

S U R N A M E		
TITLE	NAME	DATE
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5- Year Review Short Form

Species Reviewed: Jones cycladenia (*Cycladenia humilis* var. *jonesii*)

Federal Register Notice Announcing Initiation of this Review: May 6, 2014. Endangered and threatened wildlife and plants; 5-year status reviews of nine species in the Mountain Prairie Region (79 FR 25883).

Current Classification: Threatened

Current Recovery Priority Number: 12C

This recovery priority number is indicative of a plant that is a variety of a species with a moderate degree of threat, low recovery potential, and in conflict with development activities.

Methodology used to complete this review:

The Utah Ecological Services Field Office completed this review on April 22, 2021. The Utah Ecological Services Field Office used all pertinent literature and documents on file for this review, including new information obtained since the 2008 recovery outline (Service 2008). New information for Jones cycladenia is summarized in the recently finalized biological report (Service 2021) and the draft recovery plan with quantitative delisting criteria compatible with the biodiversity principals of representation, resiliency, and redundancy (Service 2020; Shaffer and Stein 2000).

Review Summary:

Jones cycladenia is a long-lived perennial, herbaceous plant that grows on gypsum soils of the Colorado Plateau in central and southern Utah (Emery, Grand, Garfield, San Juan, and Kane Counties) and northern Arizona (Mohave County). Jones cycladenia is in the dogbane family (Apocynaceae) and is considered a taxon rather than a species because it is one of three varieties within the Sacramento waxy dogbane (*Cycladenia humilis* Benth.) species (Service 2021). Plants produce rose-purple flowers from mid-April to early June (Welsh and Atwood 1975; Welsh et al. 2008). Seed pods are large (1.77–3.74 inches (4.5–9.5 centimeters)) with brown seeds, each containing a tuft of hair (coma).

Jones cycladenia reproduces by seeds (sexually) and by clonal growth (asexually) (Service 2021). Clonal growth appears to be the primary method of reproduction for the taxon (Spence 1994; Sipes and Wolf 1997; Last 2009; Barbizon 2015; Johnson 2015). The clonal nature of Jones cycladenia makes it difficult to identify individual plants in the field (Spence 1994). One genetically distinct individual (genet) may consist of one or more stems (ramets). As a result, plant abundance is based on counts of stem (ramet) clusters. We use the average number of stems an individual plant produces (22.2) to estimate the number of individuals per site and population (Wolf et al. 1992; Sipes et al. 1994; Sipes and Wolf 1997; Spence and Palmquist 2007; Service 2021).

Sexual reproduction occurs infrequently and may be depressed because of the taxon’s small population size, a limited gene pool, and potential loss of specialist pollinators. Jones cycladenia appears to be partly

self-compatible¹, but needs pollinators to transport pollen between flowers for any seed production to occur (Sipes and Tepedino 1996). Flowers have an extremely low visitation rate by pollinators and we do not know the important pollinators for this taxon (Sipes et al. 1994; Spence 1994; Sipes and Tepedino 1996). Flower visitors include a variety of diurnal insects, including butterflies, and bees (Sipes et al. 1994; Sipes and Tepedino 1996). Jones cycladenia is found in sparsely vegetated plant communities of mixed desert scrub, juniper (*Juniperus osteosperma*), or wild buckwheat (*Eriogonum corymbosum*) - Mormon tea (*Ephedra* species) between 4,000–6,660 feet (ft) (1,220–2,030 meters (m)) in elevation and typically grows on steep slopes. The taxon appears to be restricted to gypsiferous (high gypsum content), saline soils of the Wasatch, Cutler, Summerville, and Chinle formations. This soil is easily degraded, highly erodible, and difficult to rehabilitate after disturbances.

We listed Jones cycladenia as threatened on May 5, 1986 (51 FR 16526), under the Endangered Species Act of 1973 (Act), as amended (56 FR 56882). The estimated total population size at that time was 338 individuals (7,500 stems) and the primary threats were loss and fragmentation of habitats from off-highway vehicles (OHVs), energy development (oil, natural gas, tar sands) and mineral development (uranium mining). In addition, small population size and fragile, easily degraded soils were identified as vulnerabilities which may exacerbate effects to the taxon from threats. We did not designate critical habitat for Jones cycladenia (51 FR 16526, May 5, 1986).

The status of Jones cycladenia has improved since listing. Surveys identified more plants and populations and expanded its range. We now know of 20 Jones cycladenia populations containing an estimated 3,567 individuals (79,196 stems)—ten times the number of plants known at the time of listing. Although the overall number of known plants has increased with additional surveys, this does not mean the total population is increasing. Rather, many parties have surveyed a greater area and we now have a more complete picture of the taxon’s abundance and distribution. Populations occur on Federal (Bureau of Land Management (BLM), National Park Service (NPS)), Tribal, and state lands. One population (Joe Hutch Creek) is entirely on Tribal lands; all or a portion of the remaining 19 populations are on Federal lands. In the draft recovery plan, we organized populations geographically into four recovery units for the taxon: San Rafael Swell, Greater Circle Cliffs, Moab, and Pipe Spring recovery units (Service 2020).

Today, energy development (oil, natural gas, tar sands) and mineral development are a future threat to Jones cycladenia (Service 2021). Although not currently affecting its viability, future energy and mineral development could affect the resiliency, redundancy, and representation of Jones cycladenia since a large percentage of the overall range on Federal and state lands are open to energy and mineral development (44 percent and 89 percent, respectively). Recreation activities that include OHV use are no longer a threat to the taxon since Federal and state restrictions now restrict recreational use to existing roads and trails near Jones cycladenia populations (BLM 2008a,b,c; BLM 2020a,b; NPS 1979, 1998, 2006, 2018; SITLA 2021). Climate change is not a threat to Jones cycladenia at this time and we do not have enough information to determine whether it will become a threat in the future. Pollinator availability, small populations, and low levels of sexual reproduction, although not considered threats in and of themselves, are vulnerabilities, present and acting on the taxon, which may exacerbate the effects of existing threats.

Recommendations on species status:

After reviewing the best available scientific information and recovery criteria, we conclude that Jones cycladenia remains a threatened taxon. The taxon’s status has improved since listing; however, the future threat of energy and mineral development remains (Service 2021). The draft delisting criteria for Jones

¹ Pollination occurs between flowers on the same plant but fewer seeds are produced and seeds may be smaller than seeds produced with pollen from another plant.

cycladenia are not met (Service 2020). Therefore, we recommend no change in status to the species at this time.

Recommended future actions:

Based on recent discussions with other Federal agencies and partners, we recommend the following future actions: (1) Maintain a comprehensive database on surveys and monitoring for the taxon that includes plant survivorship, growth and reproduction and the presence of threats and stressors; (2) Continue to assess population trends and strengthen monitoring protocols, analysis, and reporting; (3) Develop stronger habitat protections for energy and mineral development; (4) Develop a conservation agreement to provide long-term habitat protections; and (5) Collect seeds and tissues to preserve genetic diversity in ex-situ (off-site) collections (Service 2020).

Approve: _____
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Utah Ecological Services Field Office

Date: _____

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