

ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract

Element Code: PDBRA0M050

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Caulanthus crassicaulis*
COMMON NAME: Thickstem Wild Cabbage
SYNONYMS: *Streptanthus crassicaulis* (basionym)
FAMILY: Brassicaceae

AUTHOR, PLACE OF PUBLICATION: Sereno Watson. United States Geological
Exploration [sic] of the Fortieth Parallel, Vol. 5, Botany 27. 1871.

TYPE LOCALITY: Utah, Mountains, west shore of Great Salt Lake.

TYPE SPECIMEN: New York Botanical Garden. NY00030070. Holotype of *Streptanthus crassicaulis*. H. Stansbury, #s.n., May 30, 1850.

TAXONOMIC UNIQUENESS: NatureServe lists 16 species and another 10 varieties of the genus *Caulanthus* in the United States. *C. crassicaulis* is one of three species found in Arizona.

E. B. Payson (1923), R. C. Rollins (1993), and R. E. Buck (1995) recognized two varieties of *Caulanthus crassicaulis* and separated them solely on the basis of var. *crassicaulis* having pubescent sepals and glabrous or pubescent leaves, and var. *glaber* having glabrous or sparsely pubescent sepals and glabrous leaves. As reported in Flora of North America (2013), this distinction is impractical; as in some other species of *Caulanthus*, both glabrous and pubescent forms occur sometimes within the same population.

DESCRIPTION:

Perennials; glabrous or sparsely pubescent. **Stems** erect or ascending, usually unbranched, rarely branched, (hollow, strongly inflated, fusiform, to 3 cm diam. at widest point), 2-10 dm. **Basal leaves** rosulate; petiole 0.5-9 cm; blade obovate to oblanceolate (in outline), 1-12 cm × 3-45 mm, margins entire, dentate-sinuate, lyrate, runcinate, or pinnatifid. **Cauline leaves** (distalmost) shortly petiolate; blade linear to narrowly oblanceolate, margins entire. **Racemes** (densely flowered), with a terminal cluster of sterile flowers. **Fruiting pedicels** ascending, 1-5 mm, glabrous or pubescent, (trichomes flattened). **Flowers:** sepals erect (creamy white, purplish, or greenish), ovate to lanceolate, 7.5-14 × 2.5-4 mm (equal); petals brown or purple, 10-15 mm, blade 3-5 × 1.2-2.5 mm, not or hardly crisped, claw oblanceolate, 7-10 × 2-2.5 mm; filaments tetradynamous, median pairs 3-8 mm, lateral pair 2-7 mm; anthers narrowly oblong, equal, 3-6.5 mm. **Fruits** erect to ascending, terete or slightly latiseptate, 4.5-14 cm ×

2-2.5 mm; valves each with obscure midvein; ovules 98-126 per ovary; style obsolete or, rarely, to 0.6 mm; stigma strongly 2-lobed (lobes to 1 mm, connivent, opposite valves). **Seeds** 1.5-4 × 1.5-2 mm. **2n** = 28. (Flora of North America, 2013).

AIDS TO IDENTIFICATION: *C. crassicaulis* (thick-stem wild cabbage) can be distinguished from the other two species found in Arizona (*C. cooperi* and *C. lasiophyllus*) by its inflated stem, to 3 cm wide (Jepson eFlora, 2013).

ILLUSTRATIONS:

Herbarium Mounts:

http://swbiodiversity.org/imglib/seinet/Brassicaceae/herbarium_sheets/brassi_caulanthus_crassicaulis113928.jpg

http://swbiodiversity.org/imglib/seinet/Brassicaceae/herbarium_sheets/brassi_caulanthus_crassicaulis113928D.jpg

Photo, Flowers: <http://swbiodiversity.org/seinet/imagelib/imgdetails.php?imgid=292246>

Photo, plant: http://www.plants.usda.gov/java/largeImage?imageID=cacr11_001_avp.tif

TOTAL RANGE: California, Oregon, Idaho, Nevada, Utah, Wyoming, Colorado and Arizona.

RANGE WITHIN ARIZONA: There are 14 mappable collections from Arizona, all from Coconino and Mohave Counties. All of these, except two, are from north of the Grand Canyon, either from the Kaibab Plateau, the Kanab Plateau, or the northern part of the Arizona Strip. The two exceptions were collected near the Utah border east of Lake Powell and south of Rainbow Bridge National Monument. Elevations range from 5000 to just under 7600 feet (1525-2500 m). The collection from Lava Canyon near Juno Temple is the first from the Grand Canyon in over 60 years, and marks a 70 km range extension to the SE.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Perennial from woody caudex.

PHENOLOGY: Flowers: April to July, rangewide. Arizona collections record both flowers and fruits in May, and fruits towards the end of September.

BIOLOGY:

HABITAT: Sagebrush scrub or pinyon-juniper woodlands, probable preference for coarse loamy soils on level to steep slopes, aspects variable.

ELEVATION: Rangewide, elevation ranges from 3940 – 9500 feet (1200-2900 m). In Arizona, 14 collections were made from between 5000 to just under 7600 feet (1525-2500 m).

EXPOSURE: Variable: when noted, Arizona collections have been made from S, E, NE, N and level to open aspects. Slopes have ranged from level to 5-10% to steep.

SUBSTRATE: Variable: based on notes from Arizona collections, there may be a preference towards sandy or gravelly, sandy loams derived from sandstone, although one collection was made from Moenkopi soils (torrifuvents) over Kaibab limestone.

PLANT COMMUNITY: Sagebrush scrub; pinyon-juniper woodland. Other plant species associated with the collections made in Arizona include: *Pinus edulis*, *Quercus gambellii*, *Robinia neomexicana*, *Thalictrum fendleri*, *Machaeranthera canescens*, *Symphoricarpos*, *Amerlanchier utahensis*, *Cercocarpus intricatus*, *Chrysothamnus*, *Hilaria*, *Gutierrezia sarothrae*, *Eriogonum*, *Phlox*, *Penstemon pachyphyllus*, *Artemisia bigelovii* and *A. tridentata*, *Ephedra viridis* and *E. nevadense*, *Stipa*, *Sitanion*, *Oryzopsis*, *Bromus*, *Juniperus osteosperma*, *Poa fendleriana*, *Quercus pauciloba*, *Purshia stansburiana*, *Fallugia paradoxa*, *Yucca baccata*, *Agave U. utahensis*, *Hespirostipa comata*, *Castilleja augustifolia*, *Chaetopappa ericoides*, *Achnatherum hymenoides* and *A. speciosum*, *Opuntia cf phaecantha*, *Hymenoxys cooperi*, *Shepherdia rotundifolia*, *Berberis fremontii*, *Opuntia polyacantha erinacea*, and *Fraxinus*.

POPULATION HISTORY AND TRENDS: Essentially unknown. Rangewide, the species is considered apparently secure. Although the plant has been collected in Arizona from the late 1930's to the present, information pertinent to the species' status is generally lacking. A couple of recent collections (2010) did note the plant was "rare" at the collection site. NatureServe ranks the species as "imperiled" in Arizona.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None.
STATE STATUS: None.
OTHER STATUS: None.

MANAGEMENT FACTORS: Unknown/

PROTECTIVE MEASURES TAKEN: None.

SUGGESTED PROJECTS: Continue field collections to better assess status and distribution of the species.

LAND MANAGEMENT/OWNERSHIP: Nearly one half of the collections were made from U.S. Forest Service lands (Kaibab NF). Others were found within the U.S.N.P.S. Grand Canyon National Park, the BLM Arizona Strip, and the Navajo Nation.

SOURCES OF FURTHER INFORMATION**REFERENCES:**

- Flora of North America, Vol. 7, page 678, accessed 5/13/ 2013,
http://www.efloras.org/florataxon.aspx?flora_id=1&taxon_id=250094869.
- Jepson eFlora, http://ucjeps.berkeley.edu/cgi-bin/get_IJM.pl?tid=18397, accessed 7/29/2013.
- JSTOR, <http://plants.jstor.org/specimen/ny00030070?s=t>, accessed 7/26/2013.
- Kearney, T.H. and R.H. Peebles. 1951. Arizona Flora. Univ. of California Press, Berkeley. p. 330.
- NatureServe, accessed 7/26/ 213.
<http://www.natureserve.org/explorer/servlet/NatureServe?searchSciOrCommonName=Caulanthus+crassicaulis&x=14&y=8>.
- Tropicos, <http://www.tropicos.org/Name/4101181>, accessed 5/13/2013.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION: *C. crassicaulis* is also known as “squaw-cabbage” because the plant was cooked and eaten by Indians of the Great Basin region (Kearney and Peebles, 1951).

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