

Added *Lagophylla diabolensis* to California Rare Plant Rank 1B.2 of the CNPS Inventory on January 17, 2014

Rare Plant Status Review: *Lagophylla diabolensis* and *L. dichotoma*
Proposed Addition of *L. diabolensis* to CRPR 1B.2, G2G3 / S2S3
Proposed retention of *L. dichotoma* on CRPR 1B.1, G1 / S1
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Changes made to the original document appear in blue text.

Background

Lagophylla diabolensis is an annual herb in the Asteraceae that is endemic to the southern Diablo Range of Fresno, Monterey, and San Benito Counties in California. It was recently described by Baldwin (2013) as a segregate from *L. dichotoma*, a California Rare Plant Rank (CRPR) 1B.1 plant that is found in the Sierra Nevada foothills and formerly also the Diablo Range. Therefore, *L. diabolensis* was not included in *The Jepson Manual* (Keil 1993), *The Jepson Manual, Second Edition* (Baldwin 2012), or the *Flora of North America* (Baldwin and Strother 2006). Until the recent description of *Lagophylla diabolensis*, *L. dichotoma* had been known from the western Sierra Nevada Foothills, adjacent eastern San Joaquin Valley, and Inner South Coast Ranges (Baldwin 2012; Baldwin and Strother 2006). *Lagophylla dichotoma* is now much rarer, as all of the plants from the South Coast Ranges are now treated as *L. diabolensis*. Baldwin (2013) described *L. diabolensis* based on morphological and molecular data, as well as its geographic disjunction from *L. dichotoma*. *Lagophylla diabolensis* is morphologically distinct from *L. dichotoma* based on its consistently stipitate-glandular (versus often eglandular) distal foliage, its narrower and entire (versus broader and entire to toothed) leaves, its generally uniformly tawny (versus tawny to dark purplish) stems, and its smaller heads with shorter phyllaries, ray laminae, and disk corollas (Baldwin 2013). Phylogenetic analyses of nuclear ribosomal DNA and chloroplast DNA suggest that *L. diabolensis* is more closely related to *L. ramosissima*, the only widespread member of the genus, than it is to *L. dichotoma* from the Sierra Nevada foothills (Baldwin 2013). *Lagophylla diabolensis* flowers from April to September, in contrast to *L. dichotoma* from the Sierra Nevada Foothills, which only flowers from April to May (Baldwin 2013; Consortium of California Herbaria, CCH, 2013).

Little information is available on the habitat requirements of *L. diabolensis*, as many collections are old and refer only to the location of the collection. Baldwin (2013) noted that it occurs with *Pinus sabiniana*, *Quercus douglasii*, *Q. lobata*, *Toxicodendron diversilobum*, and several herbs and grasses, both native and non-native. (Baldwin (pers. comm. 2013) also noted that it normally grows on clay substrates. Based on this information, we treat *L. diabolensis* as occurring on clay soils in cismontane woodlands as well as valley and foothill grasslands. *Lagophylla diabolensis* grows approximately between 365 and 885 meters in elevation (CCH 2013; CNDDDB 2013).

Lagophylla diabolensis is known from approximately 20 occurrences, all from the Diablo Range, and includes most of the occurrences currently in the CNDDDB for *L. dichotoma* (EO #s 1-7, 8, 9 and 17). [Element Occurrence number 7 in the CNDDDB for *L. dichotoma*](#) is from a specimen that was annotated to *L. ramosissima* by B. Baldwin (pers. comm. 2014), and will be removed from the CNDDDB. The new occurrences of *L. diabolensis* have been located through additional collections by B. Baldwin, a review of herbarium specimens by Baldwin (2013), and field searches by R. O'Dell (B. Baldwin pers. comm. 2013). At least five of the occurrences are on lands owned by the Bureau of Land Management (BLM). Most remaining occurrences have an unknown landowner. Given that many collections have vague location data, several more occurrences could actually be on BLM land. Only eight of the 20-24 occurrences have been seen recently (occurrences not seen in the past twenty years are considered historical by the CNDDDB). *Lagophylla diabolensis* may be somewhat more common than indicated by collection records, due to several reasons: 1) the plants are fairly inconspicuous when their flower heads are closed due to heat or drought stress; 2) a great deal of private land at the site of and near known occurrences makes botanical exploration difficult; and 3) this annual plant probably varies in abundance from year to year (Baldwin 2013).

One occurrence of *L. diabolensis* (CNDDDB EO#2, based on *Eastwood s.n. UC89193*) was mapped by the CNDDDB as occurring at Warthen in Fresno County. The original specimen label noted this locality, but a subsequent annotation by A. Eastwood placed it at the town of Hernandez. Given the proximity of Hernandez to other known occurrences, Baldwin (2013; pers. comm. 2013) accepted that this collection was probably made at Hernandez, not Warthen.

Lagophylla diabolensis is possibly threatened by development and invasive non-native plants. BLM staff (R. O'Dell) are actively removing the highly invasive *Centaurea solstitialis* from *L. diabolensis* sites (B. Baldwin pers. comm. 2013). Recent development, such as campground parking, has recently eliminated some of the habitat occupied by *L. diabolensis*. Because Coalinga Road is rather narrow, it could potentially be subject to road widening, which could result in the loss of some occurrences, including the type locality (*Baldwin 701*). However, the occurrence of *L. diabolensis* at sites that have been historically disturbed suggests that it might benefit from a moderate degree of disturbance, but more study is needed before making this conclusion. On the other hand, disturbance could bring with it an opportunity for new invasions by exotic invasive species (B. Baldwin pers. comm. 2013).

Along with the description of *L. diabolensis* comes a greatly reduced range for *L. dichotoma*. Of the seventeen occurrences of *L. dichotoma* currently in the CNDDDB, only seven of them will remain as *L. dichotoma* (EO #s 10 – 16); of those, three occurrences have not been seen in over 50 years. *Lagophylla dichotoma* was placed on CPRR 1B.1 because of the threats from invasive species and OHV trails to plants in eastern Fresno County (D. York pers. comm. 2012). Baldwin (2013) suggested that protection of the populations at Round Mountain and on the Tivy Mountain Preserve, owned by the

Sierra Foothills Conservancy, could be important for the long-term survival of *L. dichotoma*.

Based on the available information, CNPS and CNDDDB recommend adding *Lagophylla diabolensis* to CRPR 1B.2. *Lagophylla dichotoma* is already included on CRPR 1B.1, so we only recommend an update of its CNPS Inventory profile. If future work shows that *L. diabolensis* is more common than previously thought, CNPS and CNDDDB will re-evaluate its status at that time.

Recommended Actions

CNPS: Add *Lagophylla diabolensis* to CRPR 1B.2; keep *L. dichotoma* at CRPR 1B.1.

CNDDDB: Add *Lagophylla diabolensis* to G2G3 / S2S3; keep *L. dichotoma* at G1 / S1.

New CNPS Inventory Record

Lagophylla diabolensis B.G. Baldwin

Diablo Range hare-leaf

Asteraceae

CRPR 1B.2

Fresno, Monterey, San Benito

The Dark Hole (292A) 3512083, Parkfield (292B) 3512084, Valleton (293B) 3512086, Curry Mountain (315C) 3612014, Priest Valley (316B) 3612026, ~~Natgrass Valley (317B) 3612028~~, San Benito Mtn. (339C) 3612036, Hepsedam Peak (340D) 3612037, ~~Lonoak (340C) 3612038~~, ~~Idria (339B) 3612046~~ (340A) 3612047, Rock Spring Peak (340B) 3612048, ~~San Lucas (318A) 3612121~~, ~~Pinalito Canyon (341D) 3612131~~, Topo Valley (341A) 3612141, San Benito (363D) 3612151

Cismontane woodland, valley and foothill grassland / clay. Elevation 365 to 885 meters. Annual herb. Blooms April to September.

Known only from the Diablo Range. Many occurrences historical; need field surveys.

Possibly threatened by development and non-native plants. Formerly included within *L. dichotoma*, but genetic data show [that *L. diabolensis* is actually more closely related to a closer relationship with *L. ramosissima*](#). See *Madroño* 60(3):249-254 (2013) for original description.

Current CNPS Inventory Record

Lagophylla dichotoma Benth.

forked hare-leaf

Asteraceae

CRPR 1B.1

Butte (BUT) *, Calaveras (CAL), Fresno (FRE), Merced (MER) *, Monterey (MNT), San Benito (SBT), Stanislaus (STA)

Valleton (293B)* 35120H6, Priest Valley (316B) 36120B6, Smith Mountain (316D) 36120A5, Natgrass Valley (317B) 36120B8, San Lucas (318A) 36121B1, San Benito Mtn. (339C) 36120C6, Rock Spring Peak (340B) 36120D8, Lonoak (340C) 36120C8, Hepsedam Peak (340D) 36120C7, Pinalito Canyon (341D) 36121C1, San Benito (363D) 36121E1, Piedra (377C) 36119G4, Pine Flat Dam (377D)

36119G3, Round Mountain (378D) 36119G5, Merced (421C)* 37120C4, Cooperstown (441A) 37120F5, New Melones Dam (459A) 37120H5, Copperopolis (459B) 37120H6, Knights Ferry (459C) 37120G6

Cismontane woodland, valley and foothill grassland / sometimes clay; elevation 50 to 760 meters.

Annual herb. Blooms April to September.

Many occurrences historical; need field surveys. Similar to *L. minor*. See *Plantas Hartwegianas* pp. 317-318 (1849) by G. Bentham for original description.

Available online at <http://www.rareplants.cnps.org/detail/3652.html>.

Revised CNPS Inventory Record

Lagophylla dichotoma Benth.

forked hare-leaf

Asteraceae

CRPR 1B.1

Butte (BUT) *, Calaveras (CAL), Fresno (FRE), Merced (MER) *, Stanislaus (STA) Piedra (377C) 36119G4, Pine Flat Dam (377D) 36119G3, Round Mountain (378D) 36119G5, Merced (421C)* 37120C4, Cooperstown (441A) 37120F5, New Melones Dam (459A) 37120H5, Copperopolis (459B) 37120H6, Knights Ferry (459C) 37120G6
Cismontane woodland, valley and foothill grassland / sometimes clay; elevation 45 to 335 meters.

Annual herb. Blooms April to May.

Threatened by vehicles and non-native plants. Many occurrences historical; need field surveys. Formerly included plants from the Diablo Range, which are now treated as *L. diabolensis*. Similar to *L. minor*. See *Plantas Hartwegianas* pp. 317-318 (1849) by G. Bentham for original description.

Literature Cited

Baldwin, B.G. 2012. *Lagophylla*. Pp. 363-364 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* (2nd ed.). University of California Press, Berkeley and Los Angeles.

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Baldwin, B.G. and J.L. Strother. 2006. *Lagophylla*. Pp. 254-263 in *Flora of North America* Editorial Committee (eds.), *Flora of North America North of Mexico*, Vol. 21. New York and Oxford.

California Natural Diversity Database (CNDDDB) 2013. Occurrence report for *Lagophylla dichotoma*. California Department of Fish and Wildlife, Sacramento, CA. Accessed on 24 October 2013.

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Keil, D.J. 1993. *Lagophylla*. P. 298 in Hickman, J.C. (ed.), The Jepson manual: higher plants of California. University of California Press, Berkeley.