

**AGASTACHE CUSICKII (LAMIACEAE) IN IDAHO:  
A NEWLY DOCUMENTED POPULATION  
AND POTENTIAL IMPLICATIONS FOR CONSERVATION STATUS**

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**ABSTRACT**

*Agastache cusickii*, native to the western USA, is considered imperiled (NatureServe ranking S2) in Idaho. Its distribution in Idaho, however, has not been entirely documented. A previously unreported population comprising at least 473 individuals is documented here. Since (a) the newly documented population is sizable, (b) 20 or more populations of the species occur in Idaho, and (c) a geospatial assessment indicates potential IUCN ratings of Endangered or Vulnerable, it is suggested that the NatureServe conservation status of *A. cusickii* in Idaho be updated from S2 to S3.

*Agastache cusickii* (Greenm.) Heller (Lamiaceae) is endemic to the western USA and considered imperiled in Idaho (Idaho Native Plant Society 2020). The species occurs in Nevada, Oregon, parts of central Idaho and surrounding areas, and Beaverhead County in southwestern Montana (Kartesz 2015). Data from herbarium specimens indicate that the species is known from 20-25 locations in Idaho, including localities in the Boulder, Pioneer, Lost River, Lemhi, and Beaverhead mountains (Consortium of Pacific Northwest Herbaria 2021; Intermountain Region Herbarium Network 2021; SEINet 2021). Additionally, one collection is known from Big Southern Butte in the Snake River Plains (Consortium of Pacific Northwest Herbaria 2021). The NatureServe conservation status is currently S2 (imperiled) in Idaho, although the species is considered to be more secure over its entire range (Idaho Native Plant Society 2020).

Although *Agastache cusickii* is considered imperiled (NatureServe ranking S2) in Idaho, knowledge of its distribution in that state has been incomplete. The present work documents a relatively large, newly found population of *A. cusickii* and suggests a change of its conservation status in Idaho.

A population of *Agastache cusickii* was found more than 2 kilometers away from a previously documented population in Clark Co., Idaho. The new locality is on the western slope of the Beaverhead Mountains (Figs. 1, 2, hereafter referred to as the Birch Creek Valley population). A total of 473 individuals were counted in the area during a subsequent trip in August 2020. The slope is located at the base of the mountains on the east side of the Birch Creek Valley and is approximately 2 kilometers southeast of Blue Dome, Idaho. Large portions of the site consist of limestone talus slopes interspersed with some soil, supporting a plant community including *Artemisia tridentata*, *Ericameria nauseosa*, and, in places, *Cercocarpus ledifolius*.

Voucher. **Idaho**. Clark Co: Bitterroot Range, Beaverhead Mountains, ca. 2.0 km SE of Blue Dome, 44.1468° N, 112.8939° W, WNW-facing slopes near base of mountains, 1870 m, 24 Jul 2020, *Daines 70* (to be deposited at RICK and KSP).



Figure 1. *Agastache cusickii* on the west slope of the Beaverhead Mountains, Clark Co., Idaho. Photo by Michael Daines.



Figure 2. Habitat for *Agastache cusickii* at the base of the west slope of the Beaverhead Mountains, Clark Co., Idaho. Photo by Michael Daines.

Several known populations of *Agastache cusickii* occur in Clark Co., Idaho, and ca. 20-25 known populations occur in all of Idaho (Consortium of Pacific Northwest Herbaria 2021; Intermountain Region Herbarium Network 2021; SEINet 2021). Skull Canyon (in Clark County) harbors a population of *A. cusickii* about 2.7 km north of the Birch Creek Valley population; the substrate at this locality was similarly dominated by limestone talus slopes. This Skull Canyon population was first documented in 1976 (*Henderson 3173*, ID, IND, NY). This population was verified as still present in August 2020; 149 individuals were counted in one part of the canyon. Including the Skull Canyon population and the Birch Creek Valley population, *A. cusickii* has been documented five times in Clark County, in four or five distinct localities.

The population sizes of at least three other populations of *Agastache cusickii* in Idaho have been estimated; these estimates included “<25,” “25–75,” and “76–150” (from specimen labels). The two population estimates of 149 and 473 reported here are two of the largest for *A. cusickii* yet recorded from Idaho. The present study points to the possibility of additional populations in Idaho, especially given that other potentially suitable talus slopes exist in the Birch Creek Valley along the lower west slopes of the Beaverhead Mountains.

### GEOCAT ANALYSIS

The online application GeoCAT (Bachman et al. 2011; Bachman & Moat 2012) was used to estimate potential IUCN conservation ratings for *Agastache cusickii* in Idaho. The two metrics used by GeoCAT, Extent of Occurrence (EOO) and Area of Occupancy (AOO), delivered different suggested IUCN ratings for the species in Idaho. EOO analysis suggested an IUCN conservation rating of vulnerable (VU). However, variable ratings were obtained when using AOO depending on the cell width setting. The rating resulting from AOO analysis was Endangered (EN) when the cell width was set at the IUCN default of 2 km.

Given the results of the GeoCAT assessment, the abundance of *Agastache cusickii* populations in Idaho, and the size of the Birch Creek Valley population, it seems that the species is perhaps more well established in the state than previously thought. To reflect these results, the NatureServe status for Idaho might be changed from S2 to S3, directing conservation attention to plants that are more threatened in Idaho than is *A. cusickii*.

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### LITERATURE CITED

- Bachman, S., J. Moat, A.W. Hill, J. de la Torre, and B. Scott. 2011. Supporting Red List threat assessments with GeoCAT: Geospatial conservation assessment tool. *ZooKeys* 150: 117–126.
- Bachman, S. and J. Moat. 2012. GeoCAT – An open source tool for rapid Red List assessments. *BGjournal* 9: 11–13.
- Consortium of Pacific Northwest Herbaria. 2021. Specimen Database. Univ. of Washington Herbarium. <pnwherbaria.org> Accessed 2 March 2021.
- Idaho Native Plant Society. 2020. Rare plant list. Idaho Native Plant Society, Boise, Idaho. <[https://idahonativeplants.org/wp-content/uploads/2020/05/INPS\\_RARE\\_PLANT\\_LIST\\_2020\\_05\\_12.xls](https://idahonativeplants.org/wp-content/uploads/2020/05/INPS_RARE_PLANT_LIST_2020_05_12.xls)> Accessed 2 March 2021.
- Kartesz, J.T. 2015. Taxonomic Data Center. Biota of North America Program, Chapel Hill, North Carolina. <<http://www.bonap.net/tdc>> Accessed 4 September 2020.
- SEINet. 2021. SEINet Data portal. <<https://swbiodiversity.org/seinet/index.php>> Accessed 2 March 2021.