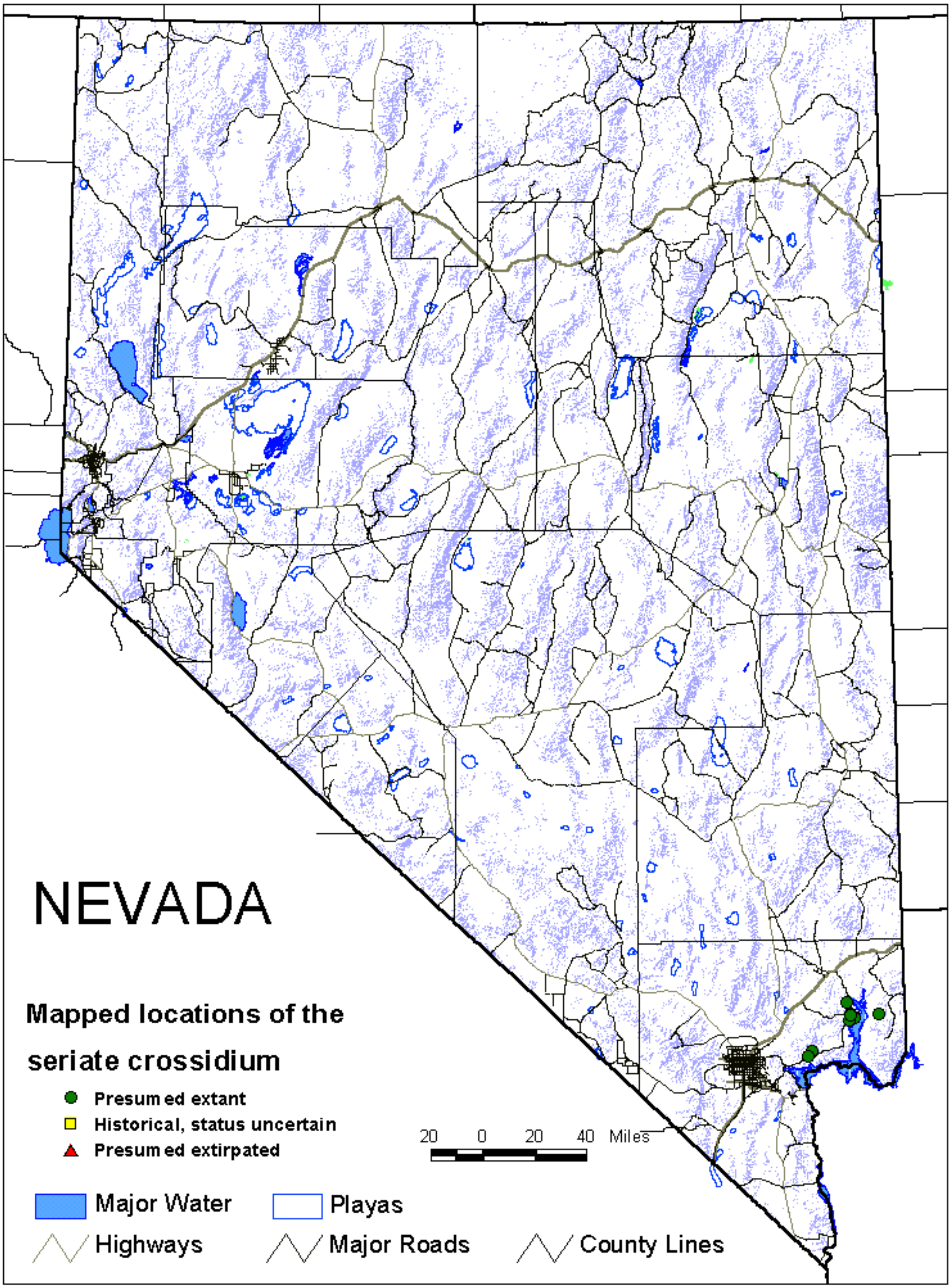
PHENOLOGY: flowering summer to early-fall. Range of most frequent **survey months:** April-August.

LIFE-FORM AND HABIT: annual terrestrial hemiparasite.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Cronquist et al. (1984), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Hickman (1993).

Crossidium seriatum



Crossidium seriatum Crum & Steere — SERIATE CROSSIDIUM

FAMILY: *Pottiaceae*, the pottia family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 8 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys are ongoing. Most recent entered survey 1998, average year of last survey 1997. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 75%; **6-10 yrs:** 25%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: National Park Service, U. S. Bureau of Land Management, Nevada state lands, private lands (?).

RANGE: Clark County, Nevada; also in AZ, BC, CA, KS, NM, Europe, and Mexico. Maximum Nevada **range dimension 40.6 km (25.2 mi)** excluding most disjunct record. **Type specimen** collected in Baja California, Mexico.

ELEVATIONS RECORDED (NEVADA): 1312-2460 feet (400-750 meters).

HABITAT (NEVADA): Sandstone and gypsiferous bluffs, outcrops, rock piles, and soils, often protected on the north or east sides of rocks or shrubs, or at bases of bluffs, in the creosote-bursage zone.

PHENOLOGY: no summary available. Range of most frequent **survey months:** April-June.

LIFE-FORM AND HABIT: herb moss.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: Nevada Natural Heritage Program (1998).
SPECIFIC REFERENCES:

Cano, M. J., J. Guerra, and R. M. Ros. 1992. Crossidium seriatum (Pottiaceae, Musci) new to Europe. The Bryologist 95: 280-283.

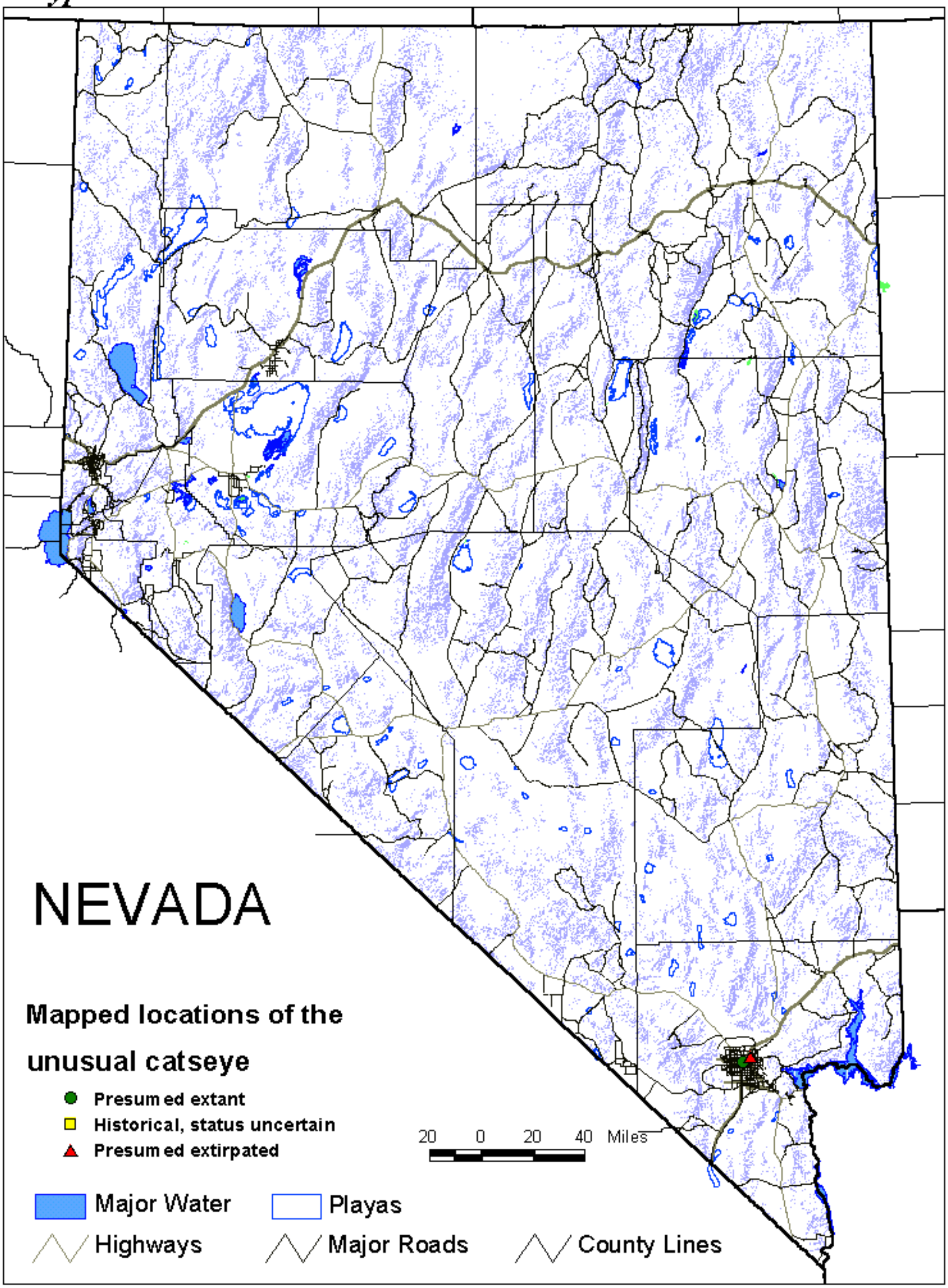
Hong, W. S. 1992. Plagiochila in western North America. The Bryologist 95: 142-147.

McIntosh, T. T. 1989. Bryophyte records from the semiarid steppe of northwestern North America, including four species new to North America. The Bryologist 92: 356-362.

Stark, L. R., and A. T. Whittemore. 1992. Additions to the bryoflora of southern California. The Bryologist 95: 65-67.

Stark, L. R. 1999. Five globally rare species of mosses from southern Nevada: An update on their distribution ranges, including recent unpublished findings from predominantly gypsum/sandstone habitats in the Lake Mead National Recreation Area and associated Bureau of Land Management lands. Las Vegas: University of Nevada, unpublished report. 11 pages.

Cryptantha insolita



Cryptantha insolita (J. F. Macbride [1916]) Payson — UNUSUAL CATSEYE

FAMILY: *Boraginaceae*, the forget-me-not family. **SYNONYMS:** *Cryptantha virginensis* (?)

STATUS: **Heritage Program SENSITIVE LIST, ranks: GHQ SH**
USFWS/ESA: species of concern. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** POSSIBLY EXTIRPATED.

POPULATION CENSUS: 1 extant and 1 extirpated occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** DECLINING.

IMPACTS AND MAJOR THREATS: Area in which this species occurs is rapidly being developed.

INVENTORY EFFORT: Never systematically surveyed, may now be extirpated. Most recent entered survey 1942, average year of last survey 1923. **Years since last entered survey** (percent of mapped records at various survey ages)**: 51+ yrs or unknown:** 100%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management (?), private lands (?).

RANGE: Clark County, Nevada. Known only from the Las Vegas Valley and adjacent lower slopes of the Spring Mountains. **Nevada endemic. Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 1900-2000 feet (579-610 meters).

HABITAT: Light-colored, alkaline clay flats and low hills in the creosote bush zone.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May.

LIFE-FORM AND HABIT: perennial herb.

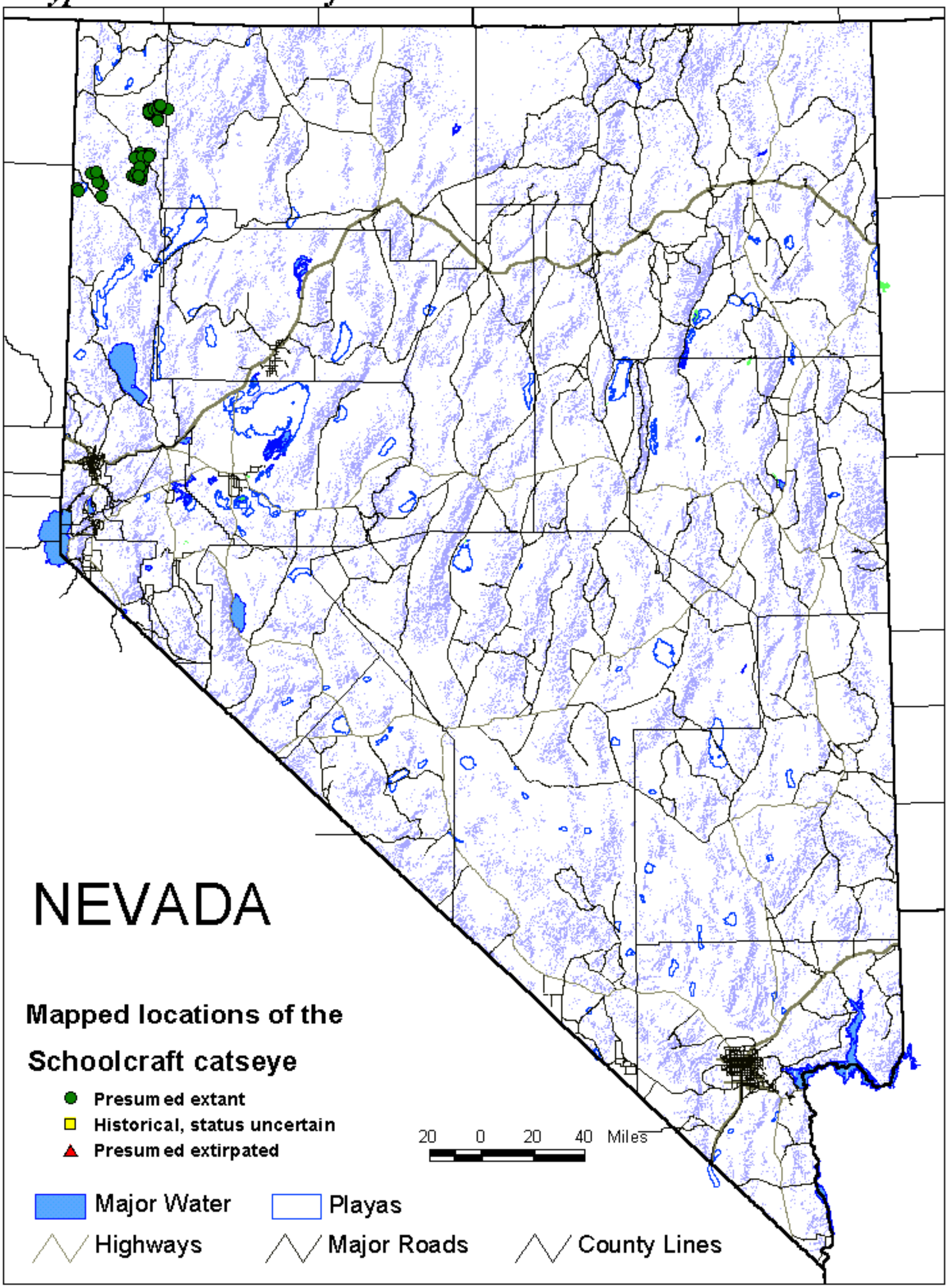
DESCRIPTION: A perennial herb with 1-2 stems, 3-4 dm tall. Leaves are spatula-shaped and have appressed, spreading bristles. White flowers are probably in bloom April-June. **Distinguishing features:** Requires mature fruit for identification. Doubtfully distinct from Cryptantha virginensis.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Barneby (1964).
SPECIFIC REFERENCES:

Macbride, J. F. 1916. Revision of the genus Oreocarya. Contributions from the Gray Herbarium 48: 20-38.
Payson, E. B. 1927. A monograph of the section Oreocarya of Cryptantha. Annals of the Missouri Botanical Gardens 14: 211-358.

OF FURTHER INTEREST: Synonymized under Cryptantha virginensis by Intermountain Flora (Cronquist et al. 1984). The taxon may since have been extirpated, rendering further taxonomic judgment difficult.

Cryptantha schoolcraftii



Cryptantha schoolcraftii Tiehm (1986) SCHOOLCRAFT CATSEYE

FAMILY: *Boraginaceae*, the forget-me-not family. **SYNONYMS:** *Cryptantha sobolifera* (?)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3Q S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada and California. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 39 occurrences mapped at 1.0 km (0.6 mi) separation, OR **78 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 17,000+**, total estimated **area 141+ ha (348+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Surveys are substantially complete. Most recent entered survey 1998, average year of last survey 1990. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 2.6%; **6-10 yrs:** 64.1%; **11-20 yrs:** 33.3%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, private lands.

RANGE: Humboldt and Washoe counties, Nevada; also in CA (?). High Rock plateau area. Possible or probable **Nevada endemic.** Maximum **range dimension 76.0 km (47.2 mi)** excluding most disjunct record. **Type specimen** collected in Washoe County.

ELEVATIONS RECORDED (NEVADA): 4880-5760 feet (1487-1756 meters).

HABITAT: Whitish fluviolacustrine volcanic ash deposits weathering to deep clay soils, on gentle to steep slopes of mostly east, south, and west aspects, in the sagebrush steppe zone with Chrysothamnus, Sphaeralcea, Stanleya viridiflora, etc., and frequently with Astragalus tiehmii and/or Eriogonum crosbyae.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** June-August.

LIFE-FORM AND HABIT: biennial or short-lived perennial herb.

DESCRIPTION: A biennial or short-lived perennial, 0.5-2.3 dm tall, producing white petaled flowers in early summer.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present) and slide collection (1986-present).
ILLUSTRATIONS: Tiehm (1986).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993).
SPECIFIC REFERENCES:

Schoolcraft, G. and A. Tiehm. 1985. Noteworthy collections, Nevada. Madroño 32: 123-124.

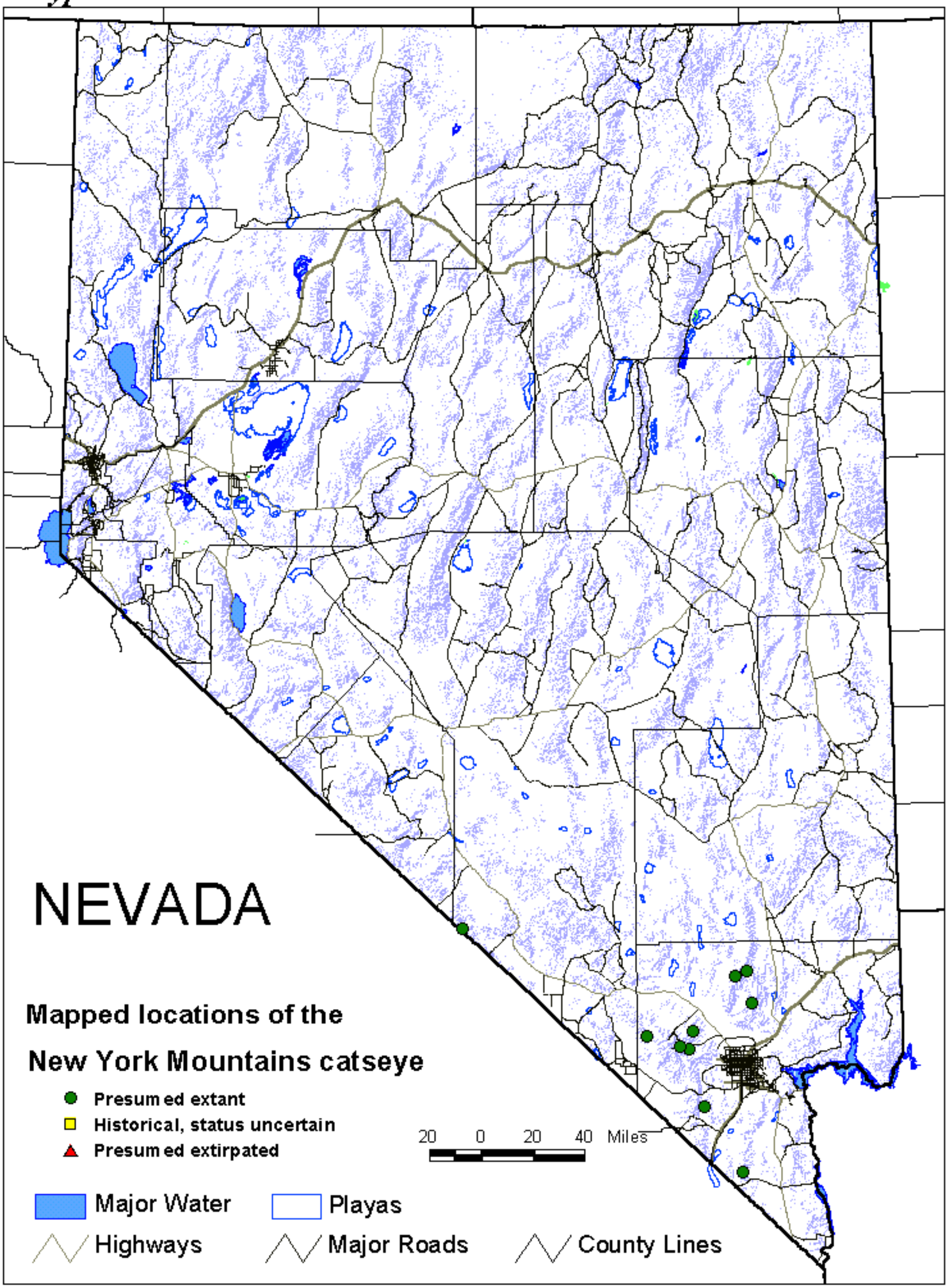
Schoolcraft, G. 1989. Species management guide for Eriogonum crosbyae. Susanville, California: Bureau of Land Management.

Smith, F. J. and G. D. Schoolcraft. 1989. Status Report: Eriogonum crosbyae. Susanville, California: USDI Bureau of Land Management.

Tiehm, A. 1986. Cryptantha schoolcraftii (Boraginaceae), a new species of section Oreocarya from Nevada. Brittonia 38: 104-106.

OF FURTHER INTEREST: Tiehm (1986) describes C. schoolcraftii as related to but distinct from C. sobolifera. Synonymized under Cryptantha sobolifera in the Jepson Manual (Hickman 1993).

Cryptantha tumulosa



Cryptantha tumulosa (Payson) Payson NEW YORK MOUNTAINS CATSEYE

FAMILY: *Boraginaceae*, the forget-me-not family.

STATUS: **Heritage Program WATCH LIST, ranks: G4? S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 10 occurrences mapped; total estimated **individuals 408+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1983, average year of last survey 1967. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 10%; **21-30 yrs:** 60%; **31-50 yrs:** 10%; **51+ yrs or unknown:** 20%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, U. S. Fish and Wildlife Service, Humboldt-Toiyabe National Forest, National Park Service, U. S. Department of Defense (?), designated wilderness (?), private lands (?).

RANGE: Clark and Nye counties, Nevada; also in CA. Maximum Nevada **range dimension 125.6 km (78.0 mi)** excluding most disjunct record. **Type specimen** collected in California.

ELEVATIONS RECORDED (NEVADA): 4480-9900 feet (1366-3018 meters).

HABITAT: no summary available (see references).

PHENOLOGY: no summary available. Range of most frequent **survey months:** April-July.

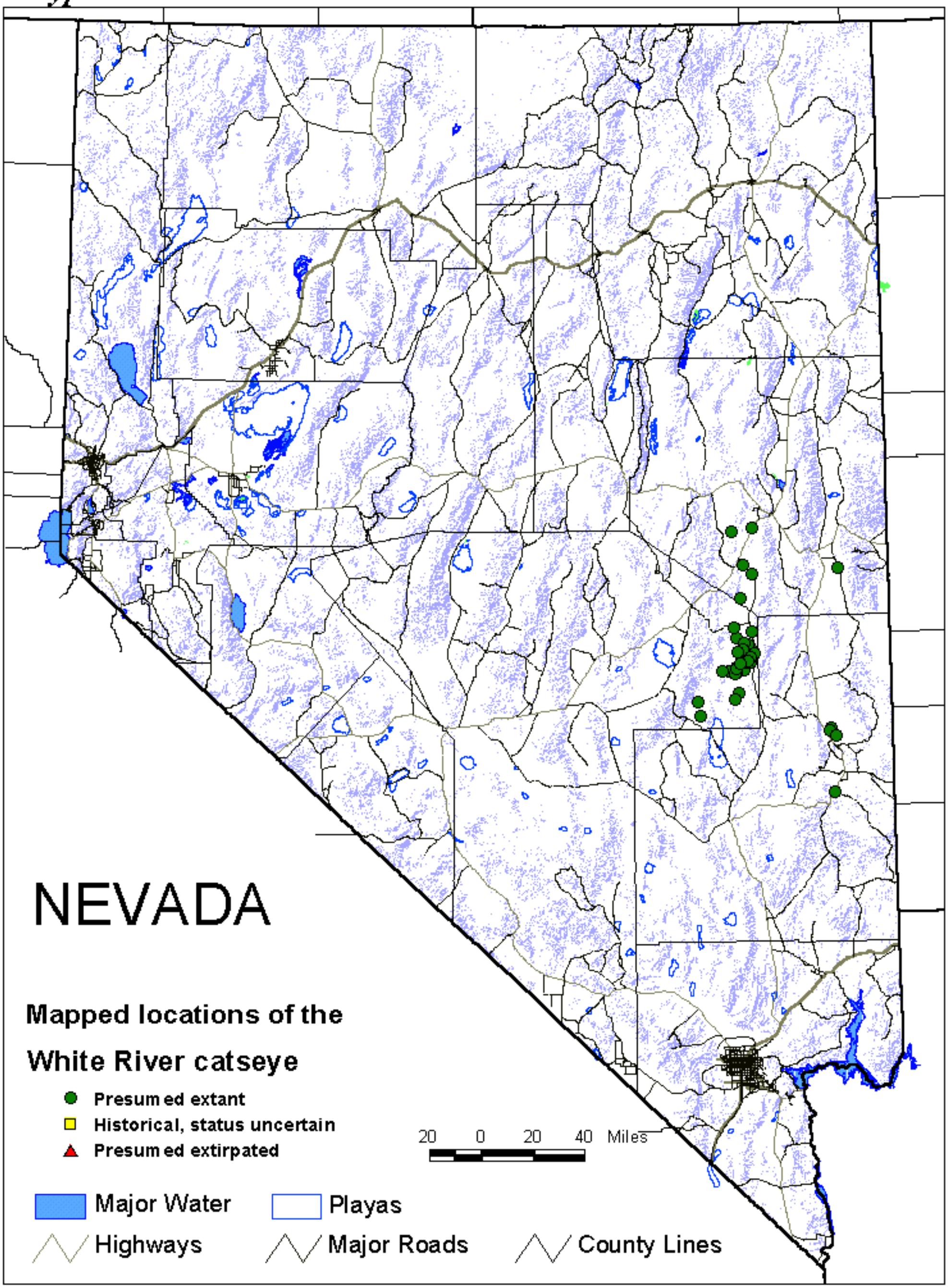
DESCRIPTION: not available (see references).

PHOTOGRAPHS: Weixelman and Atwood (1990).
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Hickman (1993).
SPECIFIC REFERENCES:

Bostick, V. B. 1973. Vegetation of the McCullough Mountains, Clark County, Nevada. Las Vegas: University of Nevada, M. S. thesis. 232 pages.

Payson, E. B. 1926. Thlaspi, Oreocarya, and Erigeron. University of Wyoming Publications in Botany 1: 145-186.

Cryptantha welshii



Cryptantha welshii Thorne & Higgins (1982) WHITE RIVER CATSEYE

FAMILY: *Boraginaceae*, the forget-me-not family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 35 occurrences mapped at 1.0 km (0.6 mi) separation, OR **40 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 44,000+**, total estimated **area 354+ ha (875+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: The species appears to tolerate or even increase with transient disturbances within its habitat, such as animal trampling and roadside maintenance. Other than occasional habitat loss from road building or other conversion, no impacts are known.

INVENTORY EFFORT: Systematic surveys have been conducted, but much potential habitat likely remains to be examined. Most recent entered survey 1994, average year of last survey 1993.
Years since last entered survey (percent of mapped records at various survey ages)**: 6-10 yrs:** 90%; **11-20 yrs:** 2.5%; **21-30 yrs:** 7.5%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, Nevada state lands, private lands.

RANGE: Lincoln, Nye, and White Pine counties, Nevada. **Nevada endemic.** Maximum **range dimension 142.2 km (88.4 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 4540-6660 feet (1384-2030 meters).

HABITAT: Dry, open, sparsely vegetated outcrops, and derived sandy to silty or clay soils, of whitish calcareous or carbonate deposits, often forming knolls or gravelly hills, and on soils adjacent to such habitats, mostly in Juniperus - Artemisia - Chrysothamnus vegetation with Artemisia pygmaea, Stenotus acaulis, Eriogonum shockleyi, Hymenopappus filifolius, Physaria, Erigeron compactus, Enceliopsis nudicaulis, Lepidium nanum, L. montanum, Linum perenne, Stanleya pinnata, Hilaria jamesii, Astragalus calycosus, Leucelene ericoides, Phlox tumulosa, Frasera albomarginata, etc.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: biennial or short-lived perennial herb.

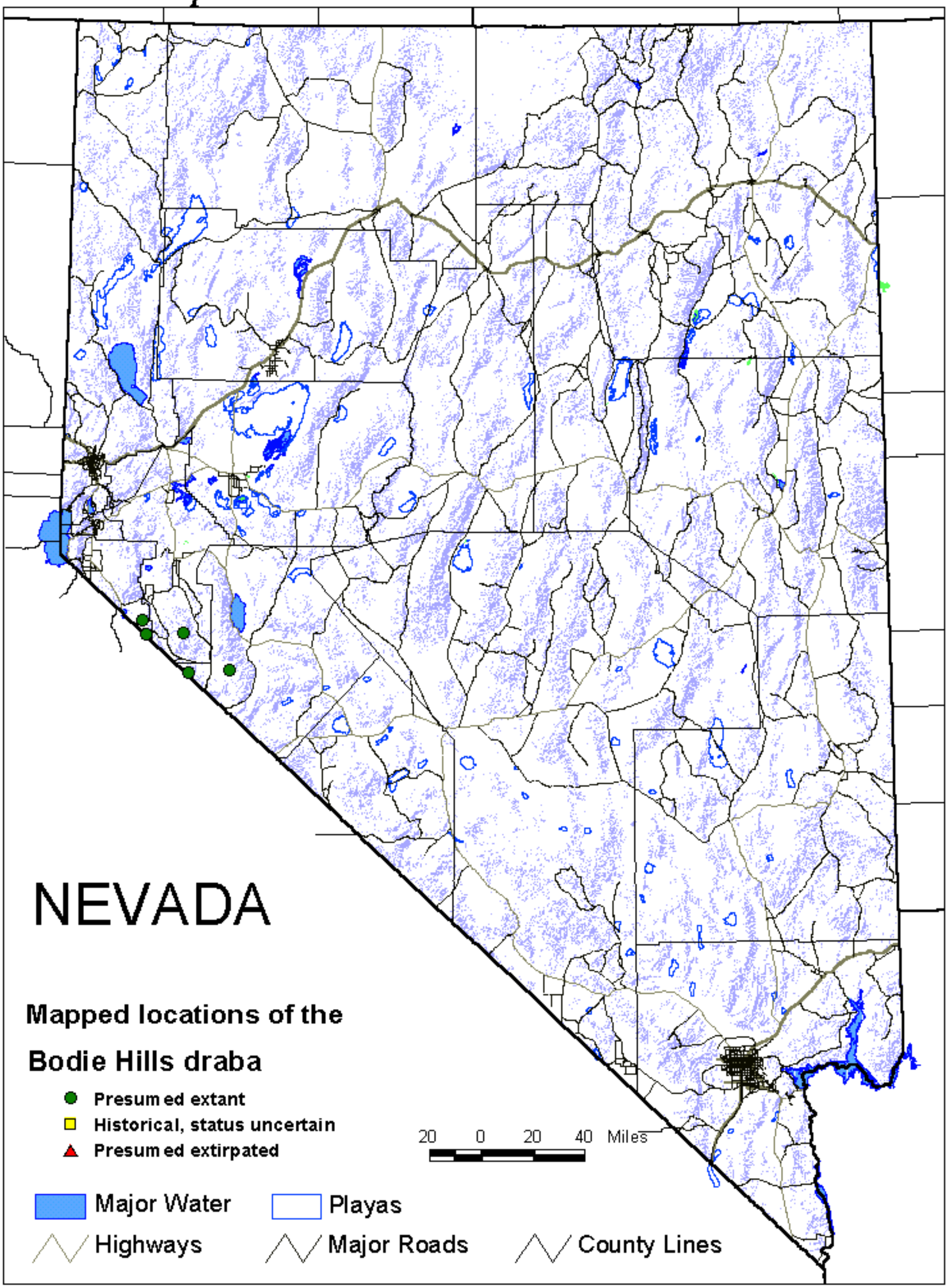
DESCRIPTION: A biennial or short-lived perennial, up to 3 dm tall, with several hairy stems. Produces white flowers in early summer.

PHOTOGRAPHS: Smith (1994); Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: Cronquist et al. (1984), Thorne and Higgins (1982).
SPECIFIC REFERENCES:

Smith, F. J. 1994. Status report for Cryptantha welshii Thorne and Higgins (1982). Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

Thorne, K. H. and L. C. Higgins. 1982. A new species of Cryptantha (Boraginaceae) from Nevada. Great Basin Naturalist 42: 196-198.

Cusickiella quadricostata



Cusickiella quadricostata (Rollins) Rollins — BODIE HILLS DRABA

FAMILY: *Brassicaceae*, the mustard family. **SYNONYMS:** *Draba quadricostata*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada and California. **USFS:** Humboldt-Toiyabe NF Sensitive Species, Inyo NF watch list. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 5 occurrences mapped; total estimated **individuals 30,000+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): A few project-related surveys have been conducted, but much potential habitat remains to be examined. Most recent entered survey 1997, average year of last survey 1984.
Years since last entered survey (percent of mapped records at various survey ages)**: 0-5 yrs:** 20%; **11-20 yrs:** 20%; **21-30 yrs:** 60%.

LAND MANAGEMENT (NEVADA): Humboldt-Toiyabe National Forest.

RANGE: Douglas, Lyon, and Mineral counties, Nevada; also in CA. Maximum Nevada **range dimension 43.2 km (26.8 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 6200-8500 feet (1890-2591 meters).

HABITAT (not yet reviewed for Nevada): "Great Basin scrub, pinyon and juniper woodland; clay or rocky."

PHENOLOGY: no summary available. Range of most frequent **survey months:** June-September.

DESCRIPTION: not available (see references).

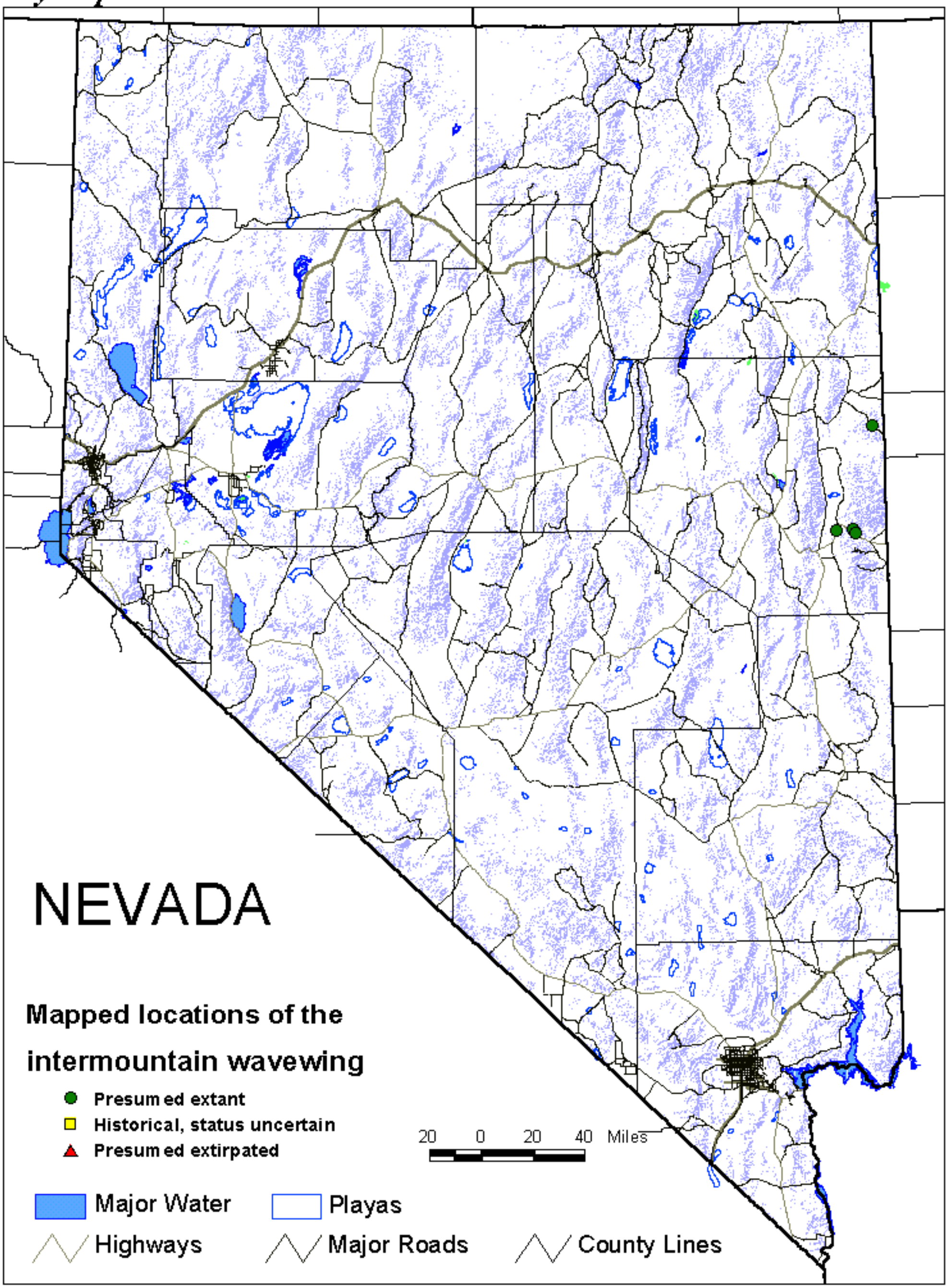
PHOTOGRAPHS: Weixelman and Atwood (1990); Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993), Rollins (1993).
SPECIFIC REFERENCES:

Genz, K. and N. D. Atwood. 1981. Status report on Cusickiella (Draba) quadricostata. Portland, Oregon: U. S. Fish and Wildlife Service.

Nachlinger, J. 1986. A rare plant survey in the vicinity of the Borealis Mine, Mineral County, Nevada. Submitted to Tenneco Minerals Company.

U. S. D. A. Forest Service. 1981. Final environmental assessment, Houston International Minerals Corporation, Borealis Project, Mineral County, Nevada. Bridgeport, California.

Cymopterus basalticus



Cymopterus basalticus M. E. Jones (1908) INTERMOUNTAIN WAVEWING

FAMILY: *Apiaceae*, the carrot family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 4 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1990, average year of last survey 1984. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 75%; **21-30 yrs:** 25%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, Humboldt-Toiyabe National Forest (?), Nevada state lands (?), private lands (?).

RANGE: White Pine County, Nevada; also in UT. Maximum Nevada **range dimension 12.6 km (7.9 mi)** excluding most disjunct record. **Type specimen** collected in Beaver County, Utah.

ELEVATIONS RECORDED (NEVADA): 5800-6900 feet (1768-2103 meters).

HABITAT (not yet reviewed for Nevada): "Bare basaltic rocks, barren clays, and (in Utah) gravelly hills and alluvial fans, mostly on dolomite. 1350-2133 m in the pinyon-juniper, sagebrush, and shadscale zones."

PHENOLOGY: flowering spring. Range of most frequent **survey months:** May-June.

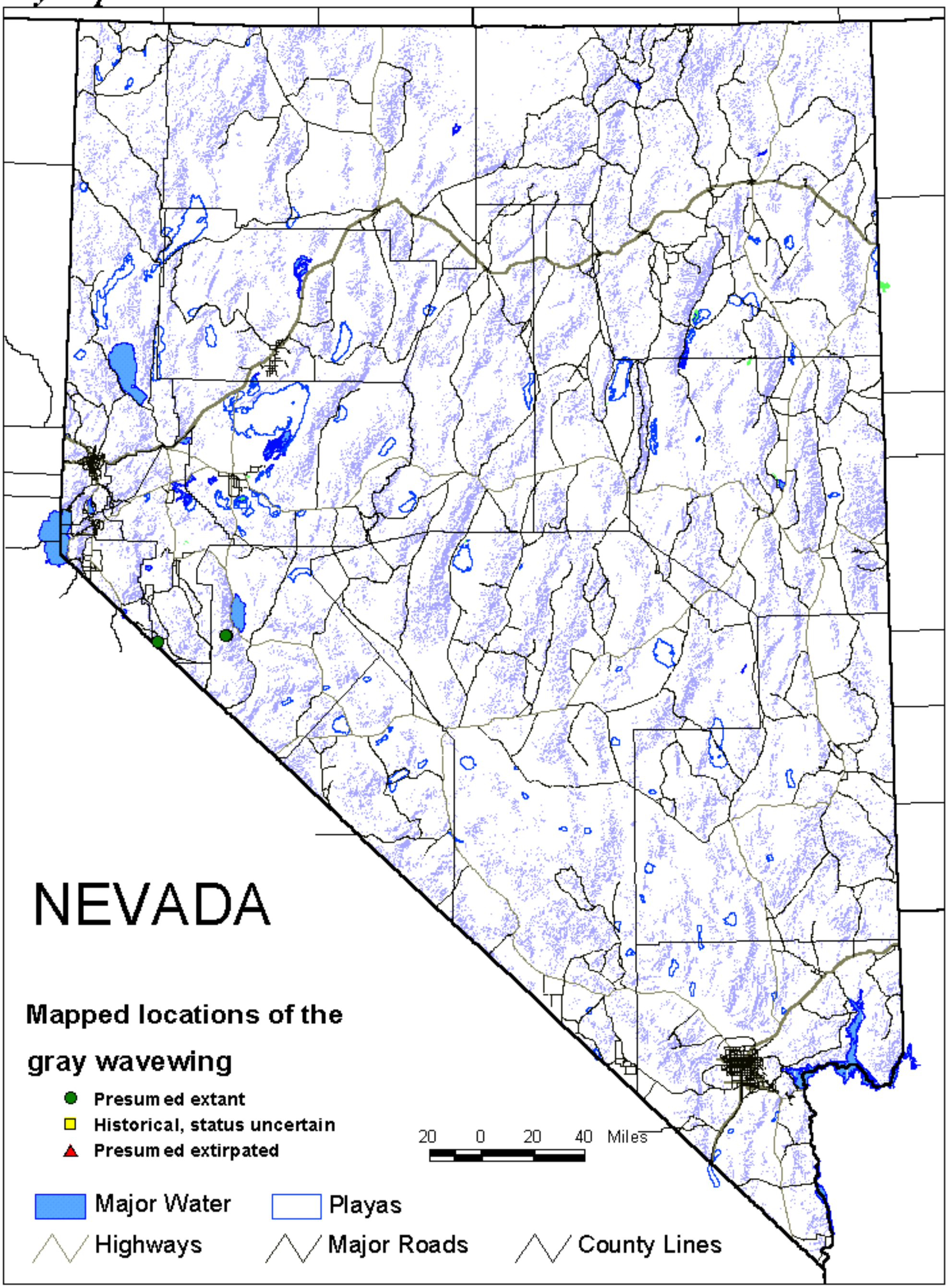
LIFE-FORM AND HABIT: small long-lived perennial herb.

DESCRIPTION: A perennial herb, 5-15 cm tall, with basal, kidney-shaped leaves. Produces compact clusters of yellow or purple flowers in May.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist et al. (1997), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Welsh et al. (1987).
SPECIFIC REFERENCES:

Jones, M. E. 1908. Contributions to western botany 12. Contributions to Western Botany 12: 1-100.

Cymopterus cinerarius



Cymopterus cinerarius A. Gray (1865) GRAY WAVEWING

FAMILY: *Apiaceae*, the carrot family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 S1?**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 2 occurrences mapped at 1.0 km (0.6 mi) separation, OR **3 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area unknown**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1980, average year of last survey 1965. **Years since last entered survey** (percent of mapped records at various survey ages)**: 21-30 yrs:** 66.7%; **51+ yrs or unknown:** 33.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Department of Defense, Humboldt-Toiyabe National Forest.

RANGE: Esmeralda, Lyon, and Mineral counties, Nevada; also in CA. Known in Nevada from the Wassuk and Sweetwater ranges. Maximum Nevada **range dimension 42.7 km (26.6 mi)**. **Type specimen** collected in California.

ELEVATIONS RECORDED (NEVADA): 8800-11300 feet (2682-3444 meters).

HABITAT (not yet reviewed for Nevada): "Dry, rocky, alpine ridges and slopes in subalpine forests and alpine fell-fields (talus slopes and boulder-strewn areas with little vegetation cover). 2500-3500 m."

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** July-August.

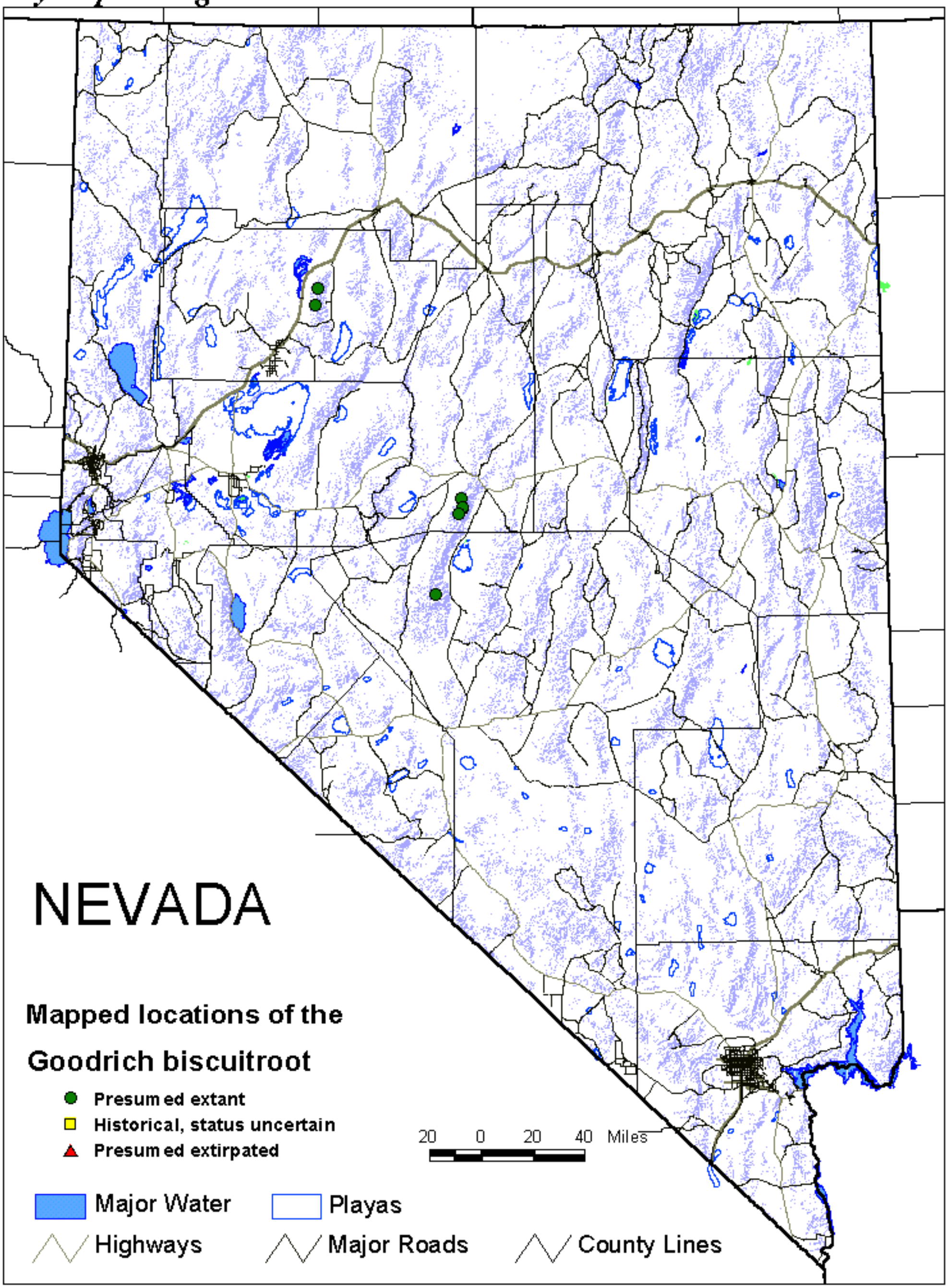
LIFE-FORM AND HABIT: small long-lived perennial herb.

DESCRIPTION: A grayish perennial herb, 7-10 cm tall, producing white flowers in small disc-shaped clusters May-June.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present) and slide collection (1986-present).
ILLUSTRATIONS: Cronquist et al. (1997).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993).
SPECIFIC REFERENCES:

Gray, A. 1865. Characters of some new plants of California and Nevada, chiefly from the collections of Professor William H. Brewer, botanist of the State Geological Survey of California, and of Dr. Charles L. Anderson, with revisions of certain genera of groups. Proceedings of the American Academy of Arts 7: 519-556.

Cymopterus goodrichii



Cymopterus goodrichii Welsh & Neese (1980) GOODRICH BISCUITROOT

FAMILY: *Apiaceae*, the carrot family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 7 occurrences mapped; total estimated **individuals unknown**, total estimated **area 14.2+ ha (35.1+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Some targeted surveys have been conducted but have not been comprehensive. Most recent entered survey 1991, average year of last survey 1985. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 14.3%; **11-20 yrs:** 71.4%; **21-30 yrs:** 14.3%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, designated wilderness.

RANGE: Lander, Nye, and Pershing counties, Nevada. Known so far only from the Toiyabe and Humboldt ranges. **Nevada endemic.** Maximum **range dimension 166.5 km (103.5 mi)** excluding most disjunct record. **Type specimen** collected in Lander County.

ELEVATIONS RECORDED: 7300-11100 feet (2225-3383 meters).

HABITAT: Moderate to steep scree and talus slopes of dark angular slate or limestone in the upper subalpine and lower alpine zones.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-July.

LIFE-FORM AND HABIT: small perennial herb from a buried root crown.

DESCRIPTION: A slender perennial herb, 4-15 cm tall, with a long, purplish flower stalk arising directly from the ground. White or purple flowers bloom June-July.

PHOTOGRAPHS: Weixelman and Atwood (1990); Nevada Natural Heritage Program slide collection (1986-present) and files.

ILLUSTRATIONS: Cronquist et al. (1997), Weixelman and Atwood (1990).

OTHER GENERAL REFERENCES (listed separately): Goodrich (1981).

SPECIFIC REFERENCES:

Chatterley, M. 1981. Status report for Cymopterus goodrichii, Apiaceae, a Nevada endemic. Portland, Oregon: U. S. Fish and Wildlife Service.

Goodrich, S. 1979. Status report on Eriogonum holmgrenii. Portland, Oregon: U. S. Fish and Wildlife Service.

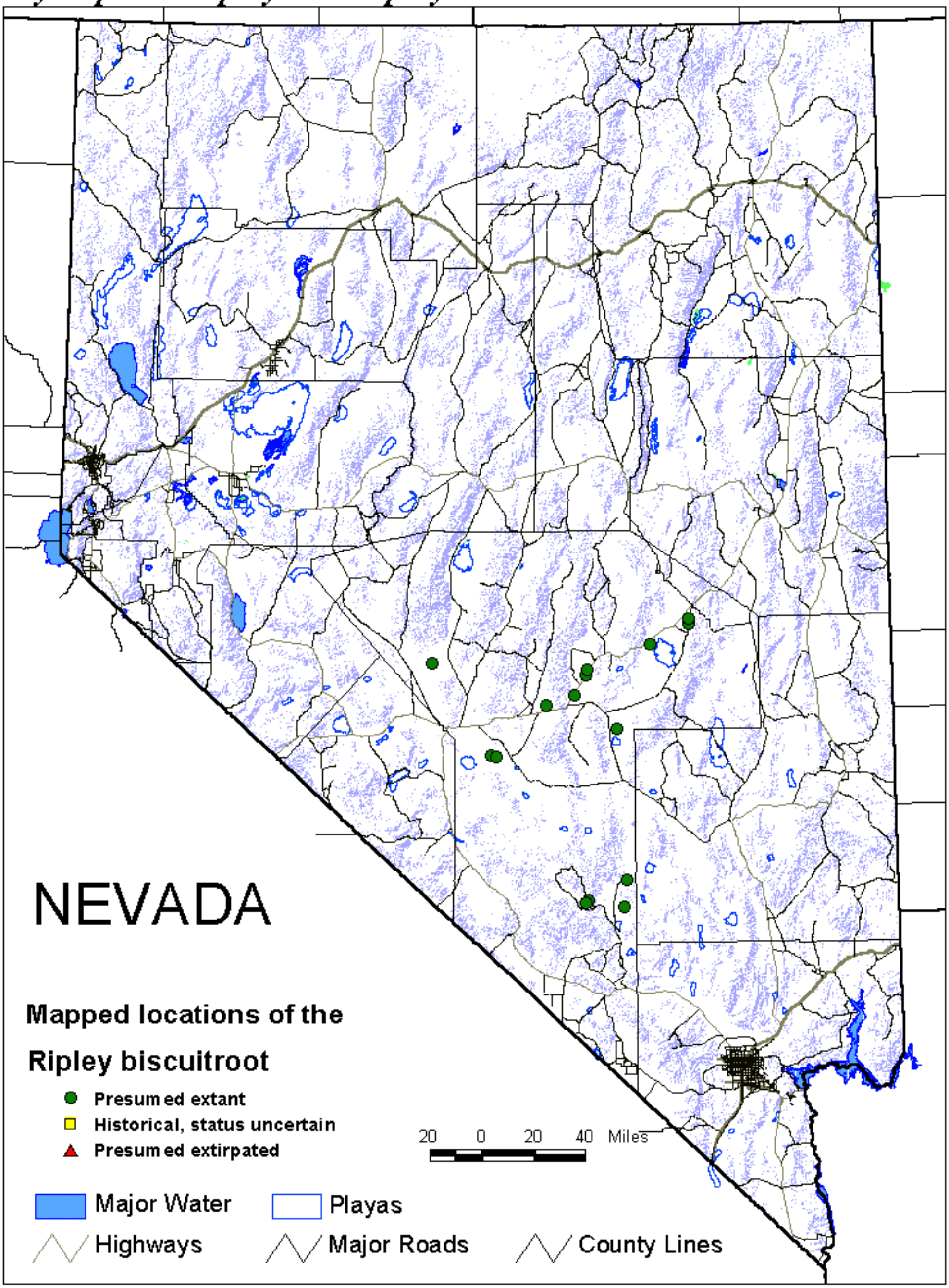
Morefield, J. D. 1992. Interim status report for Arabis ophira Rollins. Carson City: Nevada Natural Heritage Program, prepared for the Toiyabe National Forest, Sparks, Nevada.

Tiehm, A. 1989. Proposed threatened and endangered plants of the Humboldt Range, Pershing County, Nevada. Carson City: Nevada Natural Heritage Program.

Welsh, S. and E. Neese. 1980. A new species of Cymopterus (Umbelliferae) from the Toiyabe Range, Lander County, Nevada. Madroño 27: 97-100.

Woodbury, K. 1980. Status report for Cymopterus goodrichii. Portland, Oregon: U. S. Fish and Wildlife Service.

Cymopterus ripleyi var. ripleyi



Cymopterus ripleyi Barneby (1941) var. *ripleyi* — RIPLEY BISCUITROOT

FAMILY: *Apiaceae*, the carrot family. **SYNONYMS:** *Cymopterus ripleyi*

STATUS: **Heritage Program WATCH LIST, ranks: G3G4 T2?Q S2?**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 15 occurrences mapped; total estimated **individuals unknown**, total estimated **area 3.7+ ha (9.1+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1993, average year of last survey 1979. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 20%; **11-20 yrs:** 33.3%; **21-30 yrs:** 33.3%; **31-50 yrs:** 6.7%; **51+ yrs or unknown:** 6.7%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, U. S. Department of Energy, U. S. Department of Defense (?), Nevada state lands (?), U. S. Fish and Wildlife Service (?), Humboldt-Toiyabe National Forest (?).

RANGE: Esmeralda (?), Lincoln (?), and Nye counties, Nevada; also in CA. Maximum Nevada **range dimension 187.0 km (116.2 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED (NEVADA): 4380-5980 feet (1335-1823 meters).

HABITAT (NEVADA): Deep loose sandy soils of stabilized dunes, dune skirt areas, aeolian deposits, and alluvial drainage areas in the shadscale, sagebrush, and lower pinyon-juniper zones with Atriplex confertifolia, A. canescens, Psorothamnus polydenius, Achnatherum hymenoides, Tetradymia, Astragalus callithrix, Sarcobatus vermiculatus, Chrysothamnus, Grayia, etc. Dependent on sand dunes or deep sand in Nevada.

PHENOLOGY: flowering spring. Range of most frequent **survey months:** April-June.

LIFE-FORM AND HABIT: small perennial herb from a buried root crown.

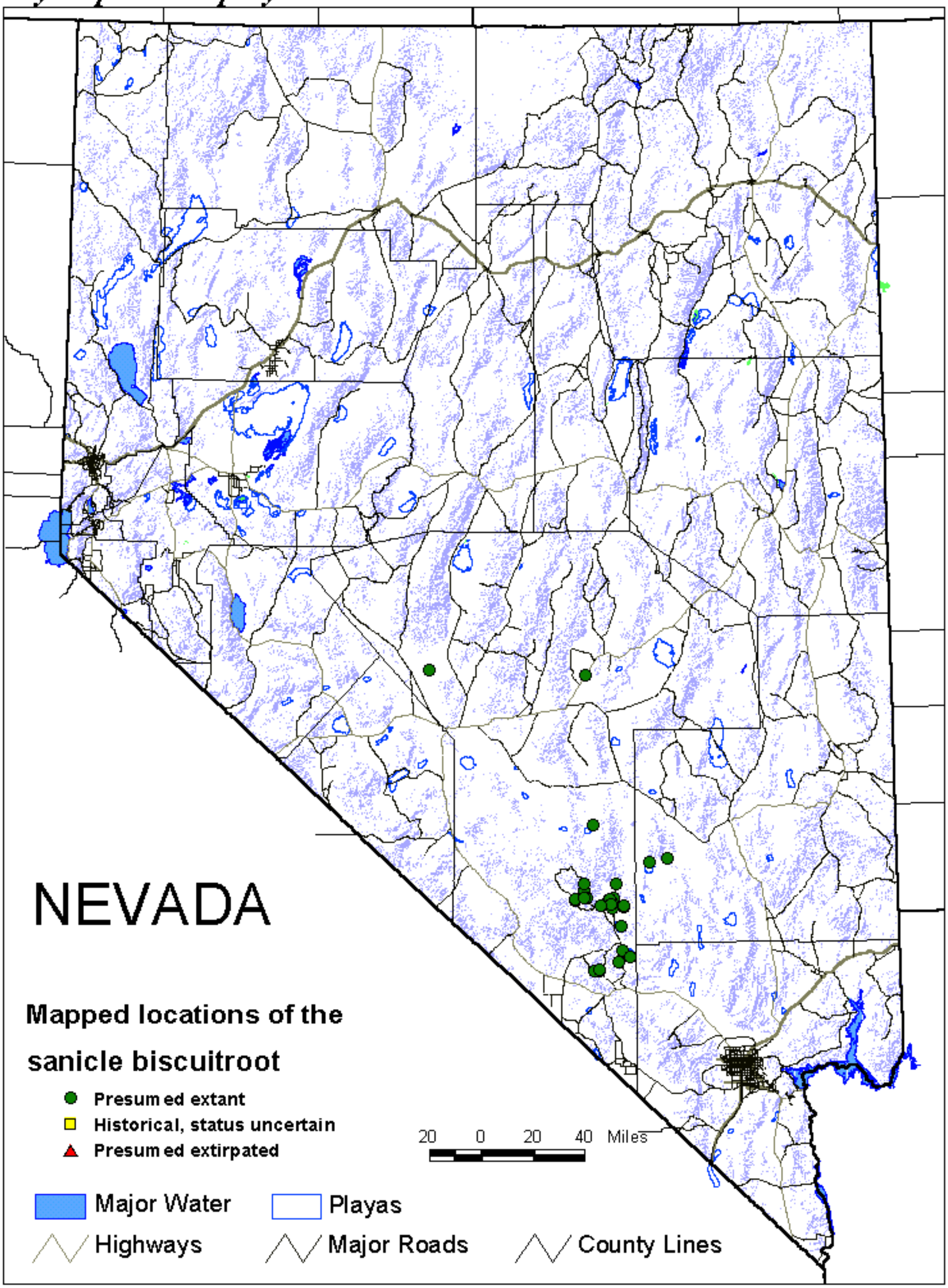
DESCRIPTION: not available (see references).

PHOTOGRAPHS: Blomquist et al. (1995), Knight and Smith (1995).
ILLUSTRATIONS: Cronquist et al. (1997).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Hickman (1993).
SPECIFIC REFERENCES:

Barneby, R. C. 1941. A new species of Cymopterus from Nevada. Leaflets of Western Botany 3: 81-83.

OF FURTHER INTEREST: The varieties of Cymopterus ripleyi were not recognized in the Jepson Manual (Hickman 1993) or in Intermountain Flora (Cronquist et al. 1997). The known occurrences still exhibit some segregation in geography, elevation, and habitat, however, and are provisionally maintained as distinct by the Nevada Natural Heritage Program pending further study.

Cymopterus ripleyi var. saniculoides



Cymopterus ripleyi Barneby **var.** *saniculoides* Barneby (1941) SANICLE BISCUITROOT

FAMILY: *Apiaceae*, the carrot family. **SYNONYMS:** *Cymopterus ripleyi*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3G4 T3Q S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 23 occurrences mapped at 1.0 km (0.6 mi) separation, OR **33 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 7465+**, total estimated **area 158+ ha (390+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Surveys have been extensive in some areas but likely remain substantially incomplete. Most recent entered survey 1994, average year of last survey 1987. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 73.5%; **11-20 yrs:** 5.9%; **21-30 yrs:** 8.8%; **31-50 yrs:** 8.8%; **51+ yrs or unknown:** 2.9%.

LAND MANAGEMENT in decreasing predominance: U. S. Department of Energy, U. S. Department of Defense, U. S. Bureau of Land Management, U. S. Fish and Wildlife Service (?), Nevada state lands (?).

RANGE: Lincoln and Nye counties, Nevada. **Nevada endemic.** Maximum **range dimension 184.9 km (114.9 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 3150-6720 feet (960-2048 meters).

HABITAT: Loose sandy to gravelly, often somewhat alkaline soils on volcanic tuff deposits and mixed valley alluvium, typically in small drainage-ways, in the blackbrush, mixed-shrub, sagebrush, and lower pinyon-juniper zones.

PHENOLOGY: flowering late-winter to spring. Range of most frequent **survey months:** March-June.

LIFE-FORM AND HABIT: small perennial herb from a buried root crown.

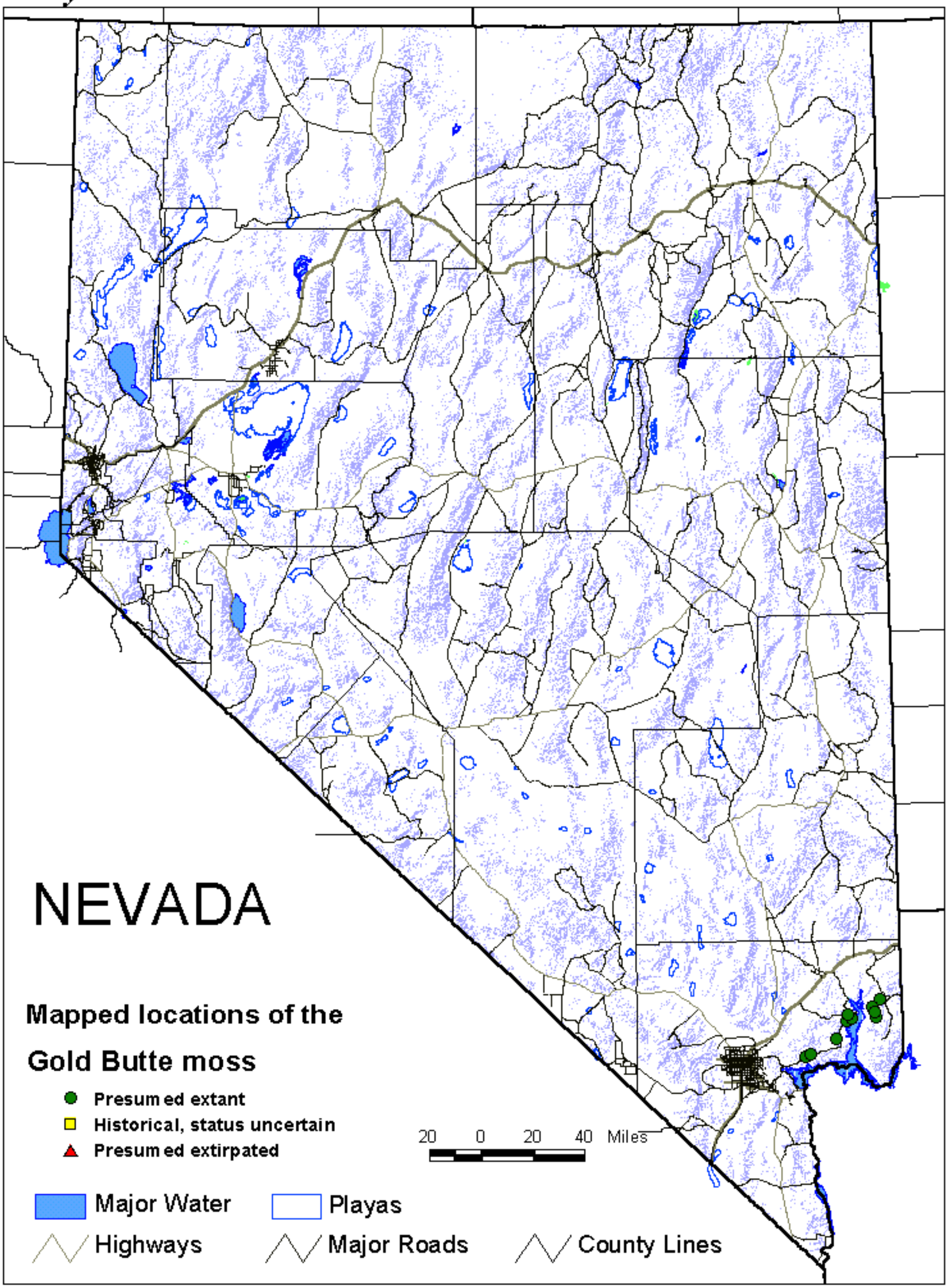
DESCRIPTION: not available (see references).

PHOTOGRAPHS: Blomquist et al. (1995), Knight and Smith (1995), Knight et al. (1997).
ILLUSTRATIONS: Cronquist et al. (1997).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Hickman (1993).
SPECIFIC REFERENCES:

Barneby, R. C. 1941. A new species of Cymopterus from Nevada. Leaflets of Western Botany 3: 81-83.

OF FURTHER INTEREST: The varieties of Cymopterus ripleyi were not recognized in the Jepson Manual (Hickman 1993) or in Intermountain Flora (Cronquist et al. 1997). The known occurrences still exhibit some segregation in geography, elevation, and habitat, however, and are provisionally maintained as distinct by the Nevada Natural Heritage Program pending further study.

Didymodon nevadensis



Didymodon nevadensis Zander (1995) GOLD BUTTE MOSS

FAMILY: *Pottiaceae*, the pottia family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 12 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** stable.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys are ongoing and may be largely complete in Nevada. Most recent entered survey 1998, average year of last survey 1996. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 58.3%; **6-10 yrs:** 41.7%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, National Park Service, Nevada state lands, private lands (?).

RANGE: Clark County, Nevada; also in BC, TX, and Mexico. Scattered but wide distribution. Maximum Nevada **range dimension 51.5 km (32.0 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED (NEVADA): 1312-2316 feet (400-706 meters).

HABITAT (NEVADA): On or near gypsiferous deposits and outcrops or limestone boulders, especially on east to north facing slopes of loose uncompacted soil, often associated with other mosses and lichens.

PHENOLOGY: fertile late-winter to spring, Seasonal growth is initiated in autumn from vegetative buds subtending the perichaetium. Stem elongation probably occurs through the cooler months of autumn, winter, and early spring with the production of a perichaetium in spring ending the vegetative growth cycle. Range of most frequent **survey months:** October-June.

LIFE-FORM AND HABIT: long-lived wintergreen moss.

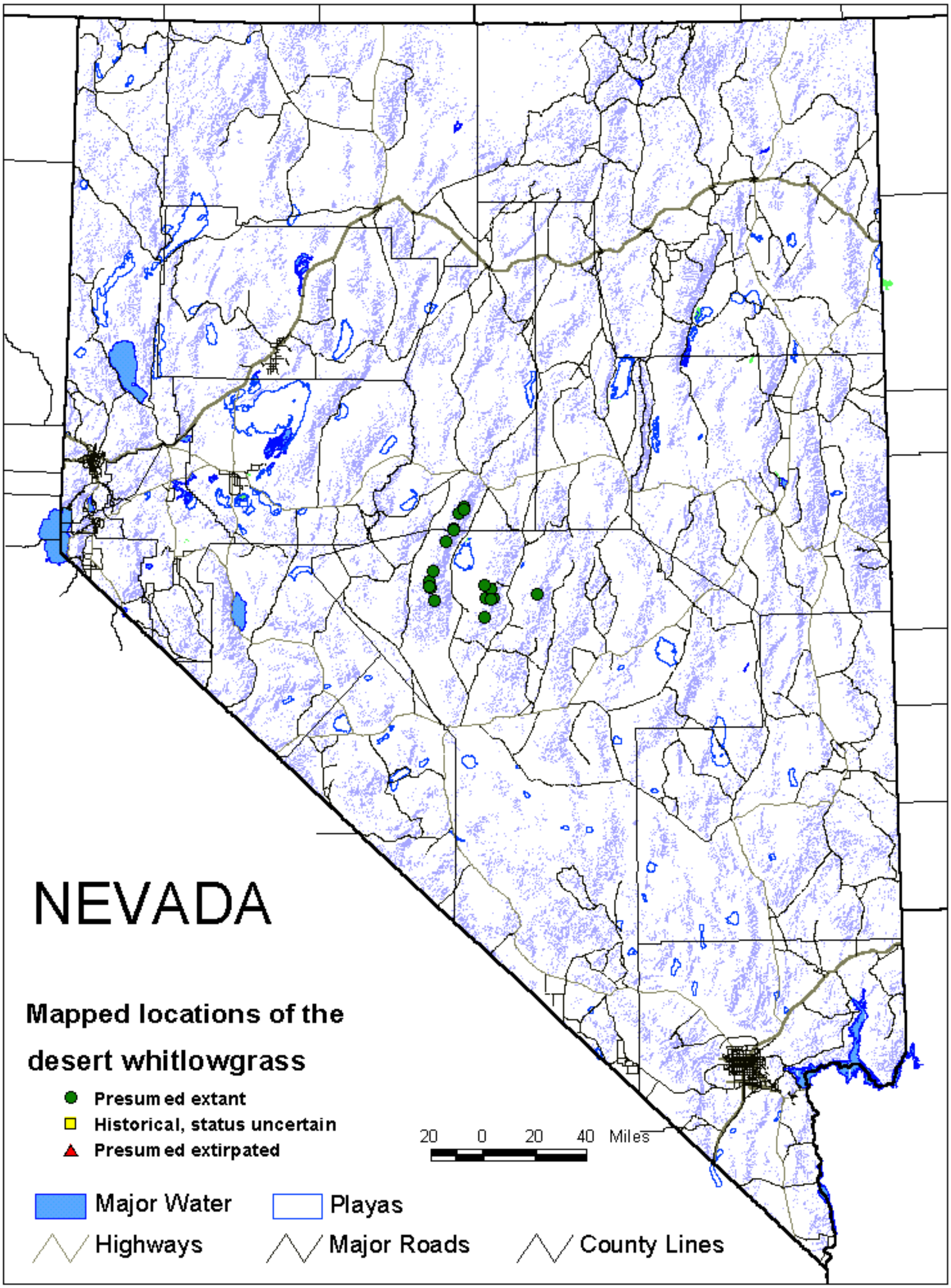
DESCRIPTION: Plants forming a dense turf, blackish green above, reddish brown below. Stems to 1 cm in length, branching occasionally. Rhizoids few, occasionally short, branching and thick-walled, arising from leaf axils. Cauline leaves appressed, weakly twisted clockwise or counterclockwise when dry, weakly spreading when moist; ovate to ovate-lanceolate, adaxial surface broadly channeled at midleaf, narrowly channeled apically; base ovate; upper margins broadly recurved to revolute throughout, entire; apex conic, acute to obtuse, weakly cucullate. Costa percurrent, ending in a broadly conical point. Asexual reproduction by tubers, these spherical, or often elliptical and constricted medially, borne on branching rhizoids from axils of leaves at soil level. Sexual condition apparently dioecious (Zander et al. 1995). **Distinguishing features:** Similar in appearance, and difficult to distinguish, from several other mosses including Didymodon brachyphyllus, D. australasiae, Bryoerythrophyllum columbianum, B. fuscinervis, and Pseudocrossidium crinitum.

PHOTOGRAPHS: Nevada Natural Heritage Program files.
ILLUSTRATIONS: Zander et al. (1995).
SPECIFIC REFERENCES:

Zander, R. H., L. R. Stark, and G. Marrs-Smith. 1995. Didymodon nevadensis, a new species for North America, with comments on phenology. The Bryologist 98: 590-595.

OF FURTHER INTEREST: Forms extensive monospecific populations in a mat-like appearance.

Draba arida


NEVADA
Mapped locations of the
desert whitlowgrass
Presumed extant
Historical, status uncertain
Presumed extirpated
20 0 20 40 Miles
Major Water
Playas
Highways
Major Roads
County Lines

Draba arida C. L. Hitchcock — DESERT WHITLOWGRASS

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 17 occurrences mapped at 1.0 km (0.6 mi) separation, OR **18 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area 87.1+ ha (215+ ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1991, average year of last survey 1973. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 11.1%; **11-20 yrs:** 11.1%; **21-30 yrs:** 61.1%; **51+ yrs or unknown:** 16.7%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness.

RANGE: Lander and Nye counties, Nevada. **Nevada endemic.** Maximum **range dimension 69.9 km (43.4 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 7600-11100 feet (2316-3383 meters).

HABITAT: Rock crevices, scree, snow-bank areas, rocky soils, loam, or forest litter on gentle to steep slopes of all aspects, in the subalpine conifer and lower alpine zones, with Pinus flexilis, etc.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-July.

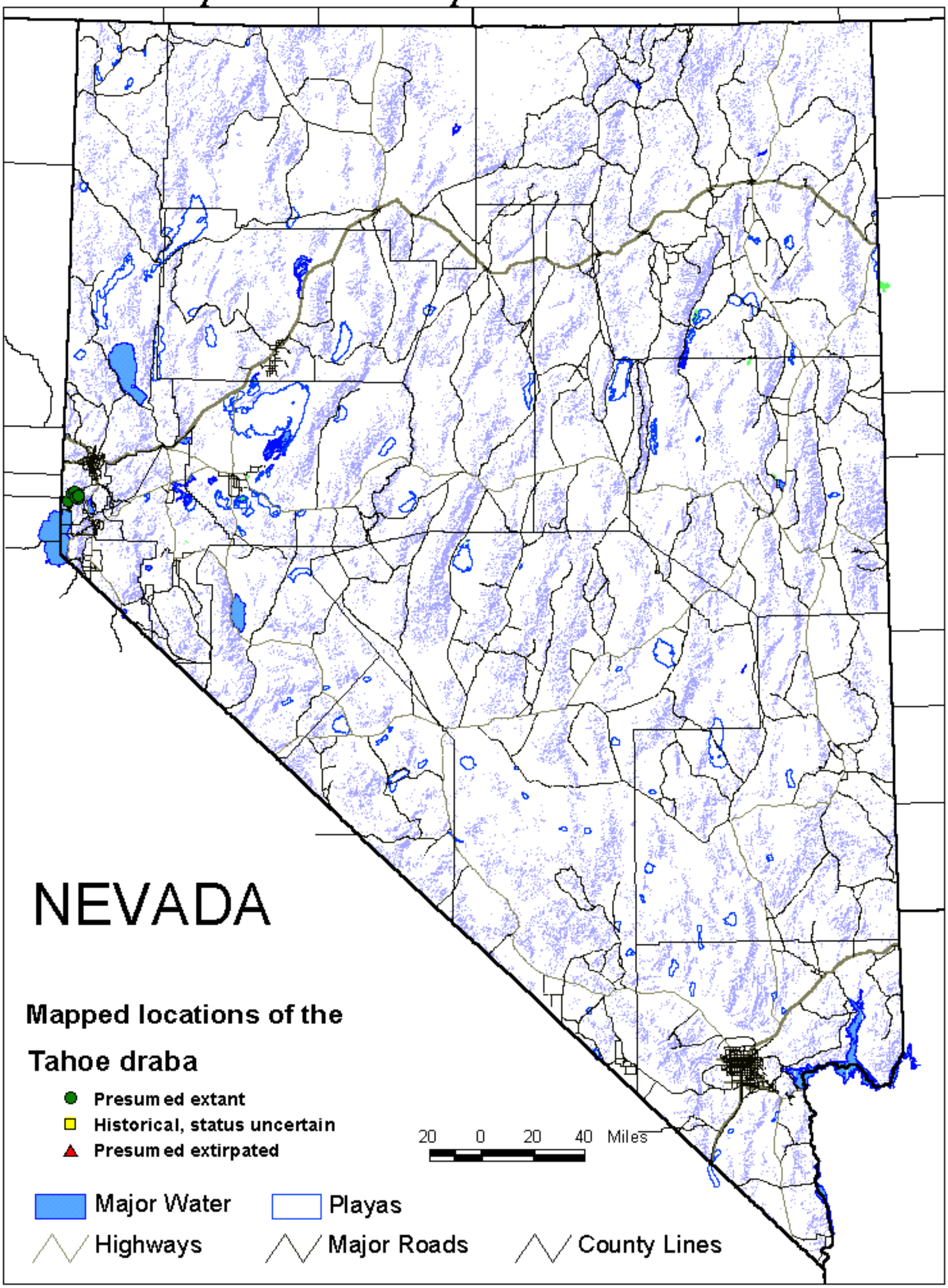
LIFE-FORM AND HABIT: small matted perennial herb.

DESCRIPTION: A perennial herb covered with dense, stiff hairs. Yellow flower clusters on 3-7 cm tall stalks appear in June.

PHOTOGRAPHS: Weixelman and Atwood (1990); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Goodrich (1981), Rollins (1993).
SPECIFIC REFERENCES:

Goodrich, S. 1979. Status report on Mertensia toyabensis. Portland, Oregon: U. S. Fish and Wildlife Service.
Morefield, J. D. 1992. Interim status report for Arabis ophira Rollins. Carson City: Nevada Natural Heritage Program, prepared for the Toiyabe National Forest, Sparks, Nevada.

Draba asterophora var. asterophora



Draba asterophora Payson var. *asterophora* — TAHOE DRABA

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4 T2 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF, Inyo NF, and Lake Tahoe Basin Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 6 occurrences mapped at 1.0 km (0.6 mi) separation, OR **9 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 2066+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 2000, average year of last survey 1977. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 22.2%; **21-30 yrs:** 55.6%; **31-50 yrs:** 22.2%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, private lands, U. S. Forest Service Lake Tahoe Basin Management Unit, Nevada state lands, U. S. Bureau of Land Management (?).

RANGE: Washoe County, Nevada; also in CA. Maximum Nevada **range dimension 4.8 km (3.0 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 8000-10200 feet (2438-3109 meters).

HABITAT (NEVADA): Granite rock crevices, talus, scree, or rocky decomposed granite or volcanic soils on steep slopes, mostly on north to east aspects, in the subalpine conifer zone with a very sparse understory.

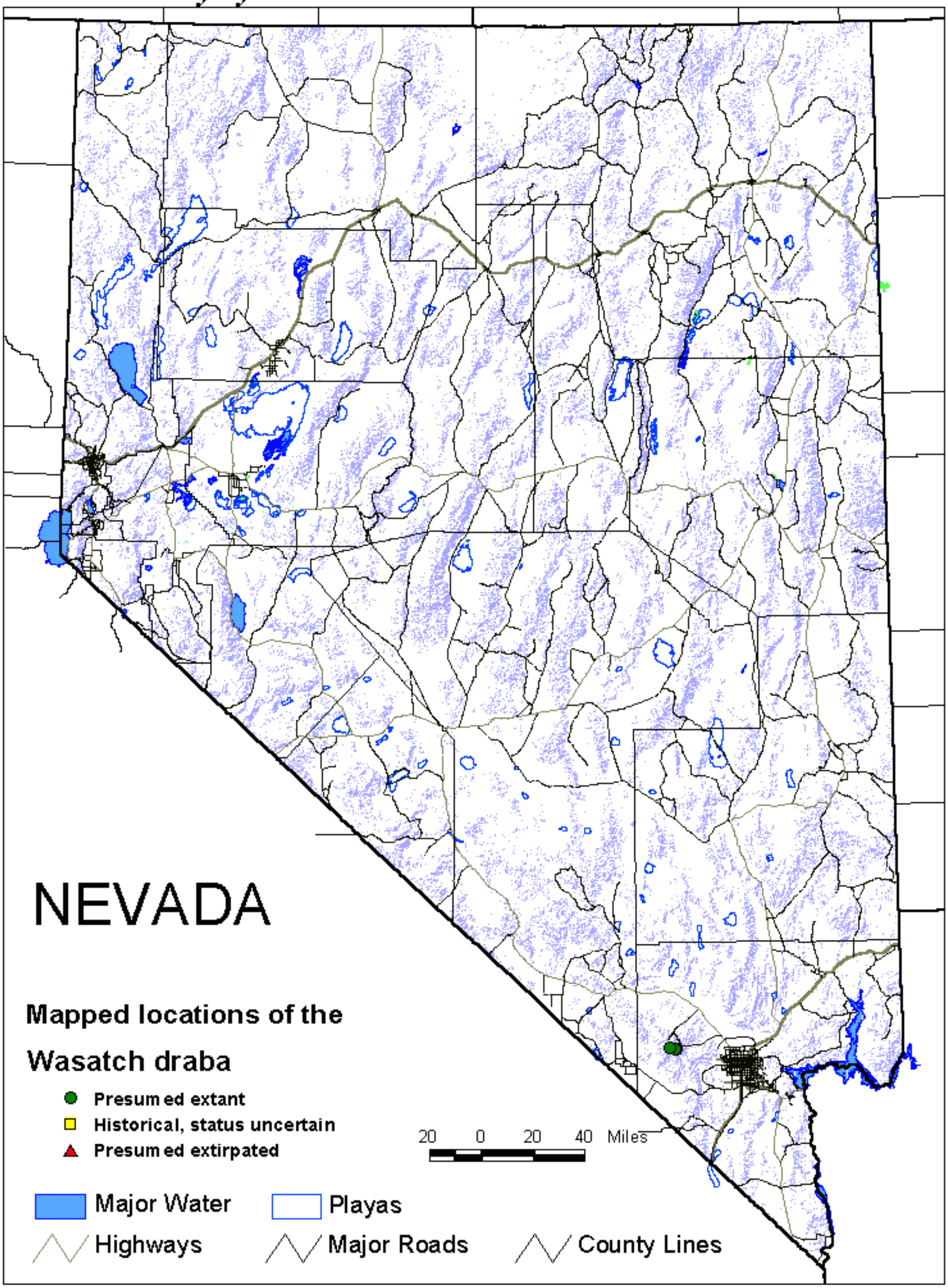
PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-September.

LIFE-FORM AND HABIT: small matted perennial herb.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Graf (1999), Weixelman and Atwood (1990).
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993), Rollins (1993).

Draba brachystylis



Draba brachystylis Rydberg — WASATCH DRABA

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1G2 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 2 occurrences mapped at 1.0 km (0.6 mi) separation, OR **3 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area unknown**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys have been conducted but remain incomplete in Nevada. Most recent entered survey 1999, average year of last survey 1999. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: designated wilderness (?), U. S. Bureau of Land Management (?), Humboldt-Toiyabe National Forest (?), private lands (?).

RANGE: Clark County, Nevada; also in UT. In Nevada known only from the Spring Mountains. Maximum Nevada **range dimension 3.4 km (2.1 mi)**.

ELEVATIONS RECORDED (NEVADA): 7874-9022 feet (2400-2750 meters).

HABITAT (NEVADA): Moist to damp rocky pockets and soils on drainage banks and in steep drainage areas and avalanche chutes in the montane conifer zone. Dependent on wetland margin areas in Nevada.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** June-July.

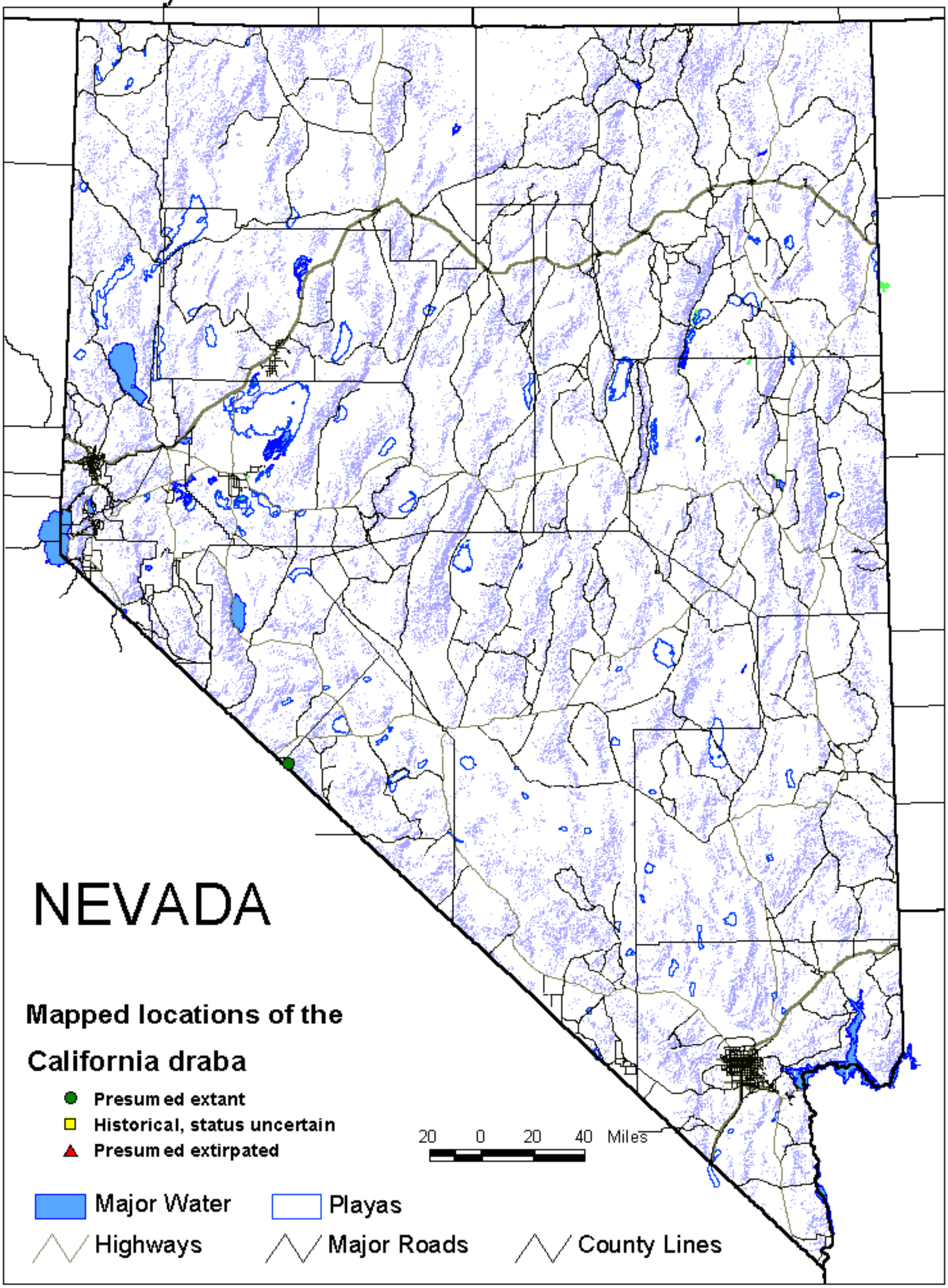
LIFE-FORM AND HABIT: biennial or short-lived perennial herb.

DESCRIPTION: A biennial or short-lived perennial herb, 1-3 dm tall. Herbage is covered with soft hairs. Pale yellow flowers bloom June-July.

PHOTOGRAPHS: Niles et al. (1999).
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Rollins (1993), Welsh et al. (1993).

OF FURTHER INTEREST: Niles (1999) noted that Nevada plants have shorter styles than the Utah plants, an indication that they might be taxonomically distinct. Additional collections of Nevada material might support such an interpretation.

Draba californica



Draba californica (Jepson) Rollins & Price — CALIFORNIA DRABA

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Inyo NF watch list. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 1 occurrence mapped; total estimated **individuals 8**, total estimated **area 0.40 ha (0.99 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1993.
Years since last entered survey (percent of mapped records at various survey ages)**: 6-10 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: designated wilderness, Inyo National Forest.

RANGE: Esmeralda County, Nevada; also in CA. In Nevada known only from the Boundary Peak area of the White Mountains.

ELEVATIONS RECORDED (NEVADA): 10720-10840 feet (3267-3304 meters).

HABITAT (NEVADA): Dry, open, fairly level granitic sand or gravel, on flats or as pockets or ledges of various sizes on steeper rocky slopes, in the alpine zone.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** July.

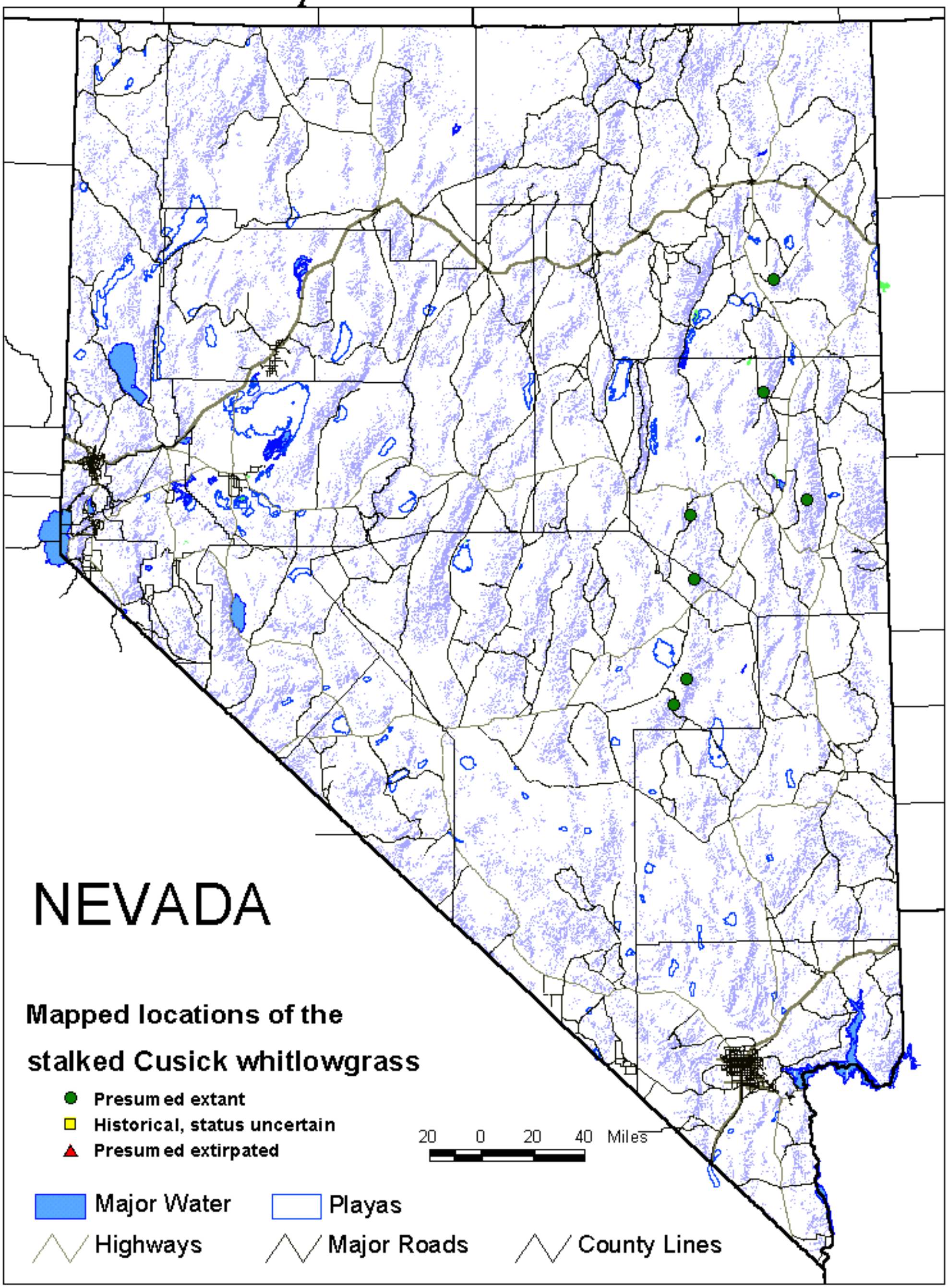
LIFE-FORM AND HABIT: small short-lived perennial herb.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Hickman (1993), Rollins (1993).
SPECIFIC REFERENCES:

Morefield, J. D. 1994. Status report for Arabis pinzlae Rollins. Carson City: Nevada Natural Heritage Program, prepared for the Inyo National Forest, Bishop, CA.

Draba cusickii var. pedicellata



Draba cusickii B. L. Robinson ex O. E. Schulz **var. *pedicellata*** Rollins & Price (1991)

STALKED CUSICK WHITLOWGRASS

FAMILY: *Brassicaceae*, the mustard family. **SYNONYMS:** *Draba sphaeroides* var. *cusickii* (in part)

STATUS: **Heritage Program WATCH LIST, ranks: G4 T3? S3?**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 7 occurrences mapped; total estimated **individuals 457+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1984, average year of last survey 1981. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 42.9%; **21-30 yrs:** 57.1%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, U. S. Bureau of Land Management.

RANGE: Elko, Eureka (?), Nye, and White Pine counties, Nevada. **Nevada endemic.** Maximum **range dimension 201.3 km (125.1 mi)** excluding most disjunct record. **Type specimen** collected in White pine County.

ELEVATIONS RECORDED: 4800-10200 feet (1463-3109 meters).

HABITAT: Carbonate crevices, scree, and rocky soils, sometimes in litter under pine trees, usually on steep slopes or ridges, in the pinyon-juniper, mountain mahogany, subalpine conifer, and alpine zones.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-August.

LIFE-FORM AND HABIT: small perennial herb.

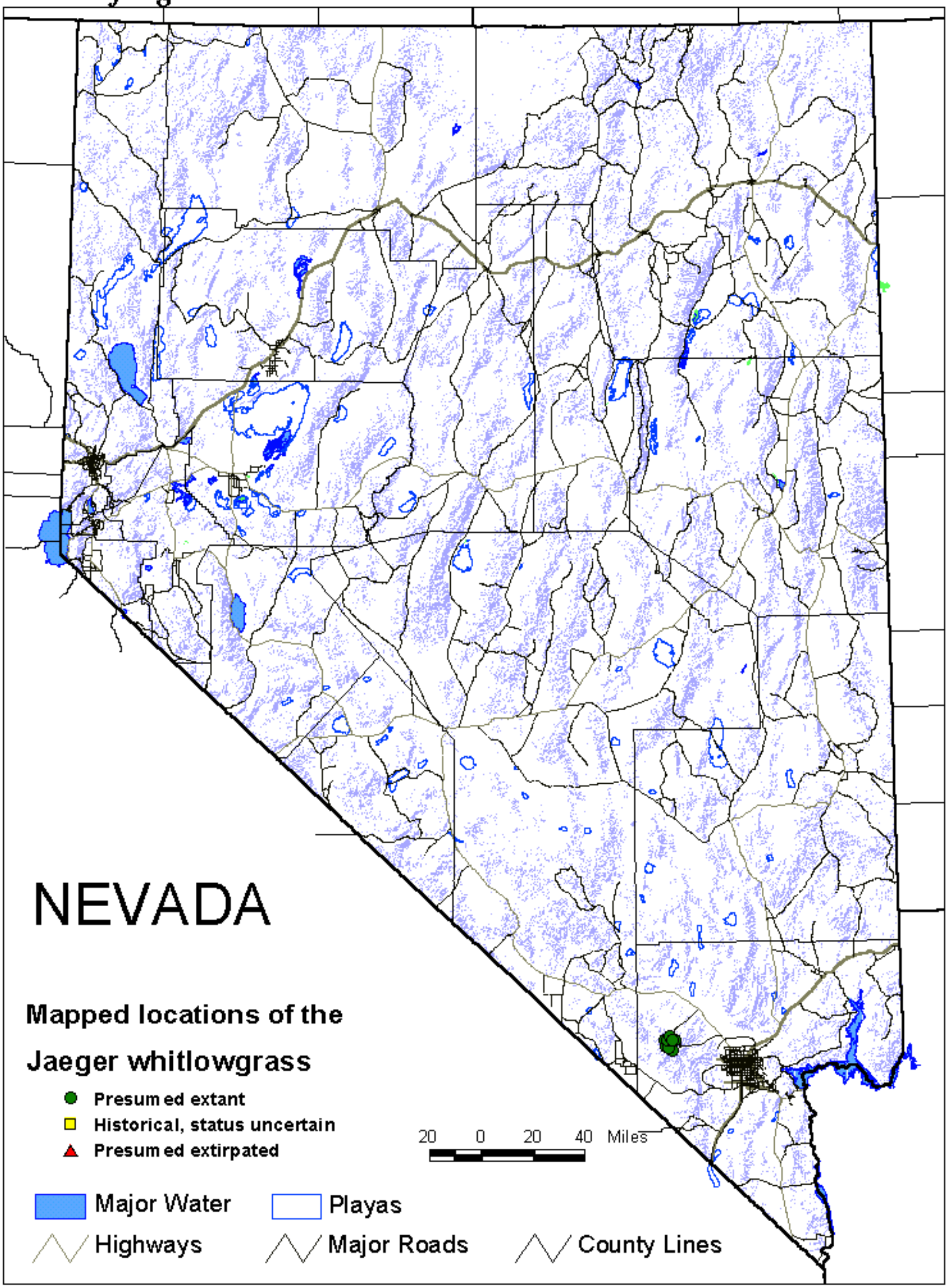
DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Rollins (1993).
SPECIFIC REFERENCES:

Price, R. A. and R. C. Rollins. 1991. New taxa of Draba (Cruciferae) from California, Nevada, and Colorado. Harvard Papers in Botany 3: 71-77.

OF FURTHER INTEREST: Until recently included in Draba cusickii (as D. sphaeroides var. cusickii), but now separate from both D. sphaeroides and D. cusickii (var. cusickii).

Draba jaegeri



Draba jaegeri Munz & Johnston (1929) JAEGER WHITLOWGRASS

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 9 occurrences mapped at 1.0 km (0.6 mi) separation, OR **13 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 2449+**, total estimated **area 40.5+ ha (100+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Alpine species and hiking trails may cause problems with continued urban pressures.

INVENTORY EFFORT: Targeted surveys have been conducted but remain substantially incomplete. Most recent entered survey 1999, average year of last survey 1991. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 7.7%; **6-10 yrs:** 69.2%; **11-20 yrs:** 7.7%; **21-30 yrs:** 15.4%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, private lands (?), U. S. Bureau of Land Management (?).

RANGE: Clark County, Nevada. Endemic to the Spring Mountains. Maximum **range dimension 8.4 km (5.2 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 8370-11650 feet (2551-3551 meters).

HABITAT: Dry carbonate scree, talus, crevices, and coarse rocky soils on ridges and steep north-facing slopes, in the subalpine conifer, lower alpine, and occasionally upper montane conifer zones, most often in the understory of Pinus longaeva forest.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** June-August.

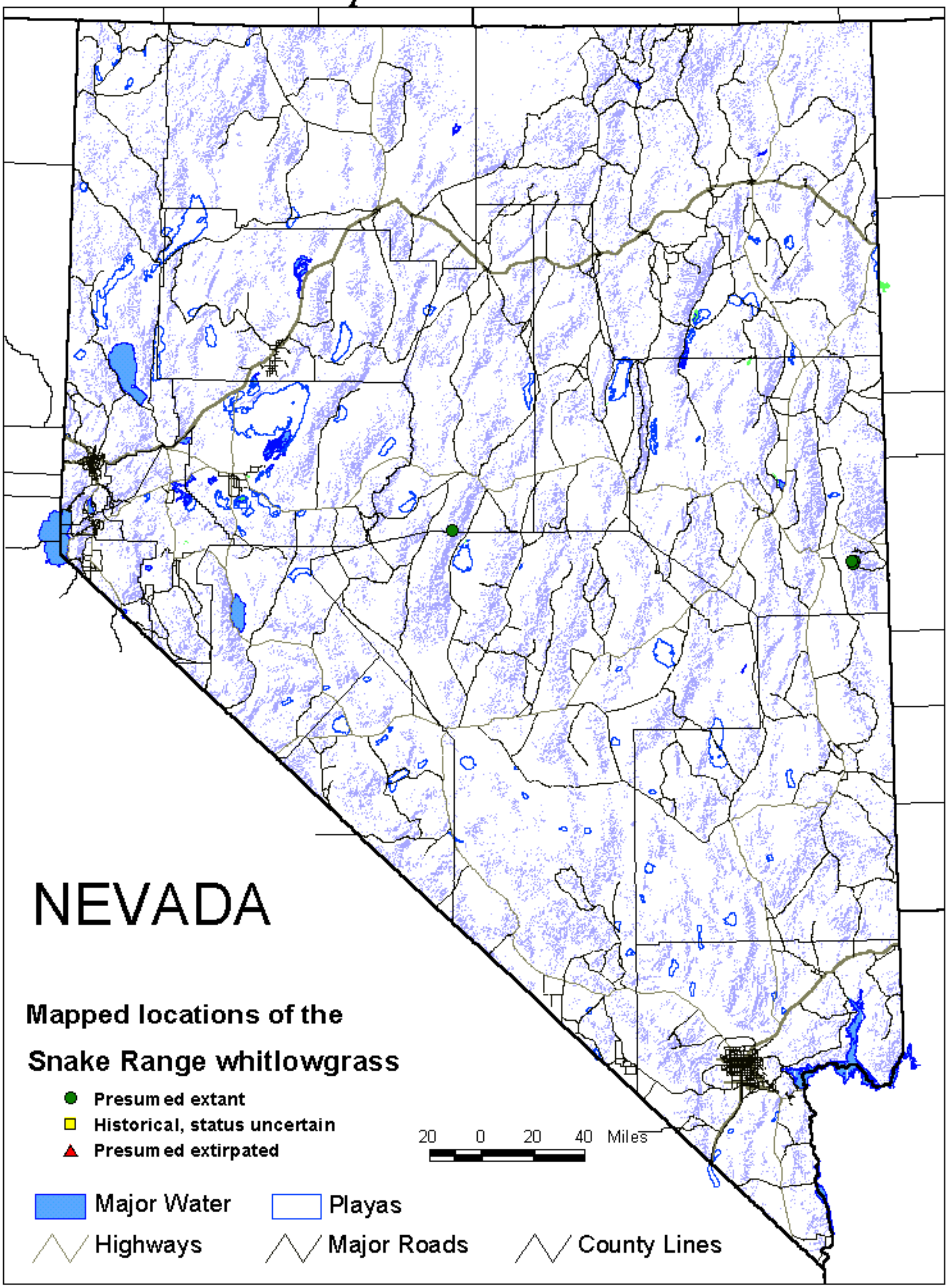
LIFE-FORM AND HABIT: small matted perennial herb.

DESCRIPTION: A low, gray-hairy, spreading perennial herb that forms a loose clump, 2-6 cm high. White flowers bloom June-August.

PHOTOGRAPHS: Knight and Smith (1994), Weixelman and Atwood (1990); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Knight (1992), Nachlinger (1994), Niles et al. (1999), Rollins (1993).
SPECIFIC REFERENCES:

Bayer, R. J., and T. M. Minish. 1993. Isozyme variation, ecology and phytogeography of Antennaria soliceps (Asteraceae: Inuleae), an alpine apomict from the Spring Mountains, Nevada. Madroño 40(2): 75-89.
Munz, P. A. 1929. New plants from Nevada. Bulletin of the Torrey Botanical Club 56: 163-167.
Smith, F. 1995. Status report for Antennaria soliceps. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 11 pages + two appendices.
Smith, F. 1995. Status report for Ivesia cryptocaulis. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 11 pages + two appendices.
Smith, F. 1995. Status report for Sphaeromeria compacta. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 10 pages + two appendices.
Woodbury, K. 1980. Status report for Draba jaegeri. Portland, Oregon: U. S. Fish and Wildlife Service.

Draba oreibata var. serpentina



Draba oreibata J. F. Macbride & Payson ex Payson **var. *serpentina*** Tiehm & P. Holmgren (1991)

SNAKE RANGE WHITLOWGRASS

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4 T1 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** THREATENED.

POPULATION CENSUS: 4 occurrences mapped; total estimated **individuals unknown**, total estimated **area 4.5 ha (11.1 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1987, average year of last survey 1980. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 50%; **21-30 yrs:** 25%; **31-50 yrs:** 25%.

LAND MANAGEMENT in decreasing predominance: National Park Service, Humboldt-Toiyabe National Forest.

RANGE: Lander and White Pine counties, Nevada. So far known only from the Snake and Toiyabe ranges. **Nevada endemic.** Maximum **range dimension 2.0 km (1.3 mi)** excluding most disjunct record. **Type specimen** collected in White pine County.

ELEVATIONS RECORDED: 10000-11926 feet (3048-3635 meters).

HABITAT: Dry quartzite cliff crevices, ledges, talus, and rocky slopes on all aspects in the lower alpine and upper subalpine conifer zones.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-August.

LIFE-FORM AND HABIT: small perennial herb.

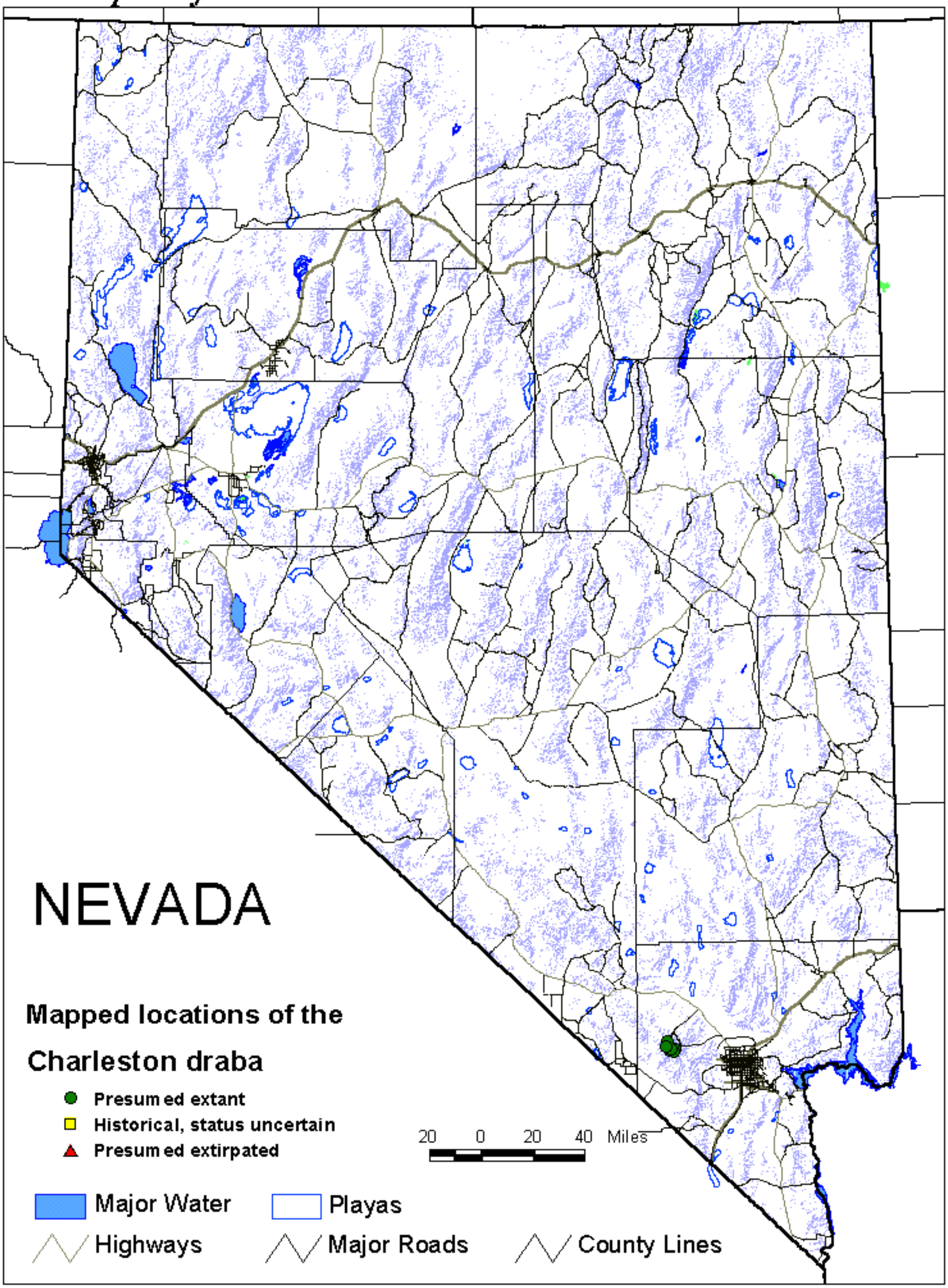
DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Tiehm and Holmgren (1991).
SPECIFIC REFERENCES:

Tiehm, A. and P. K. Holmgren. 1991. A new variety of Draba oreibata (Brassicaceae) from Nevada, U. S. A. Brittonia 43: 20-23.

OF FURTHER INTEREST: From Brittonia 43(1):20-23.

Draba paucifructa



Draba paucifructa Clokey & C. L. Hitchcock (1939) **CHARLESTON DRABA**

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1G2 S1S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 7 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Spring and seep areas frequented by hikers and game.

INVENTORY EFFORT: Systematic surveys have been conducted and are largely complete. Most recent entered survey 1999, average year of last survey 1962. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 28.6%; **11-20 yrs:** 14.3%; **51+ yrs or unknown:** 57.1%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, private lands (?).

RANGE: Clark County, Nevada. Endemic to the Spring Mountains. Maximum **range dimension 5.3 km (3.3 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 8700-11300 feet (2652-3444 meters).

HABITAT: Moist to wet, often sheltered soils on drainage banks, rock ledges, near seeps, in avalanche chutes, and near snowdrifts, mainly in the subalpine conifer zone. Dependent on wetland margin areas.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** July-August.

LIFE-FORM AND HABIT: small perennial herb.

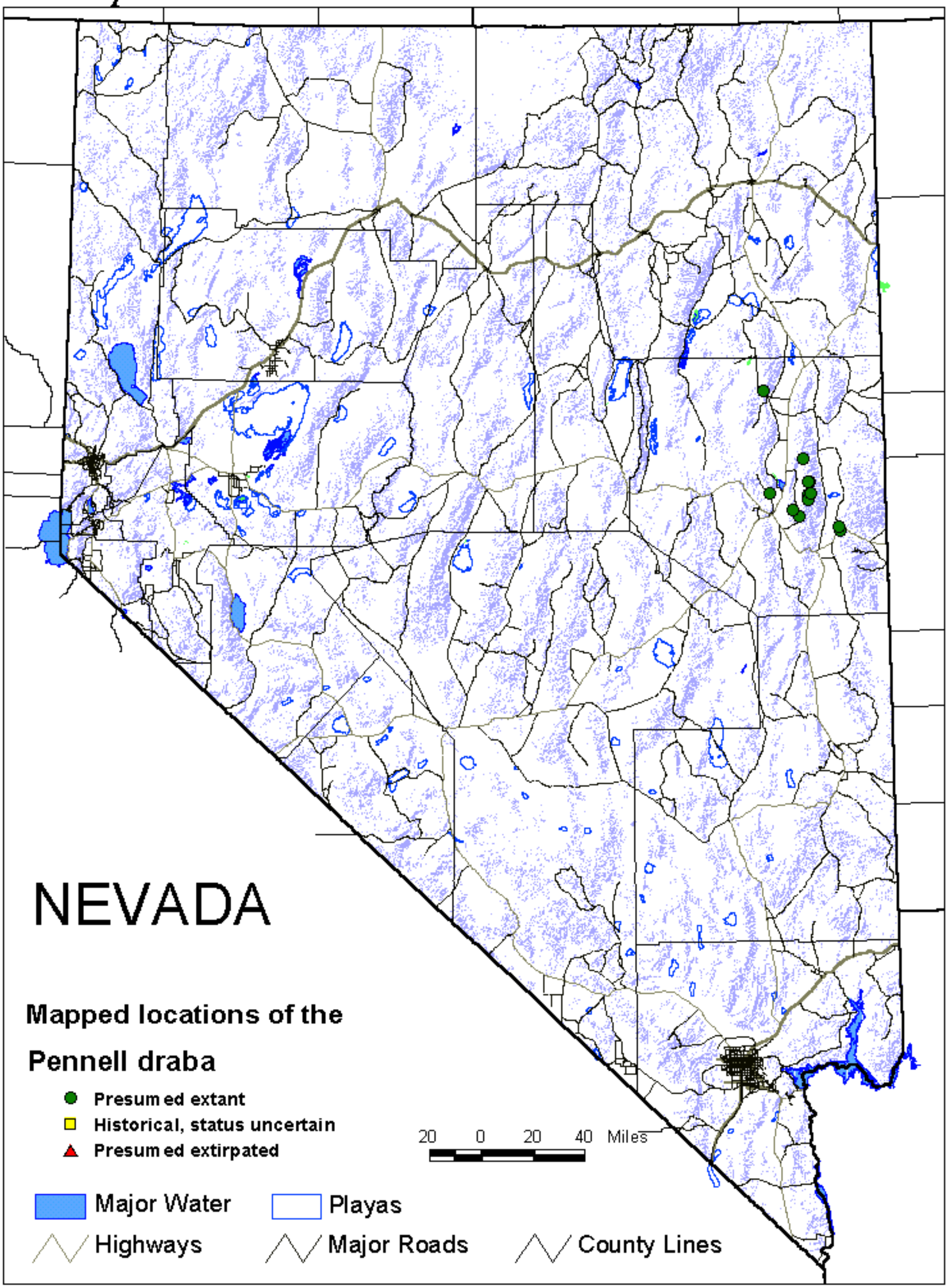
DESCRIPTION: A low perennial herb, 4-12 cm tall, with nearly all leaves in a basal rosette. Flowers (June-early July) are yellowish, fading to white.

PHOTOGRAPHS: Nachlinger and Sheldon (1999), Weixelman and Atwood (1990).
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Knight (1992), Rollins (1993).
SPECIFIC REFERENCES:

Hitchcock, C. L. 1939. Two interesting species of Draba from the Charleston Mountains of Nevada. Madroño 5: 127-129.

Nachlinger, J. and S. K. Sheldon. 1999. Conservation status of Draba paucifructa Clokey and Hitchcock in Hitchcock (Brassicaceae), Charleston draba, Clark County, Nevada, U. S. A. Reno: The Nature Conservancy, status report prepared for the U. S. Fish and Wildlife Service, Las Vegas.

Draba pennellii



Draba pennellii Rollins (1983) **PENNELL DRABA**

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** none.

POPULATION CENSUS: 11 occurrences mapped at 1.0 km (0.6 mi) separation, OR **12 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1994, average year of last survey 1980. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 8.3%; **11-20 yrs:** 75%; **31-50 yrs:** 8.3%; **51+ yrs or unknown:** 8.3%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, private lands (?), Nevada state lands (?).

RANGE: White Pine County, Nevada. **Nevada endemic.** Maximum **range dimension 50.8 km (31.6 mi)** excluding most disjunct record. **Type specimen** collected in White pine County.

ELEVATIONS RECORDED: 6200-11800 feet (1890-3597 meters).

HABITAT: Crevices and ledges of carbonate or quartzite cliffs, outcrop faces, and ridges in the pinyon-juniper, subalpine, and alpine zones.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-July.

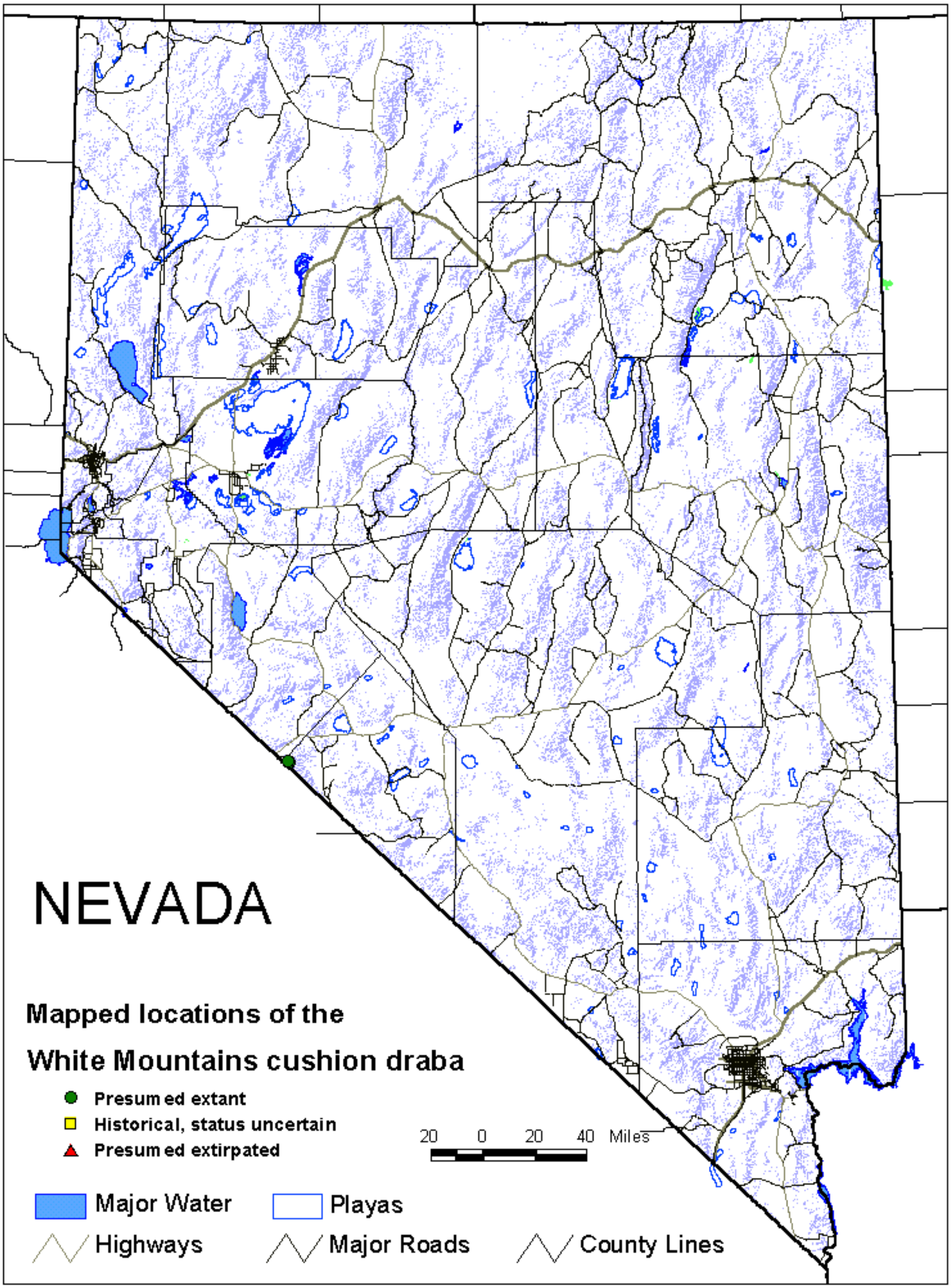
LIFE-FORM AND HABIT: small perennial herb.

DESCRIPTION: A perennial herb, densely covered with hair. White flowers on numerous, 2-7 cm tall stalks appear in mid-summer.

PHOTOGRAPHS: Anderson et al. (1991).
ILLUSTRATIONS: Anderson et al. (1991).
OTHER GENERAL REFERENCES (listed separately): Rollins (1993).
SPECIFIC REFERENCES:

Rollins, R. C. 1983. Studies in the Cruciferae of western North America. Journal of the Arnold Arboretum 64: 491-510.

Draba subumbellata



Draba subumbellata Rollins & Price (1988) **WHITE MOUNTAINS CUSHION DRABA**

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Inyo NF watch list. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 2 occurrences mapped; total estimated **individuals 250**, total estimated **area 8.9 ha (22.0 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1993, average year of last survey 1993. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: designated wilderness, Inyo National Forest.

RANGE: Esmeralda County, Nevada; also in CA. In Nevada known only from the Boundary Peak area of the White Mountains. Maximum Nevada **range dimension 1.6 km (1.0 mi)**. **Type specimen** collected in Mono County, California.

ELEVATIONS RECORDED (NEVADA): 9980-11370 feet (3042-3466 meters).

HABITAT (NEVADA): Protected crevices in granitic outcrops, and rocky to gravelly granitic slopes and fell-fields, in the alpine zone.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** July-September.

LIFE-FORM AND HABIT: small long-lived perennial cushion.

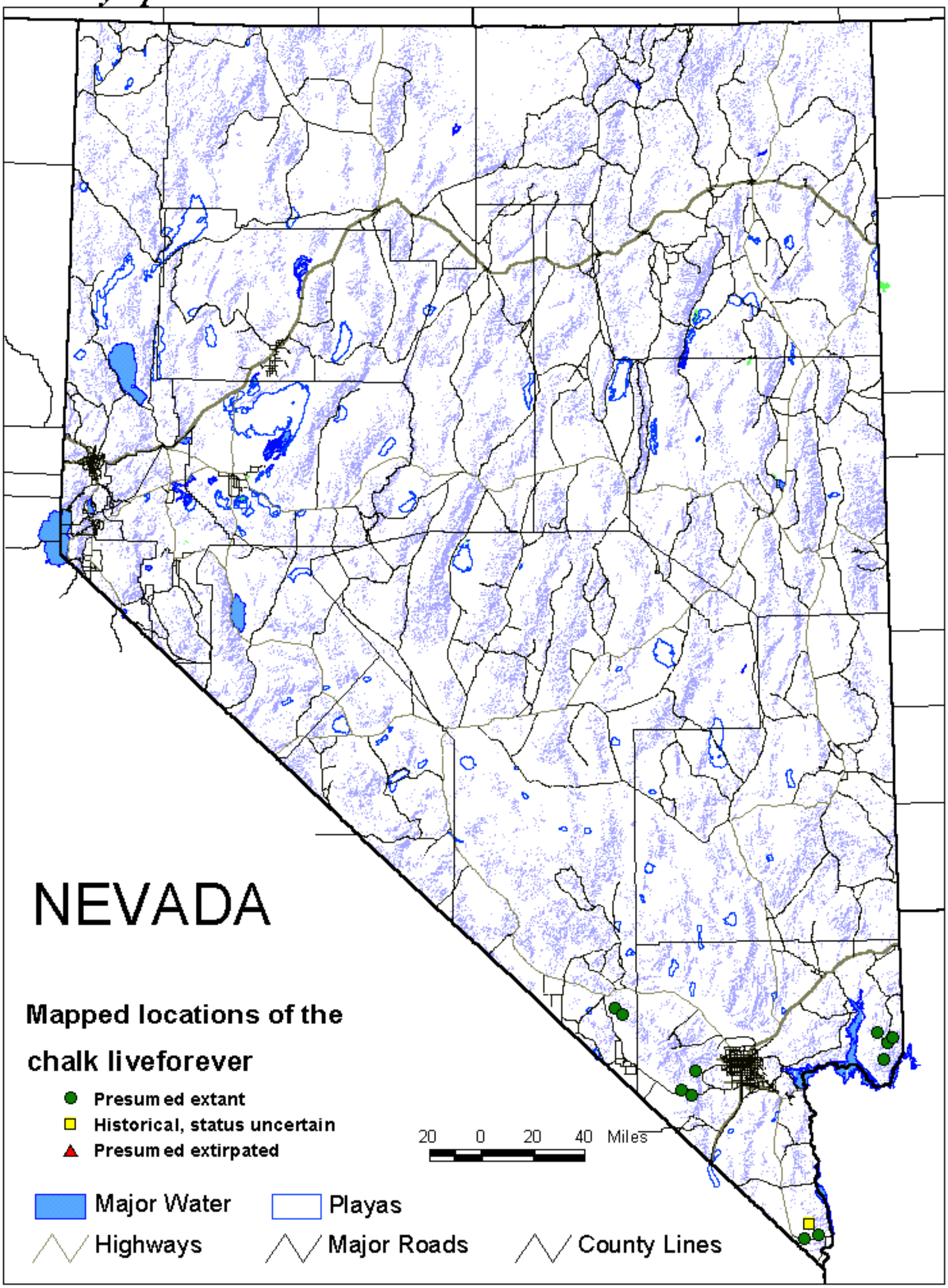
DESCRIPTION: A mat-forming perennial herb, < 5 cm tall, densely covered with hair. Yellow flowers bloom July through August.

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Hickman (1993), Rollins (1993).
SPECIFIC REFERENCES:

Morefield, J. D. 1994. Status report for Arabis pinzlae Rollins. Carson City: Nevada Natural Heritage Program, prepared for the Inyo National Forest, Bishop, CA.

Rollins, R. C. and R. A. Price. 1988. High-elevation Draba (Cruciferae) of the White Mountains of California and Nevada. Aliso 12: 17-27.

Dudleya pulverulenta



Dudleya pulverulenta (Nuttall) Britton & Rose — CHALK LIVEFOREVER

FAMILY: *Crassulaceae*, the stonecrop family.

SYNONYMS: *Dudleya arizonica*
Dudleya pulverulenta var. *arizonica*
Echeveria pulverulenta

STATUS: **Heritage Program WATCH LIST, ranks: G4G5 S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 12 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1999, average year of last survey 1986. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 58.3%; **21-30 yrs:** 8.3%; **31-50 yrs:** 33.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, National Park Service, Humboldt-Toiyabe National Forest (?), private lands (?).

RANGE: Clark and Nye counties, Nevada; also in AZ, CA, UT (?), and Mexico. Maximum Nevada **range dimension 183.7 km (114.2 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 2100-5512 feet (640-1680 meters).

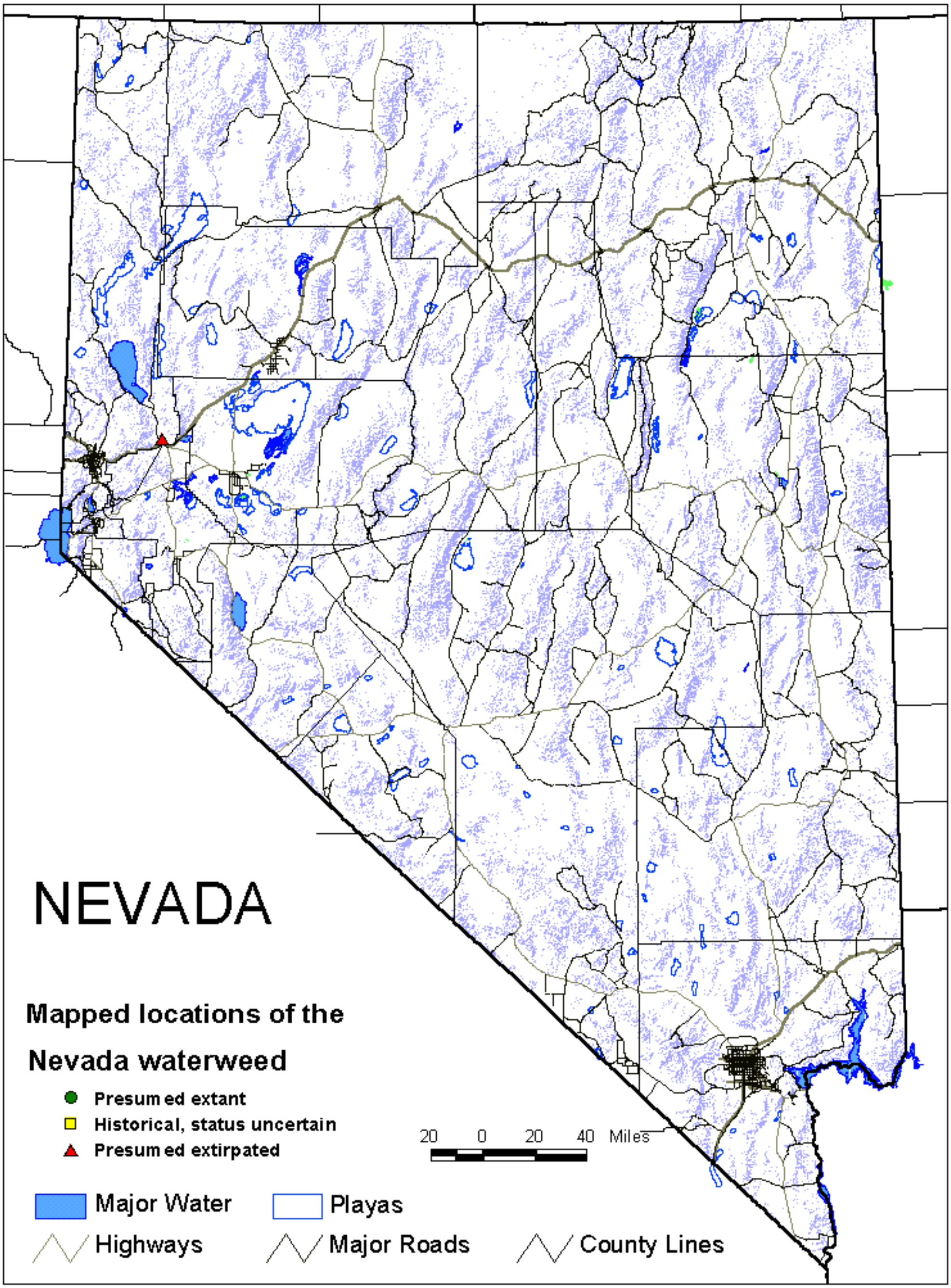
HABITAT: no summary available (see references).

PHENOLOGY: no summary available. Range of most frequent **survey months:** February-June.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Niles et al. (1996).
ILLUSTRATIONS: Cronquist et al. (1997).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Hickman (1993), Niles et al. (1997), Niles et al. (1998), Niles et al. (1999).

Elodea nevadensis



Elodea nevadensis (Planchon) St. John (1962) NEVADA WATERWEED

FAMILY: *Hydrocharitaceae*, the frog's-bit family. **SYNONYMS:** *Elodea bifoliata* (?)

STATUS: **Heritage Program WATCH LIST, ranks: GHQ SH**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 0 extant and 1 extirpated occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** DECLINING RAPIDLY.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Extensive surveys of potential habitat have been conducted without relocating the species, but are not yet considered exhaustive. Most recent entered survey 1973. **Years since last entered survey** (percent of mapped records at various survey ages)**: 21-30 yrs:** 100%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management (?), Native American lands (?), private lands (?).

RANGE: Washoe County, Nevada (?). Known only from the lower Truckee River area near Pyramid Lake. Possible or probable **Nevada endemic. Type specimen** collected in Washoe County.

ELEVATIONS RECORDED (NEVADA): 4040 feet (1231 meters).

HABITAT: Submerged in ponds, ditches, lakes, streams, etc., often where somewhat alkaline. Aquatic or wetland-dependent.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** July.

LIFE-FORM AND HABIT: perennial submerged aquatic.

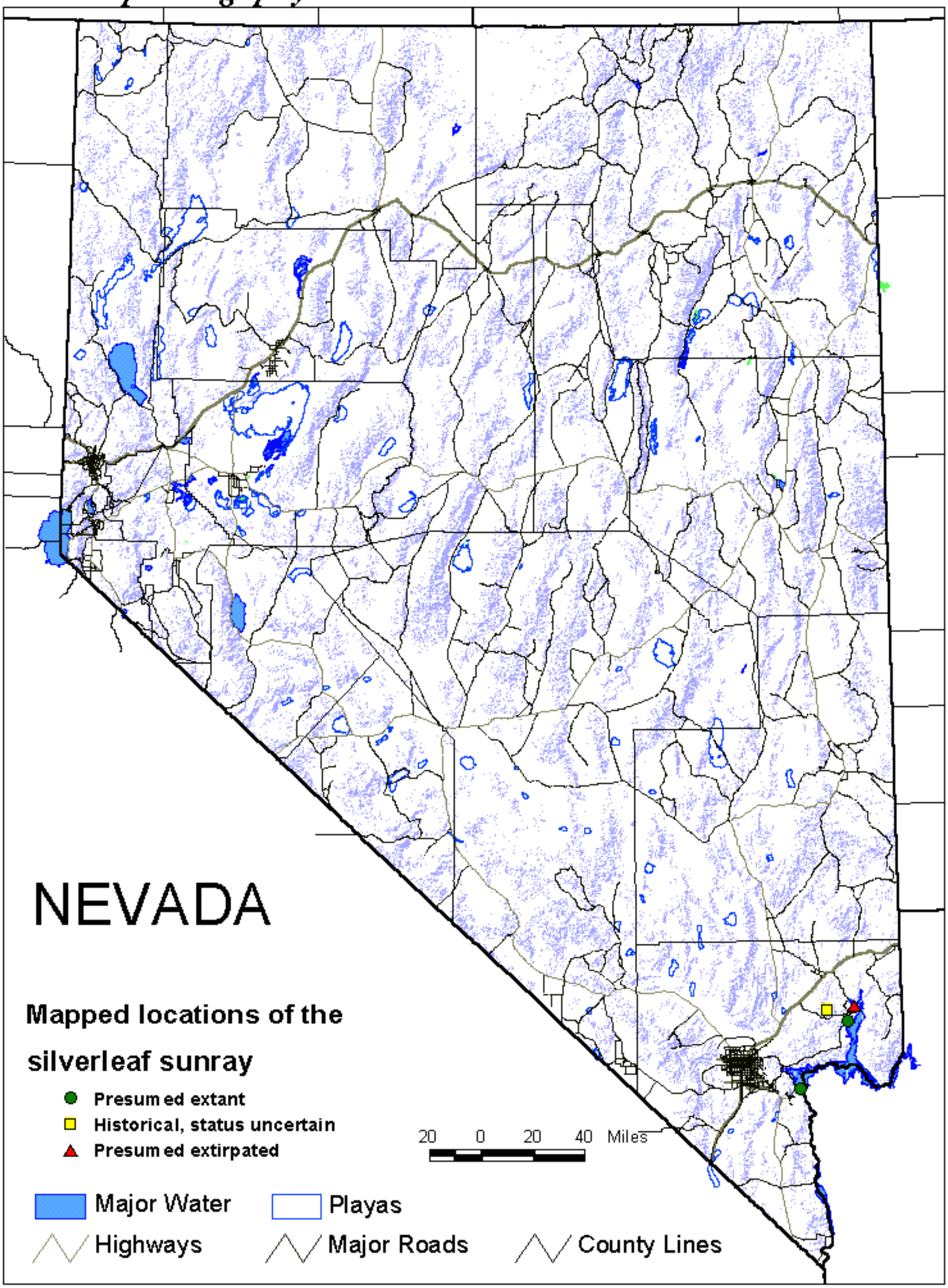
DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist et al. (1977), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Flora of North America editorial Committee (2000).
SPECIFIC REFERENCES:

Cook, C. and K. Urmi-Konig. 1985. A revision of the genus Elodea (Hydrocharitaceae). Aquatic Botany 21: 111-156.
St. John, H. 1962. Monograph of the genus Elodea (Hydrocharitaceae). Part I. Research Studies of the State College of Washington 30: 19-44.

OF FURTHER INTEREST: Apparently an invalid taxon and/or presumed extinct. See discussion in Cronquist et al. (1977).

Enceliopsis argophylla



Enceliopsis argophylla (D. C. Eaton [1871]) A. Nelson — SILVERLEAF SUNRAY

FAMILY: *Asteraceae*, the sunflower family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 S1?**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 3 extant and 1 extirpated occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1979, average year of last survey 1931. **Years since last entered survey** (percent of mapped records at various survey ages)**: 21-30 yrs:** 25%; **51+ yrs or unknown:** 75%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: National Park Service, Nevada state lands.

RANGE: Clark County, Nevada; also in AZ and UT. Restricted to the Lake Mead area in Nevada. Maximum Nevada **range dimension 52.7 km (32.7 mi)**. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED (NEVADA): 1165-2380 feet (355-725 meters).

HABITAT (NEVADA): Dry, open, relatively barren areas on gypsum badlands, volcanic gravels, loose sands, etc., in the creosote-bursage zone.

PHENOLOGY: flowering continually. Range of most frequent **survey months:** May.

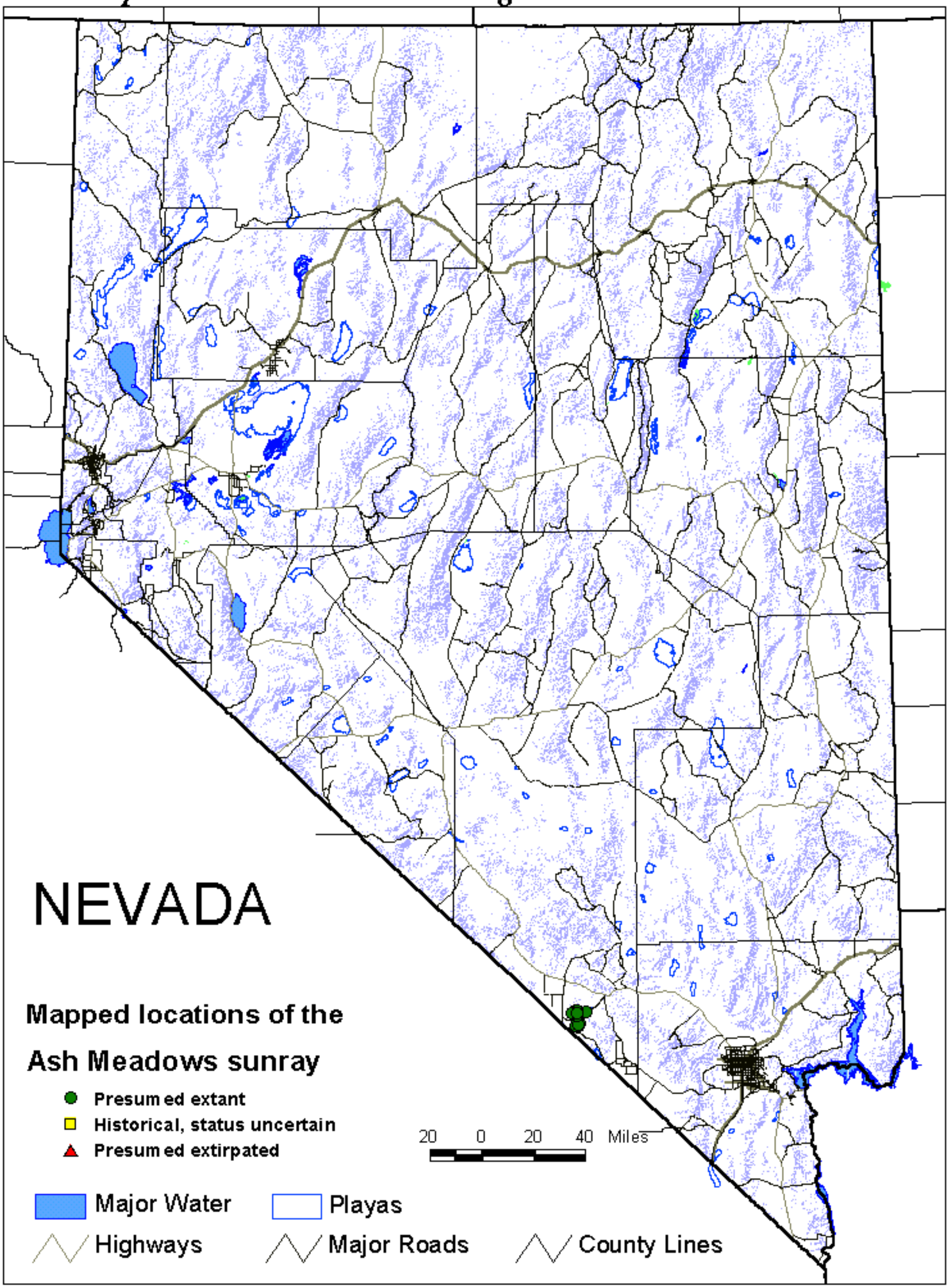
LIFE-FORM AND HABIT: long-lived perennial cushion.

DESCRIPTION: Much resembles Enceliopsis nudicaulis, but the small differences seem to remain consistent.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: Cronquist (1994), Cronquist et al. (1984).
SPECIFIC REFERENCES:

Eaton, D. C. 1871. Pages 136-208 in: S. Watson. Botany. In: C. King, Report of the U. S. Geological Exploration of the 40th Parallel. 5: 1-525.

Enceliopsis nudicaulis var. corrugata



Enceliopsis nudicaulis (A. Gray) A. Nelson var. *corrugata* Cronquist (1972)

ASH MEADOWS SUNRAY

FAMILY: *Asteraceae*, the sunflower family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G5 T2 S2**
USFWS/ESA: LISTED THREATENED. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species in Nevada. **USFS:** none. **NNNPS:** THREATENED.

POPULATION CENSUS: 11 occurrences mapped at 1.0 km (0.6 mi) separation, OR **15 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 1849+**, total estimated **area 10.9+ ha (26.9+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Development, agriculture, proposed missile system.

INVENTORY EFFORT: Surveys substantially complete. Most recent entered survey 1986, average year of last survey 1979. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 60%; **21-30 yrs:** 6.7%; **31-50 yrs:** 33.3%.

LAND MANAGEMENT in decreasing predominance: U. S. Fish and Wildlife Service, U. S. Bureau of Land Management, private lands.

RANGE: Nye County, Nevada; also in CA (?). Apparently endemic to the Ash Meadows area, with a few intermediate populations found beyond. Maximum **range dimension 9.7 km (6.0 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED (NEVADA): 2200-2360 feet (671-719 meters).

HABITAT: Dry to somewhat moist, open, hard, whitish, strongly alkaline silty to clay soils, often on or near low calcareous outcrops, in spring and seep areas in the creosote-bursage and shadscale zones with Atriplex confertifolia, Haplopappus acradenius, Distichlis spicata, Gutierrezia sarothrae, Krameria, Cryptantha confertiflora, Arctomecon merriamii, Mentzelia leucophylla, Astragalus phoenix, Ivesia kingii eremica, Grindelia fraxinopratensis, etc.

PHENOLOGY: flowering early-spring. Range of most frequent **survey months:** April-August.

LIFE-FORM AND HABIT: perennial cushion.

DESCRIPTION: A perennial herb with grayish, basal leaves and leafless flower stalks, 1-4 dm high, each bearing a single yellow flower head. Flowers in April and May.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.

ILLUSTRATIONS: Mozingo and Williams (1980).

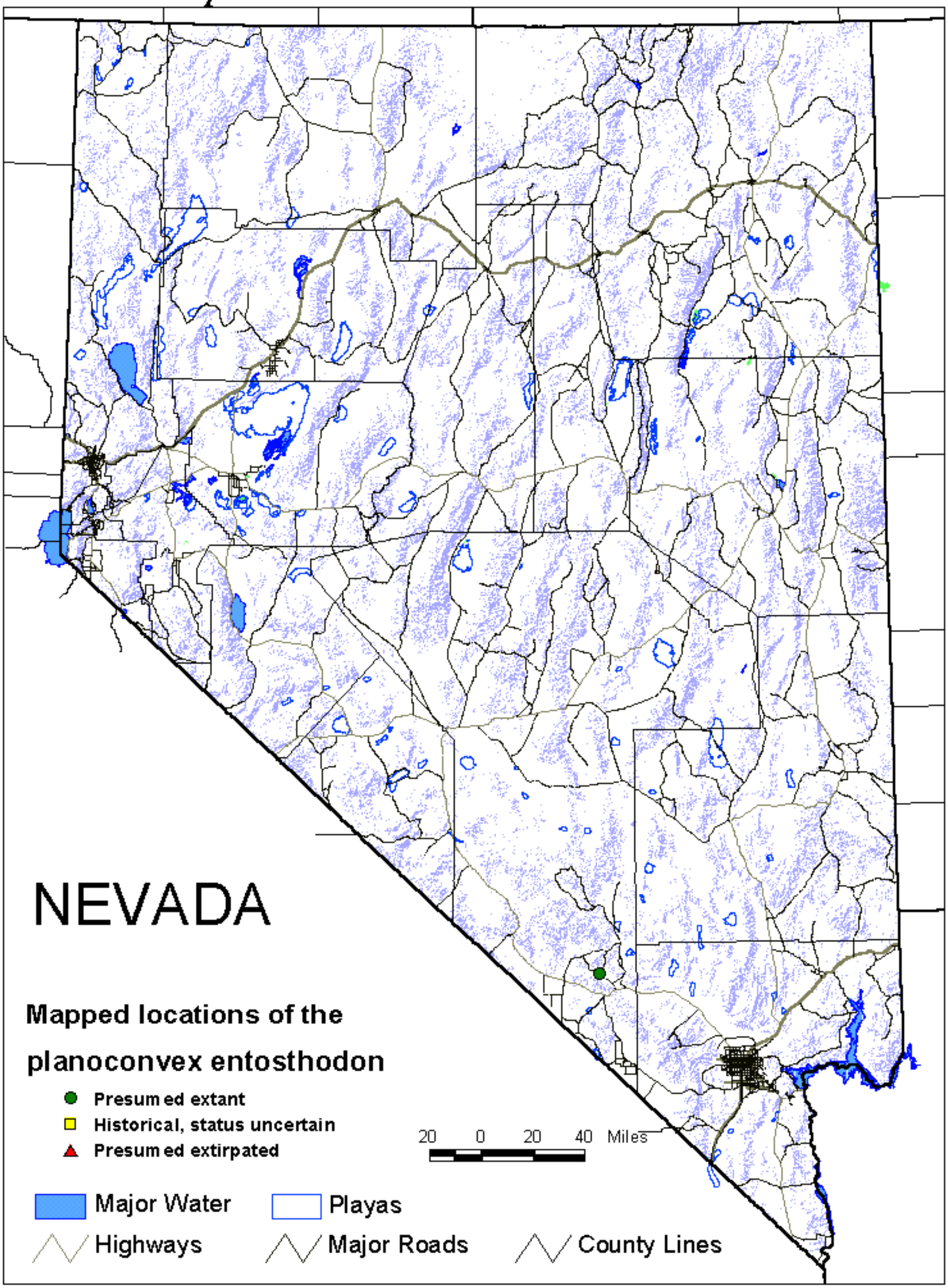
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Beatley (1977), Beatley (1977).

SPECIFIC REFERENCES:

Cronquist, A. 1972. A new variety of Enceliopsis nudicaulis (Asteraceae) from southern Nevada. Bulletin of the Torrey Botanical Club 99: 246-247.

OF FURTHER INTEREST: Reported from Death Valley in California, but these may represent intermediate populations, and need to be further verified.

Entosthodon planoconvexus



Entosthodon planoconvexus (Bartram) Grout PLANOCONVEX ENTOSTHODON

FAMILY: *Funariaceae*, the funaria family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 SR**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 1 occurrence mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Most recent entered survey 2001. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 100%.

LAND MANAGEMENT (NEVADA): U. S. Department of Energy.

RANGE: Nye County, Nevada; also in AZ, UT, and Africa.

ELEVATIONS RECORDED (NEVADA): 3802 feet (1159 meters).

HABITAT: no summary available (see references).

PHENOLOGY: no summary available.

LIFE-FORM AND HABIT: herb moss.

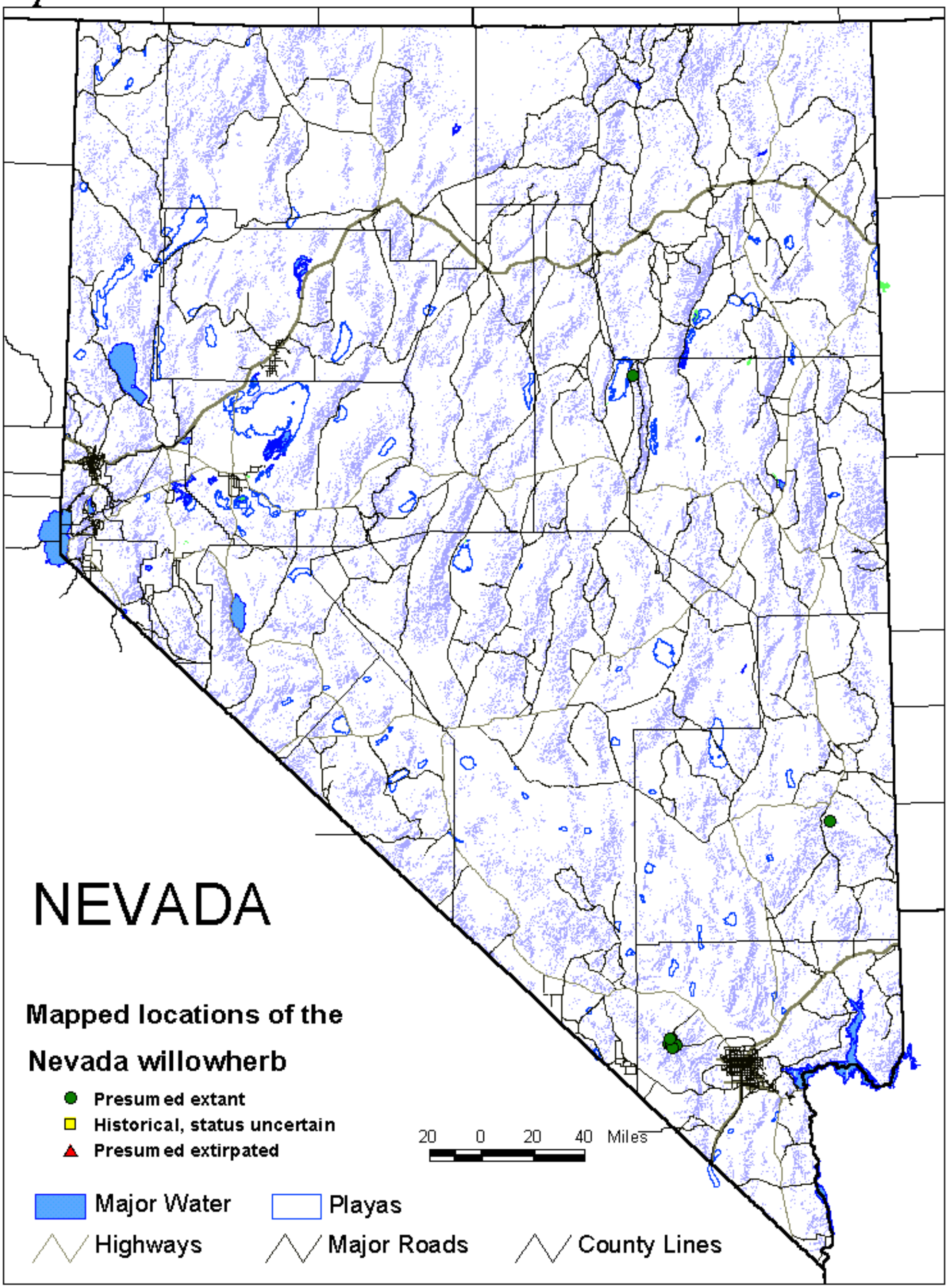
DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: none known.
SPECIFIC REFERENCES:

Stark, L. R. 1999. Five globally rare species of mosses from southern Nevada: An update on their distribution ranges, including recent unpublished findings from predominantly gypsum/sandstone habitats in the Lake Mead National Recreation Area and associated Bureau of Land Management lands. Las Vegas: University of Nevada, unpublished report. 11 pages.

Stark, L. R., A. T. Whittemore, and B. D. Mishler. 2001. Noteworthy bryophyte records from the Mojave Desert. Las Vegas: University of Nevada, draft manuscript of 2 April 2001, posted on the Mosses of Nevada web site, Nevada Natural Heritage Program, Carson City. URL: http://www.state.nv.us/nvnhp/mosses/notecoll.htm.

Epilobium nevadense



Epilobium nevadense Munz — NEVADA WILLOWHERB

FAMILY: *Onagraceae*, the evening-primrose family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 7 occurrences mapped; total estimated **individuals 111+**, total estimated **area 14.1+ ha (34.8+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Systematic surveys have been conducted in Nevada, but more potential habitat likely remains to be examined. Most recent entered survey 1996, average year of last survey 1983.
Years since last entered survey (percent of mapped records at various survey ages)**: 0-5 yrs:** 14.3%; **6-10 yrs:** 42.9%; **11-20 yrs:** 14.3%; **21-30 yrs:** 14.3%; **51+ yrs or unknown:** 14.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, private lands (?), designated wilderness (?).

RANGE: Clark, Eureka, and Lincoln counties, Nevada; also in UT. Maximum Nevada **range dimension 172.4 km (107.1 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 6000-8930 feet (1829-2722 meters).

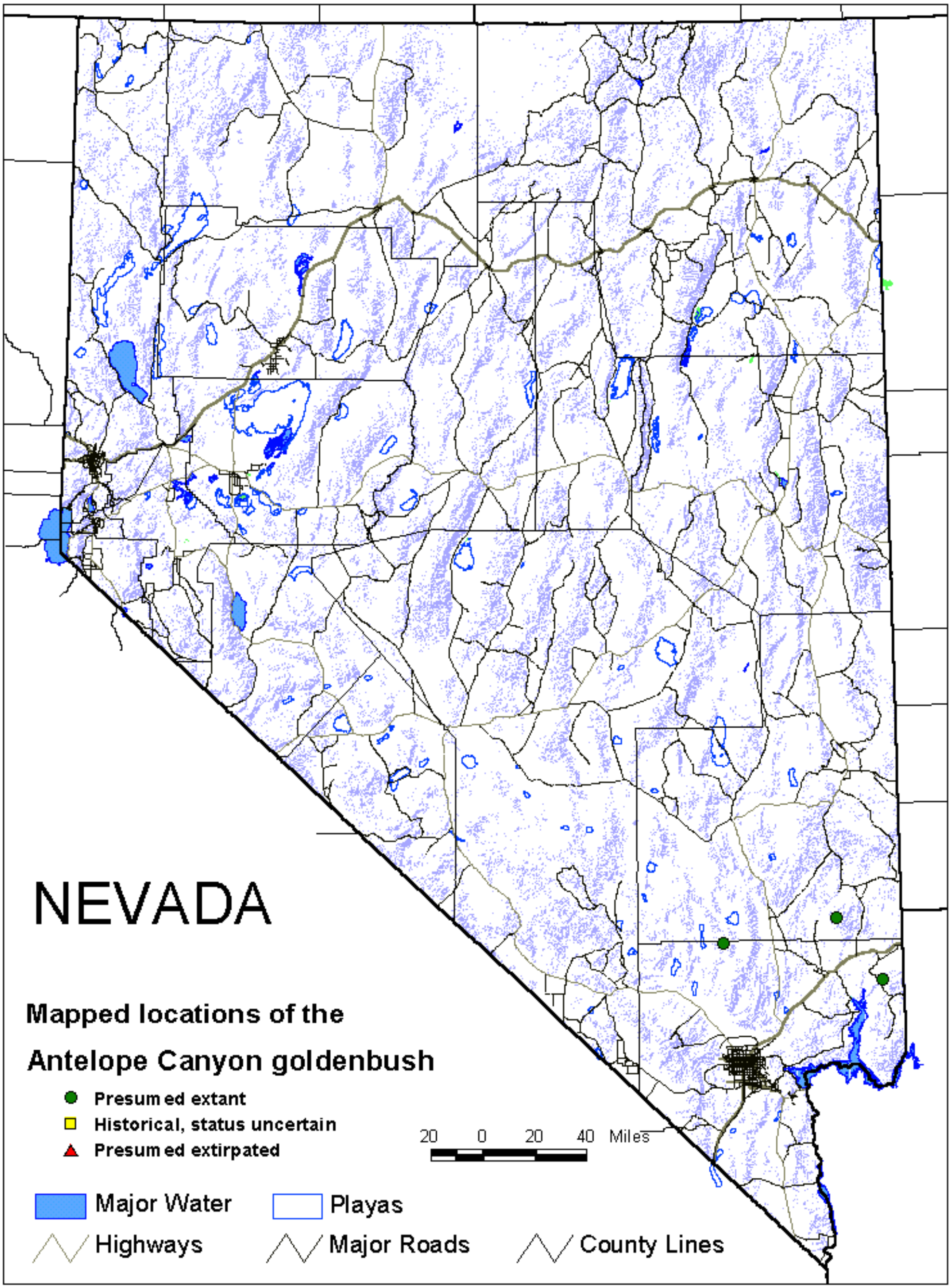
HABITAT (not yet reviewed for Nevada): "Slopes with limestone outcrops or talus at 1560-2800 m elevation. Associated with singleleaf pinyon (Pinus monophylla), and ponderosa pine (P. ponderosa)."

PHENOLOGY: no summary available. Range of most frequent **survey months:** June-August.

DESCRIPTION: A shrubby perennial herb, 1.5-4 dm tall, that produces several pink-purple flowers from July-September.

PHOTOGRAPHS: Atwood et al. (1991), Weixelman and Atwood (1990); Nevada Natural Heritage Program files.
ILLUSTRATIONS: Atwood et al. (1991), Cronquist et al. (1997), Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Welsh et al. (1993).

Ericameria cervina



Ericameria cervina (S. Watson [1873]) Rydberg ANTELOPE CANYON GOLDENBUSH

FAMILY: *Asteraceae*, the sunflower family. **SYNONYMS:** *Haplopappus cervinus*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3? S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 3 occurrences mapped; total estimated **individuals 52+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1992, average year of last survey 1986. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 33.3%; **11-20 yrs:** 33.3%; **21-30 yrs:** 33.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, U. S. Fish and Wildlife Service (?), U. S. Department of Defense (?).

RANGE: Clark and Lincoln counties, Nevada; also in AZ and UT. Maximum Nevada **range dimension 101.4 km (63.0 mi)**.

ELEVATIONS RECORDED (NEVADA): 3120-6230 feet (951-1899 meters).

HABITAT (not yet reviewed for Nevada): "Rock crevices and talus in shadscale and Douglas-fir-bristlecone pine communities at 1600 to 2685 m elevation. Often on calcareous substrates; less commonly on ash flow tuff."

PHENOLOGY: flowering summer to early-fall. Range of most frequent **survey months:** July-August.

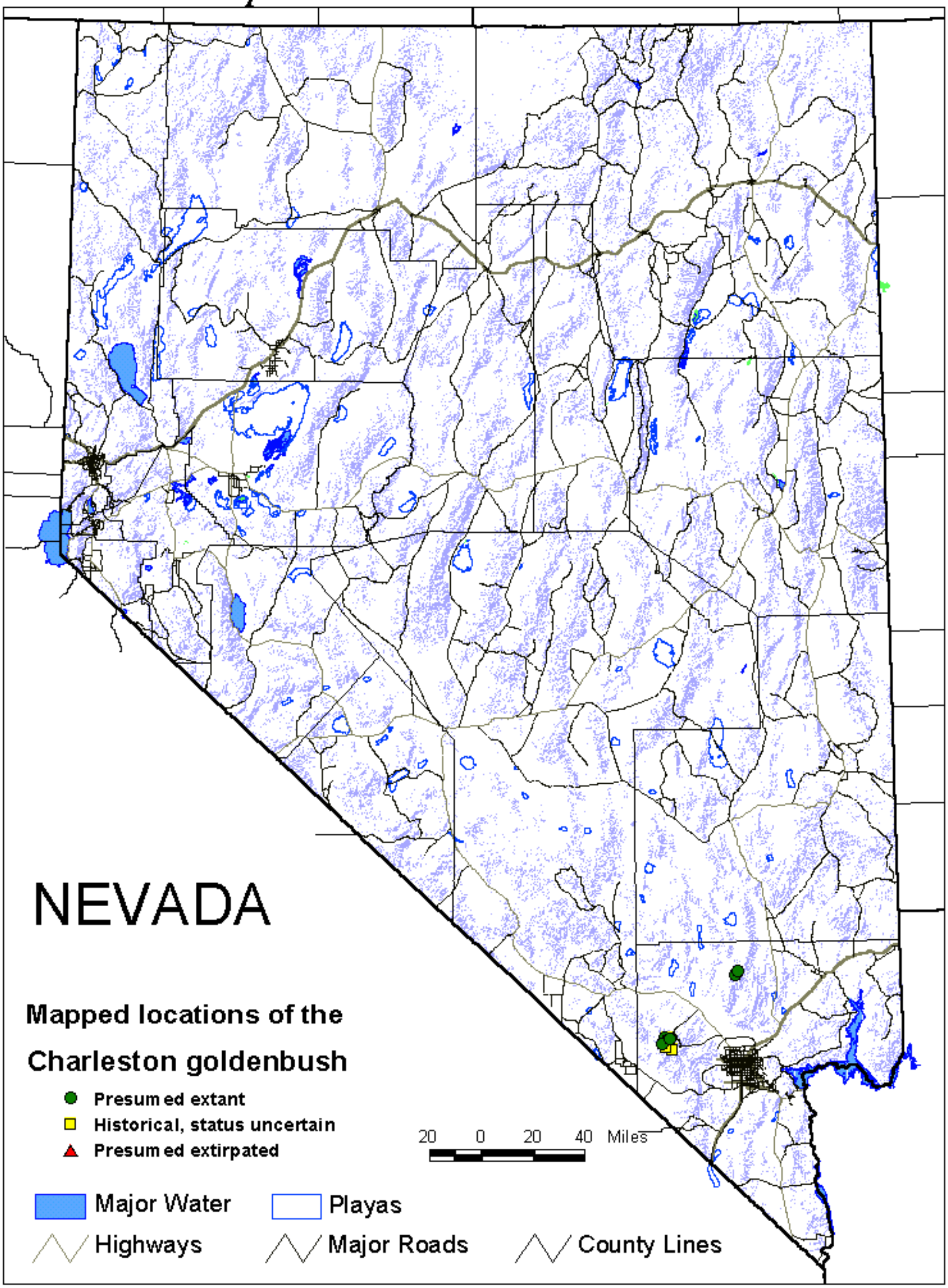
LIFE-FORM AND HABIT: shrub.

DESCRIPTION: A shrub, 1-4 dm tall, intricately branched and with leaves that often have ruffled margins. Yellow flower heads appear on the ends of the leafy branches in September and October.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist (1994).
OTHER GENERAL REFERENCES (listed separately): Albee et al. (1988), Kearney and Peebles (1960), Welsh et al. (1993).
SPECIFIC REFERENCES:

Watson, S. 1873. New plants of northern Arizona and the region adjacent. American Naturalist 7: 299-303.

Ericameria compacta



Ericameria compacta (Hall [1928]) Nesom — CHARLESTON GOLDENBUSH

FAMILY: *Asteraceae*, the sunflower family.

SYNONYMS: *Haplopappus compactus*
Haplopappus bloomeri ssp. *compactus*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2? S2?**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 10 occurrences mapped at 1.0 km (0.6 mi) separation, OR **11 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 2510+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1999, average year of last survey 1973. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 9.1%; **6-10 yrs:** 45.5%; **21-30 yrs:** 18.2%; **51+ yrs or unknown:** 27.3%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Fish and Wildlife Service, designated wilderness (?).

RANGE: Clark County, Nevada. Endemic to the Spring and Sheep ranges. Maximum **range dimension 62.5 km (38.8 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 2850-11350 feet (869-3459 meters).

HABITAT: Forested carbonate slopes, and adjacent ridges and low outcrops, in the subalpine and montane conifer zones with Pinus longaeva, P. flexilis, P. ponderosa, etc.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** August-September.

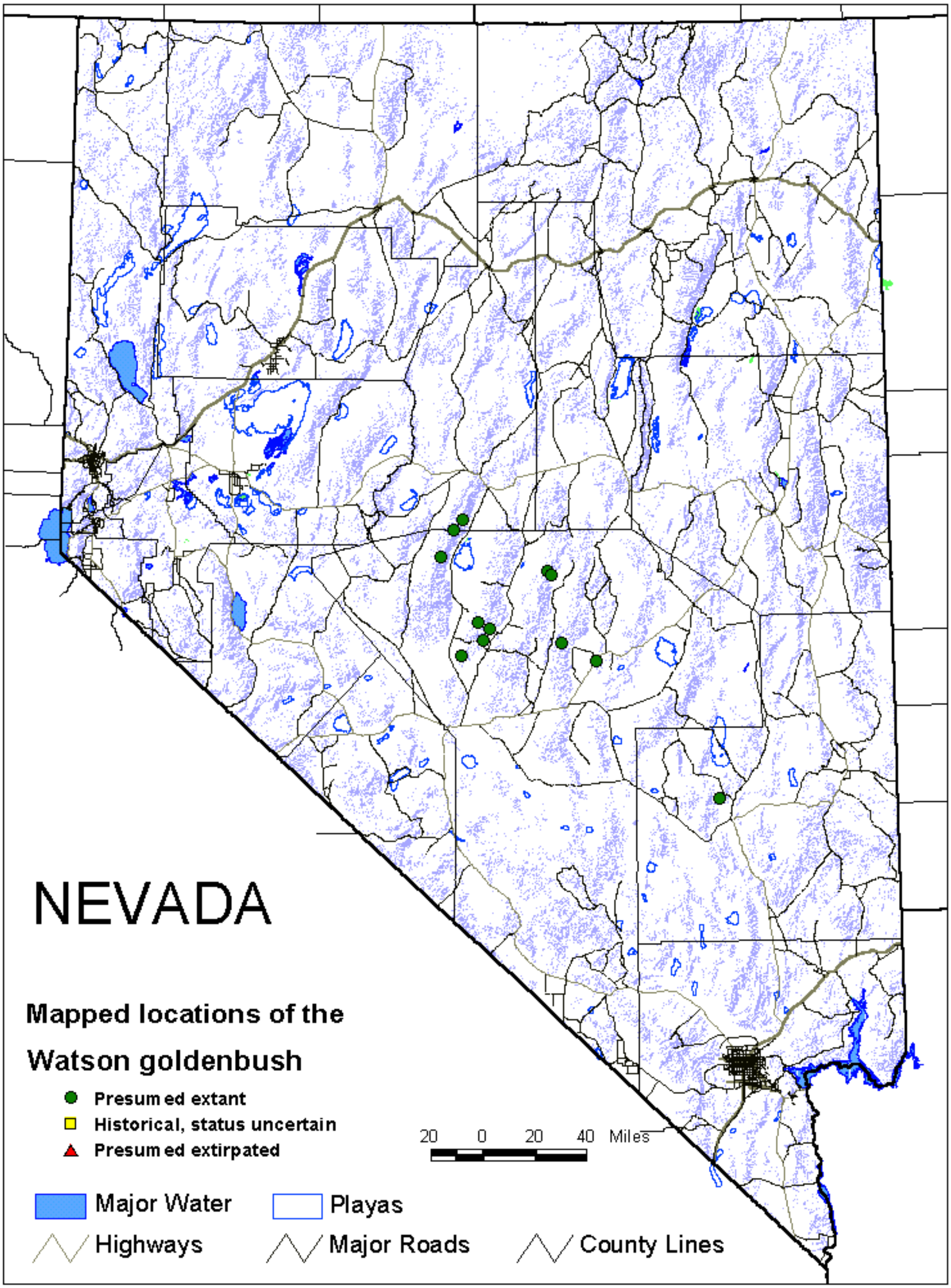
LIFE-FORM AND HABIT: long-lived shrub.

DESCRIPTION: A compact, woody shrub, 3-5 dm tall, with dark bark and dense foliage. Yellow flower heads (lacking rays) are mostly less than 14 mm long. Blooms in August and September.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Nachlinger (1994), Niles et al. (1999).
SPECIFIC REFERENCES:

Hall, H. M. 1928. The genus Haplopappus, a phylogenetic study in the Compositae. Publications of the Carnegie Institute of Washington 389: 1-391.

Ericameria watsonii



Ericameria watsonii (A. Gray [1880]) Nesom — WATSON GOLDENBUSH

FAMILY: *Asteraceae*, the sunflower family. **SYNONYMS:** *Haplopappus watsonii*

STATUS: **Heritage Program WATCH LIST, ranks: G3G4 S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 12 occurrences mapped; total estimated **individuals unknown**, total estimated **area 2.9+ ha (7.2+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1991, average year of last survey 1982. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 16.7%; **11-20 yrs:** 16.7%; **21-30 yrs:** 66.7%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, Nevada state lands (?).

RANGE: Elko, Lander, Lincoln, Mineral, Nye, and White Pine counties, Nevada; also in UT. Maximum Nevada **range dimension 119.6 km (74.3 mi)** excluding most disjunct record. **Type specimen** collected in Elko County.

ELEVATIONS RECORDED (NEVADA): 5900-10500 feet (1798-3200 meters).

HABITAT (not yet reviewed for Nevada): "Cliff crevices and rock outcrops at 1400-3200 m in the sagebrush, pinyon-juniper, mountain mahogany, and mountain sagebrush zones. (Cronquist 1994)."

PHENOLOGY: flowering summer. Range of most frequent **survey months:** July-October.

LIFE-FORM AND HABIT: subshrub.

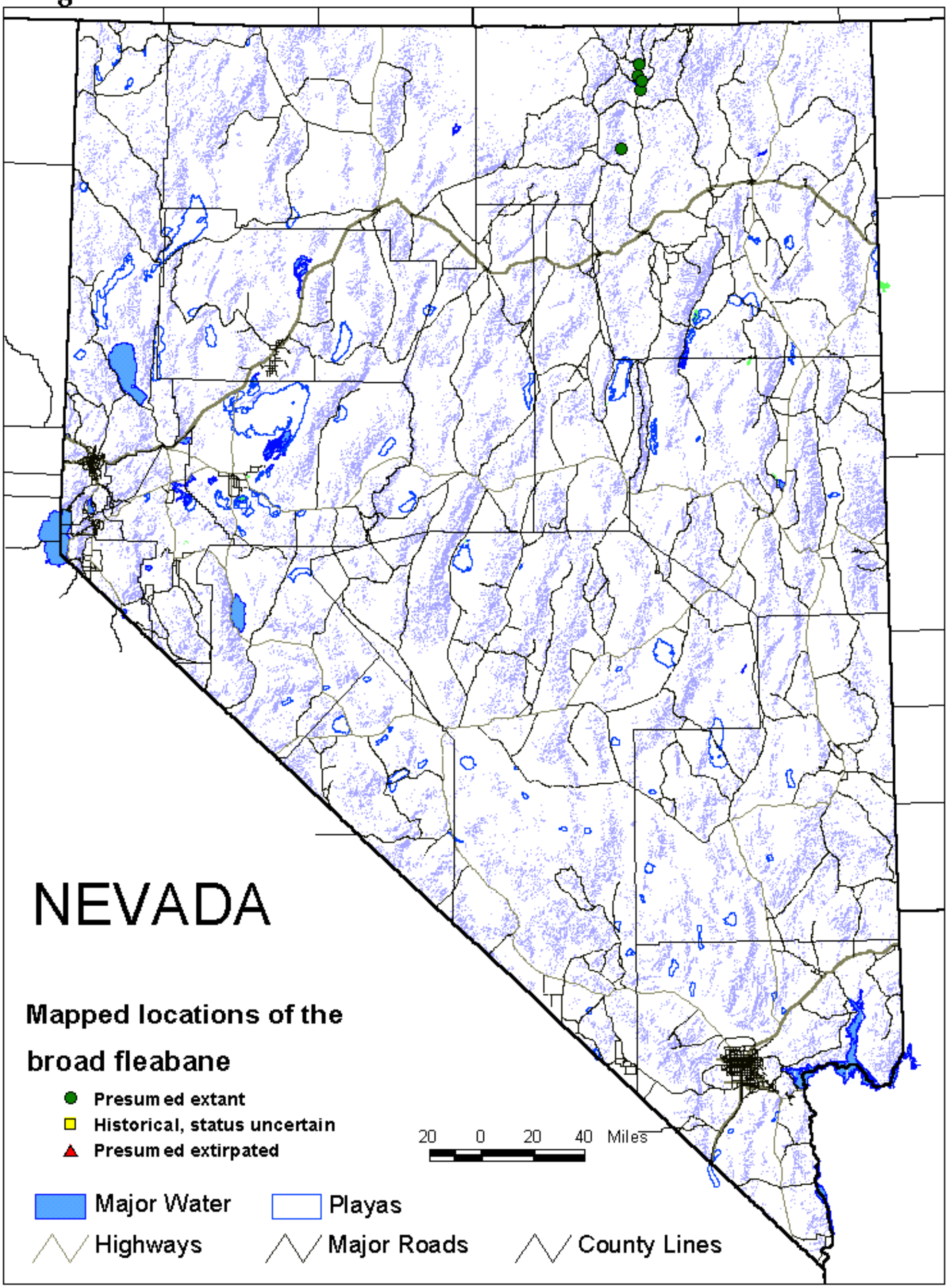
DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist (1994).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Goodrich (1981).
SPECIFIC REFERENCES:

Goodrich, S. 1979. Status report on Mertensia toyabensis. Portland, Oregon: U. S. Fish and Wildlife Service.
Gray, A. 1880. Contributions to North American botany. Proceedings of the American Academy of Arts 16: 78-108.
Morefield, J. D. 1992. Interim status report for Frasera pahutensis Reveal. Carson City: Nevada Natural Heritage Program, prepared for the Toiyabe National Forest, Sparks, Nevada.

OF FURTHER INTEREST: Nevada plants belong to the var. watsonii (Cronquist 1994).

Erigeron latus



Erigeron latus (A. Nelson & J. F. Macbride [1913]) Cronquist **BROAD FLEABANE**

FAMILY: *Asteraceae*, the sunflower family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 5 occurrences mapped; total estimated **individuals 204+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Systematic surveys have been conducted in Nevada but remain incomplete. Most recent entered survey 1989, average year of last survey 1981. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 20%; **21-30 yrs:** 80%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, private lands, Nevada state lands (?).

RANGE: Elko County, Nevada; also in ID and OR. Wildhorse Reservoir area and the Independence Range. Maximum Nevada **range dimension 16.0 km (9.9 mi)** excluding most disjunct record. **Type specimen** collected in Owyhee County, Idaho.

ELEVATIONS RECORDED (NEVADA): 6200-6450 feet (1890-1966 meters).

HABITAT (NEVADA): Shallow, relatively barren, vernally saturated, otherwise dry, gravelly to sandy soils or bedrock on flats and slopes of volcanic scablands or benches, mostly rhyolitic or basaltic in composition, in the sagebrush steppe and juniper zones with Artemisia arbuscula, A. tridentata, etc.

PHENOLOGY: flowering late-spring to summer, in June and July. Range of most frequent **survey months:** June.

LIFE-FORM AND HABIT: small perennial herb.

DESCRIPTION: A low-growing perennial herb, ranging from 3 to 8 cm high. Large flower heads with ray flowers that are characteristically purple, but sometimes pink or white, bloom in June and July. **Distinguishing features:** Most distinctive features are the large pink-rayed heads, nearly leafless stems, relatively large basal leaves, and the glandular nature of the rather coarse spreading pubescence (Mozingo and Williams 1980). E. argentatus is similar but can be distinguished by its silvery pubescence, achenes with 6-8 nerves rather than 2-3 as in E. latus.

PHOTOGRAPHS: Anderson et al. (1991).
ILLUSTRATIONS: Anderson et al. (1991), Cronquist (1994), Mozingo and Williams (1980).
SPECIFIC REFERENCES:

Frank, C. A., and Greystone. 1998. Sensitive plant surveys: Independence Mining Company, Inc., Elko County, Nevada, July 1997. Greenwood Village, Colorado: Greystone, prepared for Independence Mining Company, Inc., Elko, Nevada.

Moseley, R. K. and M. Mancuso. 1993. Report on the conservation status of Erigeron latus in Idaho. Boise: Idaho Data Conservation Center, prepared for the Idaho Department of Parks and Recreation.

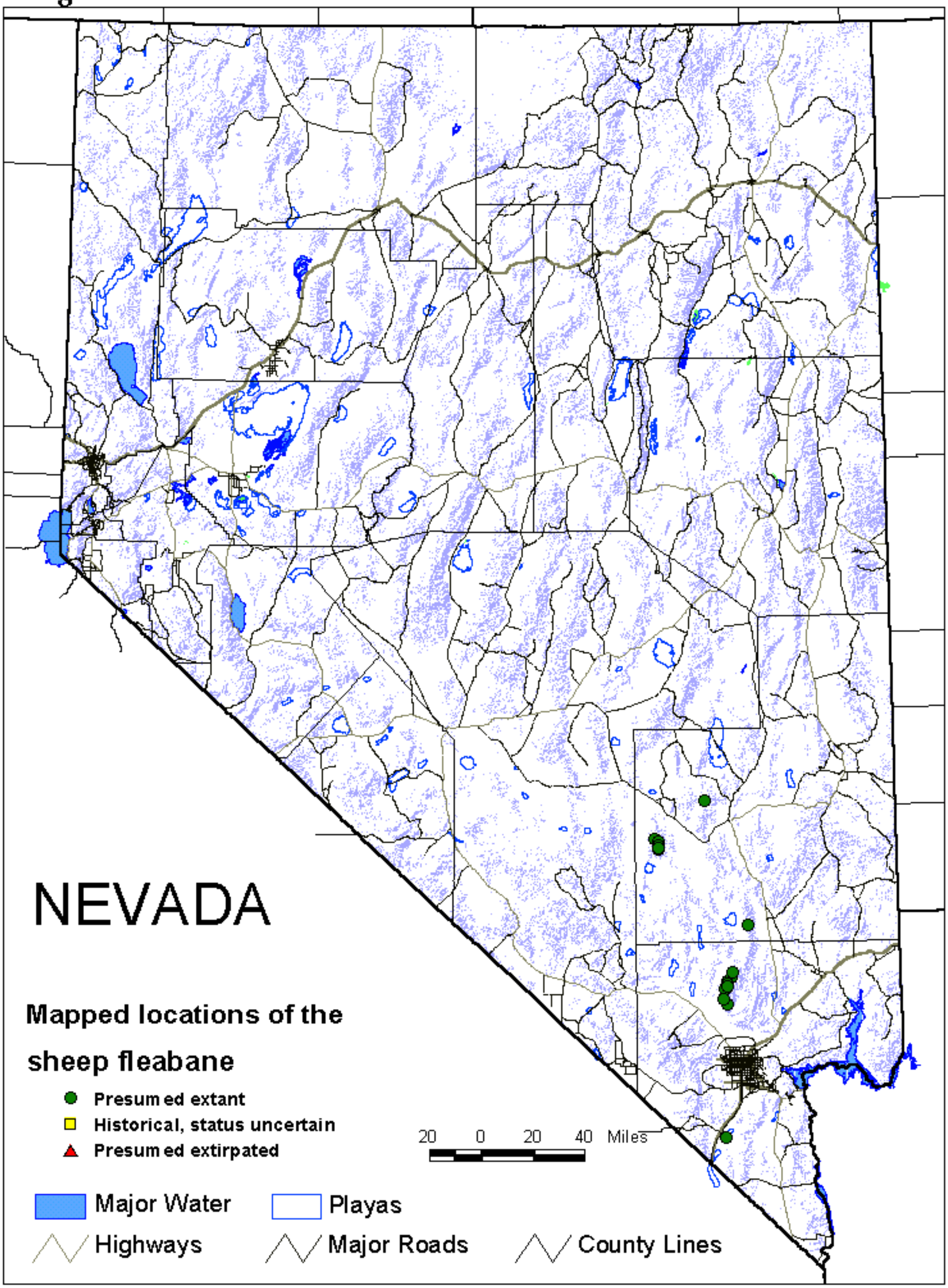
Nelson, A. and J. F. Macbride. 1913. Western plant studies I. Botanical Gazette 55: 372-383.

Nesom, G. L. 1992. Erigeron and Trimorpha (Asteraceae: Astereae) of Nevada. Phytologia 73: 186-202.

Steele, B., F. Johnson, and S. Brunsfield (editors). 1981. Vascular plant species of concern in Idaho. Moscow, Idaho: Forest, Wildlife and Range Experiment Station. 161 pages.

Tiehm, A. 1984. Noteworthy collections, Nevada. Madroño 31: 123-127.

Erigeron ovinus



Erigeron ovinus Cronquist (1947) **SHEEP FLEABANE**

FAMILY: *Asteraceae*, the sunflower family. **SYNONYMS:** *Erigeron caespitosus* var. *anactis*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 15 occurrences mapped at 1.0 km (0.6 mi) separation, OR **17 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 314+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Systematic surveys have been conducted but are incomplete. Most recent entered survey 1985, average year of last survey 1970. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 35.3%; **21-30 yrs:** 52.9%; **51+ yrs or unknown:** 11.8%.

LAND MANAGEMENT in decreasing predominance: U. S. Fish and Wildlife Service, U. S. Department of Defense, U. S. Bureau of Land Management, U. S. Department of Energy (?).

RANGE: Clark and Lincoln counties, Nevada. Known only from the Sheep and Groom ranges and Mount Irish. **Nevada endemic.** Maximum **range dimension 128.1 km (79.6 mi)** excluding most disjunct record. **Type specimen** collected in Lincoln County.

ELEVATIONS RECORDED: 3600-8400 feet (1097-2560 meters).

HABITAT: Crevices in carbonate cliffs and ridgeline outcrops in the Pinyon-Juniper and montane conifer zones.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-August.

LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: A perennial herb, 5-15 cm tall, flowering in late June.

PHOTOGRAPHS: Knight and Smith (1996), Knight et al. (1997).
ILLUSTRATIONS: Cronquist (1994), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Ackerman (1981).
SPECIFIC REFERENCES:

Blake, S. F. 1922. New Asteraceae from Utah and Nevada. Proceedings of the Biological Society of Washington 35: 173-178.

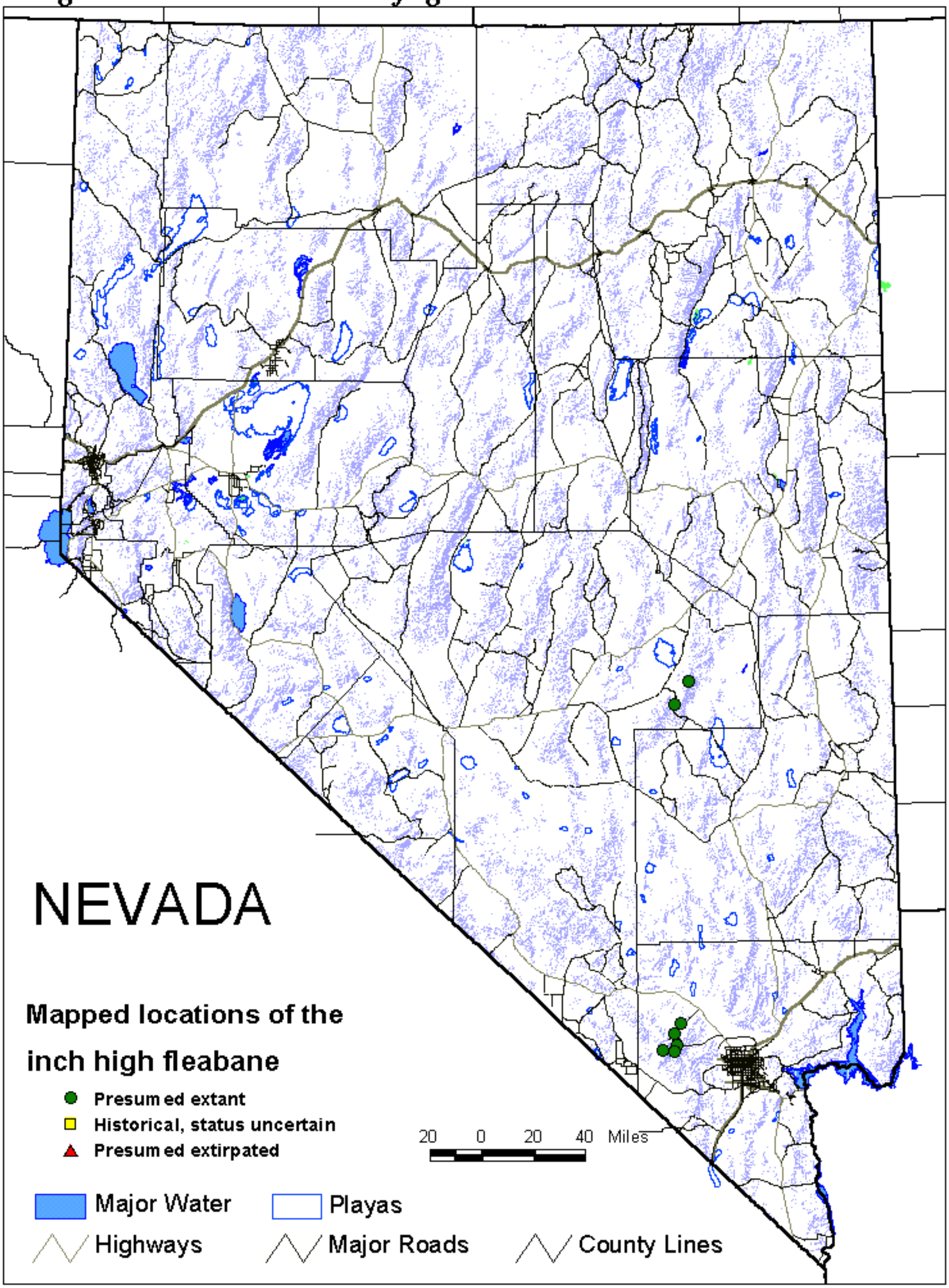
Cronquist, A. 1947. Revision of the North American species of Erigeron, north of Mexico. Brittonia 6: 121-302.

Marrs-Smith, G. and J. Nachlinger. 1987. Noteworthy collections. Madroño 34: 382-383.

Nellis Air Force Base. 1985. Draft environmental impact statement on the Groom Range, Lincoln County, NV. Las Vegas: prepared for the Bureau of Land Management.

OF FURTHER INTEREST: First described by Blake (1922) as Erigeron caespitosus ssp. anactis.

Erigeron uncialis var. conjugans



Erigeron uncialis Blake var. *conjugans* (Blake) INCH HIGH FLEABANE

FAMILY: *Asteraceae*, the sunflower family.

STATUS: **Heritage Program WATCH LIST, ranks: G3G4 T3? S3?**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 7 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1987, average year of last survey 1968. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 25%; **21-30 yrs:** 50%; **51+ yrs or unknown:** 25%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, private lands, U. S. Bureau of Land Management, Nevada state lands (?).

RANGE: Clark, Lincoln, Nye, and White Pine (?) counties, Nevada. Known only from the Spring, Sheep, and Quinn Canyon ranges. **Nevada endemic.** Maximum **range dimension 216.3 km (134.4 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 5400-11100 feet (1646-3383 meters).

HABITAT: Carbonate outcrops and crevices in the pinyon-juniper, montane conifer, and subalpine conifer zones.

PHENOLOGY: flowering late-spring to summer, May through July. Range of most frequent **survey months:** June-July.

LIFE-FORM AND HABIT: small matted perennial herb.

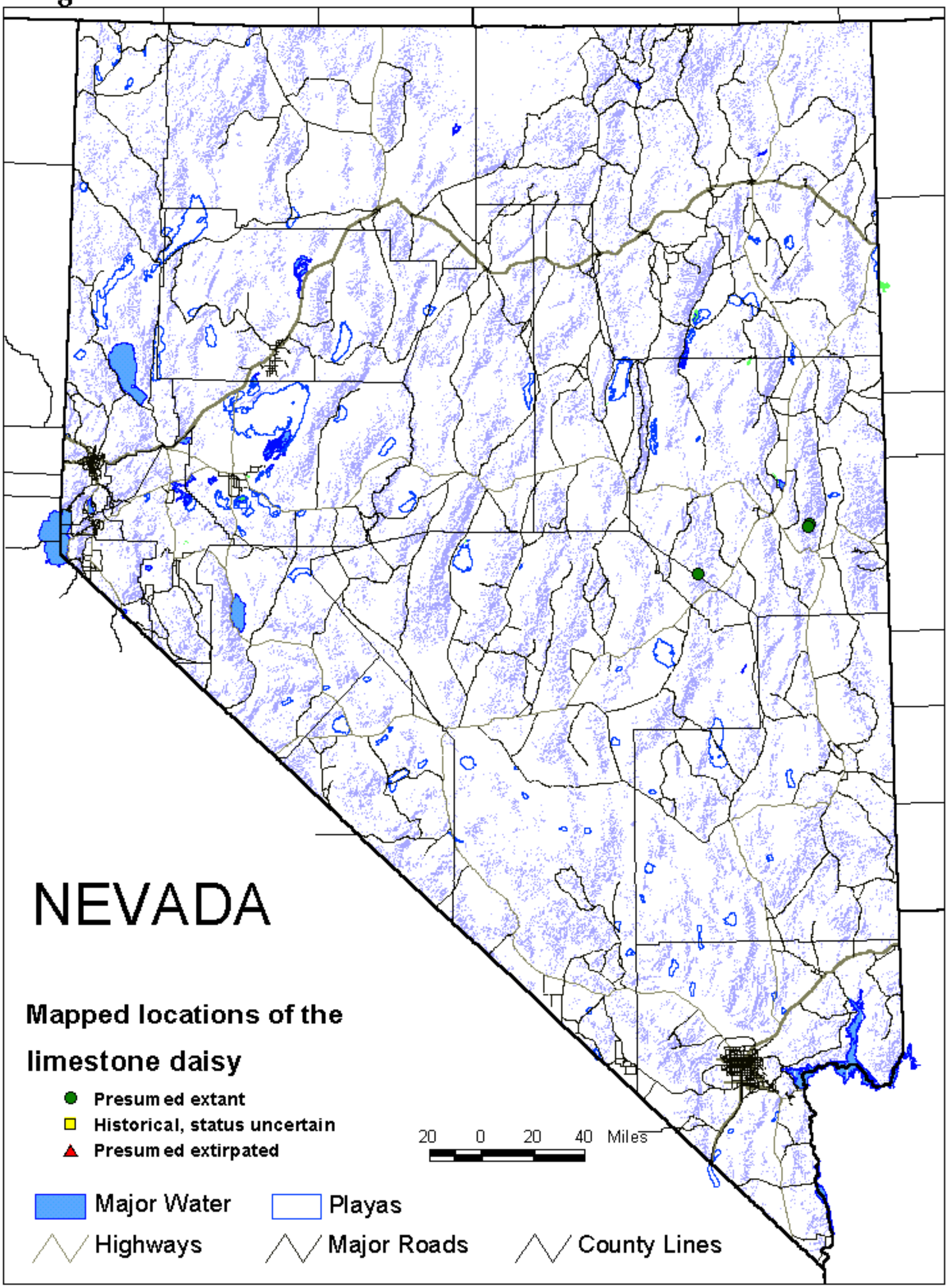
DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist (1994), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951).
SPECIFIC REFERENCES:

Blake, S. F. 1934. A new Erigeron from California and Nevada. Proceedings of the Biological Society of Washington 47: 173-174.

Cronquist, A. 1947. Revision of the North American species of Erigeron, north of Mexico. Brittonia 6: 121-302.

Erigeron uncialis var. uncialis



Erigeron uncialis Blake (1934) var. *uncialis* — LIMESTONE DAISY

FAMILY: *Asteraceae*, the sunflower family. **SYNONYMS:** *Erigeron cavernensis*

STATUS: **Heritage Program WATCH LIST, ranks: G3G4 T2? S2?**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF and Inyo NF Sensitive Species. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 3 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1987, average year of last survey 1983. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness.

RANGE: Nye and White Pine counties, Nevada; also in CA. Maximum Nevada **range dimension 76.3 km (47.4 mi)**. **Type specimen** collected in San bernardino County, California.

ELEVATIONS RECORDED (NEVADA): 10000-10700 feet (3048-3261 meters).

HABITAT (NEVADA): Carbonate outcrops and crevices in the montane conifer and subalpine conifer zones.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-July.

LIFE-FORM AND HABIT: small matted perennial herb.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Anderson et al. (1991).
ILLUSTRATIONS: Anderson et al. (1991), Cronquist (1994).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993).
SPECIFIC REFERENCES:

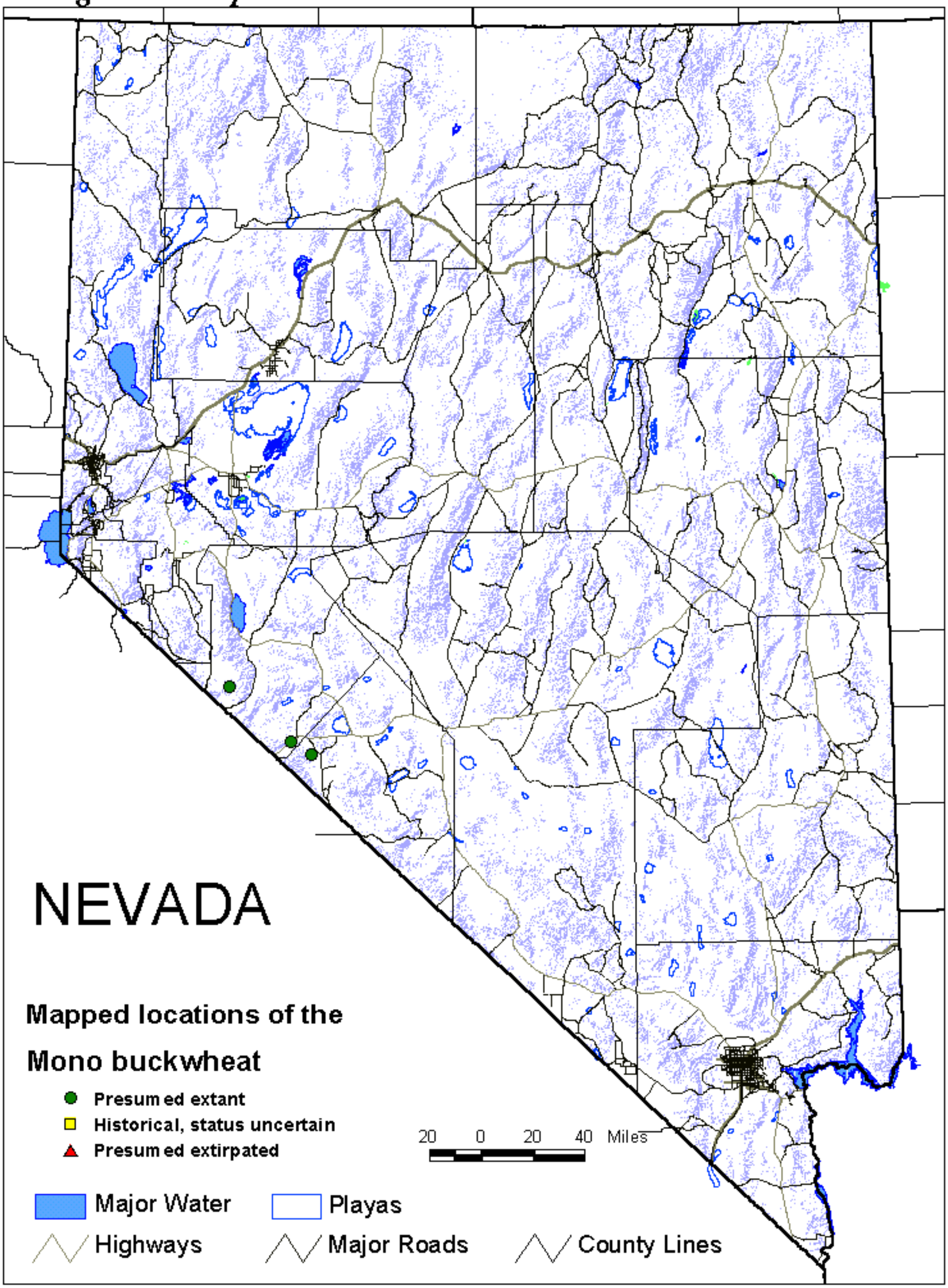
Atwood, N. D. and S. Welsh. 1988. An Erigeron from Nevada and a Penstemon from Idaho. Great Basin Naturalist 48: 495-496.

Blake, S. F. 1934. A new Erigeron from California and Nevada. Proceedings of the Biological Society of Washington 47: 173-174.

Cronquist, A. 1947. Revision of the North American species of Erigeron, north of Mexico. Brittonia 6: 121-302.

OF FURTHER INTEREST: Includes E. cavernensis according to Cronquist, 1994, Intermountain Flora vol. 5.

Eriogonum ampullaceum



Eriogonum ampullaceum J. T. Howell — MONO BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 3 occurrences mapped; total estimated **individuals 302+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada, but most potential habitat has been visited by collectors in the past. Most recent entered survey 1992, average year of last survey 1971.
Years since last entered survey (percent of mapped records at various survey ages)**: 6-10 yrs:** 33.3%; **11-20 yrs:** 33.3%; **51+ yrs or unknown:** 33.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: private lands, Humboldt-Toiyabe National Forest, Inyo National Forest (?), U. S. Bureau of Land Management (?).

RANGE: Esmeralda and Mineral counties, Nevada; also in CA. Maximum Nevada **range dimension 66.2 km (41.1 mi)**.

ELEVATIONS RECORDED (NEVADA): 5480-7100 feet (1670-2164 meters).

HABITAT (not yet reviewed for Nevada): "Grows in sandy places (Reveal 1989). In Nevada, habitat is restricted to seasonally moist sandy soil around alkaline desert springs (Jim Morefield, personal communication 1999)." Aquatic or wetland-dependent in Nevada.

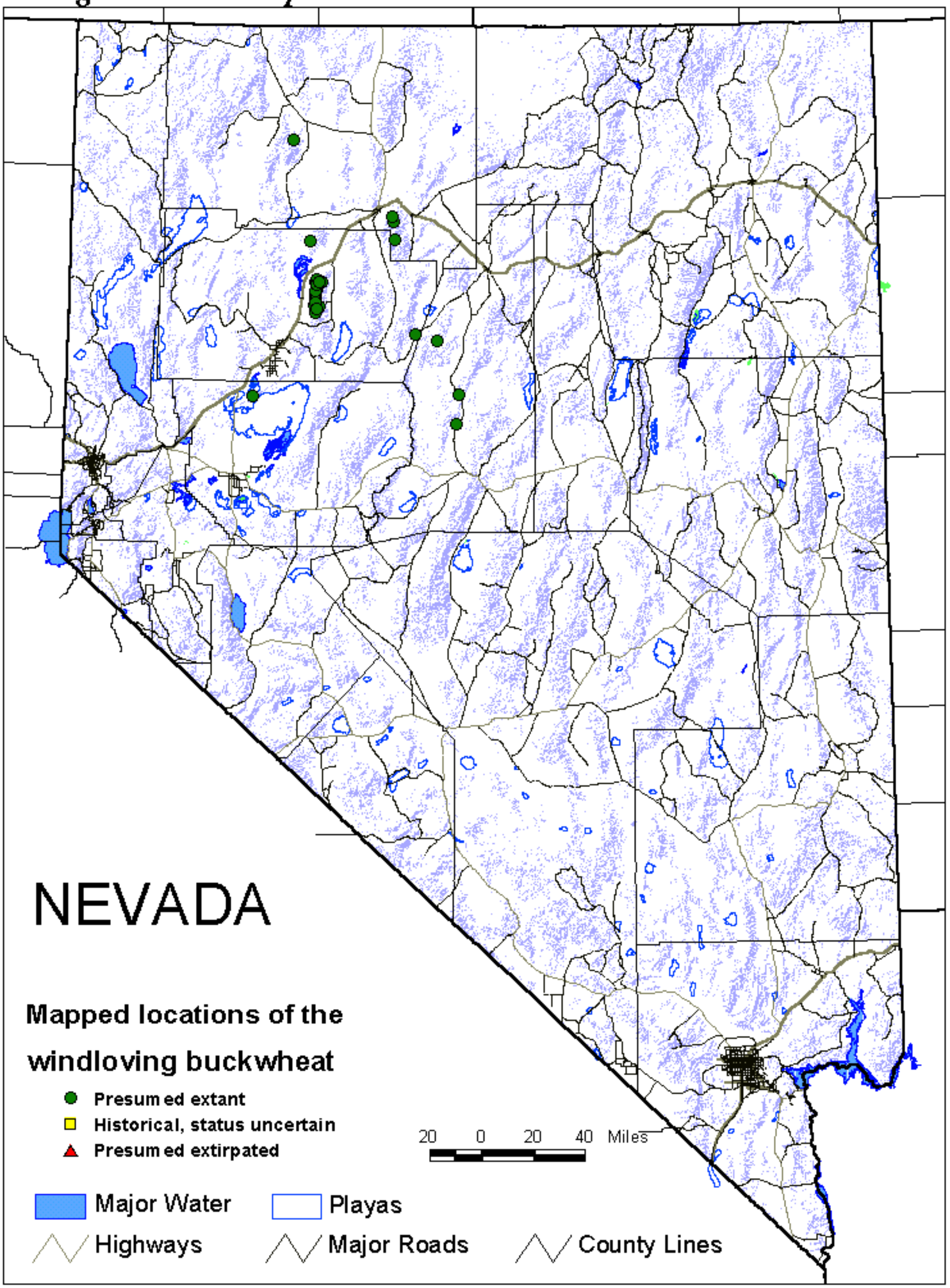
PHENOLOGY: no summary available. Range of most frequent **survey months:** April-September.

DESCRIPTION: Plants low spreading herbaceous annuals; leaves basal, orbicular to subcordate and flowers cream with a greenish or reddish base (Reveal 1989).

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Hickman (1993), Reveal (1985), Reveal (1989).
SPECIFIC REFERENCES:

Morefield, J. D., D. W. Taylor, M. DeDecker, and A. Pinzl. 1986. Additions to the flora of the White Mountains III. California Native Plant Society Bristlecone Newsletter 5: 2-4.

Eriogonum anemophilum



Eriogonum anemophilum E. Greene (1897) WINDLOVING BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 S2S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 23 occurrences mapped at 1.0 km (0.6 mi) separation, OR **33 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 26,000+**, total estimated **area 108+ ha (267+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Surveys have been extensive, but much potential habitat likely remains unexplored, especially at lower elevations. Most recent entered survey 1989, average year of last survey 1984.
Years since last entered survey (percent of mapped records at various survey ages)**: 11-20 yrs:** 75.8%; **21-30 yrs:** 21.2%; **51+ yrs or unknown:** 3%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, private lands.

RANGE: Churchill, Humboldt, Lander, Pershing, and Washoe counties, Nevada. Endemic to Nevada. Report from California based on misapplication of the name to a California specimen of Eriogonum ochrocephalum var. agnellum (= E. rosense) (Hickman 1993). Maximum **range dimension 146.1 km (90.8 mi)** excluding most disjunct record. **Type specimen** collected in Pershing County.

ELEVATIONS RECORDED: 4750-9836 feet (1448-2998 meters).

HABITAT: At high elevations on dry, exposed, relatively barren and undisturbed, gravelly, limestone or volcanic ridges and ridgeline knolls, on outcrops or shallow rocky soils over bedrock, with Artemisia arbuscula, Ericameria viscidiflora, Poa secunda, Elymus elymoides, Arenaria kingii, etc. At low elevations on dry, relatively barren and undisturbed knolls and slopes of light-colored, platy volcanic tuff weathered to form stiff clay soils, on all aspects, with Tetradymia canescens, Ericameria nauseosa, E. viscidiflora, Atriplex confertifolia, Elymus elymoides, Elymus cinereus, Astragalus calycosus, etc.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-July.

LIFE-FORM AND HABIT: small matted long-lived perennial herb.

DESCRIPTION: A low perennial herb with leafless flower stalks rising about 6.5 cm above clumps of white-hairy leaves. The stalks bear a terminal, globular cluster of white flowers. Blooms in late June and July.

PHOTOGRAPHS: Reynolds (2000); Nevada Natural Heritage Program images web page (1998-present) and slide collection (1986-present).
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Reveal (1985).
SPECIFIC REFERENCES:

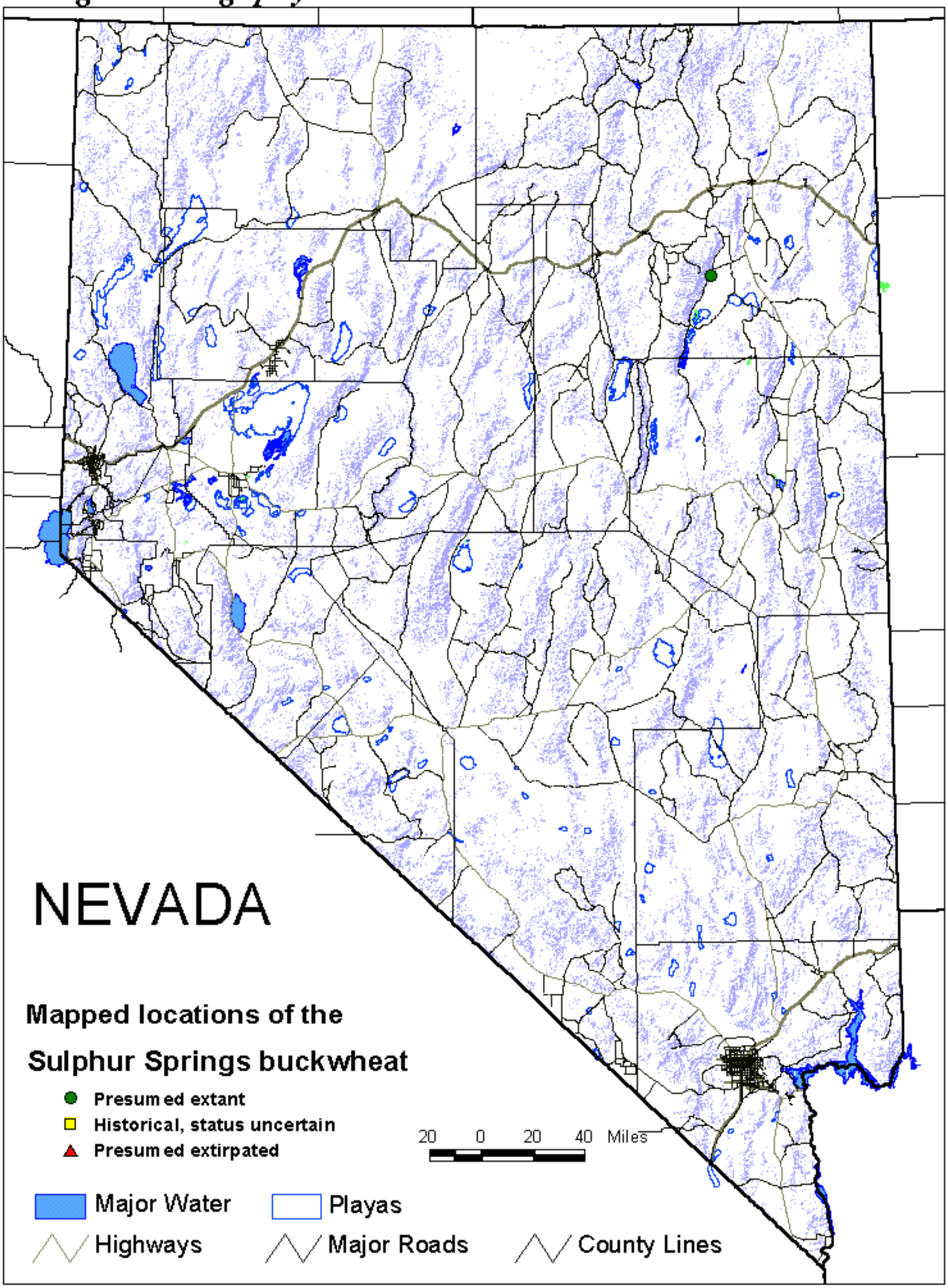
Greene, E. L. 1897. New species of Eriogonum. Pittonia 3: 199-214.

Reynolds, J. 2000. Current knowledge and conservation status of Eriogonum anemophilum Greene (Polygonaceae), wind-loving buckwheat. Carson City: Nevada Natural Heritage Program, DRAFT status report prepared for the Bureau of Land Management, Reno.

Tiehm, A. 1989. Proposed threatened and endangered plants of the Humboldt Range, Pershing County, Nevada. Carson City: Nevada Natural Heritage Program.

OF FURTHER INTEREST: Unusual in its bimodal distribution at high and low elevations in different habitats. In California, the name Eriogonum anemophilum has in the past been misapplied to plants of Eriogonum rosense (Hickman 1993).

Eriogonum argophyllum



Eriogonum argophyllum Reveal (1972) SULPHUR SPRINGS BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: species of concern, formerly CANDIDATE or PROPOSED. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** ENDANGERED.

POPULATION CENSUS: 1 occurrence mapped; total estimated **individuals 5000**, total estimated **area 8.1 ha (20.0 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Vulnerable to private or commercial development, hydrothermal energy development or other water diversions, livestock trampling, off-road vehicle activity. Current impacts appear minimal.

INVENTORY EFFORT: Surveys are presumed complete. Most other isolated hot spring mounds in the Great Basin have been visited by botanists without revealing this species. Most recent entered survey 1990.
Years since last entered survey (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT: private lands.

RANGE: Elko County, Nevada. Endemic to Sulphur Hot Springs in Ruby Valley. **Type specimen** collected in Elko County.

ELEVATIONS RECORDED: 6030-6050 feet (1838-1844 meters).

HABITAT: Shallow, light-colored, coarse-loamy, evaporite-crusted sandy soils along runoff channels on a hot spring mound, on gentle easterly slopes, with a sparse associated cover of Senecio canus, Ivesia kingii, Bromus tectorum, Centaurium exaltatum, and Ericameria nauseosa, surrounded by zonal big sagebrush vegetation. Aquatic or wetland-dependent.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: small long-lived perennial cushion.

DESCRIPTION: A low perennial herb that forms a mat of white-hairy leaves, about 1-2 dm across. Leafless flowering stems bear terminal clusters of yellow flowers high above the leaf mat. Blooms June-July.

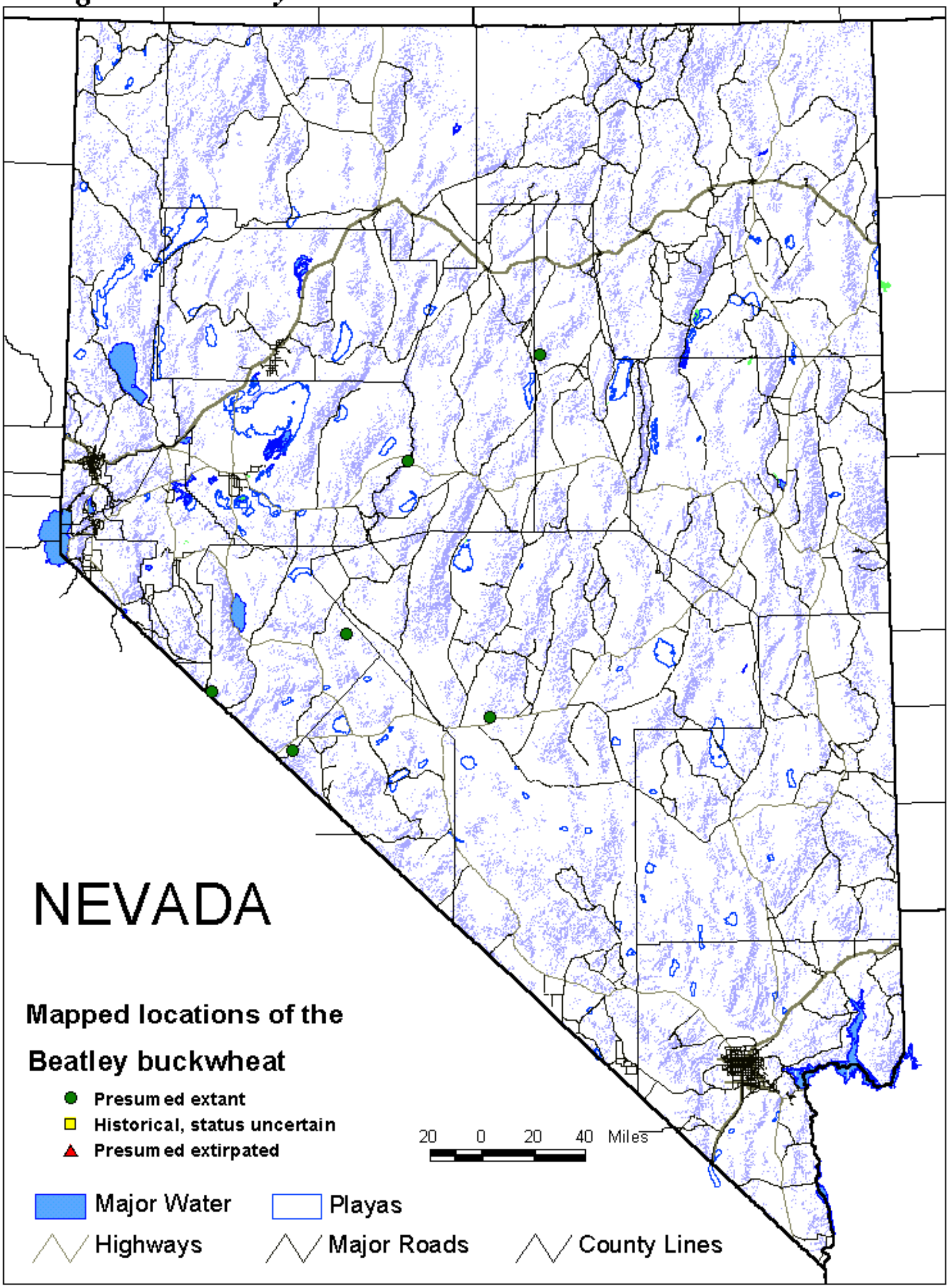
PHOTOGRAPHS: Morefield (1992); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Reveal (1985).
SPECIFIC REFERENCES:

Duff, M. 1996. The pollination biology and demography of Eriogonum argophyllum. Las Vegas: The Nature Conservancy of Nevada, unpublished report.

Morefield, J. D. 1992. Status report for Eriogonum argophyllum Reveal. Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

Reveal, J. L. 1972. New species and combinations in Eriogonum. Phytologia 23: 168-172.

Eriogonum beatleyae



Eriogonum beatleyae Reveal — BEATLEY BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2Q S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 6 occurrences mapped; total estimated **individuals 602+**, total estimated **area 2.8+ ha (6.9+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1993, average year of last survey 1975. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 16.7%; **11-20 yrs:** 16.7%; **21-30 yrs:** 50%; **51+ yrs or unknown:** 16.7%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, Humboldt-Toiyabe National Forest, private lands, Inyo National Forest.

RANGE: Churchill, Esmeralda, Eureka, Lander (?), Mineral, and Nye counties, Nevada; also in CA. Maximum Nevada **range dimension 193.4 km (120.2 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 5600-8745 feet (1707-2665 meters).

HABITAT (not yet reviewed for Nevada): "Dry volcanic outcrops (Reveal 1989)."

PHENOLOGY: no summary available. Range of most frequent **survey months:** June-July.

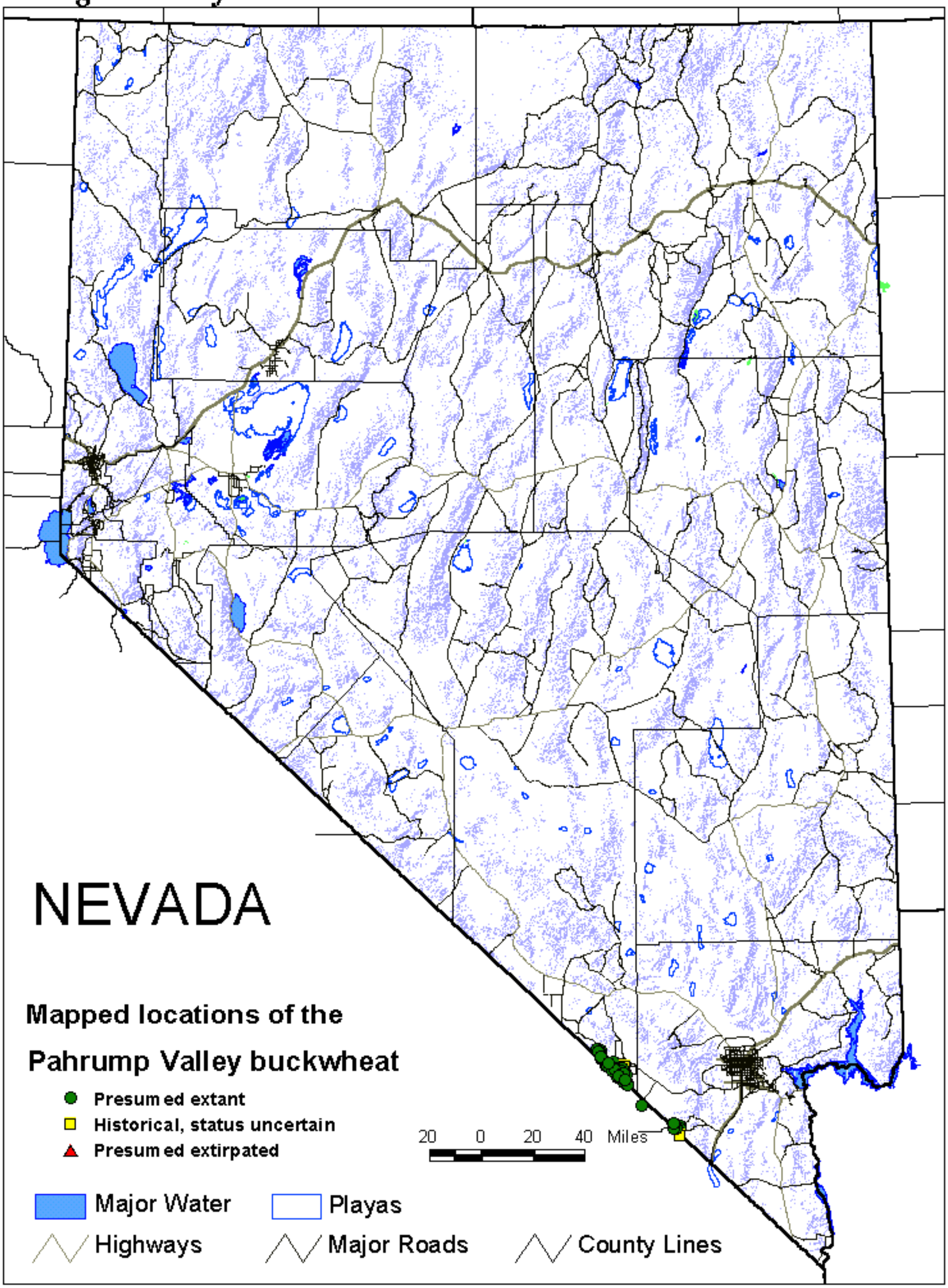
DESCRIPTION: Plants low matted cespitose herbaceous perennials forming highly branched mats; leaves broadly elliptic and flowers yellow to reddish-yellow or ochroleucous (Reveal 1989).

PHOTOGRAPHS: Nevada Natural Heritage Program files.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Hickman (1993), Reveal (1985), Reveal (1989).
SPECIFIC REFERENCES:

Goodrich, S. 1979. Status report on Mertensia toyabensis. Portland, Oregon: U. S. Fish and Wildlife Service.

Morefield, J. D. 1994. Current knowledge and conservation status of Arabis bodiensis Rollins (Brassicaceae), Bodie Hills rockcress, in Nevada. Carson City: Nevada Natural Heritage Program, status report prepared for the U. S. Fish and Wildlife Service, Reno.

Eriogonum bifurcatum



Eriogonum bifurcatum Reveal — PAHRUMP VALLEY BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: none. **NNNPS:** THREATENED.

POPULATION CENSUS (NEVADA): 18 occurrences mapped at 1.0 km (0.6 mi) separation, OR **47 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 1109+**, total estimated **area 651+ ha (1609+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Commercial or residential development, agricultural conversion, off-road vehicle activities, dumping etc. The species tolerates moderate transient disturbance.

INVENTORY EFFORT (NEVADA): Targeted surveys have been extensive and may be largely complete in Nevada. Most recent entered survey 1998, average year of last survey 1995. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 87.2%; **11-20 yrs:** 8.5%; **31-50 yrs:** 2.1%; **51+ yrs or unknown:** 2.1%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands, Nevada state lands (?).

RANGE: Clark and Nye counties, Nevada; also in CA. The distribution, as currently understood, straddles the Nevada/California state line, from Stewart Valley southeastward to Mesquite Valley. Maximum Nevada **range dimension 71.5 km (44.4 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 2297-2800 feet (700-853 meters).

HABITAT (NEVADA): Mostly in barren, saline, heavy clay or silty hardpan soils on and near dry playa margins, and on adjacent shore terraces and stabilized sand dunes, with Atriplex confertifolia, A. hymenelytra, Prosopis glandulosa torreyana, Suaeda torreyana, Grayia spinosa, etc.

PHENOLOGY: flowering late-spring, The taxon flowers from mid-May to mid-June, with flowers observed from May to June. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: annual.

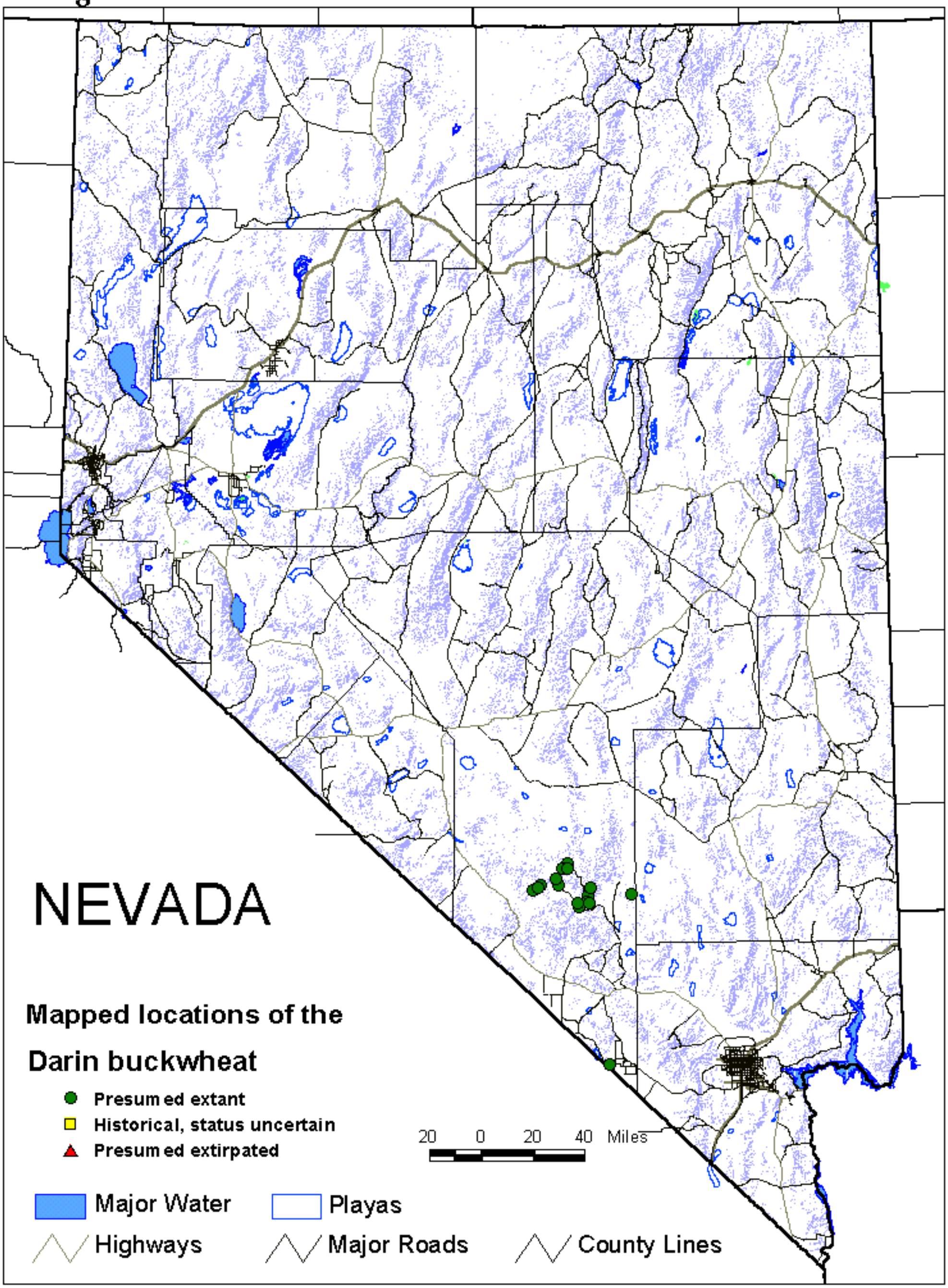
DESCRIPTION: Flowering/Mature state ideal for identification. This species is most closely related to E. insigne and some difficulties will be encountered in attempting to distinguish between immature specimens as they are similar in their general appearance at the early stage of development.

PHOTOGRAPHS: Niles et al. (1998); Nevada Natural Heritage Program images web page (1998-present) and files.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Beatley (1977), Hickman (1993), Reveal (1985).
SPECIFIC REFERENCES:

Knight, T. A. 1988. Status report for Eriogonum bifurcatum Reveal. Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

Reveal, J. L. 1971. A new annual Eriogonum (Polygonaceae) from southern Nevada and adjacent California. Aliso 7: 357-360.

Eriogonum concinnum



Eriogonum concinnum Reveal (1969) DARIN BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 16 occurrences mapped at 1.0 km (0.6 mi) separation, OR **17 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 2855+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Systematic surveys have not yet been conducted. Most recent entered survey 1978, average year of last survey 1971. **Years since last entered survey** (percent of mapped records at various survey ages)**: 21-30 yrs:** 35.3%; **31-50 yrs:** 64.7%.

LAND MANAGEMENT in decreasing predominance: U. S. Department of Defense, U. S. Department of Energy, U. S. Bureau of Land Management, U. S. Fish and Wildlife Service (?).

RANGE: Nye County, Nevada. **Nevada endemic.** Maximum **range dimension 61.6 km (38.3 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 2525-6640 feet (770-2024 meters).

HABITAT: Deep loose sand derived from, or in crevices of, light-colored tuff or other volcanic rocks, often at bases of cliffs or outcrops, the soil sometimes covered by talus or scree, or on road cuts or other disturbances crossing such habitats, in the pinyon-juniper, sagebrush, mixed-shrub, blackbrush, and shadscale zones. Possibly dependent on sand dunes or deep sand.

PHENOLOGY: flowering late-spring to early-fall. Range of most frequent **survey months:** June-September.

LIFE-FORM AND HABIT: annual.

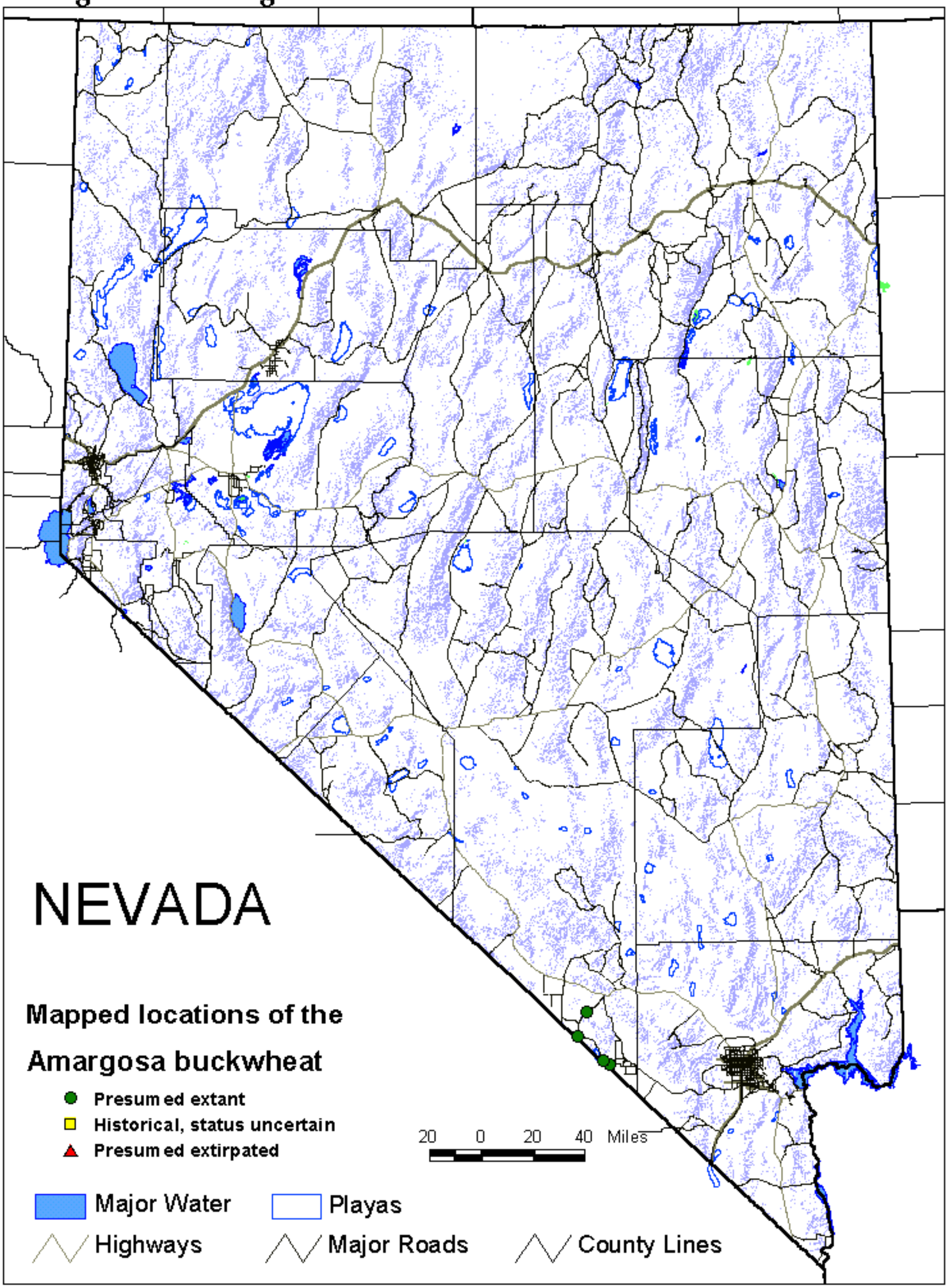
DESCRIPTION: An annual herb with erect stems. White flowers are in bloom late May-early September.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present) and slide collection (1986-present).
ILLUSTRATIONS: Reveal (1969).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Cochrane (1979), Reveal (1985).
SPECIFIC REFERENCES:

Collins, E. and T. P. O'Farrell. 1984. Surveys for plant species of concern on northern and eastern Yucca Flat, Nevada Test Site, Nye County, Nevada. Santa Barbara, California: EG and G/EM report 10282-2039.

Reveal, J. L. 1969. New species in Eriogonum and Gilia from southern Nevada. Bulletin of the Torrey Botanical Club 96: 476-484.

Eriogonum contiguum



Eriogonum contiguum (Reveal) Reveal — AMARGOSA BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family. **SYNONYMS:** *Eriogonum inflatum* var. *contiguum*

STATUS: **Heritage Program WATCH LIST, ranks: G2? S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 4 occurrences mapped; total estimated **individuals 702+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1971, average year of last survey 1957. **Years since last entered survey** (percent of mapped records at various survey ages)**: 21-30 yrs:** 60%; **31-50 yrs:** 20%; **51+ yrs or unknown:** 20%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands (?).

RANGE: Clark and Nye counties, Nevada; also in CA. Maximum Nevada **range dimension 26.7 km (16.6 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 2300-2500 feet (701-762 meters).

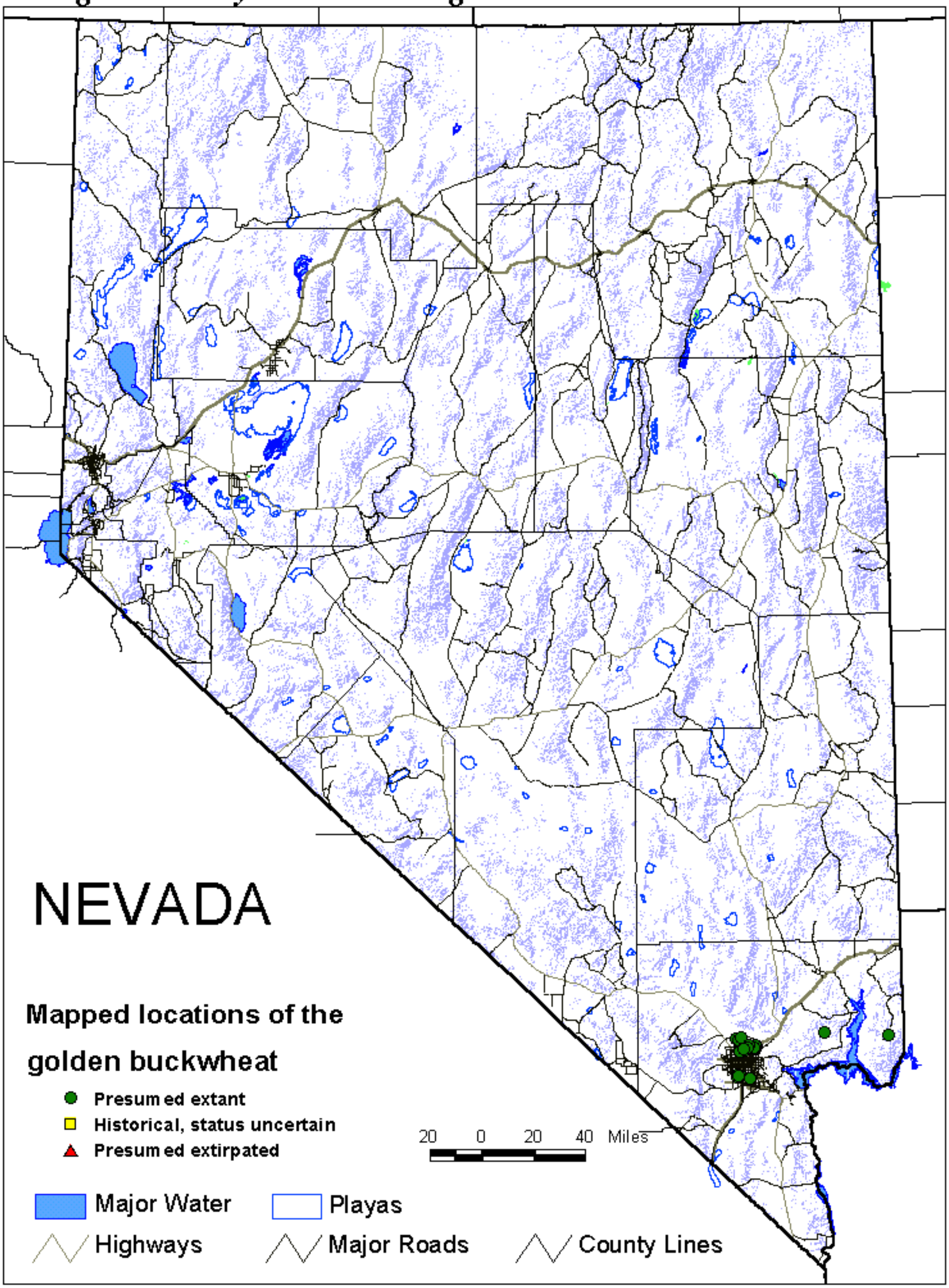
HABITAT: no summary available (see references).

PHENOLOGY: no summary available. Range of most frequent **survey months:** May-June.

DESCRIPTION: Plants low spreading herbaceous annuals, with leaves basal, and flowers yellow (Reveal 1989).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Hickman (1993), Reveal (1985), Reveal (1989).

Eriogonum corymbosum var. glutinosum



Eriogonum corymbosum Bentham **var. *glutinosum*** (M. E. Jones) M. E. Jones

GOLDEN BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family. **SYNONYMS:** *Eriogonum corymbosum* var. *aureum* (misapplied)

STATUS: **Heritage Program WATCH LIST, ranks: G5 T3? S1S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada. **USFS:** none.
NNNPS: watch list.

POPULATION CENSUS (NEVADA): 15 occurrences mapped at 1.0 km (0.6 mi) separation, OR **29 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 5188+**, total estimated **area 420+ ha (1038+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys are ongoing. Most recent entered survey 1999, average year of last survey 1998. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: private lands, U. S. Bureau of Land Management, Nevada state lands (?), U. S. Department of Defense (?).

RANGE: Clark County, Nevada; also in AZ and UT. In Nevada confined largely to the Las Vegas Valley area, where it disjunct from the remainder of its range and therefore possibly distinct. Maximum Nevada **range dimension 60.6 km (37.6 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 1900-3839 feet (579-1170 meters).

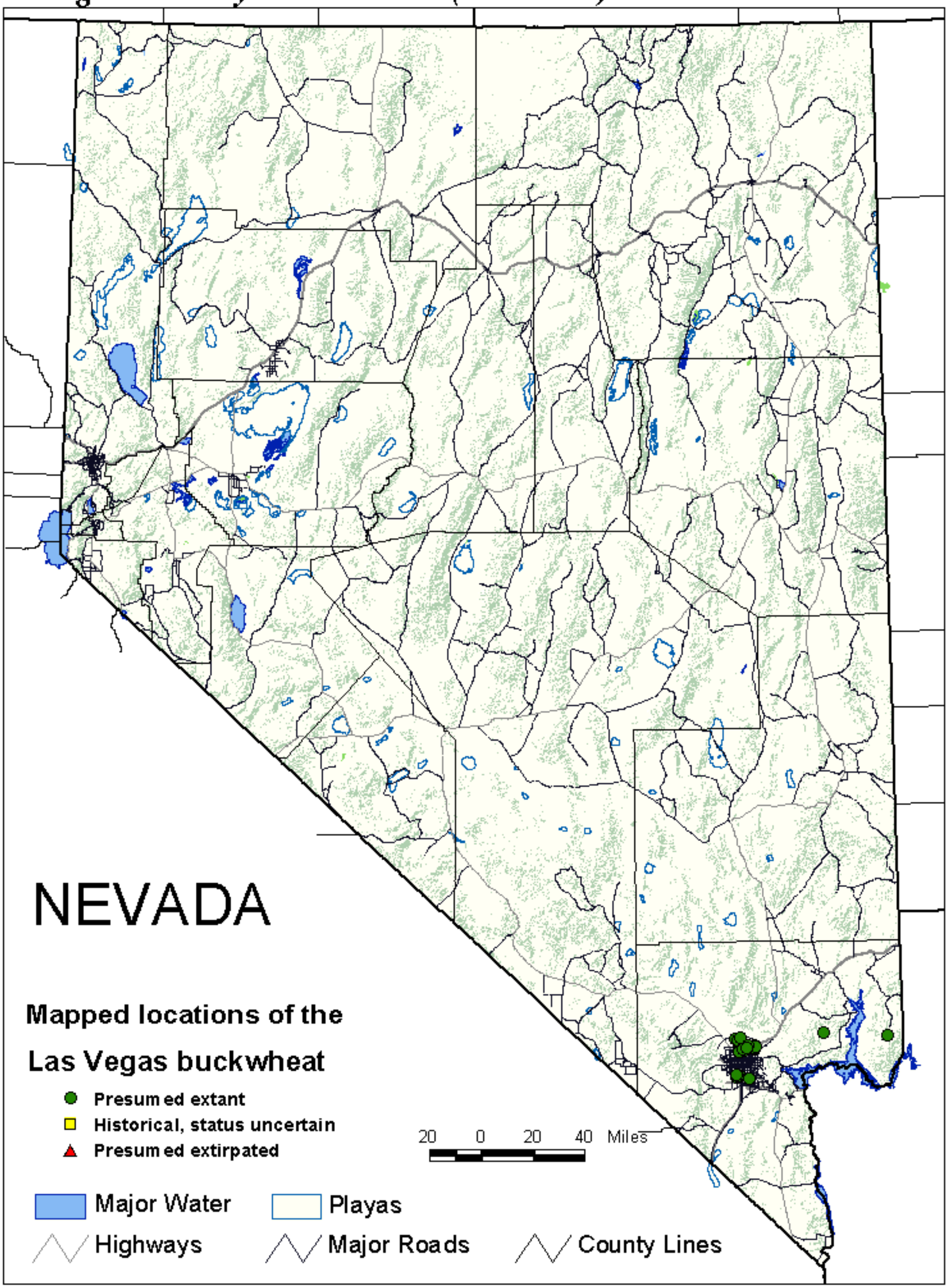
HABITAT: no summary available (see references).

PHENOLOGY: no summary available. Range of most frequent **survey months:** October-November.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Niles et al. (1999); Nevada Natural Heritage Program files.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Niles et al. (1997), Reveal (1985).

Eriogonum corymbosum var. (unnamed)



Eriogonum corymbosum Bentham **var. (unnamed)** Reveal **LAS VEGAS BUCKWHEAT**

FAMILY: *Polygonaceae*, the buckwheat family. **SYNONYMS:** *E. c.* var. *glutinosum* (misapplied), *E. c.* var. *aureum* (misapplied). **OTHER COMMON NAME:** golden buckwheat.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G5 T2T3 S2**
USFWS/ESA: none. **STATE OF NEVADA:** recommended for full protection. **BLM:** Special Status Species in Nevada. **USFS:** none. **NNPS:** THREATENED.

POPULATION CENSUS (NEVADA): 15 occurrences mapped at 1.0 km (0.6 mi) separation, OR **29 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 5188+**, total estimated **area 420+ ha (1038+ ac)**. **TREND:** DECLINING RAPIDLY.

IMPACTS AND MAJOR THREATS (NEVADA): Conversion of habitat for residential and urban development, off-road vehicle use, trash dumping, flood control, road and utility corridors, gypsum mining.

INVENTORY EFFORT (NEVADA): Surveys are ongoing and becoming relatively complete. Most recent entered survey 2004, average year of last survey 1999. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 13.8%; **6-10 yrs:** 86.2%. **Earliest entered record:** 3 October 1997.

LAND MANAGEMENT (NEVADA) in decreasing predominance: private lands, U. S. Bureau of Land Management, Nevada state lands (?), U. S. Department of Defense (?).

RANGE: Clark County, Nevada; also in UT (?). Maximum Nevada **range dimension 60.6 km (37.6 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED (NEVADA): 1900-3839 feet (579-1170 meters).

HABITAT (NEVADA): On and near gypsum soils, often forming low mounds or outcrops in washes and drainages, or in areas of generally low relief, often with *Arctomecon californica* and other gypsum-tolerant species, surrounded by *Ambrosia dumosa, Stanleya pinnata, Atriplex canescens, Ephedra torreyana, Larrea tridentata, Acacia greggii, Suaeda torreyana, Psorothamnus fremontii*, etc.

PHENOLOGY: flowering summer to fall, August to November. Range of most frequent **survey months:** September-November.

LIFE-FORM AND HABIT: long-lived shrub.

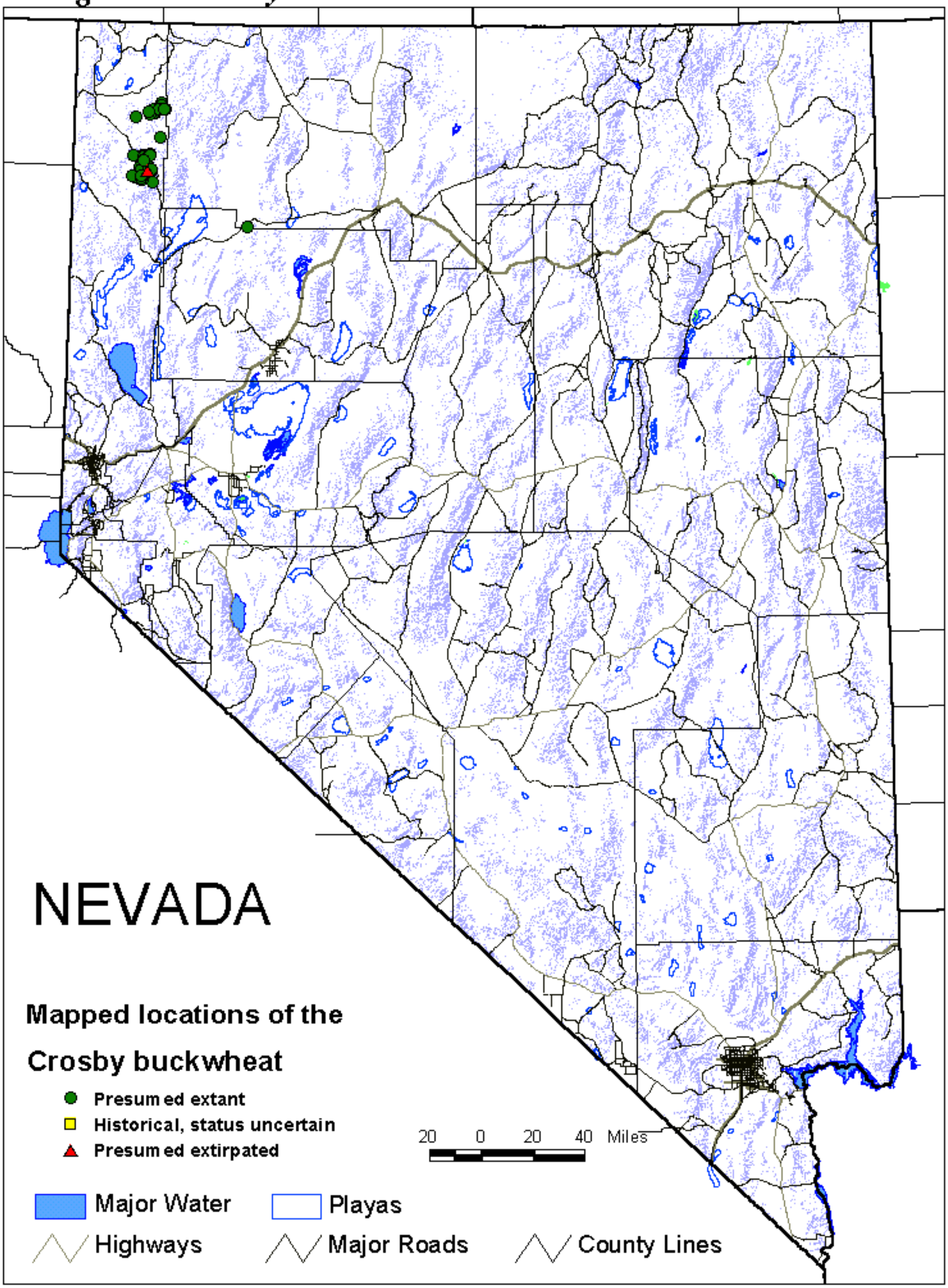
DESCRIPTION AND IDENTIFICATION: Shrubs 0.3-1.2 m high, 0.4-2.3 m across, leaves and flowering branches with silvery tufts of cobwebby hairs, leaves oval, stalked, 1-4 cm long, flowers numerous in masses along upper branches, 6-parted, bright to pale yellow (rarely whitish), 2-3 mm long, seeds triangular, 2-2.5 mm long, light brown. **Distinguishing features:** Distinguished from other yellow-flowered varieties by the sparse silvery tufts of cobwebby hairs on the flowering branches and upper leaf surfaces.

PHOTOGRAPHS: Niles *et al*. (1999); Nevada Natural Heritage Program images web page (1998-present) and files.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Niles *et al*. (1997), Reveal (1985), Welsh *et al*. (1993).
SPECIFIC REFERENCES:

Reveal, J. L. 2002. A review of Eriogonum corymbosum Benth with emphasis on the species in southern Nevada. Montrose, CO: Spring Canyon Enterprises, prepared for the U. S. Fish and Wildlife Service, Las Vegas, NV. 39 pages.

OF FURTHER INTEREST: The flowers are visited by a wide variety of insects. Reveal's (2002) field study concluded that the Nevada populations are distinct from vars. *aureum* and *glutinosum*. Publication as a variety new to science (var. *nilesii*) is expected in December 2004. Molecular studies are underway at Utah State University to determine its genetic significance.

Eriogonum crosbyae



Eriogonum crosbyae Reveal — CROSBY BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S3**
USFWS/ESA: species of concern, formerly CANDIDATE or PROPOSED. **STATE OF NEVADA:** none.
BLM: Special Status Species in Nevada and California. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 30 extant occurrences mapped at 1.0 km (0.6 mi) separation, OR **58 extant and 3 extirpated occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 160,000+**, total estimated **area 98.1+ ha (242+ ac)**. **TREND:** DECLINING OR STABLE.

IMPACTS AND MAJOR THREATS (NEVADA): Past extirpations were caused by mineral exploration and extraction, to which the species remains vulnerable along with off-road vehicle use and private development activities.

INVENTORY EFFORT (NEVADA): Surveys are substantially complete in Nevada. Most recent entered survey 1993, average year of last survey 1988. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 29.5%; **11-20 yrs:** 70.5%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands.

RANGE: Humboldt and Washoe counties, Nevada; also in OR. Maximum Nevada **range dimension 49.3 km (30.6 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 4600-7000 feet (1402-2134 meters).

HABITAT (NEVADA): Outcrops of rhyolite or whitish fluviolacustrine volcanic ash deposits, and derived shallow sandy to clay soils, on gentle to steep slopes of all aspects, with Chrysothamnus nauseosus, Tetradymia glabrata, Artemisia spp., Elymus cinereus, Stanleya viridiflora, Sphaeralcea, Ipomopsis congesta, etc., and frequently with Astragalus tiehmii and/or Eriogonum crosbyae.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-October.

LIFE-FORM AND HABIT: small long-lived perennial cushion.

DESCRIPTION: A low perennial herb that forms a mat, 1-2.5 dm across, from a stout, woody base. Spherical clusters of yellow flowers, borne on erect, leafless stems (3-5 cm tall) bloom from late May to early August.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Meinke (1982).
OTHER GENERAL REFERENCES (listed separately): Reveal (1985).
SPECIFIC REFERENCES:

Kaye, T., W. Messinger, and S. Massey. 1990. Eriogonum crosbyae and E. prociduum. Inventory, reproduction, and taxonomic assessment. Lakeview District, Oregon: Bureau of Land Management.

Reveal, J. L. 1981. Notes on endangered buckwheats (Eriogonum: Polygonaceae) with three newly described from the western U. S. Brittonia 33: 441-448.

Reveal, J. L. 1985. New Nevada entities and combinations in Eriogonum (Polygonaceae). Great Basin Naturalist 45: 276-280.

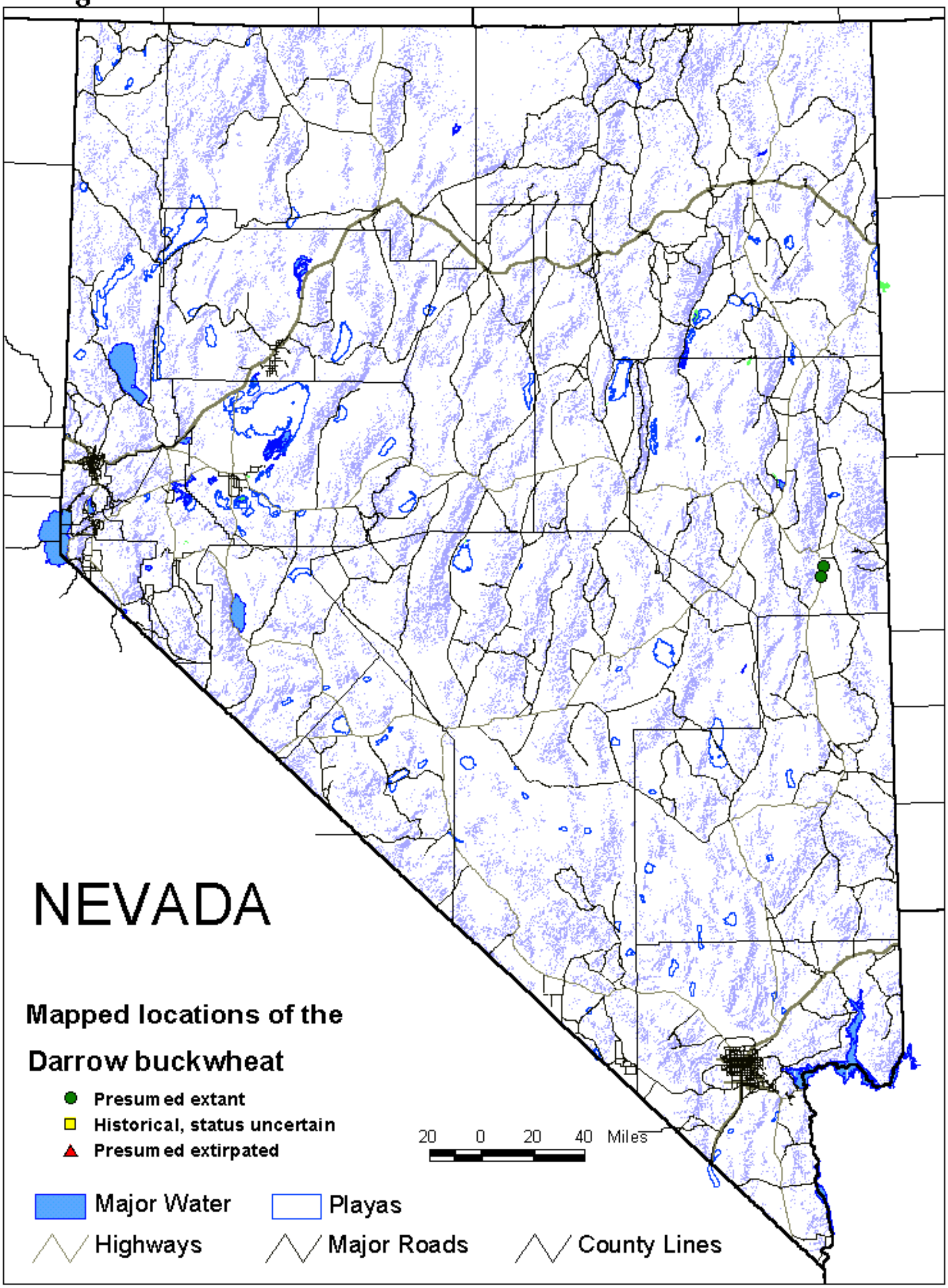
Schoolcraft, G. and A. Tiehm. 1985. Noteworthy collections, Nevada. Madroño 32: 123-124.

Schoolcraft, G. 1989. Species management guide for Eriogonum crosbyae. Susanville, California: Bureau of Land Management.

Smith, F. J. and G. D. Schoolcraft. 1989. Status Report: Eriogonum crosbyae. Susanville, California: USDI Bureau of Land Management.

OF FURTHER INTEREST: The unnamed Eriogonum from "Lakeview Co., OR" of the Federal Register list.

Eriogonum darrovii



Eriogonum darrovii Kearney — DARROW BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program WATCH LIST, ranks: G2 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 2 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1979, average year of last survey 1979. **Years since last entered survey** (percent of mapped records at various survey ages)**: 21-30 yrs:** 100%.

LAND MANAGEMENT (NEVADA): U. S. Bureau of Land Management.

RANGE: Nye and White Pine counties, Nevada; also in AZ. Maximum Nevada **range dimension 6.6 km (4.1 mi)**.

ELEVATIONS RECORDED (NEVADA): 6000-6100 feet (1829-1859 meters).

HABITAT (not yet reviewed for Nevada): "Washes and flats with hard limestone soils. 1645-1900 m elevation. Common associates are Utah juniper (Juniperus osteosperma), rabbitbrush (Chrysothamnus), and sagebrush (Artemisia)."

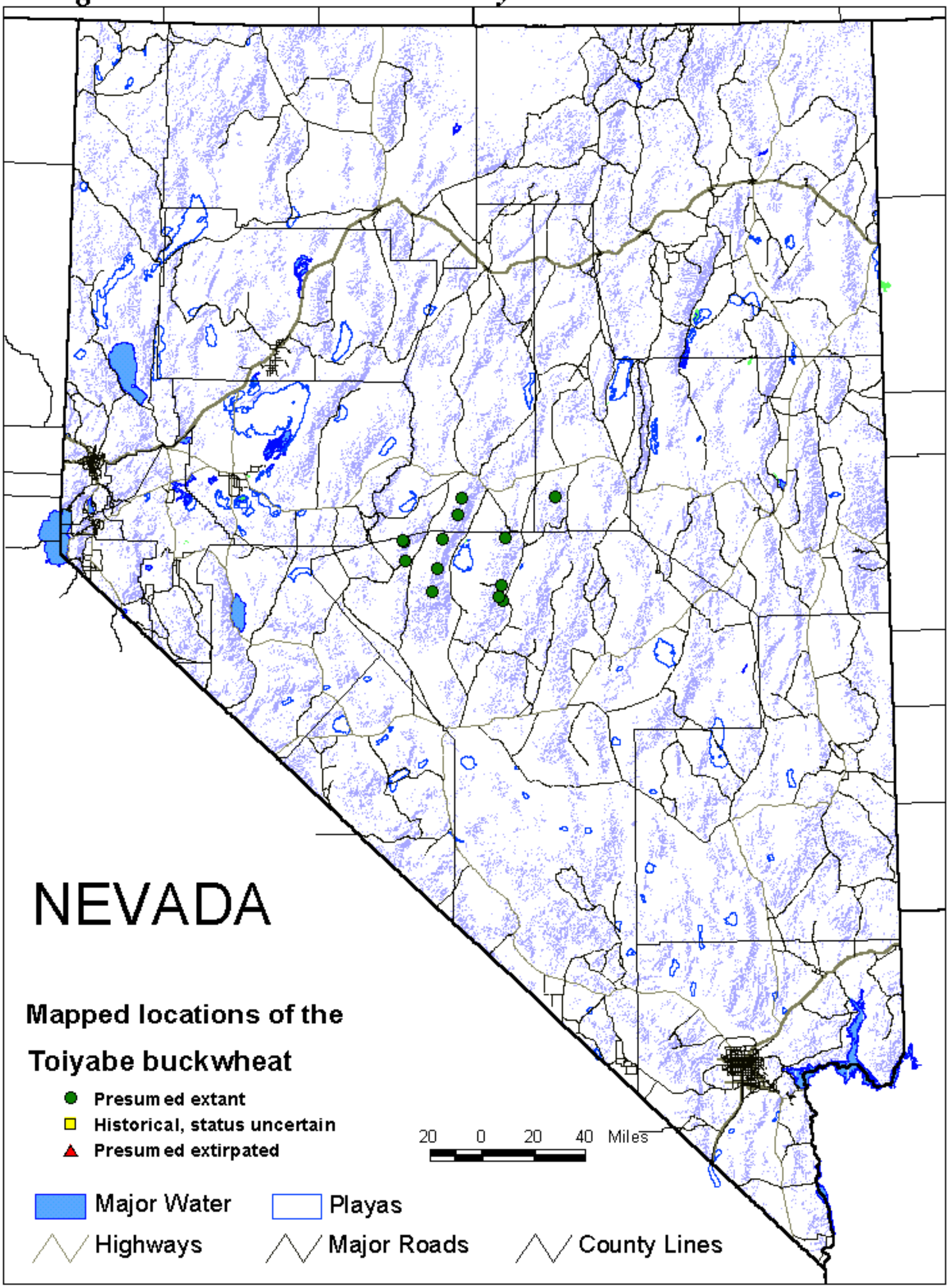
PHENOLOGY: no summary available. Range of most frequent **survey months:** August.

DESCRIPTION: A low annual herb, usually about 1 dm high, with several to many branches bearing spoon-shaped leaves. Tiny pink or yellow flowers bloom in the leaf axils from June to September.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Reveal (1985), Welsh et al. (1993).

OF FURTHER INTEREST: A distinct species in a genus of about 225 species, mainly in western North America.

Eriogonum esmeraldense var. toiyabense



Eriogonum esmeraldense S. Watson var. *toiyabense* J. T. Howell (1952)

TOIYABE BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4 T2 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 13 occurrences mapped; total estimated **individuals 17,000+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Systematic surveys have not yet been conducted. Most recent entered survey 1995, average year of last survey 1969. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 15.4%; **11-20 yrs:** 15.4%; **21-30 yrs:** 30.8%; **31-50 yrs:** 15.4%; **51+ yrs or unknown:** 23.1%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness.

RANGE: Eureka, Lander, and Nye counties, Nevada. **Nevada endemic.** Maximum **range dimension 72.1 km (44.8 mi)** excluding most disjunct record. **Type specimen** collected in Lander County.

ELEVATIONS RECORDED: 7200-9240 feet (2195-2816 meters).

HABITAT: Generally steep, loose, sandy to gravelly or clay slopes derived from rhyolitic or andesitic volcanic materials, frequently on white ash deposits, in the pinyon-juniper, mountain sagebrush, mountain mahogany, and subalpine conifer zones.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-July.

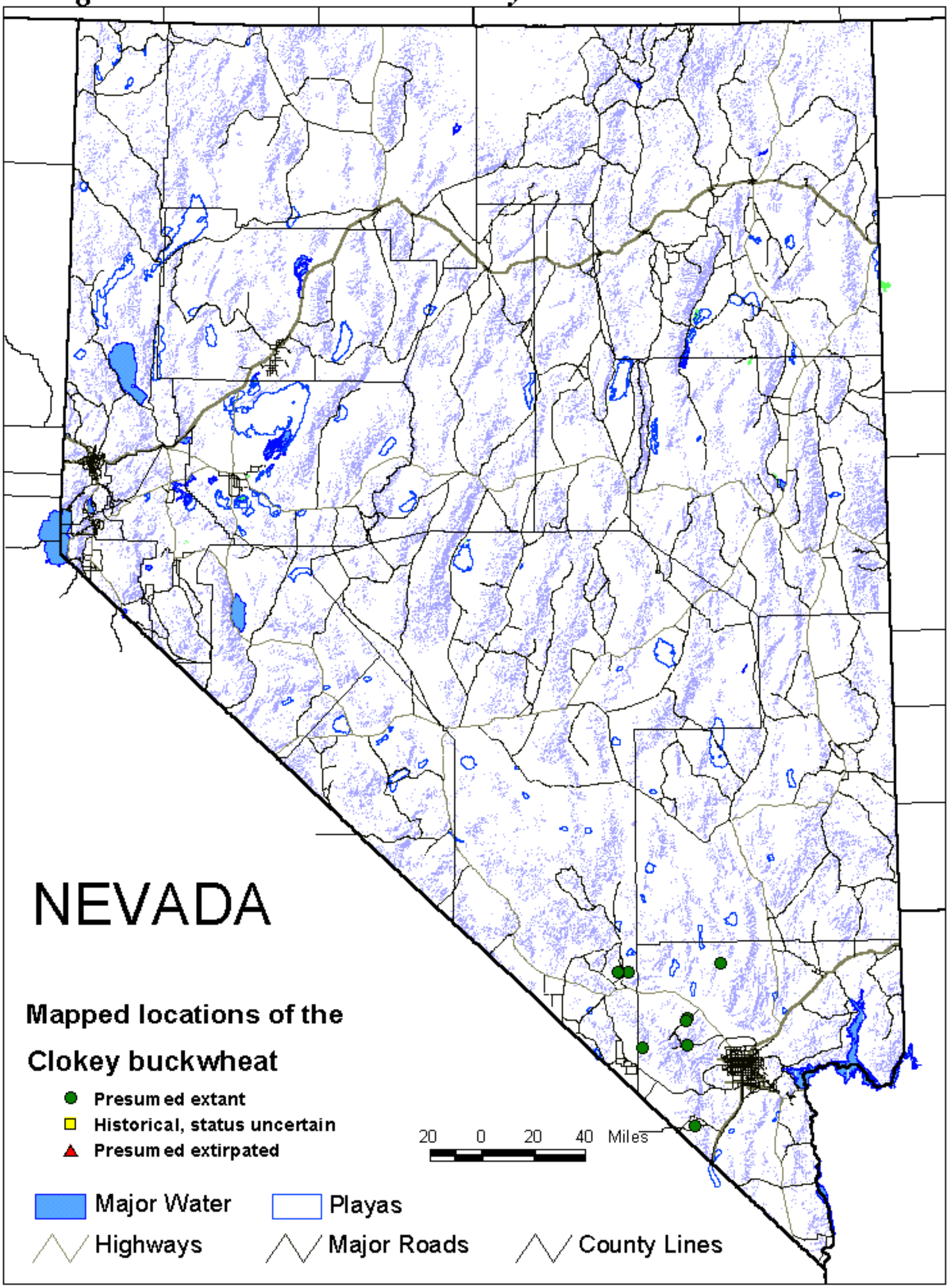
LIFE-FORM AND HABIT: annual.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nevada Natural Heritage Program files.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Reveal (1985).
SPECIFIC REFERENCES:

Howell, J. T. 1952. Eriogonum notes. Leaflets of Western Botany 6: 177-180.
Morefield, J. D. 1992. Interim status report for Arabis ophira Rollins. Carson City: Nevada Natural Heritage Program, prepared for the Toiyabe National Forest, Sparks, Nevada.

Eriogonum heermannii var. clokeyi



Eriogonum heermannii Durand & Hilgard **var. *clokeyi*** Reveal (1976) **CLOKEY BUCKWHEAT**

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G5 T2 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 8 occurrences mapped; total estimated **individuals 459+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1987, average year of last survey 1968. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 12.5%; **21-30 yrs:** 12.5%; **31-50 yrs:** 62.5%; **51+ yrs or unknown:** 12.5%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, U. S. Department of Energy, U. S. Fish and Wildlife Service, U. S. Department of Defense, private lands (?).

RANGE: Clark and Nye counties, Nevada. **Nevada endemic.** Maximum **range dimension 71.9 km (44.7 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 4000-6000 feet (1219-1829 meters).

HABITAT: Carbonate outcrops, talus, scree, and gravelly washes and banks in the creosote-bursage, shadscale, and blackbrush zones.

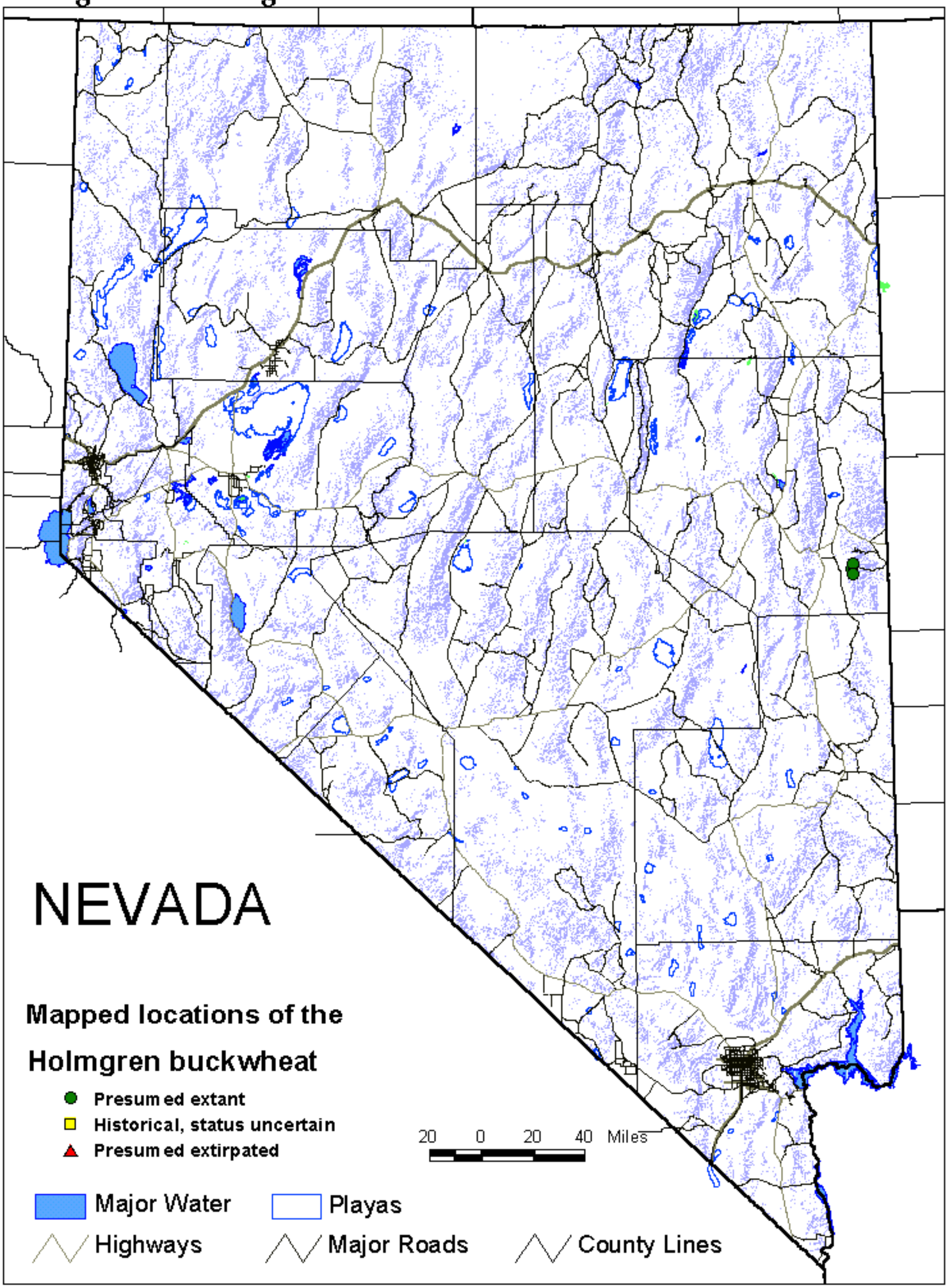
PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-September.

LIFE-FORM AND HABIT: shrub.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Reveal (1976), Reveal (1985).

Eriogonum holmgrenii



Eriogonum holmgrenii Reveal (1965) HOLMGREN BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 3 occurrences mapped; total estimated **individuals 251+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: It occurs high on top of mountain range.

INVENTORY EFFORT: Not yet systematically surveyed, although most potential habitat is known. Most recent entered survey 1985, average year of last survey 1974. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 33.3%; **21-30 yrs:** 33.3%; **31-50 yrs:** 33.3%.

LAND MANAGEMENT in decreasing predominance: National Park Service, Humboldt-Toiyabe National Forest (?).

RANGE: White Pine County, Nevada. Endemic to the Snake Range. Maximum **range dimension 6.5 km (4.0 mi)**. **Type specimen** collected in White pine County.

ELEVATIONS RECORDED: 10400-11200 feet (3170-3414 meters).

HABITAT: Crevices, talus, or rocky soils of limestone, quartzite, or granitic ridges and outcrops in the alpine zone.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** July-August.

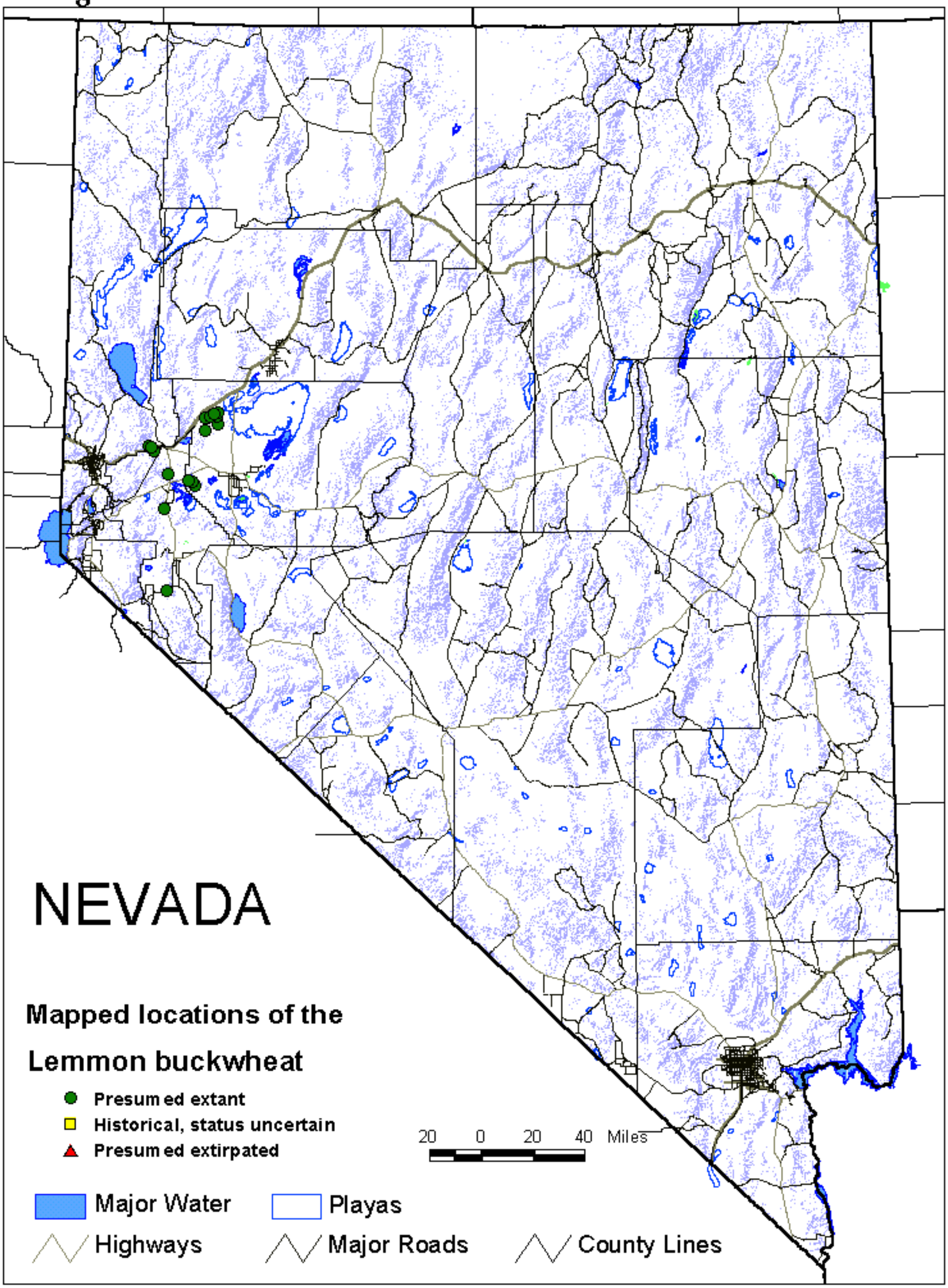
LIFE-FORM AND HABIT: small matted long-lived perennial herb.

DESCRIPTION: A low perennial herb with leafless flowering stems, about 3 cm high that rise above a mat of leaves. The flowering stems each bear a terminal cluster of flowers that vary in color from white to pink, turning orange and deep red at maturity. Blooms June-August.

PHOTOGRAPHS: Anderson et al. (1991); Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: Anderson et al. (1991), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Reveal (1985).
SPECIFIC REFERENCES:

Goodrich, S. 1979. Status report on Eriogonum holmgrenii. Portland, Oregon: U. S. Fish and Wildlife Service.
Johnson, R. E. 1988. Report on alpine flora of Great Basin National Park. Baker, Nevada: Great Basin National Park.
Reveal, J. L. 1965. A new alpine Eriogonum from Nevada. Leaflets of Western Botany 10: 183-186.

Eriogonum lemmonii



Eriogonum lemmonii S. Watson (1877) LEMMON BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program WATCH LIST, ranks: G3? S3?**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 18 occurrences mapped at 1.0 km (0.6 mi) separation, OR **19 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 8855+**, total estimated **area 4.1+ ha (10.1+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1986, average year of last survey 1981. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 57.9%; **21-30 yrs:** 42.1%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, private lands, Humboldt-Toiyabe National Forest, Nevada state lands.

RANGE: Churchill, Lyon, Pershing, Storey, and Washoe counties, Nevada. **Nevada endemic.** Maximum **range dimension 68.3 km (42.5 mi)** excluding most disjunct record. **Type specimen** collected in Washoe County.

ELEVATIONS RECORDED: 4200-5400 feet (1280-1646 meters).

HABITAT: Open, light-colored, sometimes silty or sandy, sometimes gypsiferous shrink-swell clay soils on bluffs and badlands derived from fluviolacustrine silt and volcanic ash deposits in the shadscale zone.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: annual.

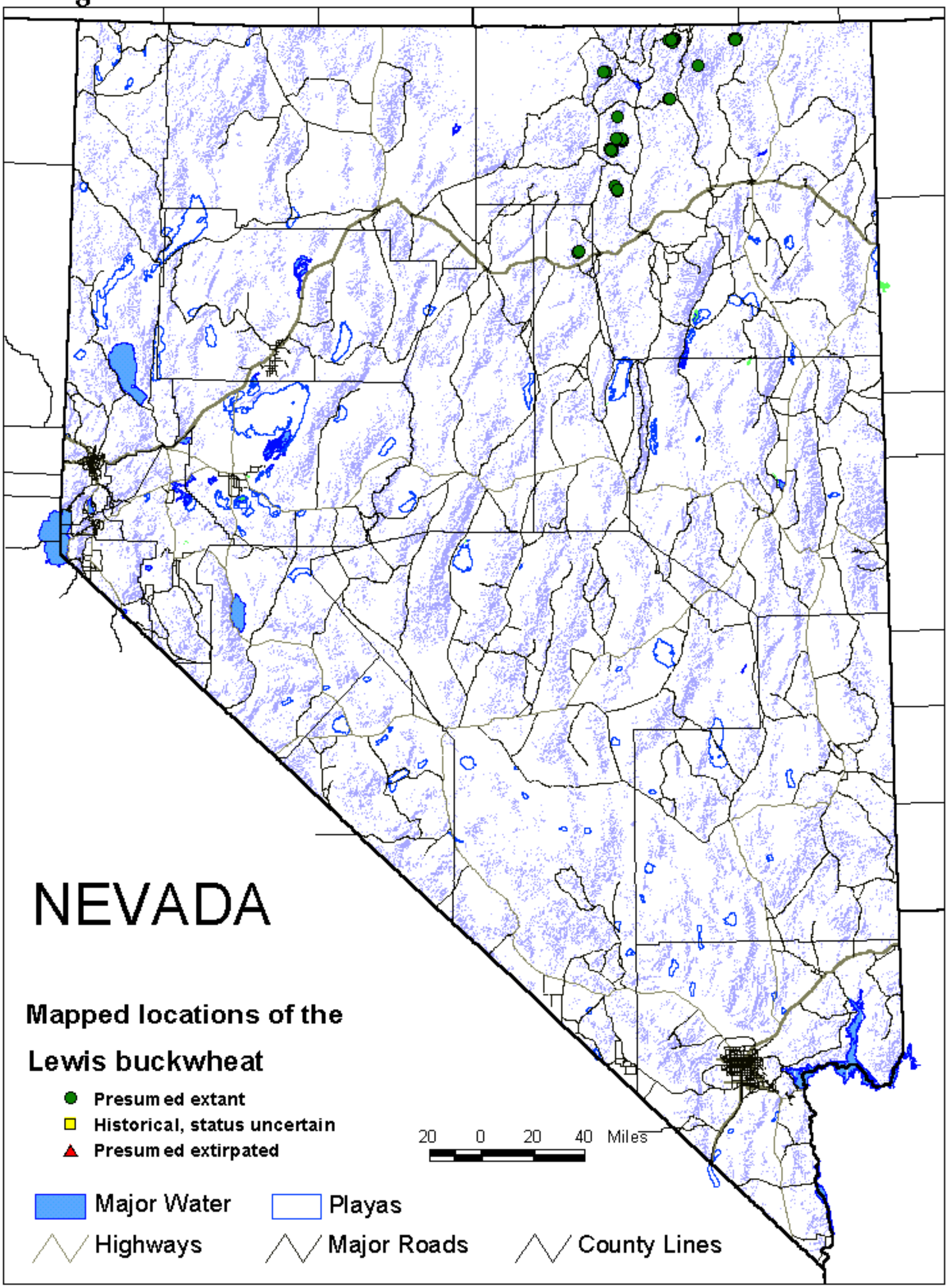
DESCRIPTION: An erect annual averaging 2.3 dm high with a basal rosette of leaves and tiny, pink, red or yellow flowers in May and June.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Reveal (1985).
SPECIFIC REFERENCES:

Tiehm, A. 1983. Field search for proposed threatened and endangered plants on Phillips Petroleum lease unit in the Desert Peak area of Churchill County, Nevada. Carson City: Nevada Natural Heritage Program files.

Watson, S. 1877. Descriptions of new species of plants, with revisions of certain genera. Proceedings of the American Academy of Arts 12: 246-278.

Eriogonum lewisii



Eriogonum lewisii Reveal (1985) LEWIS BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3Q S2S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 19 occurrences mapped at 1.0 km (0.6 mi) separation, OR **37 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 1,000,000+**, total estimated **area 44.6+ ha (110+ ac)**.
TREND: DECLINING.

IMPACTS AND MAJOR THREATS: Mineral exploration and development, development and maintenance of roads and electronic sites, off-road vehicle travel, trampling by livestock or feral animals, fire and fire suppression activities. Most sites have sustained some level of impacts. Four occurrences were immediately adjacent to an expanding open-pit gold mining operation in 1996.

INVENTORY EFFORT: Surveys have been extensive, but much potential habitat remains to be examined. Most recent entered survey 1997, average year of last survey 1995. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 21.6%; **6-10 yrs:** 75.7%; **11-20 yrs:** 2.7%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, private lands, U. S. Bureau of Land Management, designated wilderness.

RANGE: Elko and Eureka counties, Nevada. A specimen reported from Utah by Reveal (1985) was later identified by Reveal as Eriogonum desertorum. **Nevada endemic.** Maximum **range dimension 165.5 km (102.9 mi)** excluding most disjunct record. **Type specimen** collected in Elko County.

ELEVATIONS RECORDED: 6470-9720 feet (1972-2963 meters).

HABITAT: Dry, exposed, shallow, relatively barren and undisturbed, rocky residual soils on convex ridge-line knolls and crests underlain by siliceous carbonate rocks, on flat to moderately steep slopes of all aspects, but with the densest stands on southerly aspects, codominating with Artemisia arbuscula and Elymus elymoides. Occasionally found at lower elevations on clay hills derived from silty carbonate or calcium-rich siliceous rock.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** July-October.

LIFE-FORM AND HABIT: small long-lived perennial cushion.

DESCRIPTION: A small perennial herb, with flower stems covered with long, fine hair and yellow flowers that bloom June-September. This taxon may not be distinct at the species level; it may be a variety of E. desertorum (or a variety within a complex that includes E. desertorum). **Distinguishing features:** Similar to Eriogonum desertorum, from which it is distinguished mainly by smaller leaves, and somewhat smaller flowering stems and flowers.

PHOTOGRAPHS: Anderson et al. (1991), Morefield (1996), Smith and Curto (1995); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Anderson et al. (1991).
OTHER GENERAL REFERENCES (listed separately): Reveal (1985).
SPECIFIC REFERENCES:

Frank, C. A., and Greystone. 1998. Sensitive plant surveys: Independence Mining Company, Inc., Elko County, Nevada, July 1997. Greenwood Village, Colorado: Greystone, prepared for Independence Mining Company, Inc., Elko, Nevada.

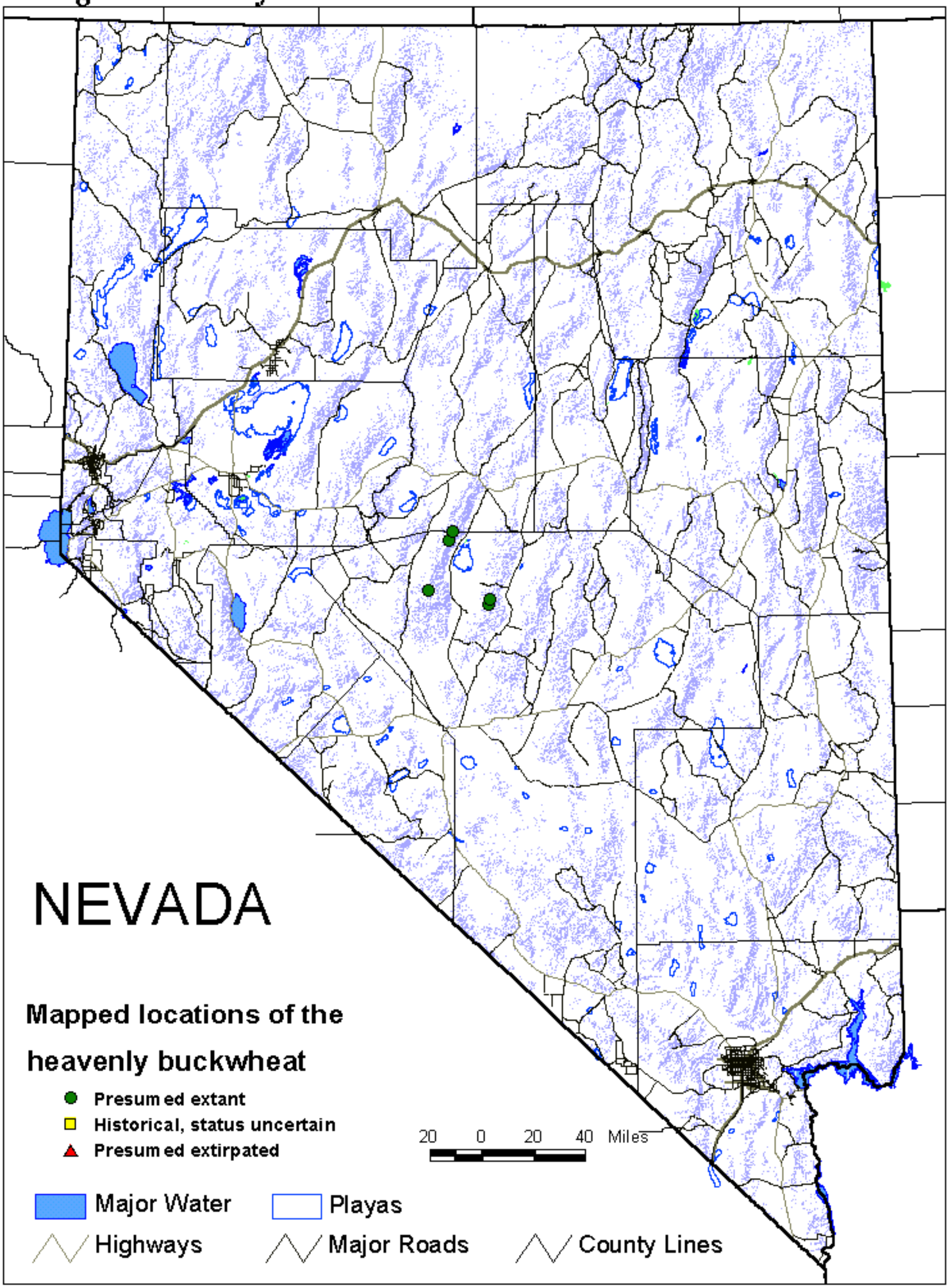
Morefield, J. D. 1996. Current knowledge and conservation status of Eriogonum lewisii Reveal (Polygonaceae), the Lewis buckwheat. Carson City: Nevada Natural Heritage Program, status report prepared for the U. S. Fish and Wildlife Service, Reno.

Reveal, J. L. 1985. New Nevada entities and combinations in Eriogonum (Polygonaceae). Great Basin Naturalist 45: 276-280.

White, M. R. 1994. Sensitive plant species surveys, Mountain City Ranger District, Humboldt National Forest. Elko, Nevada: U. S. Department of Agriculture, Humboldt National Forest.

OF FURTHER INTEREST: Appears to intermingle or intergrade somewhat with Eriogonum desertorum at lower elevations, and may only be varietally distinct from that species.

Eriogonum ovalifolium var. caelestinum



Eriogonum ovalifolium Nuttall var. *caelestinum* Reveal (1972) HEAVENLY BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program WATCH LIST, ranks: G5 T2T3 S2S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 5 occurrences mapped; total estimated **individuals 403+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1980, average year of last survey 1975. **Years since last entered survey** (percent of mapped records at various survey ages)**: 21-30 yrs:** 80%; **31-50 yrs:** 20%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness.

RANGE: Lander (?) and Nye counties, Nevada. **Nevada endemic.** Maximum **range dimension 49.8 km (30.9 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 10000-11700 feet (3048-3566 meters).

HABITAT: Shallow rocky, gravelly, and sandy soils in exposed crest areas in the upper subalpine and alpine zones.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** July-August.

LIFE-FORM AND HABIT: small long-lived perennial cushion.

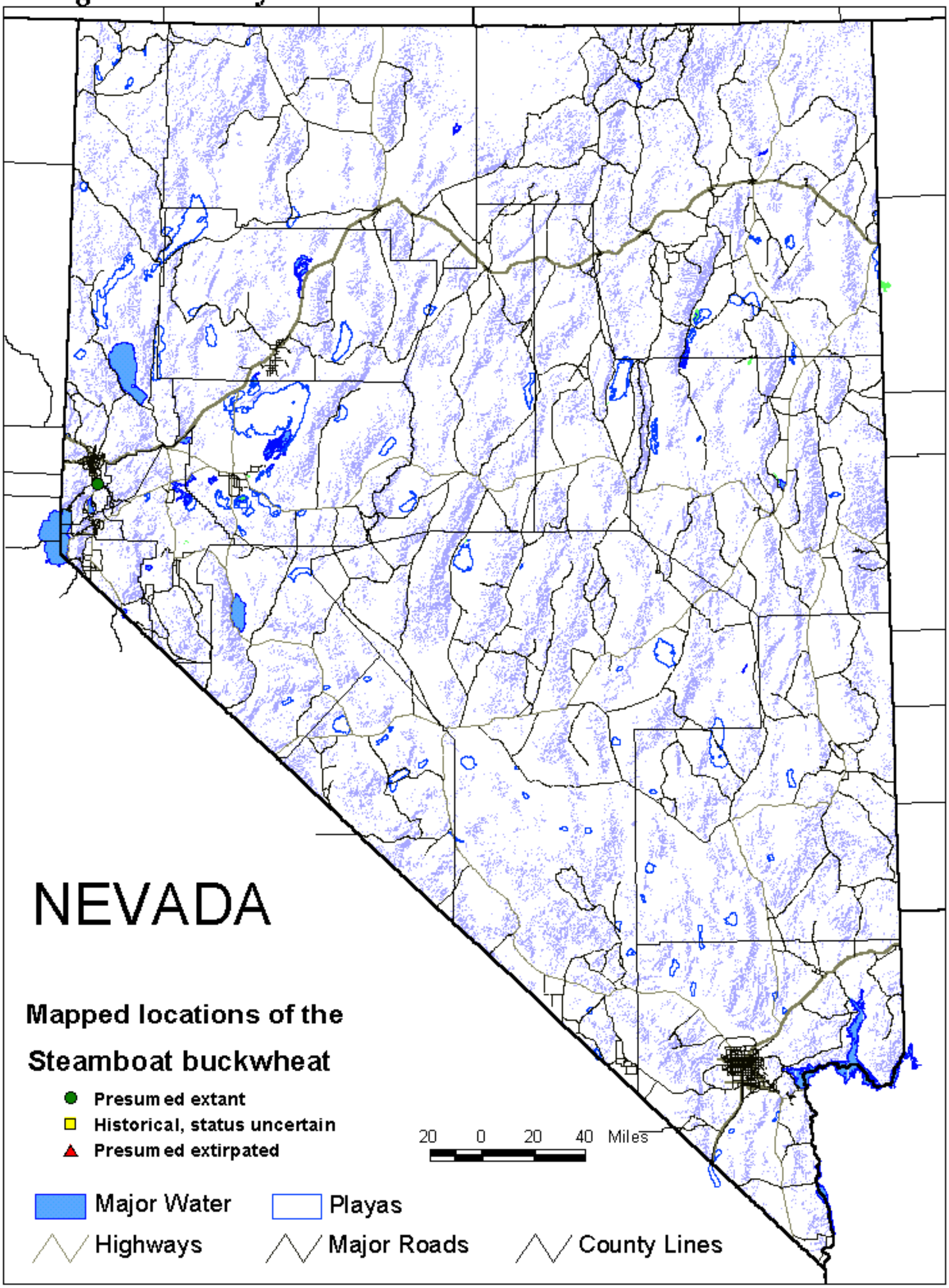
DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Reveal (1985).
SPECIFIC REFERENCES:

Goodrich, S. 1979. Status report on Mertensia toyabensis. Portland, Oregon: U. S. Fish and Wildlife Service.
Reveal, J. L. 1972. Five new varieties of Eriogonum (Polygonaceae). Great Basin Naturalist 32: 113-116.

OF FURTHER INTEREST: Appears to intergrade with var. ovalifolium on Mount Callaghan in the northern Toiyabe Range.

Eriogonum ovalifolium var. williamsiae



Eriogonum ovalifolium Nuttall **var. *williamsiae*** Reveal (1981)

STEAMBOAT BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G5 T1 S1**
USFWS/ESA: LISTED ENDANGERED. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** ENDANGERED.

POPULATION CENSUS: 1 occurrence mapped; total estimated **individuals 200,000**, total estimated **area 51.4 ha (127 ac)**. **TREND:** DECLINING OR STABLE.

IMPACTS AND MAJOR THREATS: Geothermal exploration and development, highway construction and maintenance, private development, competition with tall whitetop (Lepidium latifolium) and other invasive weeds, flood erosion from breaches in Steamboat Ditch, alteration of spring flows via regional groundwater pumping and other water diversions, impacts to pollinator populations.

INVENTORY EFFORT: Inventory and mapping essentially complete. Most recent entered survey 2000.
Years since last entered survey (percent of mapped records at various survey ages)**: 0-5 yrs:** 100%.

LAND MANAGEMENT in decreasing predominance: Nevada state lands, private lands, U. S. Bureau of Land Management, Humboldt-Toiyabe National Forest (?).

RANGE: Washoe County, Nevada. **Nevada endemic. Type specimen** collected in Washoe County.

ELEVATIONS RECORDED: 4565-4720 feet (1391-1439 meters).

HABITAT: Young, shallow, poorly-developed, dry soils derived from siliceous opaline sinter precipitated by past thermal spring flows, but not currently near surface water, in open areas with sparse Atriplex confertifolia, Sarcobatus vermiculatus, Chrysothamnus nauseosus, etc. Sometimes found on adjacent deeper and/or disturbed soils when competitive vegetation is lacking. Dependent on wetland margin areas.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-July.

LIFE-FORM AND HABIT: semi-woody long-lived perennial cushion.

DESCRIPTION: Low compact perennial cushions forming mounds to 4.5 dm wide and 2.5 dm high, from shallow fibrous roots and a short, stout, woody taproot; overall color greenish gray with balls of light pink to reddish flowers; root crown much branched, woody; flowering stems mostly upright.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files. **ILLUSTRATIONS:** Mozingo and Williams (1980).

OTHER GENERAL REFERENCES (listed separately): Reveal (1985).

SPECIFIC REFERENCES:

Knight, T. A. 1993. Steamboat buckwheat management plan, SB Geo lease site, Washoe County, Nevada. Las Vegas, Nevada: The Nature Conservancy, prepared for SB Geo, Inc., Reno, Nevada.

Minor, T., T. Wade, and J. Bair. 1997. Development of a habitat map for Steamboat buckwheat (Eriogonum ovalifolium var. williamsiae). Reno: Desert Research Institute, unpublished draft report prepared for the U. S. Fish and Wildlife Service.

Nelson, L. S. 1991. Survey for Steamboat buckwheat, Eriogonum ovalifolium var. williamsiae at Steamboat Springs, Nevada. Carson City: Nevada Natural Heritage Program, unpublished report in files.

Reveal, J. L. 1981. Notes on endangered buckwheats (Eriogonum: Polygonaceae) with three newly described from the western U. S. Brittonia 33: 441-448.

Sorey, M. L. and E. M. Colvard. 1992. Factors affecting the decline in hot-spring activity in the Steamboat Springs area of Critical Environmental Concern, Washoe County, Nevada. Menlo Park, California: U. S. Geological Survey, administrative report for the Bureau of Land Management.

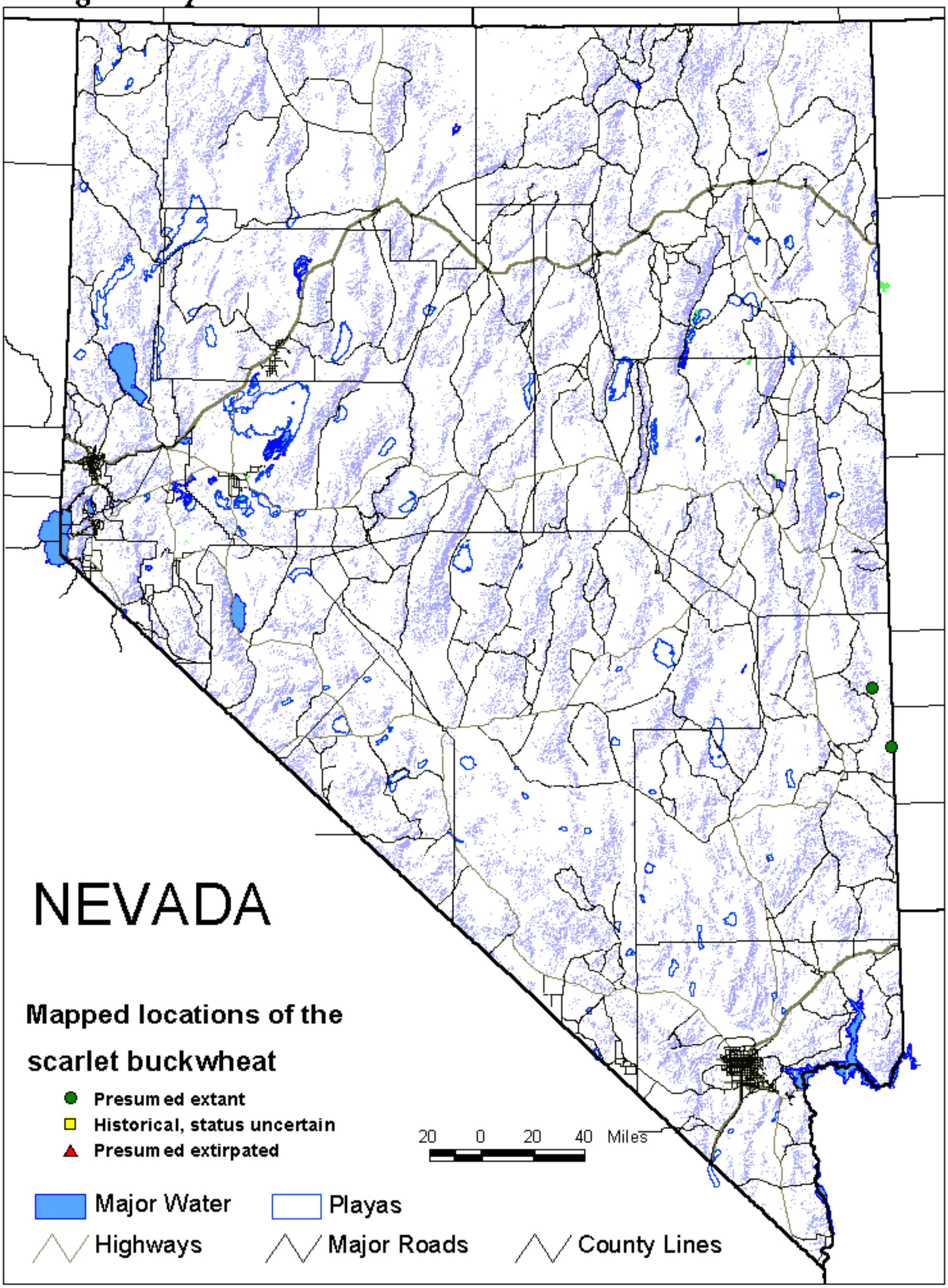
U. S. Fish and Wildlife Service. 1986. Determination of endangered status for Eriogonum ovalifolium var. williamsiae. Federal Register 51(130): 24669-24671.

U. S. Fish and Wildlife Service. 1995. Steamboat buckwheat (Eriogonum ovalifolium var. williamsiae) recovery plan. Portland, Oregon.

Williams, M. J. 1982. Status report on Eriogonum ovalifolium var. williamsiae. Portland, Oregon: U. S. Fish and Wildlife Service.

OF FURTHER INTEREST: Closely related to other varieties of Eriogonum ovalifolium.

Eriogonum phoeniceum



Eriogonum phoeniceum L. Shultz — SCARLET BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 2 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): One recent survey has been conducted, but many more are likely needed. Most recent entered survey 1987, average year of last survey 1983. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 50%; **21-30 yrs:** 50%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands.

RANGE: Lincoln County, Nevada; also in UT. Two populations in Mahogany Mountains of SE NV. Maximum Nevada **range dimension 38.3 km (23.8 mi)**.

ELEVATIONS RECORDED (NEVADA): 6700-7200 feet (2042-2195 meters).

HABITAT (NEVADA): White tuffaceous knolls, bluffs, and rocky flats, openings in pinyon and juniper woodland, with Artemisia tridentata, Purshia tridentata, Petradoria pumila, etc.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-July.

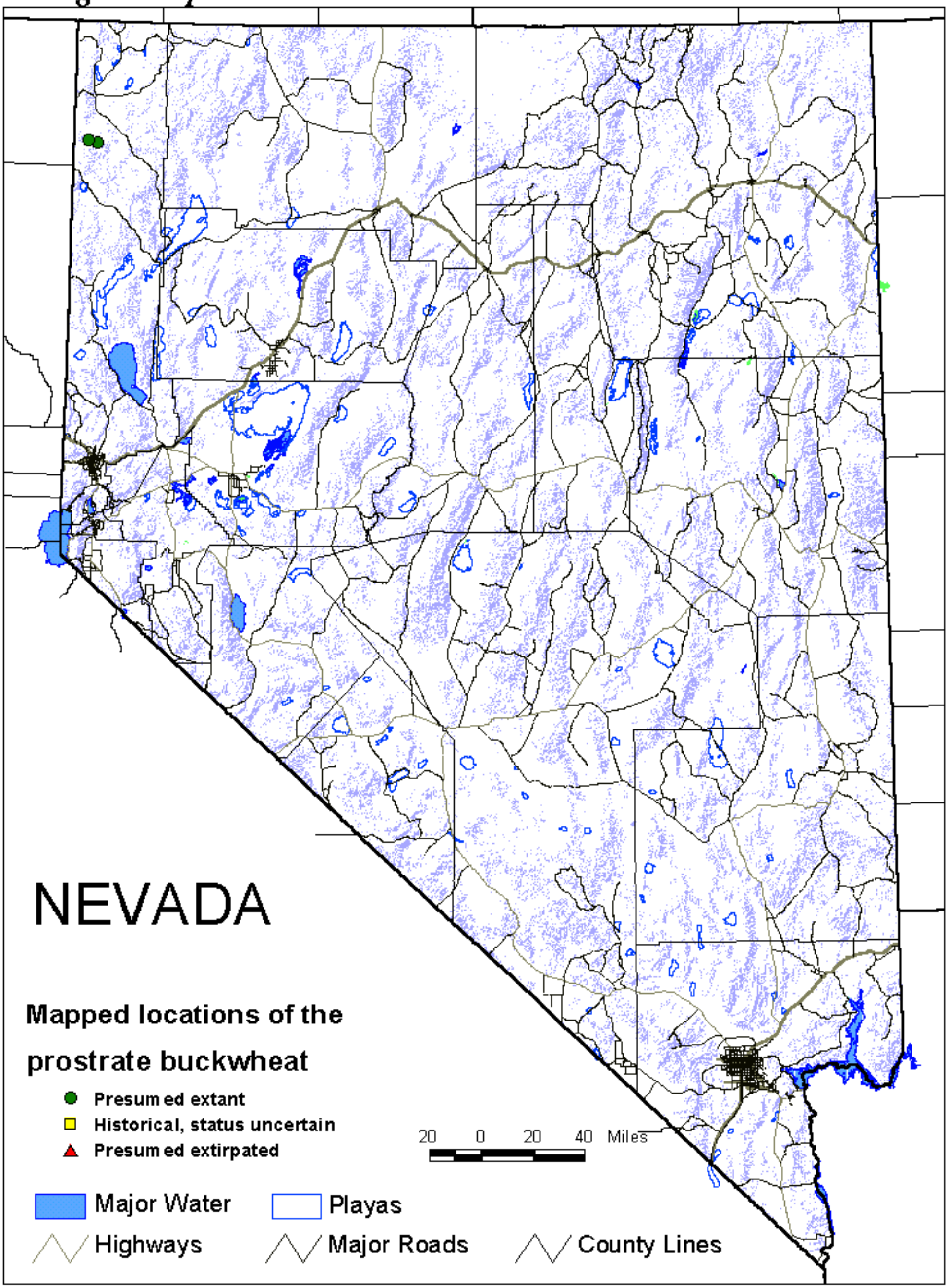
LIFE-FORM AND HABIT: small semi-woody long-lived perennial cushion.

DESCRIPTION: Caespitose, densely branched suffrutescent perennial from a branched woody caudex, forming low hemispheric mounds. Lowermost stems gray to reddish brown, with bark exfoliating in irregular strips. Leaves light green, margins entire and revolute, blades appearing linear or narrowly elliptic, needlelike. Inflorescences cymose, congested, 2-3 times branched; branches light green, pubescent, becoming reddish brown and glabrate as they mature. Involucres solitary, green to reddish brown, narrowly turbinate with acute lobes, glabrous; flowers 4-6 per involucre, with 1-3 maturing into fruit. Tepals white with reddish-brown midrib, turning yellow to red-brown with maturity. Achenes red-brown, oblanceolate (Shultz 1998). **Distinguishing features:** Inflorescence branches glabrous to loosely arachnoid; stems reddish brown, glabrous to somewhat pubescent; leaf margins tightly revolute; plants mostly <1 dm high; intricately branched and compact; flowers white to red; leaf adaxial surface glabrous, appearing glossy from papilliform epidermal cells. Leaf: length 6-7(-8) mm, adaxial surface glabrous to sparsely villous; Petiole 1.0-1.5(-3.0)mm; Tepals length 2.0-2.5mm, apex blunt, slightly notched; Involucre 2.0-3.0 mm; Achenes 1.5-2.0 mm.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Shultz (1998).
SPECIFIC REFERENCES:

Shultz, L. M. 1998. A new species of Eriogonum (Polygonaceae: Eriogonoideae) from Utah and Nevada. Harvard Papers in Botany 3(1): 49-52.

Eriogonum prociduum



Eriogonum prociduum Reveal — PROSTRATE BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada and California. **USFS:** Region 5 (California) Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 2 occurrences mapped; total estimated **individuals 601+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys in Nevada are largely complete. Most recent entered survey 1991, average year of last survey 1985. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 50%; **21-30 yrs:** 50%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: private lands, U. S. Bureau of Land Management.

RANGE: Washoe County, Nevada; also in CA and OR. Maximum Nevada **range dimension 5.3 km (3.3 mi)**.

ELEVATIONS RECORDED (NEVADA): 6800-7150 feet (2073-2179 meters).

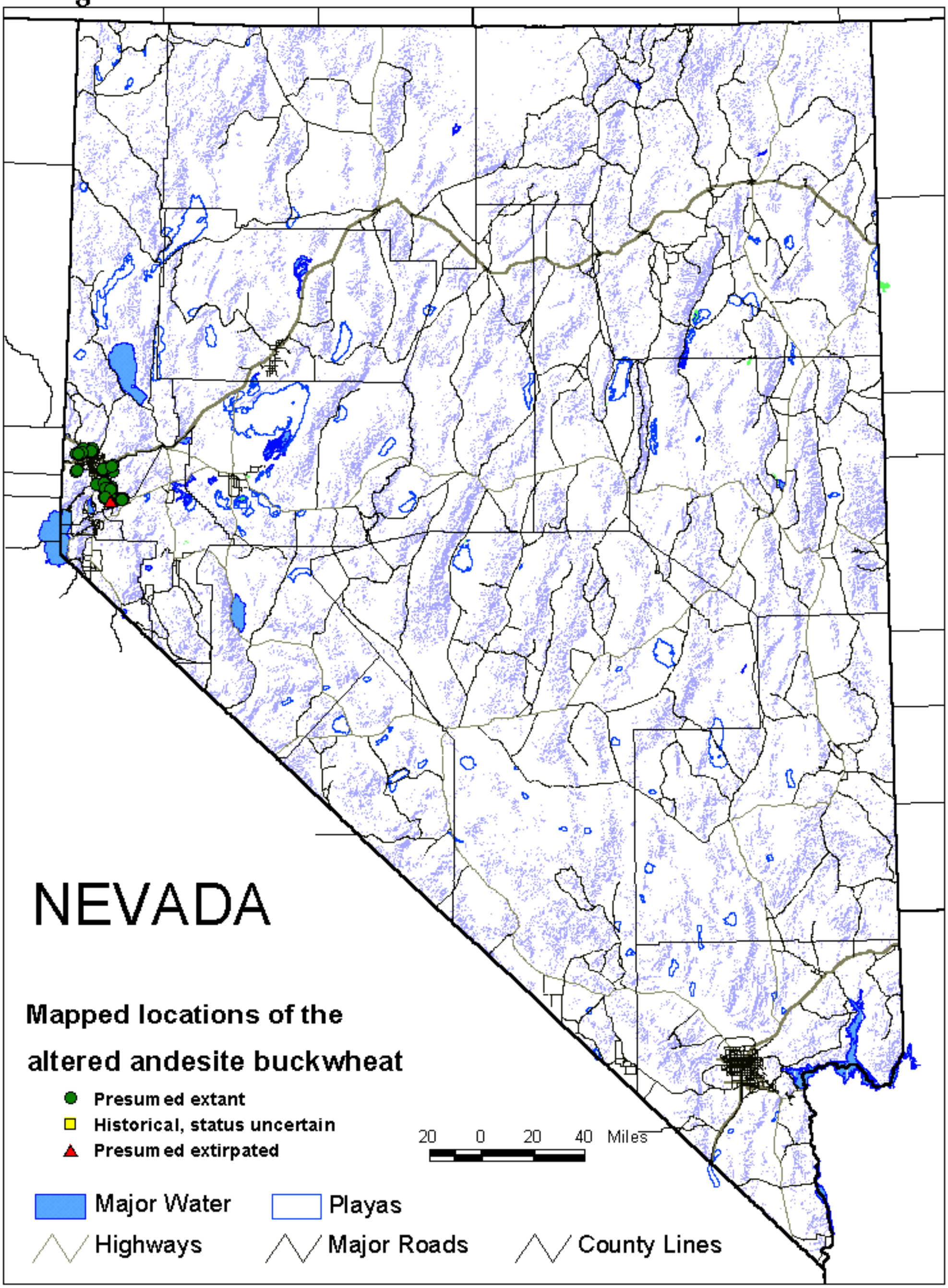
HABITAT (not yet reviewed for Nevada): "Basalt flows and occasionally on barren volcanic tuff. Elevation ranging from 4600-8320 feet. Associated vegetation cover is low."

PHENOLOGY: no summary available. Range of most frequent **survey months:** July-August.

DESCRIPTION: A perennial herb that forms low mats of leaves. Erect flowering stems bearing rounded clusters of yellow flowers rise 5-15 cm above the leaf mats. Blooms May-July.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present) and slide collection (1986-present).
ILLUSTRATIONS: Meinke (1982).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993), Reveal (1985).

Eriogonum robustum



Eriogonum robustum (E. Greene) ALTERED ANDESITE BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family. **SYNONYMS:** *Eriogonum lobbii* var. *robustum*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3Q S2S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 25 extant occurrences mapped at 1.0 km (0.6 mi) separation, OR **130 extant and 2 extirpated occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 1,600,000+**, total estimated **area 329 ha (813 ac)**. **TREND:** DECLINING RAPIDLY.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Surveys are substantially complete, with only a minor amount of potential habitat remaining unexamined. Most recent entered survey 1998, average year of last survey 1995.
Years since last entered survey (percent of mapped records at various survey ages)**: 0-5 yrs:** 11.3%; **6-10 yrs:** 87.2%; **21-30 yrs:** .8%; **31-50 yrs:** .8%.

LAND MANAGEMENT in decreasing predominance: private lands, U. S. Bureau of Land Management, Humboldt-Toiyabe National Forest, Nevada state lands, county lands, designated wilderness.

RANGE: Storey and Washoe counties, Nevada. **Nevada endemic.** Maximum **range dimension 40.5 km (25.2 mi)** excluding most disjunct record. **Type specimen** collected in Washoe County.

ELEVATIONS RECORDED: 4410-7325 feet (1344-2233 meters).

HABITAT: Dry, shallow, highly acidic (pH 3.3-5.5) gravelly clay soils mainly of the Smallcone Series, derived from weathering of hydrothermal sulfide deposits formed in andesite, or sometimes in rhyolitic or granitoid rocks, forming mostly barren yellowish to orange brown patches on ridges, knolls, and steep slopes on all aspects, on all but the most xeric sites supporting a sparse, stunted relict woodland of yellow pines (Pinus ponderosa and/or P. jeffreyi) and pinyon pine (P. monophylla), with an equally sparse understory codominated with Arenaria nuttallii fragilis, Ericameria parryi or E. nauseosa, Elymus elymoides, and/or Poa secunda. Other normally mesic-montane conifer taxa, such as white fir, western white pine, and lodgepole pine, are occasionally present.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** May-September.

LIFE-FORM AND HABIT: semi-woody long-lived perennial cushion.

DESCRIPTION: Large perennial mound with rounded grayish leaves and large pale-yellow inflorescences.
Distinguishing features: A distinctive and unmistakable species.

PHOTOGRAPHS: Morefield (2000); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Reveal (1985).
SPECIFIC REFERENCES:

Greene, E. L. 1885. Studies in the botany of California and parts adjacent. Bulletin of the California Academy of Sciences 1: 66-127.

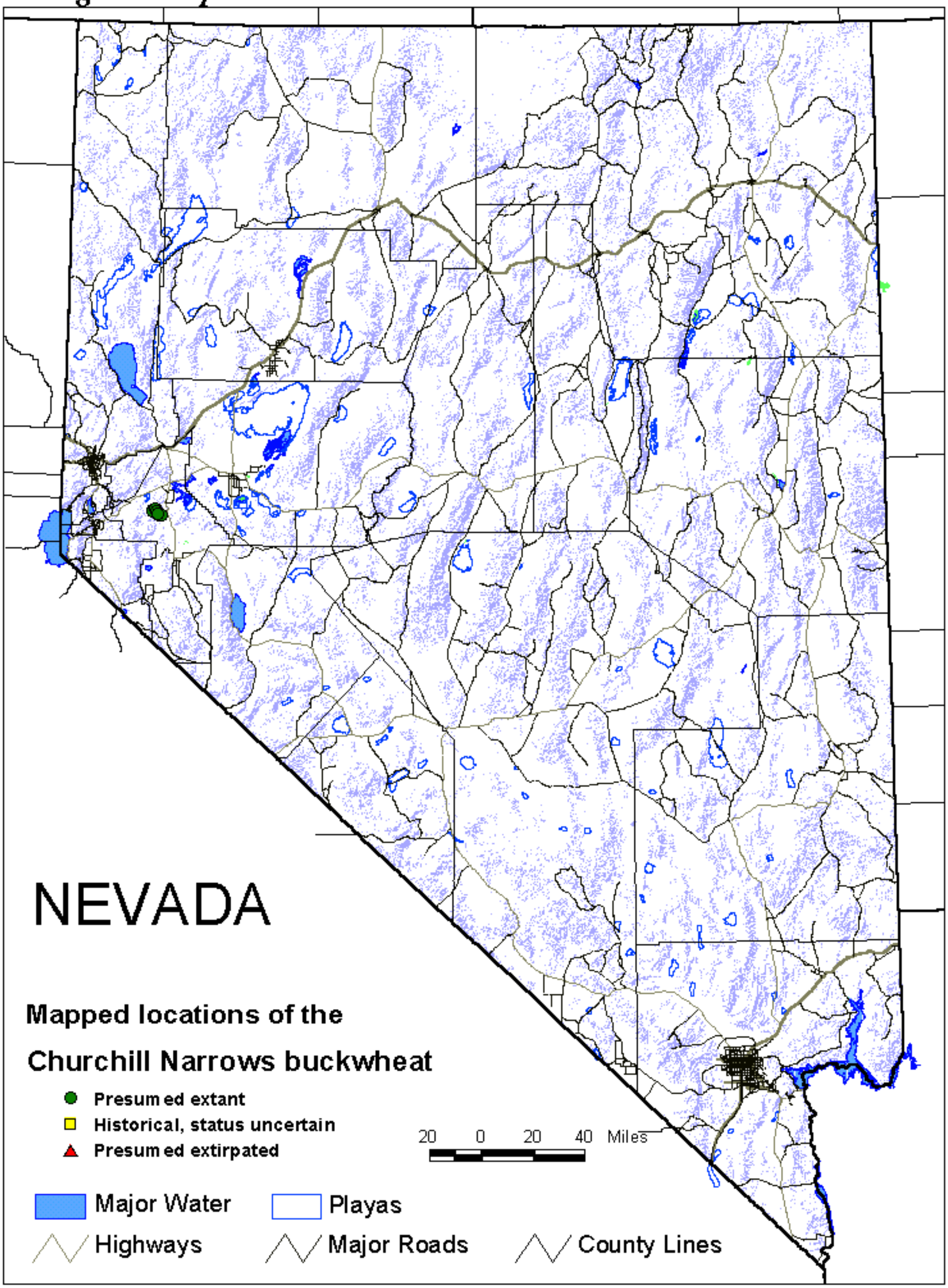
Kuyper, K. F., U. Yandell, and R. S. Nowak. 1997. On the taxonomic status of Eriogonum robustum (Polygonaceae), a rare endemic in western Nevada. Great Basin Naturalist 57: 1-10.

Morefield, J. D. 2000. Current knowledge and conservation status of Eriogonum robustum E. Greene (Polygonaceae), the altered andesite buckwheat. Carson City: Nevada Natural Heritage Program, status report prepared for the U. S. Fish and Wildlife Service, Reno, Nevada.

Reveal, J. L. 1985. New Nevada entities and combinations in Eriogonum (Polygonaceae). Great Basin Naturalist 45: 276-280.

OF FURTHER INTEREST: The Nevada Natural Heritage Program and Kuyper et al. (1997) consider this taxon a good, distinct species, and all ranks are for that taxonomic level.

Eriogonum sp.



Eriogonum sp. CHURCHILL NARROWS BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1G2 S1S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** THREATENED.

POPULATION CENSUS: 4 occurrences mapped at 1.0 km (0.6 mi) separation, OR **12 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 38,000+**, total estimated **area 34.4 ha (85.0 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Surveys appear to be complete, although some disjunct potential habitat may remain unexamined. Most recent entered survey 1997, average year of last survey 1997. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 100%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, private lands.

RANGE: Lyon County, Nevada. Endemic to the Churchill Narrows area. Maximum **range dimension 5.0 km (3.1 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 4300-4600 feet (1311-1402 meters).

HABITAT: Dry, relatively barren and undisturbed, white to yellowish tan, clay to silty diatomaceous deposits of the Coal Valley Formation, with a variable volcanic cobble overburden, on rounded knolls, low ridges, slopes, and especially small drainages on all aspects with Atriplex confertifolia, Stanleya pinnata, Sarcobatus baileyi, Artemisia spinescens, and other shadscale zone associates.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** July-December.

LIFE-FORM AND HABIT: matted semi-woody long-lived perennial herb.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Reynolds (2000); Nevada Natural Heritage Program images web page (1998-present) and slide collection (1986-present).

ILLUSTRATIONS: none known.

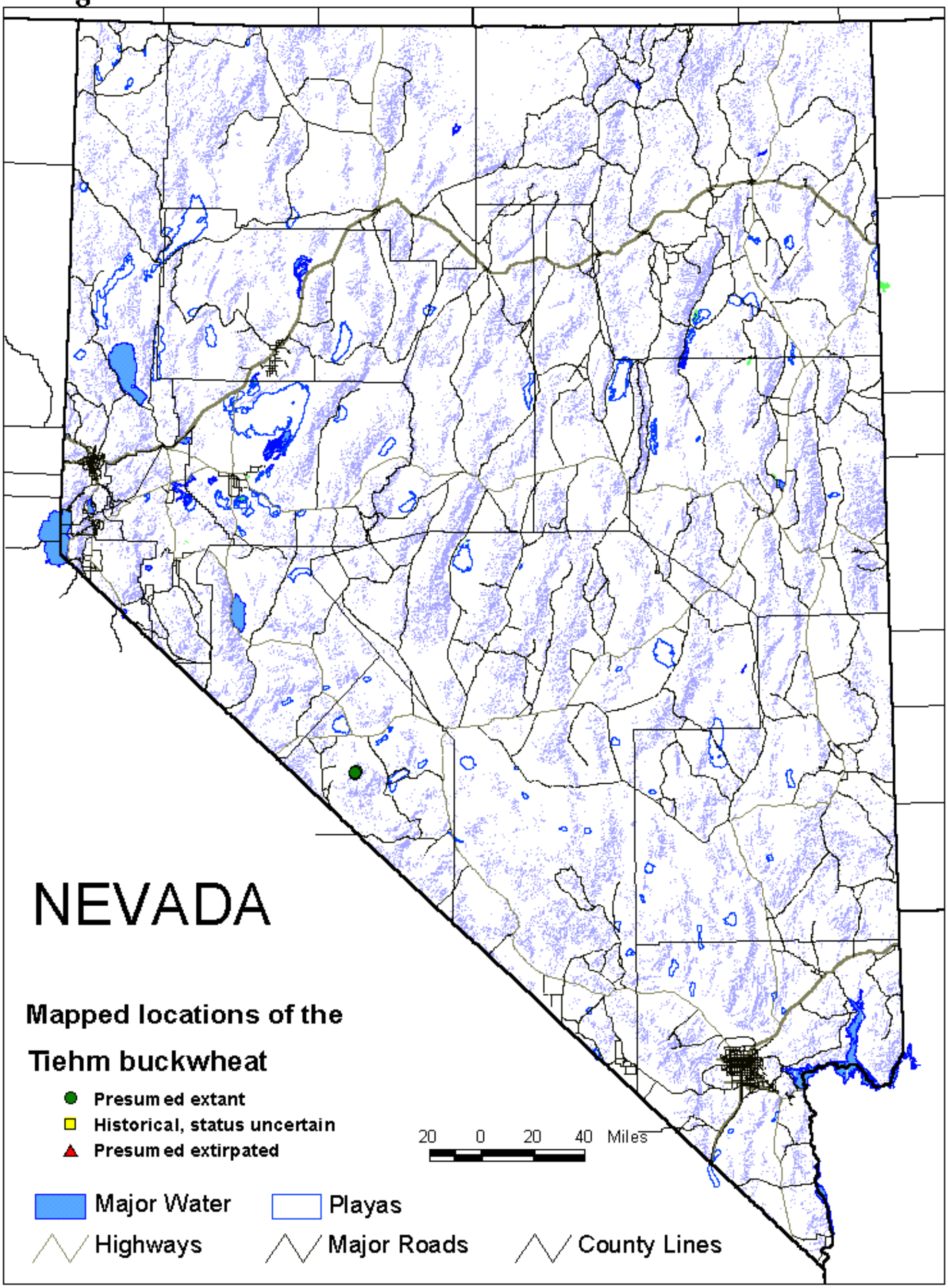
SPECIFIC REFERENCES:

Picciani, J. and J. Reynolds. 1997. Field investigation of an unidentified wild buckwheat, Eriogonum sp., Silver Springs, Nevada. Belle Fourche, South Dakota: American Colloid Company.

Reynolds, J. 2000. Current knowledge and conservation status of Eriogonum sp., Picciani, Reynolds, Reveal (Polygonaceae), Churchill Narrows Buckwheat. Carson City: Nevada Natural Heritage Program, DRAFT status report prepared for the Bureau of Land Management, Reno.

OF FURTHER INTEREST: Soon to be named as a new species.

Eriogonum tiehmii



Eriogonum tiehmii Reveal (1985) TIEHM BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** THREATENED.

POPULATION CENSUS: 2 occurrences mapped at 1.0 km (0.6 mi) separation, OR **6 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 21,000+**, total estimated **area 8.5 ha (21.0 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Off-road vehicle use, mineral exploration and development, small population numbers and areas. Most sites have been impacted by past mineral exploration and extraction, and claims markers remain.

INVENTORY EFFORT: Surveys appear to be complete, with little or no unexamined potential habitat remaining. Most recent entered survey 1994, average year of last survey 1994. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 100%.

LAND MANAGEMENT: U. S. Bureau of Land Management.

RANGE: Esmeralda County, Nevada. Endemic to a very small area of the Silver Peak Range. Maximum **range dimension 1.6 km (1.0 mi)** excluding most disjunct record. **Type specimen** collected in Esmeralda County.

ELEVATIONS RECORDED: 5960-6200 feet (1817-1890 meters).

HABITAT: Dry, open, relatively barren, light-colored rocky clay soils derived from a formation of interbedded claystones, shales, tuffaceous sandstones, and limestones, on all aspects with slopes up to about 50 percent, in pure stands or with a sparse cover of Atriplex confertifolia, Pleuraphis jamesii, Sporobolus airoides, and a few other species.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May.

LIFE-FORM AND HABIT: long-lived perennial cushion.

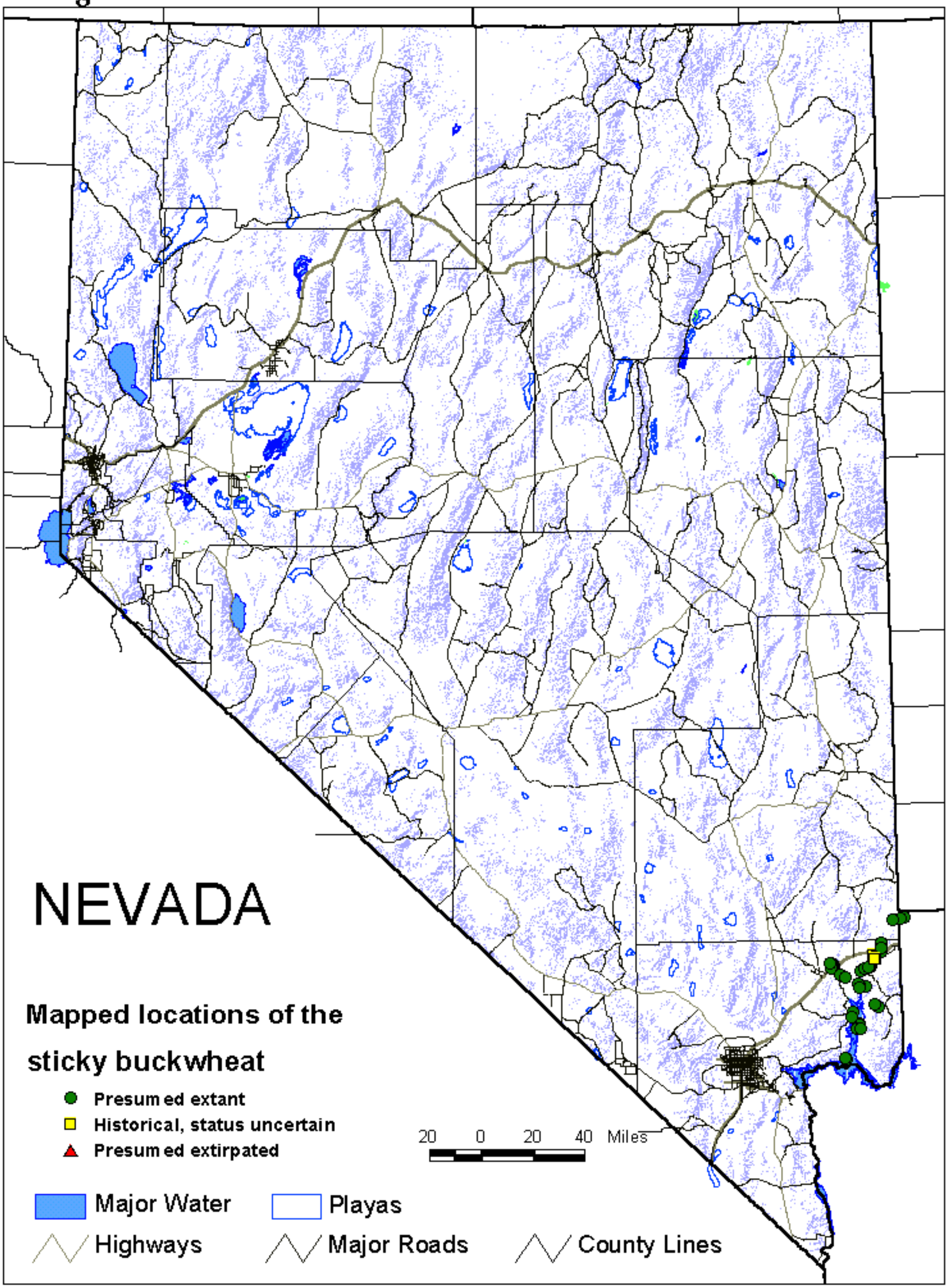
DESCRIPTION: A low, spreading, perennial herb that forms a dense mat up to 3 dm across. Clusters of cream-colored flowers bloom May-July.

PHOTOGRAPHS: Morefield (1995); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Reveal (1985).
SPECIFIC REFERENCES:

Morefield, J. D. 1995. Current knowledge and conservation status of Eriogonum tiehmii Reveal (Polygonaceae), Tiehm buckwheat. Carson City: Nevada Natural Heritage Program, status report prepared for the U. S. Fish and Wildlife Service, Reno.

Reveal, J. L. 1985. New Nevada entities and combinations in Eriogonum (Polygonaceae). Great Basin Naturalist 45: 276-280.

Eriogonum viscidulum



Eriogonum viscidulum J. T. Howell — STICKY BUCKWHEAT

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species in Nevada. **USFS:** none. **NNNPS:** THREATENED.

POPULATION CENSUS (NEVADA): 29 occurrences mapped at 1.0 km (0.6 mi) separation, OR **37 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 25,000+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Systematic surveys have been extensive in Nevada, but likely remain incomplete. Most recent entered survey 1998, average year of last survey 1989. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 8.1%; **6-10 yrs:** 54.1%; **11-20 yrs:** 10.8%; **21-30 yrs:** 24.3%; **51+ yrs or unknown:** 2.7%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, National Park Service, private lands, Nevada state lands (?).

RANGE: Clark and Lincoln counties, Nevada; also in AZ. Maximum Nevada **range dimension 75.5 km (46.9 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 1200-2200 feet (366-671 meters).

HABITAT (NEVADA): Deep loose sandy soils in washes, flats, roadsides, steep aeolian slopes, and stabilized dune areas, with Ambrosia dumosa, Larrea tridentata, Pleuraphis rigida, Krameria parvifolia, Achnatherum hymenoides, Tamarix ramosissima, Tessaria sericea, Astragalus geyeri var. triquetrus, A. sabulonum, Eriogonum trichopes, Ephedra torreyana, Dicoria canescens, Pediomelum, Croton californicus, Sporobolus cryptandrus, Psorothamnus fremontii, Abronia, Tiquilia, etc. Can withstand moderate temporary disturbance. Dependent on sand dunes or deep sand in Nevada.

PHENOLOGY: flowering spring. Range of most frequent **survey months:** April-June.

LIFE-FORM AND HABIT: annual.

DESCRIPTION: An annual herb, up to 4 dm tall, with diffusely branched stems rising from a basal rosette of leaves. Small yellow flowers bloom in April and May. The stems and branches are slightly sticky and are often covered with adhering sand particles. **Distinguishing features:** Related to Eriogonum subreniforme, may be distinguished from all related annual species by the viscid glandularity of the stems and branches.

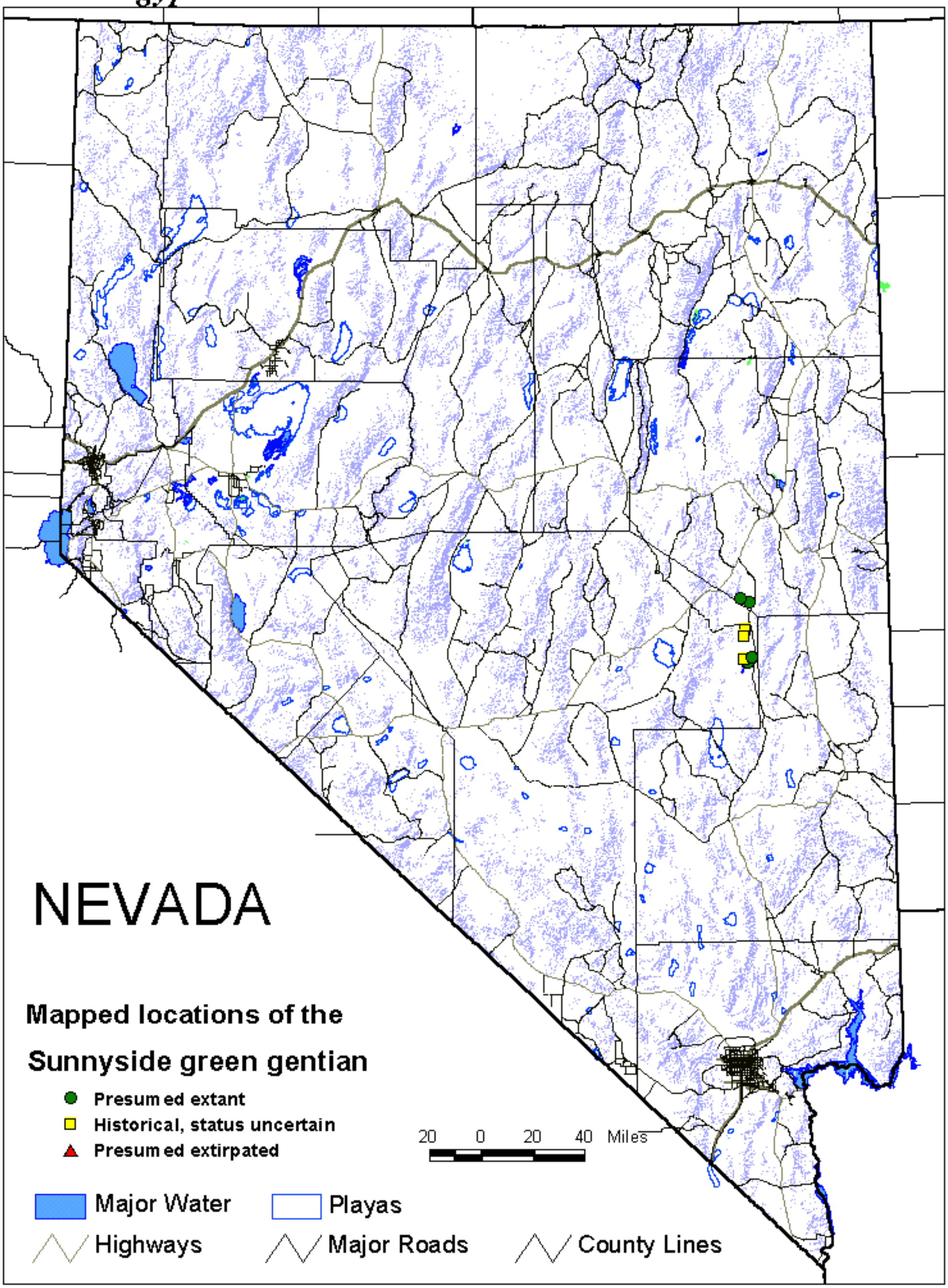
PHOTOGRAPHS: Niles et al. (1995); Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: Mozingo and Williams (1980), Niles et al. (1995).
OTHER GENERAL REFERENCES (listed separately): Holland et al. (1980), Niles et al. (1997), Niles et al. (1998), Reveal (1985).
SPECIFIC REFERENCES:

Howell, J. T. 1942. New western plants. Leaflets of Western Botany 3: 138-142.

Leary, P. J. 1987. Survey of endangered plants, Joshua Tree National Monument. Las Vegas: University of Nevada report CPSU/UNLV 037/01. 26pp.

Niles, W. E., P. J. Leary, J. S. Holland, F. H. Landau. 1995. Occurrence and distribution of Astragalus geyeri var. triquetrus (three-cornered milkvetch) and Eriogonum viscidulum (sticky buckwheat) in Lake Mead National Recreation Area and adjacent regions of Nevada and Arizona. Las Vegas: University of Nevada, prepared for the Lake Mead National Recreation Area.

Frasera gypsicola



Frasera gypsicola (Barneby) D. M. Post — SUNNYSIDE GREEN GENTIAN

FAMILY: *Gentianaceae*, the gentian family. **SYNONYMS:** *Swertia gypsicola*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species in Nevada. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 7 occurrences mapped at 1.0 km (0.6 mi) separation, OR **9 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 203,000+**, total estimated **area 321 ha (793 ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys are substantially complete in Nevada. Most recent entered survey 1999, average year of last survey 1995. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 33.3%; **6-10 yrs:** 66.7%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, Nevada state lands, private lands.

RANGE: Nye and White Pine counties, Nevada; also in UT (?). Maximum Nevada **range dimension 37.3 km (23.2 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 5180-5510 feet (1579-1679 meters).

HABITAT (NEVADA): Open, dry, whitish, alkaline, often salt-crusted and spongy silty-clay soils on calcareous flats and barrens, with little if any gypsum content, in cushion-plant associations surrounded by sagebrush, greasewood, and occasionally barberry and swamp cedar (Juniperus scopulorum) vegetation, with Artemisia pygmaea, A. tridentata, Eriogonum shockleyi, Physaria chambersii, Cryptantha welshii, Hymenopappus filifolius, Phlox tumulosa, Lepidium nanum, etc.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** May-July.

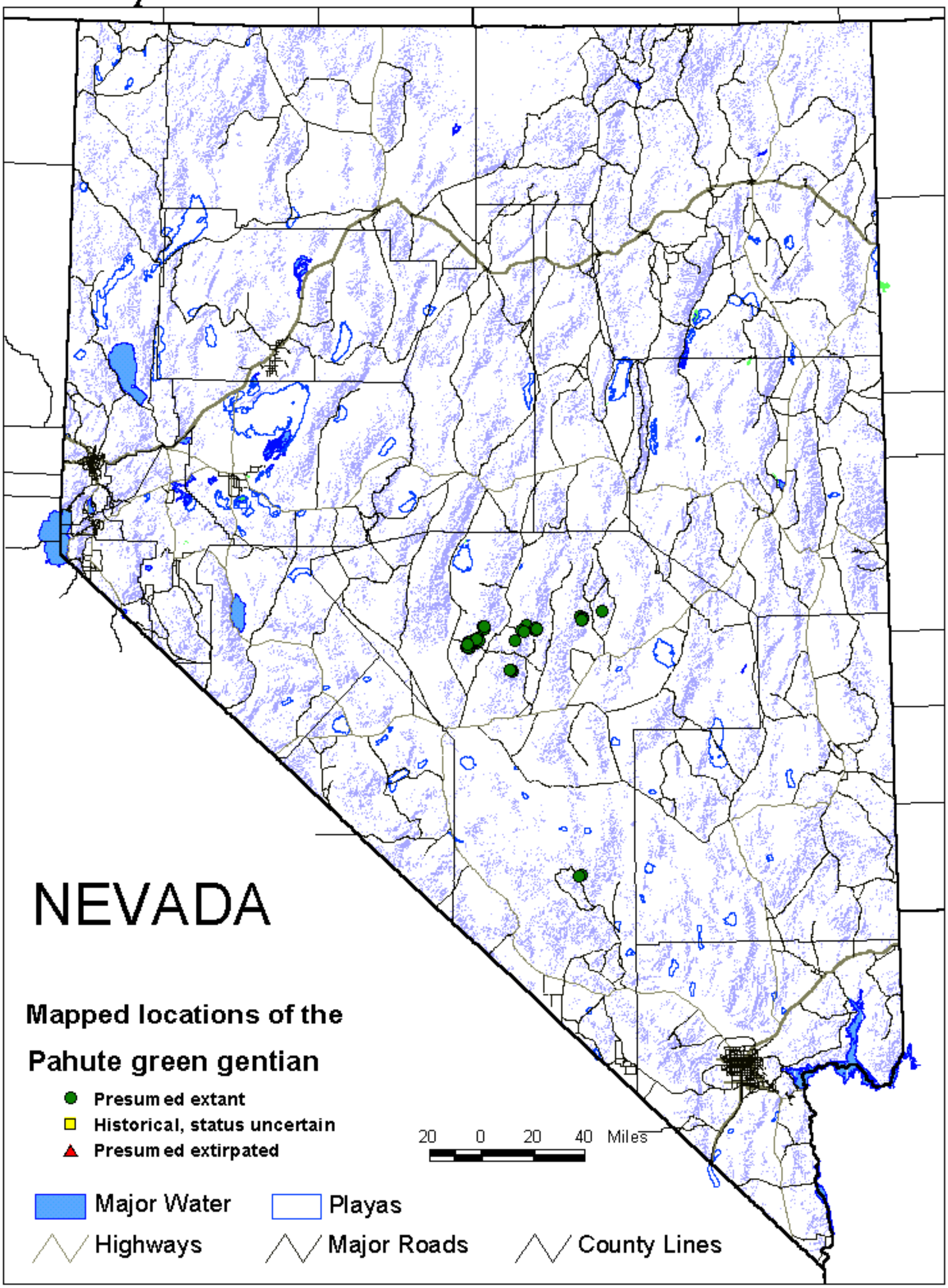
LIFE-FORM AND HABIT: long-lived perennial herb.

DESCRIPTION: A perennial herb, 1-2 dm tall, with grass-like leaves. Flowers (June and July) are white, freckled with purple-blue.

PHOTOGRAPHS: Smith (1994); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Cronquist et al. (1984), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Welsh et al. (1993).
SPECIFIC REFERENCES:

Barneby, R. C. 1942. An addition to the genus Swertia. Leaflets of Western Botany 3: 155-157.
Harrison, B. F. 1980. Botanical survey of threatened and endangered plants Schell Resource Area. Ely, Nevada: Bureau of Land Management.
Lindsey, K. 1985. Report on the status of Frasera gypsicola in the Ely District. Ely, Nevada: Bureau of Land Management.
Pinzl, A. 1978. Status report on Frasera gypsicola. Portland, Oregon: U. S. Fish and Wildlife Service.
Smith, F. 1994. Status report for Frasera gypsicola (Barneby 1942) D. Post. Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

Frasera pahutensis



Frasera pahutensis Reveal (1971) PAHUTE GREEN GENTIAN

FAMILY: *Gentianaceae*, the gentian family.

SYNONYMS: *Swertia pahutensis*
Frasera albicaulis var. *nitida* (misapplied)
Frasera albicaulis var. *modocensis* (misapplied)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 20 occurrences mapped at 1.0 km (0.6 mi) separation, OR **51 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 37,000+**, total estimated **area 387+ ha (956+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Mineral exploration and development, road building and maintenance, off-road vehicle use, DOE uses and commercial development on the Nevada Test Site.

INVENTORY EFFORT: Targeted surveys have been extensive and are largely complete, but several undocumented occurrences likely remain to be discovered. Most recent entered survey 1991, average year of last survey 1989. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 37.3%; **11-20 yrs:** 49%; **21-30 yrs:** 11.8%; **31-50 yrs:** 2%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, private lands, U. S. Department of Energy.

RANGE: Nye County, Nevada. **Nevada endemic.** Maximum **range dimension 166.8 km (103.6 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 7030-8400 feet (2143-2560 meters).

HABITAT: Relatively non-specific habitats within the pinyon-juniper and lower montane scrub zones, but most frequent in relatively deep, stable, sandy or sandy-rocky soils on or near protected (wooded or north-sloping) exposures and/or in micro-drainages, or on more open, south-sloping exposures at higher elevations, mostly derived from rhyolitic, granitoid, or andesitic parent materials, mostly on flat to very gentle slopes but sometimes sloping up to 25 degrees, sometimes colonizing disturbances adjacent to undisturbed source populations, with Pinus monophylla, Juniperus osteosperma, Leptodactylon pungens, Opuntia erinacea, Elymus elymoides, Stipa comata, Astragalus purshii, Eriogonum caespitosum, E. umbellatum, Stenotus acaulis, Phlox hoodii, etc.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-July.

LIFE-FORM AND HABIT: rhizomatous perennial herb.

DESCRIPTION: Dark green herbaceous perennials 1-3 dm tall forming colonies connected by deep rootstocks, leaves white-margined, inflorescence mostly unbranched, flowers greenish-white to cream or very pale blue, flecked with dark purple.

PHOTOGRAPHS: Blomquist et al. (1995), Weixelman and Atwood (1990); Nevada Natural Heritage Program slide collection (1986-present) and files.

ILLUSTRATIONS: Cronquist et al. (1984), Mozingo and Williams (1980), Weixelman and Atwood (1990).

OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Cochrane (1979), Goodrich (1981).

SPECIFIC REFERENCES:

Goodrich, S. 1979. Status report on Eriogonum holmgrenii. Portland, Oregon: U. S. Fish and Wildlife Service.

Goodrich, S. 1979. Status report on Frasera pahutensis. Portland, Oregon: U. S. Fish and Wildlife Service.

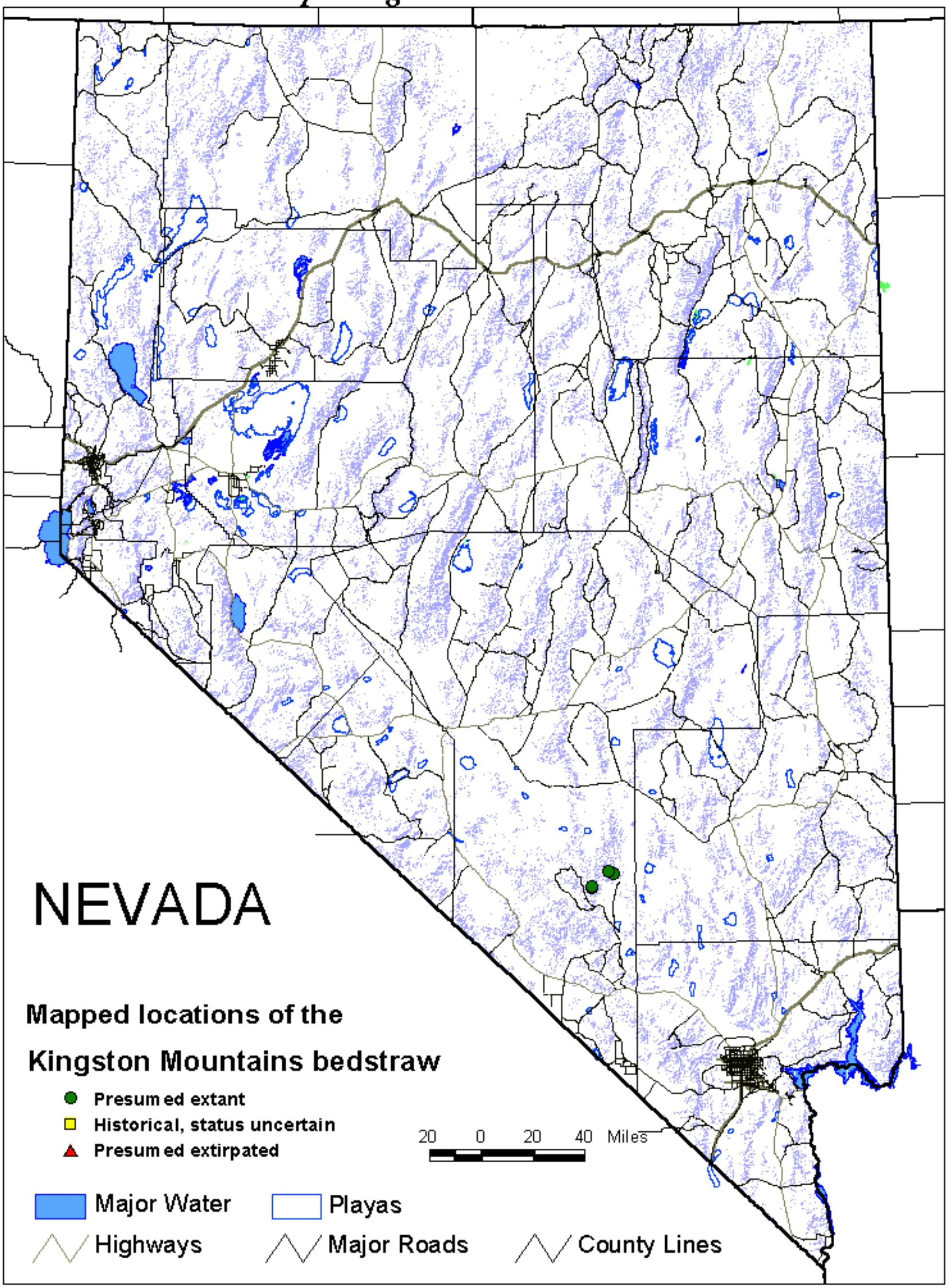
Morefield, J. D. 1992. Interim status report for Frasera pahutensis Reveal. Carson City: Nevada Natural Heritage Program, prepared for the Toiyabe National Forest, Sparks, Nevada.

Reveal, J. L. 1971. A new Frasera from southern Nevada (Gentianaceae). Bulletin of the Torrey Botanical Club 98: 107-108.

Smith, F. 1990. Rare plant survey. Nevada Goldfields Project. Nye County, Nevada. Carson City: Nevada Natural Heritage Program files.

OF FURTHER INTEREST: Once suggested to be a synonym of Frasera albicaulis var. modocensis, but no documentation or justification has ever been found.

Galium hilendiae ssp. kingstonense



Galium hilendiae Dempster & Ehrendorfer **ssp. *kingstonense*** (Dempster) Dempster & Ehrendorfer
KINGSTON MOUNTAINS BEDSTRAW

FAMILY: *Rubiaceae*, the madder family. **SYNONYMS:** *Galium multiflorum* var. *multiflorum* (in part)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4 T2 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: none. **NNNPS:** THREATENED.

POPULATION CENSUS (NEVADA): 3 occurrences mapped at 1.0 km (0.6 mi) separation, OR **4 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 668**, total estimated **area 17.4+ ha (43.0+ ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys have been fairly extensive on the Nevada Test Site, but much potential habitat likely remains unexamined. Most recent entered survey 1992, average year of last survey 1992.
Years since last entered survey (percent of mapped records at various survey ages)**: 6-10 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Department of Energy, U. S. Department of Defense.

RANGE: Nye County, Nevada; also in CA. In Nevada known only from a small portion of the Nevada Test Site. Maximum Nevada **range dimension 14.2 km (8.8 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 5200-6600 feet (1585-2012 meters).

HABITAT: no summary available (see references).

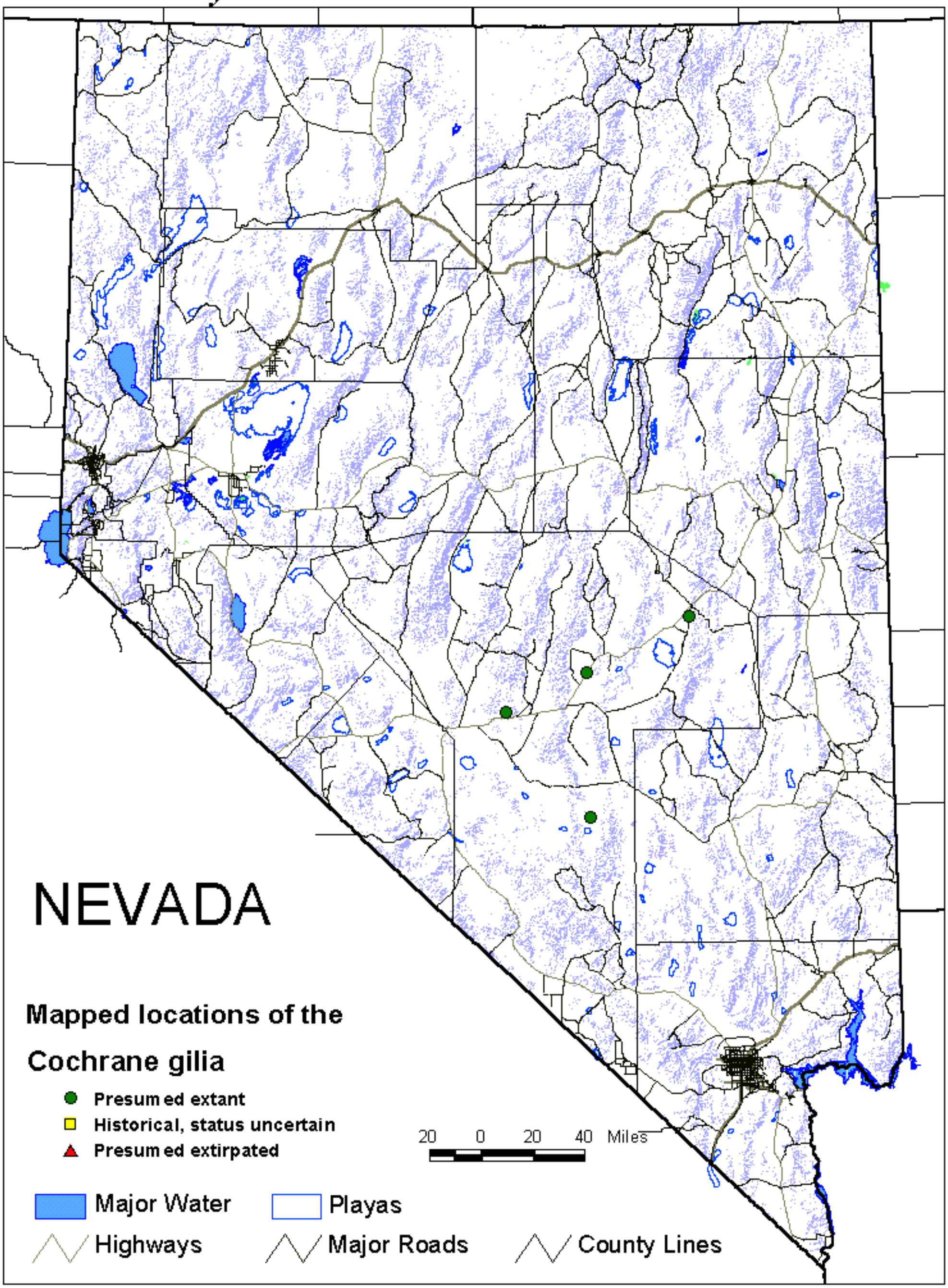
PHENOLOGY: no summary available. Range of most frequent **survey months:** May-September.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Blomquist et al. (1995).
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Beatley (1977), Beatley (1977), Cochrane (1979), Hickman (1993), Rhoads and Williams (1977).

OF FURTHER INTEREST: Considered part of the Galium multiflorum complex by Intermountain Flora (Cronquist et al. 1984), but recognized as distinct in the Jepson Manual (Hickman 1993).

Gilia heterostyla



Gilia heterostyla S. Cochrane & Day (1994) COCHRANE GILIA

FAMILY: *Polemoniaceae*, the phlox family. **SYNONYMS:** *Gilia nyensis* (misapplied)

STATUS: **Heritage Program WATCH LIST, ranks: G3G4 S3S4**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 4 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Systematic surveys have not been conducted, and much specimen data remain unprocessed. Most recent entered survey 1981, average year of last survey 1976. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 25%; **21-30 yrs:** 50%; **31-50 yrs:** 25%.

LAND MANAGEMENT in decreasing predominance: U. S. Department of Defense, U. S. Bureau of Land Management, Humboldt-Toiyabe National Forest, Nevada state lands (?).

RANGE: Nye County, Nevada. **Nevada endemic.** Maximum **range dimension 128.4 km (79.8 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 4980-5850 feet (1518-1783 meters).

HABITAT: Deep loose sandy soil of alluvial fans, stabilized dunes, dune skirts, and aeolian deposits, sometimes in pockets on rocky slopes, sometimes on road cuts or other disturbances crossing such habitats, in the shadscale and mixed shrub zones with Atriplex canescens, Achnatherum hymenoides, Psorothamnus polydenius, Tetradymia glabrata, Ericameria greenei, Eriogonum nummulare, Sarcobatus, etc. Possibly dependent on sand dunes or deep sand.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

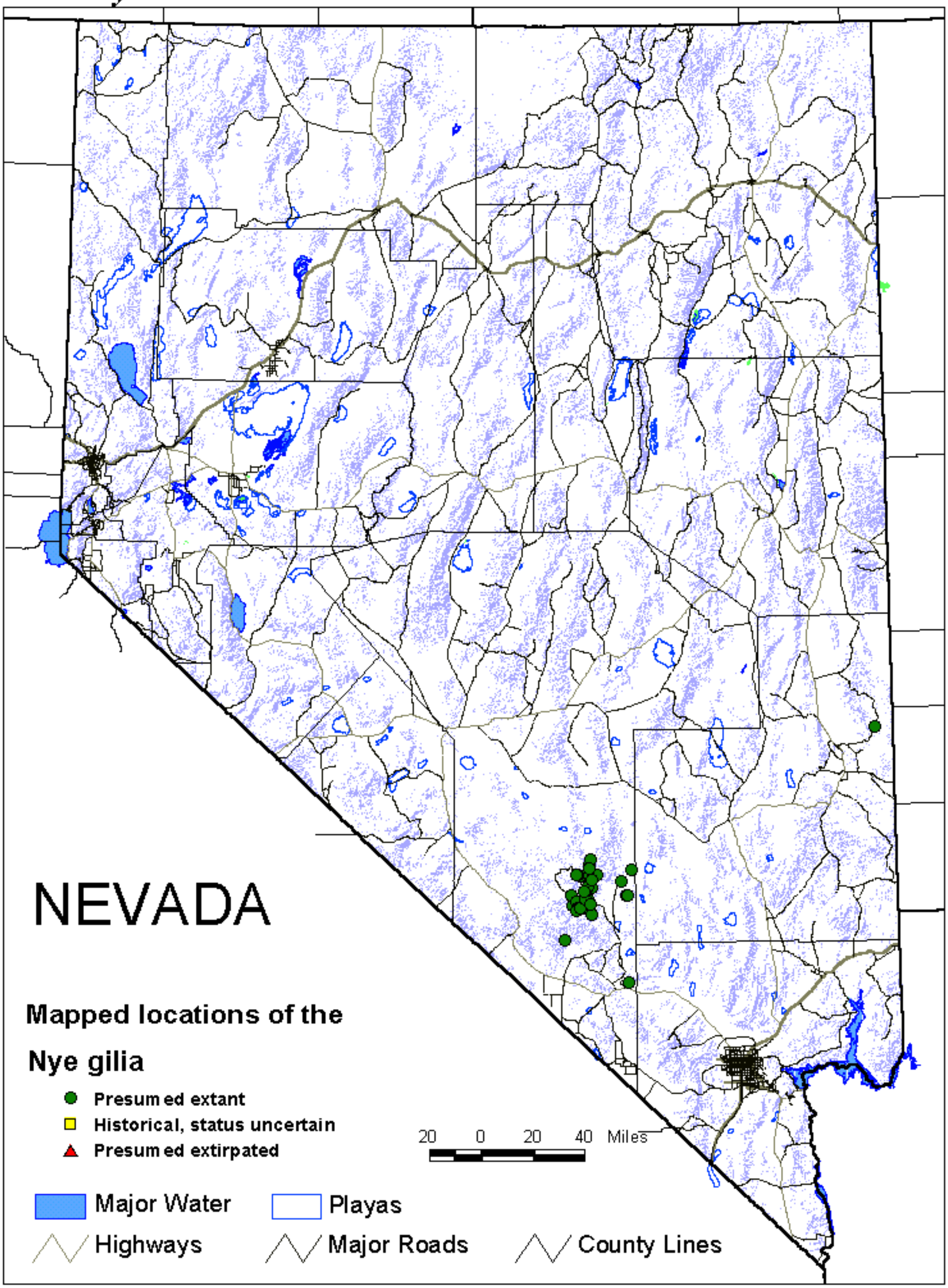
LIFE-FORM AND HABIT: small annual.

DESCRIPTION: Erect annual herb with pink-violet or white with pink-violet streaked flowers and linear-oblong leaves (Cochrane and Day 1994). **Distinguishing features:** Similar to Gilia nyensis except for the heterostylous flowers.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cochrane and Day (1994).
SPECIFIC REFERENCES:

Cochrane, S. A. and A. G. Day. 1994. A heterostylous Gilia (Polemoniaceae) from central Nevada. Madroño 41: 120-127.

Gilia nyensis



Gilia nyensis Reveal (1969) NYE GILIA

FAMILY: *Polemoniaceae*, the phlox family.

STATUS: **Heritage Program WATCH LIST, ranks: G3 S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 29 occurrences mapped at 1.0 km (0.6 mi) separation, OR **33 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 1385+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Surveys have been extensive but are incompletely documented, and undocumented occurrences likely remain. Most recent entered survey 1979, average year of last survey 1975.
Years since last entered survey (percent of mapped records at various survey ages)**: 21-30 yrs:** 66.7%; **31-50 yrs:** 33.3%.

LAND MANAGEMENT in decreasing predominance: U. S. Department of Energy, U. S. Department of Defense, U. S. Bureau of Land Management, Nevada state lands, U. S. Fish and Wildlife Service (?).

RANGE: Lincoln and Nye counties, Nevada. **Nevada endemic.** Maximum **range dimension 80.7 km (50.1 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 3600-7400 feet (1097-2256 meters).

HABITAT: Deep loose sandy soil often derived from light-colored tuff or other volcanic rocks, often at bases of cliffs or outcrops, the soil sometimes covered by talus or scree, or in washes, road cuts, or other disturbances crossing such habitats, mostly in the pinyon-juniper and sagebrush zones, sometimes down to the shadscale zone. Possibly dependent on sand dunes or deep sand.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-August.

LIFE-FORM AND HABIT: annual.

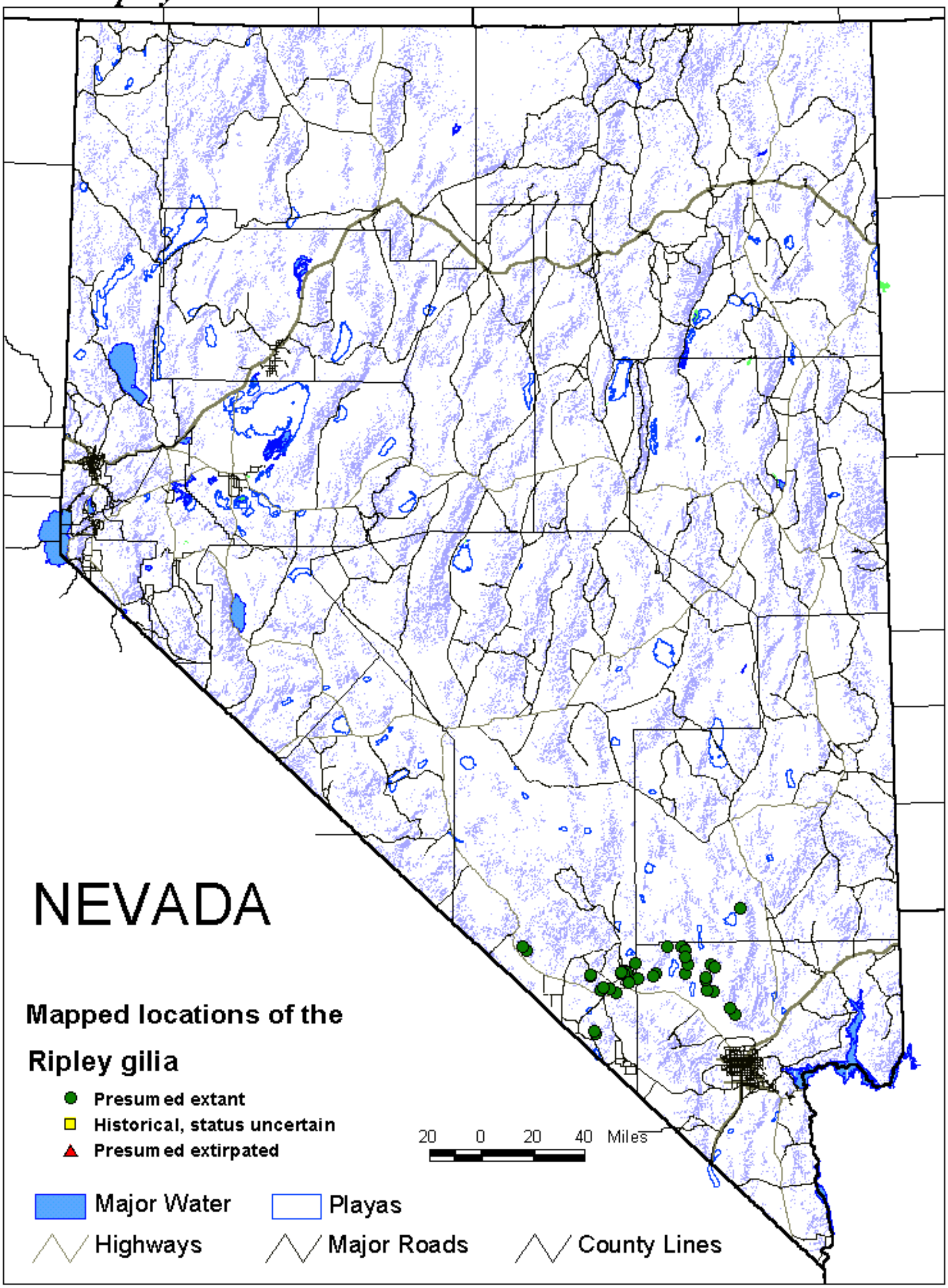
DESCRIPTION: A winter annual, up to 3 dm tall, with magenta-colored flowers in May and June (occasional individuals bloom through summer into autumn). **Distinguishing features:** Similar to Gilia heterostyla, but has homostylous flowers.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: Cronquist et al. (1984), Reveal (1969).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Rhoads et al. (1979).
SPECIFIC REFERENCES:

Reveal, J. L. 1969. New species in Eriogonum and Gilia from southern Nevada. Bulletin of the Torrey Botanical Club 96: 476-484.

OF FURTHER INTEREST: Several occurrences previously mapped as Gilia nyensis have heterostylous flowers and were recently described by Cochrane and Day (1994) as a separate species, Gilia heterostyla.

Gilia ripleyi



Gilia ripleyi Barneby — RIPLEY GILIA

FAMILY: *Polemoniaceae*, the phlox family.

STATUS: **Heritage Program WATCH LIST, ranks: G3 S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 35 occurrences mapped at 1.0 km (0.6 mi) separation, OR **42 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 4965+**, total estimated **area 97.3+ ha (240+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys have been extensive but likely remain incomplete. Most recent entered survey 1998, average year of last survey 1977. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 2.2%; **6-10 yrs:** 31.1%; **11-20 yrs:** 2.2%; **21-30 yrs:** 35.6%; **31-50 yrs:** 17.8%; **51+ yrs or unknown:** 11.1%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Fish and Wildlife Service, U. S. Department of Defense, U. S. Bureau of Land Management, U. S. Department of Energy.

RANGE: Clark, Lincoln, and Nye counties, Nevada; also in CA. Maximum Nevada **range dimension 138.7 km (86.2 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 2800-5000 feet (853-1524 meters).

HABITAT (not yet reviewed for Nevada): "Grows in exposed crevices of steep south-facing limestone cliffs, occasionally in loose talus or gravelly slopes below cliffs. Associated plants are Haplopappus brickellioides, Perityle megalocephala var. intricata, Penstemon petiolatus, Gilia scopulorum, Buddleja utahensis. 915-1525 m (Mozingo and Williams 1980)."

PHENOLOGY: no summary available. Range of most frequent **survey months:** April-October.

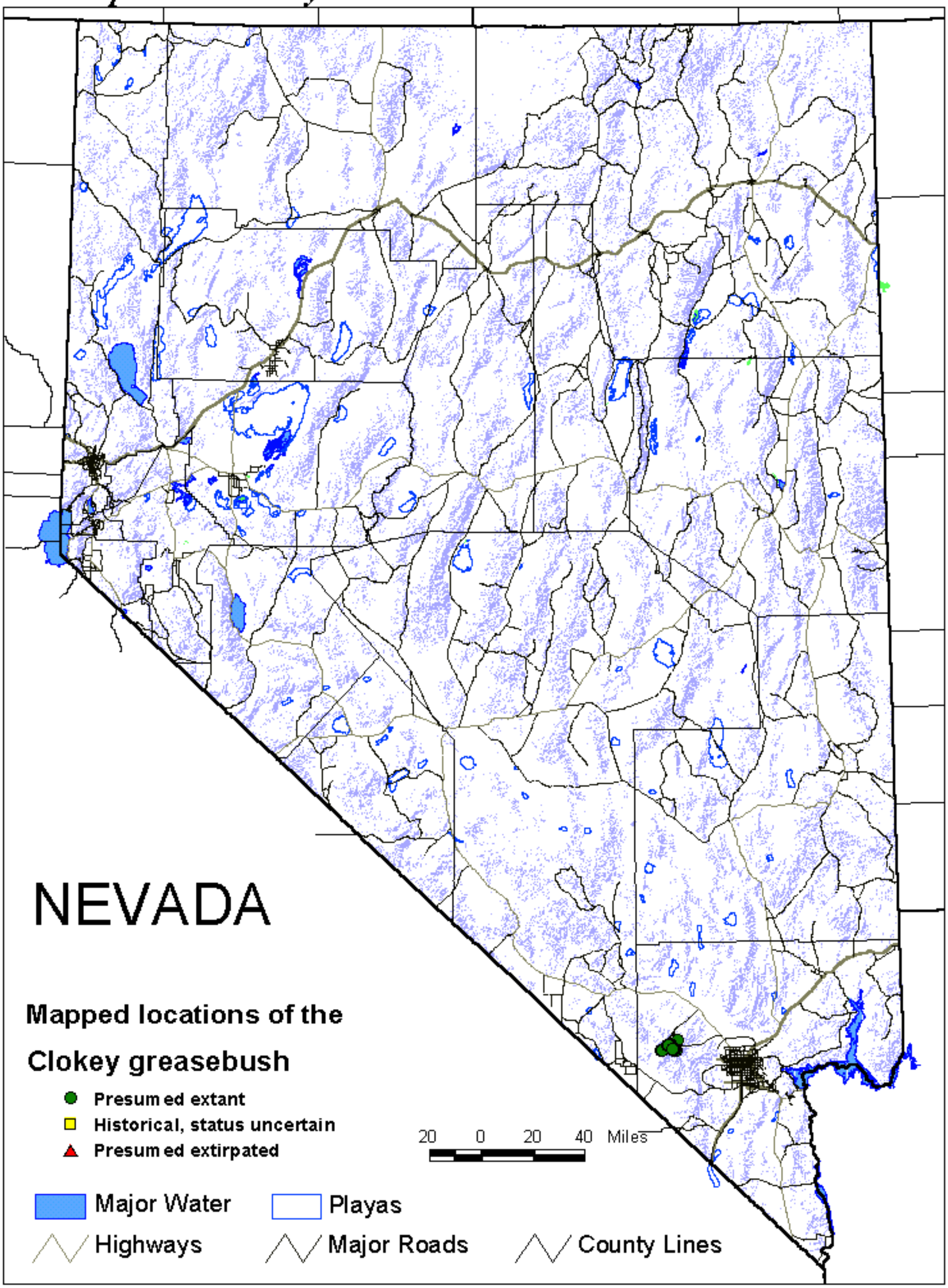
DESCRIPTION: A many-stemmed perennial herb bearing holly-shaped leaves. Flowers are bright rose-colored to sometimes pale pink (Mozingo and Williams 1980).

PHOTOGRAPHS: Knight and Smith (1994).
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Ackerman (1981), Beatley (1976), Beatley (1977), Cochrane (1979), Hickman (1993), Niles et al. (1998).
SPECIFIC REFERENCES:

Knight, T. A. 1989. A rare plant survey of Bare Mountain, Battle Mountain District, Bureau of Land Management, Nye County, Nevada. Carson City: Nevada Natural Heritage Program, prepared for the Battle Mountain District, Bureau of Land Management.

Knight, T. A. 1989. Status report for Astragalus mohavensis S. Watson var. hemigyrus (Clokey) Barneby. Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

Glossopetalon clokeyi



Glossopetalon clokeyi (Ensign [1942]) St. John — CLOKEY GREASEBUSH

FAMILY: *Crossosomataceae*, the crossosoma family. **SYNONYMS:** *Forsellesia clokeyi*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 7 occurrences mapped at 1.0 km (0.6 mi) separation, OR **15 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 7446+**, total estimated **area 10.8+ ha (26.7+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Substantial targeted surveys have been conducted, but these remain incomplete. Most recent entered survey 1999, average year of last survey 1993. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 13.3%; **6-10 yrs:** 80%; **11-20 yrs:** 6.7%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, private lands (?), U. S. Bureau of Land Management (?).

RANGE: Clark County, Nevada. Endemic to the Spring Mountains. Maximum **range dimension 9.4 km (5.8 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 7050-9680 feet (2149-2950 meters).

HABITAT: Crevices of high carbonate cliff faces and ledges in the mountain brush, montane conifer, and subalpine conifer zones with Petrophytum cespitosum, Cercocarpus intricatus, Acer glabrum, Heuchera rubescens, Ivesia jaegeri, Chamaebatiaria millefolium, Jamesia americana, Eriogonum heermannii, Cheilanthes feei, Philadelphus microphyllus, etc.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-September.

LIFE-FORM AND HABIT: matted long-lived subshrub.

DESCRIPTION: An intricately branched small shrub, 1.5-2 dm tall, with slender, bright green, spiny branches.

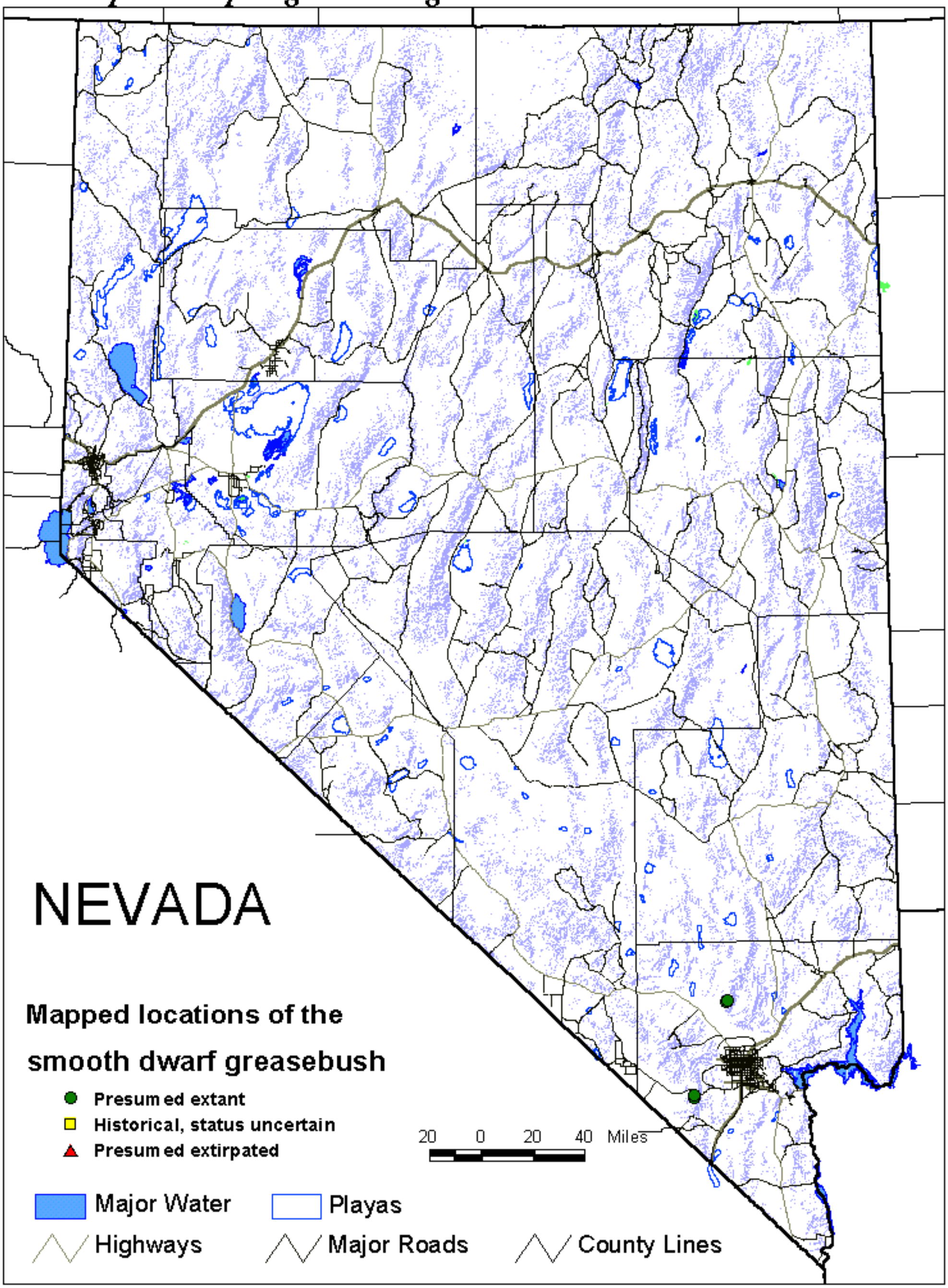
PHOTOGRAPHS: Nachlinger (1994).
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Clokey (1951).
SPECIFIC REFERENCES:

Ensign, M. A. 1942. Revision of the celastraceous genus Forsellesia (Glossopetalon). American Midland Naturalist 27: 501-511.

Morefield, J. D. 1993. Status report for Astragalus oophorus var. clokeyanus Barneby. Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

OF FURTHER INTEREST: USFWS tracks as synonym 01 - FORSELLESIA CLOKEYI (9/93).

Glossopetalon pungens var. glabrum



Glossopetalon pungens Brandegee var. *glabrum* (Ensign) St. John

SMOOTH DWARF GREASEBUSH

FAMILY: *Crossosomataceae*, the crossosoma family. **SYNONYMS:** *Forsellesia pungens* var. *glabra*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 T1Q S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 3 occurrences mapped at 1.0 km (0.6 mi) separation, OR **4 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 203+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys remain largely incomplete in Nevada. Most recent entered survey 1979, average year of last survey 1976. **Years since last entered survey** (percent of mapped records at various survey ages)**: 21-30 yrs:** 75%; **31-50 yrs:** 25%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Fish and Wildlife Service, Humboldt-Toiyabe National Forest, private lands (?), U. S. Department of Defense (?).

RANGE: Clark County, Nevada; also in CA. In Nevada apparently restricted to the Spring and Sheep ranges. Maximum Nevada **range dimension 62.1 km (38.6 mi)** excluding most disjunct record. **Type specimen** collected in San bernardino County, California.

ELEVATIONS RECORDED (NEVADA): 6000-7800 feet (1829-2377 meters).

HABITAT (NEVADA): Crevices of carbonate cliffs and outcrops, generally avoiding southerly exposures, in the pinyon-juniper, mountain mahogany, and montane conifer zones.

PHENOLOGY: flowering spring to early-summer, In bloom from mid-April to early-July. Range of most frequent **survey months:** June-July.

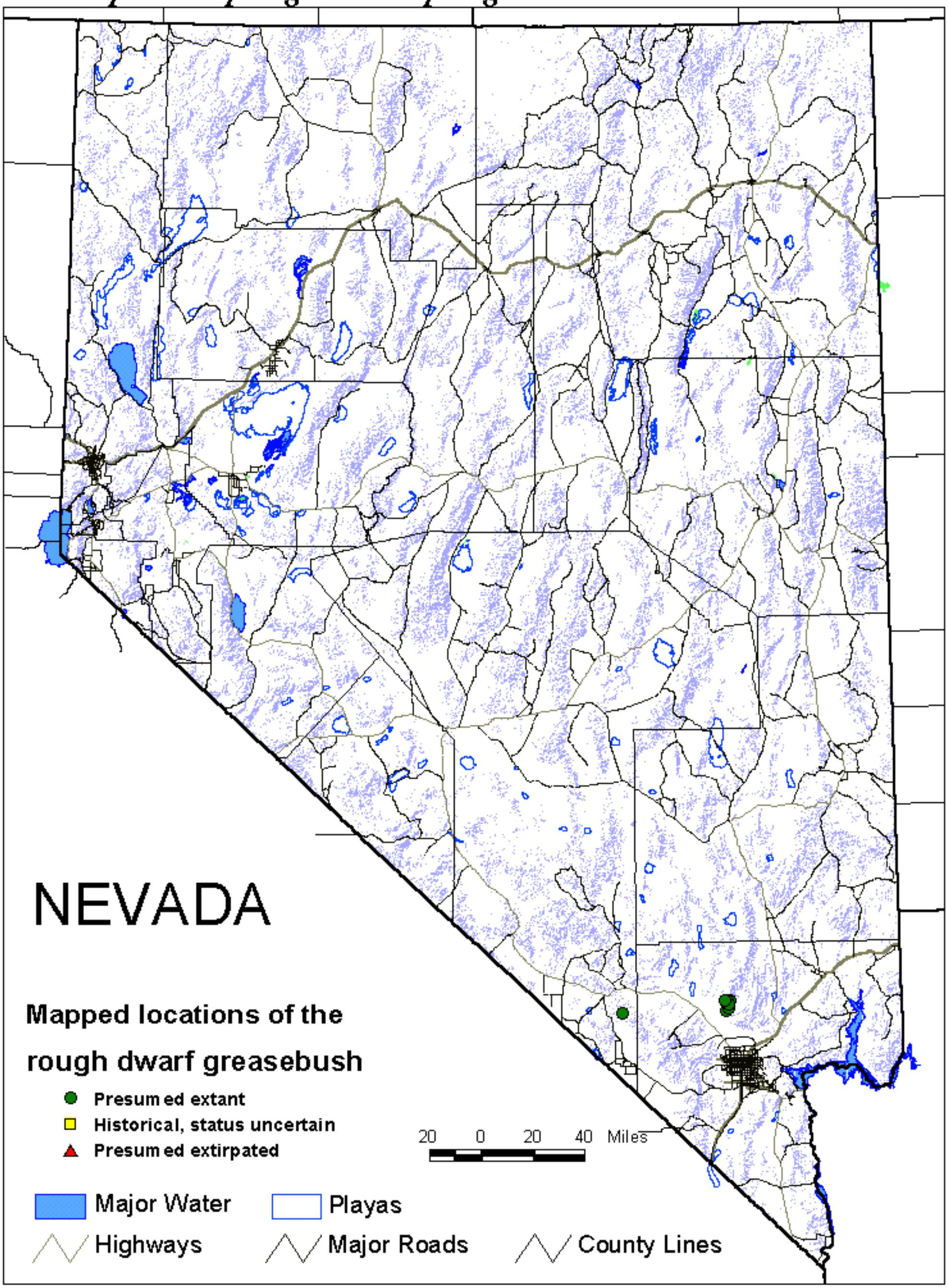
LIFE-FORM AND HABIT: dwarf subshrub.

DESCRIPTION: Apparently distinguished from var. pungens only by the absence of hairs.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993).

OF FURTHER INTEREST: The varieties of Glossopetalon pungens were not recognized in the Jepson Manual (Hickman 1993). The known occurrences still exhibit substantial geographic segregation, however, with only a few mixed occurrences known. The varieties are therefore maintained provisionally as distinct by the Nevada Natural Heritage Program pending further study.

Glossopetalon pungens var. pungens



Glossopetalon pungens Brandegee (1899) var. *pungens* ROUGH DWARF GREASEBUSH

FAMILY: *Crossosomataceae*, the crossosoma family. **SYNONYMS:** *Forsellesia pungens* var. *pungens*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 T2Q S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 7 occurrences mapped at 1.0 km (0.6 mi) separation, OR **8 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 211+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1983, average year of last survey 1977. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 12.5%; **21-30 yrs:** 75%; **31-50 yrs:** 12.5%.

LAND MANAGEMENT in decreasing predominance: U. S. Fish and Wildlife Service, Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, U. S. Department of Defense (?).

RANGE: Clark and Nye counties, Nevada. Apparently endemic to the Spring and Sheep ranges. Maximum **range dimension 7.0 km (4.3 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 4400-7800 feet (1341-2377 meters).

HABITAT: Crevices of carbonate cliffs and outcrops, generally avoiding southerly exposures, mainly in the lower pinyon-juniper and montane conifer zones.

PHENOLOGY: flowering spring to early-summer, In bloom from mid-April to early-July. Range of most frequent **survey months:** April-July.

LIFE-FORM AND HABIT: dwarf subshrub.

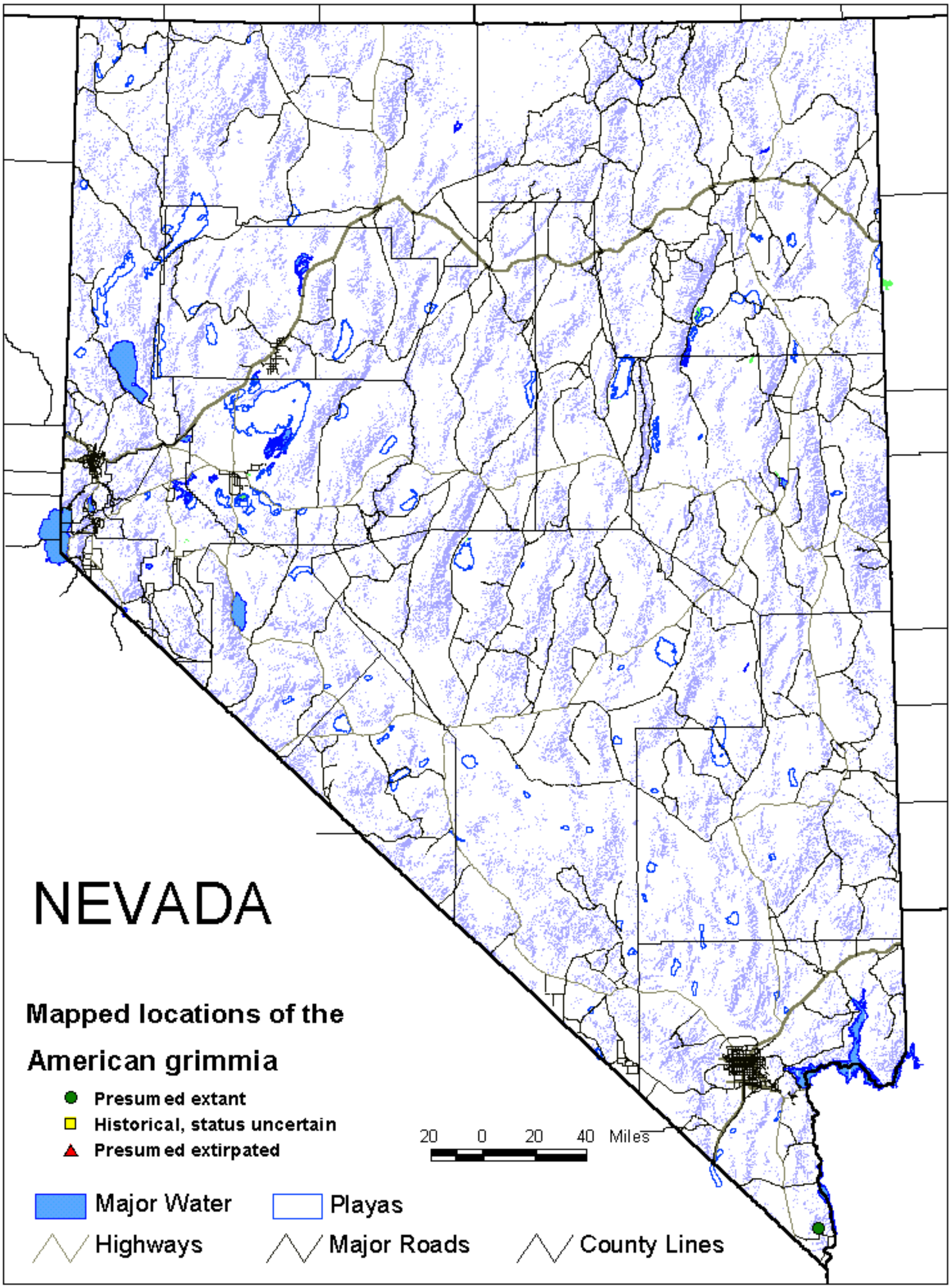
DESCRIPTION: Apparently distinguished from var. glabrum only by the presence of hairs.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Ackerman (1981).
SPECIFIC REFERENCES:

Brandegee, T. S. 1899. New species of western plants. Botanical Gazette 27: 444-457.

OF FURTHER INTEREST: The varieties of Glossopetalon pungens were not recognized in the Jepson Manual (Hickman 1993). The known occurrences still exhibit substantial geographic segregation, however, with only a few mixed occurrences known. The varieties are therefore maintained provisionally as distinct by the Nevada Natural Heritage Program pending further study.

Grimmia americana



Grimmia americana Bartram — AMERICAN GRIMMIA

FAMILY: *Grimmiaceae*, the grimmia family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 1 occurrence mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys are ongoing. Most recent entered survey 1994.
Years since last entered survey (percent of mapped records at various survey ages)**: 6-10 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: National Park Service, U. S. Bureau of Land Management.

RANGE: Clark County, Nevada; also in AZ and TX. In Nevada known only from the Newberry Mountains.

ELEVATIONS RECORDED (NEVADA): 2680 feet (817 meters).

HABITAT (NEVADA): North face of limestone rock exposed to the sun in the creosote-bursage zone.

PHENOLOGY: no summary available. Range of most frequent **survey months:** January.

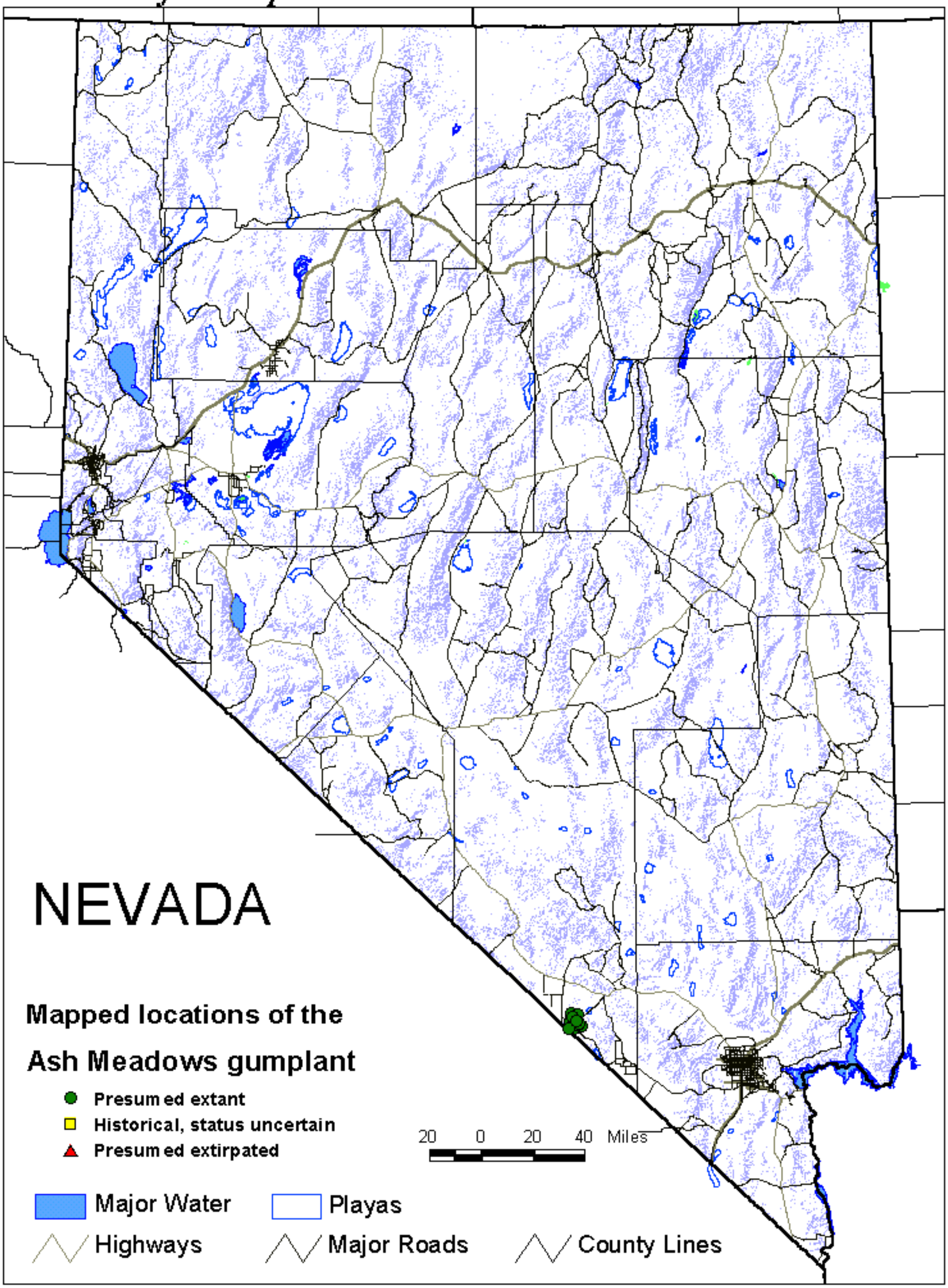
DESCRIPTION: Small mosses in dense, dark-brown, very hoary tufts about 5-8 mm high. Leaves appressed and not at all contorted when dry, erect or erect-spreading when moist, concave and not at all keeled, broadly oblong-ovate, broadly pointed and rather gradually narrowed to a long, denticulate, hyaline hair point which is about as long as the body of the leaf and broad, flat, and somewhat decurrent at the base; margins erect, entire; costa disappearing at the base of the awn. Setae about 1 mm long, curved; capsules immersed, broadly oblong-cylindric, erect and nearly symmetric (though eccentrically attached to the seta), brown, wrinkled when dry; annulus broad, persistent; operculum stoutly rostrate from a convex base (Crum and Anderson 1981). **Distinguishing features:** This species resembles very closely one of the most common species of mosses in the state, Grimmia anodon. Both species occur on limestone rocks exposed to the sun. Sporophytes are deeply immersed, a capsules are peristomate, and the upper leaf is bistratose.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: none known.
SPECIFIC REFERENCES:

Crum, H. A., and L. E. Anderson. 1981. Mosses of eastern North America. 2 Volumes. New York: Columbia University Press. 1328 pages.

Stark, L. R. 1999. Five globally rare species of mosses from southern Nevada: An update on their distribution ranges, including recent unpublished findings from predominantly gypsum/sandstone habitats in the Lake Mead National Recreation Area and associated Bureau of Land Management lands. Las Vegas: University of Nevada, unpublished report. 11 pages.

Grindelia fraxinopratensis



Grindelia fraxinopratensis Reveal & Beatley (1971) ASH MEADOWS GUMPLANT

FAMILY: *Asteraceae*, the sunflower family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: LISTED THREATENED. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species in Nevada. **USFS:** none. **NNNPS:** THREATENED.

POPULATION CENSUS (NEVADA): 14 occurrences mapped at 1.0 km (0.6 mi) separation, OR **16 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 13,000+**, total estimated **area 6.1+ ha (15.1+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys substantially complete. Most recent entered survey 1986, average year of last survey 1982. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 93.8%; **21-30 yrs:** 6.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Fish and Wildlife Service, private lands, U. S. Bureau of Land Management.

RANGE: Nye County, Nevada; also in CA. Endemic to the Ash Meadows area. Maximum Nevada **range dimension 10.4 km (6.5 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED (NEVADA): 2070-2320 feet (631-707 meters).

HABITAT (NEVADA): Open, flat, whitish, strongly alkaline, moist and hard to sometimes dry and powdery clay soils in or bordering meadows and shallow drainages near springs and seeps, sometimes in disturbed areas and somewhat weedy, in the creosote-bursage and shadscale zones in ash-mesquite woodlands, shadscale scrub, or saltgrass meadows with Prosopis, Fraxinus, Atriplex confertifolia, Centaurium namophilum, Distichlis spicata, Sporobolus airoides, Baccharis emoryi, Iva acerosa, Tamarix ramosissima, Cirsium mohavense, Suaeda, etc. Aquatic or wetland-dependent in Nevada.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** July-August.

LIFE-FORM AND HABIT: biennial or short-lived perennial herb.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.

ILLUSTRATIONS: Mozingo and Williams (1980).

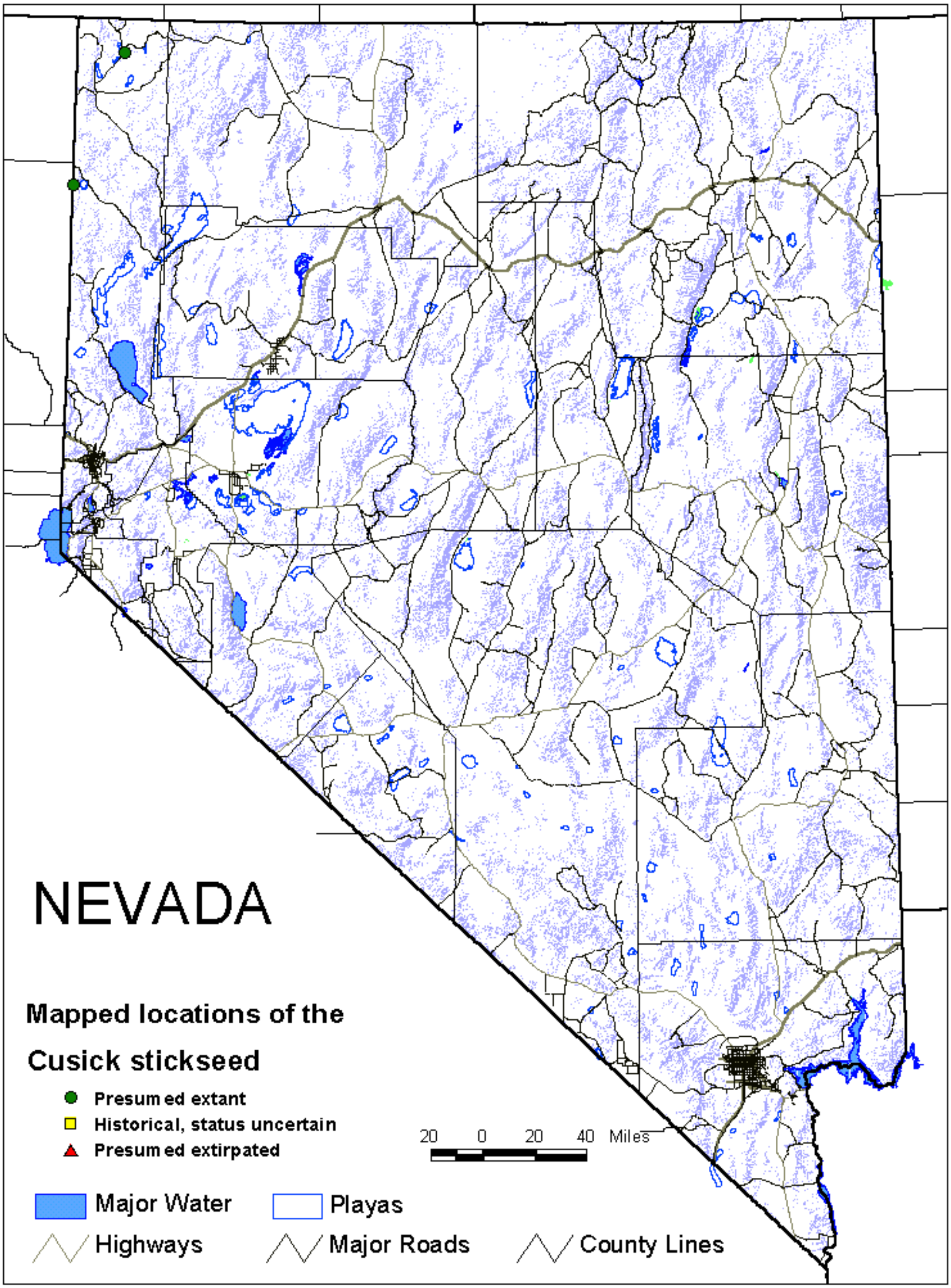
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Hickman (1993), U. S. Fish and Wildlife Service (1985).

SPECIFIC REFERENCES:

Cochrane, S. A. 1981. Status report Grindelia fraxinopratensis. Carson City: Nevada Natural Heritage Program, manuscript in files.

Reveal, J. L. and J. C. Beatley. 1971. A new Penstemon (Scrophulariaceae) and Grindelia (Asteraceae) from southern Nye County, Nevada. Bulletin of the Torrey Botanical Club 98: 332-335.

Hackelia cusickii



Hackelia cusickii (Piper [1902]) Brand — CUSICK STICKSEED

FAMILY: *Boraginaceae*, the forget-me-not family.

STATUS: **Heritage Program WATCH LIST, ranks: G4? S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 2 occurrences mapped; total estimated **individuals 1075**, total estimated **area 17.0 ha (42.0 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): No systematic surveys have been conducted in Nevada. Most recent entered survey 1987, average year of last survey 1986. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, U. S. Fish and Wildlife Service (?), private lands (?).

RANGE: Humboldt and Washoe counties, Nevada; also in CA and OR. Maximum Nevada **range dimension 88.0 km (54.7 mi)**. **Type specimen** collected in Crook County, Oregon.

ELEVATIONS RECORDED (NEVADA): 6100-6650 feet (1859-2027 meters).

HABITAT (NEVADA): In the shelter of junipers on dry rocky slopes in the juniper-sagebrush zone.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June.

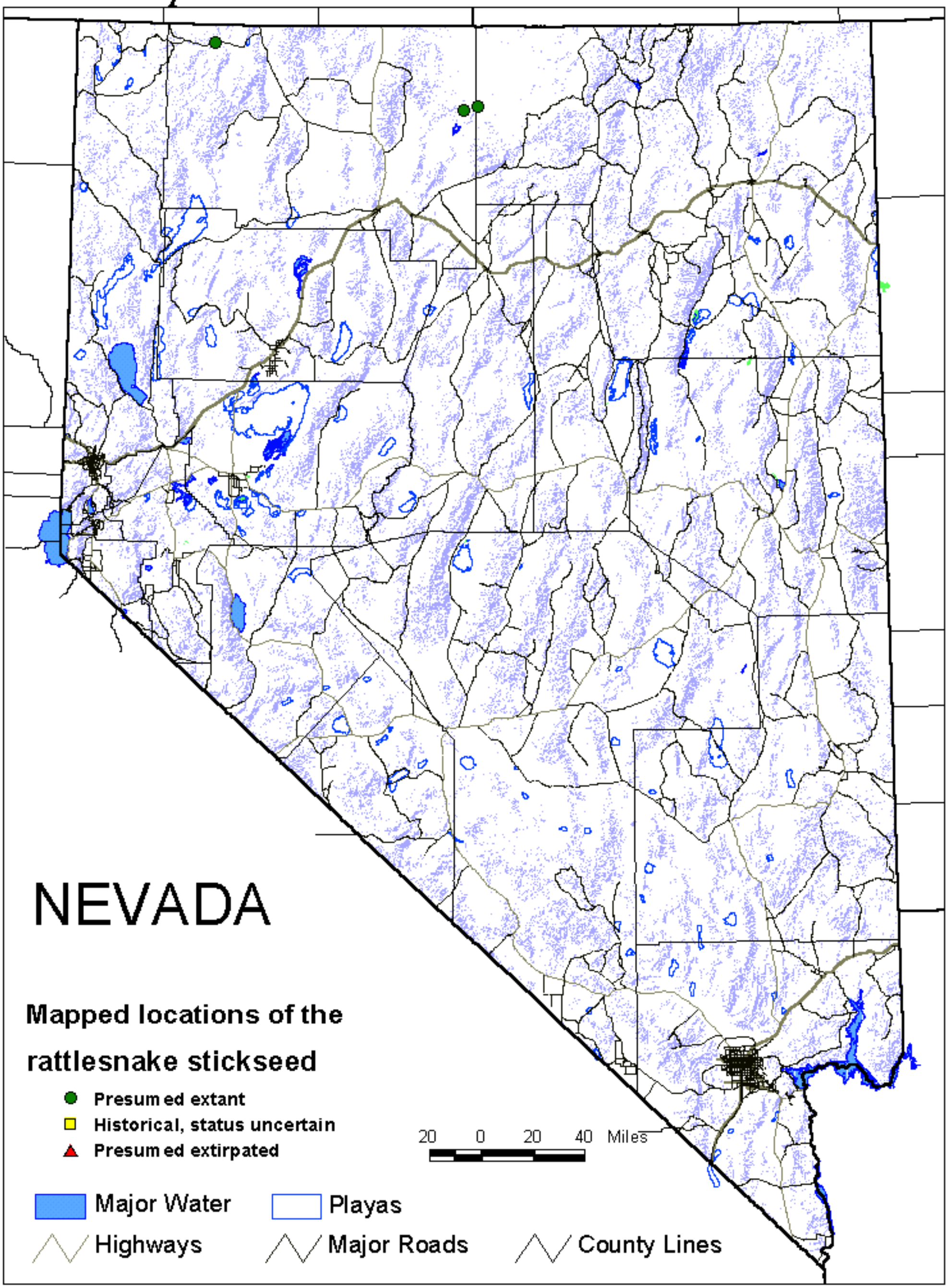
LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present) and files.
ILLUSTRATIONS: Cronquist et al. (1984), Hitchcock and Cronquist (1973).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993).
SPECIFIC REFERENCES:

Gentry, J. L., Jr., and R. L. Carr. 1976. A revision of the genus Hackelia (Boraginaceae) in North America, north of Mexico. Memoirs of the New York Botanical Garden 26: 121-227.

Hackelia ophiobia



Hackelia ophiobia R. L. Carr (1974) RATTLESNAKE STICKSEED

FAMILY: *Boraginaceae*, the forget-me-not family.

STATUS: **Heritage Program WATCH LIST, ranks: G3 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 3 occurrences mapped; total estimated **individuals 21,000+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys have been conducted but remain very incomplete for Nevada. Most recent entered survey 1995, average year of last survey 1985. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 33.3%; **21-30 yrs:** 66.7%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, U. S. Fish and Wildlife Service.

RANGE: Elko and Humboldt counties, Nevada; also in ID and OR. Thousand Creek gorge, Milligan Creek gorge, and north fork of the Little Humboldt River. Maximum Nevada **range dimension 168.5 km (104.7 mi)**. **Type specimen** collected in Malheur County, Oregon.

ELEVATIONS RECORDED (NEVADA): 4500-5125 feet (1372-1562 meters).

HABITAT (NEVADA): Bases of steep gorge walls cut into volcanic plateau areas, in the rocky areas below the walls, and occasionally along the ledges in the rock walls and in the loamy area close to the water, usually on north-facing slopes in heavily shaded areas, in the shadscale and sagebrush steppe zones with Rosa woodsii, Leymus cinereus, and many other riparian species, Artemisia tridentata var. tridentata, A. packardiae, Ivesia baileyi, etc.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-August.

LIFE-FORM AND HABIT: perennial herb.

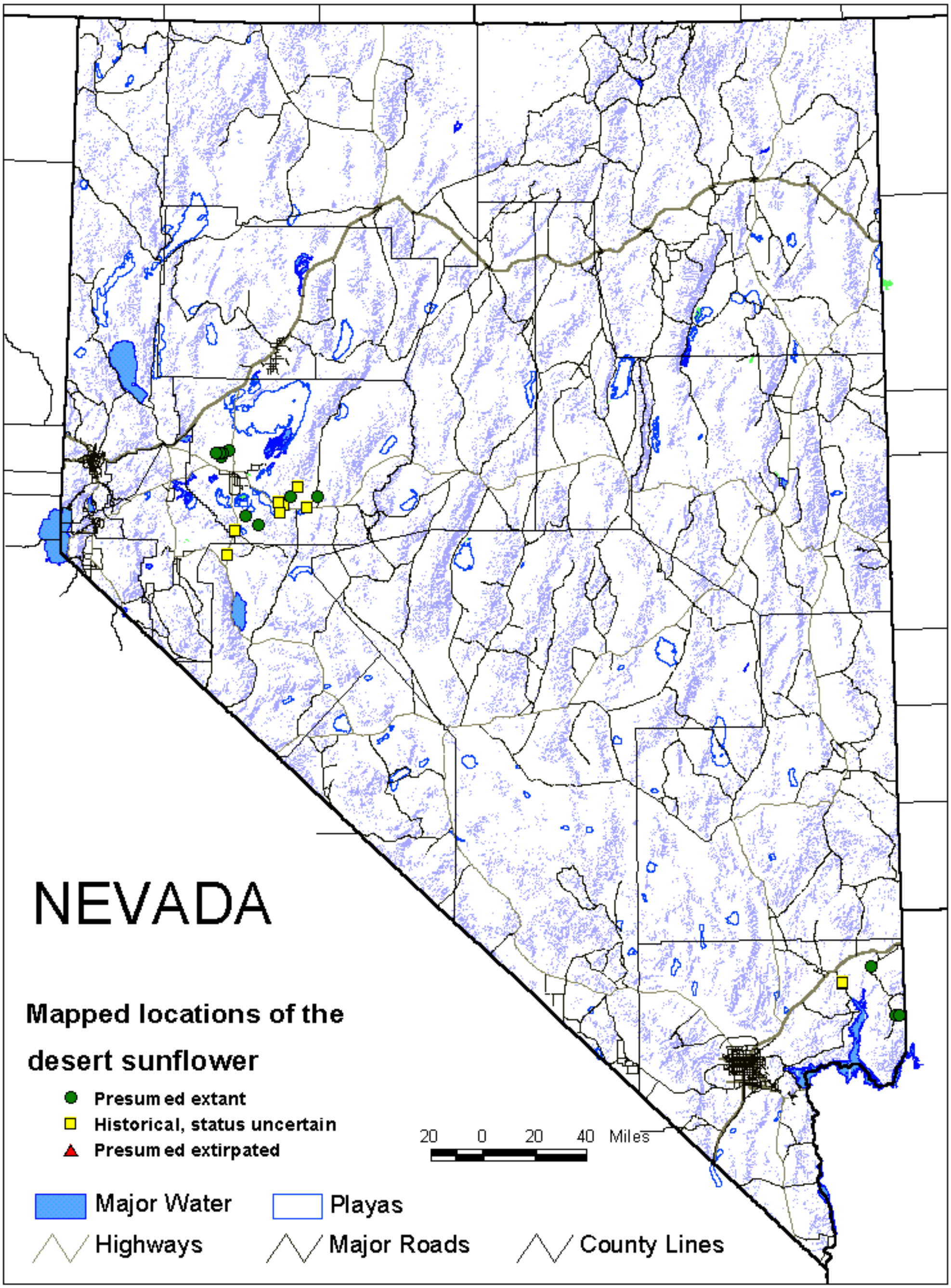
DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: Cronquist et al. (1984), Mozingo and Williams (1980).
SPECIFIC REFERENCES:

Gentry, J. L., Jr., and R. L. Carr. 1976. A revision of the genus Hackelia (Boraginaceae) in North America, north of Mexico. Memoirs of the New York Botanical Garden 26: 121-227.

Nachlinger, J. and A. Tiehm. 1996. Rare plant survey of the Sheldon National Wildlife Refuge. Reno, Nevada: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Sheldon-Hart Mountain Refuges, Lakeview, Oregon.

Helianthus deserticola



Helianthus deserticola Heiser (1961) DESERT SUNFLOWER

FAMILY: *Asteraceae*, the sunflower family. **SYNONYMS:** *Helianthus anomalus* (?)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3Q S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 21 occurrences mapped; total estimated **individuals 25,000+**, total estimated **area 77.3+ ha (191+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 2000, average year of last survey 1981. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 14.3%; **11-20 yrs:** 47.6%; **21-30 yrs:** 28.6%; **51+ yrs or unknown:** 9.5%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, U. S. Department of Defense, Nevada state lands, Native American lands, U. S. Bureau of Reclamation, private lands.

RANGE: Churchill, Clark, Lyon (?), and Mineral counties, Nevada; also in AZ and UT. The western Nevada populations are disjunct from the remainder of the species, and therefore potentially distinct. Maximum Nevada **range dimension 547.1 km (339.9 mi)** excluding most disjunct record. **Type specimen** collected in Washington County, Utah.

ELEVATIONS RECORDED (NEVADA): 1345-4880 feet (410-1487 meters).

HABITAT (NEVADA): Dry, open, deep, loose sandy soils of aeolian deposits, vegetated dunes, and dune skirt areas, on flats and gentle slopes of all aspects, generally in alkaline areas, often thriving on road berms and other stabilized disturbances within such soils, with Psorothamnus polydenius, Tetradymia tetrameres, T. glabrata, Sarcobatus baileyi, S. vermiculatus, Atriplex canescens, Achnatherum hymenoides, Eriogonum nummulare, Tiquilia nuttallii, Lupinus pusillus intermontanus, Abronia spp., etc. Dependent on sand dunes or deep sand in Nevada.

PHENOLOGY: flowering late-spring to summer, Appears to flower opportunistically, beginning in late spring, and continuing as summer rains permit. Range of most frequent **survey months:** May-July.

LIFE-FORM AND HABIT: annual.

DESCRIPTION: An annual herb, usually about 4 dm tall, that produces showy flower heads with yellow rays surrounding a purplish disk. Blooms May-July.

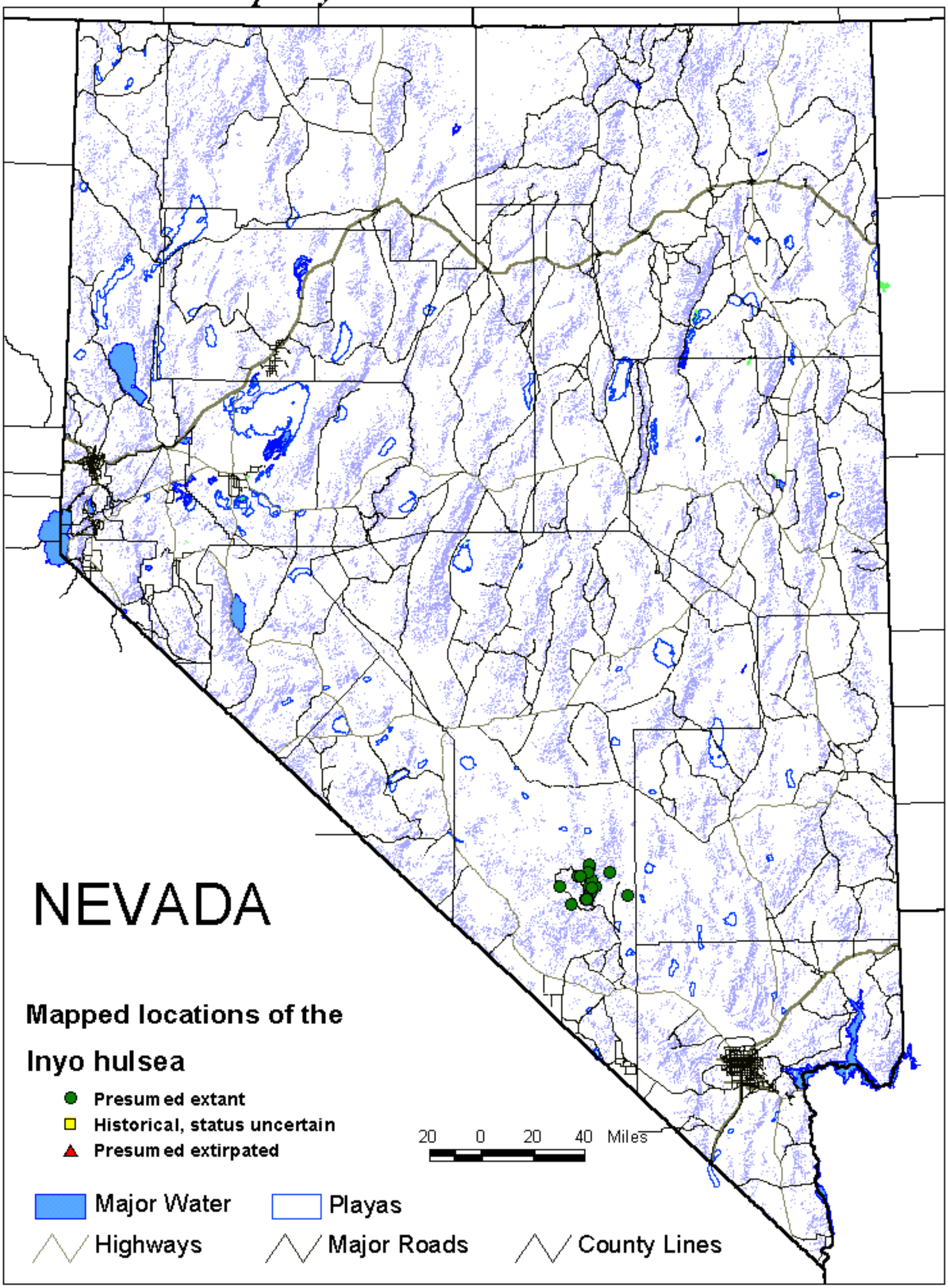
PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present) and slide collection (1986-present).
ILLUSTRATIONS: Cronquist (1994), Welsh (1979).
OTHER GENERAL REFERENCES (listed separately): Welsh et al. (1993).
SPECIFIC REFERENCES:

Heiser, C. B. 1961. A new annual sunflower, Helianthus deserticolus, from the southwestern United States. Proceedings of the Indiana Academy of Science 70: 209-212.

Tiehm, A. 1989. Survey for Oryctes nevadensis, Churchill County, Nevada. Reno, Nevada: Environmental Management Associates. 8 pages.

OF FURTHER INTEREST: Synonymized under H. anomalus by Cronquist (1994). Considered distinct molecularly and morphologically from H. anomalus by a current expert on North American sunflowers, Loren Rieseberg. Plants from west-central Nevada may represent an unnamed taxon, and should be compared with the type material from Utah.

Hulsea vestita ssp. inyoensis



Hulsea vestita A. Gray **ssp. *inyoensis*** (Keck [1958]) Wilken — **INYO HULSEA**

FAMILY: *Asteraceae*, the sunflower family. **SYNONYMS:** *Hulsea vestita* var. *callicarpha* (?)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G5 T2T3Q S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Inyo NF watch list. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 16 occurrences mapped at 1.0 km (0.6 mi) separation, OR **17 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 1215+**, total estimated **area unknown**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys in Nevada are old and incomplete. Most recent entered survey 1979, average year of last survey 1973. **Years since last entered survey** (percent of mapped records at various survey ages)**: 21-30 yrs:** 58.8%; **31-50 yrs:** 41.2%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Department of Energy, U. S. Department of Defense, U. S. Bureau of Land Management (?), U. S. Fish and Wildlife Service (?).

RANGE: Nye County, Nevada; also in CA. Maximum Nevada **range dimension 32.3 km (20.1 mi)** excluding most disjunct record. **Type specimen** collected in Inyo County, California.

ELEVATIONS RECORDED (NEVADA): 4800-7400 feet (1463-2256 meters).

HABITAT (NEVADA): Dry, open talus, scree, and sandy soils derived from light-colored volcanic tuff outcrops on steep slopes and at cliff bases in the sagebrush and pinyon-juniper zones.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** April-July.

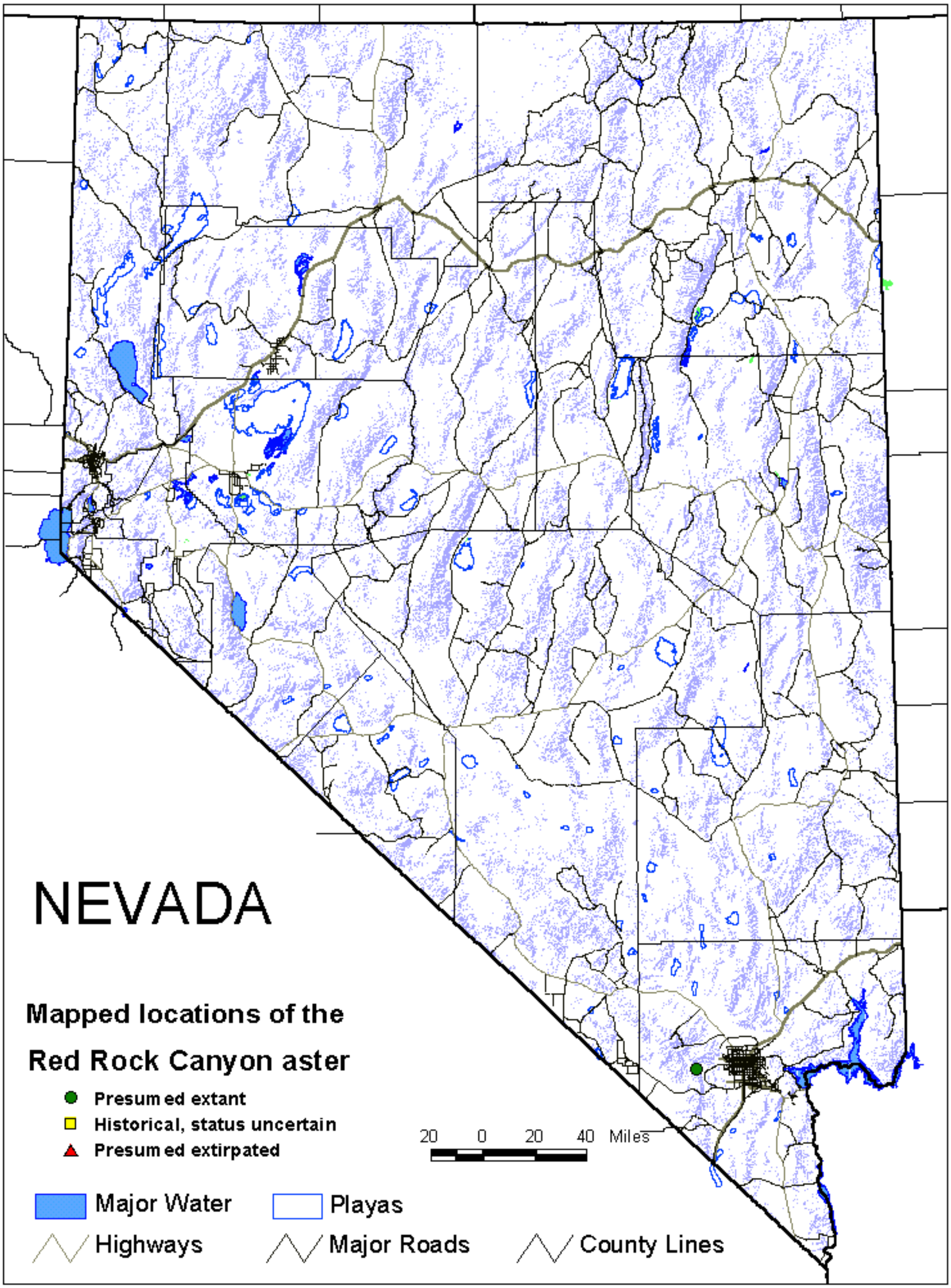
LIFE-FORM AND HABIT: biennial or perennial herb.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Hall (1991); Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: Cronquist (1994).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Cochrane (1979), Hickman (1993).

OF FURTHER INTEREST: Cronquist's Intermountain Flora treatment synonymizes this subspecies (as a variety) with Hulsea vestita var. callicarpha.

Ionactis caelestis



Ionactis caelestis Leary & Nesom (1992) RED ROCK CANYON ASTER

FAMILY: *Asteraceae*, the sunflower family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 1 occurrence mapped; total estimated **individuals 1000**, total estimated **area 4.0 ha (9.9 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Species does not appear to be danger of extinction (Nesom and Leary 1992). (Population is within the Red Rock Canyon National Conservation Area.).

INVENTORY EFFORT: A substantial amount of potential habitat has already been examined, but more remains to be surveyed. Most recent entered survey 1991. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 100%.

LAND MANAGEMENT: U. S. Bureau of Land Management.

RANGE: Clark County, Nevada. Endemic to the type locality in the Sandstone Bluffs - Red Rock Canyon area of the Spring Mountains. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 6808 feet (2075 meters).

HABITAT: Crevices in exposed, sparsely vegetated outcrops of Aztec sandstone in the Pinyon-Juniper and lower montane conifer zones, with Fendlerella utahensis, Poa secunda, Amelanchier utahensis, Hymenopappus filifolius, Arctostaphylos pungens, Arenaria congesta var. charlestonensis, Glossopetalon pungens, Pinus ponderosa, P. monophylla, etc.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** June-August.

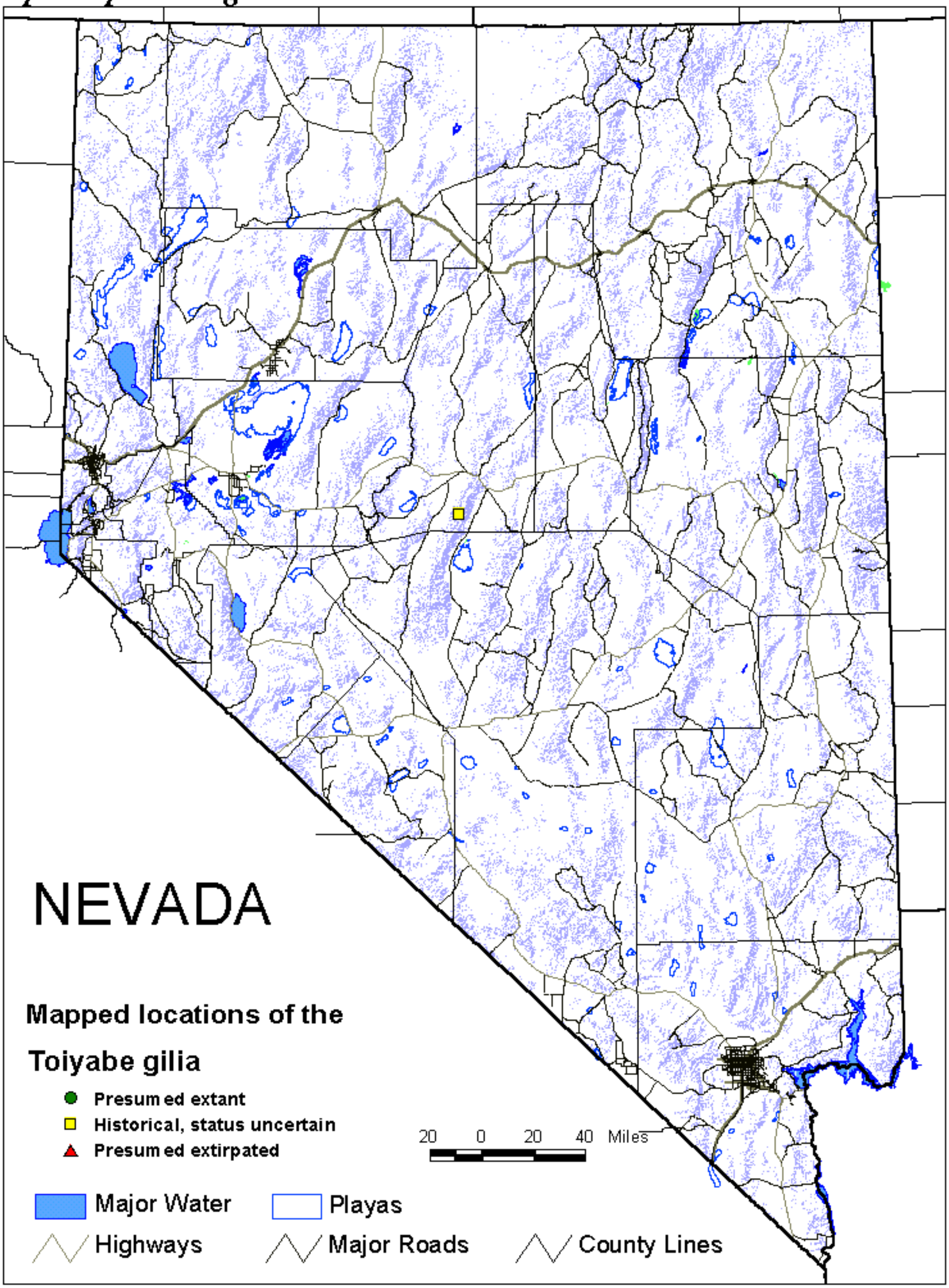
LIFE-FORM AND HABIT: long-lived perennial herb.

DESCRIPTION: A perennial herb with numerous green stems, 1.2-2.5 dm tall, from thick caudex branches. Leaves are small, stiff, and sharply ascending. Herbage is dotted with prominent yellow-orange resin droplets. The small (5-7 mm wide) flower heads, borne at the apices of the stems, have a few blue to blue-violet, fertile ray flowers and yellowish, sterile disk flowers. Known to bloom in June.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: none known.
SPECIFIC REFERENCES:

Nesom, G. L. and P. J. Leary. 1992. A new species of Ionactis (Asteraceae: Astereae) from southern Nevada and an overview of the genus. Brittonia 44: 247-252.

Ipomopsis congesta var. nevadensis



Ipomopsis congesta (Hooker) V. Grant var. *nevadensis* (Tidestrom) TOIYABE GILIA

FAMILY: *Polemoniaceae*, the phlox family. **SYNONYMS:** *Gilia nevadensis*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G5 T1 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 1 occurrence mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Systematic surveys have not yet been conducted. Most recent entered survey 1913.
Years since last entered survey (percent of mapped records at various survey ages)**: 51+ yrs or unknown:** 100%.

LAND MANAGEMENT: Humboldt-Toiyabe National Forest.

RANGE: Lander County, Nevada. Apparently endemic to the Bunker Hill area of the Toiyabe Range. **Type specimen** collected in Lander County.

ELEVATIONS RECORDED: 10200 feet (3109 meters).

HABITAT: In the mountain sagebrush, subalpine conifer, and lower alpine zones, probably mostly in rocky clay carbonate soils or scree.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** July.

LIFE-FORM AND HABIT: small perennial herb.

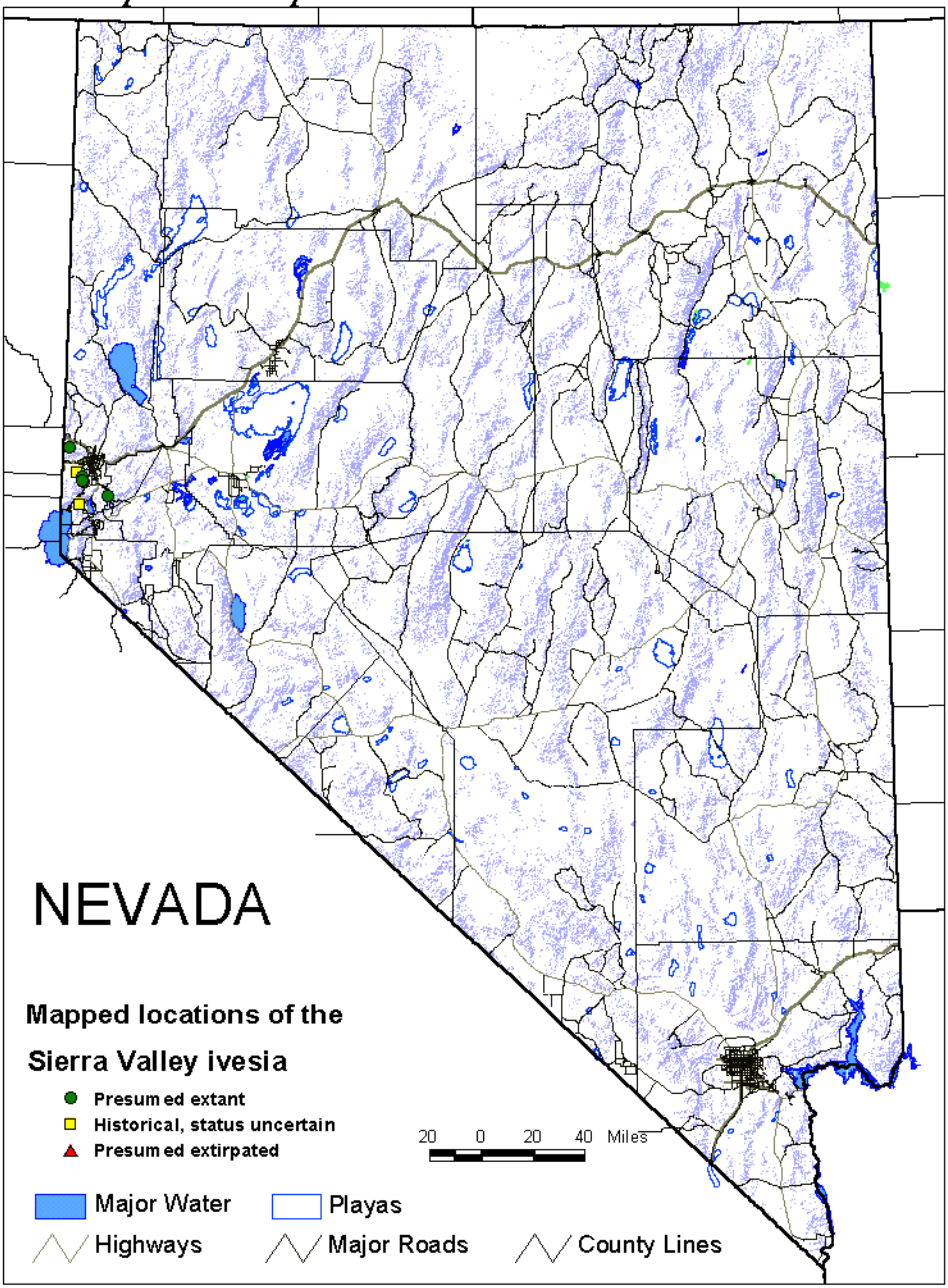
DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist et al. (1984).
SPECIFIC REFERENCES:

Tidestrom, I. F. 1925. New plants from Nevada. Proceedings of the Biological Society of Washington 38: 15-16.
Tiehm, A. 1996. Nevada vascular plant types and their collectors. Memoirs of the New York Botanical Garden 77: 1-104.

OF FURTHER INTEREST: Ipomopsis congesta var. nevadensis (Tidestrom) Tiehm, 1996, was validated at Memoirs of the New York Botanical Garden 77:91.

Ivesia aperta var. aperta



Ivesia aperta (J. T. Howell) Munz **var. *aperta*** **SIERRA VALLEY IVESIA**

FAMILY: *Rosaceae*, the rose family. **SYNONYMS:** *Potentilla aperta*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 T2 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada and California. **USFS:** Humboldt-Toiyabe NF and Region 5 (California) Sensitive Species. **NNNPS:** THREATENED.

POPULATION CENSUS (NEVADA): 6 occurrences mapped at 1.0 km (0.6 mi) separation, OR **7 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 2,600,000+**, total estimated **area 4.5+ ha (11.1+ ac)**. **TREND:** DECLINING.

IMPACTS AND MAJOR THREATS (NEVADA): Impacted somewhat by road development and maintenance and off-road vehicle use, vulnerable to fire suppression activities, drying of habitat by water diversions, and invasive weed colonization.

INVENTORY EFFORT (NEVADA): Survey mostly complete. Most recent entered survey 2000, average year of last survey 1974. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 71.4%; **51+ yrs or unknown:** 28.6%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, private lands, U. S. Bureau of Land Management (?).

RANGE: Storey and Washoe counties, Nevada; also in CA. Known in Nevada from the Carson and Virginia ranges and Peavine Mountain. Maximum Nevada **range dimension 35.6 km (22.1 mi)** excluding most disjunct record. **Type specimen** collected in Plumas County, California.

ELEVATIONS RECORDED (NEVADA): 6460-7300 feet (1969-2225 meters).

HABITAT (NEVADA): Shallow, vernally saturated, slowly draining, sandy to rocky clay soils derived from mostly andesitic volcanic rock or alluvium on benches and flats in meadows, seeps, intermittent drainages, etc., in the yellow-pine, mountain sagebrush, and mountain mahogany zones. Dependent on wetland margin areas in Nevada.

PHENOLOGY: flowering late-spring to summer, from late May through mid-August. Range of most frequent **survey months:** June-August.

LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: not available (see references).

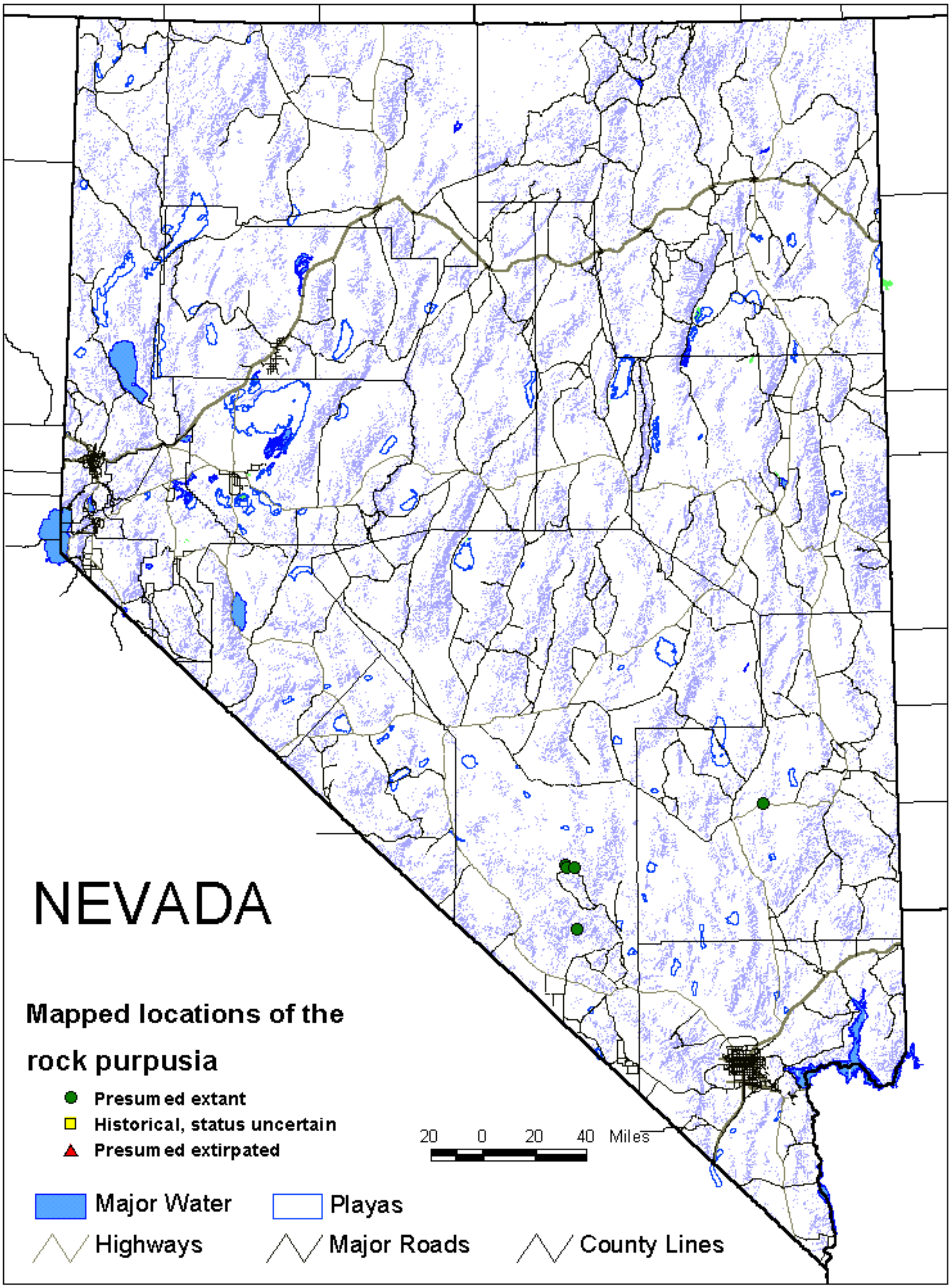
PHOTOGRAPHS: Witham (2000); Nevada Natural Heritage Program images web page (1998-present) and files.
ILLUSTRATIONS: Cronquist et al. (1997).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993).
SPECIFIC REFERENCES:

Ertter, B. 1988. Ivesia aperta var. canina (Rosaceae), new from California. Brittonia 40: 398-399.

Ertter, B. 1989. Revisionary studies in Ivesia (Rosaceae: Potentilleae). Systematic Botany 14: 231-244.

Witham, C. W. 2000. Current knowledge and conservation status of Ivesia aperta (J. T. Howell) Munz var. aperta (Rosaceae), the Sierra Valley ivesia, in Nevada. Carson City: Nevada Natural Heritage Program, status report prepared for the U. S. Fish and Wildlife Service, Reno, Nevada.

Ivesia arizonica var. saxosa



Ivesia arizonica (Eastwood ex J. T. Howell) Ertter **var. *saxosa*** (Brandegee [1899]) Ertter

ROCK PURPUSIA

FAMILY: *Rosaceae*, the rose family.

SYNONYMS: *Purpusia saxosa*
Potentilla osterhoutii var. *saxosa*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3G4 T1 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 5 occurrences mapped; total estimated **individuals 403+**, total estimated **area unknown**.
TREND: unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1968, average year of last survey 1962. **Years since last entered survey** (percent of mapped records at various survey ages)**: 31-50 yrs:** 80%; **51+ yrs or unknown:** 20%.

LAND MANAGEMENT in decreasing predominance: U. S. Department of Defense, U. S. Department of Energy, U. S. Bureau of Land Management.

RANGE: Lincoln and Nye counties, Nevada. Endemic to Nevada. Maximum **range dimension 40.5 km (25.2 mi)** excluding most disjunct record. **Type specimen** collected in Lincoln County.

ELEVATIONS RECORDED: 4925-6800 feet (1501-2073 meters).

HABITAT: Crevices of cliffs and boulders on volcanic and possibly carbonate rocks in the upper mixed-shrub, sagebrush, and pinyon-juniper zones.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-July.

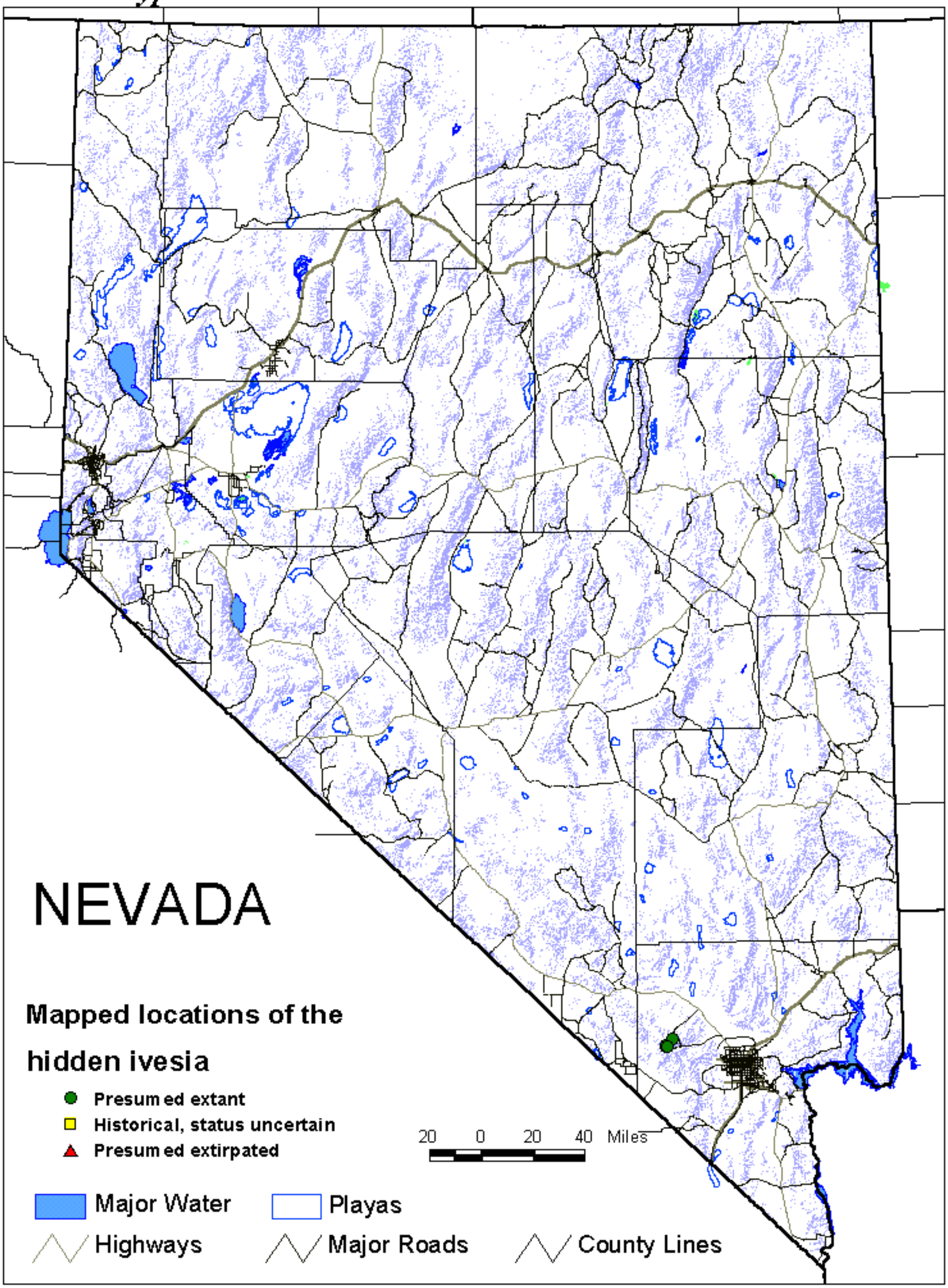
LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: Distinguished from var. arizonica by the white petals and deeper, turbinate hypanthium.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist et al. (1997).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976).
SPECIFIC REFERENCES:

Brandegee, T. S. 1899. New species of western plants. Botanical Gazette 27: 444-457.
Ertter, B. 1989. Revisionary studies in Ivesia (Rosaceae: Potentilleae). Systematic Botany 14: 231-244.

Ivesia cryptocaulis



Ivesia cryptocaulis (Clokey [1938]) Keck — HIDDEN IVESIA

FAMILY: *Rosaceae*, the rose family. **SYNONYMS:** *Potentilla cryptocaulis*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 2 occurrences mapped at 1.0 km (0.6 mi) separation, OR **5 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 130,000+**, total estimated **area 48.8 ha (121 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Surveys have been extensive, but some potential habitat likely remains unexamined for this species. Most recent entered survey 1994, average year of last survey 1994. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 100%.

LAND MANAGEMENT in decreasing predominance: designated wilderness, Humboldt-Toiyabe National Forest, private lands.

RANGE: Clark County, Nevada. Endemic to the Spring Mountains. Maximum **range dimension 1.6 km (1.0 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 10890-11915 feet (3319-3632 meters).

HABITAT: Moist to dry carbonate scree, talus, outcrops, and gravelly soils on steep slopes, ridges, and alpine flats in the alpine and upper subalpine conifer zones, with Aquilegia scopulorum, Astragalus platytropis, Elymus elymoides, Ribes montigenum, Crepis nana, Cerastium beeringianum, Draba jaegeri, Sphaeromeria compacta, Antennaria soliceps, Silene clokeyi, Synthyris ranunculina, Dodecatheon redolens, Lesquerella hitchcockii, Valeriana acutiloba, Oxytropis oreophila, Heuchera rubescens, Festuca brachyphylla, Erigeron clokeyi, Pinus longaeva, Cirsium clokeyi, Poa secunda, Androsace septentrionalis, Woodsia oregana, Penstemon leiophyllus var. keckii, Petrophytum caespitosum, Carex rossii, Oenothera cespitosa, Potentilla concinna, etc.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** May-August.

LIFE-FORM AND HABIT: small matted perennial herb.

DESCRIPTION: A perennial herb with hairy leaves and stems. Prostrate branches (5-10 cm long) form mats 2-3 cm high. Yellow flowers in bloom June-August.

PHOTOGRAPHS: Weixelman and Atwood (1990); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Knight (1992), Nachlinger (1994).
SPECIFIC REFERENCES:

Bayer, R. J., and T. M. Minish. 1993. Isozyme variation, ecology and phytogeography of Antennaria soliceps (Asteraceae: Inuleae), an alpine apomict from the Spring Mountains, Nevada. Madroño 40(2): 75-89.

Clokey, I. W. 1938. Notes on the Flora of the Charleston Mountains, Clark County, Nevada. Bulletin of the Southern California Academy of Sciences 37: 1-11.

Crosby, V. 1978. Status report for Ivesia cryptocaulis. Portland, Oregon: U. S. Fish and Wildlife Service.

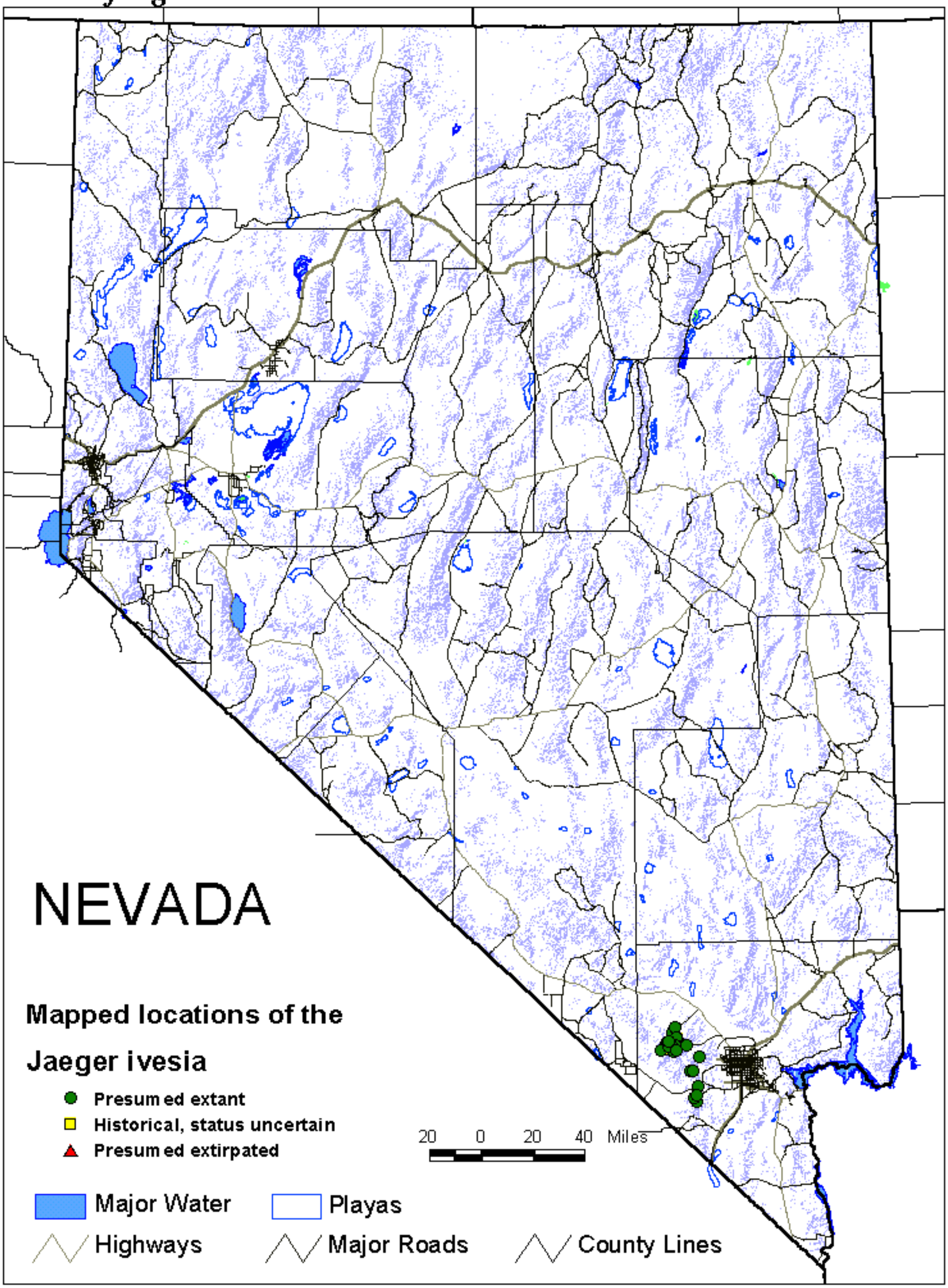
Keck, D. 1938. Revision of Horkelia and Ivesia (Rosaceae). Lloydia 1: 75-142.

Smith, F. 1995. Status report for Antennaria soliceps. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 11 pages + two appendices.

Smith, F. 1995. Status report for Ivesia cryptocaulis. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 11 pages + two appendices.

Smith, F. 1995. Status report for Sphaeromeria compacta. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 10 pages + two appendices.

Ivesia jaegeri



Ivesia jaegeri Munz & Johnston — JAEGER IVESIA

FAMILY: *Rosaceae*, the rose family. **SYNONYMS:** *Potentilla jaegeri*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S2S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 24 occurrences mapped at 1.0 km (0.6 mi) separation, OR **37 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 4260+**, total estimated **area 12.5+ ha (30.9+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Inventories have been extensive and are largely complete. Most recent entered survey 1999, average year of last survey 1984. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 2.7%; **6-10 yrs:** 62.2%; **11-20 yrs:** 10.8%; **21-30 yrs:** 10.8%; **31-50 yrs:** 5.4%; **51+ yrs or unknown:** 8.1%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, private lands, designated wilderness.

RANGE: Clark County, Nevada; also in CA. In Nevada restricted to the Spring Mountains. Maximum Nevada **range dimension 48.5 km (30.1 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 5200-11060 feet (1585-3371 meters).

HABITAT (not yet reviewed for Nevada): "Rock crevices of limestone cliffs and lower-angle bedrock outcrops at 1585-3400 m elevation."

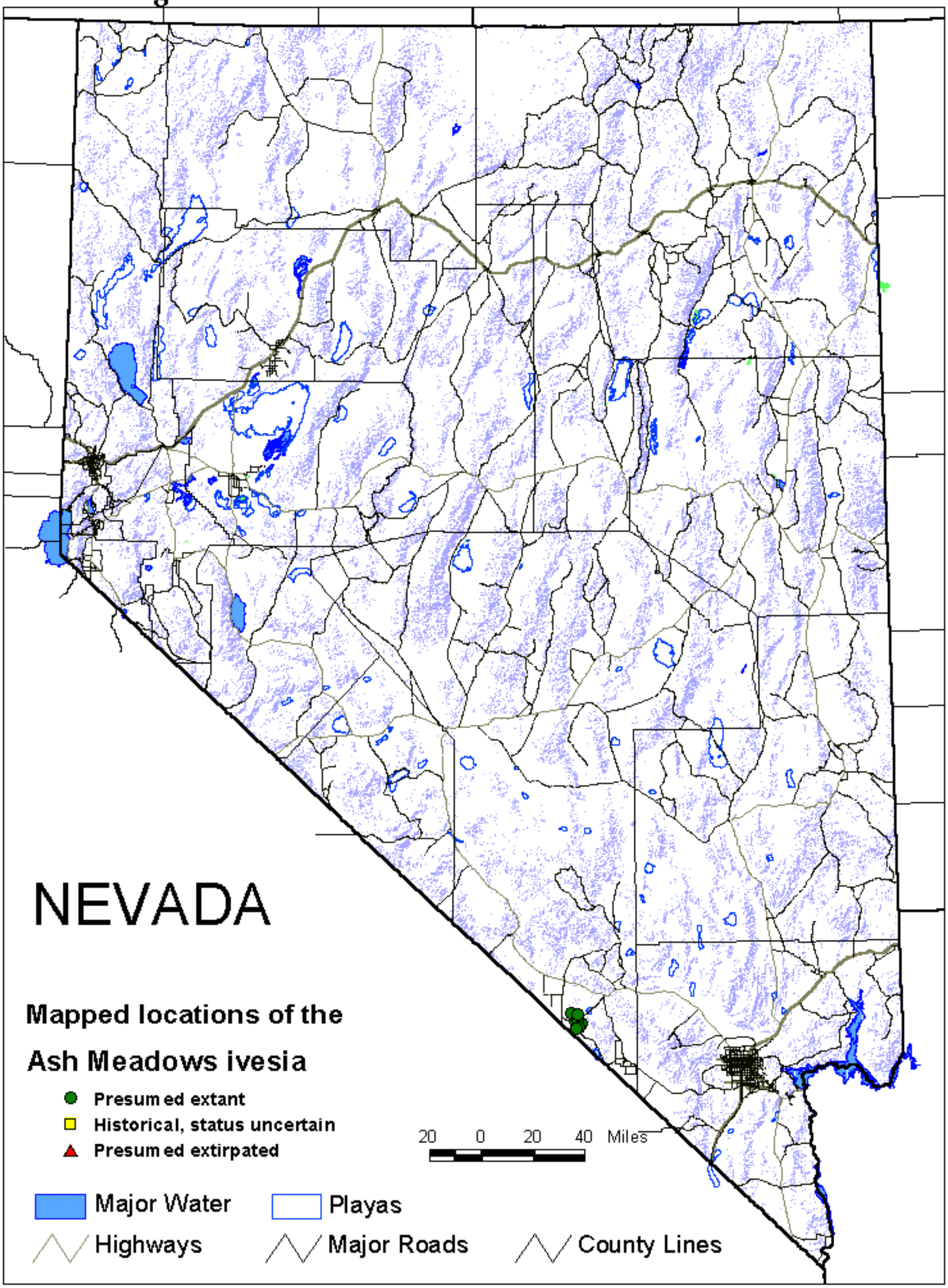
PHENOLOGY: no summary available. Range of most frequent **survey months:** June-September.

DESCRIPTION: A perennial herb with yellow flowers, blooming June-August.

PHOTOGRAPHS: Nachlinger (1994).
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Hickman (1993), Niles et al. (1999).
SPECIFIC REFERENCES:

Munz, P. A. 1929. New plants from Nevada. Bulletin of the Torrey Botanical Club 56: 163-167.

Ivesia kingii var. eremica



Ivesia kingii S. Watson **var. *eremica*** (Coville [1892]) Ertter — **ASH MEADOWS IVESIA**

FAMILY: *Rosaceae*, the rose family. **SYNONYMS:** *Ivesia eremica*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 T1T2 S1S2**
USFWS/ESA: LISTED THREATENED. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** THREATENED.

POPULATION CENSUS: 8 occurrences mapped at 1.0 km (0.6 mi) separation, OR **9 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 3862**, total estimated **area 3.7+ ha (9.1+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Surveys have been extensive but a few undocumented occurrences likely remain. Most recent entered survey 1986, average year of last survey 1982. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 77.8%; **31-50 yrs:** 22.2%.

LAND MANAGEMENT in decreasing predominance: U. S. Fish and Wildlife Service, private lands, U. S. Bureau of Land Management.

RANGE: Nye County, Nevada. Endemic to the Ash Meadows area. Maximum **range dimension 10.3 km (6.4 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 2150-2350 feet (655-716 meters).

HABITAT: Open, moist to saturated, whitish, heavy to chalky alkaline clay soils in meadows on flats, drainages, and bluffs near springs and seeps, in saltgrass meadow, shadscale, and ash-mesquite vegetation with Atriplex confertifolia, Distichlis spicata, Juncus balticus, Prosopis, Cirsium mohavense, Centaurium namophilum, Fraxinus velutina, Anemopsis californica, Iva acerosa, etc. Aquatic or wetland-dependent.

PHENOLOGY: flowering late-spring to early-fall. Range of most frequent **survey months:** April-August.

LIFE-FORM AND HABIT: matted perennial herb.

DESCRIPTION: A perennial herb that forms a tuft of narrowly divided, grayish leaves. Flowering stems are about 9 cm long and bear white flowers from August to October. Some botanists question whether this taxon is distinctive enough to be maintained as a discrete variety of the species I. kingii. (The species as a whole is extremely variable and somewhat rare.).

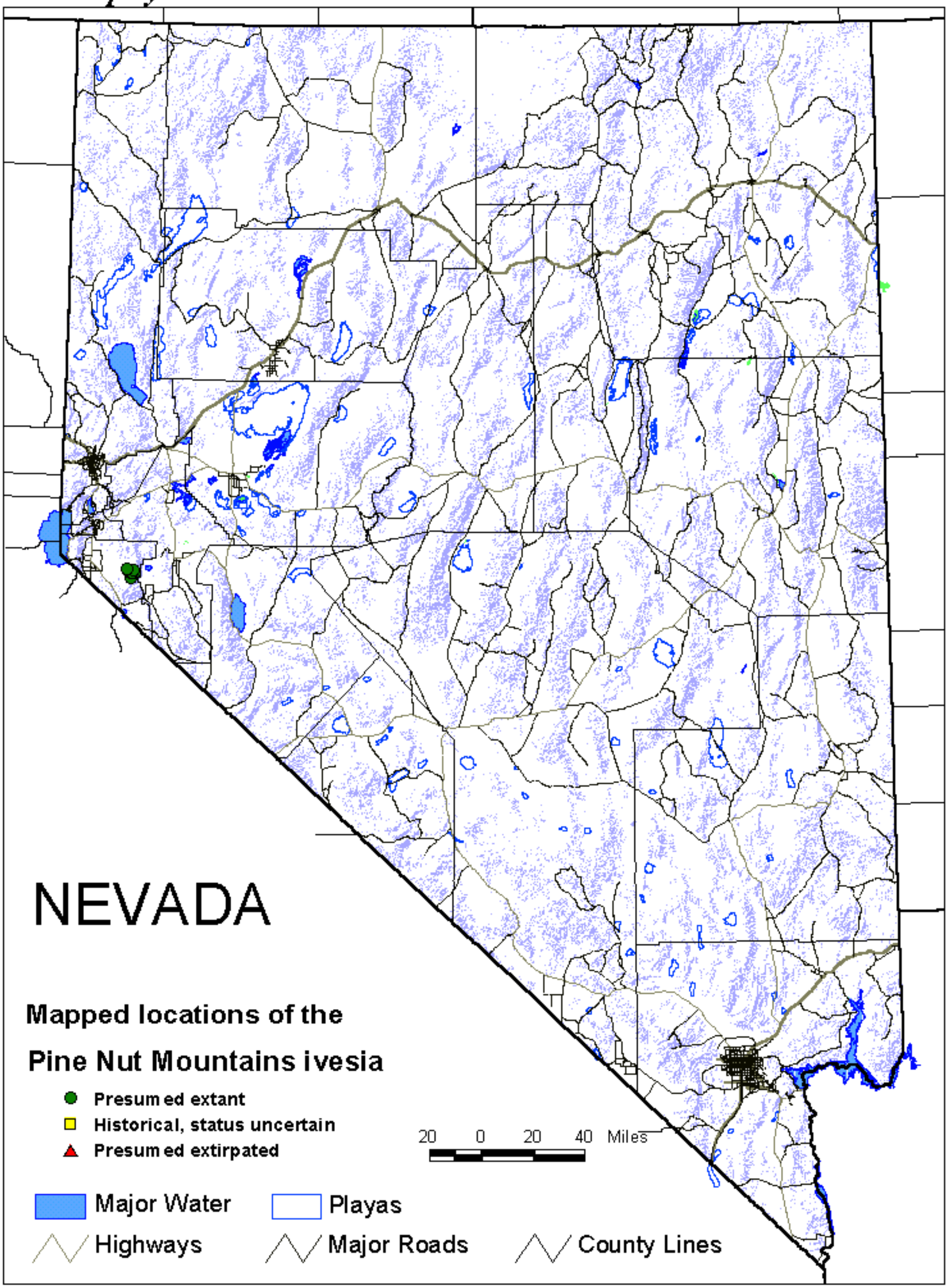
PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), U. S. Fish and Wildlife Service (1983), U. S. Fish and Wildlife Service (1985).
SPECIFIC REFERENCES:

Coville, F. V. 1892. Descriptions of new plants from southern California, Nevada, Utah, and Arizona. Proceedings of the Biological Society of Washington 7: 65-80.

Ertter, B. 1989. Revisionary studies in Ivesia (Rosaceae: Potentilleae). Systematic Botany 14: 231-244.

Rydberg, P. A. 1908. Rosaceae. North American Flora 22(3): 239-292.

Ivesia pityocharis



Ivesia pityocharis Ertter (1989) PINE NUT MOUNTAINS IVESIA

FAMILY: *Rosaceae*, the rose family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 5 occurrences mapped at 1.0 km (0.6 mi) separation, OR **14 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 212,000+**, total estimated **area 42.1 ha (104 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Grazing and trampling by livestock and feral horses, road maintenance and off-road vehicle use, competition with invasive weeds, alteration of habitat hydrology by water diversions, stock developments, or long-term habitat damage, mineral exploration and development.

INVENTORY EFFORT: Surveys are substantially complete, with only a small amount of potential habitat remaining unexamined. Most recent entered survey 1993, average year of last survey 1992.
Years since last entered survey (percent of mapped records at various survey ages)**: 6-10 yrs:** 92.9%; **11-20 yrs:** 7.1%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, private lands.

RANGE: Douglas County, Nevada. Endemic to the Pine Nut Mountains. Maximum **range dimension 5.0 km (3.1 mi)** excluding most disjunct record. **Type specimen** collected in Douglas County.

ELEVATIONS RECORDED: 6990-8550 feet (2131-2606 meters).

HABITAT: Seasonally or periodically wet, otherwise moist to dry decomposed granite soils or sod of meadow margins with shallow underlying water table and/or bedrock, associated with springs, moist drainages, or ephemeral ponds, typically on flats or gentle northwest to northeast exposures, but found on all aspects with slopes up to about 20 degrees, with Artemisia tridentata vaseyana, Juncus balticus, Elymus elymoides, Camissonia tanacetifolia, Muhlenbergia richardsonis, Poa secunda, etc. Aquatic or wetland-dependent.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** July-September.

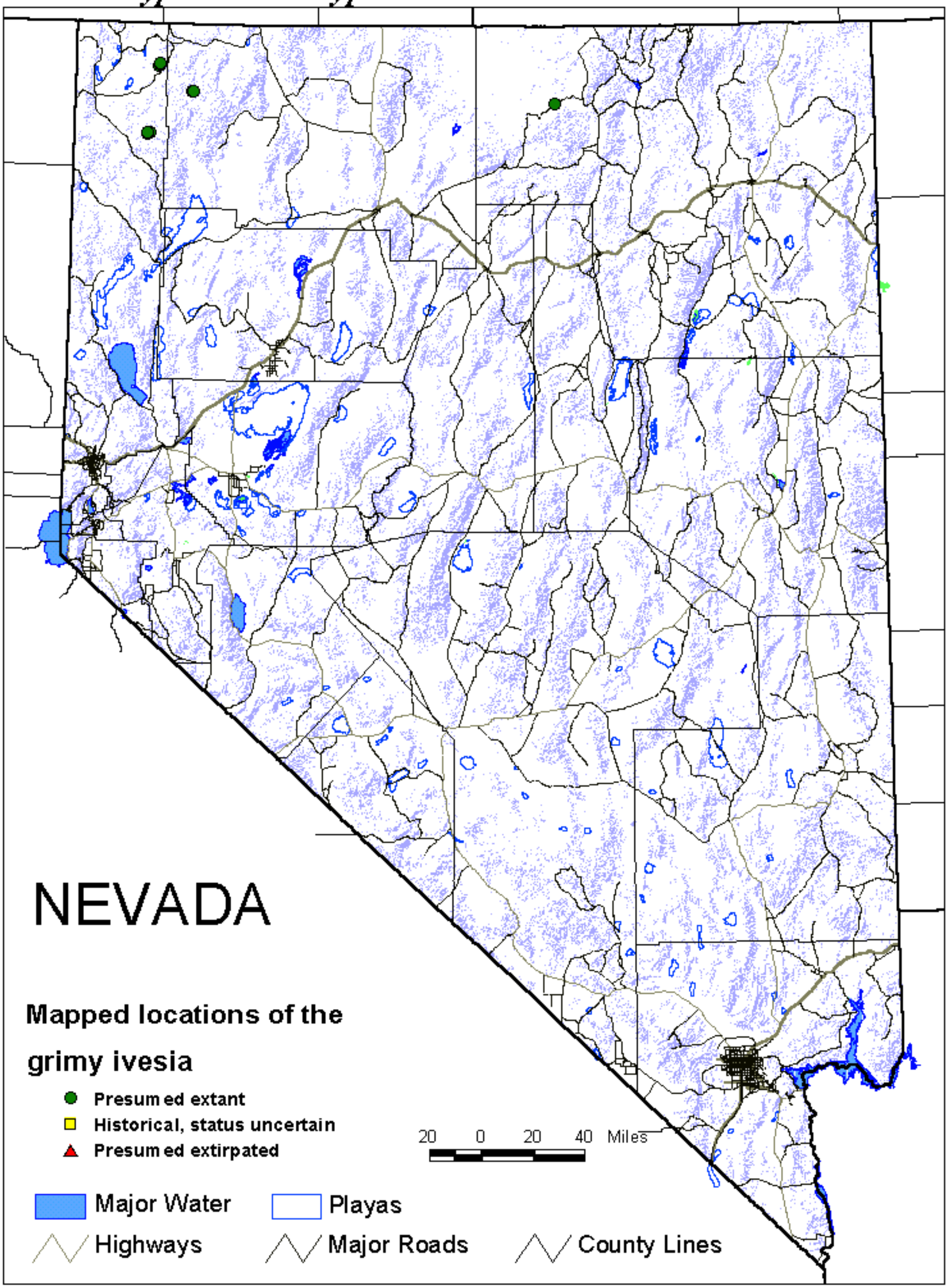
LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: A perennial herb with white flowers, blooming July-August. Hairy, reddish stems are prostrate to ascending, 7-30 cm long.

PHOTOGRAPHS: Morefield (1994); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Cronquist et al. (1997).
SPECIFIC REFERENCES:

Ertter, B. 1989. Revisionary studies in Ivesia (Rosaceae: Potentilleae). Systematic Botany 14: 231-244.
Morefield, J. D. 1994. Status report for Ivesia pityocharis Ertter (1989). Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

Ivesia rhypara var. rhypara



Ivesia rhypara Ertter & Reveal (1977) var. *rhypara* GRIMY IVESIA

FAMILY: *Rosaceae*, the rose family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 T2 S2**
USFWS/ESA: species of concern, formerly CANDIDATE or PROPOSED. **STATE OF NEVADA:** none.
BLM: Special Status Species in Nevada and California. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 5 occurrences mapped at 1.0 km (0.6 mi) separation, OR **11 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 194,000+**, total estimated **area 18.5 ha (45.7 ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Minor livestock trampling near fence lines, vulnerable to mineral exploration and development, off-road vehicle use, range treatments, fire suppression activities, impacts to pollinator populations, etc. At least 3 sites are under protective management as part of an ACEC.

INVENTORY EFFORT (NEVADA): Inventories have been extensive but considerable potential habitat remains unsurveyed. Most recent entered survey 1996, average year of last survey 1995.
Years since last entered survey (percent of mapped records at various survey ages)**: 0-5 yrs:** 27.3%; **6-10 yrs:** 72.7%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Fish and Wildlife Service, U. S. Bureau of Land Management, private lands.

RANGE: Elko, Humboldt, and Washoe counties, Nevada; also in OR. Maximum Nevada **range dimension 44.8 km (27.8 mi)** excluding most disjunct record. **Type specimen** collected in Oregon, Malheur co.

ELEVATIONS RECORDED (NEVADA): 5370-6200 feet (1637-1890 meters).

HABITAT (NEVADA): Mostly on dry, relatively barren, yellowish or light-colored outcrops or badlands of welded, sometimes hydrothermally altered and re-cemented, ash-fall tuff, and on shallow gravel grus derived therefrom, in one case on unsorted cobbly riverbed deposits mixed with underlying volcanic ash, on gentle to steep side, shoulder, or toe slopes with east to south to west aspects, with few and sparse associated species such as Trifolium andersonii, Poa secunda, Ericameria nauseosa, and Achnatherum hymenoides.

PHENOLOGY: flowering late-spring to early-fall, Blooms primarily from May-June and disperses seed in July and August. Range of most frequent **survey months:** May-October.

LIFE-FORM AND HABIT: small long-lived perennial cushion.

DESCRIPTION: Low spreading herbaceous perennial from a branched caudex atop an extensive, woody root system, this often clothed with old, reddish-pubescent leaf-bases; herbage grayish- or greenish-white, villous to canescent, eglandular; stems erect before anthesis, becoming prostrate and trailing as the inflorescence develops and lengthens, 5-15 cm long; leaves essentially basal, 3-8 cm long with 5-15 pairs of closely overlapping leaflets; leaflets divided to near the base into 3-5 segments; inflorescence a more or less open cyme (Ertter and Reveal 1977).
Distinguishing features: Diagnostic characters are the densely hairy non-sticky leaves, narrow whitish petals, five stamens, solitary style, clumping habit, and barren-looking desert habitat.

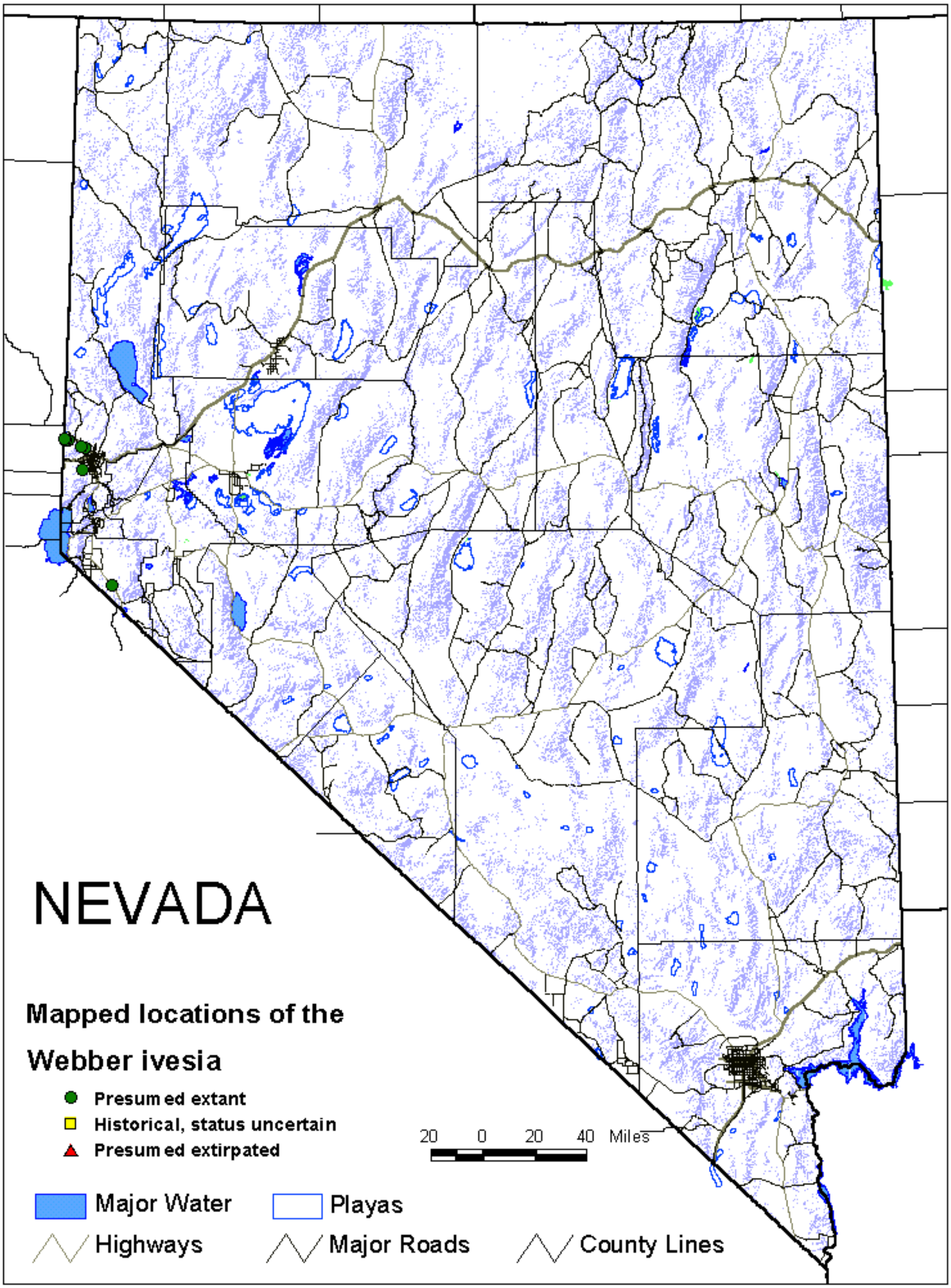
PHOTOGRAPHS: Eastman (1990), Holland (1994); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files. **ILLUSTRATIONS:** Cronquist et al. (1997), Ertter and Reveal (1977), Meinke (1982).

SPECIFIC REFERENCES:

Ertter, B. and J. L. Reveal. 1977. A new species of Ivesia (Rosaceae) from southeast Oregon. Madroño 24: 224-227.
Ertter, B. 1983. Notes on Ivesia rhypara. Madroño 30: 257-258.
Ertter, B. 1989. Revisionary studies in Ivesia (Rosaceae: Potentilleae). Systematic Botany 14: 231-244.
Holland, R. F. 1994. Status report for Ivesia rhypara var. rhypara Ertter and Reveal (1977). Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service and the Bureau of Land Management, Reno.
Nachlinger, J. and A. Tiehm. 1996. Rare plant survey of the Sheldon National Wildlife Refuge. Reno, Nevada: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Sheldon-Hart Mountain Refuges, Lakeview, Oregon.
Schoolcraft, G. and A. Tiehm. 1985. Noteworthy collections, Nevada. Madroño 32: 123-124.

OF FURTHER INTEREST: Kaye et al. (1991) showed var. rhypara to be moderately outcrossed by native pollinating insects (ants have been observed visiting flowers of both species), genetically more diverse within than among populations, and possibly indistinct morphologically and genetically from var. shellyi and Ivesia paniculata. One variety of Ivesia rhypara occurs in Nevada, var. rhypara. The other variety, var. shellyi, occurs in Oregon. The varieties are distinguished by the inflorescence, number of flowers, and habitat.

Ivesia webberi



Ivesia webberi A. Gray — WEBBER IVESIA

FAMILY: *Rosaceae,* the rose family.

SYNONYMS: *Potentilla webberi*
Horkelia webberi

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** recommended for full protection. **BLM:** Special Status Species in Nevada and California. **USFS:** Humboldt-Toiyabe NF and Region 5 (California) Sensitive Species. **NNNPS:** THREATENED.

POPULATION CENSUS (NEVADA): 6 occurrences mapped at 1.0 km (0.6 mi) separation, OR **8 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 4,700,000+**, total estimated **area 13.0 ha (32.1 ac)**. **TREND:** DECLINING.

IMPACTS AND MAJOR THREATS (NEVADA): Residential development, road development and maintenance, off-road vehicle use, vulnerable to concentrated livestock trampling, fire suppression activities, competition from invasive weeds.

INVENTORY EFFORT (NEVADA): Surveys mostly complete. Most recent entered survey 2000, average year of last survey 1993. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 88.9%; **31-50 yrs:** 11.1%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: private lands, Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, Nevada state lands (?), Native American lands (?).

RANGE: Douglas and Washoe counties, Nevada; also in CA. Known in Nevada from the Pine Nut and Carson ranges and Peavine Mountain. Maximum Nevada **range dimension 21.5 km (13.4 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 4000-5950 feet (1219-1814 meters).

HABITAT (NEVADA): Shallow shrink-swell clay soils with a gravelly surface layer over volcanic, generally andesitic bedrock, on mid-elevation benches and flats, usually codominating with Artemisia arbuscula and Elymus elymoides in association with Antennaria dimorpha, Balsamorhiza hookeri, Erigeron bloomeri, Lewisia rediviva, Viola beckwithii, etc.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** April-September.

LIFE-FORM AND HABIT: small perennial herb.

DESCRIPTION: A perennial, tap-rooted low spreading herb. **Distinguishing features:** A perennial, taprooted low spreading herb to 2.5 dm across with silky haired grayish leaflets clustered at the tips of a dark red rachis and bright yellow ball-like heads of flowers. This distinctive species is not likely to be confused with other similar species. Most resembles I. unguiculata in the leaflets; but these are crowded on an inch or less of the rachis, and the villosity is less dense and silky; also the petals are smaller and bright yellow.

PHOTOGRAPHS: Weixelman and Atwood (1990), Witham (2000); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.

ILLUSTRATIONS: Cronquist et al. (1997), Weixelman and Atwood (1990).

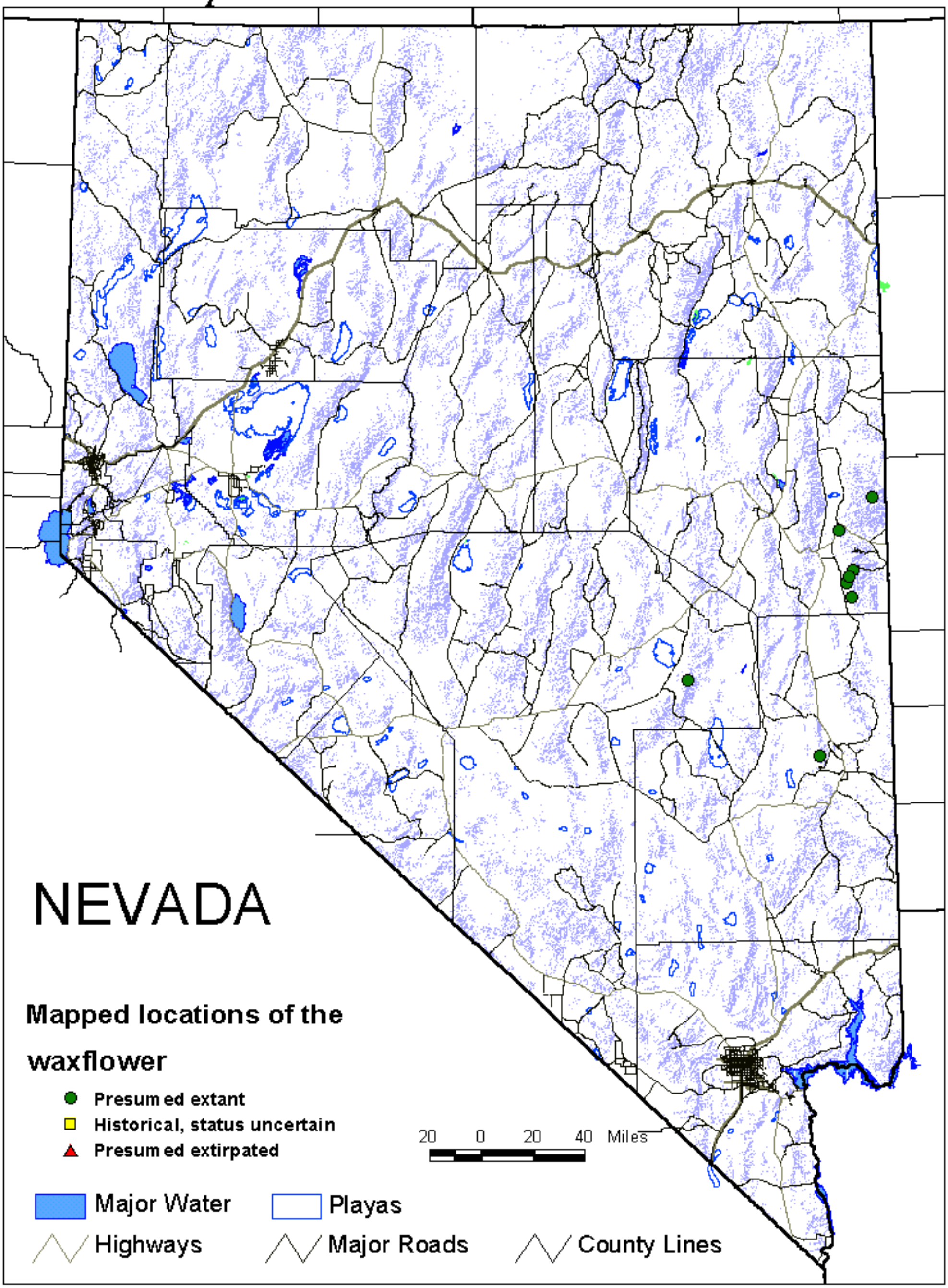
OTHER GENERAL REFERENCES (listed separately): Hickman (1993).

SPECIFIC REFERENCES:

Witham, C. W. 1991. Final report, focused field survey, Ivesia webberi, Webber's ivesia, Toiyabe National Forest, Sierra County, California and Washoe County, Nevada, June 3-27, 1991. Sparks: Toiyabe National Forest, unpublished.

Witham, C. W. 2000. Current knowledge and conservation status of Ivesia webberi Gray (Rosaceae), the Webber ivesia, in Nevada. Carson City: Nevada Natural Heritage Program, status report prepared for the U. S. Fish and Wildlife Service, Reno, Nevada.

Jamesia tetrapetala



Jamesia tetrapetala N. & P. Holmgren — WAXFLOWER

FAMILY: *Hydrangeaceae*, the hydrangea family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 8 occurrences mapped at 1.0 km (0.6 mi) separation, OR **9 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area unknown**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1994, average year of last survey 1985. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 11.1%; **11-20 yrs:** 77.8%; **31-50 yrs:** 11.1%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, National Park Service, U. S. Bureau of Land Management, designated wilderness, private lands (?).

RANGE: Lincoln, Nye, and White Pine counties, Nevada; also in UT. Maximum Nevada **range dimension 161.2 km (100.2 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 7000-10720 feet (2134-3267 meters).

HABITAT (not yet reviewed for Nevada): "Crevices in limestone cliffs. 2000-3300 m elevation."

PHENOLOGY: no summary available. Range of most frequent **survey months:** June-August.

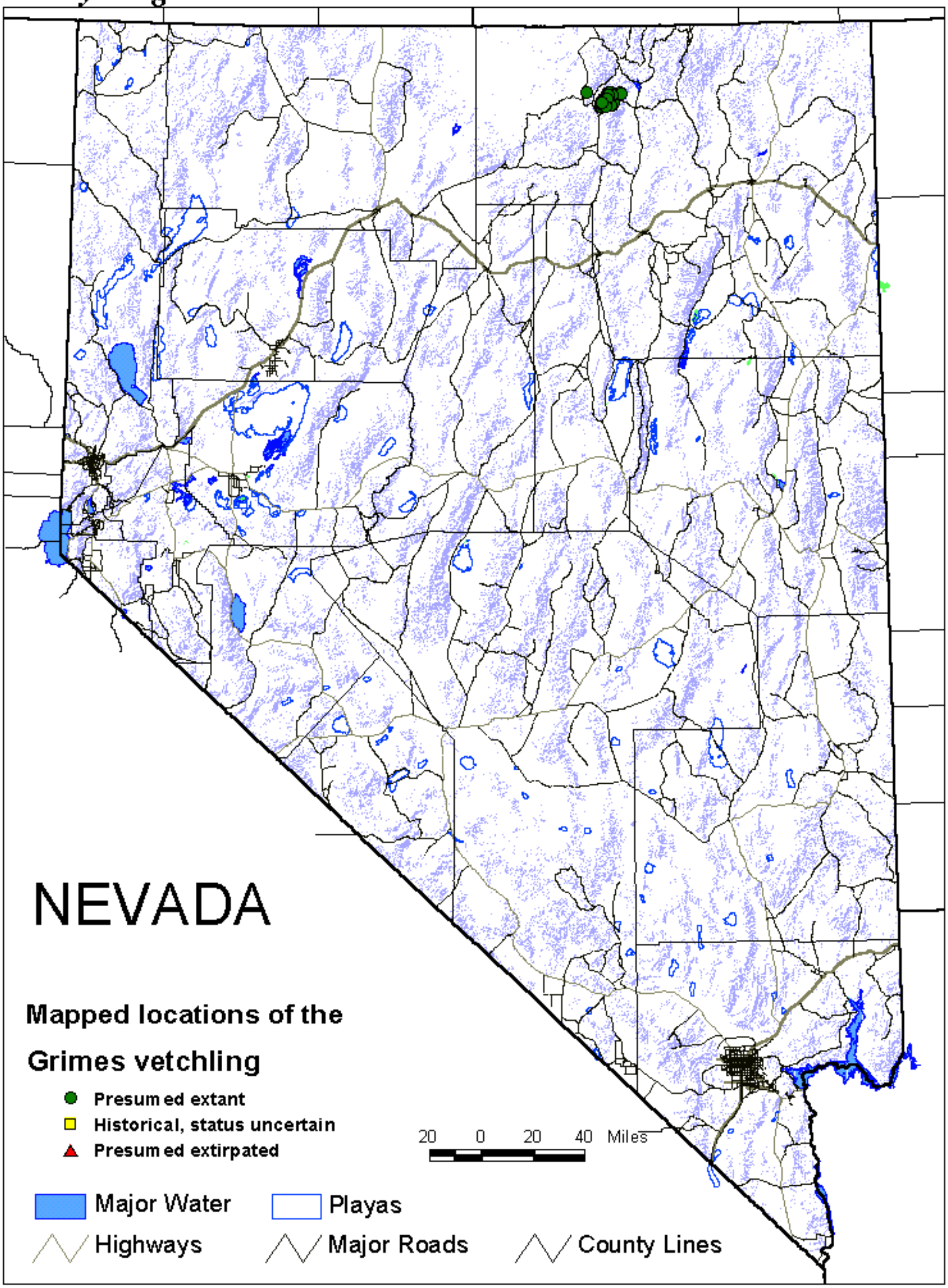
DESCRIPTION: A fragrant, spreading shrub, 3-10 dm tall. Produces solitary, 4-petaled flowers at the ends of the branches. Petals are white with pink margins.

PHOTOGRAPHS: Atwood et al. (1991).
ILLUSTRATIONS: Atwood et al. (1991), Cronquist et al. (1997).
OTHER GENERAL REFERENCES (listed separately): Welsh et al. (1993).
SPECIFIC REFERENCES:

Holmgren, N. and P. Holmgren. 1989. A taxonomic study of Jamesia (Hydrangeaceae). Brittonia 41: 335-350.
Lyman, J. and A. Sanders. 1993. Mount Moriah botanical survey, Mount Moriah Wilderness-Humboldt National Forest, White Pine County, Nevada. Riverside: University of California, DRAFT report prepared for the Humboldt National Forest, Ely, Nevada.

OF FURTHER INTEREST: Genus of two species.

Lathyrus grimesii



Lathyrus grimesii Barneby (1989) GRIMES VETCHLING

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 13 occurrences mapped at 1.0 km (0.6 mi) separation, OR **57 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 1234+**, total estimated **area 78.1 ha (193 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Mineral exploration and development, slope destabilization and erosion caused by roads and other disturbances, road maintenance, concentrated trampling by livestock or feral horses, vulnerable to fire hazard and/or competition with invasive weed species, declines in insect pollinator populations.

INVENTORY EFFORT: Exhaustive surveys from the air and on the ground have been completed. Most recent entered survey 1994, average year of last survey 1994. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 100%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, private lands, U. S. Bureau of Land Management.

RANGE: Elko County, Nevada. Nearly endemic to the northern Independence Range, with one disjunct site in the southern Bull Run Mountains. Maximum **range dimension 14.9 km (9.3 mi)** excluding most disjunct record. **Type specimen** collected in Elko County.

ELEVATIONS RECORDED: 6080-8360 feet (1853-2548 meters).

HABITAT: Dry, open, shallow, silty clay soils usually overlain by a thin scree of reddish to yellowish brown gravel floated from an underlying cherty or partly quartzitized mudstone component of the Schoonover Formation, forming relatively barren patches on mostly steep slopes of all aspects, and supporting a sparse to moderately dense vegetation usually dominated by Lathyrus grimesii in association with Purshia tridentata, Ericameria nauseosa, Artemisia tridentata vaseyana, Leymus cinereus, Bromus tectorum, and occasionally Euphorbia esula and Trifolium leibergii. Lathyrus grimesii colonies form dense patches that turn a uniform bright yellowish-tan during and after fruit maturation, rendering them highly visible on the landscape.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** June-August.

LIFE-FORM AND HABIT: rhizomatous perennial herb.

DESCRIPTION: A low perennial herb with decumbent stems that reach about 1-2.5 dm in height. Produces large, purple and white, bicolored flowers in June and July.

PHOTOGRAPHS: Morefield (1996), Smith and Curto (1995); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.

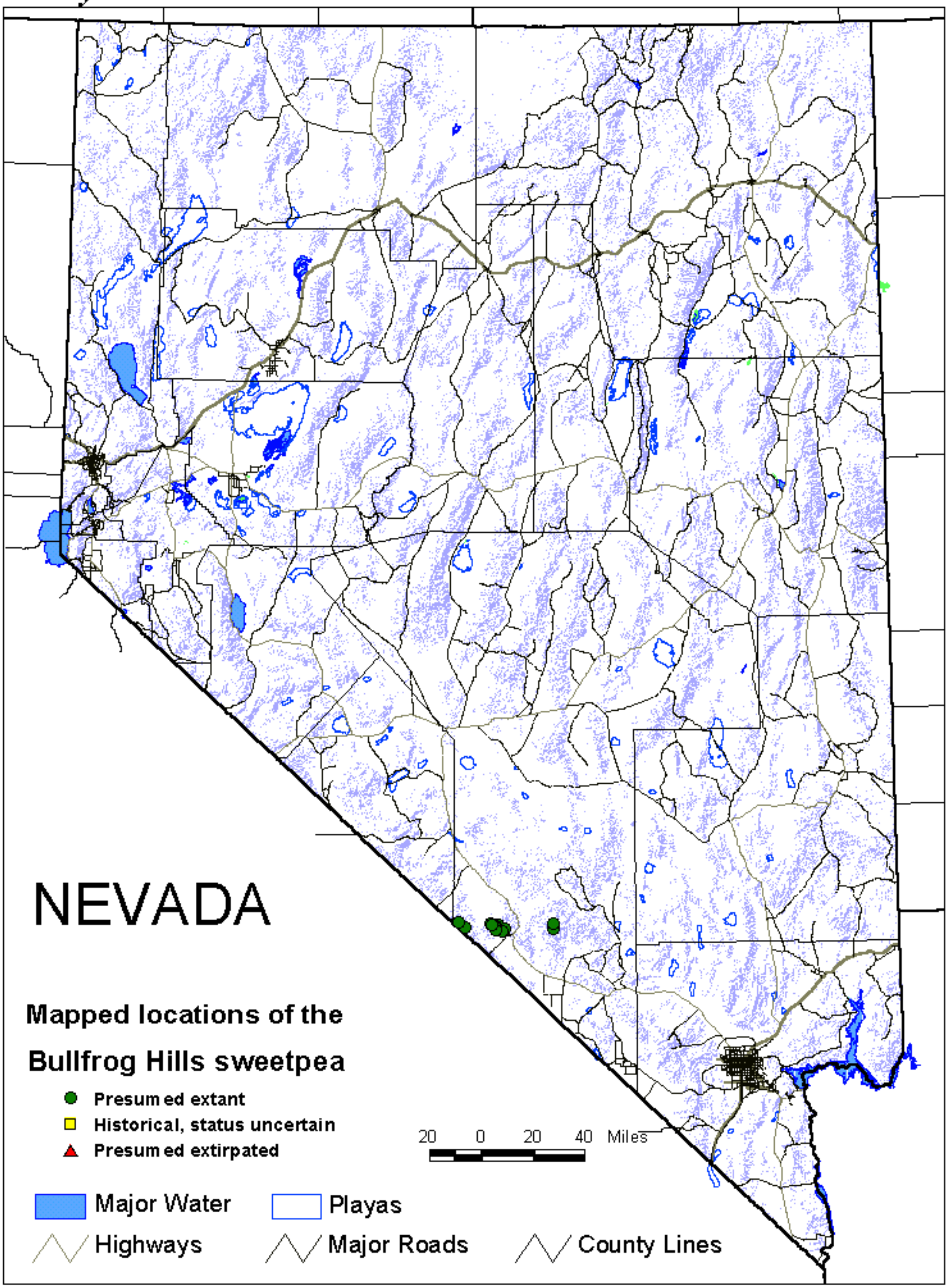
ILLUSTRATIONS: Barneby (1989).

SPECIFIC REFERENCES:

Bair, J. 1995. Endangered and threatened wildlife and plants; 12-month finding for a petition to list the plant Lathyrus grimesii (Grimes vetchling) as endangered in Nevada. Federal Register 60(112): 30826-30827.

Morefield, J. D. 1996. Current knowledge and conservation status of Lathyrus grimesii Barneby (Fabaceae), the Grimes vetchling. Carson City: Nevada Natural Heritage Program, status report prepared for the U. S. Fish and Wildlife Service, Reno.

Lathyrus hitchcockianus



Lathyrus hitchcockianus Barneby & Reveal (1971) BULLFROG HILLS SWEETPEA

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 10 occurrences mapped at 1.0 km (0.6 mi) separation, OR **12 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 3259+**, total estimated **area 26.3+ ha (65.0+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Mining operations, off-road vehicle activity, trail construction.

INVENTORY EFFORT: Most potential habitat has apparently been examined. Most recent entered survey 1997, average year of last survey 1972. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 8.3%; **11-20 yrs:** 50%; **21-30 yrs:** 16.7%; **31-50 yrs:** 16.7%; **51+ yrs or unknown:** 8.3%.

LAND MANAGEMENT in decreasing predominance: National Park Service, U. S. Bureau of Land Management, U. S. Department of Defense, U. S. Department of Energy (?).

RANGE: Nye County, Nevada; also in CA (?). Possible or probable **Nevada endemic.** Maximum **range dimension 54.8 km (34.0 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED (NEVADA): 4000-6900 feet (1219-2103 meters).

HABITAT: Open, dry to slightly moist gravels of rocky drainage bottoms in canyons and on upper alluvial slopes, often at bases of boulders or canyon walls and climbing up through shrubs, in areas of volcanic tuff or carbonate rocks in the mixed-shrub, sagebrush, and pinyon-juniper zones.

PHENOLOGY: flowering spring. Range of most frequent **survey months:** April-May.

LIFE-FORM AND HABIT: perennial herb from a buried root crown.

DESCRIPTION: A bluish-green perennial herb with lax stems, up to 3.5 dm long. Flowers (April and May) are lilac-purple.

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Beatley (1977), Cochrane (1979), Hickman (1993), Rhoads and Williams (1977).
SPECIFIC REFERENCES:

Barneby, R. C. and J. L. Reveal. 1971. A new species of Lathyrus (Fabaceae) from the Death Valley region of California and Nevada. Aliso 7: 361-364.

Bureau of Land Management, Tonopah Resource Area. 1988 (?). Final environmental assessment, Bullfrog project. Tonopah, Nevada.

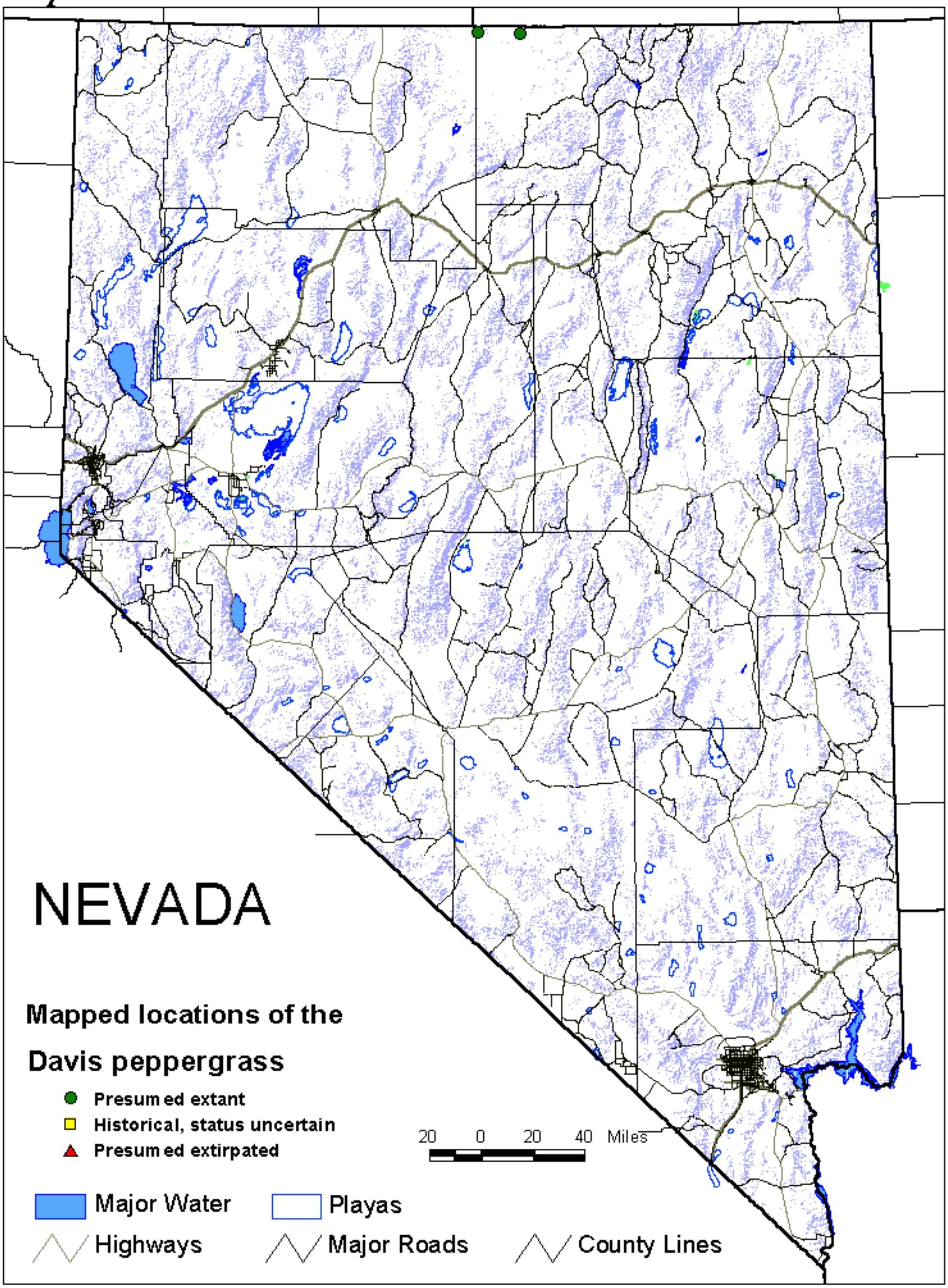
Cochrane, S. A. 1978. Status report for Lathyrus hitchcockianus. Portland, Oregon: U. S. Fish and Wildlife Service.

Collins, E. and W. A. Rhoads. 1981. Field surveys for Lathyrus hitchcockianus at the Nevada Test Site and Bullfrog Hills. Santa Barbara, California: EG and G Contract DC-AC08-76NV01183.

Collins, E., T. P. O'Farrell and W. A. Rhoads. 1981. Annotated bibliography for biologic overview for the Nevada nuclear waste storage investigations. Santa Barbara, California: EG and G, and Mercury, Nevada: U. S. Department of Energy, Nevada Test Site.

DeDecker, M. 1982. Report on Lathyrus hitchcockianus. Carson City: Nevada Natural Heritage Program files.

Lepidium davisii



Lepidium davisii Rollins (1948) DAVIS PEPPERGRASS

FAMILY: *Brassicaceae*, the mustard family. **SYNONYMS:** *Lepidium montanum* ssp. *davisii*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 2 occurrences mapped; total estimated **individuals 33,000**, total estimated **area 9.0 ha (22.2 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. One occurrence was found during an aerial survey. Most recent entered survey 1998, average year of last survey 1997.
Years since last entered survey (percent of mapped records at various survey ages)**: 0-5 yrs:** 50%; **6-10 yrs:** 50%.

LAND MANAGEMENT (NEVADA): U. S. Bureau of Land Management.

RANGE: Elko County, Nevada; also in ID and OR. In Nevada known only from the northern Owyhee Desert in the South Fork Owyhee River drainage. Maximum Nevada **range dimension 26.0 km (16.2 mi)**. **Type specimen** collected in Idaho, Elmore co.

ELEVATIONS RECORDED (NEVADA): 5125-5200 feet (1562-1585 meters).

HABITAT (NEVADA): Hard-bottomed clay playas on volcanic plains in the sagebrush zone with sparse associated Atriplex confertifolia and Artemisia cana, surrounded by Artemisia tridentata vegetation. During spring, the playas are usually inundated up to a foot deep. Aquatic or wetland-dependent in Nevada.

PHENOLOGY: flowering late-spring to summer, May - August (Meinke 1982). Range of most frequent **survey months:** July.

LIFE-FORM AND HABIT: small perennial herb.

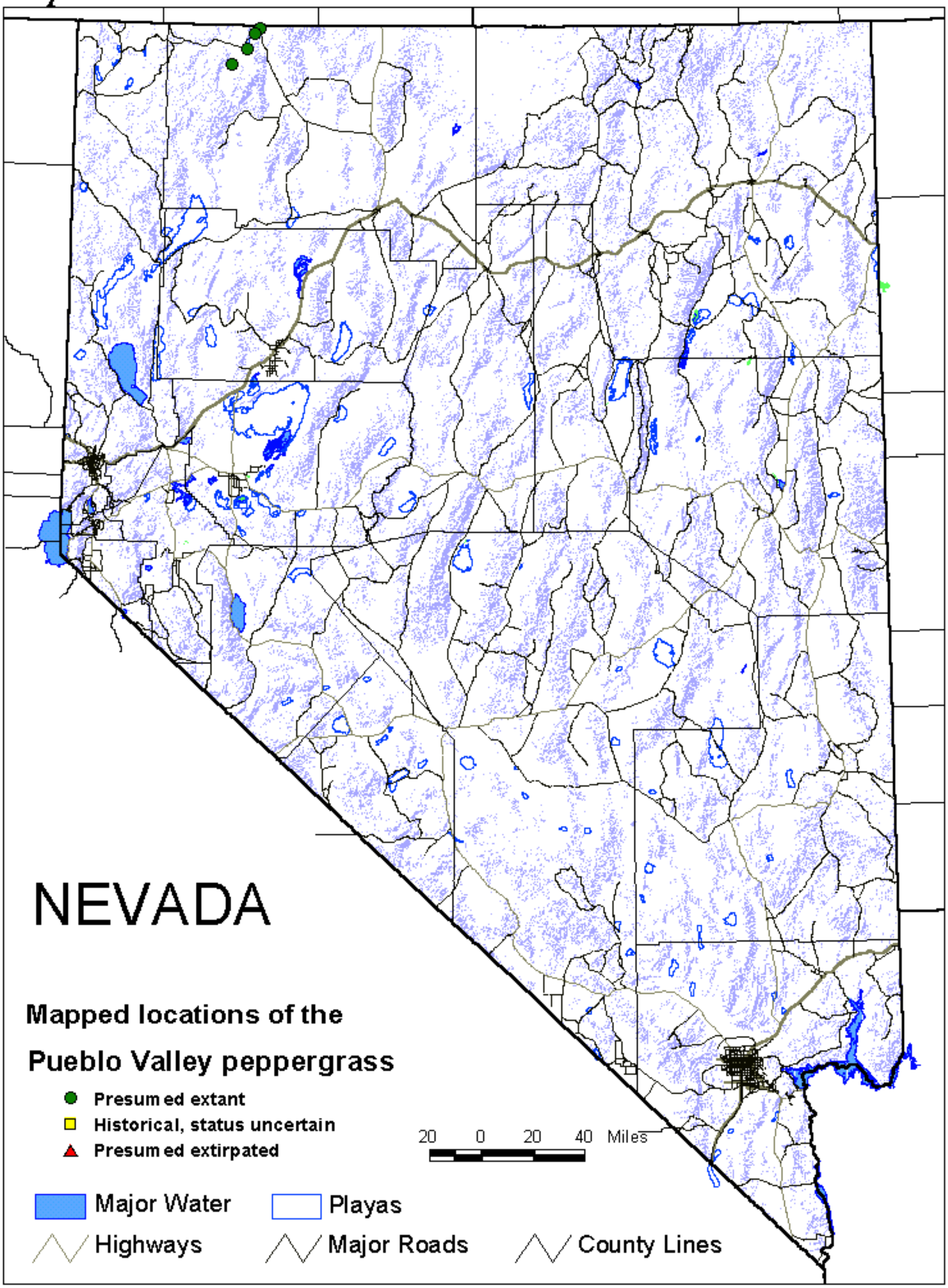
DESCRIPTION: A caespitose, deep-rooted perennial mustard forming irregular or regular clumps; stems slender, mostly unbranched or sometimes branched, 4-8 cm tall, pubescent with small, simple hairs; leaves simple, sessile, entire to toothed or pinnately lobed, greenish but often gray with adhering clay, sparingly pubescent to glabrous, 1-2.5 cm long; inflorescence subcorymbose; petals white, 2-3 mm long; siliques crowded, glabrous to sparingly pubescent, slightly notched at apex, 3-5 mm long; style slightly longer than the notch. **Distinguishing features:** Perennial cruciferous plant with simple leaves growing on hard clay bottom playas with no (or a few) associated plants.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Rollins (1993).
SPECIFIC REFERENCES:

Moseley, R. K. 1995. Report on the conservation status of Lepidium davisii. Boise: Idaho Conservation Data Center, prepared for the Idaho Department of Fish and Game and the Idaho Department of State Parks and Recreation.
Rollins, R. C. 1948. On two perennial caespitose Lepidiums of western North America. Madroño 9: 162-165.

OF FURTHER INTEREST: It has been observed that plants show distinct inter-playa differences in leaf size and shape, and plant phenology suggesting that it disperses poorly, and that there is minimal pollination between neighboring playas. It is suggested that each playa be considered a separate population (USFWS 1994). Synonym: Lepidium montanum Nutt. ssp. davisii (Rollins) C.L. Hitchcock.

Lepidium montanum var. nevadense



Lepidium montanum Nuttall var. *nevadense* Rollins PUEBLO VALLEY PEPPERGRASS

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G5? T1? S1?**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 4 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1995, average year of last survey 1993. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 75%; **11-20 yrs:** 25%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, Nevada state lands (?), private lands (?).

RANGE: Humboldt County, Nevada; also in OR. Maximum Nevada **range dimension 15.3 km (9.5 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 4180-4365 feet (1274-1330 meters).

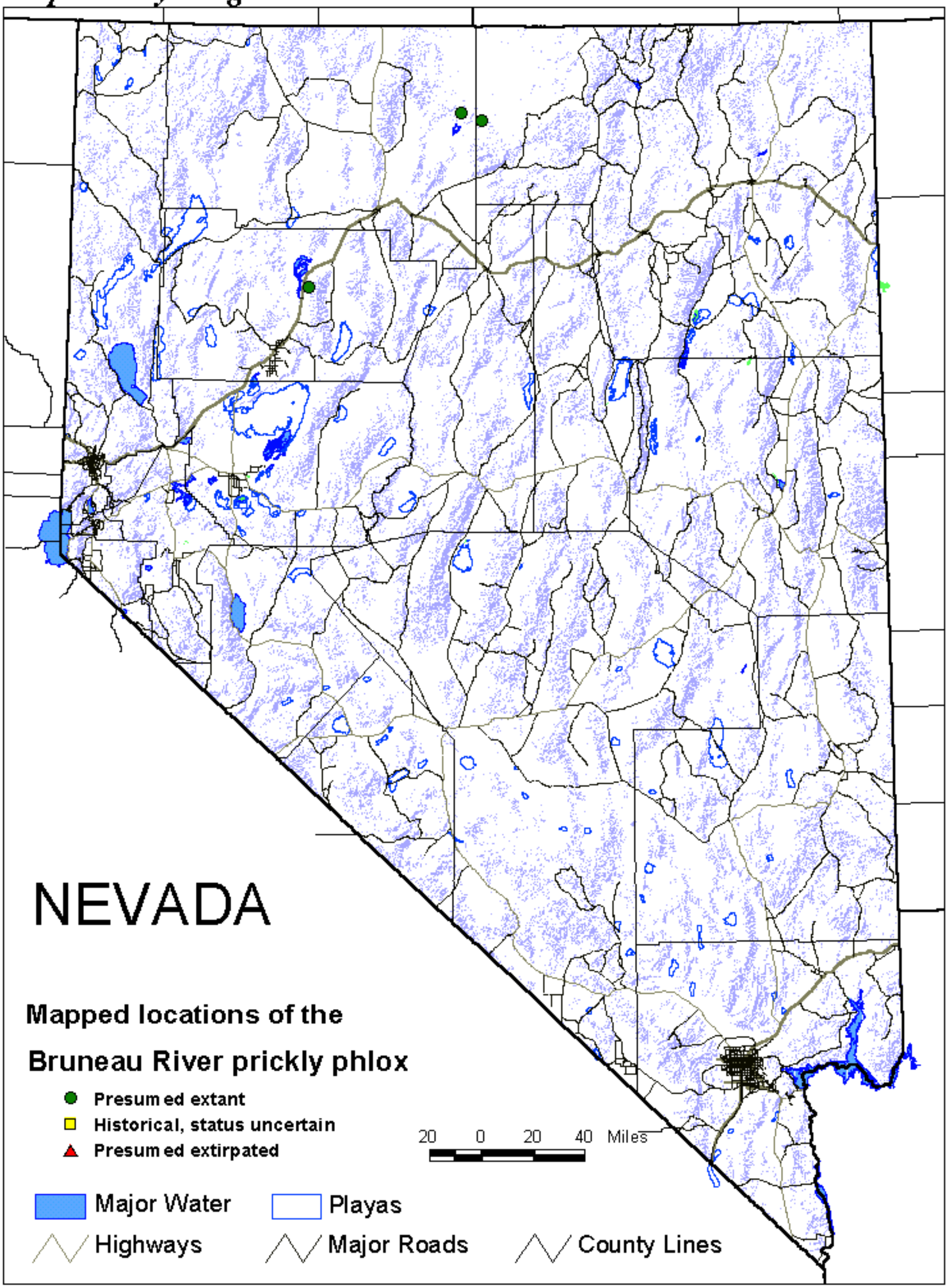
HABITAT: Dependent on sand dunes or deep sand in Nevada.

PHENOLOGY: no summary available. Range of most frequent **survey months:** May-June.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Rollins (1993).

Leptodactylon glabrum



Leptodactylon glabrum Patterson & Yoder-Williams BRUNEAU RIVER PRICKLY PHLOX

FAMILY: *Polemoniaceae*, the phlox family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 3 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1984, average year of last survey 1983. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands (?).

RANGE: Elko, Humboldt, and Pershing counties, Nevada; also in ID. Maximum Nevada **range dimension 149.3 km (92.8 mi)**.

ELEVATIONS RECORDED (NEVADA): 4710-5300 feet (1436-1615 meters).

HABITAT (not yet reviewed for Nevada): "Crevices in steep to vertical, coarse-crumbling volcanic canyon walls. Intolerant of water paths or seeps that may form in the rock crevices. 2800-4000 m elevation."

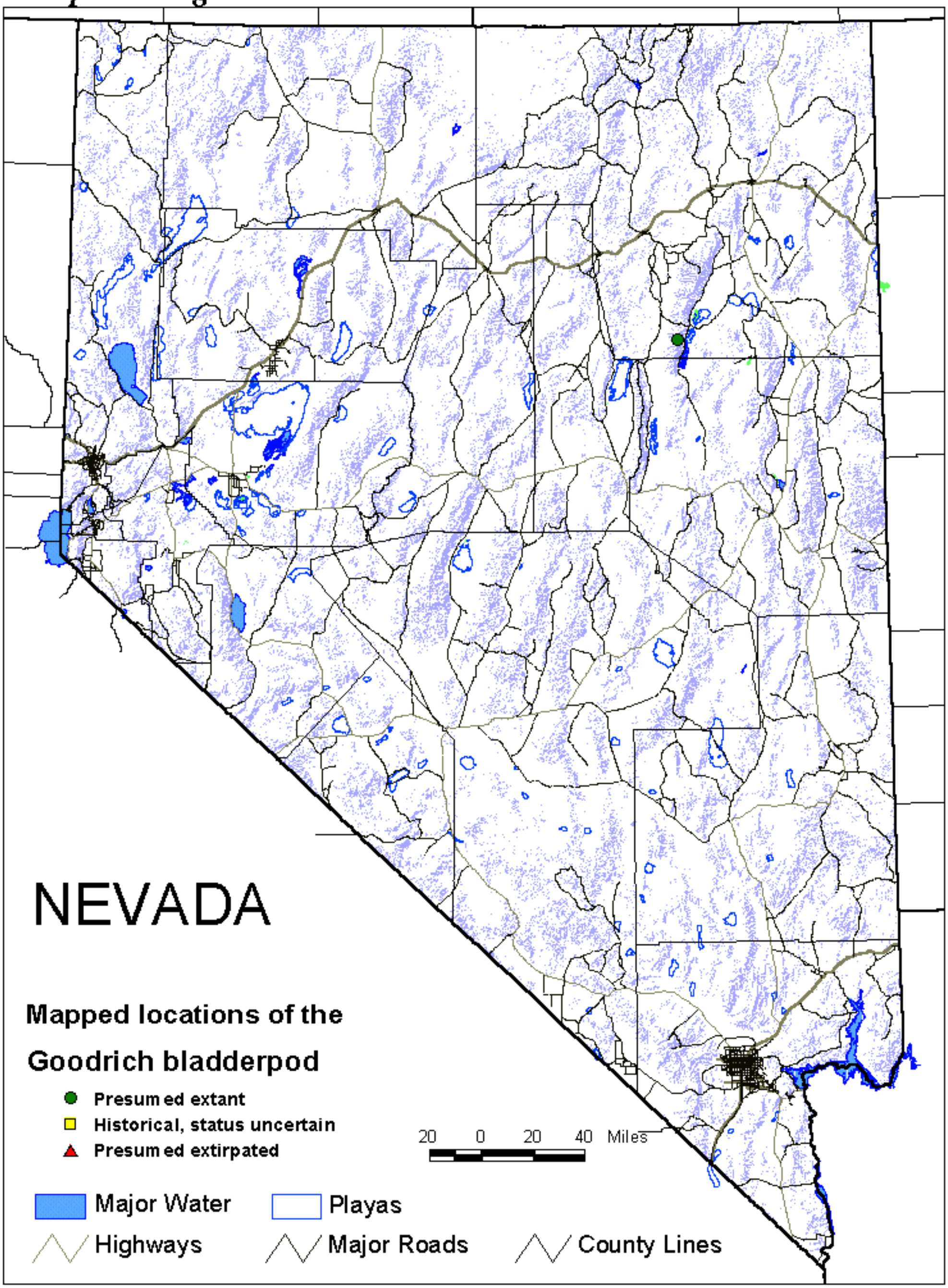
PHENOLOGY: no summary available. Range of most frequent **survey months:** March-August.

DESCRIPTION: A shrubby, highly branched, perennial herb, 2-3 dm tall, with deeply lobed leaves. Flowers (May-July) are funnel-shaped.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: none known.
SPECIFIC REFERENCES:

Patterson, R. and M. Yoder-Williams. 1984. Leptodactylon glabrum, a new intermountain species of Polemoniaceae. Systematic Botany 9: 261-262.

Lesquerella goodrichii



Lesquerella goodrichii Rollins — GOODRICH BLADDERPOD

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program WATCH LIST, ranks: G2G3Q S1?**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 1 occurrence mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1985.
Years since last entered survey (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT (NEVADA): Humboldt-Toiyabe National Forest.

RANGE: Elko, Lincoln (?), Nye (?), and White Pine (?) counties, Nevada; also in UT.

ELEVATIONS RECORDED (NEVADA): 10500 feet (3200 meters).

HABITAT (NEVADA): Gravelly carbonate (and possibly quartzite) ridge lines at high elevations.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** July.

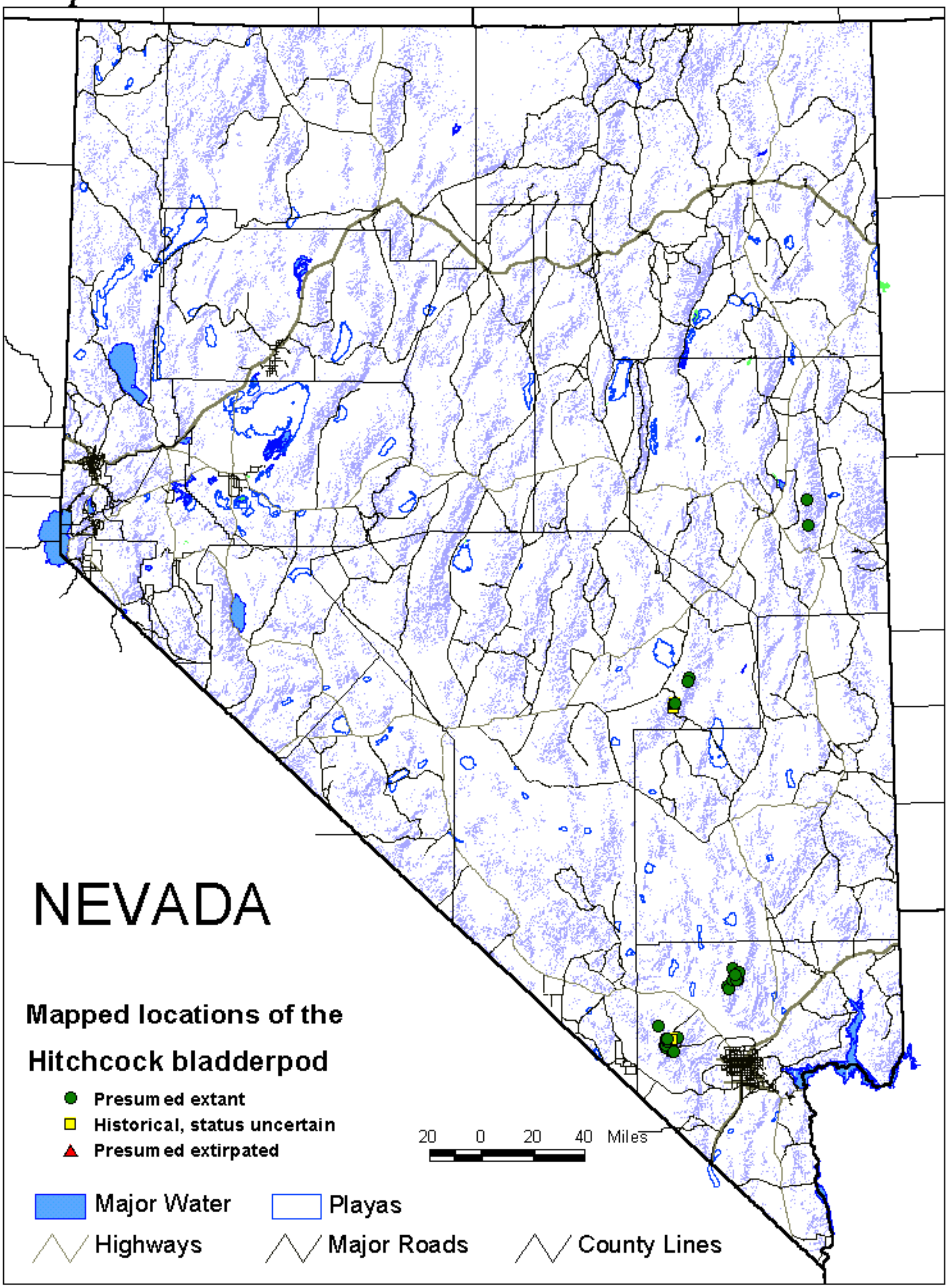
LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Rollins (1993), Welsh et al. (1993).

OF FURTHER INTEREST: Synonymized under L. occidentalis var. cinerascens by Noel Holmgren for Intermountain Flora.

Lesquerella hitchcockii



Lesquerella hitchcockii Munz (1929) HITCHCOCK BLADDERPOD

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program WATCH LIST, ranks: G3 S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 29 occurrences mapped at 1.0 km (0.6 mi) separation, OR **42 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Some targeted surveys have been conducted mainly in the Spring and Sheep ranges, but remain very incomplete. Most recent entered survey 1999, average year of last survey 1982.
Years since last entered survey (percent of mapped records at various survey ages)**: 0-5 yrs:** 9.5%; **6-10 yrs:** 45.2%; **11-20 yrs:** 2.4%; **21-30 yrs:** 26.2%; **31-50 yrs:** 4.8%; **51+ yrs or unknown:** 11.9%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Fish and Wildlife Service, designated wilderness, U. S. Bureau of Land Management (?), private lands (?), U. S. Department of Defense (?).

RANGE: Clark, Nye, and White Pine counties, Nevada. **Nevada endemic.** Maximum **range dimension 338.3 km (210.2 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 7000-11710 feet (2134-3569 meters).

HABITAT: Dry gravelly carbonate soils, scree, talus, and outcrops on knolls, flats, and slopes in the lower alpine, subalpine conifer, subalpine sagebrush, montane conifer, and upper pinyon-juniper zones.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-August.

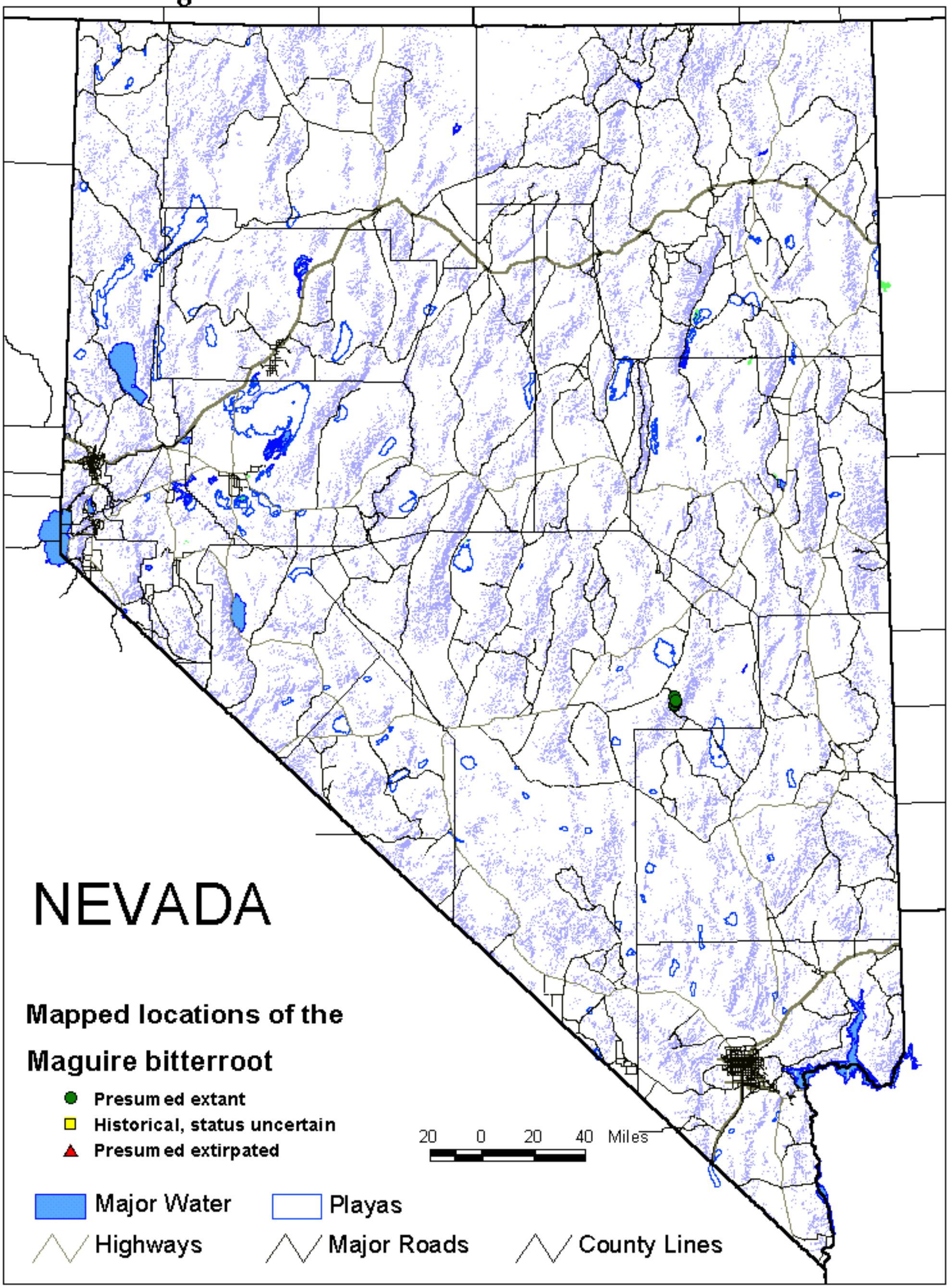
LIFE-FORM AND HABIT: small perennial herb.

DESCRIPTION: A small, perennial herb with flowering stems 1-1.5 cm long, producing yellow flowers June-August. Some populations form large, spreading mats; others have more compact habits.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Ackerman (1981), Clokey (1951), Nachlinger (1994), Niles et al. (1999), Rollins (1993).
SPECIFIC REFERENCES:

Bayer, R. J., and T. M. Minish. 1993. Isozyme variation, ecology and phytogeography of Antennaria soliceps (Asteraceae: Inuleae), an alpine apomict from the Spring Mountains, Nevada. Madroño 40(2): 75-89.
Maguire, B. and A. Holmgren. 1951. Botany of the Intermountain Region II. Lesquerella. Madroño 11: 172-184.
Munz, P. A. 1929. New plants from Nevada. Bulletin of the Torrey Botanical Club 56: 163-167.
Reveal, J. L. 1970. Comments on Lesquerella hitchcockii. Great Basin Naturalist 30: 94-98.
Rollins, R. C. and E. A. Shaw. 1973. The genus Lesquerella (Cruciferae) in North America. Cambridge, Mass.: Harvard University Press. 300 pages.
Smith, F. 1995. Status report for Antennaria soliceps. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 11 pages + two appendices.
Smith, F. 1995. Status report for Ivesia cryptocaulis. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 11 pages + two appendices.
Smith, F. 1995. Status report for Sphaeromeria compacta. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 10 pages + two appendices.
Woodbury, K. 1980. Status report for Lesquerella hitchcockii. Portland, Oregon: U. S. Fish and Wildlife Service.

Lewisia maguirei



Lewisia maguirei A. Holmgren (1954) MAGUIRE BITTERROOT

FAMILY: *Portulacaceae*, the purslane family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list. **CITES:** Appendix II.

POPULATION CENSUS: 3 occurrences mapped at 1.0 km (0.6 mi) separation, OR **8 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 4731+**, total estimated **area 19.4+ ha (47.9+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Partial surveys have been conducted, but much more potential habitat remains unexamined. Most recent entered survey 1993, average year of last survey 1990. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 87.5%; **31-50 yrs:** 12.5%.

LAND MANAGEMENT in decreasing predominance: designated wilderness, Humboldt-Toiyabe National Forest.

RANGE: Nye County, Nevada. Endemic to the Quinn Canyon and Grant ranges. Maximum **range dimension 2.8 km (1.7 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 7360-8280 feet (2243-2524 meters).

HABITAT: Dry, sparsely vegetated carbonate scree or shallow gravelly-clay soils on steep slopes and ridgelines of all aspects in the pinyon-juniper zone with Frasera albomarginata, Astragalus calycosus, Hymenoxys acaulis, Allium nevadense, Petradoria pumila, etc.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

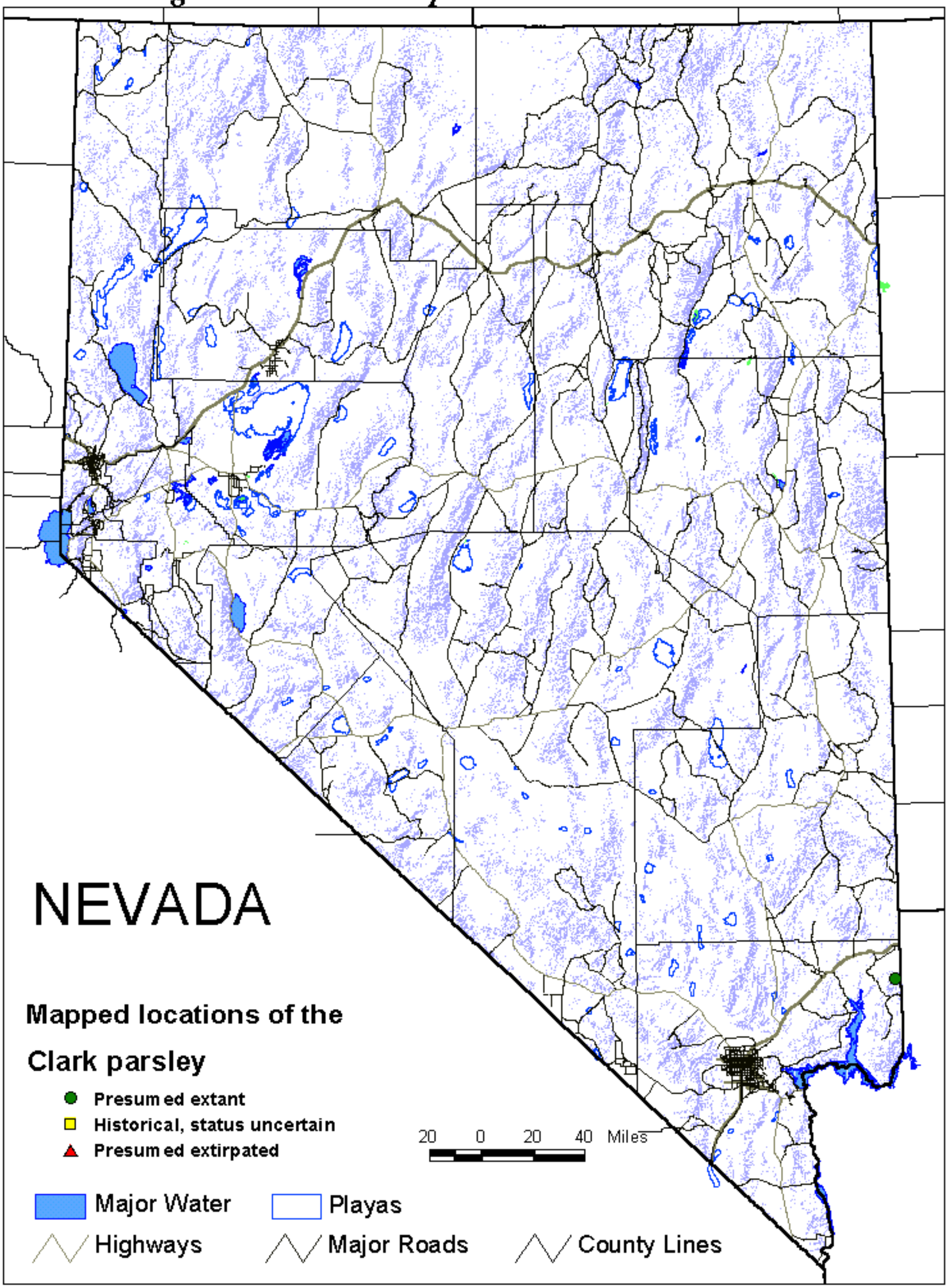
LIFE-FORM AND HABIT: small fleshy long-lived perennial herb.

DESCRIPTION: A small perennial herb that forms rosettes of fleshy leaves, about 3 cm tall. 2-3 flowers bloom close to the leaves in June and early July. Flowers are whitish, but both flowers and leaves are tinged with pink.

PHOTOGRAPHS: Anderson et al. (1991); Nevada Natural Heritage Program files.
ILLUSTRATIONS: Anderson et al. (1991), Mozingo and Williams (1980).
SPECIFIC REFERENCES:

Holmgren, A. H. 1954. A new Lewisia from Nevada. Leaflets of Western Botany 7: 135-137.
Williams, M. J. 1981. Status report on Lewisia maguirei. Portland, Oregon: U. S. Fish and Wildlife Service.

Lomatium graveolens var. alpinum



Lomatium graveolens (S. Watson) Dorn & Hartman **var. *alpinum*** **CLARK PARSLEY**

FAMILY: *Apiaceae*, the carrot family. **SYNONYMS:** *Lomatium graveolens* var. *clarkii*

STATUS: **Heritage Program WATCH LIST, ranks: G5? T3T4Q S2S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 1 occurrence mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1988.
Years since last entered survey (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT (NEVADA): U. S. Bureau of Land Management.

RANGE: Clark County, Nevada; also in UT. **Type specimen** collected in Washington County, Utah.

ELEVATIONS RECORDED (NEVADA): 7875 feet (2400 meters).

HABITAT: no summary available (see references).

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** May.

LIFE-FORM AND HABIT: perennial herb.

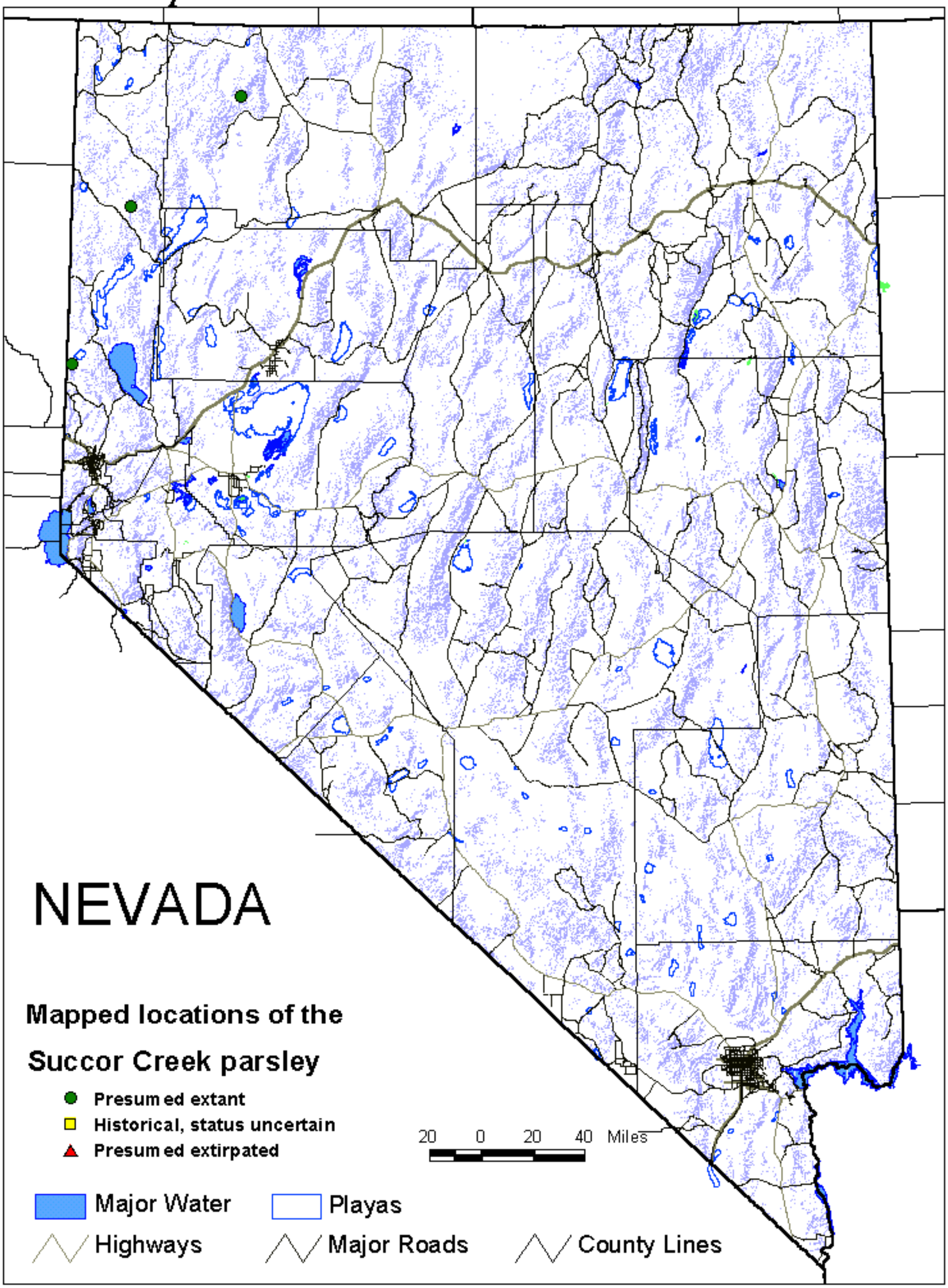
DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist et al. (1997).
OTHER GENERAL REFERENCES (listed separately): Welsh et al. (1993).
SPECIFIC REFERENCES:

Watson, S. 1871. Botany. In: C. King, Report of the U. S. Geological Exploration of the 40th Parallel. 5: 1-525.

Welsh, S. L. 1990. Utah novelties in Carex (Cyperaceae) and Lomatium (Umbelliferae). Memoirs of the New York Botanical Garden 64: 123-128.

Lomatium packardiae



Lomatium packardiae Cronquist (1992) SUCCOR CREEK PARSLEY

FAMILY: *Apiaceae*, the carrot family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2? S1?**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 3 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No known impacts, somewhat vulnerable to mineral exploration and development, livestock trampling, off-road vehicle use.

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1986, average year of last survey 1968. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 66.7%; **51+ yrs or unknown:** 33.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands.

RANGE: Humboldt and Washoe counties, Nevada; also in ID and OR. Maximum Nevada **range dimension 197.2 km (122.5 mi)**. **Type specimen** collected in Malheur County, Oregon.

ELEVATIONS RECORDED (NEVADA): 4400-7600 feet (1341-2316 meters).

HABITAT (NEVADA): Dry, open, rocky clay soils derived from rhyolite or volcanic ash deposits in the sagebrush zone.

PHENOLOGY: flowering spring. Range of most frequent **survey months:** June.

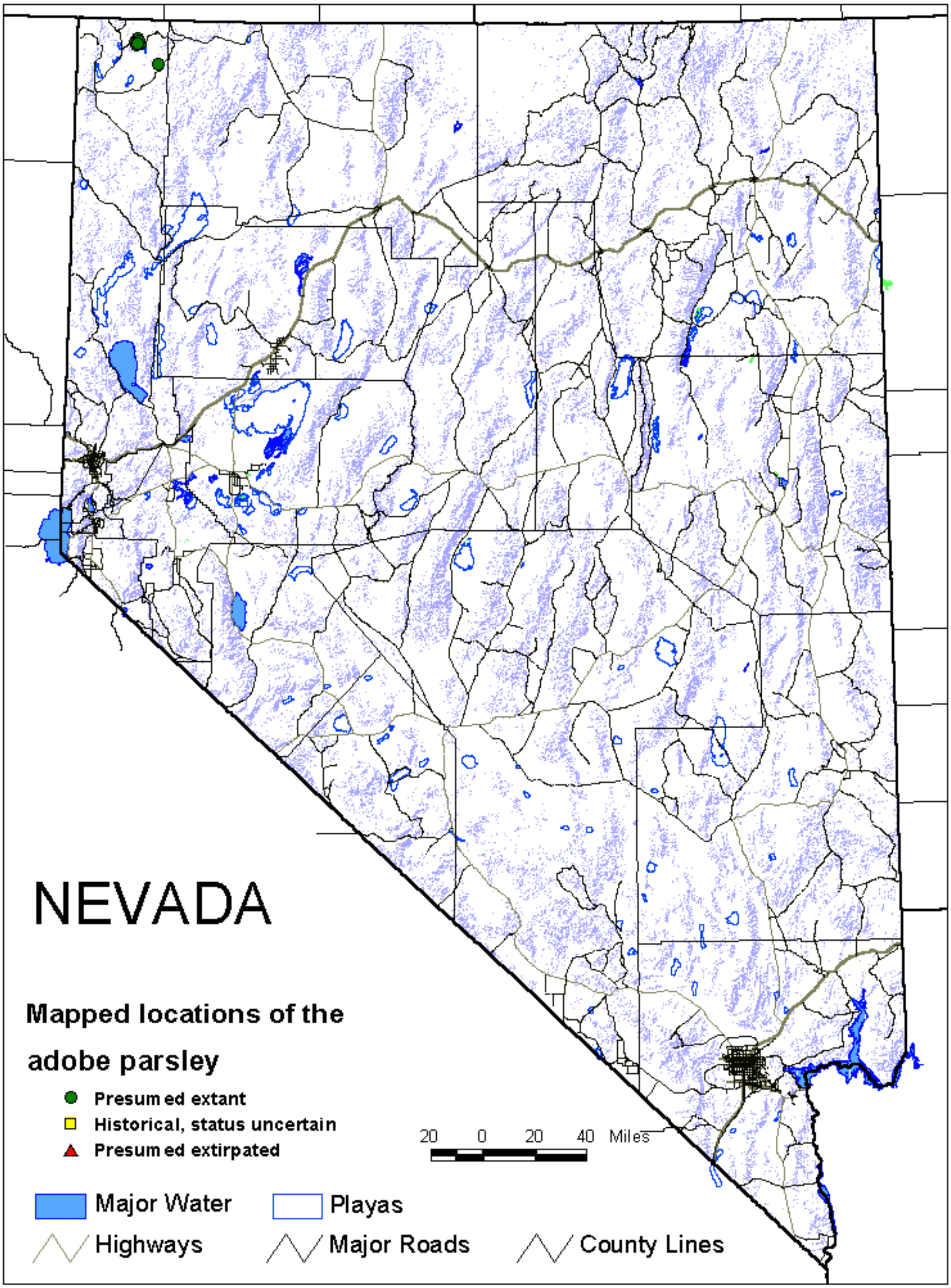
LIFE-FORM AND HABIT: long-lived perennial herb from a buried root crown.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist et al. (1997).
OTHER GENERAL REFERENCES (listed separately): Kartesz (1987).
SPECIFIC REFERENCES:

Cronquist, A. 1992. Nomenclatural innovations in intermountain Rosidae. Great Basin Naturalist 52: 75-77.

Lomatium roseanum



Lomatium roseanum Cronquist (1992) ADOBE PARSLEY

FAMILY: *Apiaceae*, the carrot family. **SYNONYMS:** *Leptotaenia leibergii*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 S2S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 4 occurrences mapped at 1.0 km (0.6 mi) separation, OR **9 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 160,000+**, total estimated **area 544 ha (1344 ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Systematic surveys have been conducted but remain incomplete for Nevada. Most recent entered survey 1995, average year of last survey 1995. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Fish and Wildlife Service, private lands (?).

RANGE: Humboldt (?) and Washoe counties, Nevada; also in OR. Maximum Nevada **range dimension 4.0 km (2.5 mi)** excluding most disjunct record. **Type specimen** collected in Malheur County, Oregon.

ELEVATIONS RECORDED (NEVADA): 5770-6166 feet (1759-1879 meters).

HABITAT (NEVADA): Open, dry, basalt talus stripes and scree fields overlying clay soils on gentle slopes in low sagebrush vegetation with Artemisia arbuscula, Poa secunda, Elymus elymoides, Arenaria aculeata, Phlox spp., Erigeron linearis, etc.

PHENOLOGY: flowering early-spring. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: tuberous long-lived perennial herb.

DESCRIPTION: Diagnostic characters are a tuberous root, yellow flowers, green shiny leaves, and loose, rocky habitat.

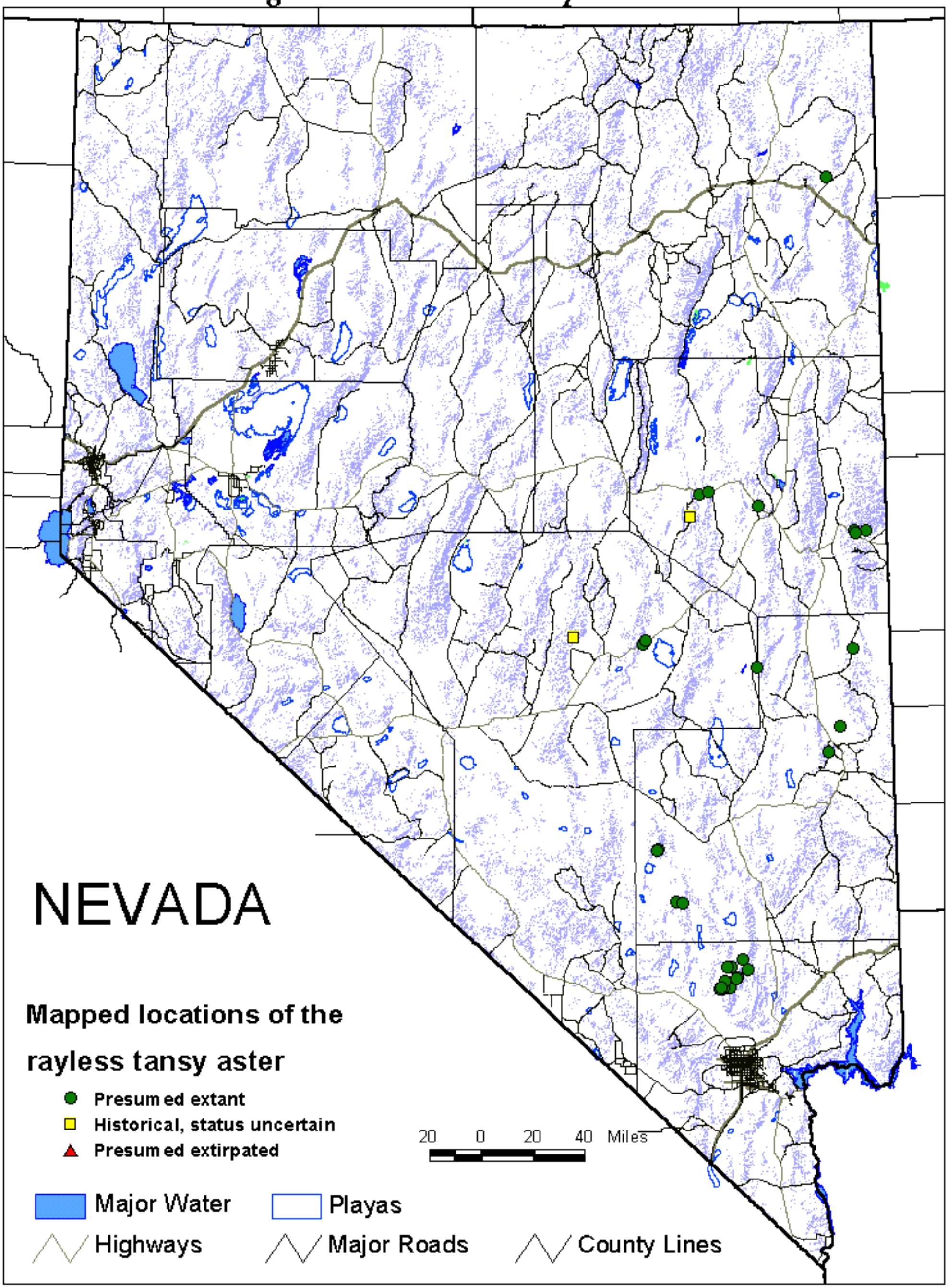
PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist et al. (1997).
SPECIFIC REFERENCES:

Cronquist, A. 1992. Nomenclatural innovations in intermountain Rosidae. Great Basin Naturalist 52: 75-77.

Nachlinger, J. and A. Tiehm. 1996. Rare plant survey of the Sheldon National Wildlife Refuge. Reno, Nevada: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Sheldon-Hart Mountain Refuges, Lakeview, Oregon.

OF FURTHER INTEREST: Lomatium roseanum is a new name for Leptotaenia leibergii, originally described by Coulter and Rose in 1900.

Machaeranthera grindelioides var. depressa



Machaeranthera grindelioides (Nuttall) Shinners **var. *depressa*** (Maguire [1947]) Cronquist & Keck

RAYLESS TANSY ASTER

FAMILY: *Asteraceae*, the sunflower family. **SYNONYMS:** *Haplopappus nuttallii* var. *depressus*

STATUS: **Heritage Program WATCH LIST, ranks: G5 T3T4 S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 29 occurrences mapped at 1.0 km (0.6 mi) separation, OR **31 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys in Nevada are old and incomplete. Most recent entered survey 1996, average year of last survey 1973. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 3.2%; **11-20 yrs:** 25.8%; **21-30 yrs:** 61.3%; **51+ yrs or unknown:** 9.7%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Fish and Wildlife Service, U. S. Bureau of Land Management, U. S. Department of Defense, Humboldt-Toiyabe National Forest, Nevada state lands, private lands.

RANGE: Clark, Elko, Eureka, Lincoln, Nye, and White Pine counties, Nevada; also in AZ and UT. Maximum Nevada **range dimension 309.1 km (192.1 mi)** excluding most disjunct record. **Type specimen** collected in Millard County, Utah.

ELEVATIONS RECORDED (NEVADA): 5000-9200 feet (1524-2804 meters).

HABITAT (NEVADA): Carbonate or calcareous, nearly barren rocky, rocky clay, and clay soils on ridges, slopes, low hills, and badlands in the upper blackbrush, sagebrush, pinyon-juniper, mountain mahogany, and lower subalpine conifer zones.

PHENOLOGY: flowering late-spring to summer, First flowering May-June, and often re-flowering after summer rains in August and September. Range of most frequent **survey months:** May-September.

LIFE-FORM AND HABIT: small perennial herb.

DESCRIPTION: not available (see references).

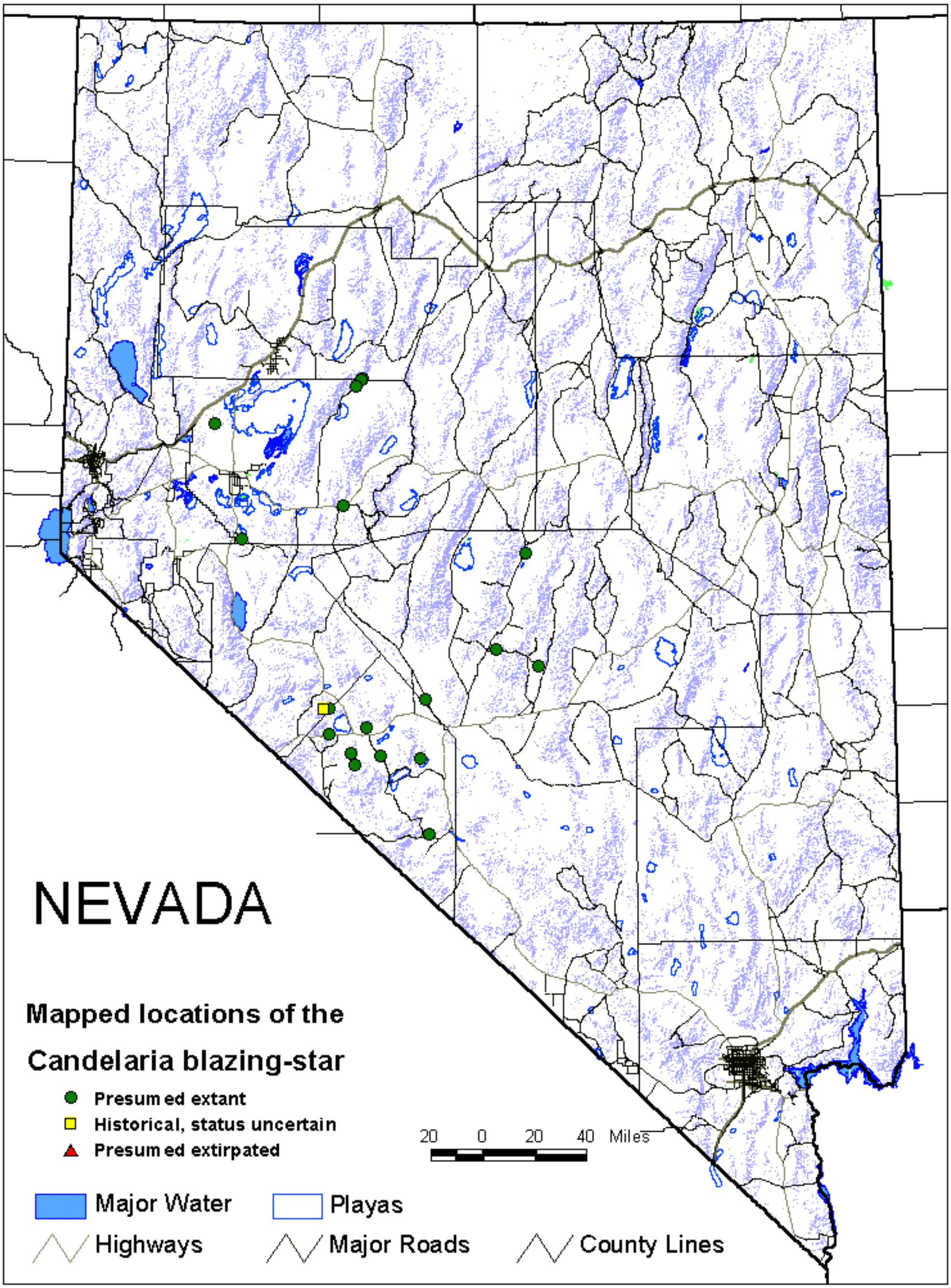
PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist (1994).
OTHER GENERAL REFERENCES (listed separately): Ackerman (1981).
SPECIFIC REFERENCES:

Cronquist, A. and D. D. Keck. 1957. A reconstitution of the genus Machaeranthera. Brittonia 9: 231-239.

Maguire, B. 1947. Great Basin plants IX. Compositae. Arnica, Hymenopappus, Haplopappus, and Lygodesmia. American Midland Naturalist 37: 136-145.

Nellis Air Force Base. 1985. Draft environmental impact statement on the Groom Range, Lincoln County, NV. Las Vegas: prepared for the Bureau of Land Management.

Mentzelia candelariae



Mentzelia candelariae H. J. Thompson & Prigge (1984) CANDELARIA BLAZING-STAR

FAMILY: *Loasaceae*, the stick-leaf family. **SYNONYMS:** *Mentzelia oreophila* (?)

STATUS: **Heritage Program WATCH LIST, ranks: G3?Q S3?**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 19 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Systematic surveys have not been conducted. Most recent entered survey 1988, average year of last survey 1977. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 57.9%; **21-30 yrs:** 31.6%; **31-50 yrs:** 5.3%; **51+ yrs or unknown:** 5.3%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, Native American lands, private lands.

RANGE: Churchill, Esmeralda, Mineral, Nye, and Pershing counties, Nevada. **Nevada endemic.** Maximum **range dimension 250.4 km (155.6 mi)** excluding most disjunct record. **Type specimen** collected in Mineral County.

ELEVATIONS RECORDED: 3800-6700 feet (1158-2042 meters).

HABITAT: Barren, often calcareous, low-competition gravelly or clay soils on weathered volcanic ash deposits, scree slopes, hot spring mounds, washes, or road banks or other recovering disturbances, in the shadscale, mixed-shrub, and sagebrush zones.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: short-lived perennial herb.

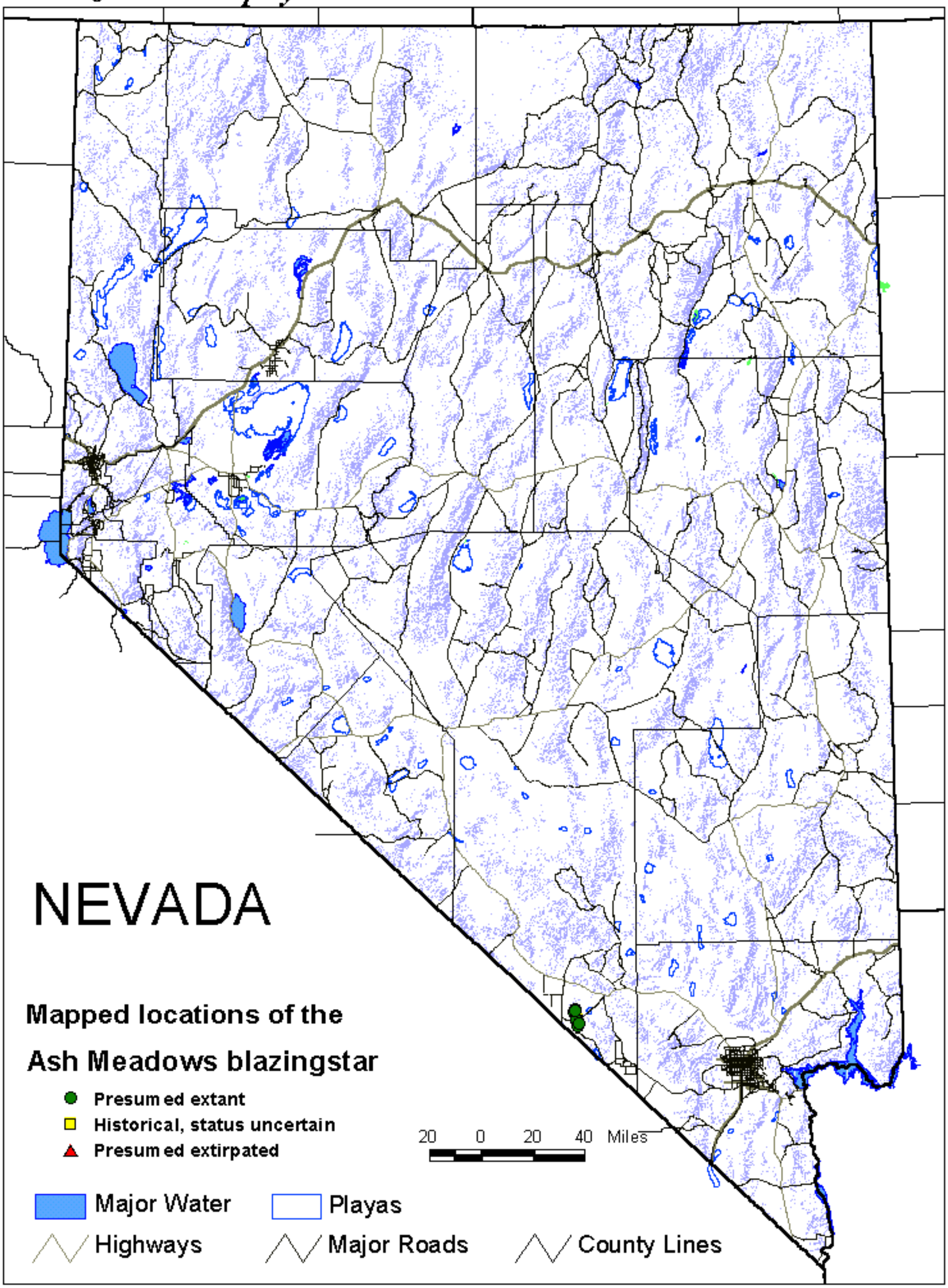
DESCRIPTION: An erect perennial herb, 1.5-4 dm tall, with white-hairy stems and yellow-petaled flowers, which bloom May through August.

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: Thompson and Prigge (1984).
SPECIFIC REFERENCES:

Thompson, H. J. and B. A. Prigge. 1984. A new species of Mentzelia section Bartonia (Loasaceae). Phytologia 55: 281-287.

OF FURTHER INTEREST: May represent a minor variant of Mentzelia oreophila.

Mentzelia leucophylla



Mentzelia leucophylla Brandegee (1899) ASH MEADOWS BLAZINGSTAR

FAMILY: *Loasaceae*, the stick-leaf family. **SYNONYMS:** *Mentzelia oreophila* var. (?)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1Q S1**
USFWS/ESA: LISTED THREATENED. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** THREATENED.

POPULATION CENSUS: 6 occurrences mapped at 1.0 km (0.6 mi) separation, OR **8 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 358+**, total estimated **area 1.2+ ha (3.0+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Surveys are largely complete, but a few occurrences may remain to be documented. Most recent entered survey 1986, average year of last survey 1966. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 25%; **21-30 yrs:** 37.5%; **31-50 yrs:** 25%; **51+ yrs or unknown:** 12.5%.

LAND MANAGEMENT in decreasing predominance: U. S. Fish and Wildlife Service, U. S. Bureau of Land Management, private lands (?).

RANGE: Nye County, Nevada. Endemic to the Ash Meadows area. Maximum **range dimension 8.9 km (5.5 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 2200-2350 feet (671-716 meters).

HABITAT: Open, generally dry, hard, salt-crusted alkaline clay or sandy-clay soils on low bluffs, swales, flats, and drainages in shadscale vegetation surrounding spring and seep areas with Atriplex confertifolia, Haplopappus acradenius, Enceliopsis nudicaulis corrugata, Astragalus phoenix, etc.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** April-July.

LIFE-FORM AND HABIT: biennial.

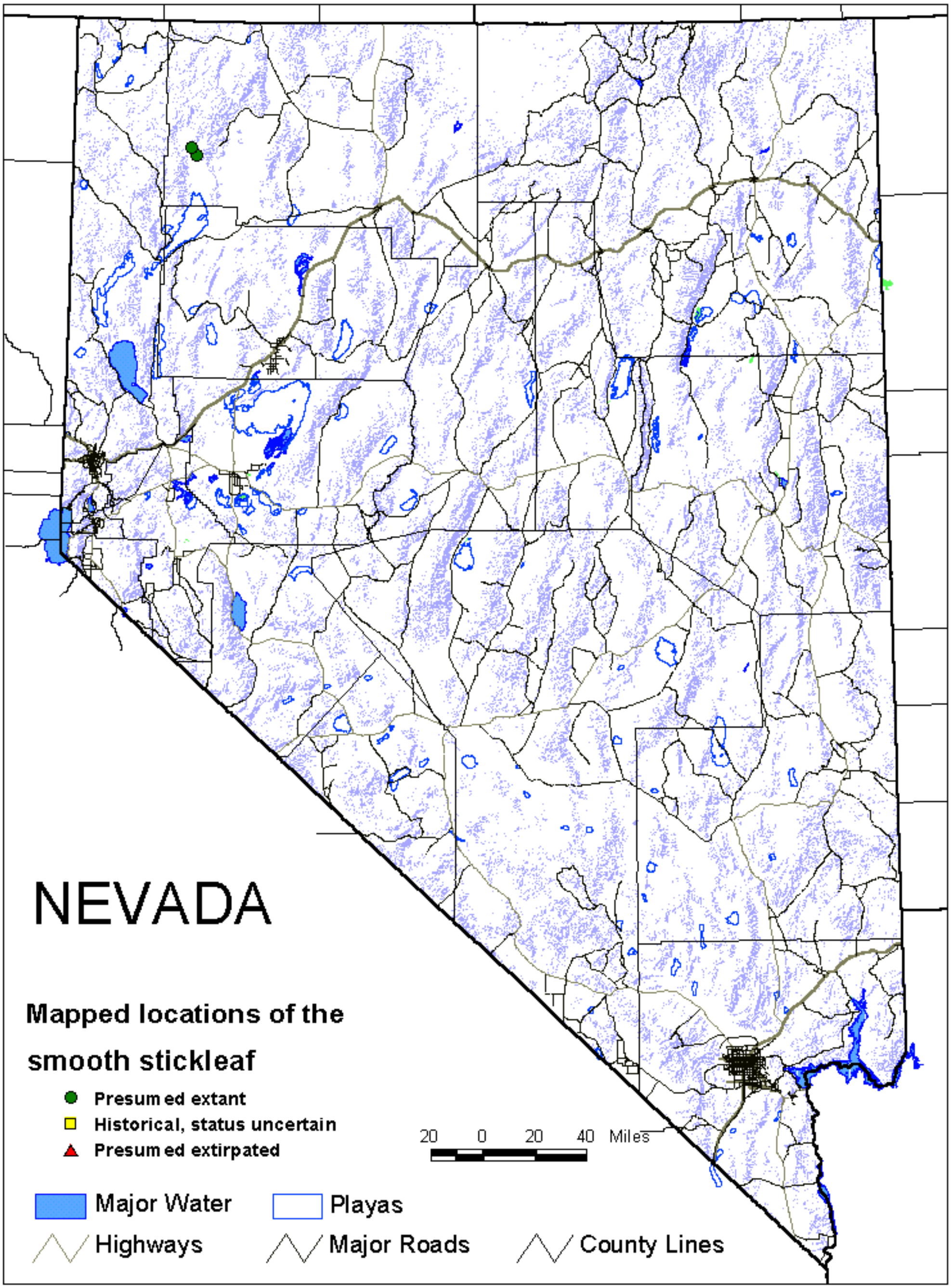
DESCRIPTION: A biennial herb, up to 5 dm high. The leaves are densely covered with soft white hairs. Bright yellow flowers bloom from late May into September. Flowers open only for brief periods in late afternoon.

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Beatley (1977), U. S. Fish and Wildlife Service (1983).
SPECIFIC REFERENCES:

Brandegee, T. S. 1899. New species of western plants. Botanical Gazette 27: 444-457.
Kruckeberg, A. R., and D. Rabinowitz. 1985. Biological aspects of endemism in higher plants. Ecological Systems 16: 447-479.
Reveal, J. L. 1978. Status report on Mentzelia leucophylla. Portland, Oregon: U. S. Fish and Wildlife Service.

OF FURTHER INTEREST: May represent a variant of Mentzelia oreophila.

Mentzelia mollis



Mentzelia mollis M. E. Peck — SMOOTH STICKLEAF

FAMILY: *Loasaceae*, the stick-leaf family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 2 occurrences mapped; total estimated **individuals 450**, total estimated **area 129 ha (319 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Mineral exploration and development.

INVENTORY EFFORT (NEVADA): Surveys in Nevada have been extensive but likely remain incomplete. Most recent entered survey 1994, average year of last survey 1994. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 100%.

LAND MANAGEMENT (NEVADA): U. S. Bureau of Land Management.

RANGE: Humboldt County, Nevada; also in ID and OR. Maximum Nevada **range dimension 5.8 km (3.6 mi)**.

ELEVATIONS RECORDED (NEVADA): 4360-5250 feet (1329-1600 meters).

HABITAT (NEVADA): Dry, open, nearly barren, eroding shoulder and side slopes of brightly colored shrink-swell clay badlands formed by hydrothermal alteration and weathering of air-fall volcanic ash deposits, on all aspects with a very sparse cover of other annuals such as Monolepis pusilla, Mentzelia albicaulis, Cleomella macbrideana, and Phacelia humilis.

PHENOLOGY: flowering spring. Range of most frequent **survey months:** May.

LIFE-FORM AND HABIT: small annual.

DESCRIPTION: An erect, bright yellow-flowered, annual herb, 5-12 cm high, that blooms in May and June.

PHOTOGRAPHS: Holland (1994); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Meinke (1982).
SPECIFIC REFERENCES:

Glad, J. B. 1975. Taxonomy and ecology of Mentzelia mollis Peck and related species. Corvallis: Oregon State University, M. S. thesis.

Glad, J. B. 1976. Taxonomy of Mentzelia mollis and allied species (Loasaceae). Madroño 23: 283-292.

Holland, R. F. 1994. Status report for Mentzelia mollis Peck (1945). Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

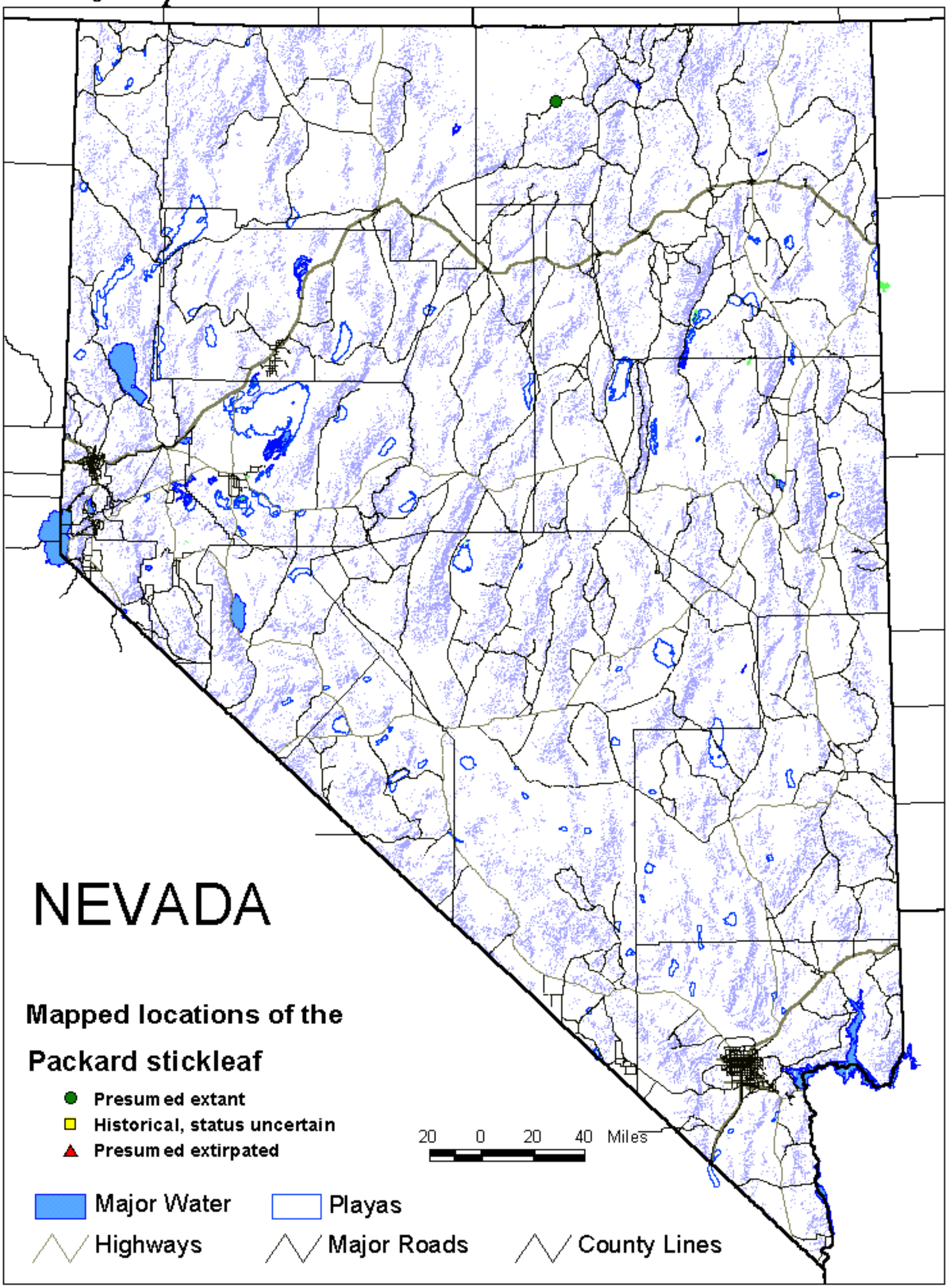
Rosentreter, R. 1986. Sensitive and uncommon plants in the Boise District Bureau of Land Management. Boise, Idaho: Bureau of Land Management Technical Bulletin. 87 pages.

Steele, B., F. Johnson, and S. Brunsfield (editors). 1981. Vascular plant species of concern in Idaho. Moscow, Idaho: Forest, Wildlife and Range Experiment Station. 161 pages.

Tiehm, A. 1984. Noteworthy collections, Nevada. Madroño 31: 123-127.

OF FURTHER INTEREST: Distinct species, in a small genus.

Mentzelia packardiae



Mentzelia packardiae Glad (1976) PACKARD STICKLEAF

FAMILY: *Loasaceae*, the stick-leaf family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1Q S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: none. **NNNPS:** THREATENED.

POPULATION CENSUS (NEVADA): 1 occurrence mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Known only from one 1982 collection, not further inventoried. Most recent entered survey 1982. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands (?).

RANGE: Elko County, Nevada; also in OR. Known in Nevada only from the eastern Owyhee Desert. **Type specimen** collected in Malheur County, Oregon.

ELEVATIONS RECORDED (NEVADA): 5250 feet (1600 meters).

HABITAT (NEVADA): Dry, open, rocky, tuffaceous, barren, pale brownish fluviolacustrine ashy clay interbedded with river gravels consisting of reddish quartz and weathered obsidian, sloping 5 degrees west to 15 degrees southeast.

PHENOLOGY: flowering late-spring, Apparent peak of reproductive activity in June. Range of most frequent **survey months:** June.

LIFE-FORM AND HABIT: annual.

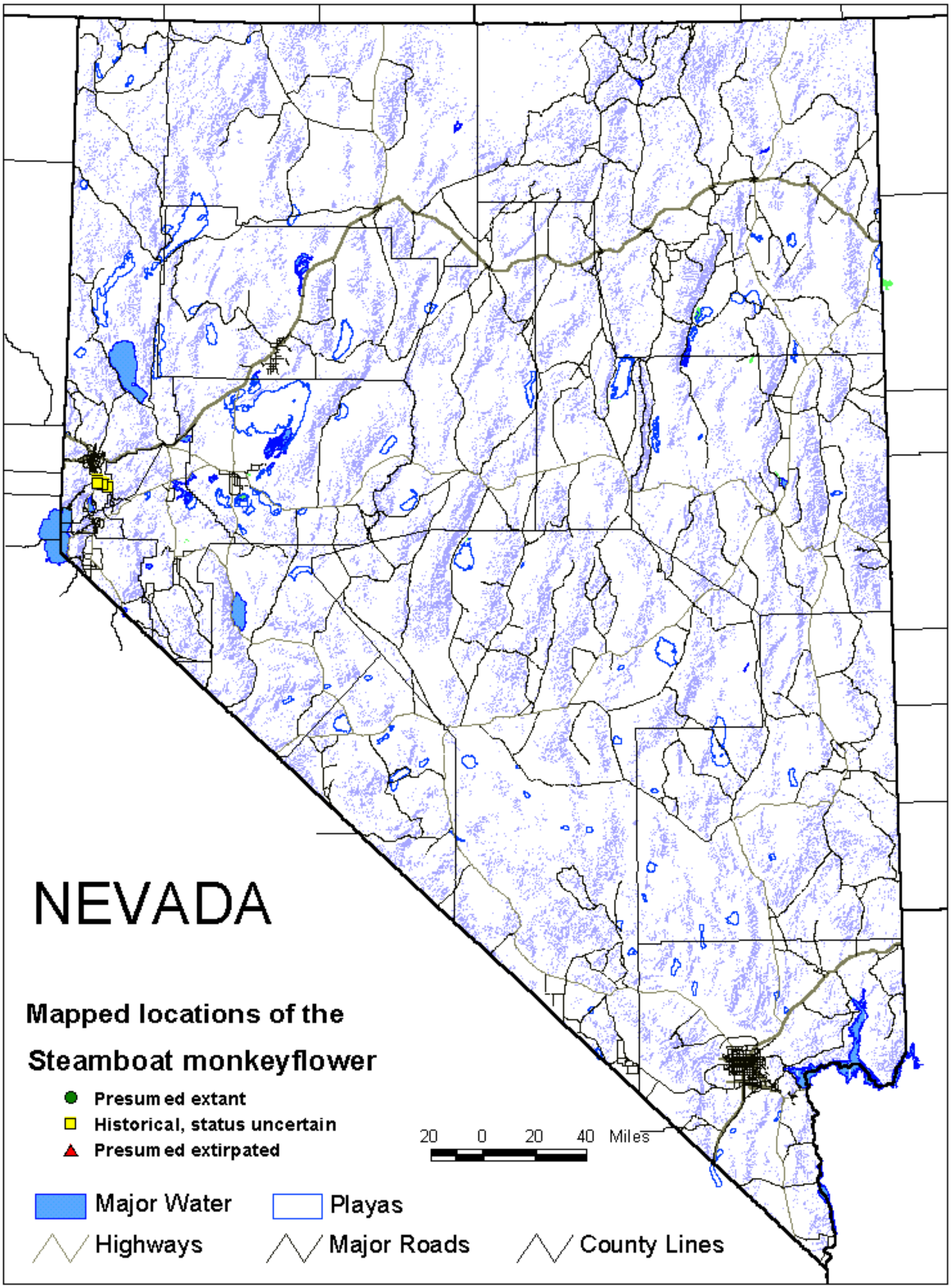
DESCRIPTION: Upright annual 4-16 inches high with bright yellow 5-petaled flowers half to one inch across, smooth whitish stems, and rough, green, alternate, mostly unlobed leaves. **Distinguishing features:** Seeds irregularly angled or rounded, papillose; bracts entire; all fruit recurved < 90 degrees; basal leaf rosette none or loosely formed, most leaves entire, linear to narrowly lanceolate; branches few or none; seeds with low, truncate, microscopically reticulated papillae.

PHOTOGRAPHS: Eastman (1990), Glad (1976); Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: Meinke (1982).
SPECIFIC REFERENCES:

Glad, J. B. 1976. Taxonomy of Mentzelia mollis and allied species (Loasaceae). Madroño 23: 283-292.
Grimes, J. W. 1984. Notes on the flora of Leslie Gulch, Malheur County, Oregon. Madroño 31: 80-85.
Schoolcraft, G. and A. Tiehm. 1985. Noteworthy collections, Nevada. Madroño 32: 123-124.

OF FURTHER INTEREST: May be lumped with Mentzelia mollis in upcoming Intermountain Flora treatment by Cronquist.

Mimulus ovatus



Mimulus ovatus (A. Gray [1886]) N. Holmgren — STEAMBOAT MONKEYFLOWER

FAMILY: *Scrophulariaceae*, the figwort family.

SYNONYMS: *Mimulus bigelovii* var. *ovatus*
Mimulus cusickii (misapplied)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1G3Q S1S3**
USFWS/ESA: none. **STATE OF NEVADA:** recommended for full protection. **BLM:** none. **USFS:** none. **NNNPS:** THREATENED.

POPULATION CENSUS: 4 occurrences mapped at 1.0 km (0.6 mi) separation, OR **6 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1988, average year of last survey 1978. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 50%; **21-30 yrs:** 33.3%; **31-50 yrs:** 16.7%.

LAND MANAGEMENT in decreasing predominance: private lands, Nevada state lands.

RANGE: Carson City (?), Douglas (?), Storey, and Washoe counties, Nevada. Depending on the circumscription of the species, occurrences may extend as far as Peavine Mountain to the north, and Carson City to the south. **Nevada endemic.** Maximum **range dimension 4.4 km (2.7 mi)** excluding most disjunct record. **Type specimen** collected in Washoe County.

ELEVATIONS RECORDED: 4580-6200 feet (1396-1890 meters).

HABITAT: Dry to somewhat moist, often barren, loose, sandy to gravelly slopes derived from siliceous sinter deposited by hot springs in the sagebrush zone, or from highly acidic hydrothermally altered andesite or rhyolite deposits supporting sparse yellow pine woodlands within the pinyon-juniper zone, or possibly on sandy alkaline valley floor deposits in the sagebrush zone, sometimes on adjacent roadsides or washes.

PHENOLOGY: flowering late-spring to early-fall. Range of most frequent **survey months:** May-October.

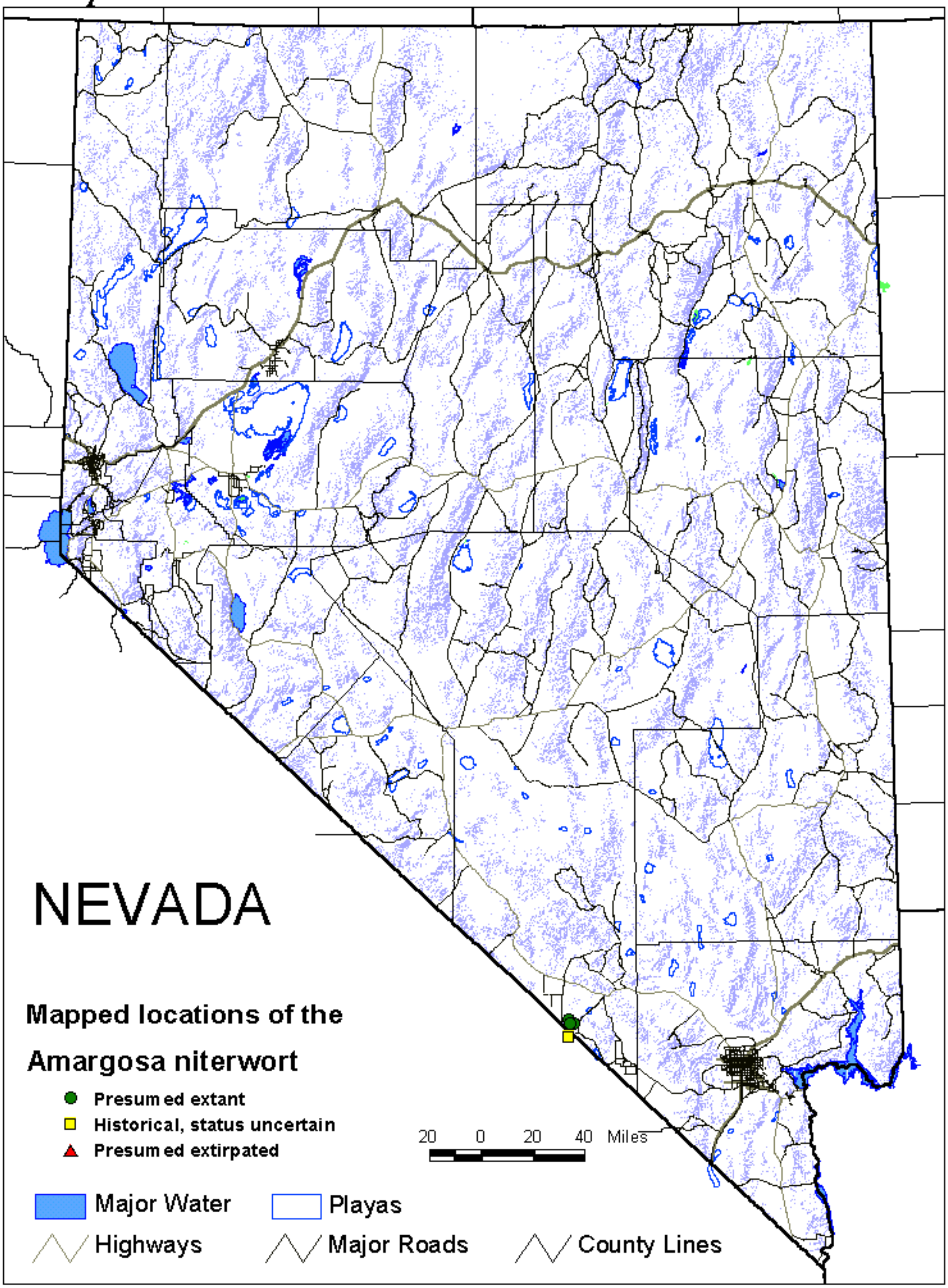
LIFE-FORM AND HABIT: annual.

DESCRIPTION: A highly branched annual herb, 2-14 cm tall, that produces purple flowers with yellow spots. Blooms in April-July.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present) and slide collection (1986-present).
ILLUSTRATIONS: Cronquist et al. (1984).
SPECIFIC REFERENCES:

Gray, A. 1886. Gamopetalae after Compositae. Synoptical Flora of North America, second edition vol. 2, part 1: 1-494.

Nitrophila mohavensis



Nitrophila mohavensis Munz & Roos — AMARGOSA NITERWORT

FAMILY: *Chenopodiaceae*, the goosefoot family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: LISTED ENDANGERED. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species in Nevada. **USFS:** none. **NNNPS:** ENDANGERED.

POPULATION CENSUS (NEVADA): 3 occurrences mapped; total estimated **individuals 13,000+**, total estimated **area 92.7+ ha (229+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Off-road vehicle use, nearby mining activity, ground water depletion and other water diversions.

INVENTORY EFFORT (NEVADA): Surveys are substantially complete. Most recent entered survey 1998, average year of last survey 1997. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 66.7%; **6-10 yrs:** 33.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Fish and Wildlife Service, U. S. Bureau of Land Management.

RANGE: Nye County, Nevada; also in CA. Known only from the Carson Slough - Ash Meadows area. Maximum Nevada **range dimension 4.6 km (2.8 mi)**.

ELEVATIONS RECORDED (NEVADA): 2100-2160 feet (640-658 meters).

HABITAT (NEVADA): Open, moist, heavily alkaline and salt-crusted, otherwise nearly barren clay flats in low drainage and seepage areas surrounded by shadscale and saltgrass vegetation. Aquatic or wetland-dependent in Nevada.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** August-September.

LIFE-FORM AND HABIT: small rhizomatous long-lived perennial herb.

DESCRIPTION: A perennial herb. Leaves ovate, small, bright green. Flowers small, inconspicuous, pink, becoming white.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.

ILLUSTRATIONS: none known.

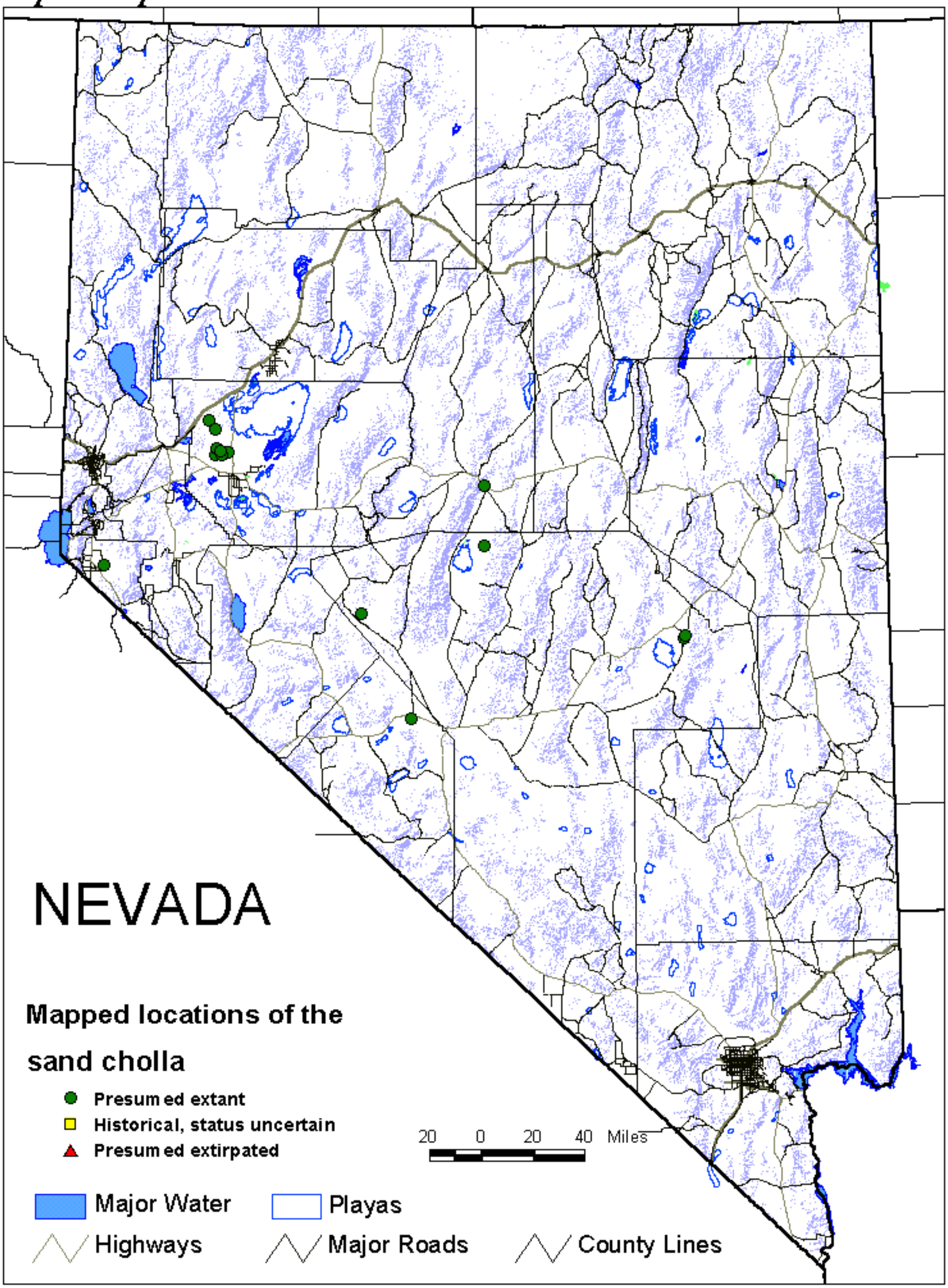
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Hickman (1993), U. S. Fish and Wildlife Service (1985).

SPECIFIC REFERENCES:

Munz, P. A. and J. C. Roos. 1955. California miscellany III. Aliso 3: 111-119.

Reveal, J. L. 1978. Status report on Nitrophila mohavensis Munz and Roos. Portland, Oregon: U. S. Fish and Wildlife Service.

Opuntia pulchella



Opuntia pulchella Engelmann — SAND CHOLLA

FAMILY: *Cactaceae*, the cactus family.

SYNONYMS: *Grusonia pulchella*
Corynopuntia pulchella
Micropuntia gracilicylindrica

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4 S2S3**
USFWS/ESA: none. **STATE OF NEVADA:** harvest regulated. **BLM:** none. **USFS:** none. **NNNPS:** none.
CITES: Appendix II.

POPULATION CENSUS (NEVADA): 14 occurrences mapped; total estimated **individuals 422+**, total estimated **area 2.9+ ha (7.2+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1991, average year of last survey 1985. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 7.1%; **11-20 yrs:** 64.3%; **21-30 yrs:** 28.6%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands, U. S. Bureau of Reclamation, Humboldt-Toiyabe National Forest.

RANGE: Churchill, Douglas, Esmeralda, Lander, Lincoln, Mineral, Nye, Pershing, and Washoe counties, Nevada; also in AZ, CA, and UT. Maximum Nevada **range dimension 325.3 km (202.1 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 3950-6300 feet (1204-1920 meters).

HABITAT (not yet reviewed for Nevada): "Sand of dunes, dry-lake borders, river bottoms, washes, valleys, and plains in the desert." Dependent on sand dunes or deep sand in Nevada.

PHENOLOGY: no summary available. Range of most frequent **survey months:** May-June.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Benson (1982); Nevada Natural Heritage Program files.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Goodrich (1981), Hickman (1993).
SPECIFIC REFERENCES:

Goodrich, S. 1979. Status report on Mertensia toyabensis. Portland, Oregon: U. S. Fish and Wildlife Service.

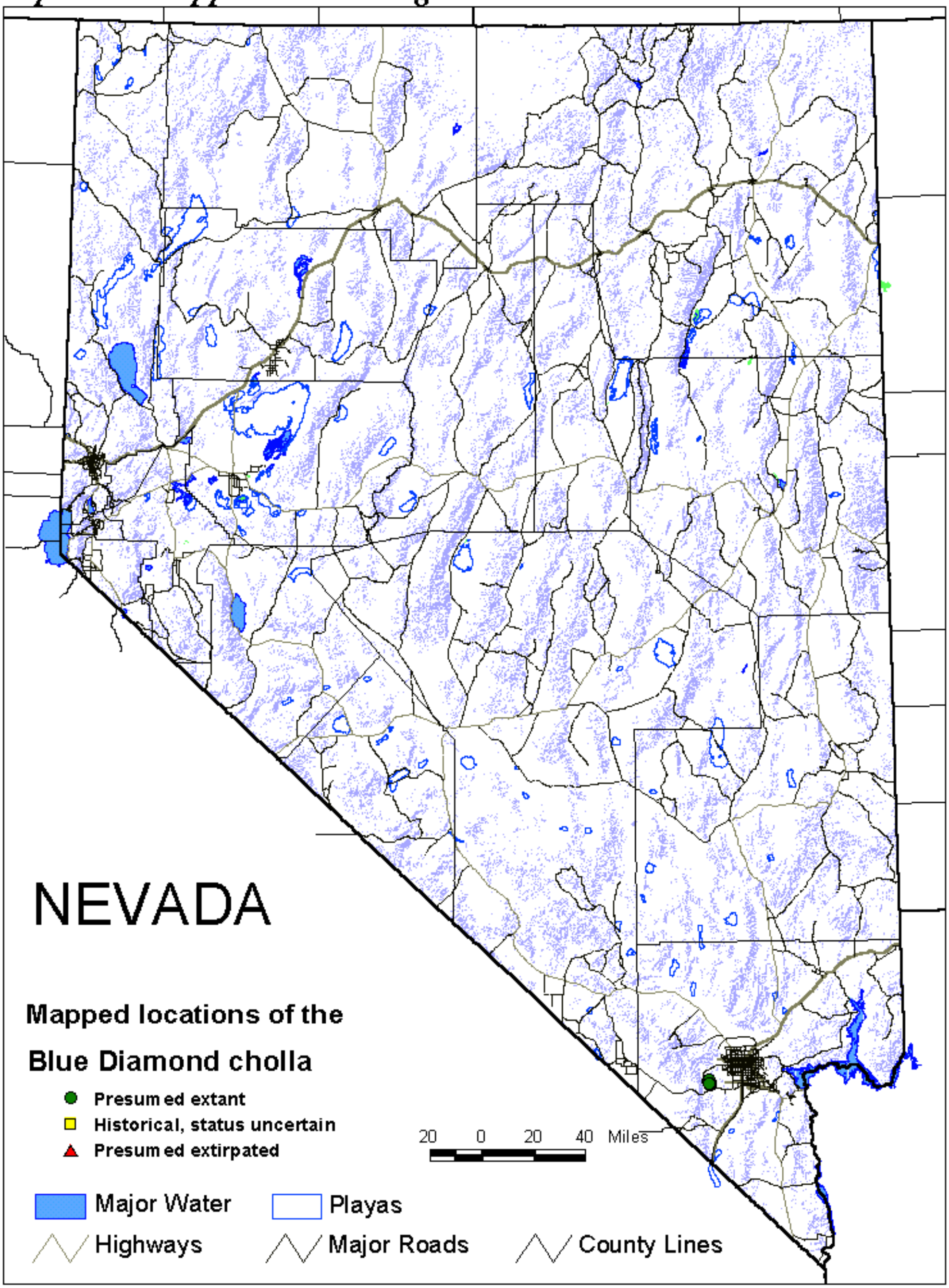
Knight, T. A. 1987. A survey of sensitive plant species in selected areas of Railroad Valley, Nye County, Nevada. Carson City: Nevada Natural Heritage Program, status report prepared for the Bureau of Land Management, Battle Mountain District.

Tiehm, A. 1983. Field search for proposed threatened and endangered plants on Phillips Petroleum lease unit in the Desert Peak area of Churchill County, Nevada. Carson City: Nevada Natural Heritage Program files.

Tiehm, A. 1989. Survey for Oryctes nevadensis, Churchill County, Nevada. Reno, Nevada: Environmental Management Associates. 8 pages.

OF FURTHER INTEREST: Distinct species.

Opuntia whipplei var. multigeniculata



Opuntia whipplei Engelmann & Bigelow **var. *multigeniculata*** (Clokey) L. Benson

BLUE DIAMOND CHOLLA

FAMILY: *Cactaceae*, the cactus family.

SYNONYMS: *Opuntia multigeniculata*
Cylindropuntia multigeniculata
Opuntia X *multigeniculata*
Opuntia abyssi (?)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4? T1 S1**
USFWS/ESA: CANDIDATE for listing. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** THREATENED. **CITES:** Appendix II.

POPULATION CENSUS: 3 occurrences mapped at 1.0 km (0.6 mi) separation, OR **10 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Impacted by tailings burial and possible habitat loss from an adjacent gypsum mine, most of the population is now under public protective management, still vulnerable to horticultural and hobby collecting, fugitive dust along mine access road.

INVENTORY EFFORT: Surveys are substantially complete within the known range, but other potential habitat may yet occur in other calcareous mountain ranges of southern Nevada. Most recent entered survey 1991, average year of last survey 1991. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 100%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, private lands (?).

RANGE: Clark County, Nevada. Apparently endemic to the Blue Diamond Hills of the Spring Mountains. Maximum **range dimension 3.6 km (2.2 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 3585-4250 feet (1093-1295 meters).

HABITAT: Dry, open carbonate ledges, crevices, and rocky colluvium on gentle to steep slopes of all aspects, but predominantly on northerly exposures, canyon walls, or other cooler or more protected exposures, in close proximity to overlying gypsum beds up-slope, and associated with numerous other succulent and shrub species of the creosote bush and blackbrush vegetation zones.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May.

LIFE-FORM AND HABIT: shrubby long-lived cactus.

DESCRIPTION: Low, compact cactus; plants low shrubs or less commonly mat-forming, mainly 10-60 cm tall or more, with short, thick spiny joints. Flowers June-July.

PHOTOGRAPHS: Benson (1982), Morefield (1992), Weixelman and Atwood (1990); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Kearney and Peebles (1960), Welsh et al. (1993).
SPECIFIC REFERENCES:

Chatterley, M. 1982. Status report for Opuntia whipplei var. multigeniculata. Orem, Utah: EPS, Inc., prepared for the U. S. Fish and Wildlife Service, Portland, Oregon.

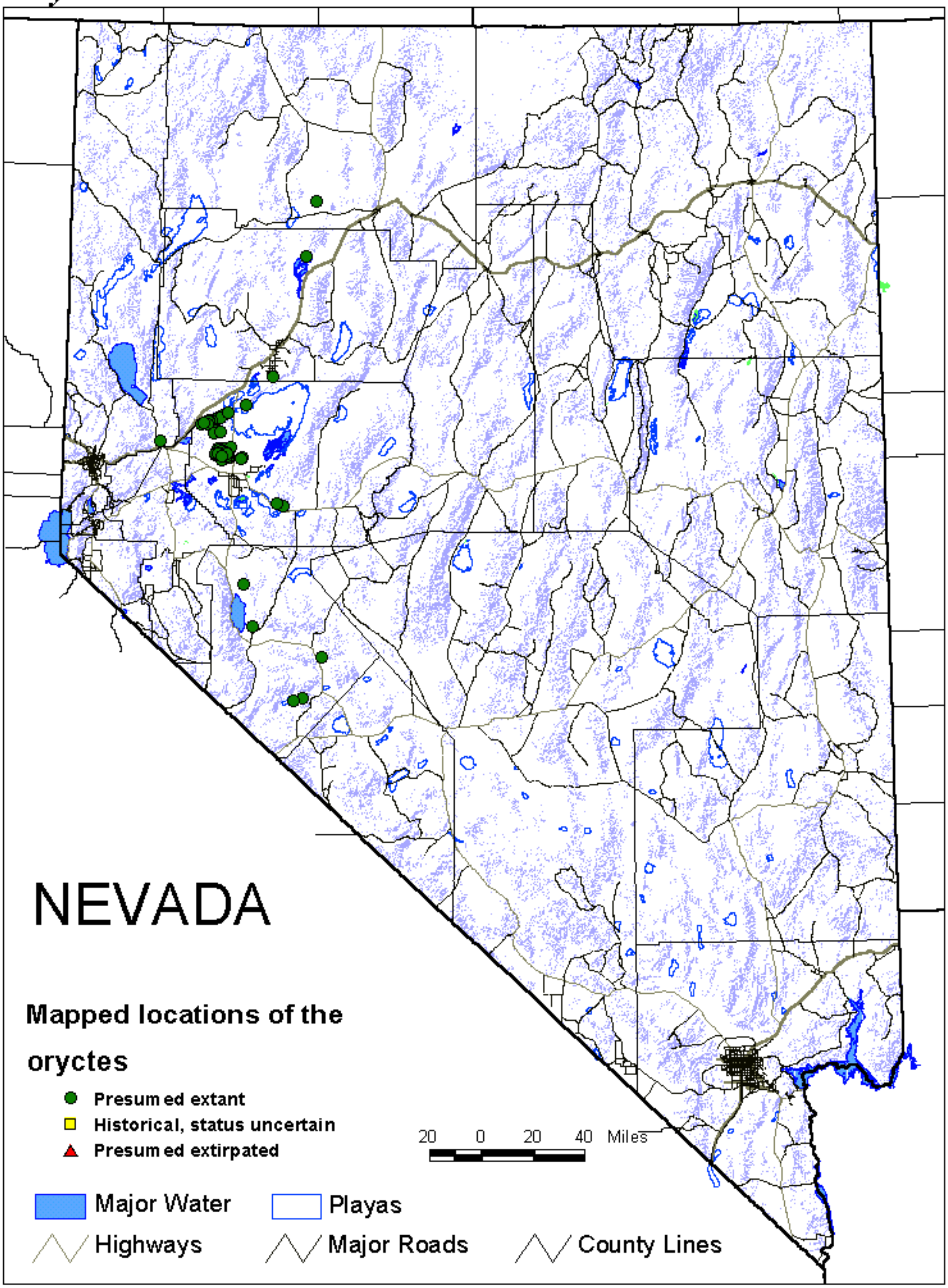
Clokey, I. W. 1943. Notes on the flora of the Charleston Mountains, Clark County, Nevada. V. Cactaceae. Madroño 7: 67-76.

Morefield, J. D. 1992. Status report for Opuntia whipplei Engelmann and Bigelow var. multigeniculata (Clokey) L. Benson. Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

WESTEC Services, Inc. 1980. Las Vegas District chipmunk management guide. Reno: prepared for the U. S. Forest Service. 41 pages.

OF FURTHER INTEREST: Considered by some workers to be of hybrid origin, but not yet with convincing evidence. If so, it appears to have stabilized into an independently reproducing population. In the field, it appears to be a distinct species (Opuntia multigeniculata) closely related to O. whipplei, the nearest occurrence of which is in far eastern Lincoln County, Nevada.

Oryctes nevadensis



Oryctes nevadensis S. Watson — ORYCTES

FAMILY: *Solanaceae*, the nightshade family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 S2S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 37 occurrences mapped at 1.0 km (0.6 mi) separation, OR **68 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 24,000+**, total estimated **area 58.9+ ha (146+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Targeted surveys have been extensive in some areas but have not been comprehensive, and much potential habitat remains to be explored. Most recent entered survey 1998, average year of last survey 1984. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 2.9%; **11-20 yrs:** 63.2%; **21-30 yrs:** 30.9%; **51+ yrs or unknown:** 2.9%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: private lands, U. S. Bureau of Reclamation, U. S. Bureau of Land Management, Native American lands, U. S. Fish and Wildlife Service (?), Nevada state lands (?), U. S. Department of Defense (?).

RANGE: Churchill, Esmeralda (?), Humboldt, Mineral, Pershing, Storey (?), and Washoe counties, Nevada; also in CA. Maximum Nevada **range dimension 276.8 km (172.0 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 3900-5960 feet (1189-1817 meters).

HABITAT (NEVADA): Deep loose sand of stabilized dunes, washes, and valley flats, on various slopes and aspects, variously associated with Psorothamnus polydenius, Tetradymia tetrameres, T. glabrata, Sarcobatus vermiculatus, S. baileyi, Atriplex canescens, A. confertifolia, Krascheninnikovia lanata, Grayia spinosa, Eriogonum nummulare, Achnatherum hymenoides, Hesperostipa comata, Oenothera deltoides, Cymopterus corrugatus, Penstemon arenarius, Gilia micromeria, Astragalus geyeri, Phacelia bicolor, Nama densum, N. aretioides, etc. Dependent on sand dunes or deep sand in Nevada.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: small annual.

DESCRIPTION: This annual appears only in years with optimal rainfall and temperature patterns, and is therefore difficult to inventory.

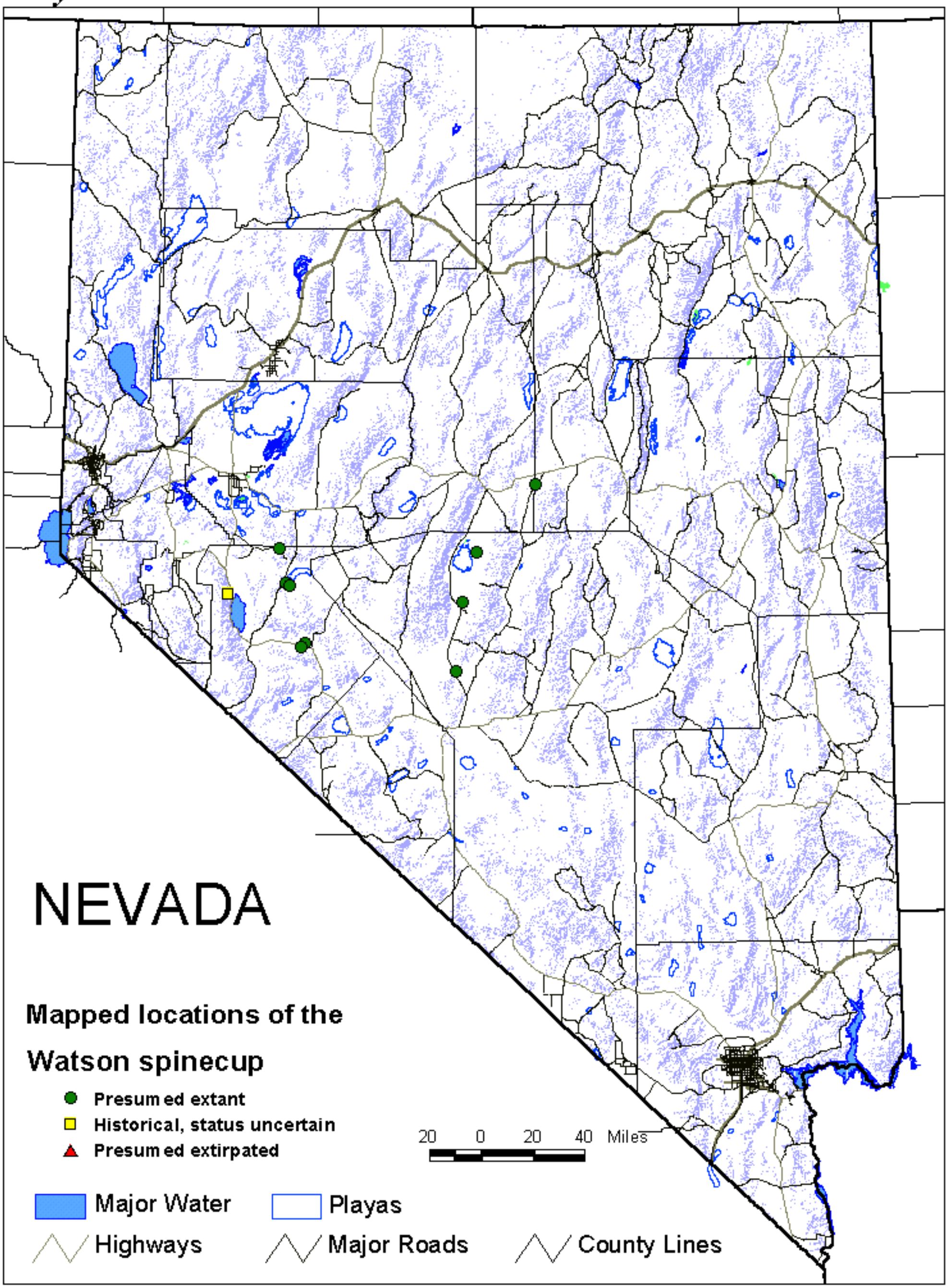
PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Cronquist et al. (1984), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993).
SPECIFIC REFERENCES:

Tiehm, A. 1983. Field search for proposed threatened and endangered plants on Phillips Petroleum lease unit in the Desert Peak area of Churchill County, Nevada. Carson City: Nevada Natural Heritage Program files.

Tiehm, A. 1989. Survey for Oryctes nevadensis, Churchill County, Nevada. Reno, Nevada: Environmental Management Associates. 8 pages.

OF FURTHER INTEREST: The only species in its distinctive genus. The name is pronounced "or-ICK-tees.".

Oxytheca watsonii



Oxytheca watsonii Torrey & A. Gray — WATSON SPINECUP

FAMILY: *Polygonaceae*, the buckwheat family.

STATUS: **Heritage Program WATCH LIST, ranks: G3? S3?**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 10 occurrences mapped; total estimated **individuals 209+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): In California, threats include grazing and recreational use (Bittman 1998). In Nevada, threats are a proposed missile system (Mozingo, 1980).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1993, average year of last survey 1979. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 10%; **11-20 yrs:** 20%; **21-30 yrs:** 60%; **31-50 yrs:** 10%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, Humboldt-Toiyabe National Forest, Nevada state lands (?), Native American lands (?).

RANGE: Eureka, Lander, Mineral, and Nye counties, Nevada; also in CA. Maximum Nevada **range dimension 157.0 km (97.5 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 4200-6530 feet (1280-1990 meters).

HABITAT (NEVADA): Dry, open, loose and/or lightly disturbed, often calcareous, sandy soils of washes, roadsides, alluvial fans, and valley bottoms, in salt desert shrub communities with Atriplex, Sarcobatus, Hymenoclea, Lycium, etc.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** March-September.

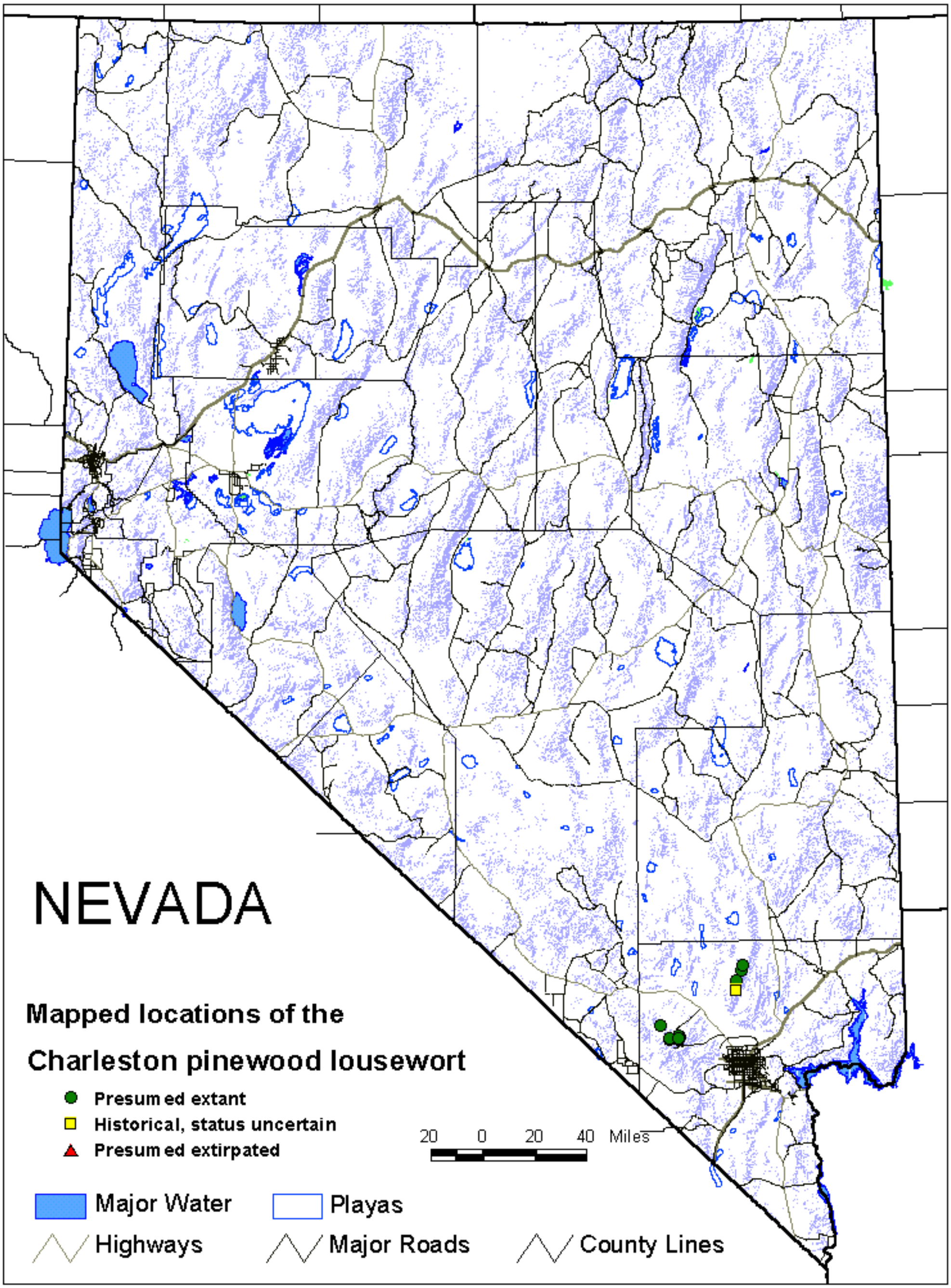
LIFE-FORM AND HABIT: annual.

DESCRIPTION: An annual herb. Leaves basal, oblanceolate to obovate, generally sparsely strigose and glandular. Involucre narrowly funnel-shaped. Perianth greenish white to pink, hairy; lobes entire.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Goodrich (1981), Hickman (1993).
SPECIFIC REFERENCES:

Ertter, B. 1980. A revision of the genus Oxytheca Nutt. (Polygonaceae). Brittonia 32: 70-102.

Pedicularis semibarbata var. charlestonensis



Pedicularis semibarbata A. Gray **var. *charlestonensis*** Pennell & Clokey
CHARLESTON PINEWOOD LOUSEWORT

FAMILY: *Scrophulariaceae*, the figwort family. **SYNONYMS:** *Pedicularis semibarbata* (?)

STATUS: **Heritage Program WATCH LIST, ranks: G4 T3Q S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 8 occurrences mapped at 1.0 km (0.6 mi) separation, OR **13 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1999, average year of last survey 1988. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 7.7%; **6-10 yrs:** 61.5%; **21-30 yrs:** 30.8%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Fish and Wildlife Service, U. S. Bureau of Land Management, designated wilderness (?), private lands (?).

RANGE: Clark County, Nevada. **Nevada endemic.** Maximum **range dimension 65.2 km (40.5 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 7200-8990 feet (2195-2740 meters).

HABITAT: no summary available (see references).

PHENOLOGY: no summary available. Range of most frequent **survey months:** May-August.

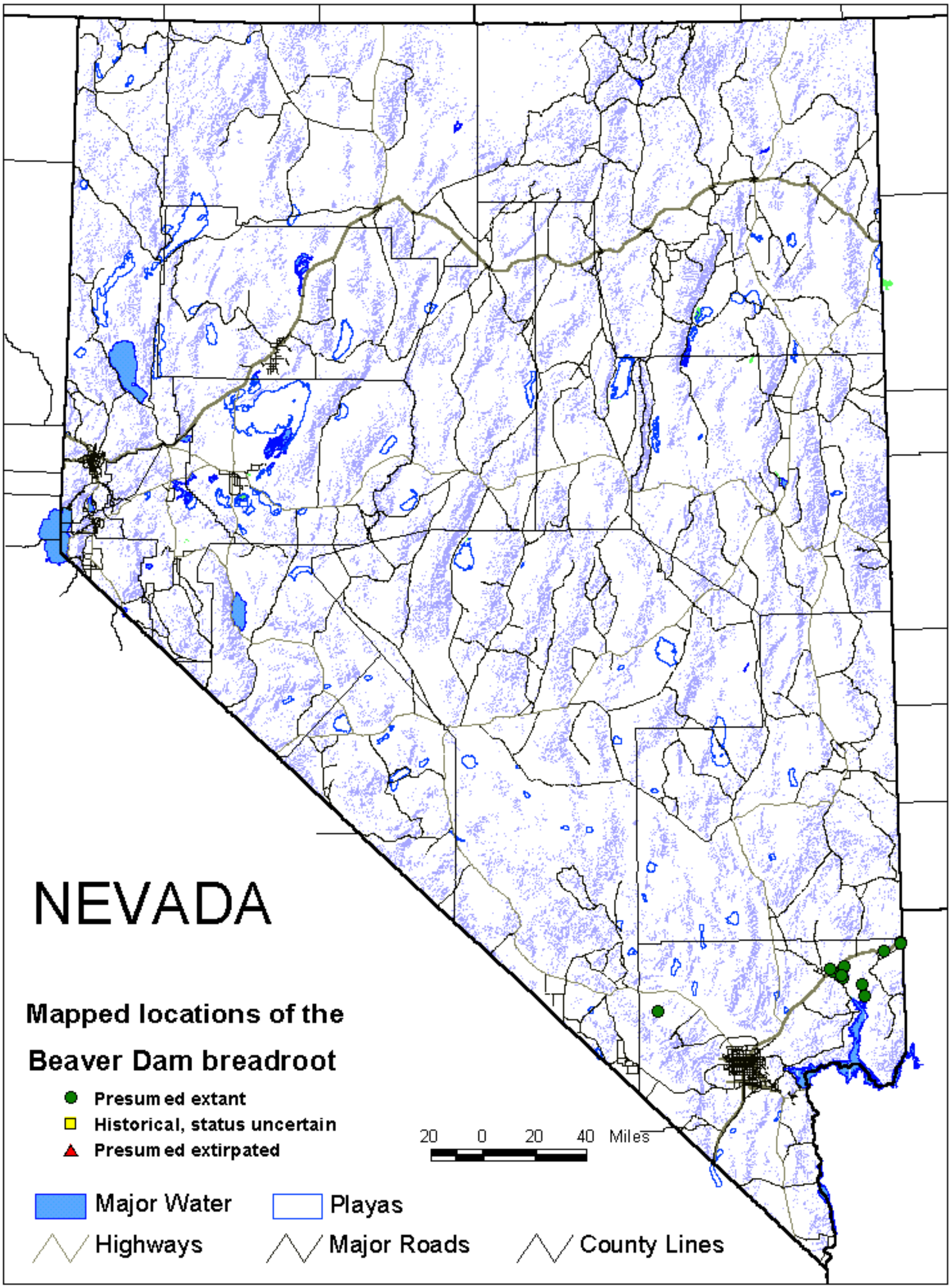
DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Hickman (1993), Nachlinger (1994), Niles et al. (1999).
SPECIFIC REFERENCES:

Nachlinger, J. and S. Sheldon. 1995. Status report for Astragalus oophorus var. clokeyanus. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 20 pages + two appendices.

OF FURTHER INTEREST: The Jepson Manual (Hickman 1993) does not recognized the var. charlestonensis.

Pediomelum castoreum



Pediomelum castoreum (S. Watson) Rydberg — BEAVER DAM BREADROOT

FAMILY: *Fabaceae*, the legume family. **SYNONYMS:** *Psoralea castorea*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 11 occurrences mapped at 1.0 km (0.6 mi) separation, OR **14 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys in Nevada have been extensive but likely remain incomplete. Most recent entered survey 1991, average year of last survey 1983. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 7.1%; **11-20 yrs:** 64.3%; **21-30 yrs:** 14.3%; **31-50 yrs:** 7.1%; **51+ yrs or unknown:** 7.1%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, National Park Service, Nevada state lands (?), private lands (?).

RANGE: Clark County, Nevada; also in AZ and CA. Maximum Nevada **range dimension 46.5 km (28.9 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 1280-5000 feet (390-1524 meters).

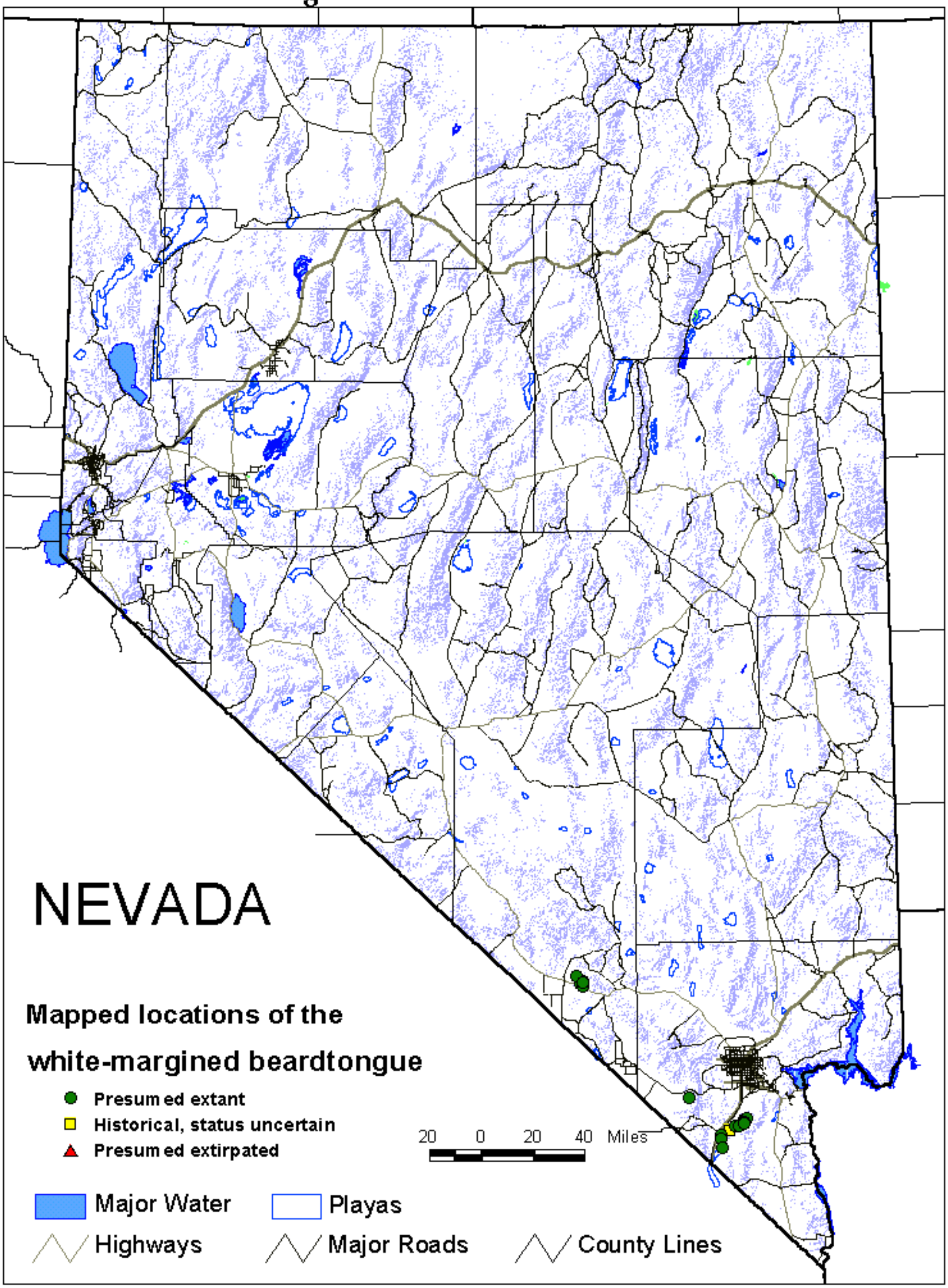
HABITAT (not yet reviewed for Nevada): "Dry, sandy deserts."

PHENOLOGY: no summary available. Range of most frequent **survey months:** April-May.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Barneby (1989).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Hickman (1993).

Penstemon albomarginatus



Penstemon albomarginatus M. E. Jones — WHITE-MARGINED BEARDTONGUE

FAMILY: *Scrophulariaceae*, the figwort family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: none. **NNNPS:** THREATENED.

POPULATION CENSUS (NEVADA): 13 occurrences mapped at 1.0 km (0.6 mi) separation, OR **16 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 14,000+**, total estimated **area 368+ ha (909+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys are in progress and are largely complete. Most recent entered survey 1998, average year of last survey 1989. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 6.3%; **6-10 yrs:** 75%; **21-30 yrs:** 6.3%; **31-50 yrs:** 12.5%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, Humboldt-Toiyabe National Forest, U. S. Department of Energy (?), private lands (?).

RANGE: Clark and Nye counties, Nevada; also in AZ and CA. Maximum Nevada **range dimension 139.5 km (86.7 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 2750-5890 feet (838-1795 meters).

HABITAT (not yet reviewed for Nevada): "Desert dunes (stabilized), Mojavean desert scrub (sandy)." Dependent on sand dunes or deep sand in Nevada.

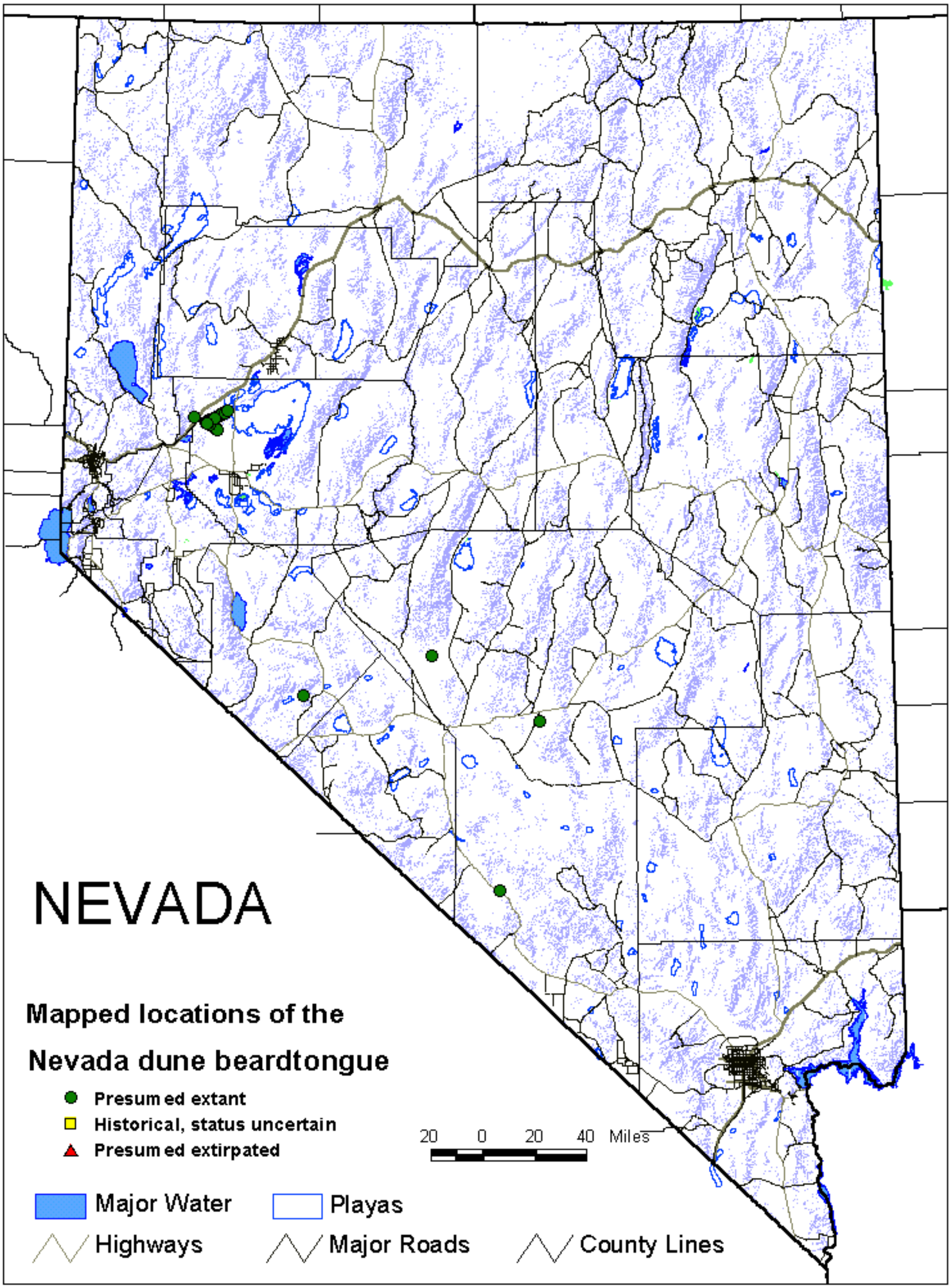
PHENOLOGY: no summary available. Range of most frequent **survey months:** March-August.

DESCRIPTION: A perennial herb, 1.5-3 dm tall, distinctively pallid in color. The spatula-shaped leaves and the calyx lobes are conspicuously white-margined. Flowers (March-May) are pink-lavender with darker purple accents.

PHOTOGRAPHS: Blomquist et al. (1995).
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Hickman (1993), Kearney and Peebles (1960), Munz (1973), Niles et al. (1998), Skinner and Pavlik (1994).
SPECIFIC REFERENCES:

Sheldon, S. K. 1994. Sensitive plant survey of Hidden Valley, Nevada. Las Vegas, Nevada: National Biological Survey, unpublished report.

Penstemon arenarius



Penstemon arenarius E. Greene — NEVADA DUNE BEARDTONGUE

FAMILY: *Scrophulariaceae*, the figwort family. **SYNONYMS:** *Penstemon maguirei*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 S2S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 13 occurrences mapped at 1.0 km (0.6 mi) separation, OR **32 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 1398+**, total estimated **area 224+ ha (554+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Most recent entered survey 1988, average year of last survey 1982.
Years since last entered survey (percent of mapped records at various survey ages)**: 11-20 yrs:** 90.6%; **21-30 yrs:** 6.3%; **31-50 yrs:** 3.1%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, private lands, U. S. Department of Defense (?).

RANGE: Churchill, Mineral, and Nye counties, Nevada. **Nevada endemic.** Maximum **range dimension 285.3 km (177.3 mi)** excluding most disjunct record. **Type specimen** collected in Mineral County.

ELEVATIONS RECORDED: 3920-5960 feet (1195-1817 meters).

HABITAT: Deep loose sandy soils of valley bottoms, aeolian deposits, and dune skirts, often in alkaline areas, sometimes on road banks and other recovering disturbances crossing such soils, in the shadscale zone with Psorothamnus polydenius, Achnatherum hymenoides, Astragalus geyeri var. geyeri, Atriplex canescens, A. confertifolia, Tetradymia glabrata, Gilia leptomeria, Tiquilia nuttallii, Sarcobatus baileyi, Chrysothamnus, Ephedra nevadensis, etc. Dependent on sand dunes or deep sand.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

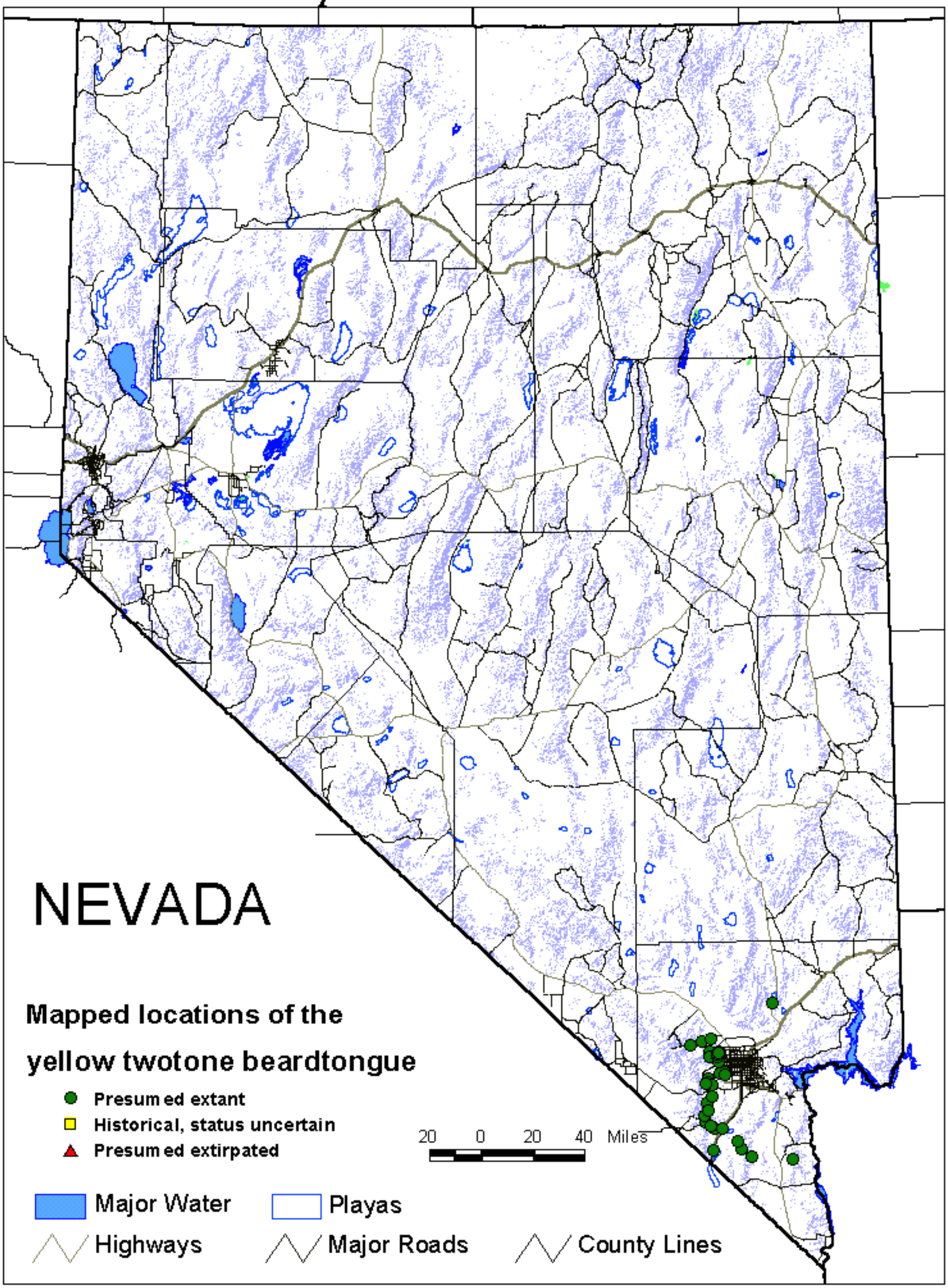
LIFE-FORM AND HABIT: perennial herb from a buried root crown.

DESCRIPTION: A perennial herb, 1-3 dm tall, with leathery, coarsely toothed leaves and whitish to purple, funnel-shaped flowers striped with magenta. Blooms from May to July.

PHOTOGRAPHS: Weixelman and Atwood (1990); Nevada Natural Heritage Program images web page (1998-present) and files.
ILLUSTRATIONS: Cronquist et al. (1984), Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Beatley (1977).
SPECIFIC REFERENCES:

Goodrich, S. 1979. Status report on Penstemon arenarius. Portland, Oregon: U. S. Fish and Wildlife Service.
Tiehm, A. 1983. Field search for proposed threatened and endangered plants on Phillips Petroleum lease unit in the Desert Peak area of Churchill County, Nevada. Carson City: Nevada Natural Heritage Program files.

Penstemon bicolor ssp. bicolor



Penstemon bicolor (Brandegee) Clokey & Keck **ssp. *bicolor***
YELLOW TWOTONE BEARDTONGUE

FAMILY: *Scrophulariaceae*, the figwort family.

SYNONYMS: *Penstemon palmeri* var. *bicolor*
Penstemon pseudospectabilis ssp. *bicolor*
Penstemon bicolor (?)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 T2Q S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 31 occurrences mapped at 1.0 km (0.6 mi) separation, OR **34 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 784+**, total estimated **area unknown**. **TREND:** DECLINING.

IMPACTS AND MAJOR THREATS: Urban expansion of Las Vegas.

INVENTORY EFFORT: Surveys have been extensive and are ongoing. Most recent entered survey 1999, average year of last survey 1980. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 2.9%; **6-10 yrs:** 42.9%; **11-20 yrs:** 11.4%; **21-30 yrs:** 25.7%; **31-50 yrs:** 2.9%; **51+ yrs or unknown:** 14.3%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, private lands, Nevada state lands (?), Humboldt-Toiyabe National Forest (?), National Park Service (?).

RANGE: Clark County, Nevada; also in CA (?). Possible or probable **Nevada endemic.** Maximum **range dimension 95.8 km (59.5 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED (NEVADA): 2500-5480 feet (762-1670 meters).

HABITAT: Calcareous or carbonate soils in washes, roadsides, rock crevices, outcrops, or similar places receiving enhanced runoff, in the creosote-bursage, blackbrush, mixed-shrub, and lower juniper zones.

PHENOLOGY: flowering spring. Range of most frequent **survey months:** April-May.

LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: not available (see references).

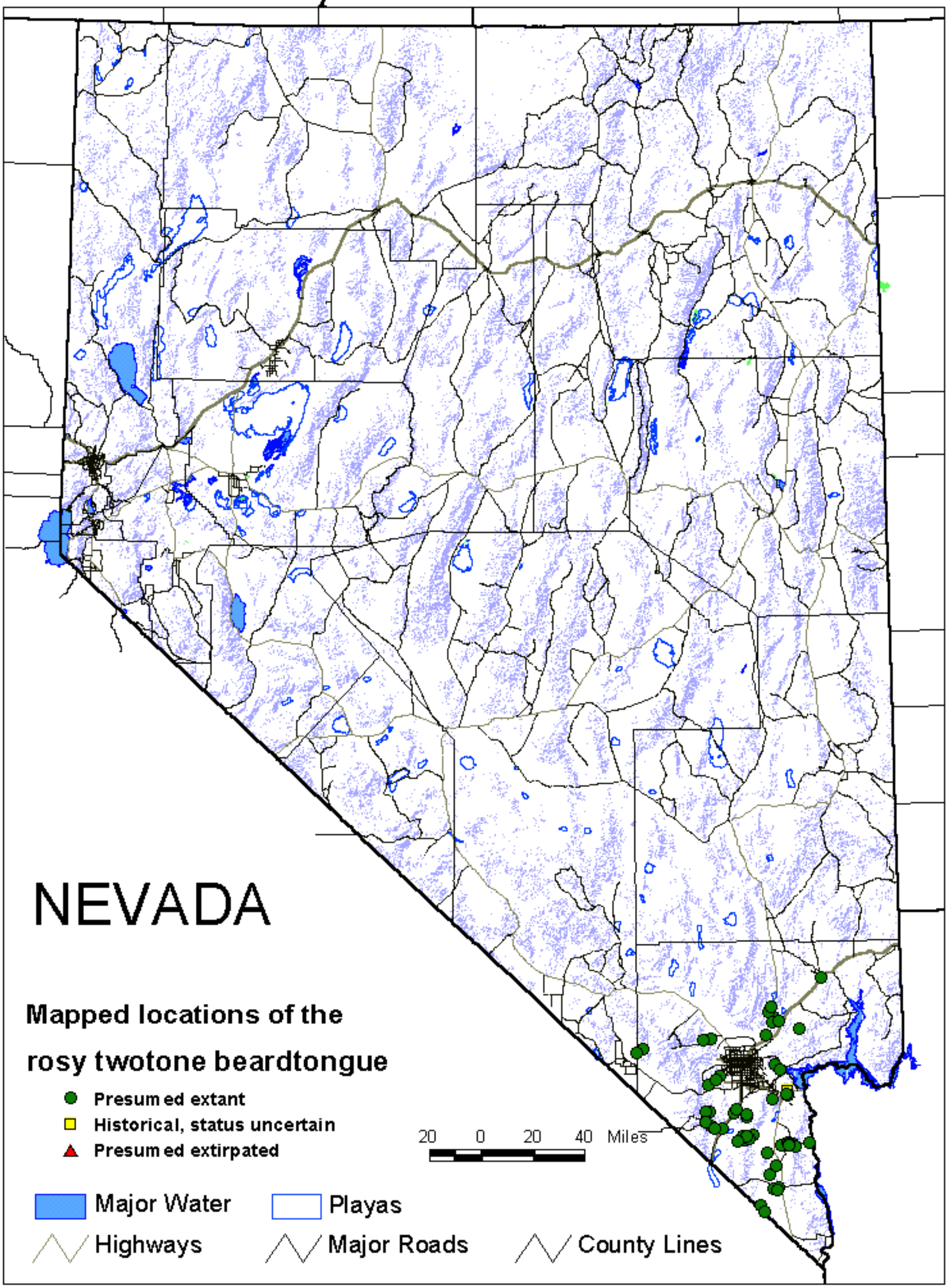
PHOTOGRAPHS: Weixelman and Atwood (1990); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Hickman (1993), Niles et al. (1998), Niles et al. (1999).
SPECIFIC REFERENCES:

Clokey, I. W. and D. D. Keck. 1939. Reconsideration of certain members of Penstemon subsection Spectabiles. Bulletin of the Southern California Academy of Sciences 38: 8-13.

Keck, D. D. 1937. Studies in Penstemon V. The section Peltanthera. American Midland Naturalist 18: 790-829.

Morefield, J. D. 1992. Status report for Opuntia whipplei Engelmann and Bigelow var. multigeniculata (Clokey) L. Benson. Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

Penstemon bicolor ssp. roseus



Penstemon bicolor (Brandegee) Clokey & Keck **ssp. *roseus*** Clokey & Keck

ROSY TWOTONE BEARDTONGUE

FAMILY: *Scrophulariaceae*, the figwort family. **SYNONYMS:** *Penstemon bicolor* (?)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 T3Q S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 49 occurrences mapped at 1.0 km (0.6 mi) separation, OR **52 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 6049+**, total estimated **area 82.5+ ha (204+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys have been extensive and are ongoing. Most recent entered survey 1999, average year of last survey 1980. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 7.4%; **6-10 yrs:** 24.1%; **11-20 yrs:** 22.2%; **21-30 yrs:** 24.1%; **31-50 yrs:** 14.8%; **51+ yrs or unknown:** 7.4%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands, Nevada state lands, National Park Service, U. S. Fish and Wildlife Service, U. S. Department of Defense.

RANGE: Clark and Nye counties, Nevada; also in AZ and CA. Maximum Nevada **range dimension 127.6 km (79.3 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED (NEVADA): 1800-4839 feet (549-1475 meters).

HABITAT (NEVADA): Rocky calcareous, granitic, or volcanic soils in washes, roadsides, scree at outcrop bases, rock crevices, or similar places receiving enhanced runoff, in the creosote-bursage, blackbrush, and mixed-shrub zones.

PHENOLOGY: flowering late-winter to early-spring, mid-March to mid-May. Range of most frequent **survey months:** March-September.

LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Weixelman and Atwood (1990); Nevada Natural Heritage Program images web page (1998-present) and files.

ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).

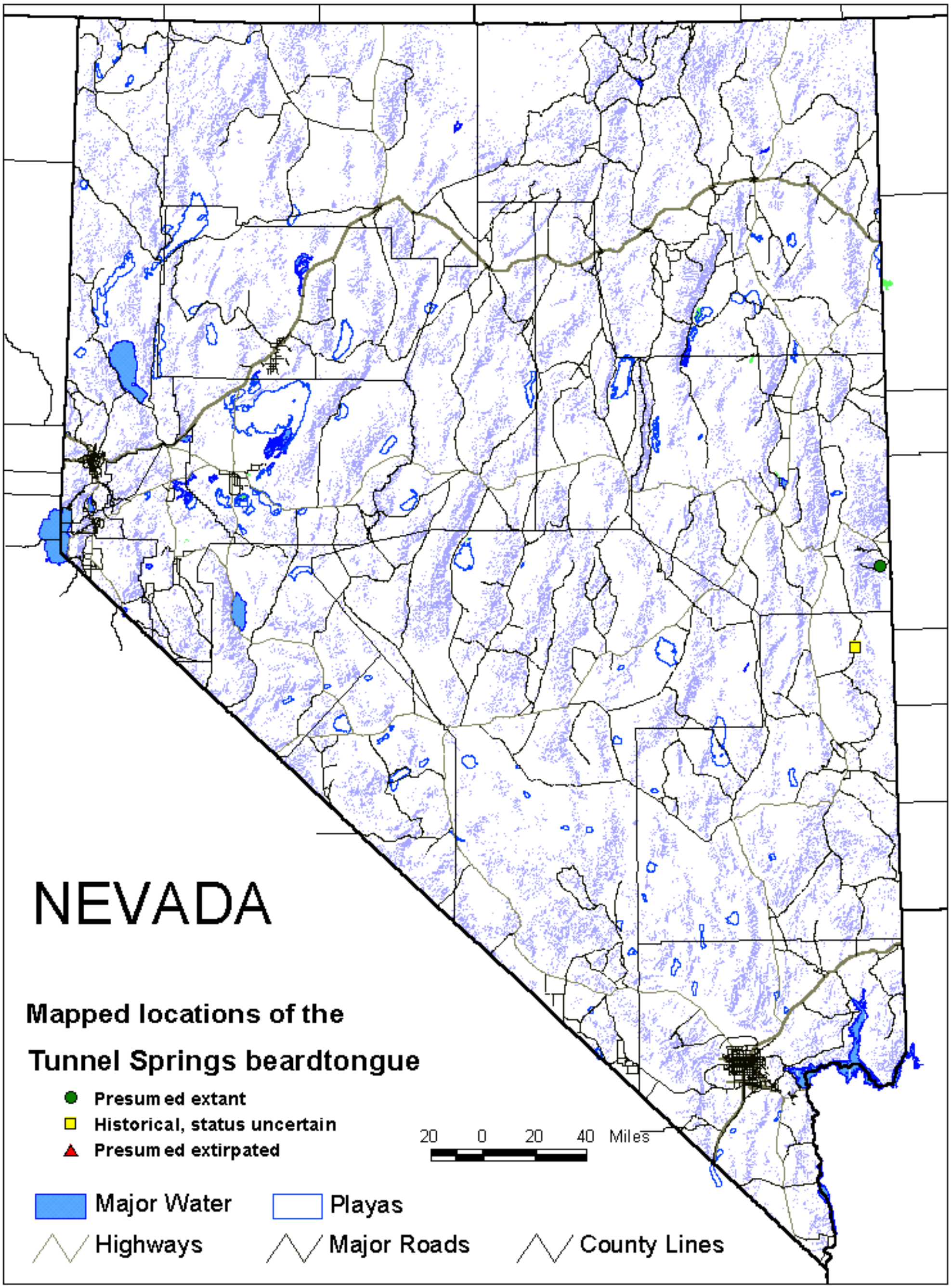
OTHER GENERAL REFERENCES (listed separately): Ackerman (1981), Clokey (1951), Hickman (1993), Niles et al. (1998), Niles et al. (1999).

SPECIFIC REFERENCES:

Clokey, I. W. and D. D. Keck. 1939. Reconsideration of certain members of Penstemon subsection Spectabiles. Bulletin of the Southern California Academy of Sciences 38: 8-13.

Keck, D. D. 1937. Studies in Penstemon V. The section Peltanthera. American Midland Naturalist 18: 790-829.

Penstemon concinnus



Penstemon concinnus Keck — TUNNEL SPRINGS BEARDTONGUE

FAMILY: *Scrophulariaceae*, the figwort family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 2 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1981, average year of last survey 1980. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 50%; **21-30 yrs:** 50%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, National Park Service (?), private lands (?).

RANGE: Lincoln and White Pine counties, Nevada; also in UT. Maximum Nevada **range dimension 52.0 km (32.3 mi)**.

ELEVATIONS RECORDED (NEVADA): 6200-6600 feet (1890-2012 meters).

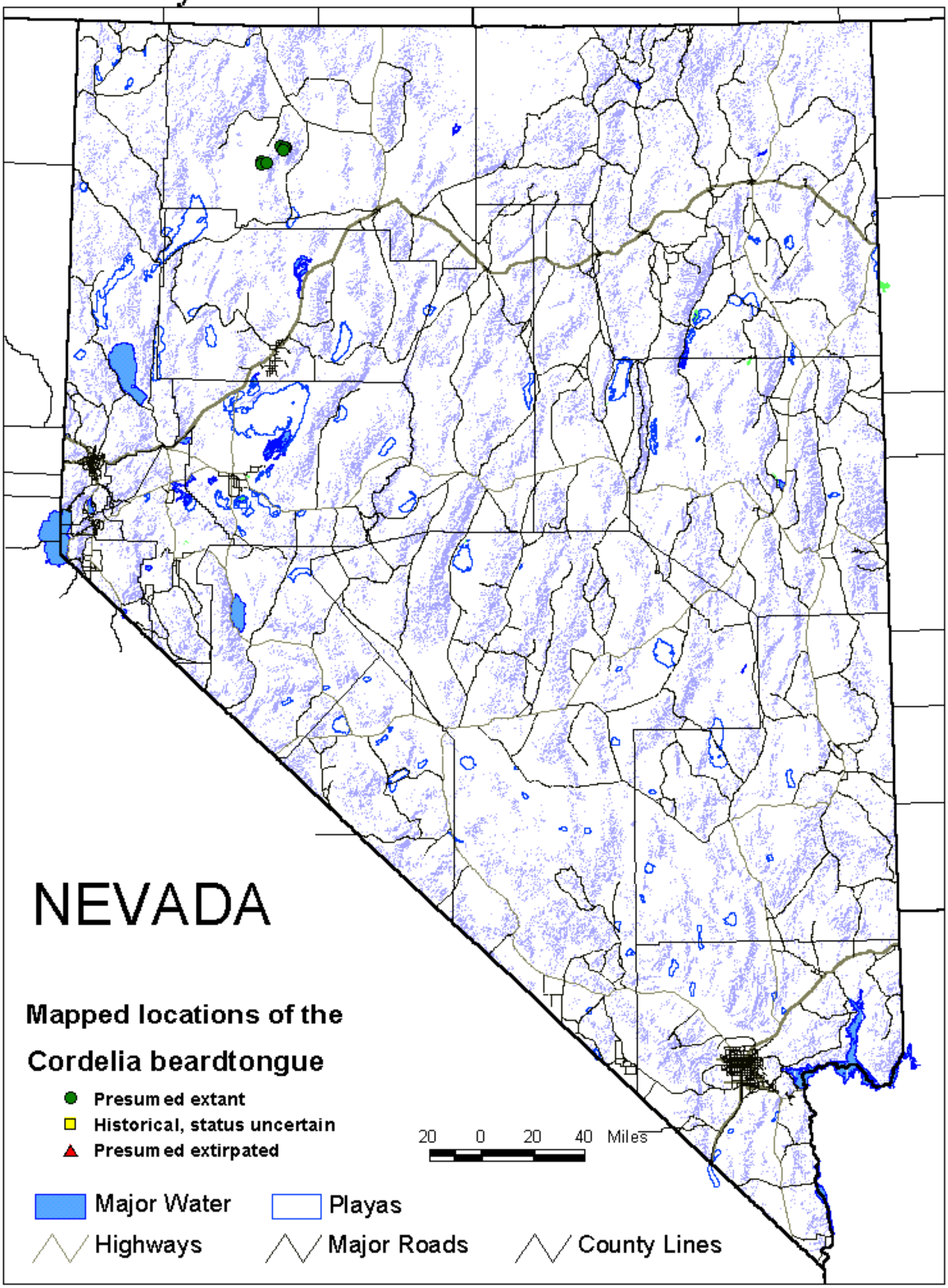
HABITAT: no summary available (see references).

PHENOLOGY: no summary available. Range of most frequent **survey months:** May-June.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Atwood et al. (1991).
ILLUSTRATIONS: Atwood et al. (1991), Cronquist et al. (1984).
OTHER GENERAL REFERENCES (listed separately): Welsh et al. (1993).

Penstemon floribundus



Penstemon floribundus D. Danley — CORDELIA BEARDTONGUE

FAMILY: *Scrophulariaceae*, the figwort family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 6 occurrences mapped at 1.0 km (0.6 mi) separation, OR **8 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 1037**, total estimated **area 3.2+ ha (7.9+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Vulnerable to mineral exploration and development, no immediate threats known.

INVENTORY EFFORT: Most recent entered survey 1987, average year of last survey 1987.
Years since last entered survey (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT: U. S. Bureau of Land Management.

RANGE: Humboldt County, Nevada. Endemic to northwestern Nevada, found on the west side of the Jackson Mountains. Maximum **range dimension 17.8 km (11.1 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 4240-7400 feet (1292-2256 meters).

HABITAT: Dry, open, mostly dark-colored volcanic talus, very rocky slopes, or alluvium derived therefrom, on all aspects but predominantly westerly, variously associated with Juniperus osteosperma, Atriplex confertifolia, Sarcobatus vermiculatus, Artemisia spinescens, A. tridentata, Grayia spinosa, Ephedra nevadensis, Penstemon deustus, P. speciosus, Lewisia rediviva, etc. Also reported but not confirmed on carbonate materials.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: matted semi-woody perennial herb.

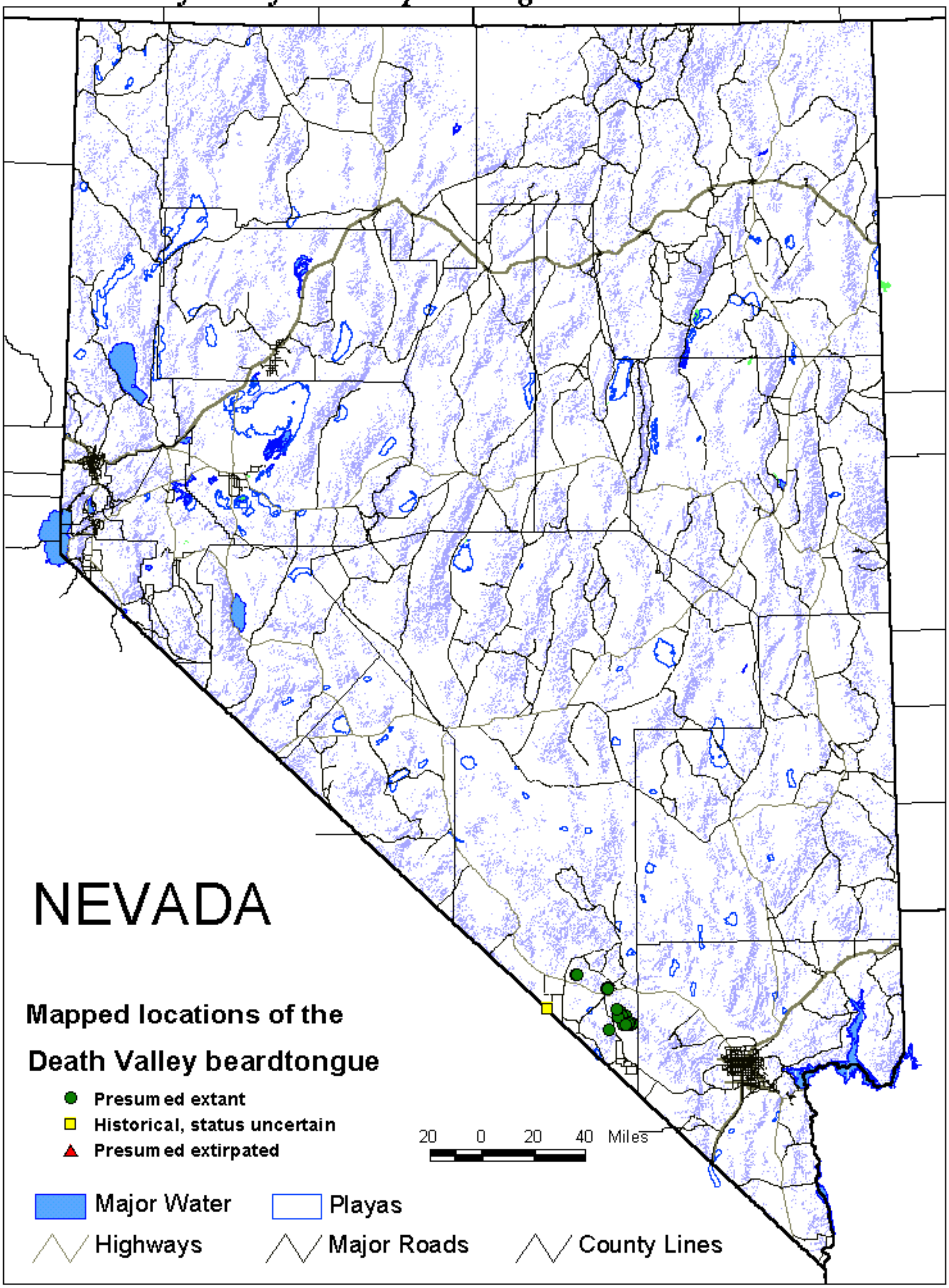
DESCRIPTION: A perennial herb, 1.2-2.3 dm tall, with tubular blue-violet flowers blooming on the top half of the stems. Flowers May-June.

PHOTOGRAPHS: Knight (1988); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: none known.
SPECIFIC REFERENCES:

Danley, D. M. 1985. A new Penstemon (Scrophulariaceae) from northwestern Nevada. Brittonia 37: 321-324.
Knight, T. A. 1988. Status report for Penstemon floribundus Danley. Carson City: Nevada Natural Heritage Program, prepared for the Bureau of Land Management, Winnemucca District, Winnemucca, Nevada.

OF FURTHER INTEREST: Described in Brittonia 37(3): 321-324, 1985.

Penstemon fruticiformis ssp. amargosae



Penstemon fruticiformis Coville **ssp. *amargosae*** Keck

DEATH VALLEY BEARDTONGUE

FAMILY: *Scrophulariaceae*, the figwort family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4 T3 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** THREATENED.

POPULATION CENSUS (NEVADA): 17 occurrences mapped at 1.0 km (0.6 mi) separation, OR **21 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area 91.7+ ha (227+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys have been extensive and are ongoing, but remain incomplete. Most recent entered survey 1999, average year of last survey 1990. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 56.5%; **6-10 yrs:** 26.1%; **11-20 yrs:** 4.3%; **21-30 yrs:** 4.3%; **31-50 yrs:** 4.3%; **51+ yrs or unknown:** 4.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, U. S. Department of Energy, private lands, Humboldt-Toiyabe National Forest.

RANGE: Clark (?) and Nye counties, Nevada; also in CA. Maximum Nevada **range dimension 46.5 km (28.9 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 3100-6332 feet (945-1930 meters).

HABITAT: no summary available (see references).

PHENOLOGY: no summary available. Range of most frequent **survey months:** April-June.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Blomquist et al. (1995), Niles et al. (1999), Weixelman and Atwood (1990); Nevada Natural Heritage Program images web page (1998-present) and files.
ILLUSTRATIONS: Cronquist et al. (1984), Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Hickman (1993), Niles et al. (1998).
SPECIFIC REFERENCES:

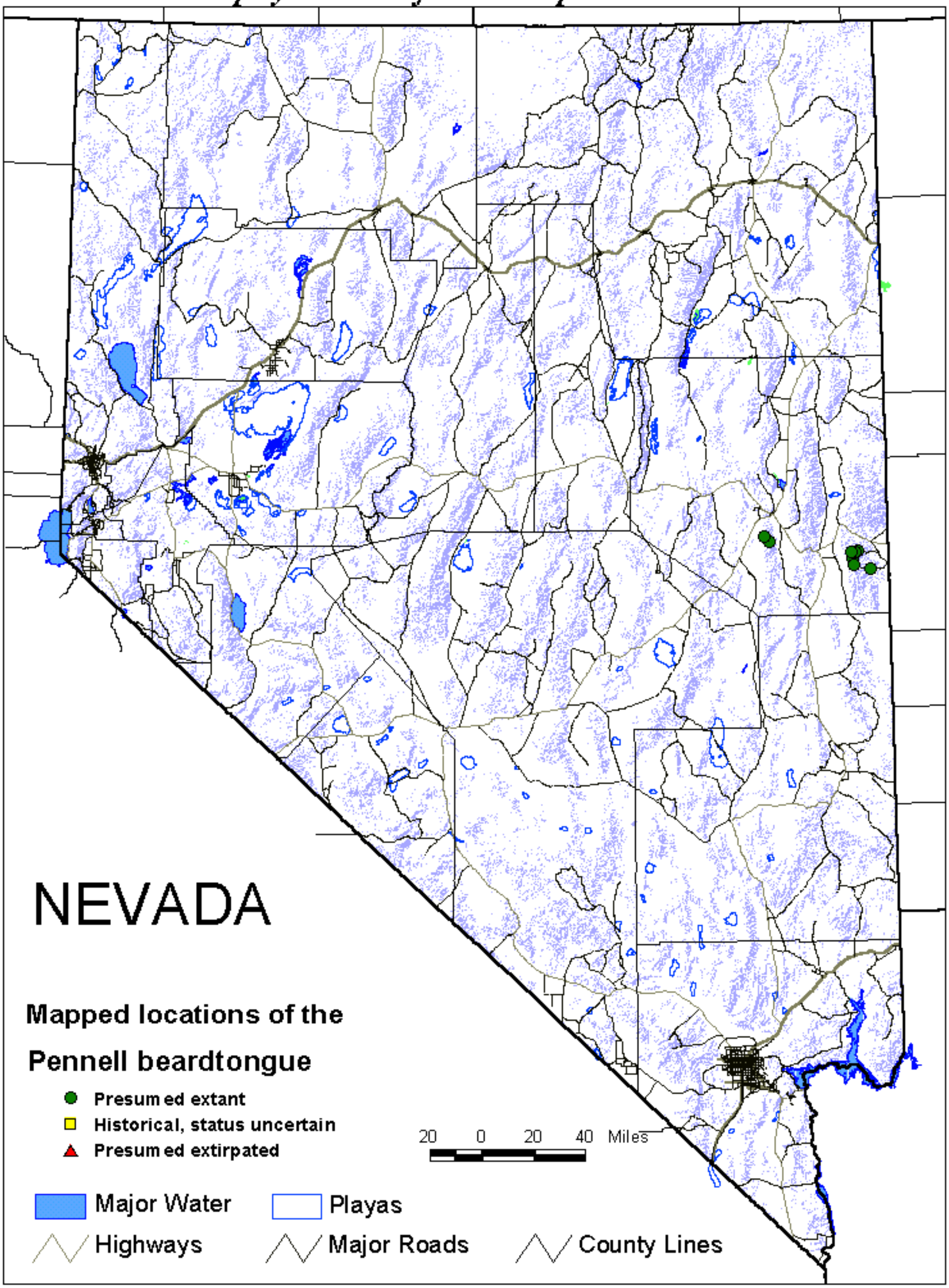
Crosswhite, F. S. 1965. Four new Nevadan species of Penstemon (Scrophulariaceae). Leaflets of Western Botany 10: 168-172.

Keck, D. D. 1937. Studies in Penstemon V. The section Peltanthera. American Midland Naturalist 18: 790-829.

Woodbury, K. 1980. Status report for Penstemon francisci-pennellii. Portland, Oregon: U. S. Fish and Wildlife Service.

OF FURTHER INTEREST: USFWS tracks as synonym 01 - PENSTEMON FRUTICIFORMIS var. AMARGOSAE (9/93).

Penstemon leiophyllus var. francisci-pennellii



Penstemon leiophyllus Pennell **var. *francisci-pennellii*** (Crosswhite) N. Holmgren

PENNELL BEARDTONGUE

FAMILY: *Scrophulariaceae*, the figwort family. **SYNONYMS:** *Penstemon francisci-pennellii*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 T2 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 8 occurrences mapped; total estimated **individuals 45,000+**, total estimated **area 194+ ha (479+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1980, average year of last survey 1963. **Years since last entered survey** (percent of mapped records at various survey ages)**: 21-30 yrs:** 50%; **31-50 yrs:** 25%; **51+ yrs or unknown:** 25%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: National Park Service, Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, private lands (?).

RANGE: Lincoln, Nye, and White Pine counties, Nevada; also in UT. In Nevada known from the Snake, Wilson Creek, southern Schell Creek, Egan, and Grant ranges. Maximum Nevada **range dimension 58.8 km (36.6 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 7000-11500 feet (2134-3505 meters).

HABITAT (not yet reviewed for Nevada): "Rocky calcareous slopes, shaded banks. Elevation: 2590-3355m."

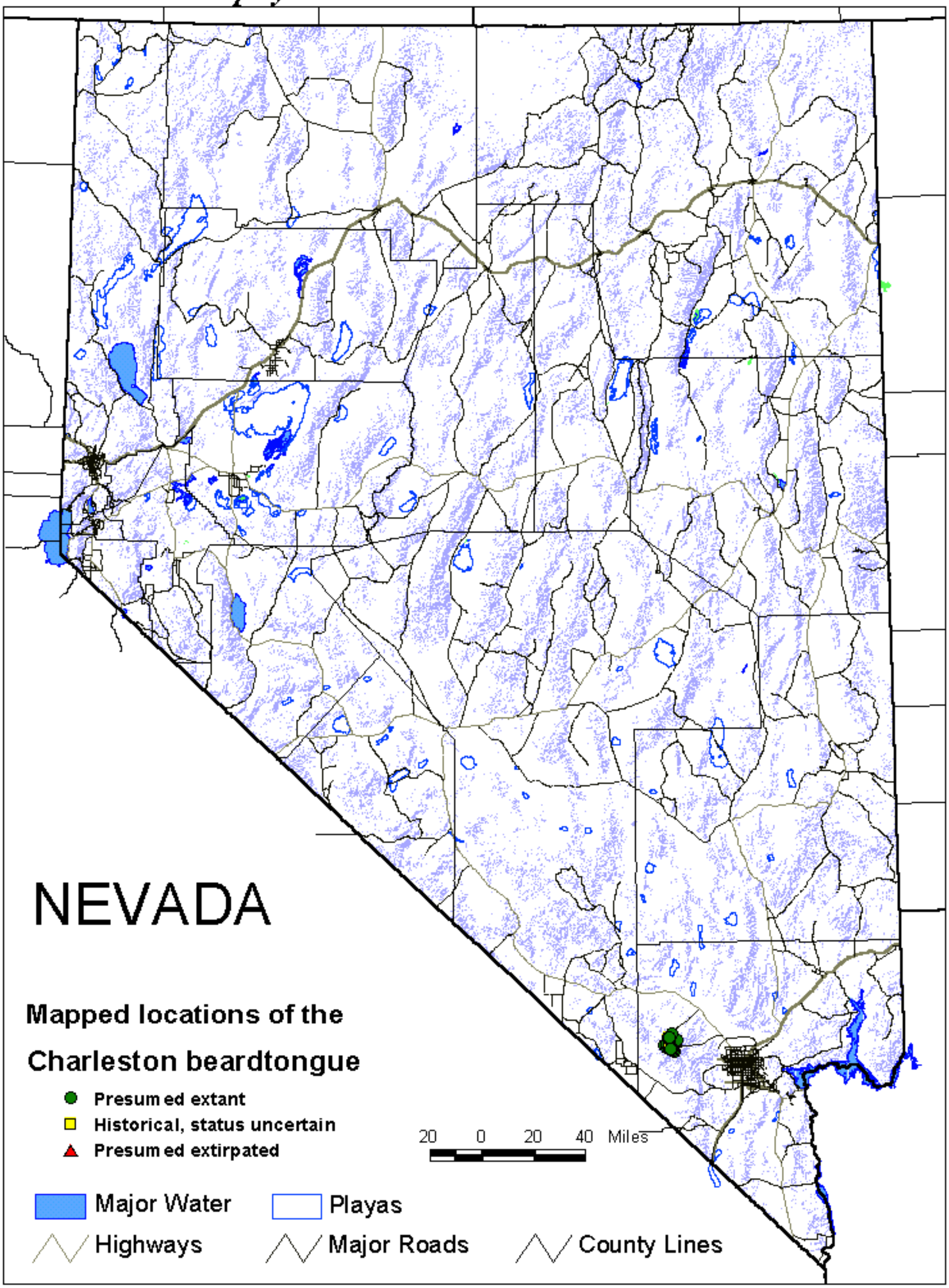
PHENOLOGY: no summary available. Range of most frequent **survey months:** July-August.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist et al. (1984), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951).
SPECIFIC REFERENCES:

Crosswhite, F. S. 1965. Four new Nevadan species of Penstemon (Scrophulariaceae). Leaflets of Western Botany 10: 168-172.
Woodbury, K. 1980. Status report for Penstemon keckii. Portland, Oregon: U. S. Fish and Wildlife Service.
Woodbury, K. 1980. Status report for Penstemon francisci-pennellii. Portland, Oregon: U. S. Fish and Wildlife Service.

Penstemon leiophyllus var. keckii



Penstemon leiophyllus Pennell **var. *keckii*** (Clokey) N. Holmgren

CHARLESTON BEARDTONGUE

FAMILY: *Scrophulariaceae*, the figwort family. **SYNONYMS:** *Penstemon keckii*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 T2 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 10 occurrences mapped at 1.0 km (0.6 mi) separation, OR **22 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area 41.1+ ha (102+ ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Surveys have been extensive but remain somewhat incomplete. Most recent entered survey 1999, average year of last survey 1971. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 13.6%; **6-10 yrs:** 31.8%; **11-20 yrs:** 4.5%; **21-30 yrs:** 13.6%; **31-50 yrs:** 4.5%; **51+ yrs or unknown:** 31.8%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, private lands, U. S. Bureau of Land Management (?).

RANGE: Clark County, Nevada. Endemic to the Spring Mountains. Maximum **range dimension 9.2 km (5.7 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 2980-11480 feet (908-3499 meters).

HABITAT: no summary available (see references).

PHENOLOGY: no summary available. Range of most frequent **survey months:** June-August.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: Cronquist et al. (1984).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Nachlinger (1994), Niles et al. (1999).
SPECIFIC REFERENCES:

Bayer, R. J., and T. M. Minish. 1993. Isozyme variation, ecology and phytogeography of Antennaria soliceps (Asteraceae: Inuleae), an alpine apomict from the Spring Mountains, Nevada. Madroño 40(2): 75-89.

Clokey, I. W. 1937. A new Penstemon from the Charleston Mountains, Nevada. Madroño 4: 128-130.

Smith, F. 1995. Status report for Antennaria soliceps. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 11 pages + two appendices.

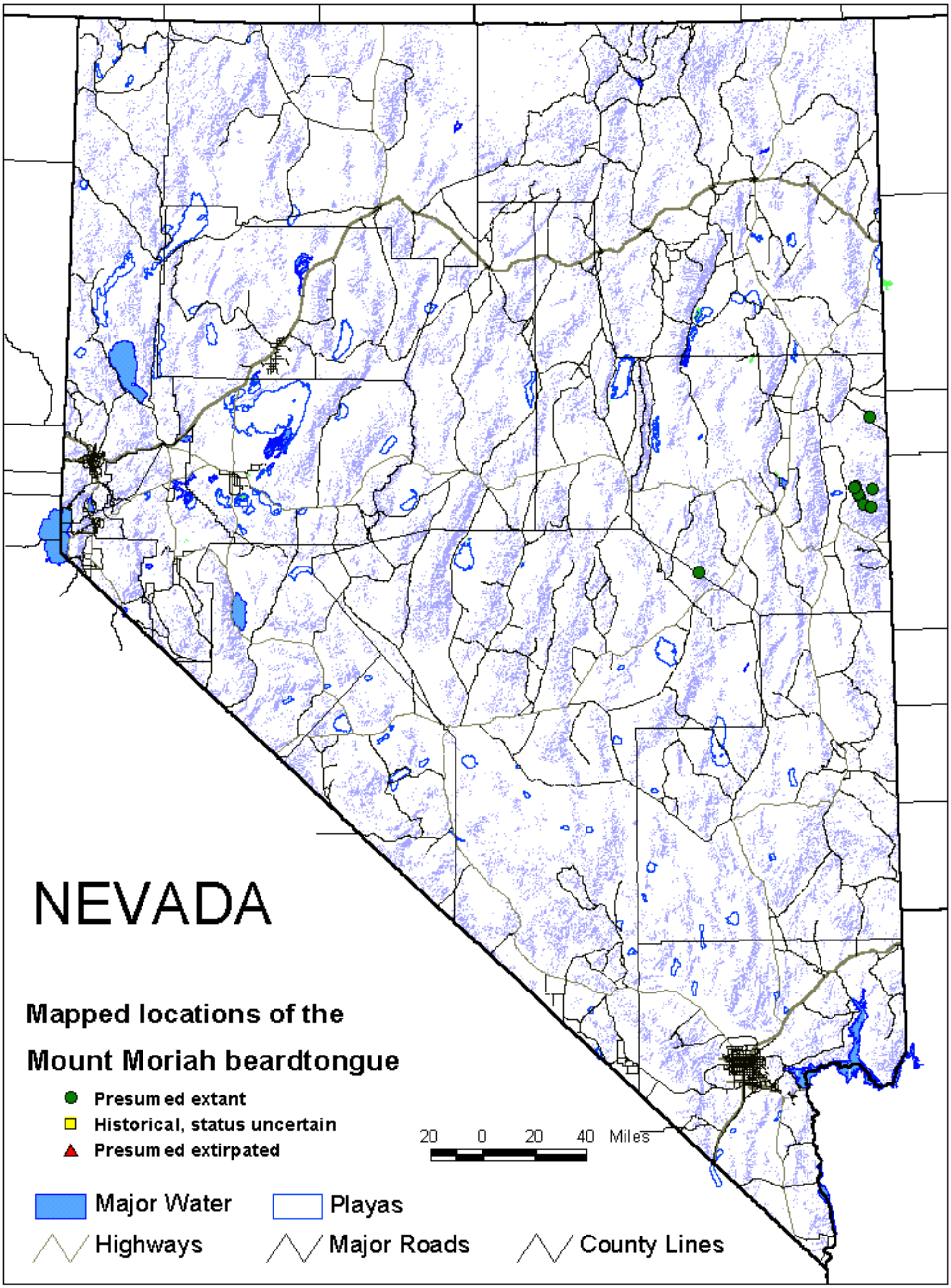
Smith, F. 1995. Status report for Ivesia cryptocaulis. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 11 pages + two appendices.

Smith, F. 1995. Status report for Sphaeromeria compacta. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 10 pages + two appendices.

Woodbury, K. 1980. Status report for Astragalus aequalis. Portland, Oregon: U. S. Fish and Wildlife Service.

Woodbury, K. 1980. Status report for Penstemon keckii. Portland, Oregon: U. S. Fish and Wildlife Service.

Penstemon moriahensis



Penstemon moriahensis N. Holmgren (1978) MOUNT MORIAH BEARDTONGUE

FAMILY: *Scrophulariaceae*, the figwort family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1G2 S1S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 9 occurrences mapped; total estimated **individuals 391+**, total estimated **area 4.5+ ha (11.1+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: High mountain species, few threats - possibly mining.

INVENTORY EFFORT: Most recent entered survey 1990, average year of last survey 1985.
Years since last entered survey (percent of mapped records at various survey ages)**: 11-20 yrs:** 66.7%; **21-30 yrs:** 33.3%.

LAND MANAGEMENT in decreasing predominance: designated wilderness, Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management.

RANGE: White Pine County, Nevada. **Nevada endemic.** Maximum **range dimension 55.9 km (34.7 mi)** excluding most disjunct record. **Type specimen** collected in White pine County.

ELEVATIONS RECORDED: 7100-10800 feet (2164-3292 meters).

HABITAT: Open, gravelly and/or silty carbonate soils in drainages, on gentle slopes, and on road banks or other recovering disturbances with enhanced runoff, in the subalpine conifer, subalpine sagebrush, mountain mahogany, and upper pinyon-juniper zones.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-July.

LIFE-FORM AND HABIT: short-lived perennial herb.

DESCRIPTION: A short-lived perennial herb, up to 5 dm tall, with blue, funnel-shaped flowers that bloom in June and July.

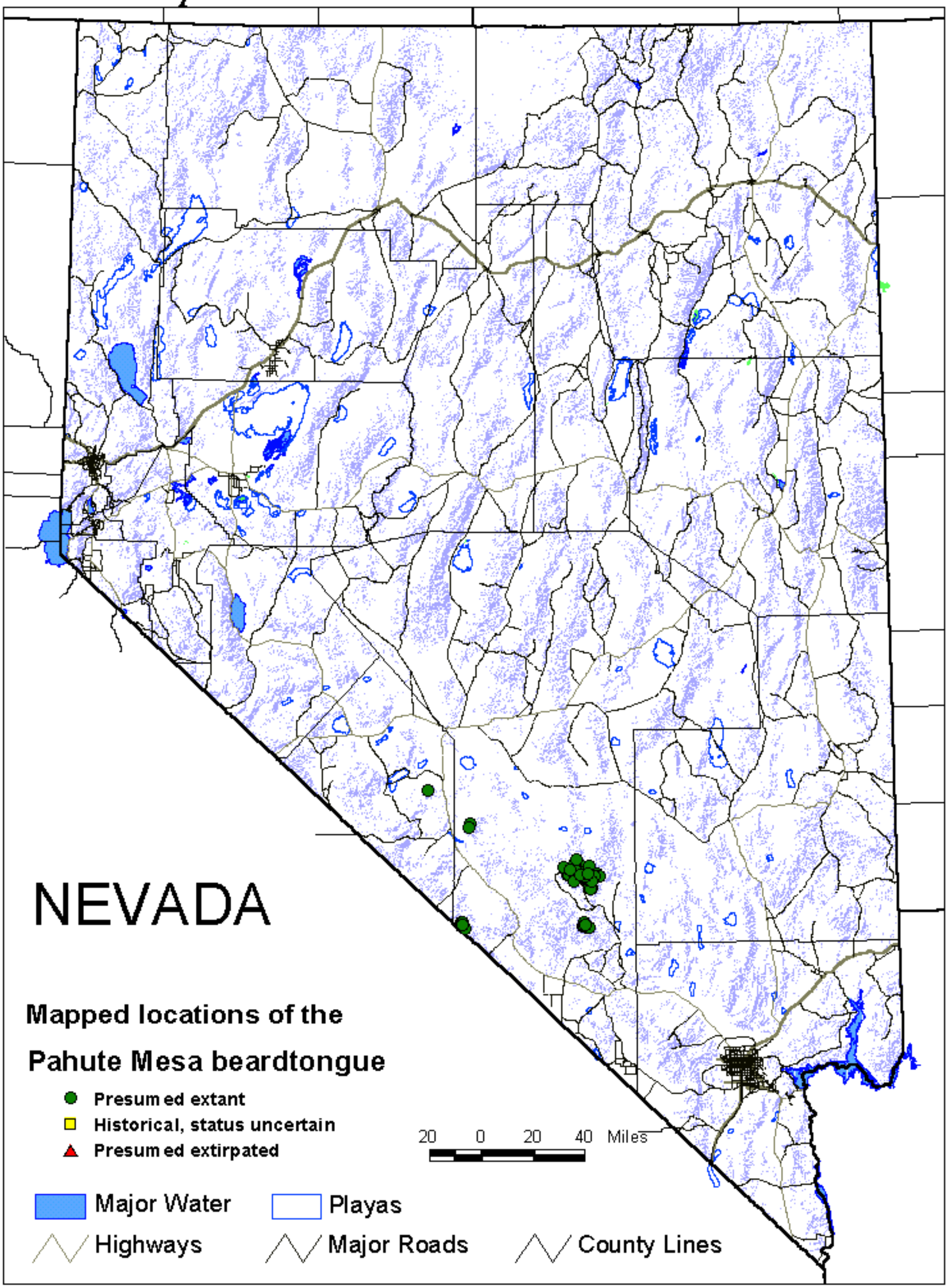
PHOTOGRAPHS: Anderson et al. (1991).
ILLUSTRATIONS: Anderson et al. (1991), Cronquist et al. (1984), Holmgren (1978), Mozingo and Williams (1980).
SPECIFIC REFERENCES:

Holmgren, N. H. 1978. Three new species of Penstemon (Scrophulariaceae) from the Intermountain Region. Brittonia 30: 416-425.

Lyman, J. and A. Sanders. 1993. Mount Moriah botanical survey, Mount Moriah Wilderness-Humboldt National Forest, White Pine County, Nevada. Riverside: University of California, DRAFT report prepared for the Humboldt National Forest, Ely, Nevada.

OF FURTHER INTEREST: Distinct species in a large genus.

Penstemon pahutensis



Penstemon pahutensis N. Holmgren — PAHUTE MESA BEARDTONGUE

FAMILY: *Scrophulariaceae*, the figwort family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 32 occurrences mapped at 1.0 km (0.6 mi) separation, OR **51 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 5048+**, total estimated **area 1390+ ha (3435+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys have been extensive in several areas, but some potential habitat likely remains unexamined. Most recent entered survey 1995, average year of last survey 1990.
Years since last entered survey (percent of mapped records at various survey ages)**: 6-10 yrs:** 90.4%; **21-30 yrs:** 3.8%; **31-50 yrs:** 5.8%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Department of Energy, U. S. Department of Defense, National Park Service, U. S. Bureau of Land Management.

RANGE: Esmeralda and Nye counties, Nevada; also in CA. Maximum Nevada **range dimension 98.0 km (60.9 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 5360-8240 feet (1634-2512 meters).

HABITAT (not yet reviewed for Nevada): "In loose soil and rock crevices among boulders in pinyon-juniper woodlands and sagebrush shrublands. 1770-2285 m elevation."

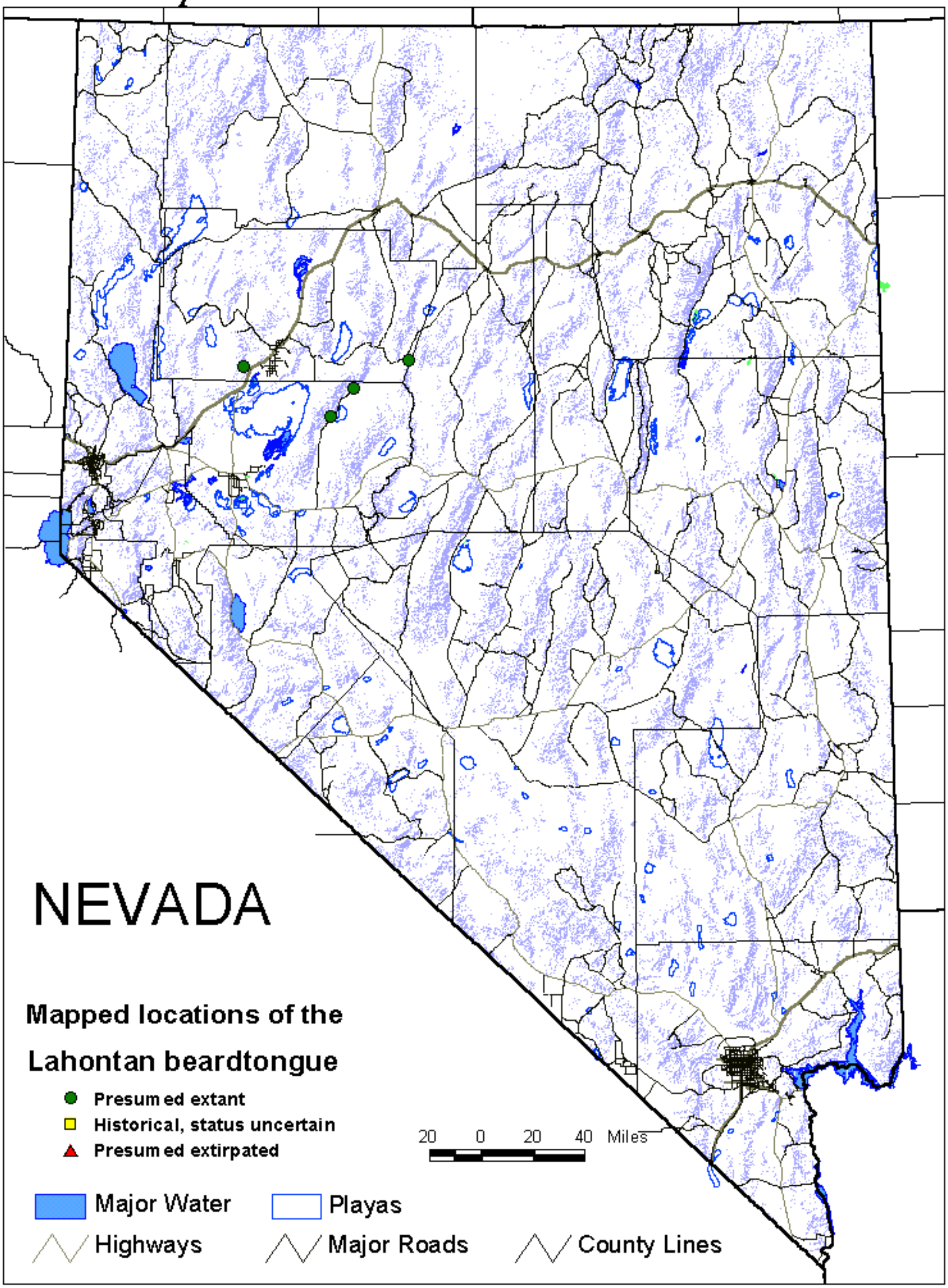
PHENOLOGY: no summary available. Range of most frequent **survey months:** May-August.

DESCRIPTION: A short-lived perennial, up to 7.5 dm tall, with large, blue-lavender funnel-shaped flowers on the top portion of the stems. Blooms June to mid-July.

PHOTOGRAPHS: Blomquist et al. (1995), Knight and Smith (1995), Knight et al. (1997); Nevada Natural Heritage Program images web page (1998-present) and slide collection (1986-present).
ILLUSTRATIONS: Cronquist et al. (1984), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Beatley (1977), Cochrane (1979), Hickman (1993), Rhoads and Williams (1977).
SPECIFIC REFERENCES:

Holmgren, N. H. 1971. A new species of Penstemon from Nye County, Nevada. Aliso 7: 351-356.

Penstemon palmeri var. macranthus



Penstemon palmeri A. Gray **var. *macranthus*** (Eastwood [1905]) N. Holmgren

LAHONTAN BEARDTONGUE

FAMILY: *Scrophulariaceae*, the figwort family. **SYNONYMS:** *Penstemon macranthus*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4G5 T2? S2?**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 4 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Primary threat is possible hybridization with the widely planted var. palmeri.

INVENTORY EFFORT: Inventory just beginning. Most recent entered survey 1980, average year of last survey 1979. **Years since last entered survey** (percent of mapped records at various survey ages)**: 21-30 yrs:** 100%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, private lands, Nevada state lands (?).

RANGE: Churchill, Lander (?), Nye, and Pershing counties, Nevada. U.S.A., Nevada, west-central part of state. **Nevada endemic.** Maximum **range dimension 60.3 km (37.5 mi)** excluding most disjunct record. **Type specimen** collected in Churchill County.

ELEVATIONS RECORDED: 3428-4550 feet (1045-1387 meters).

HABITAT: Along washes, roadsides and canyon floors, particularly on carbonate-containing substrates, usually where subsurface moisture is available throughout most of the summer. Unknown if restricted to calcareous substrates.

PHENOLOGY: flowering late-spring, May-July (August). Type specimen collected 15 June. Range of most frequent **survey months:** May-June.

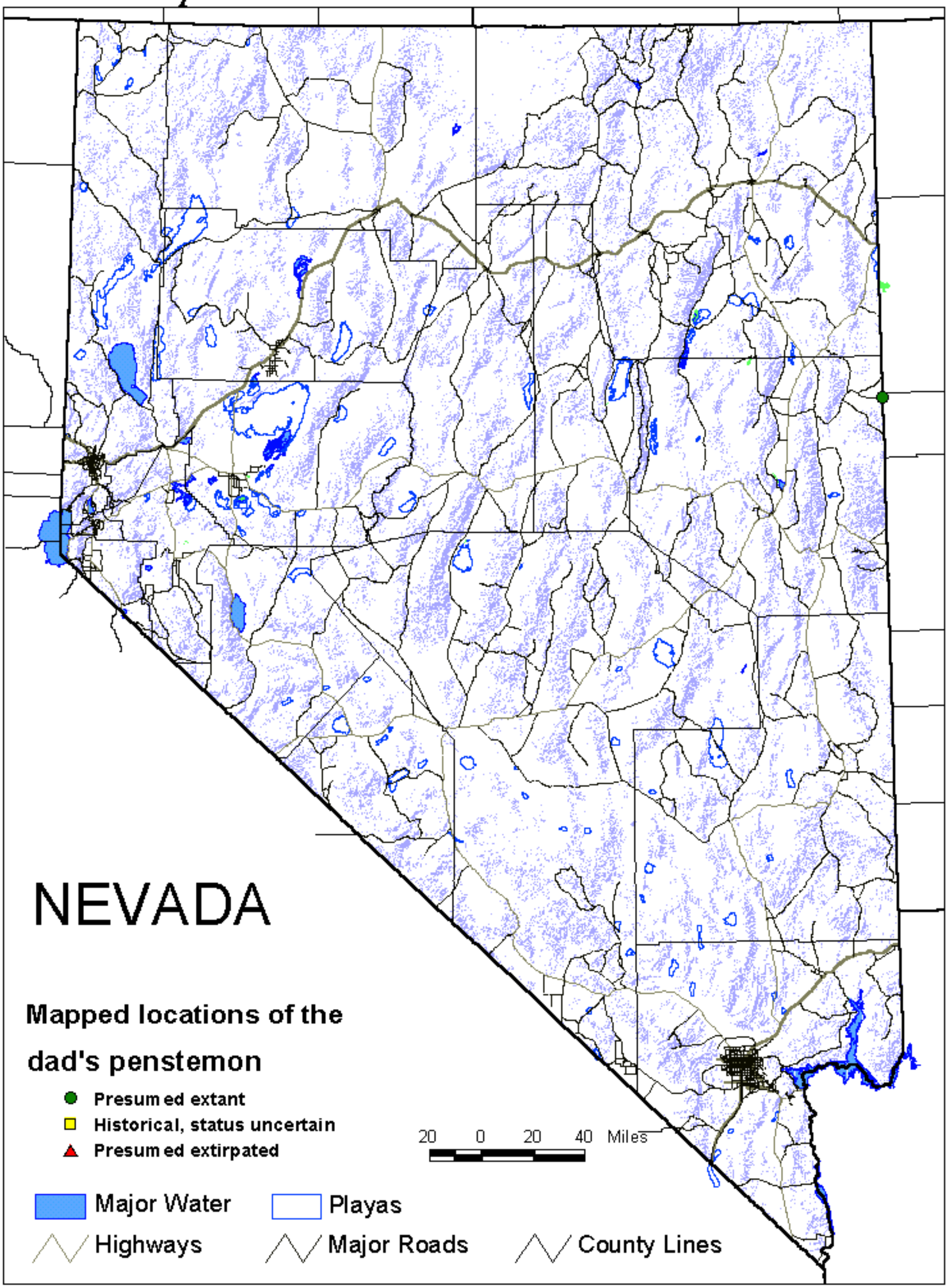
LIFE-FORM AND HABIT: robust perennial herb.

DESCRIPTION: Tall perennial herb with wand-like stems and showy pink tubular flowers with darker markings. **Distinguishing features:** Showy pink flowers are largest of any beardtongue in its range. Corolla tube 7-8 mm long and upper leaves not always connate distinguishes var. macranthus from var. palmeri.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist et al. (1984).
OTHER GENERAL REFERENCES (listed separately): Kartesz (1987).
SPECIFIC REFERENCES:

Eastwood, A. 1905. New species of western plants. Bulletin of the Torrey Botanical Club 32: 193-218.
Holmgren, N. H. 1979. Nomenclatural changes in some intermountain penstemons (Scrophulariaceae). Brittonia 31: 104-107.

Penstemon patricus



Penstemon patricus N. Holmgren — DAD'S PENSTEMON

FAMILY: *Scrophulariaceae*, the figwort family. **SYNONYMS:** *Penstemon leonardii* var. *patricus*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2Q S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 1 occurrence mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1891.
Years since last entered survey (percent of mapped records at various survey ages)**: 51+ yrs or unknown:** 100%.

LAND MANAGEMENT (NEVADA): Native American lands.

RANGE: White Pine County, Nevada; also in UT. In Nevada known only from the Kern Mountains.

ELEVATIONS RECORDED (NEVADA): 6000 feet (1829 meters).

HABITAT: no summary available (see references).

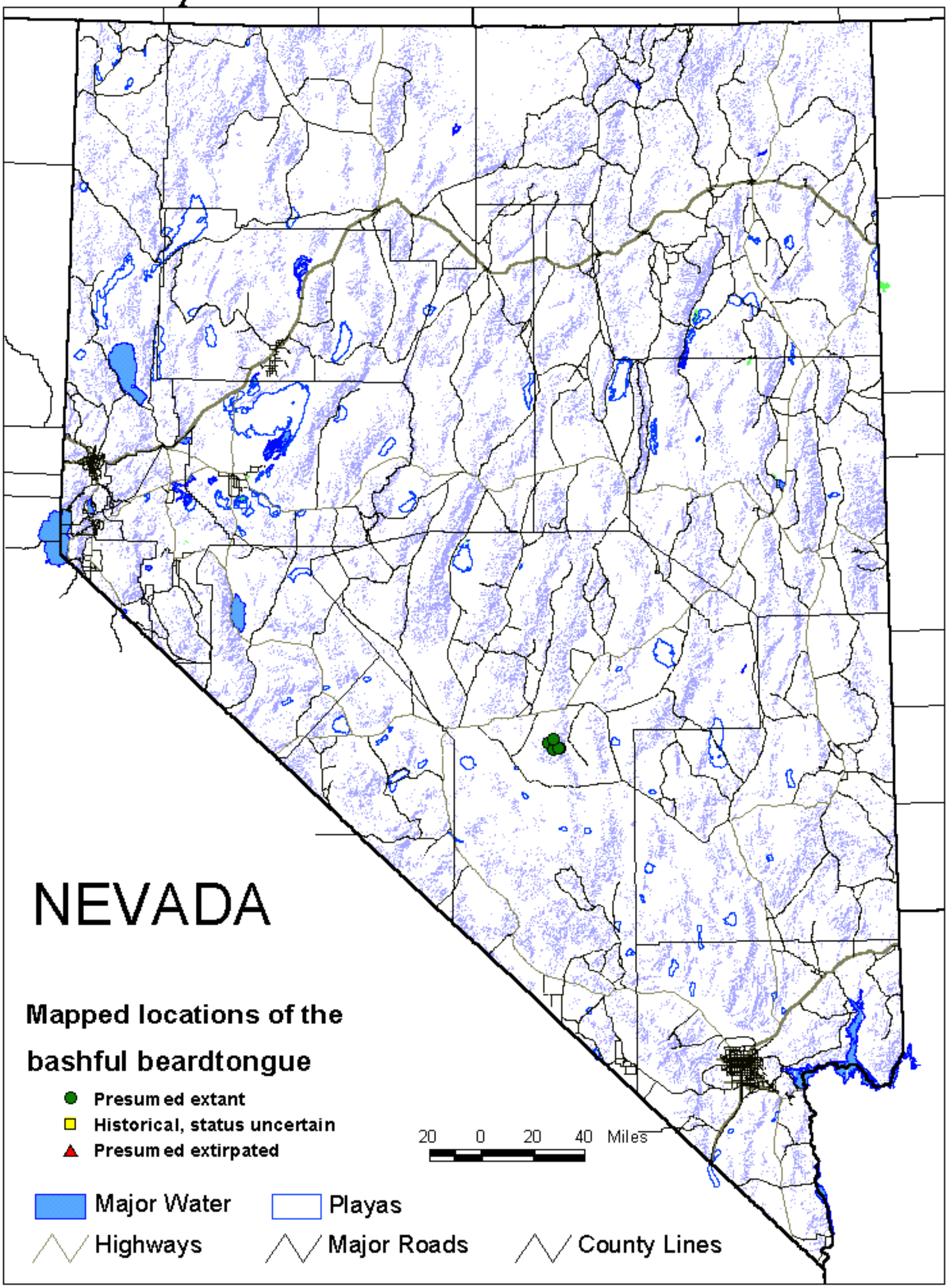
PHENOLOGY: no summary available. Range of most frequent **survey months:** June.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist et al. (1984).
SPECIFIC REFERENCES:

Holmgren, N. H. 1979. New Penstemons (Scrophulariaceae) from the intermountain region. Brittonia 31: 217-242.

Penstemon pudicus



Penstemon pudicus Reveal & Beatley (1971) **BASHFUL BEARDTONGUE**

FAMILY: *Scrophulariaceae*, the figwort family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** THREATENED.

POPULATION CENSUS: 4 occurrences mapped at 1.0 km (0.6 mi) separation, OR **5 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 373+**, total estimated **area 1.2+ ha (3.0+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Most recent entered survey 1992, average year of last survey 1979.
Years since last entered survey (percent of mapped records at various survey ages)**: 6-10 yrs:** 20%; **21-30 yrs:** 60%; **31-50 yrs:** 20%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, private lands (?), U. S. Department of Defense (?).

RANGE: Nye County, Nevada. **Nevada endemic.** Maximum **range dimension 6.9 km (4.3 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 7500-9000 feet (2286-2743 meters).

HABITAT: Crevices, soil pockets, and coarse rocky soils of felsic volcanic outcrops, boulder piles, steep protected slopes, and drainage bottoms, mostly on north and east aspects, in the subalpine sagebrush, mountain mahogany, and upper pinyon-juniper zones.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-July.

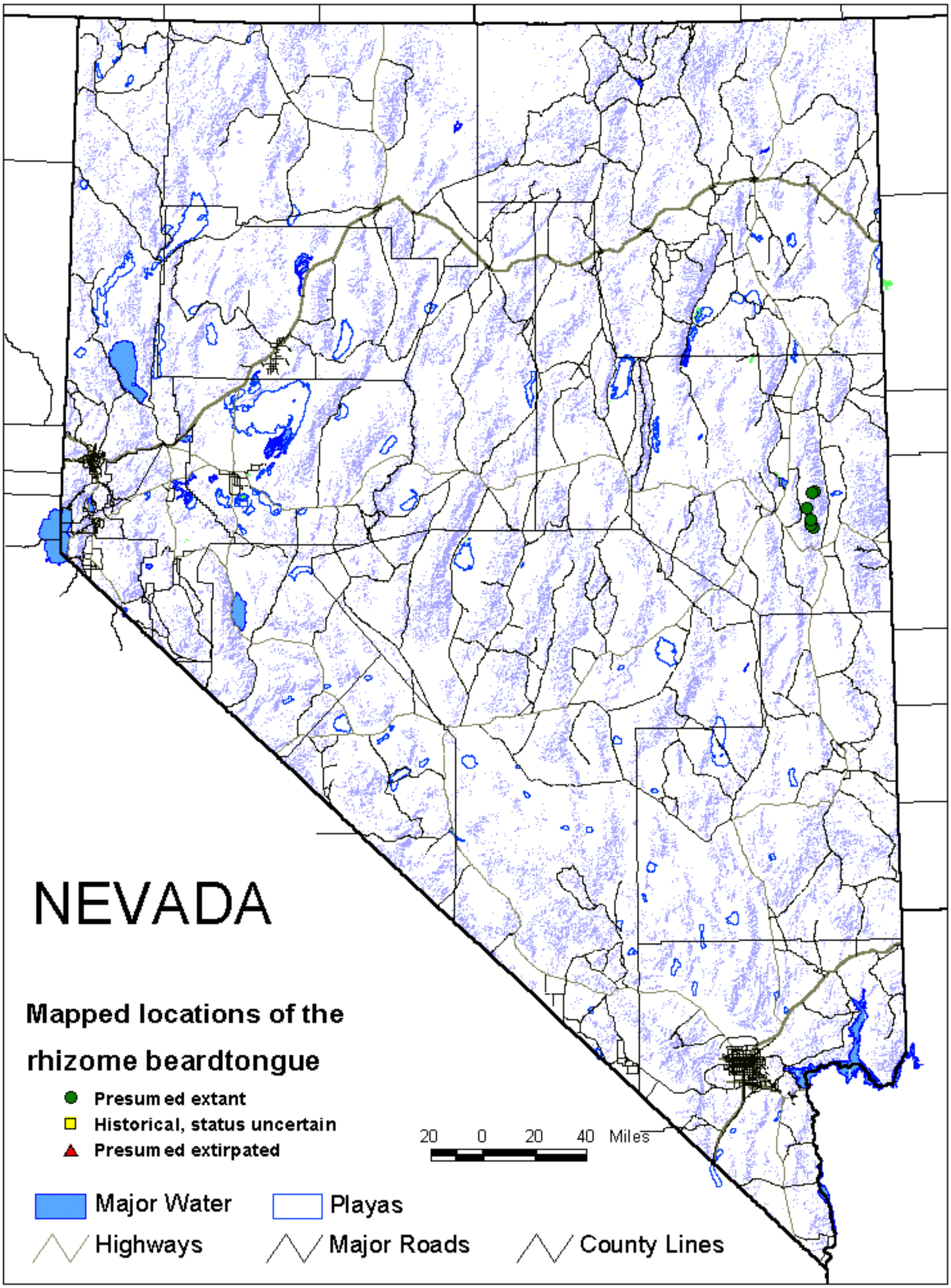
LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: A perennial herb, 2-5 dm tall, with funnel-shaped, blue-violet flowers in bloom late June-July.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: Cronquist et al. (1984), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Beatley (1977).
SPECIFIC REFERENCES:

Reveal, J. L. and J. C. Beatley. 1971. A new Penstemon (Scrophulariaceae) and Grindelia (Asteraceae) from southern Nye County, Nevada. Bulletin of the Torrey Botanical Club 98: 332-335.

Penstemon rhizomatosus



Penstemon rhizomatosus N. Holmgren (1998) RHIZOME BEARDTONGUE

FAMILY: *Scrophulariaceae*, the figwort family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 6 occurrences mapped; total estimated **individuals 505+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: More survey work. Most recent entered survey 1998, average year of last survey 1986. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 16.7%; **11-20 yrs:** 83.3%.

LAND MANAGEMENT: Humboldt-Toiyabe National Forest.

RANGE: White Pine County, Nevada. Narrow endemic, found within one mountain range on very specific habitat. Maximum **range dimension 22.4 km (13.9 mi)** excluding most disjunct record. **Type specimen** collected in White pine County.

ELEVATIONS RECORDED: 10000-11250 feet (3048-3429 meters).

HABITAT: Crevices of cliffs and outcrops, or silty loam soil pockets in talus or scree, of carbonate rocks on steep slopes of various aspects in the subalpine conifer zone.

PHENOLOGY: flowering summer, in Jul and a few seen in Sept. Range of most frequent **survey months:** June-August.

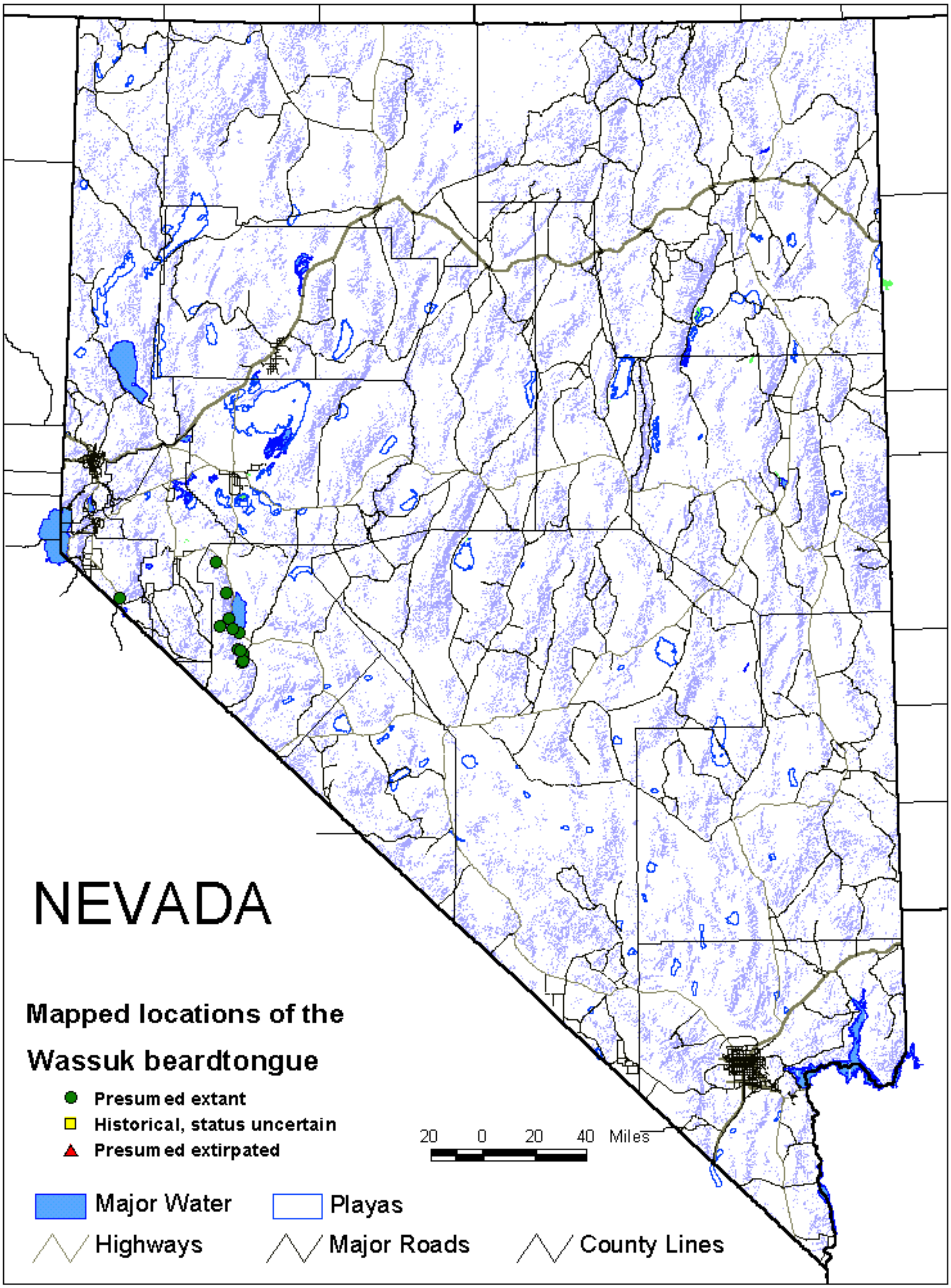
LIFE-FORM AND HABIT: rhizomatous perennial herb.

DESCRIPTION: Rhizomatous perennial herb 1-3 dm tall from a deeply buried taproot, with violet tubular flowers 14-18 mm long. **Distinguishing features:** Distinguished from P. kingii by rhizomatous habit, mostly petiolate leaves, and different pubescence.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Holmgren (1998).
SPECIFIC REFERENCES:

Holmgren, N. H. 1998. Two new species of Penstemon (Scrophulariaceae: sect. Saccanthera) from Nevada, U. S. A. Brittonia 50: 159-164.

Penstemon rubicundus



Penstemon rubicundus Keck (1937) WASSUK BEARDTONGUE

FAMILY: *Scrophulariaceae*, the figwort family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 S2S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 12 occurrences mapped; total estimated **individuals 228+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Most recent entered survey 1983, average year of last survey 1966.
Years since last entered survey (percent of mapped records at various survey ages)**: 11-20 yrs:** 16.7%; **21-30 yrs:** 50%; **51+ yrs or unknown:** 33.3%.

LAND MANAGEMENT in decreasing predominance: private lands, U. S. Department of Defense, Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, Native American lands.

RANGE: Douglas, Esmeralda (?), and Mineral counties, Nevada. **Nevada endemic.** Maximum **range dimension 63.6 km (39.5 mi)** excluding most disjunct record. **Type specimen** collected in Mineral County.

ELEVATIONS RECORDED: 4220-6850 feet (1286-2088 meters).

HABITAT: Open, rocky to gravelly soils on perched tufa shores, steep decomposed granite slopes, rocky drainage bottoms, and roadsides or other recovering disturbances with enhanced runoff, locally abundant on recent burns, in the pinyon-juniper, sagebrush, and upper mixed-shrub and shadscale zones.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** May-September.

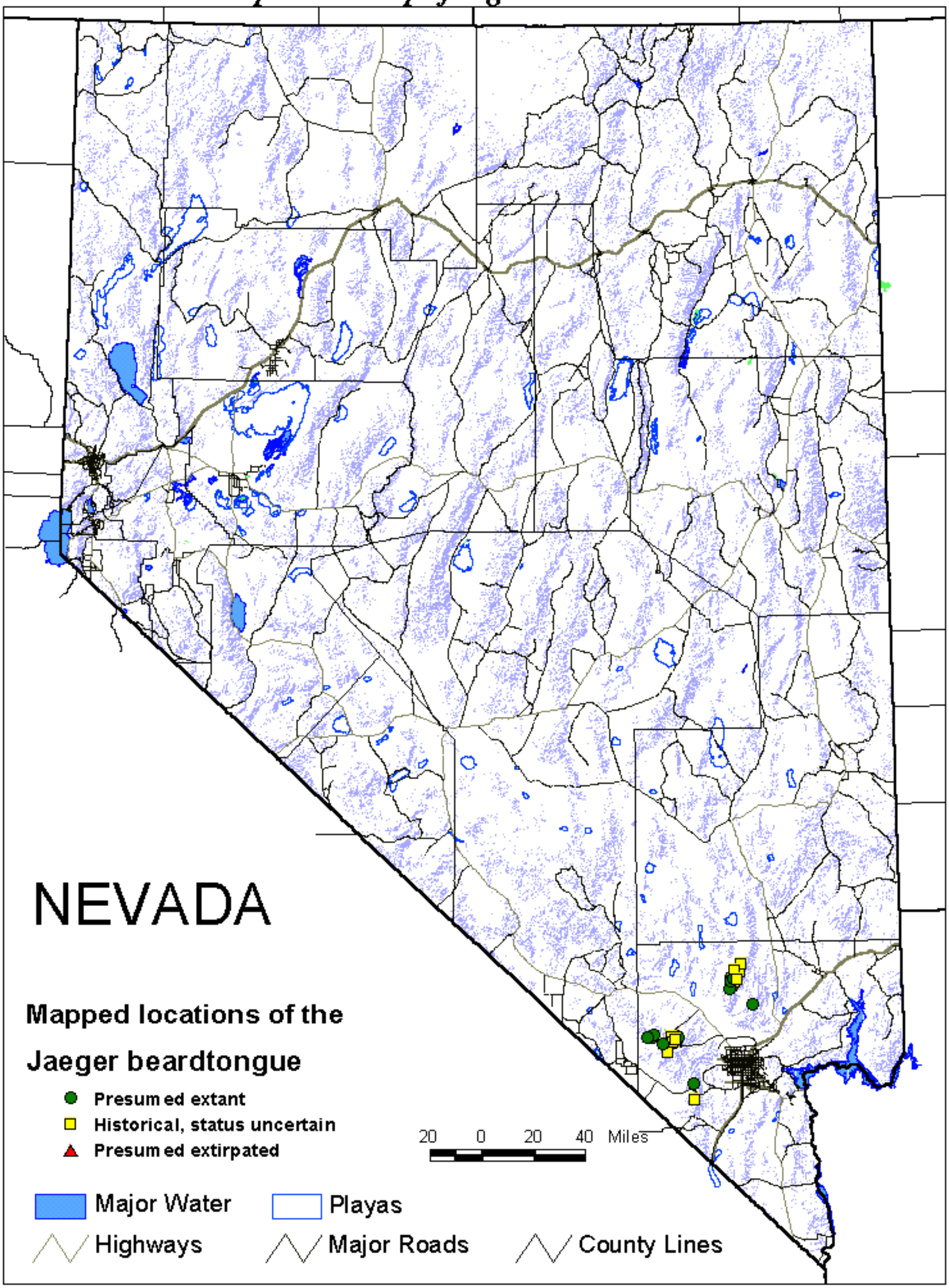
LIFE-FORM AND HABIT: robust perennial herb.

DESCRIPTION: A robust perennial herb, 5-12 dm tall, with large, showy, deep pink flowers with white throats. Blooms June-August.

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: Cronquist et al. (1984), Mozingo and Williams (1980).
SPECIFIC REFERENCES:

Keck, D. D. 1937. Studies in Penstemon V. The section Peltanthera. American Midland Naturalist 18: 790-829.

Penstemon thompsoniae ssp. jaegeri



Penstemon thompsoniae (A. Gray) Rydberg **ssp. *jaegeri*** Keck **JAEGER BEARDTONGUE**

FAMILY: *Scrophulariaceae*, the figwort family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4 T2 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 24 occurrences mapped at 1.0 km (0.6 mi) separation, OR **27 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Most recent entered survey 1998, average year of last survey 1967.
Years since last entered survey (percent of mapped records at various survey ages)**: 0-5 yrs:** 3.7%; **6-10 yrs:** 22.2%; **21-30 yrs:** 29.6%; **31-50 yrs:** 11.1%; **51+ yrs or unknown:** 33.3%.

LAND MANAGEMENT in decreasing predominance: U. S. Fish and Wildlife Service, Humboldt-Toiyabe National Forest, designated wilderness, U. S. Bureau of Land Management, private lands, Nevada state lands (?).

RANGE: Clark County, Nevada. Spring Mountains, east to the Sheep Range, in southern Nevada (Nachlinger, 1998). **Nevada endemic.** Maximum **range dimension 80.8 km (50.2 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 5577-11060 feet (1700-3371 meters).

HABITAT: Gravelly limestone soils on knolls and slopes, in drainages, and under conifers, from the pinyon-juniper to the subalpine conifer zones, with Pinus spp., Juniperus osteosperma, Artemisia spp., Cercocarpus, Phlox condensata, Lesquerella hitchcockii, Townsendia jonesii var. tumulosa, Erigeron clokeyi, Salvia dorrii, etc.

PHENOLOGY: flowering late-spring to summer, from end of May to August. Range of most frequent **survey months:** May-July.

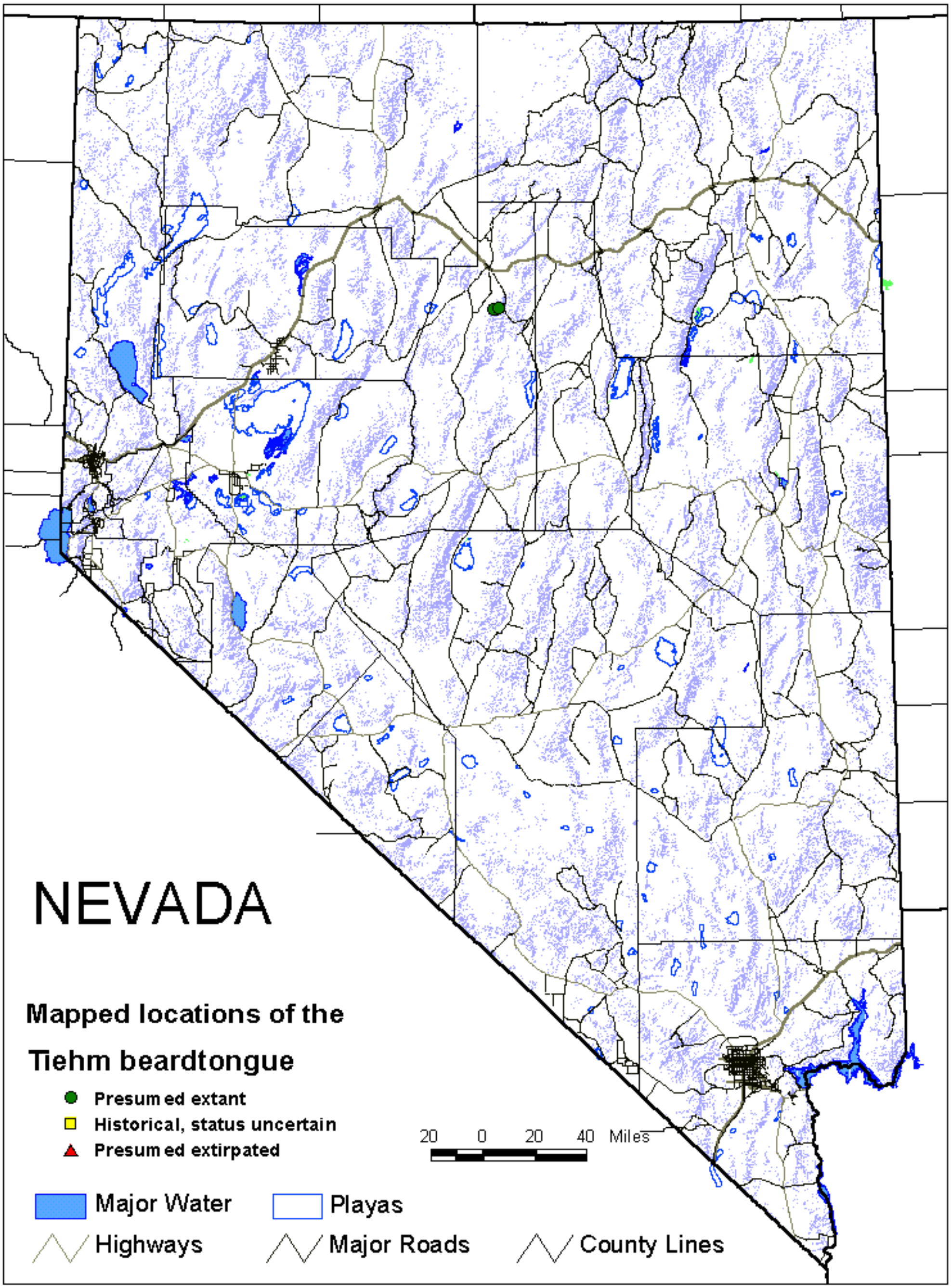
LIFE-FORM AND HABIT: matted semi-woody perennial herb.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nevada Natural Heritage Program files.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Ackerman (1981), Clokey (1951), Nachlinger (1994), Niles et al. (1998).

OF FURTHER INTEREST: Few stems, prostrate to ascending from woody caudex, forming low mats. Corolla Blue-Violet, 12-14 mm long.

Penstemon tiehmii



Penstemon tiehmii N. Holmgren (1998) TIEHM BEARDTONGUE

FAMILY: *Scrophulariaceae*, the figwort family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 3 occurrences mapped; total estimated **individuals 750**, total estimated **area unknown**.
TREND: unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: More survey work. Most recent entered survey 1987, average year of last survey 1987.
Years since last entered survey (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, private lands.

RANGE: Lander County, Nevada. Very narrow endemic. Found only near one mountain peak and in a canyon leading to the west. Maximum **range dimension 3.5 km (2.2 mi)**. **Type specimen** collected in Lander County.

ELEVATIONS RECORDED: 7500-9600 feet (2286-2926 meters).

HABITAT: Neutral sandy-loam soil pockets on steep, southerly-facing volcanic talus and scree slopes.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-July.

LIFE-FORM AND HABIT: rhizomatous perennial herb.

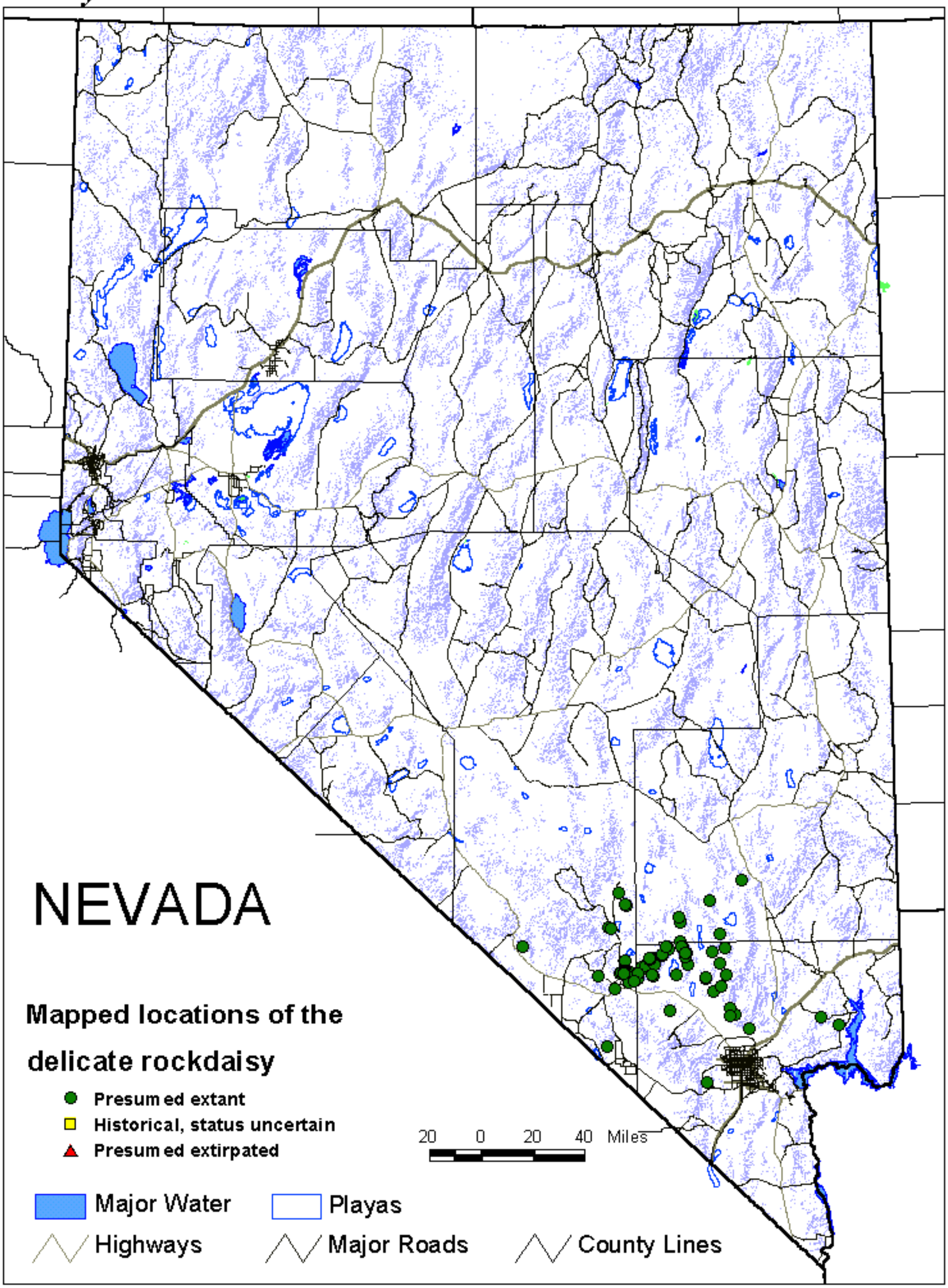
DESCRIPTION: Rhizomatous perennial herb 1-2 dm tall from a deeply buried taproot, with purple tubular flowers 15-20 mm long. **Distinguishing features:** Distinguished from P. kingii by rhizomatous habit, mostly petiolate leaves, and different pubescence.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Holmgren (1998).
SPECIFIC REFERENCES:

Holmgren, N. H. 1998. Two new species of Penstemon (Scrophulariaceae: sect. Saccanthera) from Nevada, U. S. A. Brittonia 50: 159-164.

OF FURTHER INTEREST: Newly discovered species published in Brittonia 50(2),1998, pp. 159-164. Endemic to Nevada.

Perityle intricata



Perityle intricata (Brandegee) DELICATE ROCKDAISY

FAMILY: *Asteraceae*, the sunflower family.

SYNONYMS: *Perityle megalocephala* var. *intricata*
Laphamia megacephala ssp. *intricata*
Perityle megalocephala var. *oligophylla* (?)

STATUS: **Heritage Program WATCH LIST, ranks: G3Q S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 58 occurrences mapped at 1.0 km (0.6 mi) separation, OR **84 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 26,000+**, total estimated **area 122+ ha (301+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Habitat relatively invulnerable.

INVENTORY EFFORT: Surveys in Nevada have been extensive but likely remain incomplete. Most recent entered survey 1993, average year of last survey 1984. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 51.2%; **11-20 yrs:** 6%; **21-30 yrs:** 27.4%; **31-50 yrs:** 15.5%.

LAND MANAGEMENT in decreasing predominance: U. S. Fish and Wildlife Service, U. S. Department of Defense, U. S. Department of Energy, U. S. Bureau of Land Management, private lands, National Park Service, Nevada state lands (?).

RANGE: Clark, Lincoln, and Nye counties, Nevada; also in CA (?). Possible or probable **Nevada endemic.** Maximum **range dimension 160.0 km (99.4 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED (NEVADA): 2620-6000 feet (799-1829 meters).

HABITAT: Crevices and rubble of carbonate outcrops in the shadscale, blackbrush, and mixed-shrub zones.

PHENOLOGY: flowering late-spring to early-fall. Range of most frequent **survey months:** January-December.

LIFE-FORM AND HABIT: subshrub.

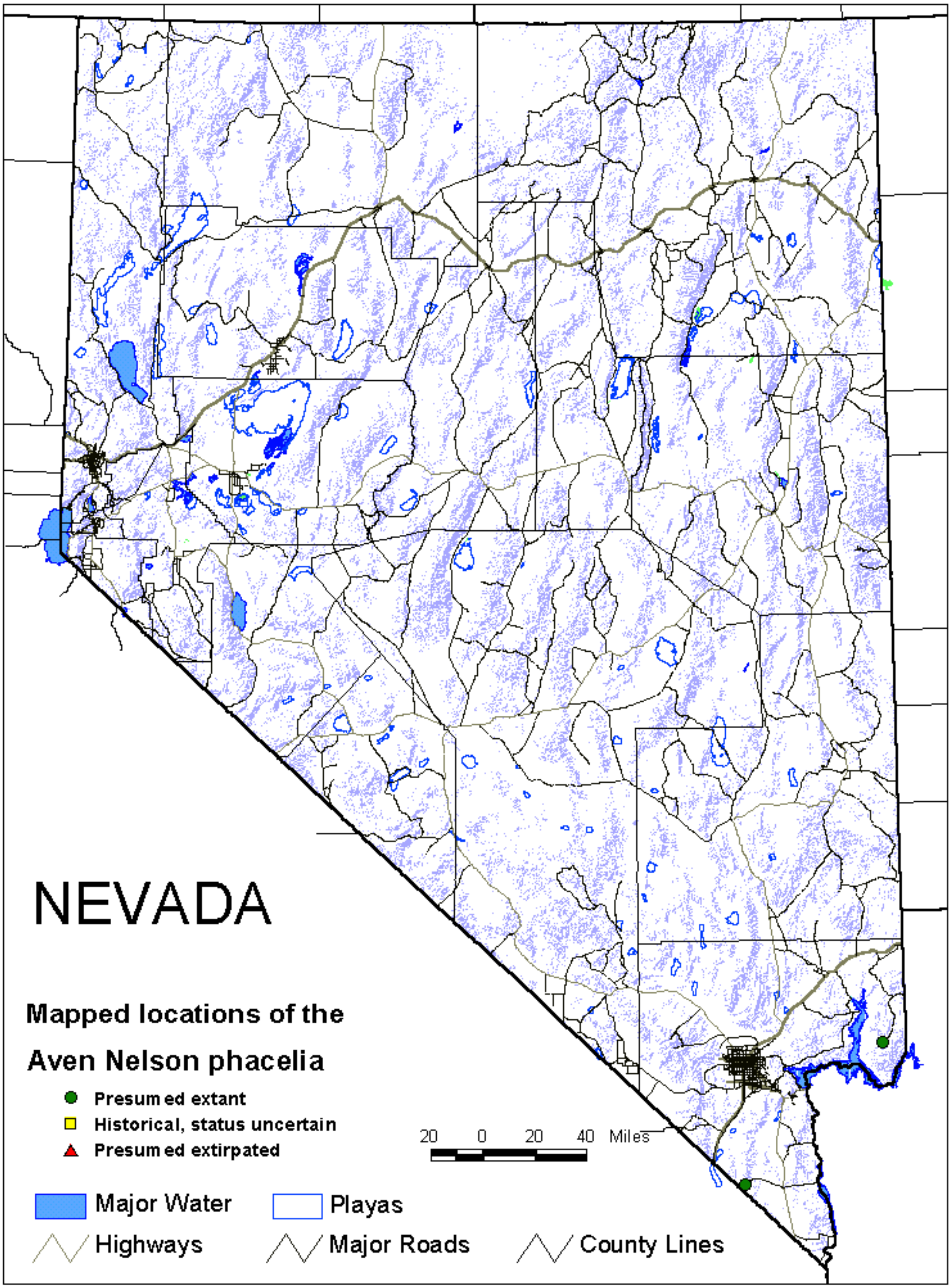
DESCRIPTION: not available (see references).

PHOTOGRAPHS: Knight and Smith (1994).
ILLUSTRATIONS: Cronquist (1994), Niles (1970).
OTHER GENERAL REFERENCES (listed separately): Ackerman (1981), Beatley (1976), Beatley (1977), Beatley (1977), Cochrane (1979), Hickman (1993).
SPECIFIC REFERENCES:

Brandegee, T. S. 1899. New species of western plants. Botanical Gazette 27: 444-457.
Niles, W. E. 1970. Taxonomic investigations in the genera Perityle and Laphamia (Compositae). Memoirs of the New York Botanical Garden 21: 1-82.

OF FURTHER INTEREST: Plants reported as Laphamia megalocephala var. intricata in California are said to be Perityle megalocephala var. oligophylla instead (Hickman 1993, p. 324). Intermountain Flora (Cronquist et al. 1994) reports a single occurrence of Perityle intricata in the Clark Mountains of northeastern San Bernardino County, California. Its status in California remains uncertain.

Phacelia anelsonii



Phacelia anelsonii J. F. Macbride — AVEN NELSON PHACELIA

FAMILY: *Hydrophyllaceae*, the waterleaf family.

STATUS: **Heritage Program WATCH LIST, ranks: G2G3 S1S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 2 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1998, average year of last survey 1997. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands (?).

RANGE: Clark, Lincoln, and Nye counties, Nevada; also in CA and UT. Maximum Nevada **range dimension 123.7 km (76.8 mi)**.

ELEVATIONS RECORDED (NEVADA): 4200-5020 feet (1280-1530 meters).

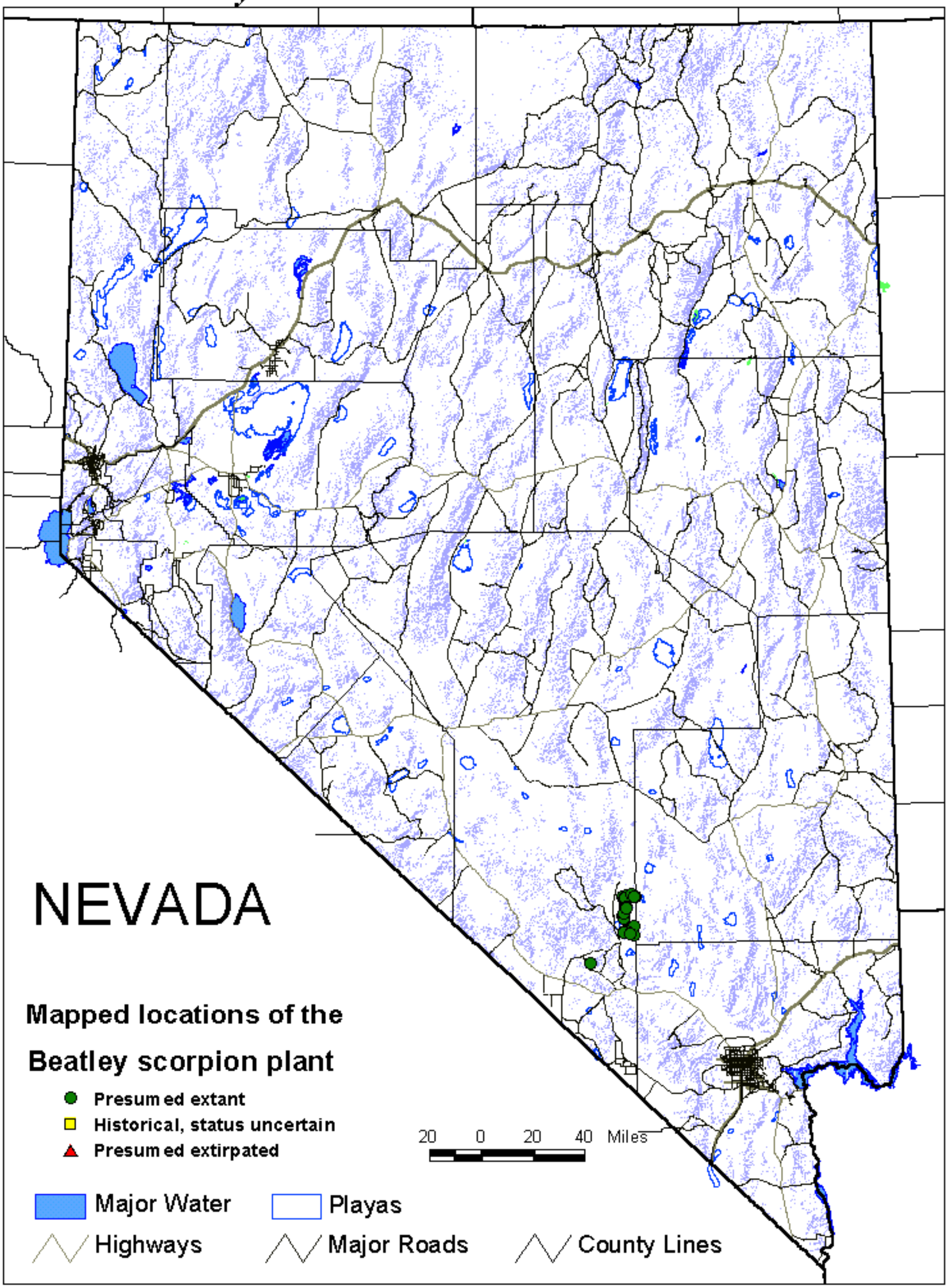
HABITAT (not yet reviewed for Nevada): "Mostly in sheltered places, as along the northern side of cliffs and ledges, in rocky or sandy or gravelly soil, at elevations of up to 1500 m (Cronquist, Holmgren, Holmgren, Reveal, and Holmgren 1984)."

PHENOLOGY: no summary available. Range of most frequent **survey months:** May.

DESCRIPTION: Erect annual with a brownish, glandular pubescence and violet flowers (Mozingo and Williams 1980).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist et al. (1984), Mozingo and Williams (1980), Niles et al. (1997), Welsh (1979).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Hickman (1993), Niles et al. (1998), Stone (1998).

Phacelia beatleyae



Phacelia beatleyae Reveal & Constance (1972) **BEATLEY SCORPION PLANT**

FAMILY: *Hydrophyllaceae*, the waterleaf family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 15 occurrences mapped at 1.0 km (0.6 mi) separation, OR **25 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 40,000+**, total estimated **area 482+ ha (1191+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Loose substrate, engineering activities, consumption of seeds by wildlife.

INVENTORY EFFORT: Surveys have been fairly extensive, but more undocumented occurrences likely remain to be found. Most recent entered survey 1993, average year of last survey 1989. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 76%; **21-30 yrs:** 24%.

LAND MANAGEMENT in decreasing predominance: U. S. Department of Energy, U. S. Department of Defense, U. S. Fish and Wildlife Service, U. S. Bureau of Land Management (?).

RANGE: Lincoln and Nye counties, Nevada. **Nevada endemic.** Maximum **range dimension 25.3 km (15.7 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 3540-5500 feet (1079-1676 meters).

HABITAT: Dry, open, nearly barren scree and loose gravelly soils on slopes and bases of white to brownish volcanic tuff outcrops on all slopes and aspects, and in adjacent drainages, in the mixed-shrub, blackbrush, shadscale, and upper creosote-bursage zones.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-July.

LIFE-FORM AND HABIT: small annual.

DESCRIPTION: An annual herb, 5-10 cm tall, with a reddish stem and slightly fleshy, dark green leaves. Flowers (April and May) are borne on one side of a coiled flowering stalk. The petals are lavender with a yellow, tubular base. **Distinguishing features:** Might be confused with Phacelia parishii, and undescribed Phacelia, and other similar species on casual inspection.

PHOTOGRAPHS: Blomquist et al. (1995), Knight and Smith (1995), Knight et al. (1997); Nevada Natural Heritage Program files.

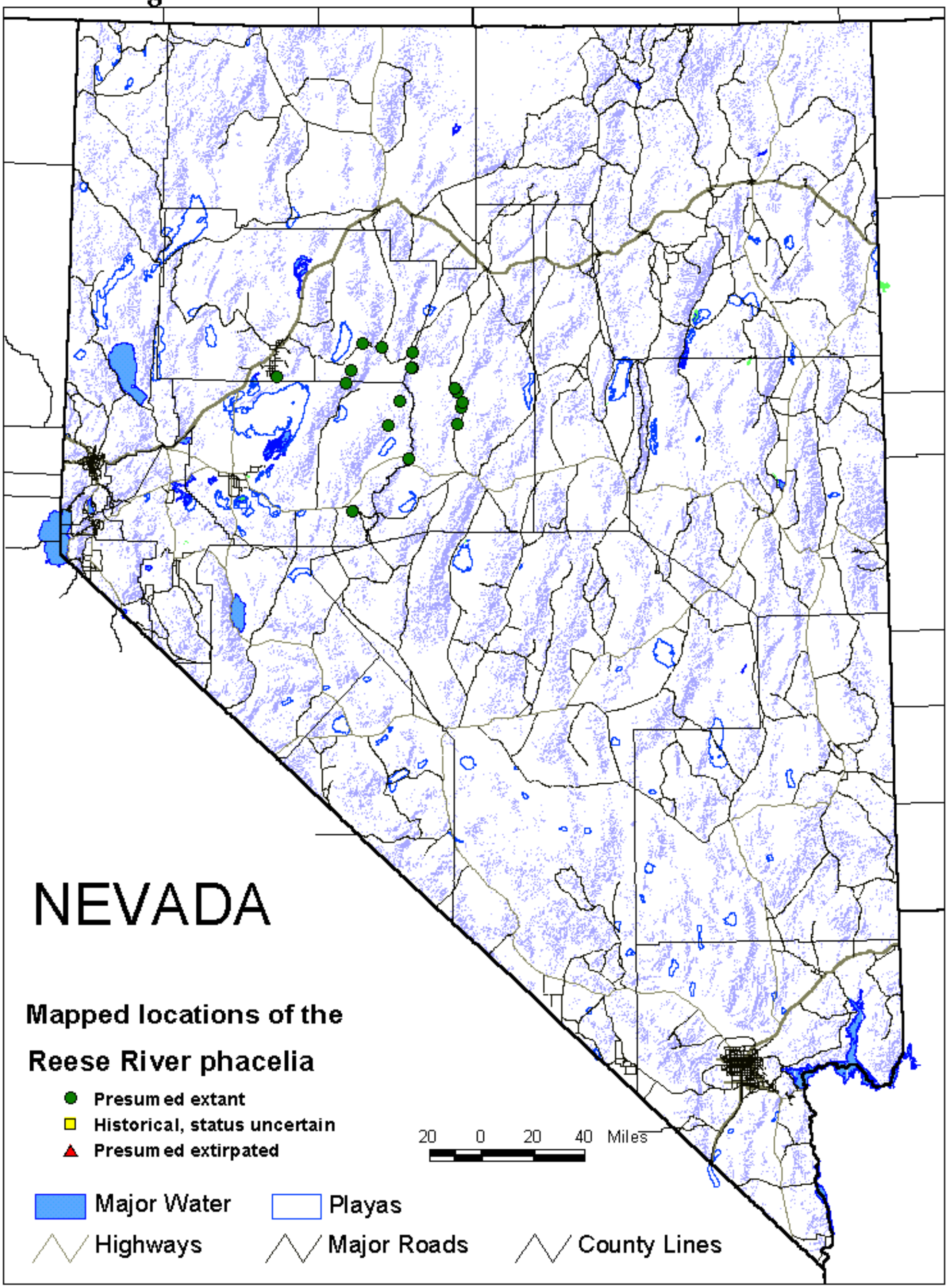
ILLUSTRATIONS: Cronquist et al. (1984), Mozingo and Williams (1980), Reveal and Constance (1972).

OTHER GENERAL REFERENCES (listed separately): Ackerman (1981), Beatley (1976), Beatley (1977), Cochrane (1979), Rhoads et al. (1979).

SPECIFIC REFERENCES:

Henifin, M. S. 1978. Status report for Phacelia beatleyae. Portland, Oregon: U. S. Fish and Wildlife Service.
Reveal, J. L. and L. Constance. 1972. A new Phacelia (Hydrophyllaceae) from southern Nevada. Brittonia 24: 199-201.

Phacelia glaberrima



Phacelia glaberrima (Torrey ex S. Watson [1871]) J. T. Howell — REESE RIVER PHACELIA

FAMILY: *Hydrophyllaceae*, the waterleaf family. **SYNONYMS:** *Miltitzia glaberrima*

STATUS: **Heritage Program WATCH LIST, ranks: G3? S3?**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 16 occurrences mapped at 1.0 km (0.6 mi) separation, OR **18 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 4560+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Systematic surveys have not yet been conducted. Known only from specimens. Most recent entered survey 1988, average year of last survey 1972. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 15.8%; **21-30 yrs:** 73.7%; **51+ yrs or unknown:** 10.5%.

LAND MANAGEMENT: U. S. Bureau of Land Management.

RANGE: Churchill, Lander, Lincoln, Mineral, and Pershing counties, Nevada. **Nevada endemic.** Maximum **range dimension 105.9 km (65.8 mi)** excluding most disjunct record. **Type specimen** collected in Lander County.

ELEVATIONS RECORDED: 4000-6000 feet (1219-1829 meters).

HABITAT: Open, dry to moist, alkaline, nearly barren, sometimes scree-covered, whitish to brownish shrink-swell clay soils derived from fluviolacustrine volcanic ash and tuff deposits, generally on the steeper slopes of low hills, bluffs, and badlands in the shadscale-greasewood, sagebrush, and lower pinyon-juniper zones with Atriplex confertifolia, A. canescens, Artemisia tridentata, Sarcobatus vermiculatus, Tetradymia, Phacelia gymnoclada, Cleomella, etc.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

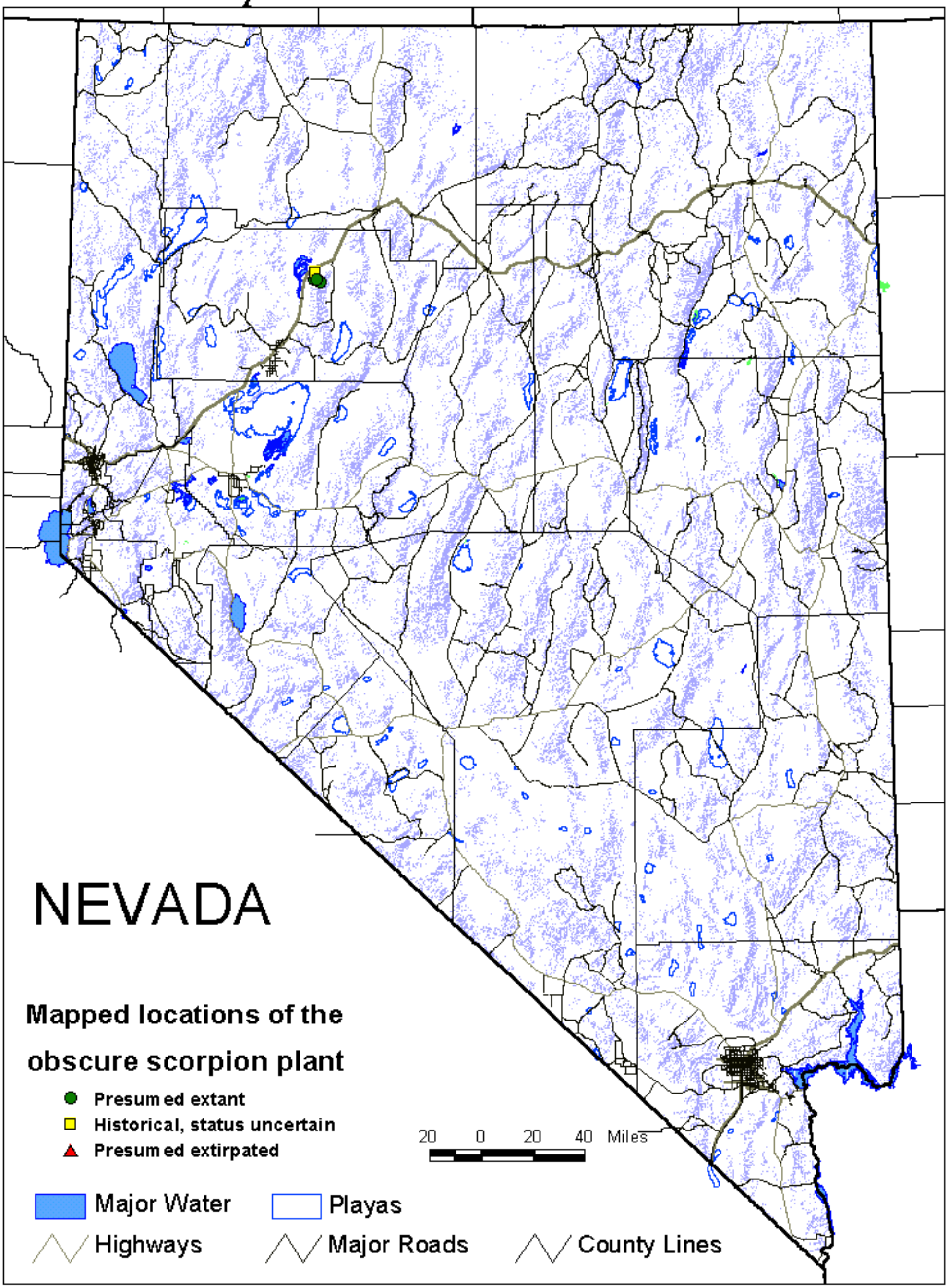
LIFE-FORM AND HABIT: small annual.

DESCRIPTION: An annual herb with several spreading stems up to 2 dm long. Leaves are somewhat succulent. Clusters of lemon-yellow flowers bloom in May and June.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist et al. (1984), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Goodrich (1981).
SPECIFIC REFERENCES:

Halse, R. R. 1981. Taxonomy of Phacelia section Miltitzia (Hydrophyllaceae). Madroño 28: 121-132.
Howell, J. T. 1944. A reconsideration of the genus Miltitzia. Leaflets of Western Botany 4: 12-16.
Watson, S. 1871. Botany. In: C. King, Report of the U. S. Geological Exploration of the 40th Parallel. 5: 1-525.
Williams, M. 1978. Status report on Astragalus lentiginosus var. sesquimetralis. Portland, Oregon: U. S. Fish and Wildlife Service.

Phacelia inconspicua



Phacelia inconspicua E. Greene — OBSCURE SCORPION PLANT

FAMILY: *Hydrophyllaceae*, the waterleaf family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species in Nevada. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** ENDANGERED.

POPULATION CENSUS (NEVADA): 4 occurrences mapped; total estimated **individuals 3713+**, total estimated **area 14.4+ ha (35.6+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Vulnerable to mineral exploration and development, fire suppression and catastrophic fire, competition with invasive weeds, concentrated trampling by livestock and feral horses.

INVENTORY EFFORT (NEVADA): Systematic surveys have been performed, but much potential habitat north and east of the Humboldt Range remains to be searched in Nevada. Most recent entered survey 1995, average year of last survey 1995. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands.

RANGE: Pershing County, Nevada; also in ID. In Nevada known only from the northern Humboldt Range. Maximum Nevada **range dimension 4.4 km (2.7 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 5000-8280 feet (1524-2524 meters).

HABITAT (NEVADA): Relatively deep, undisturbed, organic-rich soils on fairly steep, concave, N- to NE-facing slopes where snow drifts persist well into spring, on small, otherwise barren soil terraces in small clearings in shrub fields dominated by Artemisia tridentata vaseyana in association with Holodiscus microphyllus, Symphoricarpos rotundifolius, and Leymus cinereus.

PHENOLOGY: flowering late-spring, Depending on elevation and moisture, flowering probably begins sometime between late May and late June and continues sporadically into July. The fruit probably mature by 2-3 weeks after flowering, betwen early June and early August. Range of most frequent **survey months:** June-July.

LIFE-FORM AND HABIT: annual.

DESCRIPTION: An annual herb, 0.5-2 dm tall. Herbage is covered with hairs. Congested clusters of small pale blue or whitish flowers bloom June-July. **Distinguishing features:** In P. inconspicua all hairs are non-glandular, the inflorescences are ebracteate and exceeded by the subtending leaves, the stamens are shortly exserted, and the fruits produce only 2 or 4 seeds. Similar to P. austromontana, P. humilis, and P. minutissima. P. inconspicua has flowers that are smaller than those of P. humilis; P. austromontana has a generally more southern distribution, is glandular, and usually has at least some leaves with 1-2 lobes; P. minutissima is also glandular, has leafy inflorescences longer than the subtending leaves, well-included stamens, and produces as many as a dozen seeds per capsule.

PHOTOGRAPHS: Holland (1996); Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: Cronquist et al. (1984), Mozingo and Williams (1980).
SPECIFIC REFERENCES:

Chatterley, M. 1980. Status report for Phacelia inconspicua. Portland, Oregon: U. S. Fish and Wildlife Service.

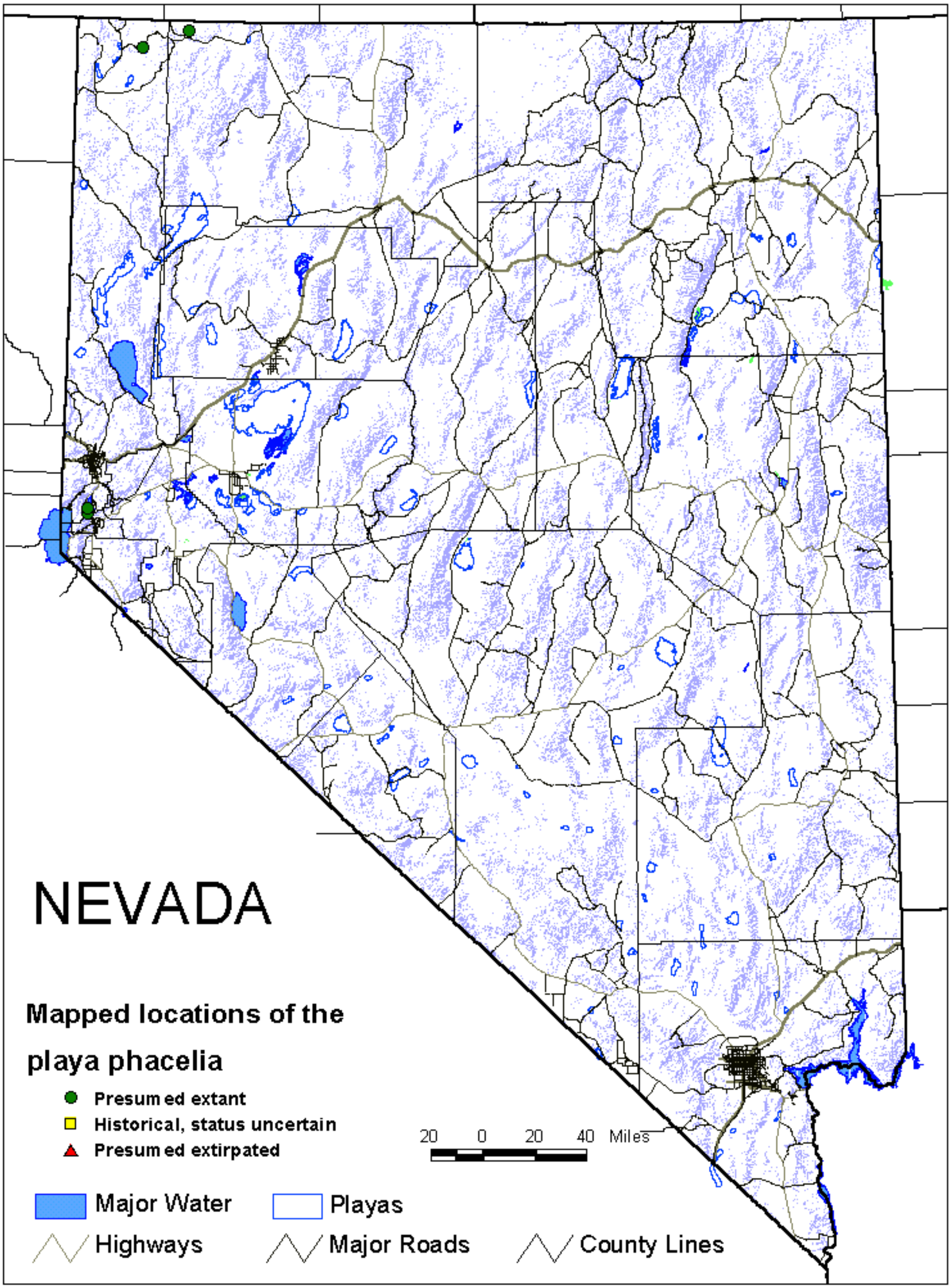
Holland, R. F. 1996. Current knowledge and conservation status of Phacelia inconspicua E. Greene (Hydrophyllaceae), the obscure scorpion plant, in Nevada. Carson City: Nevada Natural Heritage Program, status report prepared for the U. S. Fish and Wildlife Service, Reno.

Howell, J. T. 1943. Studies in Phacelia - A revision of species related to P. pulchella and P. rotundifolia. American Midland Naturalist 29: 1-26.

Tiehm, A. 1981. Status report on Phacelia inconspicua. Portland, Oregon: U. S. Fish and Wildlife Service.

Tiehm, A. 1989. Proposed threatened and endangered plants of the Humboldt Range, Pershing County, Nevada. Carson City: Nevada Natural Heritage Program.

Phacelia inundata



Phacelia inundata J. T. Howell — PLAYA PHACELIA

FAMILY: *Hydrophyllaceae*, the waterleaf family. **SYNONYMS:** *Miltitzia parviflora*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2?**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Region 5 (California) Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 4 occurrences mapped; total estimated **individuals 503+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1978, average year of last survey 1977. **Years since last entered survey** (percent of mapped records at various survey ages)**: 21-30 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Fish and Wildlife Service, private lands, Nevada state lands (?).

RANGE: Humboldt and Washoe counties, Nevada; also in CA and OR. Maximum Nevada **range dimension 292.2 km (181.6 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 5030-5640 feet (1533-1719 meters).

HABITAT (not yet reviewed for Nevada): "This species grows in alkali playas and seasonally inundated areas with clay soils." Aquatic or wetland-dependent in Nevada.

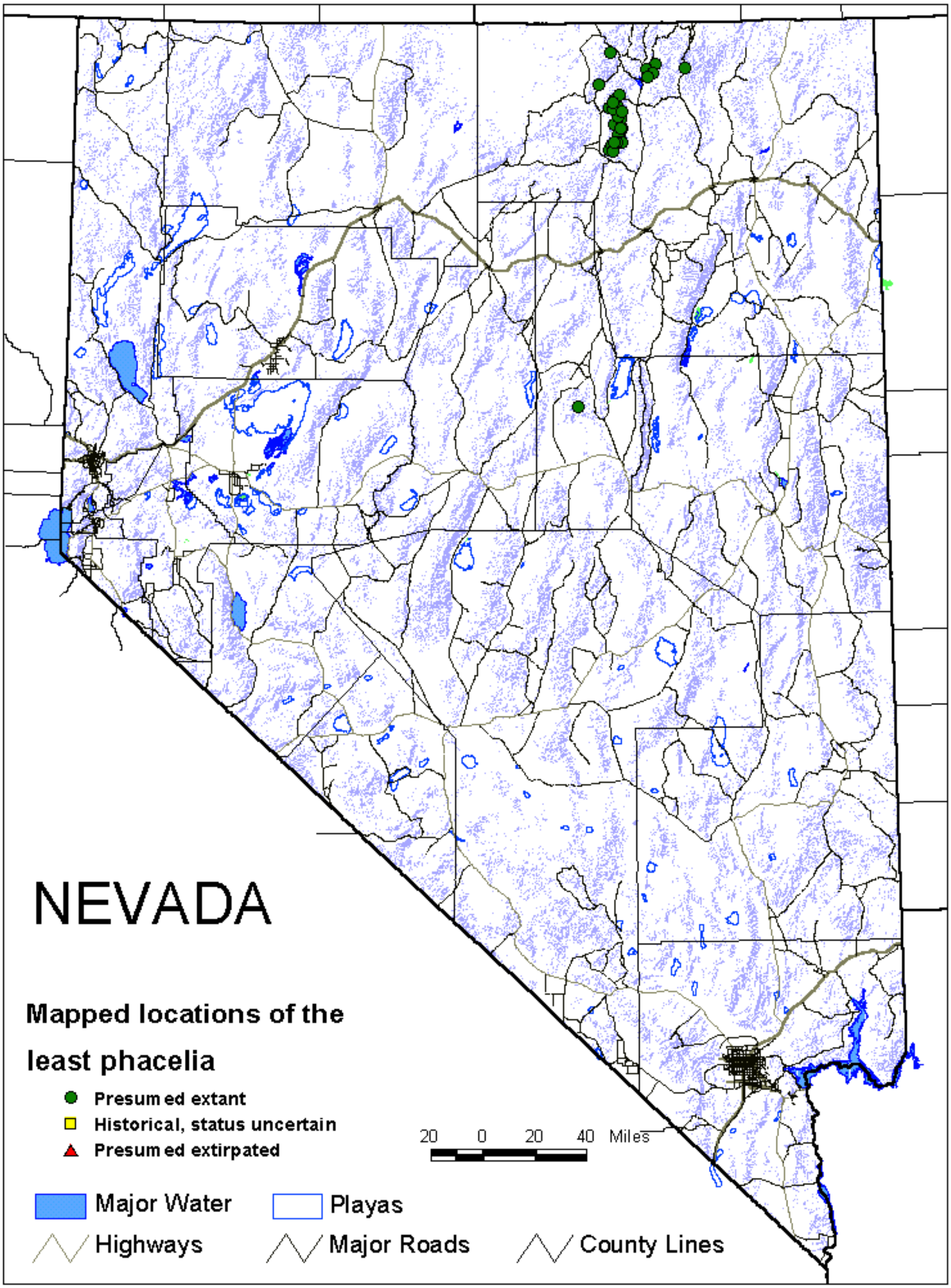
PHENOLOGY: no summary available. Range of most frequent **survey months:** June-August.

DESCRIPTION: Annual, dicot plant, about 4"-16" tall with yellow, bell-shaped flowers.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist et al. (1984).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993).
SPECIFIC REFERENCES:

Halse, R. R. 1981. Taxonomy of Phacelia section Miltitzia (Hydrophyllaceae). Madroño 28: 121-132.

Phacelia minutissima



Phacelia minutissima Henderson (1900) LEAST PHACELIA

FAMILY: *Hydrophyllaceae*, the waterleaf family. **SYNONYMS:** *Phacelia foliosepala*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 30 occurrences mapped at 1.0 km (0.6 mi) separation, OR **39 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 28,000+**, total estimated **area 46.4+ ha (115+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Mineral exploration and development, livestock trampling, water developments and diversions, competition with invasive weeds.

INVENTORY EFFORT (NEVADA): Surveys in Nevada have been locally extensive, but likely remain very incomplete. Most recent entered survey 1997, average year of last survey 1993. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 56.4%; **6-10 yrs:** 35.9%; **11-20 yrs:** 2.6%; **21-30 yrs:** 2.6%; **51+ yrs or unknown:** 2.6%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, private lands, U. S. Bureau of Land Management.

RANGE: Elko and Eureka counties, Nevada; also in ID, OR (extirpated), and WA. Maximum Nevada **range dimension 69.2 km (43.0 mi)** excluding most disjunct record. **Type specimen** collected in Idaho, Blaine (camas) co.

ELEVATIONS RECORDED (NEVADA): 6240-8900 feet (1902-2713 meters).

HABITAT (NEVADA): Vernally saturated, summer-drying, sparsely vegetated, partially shaded to fully exposed areas of bare soil and mud banks in meadows, at perimeters of Veratrum californicum (corn lily), Wyethia amplexicaulis, and/or Populus tremuloides (aspen) stands, in sagebrush swales, along creek bed high-water lines, or around springs, in flat to gently sloping areas. Aquatic or wetland-dependent in Nevada.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** July-August.

LIFE-FORM AND HABIT: small annual.

DESCRIPTION: A dwarf, branching annual to 10 cm tall, with hairs on the herbage that are stipitate and glandular. The inflorescence is a helicoid cyme, meaning it uncurls like a fiddle neck. The small flowers are lavender, 2.4-4 mm long, surrounded by calyx segments that elongate unequally in fruit. The leaves are linear-oblong to oblanceolate, 10mm long by up to 4 mm wide (Brooks et al. 1991). **Distinguishing features:** The unequal calyx segments are the most distinctive feature of this plant.

PHOTOGRAPHS: Smith and Curto (1995); Nevada Natural Heritage Program images web page (1998-present) and slide collection (1986-present).
ILLUSTRATIONS: Cronquist et al. (1984), Hitchcock and Cronquist (1973), Hitchcock et al. (1959).
OTHER GENERAL REFERENCES (listed separately): Kartesz (1987), Peck (1961).
SPECIFIC REFERENCES:

Curto, M. and F. J. Smith. 1996. Initiation of a long-term least phacelia (Phacelia minutissima) census within the Humboldt National Forest, Elko County, NV. Elko, Nevada: U. S. Department of Agriculture, Humboldt-Toiyabe National Forest.

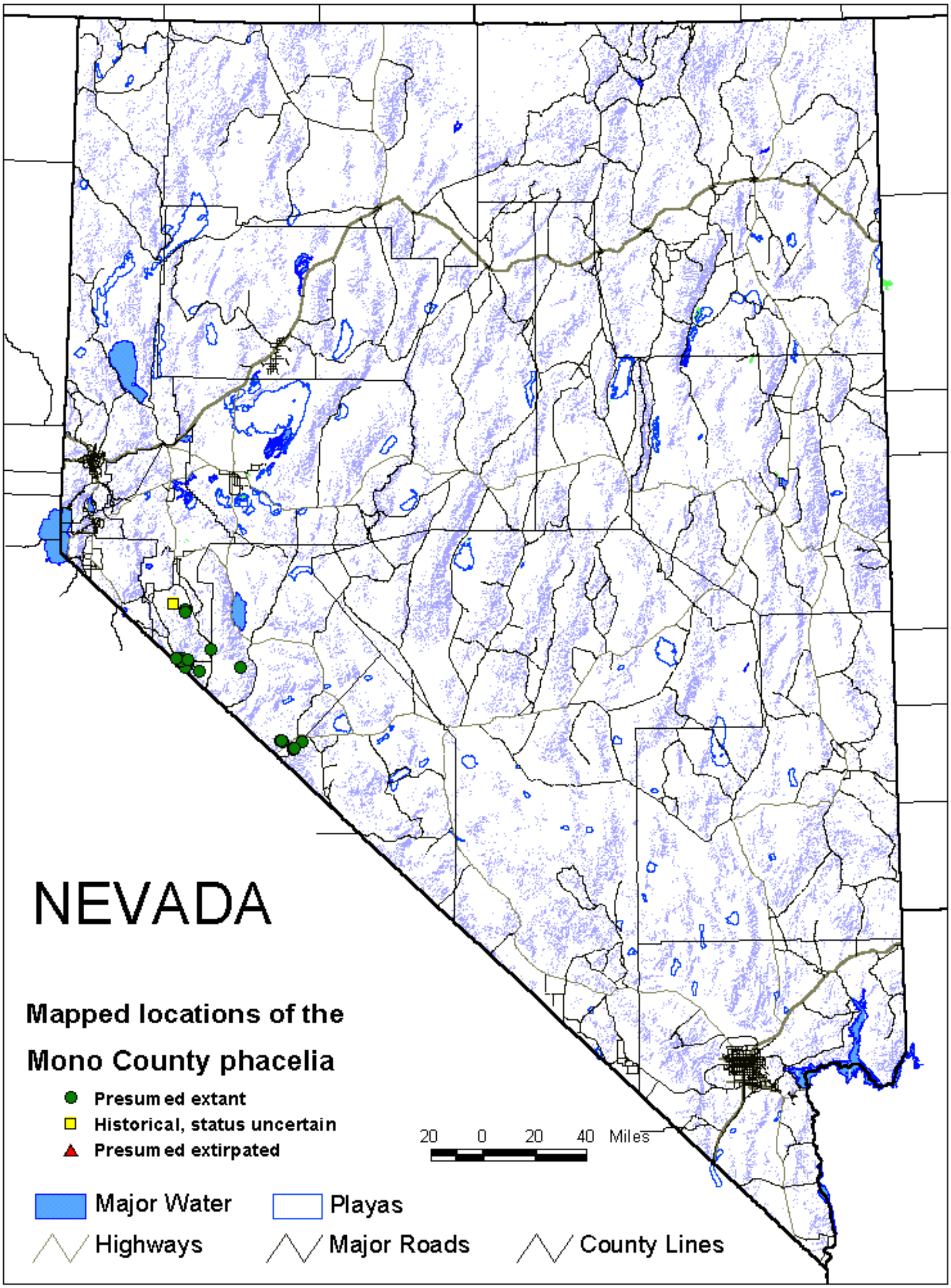
Frank, C. A., and Greystone. 1998. Sensitive plant surveys: Independence Mining Company, Inc., Elko County, Nevada, July 1997. Greenwood Village, Colorado: Greystone, prepared for Independence Mining Company, Inc., Elko, Nevada.

Henderson, L. F. 1900. New plants from Idaho and from other localities of the Northwest. Bulletin of the Torrey Botanical Club 27: 342-359.

Moseley, R. K. 1995. Conservation status of least phacelia (Phacelia minutissima). Boise: Idaho Conservation Data Center, Department of Fish and Game, prepared for the Bureau of Land Management, Boise District. 16 pages plus appendices.

Steele, B., F. Johnson, and S. Brunsfield (editors). 1981. Vascular plant species of concern in Idaho. Moscow, Idaho: Forest, Wildlife and Range Experiment Station. 161 pages.

Phacelia monoensis



Phacelia monoensis Halse — MONO COUNTY PHACELIA

FAMILY: *Hydrophyllaceae*, the waterleaf family.

SYNONYMS: *Phacelia lutea* var. *scopulina* (in part)
Miltitzia scopulina (in part)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3Q S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada and California. **USFS:** Humboldt-Toiyabe NF and Inyo NF Sensitive Species. **NNNPS:** THREATENED.

POPULATION CENSUS (NEVADA): 13 occurrences mapped at 1.0 km (0.6 mi) separation, OR **28 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 10,000+**, total estimated **area 21.1+ ha (52.1+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Road construction and maintenance, mineral exploration and development. The species is unusual in its rarity and its primary adaptation to disturbance. The largest populations are found in and along roads cut through its habitat, which may have aided historically in dispersal and establishment of new populations. Because of its rarity, though, care must still be taken to avoid disturbances intensive or extensive enough to cause permanent impacts.

INVENTORY EFFORT (NEVADA): Surveys in Nevada have been locally extensive, but likely remain incomplete. Most recent entered survey 1993, average year of last survey 1986. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 89.3%; **31-50 yrs:** 3.6%; **51+ yrs or unknown:** 7.1%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, Inyo National Forest, private lands (?), U. S. Bureau of Land Management (?).

RANGE: Esmeralda, Lyon, and Mineral counties, Nevada; also in CA. Maximum Nevada **range dimension 116.8 km (72.6 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 5920-9055 feet (1804-2760 meters).

HABITAT (NEVADA): Alkaline, barren or sparsely vegetated grayish, brownish, or reddish shrink-swell clays of mostly andesitic origin, on various slopes and aspects, mostly on stabilized or low-intensity artificial or natural disturbances, most abundant on road berms that cross such soils, less frequently on naturally eroding badlands or apparently undisturbed soil, in the pinyon-juniper and mountain sagebrush zones, variously associated with Monolepis nuttalliana, Lappula redowskii, Navarretia breweri, Mentzelia albicaulis, Phacelia gymnoclada, Cleomella, Allium anceps, Phlox longifolia, Trifolium andersonii, Elymus elymoides, Atriplex, Artemisia tridentata vaseyana, Pinus monophylla, Juniperus osteosperma, Cercocarpus ledifolius intermontanus, etc.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: small annual.

DESCRIPTION: A prostrate annual herb, stems < 6 cm long. Entire plant covered with hairs, including the tiny yellow flowers that bloom May-July.

PHOTOGRAPHS: Morefield (1994), Weixelman and Atwood (1990); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Cronquist et al. (1984), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993), Spahr et al. (1991).
SPECIFIC REFERENCES:

Halse, R. R. 1980. Taxonomy of Phacelia section Miltitzia (Hydrophyllaceae). Corvallis: Oregon State University, doctoral dissertation.

Halse, R. R. 1981. Taxonomy of Phacelia section Miltitzia (Hydrophyllaceae). Madroño 28: 121-132.

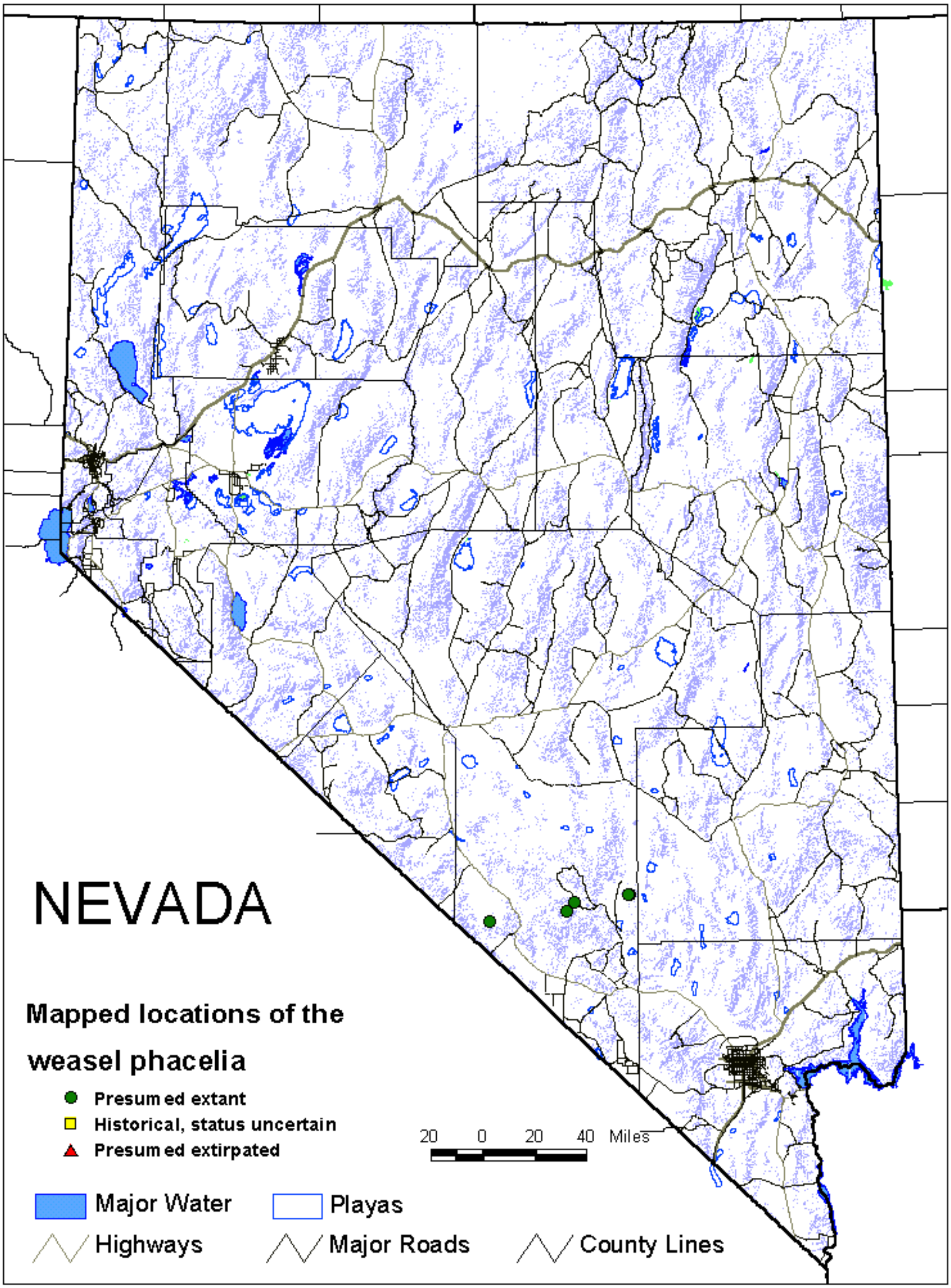
Howard, A. 1981. Comments re Phacelia monoensis from Alexander and Kellogg field books. Carson City: copy of one typewritten page in Nevada Natural Heritage Program files.

McCarten, N. F., M. Fogiel and R. Zebell. 1991. Rare plant survey for Phacelia monoensis, Streptanthus oliganthus and draba quadricostata in the Bridgeport Ranger District of the Toiyabe National Forest. Sparks, Nevada: Toiyabe National Forest.

Morefield, J. D. 1994. Current knowledge and conservation status of Arabis bodiensis Rollins (Brassicaceae), Bodie Hills rockcress, in Nevada. Carson City: Nevada Natural Heritage Program, status report prepared for the U. S. Fish and Wildlife Service, Reno.

Morefield, J. D. 1994. Status report for Phacelia monoensis Halse (1981). Carson City: Nevada Natural Heritage Program, prepared for the Inyo National Forest, Bishop, CA.

Phacelia mustelina



Phacelia mustelina Coville — WEASEL PHACELIA

FAMILY: *Hydrophyllaceae*, the waterleaf family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Inyo NF watch list. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 4 occurrences mapped at 1.0 km (0.6 mi) separation, OR **5 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area unknown**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1986, average year of last survey 1980. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 20%; **21-30 yrs:** 80%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Department of Energy, National Park Service, U. S. Department of Defense (?), U. S. Fish and Wildlife Service (?).

RANGE: Nye County, Nevada; also in CA. Maximum Nevada **range dimension 40.2 km (25.0 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 5000-5500 feet (1524-1676 meters).

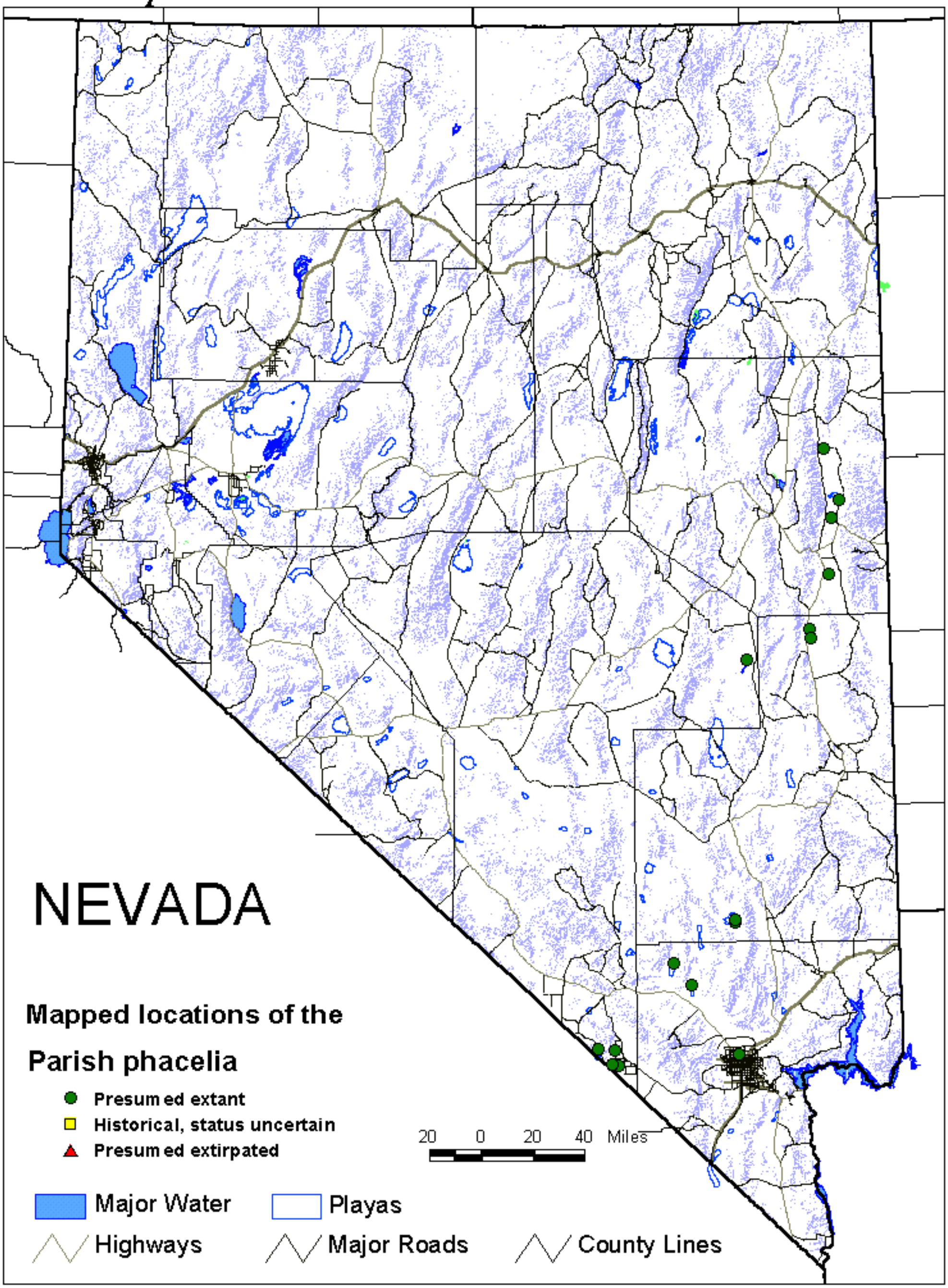
HABITAT (not yet reviewed for Nevada): "Mojavean desert scrub, pinyon and juniper woodland; carbonate or volcanic soils, gravelly or rocky (Skinner, 1997)."

PHENOLOGY: no summary available. Range of most frequent **survey months:** April.

DESCRIPTION: Annual plant, 6-30 cm tall; many-branched ascending to decumbent stems. Round, toothed leaves. Narrow, bell-shaped purple flowers 6-10 mm long.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: Cronquist et al. (1984).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Hickman (1993), Rhoads et al. (1979).

Phacelia parishii



Phacelia parishii A. Gray — PARISH PHACELIA

FAMILY: *Hydrophyllaceae*, the waterleaf family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 S2S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 16 occurrences mapped; total estimated **individuals 37,000,000+**, total estimated **area 1860+ ha (4596+ ac)**. **TREND:** DECLINING.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys in Nevada are largely complete. Most recent entered survey 1998, average year of last survey 1989. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 5.9%; **6-10 yrs:** 88.2%; **51+ yrs or unknown:** 5.9%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands, U. S. Fish and Wildlife Service, U. S. Department of Defense, Nevada state lands.

RANGE: Clark, Lincoln, Nye, and White Pine counties, Nevada; also in AZ and CA. Maximum Nevada **range dimension 378.7 km (235.3 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 2190-5922 feet (668-1805 meters).

HABITAT (NEVADA): Moist to superficially dry, open, flat to hummocky, mostly barren, often salt-crusted silty-clay soils on valley bottom flats, lake deposits, and playa edges, often near seepage areas, sometimes on gypsum deposits, surrounded by saltbush scrub vegetation but with few immediate associates such as Atriplex confertifolia, A. canescens, A. argentea, Poa secunda, Monolepis nuttalliana, Phacelia fremontii, Lepidium flavum, Sarcobatus vermiculatus, etc. Aquatic or wetland-dependent in Nevada.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** April-August.

LIFE-FORM AND HABIT: small annual.

DESCRIPTION: not available (see references).

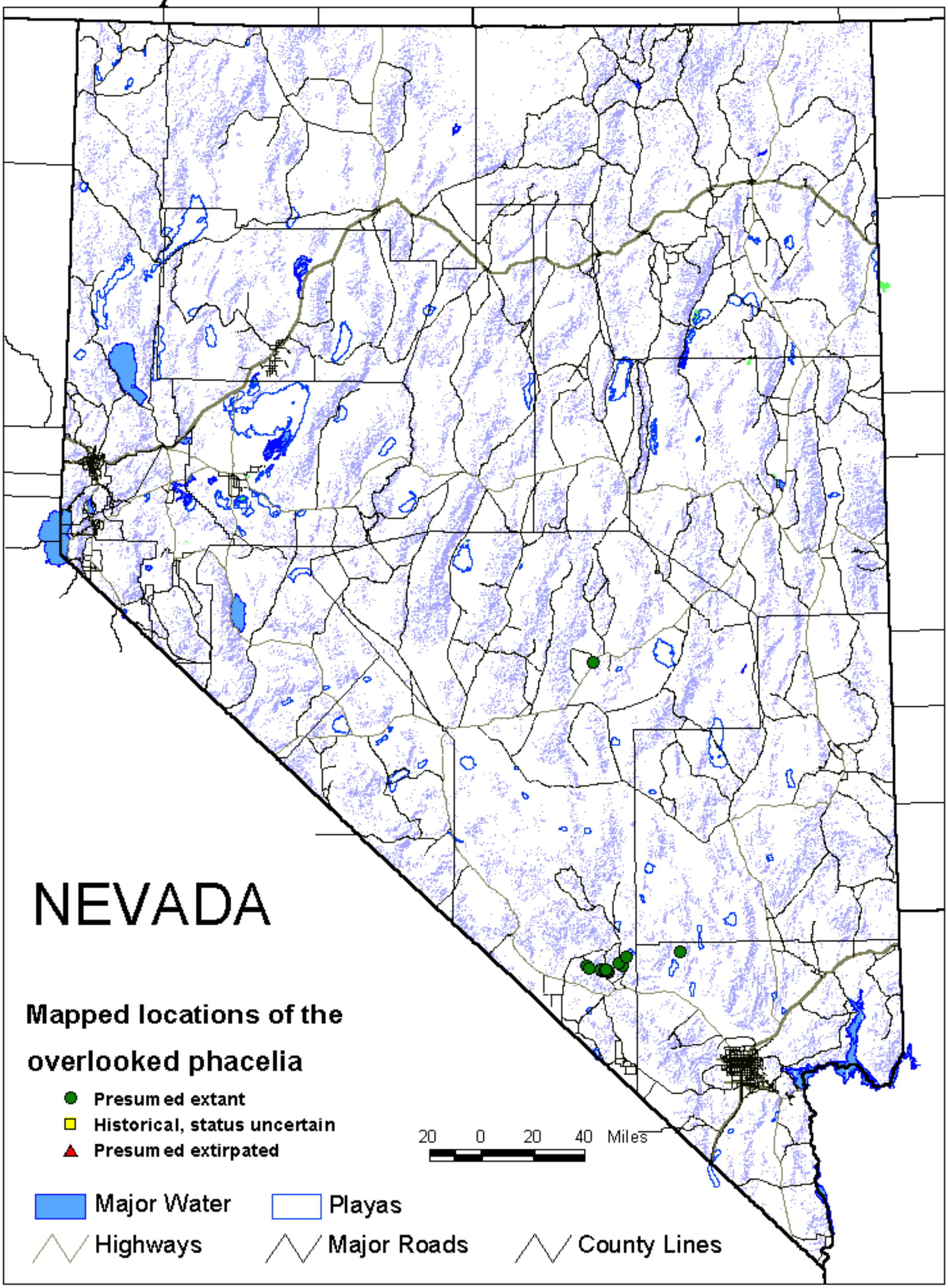
PHOTOGRAPHS: Blomquist et al. (1995), Knight and Smith (1996), Knight et al. (1997), Smith (1997); Nevada Natural Heritage Program files.
ILLUSTRATIONS: Cronquist et al. (1984).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Cochrane (1979), Hickman (1993), Niles et al. (1998).
SPECIFIC REFERENCES:

Harrison, B. F. 1980. Botanical survey of threatened and endangered plants Schell Resource Area. Ely, Nevada: Bureau of Land Management.

Howell, J. T. 1943. Studies in Phacelia - A revision of species related to P. pulchella and P. rotundifolia. American Midland Naturalist 29: 1-26.

Smith, F. 1997. Current knowledge and conservation status of Phacelia parishii A. Gray (Hydrophyllaceae) in Nevada, September 1996 (second draft 1/17/97). Carson City: Nevada Natural Heritage Program, DRAFT status report prepared for the U. S. Fish and Wildlife Service, Reno.

Phacelia sp.


NEVADA
Mapped locations of the overlooked phacelia
Presumed extant
Historical, status uncertain
Presumed extirpated
20 0 20 40 Miles
Major Water
Playas
Highways
Major Roads
County Lines

Phacelia sp. OVERLOOKED PHACELIA

FAMILY: *Hydrophyllaceae*, the waterleaf family. **SYNONYMS:** *Phacelia parishii* (misapplied)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 9 occurrences mapped at 1.0 km (0.6 mi) separation, OR **13 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 106,000+**, total estimated **area 219+ ha (541+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Surveys are ongoing. Most recent entered survey 1993, average year of last survey 1975. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 7.1%; **21-30 yrs:** 78.6%; **31-50 yrs:** 7.1%; **51+ yrs or unknown:** 7.1%.

LAND MANAGEMENT in decreasing predominance: U. S. Department of Energy, U. S. Department of Defense, U. S. Fish and Wildlife Service, U. S. Bureau of Land Management, private lands (?), Nevada state lands (?).

RANGE: Clark, Lincoln (?), and Nye counties, Nevada. **Nevada endemic.** Maximum **range dimension 58.8 km (36.6 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 3040-5820 feet (927-1774 meters).

HABITAT: Mostly barren outcrops and silty to clay, often gypsiferous soils derived from white to pinkish volcanic tuff in the creosote-bursage, shadscale, mixed-shrub, and blackbrush zones, often associated with Atriplex confertifolia.

PHENOLOGY: flowering spring, from late April to early June. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: small annual.

DESCRIPTION: Very similar to Phacelia parishii, and might also be confused with Phacelia beatleyae on casual inspection.

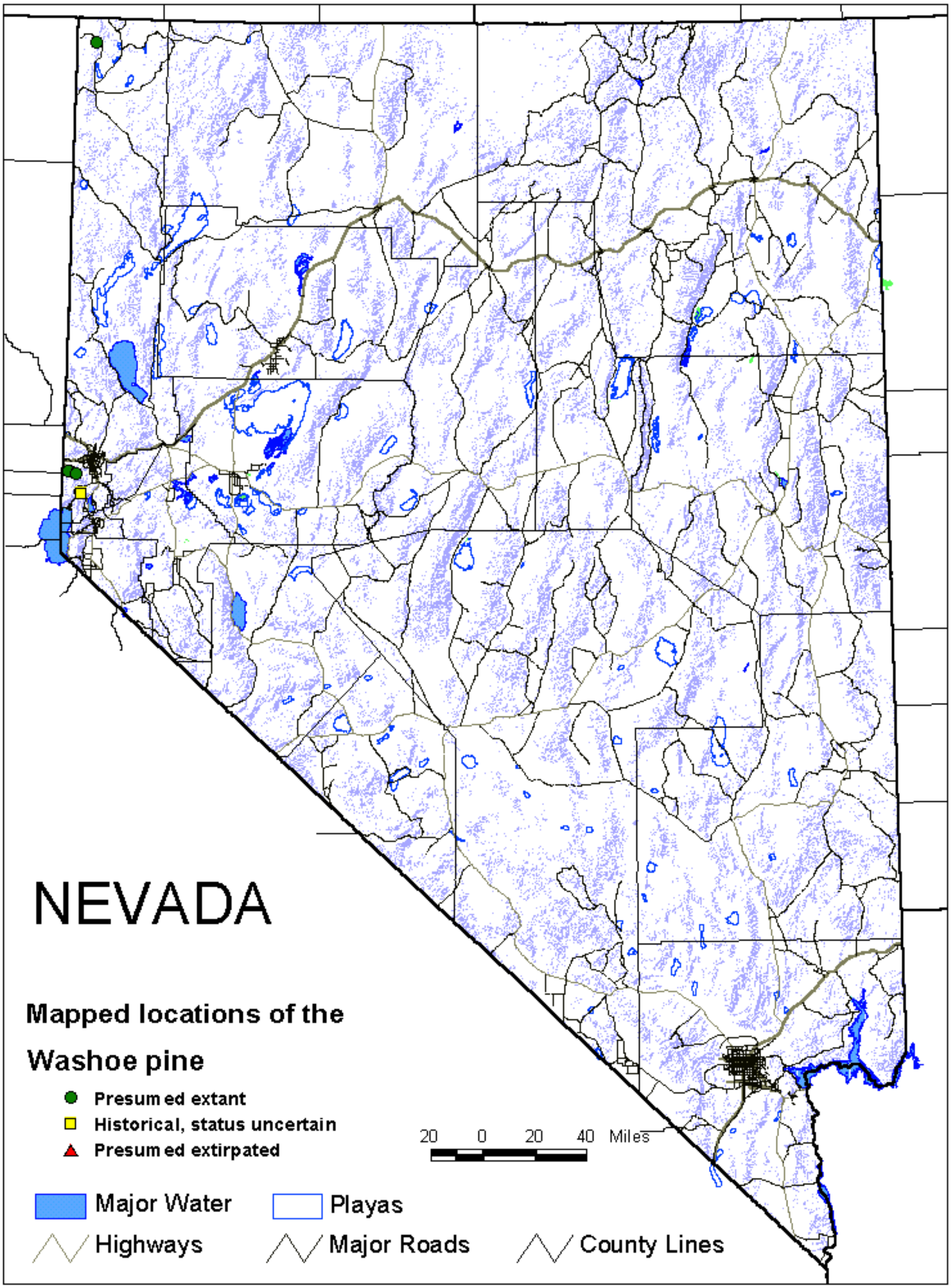
PHOTOGRAPHS: Smith (1997); Nevada Natural Heritage Program files.
ILLUSTRATIONS: none known.
OTHER GENERAL REFERENCES (listed separately): Cochrane (1979), Rhoads and Williams (1977), Rhoads et al. (1979).
SPECIFIC REFERENCES:

Howell, J. T. 1943. Studies in Phacelia - A revision of species related to P. pulchella and P. rotundifolia. American Midland Naturalist 29: 1-26.

Smith, F. 1997. Current knowledge and conservation status of Phacelia parishii A. Gray (Hydrophyllaceae) in Nevada, September 1996 (second draft 1/17/97). Carson City: Nevada Natural Heritage Program, DRAFT status report prepared for the U. S. Fish and Wildlife Service, Reno.

OF FURTHER INTEREST: An undescribed taxon closely related to P. parishii and P. beatleyae that occurs on the Nevada Test Site, Nellis Air Force Base, and the Desert National Wildlife Refuge in Nevada.

Pinus washoensis



Pinus washoensis Mason & Stockwell — WASHOE PINE

FAMILY: *Pinaceae*, the pine family. **SYNONYMS:** *Pinus ponderosa* var. *ponderosa* (?)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3Q S1**
USFWS/ESA: none. **STATE OF NEVADA:** harvest regulated. **BLM:** Special Status Species in Nevada.
USFS: none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 5 occurrences mapped at 1.0 km (0.6 mi) separation, OR **6 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area 12.2+ ha (30.1+ ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Systematic surveys were conducted by Charlet (1996) and are largely complete in Nevada. Most recent entered survey 1996, average year of last survey 1991. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 83.3%; **31-50 yrs:** 16.7%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: private lands, Humboldt-Toiyabe National Forest, Nevada state lands (?).

RANGE: Washoe County, Nevada; also in AB (?), BC (?), CA, MT (?), OR, and WA (?). Maximum Nevada **range dimension 15.8 km (9.8 mi)** excluding most disjunct record. **Type specimen** collected in Mt. rose.

ELEVATIONS RECORDED (NEVADA): 6240-8500 feet (1902-2591 meters).

HABITAT (not yet reviewed for Nevada): "Mountain slopes (1980-2440 m elevation) with western white pine (P. monticola), lodgepole pine (P. contorta), ponderosa pine (P. ponderosa), and California red fir (Abies magnifica)."

PHENOLOGY: no summary available. Range of most frequent **survey months:** May-September.

LIFE-FORM AND HABIT: long-lived tree.

DESCRIPTION: An evergreen tree, up to 35 m tall. Similar in appearance to ponderosa pine (P. ponderosa) except with distinctive egg-shaped female cones with many scales set close together. Bark is yellow-brown, furrowed. Leaves are 3 per bundle and about 12 cm long. Sometimes treated as a variety of ponderosa pine, rather than as a distinct species.

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: Charlet (1996).
OTHER GENERAL REFERENCES (listed separately): Flora of North America editorial Committee (1993), Hickman (1993).
SPECIFIC REFERENCES:

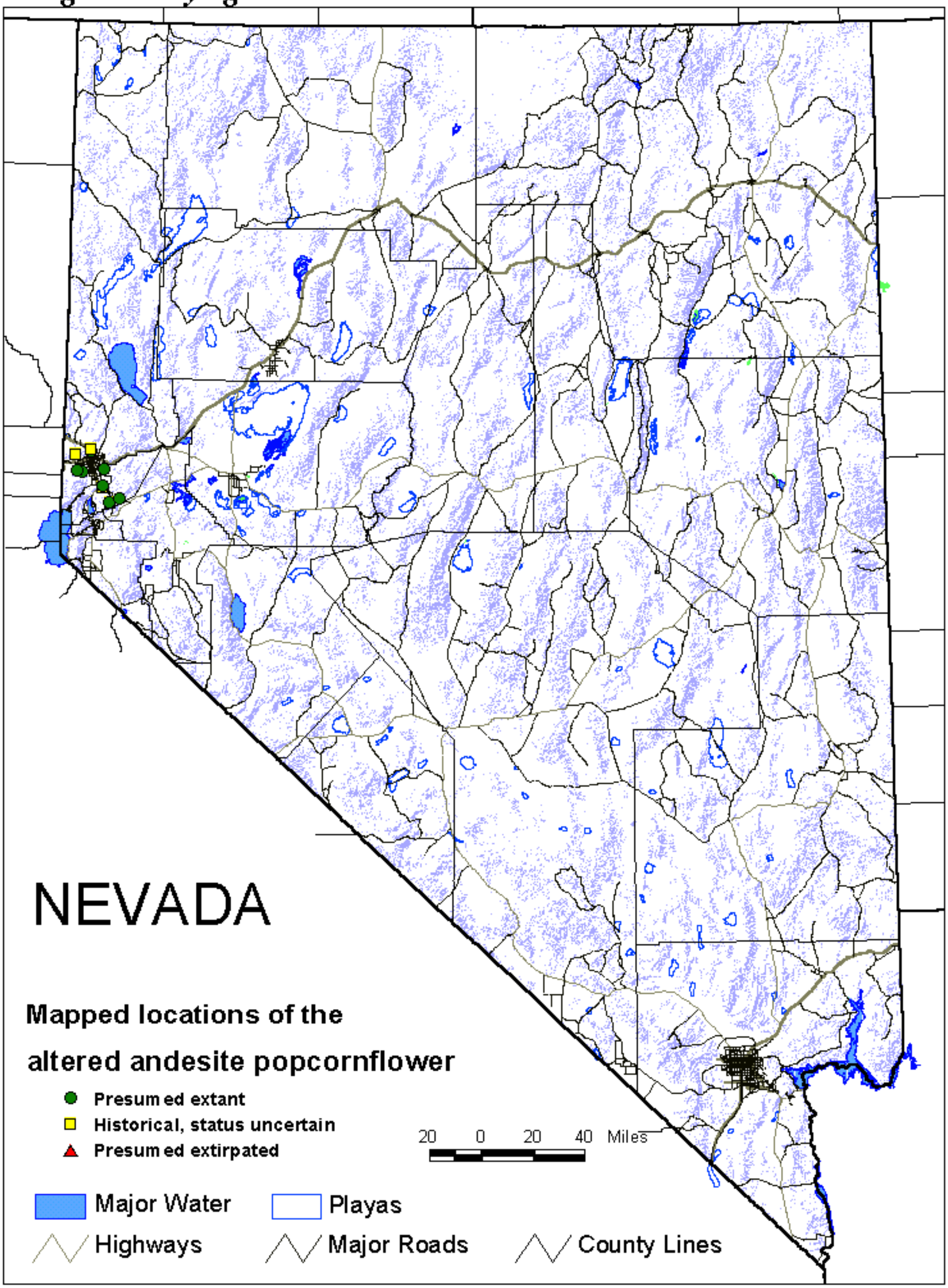
Budy, J. D., and J. A. Young. 1984. Distribution of Washoe pine (Pinus washoensis Mason and Stockwell). Northern Nevada Native Plant Society Newsletter 10: 4-8.

Charlet, D. A. 1996. Atlas of Nevada conifers. Reno: University of Nevada Press. 320 pages.

Little, E. L., Jr. 1979. Checklist of United States trees (native and naturalized). Washington, DC: U. S. Forest Service, Agriculture Handbook 541. 375 pages.

Mason, H. L. and W. P. Stockwell. 1945. A new pine from Mount Rose, Nevada. Madroño 18: 61-63.

Plagiobothrys glomeratus



Plagiobothrys glomeratus A. Gray (1885) ALTERED ANDESITE POPCORNFLOWER

FAMILY: *Boraginaceae*, the forget-me-not family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 S2S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 9 occurrences mapped at 1.0 km (0.6 mi) separation, OR **11 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** DECLINING.

IMPACTS AND MAJOR THREATS: Subject to urbanization impacts in the Reno area.

INVENTORY EFFORT: Surveys spotty and incomplete. Most recent entered survey 1999, average year of last survey 1988. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 90.9%; **51+ yrs or unknown:** 9.1%.

LAND MANAGEMENT in decreasing predominance: private lands, U. S. Bureau of Land Management, county lands, Humboldt-Toiyabe National Forest (?).

RANGE: Storey and Washoe counties, Nevada. **Nevada endemic.** Maximum **range dimension 37.2 km (23.1 mi)** excluding most disjunct record. **Type specimen** collected in Storey County.

ELEVATIONS RECORDED: 4850-6650 feet (1478-2027 meters).

HABITAT: Dry, shallow, mostly acidic (pH 3.3-5.5) gravelly clay soils mainly of the Smallcone Series, derived from weathering of hydrothermal sulfide deposits formed in andesite, or sometimes in rhyolitic or granitoid rocks, forming mostly barren yellowish to orange brown patches on ridges, knolls, and steep slopes on all aspects in sagebrush, pinyon-juniper, and montane conifer zones, on all but the most xeric sites supporting a sparse, stunted relict woodland of yellow pines (Pinus ponderosa and/or P. jeffreyi) and pinyon pine (P. monophylla), with an equally sparse understory codominated by Eriogonum robustum, Arenaria nuttallii fragilis, Ericameria parryi or E. nauseosa, Elymus elymoides, and/or Poa secunda.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** June-July.

LIFE-FORM AND HABIT: small annual.

DESCRIPTION: An annual herb, 5-20 cm tall, with hairy leaves and stems and a bushy appearance. Compact clusters of small white flowers bloom June-August. **Distinguishing features:** Can be mistaken for Plagiobothrys hispidus. P. glomeratus has smooth nutlets while P. hispidus has nutlets unevenly tuberculate to pavemented with the roughness always readily discernable.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist et al. (1984).
OTHER GENERAL REFERENCES (listed separately): Skinner and Pavlik (1994).
SPECIFIC REFERENCES:

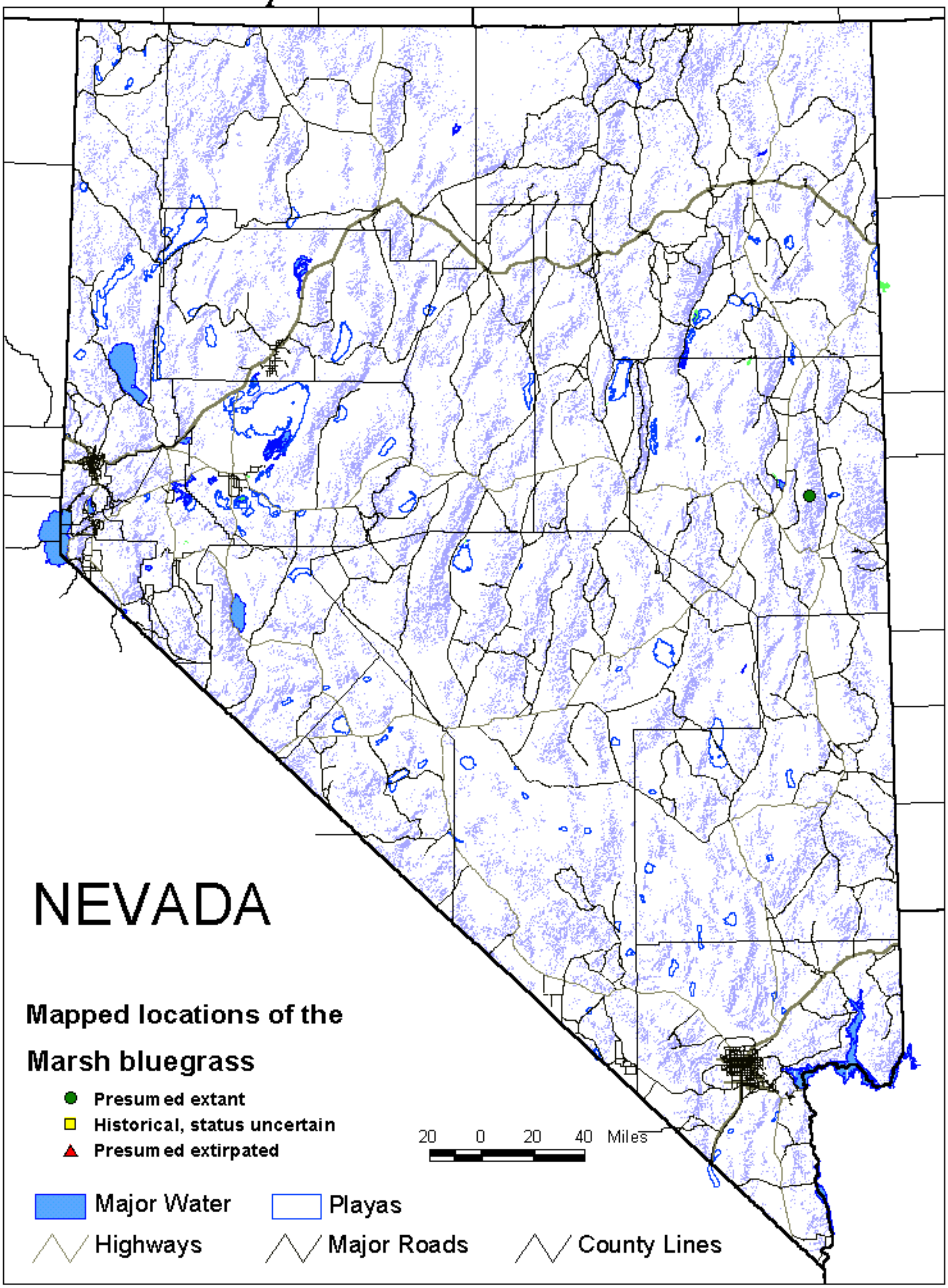
Gray, A. 1885. Contributions to the botany of North America. Proceedings of the American Academy of Arts 20: 257-310.

Morefield, J. D. 2000. Current knowledge and conservation status of Eriogonum robustum E. Greene (Polygonaceae), the altered andesite buckwheat. Carson City: Nevada Natural Heritage Program, status report prepared for the U. S. Fish and Wildlife Service, Reno, Nevada.

Tiehm, A. and W. A. Kelley. 1999. The history, identity, and distribution of Plagiobothrys glomeratus A. Gray (Boraginaceae). Carson City: unpublished manuscript in Nevada Natural Heritage Program files.

OF FURTHER INTEREST: Recognized by A. Tiehm (unpublished data) as a Nevada endemic more or less co-distributed with Eriogonum robustum, and previously confused with Plagiobothrys hispidus in California. Greene (1887), Johnston (1923), and Tidestrom (1925) placed P. glomeratus along with hispidus, jonesii, and kingii in the genus Sonnea. Cronquist (1984) recognized P. glomeratus as a good species.

Poa abbreviata ssp. marshii



Poa abbreviata R. Brown **ssp. *marshii*** R. J. Soreng — MARSH BLUEGRASS

FAMILY: *Poaceae*, the grass family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G5 T1T2 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species, Inyo NF watch list. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 1 occurrence mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Such surveys would be very difficult due to the remote and inhospitable habitat and the cryptic nature of the taxon. Most recent entered survey 1965.
Years since last entered survey (percent of mapped records at various survey ages)**: 31-50 yrs:** 100%.

LAND MANAGEMENT (NEVADA): Humboldt-Toiyabe National Forest.

RANGE: White Pine County, Nevada; also in CA and ID.

ELEVATIONS RECORDED (NEVADA): 11600 feet (3536 meters).

HABITAT (not yet reviewed for Nevada): "Soil pockets in alpine scree and talus."

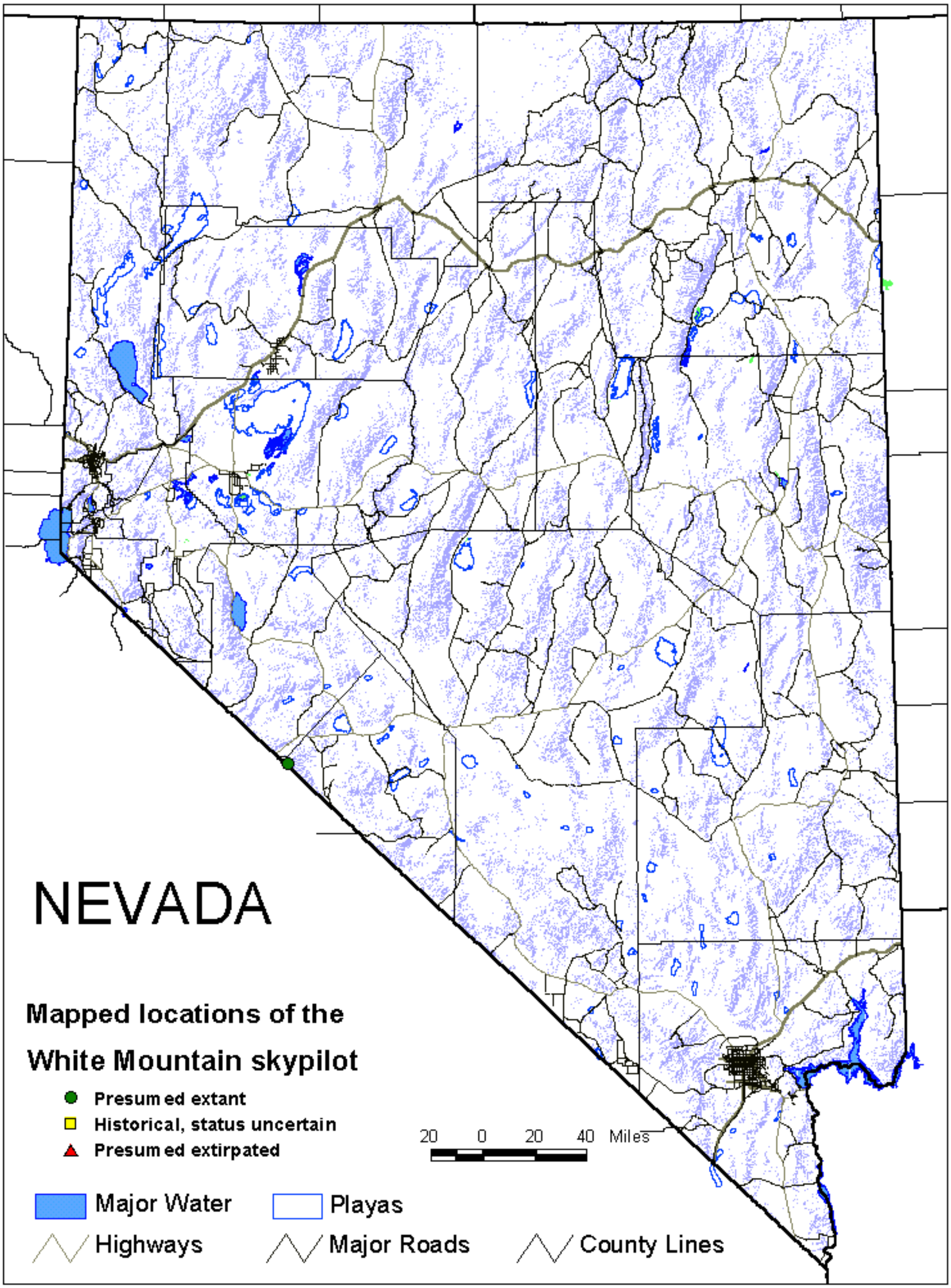
PHENOLOGY: no summary available. Range of most frequent **survey months:** July.

DESCRIPTION: Dwarf perennial alpine grass.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: none known.
SPECIFIC REFERENCES:

Soreng, R. J. 1991. Notes on new infraspecific taxa and hybrids in North American Poa (Poaceae). Phytologia 71: 390-413.

Polemonium chartaceum



Polemonium chartaceum Mason — WHITE MOUNTAIN SKYPILOT

FAMILY: *Polemoniaceae*, the phlox family. **SYNONYMS:** *Polemonium viscosum* ssp. *chartaceum*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Inyo NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 1 occurrence mapped; total estimated **individuals 8**, total estimated **area 2.0 ha (4.9 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada, but no additional potential habitat likely exists. Most recent entered survey 1992. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: designated wilderness, Inyo National Forest.

RANGE: Esmeralda County, Nevada; also in CA. In Nevada known only from near the summit of Boundary Peak in the White Mountains.

ELEVATIONS RECORDED (NEVADA): 12420 feet (3786 meters).

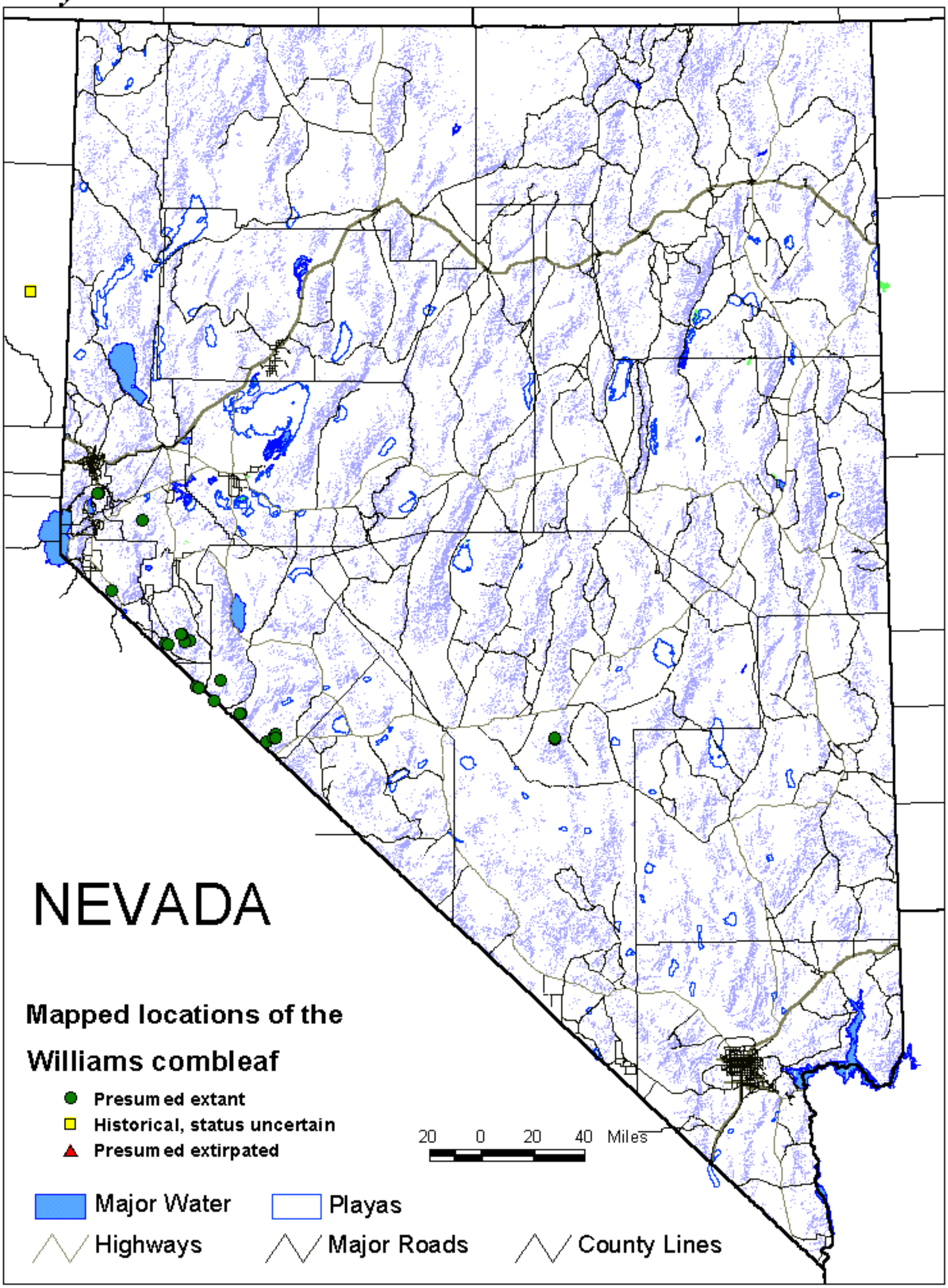
HABITAT: no summary available (see references).

PHENOLOGY: no summary available. Range of most frequent **survey months:** September.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Hall (1991); Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: Cronquist et al. (1984).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993), Kartesz (1987).

Polyctenium williamsiae



Polyctenium williamsiae Rollins — WILLIAMS COMBLEAF

FAMILY: *Brassicaceae*, the mustard family. **SYNONYMS:** *Polyctenium fremontii* var. *confertum*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2Q S2**
USFWS/ESA: species of concern, formerly CANDIDATE or PROPOSED. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species in Nevada. **USFS:** Inyo NF Sensitive Species. **NNNPS:** THREATENED.

POPULATION CENSUS (NEVADA): 14 occurrences mapped at 1.0 km (0.6 mi) separation, OR **24 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 11,000+**, total estimated **area 185+ ha (457+ ac)**. **TREND:** DECLINING.

IMPACTS AND MAJOR THREATS (NEVADA): Trampling by livestock and feral horses, water diversions and developments, off-road vehicle use.

INVENTORY EFFORT (NEVADA): Surveys are substantially complete in Nevada. Most recent entered survey 1999, average year of last survey 1997. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 66.7%; **6-10 yrs:** 33.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, private lands, Nevada state lands (?).

RANGE: Douglas, Lyon, Mineral, Nye, and Washoe counties, Nevada; also in CA and OR. Maximum Nevada **range dimension 322.6 km (200.5 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 5670-8930 feet (1728-2722 meters).

HABITAT (NEVADA): Relatively barren sandy to sandy-clay or mud margins and bottoms of non-alkaline seasonal lakes perched over volcanic bedrock in the sagebrush, pinyon-juniper, and mountain sagebrush zones, with Carex douglasii, Muhlenbergia richardsonis, Camissonia tanacetifolia, Iva axillaris, Myosurus minimus, Potentilla newberryi, Psilocarphus brevissimus, Downingia sp., Eleocharis, Juncus balticus, Artemisia tridentata, A. cana, etc. Aquatic or wetland-dependent in Nevada.

PHENOLOGY: flowering early-spring. Range of most frequent **survey months:** March-July.

LIFE-FORM AND HABIT: small short-lived perennial herb.

DESCRIPTION: A perennial herb, 4-10 cm tall, that produces a clusters of white to purplish flowers in mid-summer.

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Rollins (1993).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993).
SPECIFIC REFERENCES:

Holland, R. F. 1995. Current knowledge and conservation status of Polyctenium williamsiae Rollins, Williams' combleaf, and P. fremontii var. confertum Rollins, crowded combleaf (Brassicaceae) in Nevada. Carson City: Nevada Natural Heritage Program, status report prepared for the U. S. Fish and Wildlife Service, Reno.

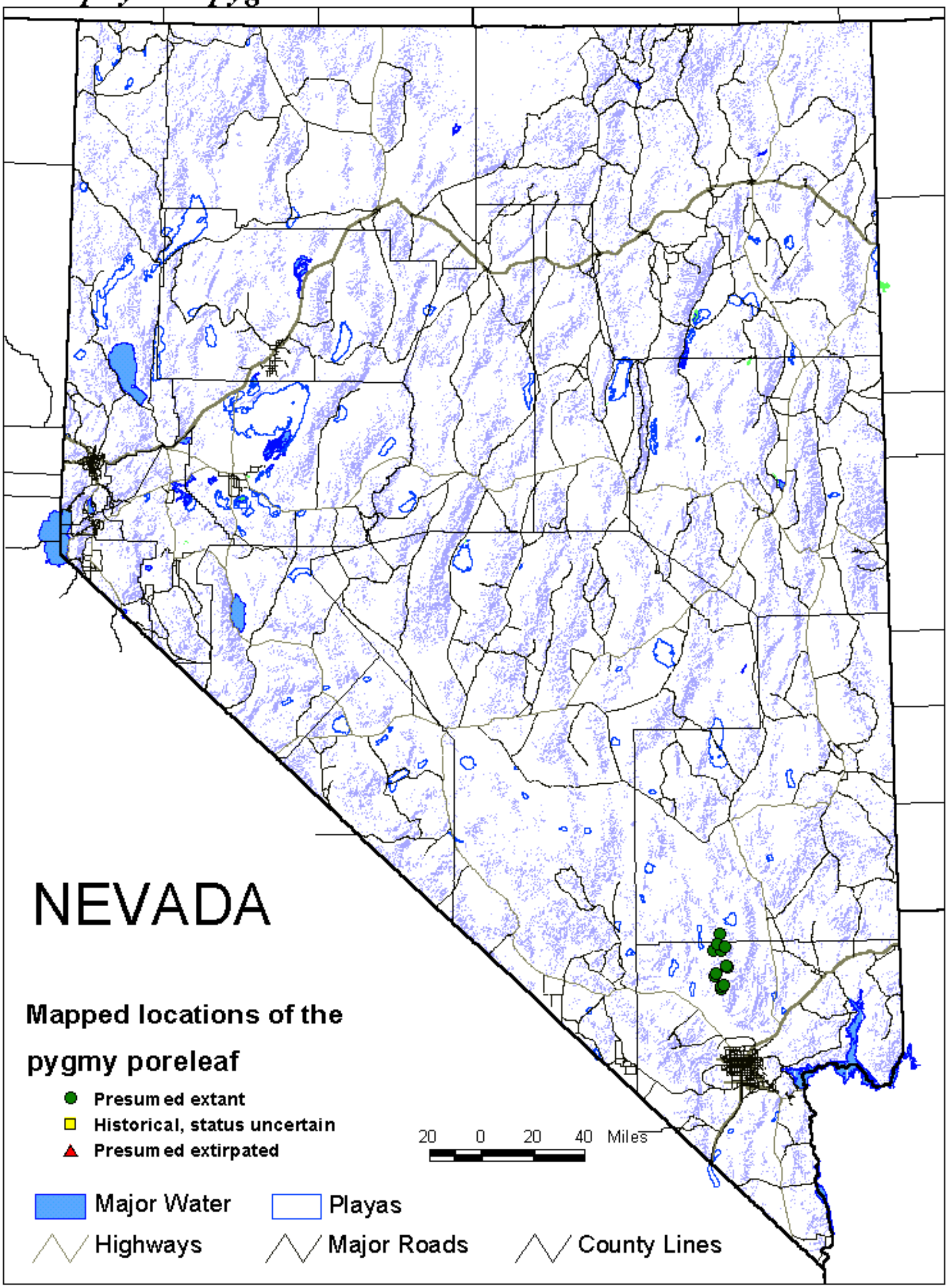
Holland, R. F. 1997. Current knowledge and conservation status of Polyctenium williamsiae Rollins and Polyctenium fremontii var. confertum Rollins (Brassicaceae), two combleafs, in Nevada. Carson City: Nevada Natural Heritage Program, DRAFT status report prepared for the U. S. Fish and Wildlife Service, Reno.

Knight, T. A. 1990. Status report for Polyctenium williamsiae Rollins. Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

Rollins, R. C. 1983. Studies in the Cruciferae of western North America. Journal of the Arnold Arboretum 64: 491-510.

OF FURTHER INTEREST: Polyctenium fremontii var. confertum has been merged with P. williamsiae as per Holland and Morefield, 97-11-24 (see Holland, 1997).

Porophyllum pygmaeum



Porophyllum pygmaeum Keil & Morefield (1989) **PYGMY POORELEAF**

FAMILY: *Asteraceae*, the sunflower family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 12 occurrences mapped; total estimated **individuals 524+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Threatened by off road vehicles.

INVENTORY EFFORT: Some targeted surveys have been conducted but much potential habitat remains unexamined. Most recent entered survey 1993, average year of last survey 1983. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 16.7%; **11-20 yrs:** 33.3%; **21-30 yrs:** 50%.

LAND MANAGEMENT in decreasing predominance: U. S. Fish and Wildlife Service, U. S. Department of Defense.

RANGE: Clark and Lincoln counties, Nevada. **Nevada endemic.** Maximum **range dimension 27.9 km (17.4 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 4200-6800 feet (1280-2073 meters).

HABITAT: Dry, open, relatively deep, rocky carbonate soils of alluvial fans and hillsides, often in slight depressions, low benches adjacent to minor drainages, or other moisture-enhanced microsites, in the blackbrush, mixed-shrub, and lower pinyon-juniper zones.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** April-October.

LIFE-FORM AND HABIT: rhizomatous perennial herb.

DESCRIPTION: A pungently aromatic perennial herb, 5-15 cm tall, that produces rayless yellow (often tinged with red or green) flower heads in June. Herbage is studded with conspicuous oil glands.

PHOTOGRAPHS: Knight and Smith (1994), Knight et al. (1997); Nevada Natural Heritage Program slide collection (1986-present) and files.

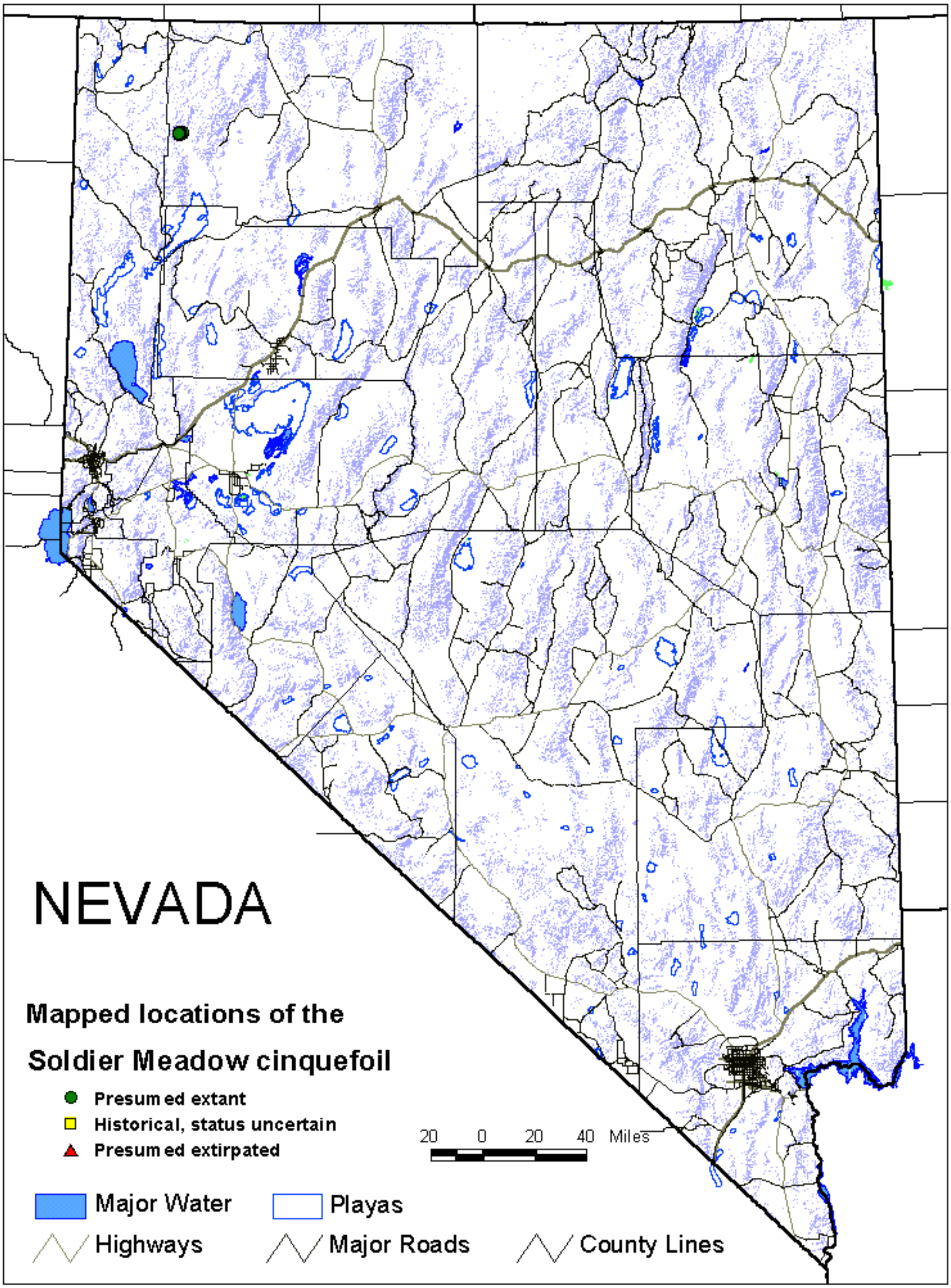
ILLUSTRATIONS: Cronquist (1994), Keil and Morefield (1989).

SPECIFIC REFERENCES:

Keil, D. J. and J. D. Morefield. 1989. Porophyllum pygmaeum (Asteraceae), a distinctive new species from southern Nevada. Systematic Botany 14: 583-588.

OF FURTHER INTEREST: Described in 1989. Cronquist considered it a "dwarf" form of P. gracile (Ackerman letter 1989), but it is quite distinct from that species.

Potentilla basaltica



Potentilla basaltica Tiehm & Ertter — SOLDIER MEADOW CINQUEFOIL

FAMILY: *Rosaceae*, the rose family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: species of concern, formerly CANDIDATE or PROPOSED. **STATE OF NEVADA:** none.
BLM: Special Status Species in Nevada. **USFS:** none. **NNNPS:** THREATENED.

POPULATION CENSUS (NEVADA): 2 occurrences mapped at 1.0 km (0.6 mi) separation, OR **9 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 84,000+**, total estimated **area 26.7+ ha (66.0+ ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Recreational use of habitat by bathers, hunters, and others, off-road vehicle use, water diversions and alteration of hydrology, competition with invasive weeds, etc.

INVENTORY EFFORT (NEVADA): Surveys in Nevada are substantially complete, but some potential habitat may remain unexamined, given the species' recent discovery in California. Most recent entered survey 1990, average year of last survey 1990. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands.

RANGE: Humboldt County, Nevada; also in CA. In Nevada restricted to the Soldier Meadows area in the northern Black Rock Desert. Maximum Nevada **range dimension 2.6 km (1.6 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 4380-4580 feet (1335-1396 meters).

HABITAT (NEVADA): Moist salt-crusted clay in alkaline meadows above, and cooled outflow stream margins below, thermal springs, generally on slight southeast slopes, with Juncus balticus, Scirpus maritimus, S. acutus, Triglochin maritima, Distichlis spicata, Sisyrinchium halophilum, Nitrophila occidentalis, Carex spp., Pyrrocoma racemosa, Solidago spectabilis, Sphaeromeria potentilloides, Astragalus argophyllus, Lotus purshianus, Ericameria nauseosa, Sarcobatus vermiculatus, etc. Aquatic or wetland-dependent in Nevada.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** May-August.

LIFE-FORM AND HABIT: perennial herb.

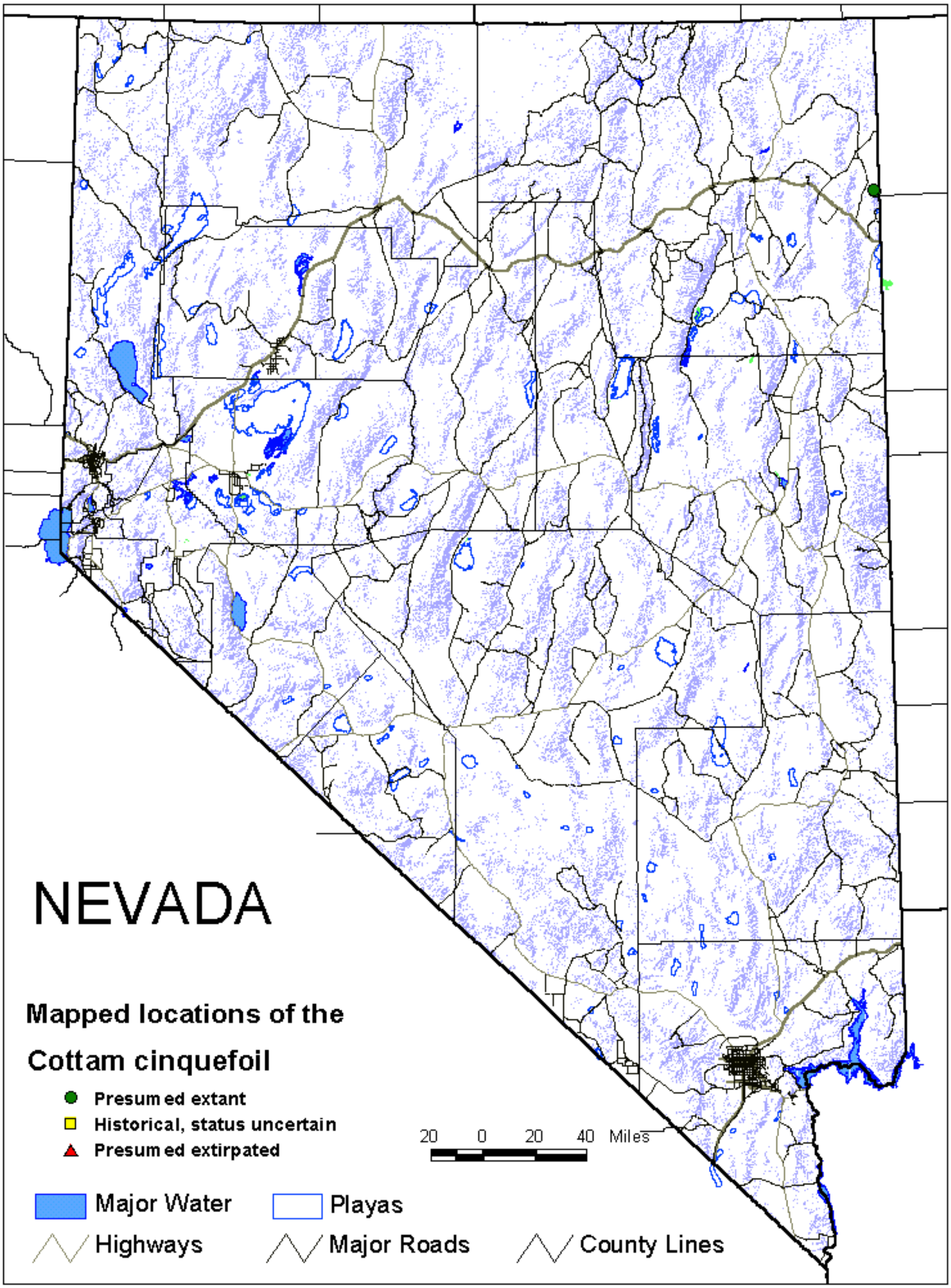
DESCRIPTION: An herbaceous perennial with prostrate stems 5 dm long extending from rosette-forming basal leaves. Bright yellow flowers occur in loose clusters at the end of the stems.

PHOTOGRAPHS: Knight (1990); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Cronquist et al. (1997), Tiehm and Ertter (1984).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993).
SPECIFIC REFERENCES:

Knight, T. A. 1990. Status report for Potentilla basaltica Tiehm and Ertter. Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

Tiehm, A. and B. Ertter. 1984. Potentilla basaltica (Rosaceae), a new species from Nevada. Brittonia 36: 228-231.

Potentilla cottamii



Potentilla cottamii N. Holmgren — COTTAM CINQUEFOIL

FAMILY: *Rosaceae*, the rose family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 2 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys have been fairly extensive, but substantial potential habitat may remain unexamined. Most recent entered survey 1986, average year of last survey 1958.
Years since last entered survey (percent of mapped records at various survey ages)**: 11-20 yrs:** 50%; **51+ yrs or unknown:** 50%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, private lands (?).

RANGE: Elko County, Nevada; also in UT. In Nevada known only from the Pilot Range. Maximum Nevada **range dimension 1.2 km (.7 mi)**.

ELEVATIONS RECORDED (NEVADA): 9400-10600 feet (2865-3231 meters).

HABITAT (NEVADA): Crevices or narrow ledges on outcrops of quartzite or other siliceous metamorphic or granitoid rocks, on all aspects but preferring northerly or shaded exposures, in the upper subalpine conifer zone with Pinus flexilis, Abies lasiocarpa, Ribes montigenum, Achillea millefolium, Cystopteris fragilis, Potentilla diversifolia, Sedum rosea, etc.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** July.

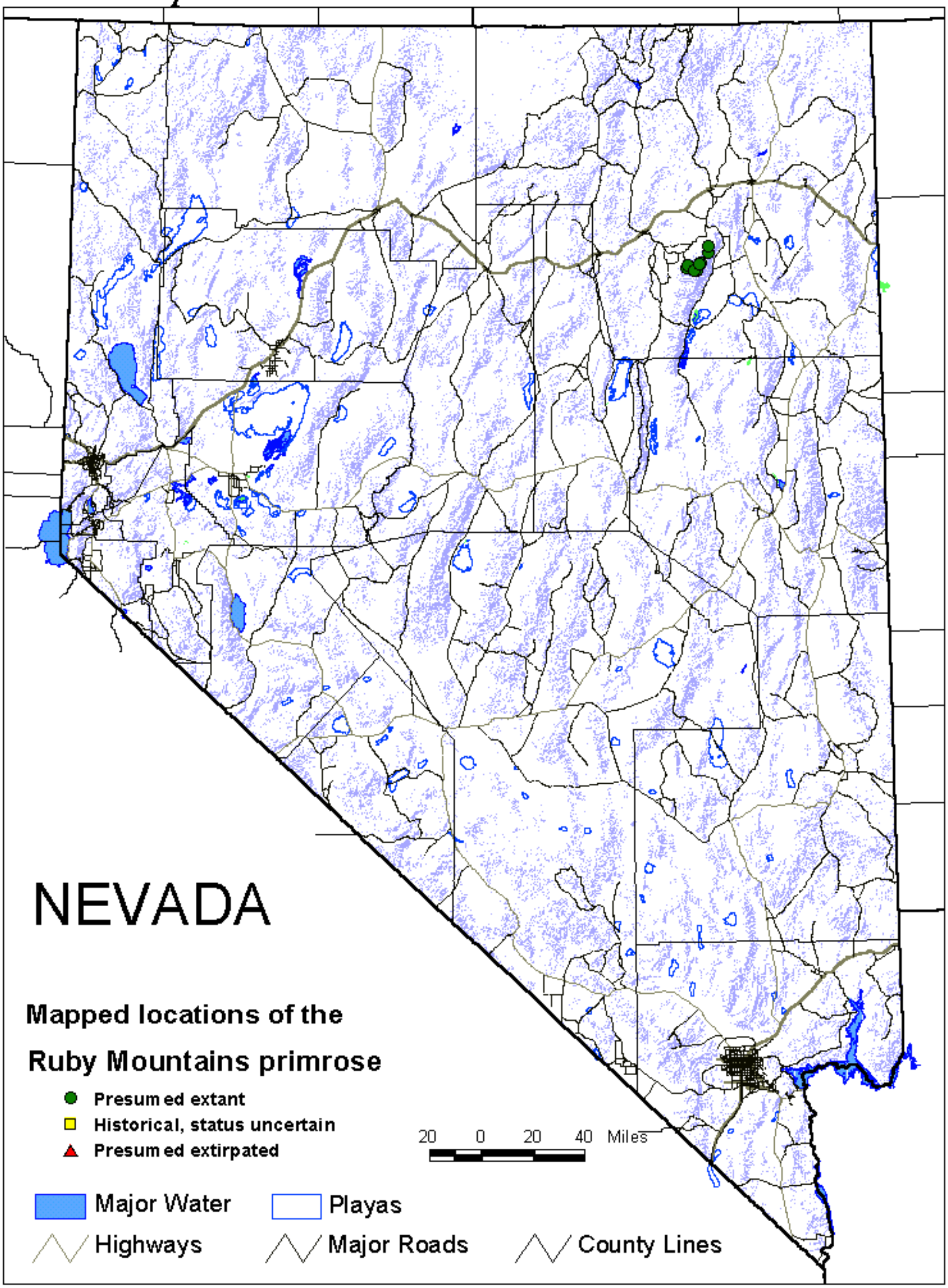
LIFE-FORM AND HABIT: small matted long-lived perennial herb.

DESCRIPTION: A low, mat-forming, herbaceous perennial from a well developed, much-branched caudex. Stems, 0.5-1.3 dm long, are decumbent or spreading in flower, often prostrate in fruit; leaves mostly basal and 3-foliate. The inflorescence is 1 to 2 flowered.

PHOTOGRAPHS: Atwood et al. (1991).
ILLUSTRATIONS: Atwood et al. (1991), Cronquist et al. (1997), Holmgren (1987).
SPECIFIC REFERENCES:

Holmgren, N. 1987. Two new species of Potentilla (Rosaceae) from the Intermountain region of western U. S. A. Brittonia 39: 340-344.

Primula capillaris



Primula capillaris N. & A. Holmgren (1974) RUBY MOUNTAINS PRIMROSE

FAMILY: *Primulaceae*, the primrose family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 7 occurrences mapped at 1.0 km (0.6 mi) separation, OR **8 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 14,000+**, total estimated **area 16.8+ ha (41.5+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Minimal, limited to occasional off-trail recreational use. Grazing has been removed and many sites are in designated wilderness away from trails. Vulnerable to horticultural or hobby collecting, but not successful in cultivation, and difficult to access.

INVENTORY EFFORT: Surveys have been extensive, but a few more populations likely remain to be found in remote high-elevation areas of the Ruby Mountains. Most recent entered survey 1998, average year of last survey 1996. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 50%; **6-10 yrs:** 50%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness.

RANGE: Elko County, Nevada. Endemic to the Ruby Mountains. Maximum **range dimension 16.4 km (10.2 mi)** excluding most disjunct record. **Type specimen** collected in Elko County.

ELEVATIONS RECORDED: 8900-10360 feet (2713-3158 meters).

HABITAT: Moist, seasonally saturated, slowly creeping, dark brown loam or sandy loam soils derived from glacial till, generally on steep north to northeast aspects, particularly just below bedrock constrictions in the soil flow that have resulted in extra churning and steepening of the soil and lowered vegetation cover, sometimes on Selaginella mats, in subalpine meadow openings in the subalpine conifer zone, with Selaginella watsonii, Draba oligosperma, Geum rossii, Potentilla fruticosa, Sedum debile, Oxyria digyna, Ribes cf. montigenum, Lithophragma glabra, Luzula comosa, Mertensia ciliata, Pinus albicaulis, etc. Dependent on wetland margin areas.

PHENOLOGY: flowering summer to early-fall. Range of most frequent **survey months:** July-August.

LIFE-FORM AND HABIT: small perennial herb.

DESCRIPTION: A delicate perennial herb with yellow and violet petaled flowers borne on a leafless flower stalk, up to 5 cm tall, arising from a basal rosette of leaves. Flowers in July and August.

PHOTOGRAPHS: Anderson et al. (1991), Holland (1995); Nevada Natural Heritage Program images web page (1998-present) and slide collection (1986-present).

ILLUSTRATIONS: Anderson et al. (1991), Mozingo and Williams (1980).

SPECIFIC REFERENCES:

Atwood, N. D. 1978. Status report for Primula capillaris. Portland, Oregon: U. S. Fish and Wildlife Service.

Driver, T. 1978. Status report for Primula capillaris. Portland, Oregon: U. S. Fish and Wildlife Service.

Halda, J. J. 1992. The genus Primula: in cultivation and the wild. Denver, Colorado: Tethys Books.

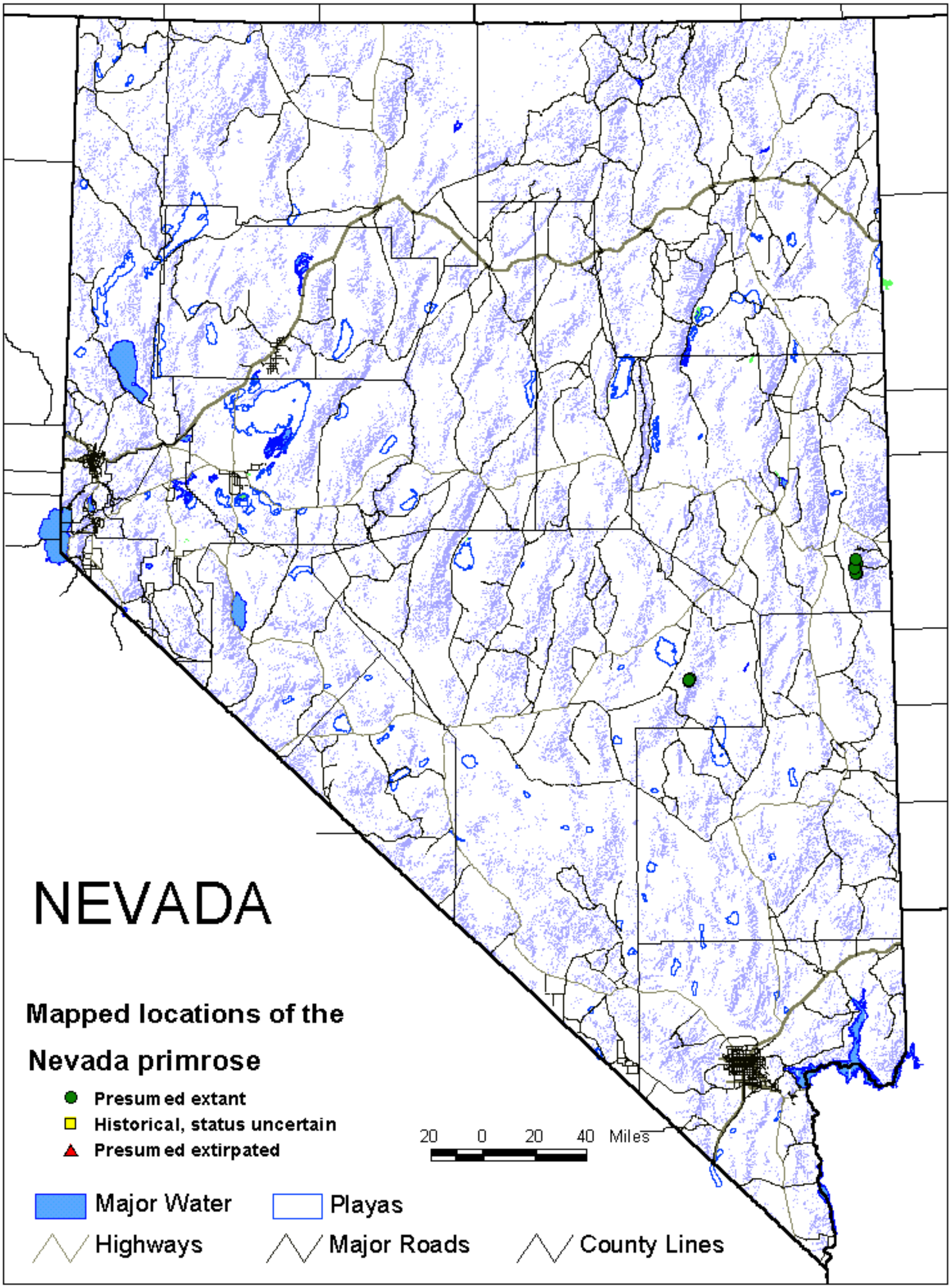
Holland, R. F. 1995. Current knowledge and conservation status of Primula capillaris Holmgren and Holmgren (Primulaceae), Ruby Mountain primrose, in Nevada. Carson City: Nevada Natural Heritage Program, status report prepared for the U. S. Fish and Wildlife Service, Reno.

Holmgren, N. H. and A. H. Holmgren. 1974. Three new species from the Great Basin. Brittonia 26: 309-315.

Richards, A. J. 1993. Primula. Portland, Oregon: Timber Press.

OF FURTHER INTEREST: Distinct, species in genus with few western North American taxa.

Primula cusickiana var. nevadensis



Primula cusickiana* var. *nevadensis (N. Holmgren) **NEVADA PRIMROSE**

FAMILY: *Primulaceae*, the primrose family. **SYNONYMS:** *Primula nevadensis*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4 T2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 6 occurrences mapped at 1.0 km (0.6 mi) separation, OR **10 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: The biggest threat is collection for horticultural purposes, although it has not been successfully cultivated. This is considered unlikely due to the remote locations.

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1994, average year of last survey 1975. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 10%; **11-20 yrs:** 30%; **21-30 yrs:** 30%; **31-50 yrs:** 20%; **51+ yrs or unknown:** 10%.

LAND MANAGEMENT in decreasing predominance: National Park Service, designated wilderness, Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management (?), private lands (?).

RANGE: Nye and White Pine counties, Nevada. **Nevada endemic.** Maximum **range dimension 127.7 km (79.3 mi)** excluding most disjunct record. **Type specimen** collected in White pine County.

ELEVATIONS RECORDED: 10200-11590 feet (3109-3533 meters).

HABITAT: Dry to moist, often sheltered carbonate cliffs, crevices, scree, and gravelly soils or soil pockets on gentle to vertical slopes, often on north to east aspects or in leeward snow-accumulation areas, sometimes in litter of bristlecone pines or in meadow or riparian areas, in the subalpine conifer and lower alpine zones.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** June-August.

LIFE-FORM AND HABIT: small perennial herb.

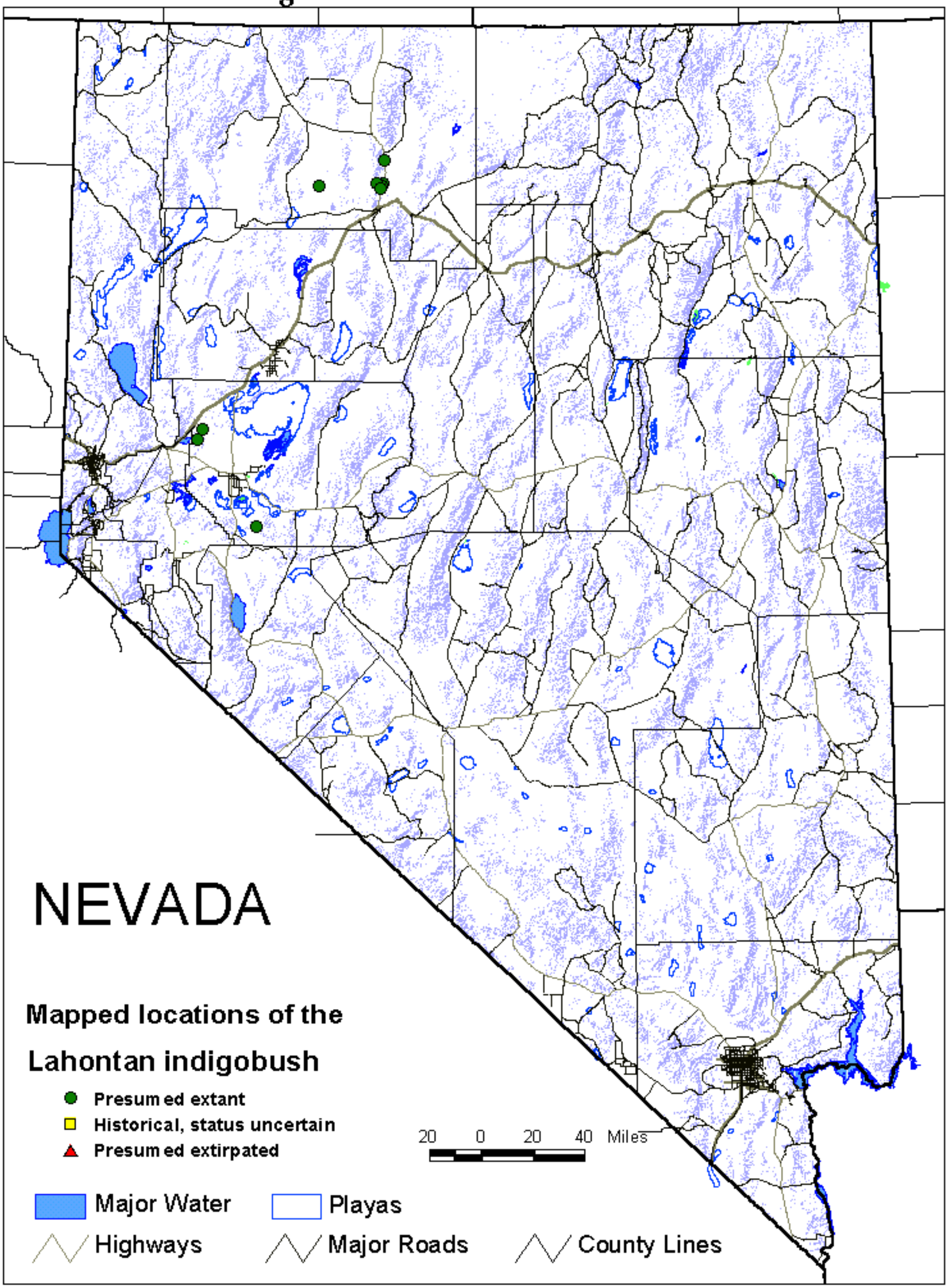
DESCRIPTION: A perennial herb with erect basal leaves, 5-10 cm long. Flowering stalks are shorter than the leaves and bear up to 8 violet flowers with yellow throats. Blooms in July and August.

PHOTOGRAPHS: Anderson et al. (1991); Nevada Natural Heritage Program images web page (1998-present) and slide collection (1986-present).
ILLUSTRATIONS: Anderson et al. (1991), Mozingo and Williams (1980).
SPECIFIC REFERENCES:

Goodrich, S. 1979. Status report on Primula nevadensis. Portland, Oregon: U. S. Fish and Wildlife Service.
Halda, J. J. 1992. The genus Primula: in cultivation and the wild. Denver, Colorado: Tethys Books.
Holmgren, N. H. 1967. A new species of primrose from Nevada. Madroño 19: 27-29.
Holmgren, N. H. and S. Kelso. 2001. Primula cusickiana (Primulaceae) and its varieties. Brittonia 53: 154-156.
Richards, A. J. 1993. Primula. Portland, Oregon: Timber Press.

OF FURTHER INTEREST: Holmgren and Kelso (2001) recognize this taxon as a variety of Primula cusickiana, confirming an earlier opinion (Richards 1993) at the subspecific level.

Psorothamnus kingii



Psorothamnus kingii (S. Watson) Barneby — LAHONTAN INDIGOBUSH

FAMILY: *Fabaceae*, the legume family.

SYNONYMS: *Dalea kingii*
Parosela kingii
Psorodendron kingii

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 9 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Much potential habitat has already been examined, but considerably more is difficult to access and remains to be surveyed. Most recent entered survey 1982, average year of last survey 1956.
Years since last entered survey (percent of mapped records at various survey ages)**: 11-20 yrs:** 22.2%; **21-30 yrs:** 33.3%; **31-50 yrs:** 11.1%; **51+ yrs or unknown:** 33.3%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, private lands, U. S. Department of Defense (?).

RANGE: Churchill and Humboldt counties, Nevada. **Nevada endemic.** Maximum **range dimension 209.7 km (130.3 mi)** excluding most disjunct record. **Type specimen** collected in Churchill County.

ELEVATIONS RECORDED: 4140-5250 feet (1262-1600 meters).

HABITAT: Deep sand of active dunes, interdune areas, and vegetated dunes and aeolian deposits in the shadscale, salt desert, and sagebrush zones with Tetradymia, Atriplex canescens, Astragalus geyeri var. geyeri, Psoralidium lanceolatum, Achnatherum hymenoides, Gilia leptomeria, Ericameria nauseosa, Artemisia tridentata, etc. Dependent on sand dunes or deep sand.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-October.

LIFE-FORM AND HABIT: rhizomatous perennial herb.

DESCRIPTION: Spinescent, yellow-green undershrub with spreading, divaricate branches, which are sparingly strigose and orange. Flowers are short-pedicellate and purple (Kartesz 1988).

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.

ILLUSTRATIONS: Barneby (1977), Barneby (1989), Mozingo and Williams (1980).

OTHER GENERAL REFERENCES (listed separately): Isely (1998).

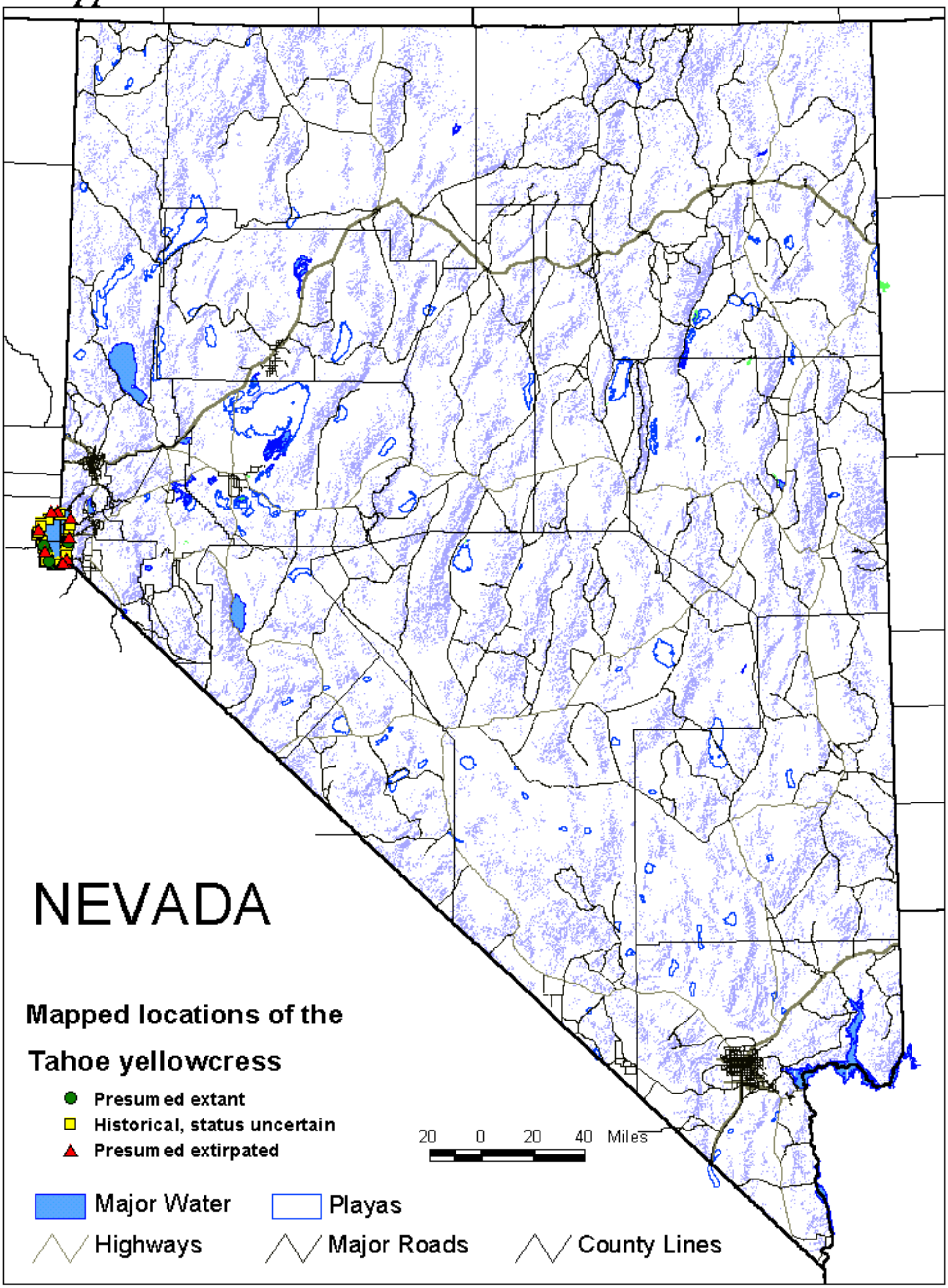
SPECIFIC REFERENCES:

Holmgren, A. H., L. M. Shultz and J. S. Shultz. 1977. Herbarium search and literature review: survey of proposed sensitive species in Humboldt and Pershing Counties. Logan: Utah State University, Intermountain Herbarium.

Mozingo, H. N. 1987. Shrubs of the Great Basin. Reno: University of Nevada Press. 342 pages.

Pavlik, B. 1985. Sand dune flora of the Great Basin and Mojave Deserts of California, Nevada, and Oregon. Madroño 32: 197-213.

Rorippa subumbellata



Rorippa subumbellata Rollins (1941) **TAHOE YELLOWCRESS**

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S1S2**
USFWS/ESA: CANDIDATE for listing. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species in Nevada. **USFS:** Humboldt-Toiyabe NF and Lake Tahoe Basin Sensitive Species. **NNNPS:** THREATENED.

POPULATION CENSUS (NEVADA): 4 extant occurrences mapped at 1.0 km (0.6 mi) separation, OR **5 extant and 11 extirpated occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 420+**, total estimated **area unknown**. **TREND:** DECLINING.

IMPACTS AND MAJOR THREATS (NEVADA): Impacted and threatened by recreational beach use, beach maintenance, shore zone development, and artificially prolonged high-water levels in Lake Tahoe.

INVENTORY EFFORT (NEVADA): Well inventoried in Nevada. Most recent entered survey 2000, average year of last survey 1998. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 93.8%; **21-30 yrs:** 6.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: private lands, U. S. Forest Service Lake Tahoe Basin Management Unit, Nevada state lands.

RANGE: Carson City, Douglas and Washoe counties, Nevada; also in CA. Restricted to the shore zone of Lake Tahoe. Maximum Nevada **range dimension 8.2 km (5.1 mi)** excluding most disjunct record. **Type specimen** collected in Eldorado County, California.

ELEVATIONS RECORDED (NEVADA): 6220-6230 feet (1896-1899 meters).

HABITAT (NEVADA): Coarse sand and sandy soils of active beaches, stream inlets, beach dunes, and backshore depressions, generally within a few feet of the local water table, endemic to the shore zone of Lake Tahoe. Aquatic or wetland-dependent in Nevada.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** June-August.

LIFE-FORM AND HABIT: small rhizomatous perennial herb.

DESCRIPTION: Herbaceous perennial from deeply buried rhizomes, stems several from the base, generally prostrate, 5-20 cm long; overall color dark to purplish green (sometimes yellowish), with pinnately lobed leaves, small yellow flowers, and short, shiny, hairless fruits. **Distinguishing features:** Rhizomatous perennial, basal leaf rosette none, flowers 2.5-4 mm long, sepals hairless and persistent in fruit, fruit hairless and 3-6 mm long, > 1.5 mm wide, style hairless and 1-1.5 mm long, stigma not expanded.

PHOTOGRAPHS: Weixelman and Atwood (1990); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993), Rollins (1993).
SPECIFIC REFERENCES:

California State Lands Commission. 1998. Tahoe yellow cress draft biological assessment plan. Sacramento: California State Lands Commission, unpublished report.

Ferreira, J. 1987. The population status and phenological characteristics of Rorippa subumbellata (Roll.) at Lake Tahoe, CA and NV. Sacramento: California State University, M. A. Thesis.

Josselyn, M. J., J. Ferreira, R. Coates, and T. Abbe. 1992. DRAFT management and conservation plan for Rorippa subumbellata Roll., Tahoe yellow cress. Sacramento: California State Lands Commission.

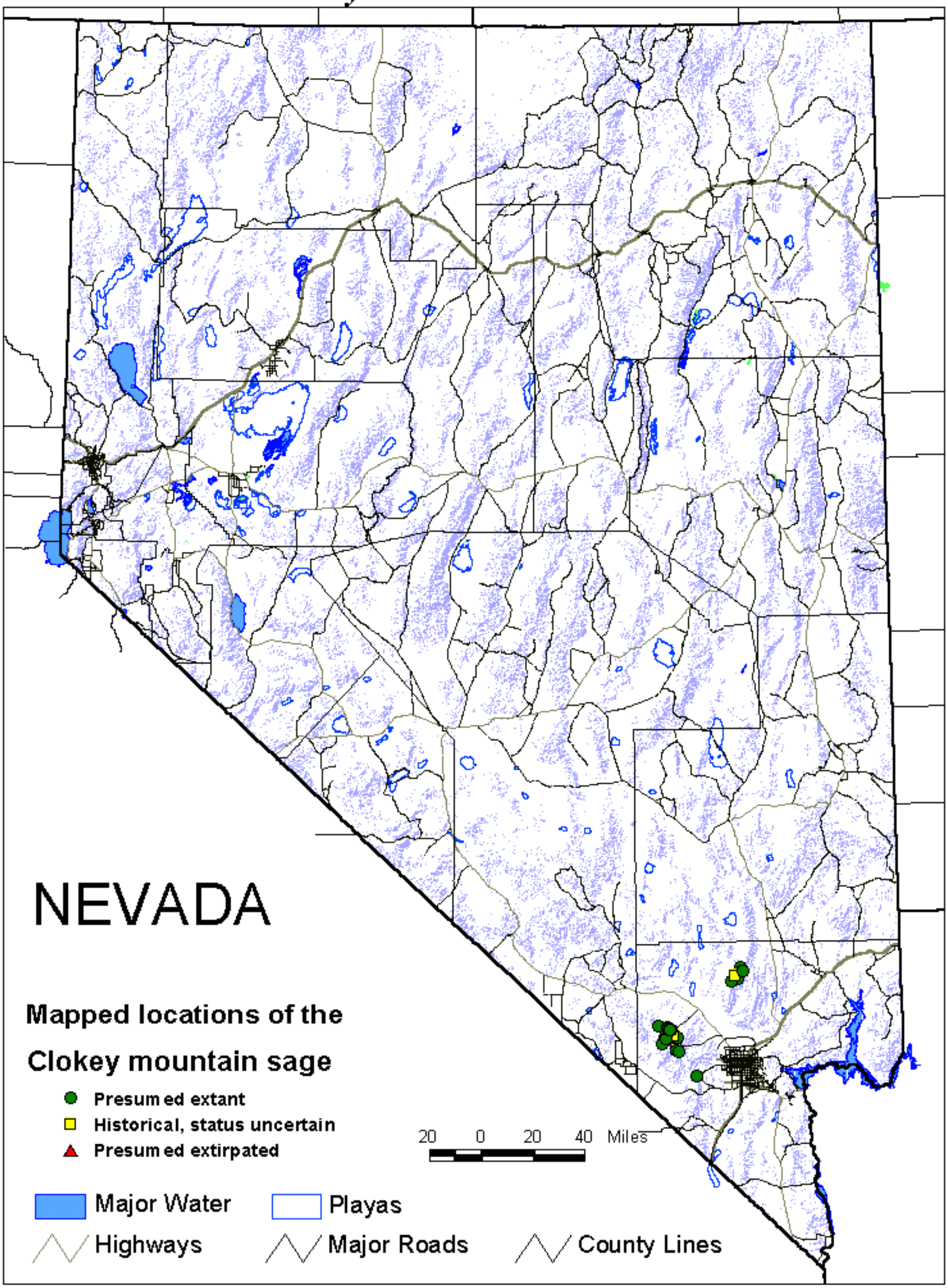
Knapp, C. 1980. Rorippa subumbellata: status in the Lake Tahoe Basin. South Lake Tahoe, California: U. S. Forest Service.

Rollins, R. C. 1941. Some new or noteworthy North American crucifers. Contributions from the Dudley Herbarium 3: 174-184.

Stuckey, R. L. 1972. Taxonomy and distribution of the genus Rorippa (Cruciferae) in North America. Sida 4: 279-426.

OF FURTHER INTEREST: Appears to be a distinct and undisputed species.

Salvia dorrii var. clokeyi



Salvia dorrii (Kellogg) Abrams **var. *clokeyi*** Strachan (1982) **CLOKEY MOUNTAIN SAGE**

FAMILY: *Lamiaceae,* the mint family. **SYNONYMS:** *Salvia carnosa* ssp. *argentea* (in part)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G5 T3 S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 19 occurrences mapped at 1.0 km (0.6 mi) separation, OR **32 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 18,000+**, total estimated **area 46.3+ ha (114+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Surveys have been extensive, but many occurrences likely remain to be documented. Most recent entered survey 1999, average year of last survey 1984. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 3.1%; **6-10 yrs:** 68.8%; **11-20 yrs:** 3.1%; **21-30 yrs:** 9.4%; **31-50 yrs:** 3.1%; **51+ yrs or unknown:** 12.5%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, U. S. Fish and Wildlife Service, U. S. Bureau of Land Management, private lands (?).

RANGE: Clark County, Nevada. Apparently endemic to the Spring and Sheep ranges. Maximum **range dimension 68.1 km (42.3 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 7070-9840 feet (2155-2999 meters).

HABITAT: Shallow, rocky to gravelly carbonate soils on ridges, slopes, and drainages in the pinyon-juniper, montane conifer, mountain mahogany, and subalpine conifer zones.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-September.

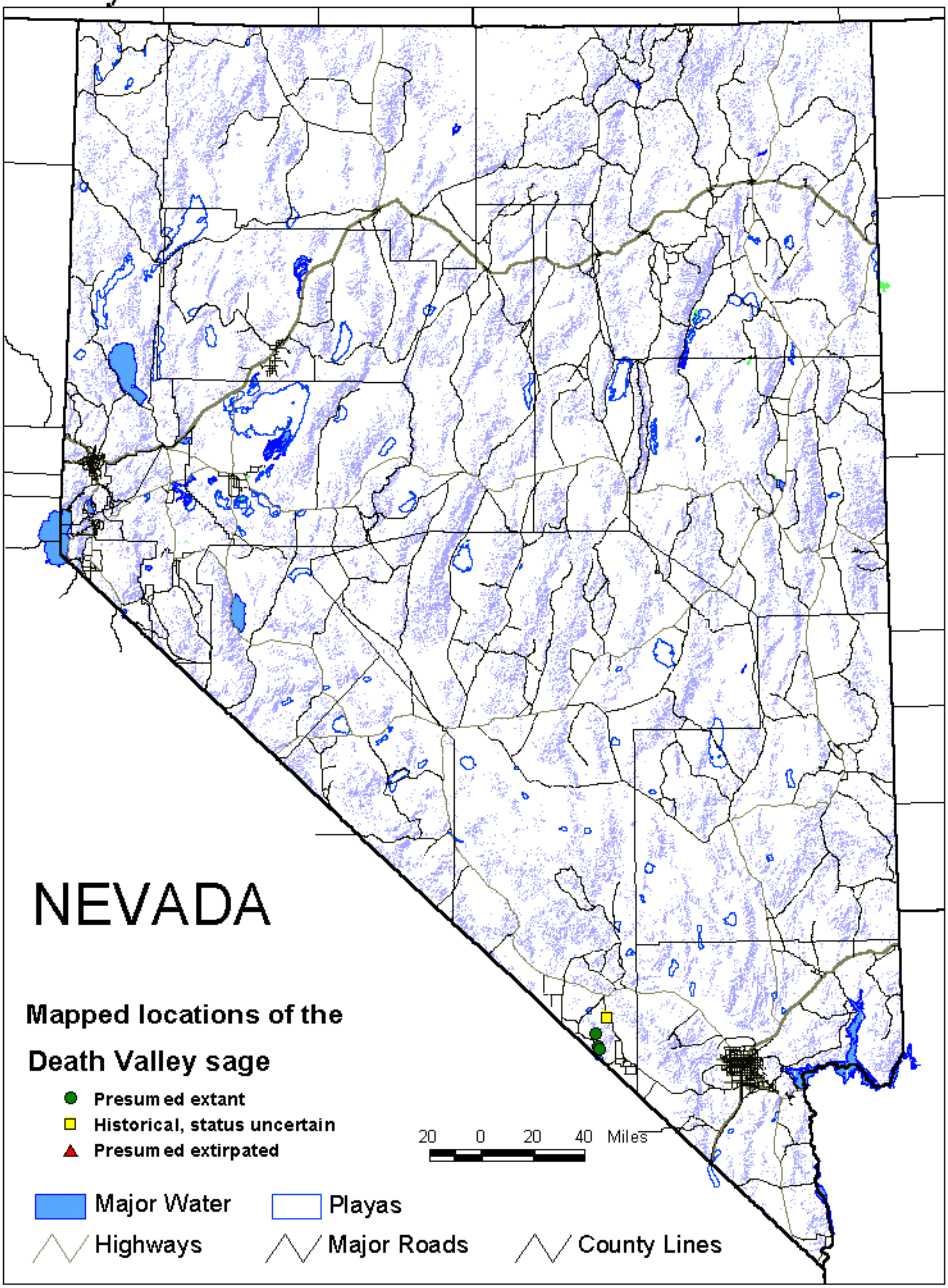
LIFE-FORM AND HABIT: subshrub.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nachlinger (1994), Weixelman and Atwood (1990).
ILLUSTRATIONS: Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Hall (1991), Niles et al. (1999).
SPECIFIC REFERENCES:

Strachan, J. L. 1982. A revision of the Salvia dorrii complex (Lamiaceae). Brittonia 34: 151-169.

Salvia funerea



Salvia funerea M. E. Jones — DEATH VALLEY SAGE

FAMILY: *Lamiaceae,* the mint family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 4 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1998, average year of last survey 1984. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 50%; **21-30 yrs:** 25%; **31-50 yrs:** 25%.

LAND MANAGEMENT (NEVADA): U. S. Bureau of Land Management.

RANGE: Nye County, Nevada; also in CA. Maximum Nevada **range dimension 10.3 km (6.4 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 2600-3500 feet (792-1067 meters).

HABITAT (NEVADA): Dry limestone cliffs, crevices, and adjacent wash gravels in deep sheltered canyons or on north-facing exposures, surrounded by zonal shadscale and creosote bush vegetation.

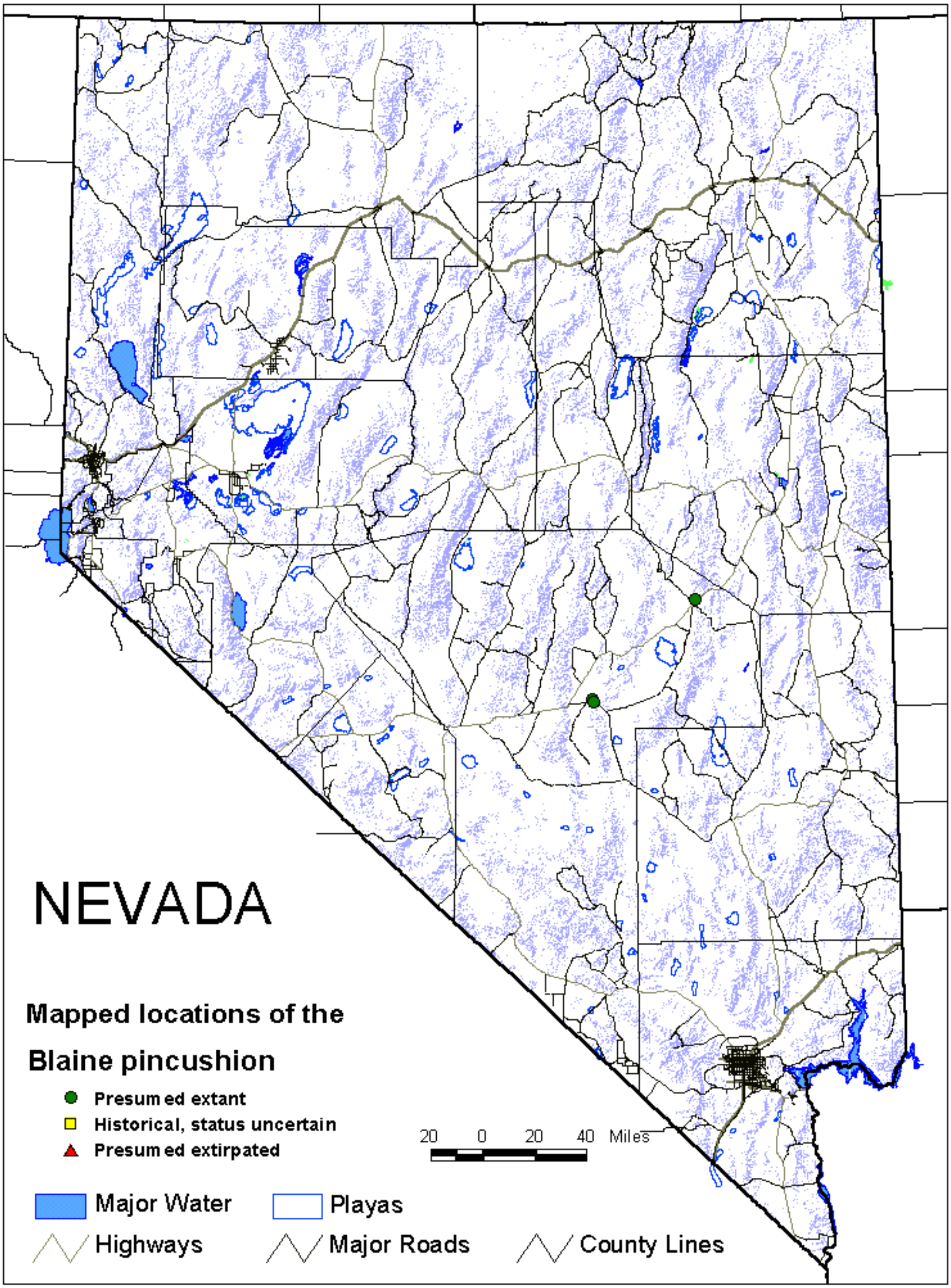
PHENOLOGY: flowering spring. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: shrub.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Niles et al. (1998); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Hickman (1993).

Sclerocactus blainei



Sclerocactus blainei Welsh & Thorne (1985) BLAINE PINCUSHION

FAMILY: *Cactaceae*, the cactus family. **SYNONYMS:** *Sclerocactus spinosior* ssp. *blainei*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1G2Q S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** harvest regulated. **BLM:** Special Status Species in Nevada. **USFS:** none. **NNNPS:** watch list. **CITES:** Appendix II.

POPULATION CENSUS: 3 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Most cacti subject to horticultural collecting.

INVENTORY EFFORT: Not yet systematically surveyed in Nevada. Most recent entered survey 1981, average year of last survey 1980. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 33.3%; **21-30 yrs:** 66.7%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, private lands (?).

RANGE: Nye County, Nevada; also in UT (?). Possible or probable **Nevada endemic.** Maximum **range dimension 88.7 km (55.1 mi)**. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED (NEVADA): 5100-5300 feet (1554-1615 meters).

HABITAT: Alkaline calcareous and volcanic gravelly-clay soils in open valley bottom areas in the shadscale and lower sagebrush zones with Sarcobatus vermiculatus, Pleuraphis jamesii, Atriplex confertifolia, Artemisia tridentata, Ericameria nauseosa, etc.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

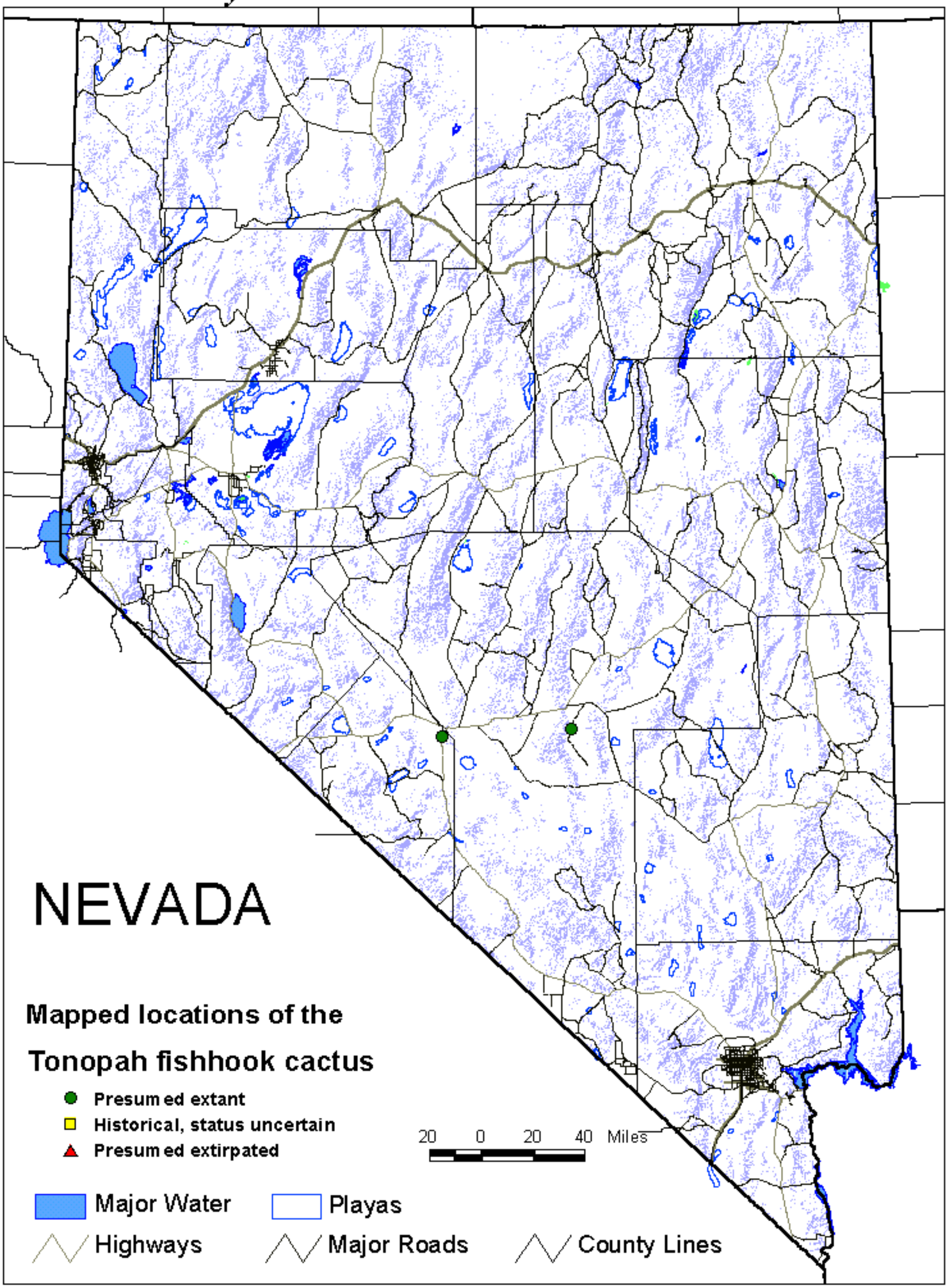
LIFE-FORM AND HABIT: cactus.

DESCRIPTION: A spiny succulent with an oval stem, 3-15 cm tall. Pink-purplish flowers are borne at the tops of the stems in spring.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Welsh and Thorne (1985).
SPECIFIC REFERENCES:

Heil, K. D. and J. M. Porter. 1994. Sclerocactus (Cactaceae): a revision. Haseltonia 2: 20-46.
Hochstaetter, F. 1992. Nieuwe combinaties in het geslacht Sclerocactus. Succulenta 74: 38-44.
Welsh, S. L. and K. H. Thorne. 1985. New Sclerocactus (Cactaceae) from Nevada. Great Basin Naturalist 45: 553-555.

Sclerocactus nyensis



Sclerocactus nyensis Hochstaetter (1992) TONOPAH FISHHOOK CACTUS

FAMILY: *Cactaceae*, the cactus family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1Q S1**
USFWS/ESA: none. **STATE OF NEVADA:** harvest regulated. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 2 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1986, average year of last survey 1984. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT: U. S. Bureau of Land Management.

RANGE: Esmeralda and Nye counties, Nevada. **Nevada endemic.** Maximum **range dimension 79.8 km (49.6 mi)**. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 5760-5800 feet (1756-1768 meters).

HABITAT: Dry rocky soils and low outcrops of rhyolite, tuff, and possibly other rock types, on gentle slopes in open areas or under shrubs in the upper salt desert and lower sagebrush zones.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May.

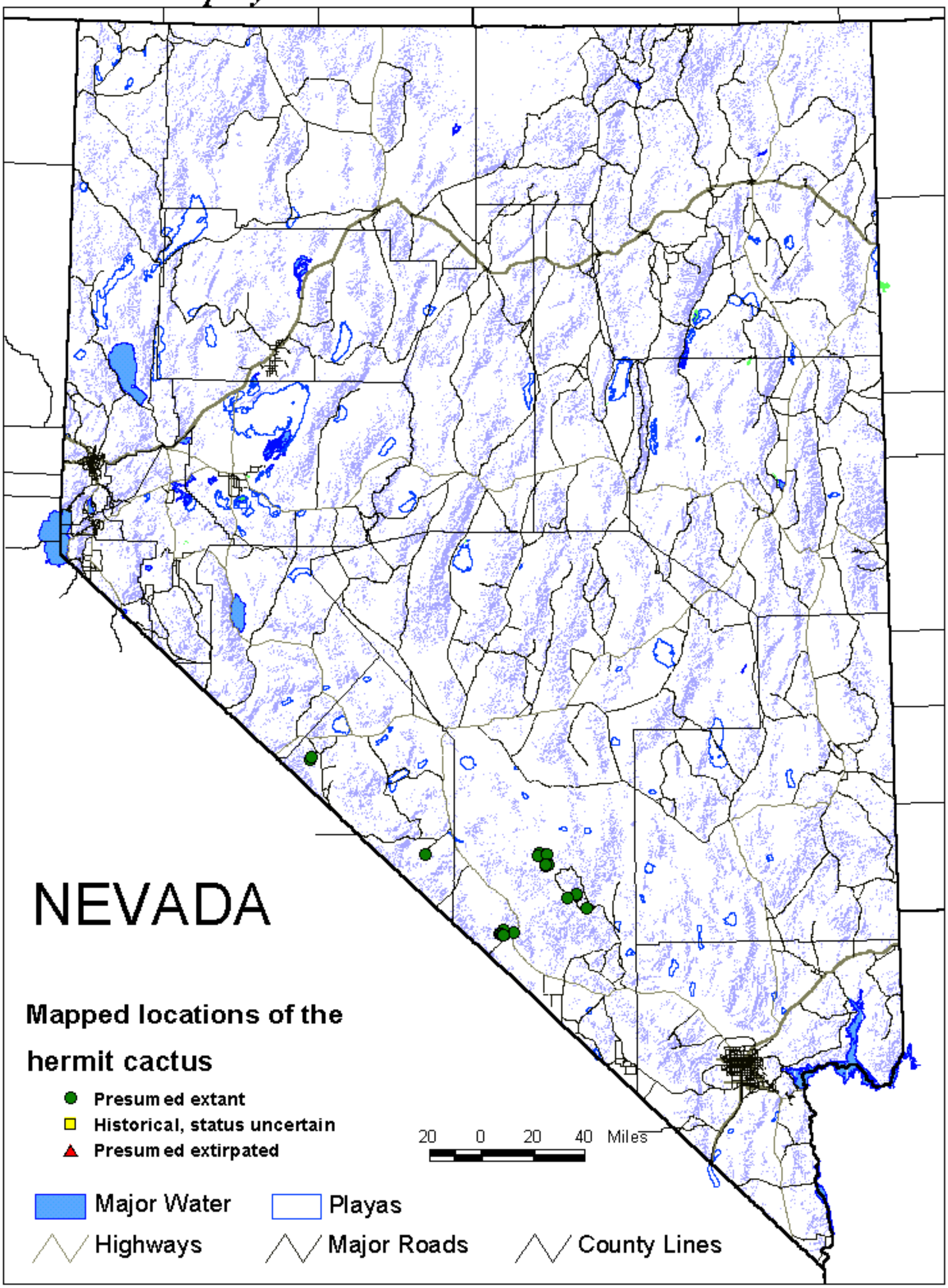
LIFE-FORM AND HABIT: small cactus.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Hochstaetter (1992).
ILLUSTRATIONS: none known.
SPECIFIC REFERENCES:

Heil, K. D. and J. M. Porter. 1994. Sclerocactus (Cactaceae): a revision. Haseltonia 2: 20-46.
Hochstaetter, F. 1992. Het geslacht Sclerocactus: een revisie 1. Succulenta 71: 247-262.
Hochstaetter, F. 1993. The genus Sclerocactus Cactaceae - revised. Mann, Germany. 128 pages.
Welsh, S. L. and K. H. Thorne. 1985. New Sclerocactus (Cactaceae) from Nevada. Great Basin Naturalist 45: 553-555.

Sclerocactus polyancistrus



Sclerocactus polyancistrus (Engelmann & Bigelow) Britton & Rose **HERMIT CACTUS**

FAMILY: *Cactaceae*, the cactus family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4 S2S3**
USFWS/ESA: none. **STATE OF NEVADA:** harvest regulated. **BLM:** none. **USFS:** Inyo NF watch list.
NNNPS: none. **CITES:** Appendix II.

POPULATION CENSUS (NEVADA): 16 occurrences mapped at 1.0 km (0.6 mi) separation, OR **23 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area 6.2+ ha (15.3+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1991, average year of last survey 1982. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 4.3%; **11-20 yrs:** 34.8%; **21-30 yrs:** 56.5%; **31-50 yrs:** 4.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Department of Defense, U. S. Bureau of Land Management, private lands, U. S. Department of Energy.

RANGE: Esmeralda, Mineral, and Nye counties, Nevada; also in CA. Maximum Nevada **range dimension 185.9 km (115.5 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 3400-6220 feet (1036-1896 meters).

HABITAT (not yet reviewed for Nevada): "Basalt rock hillsides, limestone hillsides and desert pavement; on south to southwest facing slopes."

PHENOLOGY: no summary available. Range of most frequent **survey months:** March-June.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Benson (1982), Hall (1991); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976), Cochrane (1979), Hickman (1993).
SPECIFIC REFERENCES:

Bureau of Land Management, Tonopah Resource Area. 1988 (?). Final environmental assessment, Bullfrog project. Tonopah, Nevada.

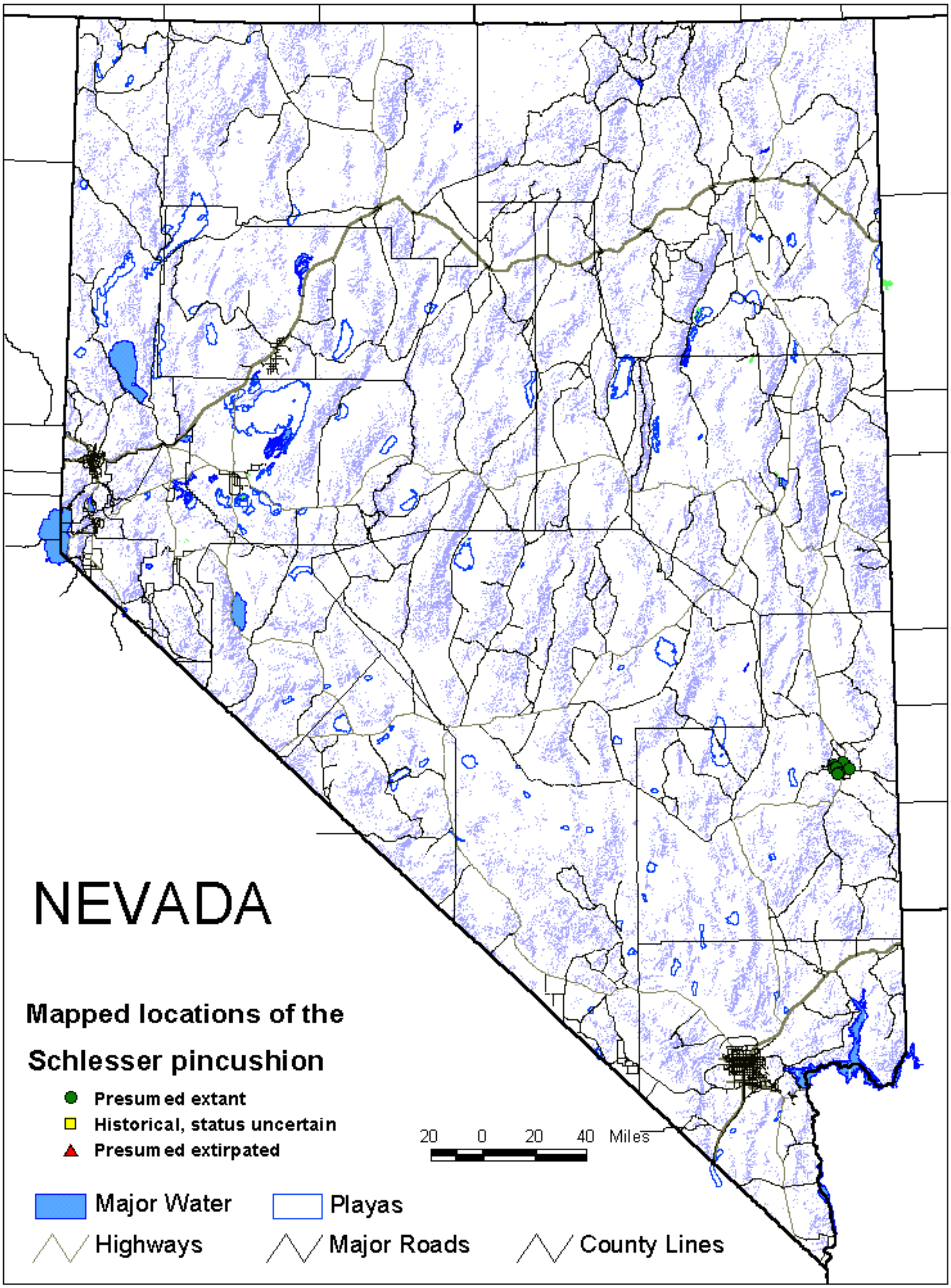
Heil, K. D. and J. M. Porter. 1994. Sclerocactus (Cactaceae): a revision. Haseltonia 2: 20-46.

Knight, T. A. 1989. A rare plant survey of Bare Mountain, Battle Mountain District, Bureau of Land Management, Nye County, Nevada. Carson City: Nevada Natural Heritage Program, prepared for the Battle Mountain District, Bureau of Land Management.

Knight, T. A. 1989. Status report for Astragalus mohavensis S. Watson var. hemigyrus (Clokey) Barneby. Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

OF FURTHER INTEREST: Distinct species. "This is the giant of the genus", Benson.

Sclerocactus schlesseri



Sclerocactus schlesseri Heil & Welsh — SCHLESSER PINCUSHION

FAMILY: *Cactaceae*, the cactus family.

SYNONYMS: *Sclerocactus spinosior* var. *schlesseri*
Sclerocactus blainei (?)
Sclerocactus spinosior ssp. *blainei* (?)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1Q S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** harvest regulated. **BLM:** Special Status Species in Nevada. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 7 occurrences mapped at 1.0 km (0.6 mi) separation, OR **13 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 211**, total estimated **area 54.2 ha (134 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Curtailment or destruction of soil crust and vegetation cover by recreational use, trampling by livestock or feral animals, off-road vehicle use, etc. Also vulnerable to horticultural and hobby collection, some commercial or residential development, mineral exploration and development.

INVENTORY EFFORT: Extensive surveys have been conducted, but further potential habitat likely remains unexamined in Nevada. Most recent entered survey 1993, average year of last survey 1992.
Years since last entered survey (percent of mapped records at various survey ages)**: 6-10 yrs:** 92.3%; **11-20 yrs:** 7.7%.

LAND MANAGEMENT in decreasing predominance: U. S. Bureau of Land Management, Nevada state lands, private lands.

RANGE: Lincoln County, Nevada; also in UT (?). Possible or probable **Nevada endemic.** Maximum **range dimension 7.9 km (4.9 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 4760-5145 feet (1451-1568 meters).

HABITAT: Open, stable or stabilized, gravelly, sandy silt or silty clay soils derived from somewhat ashy and/or gypsiferous lacustrine sediments, on mesic microsites created and/or maintained by gentle north to east aspects, dense shrub and/or grass canopies, high clay and silt content of the soil, and/or cryptobiotic soil crusts, usually associated with such soil crusts in the shadscale zone with Atriplex confertifolia, Gutierrezia sarothrae, Ericameria viscidiflora puberula, Krascheninnikovia lanata, Pleuraphis jamesii, Mentzelia albicaulis, Mimulus parryi, etc.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-June.

LIFE-FORM AND HABIT: small cactus.

DESCRIPTION: A spiny succulent with a more-or-less oval stem, 3-14 cm tall. Flowers are bright pink and funnel-shaped.

PHOTOGRAPHS: Morefield (1994); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.

ILLUSTRATIONS: none known.

SPECIFIC REFERENCES:

Heil, K. and S. Welsh. 1987. New Sclerocactus (Cactaceae) from Nevada. Great Basin Naturalist 46: 677-678.

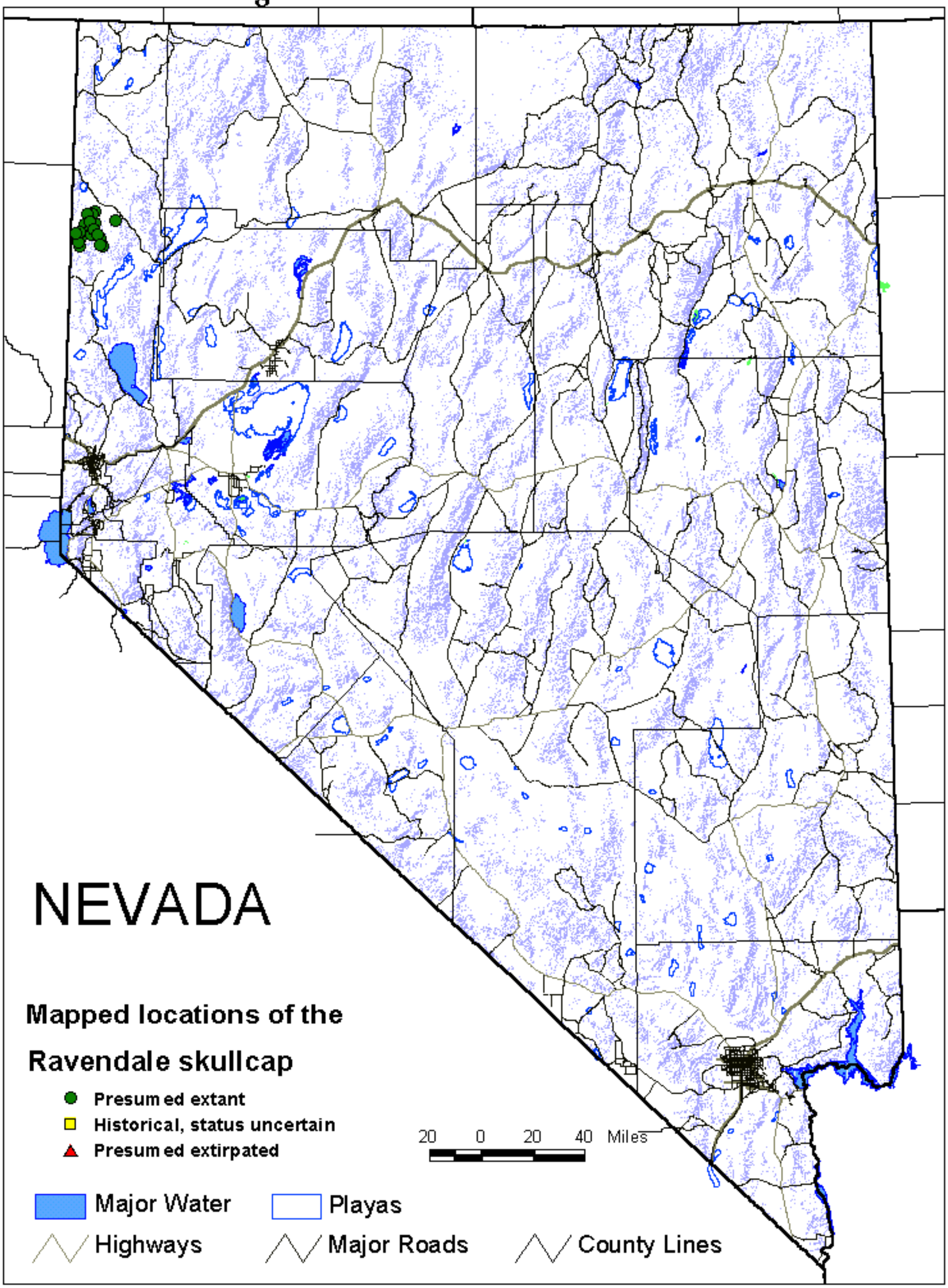
Heil, K. D. and J. M. Porter. 1994. Sclerocactus (Cactaceae): a revision. Haseltonia 2: 20-46.

Hochstaetter, F. 1992. Het geslacht Sclerocactus: een revisie 1. Succulenta 71: 247-262.

Hochstaetter, F. 1992. Nieuwe combinaties in het geslacht Sclerocactus. Succulenta 74: 38-44.

Morefield, J. D. 1994. Status report for Sclerocactus schlesseri Heil and Welsh (1987). Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service and the Bureau of Land Management, Reno.

Scutellaria holmgreniorum



Scutellaria holmgreniorum Cronquist — RAVENDALE SKULLCAP

FAMILY: *Lamiaceae,* the mint family. **SYNONYMS:** *Scutellaria nana* (?)

STATUS: **Heritage Program WATCH LIST, ranks: G3Q S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** Special Status Species in California. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS (NEVADA): 19 occurrences mapped at 1.0 km (0.6 mi) separation, OR **21 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 157,000+**, total estimated **area 308+ ha (761+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys in Nevada have been extensive but remain incomplete. Most recent entered survey 1988, average year of last survey 1986. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT (NEVADA): U. S. Bureau of Land Management.

RANGE: Washoe County, Nevada; also in CA and OR. Maximum Nevada **range dimension 24.1 km (15.0 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 5000-6100 feet (1524-1859 meters).

HABITAT: no summary available (see references).

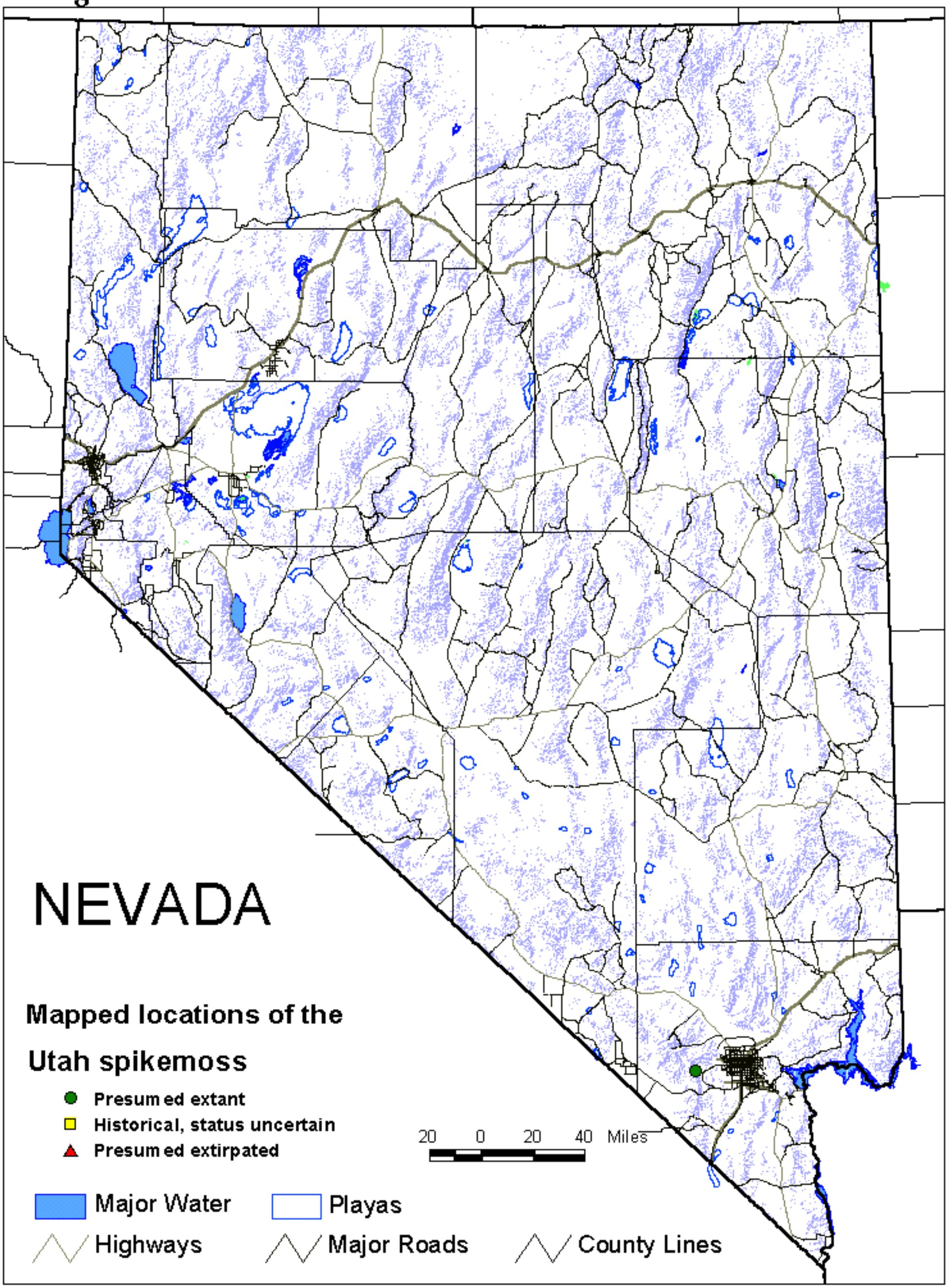
PHENOLOGY: no summary available. Range of most frequent **survey months:** May-July.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nevada Natural Heritage Program images web page (1998-present) and files.
ILLUSTRATIONS: Cronquist (1981), Cronquist et al. (1984).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993).
SPECIFIC REFERENCES:

Cronquist, A. 1981. A new species of Scutellaria (Lamiaceae) from California. Brittonia 33: 449-450.

Selaginella utahensis



Selaginella utahensis Flowers — UTAH SPIKEMOSS

FAMILY: *Selaginellaceae*, the spikemoss family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 SH**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 1 occurrence mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Some targeted surveys have been conducted but have not been comprehensive. Most recent entered survey 1930. **Years since last entered survey** (percent of mapped records at various survey ages)**: 51+ yrs or unknown:** 100%.

LAND MANAGEMENT (NEVADA): U. S. Bureau of Land Management.

RANGE: Clark County, Nevada; also in UT. In Nevada known only from the Red Rock Canyon - Sandstone Cliffs area of the Spring Mountains.

ELEVATIONS RECORDED (NEVADA): 4700 feet (1433 meters).

HABITAT (NEVADA): Sandstone ledges near water in deep canyon.

PHENOLOGY: fertile wet season. Range of most frequent **survey months:** June.

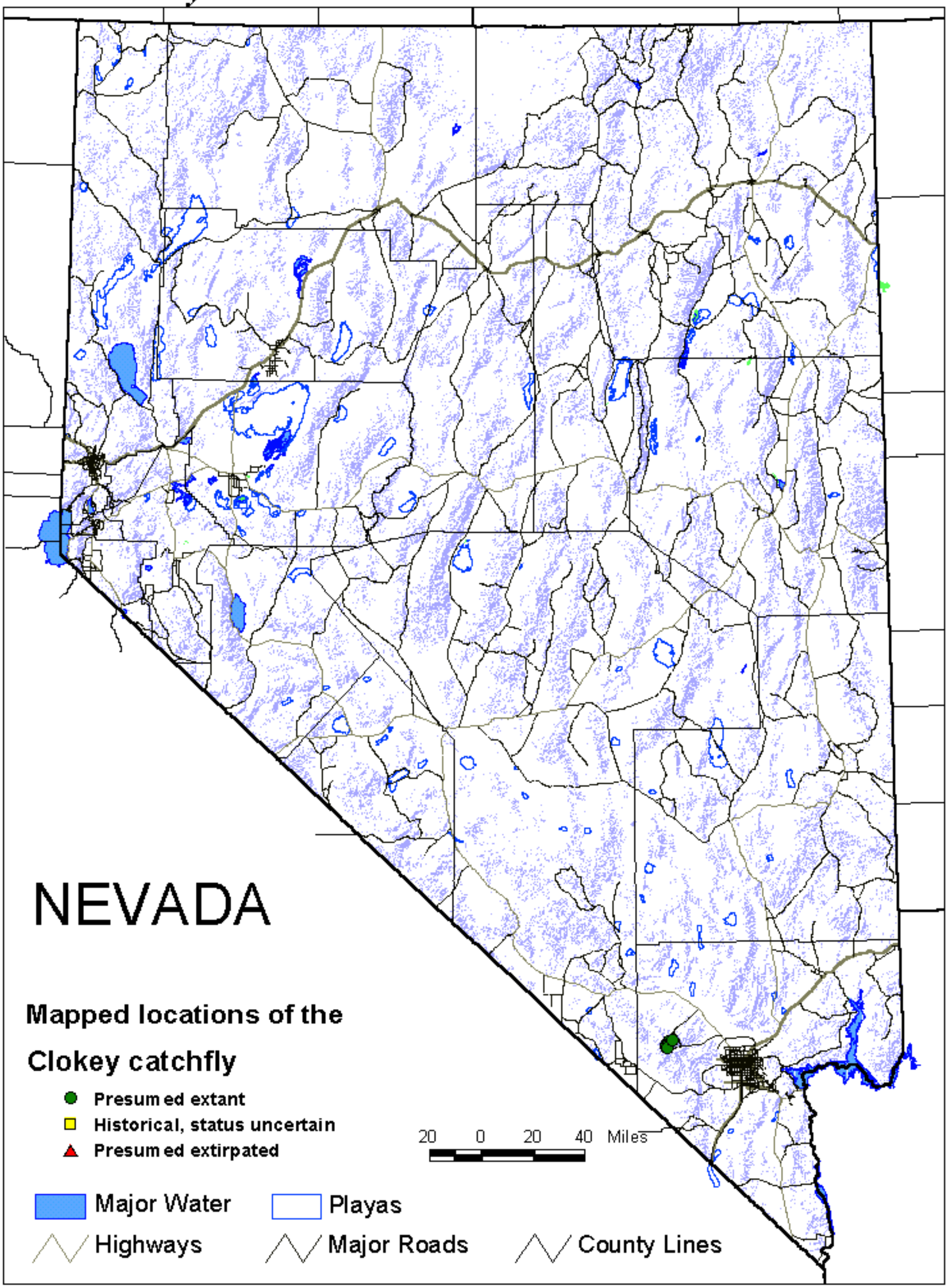
LIFE-FORM AND HABIT: small moss-like evergreen cushion fern-ally.

DESCRIPTION: A perennial moss-like plant that forms dense, flat mats of intertwined branches. Its tiny leaves are pale green with a bluish cast and are tipped with a white bristle. The mats are about 1 cm high.
Distinguishing features: Separated with difficulty from Selaginella leucobryoides, which has more obvious whitish puberulent bristles at the leaf tips, and leaves not in well-defined alternate pseudowhorls (Flora of North America vol. 2, 1993).

PHOTOGRAPHS: Atwood et al. (1991).
ILLUSTRATIONS: Atwood et al. (1991), Cronquist et al. (1972), Mozingo and Williams (1980).
OTHER GENERAL REFERENCES (listed separately): Albee et al. (1988), Flora of North America editorial Committee (1993), Lellinger (1985), Welsh et al. (1993).
SPECIFIC REFERENCES:
Flowers, S. 1949. A new Selaginella from southwestern Utah. American Fern Journal 39: 83-86.

OF FURTHER INTEREST: Only minutely and somewhat doubtfully distinct from Selaginella leucobryoides (Flora of North America vol. 2, 1993).

Silene clokeyi



Silene clokeyi C. L. Hitchcock & Maguire (1947) CLOKEY CATCHFLY

FAMILY: *Caryophyllaceae*, the pink family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 3 occurrences mapped at 1.0 km (0.6 mi) separation, OR **8 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 9107+**, total estimated **area 3.2+ ha (7.9+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Free roaming horses, foot-traffic on unstable slopes, increased recreational use of the area.

INVENTORY EFFORT: Substantial targeted surveys have been conducted but remain incomplete. Most recent entered survey 1999, average year of last survey 1994. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 12.5%; **6-10 yrs:** 87.5%.

LAND MANAGEMENT in decreasing predominance: designated wilderness, Humboldt-Toiyabe National Forest, private lands, U. S. Bureau of Land Management (?).

RANGE: Clark County, Nevada. Endemic to the Spring Mountains. Maximum **range dimension 5.6 km (3.5 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 9940-11580 feet (3030-3530 meters).

HABITAT: Dry to moist carbonate scree, talus, and loose rocky soils on ridges, flats, and steep slopes, often near persistent snow banks, in open areas in the lower alpine and upper subalpine conifer zones with Ribes montigenum, Trisetum spicatum, Elymus elymoides, Erigeron clokeyi, Aquilegia scopulorum, Ivesia cryptocaulis, Penstemon leiophyllus var. keckii, Draba jaegeri, Sphaeromeria compacta, Antennaria soliceps, Synthyris ranunculina, Lesquerella hitchcockii, Pinus longaeva, etc.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** July-August.

LIFE-FORM AND HABIT: small perennial herb from a buried root crown.

DESCRIPTION: A perennial herb with many stems, 5-12 cm high. The flowering stems bear single, nodding, pink-purple flowers with conspicuously lobed petals. Flowers in July.

PHOTOGRAPHS: Nachlinger (1994), Weixelman and Atwood (1990); Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Knight (1992), Niles et al. (1999).
SPECIFIC REFERENCES:

Chatterley, M. 1980. Status report for Silene clokeyi. Portland, Oregon: U. S. Fish and Wildlife Service.

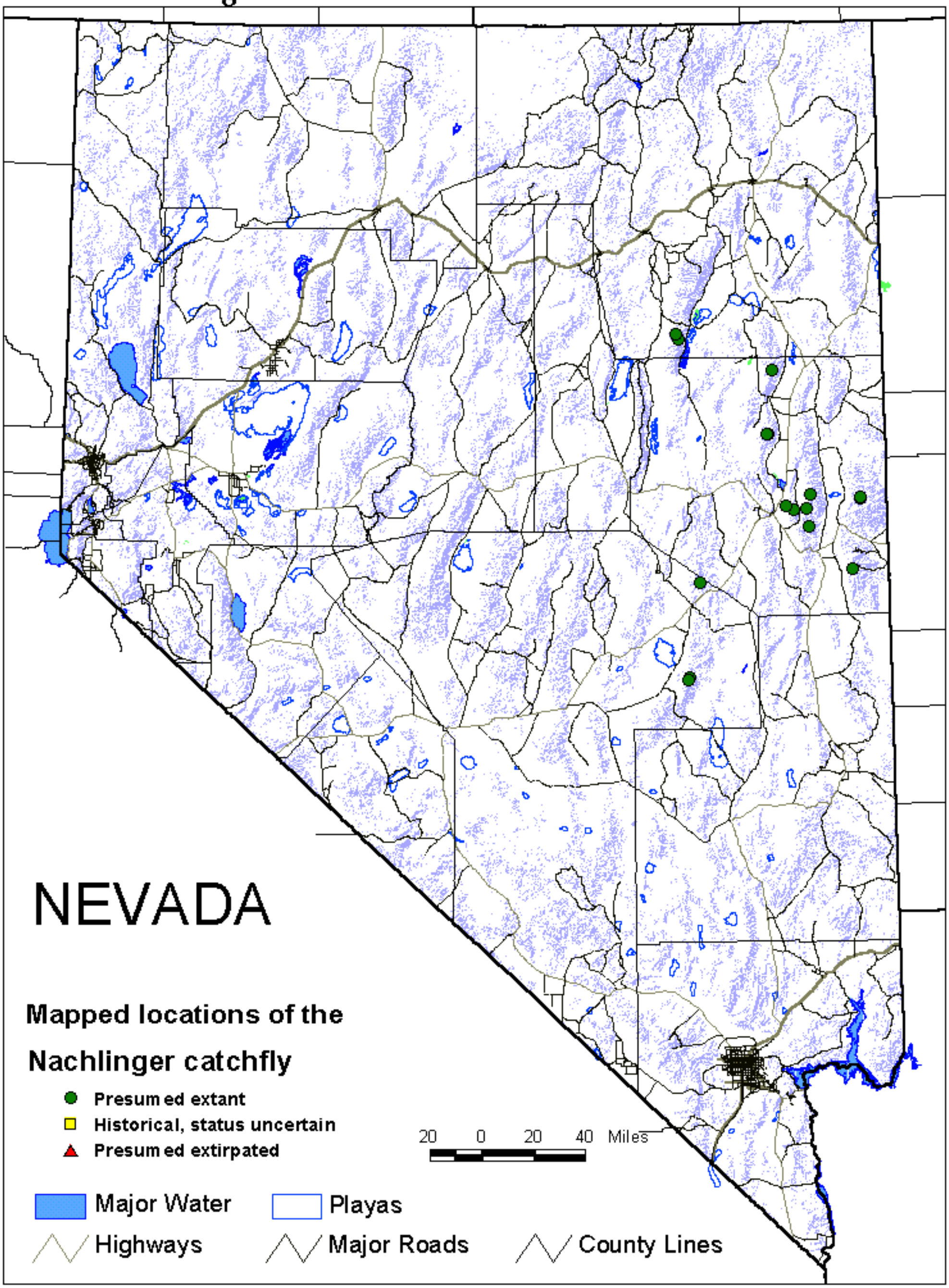
Hitchcock, L. and B. Maguire. 1947. A revision of the North American species of Silene. University of Washington Publications in Biology 13: 1-73.

Smith, F. 1995. Status report for Antennaria soliceps. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 11 pages + two appendices.

Smith, F. 1995. Status report for Ivesia cryptocaulis. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 11 pages + two appendices.

Smith, F. 1995. Status report for Sphaeromeria compacta. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 10 pages + two appendices.

Silene nachlingerae



Silene nachlingerae Tiehm — NACHLINGER CATCHFLY

FAMILY: *Caryophyllaceae*, the pink family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 14 occurrences mapped at 1.0 km (0.6 mi) separation, OR **16 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area 14.2+ ha (35.1+ ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS: Little - inaccessible.

INVENTORY EFFORT: A systematic survey has been conducted, but much potential habitat remains to be examined. Most recent entered survey 1998, average year of last survey 1990. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 43.8%; **6-10 yrs:** 6.3%; **11-20 yrs:** 50%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, designated wilderness, National Park Service.

RANGE: Elko, Nye, and White Pine counties, Nevada. **Nevada endemic.** Maximum **range dimension 211.7 km (131.6 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 7160-11250 feet (2182-3429 meters).

HABITAT: Generally dry, exposed or somewhat sheltered carbonate (rarely quartzite) crevices in ridgeline outcrops, talus, or very rocky soils on or at the bases of steep slopes or cliffs, on all aspects but predominantly on northwesterly to northeasterly exposures, mainly in the subalpine conifer zone with sparse Petrophytum caespitosum, Erigeron cf. simplex, Pinus flexilis, P. longaeva, Artemisia arbuscula, Cercocarpus betuloides, Ericameria watsonii, Symphoricarpos oreophila, Leucopoa nevadensis, Jamesia tetrapetala, Primula nevadensis, etc.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** July-August.

LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: A perennial herb, 6-25 cm high, that produces 2-4 white to purple petaled flowers per stem; the petals mostly enclosed by the tubular purple calyx. Blooms in August and September.

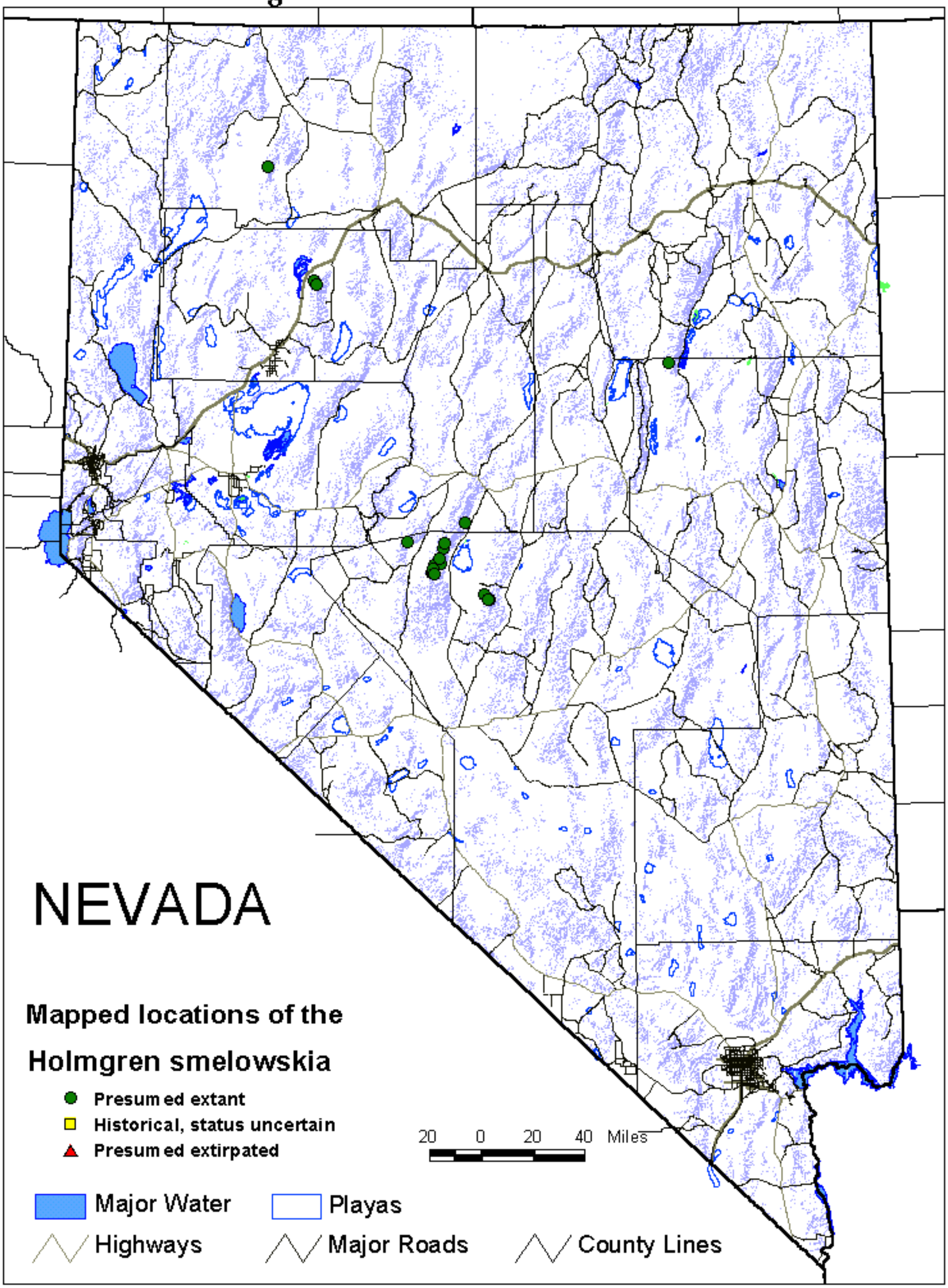
PHOTOGRAPHS: Anderson et al. (1991).
ILLUSTRATIONS: Anderson et al. (1991), Tiehm (1985).
SPECIFIC REFERENCES:

Holland, R. F. 1999. Current knowledge and conservation status of Silene nachlingerae Tiehm (Caryophyllaceae), Jan's catchfly, in Nevada [July 1997]. Carson City: Nevada Natural Heritage Program, DRAFT status report prepared for the Bureau of Land Management, Reno.

Lyman, J. and A. Sanders. 1993. Mount Moriah botanical survey, Mount Moriah Wilderness-Humboldt National Forest, White Pine County, Nevada. Riverside: University of California, DRAFT report prepared for the Humboldt National Forest, Ely, Nevada.

Tiehm, A. 1985. A new species and a new combination in western North American Silene (Caryophyllaceae). Brittonia 37: 344-346.

Smelowskia holmgrenii



Smelowskia holmgrenii Rollins (1950) **HOLMGREN SMELOWSKIA**

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 S2S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** none.

POPULATION CENSUS: 17 occurrences mapped at 1.0 km (0.6 mi) separation, OR **18 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 587+**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Mining heavily in both Toiyabe and Toquima Mtns., keep close watch on both.

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1989, average year of last survey 1977. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 22.2%; **21-30 yrs:** 66.7%; **51+ yrs or unknown:** 11.1%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, U. S. Bureau of Land Management, private lands.

RANGE: Humboldt, Lander, Nye, Pershing, and White Pine counties, Nevada. **Nevada endemic.** Maximum **range dimension 303.1 km (188.3 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 6500-11350 feet (1981-3459 meters).

HABITAT: Crevices, ledges, rubble, or small soils pockets on rock outcrops and cliffs, from high-elevation ridges to north-facing walls at lower elevations, on various rock types in the lower alpine, subalpine conifer, mountain sagebrush, and upper pinyon-juniper zones.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-July.

LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: A perennial herb with a basal rosette of erect leaves and stems about 1-1.5 dm tall. Small white flowers bloom June-August.

PHOTOGRAPHS: Tiehm (1989); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Mozingo and Williams (1980), Rollins (1950).
OTHER GENERAL REFERENCES (listed separately): Goodrich (1981), Rollins (1993).
SPECIFIC REFERENCES:

Atwood, N. D. 1978. Status report for Primula capillaris. Portland, Oregon: U. S. Fish and Wildlife Service.

Drury, W. H. and R. C. Rollins. 1952. The North American representatives of Smelowskia (Cruciferae). Rhodora 54: 85-119.

Goodrich, S. 1979. Status report on Mertensia toyabensis. Portland, Oregon: U. S. Fish and Wildlife Service.

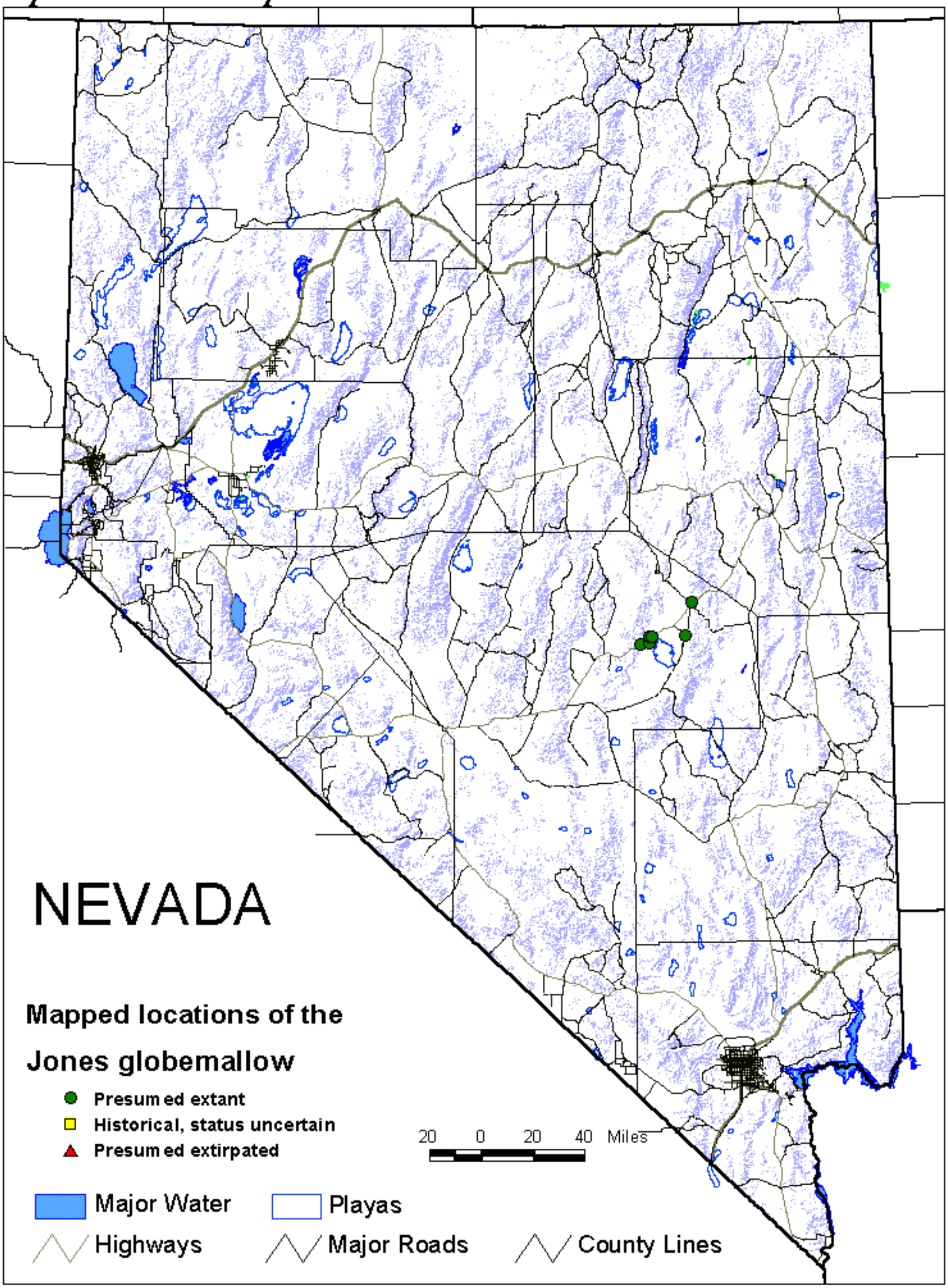
Rollins, R. C. 1950. Studies on some North American Cruciferae. Contributions from the Gray Herbarium 171: 42-53.

Smith, F. 1989. Rare plant survey, southern Ruby Mountains project, Humboldt National Forest, Elko and White Pine counties, Nevada. Carson City: Nevada Natural Heritage Program.

Tiehm, A. 1989. Proposed threatened and endangered plants of the Humboldt Range, Pershing County, Nevada. Carson City: Nevada Natural Heritage Program.

Tiehm, A. 1989. Survey for Oryctes nevadensis, Churchill County, Nevada. Reno, Nevada: Environmental Management Associates. 8 pages.

Sphaeralcea caespitosa



Sphaeralcea caespitosa M. E. Jones — JONES GLOBEMALLOW

FAMILY: *Malvaceae,* the mallow family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 6 occurrences mapped; total estimated **individuals 17,000+**, total estimated **area 281+ ha (694+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Systematic surveys have been conducted in Nevada, but more potential habitat likely remains to be examined. Most recent entered survey 1989, average year of last survey 1970.
Years since last entered survey (percent of mapped records at various survey ages)**: 11-20 yrs:** 50%; **21-30 yrs:** 16.7%; **51+ yrs or unknown:** 33.3%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: U. S. Bureau of Land Management, Nevada state lands, private lands.

RANGE: Nye County, Nevada; also in UT. Maximum Nevada **range dimension 28.9 km (17.9 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 4770-5310 feet (1454-1618 meters).

HABITAT (not yet reviewed for Nevada): "Sevy Dolomite rock calcareous soil; mixed shrub, pinyon-juniper, and grass community. Elevation 1525-1983 meters."

PHENOLOGY: no summary available. Range of most frequent **survey months:** May.

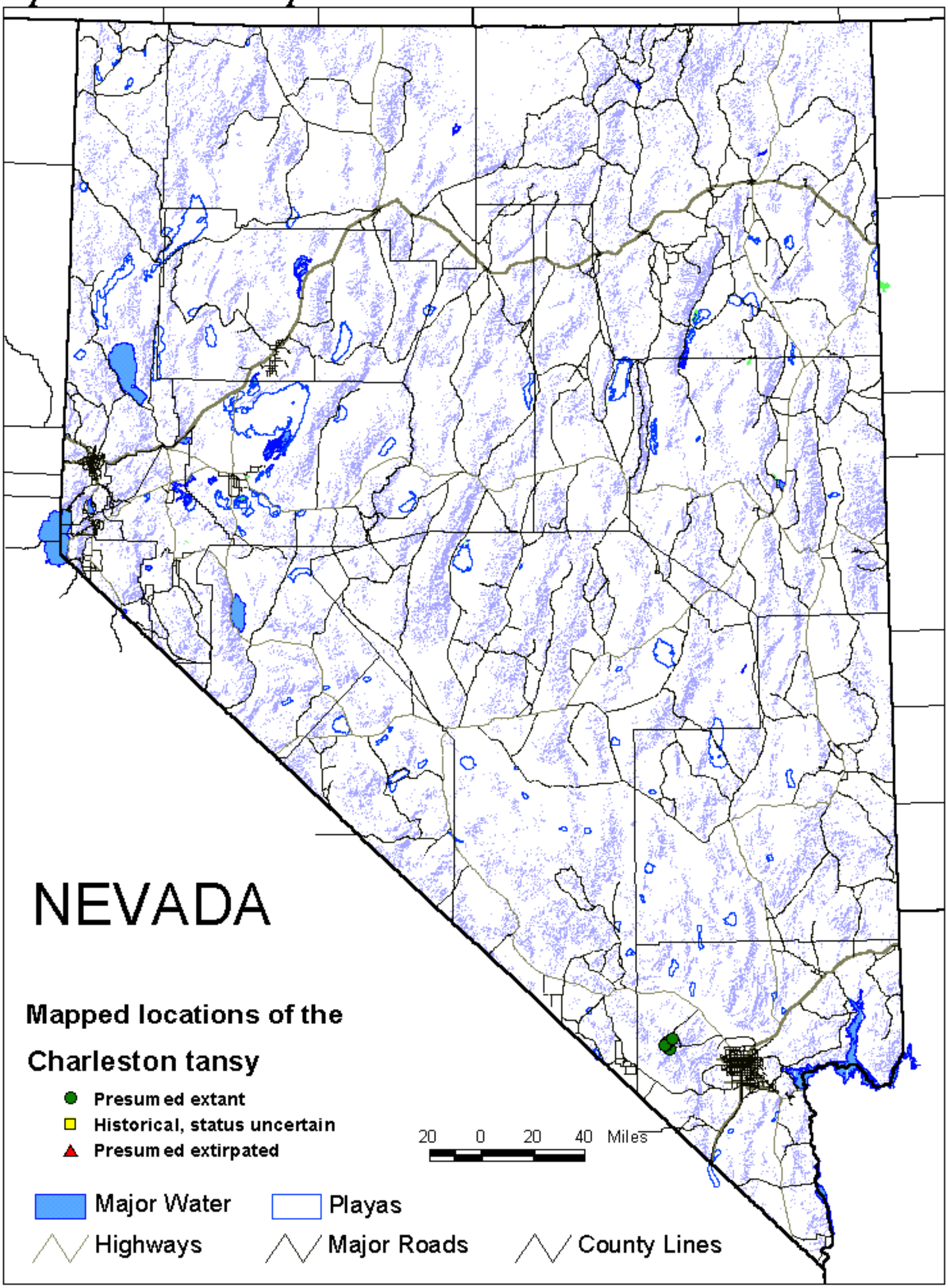
DESCRIPTION: not available (see references).

PHOTOGRAPHS: Atwood et al. (1991); Nevada Natural Heritage Program slide collection (1986-present).
ILLUSTRATIONS: Atwood et al. (1991), Mozingo and Williams (1980).
SPECIFIC REFERENCES:

Janik, A. 1989. Survey for sensitive plant species distributions in the following pits: NYO4, NYO5-4, NYO5-3. Carson City: Nevada Natural Heritage Program files.

Knight, T. A. 1987. A survey of sensitive plant species in selected areas of Railroad Valley, Nye County, Nevada. Carson City: Nevada Natural Heritage Program, status report prepared for the Bureau of Land Management, Battle Mountain District.

Sphaeromeria compacta



Sphaeromeria compacta (Hall [1916]) Holmgren, Shultz & Lowrey — CHARLESTON TANSY

FAMILY: *Asteraceae*, the sunflower family. **SYNONYMS:** *Tanacetum compactum*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern, formerly CANDIDATE or PROPOSED. **STATE OF NEVADA:** none.
BLM: none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 5 occurrences mapped at 1.0 km (0.6 mi) separation, OR **12 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 28,000+**, total estimated **area 47.0+ ha (116+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Free roaming horses, hiking and increased development from nearby Las Vegas area, trail system with overnight camping.

INVENTORY EFFORT: Systematic surveys are complete. Most recent entered survey 1999, average year of last survey 1994. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 8.3%; **6-10 yrs:** 91.7%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, private lands.

RANGE: Clark County, Nevada. Endemic to the Spring Mountains of Nevada. Maximum **range dimension 5.0 km (3.1 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 9680-11810 feet (2950-3600 meters).

HABITAT: Carbonate scree, talus, outcrops, and rocky fellfields on ridges and slopes in the lower alpine and upper subalpine conifer zones with Elymus elymoides, Petrophytum cespitosum, Jamesia americana, Erigeron clokeyi, Oenothera caespitosa, Boykinia jamesii, Astragalus platytropis, Castilleja martinii var. clokeyi, Ribes montigenum, Festuca brachyphylla, Senecio multilobatus, Aquilegia scopulorum, Trisetum spicatum, Heuchera rubescens, Pinus longaeva, Lesquerella hitchcockii, Antennaria soliceps, Ivesia cryptocaulis, Cirsium clokeyi, Penstemon leiophyllus var. keckii, Synthyris ranunculina, Ivesia jaegeri, Draba jaegeri, Silene clokeyi, etc.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** July-August.

LIFE-FORM AND HABIT: small long-lived perennial cushion.

DESCRIPTION: A mound-forming perennial herb with silvery, fan-shaped leaves. Pale yellow flower heads are borne singly on stems 2-4 cm tall. Blooms in late July and August.

PHOTOGRAPHS: Weixelman and Atwood (1990); Nevada Natural Heritage Program slide collection (1986-present) and files.

ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).

OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Knight (1992), Nachlinger (1994), Niles et al. (1999).

SPECIFIC REFERENCES:

Bayer, R. J., and T. M. Minish. 1993. Isozyme variation, ecology and phytogeography of Antennaria soliceps (Asteraceae: Inuleae), an alpine apomict from the Spring Mountains, Nevada. Madroño 40(2): 75-89.

Hall, H. M. 1916. Two new Compositae from Nevada. Muhlenbergia 2: 342-344.

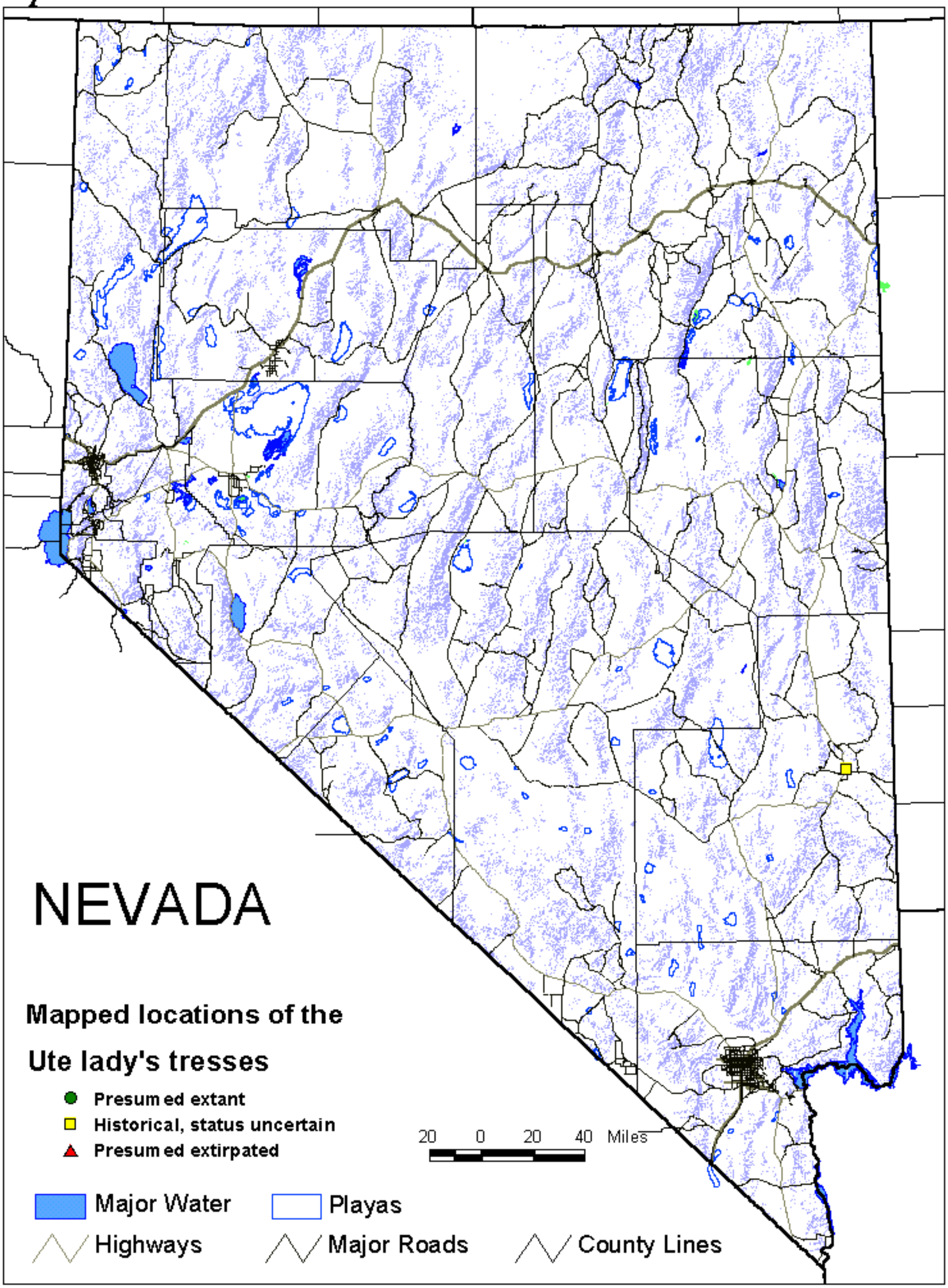
Holmgren, A. H., L. M. Shultz, and T. K. Lowrey. 1976. Sphaeromeria, a genus closer to Artemisia than to Tanacetum (Asteraceae: Anthemideae). Brittonia 28: 252-262.

Smith, F. 1995. Status report for Antennaria soliceps. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 11 pages + two appendices.

Smith, F. 1995. Status report for Ivesia cryptocaulis. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 11 pages + two appendices.

Smith, F. 1995. Status report for Sphaeromeria compacta. Reno: The Nature Conservancy, prepared for the U. S. Fish and Wildlife Service, Reno. 10 pages + two appendices.

Spiranthes diluvialis



Spiranthes diluvialis Sheviak — UTE LADY'S TRESSES

FAMILY: *Orchidaceae*, the orchid family. **SYNONYMS:** *Spiranthes romanzoffiana* (misapplied)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 SH**
USFWS/ESA: LISTED THREATENED. **STATE OF NEVADA:** FULLY PROTECTED. **BLM:** Special Status Species in Nevada. **USFS:** Threatened. **NNNPS:** THREATENED. **CITES:** Appendix II.

POPULATION CENSUS (NEVADA): 1 occurrence mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): Heavy summer livestock grazing and hay mowing, agricultural conversion, private developments. Last seen in Nevada in 1936, and may already be extirpated.

INVENTORY EFFORT (NEVADA): Systematic surveys have been conducted in Nevada, but likely remain incomplete. Most recent entered survey 1997. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 100%.

LAND MANAGEMENT (NEVADA): private lands.

RANGE: Lincoln and White Pine (?) counties, Nevada; also in CO, ID, MT, NE, UT, and WY.

ELEVATIONS RECORDED (NEVADA): 4750 feet (1448 meters).

HABITAT (NEVADA): Moist to very wet, somewhat alkaline or calcareous native meadows near streams, springs, seeps, lake shores, or in abandoned stream meanders that still retain ample ground water, global elevation range 4200-5300. Aquatic or wetland-dependent in Nevada.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** July.

LIFE-FORM AND HABIT: cormous perennial herb.

DESCRIPTION: Ute Ladies' Tresses is a perennial orchid with usually 1 stem that is 20-50 cm tall and arising from tuberously thickened roots. Its narrow leaves are 1 cm wide, can reach 28 cm long, are longest at their base, and persist during flowering. The inflorescence consists of few to many white or ivory flowers clustered in a spike of 3-rank spirals at the top of the stem. The sepals and petals are ascending or perpendicular to the stem. The lateral sepals often spread abruptly from the base of the flower, and sepals are free or only slightly connate at the base. The lip petal is somewhat constricted at the median. **Distinguishing features:** S. DILUVIALIS is intermediate between its putative progenitors, S. ROMANZOFFIANA and S. MAGNICAMPORUM; the latter is not known from Montana. S. DILUVIALIS is distinguished from S. ROMANZOFFIANA by its whitish, stout, ringent (gaping at the mouth) flowers, by its lip petal being exposed in lateral view, and by its sepals being free or connate at the base for a short distance rather than fused to form a hood above the lip.

PHOTOGRAPHS: Atwood et al. (1991), Fertig et al. (1994); Nevada Natural Heritage Program images web page (1998-present).
ILLUSTRATIONS: Atwood et al. (1991), Fertig et al. (1994).
OTHER GENERAL REFERENCES (listed separately): Albee et al. (1988), Welsh et al. (1993).
SPECIFIC REFERENCES:

Colorado Native Plant Society. 1989. Rare plants of Colorado. Estes Park: Colorado Native Plant Society and Rocky Mountain Nature Association. 73 pages.

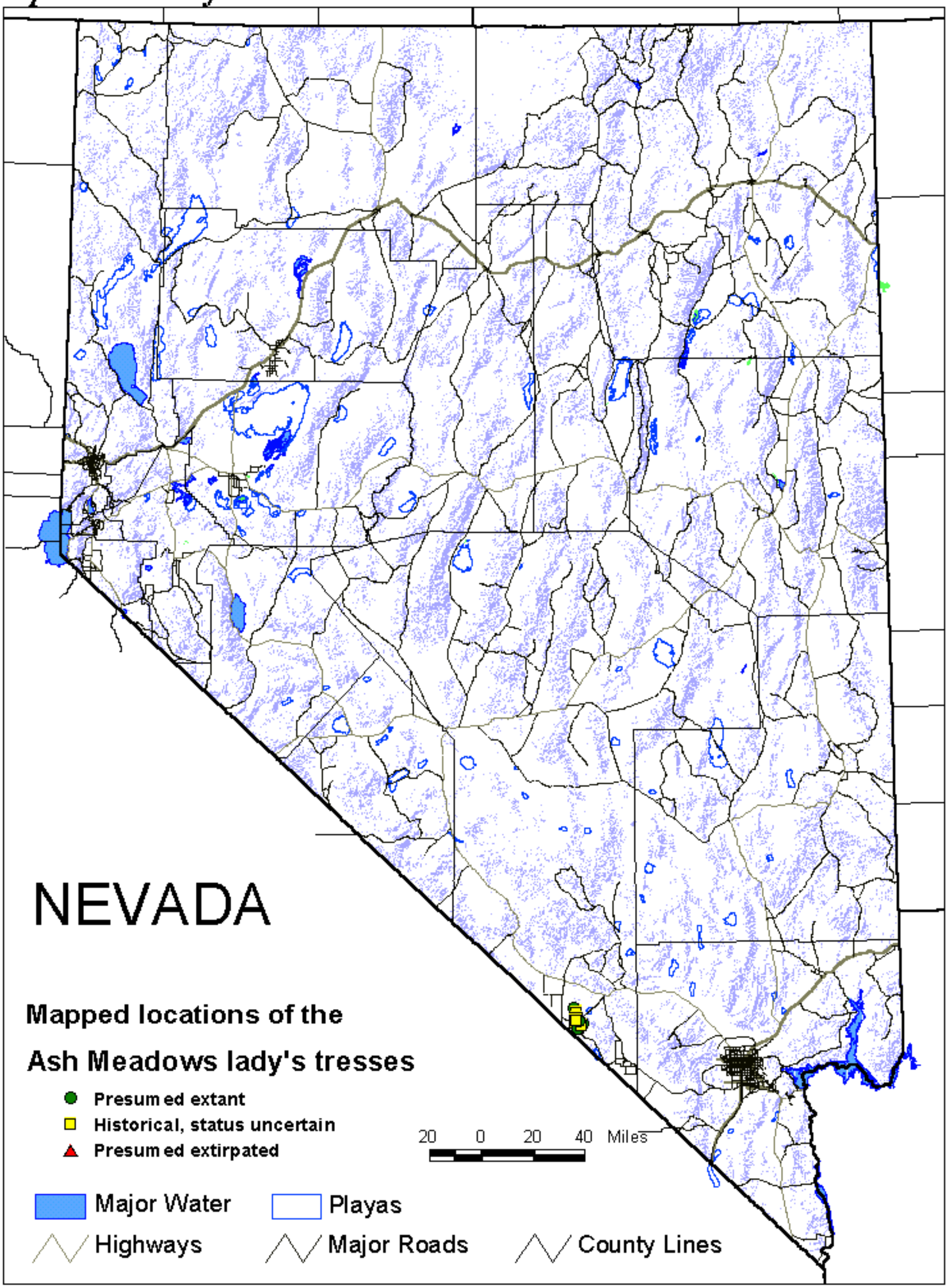
Morefield, J. D. 1994. Status report for Spiranthes diluvialis Sheviak (1984). Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

Sheviak, C. J. 1984. Spiranthes diluvialis, a new species from the western United States. Brittonia 36: 8-14.

U. S. Fish and Wildlife Service. 1990. Proposal to list the plant Spiranthes diluvialis (Ute ladies'-tresses) as a threatened species. Federal Register 55(219): 47347-47350.

U. S. Fish and Wildlife Service. 1992. Final rule to list the plant Spiranthes diluvialis (Ute ladies'-tresses) as a threatened species. Federal Register 57(12): 2048-2054.

Spiranthes infernalis



Spiranthes infernalis Sheviak (1989) ASH MEADOWS LADY'S TRESSES

FAMILY: *Orchidaceae*, the orchid family. **SYNONYMS:** *Spiranthes romanzoffiana* var. *porrifolia* (misapplied)

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none.
NNNPS: THREATENED.

POPULATION CENSUS: 11 occurrences mapped at 1.0 km (0.6 mi) separation, OR **15 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 1107+**, total estimated **area 11.4+ ha (28.2+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Orchid collectors.

INVENTORY EFFORT: Surveys are largely complete, but a few undocumented occurrences probably remain. Most recent entered survey 1998, average year of last survey 1991. **Years since last entered survey** (percent of mapped records at various survey ages)**: 0-5 yrs:** 6.7%; **6-10 yrs:** 20%; **11-20 yrs:** 73.3%.

LAND MANAGEMENT in decreasing predominance: U. S. Fish and Wildlife Service, private lands.

RANGE: Nye County, Nevada. Endemic to the Ash Meadows area. Maximum **range dimension 11.7 km (7.3 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 2190-2340 feet (668-713 meters).

HABITAT: Permanently to seasonally wet alkaline meadows, often near the edges of spring outflows, in the creosote-bursage and shadscale zones with Eleocharis rostellata, Fimbristylis thermalis, Juncus balticus, Distichlis spicata, Spartina gracilis, Anemopsis californica, Centaurium namophilum, Grindelia fraxinopratensis, Mentzelia leucophylla, Cordylanthus tecopensis, Lythrum californicum, Schoenus nigricans, Prosopis pubescens, Tamarix ramosissima, Fraxinus velutina, Sporobolus airoides, Helianthus nuttallii, Thelypodium integrifolium, etc. Aquatic or wetland-dependent.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-August.

LIFE-FORM AND HABIT: tuberous perennial herb.

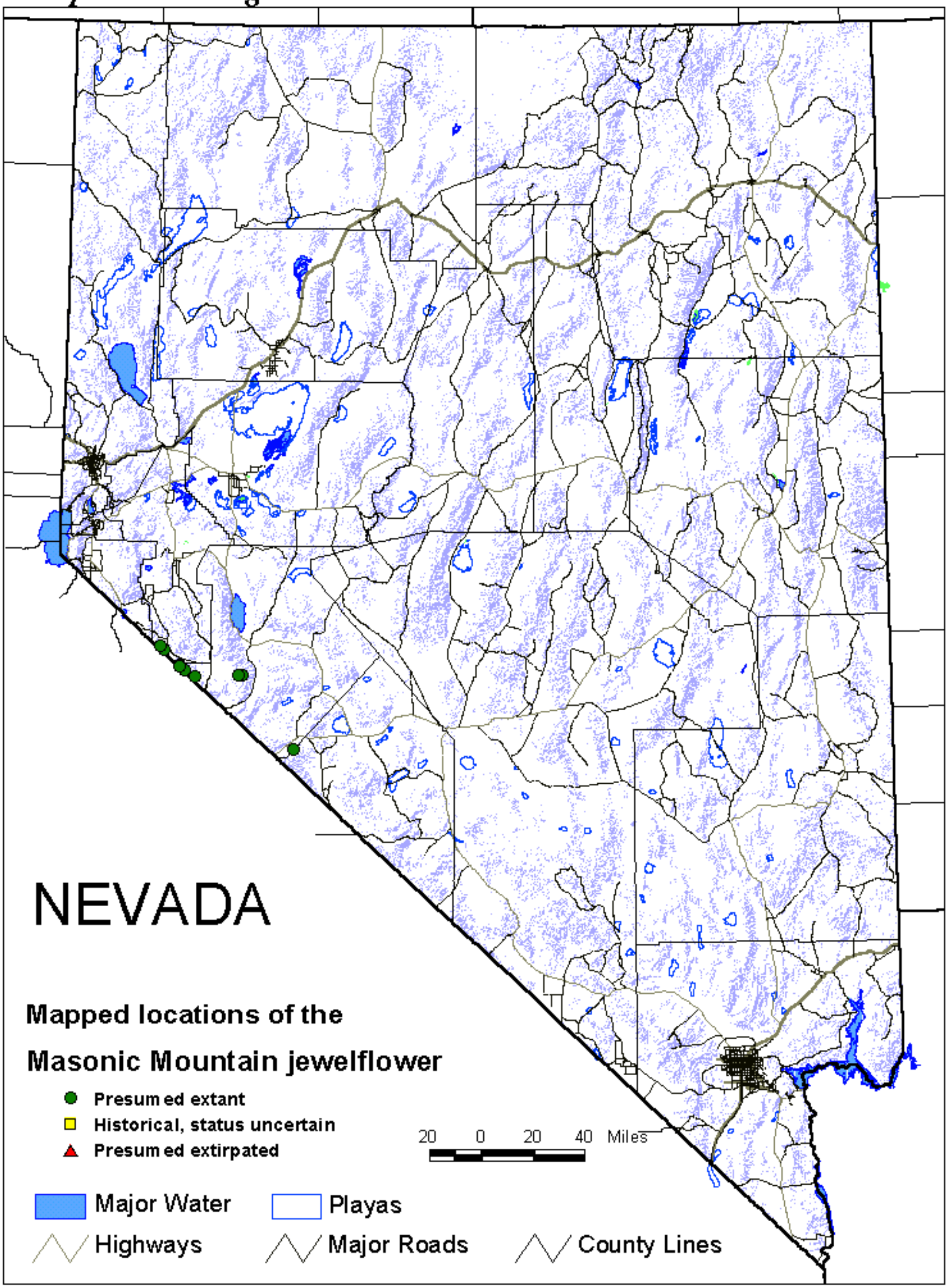
DESCRIPTION: An herbaceous, small-flowered orchid. Flowers are yellowish white, green at the base.
Distinguishing features: Must be distinguished with care from Spiranthes porrifolia, S. diluvialis, and S. romanzoffiana.

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Sheviak (1989).
OTHER GENERAL REFERENCES (listed separately): Beatley (1976).
SPECIFIC REFERENCES:

Sheviak, C. J. 1989. A new Spiranthes (Orchidaceae) from Ash Meadows, Nevada. Rhodora 91: 225-234.
Threloff, D. 1990. Status Report on Ash Meadows lady's tresses (Spiranthes infernalis). Las Vegas, Nevada: U. S. Fish and Wildlife Service. 16 pages.

OF FURTHER INTEREST: Described in Rhodora 91 (867):225. 1989.

Streptanthus oliganthus



Streptanthus oliganthus Rollins **MASONIC MOUNTAIN JEWELFLOWER**

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada and California. **USFS:** Humboldt-Toiyabe NF and Inyo NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 9 occurrences mapped at 1.0 km (0.6 mi) separation, OR **13 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 1508+**, total estimated **area 16.9 ha (41.8 ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1993, average year of last survey 1988. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 53.8%; **11-20 yrs:** 23.1%; **21-30 yrs:** 23.1%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, private lands, Inyo National Forest.

RANGE: Esmeralda, Lyon, and Mineral counties, Nevada; also in CA. Maximum Nevada **range dimension 54.0 km (33.6 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 6800-8770 feet (2073-2673 meters).

HABITAT: no summary available (see references).

PHENOLOGY: no summary available. Range of most frequent **survey months:** June-August.

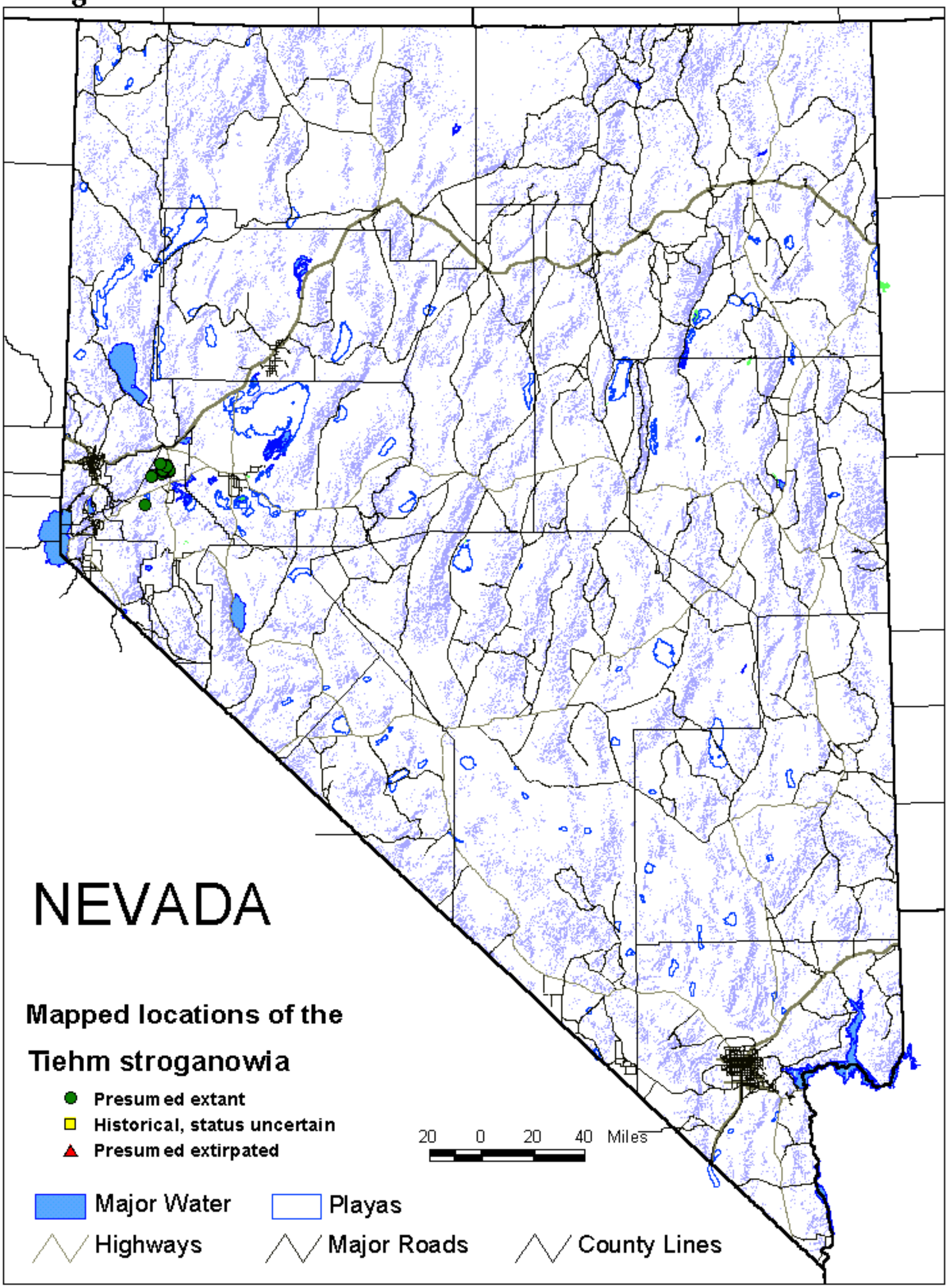
DESCRIPTION: not available (see references).

PHOTOGRAPHS: Weixelman and Atwood (1990); Nevada Natural Heritage Program images web page (1998-present), slide collection (1986-present), and files.
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Hickman (1993), Rollins (1993).
SPECIFIC REFERENCES:

McCarten, N. F., M. Fogiel and R. Zebell. 1991. Rare plant survey for Phacelia monoensis, Streptanthus oliganthus and draba quadricostata in the Bridgeport Ranger District of the Toiyabe National Forest. Sparks, Nevada: Toiyabe National Forest.

Morefield, J. D. 1994. Current knowledge and conservation status of Arabis bodiensis Rollins (Brassicaceae), Bodie Hills rockcress, in Nevada. Carson City: Nevada Natural Heritage Program, status report prepared for the U. S. Fish and Wildlife Service, Reno.

Stroganowia tiehmii



Stroganowia tiehmii Rollins — TIEHM STROGANOWIA

FAMILY: *Brassicaceae*, the mustard family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS: 11 occurrences mapped at 1.0 km (0.6 mi) separation, OR **32 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 139,000+**, total estimated **area 257 ha (635 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Mineral exploration and development, road and electronic site construction and maintenance, fire suppression activities, catastrophic fire, competition from invasive weeds.

INVENTORY EFFORT: Surveys are substantially complete. Most recent entered survey 1989, average year of last survey 1989. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT in decreasing predominance: private lands, U. S. Bureau of Land Management.

RANGE: Lyon County, Nevada. Endemic to the eastern Virginia Range and Table Mountain of the northern Pine Nut Range. Maximum **range dimension 28.2 km (17.5 mi)** excluding most disjunct record.

ELEVATIONS RECORDED: 4820-6170 feet (1469-1881 meters).

HABITAT: Dry, open, very rocky clay soils or soil pockets in or near scree, talus, or boulder fields derived from basalt, other volcanic rocks, and/or fluviolacustrine sediments, on gentle to steep slopes of all aspects and topographic positions, but best developed on northeasterly aspects, in the sagebrush, upper shadscale, and lower juniper woodland zones.

PHENOLOGY: flowering early-spring. Range of most frequent **survey months:** May.

LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: A perennial herb with stems, 1-6 dm tall, from a basal cluster of erect leaves. Cream-colored flowers bloom at the tops of the stems in May and June. This is the only New World member an otherwise Asiatic genus. Rollins (1982) suggests that Stroganowia came to North America via the land bridge that formerly linked the 2 continents, but that no populations persisted except in interior western North America, where the arid conditions are similar to those of central Asia.

PHOTOGRAPHS: Tiehm (1989); Nevada Natural Heritage Program images web page (1998-present) and files.
ILLUSTRATIONS: Rollins (1993).
SPECIFIC REFERENCES:

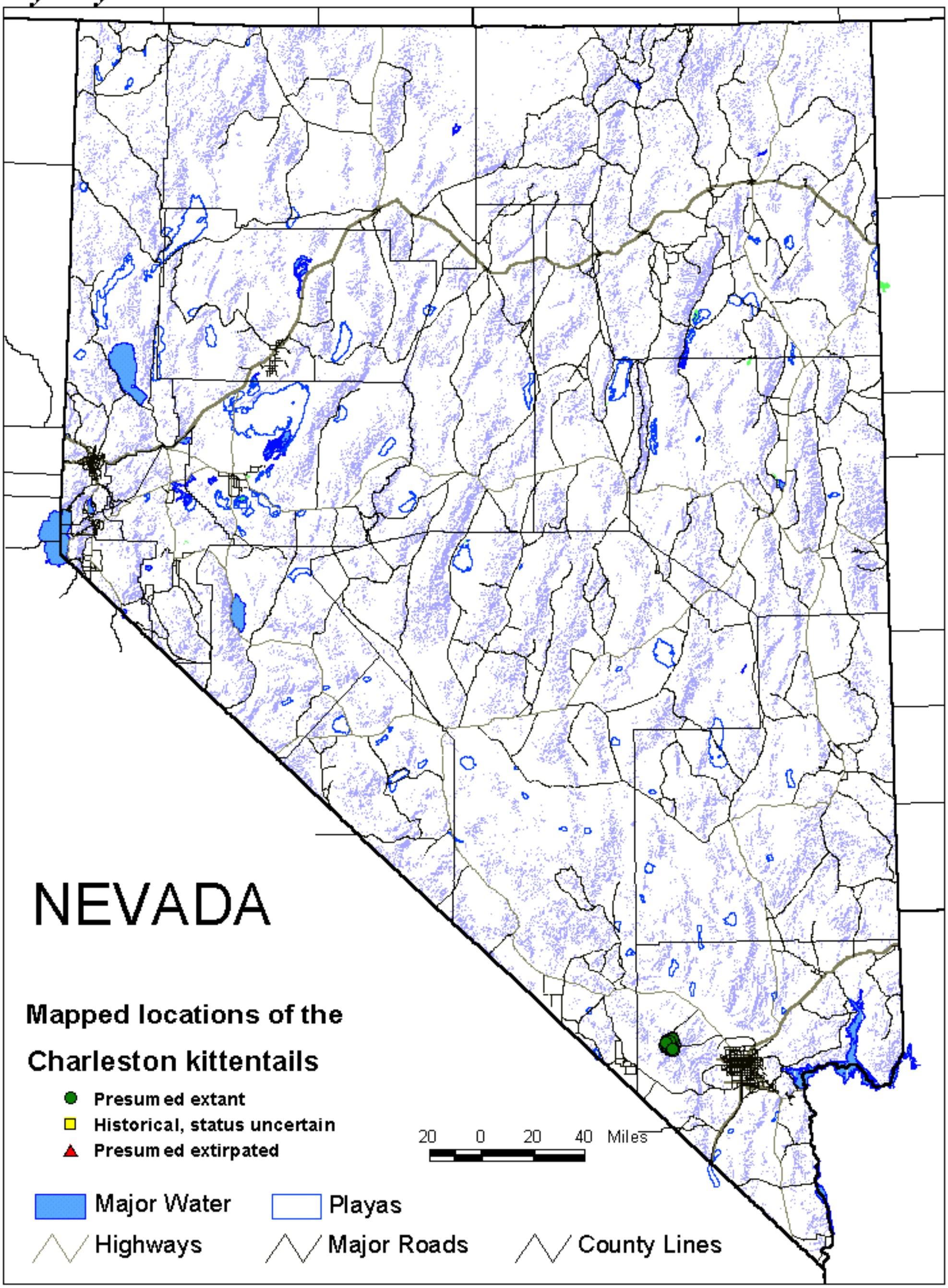
Rollins, R. C. 1982. A new species of the Asiatic genus Stroganowia (Cruciferae) from North America and its biogeographic implications. Systematic Botany 7: 214-220.

Rollins, R. C. 1982. Studies on Arabis (Cruciferae) of western North America II. Contributions from the Gray Herbarium 212: 103-114.

Tiehm, A. 1989. Status report for Stroganowia tiehmii. Carson City: Nevada Natural Heritage Program.

OF FURTHER INTEREST: A distinctive, recently described species of an otherwise Asian genus.

Synthyris ranunculina



Synthyris ranunculina Pennell (1933) CHARLESTON KITTENTAILS

FAMILY: *Scrophulariaceae*, the figwort family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3 S2S3**
USFWS/ESA: species of concern, formerly CANDIDATE or PROPOSED. **STATE OF NEVADA:** none.
BLM: none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 5 occurrences mapped at 1.0 km (0.6 mi) separation, OR **36 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 694+**, total estimated **area 53.7+ ha (133+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: Recreational use of the Spring Mts., collection for horticultural purposes, expansion of southern Nevada.

INVENTORY EFFORT: Surveys are substantially complete, with a small amount of potential habitat remaining unexamined. Most recent entered survey 1999, average year of last survey 1987.
Years since last entered survey (percent of mapped records at various survey ages)**: 0-5 yrs:** 5.6%; **6-10 yrs:** 55.6%; **11-20 yrs:** 22.2%; **21-30 yrs:** 8.3%; **51+ yrs or unknown:** 8.3%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, U. S. Bureau of Land Management (?), private lands (?).

RANGE: Clark County, Nevada. Endemic to the Spring Mountains. Maximum **range dimension 7.8 km (4.9 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 8760-12073 feet (2670-3680 meters).

HABITAT: Dark, organic, and/or gravelly, permanently moist soils near snow banks, in meadows, avalanche chutes, fell fields, along creeks, on moss-covered wet rocks, or in moist cliff crevices, mostly over carbonate rocks, on northerly or otherwise sheltered exposures, in the subalpine conifer to lower alpine zones with Heuchera rubescens, Ribes montigenum, Cystopteris fragilis, Trisetum spicatum, Castilleja martinii clokeyi, Valeriana acutiloba pubicarpa, Telesonix jamesii heucheriformis, Carex spp., Populus tremuloides, Equisetum arvense, Epilobium angustifolium, Dodecatheon redolens, Cirsium clokeyi, Botrychium crenulatum, Aquilegia formosa, Platanthera sparsiflora, Antennaria soliceps, Draba jaegeri, D. paucifructa, Ivesia cryptocaulis, Sphaeromeria compacta, Silene clokeyi, etc. Aquatic or wetland-dependent.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** June-September.

LIFE-FORM AND HABIT: perennial herb.

DESCRIPTION: A perennial herb with a basal tuft of geranium-like leaves and a curved flowering stem, 6-8 cm tall, topped with blue or violet flowers (blooms late June-August).

PHOTOGRAPHS: Nachlinger and Sheldon (1997), Weixelman and Atwood (1990); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951), Niles et al. (1999).
SPECIFIC REFERENCES:

Chatterley, M. 1980. Status report on Synthyris ranunculina. Portland, Oregon: U. S. Fish and Wildlife Service.

Chatterley, M. 1981. Status report for Synthyris ranunculina. Portland, Oregon: U. S. Fish and Wildlife Service.

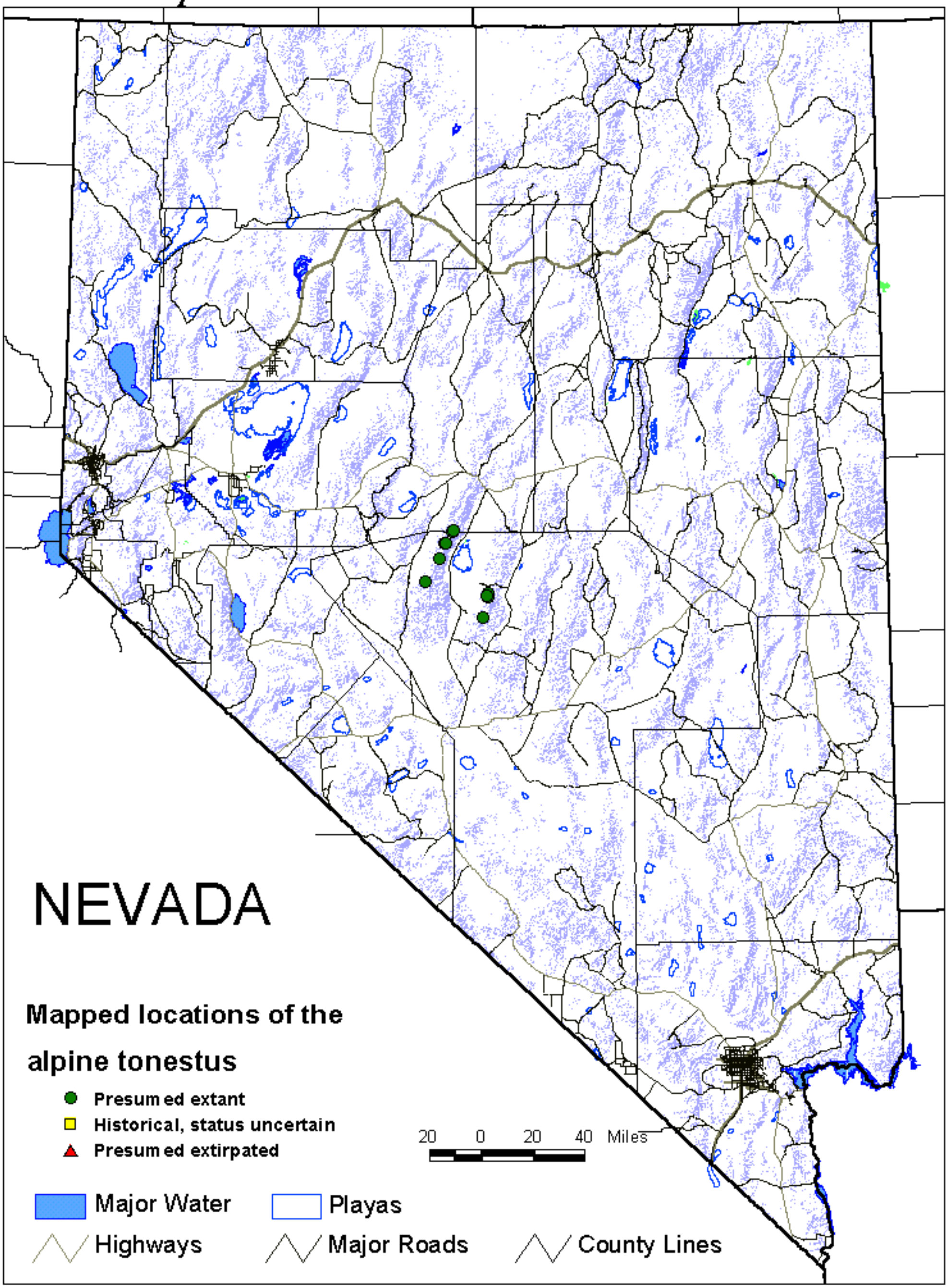
Knight, T. A. 1990. Status report for Synthyris ranunculina Pennell "Charleston kittentail. " Carson City: Nevada Natural Heritage Program, prepared for the Toiyabe National Forest, Las Vegas Ranger District.

Nachlinger, J. and S. K. Sheldon. 1997. Conservation status of Synthyris ranunculina Pennell (Scrophulariaceae), Charleston kittentails, Clark County, Nevada, U. S. A. Reno: The Nature Conservancy, status report prepared for the U. S. Fish and Wildlife Service, Las Vegas.

Pennell, F. W. 1933 [1934]. A revision of Synthyris and Besseya. Proceedings of the Academy of Natural Sciences of Philadelphia 85: 77-106.

OF FURTHER INTEREST: Distinct species in small genus.

Tonestus alpinus



Tonestus alpinus (L. C. Anderson & Goodrich) Nesom & Morgan — ALPINE TONESTUS

FAMILY: *Asteraceae*, the sunflower family. **SYNONYMS:** *Haplopappus alpinus*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 8 occurrences mapped at 1.0 km (0.6 mi) separation, OR **10 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area 125+ ha (309+ ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS: Some threats from mining activities.

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1991, average year of last survey 1979. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 10%; **21-30 yrs:** 90%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness.

RANGE: Lander and Nye counties, Nevada. **Nevada endemic.** Maximum **range dimension 46.7 km (29.0 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 8900-11000 feet (2713-3353 meters).

HABITAT: Crevices, rubble, and adjacent rocky soils of rock outcrops of various composition, often on northerly or protected aspects, in the mountain mahogany, subalpine conifer, and lower alpine zones, with Pinus flexilis, Cercocarpus ledifolius, Artemisia michauxiana, Cymopterus petraeus, etc.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** June-August.

LIFE-FORM AND HABIT: perennial herb.

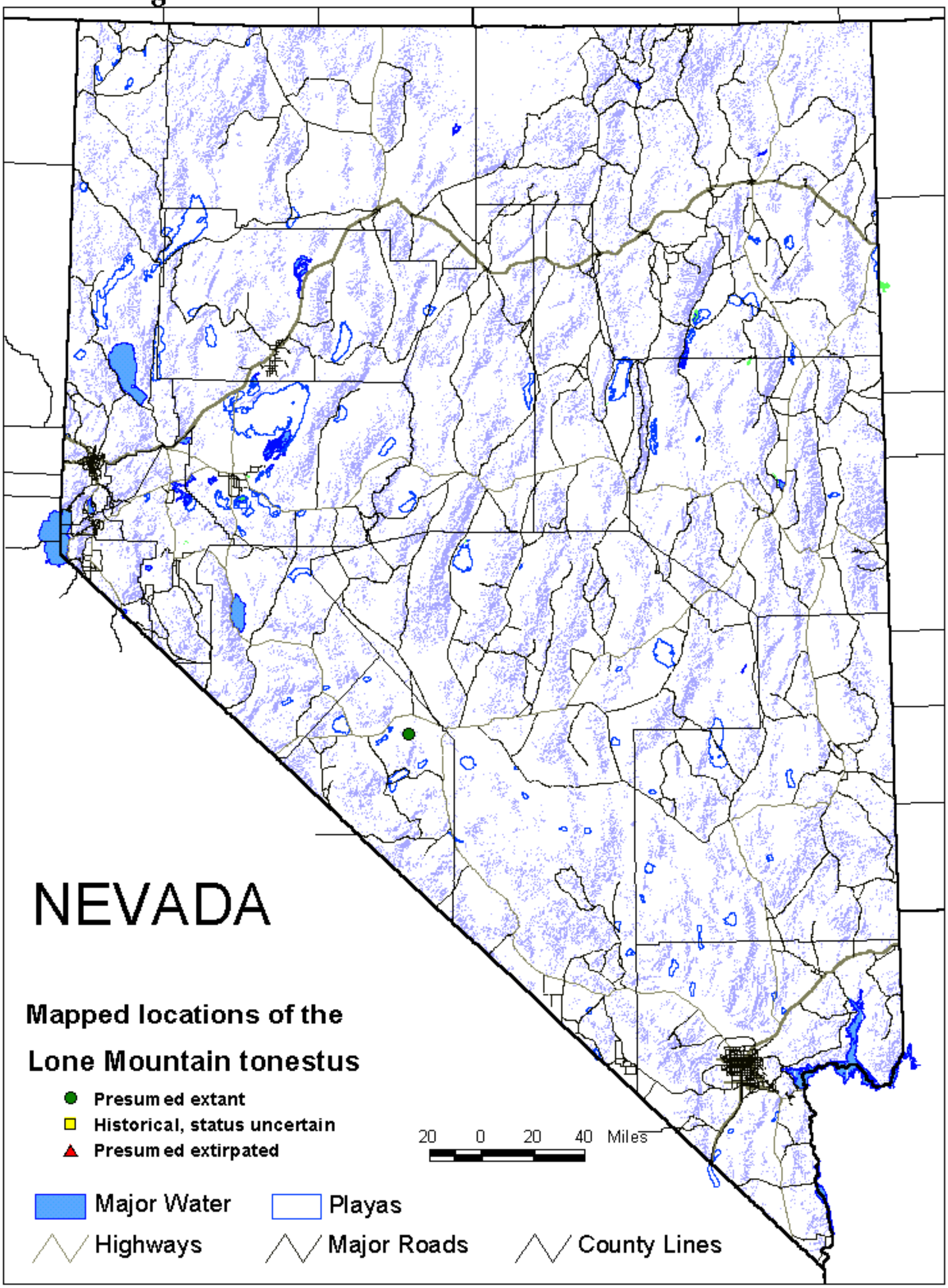
DESCRIPTION: A perennial herb, 0.5-2 dm tall, with sharply toothed leaves and with rayless yellow flower heads in bloom July-September.

PHOTOGRAPHS: Weixelman and Atwood (1990).
ILLUSTRATIONS: Cronquist (1994), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Goodrich (1981).
SPECIFIC REFERENCES:

Anderson, L. 1980. Haplopappus alpinus (Asteraceae): A new species from Nevada. Great Basin Naturalist 40: 73-77.
Morefield, J. D. 1992. Interim status report for Frasera pahutensis Reveal. Carson City: Nevada Natural Heritage Program, prepared for the Toiyabe National Forest, Sparks, Nevada.

OF FURTHER INTEREST: USFWS tracked as HAPLOPAPPUS ALPINUS (9/93).

Tonestus graniticus



Tonestus graniticus (Tiehm & L. Shultz [1985]) Nesom & Morgan LONE MOUNTAIN TONESTUS

FAMILY: *Asteraceae*, the sunflower family. **SYNONYMS:** *Haplopappus graniticus*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** none.
NNNPS: watch list.

POPULATION CENSUS: 1 occurrence mapped; total estimated **individuals unknown**, total estimated **area unknown**.
TREND: unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Not yet systematically surveyed. Most recent entered survey 1983.
Years since last entered survey (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT: U. S. Bureau of Land Management.

RANGE: Esmeralda County, Nevada. **Nevada endemic. Type specimen** collected in Esmeralda County.

ELEVATIONS RECORDED: 7800 feet (2377 meters).

HABITAT: Crevices of granitic cliffs and outcrops on protected exposures (north to east aspects, deep canyons, etc.) in the pinyon-juniper zone.

PHENOLOGY: flowering summer. Range of most frequent **survey months:** September.

LIFE-FORM AND HABIT: matted perennial herb.

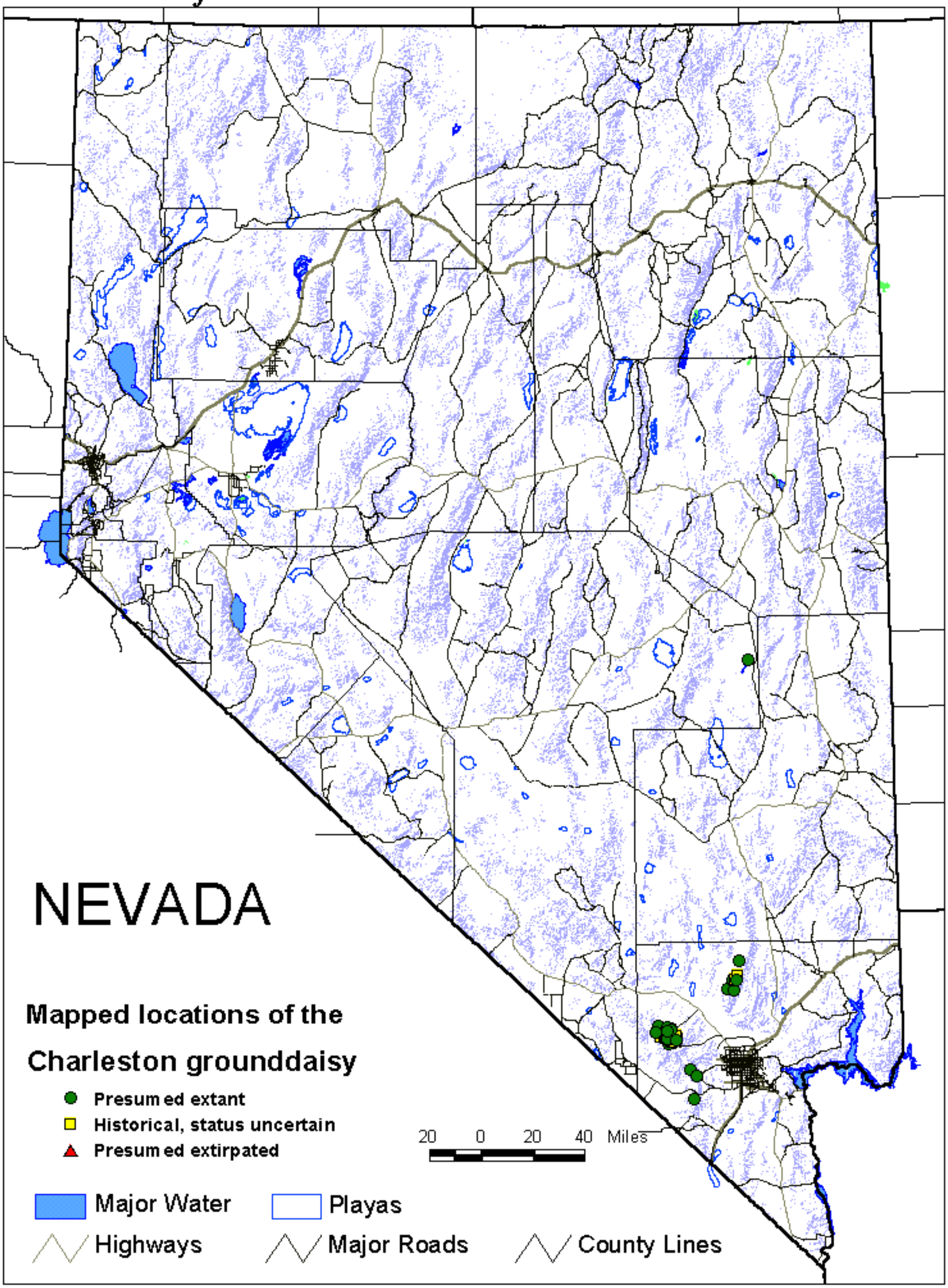
DESCRIPTION: A perennial herb, 1-2 dm tall, with coarsely toothed leaves and with clusters of rayless yellow flower heads in bloom at the tops of the stems from July-September.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Cronquist (1994), Tiehm and Shultz (1985).
SPECIFIC REFERENCES:

Tiehm, A. and L. M. Shultz. 1985. A new Haplopappus (Asteraceae: Astereae) from Nevada. Brittonia 37: 165-168.

OF FURTHER INTEREST: USFWS proposed candidate 2 under the name Haplopappus graniticus (9/93).

Townsendia jonesii var. tumulosa



Townsendia jonesii (Beaman) Reveal **var. *tumulosa*** Reveal (1970)

CHARLESTON GROUNDDAISY

FAMILY: *Asteraceae*, the sunflower family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G4 T3 S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 27 occurrences mapped at 1.0 km (0.6 mi) separation, OR **39 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals unknown**, total estimated **area 7.2+ ha (17.8+ ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS: Increased recreational use of the Spring Mountains.

INVENTORY EFFORT: Some targeted surveys have been conducted, but much potential habitat remains unexamined. Most recent entered survey 1993, average year of last survey 1981. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 51.3%; **11-20 yrs:** 12.8%; **21-30 yrs:** 15.4%; **31-50 yrs:** 7.7%; **51+ yrs or unknown:** 12.8%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, U. S. Fish and Wildlife Service, designated wilderness, U. S. Bureau of Land Management, Nevada state lands, private lands, U. S. Department of Defense (?).

RANGE: Clark and Nye counties, Nevada. **Nevada endemic.** Maximum **range dimension 90.9 km (56.5 mi)** excluding most disjunct record. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED: 5200-11060 feet (1585-3371 meters).

HABITAT: Open, sparsely vegetated calcareous areas, on shallow gravelly carbonate soils on slopes and exposed knolls in forest clearings mostly in the montane conifer zone with Pinus ponderosa, extending to the pinyon-juniper, mountain mahogany, and lower subalpine conifer zones, recurring on knolls of white, alkaline, calcareous, silty lacustrine deposits in the upper shadscale/mixed-shrub and lower sagebrush zones.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** May-August.

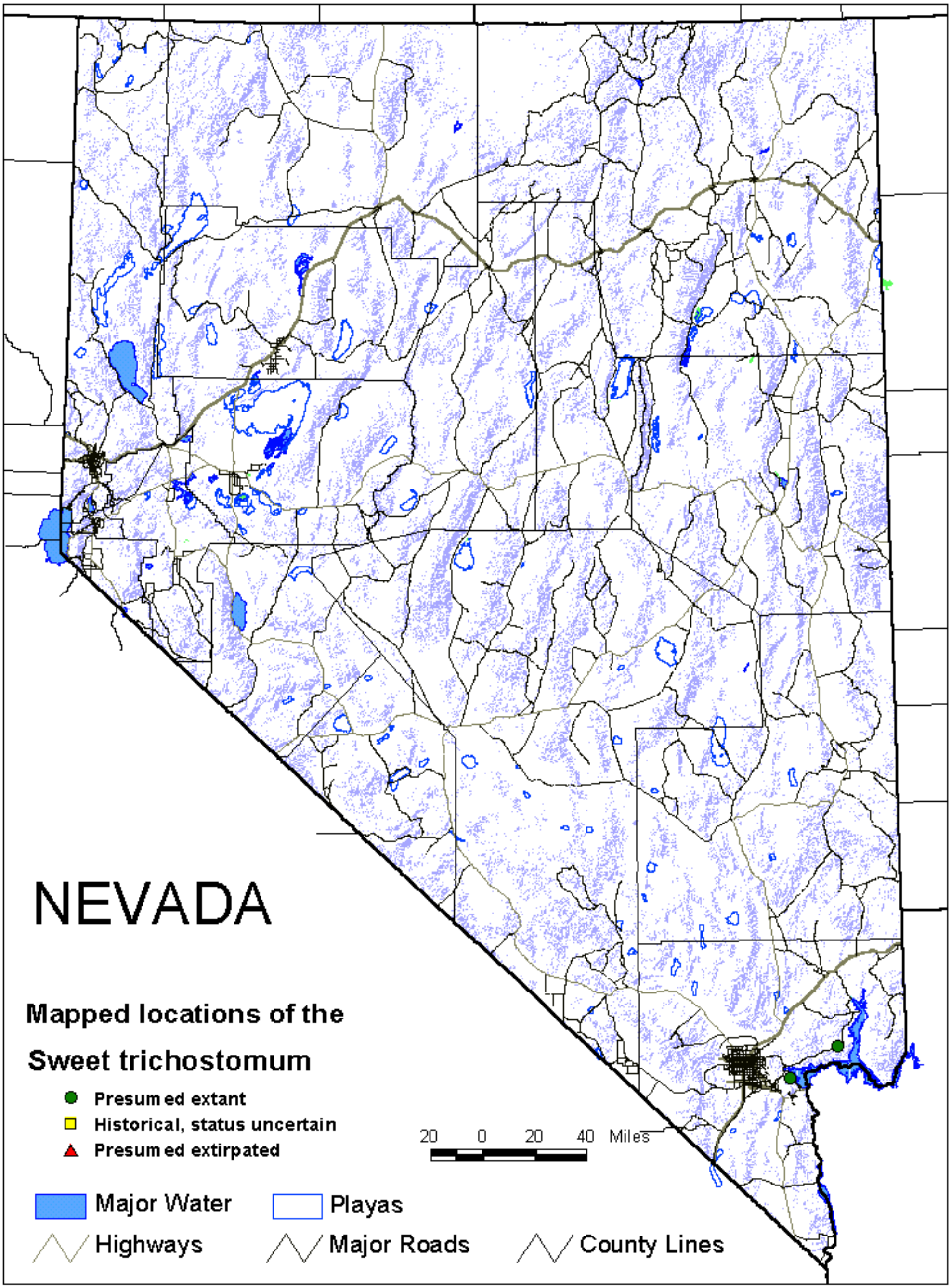
LIFE-FORM AND HABIT: small matted short-lived perennial herb.

DESCRIPTION: not available (see references).

PHOTOGRAPHS: Nachlinger (1994), Weixelman and Atwood (1990); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Cronquist (1994), Mozingo and Williams (1980), Weixelman and Atwood (1990).
OTHER GENERAL REFERENCES (listed separately): Ackerman (1981), Clokey (1951).
SPECIFIC REFERENCES:

Reveal, J. L. 1970. A revision of the Utah species of Townsendia (Compositae). Great Basin Naturalist 30: 23-52.
Woodbury, K. 1980. Status report for Townsendia jonesii var. tumulosa. Portland, Oregon: U. S. Fish and Wildlife Service.

Trichostomum sweetii



Trichostomum sweetii (Bartram [1945]) Stark — SWEET TRICHOSTOMUM

FAMILY: *Pottiaceae*, the pottia family. **SYNONYMS:** *Weissia sweetii*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2? S1**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 2 occurrences mapped; total estimated **individuals unknown**, total estimated **area unknown**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys are ongoing. Most recent entered survey 1995, average year of last survey 1994. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 100%.

LAND MANAGEMENT (NEVADA): National Park Service.

RANGE: Clark County, Nevada; also in AZ (?), CO, NM, and UT. The species has not been relocated at the supposed type locality in the Virgin Mountains. The type could be from California instead. Maximum Nevada **range dimension 35.9 km (22.3 mi)**. **Type specimen** collected in Clark County.

ELEVATIONS RECORDED (NEVADA): 2000-2230 feet (610-680 meters).

HABITAT (NEVADA): Sandstone bluffs and sandstone-derived soil, often shaded by rocks, in creosote-bursage zone.

PHENOLOGY: no summary available. Range of most frequent **survey months:** March-June.

LIFE-FORM AND HABIT: herb moss.

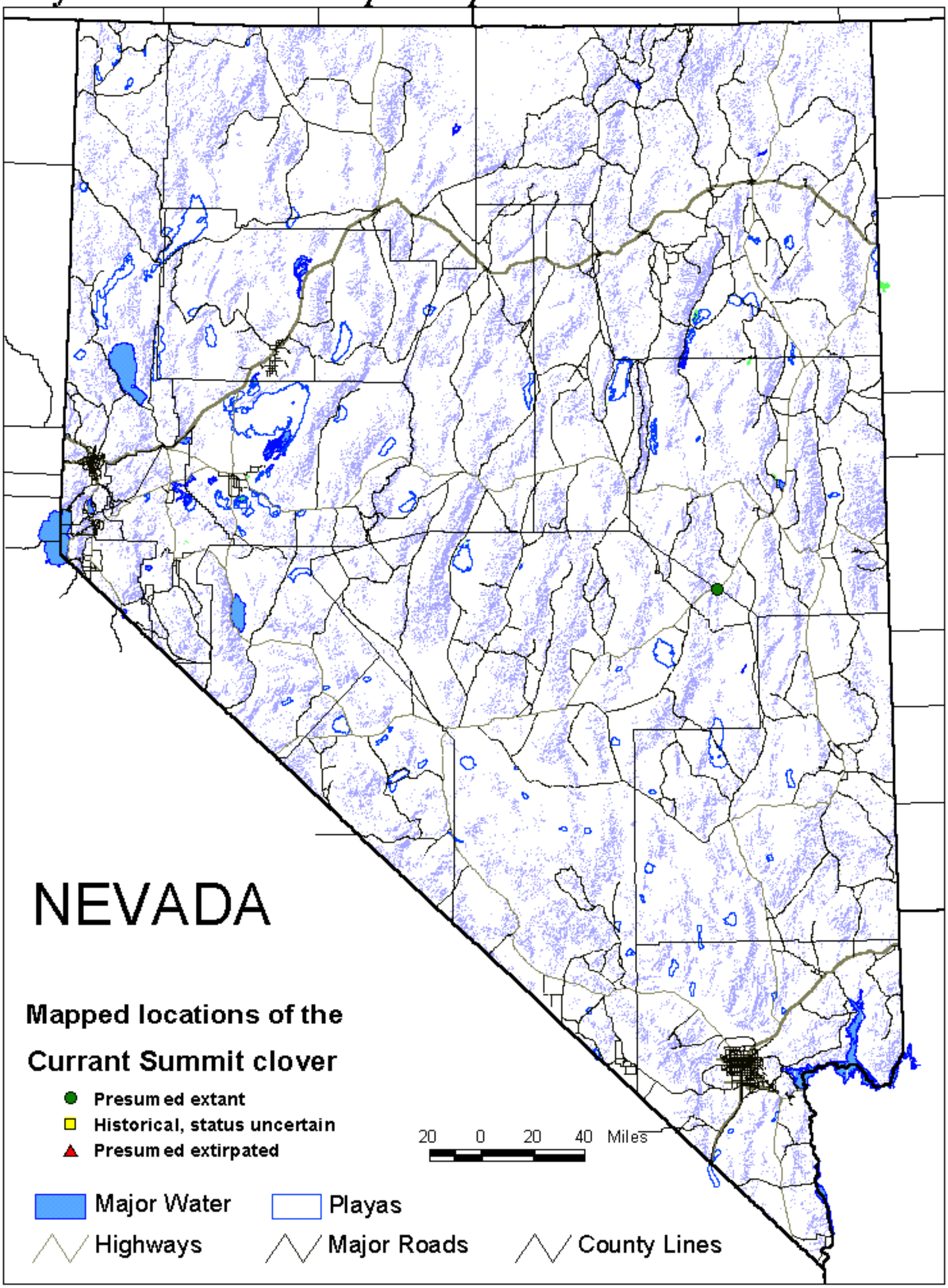
DESCRIPTION: Distinguishing features of Trichostomum relative to the related genus Weissia include the very slight incurvature (or erect) of the leaf apex in the former, as opposed to the highly incurved leaf margins in Weissia.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Flowers (1973).
SPECIFIC REFERENCES:

Bartram, E. B. 1945. A new Weissia and a new Tortula from southwestern United States. The Bryologist 48: 90-92.
Flowers, S. 1973. Mosses: Utah and the West. Provo, Utah: Brigham Young University Press.
Stark, L. R. 1996. The status of Weissia sweetii, a species endemic to the southwestern United States. The Bryologist 99: 345-348.
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OF FURTHER INTEREST: Anderson et al. (1990) included Weissia sweetii and W. perligulata in Trichostomum crispulum. Stark (1996) recognizes W. sweetii and W. perligulata as one taxon (T. sweetii) distinct from T. crispulum and confirms placement in Trichostomum.

Trifolium andinum var. podocephalum



Trifolium andinum Nuttall var. *podocephalum* Barneby (1989)

CURRANT SUMMIT CLOVER

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G3 T1 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 1 occurrence mapped; total estimated **individuals unknown**, total estimated **area 0.40 ha (0.99 ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Known only from the original description, not yet surveyed. Most recent entered survey 1985. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 100%.

LAND MANAGEMENT: Humboldt-Toiyabe National Forest.

RANGE: Lincoln and Nye counties, Nevada. Endemic to the White Pine and Egan ranges. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 6900-7000 feet (2103-2134 meters).

HABITAT: Crevices of volcanic or carbonate rock in the pinyon-juniper zone, 6900-7400 ft (2100-2250 m) elevation. (Barneby 1989).

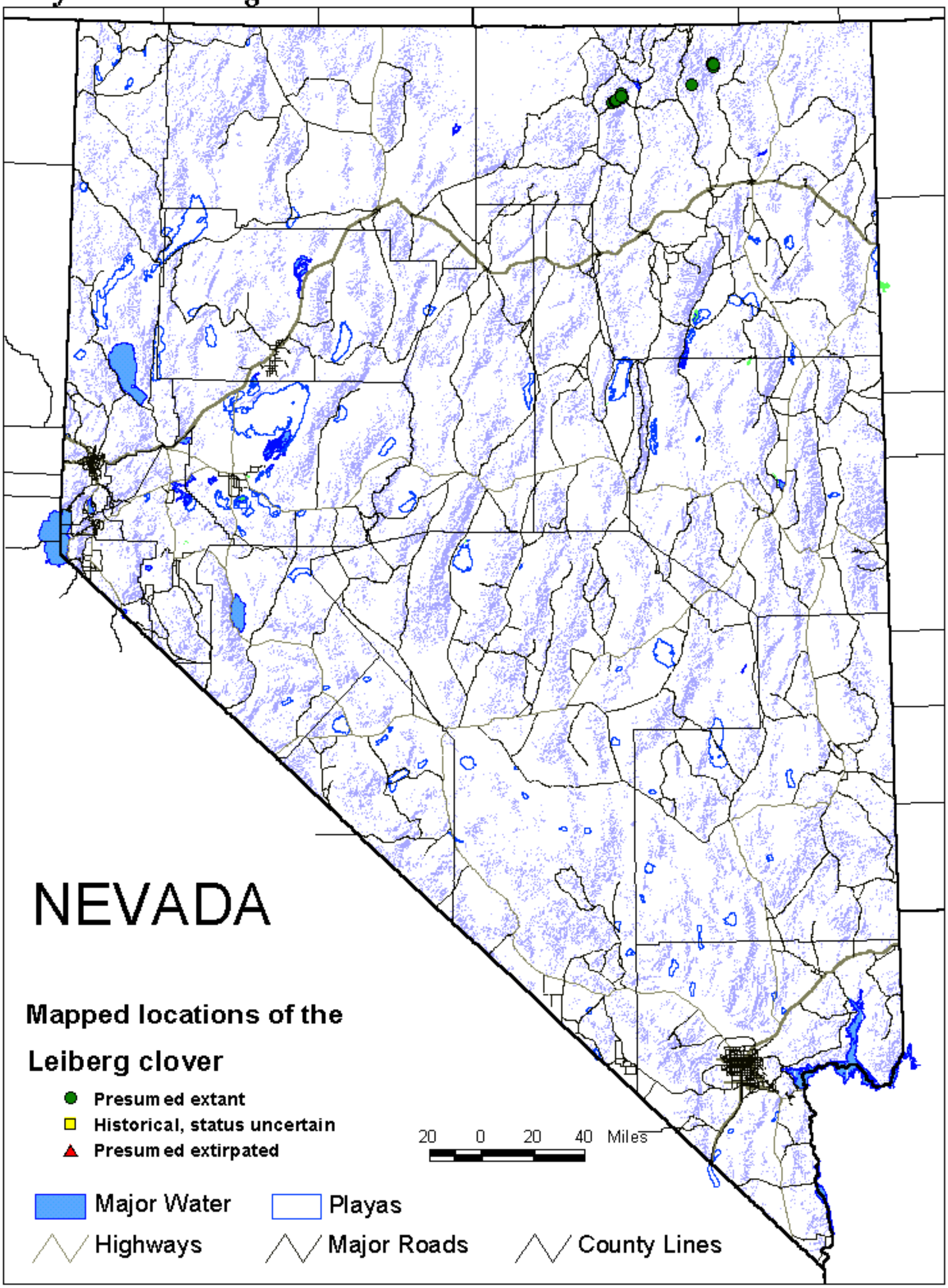
PHENOLOGY: flowering late-spring to summer, Apparently flowering late May through early July. Range of most frequent **survey months:** May.

LIFE-FORM AND HABIT: small long-lived perennial herb.

DESCRIPTION: Capitula shortly pedunculate, the peduncles 2-10 mm long, when two separated by a distinct through short internode, each of them subtended by a short 3-foliolate leaf but these not forming an involucre, pedicels 1-2 mm long. (Barneby 1989).

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Barneby (1989).

Trifolium leibergii



Trifolium leibergii A. Nelson & J. F. Macbride (1918) LEIBERG CLOVER

FAMILY: *Fabaceae*, the legume family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2 S2**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 7 occurrences mapped at 1.0 km (0.6 mi) separation, OR **13 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 136,000+**, total estimated **area 11.1+ ha (27.4+ ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys in Nevada have been extensive but likely remain incomplete. Most recent entered survey 1994, average year of last survey 1993. **Years since last entered survey** (percent of mapped records at various survey ages)**: 6-10 yrs:** 92.3%; **11-20 yrs:** 7.7%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, private lands.

RANGE: Elko County, Nevada; also in OR. In Nevada known from the Independence and Jarbidge mountains. Maximum Nevada **range dimension 65.2 km (40.5 mi)** excluding most disjunct record. **Type specimen** collected in Oregon, Harney co.

ELEVATIONS RECORDED (NEVADA): 6560-7800 feet (1999-2377 meters).

HABITAT (NEVADA): Mostly on dry, shallow, relatively barren gravel soils of crumbling volcanic outcrops, mostly on flat to steep tops and upper slopes, sometimes on side or toe slopes, mostly with northeast to southeast to southwest aspects, with Artemisia arbuscula and other sparse associated species.

PHENOLOGY: flowering late-spring. Range of most frequent **survey months:** June-August.

LIFE-FORM AND HABIT: rhizomatous perennial herb.

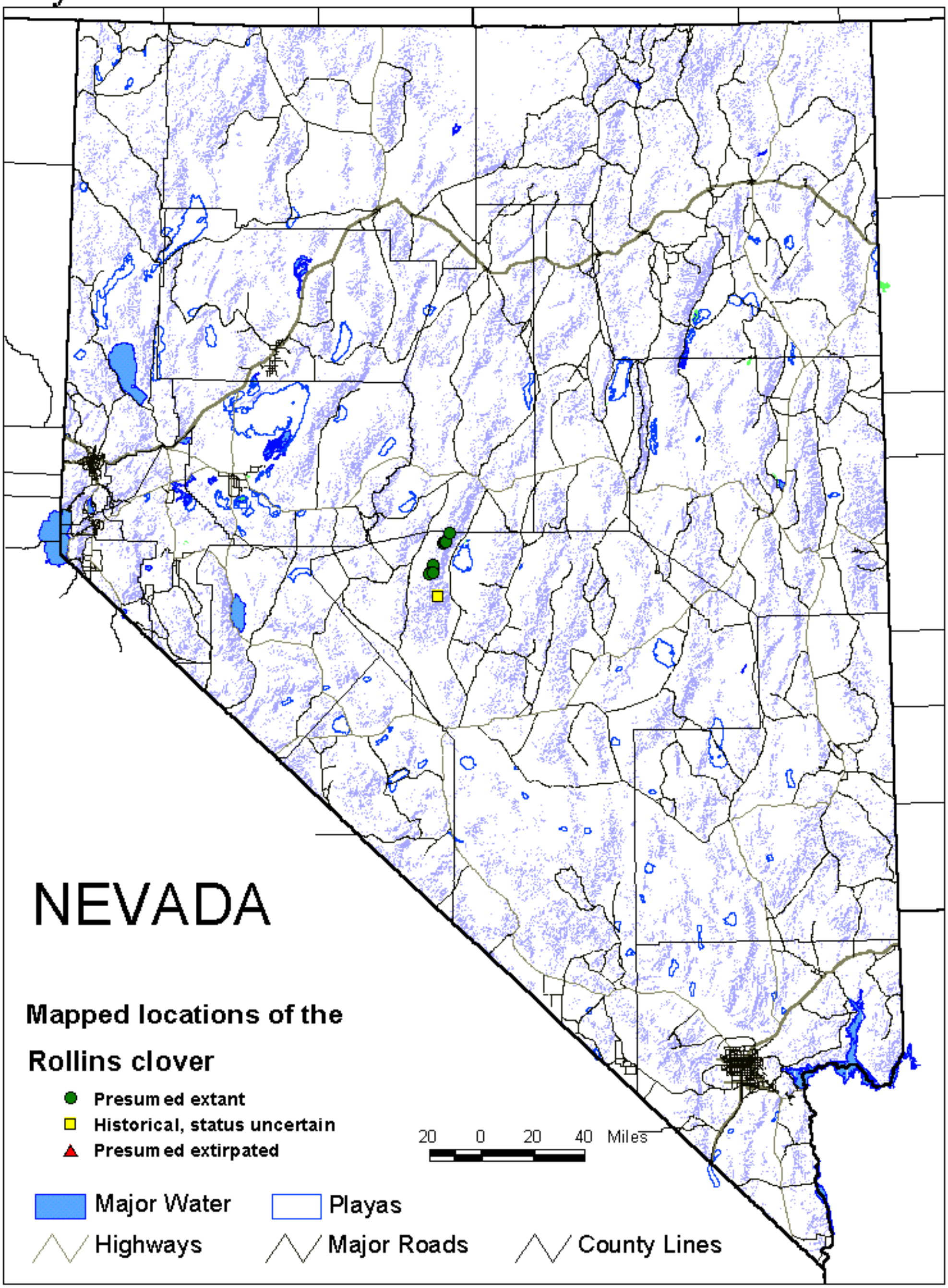
DESCRIPTION: A perennial herb, 1-1.5 dm tall, with 3 spiny-tipped leaflets and with stems and leaves that are covered with dense gray hairs. A rounded cluster of cream-colored flowers with purple or pink accents blooms in June and July.
Distinguishing features: Distinguished from other pinkish-purple, trifoliate clovers of the area by the combination of entirely densely gray-villous herbage, with coarsely spinulose-serrate leaflets, a much reduced involucre, and a densely villous ovary and pod.

PHOTOGRAPHS: Smith and Curto (1995); Nevada Natural Heritage Program files.
ILLUSTRATIONS: Barneby (1989).
SPECIFIC REFERENCES:

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Trifolium rollinsii



Trifolium rollinsii J. Gillett (1972) ROLLINS CLOVER

FAMILY: *Fabaceae*, the legume family.

SYNONYMS: *Trifolium macilentum* var. *rollinsii*
Trifolium kingii ssp. *rollinsii*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G2G3Q S2S3**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS: 7 occurrences mapped at 1.0 km (0.6 mi) separation, OR **13 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 26,000,000+**, total estimated **area 152+ ha (376+ ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS: No summary available (see references).

INVENTORY EFFORT: Extensive surveys have been conducted, but the potential habitat is common and much more remains to be examined. Most recent entered survey 1997, average year of last survey 1992.
Years since last entered survey (percent of mapped records at various survey ages)**: 0-5 yrs:** 53.8%; **6-10 yrs:** 38.5%; **51+ yrs or unknown:** 7.7%.

LAND MANAGEMENT in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, private lands (?).

RANGE: Lander (?) and Nye counties, Nevada. Endemic to the Toiyabe Range. Maximum **range dimension 28.4 km (17.7 mi)** excluding most disjunct record. **Type specimen** collected in Nye County.

ELEVATIONS RECORDED: 8800-10583 feet (2682-3226 meters).

HABITAT: Dry to moist gravelly soils in concave, leeward, or otherwise moisture- and/or snow-accumulating areas on steep to moderate slopes of all aspects in the mountain sagebrush, subalpine conifer, and lower alpine zones between 8800-10570 ft (2680-3220 m) elevation with Artemisia tridentata var. vaseyana, A. arbuscula, Symphoricarpos oreophila, Ericameria viscidiflora, Pinus flexilis, Linanthus nuttallii, Eriogonum umbellatum, Eriophyllum lanatum, Leptodactylon pungens, Phlox hoodii, P. longifolia, Arenaria kingii, Lupinus argenteus, Elymus elymoides, Leymus cinereus, Heuchera parvifolia, Pseudostellaria jamesii, Ericameria discoidea, E. suffruticosus, Eriogonum microthecum, Senecio integerrimus, Leucopoa kingii, Mertensia, etc.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-July.

LIFE-FORM AND HABIT: small rhizomatous perennial herb.

DESCRIPTION: A slender, delicate-looking perennial herb with distinctly 3-parted leaves. Pink flowers are borne in a rounded cluster at the top of the leafless flowering stem, which is usually about 1 dm tall.

PHOTOGRAPHS: Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Barneby (1989).
SPECIFIC REFERENCES:

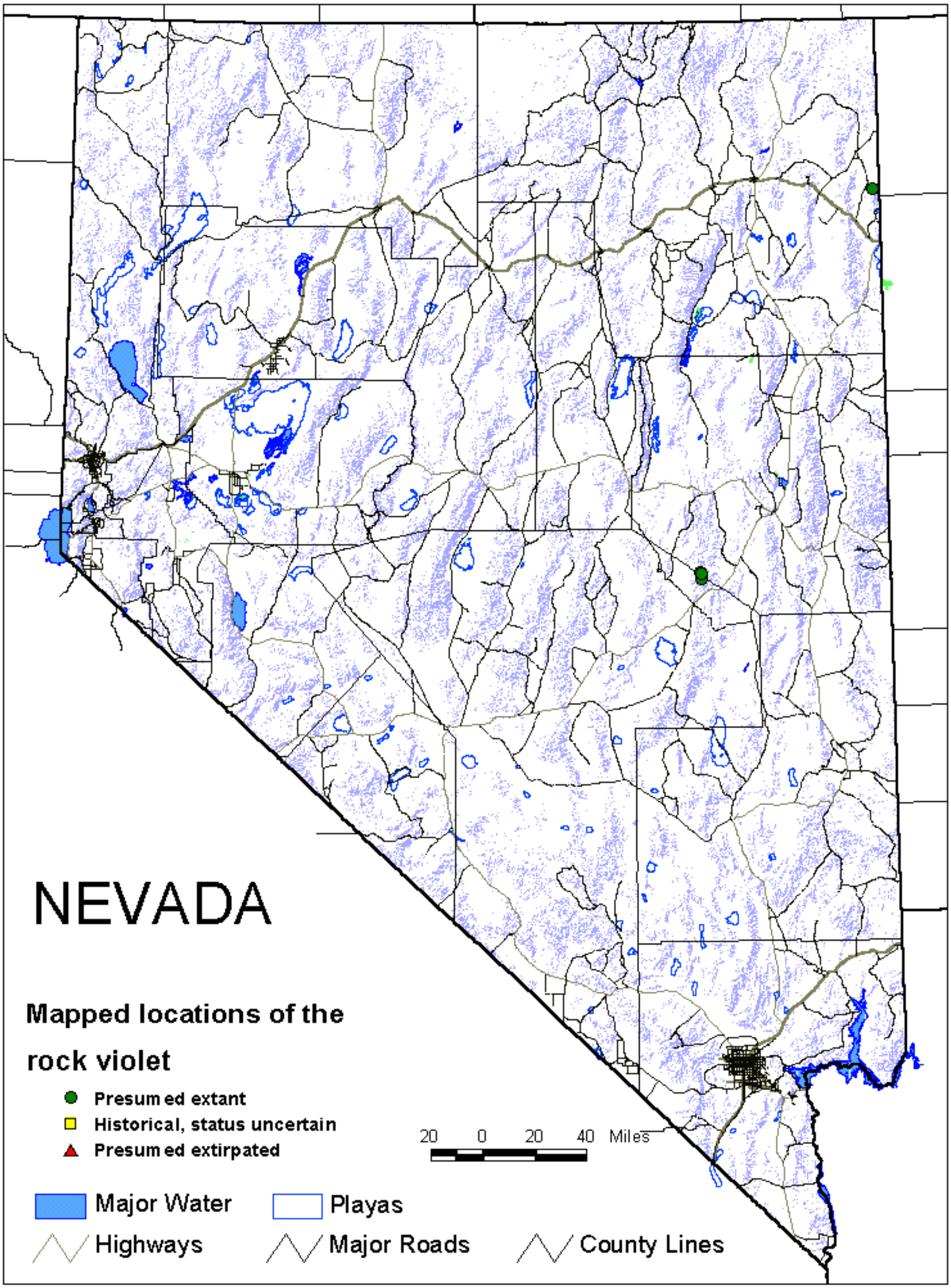
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Gillett, J. M. 1972. Two new species of Trifolium (Leguminosae) from California and Nevada. Madroño 21: 451-458.

Morefield, J. D. 1992. Interim status report for Arabis ophira Rollins. Carson City: Nevada Natural Heritage Program, prepared for the Toiyabe National Forest, Sparks, Nevada.

OF FURTHER INTEREST: USFWS tracks as synonym - TRIFOLIUM MACILENTUM var. ROLLINSII (9/93). Many botanists treat this taxon as a variety of T. macilentum, rather than as a distinct species.

Viola lithion



Viola lithion N. Holmgren & P. Holmgren — ROCK VIOLET

FAMILY: *Violaceae*, the violet family.

STATUS: **Heritage Program SENSITIVE LIST, ranks: G1 S1**
USFWS/ESA: species of concern. **STATE OF NEVADA:** none. **BLM:** Special Status Species in Nevada.
USFS: Humboldt-Toiyabe NF Sensitive Species. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 3 occurrences mapped at 1.0 km (0.6 mi) separation, OR **5 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 20,000+**, total estimated **area 26.3 ha (65.0 ac)**.
TREND: unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Surveys have been fairly extensive, but substantial potential habitat may remain unexamined. Most recent entered survey 1996, average year of last survey 1996.
Years since last entered survey (percent of mapped records at various survey ages)**: 0-5 yrs:** 100%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: designated wilderness, Humboldt-Toiyabe National Forest, U. S. Bureau of Land Management, private lands (?).

RANGE: Elko, Nye, and White Pine counties, Nevada; also in UT. In Nevada known only from the White Pine and Pilot ranges. Maximum Nevada **range dimension 4.0 km (2.5 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 7840-10480 feet (2390-3194 meters).

HABITAT (NEVADA): Seasonally wet crevices in steep carbonate or quartzite outcrops in shaded northeast-facing avalanche chutes and cirque headwalls in the subalpine conifer zone with Symphoricarpos oreophilus, Ribes montigenum, Heuchera rubescens, Aquilegia scopulorum, Thalictrum fendleri, Pinus flexilis, Populus tremuloides, etc.

PHENOLOGY: flowering late-spring to summer. Range of most frequent **survey months:** June-July.

LIFE-FORM AND HABIT: perennial herb.

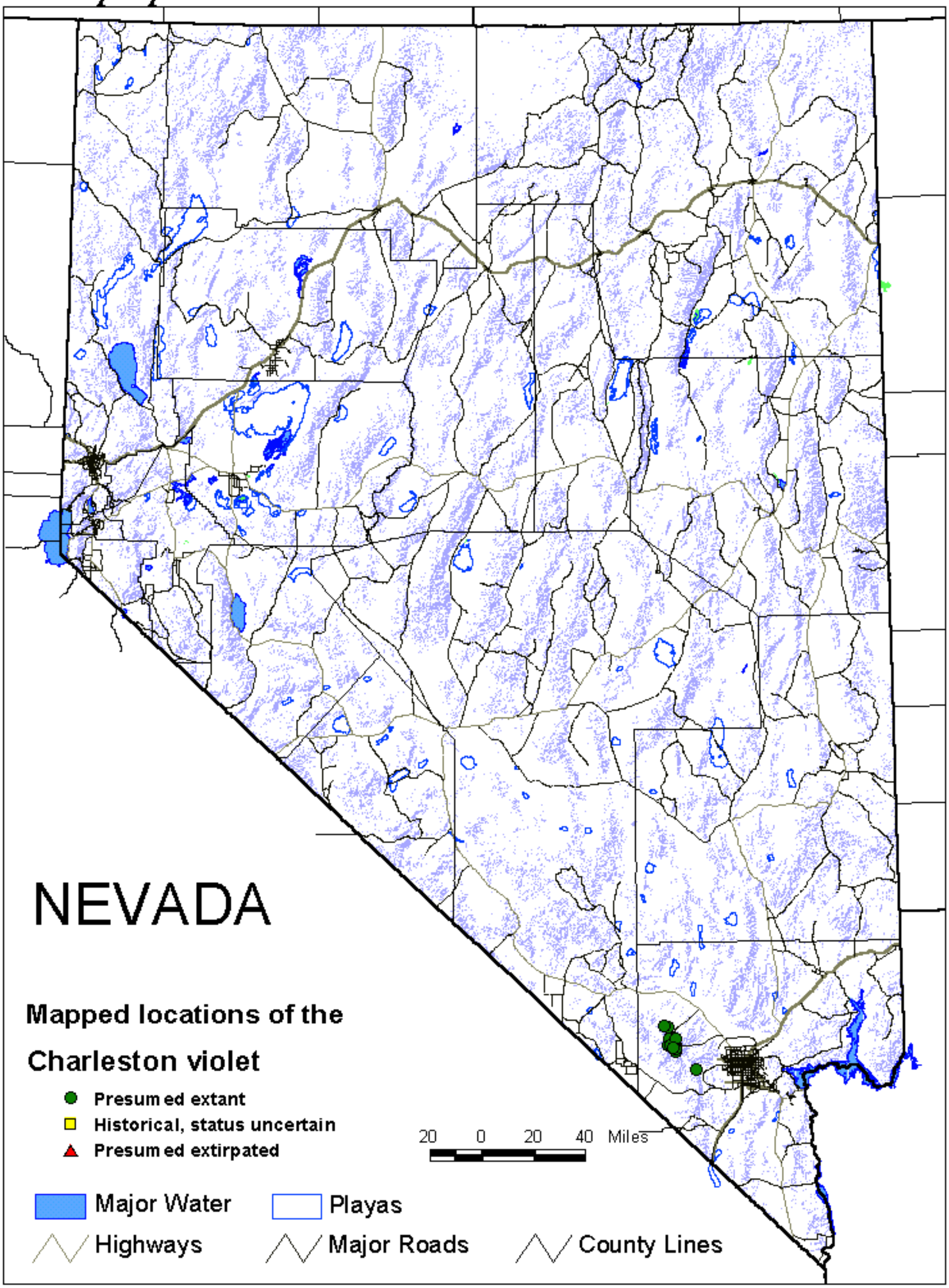
DESCRIPTION: A perennial herb, 0.5-1.5 dm tall, with egg-shaped or triangular leaves. Flower petals are blue to pale violet, yellow at their bases, and with purple lines. In bloom from June to August.

PHOTOGRAPHS: none known.
ILLUSTRATIONS: Holmgren (1992).
SPECIFIC REFERENCES:

Holland, R. F. 1997. Current knowledge and conservation status of Viola lithion Holmgren and Holmgren, the rock violet, in Nevada. Carson City: Nevada Natural Heritage Program, DRAFT status report prepared for the U. S. Fish and Wildlife Service, Reno.

Holmgren, N. H. 1992. Two new species of Viola (Violaceae) from the Intermountain West, U. S. A. Brittonia 44: 300-305.

Viola purpurea var. charlestonensis



Viola purpurea* var. *charlestonensis (M. S. Baker & J. C. Clausen ex Clokey)

CHARLESTON VIOLET

FAMILY: *Violaceae*, the violet family. **SYNONYMS:** *Viola charlestonensis*

STATUS: **Heritage Program SENSITIVE LIST, ranks: G5 T3Q S2S3**
USFWS/ESA: none. **STATE OF NEVADA:** none. **BLM:** none. **USFS:** none. **NNNPS:** watch list.

POPULATION CENSUS (NEVADA): 11 occurrences mapped at 1.0 km (0.6 mi) separation, OR **12 occurrences mapped** at 0.16 km (0.1 mi) separation; total estimated **individuals 211+**, total estimated **area 4.1+ ha (10.1+ ac)**. **TREND:** unknown.

IMPACTS AND MAJOR THREATS (NEVADA): No summary available (see references).

INVENTORY EFFORT (NEVADA): Not yet systematically surveyed in Nevada. Most recent entered survey 1989, average year of last survey 1956. **Years since last entered survey** (percent of mapped records at various survey ages)**: 11-20 yrs:** 8.3%; **21-30 yrs:** 25%; **31-50 yrs:** 16.7%; **51+ yrs or unknown:** 50%.

LAND MANAGEMENT (NEVADA) in decreasing predominance: Humboldt-Toiyabe National Forest, designated wilderness, U. S. Bureau of Land Management, private lands (?).

RANGE: Clark County, Nevada; also in AZ and UT. In Nevada known only from the Spring Mountains. Maximum Nevada **range dimension 17.0 km (10.6 mi)** excluding most disjunct record.

ELEVATIONS RECORDED (NEVADA): 6500-9800 feet (1981-2987 meters).

HABITAT (not yet reviewed for Nevada): "Gravelly slopes and dry washes at 1980-2990 m elevation."

PHENOLOGY: no summary available. Range of most frequent **survey months:** May-June.

DESCRIPTION: A perennial herb, about 8 cm tall, with soft-downy, gray leaves. Yellow flowers bloom May-June.

PHOTOGRAPHS: Atwood et al. (1991), Weixelman and Atwood (1990); Nevada Natural Heritage Program slide collection (1986-present) and files.
ILLUSTRATIONS: Atwood et al. (1991), Mozingo and Williams (1980), Weixelman and Atwood (1990), Welsh (1979).
OTHER GENERAL REFERENCES (listed separately): Clokey (1951).
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Knight, T. A. 1989. Status report for Astragalus mohavensis S. Watson var. hemigyrus (Clokey) Barneby. Carson City: Nevada Natural Heritage Program, prepared for the U. S. Fish and Wildlife Service, Reno.

GENERAL REFERENCES

The following are major references of relatively broad application to Nevada rare plants. They are fully cited only here, and are otherwise given brief citations in the applicable rare plant fact sheets accompanying the maps in this atlas. More narrowly applicable references are not included here, but are instead given full citations on the applicable fact sheets.

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Albee, B. J., L. M. Shultz, and S. Goodrich. 1988. Atlas of the vascular plants of Utah. Salt Lake City: Utah Museum Natural History.

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Atwood, D., J. Holland, R. Bolander, B. Franklin, D. E. House, L. Armstrong, K. Thorne, and L. England. 1991. Utah endangered, threatened, and sensitive plant field guide. Ogden, Utah: U. S. Forest Service, Intermountain Region.

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INDEX TO SYNONYMS OF MAPPED TAXA

SYNONYM	NAME ON MAP
Arabis cobrensis (misapplied)	***Arabis falcifructa***
Arabis fernaldiana var. *stylosa* (misapplied)	***Arabis bodiensis***
Arabis platysperma (?)	***Arabis rigidissima* var. *demota***
Asclepias uncialis ssp. *ruthiae* (?)	***Asclepias eastwoodiana***
Astragalus arrectus var. *remotus*	***Astragalus remotus***
Astragalus artipes (misapplied)	***Astragalus oophorus* var. *clokeyanus***
Astragalus hemigyrus	***Astragalus mohavensis* var. *hemigyrus***
Astragalus ibapensis	***Astragalus diversifolius***
Astragalus iodanthus var. *pseudiodanthus*	***Astragalus pseudiodanthus***
Astragalus musimonum	***Astragalus amphioxys* var. *musimonum***
Astragalus newberryi var. *funereus*	***Astragalus funereus***
Astragalus purshii var. *funereus*	***Astragalus funereus***
Astragalus tephrodes var. *eurylobus*	***Astragalus eurylobus***
Astragalus triquetrus	***Astragalus geyeri* var. *triquetrus***
Botrychium lunaria (misapplied)	***Botrychium crenulatum***
Botrychium lunaria var. *onondagense* (misapplied)	***Botrychium ascendens***
Castilleja applegatei ssp. *martinii* (in part)	***Castilleja martinii* var. *clokeyi***
Castilleja clokeyi	***Castilleja martinii* var. *clokeyi***
Centaurium namophilum var. *namophilum*	***Centaurium namophilum***
Collomia linearis (?)	***Collomia renacta***
Corynopuntia pulchella	***Opuntia pulchella***
Cryptantha sobolifera (?)	***Cryptantha schoolcraftii***
Cryptantha virginensis (?)	***Cryptantha insolita***
Cylindropuntia multigeniculata	***Opuntia whipplei* var. *multigeniculata***
Cymopterus ripleyi	***Cymopterus ripleyi* var. *ripleyi***
Cymopterus ripleyi	***Cymopterus ripleyi* var. *saniculoides***
Cystium sesquimetrale	***Astragalus lentiginosus* var. *sesquimetralis***
Dalea kingii	***Psorothamnus kingii***
Draba quadricostata	***Cusickiella quadricostata***
Draba sphaeroides var. *cusickii* (in part)	***Draba cusickii* var. *pedicellata***
Dudleya arizonica	***Dudleya pulverulenta***
Dudleya pulverulenta var. *arizonica*	***Dudleya pulverulenta***
Echeveria pulverulenta	***Dudleya pulverulenta***
Elodea bifoliata (?)	***Elodea nevadensis***
Ericameria eremobia	***Chrysothamnus eremobius***
Erigeron caespitosus var. *anactis*	***Erigeron ovinus***
Erigeron cavernensis	***Erigeron uncialis* var. *uncialis***
Eriogonum corymbosum var. *aureum* (misapplied)	***Eriogonum corymbosum* var. *glutinosum***
Eriogonum inflatum var. *contiguum*	***Eriogonum contiguum***
Eriogonum lobbii var. *robustum*	***Eriogonum robustum***
Forsellesia clokeyi	***Glossopetalon clokeyi***
Forsellesia pungens var. *glabra*	***Glossopetalon pungens* var. *glabrum***
Forsellesia pungens var. *pungens*	***Glossopetalon pungens* var. *pungens***
Frasera albicaulis var. *modocensis* (misapplied)	***Frasera pahutensis***
Frasera albicaulis var. *nitida* (misapplied)	***Frasera pahutensis***
Galium multiflorum var. *multiflorum* (in part)	***Galium hilendiae* ssp. *kingstonense***
Gilia nevadensis	***Ipomopsis congesta* var. *nevadensis***

Gilia nyensis (misapplied)	***Gilia heterostyla***
Grusonia pulchella	***Opuntia pulchella***
Haplopappus alpinus	***Tonestus alpinus***
Haplopappus bloomeri ssp. *compactus*	***Ericameria compacta***
Haplopappus cervinus	***Ericameria cervina***
Haplopappus compactus	***Ericameria compacta***
Haplopappus graniticus	***Tonestus graniticus***
Haplopappus nuttallii var. *depressus*	***Machaeranthera grindelioides* var. *depressa***
Haplopappus watsonii	***Ericameria watsonii***
Helianthus anomalus (?)	***Helianthus deserticola***
Horkelia webberi	***Ivesia webberi***
Hulsea vestita var. *callicarpha* (?)	***Hulsea vestita* ssp. *inyoensis***
Ivesia eremica	***Ivesia kingii* var. *eremica***
Laphamia megacephala ssp. *intricata*	***Perityle intricata***
Lecanora fruticulosa	***Aspicilia fruticulosa***
Lepidium montanum ssp. *davisii*	***Lepidium davisii***
Leptotaenia leibergii	***Lomatium roseanum***
Lomatium graveolens var. *clarkii*	***Lomatium graveolens* var. *alpinum***
Mentzelia oreophila (?)	***Mentzelia candelariae***
Mentzelia oreophila var. (?)	***Mentzelia leucophylla***
Micropuntia gracilicylindrica	***Opuntia pulchella***
Miltitzia glaberrima	***Phacelia glaberrima***
Miltitzia parviflora	***Phacelia inundata***
Miltitzia scopulina (in part)	***Phacelia monoensis***
Mimulus bigelovii var. *ovatus*	***Mimulus ovatus***
Mimulus cusickii (misapplied)	***Mimulus ovatus***
Oenothera heterochroma var. *megalantha*	***Camissonia megalantha***
Oenothera megalantha	***Camissonia megalantha***
Oenothera nevadensis	***Camissonia nevadensis***
Opuntia abyssi (?)	***Opuntia whipplei* var. *multigeniculata***
Opuntia multigeniculata	***Opuntia whipplei* var. *multigeniculata***
Opuntia X *multigeniculata*	***Opuntia whipplei* var. *multigeniculata***
Parosela kingii	***Psorothamnus kingii***
Pedicularis semibarbata (?)	***Pedicularis semibarbata* var. *charlestonensis***
Penstemon bicolor (?)	***Penstemon bicolor* ssp. *bicolor***
Penstemon bicolor (?)	***Penstemon bicolor* ssp. *roseus***
Penstemon francisci-pennellii	***Penstemon leiophyllus* var. *francisci-pennellii***
Penstemon keckii	***Penstemon leiophyllus* var. *keckii***
Penstemon leonardii var. *patricus*	***Penstemon patricus***
Penstemon macranthus	***Penstemon palmeri* var. *macranthus***
Penstemon maguirei	***Penstemon arenarius***
Penstemon palmeri var. *bicolor*	***Penstemon bicolor* ssp. *bicolor***
Penstemon pseudospectabilis ssp. *bicolor*	***Penstemon bicolor* ssp. *bicolor***
Perityle megalocephala var. *intricata*	***Perityle intricata***
Perityle megalocephala var. *oligophylla* (?)	***Perityle intricata***
Phacelia foliosepala	***Phacelia minutissima***
Phacelia lutea var. *scopulina* (in part)	***Phacelia monoensis***
Phacelia parishii (misapplied)	***Phacelia* sp.**
Pinus ponderosa var. *ponderosa* (?)	***Pinus washoensis***
Polemonium viscosum ssp. *chartaceum*	***Polemonium chartaceum***
Polyctenium fremontii var. *confertum*	***Polyctenium williamsiae***

Potentilla aperta	***Ivesia aperta* var. *aperta***
Potentilla cryptocaulis	***Ivesia cryptocaulis***
Potentilla jaegeri	***Ivesia jaegeri***
Potentilla osterhoutii var. *saxosa*	***Ivesia arizonica* var. *saxosa***
Potentilla webberi	***Ivesia webberi***
Primula nevadensis	***Primula cusickiana* var. *nevadensis***
Psoralea castorea	***Pediomelum castoreum***
Psorodendron kingii	***Psorothamnus kingii***
Purpusia saxosa	***Ivesia arizonica* var. *saxosa***
Salvia carnosa ssp. *argentea* (in part)	***Salvia dorrii* var. *clokeyi***
Sclerocactus blainei (?)	***Sclerocactus schlesseri***
Sclerocactus spinosior ssp. *blainei*	***Sclerocactus blainei***
Sclerocactus spinosior ssp. *blainei* (?)	***Sclerocactus schlesseri***
Sclerocactus spinosior var. *schlesseri*	***Sclerocactus schlesseri***
Scutellaria nana (?)	***Scutellaria holmgreniorum***
Sphaerostigma tortuosa	***Camissonia nevadensis***
Spiranthes romanzoffiana (misapplied)	***Spiranthes diluvialis***
Spiranthes romanzoffiana var. *porrifolia* (misapplied)	***Spiranthes infernalis***
Swertia gypsicola	***Frasera gypsicola***
Swertia pahutensis	***Frasera pahutensis***
Tanacetum compactum	***Sphaeromeria compacta***
Trifolium kingii ssp. *rollinsii*	***Trifolium rollinsii***
Trifolium macilentum var. *rollinsii*	***Trifolium rollinsii***
Viola charlestonensis	***Viola purpurea* var. *charlestonensis***
Weissia sweetii	***Trichostomum sweetii***

INDEX TO COMMON NAMES OF MAPPED TAXA

COMMON NAME	SCIENTIFIC NAME
Ackerman milkvetch	***Astragalus ackermanii***
adobe parsley	***Lomatium roseanum***
alkali mariposa lily	***Calochortus striatus***
alpine tonestus	***Tonestus alpinus***
altered andesite buckwheat	***Eriogonum robustum***
altered andesite popcornflower	***Plagiobothrys glomeratus***
Amargosa buckwheat	***Eriogonum contiguum***
Amargosa niterwort	***Nitrophila mohavensis***
American grimmia	***Grimmia americana***
Antelope Canyon goldenbush	***Ericameria cervina***
Ash Meadows blazingstar	***Mentzelia leucophylla***
Ash Meadows gumplant	***Grindelia fraxinopratensis***
Ash Meadows ivesia	***Ivesia kingii* var. *eremica***
Ash Meadows lady's tresses	***Spiranthes infernalis***
Ash Meadows milkvetch	***Astragalus phoenix***
Ash Meadows sunray	***Enceliopsis nudicaulis* var. *corrugata***
Aven Nelson phacelia	***Phacelia anelsonii***
Barneby stemflower	***Caulanthus barnebyi***
Barren Valley collomia	***Collomia renacta***
bashful beardtongue	***Penstemon pudicus***
Beatley buckwheat	***Eriogonum beatleyae***
Beatley milkvetch	***Astragalus beatleyae***
Beatley scorpion plant	***Phacelia beatleyae***
Beaver Dam breadroot	***Pediomelum castoreum***
black woollypod	***Astragalus funereus***
Blaine pincushion	***Sclerocactus blainei***
Blue Diamond cholla	***Opuntia whipplei* var. *multigeniculata***
Bodie Hills draba	***Cusickiella quadricostata***
Bodie Hills rockcress	***Arabis bodiensis***
broad fleabane	***Erigeron latus***
broad-pod freckled milkvetch	***Astragalus lentiginosus* var. *latus***
Bruneau River prickly phlox	***Leptodactylon glabrum***
Bullfrog Hills sweetpea	***Lathyrus hitchcockianus***
California draba	***Draba californica***
Callaway milkvetch	***Astragalus callithrix***
Candelaria blazing-star	***Mentzelia candelariae***
Cane Spring suncup	***Camissonia megalantha***
chalk liveforever	***Dudleya pulverulenta***
Charleston beardtongue	***Penstemon leiophyllus* var. *keckii***
Charleston draba	***Draba paucifructa***
Charleston goldenbush	***Ericameria compacta***
Charleston grounddaisy	***Townsendia jonesii* var. *tumulosa***
Charleston kittentails	***Synthyris ranunculina***
Charleston pinewood lousewort	***Pedicularis semibarbata* var. *charlestonensis***
Charleston pussytoes	***Antennaria soliceps***
Charleston tansy	***Sphaeromeria compacta***
Charleston violet	***Viola purpurea* var. *charlestonensis***

Churchill Narrows buckwheat	***Eriogonum* sp.**
Cima milkvetch	***Astragalus cimae* var. *cimae***
Clark parsley	***Lomatium graveolens* var. *alpinum***
Clokey buckwheat	***Eriogonum heermannii* var. *clokeyi***
Clokey catchfly	***Silene clokeyi***
Clokey eggvetch	***Astragalus oophorus* var. *clokeyanus***
Clokey greasebush	***Glossopetalon clokeyi***
Clokey milkvetch	***Astragalus aequalis***
Clokey mountain sage	***Salvia dorrii* var. *clokeyi***
Clokey paintbrush	***Castilleja martinii* var. *clokeyi***
Clokey thistle	***Cirsium clokeyi***
Cochrane gilia	***Gilia heterostyla***
Cordelia beardtongue	***Penstemon floribundus***
Cottam cinquefoil	***Potentilla cottamii***
Crosby buckwheat	***Eriogonum crosbyae***
Currant milkvetch	***Astragalus uncialis***
Currant Summit clover	***Trifolium andinum* var. *podocephalum***
Cusick stickseed	***Hackelia cusickii***
dad's penstemon	***Penstemon patricus***
dainty moonwort	***Botrychium crenulatum***
Darin buckwheat	***Eriogonum concinnum***
Darrow buckwheat	***Eriogonum darrovii***
Davis peppergrass	***Lepidium davisii***
Death Valley beardtongue	***Penstemon fruticiformis* ssp. *amargosae***
Death Valley sage	***Salvia funerea***
delicate rockdaisy	***Perityle intricata***
desert sunflower	***Helianthus deserticola***
desert whitlowgrass	***Draba arida***
Eastwood milkweed	***Asclepias eastwoodiana***
Elko rockcress	***Arabis falcifructa***
Galena Creek rockcress	***Arabis rigidissima* var. *demota***
Gilman milkvetch	***Astragalus gilmanii***
Gold Butte moss	***Didymodon nevadensis***
golden buckwheat	***Eriogonum corymbosum* var. *glutinosum***
Goodrich biscuitroot	***Cymopterus goodrichii***
Goodrich bladderpod	***Lesquerella goodrichii***
Goose Creek milkvetch	***Astragalus anserinus***
gray wavewing	***Cymopterus cinerarius***
Grimes vetchling	***Lathyrus grimesii***
grimy ivesia	***Ivesia rhypara* var. *rhypara***
Grouse Creek rockcress	***Arabis falcatoria***
halfring milkvetch	***Astragalus mohavensis* var. *hemigyrus***
heavenly buckwheat	***Eriogonum ovalifolium* var. *caelestinum***
hermit cactus	***Sclerocactus polyancistrus***
hidden ivesia	***Ivesia cryptocaulis***
Hitchcock bladderpod	***Lesquerella hitchcockii***
Holmgren buckwheat	***Eriogonum holmgrenii***
Holmgren smelowskia	***Smelowskia holmgrenii***
inch high fleabane	***Erigeron uncialis* var. *conjugans***
intermountain wavewing	***Cymopterus basalticus***
Inyo hulsea	***Hulsea vestita* ssp. *inyoensis***

Jaeger beardtongue	***Penstemon thompsoniae* ssp. *jaegeri***
Jaeger ivesia	***Ivesia jaegeri***
Jaeger whitlowgrass	***Draba jaegeri***
Jones globemallow	***Sphaeralcea caespitosa***
Kingston Mountains bedstraw	***Galium hilendiae* ssp. *kingstonense***
Lahontan beardtongue	***Penstemon palmeri* var. *macranthus***
Lahontan indigobush	***Psorothamnus kingii***
Lahontan milkvetch	***Astragalus porrectus***
Lamoille Canyon milkvetch	***Astragalus robbinsii* var. *occidentalis***
Las Vegas bearpoppy	***Arctomecon californica***
Lavin eggvetch	***Astragalus oophorus* var. *lavinii***
least phacelia	***Phacelia minutissima***
Leiberg clover	***Trifolium leibergii***
Lemmon buckwheat	***Eriogonum lemmonii***
Lewis buckwheat	***Eriogonum lewisii***
limestone daisy	***Erigeron uncialis* var. *uncialis***
Lone Mountain tonestus	***Tonestus graniticus***
lonesome milkvetch	***Astragalus solitarius***
Long Valley milkvetch	***Astragalus johannis-howellii***
long-calyx eggvetch	***Astragalus oophorus* var. *lonchocalyx***
Maguire bitterroot	***Lewisia maguirei***
Margaret rushy milkvetch	***Astragalus convallarius* var. *margaretiae***
Marsh bluegrass	***Poa abbreviata* ssp. *marshii***
Masonic Mountain jewelflower	***Streptanthus oliganthus***
meadow milkvetch	***Astragalus diversifolius***
meadow pussytoes	***Antennaria arcuata***
Meadow Valley sandwort	***Arenaria stenomeres***
Mojave milkvetch	***Astragalus mohavensis* var. *mohavensis***
Mokiak milkvetch	***Astragalus mokiacensis***
Mono buckwheat	***Eriogonum ampullaceum***
Mono County phacelia	***Phacelia monoensis***
Monte Neva paintbrush	***Castilleja salsuginosa***
Mount Moriah beardtongue	***Penstemon moriahensis***
Nachlinger catchfly	***Silene nachlingerae***
Needle Mountains milkvetch	***Astragalus eurylobus***
Nevada dune beardtongue	***Penstemon arenarius***
Nevada primrose	***Primula cusickiana* var. *nevadensis***
Nevada suncup	***Camissonia nevadensis***
Nevada waterweed	***Elodea nevadensis***
Nevada willowherb	***Epilobium nevadense***
New York Mountains catseye	***Cryptantha tumulosa***
Nye gilia	***Gilia nyensis***
Nye milkvetch	***Astragalus nyensis***
obscure scorpion plant	***Phacelia inconspicua***
one-leaflet Torrey milkvetch	***Astragalus calycosus* var. *monophyllidius***
Ophir rockcress	***Arabis ophira***
oryctes	***Oryctes nevadensis***
Osgood Mountains milkvetch	***Astragalus yoder-williamsii***
overlooked phacelia	***Phacelia* sp.**
Owyhee sagebrush	***Artemisia papposa***
Packard mugwort	***Artemisia packardiae***

Packard stickleaf	***Mentzelia packardiae***
Pahrump Valley buckwheat	***Eriogonum bifurcatum***
Pahute green gentian	***Frasera pahutensis***
Pahute Mesa beardtongue	***Penstemon pahutensis***
Parish phacelia	***Phacelia parishii***
Pennell beardtongue	***Penstemon leiophyllus* var. *francisci-pennellii***
Pennell draba	***Draba pennellii***
Pine Nut Mountains ivesia	***Ivesia pityocharis***
Pine Valley milkvetch	***Astragalus convallarius* var. *finitimus***
Pinzl rockcress	***Arabis pinzliae***
planoconvex entosthodon	***Entosthodon planoconvexus***
playa phacelia	***Phacelia inundata***
prostrate buckwheat	***Eriogonum prociduum***
Pueblo Valley peppergrass	***Lepidium montanum* var. *nevadense***
Pulsifer milkvetch	***Astragalus pulsiferae* var. *pulsiferae***
pygmy poreleaf	***Porophyllum pygmaeum***
rattlesnake stickseed	***Hackelia ophiobia***
Ravendale skullcap	***Scutellaria holmgreniorum***
rayless tansy aster	***Machaeranthera grindelioides* var. *depressa***
Red Rock Canyon aster	***Ionactis caelestis***
Reese River phacelia	***Phacelia glaberrima***
remote rabbitbrush	***Chrysothamnus eremobius***
rhizome beardtongue	***Penstemon rhizomatosus***
rim lichen	***Aspicilia fruticulosa***
Ripley biscuitroot	***Cymopterus ripleyi* var. *ripleyi***
Ripley gilia	***Gilia ripleyi***
rock purpusia	***Ivesia arizonica* var. *saxosa***
rock violet	***Viola lithion***
Rollins clover	***Trifolium rollinsii***
rosy King sandwort	***Arenaria kingii* ssp. *rosea***
rosy twotone beardtongue	***Penstemon bicolor* ssp. *roseus***
rough angelica	***Angelica scabrida***
rough dwarf greasebush	***Glossopetalon pungens* var. *pungens***
Ruby Mountains primrose	***Primula capillaris***
sand cholla	***Opuntia pulchella***
sanicle biscuitroot	***Cymopterus ripleyi* var. *saniculoides***
scarlet buckwheat	***Eriogonum phoeniceum***
Schlesser pincushion	***Sclerocactus schlesseri***
Schoolcraft catseye	***Cryptantha schoolcraftii***
seriate crossidium	***Crossidium seriatum***
sheep fleabane	***Erigeron ovinus***
Sheep Mountain milkvetch	***Astragalus amphioxys* var. *musimonum***
Shockley rockcress	***Arabis shockleyi***
Sierra Valley ivesia	***Ivesia aperta* var. *aperta***
silverleaf sunray	***Enceliopsis argophylla***
smooth dwarf greasebush	***Glossopetalon pungens* var. *glabrum***
smooth stickleaf	***Mentzelia mollis***
Snake Range whitlowgrass	***Draba oreibata* var. *serpentina***
Sodaville milkvetch	***Astragalus lentiginosus* var. *sesquimetralis***
Soldier Meadow cinquefoil	***Potentilla basaltica***
Spring Mountains milkvetch	***Astragalus remotus***

spring-loving centaury	***Centaurium namophilum***
squalid milkvetch	***Astragalus serenoi* var. *sordescens***
stalked Cusick whitlowgrass	***Draba cusickii* var. *pedicellata***
Steamboat buckwheat	***Eriogonum ovalifolium* var. *williamsiae***
Steamboat monkeyflower	***Mimulus ovatus***
sticky buckwheat	***Eriogonum viscidulum***
Succor Creek parsley	***Lomatium packardiae***
Suksdorf milkvetch	***Astragalus pulsiferae* var. *suksdorfii***
Sulphur Springs buckwheat	***Eriogonum argophyllum***
Sunnyside green gentian	***Frasera gypsicola***
Sweet trichostomum	***Trichostomum sweetii***
Tahoe draba	***Draba asterophora* var. *asterophora***
Tahoe yellowcress	***Rorippa subumbellata***
Tecopa birdsbeak	***Cordylanthus tecopensis***
threecorner milkvetch	***Astragalus geyeri* var. *triquetrus***
Tiehm beardtongue	***Penstemon tiehmii***
Tiehm buckwheat	***Eriogonum tiehmii***
Tiehm milkvetch	***Astragalus tiehmii***
Tiehm rockcress	***Arabis tiehmii***
Tiehm stroganowia	***Stroganowia tiehmii***
Toiyabe buckwheat	***Eriogonum esmeraldense* var. *toiyabense***
Toiyabe gilia	***Ipomopsis congesta* var. *nevadensis***
Tonopah fishhook cactus	***Sclerocactus nyensis***
Tonopah milkvetch	***Astragalus pseudiodanthus***
Toquima milkvetch	***Astragalus toquimanus***
Tunnel Springs beardtongue	***Penstemon concinnus***
unusual catseye	***Cryptantha insolita***
upswept moonwort	***Botrychium ascendens***
Utah spikemoss	***Selaginella utahensis***
Ute lady's tresses	***Spiranthes diluvialis***
Virgin River thistle	***Cirsium virginense***
Wasatch draba	***Draba brachystylis***
Washoe pine	***Pinus washoensis***
Washoe tall rockcress	***Arabis rectissima* var. *simulans***
Wassuk beardtongue	***Penstemon rubicundus***
Watson goldenbush	***Ericameria watsonii***
Watson spinecup	***Oxytheca watsonii***
waxflower	***Jamesia tetrapetala***
weasel phacelia	***Phacelia mustelina***
Webber ivesia	***Ivesia webberi***
white bearpoppy	***Arctomecon merriamii***
White Mountain skypilot	***Polemonium chartaceum***
White Mountains cushion draba	***Draba subumbellata***
White River catseye	***Cryptantha welshii***
white-margined beardtongue	***Penstemon albomarginatus***
Williams combleaf	***Polyctenium williamsiae***
windloving buckwheat	***Eriogonum anemophilum***
winged milkvetch	***Astragalus pterocarpus***
yellow twotone beardtongue	***Penstemon bicolor* ssp. *bicolor***