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Status review of *Lesquerella humilis*, U.



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STATUS REVIEW OF *Lesquerella humilis*

U.S. FOREST SERVICE - REGION 1

BITTERROOT NATIONAL FOREST

MONTANA

STATE DOCUMENTS DIVISION

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This is an abridged report

For the full report please contact:

The Montana Natural Heritage Program
1515 E Sixth Ave
Helena, Montana 59620

406-444-3009

TABLE OF CONTENTS

| | <u>Page</u> |
|---|-------------|
| I. SPECIES INFORMATION | |
| A. Classification | 1 |
| B. Present legal or other formal status | 1 |
| C. Description | 2 |
| D. Geographical distribution | 3 |
| E. Habitat | 7 |
| F. Population demography and biology | 9 |
| G. Population ecology | 10 |
| H. Land ownership | 11 |
| II. ASSESSMENT AND MANAGEMENT RECOMMENDATIONS | |
| A. Threats to currently known populations | 11 |
| B. Management practices and response | 11 |
| C. Recommendations for maintaining viable populations | 12 |
| D. Recommendations for further assessment | 12 |
| F. Summary | 13 |
| III. LITERATURE CITED | 14 |
| IV. ELEMENT OCCURRENCE PRINT-OUTS AND MAPS | 15 |
| V. PHOTOGRAPHS | 24 |

I. SPECIES INFORMATION

A. CLASSIFICATION

1. SCIENTIFIC NAME: Lesquerella humilis R. Rollins.
2. COMMON NAMES: Few-seeded bladderpod, Bitterroot bladderpod.
3. FAMILY: Brassicaceae (=Cruciferae; Mustard Family).
4. GENUS: Lesquerella humilis is one of approximately 75 species in the genus in North America; of these, most are concentrated in the southwestern United States, Mexico, and the Rocky Mountain and intermontane basin regions of the western United States (Rollins and Shaw, 1973). Within the genus, the nearest relative to L. humilis is L. hemiphysaria. The ranges of the two species are allopatric; L. humilis is restricted to the Bitterroot Range in Montana, and L. hemiphysaria is confined to central Utah (Rollins, 1984).
5. SPECIES: Lesquerella humilis is a recently described species (Rollins, 1984). It was first discovered on St. Joseph Peak in the Bitterroot Range in 1966, by Klaus H. Lackschewitz and Tor Fageraas. This specimen, and other early collections, were variously labeled as Lesquerella alpina, Physaria didymocarpa, or P. geyeri, but Dr. Reed Rollins ultimately determined that they represented a previously undescribed species. The type specimen was collected in 1983 by Reed and Kathryn W. Rollins, with Lackschewitz, Peter Lesica, and Aileen G. Roads, near the summit of St. Mary Peak, also in the Bitterroot Range. In Montana, L. humilis is one of six species reported for the genus (Dorn, 1984; Rollins, 1984).

B. PRESENT LEGAL OR OTHER FORMAL STATUS

1. FEDERAL STATUS
 - a. U.S. FISH AND WILDLIFE SERVICE: None.
 - b. U.S. FOREST SERVICE: Lesquerella humilis is currently included on the list of sensitive plant species for Region 1 (Northern Region) of the U.S. Forest Service (A. Evenden, pers. comm.). Agency objectives and policy in the 1984 Forest Service Manual provide for the management and protection of sensitive

species (Section 2670.32). Under these guidelines, the U.S. Forest Service is to "(a)void or minimize impacts to species whose viability has been identified as a concern" (2670.32.3).

2. STATE STATUS: Lesquerella humilis is currently listed by the Montana Natural Heritage Program (Shelly, 1988) as "critically imperiled globally" owing to extreme rarity (5 or fewer occurrences; global rank = G1). In Montana, it is similarly listed as "critically imperiled in state" (state rank = S1).

The state ranks do not currently provide any direct legal protection for L. humilis. Through its inclusion on the Region 1 sensitive plant list, the species has legal protection under the agency policies (W. Ruediger, pers. comm.).

C. DESCRIPTION

1. GENERAL NONTECHNICAL DESCRIPTION: Lesquerella humilis is a small, perennial herb with stems which are mostly about 1-2 inches tall. They lie flat on the soil surface, with the flower-bearing tips curved slightly upward. The flowers are yellow, with only three to six or so produced near the end of each stem. The petals are about 0.3 inches long. The basal leaves are clustered together at the top of the taproot, and are about 0.6 to 1 inch long. The stem leaves are smaller, being about 1/4 inch long. The plants are generally in flower from late June to early July, with variation depending on exposure and weather conditions. Fruiting occurs from July into early August. See Section V, p. 24, for color photos of plants and habitat.
2. TECHNICAL DESCRIPTION: Perennial, densely pubescent and silvery from an encrustment of stellate trichomes; primary branches 5-6, free to base to slightly fused at center, forked or 3-branched, trichomes with 16-25 free ends, appressed on upper leaf surface, less appressed to somewhat flaring on lower leaf surface; caudex usually simple, thick, covered with old leaf-bases; stems prostrate, simple, one or two to several, arising below and among a terminal rosette of leaves, 2-5 cm. (0.8-2.0 in.) long; rosette leaves petiolate, entire, (1-)1.5-2.5(-3) cm. ((0.4-)0.6-1.0(-1.2) in.) long, blade elliptical to broadly ovate or obovate, usually narrowed abruptly, 3-6 (-7) mm. (0.12-0.24 (-0.28)

in.) wide, 4-7 mm. (0.16-0.28 in.) long, obtuse; cauline leaves 3-6, spatulate, cuneate at base, 3-7 mm. (0.12-0.28 in.) long; inflorescences 3-5 flowered, scarcely elongating in fruit; sepals yellowish, oblong, densely pubescent, 4-5 mm. (0.16-0.20 in.) long, 1.5-2 mm. (0.06-0.08 in.) wide, outer pair slightly saccate, inner pair non-saccate; petals yellow, spatulate, retuse or rarely with a deeper sinus at apex, narrowed gradually from blade to claw, 7-8.5 mm. (0.28-0.33 in.) long, 3-3.5 mm. (0.12-0.14 in.) wide; stamens strongly tetradynamous; filaments of paired stamens ca. 4 mm. (0.16 in.) long, anthers ca. 1 mm. (0.04 in.) long; pedicels straight to slightly curved, nearly paralleling rachis, 3-4 mm. (0.12-0.16 in.) high, 4-5 mm. (0.16-0.20 in.) wide, valves densely pubescent on exterior with trichomes that have ascending to erect rays, sparsely pubescent on interior; replum oval to broadly oblong, acute at apex, 2.5-3.5 mm. (0.10-0.14 in.) long; septum usually folded; styles 2-3 mm. (0.08-0.12 in.) long; ovules 2 in each locule; seeds plump, wingless, slightly compressed, orbicular to semiorbicular, ca. 2 mm. (0.08 in.) in diameter; cotyledons accumbent, orbicular or nearly so (Rollins, 1984).

3. LOCAL FIELD CHARACTERS: During field surveys in 1987, one other conspicuous member of the Mustard family, Smelowskia calycina (Alpine Smelowskia), was observed growing with L. humilis. Smelowskia is distinguished in having white petals, which are sometimes purple-tinged, and pinnatifid or pinnate (lobed or divided) leaves. These are in contrast to the yellow petals and entire (smooth-margined) leaves of L. humilis. Several other species in the Mustard family have been reported from St. Mary Peak, including Arabis spp. and Draba spp. (Lackschewitz, 1970). Members of Arabis in Montana have white to pink or purple petals and longer, narrow fruits; Draba species often have strongly flattened fruits which are flattened parallel to the septum (internal fruit partition), rather than being not, or only partially, flattened in Lesquerella.

D. GEOGRAPHICAL DISTRIBUTION

1. RANGE: Lesquerella humilis is a state endemic, restricted to three sites in the Bitterroot Range in northwestern Ravalli County, Montana. It is located on the Bitterroot National Forest, in Region 1 (Northern Region) of the U.S. Forest Service. The distribution of the species is

indicated in Figure 1, p. 5. The exact locations are indicated on the maps provided in Section IV, pp. 19-21.

2. CURRENT SITE: Lesquerella humilis is recently documented (1987) from one site, on St. Mary Peak in the Bitterroot Range. The location of this site, including the legal description, latitude and longitude, elevation, and USGS topographic quad name, is provided in Table 1, p. 6. Field surveys in the Bitterroot Range were conducted by the author on 21-23 and 30-31 July, 1987.

Throughout this report, the three-digit occurrence numbers are indicated in parentheses after the site names; these correspond to the occurrence numbers provided in the tables and computer print-outs.

3. HISTORICAL RECORDS: None known.
4. SITES NOT RECENTLY SURVEYED: Lesquerella humilis has been documented from two additional sites in Ravalli County, Montana (occurrence nos. 002 and 003). These locations were studied by Klaus Lackschewitz in 1970 and 1971. The legal descriptions, latitude and longitude, elevations, USGS topographic quad names, and locations of these sites are provided in Table 1, p. 6. Owing to the extreme rarity of the species, and the location of these two populations within the Selway-Bitterroot Wilderness Area, it was decided that field surveys in 1987 should emphasize searches for the species in adjacent suitable habitats. Additionally, the information originally collected by Lackschewitz includes data on associated species and estimated population size. Future field monitoring of these sites is recommended, owing to the global rarity of L. humilis.
5. AREAS SURVEYED BUT SPECIES NOT LOCATED: The alpine and timberline flora in the Bitterroot Mountains has been exhaustively studied by Lackschewitz (1970, 1986). The major summits and areas explored in the earlier studies include Lolo, Sweeney, St. Mary, St. Joseph, "East St. Joseph", Trapper, Bass, Ranger, Boulder, Bare, Watchtower, and West Como peaks, Pyramid Buttes, Gash Point, Glen Lake Mtn., Blodgett Mtn., Ward Mtn., Lost Horse Mtn., El Capitan, Chaffin Creek Headwater Basin, and Mt. Jerusalem. In discussing the possible locations where L. humilis might additionally be found, Lackschewitz (pers. comm.)

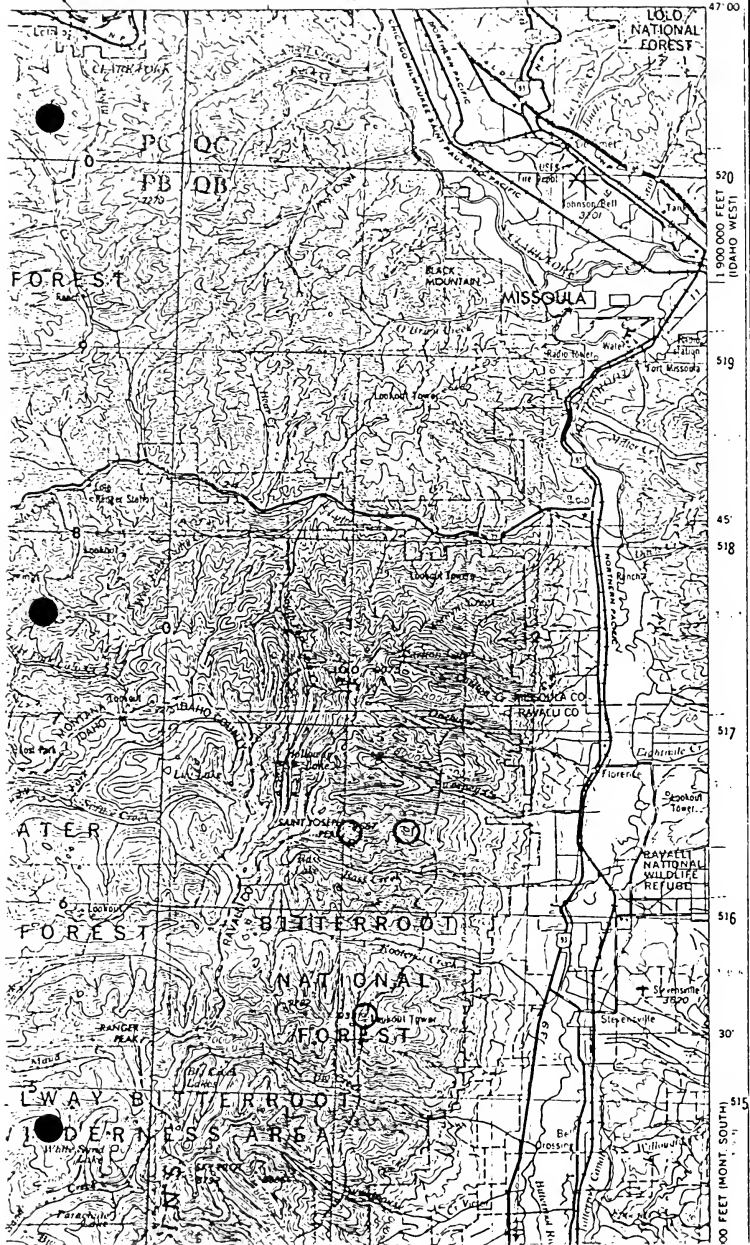


Figure 1.
Geographic
distribution of
Lesquerella
humilis,
Ravalli County,
Montana.

TABLE 1. Lesquerella humilis locations, Ravalli County, Montana.CURRENT SITE:

Occurrence number: 001
 Site name: ST. MARY PEAK
 COUNTY: RAVALLI
 Township & Range: 009N021W Section: 20 Subsection/additional sections: SE4NW4,NE4;21,SW4SE4
 Latitude: 463036 Longitude: 1141430 Elevation: 9200
 USGS Quad: SAINT MARY PEAK
 Location: APPROACH TO AND NEAR SUMMIT OF SAINT MARY PEAK, BITTERROOT RANGE.

SITES NOT RECENTLY SURVEYED:

Occurrence number: 002
 Site name: EAST ST. JOSEPH PEAK
 COUNTY: RAVALLI
 Township & Range: 010N021W Section: 26 Subsection/additional sections: NW4NW4
 Latitude: 463607 Longitude: 1141249 Elevation: 9000
 USGS Quad: SAINT MARY PEAK
 Location: "EAST ST. JOSEPH PEAK" (UNNAMED SUMMIT), BITTERROOT RANGE.

Occurrence number: 003
 Site name: ST. JOSEPH PEAK
 COUNTY: RAVALLI
 Township & Range: 010N021W Section: 28 Subsection/additional sections: NW4NW4
 Latitude: 463603 Longitude: 1141513 Elevation: 9500
 USGS Quad: SAINT JOSEPH PEAK
 Location: ST. JOSEPH PEAK, BITTERROOT RANGE.

recommended detailed surveys in two areas. In a note to the author, he wrote that "...I suspect it to occur on Gash Point...but have never collected it anywhere s. of St. Mary's." He also suggested that Sweeney Peak should be surveyed. Thus, these two locations were studied in detail during 1987. All areas of suitable habitat were intensively searched. As in the earlier field research, Lesquerella humilis was not located on or near either of these summits. The areas surveyed during this study are within the following legal descriptions:

a. Sweeney Peak:

T10N, R21W, Sec. 3, S $\frac{1}{2}$ SE $\frac{1}{4}$
 S $\frac{1}{2}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$
 SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$
 Sec. 10, NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$
 NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$
 NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$
 Sec. 11, W $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$

b. Gash Point:

T8N, R22W, Sec. 23, S $\frac{1}{2}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$
 E $\frac{1}{2}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$
 W $\frac{1}{2}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$
 SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$
 SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$
 Sec. 26, N $\frac{1}{2}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$
 NW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$

The exact locations and boundaries of these areas are shown on the maps provided in Section IV, pp. 22-23.

E. HABITAT

1. ASSOCIATED VEGETATION: Lesquerella humilis occurs in sparsely vegetated areas in the upper krummholz zone, and in alpine fellfield areas above the upper treeline. On St. Mary Peak (001), the krummholz consists of wind-trimmed individuals of Pinus albicaulis (White-bark pine). The associated herbaceous vegetation is characterized by a mixture of species, including:

Astragalus kentrophyta var. implexus (Thistle milkvetch)
Dicentra uniflora (Steer's-head)
Draba spp. (Draba)
Dryas octopetala (White dryas)
Erigeron simplex (One-flower fleabane)

Eritrichium nanum (Pale alpine forget-me-not)
Haplopappus lyallii (Lyal's goldenweed)
Hulsea algida (Alpine hulsea)
Ivesia gordonii (Gordon's Ivesia)
Pedicularis contorta (Coiled-beak lousewort)
Sedum lanceolatum (Lance-leaved stonecrop)
Smelowskia calycina (Alpine smelowskia)
Veronica cusickii (Cusick's speedwell)

2. TOPOGRAPHY: Populations of L. humilis occur on moderately steep slopes and ledges, and in level exposed areas, at high elevations in the Bitterroot Range. The slope of the St. Mary Peak (001) site varies from zero to approximately 45%. The known sites range from 2683 m. (8800 ft.) to 2923 m. (9587 ft.).

3. SOIL RELATIONSHIPS: The Bitterroot Range escarpment is a fault block at the eastern edge of the Idaho batholith. The latter is a granitic mass which is faintly gneissic in character, and the soils developed from the batholith are strongly acidic. However, the high mountains north of Big Creek (which include the St. Mary and St. Joseph massifs) consist of high grade metamorphic rocks, mostly gneiss and schist, locally penetrated by granitic rocks (Lackschewitz 1970, 1986; Ross et al., 1955). Although appearing largely granitic in character, the rocks on St. Mary Peak are slightly reddish-orange in color, and the St. Joseph Peak massif appears to be similarly colored. Lesquerella humilis is restricted to this area, but it is not known whether this restriction is strictly edaphic in nature.

The soils of the St. Mary Peak (001) site are generally stony and poorly developed. In some areas, they have weathered enough to form a sandy substrate. Lesquerella humilis is predominantly found in these open, gravelly or sandy areas. It was also observed growing from crevices of exposed rocks, and in small mats of associated vegetation.

4. REGIONAL CLIMATE: The alpine areas of the Bitterroot Range are characterized by exposure to high, erosive winds and low temperatures. The timberline areas receive the highest snowpack accumulations and the open, alpine areas the least (Lackschewitz, 1970).

From July, 1967 to 1969, a temporary weather station was established on St. Mary Peak by S. Arno and J. Habeck. Because of unusual heat and

drought in the summer of 1967, only measurements from 1969 are considered nearly average (Lackschewitz, 1970). The daily mean minimum temperature in January was -13.0°C (8.6°F); the daily mean maximum temperature in July was 14.7°C (58.5°F).

Data for precipitation are available for Lolo Pass (1738 m. (5700 ft.) in elevation), approximately 32 km. (20 mi.) northwest of St. Mary Peak. Over 17 years, from 1948 to 1964, the average annual precipitation was 132 cm. (52 in.); the maximum amount was 178 cm. (70 in.), and the minimum amount was 79 cm. (31 in.) (Lackschewitz, 1970).

F. POPULATION DEMOGRAPHY AND BIOLOGY

1. PHENOLOGY: Lesquerella humilis is in bloom from late June to mid-July, with some variation depending on climatic conditions and exposure. Fruiting extends from early July to early August.
2. POPULATION SIZE AND CONDITION: Populations of L. humilis range in size from approximately 200-400 to 1000+ individuals. The total number of plants observed rangewide to date is approximately 1500-1800. Details regarding population size and condition are as follows:

OCCURRENCE NUMBER: 001

SITE NAME: St. Mary Peak

ACREAGE: 20

POPULATION SIZE AND CONDITION: Est. 300-400+ plants (1987 estimate), sparsely scattered in and above krummholz; recreational use of hiking trail and summit area is impacting site.

OCCURRENCE NUMBER: 002

SITE NAME: East St. Joseph Peak

ACREAGE: 15

POPULATION SIZE AND CONDITION: 200-400 plants (1970 estimate); site is located just west of Wilderness Area boundary, not currently accessed by maintained trail.

OCCURRENCE NUMBER: 003

SITE NAME: St. Joseph Peak

ACREAGE: 25

POPULATION SIZE AND CONDITION: More than 1000 plants (1971 estimate); site is not currently accessed by maintained trail.

3. REPRODUCTIVE BIOLOGY

- a. TYPE OF REPRODUCTION: The flowers of L. humilis are chasmogamous (they have conspicuous corollas, and open normally for fertilization). Self-incompatibility is widespread in the genus, though self-compatibility is also present in at least some species. Most populations of Lesquerella are in open habitats, with the plants aggregated together. Undoubtedly, cross-pollination is the norm for the genus as a whole (Rollins and Shaw, 1973). In an alpine species such as L. humilis, self-pollination may be more prevalent, owing to the short growing season. Fruit set during peak periods appeared to be very vigorous. During surveys in 1987, no evidence of any vegetative reproduction was observed.
- b. POLLINATION BIOLOGY: Rollins and Shaw (1973) report that "(i)n the field, insects, mostly bees and flies, were repeatedly observed visiting the flowers" of Lesquerella. During field surveys in 1987, no insects were observed visiting the few individuals of L. humilis which were flowering. It is unknown whether there are any specific plant-pollinator dependencies involving L. humilis.
- c. SEED DISPERSAL AND BIOLOGY: Each fruit of L. humilis is capable of producing four seeds. The seeds are wingless, and about 2 mm. (0.08 in.) in diameter (Rollins, 1984); there does not appear to be any mechanism that might aid in long-distance dispersal. Thus, it is likely that most seeds fall near the parent plants.

G. POPULATION ECOLOGY

1. COMPETITIVE INTERACTIONS: Little information is available regarding the competitive ability of perennial alpine plant species such as L. humilis. As noted previously, the species grows most frequently in more open microsites within the timberline and alpine areas which it inhabits. This suggests that the species would not be very aggressive in more densely vegetated areas. In a few cases, plants were observed growing amongst small mats of associated vegetation. These situations may arise from the suitability of such microsites for seed germination.

H. LAND OWNERSHIP

1. All three known L. humilis sites are located on lands administered by Region 1 (Northern Region) of the U.S. Forest Service, on the Bitterroot National Forest. In addition, all known sites are within the Selway-Bitterroot Wilderness Area. The East St. Joseph Peak (002) occurrence is just west of the wilderness boundary, and there is a possibility that a small number of plants may occur outside the boundary on the east-facing slope below the summit.

II. ASSESSMENT AND MANAGEMENT RECOMMENDATIONS

- A. THREATS TO CURRENTLY KNOWN POPULATIONS: The most imminent threat to the continued existence of L. humilis, at or near its present level of abundance, is from recreational use of the hiking trail and summit area on the St. Mary Peak (001) site. The trail (#116) traverses the south-facing slope of St. Mary Peak through the southeastern portion of the population; it then ascends to the summit, in a series of switchbacks, along the northeastern edge of the south subpopulation. However, once the trail reaches an elevation of 2683 m. (8800 ft.), which is the lowermost limit of the L. humilis population, it was noted that some off-trail hiking directly to the summit is occurring. Such use is possibly leading to impacts on the main portion of this subpopulation.

The East St. Joseph (002) and St. Joseph (003) Peak sites occur in areas which are not currently accessible via maintained trails. However, some occasional recreational use undoubtedly occurs in these areas, which might lead to some minor impacts on the populations. Other impacts, via resource management, are not known at this time.

- B. MANAGEMENT PRACTICES AND RESPONSE: The degree to which L. humilis tolerates habitat disturbance is not known in detail. As discussed previously, it shows a preference for more open microsites at the St. Mary Peak (001) location, which suggests that it may be able to colonize disturbed soil areas. However, the need for protected sites for seed germination in the harsh alpine environment may moderate this response. The most direct impacts on the plants, through trampling, may be leading to a decline in the size of the population on St. Mary Peak (001).

C. RECOMMENDATIONS FOR MAINTAINING VIABLE POPULATIONS:
The following recommendations are made to insure the long-term persistence of viable populations of L. humilis on U.S. Forest Service lands:

1. Protection of the St. Mary Peak (001) population from serious impacts due to recreational use. The impacts from the hiking trail could potentially be reduced or eliminated in the following ways:
 - a. Designation of St. Mary Peak as a special botanical area. In addition to L. humilis, the St. Mary Peak area supports populations of two other plants of limited distribution in Montana: Draba daviesiae (Pointed draba) and Penstemon flavescens (Pale yellow penstemon). Though not as rare as L. humilis, these species occur in Montana only in the Bitterroot Range. The presence of these three species together on St. Mary Peak emphasizes the botanical uniqueness of the area.
 - b. Placement of signs recommending use of the trail hiking. Signs at the trailhead, and possibly in the timberline area, may be useful in minimizing off-trail impacts to the L. humilis population.
2. Analysis of any proposed recreational development in the St. Joseph Peak area. Any future proposed trail construction or other developments should be carefully planned, to reduce or eliminate impacts to the St. Joseph Peak (003) and East St. Joseph Peak (002) populations of L. humilis.

D. RECOMMENDATIONS FOR FURTHER ASSESSMENT

1. Monitoring surveys of the St. Joseph Peak (003) and East St. Joseph Peak (002) occurrences. These locations should ideally be checked every three to five years, in order to detect any major declines in population size, or impacts should recreational use of these areas increase.
2. Establishment of monitoring studies of the St. Mary Peak (001) occurrence. Permanent monitoring transects (i.e., Lesica 1987) would be useful in assessing the impacts of recreational use on the population. Plot studies in locations away from the trail, as well as within the area currently being used, could reveal any reduction in numbers which might be occurring.

- E. SUMMARY: Lesquerella humilis is endemic to the state of Montana, and is narrowly restricted to a small geographic area in the Bitterroot Range in Ravalli County. It is currently listed as a sensitive species in Region 1 of the U.S. Forest Service. The species is known only from three summits, and the estimated total number of individuals is approximately 1500-1800. Intensive surveys on adjacent summits, and throughout the Bitterroot Range, have failed to reveal the presence of any other populations. One population, on St. Mary Peak, is possibly being impacted by recreational use of the area; in addition, a lookout tower is located on the summit. Two other populations, on and east of St. Joseph Peak, are not currently accessed by maintained trails. Although they occur in the Selway-Bitterroot Wilderness Area, any proposed management activities near the known populations of L. humilis should be carefully planned, owing to the extreme global rarity of the species.

III. LITERATURE CITED

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IV. ELEMENT OCCURRENCE PRINT-OUTS AND MAPS (PP. 16-23)

ELEMENT OCCURRENCE RECORD

EOCODE: PDBRAIN1Y0.001
 NAME: LESQUERELLA HUMILIS
 COMNAME: FEW-SEEDED BLADDERPOD
 MARGNUM: 1 TENTEN: 1,9 IDENT: Y EORANK: B
 EORANKCOMM: MODERATE-SIZED POPULATION, ADJACENT TO HIKING TRAIL.
 SURVEYDATE: 1983-07-17 LASTOBS: 1987-07-21 FIRSTOBS: 1967 GRANK: G1
 SRANK: S1 STATE: MT COUNTYNAME: MTRAVA
 QUADCODE: 4611452
 QUADNAME: SAINT MARY PEAK PRECISION: SC
 LAT: 463036 LONG: 1141430 S: 463031 N: 463057 E: 1141422 W: 11414
 TOWNRANGE: 009N021W SECTION: 28 MERIDIAN: PR
 TRSCOMM: SE4NW4,NE4;21,SW4SE4 PHYSPROV: NR WATERSHED: 17010205
 DIRECTIONS: APPROACH TO AND NEAR SUMMIT OF SAINT MARY PEAK, BITTERROOT
 RANGE.

GENDESC: ON STEEP HILLSIDES OF METAMORPHOSED ROCKS; ALPINE SLOPES
 (E. AND S.-FACING), SANDY TO GRAVELLY GRANITIC FELLFIELD
 SOIL; WITH PINUS ALBICAULIS, DRABA SPP. (CONT.).
 ELEV: 9200 SIZE: 20
 EODATA: EST. 300-400+ PLANTS, SPARSELY SCATTERED IN AND ABOVE
 KRUMMHOLZ; RECREATIONAL USE OF HIKING TRAIL IS IMPACTING
 AREA; ALSO WITH IVESIA GORDONII, ERIGERON SIMPLEX, HULSEA
 ALGIDA, SMELOWSKIA CALYCINA, ERITRICHIMUM NANUM, DRYAS.

COMMENTS: TYPE LOCALITY, NEWLY DESCRIBED SPECIES (1984); VOUCHER-
 ROLLINS, R.C., ET AL. (83300), 1983, GH.

MACODE1: FFSWASELW1MTUS CONTAINED1: Y MACODE2: FFSNFBITT1MTUS CONTAINED2: Y
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPRO

MOREMGMT: SITECODE:
 SITENAME: ST. MARY PEAK
 OWNER: BITTERROOT NATIONAL FOREST
 OWNERCOMM:
 PROTCOMM: SITE IS LOCATED IN THE SELWAY-BITTERROOT WILDERNESS AREA.
 MGMTCOMM:
 MONITOR: MONITORNUM: -

BESTSOURCE: SHELLY, J.S. 1987. FIELD SURVEYS IN RAVALLI COUNTY OF 21-23
 & 30-31 JULY; SHELLY, J.S. (1381), 1987, UM.
 SOURCECODE: FB7SHE04MTUS PNDSE01MTUS S73LACUMMTUS S87SHEUMMTUS PND
 LAC01MTUS U85LES02MTUS S67WOODUMMTUS A84ROL01

DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 85-11-26 JSS CDREV: Y MAPPER: 86-04-21 JSS QC: Y
 UPDATE: 88-04-04 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDBRAIN1Y0.002
 NAME: LESQUERELLA HUMILIS
 COMNAME: FEW-SEEDED BLADDERPOD
 MARGNUM: 2 TENTEN: 3,2 IDENT: Y EORANK:
 EORANKCOMM:
 SURVEYDATE: 1970-07-04 LASTOBS: 1970-07-04 FIRSTOBS: 1970 GRANK: 61
 SRANK: S1 STATE: MT COUNTYNAME: MTRAVA
 QUADCODE: 4611452
 QUADNAME: SAINT MARY PEAK PRECISION: SC
 LAT: 463607 LONG: 1141249 S: 0 N: 0 E: 0 W:
 TOWNRANGE: 010N021W SECTION: 26 MERIDIAN: PR
 TRSCOMM: NW4NW4 PHYSPROV: NR WATERSHED: 17010205
 DIRECTIONS: EAST ST. JOSEPH PEAK, BITTERROOT MOUNTAINS.

GENDESC: ROCKY FELLFIELD, WITH DRABA SP.

ELEV: 9000 SIZE: 15
 EODATA: 200-400 PLANTS (1970 ESTIMATE); SITE IS LOCATED JUST WEST OF
 WILDERNESS AREA BOUNDARY, NOT CURRENTLY ACCESSED BY MAIN-
 TAINED TRAIL.

COMMENTS: NEWLY DESCRIBED SPECIES (1984); VOUCHER-LACKSCHEWITZ, K.H.
 (2126), 1970, SPECIMEN #65828 UM.

MACODE1: FFSWASELW1MTUS CONTAINED1: Y MACODE2: FFSNFBITT1MTUS CONTAINED2: Y
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPRO

MOREMGMT: SITECODE:
 SITENAME: EAST ST. JOSEPH PEAK
 OWNER: BITTERROOT NATIONAL FOREST
 OWNERCOMM:
 PROTCOMM: SITE IS LOCATED IN THE SELWAY-BITTERROOT WILDERNESS AREA.
 MGMTCOMM:
 MONITOR: MONITORNUM: -
 BESTSOURCE: ROLLINS, R.C. 1984. STUDIES IN THE CRUCIFERAE OF WESTERN
 NORTH AMERICA II. CONTRIB. GRAY HERB. 214: 1-18.
 SOURCECODE: A84ROL01MTUS PNDLAC01MTUS S70LACUMMTUS U85LES02MTUS

DATASENS: N BOUNDARIES: N PHOTOS: N OWNERINFO:
 TRANSCRIBR: 85-11-26 JSS COREV: Y MAPPER: 86-01-21 JSS QC: Y
 UPDATE: 88-04-04 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PDBRAIN1Y0.003
 NAME: LESQUERELLA HUMILIS
 COMNAME: FEW-SEEDED BLADDERPOD
 MARGNUM: 1 TENTEN: 10,2 IDENT: Y EORANK:
 EORANKCOMM:
 SURVEYDATE: 1971-07-24 LASTOBS: 1971-07-24 FIRSTOBS: 1966 GRANK: G1
 SRANK: S1 STATE: MT COUNTYNAME: MTRAVA
 QUADCODE: 4611453
 QUADNAME: SAINT JOSEPH PEAK PRECISION: S
 LAT: 463603 LONG: 1141513 S: 0 N: 0 E: 0 W:
 TOWNRANGE: 010N021W SECTION: 28 MERIDIAN: PR
 TRSCOMM: NW4NW4 PHYSPROV: NR WATERSHED: 17010205
 DIRECTIONS: ST. JOSEPH PEAK, BITTERRoot RANGE.

GENDESC: DRY LEDGE, SOUTH SLOPE; ALPINE ROCKY FELLFIELD, WITH DRABA
 SPP., DOUGLASIA MONTANA, ERIGERON SIMPLEX.

ELEV: 9500 SIZE: 25
 EODATA: MORE THAN 1000 PLANTS (1971 ESTIMATE); SITE IS NOT CURRENTLY
 ACCESSED BY MAINTAINED TRAIL.

COMMENTS: NEWLY DESCRIBED SPECIES (1984); LACKSCHEWITZ, K.H., 1966,
 SPECIMEN #60039 UM; LACKSCHEWITZ & GOUAUX, 1971, #69003 UM.

MACODE1: FFSWASELW1MTUS CONTAINED1: Y MACODE2: FFSNFBITTIMTUS CONTAINED2: Y
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPRO:

MOREMGMT: SITECODE:
 SITENAME: ST. JOSEPH PEAK
 OWNER: BITTERRoot NATIONAL FOREST
 OWNERCOMM:
 PROTCOMM: SITE IS LOCATED IN THE SELWAY-BITTERRoot WILDERNESS AREA.
 MGMTCOMM:
 MONITOR: MONITORNUM: -
 BESTSOURCE: ROLLINS, R.C. 1984. STUDIES IN THE CRUCIFERAE OF WESTERN
 NORTH AMERICA II. CONTRIB. GRAY HERB. 214: 1-18.
 SOURCECODE: A84ROL01MTUS S66LACUMMTUS S71LACUMMTUS PNDLAC01MTUS U85
 LES02MTUS
 DATASENS: N BOUNDARIES: N PHOTOS: N OWNERINFO:
 TRANSCRIBR: 85-11-27 JSS CDREV: Y MAPPER: 86-01-21 JSS DC: Y
 UPDATE: 88-04-04 JSS



