

# Nevada Natural Heritage Program

## DATA STANDARDS FOR MAPPING RARE SPECIES

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### SUMMARY OF MINIMUM REQUIRED DATA

**Just four essential pieces** of information are required to minimally document a plant or animal occurrence on the landscape. These four pieces document the **what, when, who, and where** of an occurrence, plus information on **how** the information was determined. The detailed standards for these four items are described on the next page under the following headings:

- 1. IDENTIFICATION**
- 2. DATE(S) observed and/or surveyed**
- 3. SOURCE(S) of information**
- 4. LOCATION DETAIL**

The final two pages detail five additional requested items, and nine more helpful optional items, that together make the occurrence documentation maximally useful for scientific and conservation purposes.

### HELPFUL TIPS

**A. DATUM OF GPS/GIS DATA.** It cannot be emphasized enough how important accurate datum information is for correct representation of GPS and GIS location data. The difference on the ground between the same set of coordinates can range up to almost ¼ of a kilometer, depending on the coordinate system and geodetic datum to which those coordinates refer. It is therefore essential that you carefully determine and document the datum (NAD83, WGS84, NAD27, etc.) of all geographic coordinates that you supply. This is part of the **required location detail** on the next page.

**NOTE 1:** some GPS units automatically reset their datum to WGS84 whenever any other coordinate display parameters or units are changed.

**NOTE 2:** the datum set for the GPS unit **may or may not** determine the datum of the final output processed from the unit. Any subsequent processing software may have its own datum setting(s), to which the data will be converted after export from the GPS equipment. Datum must therefore be checked and verified at **each processing step**.

**B. FEWER DATA FILES BETTER.** Electronic GPS/GIS data and other tabular data records are much more efficiently processed when included in the fewest possible files, with sufficient additional attributes (columns) to identify each record. So, for example, instead of creating separate files for each species and/or date surveyed, combine them into a single file that includes columns for species name and survey date. Of course, in ArcView 3.x compatible shapefiles (currently required by our data standards), different data types (points, lines, and polygons) must be stored in separate shapefile sets.

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### DETAILS OF MINIMUM REQUIRED DATA: what, when, who, where, how.

(note: the options for each required element are listed in descending order of preference)

#### 1. IDENTIFICATION

##### 1a. Identification of Element, using at least one of the following:

- a. diagnostic photograph(s) – digital, slide, or print
- b. scientific name
- c. common name
- d. for plants, complete USDA plant code

##### 1b. Identification Confidence, expressed as 0% to 100% confidence.

##### 1c. Identification Method(s) (by personal knowledge, by other expert [who?], compared with specimen / photo / drawing [where?], keyed in reference [what?], etc.)

#### 2. DATE(S) observed and/or surveyed (all dates element was seen at location)

#### 3. SOURCE(S) of information

##### 3a. Observer/Surveyor/Source Name(s), plus as much of the following as possible:

- a. email address(s)
- b. telephone number(s)
- c. postal address(s)
- d. organization(s)
- e. citation, if from a secondary source such as literature report, museum specimen, etc., and not a primary observation

##### 3b. Reporter Name(s), if different from 3a. above, plus as much of 3a.a.-d. details as possible.

#### 4. LOCATION DETAIL, conveyed by at least one, and preferably two or three, of the following:

##### 4a. GPS/GIS or other coordinate data, which must include:

- a. **geodetic datum** (i.e. WGS84; NAD83; NAD27; etc.)
- b. **coordinate system/projection/units** used (i.e. decimal degrees; UTM Zone 11 meters; California Albers feet; etc.)
- c. **boundaries or location(s)** of occurrence, preferably supplied as either:

1. ArcView 3.x compatible shapefile(s) of polygon, line, and/or point coordinate(s), or
2. Point coordinates in written or tabular form

##### d. for point coordinates: **position(s) of point(s) relative to occurrence(s)** (i.e. center; SW corner; 200 ft due E at road)

##### 4b. **Map** (electronic or clear paper copy) detailing occurrence boundaries or location, preferably on 1:24,000 or finer topographic series base map, which **must specify source/name/scale** of map

##### 4c. **Detailed Narrative Directions** describing the location, including:

- a. **State**
- b. **County**
- c. **Detailed directions** sufficient to allow a person unfamiliar with the area, and with reference materials ordinarily and readily available, to relocate the occurrence.
- d. Township-Range-Section(s)-Quarter(s) when possible

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### ADDITIONAL REQUESTED INFORMATION

#### 3. SOURCE(S) of information (continued)

**3c. Specimen Information.** If collected or examined, please record all **required data** from specimen, plus:

- a. Collector's collection number
- b. Herbarium or Museum where deposited (i.e. RENO, UNLV, NSMC, etc.)
- c. Herbarium/Museum accession number of specimen, if known

#### 4. LOCATION DETAIL (continued)

**4d. For Point Coordinates or Narrative Directions,** precise narrative description of:

- a. **dimensions of occurrence** (i.e. 50 x 200 feet; 50 meter diameter circle; single plant; etc.).
- b. **orientation of long dimension** above (if any) (i.e. north-south; ESE-WNW; along river; etc.)

**4e. For Linear Features or Narrative Directions,** precise narrative description of:

- a. segment surveyed (i.e. end points; start point plus distance plus direction; etc.), and
- b. width of occurrence along corridor (i.e. 50 feet on each side; 100 feet along south bank; etc.)

**4f. GPS Equipment Used,** when applicable (Garmin eTrex; Trimble Geoexplorer; etc.)

**4g. Coordinate Error.** For GPS/GIS and written coordinate data:

- a. whether error is measured or estimated
- b. type of error (examples: absolute; 90% confidence; PDOP [point dilution of precision, from GPS]; etc.)
- c. magnitude of error (a number: 4.2; 6.9; etc.)
- d. units of error (meters; feet; etc.)
- e. data reflect differential corrections already applied (Y/N)

#### 5. QUANTITY of element

**5a. Estimated Area Occupied** by element (as square meters; acres; hectares; length X width; etc.)

**5b. Abundance** of element, expressed by at least one of the following:

- a. counted or estimated number of individuals (or above-ground stems of clonal plants)
- b. estimated and/or sampled density of individuals (or above-ground stems of clonal plants) within the area occupied
- c. for plants, percent cover, or cover class, within the area occupied

**5c. Abundance Method or System** – document or state method(s) or system(s) used for **5b.** above

**6. COMPLETENESS of Survey.** Extent of occurrence completely surveyed, expressed as:

- a. Yes/No/Unknown, and
- b. If no, estimated % of the total occurrence that was captured in the survey

**7. AGE of Knowledge of Occurrence.** (New; Historic; Unknown; etc.)

**8. TREND of Occurrence.** If a repeat visit to the same occurrence, please record:

- a. Date of previous visit
- b. Extent trend (area of occurrence rapidly/moderately/slightly increased/decreased, unchanged, or change unknown)
- c. Density trend (density of occurrence rapidly/moderately/slightly increased/decreased, unchanged, or change unknown)

**9. CONDITION of Site.** Past or present disturbances of any kind, current site use(s) if any, anticipated future disturbances or uses

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### HELPFUL OPTIONAL INFORMATION

#### **3. SOURCE(S) of information (continued)**

**3d. Other Knowledgeable Individual(s)** familiar with the occurrence, including when known:

- a. email address(s)
- b. telephone number(s)
- c. postal address(s)
- d. organization(s)

#### **4. LOCATION DETAIL (continued)**

**4c. Detailed Narrative Directions (continued)**, when this option is used:

- e. distance and direction (air or road) from nearby landmark(s) or location(s)
- f. elevation

**10. SURVEY EXTENT.** Description of the complete area(s) surveyed/examined, including unoccupied areas, using the same option(s) as under **4. LOCATION DETAIL**

**11. OWNERSHIP.** Legal owner(s), public management agency(ies), or ownership categories (i.e., private) with jurisdiction over the lands occupied by the occurrence

**12. PROVENANCE of Occurrence.** (original; introduced; reintroduced; mixed; unknown)

**13. PHENOLOGY (for plants).** Percent of individuals or stems in dormant, vegetative, budding, flowering, fruiting, and seeding conditions (may total > 100% since one plant can exhibit multiple phenologies)

**14. AGE STRUCTURE.** Estimated percent of target species senescent, mature, juveniles, first-year, seedlings (should total 100%)

**15. SITE FUNCTIONS/USES (for animals).** (breeding; foraging; wintering; roosting; denning; migrating; etc.)

**16. BIOLOGICAL INTERACTIONS.** Any disease, predation, competition, parasitism, symbiosis, pollination, hybridization, dispersal, etc., observed to involve the element

**17. SITE DESCRIPTION.** Dominant species, other species present, other rare species present, moisture, substrate/soils, topography, slope/aspect, light, air temperature, water temperature/pH/clarity/etc. (aquatics), time of day, weather, etc.

**18. VIGOR of Element.** Narrative of current biological condition of the element in this occurrence, including vigor or lack thereof and any apparent causes