

FIELD INVESTIGATION OF TAUSCHIA TENUISSIMA  
A REGION 1 SENSITIVE SPECIES  
ON THE CLEARWATER NATIONAL FOREST

by

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November 1989

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Idaho Department of Fish and Game  
Purchase Order No. 43-0276-9-0218

#### ABSTRACT

A field investigation of *Tauschia tenuissima* (Leigberg's *tauschia*) was carried out on the St. Joe National Forest (the portion administered by the Clearwater 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 Clearwater National Forest.

Leigberg's *tauschia*, a Region 1 Sensitive Species, is a regional endemic to northern Idaho and possibly northeastern Washington. Within Idaho, Leigberg's *tauschia* is now known from the western edge of the Clearwater Mountains from Emida to Helmer, along the St. Maries and Potlatch Rivers, and from Weippe Prairie. Most of these populations are located in private meadows, often surrounded by National Forest. Only five populations were actually located on lands administered by the Clearwater National Forest.

Twenty-one new populations from 18 sites were documented during the 1989 field season. One historical site was relocated and at least five sites have been extirpated. Within its limited distributional range the species is abundant. Most populations observed this year consisted of greater than 10,000 individuals. Although cultivation poses a threat to Leigberg's *tauschia*, no significant threats presently exist to the long-term viability of the species.

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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.

Tauschia tenuissima (Leiberg's tauschia) is a regional endemic to the interior Pacific Northwest. This species is presently listed as a Region 1 Sensitive Species. During the 1989 field season an investigation of this species was conducted 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) Relocate and survey known populations, potentially extirpated populations, and historical collection sites of Tauschia tenuissima in northern Idaho.
- 2) Survey for potential habitats and new populations on the National Forest lands.
- 3) Acquire population data and 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.



Prior to the 1989 field season, Tauschia tenuissima was known in Idaho from ten extant populations, three sites that were believed to be extirpated, and two historical sites dating back to the 1930's. Information regarding Leigberg's tauschia in Washington indicates that this species occurs very locally in the northeastern portion of the state from just south of Spokane to the Pullman area. Tauschia tenuissima has apparently not been collected in Washington since 1916, when Wilhelm Suksdorf found it along Latah Creek near Spangle, in Spokane County (Schlessman and Gilmartin 1979). As of 1988 the Washington Natural Heritage Program considers this species to be extirpated from the state (Gamon 1988).

Two principle objectives of the 1989 field season were to (1) attempt to relocate historical and extirpated populations, and (2) search for suitable habitats within northern Idaho for new populations.

One of the two historical sites was relocated during the 1989 field season. For documentation the two sites were:

- 1) 6 miles west of Elk River, Clearwater Co. - 1937
- 2) Weippe Prairie, Clearwater Co. - 1937 ?

All of the potential meadows west of Elk River were thoroughly searched, with no success. This population is now believed to be extirpated. The Weippe Prairie population was relocated and proved to be extremely large, extending over much of the prairie. This was the largest populations documented and consisted of several 100,000 individuals.

The three possibly extirpated populations were searched this year and in previous years with no success. In addition, two more populations previously listed as extant, were not relocated and are now considered to be extirpated. Below is a list of these five sites (excluding the Elk River historical location):

- 1) 1 mile east of Joel along RR, Latah Co. - 1946
- 2) 5 miles east of Moscow, Latah Co. - 1955
- 3) Ownbey property just W of Harvard, Latah Co. - 1988
- 4) about 1 mile NW of Deary, Latah Co. - 1978
- 5) Meadows south of Plummer, Benewah Co. - 1949

Most of the extirpated sites fall within the Palouse Prairie along railroads or other highly disturbed areas. A combination of cultivation, herbicides, housing development, and invasion of reed canarygrass (Phalaris arundinacea) are the likely causes of extirpation at these locations.

As of 1989 a total of 30 populations at 27 sites has been documented (see Appendix II and III for maps and demographic data). Included in this number are eight previously extant populations and one historical population that were successfully relocated. Additionally, 21 new populations at 18 sites were located during the 1989 field season, 13 of which supported over 10,000 individuals with sizable areas of suitable habitat in the immediate vicinity. The majority of these populations were located in meadows and river floodplains between St. Maries and Bovill, Idaho. Virtually all of the meadows in this vicinity supported Tauschia populations.

Habitat and Associated Species: Leigberg's tauschia occupies grassy openings in moist to wet habitats. This includes meadows, river floodplains, and streambanks. Generally the areas are flat, although a few sites were found on moderate slopes with perched water tables. The soils are productive silt/loams (loess) or alluvium.

Some sites are known from the Palouse region, however, the best sites are presently known from areas farther east where the meadows are surrounded by mixed coniferous forests of Abies grandis, Pseudotsuga menziesii, Pinus monticola, Larix occidentalis, and Pinus contorta. Such forests would key to the Abies grandis habitat types (Cooper et al. 1988). The species can even inhabit cold air drainages with scattered Abies lasiocarpa, although this is rare. The commonly associated species are mosses, Sisyrinchium inflatum, Achillea millefolium, Collinsia parviflora, Potentilla gracilis, Ranunculus glaberrimus, R. orthorhynchus, and Fragaria virginiana. The best indicator species of potential

habitat, and a species that is easily distinguishable from a distance, is Sisyrinchium inflatum (purple-eyed grass). This "grass" is actually a member of the iris family and tends to grow in dense colonies, forming extensive purple-blue colored fields. If Sisyrinchium is present in a meadow, chances are extremely good that Tauschia tenuissima will also be there. Later in the season, these same habitats are often filled with another blue-flowered plant, Camassia quamash (common camas).

#### STATUS

Ownership: The majority of the Tauschia populations are located on privately-owned land. Only five of the populations occurred on National Forest lands; West Fork Potlatch River (#9), Hog Creek (#14), Little Boulder Campground (#15), plus Vassar and Smith Meadows (#20)(refer to demographic data in Appendix III). All of these are on the portion of the St. Joe National Forest that is administered by the Clearwater National Forest.

All of the additional populations occur on private lands that are near, or adjacent to, National Forest land. As mentioned previously, this species inhabits meadows and river bottoms, the preferred sites of early settlement. It is not uncommon to find a privately-owned meadow surrounded by National Forest, with Tauschia more or less confined to the private meadow.

Threats: Cultivation is the principle threat to Leigberg's tauschia. The habitat that this species prefers tends to have rich soils that are desirable for cultivation. Within the same meadow one could find dense fields of Leigberg's tauschia on one side of a fencerow and no plants on the adjacent side. When I questioned farmers about this, I was invariably told that the field had at one time been cultivated. Such activity undoubtedly disrupts the tubers and seems to eliminate the plant.

Coincident with cultivation is the application of chemical sprays and invasion of exotic weeds. It is unknown how many populations have been lost due to chemicals, however, reed canarygrass (Phalaris arundinacea) seems to have been responsible for the extirpation of at least 4 populations of Leigberg's tauschia.

Light to heavy grazing has occurred on most of these sites at one time or other. Fortunately, this activity does not seem to be deleterious to Tauschia populations. Most of the populations located this spring were in grazed pastures (domestic and/or wild game). Moreover, many of these sites are used as overwintering pastures and receive heavy activity in the early spring.

Management Implications: For the most part, existing land-use of habitat containing populations of Tauschia tenuissima appears compatible with its long-term viability. This is especially true on those lands administered by the National Forests. Most of these meadows are presently allocated for grazing, which seems to pose no significant threat to the species.

#### ASSESSMENT AND RECOMMENDATIONS

Summary: Despite the apparent relatively narrow distribution of Tauschia tenuissima, there does not appear to be any immediate concern for the vigor or conservation status of the species. Based on current knowledge, it occurs in northern Idaho along the western edge of the Clearwater Mountains from Emida to Helmer, and along the St. Maries and Potlatch Rivers. A population is also known from Weippe Prairie and vicinity. Within this range it is an abundant member of uncultivated moist, meadow habitats. Although cultivation poses a threat to Leigberg's tauschia, no significant threats to the long-term viability of the species exist now and none are foreseen.

Recommendations to the U.S. Fish and Wildlife Service: Leigberg's tauschia is listed presently as a Category 3c species with the Fish and Wildlife Service. This listing includes former candidate taxa that have proven to be more widespread or abundant than previously believed, or are not subject to identifiable threats. Although Leigberg's tauschia is a regional endemic, this survey indicates that it is extremely abundant within its local distribution. Many hundreds of thousands of

plants were found in 1989. Therefore, I recommend that this species remain as a Category 3c listing. Should further research or changes in land use indicate significant decline in Leigberg's *tauschia*, the species should be reevaluated.

Recommendations to the Clearwater National Forest (administrators for this portion of the St. Joe NF): Because of the apparent abundance of Leigberg's *tauschia*, I recommend that it be dropped from the Region 1 Sensitive Plant Species list for the St. Joe National Forest. Only five populations were located on National Forest land and present land use (principally grazing) appears to be compatible with the long-term viability of this species.

Land managers and field personnel on the Clearwater National Forest should be informed of the occurrence of this *Tauschia tenuissima* in their areas. Possible sightings of this plant should be documented by specimens (if the size of the population warrants collecting), and should include both flowers and roots. Specimens should be sent to the University of Idaho Herbarium for verification of their identity. Confirmed sightings of Leigberg's *tauschia* should be submitted to the Idaho Natural Heritage Program for entry into their permanent data base on sensitive species.

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Appendix I

Line drawings of Tauschia tenuissima  
(taken from Mathias and Constance 1973)

Appendix II

Maps of precise occurrences of  
Tauschia tenuissima

- Map A. Portion of Emida 7.5' quadrangle
- Map B. Portion of Fernwood 15' quadrangle
- Map C. Portion of Fernwood 15' quadrangle
- Map D. Portion of Bovill 15' quadrangle
- Map E. Portion of Bovill 15' quadrangle
- Map F. Portion of Bovill 15' quadrangle
- Map G. Portion of Deary 15' quadrangle
- Map H. Portion of Pierce 7.5' quadrangle
- Map I. Portion of Weippe North 7.5' quadrangle
- Map J. Portion of Weippe South 7.5' quadrangle
- Map K. Portion of Rudo 7.5' quadrangle

Appendix III

Demographic data for 27 Tauschia tenuissima  
sites in northern Idaho.

(Total of 30 populations at 27 sites)

\* - previously known and documented populations

1. Emida/Santa Creek
  - a. Location:
  - b. Area: 50 acres
  - c. Number of plants: 10,000+ plants in 1989
  - d. Density: Moderate to High
  - e. Evidence of expansion/contraction: No evidence
2. Emida/Charlie Creek
  - a. Location:
  - b. Area: 2-5 acres
  - c. Number of plants: 10,000+ plants in 1989
  - d. Density: High
  - e. Evidence of expansion/contraction: No evidence
- \* 3. St. Maries River/RR tracks
  - a. Location:
  - b. Area: 2-5 acres
  - c. Number of plants: 10,000 plants in 1989
  - d. Density: Moderate
  - e. Evidence of expansion/contraction: from  $<10 \text{ yd}^2$  to 2-5 acres
4. Santa/Renfro Creek
  - a. Location:
  - b. Area: 10-100 yds<sup>2</sup>
  - c. Number of plants: 1001-10,000 plants in 1989
  - d. Density: Moderate
  - e. Evidence of expansion/contraction: No evidence
- \* 5. Hatton Creek/Pierce Creek
  - a. Location:
  - b. Area: 50 acres
  - c. Number of plants: 10,000+ plants in 1989
  - d. Density: High
  - e. Evidence of expansion/contraction: No evidence
- \* 6. Emerald Creek
  - a. Location:
  - b. Area: 10 yds<sup>2</sup>
  - c. Number of plants: 11-50 plants in 1989
  - d. Density: Low
  - e. Evidence of expansion/contraction: No evidence, presence of horse grazing
- \* 7. Clarkia "Main Street"
  - a. Location:
  - b. Area: 200 acres
  - c. Number of plants: 10,000+ plants in 1989.
  - d. Density: High
  - e. Evidence of expansion/contraction: No evidence
8. Fossil Bowl Racetrack
  - a. Location:
  - b. Area: 2-5 acres
  - c. Number of plants: 1001-10,000 plants in 1989
  - d. Density: Moderate to High
  - e. Evidence of expansion/contraction: No evidence
9. West Fork Potlatch River (USFS lands)
  - a. Location:
  - b. Area: 5 acres
  - c. Number of plants: 10,000+ plants in 1989
  - d. Density: High
  - e. Evidence of expansion/contraction: No evidence
10. Moose Meadow
  - a. Location:
  - b. Area: 100 acres
  - c. Number of plants: 10,000+ plants in 1989

- d. Density: High
  - e. Evidence of expansion/contraction: No evidence
11. Bovill
- a. Location:
  - b. Area: 100 acres
  - c. Number of plants: 10,000+ plants in 1989
  - d. Density: High
  - e. Evidence of expansion/contraction: No evidence
12. Fry Creek
- a. Location:
  - b. Area: 10-100 yd<sup>2</sup>
  - c. Number of plants: 1001-10,000 plants in 1989
  - d. Density: Moderate to High
  - e. Evidence of expansion/contraction: No evidence
13. McGary Butte Road
- a. Location:
  - b. Area: 1-2 acres
  - c. Number of plants: 1001-10,000 plants in 1989
  - d. Density: High
  - e. Evidence of expansion/contraction: No evidence
- \* 14. Hog Meadow/Hog Meadow Creek (USFS lands along creek)
- a. Location:
  - b. Area: 500+ acres
  - c. Number of plants: 10,000+ plants in 1989
  - d. Density: Moderate to High
  - e. Evidence of expansion/contraction: No evidence
- \* 15. Little Boulder Campground (USFS land)
- a. Location:
  - b. Area: 2-5 acres
  - c. Number of plants: 51-100 plants in 1989
  - d. Density: Low
  - e. Evidence of expansion/contraction: No evidence
16. FS Road #3332
- a. Location:
  - b. Area: 10-100 yds<sup>2</sup>
  - c. Number of plants: 1001-10,000 plants in 1989
  - d. Density: High
  - e. Evidence of expansion/contraction: No evidence
17. Erickson Meadows
- a. Location:
  - b. Area: 100 acres
  - c. Number of plants: 10,000+ plants in 1989
  - d. Density: High
  - e. Evidence of expansion/contraction: No evidence
18. Shea Meadows
- a. Location:
  - b. Area: 50 acres
  - c. Number of plants: 10,000+ plants in 1989
  - d. Density: High
  - e. Evidence of expansion/contraction: No evidence
19. Tee Meadows
- a. Location:
  - b. Area: 30 acres
  - c. Number of plants: 1001-10,000 plants in 1989
  - d. Density: Moderate to High
  - e. Evidence of expansion/contraction: No evidence
20. Vassar Meadow/Smith Meadow (USFS land)
- a. Location:

- b. Area: 100 acres
  - c. Number of plants: 2 populations, each of 10,000 plants in 1989
  - d. Density: High
  - e. Evidence of expansion/contraction: No evidence
21. Vassar/Stanford/Avon
- a. Location:
  - b. Area: 30 acres
  - c. Number of plants: 3 populations of 10,000 plants (Stanford), 51-100 plants (Vassar, and 1001-10,000 plants (Avon) in 1989
  - d. Density: High
  - e. Evidence of expansion/contraction: No evidence
- \* 22. Big Bear Creek
- a. Location:
  - b. Area: 10 yds<sup>2</sup>
  - c. Number of plants: 1000-10,000 plants in 1989
  - d. Density: High
  - e. Evidence of expansion/contraction: No evidence
- \* 23. Weippe Prairie
- a. Location:
  - b. Area: 500+ acres
  - c. Number of plants: 500,000+ plants in 1987
  - d. Density: High
  - e. Evidence of expansion/contraction: No evidence
24. Grasshopper Creek
- a. Location:
  - b. Area: 50 acres
  - c. Number of plants: 10,000+ plants in 1989
  - d. Density: High
  - e. Evidence of expansion/contraction: No evidence
25. Johnsons Mill
- a. Location:
  - b. Area: 30 acres
  - c. Number of plants: 10,000+ plants in 1989
  - d. Density: High
  - e. Evidence of expansion/contraction: No evidence
26. Battles Mill
- a. Location:
  - b. Area: 1 acre
  - c. Number of plants: 100-1000 plants in 1989
  - d. Density: Moderate
  - e. Evidence of expansion/contraction: No evidence
27. Cook Creek Meadow
- a. Location:
  - b. Area: 1 acre
  - c. Number of plants: 101-1000 plants in 1989
  - d. Density: Moderate
  - e. Evidence of expansion/contraction: No evidence

Appendix IV

Slides of Tauschia tenuissima and its habitat.