

FIELD INVESTIGATIONS
OF SELECTED SENSITIVE PLANT SPECIES
ON THE NEZ PERCE NATIONAL FOREST

Carex californica (California sedge)
Ivesia tweedyi (Tweedy's ivesia)
Synthyris platycarpa (evergreen kittentail)
Dasynotus daubenmirei (Daubenmire's dasynotus)
Astragalus paysonii (Payson's milk-vetch)

by

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December 1989

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Boise, Idaho
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Cooperative Challenge Grant Project
Nez Perce National Forest
Idaho Department of Fish and Game
Purchase Order No. 43-0295-9-0507

ABSTRACT

Field investigations were conducted for five plant species of historical occurrence along Coolwater Ridge and in the Fog Mountain area on the Nez Perce National Forest. These five species included Carex californica, Ivesia tweedyi, Synthyris platycarpa, Dasynotus daubenmirei, and Astragalus paysonii. All but Ivesia tweedyi are U.S. Forest Service Region 1 Sensitive Species. The results were as follows:

Two populations of Carex californica were located. One of these, comprised of only two small patches lies east of the fire lookout tower on Coolwater Mountain. The second population, which lies on Fog Mountain is far more extensive and the plants are locally abundant. Other areas of potential habitat in the vicinity were identified for future inventory. It is recommended that the species be retained on the Sensitive Plant list until further data on its range and abundance are available.

Five populations of Ivesia tweedyi were encountered by botanists working on the Nez Perce National Forest during the 1989 field season. Three of these lie in the vicinity of Big Fog Mountain. The other two lie to the south near Elk Mountain. One population in the latter area had between 1500-2000 plants. The largest population in the Big Fog Mountain area was comprised of several hundred plants. All other populations had less than 100 individuals. No immediate threats were identified to any of the populations. It is recommended that the species be not be included on the Sensitive Plant list unless further data on its range and abundance suggest that such listing is appropriate.

Numerous patches of Synthyris platycarpa were found along Coolwater Ridge between Andys Hump and the saddle to the east of Coolwater Mountain. No imminent threats were identified to any of the patches. Because of the localized distribution of this Idaho endemic, it is recommended that the species be retained on the Sensitive Plant list, but assigned a low priority due to the lack of a significant identifiable threat.

Neither Dasynotus daubenmirei nor Astragalus paysonii were encountered during the course of the inventory.

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INTRODUCTION

Field investigations of five U.S. Forest Service Region 1 Sensitive Plant Species were a cooperative effort between the Idaho Department of Fish and Game's Natural Heritage Program through the Challenge Cost Share Program. The five species were chosen because of their historical occurrence along Coolwater Ridge and in the vicinity of Fog Mountain on the Nez Perce National Forest.

Two of the species, Carex californica and Ivesia tweedyi disjunct in northern Idaho where they are known to occur at only a few localities. Two additional species, Synthyris platycarpa and Dasynotus daubenmirei are endemic to the Clearwater River drainage of northern Idaho, and both have a highly localized distribution. The fifth species, Astragalus paysonii has a center of distribution along the southeastern Idaho/southwestern Wyoming border, but disjunct populations of the the species have been reported as far north as Coolwater Ridge.

The primary objectives of the investigation were as follows:

- 1) to determine the distribution, abundance, and habitat of the five species in the Coolwater Ridge-Fog Mountain area of the Nez Perce National Forest;
- 2) to assess possible threats to the continued existence of viable populations of these species in the area, and to discuss the implications of current Forest Service management policies on the maintenance of these populations.

Carex californica L.H. Bailey

CURRENT STATUS USFS Region 1: Sensitive Species
US Fish & Wildlife Service Status: None
Heritage Rank: G5S2?
Idaho Native Plant Society List: Review

TAXONOMY

Family: Cyperaceae (Sedge)

Common Name: California sedge

Citation: Memoirs Torrey Botanical Club 1:9. 1889.

Nontechnical Description: Stems arising singly or few together from long, coarse, scaly, creeping rhizomes, 2-7 dm in height, lowest leaves strongly reduced to scales, with purplish or reddish-brown, nearly bladeless basal sheaths. Foliage leaves are flat, 2-5 mm in width, and are borne distinctly on the stem; the upper surface of the leaves is smooth and shiny, but the lower surface is pale and densely covered with minute glands.

The inflorescence is sometimes very loose and open, and sometimes more closely-flowered; several slender spikes are usually borne erectly on relatively short peduncles. The terminal one or two spikes are staminate, or may also have pistillate flowers, and are mostly 1.5-3 cm in length. Other spikes range between 1-5 cm in length, and have between 10-35 pistillate (only) flowers. Bract which subtends the lower/lowest spikes with well-developed sheath mostly 1-4 cm in long, shorter than the inflorescence.

Technical Description: See Hitchcock et al., 1969, page 251; also see illustration on page 252.

Distinguishing Features and Similar Species: The strong reduction of the lowest leaves to scales, the foliage leaves borne distinctly on the stem, and the densely-glandular lower leaf surface serve as useful characters in distinguishing Carex californica from other species with similar technical descriptions. These and the finely and densely-glandular papillate perigynia are a useful character in the field.

DISTRIBUTION

Range: The California sedge is a Pacific Coastal species with the majority of its range occurring west of the crest of the Cascade Range from northern WA to northern CA. It was first reported from northern ID by Mackenzie (Hitchcock et al., 1969). It is known from the Clearwater and Nez Perce National Forests (Brunsfeld, 1981), and has also been reported from a site on the Coeur d'Alene and St. Joe National Forests (Caicco, 1988).

Habitat and Associated Species: Throughout most of its range, Carex californica is known from wet prairies and brushy slopes, from near sea-level to nearly 4,000 feet in altitude. Idaho sites are mountain peaks which range from 6000-7000 feet. The habitat in which the species is found along Coolwater Ridge and at the summit of Fog Mountain (6,559 ft) is an open rocky meadow where it occurs with Carex geyeri, Phlox diffusa, and Juncus drummondii. Scattered stunted trees of Abies lasiocarpa, Pinus contorta, and (infrequently) Pinus ponderosa are present. At Fog Mountain, the California sedge also occurs in openings within forests dominated by Abies lasiocarpa at elevations above 6,300 feet.

RESULTS OF FIELD INVENTORY

Two sites on the Nez Perce National Forest were documented by specimens for this species. These are based on the following collections:

L. Constance and F.W. Pennell 1993. July 13, 1937. Idaho Co. Forming a dry meadow, 6900 ft, Hudsonian, dry north end of summit of Coolwater Mountain (at junction of the Selway and Lochsa Rivers) (WTU)

J.H. Christ 51-517 July 14, 1951. Idaho Co. Fog Mt. (ID)

Both the Coolwater Mountain and Fog Mountain population were relocated during the 1989 field season. The Coolwater Mountain population (Map 1, Appendix I) is comprised of two small circular patches amid granitic outcrops; tree islands of Abies lasiocarpa are common in the area, although the California sedge patches are exposed to full sun. The first of these patches is about 4 feet in diameter. The second is about half the size of the first.

On Fog Mountain the California sedge is far more abundant (Map 2, Appendix I). Patches of it can be found growing in open areas along the ridge connecting the two peaks of Fog Mountain, and also along the ridge which extends toward the northeast. Patches of it can also be seen growing along the road above an elevation of about 6300 feet. Locally it has spread into less-used portions of the roadway.

STATUS

Ownership: The ridgeline along which the population on Coolwater Ridge lies is the administrative boundary between the Nez Perce and Clearwater National Forests. The Fog Mountain population lies entirely on the Nez Perce National Forest.

Threats: Unknown. The species appears to have a limited ability to spread into disturbed areas, although the conditions under which it can do so are not known.

Management Implications: The effects of current management practices in the vicinity of these populations on the viability Carex californica do not appear to be detrimental. The two small patches present on Coolwater Ridge may be the remnants of a larger colony destroyed during the construction of one of the several fire lookout towers which have occupied the site for many years.

At Fog Mountain, several roads cut through portions of the population. While the sedge may be found along the edges of these roads, it does not invade the roadbed itself under current use levels. This impacts of these roads on the population appear to be negligible.

The open nature of the habitat where the California sedge occurs is controlled by periodic fires in the subalpine forests of the area. Long-term maintenance of a viable population of the California sedge in these areas may require a prescribed burn.

STATUS ASSESSMENT AND RECOMMENDATIONS

Summary: Carex californica, a Pacific coastal disjunct, has been recorded at only three sites in the northern Rocky Mountains; all three of these sites are on lands managed by the U.S. Forest Service. Two of the sites lie on the Nez Perce National Forest, where current management practices do not appear to be having a detrimental effect on the viability of these populations. Prior activities may have reduced a larger population along Coolwater Ridge to the two small patches observed during the 1989 field season. The species is locally abundant on Fog Mountain, but the population has been slightly reduced in size by roads. Periodic fire is important in maintaining the open stands of subalpine forest in which the species habitat is found.

Recommendation to the Nez Perce National Forest

Carex californica should be retained on the Region 1 Sensitive Plant Species list. Further inventory efforts should focus along Coolwater Ridge east of the lookout tower to the vicinity of Round Mountain, and along Glover Ridge. Based upon the abundance of the species at Fog Mountain, it seems likely that additional populations will be found. The status of the species should be reconsidered after more complete data on the range and abundance of the California sedge in Idaho has been collected.

Land managers and field personnel on the Nez Perce and Clearwater National Forests should be informed of the possible occurrence of this species 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 mature fruits and roots. Specimens should be sent to the University of Idaho Herbarium for confirmation. Confirmed sightings of this species should be reported to the Idaho Natural Heritage Program for entry into their permanent data base on sensitive species.

Ivesia tweedyi Rydb.

CURRENT STATUS USFS Region 1: None
US Fish & Wildlife Service Status: None
Heritage Rank: G4S2
Idaho Native Plant Society List: Monitor

TAXONOMY

Family: Rosaceae (Rose)

Common Name: Tweedy's ivesia

Citation: North American Flora 22(3):288. 1908.

Nontechnical Description: Strong perennial herb growing from a stout taproot. It has finely-dissected, pinnate, basal leaves which often lie somewhat flat on the ground, thereby appearing to radiate from the central rootcrown. The reddish or purplish stems, which range from 5-20 cm in length, are glandular and usually fine hairy above. Each stem commonly has 1 to 3 small leaves and is topped with a somewhat crowded cluster of several flowers. Each flower has five yellow petals surrounded by a shallow bowl-shaped hypanthium. The fruit are smooth achenes.

Technical Description: Strong perennial with a large taproot and usually a free branched caudex, the stems 5-20 cm tall, from nearly glabrous to glandular-puberulent or glandular-pubescent below, becoming more glandular and usually somewhat pilose above, often reddish or purplish; basal leaves numerous, the blades 3-8 cm long; leaflets 19-35, mostly less than 1 cm long, dissected into many filiform to linear segments; cauline leaves commonly 1-3, greatly reduced; calyx yellowish-green, the hypanthium shallowly bowl-shaped, shorter than the deltoid-ovate, ascending, yellowish, 2.5-3 mm lobes; petals yellow, from broadly elliptic to spatulate, slightly longer than the calyx lobes and the stamens; pistils (2) 4-6 (9), the styles about 3 mm long; achenes about 2 mm long (Hitchcock et al., 1961).

Distinguishing Features and Similar Species: Ivesia is a small genus of perennial herbs in the rose family (Rosaceae). Only two members of the genus occur in the Pacific Northwest; both of these occur in Idaho. Ivesia gordonii is common in subalpine and alpine habitats south of the main canyon of the Snake River. The southernmost known population of Tweedy's ivesia is near Elk Mountain on the Nez Perce National Forest (see below).

The finely-dissected basal leaves are a primary distinguishing character of Tweedy's ivesia. Although they resemble those of Achillea millefolium, with which ivesia may occur, they are not aromatic as in yarrow. The flowers of Tweedy's ivesia superficially resemble those of certain other genera in the rose family, e.g., the genus Potentilla. Ivesia, however, has only 5 stamens, as compared with the ten or more present in other similar genera.

DISTRIBUTION

Range: The majority of the known populations of Tweedy's ivesia are restricted to the vicinity of the Wenatchee Mountains of central Washington State. In Idaho, scattered populations have been recorded from Boundary County south to Idaho County.

Habitat and Associated Species: Idaho populations commonly occur on granitic gravels and scree areas along mountain ridgcrests. Henderson (1981) indicates that it may be found on rock outcrops of various substrates within subalpine fir and whitebark pine communities. Common associated plant species include Phlox diffusa, Eriogonum pyrolaefolium, and Juncus drummondii. Other species know to co-occur are Pedicularis bracteosa, Carex geyeri, Vaccinium scoparium, Xerophyllum tenax, Festuca viridula and Douglasia idahoensis.

RESULTS OF FIELD INVENTORY

Prior to the 1989 field season, two locations for Tweedy's ivesia had been documented by plant collections. These were:

A.R. Kruckeberg 4131. 9 July 1957. On grassy slope, east side of Canteen Creek between Canteen Meadows and Big Fog Mountain. Nez Perce National Forest in the Selway Bitterroot Wilderness Area.

D. Henderson 4529. 10 July 1978. Idaho Co.: Nezperce NF, e ridge of Elk Mountain, ca 18 mi n of Magruder Road and just sw of Running Lake.

During the 1989 field season, I surveyed the vicinity of Big Fog Mountain (Map 3, Appendix I). In this area, I found five small populations ranging in size from several dozen to several hundred plants. The plants were growing along the ridgecrest in gravelly granitic substrate with Juncus drummondii, Phlox diffusa, Pedicularis bracteosa, Arenaria capillaris?, and Antennaria lanata?. There are also patches of Phyllodoce empetriformis in the vicinity. It is unclear to me whether this is the same site as the first specimen cited above.

Several other populations of Tweedy's ivesia were either relocated or discovered during the 1989 field season. Christine Lorain, botanist for the Idaho Natural Heritage Program, located two additional populations, while enroute to the proposed Fenn Mountain Research Natural Area with Charles Wellner, Idaho Natural Areas Coordinating Committee, and Susan Bernatas, The Nature Conservancy. These sites lie in the two saddles along the ridge south of South Three Links Lakes, about two air miles north along the ridge from Big Fog Mountain (Map 3, Appendix I). There are an estimated 30 plants in the western saddle, and 50-100 in the eastern saddle (Lorain, written communication, 1989).

Bob Moseley, Idaho Natural Heritage Program, also discovered two populations of Tweedy's ivesia during the summer of 1989, while conducting sensitive plant surveys in the Elk Mountain Area of the Nez Perce National Forest. One population, about 1/2-mile north along the trail from Elk Mountain, may be the largest Idaho population known with between 1500-2000 individuals. The second population has fewer than 100 plants; it lies about a 1/2-mile south of Elk Mountain along the ridge where it begins to descend steeply to a saddle adjacent to the Elk Mountain Road. This is in the vicinity of the Henderson collection cited above (Moseley, written communication, 1989).

STATUS

Ownership: All five sites reported during the 1989 field season lie on the Nez Perce National Forest. The three sites in the vicinity of Big Fog Mountain also lie within the Selway-Bitterroot Wilderness Area.

Threats: No significant threats were identified by any of the botanists who reported finding Ivesia tweedyi during the 1989 field season. Moseley (written communication, 1989) indicates that one of the populations he reports has a trail through the edge of the population. The Fog Mountain population which I report also

has a trail through it. It is possible that trampling could become a more significant threat if visitor use increases markedly. This factor may be of more significance to smaller populations.

Management Implications: Current management practices do not appear to be having a detrimental effect on the viability of Ivesia tweedyi on the Nez Perce National Forest.

ASSESSMENT AND RECOMMENDATIONS

Summary: Five populations of Ivesia tweedyi were reported as a result of botanical work during 1989 on the Nez Perce National Forest. One of these populations has 1500-2000 plants and another is comprised of at least several hundred. The remaining three are estimated to have fewer than 100 plants, with the smallest having only 30 plants. No significant threats were identified to any of the populations, although minor trampling associated with trails occurs at two of the sites. An increase in visitor use could result in greater threat. Current management practices do not appear to be having a detrimental effect on the species.

Recommendation to the Nez Perce National Forest

Ivesia tweedyi should not be listed on the Region 1 Sensitive Plant Species list at this time. The status of the species should be reconsidered after more complete data on the range and abundance of the species in Idaho has been collected.

Land managers and field personnel on the Nez Perce National Forest should be informed of the possible occurrence of this species 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 mature fruits and roots. Specimens should be sent to the University of Idaho Herbarium for confirmation. Confirmed sightings of this species should be reported to the Idaho Natural Heritage Program for entry into their permanent data base on sensitive species.

OTHER SPECIES

Field searches were also made in the Coolwater Ridge and Fog Mountain areas for three additional Sensitive Plant species. These were Synthyris platycarpa Gail and Pennell, Dasynotus daubenmirei Johnst., and Astragalus paysonii (Rydb.) Barneby. Only one of these, Synthyris, was found. An abbreviated discussion of the status of each of these taxa follows.

Synthyris platycarpa Gail and Pennell

Family: Scrophulariaceae

Common Name: evergreen kittentail

Citation: American Journal of Botany 24:40. 1937.

The distribution, habitat, and life history of this Idaho endemic have been discussed in detail by Crawford (1980), whose research was principally funded by Region 1 of the USFS. It has one of the most restricted ranges of all Idaho endemic plants, occurring only on the ridges along the north and south sides of the lower Selway River, and in a smaller area along the North Fork of the Clearwater River on the Clearwater National Forest.

The larger population along the lower Selway can be divided into two sections, one along Coolwater Ridge east to Glover Saddle, and the other occurring from Corral Hill northeast to Indian Hill. Its range further south in the Selway-Bitterroot Wilderness Area has not been investigated.

Despite its limited range, Synthyris platycarpa is quite abundant and appears to be tolerant of most silvicultural systems and to grazing (Crawford, 1980). It also apparently tolerates fire, and is known to resprout and reproduce successfully after broadcast burning.

I surveyed Coolwater ridge from the vicinity of Andys Hump east as far as the saddle to the southeast of Coolwater Mountain. Along the route, I mapped concentrations of Synthyris (Map 1, Appendix I). In this area, evergreen kittentail mostly occurs as small clusters of larger individuals under growing in the shade at the base of Abies lasiocarpa trees. The trees themselves tend to occur as islands of various size within meadow vegetation. A herd of about 12 horses was pastured in this area during the summer of 1989. It is possible that trampling could have a detrimental effect on the evergreen kittentail, although no actual damage to any plants was observed.

I concur with Crawford's (1980) recommendation that no special management is currently needed for this species. Because it is a highly localized endemic, however, it should be retained as a Region 1 Sensitive Species but assigned a low priority based on the absence of any identifiable threat.

Dasynotus daubenmirei Johnst.

Family: Boraginaceae (borage)

Common Name: dasynotus

Citation: Journal Arnold Arboretum 29:234. 1948.

Dasynotus was also one of the foci of Crawford's 1980 report on the distribution, habitat, and life history of selected plants endemic to Northern Idaho. It is probably the most highly restricted of all Idaho endemics being currently known from only a few populations in the vicinity of Walde Mountain, which lies north of the confluence of the Lochsa and Selway Rivers on the Clearwater National Forest. This area has now been designated as the Rexford Daubenmire Botanical Area in recognition of the contribution made by Dr. Daubenmire played to forest classification and ecology in the northern Rocky Mountains.

This species was collected in 1951 by J.H. Christ (51-530), and again in 1956 by W. Baker (14561), from the Big Fog Saddle area. As noted by both Crawford (1980) and Johnson (1981), this area was repeatedly searched by botanists in the late 1970's for this species with no success. I spent the better part of a field day during the summer of 1989 trying to relocate the population with the same result. All recent investigators have concluded that the species is now extirpated from the Big Fog Saddle site.

Astragalus paysonii (Rydb.) Barneby

Family: Fabaceae (pea)

Common Name: Payson's milk-vetch

Citation: Leaflets of Western Botany 4:60. 1944.

This species was collected by J.H. Christ (51-569) during the trip on which he found dasynotus at Big Fog Saddle. He recorded the location only as the middle slopes of Fog Mountain. I searched samples of most habitats along the Coolwater Ridge road between the elevations of about 3,000 to 6,000 feet with no success. A portion of this area is a dense brushfield dating from the fires of 1934; other portions are forested. Moseley has reported (personal communication, 1989) that USFS employees located some populations of this species further south on the Nez Perce National Forest during the 1989 field season. Information on the habitat in which these populations were found may shed further light on its habitat along Coolwater Ridge.

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APPENDIX I

MAPS

APPENDIX II

SLIDES