

NEVADA NATIVE PLANT SOCIETY
Rare Plant Committee Meeting
NEVADA RARE PLANT WORKSHOP
2-3 April 2008, Reno

2008 MEETING NOTES

<http://heritage.nv.gov/notes08.pdf>

The following notes were kept by Gail Durham, Michelle Lefebvre, and Jim Morefield during the 2008 Nevada Rare Plant Workshop, and compiled by Jim Morefield. Please notify the editor (jdmore@heritage.nv.gov, 775-684-2902, 901 S Stewart Street, suite 5002, Carson City, NV 89701-5245) of any corrections. Except for the proposed M-List additions near the end, each taxon entry begins by repeating the information from the Workshop agenda, followed by notes on the **discussion** that followed, and then any **consensus** that was reached on that taxon.

WELCOME AND INTRODUCTIONS

The 2008 Nevada Rare Plant Workshop convened in Las Vegas on Wednesday, 2 April 2007, at 9:00 am, in main conference room of the Bureau of Land Management, Nevada State Office. The meeting was co-sponsored by the Nevada Native Plant Society (NNPS) and the Nevada Natural Heritage Program (NNHP), and was co-chaired by Jim Morefield (NNPS Rare Plant Chair), Steve Caicco, and Ann Pinzl. Introductions proceeded around the room.

In attendance during all or part of the workshop were 28 participants: Jason Alexander (**Oregon State University**); Joanne Baggs, Elizabeth Bergstrom, Cheryl Beyer, Kathleen Nelson, & Stu Osbrack (**U.S. Forest Service**); Dianne Bangle (**Lake Mead National Recreation Area**); Steve Caicco & Fred Edwards (**U.S. Fish & Wildlife Service**); Mike Dolan (**Bureau of Land Management**); Gail Durham & Rich Harvey (**Nevada Division of Forestry**); Tara Forbis, Sarah Kulpa, & Elizabeth Leger (**University of Nevada Reno**); Russ Harrison (**Springs Preserve, Las Vegas**); Janel Johnson & Jim Morefield (**Nevada Natural Heritage Program**); Sonja Kokos (**Clark County, Nevada**); Pat Leary (**Community College of Southern Nevada**); Michele Lefebvre (**Enviroscientists, Inc.**); Rob Mrowka (**Center for Biological Diversity**); Wes Niles (**University of Nevada Las Vegas**); Kent Ostler (**NSTec/Nevada Test Site**); Ann Pinzl (**Natural History Collections Services**); Alison Stanton (**BMP Ecosystems**); Emily Smith (**Brigham Young University**); & Arnold Tiehm (**Nevada Native Plant Society**).

Jim Morefield extended special thanks to Steve Caicco for arranging the room for the meeting, to Steve and Ann Pinzl for helping to chair the meeting in his absence, and to Michele Lefebvre and Gail Durham for volunteering to keep meeting notes. Discussion ensued on possibly going to 3 days for next (Las Vegas) meeting, possibly holding at Springs Preserve instead of UNLV. Cost might be an issue. Wes will check on 4/6-4/8, 2009 dates and let us know.

After discussion of workshop logistic, including Thursday's NNPS meeting in Reno, the Chair provided a brief overview of the agenda, including items to be taken out of order, the consensus process to be used, and the NNPS categories. Anyone needing to leave early, and wishing to cover a particular agenda item first, should alert the Chair so the item may be moved up. Please also review the proposed additions to the Marginal List, at the end of the agenda, and be prepared to point out any that are incorrectly listed, prior to finalizing them.

NEW BUSINESS: REVIEW AND STATUS OF HIGH-PRIORITY TAXA (REVERSE ALPHABETIC)

Potentilla johnstonii (sagebrush cinquefoil) - long recognized but only recently named as a species distinct from *P. concinna* (Sojak, J. 2006. Two new American species of *Potentilla* (Rosaceae). *Thaiszia Journal of Botany* 16: 93-97). Its most conspicuous distinguishing feature is the tridentate leaflets of each leaf, which look almost exactly like the leaves of sagebrush (*Artemisia tridentata*, with which it grows), thus the proposed common name. The species is known only from four collections (1945, 1960, 1975, and 2005) at a single locality, Cherry Creek Summit in the Quinn Canyon Range of Nye County at about 7600 ft elevation. NatureServe ranks G1 S1. Add to NNPS Watch List? Recommend for HTNF status? **Discussion:** [under construction]. **Consensus:** add to NNPS Watch list, recommend for Forest Service sensitive species list.

Potentilla holmgrenii (Holmgren cinquefoil) - recently recognized as distinct from *P. nivea* based on plants usually forming dense cushions, basal leaves densely hairy on both surfaces, teeth of central leaflets 2-4, obtuse to round, often overlapping, epicalyx bractlets shorter and narrower than sepals, and styles 1.2 mm long or longer without distinct basal papillae (Murray, D. F. and E. Reidar. 2007. A new species and two new combinations in *Potentilla* sect. *Niveae* (Rosaceae). *Journal of the Botanical Research Institute of Texas* 1: 811-814). **See comments from Barbara Ertter.** The species is known only from five occurrences in three mountain ranges of White Pine County, Nevada and Juab County, Utah: North Schell Peak and Taft Peak in the Schell Creek Range, Wheeler Peak and Mount Moriah in the Snake Range, and from the Deep Creek Mountains in Utah. NatureServe ranks G2, S2 in NV, S1 in UT. Add to NNPS Watch List? Recommend for HTNF status? **Discussion:** [under construction]. **Consensus:** add to NNPS Watch list, no recommendation for Forest Service sensitive status.

Penstemon bicolor (twotone beardtongue) - 2006 status report recommends no recognition of varieties, State listing of entire species due to habitat damage and loss (especially for yellow-flowered form), and ongoing hybridization with Palmer penstemon (*Penstemon palmeri* var. *palmeri*). Varieties still recognized by Nevada Natural Heritage Program and NatureServe because of differences in geographic, elevation, and habitat ranges correlated with the flower-color difference. Yellow-flowered form (**var. *bicolor***) endemic to Clark County, Nevada, NatureServe ranks G3 T2 S2. Rose-flowered form (**var. *roseus***) ranked G3 T3, S3 in NV, S2 in adjacent AZ, S1.3 in adjacent CA (3 occurrences). Both forms on BLM and USFS Sensitive Species lists, NNPS Watch List, and CNPS List 2.3. Do we concur with State listing recommendation for species or either form? Any other status changes appropriate? **Discussion:** [under construction]. **Consensus:** status quo, no change, item closed.

Boechera (Arabis) nevadensis (Spring Mountains rockcress) - recognized in major revision of *Boechera* (most former *Arabis* taxa) for upcoming *Flora of North America* treatment. Known only from "ledges and talus of limestone cliffs, 3000-3400 m" in the Spring Mountains of Clark and Nye counties. It is distinguished from *B. pendulina* (with which it forms occasional apomictic triploid hybrids) by being glabrous or with few simple hairs on basal petioles and having winged seeds, from *B. demissa* by largest fruits 2.3-3.0 mm wide, ovules 52-72 per ovary, and seeds biseriate, and from both by prominently auriculate stem leaves and divaricate (often secund) fruits with nearly straight stalks. Type locality is at head of Lee Canyon at 10,000 ft in 1913, and it has been collected recently near there. Add to NNPS Watch List? Recommend for HTNF status? **Discussion:** there has been a recent collection near the type locality. Expansion of the ski resort in Lee Canyon should not impact it because it is found in the ledges above the resort. Wes was not aware of the new species or recent collections. Jim has seen the draft FNA treatment and it is being recognized as a distinct species and is expected to be very rare, but until all specimens are examined, it is difficult to say. **Consensus:** add to NNPS Watch list, leave open pending further information.

Astragalus lentiginosus* var. *multiracemosus (Lamoille Terraces milkvetch) - recently described by Stan Welsh (pages 294-295 in North American species of *Astragalus* Linnaeus (Leguminosae): A taxonomic revision. Marcus E. Jones Endowment Fund, Stanley L. Welsh Herbarium, Brigham Young University, Provo, Utah. 2007) based on a single collection from a moist seep at about 8500 ft elevation near Terraces Campground in Lamoille Canyon, Ruby Mountains, Elko County, Nevada. This location is surrounded by the type locality of *A. lentiginosus* var. *tremuletorum*, which both Welsh and Barneby synonymize under var. *scorpionis*, from which Welsh in turn distinguishes the new variety. The new variety is distinctive in its prostrate, proliferous branching and flowering habit (much like var. *sesquimetalis*), with stems up to half a meter long and floriferous from near the base, although both vars. *scorpionis* and *salinus* (to the latter of which Welsh considered the new variety most closely related) also often become floriferous from the middle nodes upward. See 2008 comments from Brian Knaus. How confident are we with the taxonomy? Add to NNPS Watch List? Recommend for HTNF status? Wait for field confirmation of a distinctive population in the type area? **Discussion:** Jason explained that he has been looking at high elevation population of *A. lentiginosus*, each population has differences in the bilobate pod characteristics. All high elevation populations in eastern Great Basin previously lumped into var. *scorpionis*. Working on 60 character multivariate analysis to determine what characters to ID varieties with. Type location of var. *multiracemosus* has longer growing season, where any var. *tremuletorum* could develop longer trailing stems with multiple branches along the stem like var. *multiracemosus* – is this a predictable effect in many locations. Taxonomy still very uncertain. **Consensus:** no recommendations, leave open pending better taxonomic information.

OLD BUSINESS: HIGH-PRIORITY OPEN ITEMS FROM PREVIOUS WORKSHOPS (ALPHABETIC)

Status of pending listing recommendations: *Draba asterophora* (Tahoe draba) and *Penstemon albomarginatus* (white-margined beardtongue) -- see background information alphabetically below. *Draba asterophora* will be discussed Wednesday afternoon after Emily Smith's presentation. **Discussion:** [under construction].

Phacelia laxiflora (nodding scorpionflower, =*P. perityloides* var. *laxiflora*) - left open by the 2002-2007 Workshops pending further information on its Nevada range. Known only from sheltered, sometimes moist carbonate rock crevices in the Virgin River gorge, Washington Co., Utah, the Grand Canyon of Mohave and Coconino cos., Arizona, and the Virgin Mountains, Clark Co., Nevada. **UNLV has a single collection from 2300 m elevation in the Virgin Mountains.** Ranked G2G3, S1 in Nevada. Any new information? Add to NNPS Watch or Marginal List? **Discussion:** [under construction]. **Consensus:** add to NNPS Marginal List contingent on no conservation status in Arizona and Utah, otherwise leave open for further consideration. **Contingency update February 2010: no status in Arizona and Utah, placed on NNPS Marginal List, item closed.**

Penstemon albomarginatus (white-margined beardtongue) - First recommendation for State listing by 2007 Workshop. Threats to largest Nevada population from upwind airport development and resulting changes in sand transport and accumulation and indirect land use changes in the area, and from possible land use changes in the Jean Lake area. California populations threatened and declining. Currently on the NNPS Threatened List, and BLM Sensitive Species List in NV and CA. NatureServe ranks G2 S2. Final recommendation for State listing? Other status recommendations? **Discussion:** AZ BLM is doing land exchange to conserve it there. BLM is receiving 6,000 acres of solar power applications – Jean Lake Area. Occurs in shifting sands on roadsides. Rare species in AZ, found at Dutch Flat. Threats from BLM 90 mile OHV high speed races, mining, and development. Mining in Hidden Valley area is active and near the Roach Lake population. Airport shifting sand threat – Clark County funding sediment transport study on proposed Ivanpah Airport – so will know when study done – will feed into the EIS

to determine what they will need to do for the Airport. Public scoping right now. Land has already conveyed to the County. When Study comes out – if plant is not listed, then nothing to protect it if further threatened. BLM is required to protect it because it is BLM Sensitive species, but it is up to the field office manager. Threatened and declining like in CA. BLM has done plots on this species for increase or decline. Northern population is doing very well – blooming this year, Jean population does not look as good. Recommend adding to State Endangered List for the second year in a row, seconded. NNHP will need documentation of threats to survival in NV before they can recommend to State Forester. Clark County is monitoring plots north and south, but not sure this will provide the needed answers. Data from neighboring states would also be considered in any NV Listing recommendation. **Consensus: recommend second and final time for addition to the Nevada list of fully protected species under N.R.S. 527.**

Mentzelia inyoensis (Inyo blazingstar) - left open by the 2005-2007 workshops because of unverified reports of populations farther south in the Inyo, Coso, and Argus ranges of California. Described as new to science by Thompson and Prigge in Madroño 51(4): 379-383, 2004. Known from about 4 or 5 locations, mainly in the White Mountains of Esmeralda Co., NV, and Mono and Inyo cos., CA, but with one disjunct occurrence in southeastern Churchill Co., NV. Tentative heritage ranks G2 S1. About as rare as *M. tiehmii* and *M. argillicola*, previously added to the NNPS Watch List. Said to differ from *M. candelariae* by its fall (vs. spring) flowering time, petals 11-18 mm long (vs. 6-10 mm), lower stem leaves more deeply lobed, fruits longer and more narrowly cylindrical on average, and seed coats with 2-6 papillae per cell (vs. 9-15). Said to differ from *M. oreophila* by the absence of petaloid stamens, fruits 12-16(-25) mm long (vs. 5.5-6.5 mm), and leaves linear-lanceolate and lobed (vs. elliptic to ovate and undulately toothed). **Has now been added to CNPS List 1B.** Have the Mazourka Canyon, Coso, and Argus populations been collected and verified yet? Add to NNPS Watch or Marginal List? Recommendations for other agency status? **Discussion:** [under construction]. **Consensus:** add to NNPS Watch list.

Helianthus deserticola (desert sunflower) - Left open by the 2006-2007 workshops, to consider dropping pending further data. Lumped under *H. anomalus* by Cronquist *Intermountain Flora*, but still considered distinct by current sunflower researchers, and recognized in the *Flora of North America* treatment (vol. 21, p. 154, 2006). Known from sw Utah, nw Arizona, s Nevada, and disjunct in west-central Nevada (mainly Churchill Co.) where it could be genetically distinct. Recent observations suggest increasing prevalence of invasive species in the northern Nevada populations. Any new information? Any status changes appropriate at this time? **Discussion:** [under construction]. **Consensus:** move to NNPS Dropped list.

Eriogonum mensicola (Pinyon Mesa buckwheat) - Left open by the 2004-2007 Workshops pending verification of its rarity in Nevada (and elsewhere) with UNLV botanists and collections. This distinctive taxon has until recently been synonymized with, or treated as a variety of, *Eriogonum panamintense*. On the basis of this synonymy, CNPS considered it too common to warrant conservation concern. **UNLV has 4 Nevada collections, 3 from the Sheep Range, and 1 from the summit of McCullough Mountain, all at 7000-7700 ft elevation in Clark County. Based on a search of the California Consortium of Herbaria databases, there are about 7 distinct occurrences in the Coso, Cottonwood, Nelson, Inyo, and Panamint ranges of Inyo County, California.** Reported to intergrade with *Eriogonum panamintense* along an elevation gradient in the northern Coso Range. Add to the NNPS Watch or Marginal List? **Discussion:** [under construction]. **Consensus:** add to NNPS Watch list.

Erigeron multiceps (Kern River daisy) - Left open by the 2007 Workshop to reconsider taxonomic status - may not be distinct from the common *E. divergens*. Reported at the 2005 Workshop to have been found on Bridge Mountain in Red Rock Canyon NCA, and also to be present in Mexico. Otherwise known only from 8 map quadrangles on the Kern Plateau in Tulare County, California. NatureServe rank G1. Currently on CNPS List 1B.2, rank S1.2. Added to the NNPS Watch List by the 2006 Workshop. In August 2006 Guy Nesom (FNA Author for *Erigeron*) indicated to Ann Pinzl that he knew of only a single collection from Mexico, in the Sierra San Pedro Martir of Baja California in the 1960s. Any changes or further consideration needed? **Discussion:** [under construction]. **Consensus:** status quo, no changes needed, close item.

Draba asterophora var. *asterophora* (Tahoe draba) - First recommendation for State listing by the 2007 Workshop. Recent research indicates that the Mt. Rose area plants are a tetraploid entity distinct from the tetraploid Heavenly and the diploid Monument Peak populations, which will be named as separate taxa. Greatest impacts are currently projected for the Mt. Rose populations, which retain the name var. *asterophora*. The report of Draba asterophora from the central Sierra Nevada is suspected to be erroneous. NatureServe ranks G4T2, S1 in Nevada, S1.3 in California, and on CNPS List 1B.3. Currently a USFS Sensitive Species, and on the NNPS Watch List. Final recommendation for State listing? Elevate NNPS status to Threatened or Endangered? **Discussion:** Threats are Mt. Rose and Heavenly ski resort expansion and development. Only 3 known population clusters. Two var. *asterophora* at Mt. Rose and Heavenly, one diploid and one tetraploid, and var. *macrocarpa* is the Freel Peak population. Mt Gibbs specimen needs to be looked at and will be reviewed. Relay Peak is included in Mt. Rose cluster. Highest densities are at sites that are not ski resorts. Highest densities with var. *macrocarpa*. NE cluster of var. *asterophora* grows in lower % of sand and higher % of silt, SE cluster had lower clay content. Usually can't cross diploids with tetraploids, Mt. Rose and Heavenly var. *asterophora* considered distinct, but hard to see morphologic differences. SE population includes diploid and triploid counts. Pollination agent mostly flies, no known specialists. Tetraploids tend to self-pollinate. A trial ski run grading resulted in lack of any re-establishment. Mt. Rose wants to continue to grade on the private ground. There will be more than one taxon soon, and the Mt. Rose population would keep the name var. *asterophora*, so that is what we currently would be able

to list if we list. No way morphologically to differentiate the 2 taxa. State listing would affect any in NV, not in CA. No wilderness surveys planned by the H-T. Jerry against listing because he thinks there are more than we think and has personally seen them on Relay, Rose Chutes, and south of Tahoe Meadows. Allison against listing until the taxonomy is cleared up. Are they in danger of extinction in NV? Without consensus on listing, will be restarting the clock on this species until we have more info. **Consensus: move to NNPS Threatened list, withdraw recommendation to add to the Nevada list of fully protected species under N.R.S. 527 pending further information, leave open.**

Cylindropuntia* (*Opuntia whipplei* var.) *multigeniculata (Blue Diamond cholla) - Left open by 2006-2007 Workshops, pending further consultation with Marc Baker. Marc Baker's final 2005 report confirms several large new populations scattered through Clark County and adjacent Mohave County, Arizona. There are slight differences in fruit spines between the eastern and western populations, with intermediates in the McCullough Range; no further taxonomic subdivisions are being proposed. Blue Diamond cholla as a whole is considered a species distinct from *Cylindropuntia whipplei*. Previously known only from the Blue Diamond Hills. Current NatureServe ranks T1 S1, on the State of Nevada list of fully protected species, on the BLM Special Status Species list, and on the NNPS Threatened list. Are either of the two geographic fruit forms (presumably genetic variants) rare enough to warrant continued conservation concern? Does the species still merit full protection by the State of Nevada as a Critically Endangered species? **Discussion:** Baker does not recognize different taxa based on fruit forms. Discussion of disposal area effects, threats, etc. Jim said there is no real close proximity to threats at this time, except mining in a western population. Since it is much more prevalent than previously thought, its endangerment is much less than previously thought. Rich clarified what NV listed species require. **Consensus: move to NNPS Watch list, first recommendation to remove from the Nevada list of fully protected species under N.R.S. 527.**

Castilleja salsuginosa (Monte Neva paintbrush) - Left open by 2007 workshop. Known from two sites, both in Nevada, one at Monte Neva Hot Springs in Steptoe Valley, north of Ely, White Pine County, the other at Hot Spring Hill, just off Highway 50 in Eureka County. The Hot Spring Hill site experienced heavy Mormon Cricket impacts in 2006. Discuss new 2007 information. Any further review needed? **Discussion:** [under construction]. **Consensus: status quo, no changes needed, close item.**

Astragalus hornii* var. *hornii (Horn milkvetch) - Placed on NNPS Watch list by 2007 workshop, but left open pending possible location and search of historical Nevada site. Known in Nevada from a single historic occurrence at "The Willows" on the west side of Pyramid Lake, Washoe County, in 1913. Otherwise known only from the southern San Joaquin Valley and western Mojave Desert of California, where already extirpated from several historic locations, and seriously endangered by habitat alteration and past eradication efforts due to livestock toxicity. Only 5 California locations documented in the last 50 years. Habitat alkaline flats, playa, and lake margins. On CNPS List 1B.1, NatureServe ranks G2G3, S2S3 in CA, S1 in NV. Any new information on location or status in Nevada? **Discussion:** [under construction]. **Consensus: status quo, no new information, Nevada occurrence probably historical, close item.**

PRESENTATIONS – Wednesday 1:30-4:30 pm and Thursday 9:00-12:00 am. SEE ABSTRACTS AT END.

- **WEDNESDAY 1:30-4:30 pm - CHAIR Steve Caicco**
 - **1:30-2:15 - Jim Morefield**, Nevada Natural Heritage Program: Role and Format of the Nevada Rare Plant Workshop: discussion of future scenarios
 - **2:15-3:00 - Emily Smith**, Brigham Young University: Rarity in an alpine endemic mustard: *Draba asterophora*.
 - **3:15-3:45 - Jason Alexander**, Oregon State University: A Taxonomic Revision of *Astragalus mokiacensis* and Allied Taxa within the *Astragalus lentiginosus* Complex of Section *Diphysi*
 - **3:45-4:15 - Alison Stanton**, BMP Ecoscience: Conservation and Management of the Steamboat Buckwheat *Eriogonum ovalifolium* var. *williamsiae*
 - **4:15-close - Open** - program updates from other participants
- **THURSDAY 9:00-12:00 am - CHAIR Ann Pinzl**
 - **9:00-9:15** - review of day's agenda and plans, requests for out-of-order items, etc.
 - **9:15-9:45 - Steve Caicco**, U.S. Fish & Wildlife Service, The Rarest Plants in the Great Basin of Nevada: what we know, what we don't, and what we need to do
 - **9:45-10:15 - Alison Stanton**, BMP Ecoscience: Doing Adaptive Management: Improving the Application of Science to the Restoration of a Rare Tahoe Plant
 - **10:30-11:00 - Kent Ostler**, Nevada Test Site: Monitoring Sensitive Species on the Nevada Test Site
 - **11:00-11:30 - Tara Forbis**, USDA Agricultural Research Service: Species distribution modeling for rare plants of White River Valley, Nevada
 - **11:30-12:00 - Open** - program updates from other participants
- **THURSDAY EVENING (NNPS meeting 7-9 pm, UNR Campus, lab across the courtyard from the herbarium at 920 Valley Road)**

- **7:30-8:30 pm: Jason Alexander**, Oregon State University: the genus *Astragalus* in southern Nevada: the status of a few rare taxa and a potential undescribed variety of *Astragalus paelongus*.

NEW BUSINESS: REVIEW AND STATUS OF LOWER-PRIORITY AND OTHER TAXA (ALPHABETIC)

Boechera (Arabis) fernaldiana (Fernald rockcress) - both varieties currently on the Nevada Natural Heritage Program watch list, **var. *stylosa*** on Inyo National Forest watch list, neither on any NNPS list. The varieties were not considered very strong by Rollins in 1993, and were lumped by *Intermountain Flora* vol. 2B in 2005. Do we have any reason to disagree with sinking the varieties? Any need for further conservation concern for the species or its varieties? **Discussion:** [under construction].

Consensus: status quo, no status needed, close item.

Cryptantha costata (ribbed cryptantha) - recently found in Nevada by Jim Andre within 2 miles of Overton, where threatened by expansion of Logandale. NatureServe ranks G4G5, S3.3 in CA, S1 in NV, not ranked in AZ. On CNPS List 4.3 ("Watch List" equivalent). Add to NNPS Watch or Marginal lists? **Discussion:** [under construction]. **Consensus:** no conservation status needed, add to NNPS Marginal List.

Epilobium nevadense (Nevada willowherb) - appears to remain very rare in the Spring Mountains. Known as of early 2007 from 7 occurrences in 3 widely separated mountain ranges of southeastern Nevada (including the Spring Mountains), and from 3 more widely separated occurrences in southwestern Utah. Currently on NNPS Watch List, with NatureServe ranks G2, S2 in Nevada, S1 in Utah. **A fourth Nevada occurrence was documented in 2007 by Gregory Gust of the Eastern Nevada Landscape Coalition in the Delamar Mountains of Lincoln County, about 28 km southwest of the previously known Clover Mountains occurrence in Lincoln County.** Is this species more imperiled than its current status would indicate. Are any status changes warranted? **Discussion:** [under construction]. **Consensus:** status quo, no changes needed, close item.

Eriogonum crosbyae (Crosby buckwheat) and ***Ivesia rhypara* var. *rhypara*** (grimy ivesia) - Lucile Housley, BLM Botanist in Lakeview, Oregon, reports that monitoring studies conducted by Delbert Wiens and others over the past decade are indicating significant population losses in Oregon. During a recent visit to the I L Ranch population of ***Ivesia rhypara* var. *rhypara*** in Elko county, it appeared to be unchanged from its condition a decade ago. Any knowledge of trends in other Nevada populations of these species? Any need for status changes at this time? **Discussion:** [under construction]. **Consensus:** status quo, no changes needed.

Thelypodium sagittatum* var. *ovalifolium (ovalleaf thelypody) - considered for threatened status by NNNPS during the MX Missile proposal, then dropped from further consideration. Known from scattered small populations in moist alkaline soils around springs and valley bottoms of Steptoe, White River, Spring, Lake, Ruby, and Little Fishlake valleys in Elko, Lincoln, Nye, and White Pine counties, Nevada, and from four adjacent counties in Utah. NatureServe ranks G4T2, S2 in Nevada, S2 in Utah. Are threats increasing from proposed water withdrawals or other factors affecting its valley-bottom wetland habitat? Should we place back on NNPS Watch List and monitor? **Discussion:** [under construction]. **Consensus:** status quo, no status needed, close item.

Taxa recommended for addition or transfer to the NNPS "M" list (Marginal and/or disjunct occurrence in Nevada, more widespread elsewhere).

- **Taxa with 1-5 known occurrences added to the M-List:** *Boechera elkoensis*, *Cryptantha costata*, *Phacelia laxiflora*.
- **Taxa with 6-20 known occurrences added to the M-List:** *Boechera depauperata* (*Arabis lemmontii* var. *depauperata*).
- **Taxa to remain under consideration for the M-List, pending further information:** *Eriogonum nudum* var. *oblongifolium*, *Eriogonum plumatella*, *Keckiella antirrhinoides*, *Lycium parishii*, *Mentzelia jonesii*.
- **Reject for M-List:** *Chorizanthe corrugata*, *Eriogonum panamintense* (excluding *E. mensicola*).

Taxa added or transferred to the NNPS "A" list (Absent from Nevada currently and historically, previously reported from Nevada in error): *Eriogonum salicornioides*.

STALE BUSINESS: NEW INFO ON LONG-UNRESOLVED OR ONGOING ISSUES (ALPHABETIC)

7. Stale business (Thursday afternoon, CHAIR Steve Caicco): a "radar screen" for long-unresolved or ongoing issues (see separate background information on these taxa)

Astragalus lentiginosus* var. *stramineus (Straw milkvetch) - NNPS Watch List (2002). **Discussion:** the only populations being impacted are the ones around Mesquite, lots of the plants in the washes. Should be kept on the list, but not bumped up. If you put a specimen from Toquop wash next to one from California, they look the same. Will measure var. *variabilis* to see if there's a physical difference. Jerry found it in Lincoln County and habitat probably extends farther south than is known. Move this off the stale business list, leave it on watch. **Consensus:** no further changes needed, close item.

Botrychium (moonwort) taxa in Spring Mountains etc. - any new information? See 2008 comments from Dr. Donald Farrar.
Discussion: *Botrychium lineare* was confirmed at Mary Jane Falls by Don Farrar. Therefore, it can be removed from the stale list. **Consensus: no further changes needed, close item.**

Eriogonum salicinioides (saltwort buckwheat) - NNPS Marginal List pending verification in Nevada. **Discussion:** fossil collector found it, should be questioned whether it was actually found in Nevada. Location was probably north of the Steens in Oregon. Fossil collector's wife was a librarian and recorded. Take it off stale business and put it on the Not in Nevada.
Consensus: move to NNPS Absent List, close item.

Lathyrus grimesii* and *Trifolium leibergii - update on noxious weed treatment and/or monitoring? **Discussion:** there was no leafy spurge near the rare plants. It's a small patch. There are other plants with bigger weed issues. It should be removed from stale business. **Consensus: no further discussion needed, close item.**

Spiranthes diluvialis (Ute ladies'-tresses) - Rediscovered in Nevada in 2005, USFWS action pending. **Discussion:** was refound and it's being delisted. Therefore, it should be removed from the stale business list. **Consensus: no further discussion needed, close item.**

ADJOURNED THURSDAY AFTERNOON

2008 PRESENTATION ABSTRACTS

A Taxonomic Revision of *Astragalus mokiacensis* and Allied Taxa within the *Astragalus lentiginosus* Complex of Section *Diphysi*.

Jason Alexander

Oregon State University, Corvallis

The Palantia, a group of taxa in *Astragalus* Section *Diphysi* which do not have bladdery inflated pods, consists of *A. mokiacensis*, *A. bryantii*, *A. iodanthus* and *A. pseudiodanthus* plus the other scarcely inflated varieties of *A. lentiginosus*: *A. lentiginosus* var. *maricopae*, *A. lentiginosus* var. *palans*, *A. lentiginosus* var. *ursinus*, and *A. lentiginosus* var. *wilsonii*. Every major revision has delimited these taxa differently. A principal coordinates analysis of morphological data from herbarium specimens was used to determine the affinities between type specimens and extant populations of these taxa and to determine the degree of morphological similarity among these taxa. For the genetic analysis, highly polymorphic cpDNA microsatellites were selected due to their applicability to both genetic and phylogenetic questions across a wide range of taxonomic levels. Based on the results of the chloroplast haplotype and morphological datasets, the species, *A. mokiacensis*, *A. bryantii*, *A. iodanthus* and *A. pseudiodanthus*, are recognized as varieties of *A. lentiginosus*. The taxon recently recognized as *A. lentiginosus* var. *trumbullensis* is morphologically similar to the lectotype of *Astragalus mokiacensis*. *Astragalus lentiginosus* var. *trumbullensis* is herein recognized as a low-elevation minor variant and considered a synonym of *A. lentiginosus* var. *mokiacensis*.

The Rarest Plants in the Great Basin of Nevada: what we know, what we don't, and what we need to do.

Steve Caicco

Botanist, U.S. Fish and Wildlife Service, Nevada Fish and Wildlife Office, Reno

About 30 plant taxa in Nevada's Great Basin have earned the coveted distinction of a G1, G1G2, or T1 rank, awarded only to the rarest of the rare. I will review what we know about these plants based on data gleaned from the Nevada Natural Heritage Program and recent information collected by the U.S. Fish and Wildlife Service and/or its contractors. These data shed light on how little we know about even the rarest plants. Despite the limitations of the available data, in some cases they are sufficient to allow an admittedly speculative assessment of the potential threat posed by climate change. Implementation of an effective monitoring strategy will be critical if we are to be able to detect change over the coming decades. In addition, an immediate effort toward ex-situ conservation of representative germ plasm of the rarest taxa in seed banks is imperative to preserve our future options for conservation management. I will outline an integrated strategy for seed collection and multistage monitoring.

Forbis, T.A. 2008. Species distribution modeling for rare plants of White River Valley, Nevada.

Tara A. Forbis

USDA Agricultural Research Service, Reno

White River Valley, in eastern Nevada, is a hotspot for rare plant diversity in the Great Basin. Many of the rare plants occur on Pleistocene spring mound soils, which are likely gypsiferous. The Nature Conservancy conducted field sampling to obtain better data on occurrence of rare species during 2005 and 2007. 1942 new localities were mapped for *Asclepias eastwoodiana*, *Cryptantha welshii*, *Lepidium nanum*, *Machaeranthera grindeliaoides* var. *depressa*, *Mentzelia tiehmii*, and *Townsendia*

jonesii var. *tumulosa*. These data were used to delineate Areas of Critical Environmental Concern for the rare plants in the new Ely BLM Resource Management Plan/Environmental Impact Statement. The data are also being used in ongoing species distribution modeling efforts, which uses species occurrence data along with spatial information (elevation, slope, aspect, and remotely sensed gypsum soils) to predict additional locations for these plant species.

Role and Format of the Nevada Rare Plant Workshop: discussion of future scenarios

Jim Morefield

Nevada Natural Heritage Program, Carson City

The regulations (N.A.C. 527.200) governing the activities of the Nevada Natural Heritage Program (NNHP), in its advisory capacity to the Nevada Division of Forestry (NDF) and its administration of Nevada's endangered plant law (N.R.S. 527.260-.300), are currently ambiguous and in need of clarification. So too is the role of the Nevada Native Plant Society's (NNPS) Nevada Rare Plant Workshop (NRPW) with respect to NNHP activities. N.A.C. 527.200(1) requires NNHP to "establish and maintain a committee of qualified professionals to conduct scientific research and analysis of native flora" and "maintain data and records related thereto." N.A.C. 527.200(3) requires NNHP to "meet at least once annually, and ... at such further times as deemed necessary by the Program, to review research and data concerning native flora, and to consider ..." issues such as needed additions to or removals from the list of fully protected species, permit applications, and improvements to the State's endangered plant program for recommendation to the State Forester. Heretofore, NNHP had informally adopted the Rare Plant Committee of NNPS for both these functions, but has not formally established the required committee of qualified professionals. Based on recent legal advice, NNHP will no longer pass recommendations of the NRPW directly to the Nevada Division of Forestry (NDF) for consideration. Instead, NNHP will formally appoint a committee of 7 qualified professionals to conduct scientific research and analysis of native flora, and to meet at least once annually to review research and data, and consider whether any recommendations are warranted in the subject areas spelled out in N.A.C. 527.200(3). This will be a public meeting at which any and all written and oral scientific comments, research, data, and recommendations will be heard, considered, and will become part of the public record, including any offered by NNPS or the NRPW. Under this scenario, NNHP will be able to continue its current role in helping to organize and facilitate the annual NRPW, as a separate activity of benefit to the State. Questions and comments are solicited!

Monitoring Sensitive Species on the Nevada Test Site

Kent Ostler

NSTec/Nevada Test Site, Las Vegas

There are 20 species of rare plants on the Nevada Test Site that are listed on Nevada Natural Heritage Program's Animal and Plant At Risk Tracking List. These species are considered sensitive by the National Nuclear Security Administration/Nevada Site Office. These species are protected on the Nevada Test Site and a monitoring program has been implemented to document population sizes, impacts, and locations. The level of monitoring is dependent on several factors including the number of populations that occur in the region and potential threats to the species. Fact sheets containing species locations, collection records, photographs and GIS maps of known populations on the Nevada Test Site have been generated for each species. Species characteristics, habitat preferences, and site locations will be discussed.

Rarity in an alpine endemic mustard: *Draba asterophora*.

Emily Smith

Brigham Young University:

Draba asterophora (Brassicaceae) is known from ~10-12 populations occupying a narrow range of alpine habitats near Lake Tahoe. These are partitioned into three population clusters located north, southeast, and south of the lake. The southern population cluster has been segregated as variety *macrocarpa*, whereas the other two clusters have been assigned to variety *asterophora*. Because this small, matted, perennial occurs at alpine sites, the species faces impending threats to its habitat through ski run expansion and development. Because little information is available for this rare species, it is difficult to ascertain the impact of such ski run development on the long-term survival and persistence of the Tahoe draba. With funding from the USDA Forest Service and local ski resorts, we are conducting morphological, ecological, chromosomal, and genetic studies of *D. asterophora* (both varieties) to provide a framework upon which future management plans and mitigation can be developed. Preliminary results suggest that there are significant differences between the three population clusters. These include differences in soil composition, soil chemistry, plant density, demographics reproductive success, and genetics. Chromosome counts from the northern populations (Mt. Rose, Nevada) are tetraploid ($n=20$). Allozyme banding patterns support the hypothesis that these have arisen through autopolyploidy. The southeastern population has shown both diploid and triploid counts. The separate

variety in the southern population has shown some distinct allozyme markers at genetic loci analyzed to date, supporting its designation as a separate taxon. Because the species includes more than one ploidy level, it should not be treated as a single panmictic taxon for purposes of conservation. Thus, we recommend that each of the population clusters be managed as distinct entities, pending the completion of our studies.

Doing Adaptive Management: Improving the Application of Science to the Restoration of a Rare Tahoe Plant

Bruce Pavlik and **Alison Stanton**
BMP Ecosciences, South Lake Tahoe, CA

Tahoe yellow cress (*Rorippa subumbellata*), a plant endemic to the shores of Lake Tahoe, has been a candidate for protection under the Endangered Species Act since 1999. In 2002, a conservation strategy that described an adaptive management process for directing research, management, and restoration of the species was adopted by 13 signatory stakeholders. Although the implementation phase is at least four years from completion, we believe it provides an operative example of science-driven decision making. Specifically, we have found that implementation of adaptive management can be successful if: 1) the conceptual model of the adaptive management process is modified to include benefits to biological resources in situ, 2) all stakeholders are included upfront in the adaptive management working group to participate in the strategy and design of the whole program, 3) key management questions are used to focus data collection and identify essential management actions, 4) information flow and the sequence of project stages (actions) are designed to facilitate stakeholder responses, and 5) to build institutional experience, with agencies carefully choosing target resources with attributes that improve the chances of sustaining a long-term effort. A program of experimental reintroductions from 2003 to 2006 not only produced a wealth of knowledge useful to managers, it also released 1.5 million new seeds and 10,000 new plantlets into appropriate habitats around Lake Tahoe. Such tangible benefit to the species prompted the U.S. Fish and Wildlife Service to downgrade the priority status of the species under ESA.

Conservation and Management of the Steamboat Buckwheat *Eriogonum ovalifolium* var. *williamsiae*

Alison Stanton and Bruce Pavlik
BMP Ecosciences, South Lake Tahoe, CA

Steamboat buckwheat (*Eriogonum ovalifolium* Nuttall var. *williamsiae* Reveal) is a plant found only on sinter substrates and hydrothermal terraces formed by hot spring activity in the Steamboat Hills of Washoe County, Nevada. Off-road vehicle use, dumping of refuse, mining activity, land development, and energy production have fragmented and damaged the unique habitat and contributed to a rapid decline in the total population size of Steamboat buckwheat. In 1982, Steamboat buckwheat was listed as a critically endangered plant in Nevada and in 1986 it was protected under the Endangered Species Act. Since federal listing in 1986, a consortium of public and private entities has cooperated to manage Steamboat buckwheat and its habitat. Past management efforts have focused on protective measures, such as fencing or transplantation that reduce the impacts of specific development projects. To date, many of these measures have had mixed results. The most recent information on population status is being generated from a subpopulation monitoring program established in May 2003. The program was designed to detect and document; 1) trends in the numbers of Steamboat buckwheat plants in subpopulations from two typical habitats; 2) the frequency and contribution of episodic reproduction to subpopulation stability; and 3) directional (i.e. successional) changes in populations of common, regional species within the two habitats. Density estimates in milestone years (years 5 and 10 after 2003) will be especially important for determining if the interim management objectives are being met. A management plan was finalized in 2005 that specifies five actions that should be implemented over the next 10 years (2005-2015) to further recovery efforts for the species.