

Changed name of *L. ravenii* to *L. ravenii* var. *ravenii* and changed rank from 2B.3 to 1B.3, and added *L. ravenii* var. *paiutense* to 2B.3 in the CNPS Inventory on February 7, 2018

**Rare Plant Status Review: *Lomatium ravenii* var. *ravenii* and var. *paiutense*
Proposed Name Change of *L. ravenii* to *L. ravenii* var. *ravenii*, and Rank Change from California Rare Plant Rank 2B.3, G4 / S2 to 1B.3, G4T2 / S2
Proposed Addition of *L. ravenii* var. *paiutense* to California Rare Plant Rank 2B.3, G4T4 / S2**

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Changes made to the original document are in blue text.

Background

Lomatium ravenii Math. & Const. is a perennial herb in the Apiaceae that is known from Lassen and Modoc counties, California. It is currently included in the CNPS Inventory as a California Rare Plant Rank (CRPR) 2B.3 (CNPS Online Inventory record available at <http://www.rareplants.cnps.org/detail/999.html>). It is included in *The Jepson Manual* (Constance 1993) and *The Jepson Manual, Second Edition* (Constance and Wetherwax 2012); the Apiaceae treatment in the *Flora of North America* is not yet published. At the species level, *Lomatium ravenii* is distinguished from other *Lomatium* taxa in California in having no stem, a white corolla, bractlets that are puberulent to hairy, and leaf segments that are linear to oblong (Constance and Wetherwax 2012).

In 2011, Kimberly Carlson, Donald Mansfield, and James Smith performed a study of *Lomatium ravenii* looking into a new variety of *L. ravenii*. They looked at 29 specimens from throughout the range of *L. ravenii* and compared morphology and genetics to look for distinct groupings. For the morphological analysis, they measured 27 characters and input the measured data into a non-metric multidimensional scaling analysis, giving them a result of two distinct groups. For the phylogenetic analysis, leaf material was collected from seven populations in order to look at the nuclear and chloroplast DNA, resulting in a clear divide in two monophyletic sister groups. Both forms of analysis had the same results, showing evidence towards two separate varieties of *L. ravenii* that are also separated by geographic location. The first of the proposed new varieties, *L. ravenii* var. *paiutense*, includes populations found in Idaho, Oregon, Utah, Nevada, and northeastern California. The second of the new varieties, *L. ravenii* var. *ravenii*, only includes populations near Ravendale, Lassen County, California (Carlson et al. 2011).

Background *Lomatium ravenii* var. *paiutense*

Lomatium ravenii Math. & Const. var. *paiutense* K. Carlson & D. Mansfield has an expansive distribution across the northern Great Basin and Owyhee Uplands, similar to that of the Paiute Native American group for which it received its name. It is distinguished from var. *ravenii* in having elliptic to obovate-oblong ultimate leaf segments, leaves that are generally less than three times longer than wide, densely hirtellous, with rarely persistent leaf bases. It is found across southeastern Oregon, southwestern Idaho, northeastern California, north-central Nevada, and western Utah. *Lomatium ravenii* var. *paiutense* also has a deep-seated root "occasionally with a

swollen base, 1-3 cm in diameter, that gradually elongating into a slender upper portion, sometimes branching into 2-3 stems” Carlson et al. 2011). It occurs in Great Basin scrub, in gravelly or rocky volcanic soil with underlying clay, at an approximate elevation of 880 to 1,680 meters, and blooms from April to June (Carlson et al. 2011).

Lomatium ravenii var. *paiutense* has an estimated eight occurrences in California based upon the geographical distinction provided by Carlson et al. (2011). All eight occurrences are currently mapped by CNDDDB as *Lomatium ravenii*. Two occurrences are found in Modoc National Forest while the remaining six are on BLM land. Five occurrences are considered historical (occurrences not seen in over 20 years are considered historical by the CNDDDB).

Background *Lomatium ravenii* var. *ravenii*

Lomatium ravenii Math. & Const. var. *ravenii* is distinguished from var. *paiutense* in having linear to linear-oblong ultimate leaf segments, leaves that are generally more than three and a half times longer than wide, moderately hirtellous to glabrous, with generally persistent leaf bases, and known only from the vicinity of Ravendale, California. It is found in Great Basin scrub in adobe, alkaline clay loam, between 1,615 and 1,775 meters in elevation, and blooms from April to June (Carlson et al. 2011; CNDDDB 2017).

Lomatium ravenii var. *ravenii* has an estimated 18 occurrences based upon the geographical distinction provide by Carlson et al. (2011). Most are currently mapped by CNDDDB as *Lomatium ravenii*. Five occurrences are located on BLM land, three are on private land, and the rest are on land with unknown ownership. Fifteen of the occurrences are considered historical (occurrences not seen in over 20 years are considered historical by the CNDDDB).

With the most easily identifiable difference between the two varieties being the location in which they are found, the majority of CNDDDB occurrences were attributed to one of the two varieties with the aid of a map provided in the study by Carlson et al. (2011). Twelve occurrences have not been easily attributed to one variety or the other due to their location and the lack of specimens from that area used in the study. In communications with Dean Taylor (2017), he mentions this issue and suggests a disclaimer be added to these occurrences with a request for additional field work in this area. Dean also indicated that many of the occurrences do not have vouchers, and work he has done on *L. ravenii* has shown previous occurrences to be the wrong species of *Lomatium*. It is clear that additional fieldwork is needed in order to ensure populations are labeled correctly. The 12 occurrences that have an undetermined variety are included in the end of the attached “Locations_LomatiumRaveniiVarieties” spreadsheet.

Lomatium ravenii var. *paiutense*, considered *L. ravenii* by NatureServe, is apparently secure (S4) in Nevada, critically imperiled (S1) in Oregon and Utah, and imperiled (S2) in California (NatureServe 2017). The populations considered imperiled in California include both *L. ravenii* var. *ravenii* and *L. ravenii* var. *paiutense*.

Lomatium ravenii var. *paiutense* and var. *ravenii* are both possibly threatened by grazing as well as pipeline construction (CNDDDB 2017).

Based on the available information, CNPS and CNDDDB recommend adding *Lomatium ravenii* var. *paiutense* to California Rare Plant Rank 2B.3, and changing the name of *L. ravenii* to *L. ravenii* var. *ravenii* while also changing its rank from CRPR 2B.3 to 1B.3 in the CNPS Inventory. If knowledge on the distribution, threats, and rarity status of either variety changes in the future, we will re-evaluate their status at that time.

Recommended Actions

CNPS: Add *Lomatium ravenii* var. *paiutense* to CRPR 2B.3; change name of *Lomatium ravenii* to *Lomatium ravenii* var. *ravenii*, and change rank from 2B.3 to 1B.3

CNDDDB: Add *Lomatium ravenii* var. *paiutense* to G4T4 / S2; change name of *Lomatium ravenii* to *Lomatium ravenii* var. *ravenii*, and change rank from G4 / S2 to G4T2 / S2

Current CNPS Inventory Record for *Lomatium ravenii*

Lomatium ravenii Math. & Const.

Raven's lomatium

Apiaceae

CRPR 2B.3

Lassen, Modoc

Idaho, Nevada, Oregon, Utah

Calneva Lake (602A) 4012021, Herlong (602B) 4012022, Little Mud Flat (620B) 4012042, Wendel (620C) 4012032, Spencer Creek (620D) 4012031, Shaffer Mtn. (621A) 4012043, Al Shinn Canyon (638A) 4012061, Five Springs (638C) 4012052, Karlo (639D) 4012053, Buckhorn Canyon (656D) 4012071, Juniper Ridge (657A) 4012083, McDonald Peak (657B) 4012084, Termo (657C) 4012074, Ravendale (657D) 4012073, Lane Reservoir (676D) 4112017, Warren Peak (690B) 4112042, Eagleville (690D) 4112031, Cedarville (707C) 4112052, Lake Annie (724A) 4112081

Great Basin scrub (adobe, alkaline); elevation 1,000 - 3,000 meters.

Perennial herb. Blooms in April to June.

Possibly threatened by pipeline construction. Endangered in OR. See *Bulletin of the Torrey Botanical Club* 86(6):379 (1959) for original description.

Draft CNPS Inventory Records

Lomatium ravenii Math. & Const. var. *paiutense* K. Carlson & D. Mansfield

Paiute lomatium

Apiaceae

CRPR 2B.3

Lassen, Modoc

Oregon, Nevada, Idaho, Utah

Calneva Lake (602A) 4012021, Herlong (602B) 4012022, Warren Peak (690B) 4112042, Eagleville (690D) 4112031, Cedarville (707C) 4112052

Great Basin scrub / rocky, gravelly, volcanic with underlying clay; elevation 880 - 1,680 meters.

Perennial herb. Blooms in April to June.

[Previously included at the species level as *L. ravenii*](#). Possibly threatened by grazing and pipeline construction. Differentiated from var. *ravenii* in having elliptic to obovate-oblong ultimate leaf segments, leaves that are generally less than three times longer

than wide, densely hirtellous, with rarely persistent leaf bases, and in being widespread across northern Great Basin and Owyhee Uplands. See *Aliso* 29(2):105-114 (2011) for original description.

Lomatium ravenii Math. & Const. var. *ravenii*

Raven's lomatium

Apiaceae

CRPR 1B.3

Lassen

Buckhorn Canyon (656D) 4012071, McDonald Peak (657B) 4012084, Termo (657C) 4012074, Ravendale (657D) 4012073

Great Basin scrub / adobe, clay loam, alkaline; elevation 1,615 - 1,775 meters.

Perennial herb. Blooms in April to June.

Previously included at the species level as *L. ravenii*. Possibly threatened by grazing and pipeline construction. Distinguished from var. *paiutense* in having linear to linear-oblong ultimate leaf segments, leaves that are generally more than three and a half times longer than wide, moderately hirtellous to glabrous, with generally persistent leaf bases, and known only from the vicinity of Ravendale, CA. See *Bulletin of the Torrey Botanical Club* 86(6):379 (1959) for original description, and *Aliso* 29(2):105-114 (2011) for taxonomic treatment.

Literature Cited

Carlson, K., D. Mansfield, and J. Smith. 2011. A new variety of *Lomatium ravenii* (Apiaceae) from the Northern Great Basin and adjacent Owyhee Region. *Aliso* 29(2): 105-114.

[CNDDDB] California Department of Fish and Wildlife, Natural Diversity Database. 2017. RareFind 5 [Internet application] and CNDDDB Maps and Data. Available at: <https://www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data> [Government Version, October 2017].

Constance, L. 1993. *Lomatium*. Pp 150-157 in *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley.

Constance, L. and M. Wetherwax. 2012. *Lomatium*. Pp. 184-192 in Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (eds.), *The Jepson manual: vascular plants of California, second edition*. University of California Press, Berkeley, CA.

Mathias, M. and L. Constance. 1959. New North American Umbelliferae-III. *Bulletin of the Torrey Botanical Club* 86(6): 374-382.