

FIELD INVESTIGATIONS OF ALLIUM VALIDUM (TALL SWAMP ONION)  
AND DOUGLASIA IDAHOENSIS (IDAHO DOUGLASIA),  
REGION 1 SENSITIVE SPECIES,  
ON THE NEZ PERCE NATIONAL FOREST.

by

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## ABSTRACT

Field investigations of Allium validum (tall swamp onion) and Douglasia idahoensis (Idaho douglasia) were carried out on the Nez Perce National Forest by the Idaho Department of Fish and Game's Natural Heritage Program. The investigation was a cooperative Challenge Cost-share project between the Department and the Nez Perce National Forest.

Both species are on the Region 1 Sensitive Species List. Evidence for tall swamp onion occurring on the Nez Perce NF is vague and ambiguous. Not surprisingly then, none was located during searches in potential habitat in the Gospel-Hump, Selway Crags, and Elk Mountain areas. It is recommended that tall swamp onion be downgraded from a Sensitive Species to a Watch Species for both the Nez Perce and Bitterroot NFs.

Two populations of Idaho douglasia were known on the Nez Perce NF prior to 1989. Both of these populations were relocated and three new ones were discovered. Three of the five known from the Forest are extensive, while two are small and restricted. Two development projects are expected to impact three Idaho douglasia populations, however, this impact is not considered significant if recommended actions are implemented to minimize the disturbance. Idaho douglasia remains a rare species, with 11 populations occurring at six widely separated sites. It is recommended that it remain a Category 2 candidate and a Region 1 Sensitive Species for both the Nez Perce and Bitterroot NFs.

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## INTRODUCTION

The National Forest Management Act and Forest Service policy require that Forest Service land be managed to maintain populations of all existing native animal and plant species at or above the minimum viable population level. A minimum viable population consists of the number of individuals, adequately distributed throughout their range, necessary to perpetuate the existence of the species in natural, genetically stable, self-sustaining populations.

The Forest Service, along with other Federal and State agencies, has recognized the need for special planning considerations in order to protect the flora and fauna on the lands in public ownership. Species recognized by the Forest Service as needing such considerations are those that (1) are designated under the Endangered Species Act as endangered or threatened, (2) are under consideration for such designation, or (3) appear on a regional Forest Service sensitive species list.

Allium validum (tall swamp onion) and Douglasia idahoensis (Idaho douglasia) are on the Region 1 Sensitive Plant Species List for the Nez Perce NF (USDA Forest Service 1988a). Field investigations for these two species was conducted in August and September 1989, on the Nez Perce NF 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 two known populations of Douglasia idahoensis and search potential habitats on the Nez Perce NF for new populations.
- 2) Survey potential habitat for Allium validum on the Nez Perce NF.
- 3) Characterize habitat conditions for known populations.
- 4) Assess population trends and threats to existing populations and make management recommendations to the forests based on these assessments.

## RESULTS

During August 1989, Christine Lorain and Steve Caicco surveyed potential habitats in the Coolwater Ridge and Selway Crags areas for tall swamp onion. In September 1989, I surveyed the Gospel-Hump and Elk Mountain areas for both tall swamp onion and Idaho douglasia.

As explained later in this report, the evidence for tall swamp onion occurring on the Nez Perce NF is ambiguous and vague. Not surprisingly then, none of us found tall swamp onion on the Forest. This report makes a contribution toward a statewide status inventory for tall swamp onion. I also completed a status survey for it on the Boise NF this year (Moseley 1989). A recent search of regional herbaria reported two historically-known populations from the Payette NF. A status inventory needs to be completed on that Forest before we can gain a full understanding of its distribution and conservation status in Idaho.

After a thorough search of the Gospel-Hump for Idaho douglasia, only the historically known population on Square Mountain was located. On the ridges between Elk Mountain and Wylies Peak, however, I found four vigorous populations. This report completes a rangewide status survey for Idaho douglasia. A similar field investigation was completed on the Payette and Boise NFs in 1988 (Moseley 1988).

Following is a detailed discussion of each species, including information on their taxonomy and identification, range and habitat, conservation status, and recommendations concerning their status to the Regional Forester and Nez Perce NF.

Allium validum Wats.

CURRENT STATUS USFS Region 1 Sensitive Species (Nez Perce NF)  
USFS Region 4 Sensitive Species (Boise NF)  
USFWS - None  
Idaho Native Plant Society - Sensitive  
Heritage Rank - G4 S2

TAXONOMY

Family: Liliaceae (Lily)

Common Name(s): Tall swamp onion, Pacific onion, swamp onion

Citation: Watson, S. 1871. In: King, U.S. Geological Exploration of the 40th Parallel 5:350

Technical Description: Bulb elongate, 1 to 1.5 cm thick, terminating a thick Iris-like rhizome, inner coats reddish purple or whitish, outer coats brownish, membranaceous, minutely striate with elongate cells in regular vertical rows, not fibrous-reticulate, but with coarse, persistent, parallel fibers; leaves several, plane, obtuse, entire, 4 to 15 mm broad, shorter than the scape, green at anthesis, persistent at maturity; scape 3 to 7 dm tall, flattened and narrowly winged toward the apex; bracts of the spathe 2, united at base, membranaceous, broadly ovate, acute, 5- to 7-nerved; umbel several- (15- to 30-) flowered, pedicels slender, about equalling the perianth at anthesis, elongating and becoming stout in fruit; perianth segments 8 to 10 mm long, narrowly lanceolate, acuminate, entire, pink, withering in fruit, the midribs scarcely thickened; stamens much exceeding the perianth in length, filaments broadly dilated below and united into a cup at the base, anthers oblong, obtuse, purplish or yellowish; ovary crestless, style subulate, exerted, stigma capitate, entire, capsules mostly longer than broad, valves oblong, barely emarginate, seeds correspondingly long and slender, dull black, alveoli not pustuliferous (Ownbey 1950).

Nontechnical Description: As its common name indicates, tall swamp onion is relatively tall for a native onion, with the scape being from 3 to 7 dm tall, and it grows in subalpine wet meadows and seeps. Tall swamp onion has a thick Iris-like rhizome, in addition to the starchy bulb found in most Allium species. It forms dense clumps in sedge-dominated wet meadows and is easy to distinguish from surrounding vegetation, even in a vegetative state, by its flat, succulent, relatively wide, light green leaves. A capitate cluster with many bright pink flowers usually stands above the surrounding, mostly graminoid vegetation. Tall swamp onion flowers between mid-July and September. See Appendix 1 for a line drawing of tall swamp onion and Appendix 6 for slides of its habit and habitat.

Distinguishing Features and Similar Species: In Idaho, tall swamp onion is likely to be confused only with Allium brevistylum, which is smaller in stature and has stamens only half as long as the perianth segments. Allium brevistylum also differs by having a short style with a trifid stigma, and its capsules are broader than long with cordate valves, and shorter, thicker seeds, the alveoli on which are usually pustuliferous (Ownbey 1950).

## DISTRIBUTION

**Range:** Tall swamp onion occurs at medium and high elevations in the mountains of west-central Idaho, eastern Oregon and northeastern Nevada; in the Cascade Range from southern British Columbia, southward to northern California; in the Sierra Nevada as far south as Sequoia National Park; and in the Coast Ranges of southwestern Oregon and northwestern California.

In his monograph of Allium in Idaho, Ownbey (1950) listed two collections of tall swamp onion from the Trinity Mountain area of the Boise NF and one from the upper Hornet Creek drainage in the Cuddy Mountains of the Payette NF. Steele (1981) mentioned the Trinity Mountain area and the Selway River drainage of the Nez Perce NF as being known sites of tall swamp onion in his evaluation of the species for the Rare and Endangered Plants Technical Committee of the Idaho Natural Areas Council. Recent herbarium searches found another specimen from the Hornet Creek drainage (see Map 1 in Appendix 2 for an overview of the distribution of tall swamp onion in Idaho).

The evidence for tall swamp onion occurring on the Nez Perce NF is ambiguous and vague. The basis for its occurrence on the Nez Perce is a specimen deposited in the College of Forest, Wildlife and Range Sciences Herbarium at the University of Idaho (IDF). The label accompanying this specimen reads exactly as follows:

Range Herbarium No. 867

Allium validum Wats.

Locality: Selway

County: Clark

State: Idaho

Coll. L. Robinette

Date: [blank]

Det. C.W. Sharsmith

Date: May 1939

Since there is no widely-known landscape feature named Selway in Clark County, Steele (1981) assumed that the specimen was mislabeled, and the collector actually found it in the Selway River drainage, which lies within the Nez Perce and Bitterroot NFs. Clark County is in eastern Idaho, approximately 200 miles east of the nearest known populations of tall swamp onion on the Boise NF.

During Heritage Program rare plant inventories of the Coolwater Ridge and Selway Crags area in August 1989, Christine Lorain and Steve Caicco did not see any tall swamp onion. In searches of the Gospel-Hump and Elk Mountain-Wyilies Peak areas in September 1989, I also was unable to find any tall swamp onion populations.

Habitat and Associated Species: In the Boise Mountains of central Idaho, and the Elkhorn and Wallowa Mountains of northeastern Oregon, tall swamp onion occurs in graminoid-dominated wet meadows in the subalpine zone (Meinke 1978; Moseley 1989). This type of habitat is widespread on the Nez Perce NF, and elsewhere in central and northern

Idaho.

#### CONSERVATION STATUS

Conservation Status - Idaho: Bob Steele (1975) first recognized that tall swamp onion had a limited distribution in Idaho, in his catalogue of disjunct and endemic plants in central and southern Idaho. In his treatment of the species as part of the rare plant project of the Idaho Natural Areas Council (Steele 1981), he recommended that it be placed on the State Watch List for Idaho, remarking that it has a limited distribution in the state but does not appear to be threatened. He does note, however, that substantial increases in road construction and recreational impacts may eventually jeopardize at least two of the known populations. Tall swamp onion was placed on the Region 1 and 4 Sensitive Species Lists based on this recommendation (USDA Forest Service 1988a; 1988b).

It is currently considered a Sensitive species for Idaho by the Idaho Native Plant Society (Idaho Native Plant Society 1989). The Sensitive category of the Idaho Native Plant Society list refers to taxa with "small populations or localized distributions within Idaho that presently do not meet the criteria for classification as Priority 1 or 2, but whose populations and habitats may be jeopardized if current land use practices continue".

The Idaho Natural Heritage Program currently ranks tall swamp onion as G4 S2 (G4 = apparently secure globally, S2 = imperiled in Idaho because of rarity or because of other factors demonstrably making it very vulnerable to extirpation from the state).

#### Conservation Status - Elsewhere:

OREGON - Tall swamp onion was listed as rare in Oregon by the Oregon Rare and Endangered Plant Species Task Force in the mid-1970's (Meinke 1978). It is no longer considered rare in Oregon (Oregon Natural Heritage Data Base 1989).

BRITISH COLUMBIA - Tall swamp onion is considered rare in British Columbia by the British Columbia Rare Plant Program (Straley et al. 1985). It is classed as an R1 rare species in British Columbia, which is defined as "plant taxa that are represented by a single or few known populations, usually with only a few individuals in the populations."

Ownership: No tall swamp onion is known from the Nez Perce NF. All Idaho tall swamp onion populations known to be extant occur on the Boise NF. Two historical collections from the Cuddy Mountains are both on the Payette NF.

Threats: Not applicable to the Nez Perce NF, since it is not known to occur there.

Management Implications: Also not applicable to the Nez Perce NF, since it is not known to occur there.

## ASSESSMENT AND RECOMMENDATIONS

Summary: The evidence that tall swamp onion occurs on the Nez Perce NF is ambiguous and vague. No populations were encountered in 1989. Suitable habitat (subalpine wet meadows), however, is common on the Forest.

Recommendation to the Regional Forester: Because the evidence that tall swamp onion occurs on the Nez Perce NF is ambiguous and vague, and because we were unable to find any in 1989, I recommend that it be downgraded from a Sensitive Species to a Watch Species on the Region 1 Sensitive Species List. Given the evidence available, tall swamp onion has an equal chance of also occurring on the Bitterroot NF, since they manage a large portion of the Selway River drainage. I recommend that it be placed on the list of Watch Species for that Forest.

Recommendations to Nez Perce National Forest: Suitable habitat for tall swamp onion is abundant on the Nez Perce NF. It is unclear, however, whether it occurs on the Forest or not. Forest personnel should be made aware of its possible occurrence in their area.

Douglasia idahoensis D. Henderson

CURRENT STATUS    USFS Region 1 Sensitive Species  
                      USFS Region 4 Sensitive Species  
                      USFWS Category 2 Candidate Species  
                      Idaho Native Plant Society - None  
                      Heritage Rank - G1 S1

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 (Henderson 1981a).

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 1 for a detailed line drawing of Idaho douglasia and Appendix 6 for slides of its habit and habitat.

Distinguishing Features and Similar Species: No other species of Douglasia are known to occur on the Nez Perce National Forest. It should be noted, however, that Douglasia montana occurs in the Bitterroot Mountains, Montana, approximately 40 miles east, across the Selway River valley from the Elk Mountain - Wylies Peak populations. The following key can be used to distinguish the two species (from Henderson 1981a):

Involucral bracts (0)1-3; inflorescence of 1-2 (3) flowers, often one of these sessile ..... D. montana

Involucral bracts 5-7; inflorescence of 3-5 flowers, the pedicels well-developed ..... D. idahoensis

Idaho douglasia 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 most 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 1989, Idaho douglasia was known from seven populations on the Boise NF and two populations on the Nez Perce NF (Moseley 1988). The two known Nez Perce populations occurred in widely separated portions of the Forest; Square Mountain, in the center of the Gospel-Hump Wilderness, 26 miles southwest of Elk City; and Elk Mountain, near the southwestern edge of the Selway-Bitterroot Wilderness, 18 miles northeast of Elk City.

I relocated the Square Mountain population, but could find no other populations in the Gospel-Hump Wilderness in 1989. This substantiates the findings of Doug Henderson, Director of the University of Idaho Herbarium, and others who searched the Gospel-Hump Wilderness in the late 1970's, after discovering what he later described as Douglasia idahoensis (Henderson 1981a). The Square Mountain population is relatively small, restricted to a narrow band of suitable habitat around the summit.

The Elk Mountain area was a different case, however. In 1978, Henderson and fellow botanists from the University of Idaho relocated the site of several historical collections of Idaho douglasia on Elk Mountain. They found the population there to be quite large and more or less continuous on several of the ridges radiating from Elk Mountain. In addition to the Elk Mountain population, I found three more on ridges north of Elk Mountain in the Selway-Bitterroot Wilderness: a large population on Bilk Mountain, a small one on the ridge above Goat Lake, and a large one on the ridge north of Wylies Peak. The Elk Mountain, Bilk Mountain, and Wylies Peak populations are the largest known. See Appendix 2 for an overview of the distribution of Idaho douglasia and mapped locations of the populations on the Nez Perce NF. See Appendix 3 for Demographic data for the five Nez Perce NF populations.

Habitat and Associated Species: The habitats of Idaho douglasia on Square Mountain are quite different from those in the Elk Mountain

area. On Square Mountain, the area of highest population density occurs in a narrow band, generally on northeast-facing slopes, along the summit ridge. These are lee slopes, where wind-deposited snow accumulates and lies later into the summer than adjacent areas. Slopes are steep and the substrate is unstable, with a moderate degree of downslope movement. The population extends downslope in a few places on rock outcrops and in chutes. Elevations range from 8000 feet on the summit to about 7800 feet near the lower edge of the population.

Juncus drummondii is the dominant species in these areas, although there is considerable bare ground. Associated species include Antennaria lanata, Pedicularis contorta, Phyllodoce empetrififormis, Hieracium gracile, Arnica latifolia, Vaccinium scoparium, Pinus albicaulis, Xerophyllum tenax, Phlox diffusa, and Luzula hitchcockii.

A few plants can be found on the adjacent ridgetop and gentle southwest-facing slope of Square Mountain, generally in bare-soil areas between Xerophyllum tenax bunches. These microsites are runoff channels for spring and early summer snow melt. Open woodlands dominated by Pinus albicaulis and Abies lasiocarpa occur on these sites and are classified as the Vaccinium scoparium phase of the Abies lasiocarpa/Xerophyllum tenax habitat type (Cooper et al. 1987).

The Square Mountain population lies on the contact between two geologic substrates. The contact appears to coincide with the ridge crest over Square Mountain. The northeast slope, where the highest population density occurs, is underlain by undifferentiated rocks of the Precambrian Hoodoo Quartzite formation. The southwest slope of the mountain is underlain by igneous and metamorphic rocks of the Cretaceous Idaho Batholith (Mitchell and Bennett 1979).

Idaho douglasia in the Elk Mountain - Wylies Peak area occurs on north-, northwest-, and northeast-facing, open-grown whitebark pine - subalpine fir woodlands and open scree slopes on ridgelines and in avalanche chutes. It is rarely found on southerly-facing slopes, and where it does, population densities are low. Elevations range from 7826 feet on Elk Mountain to about 7200 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 plant communities are depauperate. Ground cover is low. The highest population densities of Idaho douglasia occur in areas of moderate instability, such as erosion channels created by snow runoff, wind blowouts on ridgelines, and trail cuts.

Communities in which Idaho douglasia occurs are undescribed, but would fall within the Pinus albicaulis - Abies lasiocarpa complex of habitat types sensu Cooper et al (1987). Associated species include Carex geyeri, Vaccinium scoparium, Luzula hitchcockii, Arenaria aculeata, Polygonum phytolaccaefolium, Poa gracillima, Pedicularis contorta, Eriogonum pyrolifolium, Phlox diffusa, Antennaria lanata, Juncus drummondii, Festuca viridula, Arenaria congesta, Anemone occidentalis, Campanula parryi, and Xerophyllum tenax. Another rare plant, Ivesia tweedyi, occurs with Idaho douglasia in two small areas around Elk Mountain.

The Elk Mountain, Bilk Mountain, and Goat Lake populations occur on

quartz monzonite of the Cretaceous Idaho Batholith. The Wylies Peak population occurs on Tertiary rocks mapped as undifferentiated pink granite and quartz monzonite, hornblende granite and granophyre (Greenwood and Morrison 1973; Mitchell and Bennett 1979).

#### CONSERVATION STATUS

Conservation Status - Idaho: Although three historical collections from Elk Mountain existed, Idaho douglasia was not recognized as a new species until Doug Henderson, Dick Bingham, and Chuck Wellner discovered the Square Mountain population in 1976. It was formally described as new to science in 1981 (Henderson 1981a). In his evaluation of the species as part of the Idaho rare plant project of the Idaho Natural Areas Council, Henderson (1981b) recommended a federal status of endangered, because of its rarity and the recreational impacts to known populations.

It was treated as a category 2 Candidate in the 1985 Federal Register list of candidate plant taxa (U.S. Fish and Wildlife Service 1985), and also will appear as a category 2 species on the new Federal Register list of candidates to be published soon. Because it is a candidate, it was included on both the Region 1 and Region 4 Sensitive Species list (USDA Forest Service 1988a; 1988b)

Since Idaho douglasia is a federal Category 2 candidate, no Idaho Native Plant Society category applies.

The Idaho Natural Heritage Program currently ranks Idaho douglasia as G1 S1 (G1 = Critically imperiled globally because of rarity or because of other factors demonstrably making it very vulnerable to extirpation; since it is endemic to Idaho, the state (S) rank = the global (G) rank).

Conservation Status - Elsewhere: Idaho douglasia is only known from Idaho.

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

Threats: As recognized by Henderson (1981b), recreational impacts represent a potential long-term threat to some populations on the Nez Perce NF. The Nez Perce NF is currently implementing a project to improve Forest Road 444, which terminates at the lookout on Square Mountain. A Sensitive Plant clearance was done on the project by the Idaho Natural Heritage Program and the Forest Service. It was determined that only about 25 plants would be impacted by the development (see Appendix 4 for detailed discussion impacts).

A project to reconstruct/relocate the Bilk Mountain Trail #517 is also planned. The Bilk Mountain Trail traverses both the Elk Mountain and Bilk Mountain populations. A Sensitive Plant clearance conducted by the Idaho Natural Heritage Program found that the trail largely traversed marginal habitats of these two populations. In the section that traverses a high density part of the population, on the summit of Bilk Mountain, little reconstruction will have to be done because of the relatively gentle slope. All in all, it was determined that the project

would not significantly impact these extensive populations (see Appendix 4 detailed discussion of impacts).

Management Implications: Idaho douglasia responds favorably to moderate levels of disturbance, including both natural processes such as sheet and gully erosion, and man-caused events such as road and trail construction, where it establishes on cut banks and fill slopes.

As stated in the previous section, two development projects are being implemented in three Idaho douglasia populations. Sensitive Plant clearances on both projects recommended several actions that the Forest should do to minimize impact to the species. Detailed recommendations are included in Appendix 4. To summarize, it was recommended that widening the road on Square Mountain should be minimized and no fill material should be placed on the northeast slope. A confined parking lot should be constructed to eliminate "wandering" vehicles around the lookout. It was also recommended that the Forest transplant individuals of Idaho douglasia immediately impacted by construction. At the Bilk Mountain population, every effort should be made to relocate the new trail around habitats containing a high density of Idaho douglasia.

#### 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. North of the Salmon River, five populations are known from two areas of the Nez Perce NF. These populations cover approximately 273 acres, and consist of several thousand individuals.

Throughout its range, populations are small in extent and isolated, occurring in widely separated areas of the central Idaho Mountains (see Map 2 Appendix 2). Three populations of the Nez Perce NF will be impacted by road and trail reconstruction/ relocation projects. Sensitive Plant clearances conducted for these projects determined that they will not significantly affect the long-term viability of the populations.

Recommendation to the U.S. Fish and Wildlife Service: Idaho douglasia remains a relatively rare species, with the populations or groups of populations occurring in widely separated areas. Since most of them are small, including the Square mountain population, the species as a whole remains vulnerable. Based on these data, I recommend that Idaho douglasia remain a Category 2 candidate.

Recommendation to the Regional Forester: Based on the rangewide status survey conducted by the Heritage Program, of which this investigation is a part, Idaho douglasia should be maintained on the Region 1 Sensitive Species List as a Sensitive Species. It should, however, be added to the Sensitive Species list for the Bitterroot NF, in addition to the Nez perce, since potential habitat exists in the upper Selway River drainage.

Recommendations to Nez Perce National Forest: All known sites of Idaho douglasia north of the Salmon River occur on public lands administered

by the Nez Perce NF. The Forest should carefully consider the impacts of its current and future management activities on the conservation status of the species. Results of the Sensitive Plant clearances done for the Square Mountain road and Bilk Mountain trail projects indicate the certain measures can be taken to minimize the impacts of those projects on the species.

I conducted a relatively thorough survey of potential habitat in the Gospel Peak, Buffalo Hump and Elk Mountain - Wylies Peak areas (see Appendix 5 for mapped of areas unsuccessfully searched for Idaho douglasia). I highly recommend that a search be conducted of the Vermillion Peak - Indian Peak - Grave Meadow Peak area, west of Elk and Bilk Mountains.

Since most of the populations throughout its range occur in isolated sites that are hard to predict, additional clearance surveys should be conducted for any management activities taking place in potential Idaho douglasia habitat (as outlined in the Habitat and Associated Species section) in other parts of the Forest. Forest personnel, especially those working in Wilderness areas, should be informed of the occurrence of Idaho douglasia in their area. 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.

Formal monitoring of the Square Mountain population would be desirable, since it is small, and has an increased potential to be negatively impacted by vehicle and foot traffic after the road is reconstructed.

## DISCUSSION AND OVERALL RECOMMENDATIONS

Tall swamp onion was not found on the Nez Perce NF in 1989. Available evidence is ambiguous, but suggests that it may occur in the Selway River drainage somewhere. I expanded our knowledge of the distribution of Idaho douglasia by finding three new populations on the Nez Perce NF. There is a good chance that additional populations will be discovered, with considerable potential habitat remaining to be searched in the relatively remote country in the Meadow Creek and upper Selway River drainages.

### Need for Additional Data

Land managers and field personnel on the Nez Perce NF should be informed of the possible occurrence of tall swamp onion and Idaho douglasia in their areas. Possible sightings of these plants should be documented by specimens (if size of the population warrants collecting), and should include both flowers and roots. Specimens should be sent to the University of Idaho Herbarium (Department of Biological Sciences, University of Idaho, Moscow, ID 83843; 208/885-6798) for verification of their identity. Confirmed sightings of these species should be reported to the Idaho Natural Heritage Program for entry into their permanent data base on sensitive species.

### Summary of Conservation Status Recommendations

#### Allium validum

- o remain on R1 Sensitive Species List, but be downgraded from Sensitive to Watch
- o added to the Bitterroot NF list, in addition to Nez Perce NF

#### Douglasia idahoensis

- o remain a Category 2 Candidate
- o remain a R1 Sensitive Species, as Sensitive
- o added to the Bitterroot NF list, in addition to Nez Perce NF

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## Appendix 1

Line drawings of Allium validum (from Ownbey 1969)  
and Douglasia idahoensis (from Henderson 1981a).

## Appendix 2

Distribution of Allium validum and Douglasia idahoensis.

- Map 1. Overview of the distribution of Allium validum in Idaho.
- Map 2. Overview of the distribution of Douglasia idahoensis in Idaho.
- Map 3. Location of the Douglasia idahoensis population on Square Mountain. Portion of 1963 Marble Butte 7.5' quadrangle.
- Map 4. Portion of 1981 Nez Perce National Forest map showing the distribution of Douglasia idahoensis in the Elk Mountain - Wylies Peak area.
- Map 5. Location of the Douglasia idahoensis populations on Elk Mountain and Bilk Mountain. Portion of 1966 Running Lake 7.5' quadrangle.
- Map 6. Location of the Douglasia idahoensis population on above Goat Lake. Portion of 1966 Running Lake 7.5' quadrangle.
- Map 7. Location of the Douglasia idahoensis population on Wylies Peak. Portion of 1966 Wylies Peak 7.5' quadrangle.

### APPENDIX 3

#### Demographic data for the five Nez Perce National Forest Douglasia idahoensis populations.

##### 1. Square Mountain

- a. Location:
- b. Area: 11 acres
- c. Number of plants: ca. 1500 in 1989
- d. Density: Mostly high; low on edges of population.
- e. Evidence of expansion/contraction: Road and lookout have been constructed within the population; some habitat has been lost.

##### 2. Elk Mountain

- a. Location:
- b. Area: 163 acres
- c. Number of plants: 10,000+ in 1989
- d. Density: Mostly high.
- e. Evidence of expansion/contraction: Trail #517 traverses population.

##### 3. Bilk Mountain

- a. Location:
- b. Area: 75 acres
- c. Number of plants: 10,000+ individuals in 1989.
- d. Density: Moderate to high.
- e. Evidence of expansion/contraction: Trail #517 traverses population.

##### 4. Goat Lake

- a. Location:
- b. Area: 5 acres
- c. Number of plants: ca. 1000 individuals in 1989.
- d. Density: Moderate.
- e. Evidence of expansion/contraction: Trail #602 traverses population.

##### 5. Wylies Peak

- a. Location:
- b. Area: 19 acres
- c. Number of plants: several thousand in 1989.
- d. Density: moderate to high.
- e. Evidence of expansion/contraction: None.

APPENDIX 4

Sensitive Plant clearance reports for the Square Mountain road reconstruction and Bilk Mountain Trail reconstruction/relocation.

APPENDIX 5

Maps of areas unsuccessfully searched for Douglasia idahoensis on the Nez Perce National Forest.

- Map 1. Round Top and Gospel Peak areas. Portion of 1963 Hanover Mtn. 7.5' quadrangle.
- Map 2. Gospel Hill - Pyramid Peak area. Portion of 1963 Sawyer Ridge 7.5' quadrangle.
- Map 3. Square Mountain area. Portion of 1963 Marble Butte 7.5' quadrangle.
- Map 4. North Pole area. Portion of 1979 North Pole 7.5' quadrangle.
- Map 5. Buffalo Hump area. Portion of 1979 Buffalo Hump 7.5' quadrangle.
- Map 6. Windy Saddle area. Portion of 1966 Running lake 7.5' quadrangle.
- Map 7. Burnt Knob area. Portion of 1979 Sabe Mountain 7.5' quadrangle.

APPENDIX 6

Slides of Allium validum and Douglasia idahoensis and their habitats.

- 1. Allium validum close-up. Note exerted stamens.
- 2. Allium validum habitat in the Boise Mountains; subalpine wet meadows dominated largely by graminoids.
- 3. Douglasia idahoensis close-up of whole plant. Note cushion habit, mass of pink flowers, and relatively succulent leaves.
- 4. Douglasia idahoensis habitat on Square Mountain; highest density of population occurs in Juncus drummondii-dominated area from ridgecrest on left, downslope to where Xerophyllum tenax increases in cover.
- 5. Douglasia idahoensis habitat on Elk Mountain; relatively gentle ridgeline in area of wind erosion. Note large douglasia clumps in foreground.
- 6. Douglasia idahoensis plant (foreground) on edge of road near Square Mountain Lookout.
- 7. Douglasia idahoensis plants on edge of Bilk Mountain Trail near Elk Mountain. Note beer can for scale.