

ARIZONA GAME AND FISH DEPARTMENT  
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract

Element Code: PDBRA22050

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Physaria chambersii*

COMMON NAME: Chambers' Twinpod

SYNONYMS: *Physaria chambersii* Rollins var. *sobolifera* S.L. Welsh

FAMILY: Brassicaceae

AUTHOR, PLACE OF PUBLICATION: Reed Clark Rollins. *Rhodora* 41(489): 403-405, pl.556, f.15-18. 1939.

TYPE LOCALITY: Nevada: Toiyabe Mountains: dry slope on the watershed of Jet Canyon Creek. 15 miles west of Round Mountain.

TYPE SPECIMEN: The Gray Herbarium. GH00019423. R.C. Rollins and T.S. Chambers (2502). July 11, 1938. Isotypes: NY00185609, CAS0006890, US00100065.

TAXONOMIC UNIQUENESS: When *P. chambersii* was first described in 1939, it was one of 14 known species. Today, NatureServe lists 34 species and another 21 varieties. *P. chambersii* is one of three species that occur in Arizona. The other two are *P. kingii* and *P. newberryi*, and three of its four varieties. *P. chambersii* does have a single described variety, which is found only in Utah. *P. chambersii* is somewhat related to *P. newberryi* and *P. australis*. (NatureServe 2013, and Rollins 1939.)

DESCRIPTION:

**Perennials;** caudex usually simple, sometimes branched, (thick, cespitose); (silvery) pubescent throughout, tri-chomes few-rayed, rays furcate, sometimes slightly fused at base, (umbonate, lightly tuberculate to nearly smooth). **Stems** several from base, erect or decumbent (arising laterally, unbranched), 0.5-1.5 mm. **Basal leaves:** (petiole slender); blade obovate to orbicular, 3-6 cm (width 10-20 mm), margins entire or dentate. **Cauline leaves:** blade spatulate, 1-2 cm (width 3-6 mm), margins entire, (apex often acute). **Racemes** congested. **Fruiting pedicels** (divaricate, slightly sigmoid), 8-15 mm. **Flowers:** sepals narrowly lanceolate, 5-8(-9) mm; petals narrowly oblanceolate, 9-12 mm, (claw undifferentiated from blade). **Fruits** (often purplish in age), didymous, subreniform, strongly inflated, 9-18 × 11-21(-30) mm, (papery, base obtuse to slightly cordate, apical sinus V-shaped or convex, open crests rounded); valves (2-keeled on side away from replum, each 3-sided, keels rounded, sides flat or slightly convex, retaining seeds after dehiscence), evenly and densely pubescent; replum oblong, as wide as or wider than fruits, apex obtuse; ovules 4-12 per ovary; style (4-)6-8 mm (exceeding sinus). **Seeds** flattened.  $2n = 8, 10, 16, 24$ . (Flora of North America, 2013.)

**AIDS TO IDENTIFICATION:** The length of the style can be used to distinguish *P. chambersii* (>4mm. long) from *P. newberryi* (<3.5, usually 1-2mm). If the sinuses of the silique are equal above and below, and the valves are nearly orbicular, the species is *P. australis*; when the sinuses are unequal (upper very deep and lower shallow or absent), and the silique is highly inflated (1.5-3cm. wide) and valves are membranous, the species is *P. chambersii* (Rollins 1939).

**ILLUSTRATIONS:**

Photo: [http://calphotos.berkeley.edu/cgi/img\\_query?enlarge=0024+3291+1998+0057](http://calphotos.berkeley.edu/cgi/img_query?enlarge=0024+3291+1998+0057).

Credit: Gerald and Buff Corsi © California Academy of Sciences.

Photos: <http://plants.usda.gov/core/profile?symbol=PHCH2>.

**TOTAL RANGE:** The distribution of *Physaria chambersii* is centered in eastern Nevada and western Utah. It extends into SE Oregon (a single collection) and south Idaho, with a very few collection sites, and the eastern Mohave Desert in California near the southern tip of Nevada (5 collections). It also extends into NW Arizona.

**RANGE WITHIN ARIZONA:** Until 2008, *P. chambersii* was known only from a few collections in extreme northern portions of the Arizona Strip, mostly around Colorado City and the Cedar Ridge locality to the south along Highway 389. There was a single 1938 collection from the Combs Ridge/ Cane Valley locality of Apache County, just south of the Utah border. During the National Vegetation Mapping Program conducted in 2008, three new collections were made in the Grand Canyon NP, thus extending the range some 70km to the southeast.

**SPECIES BIOLOGY AND POPULATION TRENDS**

**GROWTH FORM:** Perennial herb, with caudex.

**PHENOLOGY:** Flowers: April to July, rangewide. Flowers noted with Arizona collections in April and May (data not available for other months).

**BIOLOGY:**

**HABITAT:** Pinyon-Juniper or sagebrush communities.

**ELEVATION:** Rangewide reported from 4920 – 10495 feet (1500 – 3200m). Collections from Arizona range from 3608 to 5900 feet (1100 – 1800m). Note that two collections made at 3608 and 4800 feet are from lower elevations than have been reported rangewide.

**EXPOSURE:** Not specified.

**SUBSTRATE:** Clay hillsides, limestone and limestone gravel, dolomite ridges, roadbanks, loose gravel in general, and has been collected from sandy loams, silty red clays, gravelly clay loams in Arizona.

**PLANT COMMUNITY:** Pinyon-Juniper or sagebrush (desert scrub). Other plant species associated with collections made in Arizona include: *Juniperus osteosperma*, *Eriogonum*, *Shepherdia*, *Sitanion*, *Hilaria*, *Gilia*, *Astragalus*, *Penstemon*, *Yucca*, *Atriplex*, *Philadelphus microphyllus*, *Ceanothus greggii*, *Quercus turbinella*, *Pinus edulis*, *Amelanchier utahensis*, *Quercus gambelii*, *Fendlera rupicola*, *Ephedra viridis*, *Acer grandidentatum*, *Ostrya knowltonii*, *Symphoricarpos*, and *Glossopetalon spinescens*.

**POPULATION HISTORY AND TRENDS:** Not known for Arizona. Has been collected in one locality from ca. 1940 to 1998. 2008 collections identified three new sites in GCNP.

## **SPECIES PROTECTION AND CONSERVATION**

**ENDANGERED SPECIES ACT STATUS:** None.

**STATE STATUS:** None.

**OTHER STATUS:** None.

**MANAGEMENT FACTORS:** Unknown.

**PROTECTIVE MEASURES TAKEN:** None specified. New collection sites are from within the Grand Canyon NP.

**SUGGESTED PROJECTS:** The recent (2008) collections that extended the known distribution to the southeast by 70km suggest that the entire distribution of this plant is not well known. Any future field surveys of the Grand Canyon and the extreme northern parts of the Navajo Nation should actively search for this species.

**LAND MANAGEMENT/OWNERSHIP:** *Physaria chambersii* has been collected on BLM Arizona Strip lands, from within the Grand Canyon NP, and the Navajo Nation (but this collection site was not mappable).

## **SOURCES OF FURTHER INFORMATION**

**REFERENCES:**

Christie, K, G. Rink and T. Ayers. 2011. Additions to the Flora of Grand Canyon National Park resulting from National Vegetation Mapping Fieldwork. CANOTIA 7: 41-53.

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JSTOR| Global Plants, accessed 8/26/2013, <http://plants.jstor.org/specimen/gh00019423?s=t>.

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Tropicos, accessed 8/26/2013, <http://www.tropicos.org/Name/4102830>.

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#### MAJOR KNOWLEDGEABLE INDIVIDUALS:

#### ADDITIONAL INFORMATION:

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