

Kept as California Rare Plant Rank 1B and changed threat rank from .1 to .3 in the CNPS Inventory on December 13, 2017

**Rare Plant Status Review: *Polygonum polygaloides* subsp. *esotericum*
Proposed change from California Rare Plant Rank 1B.1 to 1B.33.2, and maintain
as G4G5T3 / S3 to ~~G4G5T3Q / S3~~**

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Changes made to the original document are in blue text.

Background

Polygonum polygaloides Meisn. subsp. *esotericum* (Wheeler) Hickman is an annual herb in the Polygonaceae known from Sierra to Modoc counties in California, and north to Oregon. It is included in *The Jepson Manual* (Went 1993), *The Jepson Manual, Second Edition* (Costea 2012), and *Flora of North America* (Freeman 2005). *Polygonum polygaloides* subsp. *esotericum* occurs in mesic areas of lower montane coniferous forests, Great Basin scrub, meadows and seep, and vernal pools, at an approximate elevation of 885 to 1,690 meters, and flowers between May and September.

The following notes occur in the *Jepson eFlora* (Costea 2017) for *Polygonum polygaloides*:

Note: Highly variable; intermediates occur between all subspecies except *Polygonum polygaloides* subsp. *polygaloides*, of northwestern United States (except California), Alberta.

Unabridged Note: Alternatively, *Polygonum polygaloides* could be recognized in narrow sense, without infraspecific taxa, and the 3 subspecies in California could be treated as subspecies of a separate *Polygonum kelloggii* (earliest available name)."

The variability and intermediacy of the subspecies of *Polygonum polygaloides* is widely known by botanists, specifically in the Modoc Plateau region of California, where *P. polygaloides* subsp. *esotericum* readily and frequently forms intermediates with *P. polygaloides* subsp. *confertiflorum*, a common taxon. In discussions with Forest Gauna (pers. comm. 2012), determining *P. polygaloides* subsp. *esotericum* from other subspecies is not only difficult, but at times impossible due to the intermediacy at play. Allison Sanger (pers. comm. 2017) expressed the same views from her experience with the plant, explaining that it was not possible to positively identify subsp. *esotericum* due to its intermediacy with subsp. *confertiflorum*. Trends for this subspecies in Modoc National Forest are unknown, not because botanists haven't been looking for it, but because they were unable to confirm reported occurrences to determine whether they were valid. In 2013, the Forest Service removed this taxon from its Region 5 California Sensitive Species list. "No one could identify it with certainty, so it could not be conserved effectively without also conserving its common relatives, which was thoroughly impractical on multiple-use public lands" (J. Nelson pers. comm. 2017). In contrast, Rob Preston (pers. comm. 2017), having studied subsp. *esotericum* in 2000, found certain characteristics, such as anther number as well as the shape of the

perianth and fruit, that were consistent within each subspecies allowing for accurate identification.

Many occurrences of *Polygonum polygaloides* subsp. *esotericum* have either not been relocated, or if located, determining the subspecies may not have been possible. Of the 42 occurrences, 31 of them are considered historical (occurrences not seen in over 20 years are considered historical by the CNDDDB), and nearly half (5) of the occurrences considered current have noted signs of intermediacy. The high number of historical occurrences and the presence of intermediates warrants further study. According to Costea (2017), *P. polygaloides* subsp. *esotericum* is considered highly variable, with intermediates that occur between all subspecies, excluding *P. polygaloides* subsp. *polygaloides*. The key in the Costea provides in the *Jepson eFlora* indicates two separate paths that would key to *P. polygaloides* subsp. *esotericum*, indicating its stark similarity to both of the other subspecies (see Table 1 for comparison of characteristics).

Threats are indicated for only nine occurrences of *P. polygaloides* subsp. *esotericum* in the CNDDDB, as follows: grazing (6 occurrences), trampling by wild horses (3 occurrences), road maintenance (1 occurrence), potential mining (1 occurrence), non-native plants (1 occurrence), and habitat construction for waterfowl (1 occurrence). Although grazing is the most indicated threat, it is unknown what the effects of grazing really have on this taxon.

Based on the available information, CNPS and CNDDDB recommend changing *Polygonum polygaloides* subsp. *esotericum* from California Rare Plant Rank 1B.1 to [1B.33.2](#) in the CNPS Inventory. ~~Since nine of its 42 occurrences have indicated threats (21%), we recommend a threat rank of .2 instead of .1 at this time.~~ If knowledge on the validity, distribution, threats, or rarity status of *P. polygaloides* subsp. *esotericum* changes in the future, we will re-evaluate its status at that time.

Recommended Actions

CNPS: Change *Polygonum polygaloides* subsp. *esotericum* from CRPR 1B.1 to [1B.33.2](#)
 CNDDDB: ~~Keep~~ Change *Polygonum polygaloides* subsp. *esotericum* ~~as~~ from G4G5T3 / S3 to [G4G5T3Q / S3](#)

Current CNPS Inventory Record

Polygonum polygaloides Meisn. subsp. *esotericum* (Wheeler) Hickman

Modoc County knotweed

Polygonaceae

CRPR 1B.1

Oregon

Lassen, Modoc, Plumas, Shasta, Sierra

Antelope Valley (571A) 3912063, Calpine (571B) 3912064, Reconnaissance Peak (587D) 3912073, Holbrook Canyon (675D) 4112015, Lookout (677B) 4112122, Burney Falls (679C) 4112116, Washington Mtn. (693B) 4112048, Crank Mountain (694B) 4112142, Whitehorse (695C) 4112134, Davis Creek (708A) 4112063, Whittemore Ridge (709B) 4112066, Boles Meadows East (710A) 4112067, Boles Meadows West (710B) 4112068, Ambrose (710C) 4112058, Jacks Butte (710D) 4112057, Rimrock

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Lake (711B) 4112162, Spaulding Butte (711C) 4112152, Knobcone Butte (711D) 4112151, Lake Annie (724A) 4112081, Mt. Bidwell (724B) 4112082, Pease Flat (726A) 4112085, Beaver Mtn. (726B) 4112086, South Mtn. (726C) 4112076, McGinty Reservoir (726D) 4112075

Great Basin scrub, lower montane coniferous forest, meadows and seeps, vernal pools/mesic; elevation 885 - 1690 meters.

Annual herb. Blooms May to September.

Potentially threatened by road construction and development. Possibly threatened by grazing, non-native plants, and trampling. Intermediates to ssp. *confertiflorum* occur more broadly on Modoc Plateau, to OR. See *Madroño* 31(4):249-252 (1984) for revised nomenclature.

Revised CNPS Inventory Record

Polygonum polygaloides Meisn. subsp. *esotericum* (Wheeler) Hickman

Modoc County knotweed

Polygonaceae

CRPR [1B.33-2](#)

Oregon

Lassen, Modoc, Plumas, Shasta, Sierra

Antelope Valley (571A) 3912063, Calpine (571B) 3912064, Reconnaissance Peak (587D) 3912073, Holbrook Canyon (675D) 4112015, Lookout (677B) 4112122, Burney Falls (679C) 4112116, Washington Mtn. (693B) 4112048, Crank Mountain (694B) 4112142, Whitehorse (695C) 4112134, Davis Creek (708A) 4112063, Whittemore Ridge (709B) 4112066, Boles Meadows East (710A) 4112067, Boles Meadows West (710B) 4112068, Ambrose (710C) 4112058, Jacks Butte (710D) 4112057, Rimrock Lake (711B) 4112162, Spaulding Butte (711C) 4112152, Knobcone Butte (711D) 4112151, Lake Annie (724A) 4112081, Mt. Bidwell (724B) 4112082, Pease Flat (726A) 4112085, Beaver Mtn. (726B) 4112086, South Mtn. (726C) 4112076, McGinty Reservoir (726D) 4112075

Great Basin scrub, lower montane coniferous forest, meadows and seeps, vernal pools / mesic; elevation 885 - 1690 meters.

Annual herb. Blooms May to September.

Changed from 1B.1 to [1B.33-2](#) on 2017-XX-XX

~~Move to 1B?~~ [Possibly threatened by grazing, trampling, road maintenance, and non-native plants.](#) Intermediates to ssp. *confertiflorum* are common, especially on Modoc Plateau to OR. Difficult ~~or not possible~~ to distinguish pure stands of ssp. *esotericum* in CA; needs further study. [Only occurrences that mostly contain *P. p. ssp. esotericum* are recognized.](#) ~~Possibly threatened by grazing, trampling, road maintenance, and non-native plants.~~ See *Rhodora* 40(476):310-312 (1938) for original description, and *Madroño* 31(4):251 (1984) for revised nomenclature.

Literature Cited

Costea, M. 2012. *Polygonum*. Pp. 1116-1121 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.

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Freeman, C. 2005. *Polygonaceae*. Pp. 479-601 in Flora of North America Editorial Committee (eds.), *Flora of North America North of Mexico*, Vol. 5. New York and Oxford.

Hickman, J. C. 1984. Notes and news: Nomenclatural changes in *Persicaria*, *Polygonum*, and *Rumex* (Polygonaceae). *Madroño* 31(4): 249-252. (Revised nomenclature.)

Wendt, T. 1993. *Polygonum*. Pp. 886-891 in *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley.

Wheeler, L. C. 1938. *Polygonum kelloggii* and its allies. *Rhodora* 40(476): 310-312. (Original description.)

Appendix I: Tables

Character	<i>Polygonum polygaloides</i> subsp. <i>esotericum</i>	<i>Polygonum polygaloides</i> subsp. <i>confertiflorum</i>	<i>Polygonum polygaloides</i> subsp. <i>kelloggii</i>
Stems	5--12 cm	2--15 mm	1--15 cm
Inflorescence	continuous from stem bases, 2--10 mm, 5--7 mm wide, narrowly cylindrical; bracts appressed, 4--8 mm, lance-elliptic, rigid, margin flat, green, if white then scarious border 0.1--0.2 mm wide; veins prominent adaxially	generally distal, rarely also continuous from stem bases, 7--40 mm, 5--10 mm wide, ovoid to cylindrical; bracts ascending to appressed, 4--11 mm, linear to lance-linear, +- rigid, margin rolled under, white, scarious border 0.25--0.4 mm wide, midvein +- heavily thickened, branches obscure	generally terminal, 3--15 mm, 5--15 mm wide, ovoid, or continuous from stem bases; bracts +- spreading, 7--25 mm, linear to lance-linear, soft, margin flat or rolled under, green, not scarious; veins obscure
Flower	perianth 2.1--2.9 mm, white or pink, tube 29--40% of length, tube and base of lobes smooth; stamens 5--8	perianth 1.8--2.2(2.4) mm, white or red, tube 22--30% of length, tube and base of lobes smooth or papillate; stamens 3	perianth 1.5--2.3 mm, pink or white, tube 19--34% of length, tube and base of lobes smooth; stamens 3
Fruit	2--2.5 mm, lanceolate, dark-brown, dull, net-like to +- smooth	1.3--2.1 mm, lance-ovate to ovate, brown to dark-brown, dull, net-like with longitudinal ridges	1.3--1.7 mm, ovate, light-yellow to green-brown, shiny, smooth to obscurely longitudinally net-like
Ecology	Vernal pools, seasonally wet places, pinyon/juniper woodland	Vernal pools, wet meadows	Mtn meadows, seeps, rainpools
Elevation	+ - 1500 m	500--1900 m	1500--3300 m
Bioregional Distribution	MP (near Goose Lake, Modoc Co.; Sierra Valley, s Plumas Co.)	NW, CaR, n SN, MP; Outside CA: to Saskatchewan, Montana, Wyoming	NW, CaR, SN, TR, PR; Outside CA: to British Columbia, Montana, Colorado, Arizona
Flowering Time	Jun--Aug	May--Aug	Jun--Sep

Table 1. Comparison of characteristics between the California subspecies of *Polygonum polygaloides* from the *Jepson eFlora* (Costea 2017).