Heritage Ranking Form - Global Rank

Scientific Name: Lomatium cookii

Common Name: Agate Desert Lomatium

Classification: Vascular Plant

Range Extent: C = 250-1,000 sq km (~100-400 sq mi)

Narrow, local endemic. Restricted to two counties in the southwestern portion of the state of Oregon. It is limited to two small areas: the Agate Desert area north of the city of Medford, Jackson County, and the Illinois River Valley area near Cave Junction, Josephine County. Both are highly developed valley bottoms. 939 km2 by convex hull, including area between the two populations.

Population Size: F = 10,000 - 100,000 individuals

Comments: Surveys of the largest population (including subpopulations) at French Flat found a total about 200,000 plants (Kaye 2003). Other sites are much smaller. Reproductive individuals probably number < 60,000 in total for all the sites. (2003)

Number of Occurrences: B = 6 - 20

Comments: 16 occurrences using 1 km separation distance.

Area of Occupancy: E = 26-125 4-km2 grid cells

Comments: 30 4km2 grid cells occupied.

Good Viability: C = Few (4-12) occurrences with excellent or good viability or ecological integrity

Comments: 6 EOs with good or excellent viabilty, using 1 km separation distance.

Environmental Specificity: A = Very narrow. Specialist or community with key requirements scarce

Comments: Vernal pools.

Short Term Trends:

EG = Decline of <50% to Relatively Stable

Comments: All potential habitat for this species has been searched for and surveyed near both known areas. More populations may be located but it is unlikely that the current range will be greatly increased or additional large populations found. Most known populations are unprotected and threatened, and the global trend is clearly declining. Since most populations are on private lands, and since mining on public lands is a major threat, it is not clear that federal listing will slow the decline. The largest subpopulation is expected to grow and viability analysis shows a very low risk of catastrophic decline over the next 20 years; a very small subpopulation (<50 individuals) is estimated to have a high risk of catastrophic decline over the same period (Kaye 2003). Review of population data in 2012 revealed a mix of trends for individual populations: many are increasing, many are decreasing, and a few are stable. The largest populations are stable or increasing.

Long Term Trends:

AD = Decline of >50%

Comments: Much of the suitable habitat for Lomatium cookii has been developed.

Threat Impact:

A = Very High

Comments: Currently, habitat destruction from land (industrial and residential) development, mining, and ORV use is the major threat to this species. Most sites in the Agate Desert area have the potential for commercial and industrial development. The remaining Agate Desert sites are located in Nature Conservancy preserves, a state wildlife management area and a county park. Mining activity is a threat as well as residential development for the Cave Junction area. Three sites in this area have known mining activity while the remaining sites in public ownership (Bureau of Land Management) are also exposed to this risk. Grazing by cattle at more than a moderate level is also a threat to this species. 6 sites are on land used for grazing, although most of the Agate Desert area has been historically grazed. Cattle and horses have been observed eating L. cookii, and populations have not been found at heavily grazed sites. Off-road vehicular traffic is a concern for many of the occurrences with mention of ORV tracks running through the population and severely damaging the habitat, especially in the important, large populations in the alluvial floodplain areas in the Illinois Valley. Gophers (mostly in mound and flank areas) and possibly wireworms are predators, however under natural conditions are not considered threats to the species. Thatch buildup from Taeniatherum caput-medusae (medusahead) may contribute to the observed decrease in L. cookii population density after several years without grazing. Thatch reduction by mechanical removal or burning has been demonstrated to increase seedling survival. The second year post burn ratio of seedlings relative to the number of reproducing plants prior to the burn was between 4 and 100 times as great as the number of seedling per adult in unburned areas on the Agate Desert Preserve. Other invasive species such as yellow starthistle (Centauria solstitialis) may compete with seedlings and juvenile plants of Lomatium cookii for light and water. Calculated as moderately vulnerable to climate change.

Intrinsic Vulnerability:

B = Moderately vulnerable

Comments: The species is moderately resistant to disturbance.

Heritage Rank: G1

Comments: A narrow endemic, restricted to 2 small valley bottoms in Jackson and Josephine counties in southwestern Oregon. Both of the areas in which the species occurs are being threatened by residential and urban development and one area is also threatened by mining and off-road vehicle traffic.

Rank Notes: Calculator Rank (unrevised)=G1?. Limited habitat, trends, and threats are enough to warrant a G1.

Reference: Kaye, T. N. 2003. Lomatium cookii: Population monitoring in the Illinois Vallye, Josephine County, Oregon. January 2003 progress report. Bureau of Land Management, Medford District and Institute of Applied Ecology, Corvallis, Oregon. Kagan, J. 1994. Habitat management plan for Lomatium cookii (Cook's desert-parsley) in the Illinois Valley, Josephine County, OR. Oregon Natural Heritage Data Base.

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