



ARIZONA GAME AND FISH DEPARTMENT  
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract

Element Code: PDHYD0C4U0

Data Sensitivity: No

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Phacelia welshii*

**COMMON NAME:** Welsh's Phacelia, Welsh caterpillar weed, Welsh scorpion-weed

**SYNONYMS:**

**FAMILY:** Hydrophyllaceae

**AUTHOR, PLACE OF PUBLICATION:** N.D. Atwood, Rhodora 74(800): 465-468. 1972.

**TYPE LOCALITY:** Along Highway 89 north of Gray Mountain, Coconino County, Arizona.

**TYPE SPECIMEN:** HT: BRY. N.D. Atwood 2608, 19 May 1970. IT: ARIZ, ASC, CAS, GH, NY, US, and many others (See Phillips et al., 1982).

**TAXONOMIC UNIQUENESS:** *Phacelia welshii* is 1 of 158 species in the genus *Phacelia*. In North America, there are 35 species and 7 varieties in the *Phacelia crenulatae* group. *Phacelia welshii* is most closely related to *P. corrugata* and *P. utahensis*.

**DESCRIPTION:** Herbaceous annual, 10-55 cm (4-22 in.) tall. Stems yellowish to green. Stems, leaves, and flower heads densely glandular, and hairy. Leaves are oblanceolate to lanceolate, 1.5-8.0 cm (0.6-3.0 in) long, 0.5-2.7 cm wide, with margins rolled, wavy, and toothed; basal leaves clustered. Flowers are purplish to blue, with 5-6 mm long petals. Stamens are exerted, 8-10 mm long, with bluish filaments and yellow anthers. There are 4 mature seeds per flower; seeds are 3 mm long. Seeds are brown ventrally to reddish dorsally with the ridge corrugated on one side, and the margins corrugated and often rolled. (Atwood 1972; Falk, Jenkins et al. 2001).

**AIDS TO IDENTIFICATION:** *Phacelia welshii* may be distinguished from other similar appearing *Phacelias* by stem color, seed characteristics, and the irregularly crenate to dentate, glandular, lanceolate leaves. *P. corrugata* is typically a more northern plant than *P. welshii*, while *P. utahensis* is endemic to the Arapien Shale Formation in Utah. *Phacelia welshii* is distinguished by more open inflorescence, corrugated seeds, and broader, shorter, densely glandular leaves from *P. utahensis* (Atwood 1972, Phillips et al. 1982).

**ILLUSTRATIONS:** Line drawing of habit and seed (Atwood 1972: Figure 5)

Line drawing (USFWS)

Color photo of NY Isotype Specimen (Accessed 2003 from

[http://scisun.nybg.org:8890/searchdb/owa/wwwcatalogrenz.detail\\_list](http://scisun.nybg.org:8890/searchdb/owa/wwwcatalogrenz.detail_list)).

Line drawing (*in* Falk, Jenkins et al., 2001)

Color photo of plant (Juanita Ladyman, *in* Falk, Jenkins et al., 2001)

Color photo of plant (Art Phillips, *in* Falk, Jenkins et al., 2001)

Color photo of habitat (Mary Butterwick/BLM, *in* Falk, Jenkins et al., 2001)

**TOTAL RANGE:** Little Colorado River Drainage in Coconino County, Arizona.

**RANGE WITHIN ARIZONA:** Northeast of Flagstaff from Wupatki National Monument and Sunset Crater, north to Cameron and The Gap in northeastern Coconino County.

### **SPECIES BIOLOGY AND POPULATION TRENDS**

**GROWTH FORM:** Annual forb/herb.

**PHENOLOGY:** Flowers May to June, abundant after wet winters.

**BIOLOGY:** *P. welshii*, which may cause dermatitis, can be found in scattered populations along roadside edges and gravelly washes. It is adapted to precipitation cycles of Great Basin Desertscrub communities. In favorable wet years, dormant seed crop within soil germinates, plants very dense but sparse to rare in drought years. *P. welshii* flowers after winter rains and sets seed before summer rains. Reproduction is typically 100% with an abundance of seeds produced (Phillips et al. 1982).

Plant may produce one to ten flowering branches from base of main stalk. "Topping" by grazing cattle does not appear to harm plant as lower side branches quickly grow to replace main apical stem (Phillips et al. 1982).

**HABITAT:** Great Basin cold Desert shrub communities, typically in the red shale outcrops of the Moenkopi Formation, along roadside edges and gravelly washes, but it has also been collected on black, sandy, volcanic ash (Phillips et al. 1982).

**ELEVATION:** 4,250 - 5,100 ft. (1,296 - 1,556 m).

**EXPOSURE:** All aspects, on slopes of around 5% (2-15%).

**SUBSTRATE:** Very gravelly loam soil, typically in the red shale of the Moenkopi Formation. However, it has also been collected on black, sandy, volcanic ash; along roadside edges, and in gravelly washes.

**PLANT COMMUNITY:** Great Basin cold desert shrub communities, Pinyon-juniper community, Plains and Great Basin grassland. Associated plants include: *Amsonia peeblesii*

(Peebles' blue-star), *Atriplex canescens* (four-wing saltbush), *Atriplex confertifolia* (shadscale), *Bouteloua gracilis* (blue grama), *Brickellia californica* (California brickell-bush), *Chrysothamnus nauseosus* (rabbit-bush), *Echinocactus polycephalus* (cotton-top cactus), *Ephedra* sp., *Eriogonum deflexum* (a wild buckwheat), *Fallugia paradoxa* (Apache-plume), *Hilaria jamesii* (James galleta), *Lycium andersonii* (red-berried desert-thorn), *Mentzelia pumila* (stick-leaf), *Opuntia erinacea* (old-man prickly-pear), *Oryzopsis* sp. (mountain-ricegrass), *Rhus trilobata* (squaw-bush), *Senecio douglasii* var. *longilobus* (Douglas ragwort), and *Stanleya pinnata* (desert prince-plume), (Phillips et al. 1982).

**POPULATION TRENDS:** Populations vary from rare to abundant based on the amount of winter and spring precipitation (Phillips et al. 1982). There are ten recorded occurrences in Arizona and six in the Navajo Nation, some of which may overlap with Arizona's (NatureServe 2003).

## **SPECIES PROTECTION AND CONSERVATION**

**ENDANGERED SPECIES ACT STATUS:**

None (USDI, FWS 1996)  
[C2 USDI, FWS 1993]  
[C2 USDI, FWS 1990]  
[C2 USDI, FWS 1985]  
[C2 USDI, FWS 1980]

**STATE STATUS:**

None

**OTHER STATUS:**

Not Forest Service Sensitive (USDA, FS Region 3, 1999)  
[Forest Service Sensitive (USDA, FS Region 3, 1990)]  
No status (NNDFW, NESL 2005)  
[Group 4 (NNFWD, NESL 2000)]  
[NESL NNFWD 1994]

**MANAGEMENT FACTORS:** Widespread habitat disturbances through livestock grazing may not have impacted species negatively. No serious threats to this species are known (Phillips et al. 1982).

**CONSERVATION MEASURES TAKEN:**

**SUGGESTED PROJECTS:** Survey to assess management needs.

**LAND MANAGEMENT/OWNERSHIP:** BIA -Navajo Nation; BLM - Phoenix Field Office; NPS - Wupatki National Monument; USFS - Coconino National Forest; AZ State Land Department; AZ Department of Transportation; and Private.

## SOURCES OF FURTHER INFORMATION

### REFERENCES:

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Art Phillips – Botanical Environmental Consulting, Flagstaff, Arizona.  
Duane Atwood - U.S. Forest Service, Provo, Utah.

**ADDITIONAL INFORMATION:**

Phillips et al. (1982) recommended that this species be dropped from consideration as a candidate species.

**Revised:** 1992-12-22 (DBI)  
1993-08-23 (DBI)  
1995-04-25 (DBI)  
1997-10-24 (SMS)  
1998-12-17(DJG)  
2004-02-05 (SMS)

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