

FIELD INVESTIGATION OF DOUGLASIA IDAHOENSIS,
A REGION 4 SENSITIVE SPECIES,
ON THE PAYETTE AND BOISE NATIONAL FORESTS.

by

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ABSTRACT

A field investigation of the recently described *Douglasia idahoensis* (Idaho douglasia) was carried out in the mountains of the Boise and Payette national forests by the Idaho Department of Fish and Game's Natural Heritage Program. Prior to 1988, Idaho douglasia was known to be extant at three localities, two on the Nez Perce NF and one on the Boise NF. An unverified population, based on 1937 a collection, was believed to exist on the Boise NF.

Although two new sites were discovered, results of this investigation indicate that Idaho douglasia remains a very rare species. South of the Salmon River, seven populations are known from four sites on the Boise NF. No populations were located on the Payette NF. The entire known extent of Idaho douglasia on the Boise NF covers less than 150 acres, with an estimated 5,500 individuals. Small areal extent, combined with low numbers, make several of these populations inherently prone to extirpation. Idaho douglasia appears restricted to northerly-facing whitebark pine - subalpine fir woodlands occurring on loose substrates of decomposed granite, between 7600 and 8200 feet in elevation.

Despite the apparent narrow distribution of Idaho douglasia, no serious human-related threats are foreseen and there does not appear to be any immediate concern for the vigor or conservation status of the species on the Boise NF.

Idaho douglasia should remain a Category 2 candidate species until its status north of the Salmon River is better understood. The species should be maintained on the Region 4 Sensitive Species List for the Boise NF. If a status survey north of the Salmon River reveals Idaho douglasia to be as rare as it is south of the river, the Boise NF should develop a Habitat Management Plan for the species in coordination with the U.S. Fish and Wildlife Service.

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INTRODUCTION

Only recently discovered, Douglasia idahoensis (Idaho douglasia) is a Region 4 Sensitive Species endemic several mountaintops in central Idaho. A field investigation of Idaho douglasia was conducted on the Boise and Payette NFs by the Idaho Department of Fish and Game's Natural Heritage Program through the Cooperative Challenge Cost Share Program.

The primary objectives of this investigation were as follows:

- 1) Survey the known population of Douglasia idahoensis at Scott Mountain on the Boise NF and search potential habitats on the Boise and Payette NFs for new populations.
- 2) Characterize habitat conditions for known populations.
- 3) Assess population trends and threats to existing populations and make management recommendations to the forests based on these assessments.

Douglasia idahoensis D. Henderson

CURRENT STATUS USFS Region 4 Sensitive Species
USFWS Category 2 Candidate Species

TAXONOMY

Family: Primulaceae (Primrose)

Common Name(s): Idaho douglasia, Idaho mountain primrose

Citation: Henderson, D.M. 1981. A new Douglasia (Primulaceae) from Idaho. *Brittonia* 33:52-56.

Technical Description: Perennial herbs, cushion- to more often mat-forming, loosely caespitose from a slender tap root; stems prostrate to ascending, minutely pubescent, terminating in rosettes of entire leaves; leaves succulent, oblong to oblanceolate, obtuse to acute, 7-11 mm long, 1-1.7 mm wide, puberulent, becoming glabrous and strongly reflexed in age; inflorescence umbellate, (2)3-5(7)-flowered, involucrate; bracts 5-9, lanceolate to lance-ovate, acute to acuminate, 2.5-3.7(5) mm long, 0.7-1.5 mm wide, with scattered simple white hairs, the margins ciliate; peduncles 1-6 mm long with simple to forked hairs throughout; pedicels 3-7(10) mm long at anthesis, the length variable within the inflorescence, densely covered with simple to branched white hairs; calyx 4-7 mm long, the lobes 1-2 mm wide, the margins ciliate, the apices acute, the tube 2.4-3 mm with short, simple white hairs at least proximally; corolla salverform, (5)6-10(11) mm long, glabrous, the lobes broadly flared, 5-6 mm long, 3-4 mm wide in fresh specimens, 3-5 mm long, 1.8-3 mm wide in pressed ones, the apex emarginate to retuse (entire), the limb pink to magenta, the throat yellow with 5 fornicies, the tube 3.5-6 mm long, exceeding the calyx, lighter in hue than the limb; stamens 5, included; anthers oblong, 0.8-1.1 mm long, yellow; style 1-1.8 mm long, the stigma small, capitate; capsules ovate, 5-valved, 1.4-2.6 mm long; seeds 1-several per capsule, dark reddish-brown to nearly black, minutely pitted, 0.9-2.5 mm long; n=18.

Nontechnical Description: Idaho douglasia forms a low, spreading cushion or mat on the soil surface. The leaves are small, green and succulent, forming a terminal rosette on the short stems. Stems are terminated by a cluster of 3 to 5, relatively large, pink to magenta flowers. Flowering takes place from late June to mid-July. See Appendix I for a detailed line drawing of Idaho douglasia.

Distinguishing Features and Similar Species: No other species of Douglasia are known to occur on the Boise and Payette National Forests. D. idahoensis is a distinctive member of the high elevation flora in central Idaho and is easily recognized when in flower by its profuse display of bright pink flowers, occurring as a mat on the ground. Idaho douglasia is also distinctive in a vegetative state. The leaves become suffused with anthocyanin (turn red) soon after flowering, turning the mat/cushion a distinctive dark red. This feature can be used to identify it well into September.

Arenaria aculeata is a common cushion plant of the central Idaho mountains and occurs with Idaho douglasia at all sites. It superficially resembles Idaho douglasia in a vegetative state. It is easily distinguished, however, by its narrow, sharply-pointed, nonsucculent leaves.

DISTRIBUTION

Range: Prior to 1984, one historical and two extant populations of Idaho douglasia were known (Henderson 1981). The populations known to be extant were on Elk Mountain and Square Mountain in the Clearwater Mountains of the Nez Perce NF. Attempts to locate the site of a 1937 Valley County collection by J.W. Thompson from "granite slopes near the crest of Gold Fork L.O., Sawtooth Mountains, 8100'" were unsuccessful (Charles Wellner, Moscow, Idaho, personal communication). A fourth population was reported from Scott Mountain in Boise County but it remained unconfirmed in 1981 (Henderson 1981). In 1984, Steve Caicco, then of the Idaho Natural Heritage Program, confirmed the existence of Idaho douglasia on ridges north and east of Scott Mountain.

The main focus of field investigations in 1988 were to (1) relocate the Gold Fork Lookout population and (2) search suitable habitats on the Payette and Boise NFs for new populations.

The first objective was met when two very small populations and another site with two individuals were found near Gold Fork Rock on the Boise NF. As it turns out, the Gold Fork Lookout searched by Wellner and others is relatively new (although now torn down) and at a lower elevation than specified by Thompson. Gold Fork Rock, two miles east, once had a crow's nest-type lookout bolted to the summit and is 8100' in elevation; most likely it is the site of Thompson's 1937 collection.

Extensive searches of suitable habitat elsewhere on the Boise and Payette NFs, between Scott Mountain and the Salmon River, yielded only two new sites. Both sites are on the Boise NF, one near Rice Peak and the other near Peace Rock. See Appendix II for mapped locations and Appendix III for demographic data of all known sites of Idaho douglasia on the Boise NF. Other areas of the Boise and Payette NFs unsuccessfully searched in 1988 are shown in Appendix IV.

Numerous collecting trips on mountaintops and high ridges of the Payette NF by myself and others during the 1970's and 1980's turned up no Idaho douglasia. Most of these trips were in proposed and established Research Natural Areas. My searches on the Payette in 1988 concentrated on mountains not previously visited by collectors. No Idaho douglasia was found. This was especially frustrating because the habitat appeared suitable and at times I was within sight of either the Gold Fork or Square Mountain sites. Maps in Appendix IV show the areas of the Payette NF unsuccessfully searched in 1988. Further searches along the main Payette Crest, east of McCall are recommended.

To summarize, Idaho douglasia is known from seven populations at four sites on the Boise NF and none from the Payette NF. The Boise NF populations occur at Rice Peak, Peace Rock, Scott Mountain, and Gold Fork Rock. The Rice Peak, Peace Rock and Scott Mountain sites all occur

on a major north-south-trending divide between the Middle Fork Payette-South Fork Salmon rivers and Deadwood River-Johnson Creek. Further searches along this ridge will probably turn up new populations of Idaho douglasia. Likewise, searches near Gold Fork Rock, especially around Peak 7979, approximately two miles to the southwest, may yield positive results.

Habitat and Associated Species: Idaho douglasia on the Boise NF occurs in north- and northeast-facing, open-grown whitebark pine - subalpine fir woodlands and scree slopes in avalanche chutes. Elevations range from 7600 to 8200 feet. Without exception, it occurs on substrates best characterized as recently decomposed granitic bedrock. There is little discernable soil development on these sites, and the understory is very depauperate, consisting of 5-10 species. Ground cover is low. It was difficult to determine with a high degree of confidence the forest habitat type(s) occurring at these sites, because few of the indicator species were present in some areas. *Abies lasiocarpa*/*Carex geyeri*-*Carex geyeri* appeared to be the predominant habitat type (Steele et al. 1981). The *Abies lasiocarpa*/*Vaccinium scoparium* - *Pinus albicaulis* habitat type was also represented and possibly *Abies lasiocarpa*/*Luzula hitchcockii* - *Vaccinium scoparium* also.

Associated species found growing in the understory with Idaho douglasia include, *Arenaria aculeata*, *Polygonum phytolaccaefolium*, *Poa nervosa*, *Penstemon ellipticus*, *Penstemon fruticosus*, *Polytrichum juniperinum*, *Pedicularis contorta*, *Draba sphaerocarpa*, *Oryzopsis exigua*, *Eriogonum pyrolifolium*, *Arabis microphylla*, and *Chionophylla tweedyi*.

STATUS

Ownership: All known Idaho douglasia populations south of the Salmon River occur in land administered by the Boise NF. The two populations known from north of the Salmon River are administered by the Nez Perce NF.

Threats: The Gold Fork Rock, Peace Rock and Rice Peak sites are remote from roads, established trails and other current management activities. I foresee no immediate threats to the long-term viability of these populations.

A portion of the Scott Mountain site is close to the road that runs along the ridge to the lookout. At present, the road, and vehicle and foot traffic associated with it, do not appear to threaten the integrity of the population. Exploration for molybdenum has taken place on Scott Mountain and may be a potential threat. A Canadian company recently walked away from an exploration project there without stabilizing or restoring disturbed areas (Evans 1984; page 13). This project was not, however, in the vicinity of the Idaho douglasia site. Sheep grazing takes place along the ridge, but the populations appear unaffected.

Management Implications: Current management of all known sites of Idaho douglasia on the Boise NF does not appear to be in conflict with its long-term viability in these areas.

ASSESSMENT AND RECOMMENDATIONS

Summary: Idaho douglasia remains a very rare species. South of the Salmon River, seven populations are known from four sites on the Boise NF. The entire known extent of these populations covers less than 150 acres, with an estimated 5,500 individuals. Small areal extent, combined with low numbers, make several of these population inherently prone to extirpation. Idaho douglasia appears restricted to northerly-facing whitebark pine - subalpine fir woodlands occurring on loose substrates of decomposed granite, between 7600 and 8200 feet in elevation.

Despite the apparent narrow distribution of Idaho douglasia, no serious human-related threats are foreseen and there does not appear to be any immediate concern for the vigor or conservation status of the species on the Boise NF. All seven populations appear to be comprised of individuals of various size (age?) classes. On the basis of limited information available, there appear to be no reproductive problems.

Recommendation to U.S. Fish and Wildlife Service: Idaho douglasia is a Category 2 candidate species, that is, the Fish and Wildlife Service has evidence that it may be threatened or endangered, but lacks the biological information necessary to list it under the Endangered Species Act. This report sheds light on its status south of the Salmon River, but little is known of the species north of the river. I recommend that Idaho douglasia remain a Category 2 candidate until its status north of the Salmon River is better understood. If a status survey indicates that Idaho douglasia is as rare on the Nez Perce NF as it is on the Boise NF, the Fish and Wildlife Service should coordinate the development of a Habitat Management Plan for the species with the Forest Service.

Recommendation to Boise National Forest: All known sites of Idaho douglasia south of the Salmon River occur on public lands administered by the Boise NF. The species should be maintained on the Region 4 Sensitive Species List for the Boise NF. The Forest should carefully consider the impacts of its current and future management activities on the conservation status of the species. A clearance survey should be conducted for any management activities taking place in potential Idaho douglasia habitat (as outlined in the Habitat and Associated Species section) in the South Fork Salmon - Johnson Creek, Middle Fork Payette - Deadwood River, and upper Bear Valley Creek areas. If a status survey indicates that Idaho douglasia is as rare on the Nez Perce NF as it is on the Boise NF, the Forest Service should develop a Habitat Management Plan for the species in coordination with the U.S. Fish and Wildlife Service.

There does not appear, at this time to be any need for formal monitoring of the species. Land managers should be aware of all locations of the known populations. In particular, the potential for negative impacts to the Scott Mountain population adjacent to the road should be considered.

Newly located populations should be documented and location information should be submitted to the Idaho Natural Heritage Program for entry into their permanent data base on sensitive species.

Recommendation to Payette National Forest: Although no Idaho douglasia has been found on the Forest to date, the possibility still exists that it occurs there. Populations can be small and may be easily missed, even in an intensive survey. For this reason, Idaho douglasia should be maintained on the Region 4 Sensitive Species List for the Payette NF. While no further intensive survey for Idaho douglasia is recommended, field personnel travelling through suitable habitat on the Forest should be made knowledgeable as to its identification. Any newly located populations should be documented and location information should be submitted to the Idaho Natural Heritage Program for entry into their permanent data base on sensitive species.

There is little information regarding the flora of the Payette Crest, as very few collections have been made there. Inventories of this relatively inaccessible area would add considerably to our knowledge of the high elevation flora of central Idaho and may turn up Idaho douglasia.

REFERENCES

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Henderson, D.M. 1981. A new Douglasia (Primulaceae) from Idaho. *Brittonia* 33:52-56.

Steele, R., R.D. Pfister, R.A. Ryker, and J.A. Kittams. 1981. Forest habitat types of central Idaho. General Technical Report INT-114. USDA, Forest Service, Intermountain Research Station, Ogden, UT. 138 p.

Appendix I

Line drawing of Douglasia idahoensis
(taken from Henderson 1981).

Appendix II

Locations of Douglasia idahoensis sites on the
Boise National Forest.

- Map 1. Portion of Garden Valley 15' Quadrangle.
- Map 2. Portion of Deadwood Reservoir 15' Quadrangle.
- Map 3. Portion of Boiling Springs 15' Quadrangle.
- Map 4. Portion of Gold Fork 15' Quadrangle.

APPENDIX III

Demographic data for the four Boise National Forest
Douglasia idahoensis sites.

1. Scott Mountain (two large populations, two others sites with several individuals)

Population one

- a. Location:
- b. Area: 40 ac.
- c. Number of plants: Several hundred in 1988.
- d. Density: Moderate.
- e. Evidence of expansion/contraction: No evidence, although site is grazed by sheep.

Population two

- a. Location:
- b. Area: 50-60 ac.
- c. Number of plants: Approximately 2,000 in 1988.
- d. Density: Low
- e. Evidence of expansion/contraction: No evidence.

2. Peace Rock (two populations)

Population one

- a. Location:
- b. Area: 40-60 ac.
- c. Number of plants: Approximately 2,000 in 1988.
- d. Density: Moderate to high.
- e. Evidence of expansion/contraction: No evidence.

Population two

- a. Location:
- b. Area: 100' x 50'
- c. Number of plants: Approximately 300 in 1988.
- d. Density: Low
- e. Evidence of expansion/contraction: No evidence.

3. Rice Peak (one population)

- a. Location:
- b. Area: 150' x 200'
- c. Number of plants: 400 to 500 in 1988.
- d. Density: Moderate.
- e. Evidence of expansion/contraction: No evidence.

4. Gold Fork Rock (two populations, one other site with two individuals)

Population one

- a. Location:
- b. Area: 40' x 50'
- c. Number of plants: 93 in 1988.
- d. Density: Low
- e. Evidence of expansion/contraction: No evidence.

Population two

- a. Location:
- b. Area: 40' x 20'
- c. Number of plants: 95 in 1988.
- d. Density: Low
- e. Evidence of expansion/contraction: No evidence.

APPENDIX IV

Maps of areas unsuccessfully searched for Douglasia idahoensis on the Boise and Payette National Forests in 1988.

- Map 1. Portion of Boiling Springs 15' Quadrangle.
- Map 2. Portion of Gold Fork 15' Quadrangle.
- Map 3. Portion of Deadwood Reservoir 15' Quadrangle.
- Map 4. Portion of Log Mountain 7.5' Quadrangle.
- Map 5. Portion of Boise National Forest Map.
- Map 6. Portion of Boise National Forest Map.
- Map 7. Portion of Payette National Forest Map.
- Map 8. Portion of Payette National Forest Map.
- Map 9. Portion of Paddy Flat 7.5' Quadrangle.
- Map 10. Portion of Wolf Fang Peak 7.5' Quadrangle.
- Map 11. Portion of Burgdorf 15' Quadrangle.
- Map 12. Portion of Burgdorf 15' Quadrangle.

APPENDIX V

Slides of Douglasia idahoensis and habitat.

1. Douglasia idahoensis close-up.
2. Douglasia idahoensis close-up.
3. Douglasia idahoensis mat on granitic scree.
4. Rice Peak site - Douglasia idahoensis occurs on unstable slopes in this north-facing snow transfer area.
5. Rice Peak site overview - Douglasia idahoensis occurs in several of the open scree areas in the center of the photograph.
6. Rice Peak site - Douglasia idahoensis occurs on this unstable scree slope.
7. Scott Mountain site - Douglasia idahoensis occurs on unstable soil in opening within Abla/Cage habitat type.
8. Gold Fork site overview - Notice open aspect to the subalpine fir - whitebark pine woodlands on this highly erodible scree of the Idaho Batholith.
9. Gold Fork site - Looking down unstable slope within Abla/Cage habitat type. Douglasia idahoensis occurs in foreground.
10. Gold Fork site - Douglasia idahoensis is scattered throughout this opening within Abla/Cage habitat type.