Species: *Erythronium hendersonii* Wats., Henderson’s fawn lily

Photo Source: CalPhotos
Photo Credits: Dianne Fristrom (left and top right); Chris Wagner (bottom right)

See also the watercolor illustration by Christabel King (in Clennett 2014: plate 790).

### Status

Table 1 summarizes the current status of this species or subspecies/variety by various ranking entities and defines the meaning of the status.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Status</th>
<th>Status Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>NatureServe CA&lt;sup&gt;a&lt;/sup&gt;</td>
<td>G4</td>
<td>G4: Apparently Secure — Uncommon but not rare; some cause for long-term concern due to declines or other factors.</td>
</tr>
<tr>
<td></td>
<td>S2</td>
<td>S2: Imperiled — Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it</td>
</tr>
</tbody>
</table>
Species Account: *Erythronium hendersonii*  

| California Rare Plant Rank<sup>b</sup> | 2B.3 | 2B: Plants rare, threatened, or endangered in California, but more common elsewhere.  
0.3: Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known). This species has not undergone any recent status changes. |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>California State Listing&lt;sup&gt;c&lt;/sup&gt;</td>
<td>Not listed</td>
<td></td>
</tr>
<tr>
<td>USDA Forest Service&lt;sup&gt;d&lt;/sup&gt;</td>
<td>S</td>
<td>Sensitive</td>
</tr>
<tr>
<td>USDI FWS&lt;sup&gt;e&lt;/sup&gt;</td>
<td>Not listed</td>
<td></td>
</tr>
<tr>
<td>USDI BLM&lt;sup&gt;f&lt;/sup&gt;</td>
<td>Not listed</td>
<td></td>
</tr>
<tr>
<td>NatureServe OR&lt;sup&gt;g&lt;/sup&gt;</td>
<td>S4</td>
<td>S4: Apparently Secure — Uncommon but not rare; some cause for long-term concern due to declines or other factors.</td>
</tr>
<tr>
<td>Oregon State Listing&lt;sup&gt;h&lt;/sup&gt;</td>
<td>Not listed</td>
<td></td>
</tr>
<tr>
<td>NatureServe NV&lt;sup&gt;i&lt;/sup&gt;</td>
<td>Not present</td>
<td></td>
</tr>
<tr>
<td>Nevada State Listing&lt;sup&gt;j&lt;/sup&gt;</td>
<td>Not present</td>
<td></td>
</tr>
</tbody>
</table>

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<sup>a</sup> California Natural Diversity Database, California Dept. of Fish & Wildlife [CNDDB 2020]  
<sup>b</sup> California Native Plant Society [CNPS 2020]  
<sup>c</sup> California Department of Fish and Wildlife [CDFW 2020]  
<sup>d</sup> US Forest Service Region 5 Forester’s List [USDA 2013] and Pacific NW Survey and Manage [USDA & BLM 2014]  
<sup>e</sup> US Department of Interior Fish and Wildlife Service [USFWS 2020]  
<sup>f</sup> US Department of Interior Bureau of Land Management [BLM 2020]  
<sup>g</sup> Oregon Biological Information Center [ORBIC 2019]  
<sup>h</sup> Oregon Department of Agriculture [ODA 2018]  
<sup>i</sup> Nevada Natural Heritage Program [NNHP 2020]  
<sup>j</sup> Nevada Division of Forestry [NDF 2012]  

Note: Individual State Heritage Programs (CNDDB, ORBIC, NNHP) represent NatureServe and contain more up-to-date ranks for their state than NatureServe Explorer.
Distribution, abundance, and population trend on the planning unit

Table 2 summarizes the distribution and frequency of this species or subspecies/variety within National Forest System Lands in California. Table 4 in Appendix 1 lists all known occurrences of this species or subspecies/variety within California. Individual occurrences are defined as sites that contain an individual, population, or groups of populations of the plant that are located more than 1/4 (0.25) of a mile apart from each other as defined by the CNDDB.

<table>
<thead>
<tr>
<th>National Forest System (NFS) lands</th>
<th>Record #s (from Locations table below)</th>
<th>CNDDB EOs</th>
<th>Non-CNDDB Records</th>
<th>Recent (seen in past 20 years)</th>
<th>Historical (not seen in past 20 years)</th>
<th>Most Recent Obs. Date</th>
<th>Total Records on NFS lands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Klamath:</td>
<td>5, 6, 8</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>18-May-2017</td>
<td>3</td>
</tr>
<tr>
<td>Rogue River-Siskiyou:</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>16-May-1964</td>
<td>1</td>
</tr>
<tr>
<td>Totals:</td>
<td>N/A</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>N/A</td>
<td>4</td>
</tr>
</tbody>
</table>

1 1909.12 Chapter 10, Section 12.53, components 2, 3, and 4.
Species Account: *Erythronium hendersonii*

Sources: Distribution: CNDDDB 2020, NRIS 2020. Baselayers: 2013 National Geographic Society, i-cubed, Esri, Garmin, NOAA, NPS, USGS.
Henderson’s fawn lily was last updated in the CNDDB on October 24, 2016 (CNDDB 2020), and therefore all Calflora, CCH, and/or NRIS records prior to this date are assumed to have already been reviewed and entered into the CNDDB for this plant. Accordingly, only records from Calflora, CCH, and/or NRIS reported after this date have been reviewed for potential new or updated occurrence information, and are included in Table 4 in Appendix 1 as applicable.

The native range of this species is limited to a contiguous region of southwestern Oregon and adjacent northern California. In Oregon it has been reported as common in the Rogue Valley (Clennett 2014) and as the most common species of Erythronium in Jackson County (Vos 2003). It has also been reported from Washington state (CNPS 2020, CPNWH 2020), but this record is considered to be erroneous (Geraldine Allen, pers. comm. 2020). In California, it has been found in widely scattered localities of the Klamath Ranges (KR) bioregion in Siskiyou and Del Norte counties. Of the eight known occurrences, four are at least partly on Forest Service land (three on the Klamath National Forest with the fourth located on the Rogue River-Siskiyou National Forest). The occurrences on the Klamath National Forest have all been visited within the past 10 years, but repeated observations are lacking such that population trends over time cannot be established. The number of individuals per population ranges from 650 to 5,000 plants. The occurrence on the Rogue River-Siskiyou National Forest is based on a 1964 collection by Wilma Follette along the East Fork Illinois River; the location is imprecise but appears close to the northern boundary of the Siskiyou Wilderness. The remaining four occurrences are on lands of unknown ownership (because they are based on older herbarium specimens with imprecise locality data) (CNDDB 2020, NRIS 2020).

Seven of the known occurrences of Henderson’s fawn lily are included in the CNDDB (2020). One record in NRIS (2020) observed in May 2017 is approximately 0.5 air mile east of CNDDB Element Occurrence #5. This 2017 NRIS record would seem to represent a new occurrence and should perhaps be evaluated for inclusion in the CNDDB.

**Brief description of natural history and key ecological functions**

Henderson’s fawn lily is a perennial, bulbiferous herb that blooms from April to July. It generally inhabits lower montane coniferous forest at 60–900 m in elevation (CNPS 2020, CNDDB 2020). The habitat has been further described as woodland margins and forest openings on north-facing slopes (Clennett 2014). Soils are moisture retentive but well drained, and much of the habitat is underlain by ultramafic rocks (e.g. serpentinite), yet ultramafic soil is evidently not required, at least in cultivation (Clennett 2014). Data on substrate and associated species are lacking for most of the Californian occurrences, although two locations along the Klamath River were noted as overlying peridotite with associates including ponderosa pine (Pinus ponderosa), incense cedar (Calocedrus decurrens), and Oregon oak (Quercus garryana) (CNDB 2020). In Oregon, this species blooms alongside another spring ephemeral wildflower, the Henderson’s shooting star (Primula hendersonii) (Vos 2003).

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2 Basis for other 1909.12 Chapter 10, Section 12.53 components.
The genus *Erythronium* consists of 35 species with three centers of diversity across the Northern Hemisphere: Eurasia, eastern North America, and western North America (POWO 2020). Molecular phylogenetic analyses (Allen et al. 2003, Clennett et al. 2012) showed the western North American species forming a moderately well-supported clade, within which there has been recent and rapid divergence at both the molecular and morphological levels. According to these results, Henderson’s fawn lily is most closely related to *E. citrinum*, another species inhabiting the same region of southwestern Oregon and northern California. However, the Henderson’s fawn lily is easily distinguished by its violet to pink tepals with dark purple base (in contrast with *E. citrinum* which has tepals white to creamy white with a lemon-yellow base). Naturally occurring hybrids between *E. hendersonii* and *E. citrinum* have been noted (Applegate 1935), and the Scott Mountains fawn lily (*E. citrinum* var. *roderickii*, a northern Californian endemic in Trinity and Shasta counties) has been suggested to be a product of past hybridization or introgression between these two species; this variety has pink to purple anthers but is otherwise like typical *E. citrinum* (Shevock & Allen 1991, Allen & Robertson 2002).

The pollination biology of Henderson’s fawn lily has not been studied, but *Erythronium* in general appears to be targeted by bees, with several different kinds being reported as confirmed pollinators, including bumble bees (*Bombus*), carpenter bees (*Xylocopa*), and mining bees (*Andrena*); other documented floral visitors include cuckoo bees (*Nomada*), honey bees (*Apis mellifera*), leaf-cutting bees (*Osmia*, *Augochlora*, *Augochlorella*, *Lasioglossum*), and bee flies (*Bombylius*) (Thomson 1986, CPC 2020 and references therein).

The fruit of Henderson’s fawn lily is a capsule that dehisces upon maturity. Within the genus *Erythronium*, the presence of elaiosomes (external oil bodies) on seeds is associated with ant-mediated dispersal and appears to be a synapomorphy uniting the Eurasian and eastern North American clades (Allen et al. 2003; Clennett et al. 2012). However, Henderson’s fawn lily and the other western North American species have seeds lacking elaiosomes, and dispersal is instead by means of a sort of catapult mechanism whereby the dry capsules are shaken by wind or a passing animal (Guppy 2006). Many *Erythronium* species are also able to reproduce asexually by bulb offsets (buds arising from the basal plate of the bulb and growing into additional bulbs). However, Henderson’s fawn lily rarely multiplies by this means, so that seed production is important for reproductive success (Applegate 1935, Clennett 2014).

The deep-seated bulb of Henderson’s fawn lily enables the mature plants to escape damage by fire. The above-ground portions are withered by the start of the summer-dry season, but a fire would most likely destroy the year's seed crop, preventing establishment of new plants during the first post-fire year. One occurrence area near O’Neil Creek Campground on the Klamath River was burned in the 2014 Happy Camp Complex Fire, but the following year the plants were noted as responding well (CNDDB 2020). At least in cultivation, shading the plants from strong sunlight seems to be required during the growing season, i.e. before the leaves begin to wither in late spring (Clennett 2014). The establishment and survival of seedlings is critical because at this stage the plants are prone to dying through desiccation in their first summer (Clennett 2014).
Overview of ecological conditions for recovery, conservation, and viability\(^3\) including Threats and Risk Factors

Henderson’s fawn lily is reportedly common in parts of southwestern Oregon, and it is not considered an SCC candidate in USFS Region 6 or on the Rogue River-Siskiyou National Forest (J. Kierstead 2020, personal communication). However, in the Californian part of its range the species is limited to eight known occurrences, of which the majority are historical or otherwise of unknown status. Based on incomplete data, the total estimated population size in California is less than 10,000 individual plants (CNDDB 2020). Only two occurrences (both on the Klamath National Forest) were ranked as being in good condition; these same two occurrences were noted as being situated on steep banks and possibly threatened by soil erosion and road maintenance (CNDDB 2020). This species has unique flower coloration within the genus \textit{Erythronium} and has been noted as being popular with growers (Clennett 2014). It might thus be threatened by horticultural collecting. Because of its evident requirement for shaded habitats, it would seem to be vulnerable to events or activities involving removal of forest cover (e.g. wildfire, timber harvesting).

Additional Considerations at the Forest Level

\(<\text{This section, including the next 5 subheadings, would be filled out by Forest Service botanists.}>\)

\(<\text{Forest Name}>\)

Geographic distribution within the Forest
- A. Scarce or isolated
- B. Patchy or gaps
- C. Contiguous

\(<\text{Select a geographic distribution rank and provide references or cite ‘specialist expertise, <name>’ where appropriate.}>\)

Abundance of the species on the Forest
- A. Rare – current abundance is low enough that stochastic and other factors could lead to potential imperilment.
- B. Uncommon – current abundance is large enough that demographic stochasticity is not likely to lead to rapid local extinction, but, in combination with highly variable environmental factors, could pose a threat.
- C. Common – current abundance is large enough that species persistence is not threatened by demographic stochasticity in combination with environmental variation.
- D. Insufficient information to draw inferences about criterion.

\(<\text{Select a species abundance rank and provide references or cite ‘specialist expertise, <name>’ where appropriate.}>\)

\(^3\) 1909.12 Chapter 10, Section 12.53, components 7, 9, 10, 11 and 12, as appropriate.
Population trend on the Forest
A. Significant downward or suspected downward population trend.
B. Stable population.
C. Upward population trend.
D. Insufficient information to draw inferences about criterion.

<Select a population trend rank and provide references or cite ‘specialist expertise, <name>’ where appropriate.>

Habitat trend on the Forest
A. Decline in habitat quality or quantity.
B. Stable amounts of suitable or potential habitat, relatively unchanged habitat quality.
C. Improving habitat quality or increasing amounts of suitable or potential habitat.
D. Insufficient information to draw inferences about criterion.

<Select a habitat trend rank and provide references or cite ‘specialist expertise, <name>’ where appropriate.>

Vulnerability of habitat on the Forest
A. Substantial modification of habitat has occurred or is anticipated with conditions departing from expectations based on NRV, and/or habitat is impacted by modern stressors such as drought, climate change, high intensity wildfire and wildfire suppression disturbances, loss of natural openings due to historical wildfire suppression, nonnative invasive species, water impoundments and diversions, and recreation, etc.
B. Habitat modification is likely to result in ecological patterns similar to the range of historical conditions, but is being impacted by modern stressors.
C. Habitat resilient, changes are similar in frequency and intensity to those expected from NRV, and modern stressors not significant.
D. Insufficient information to draw inferences about criterion.

<Select a habitat vulnerability rank and provide references or cite ‘specialist expertise, <name>’ where appropriate.>

Additional Forest specific information related to the SCC determination
<This section is provided for Forest botanists to add additional Forest specific information that is not captured in the section above, if necessary. Provide a narrative description here of the additional relevant information. State “No additional information” if this section is not used.>
Species Account: *Erythronium hendersonii*  

**Taxonomy**

Table 3 summarizes this species or subspecies/variety’s name status in key literature.

<table>
<thead>
<tr>
<th>Entity</th>
<th>Name Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNDDDB and CNPS</td>
<td><em>Erythronium hendersonii</em> Wats.</td>
</tr>
<tr>
<td>Jepson eFlora</td>
<td><em>Erythronium hendersonii</em> S. Watson</td>
</tr>
<tr>
<td>Flora of North America</td>
<td><em>Erythronium hendersonii</em> S. Watson</td>
</tr>
<tr>
<td>USDA NRCS* PLANTS</td>
<td><em>Erythronium hendersonii</em> S. Watson</td>
</tr>
</tbody>
</table>

* Natural Resources Conservation Service [NRCS]

**Synonymy:** There are no synonyms for this species (Allen & Robertson 2002, TROPICOS 2020).

**Jepson eFlora link:** [https://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=25179#MAP](https://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=25179#MAP)

**Type locality:** “Near Ashland, Jackson County, Oregon (L. F. Henderson, April, 1887) and at Grant’s Pass, Josephine County (T. Howell, the same month)” (Watson 1887). The two collections cited in the protologue were later referenced as the “Type” and “Cotype,” respectively (Applegate 1935). Under the current nomenclatural rules (Turland et al. 2018), the collection by L. F. Henderson (housed in the Gray Herbarium) is considered to be the lectotype, and the T. Howell collection is an additional syntype.

**Key literature**


**Literature cited**


[CDFW] California Department of Fish and Wildlife, Natural Diversity Database. 2020. State and Federally Listed Endangered, Threatened, and Rare Plants of California. Last updated

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4 1909.12, Chapter 10, Section 12.53, component 1.
Species Account: *Erythronium hendersonii*


**Persons Contacted**

Allen, Geraldine A. 2020. Professor, Department of Biology, University of Victoria, British Columbia, Canada. Personal communication 6 August 2020.


**Author(s) and Date:**

R. Douglas Stone, California Native Plant Society, 8 August 2020; finalized 06 October 2021
Reviewer(s) and Date:
Aaron E. Sims, California Native Plant Society, 28 August 2020; David L. Magney, California Native Plant Society, 3 September 2020; Julie A. Kierstead, USDA Forest Service Region 5 Ecosystem Planning, 17 December 2020

Formatting: Form is set up as 508 compliant. Please use the “styles” if further formatting is necessary.

Purpose: This is to maintain the best available science on a species that could be used by the Forest Service in a variety of functions. Specifically, there would be additional steps and evaluations to determine whether or not this species would be considered a Species of Conservation Concern under the 2012 Planning Rule or a Sensitive Species under the 1982 Planning Rule.
Appendix 1: Known Occurrences

Table 4. Known occurrences of Henderson’s fawn lily within California (NRIS, CNDDB, Calflora/CCH databases).

REDACTED FOR CONSERVATION PURPOSES