

STATUS REVIEW OF Orchis rotundifolia
U.S. FOREST SERVICE - REGION 1
FLATHEAD AND LEWIS & CLARK NATIONAL FORESTS
MONTANA

Prepared by:

J. Stephen Shelly, Botanist
Montana Natural Heritage Program
State Library Building
1515 E. 6th Avenue
Helena, MT 59620

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I. SPECIES INFORMATION

A. CLASSIFICATION

1. SCIENTIFIC NAME: Orchis rotundifolia Banks ex Pursh (Dorn 1984).
2. SYNONYMS: Amerorchis rotundifolia (Banks) Hulten; Habenaria rotundifolia (Banks) Rich. in Frank.; O. rotundifolia var. lineata Mousley.
3. COMMON NAME: Round-leaved Orchis.
4. FAMILY: Orchidaceae (Orchid family).
5. GENUS: According to Hitchcock et al. (1969), the genus Orchis contains over 80 species, chiefly in temperate to cooler areas of the Old World.
6. SPECIES: According to Hitchcock et al. (1969), Orchis consists of three or four species in North America. It is the only member of the genus in Montana (Dorn 1984). In 1968, Eric Hulten created the monotypic genus Amerorchis to accomodate O. rotundifolia (Luer 1975). This treatment is followed by Luer, and by Williams and Williams (1983). In agreeing with this taxonomic outline, Luer (1975) concludes that, in fact, no true representatives of the genus Orchis occur in North America. Orchis is used here in order to match the nomenclature in the readily available state and regional floras (Hitchcock et al. 1969; Dorn 1984), which are most likely to be used by U.S. Forest Service personnel and others.

B. PRESENT LEGAL OR OTHER FORMAL STATUS

1. FEDERAL STATUS

- a. U.S. FISH AND WILDLIFE SERVICE: None.
- b. U.S. FOREST SERVICE: Orchis rotundifolia is currently included on the list of sensitive plant species for Region 1 (Northern Region) of the U.S. Forest Service. 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: Orchis rotundifolia is currently listed by the Montana Natural Heritage Program (Shelly 1988) as "imperiled in the state" (state rank = S2). It was listed as "threatened" (likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range in Montana) by the Montana Rare Plant Project (Lesica et al. 1984).

These state ranks do not currently provide any direct legal protection for O. rotundifolia. Through its inclusion on the Region 1 sensitive plant list, the species has legal protection under U.S. Forest Service agency policies (W. Ruediger, pers. comm.).

C. DESCRIPTION

1. GENERAL NONTECHNICAL DESCRIPTION: Orchis rotundifolia is a small, perennial herb with stems which are mostly about 4-8 inches tall. These stems are unbranched, and have a single rounded leaf near their base which often lies flat on the ground. The upper portions of the stems bear about 2 to 8 or more flowers. These are white to pink in color, and have a lower petal (lip) which is white with magenta-purplish spots. The flowers range from about $\frac{1}{2}$ to 1 inch across. In Montana, the plants are generally in flower from early June to mid-July. Fruiting occurs from mid June to late July or early August. See Section V, p. 54, for color photos of plants and habitat.
2. TECHNICAL DESCRIPTION: Terrestrial herb, glabrous, rhizomatous-stoloniferous, mostly 10-20 (30) cm. tall, scapose, the base of the stem with 1-3 sheathing bracts and a single sessile to short-petiolate leaf with a broadly elliptic to suborbicular blade 3-9 cm. long; inflorescence a loose to crowded raceme mostly 2- to 8 (15)-flowered, the flowers generally rather crowded, subtended by greenish or purplish, lanceolate bracts about as long the ovary; sepals (3) 5-nerved, whitish to light pink, the upper one ovate, rounded, 6-10 mm. long, erect and with the slightly connivent petals forming a hood over the column; lower sepals spreading, narrower and slightly longer than the upper one, somewhat oblique; petals pink, slightly shorter than the sepals, usually 3-nerved; lip white to pinkish, magenta-purplish spotted (or rarely streaked), 6-9 mm. long, oblong in outline, usually prominently lobed on either side about midlength, then considerably narrowed before flaring to a broad,

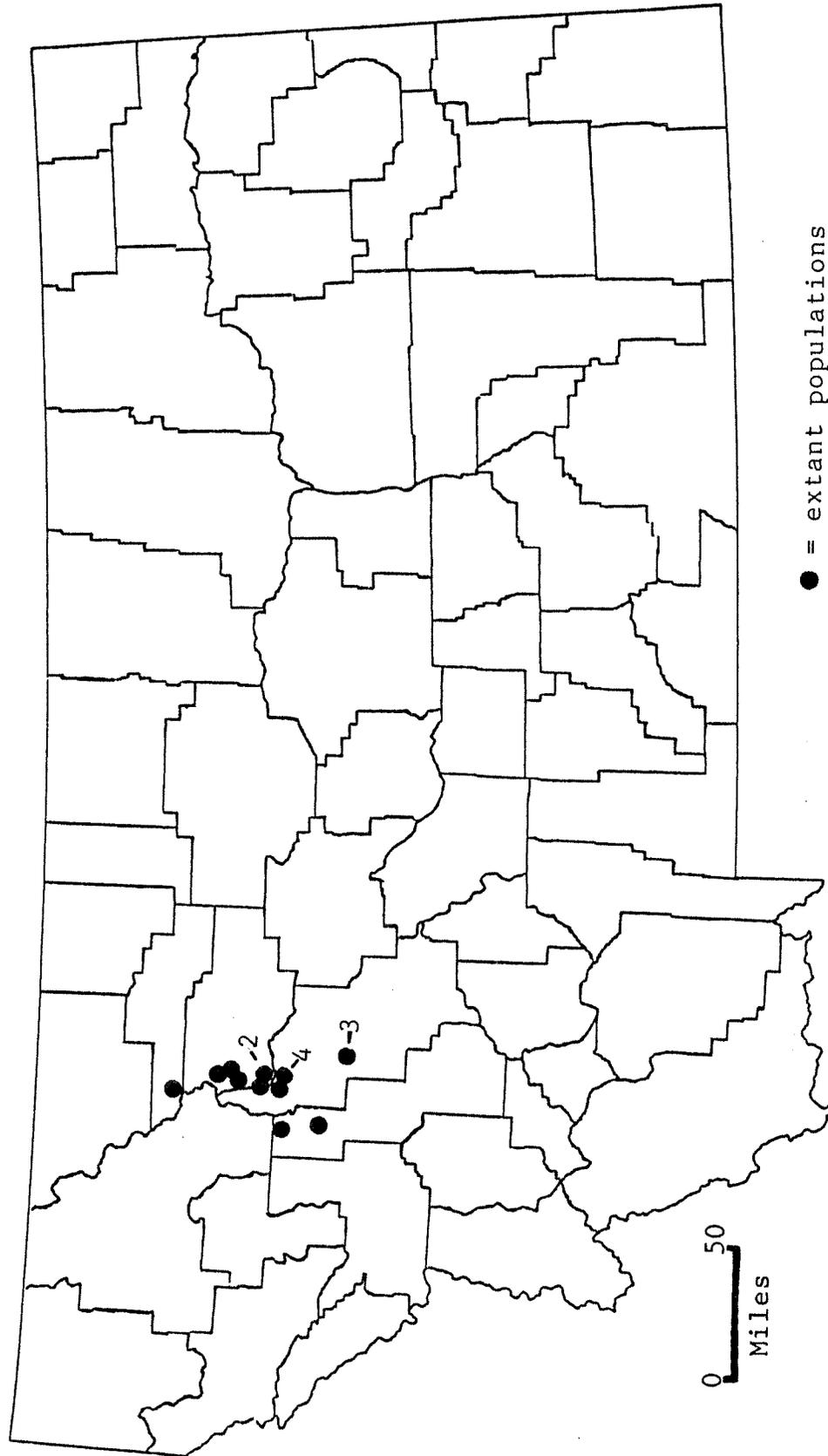
undulate-crenate and retuse terminal lobe, more or less greenish around the basal orifice leading into a slightly curved spur 5-6 mm. long; column 3-4 mm. long, somewhat wing-margined above the orifice to the spur; ovary green to purplish, thick, pedicellate; $2N=42$ (adapted from Hitchcock *et al.* 1969; Williams and Williams 1983).

3. LOCAL FIELD CHARACTERS: Orchis rotundifolia is the only member of the orchid family in Montana which has a single basal leaf and white flowers with purple-spotted lip petals; it would not be readily confused with any other species in the state.

D. GEOGRAPHICAL DISTRIBUTION

1. RANGE: Orchis rotundifolia is generally a boreal species, distributed from Alaska to Greenland, and extending south to southern British Columbia, northwestern Montana, northwestern Wyoming, Minnesota, Michigan, Wisconsin, and New York (Hitchcock *et al.* 1969; Williams and Williams 1983). The species is known to occur on the Flathead and Lewis & Clark national forests, in Region 1 (Northern Region) of the U.S. Forest Service. The distribution of O. rotundifolia in Montana is shown in Figure 1, p. 4; it has been recorded in Lewis & Clark, Pondera, Powell, and Teton counties. The exact locations are indicated on the maps provided in Section IV, pp. 41-53.
2. CURRENT SITES (MONTANA): Orchis rotundifolia is recently documented (1988) from 17 sites; two of these are in the Bob Marshall Wilderness Area, and 15 are in the Front Range mountains east of the wilderness boundaries. The locations of these sites, including the legal descriptions, latitude and longitude, elevations, and USGS topographic quadrangle names, are provided in Table 1, p. 5. These are subdivided to indicate those sites which occur wholly or partially on U.S. Forest Service lands (Table 1A), and the sites which occur on lands not managed by the U.S. Forest Service (Table 1B). Field surveys were conducted by the author on 20 June-1 July, and 12 July, 1988. Assistance with field research was provided by Angela Evenden, Maria Ash, Wayne Phillips, and Dana Field (U.S. Forest Service), Lisa Schassberger (Montana Natural Heritage Program), and Cary Lund.

Throughout this report, the three-digit occurrence numbers are indicated in parentheses after the



● = extant populations

Note: Numbers are used where more than one population is represented by a dot.

Figure 1. Distribution of Orchis rotundifolia populations in Montana.

TABLE 1A. Orchis rotundifolia locations wholly or partially occurring on U.S. Forest Service lands, Montana.

Occurrence number: 001
 Site name: GREEN TIMBER BASIN
 COUNTY: LEWIS & CLARK
 Township & Range: 021N009W Section: 15 Subsection/additional sections: W2NW4, 16E2NE4
 Latitude: 473441 Longitude: 1124515 Elevation: 5130
 USGS Quad: PATRICKS BASIN
 Location: ROCKY MOUNTAIN FRONT RANGE, GREEN TIMBER BASIN, HEAD OF DRAINAGE OF TRIBUTARY OF BEAVER CREEK, CA. 1.7 AIR MILES SOUTH OF GIBSON DAM.

Occurrence number: 002
 Site name: BEAVER CREEK
 COUNTY: LEWIS & CLARK
 Township & Range: 021N009W Section: 22 Subsection/additional sections: N2,SE4;15,S2
 Latitude: 473357 Longitude: 1124441 Elevation: 5000
 USGS Quad: SAWTOOTH RIDGE
 Location: ROCKY MOUNTAIN FRONT RANGE, ALONG BEAVER CREEK, CA. 3 AIR MI. SSE. OF GIBSON DAM, CA. 3 AIR MI. S. OF NORTH FORK SUN RIVER.

Occurrence number: 003
 Site name: SAWMILL FLAT
 COUNTY: LEWIS & CLARK
 Township & Range: 021N009W Section: 22 Subsection/additional sections: SW4
 Latitude: 473301 Longitude: 1124445 Elevation: 5060
 USGS Quad: SAWTOOTH RIDGE
 Location: ROCKY MOUNTAIN FRONT RANGE, MAINLY ALONG W. SIDE OF BEAVER CREEK, ADJACENT TO SAWMILL FLAT.

Occurrence number: 004
 Site name: BUTCHER MOUNTAIN MEADOWS
 COUNTY: POWELL
 Township & Range: 020N013W Section: 15 Subsection/additional sections: E2NW4,S2NE4,N2SE4
 Latitude: 472939 Longitude: 1131437 Elevation: 4750
 USGS Quad: PILOT PEAK
 Location: BOB MARSHALL WILDERNESS AREA, "BUTCHER MOUNTAIN MEADOWS", 0.3-1.0 MI. WEST OF SOUTH FORK FLATHEAD RIVER, ADJACENT TO BIG PRAIRIE.

Occurrence number: 005
 Site name: WHITE RIVER
 COUNTY: POWELL
 Township & Range: 021N013W Section: 14 Subsection/additional sections: SE4SW4
 Latitude: 473410 Longitude: 1131417 Elevation: 4560
 USGS Quad: HAYSTACK MOUNTAIN
 Location: BOB MARSHALL WILDERNESS AREA, SOUTH SIDE OF WHITE RIVER, 2.15 AIR MILES WSW OF CONFLUENCE OF SOUTH FORK AND MAIN STEM, CA. 3 AIR MILES EAST OF SOUTH FORK FLATHEAD RIVER.

TABLE 1A. (cont.).

Occurrence number: 006
 Site name: BLACKTAIL GULCH
 COUNTY: TETON
 Township & Range: 022N009W Section: 28 Subsection/additional sections: SE4
 Latitude: 473747 Longitude: 1124526 Elevation: 4960
 USGS Quad: ARSENIC MOUNTAIN
 Location: ROCKY MOUNTAIN FRONT RANGE, BLACKTAIL GULCH, CA. 1.1 MILES
 NORTH OF TRAILHEAD ON BLACKTAIL GULCH TRAIL (#223), CA. 2
 MILES NORTH OF GIBSON DAM.

Occurrence number: 007
 Site name: MORTIMER GULCH
 COUNTY: TETON
 Township & Range: 022N009W Section: 21 Subsection/additional sections: NW4
 Latitude: 473858 Longitude: 1124609 Elevation: 5670
 USGS Quad: ARSENIC MOUNTAIN
 Location: ROCKY MOUNTAIN FRONT RANGE, MORTIMER GULCH, ALONG TRAIL
 #252 (MORTIMER GULCH TRAIL), 1.5 MILES NORTH OF JJJ GUEST
 RANCH (TRAILHEAD).

Occurrence number: 008
 Site name: DRY FORK LANGE CREEK
 COUNTY: LEWIS & CLARK
 Township & Range: 021N010W Section: 12 Subsection/additional sections: E2SE4
 Latitude: 473509 Longitude: 1124919 Elevation: 5700
 USGS Quad: PATRICKS BASIN
 Location: ROCKY MOUNTAIN FRONT RANGE, DRY FORK LANGE CREEK DRAINAGE,
 1.32 AIR MILES SSE OF LANGE FALLS, 1.0 AIR MILES EAST OF
 LANGE CREEK.

Occurrence number: 009
 Site name: LEAVITT CREEK
 COUNTY: LEWIS & CLARK
 Township & Range: 021N009W Section: 17 Subsection/additional sections: E2,8NE4
 Latitude: 473431 Longitude: 1124654 Elevation: 5430
 USGS Quad: PATRICKS BASIN
 Location: ROCKY MOUNTAIN FRONT RANGE, LEAVITT CREEK, 1.25-2.25 AIR
 MILES SW TO SSW OF GIBSON DAM, 0.57-1.85 AIR MILES SOUTH OF
 TETON-LEWIS & CLARK COUNTY LINE.

Occurrence number: 012
 Site name: ARSENIC CREEK
 COUNTY: TETON
 Township & Range: 022N010W Section: 23 Subsection/additional sections: N2NE4NE4,14S2SE4SE4
 Latitude: 473917 Longitude: 1125035 Elevation: 5350
 USGS Quad: ARSENIC MOUNTAIN
 Location: ROCKY MOUNTAIN FRONT RANGE, ARSENIC CREEK, CA. 1.6 AIR MILES
 NNE OF MEDICINE SPRINGS, 1.7 AIR MILES NORTH OF GIBSON RES-
 ERVOIR.

TABLE 1A. (cont.).

Occurrence number: 013
 Site name: CLARY COULEE
 COUNTY: TETON
 Township & Range: 025N009W Section: 25 Subsection/additional sections: NE4
 Latitude: 475343 Longitude: 1124210 Elevation: 5600
 USGS Quad: CAVE MOUNTAIN
 Location: ROCKY MOUNTAIN FRONT RANGE, CLARY COULEE, ALONG TRAIL (#177)
 CA. 0.8 MILE NORTH OF NORTH FORK TETON RIVER ROAD (#144).

Occurrence number: 014
 Site name: NORTH FORK BIRCH CREEK
 COUNTY: PONDERA
 Township & Range: 028N010W Section: 28 Subsection/additional sections: N2
 Latitude: 480928 Longitude: 1125404 Elevation: 5040
 USGS Quad: SWIFT RESERVOIR
 Location: ROCKY MOUNTAIN FRONT RANGE, NORTH FORK BIRCH CREEK, 0.1 AIR
 MILE SSW OF CONFLUENCE WITH HAYWOOD CREEK, NEAR WEST END OF
 SWIFT RESERVOIR.

Occurrence number: 015
 Site name: GREEN GULCH
 COUNTY: TETON
 Township & Range: 024N009W Section: 09 Subsection/additional sections: S10 (BORDER)
 Latitude: 475045 Longitude: 1124514 Elevation: 5920
 USGS Quad: OUR LAKE
 Location: CA. 1.3 MI. UP LOGGING ROAD ON E SIDE OF GREEN GULCH; SUB-
 POPULATION CA. 0.12 MILE SOUTH OF LAST CLEARCUT; SECOND SUB-
 POP. CA. 10 FT FROM CLEARCUT, CA. 0.12 MILE BEFORE TRAILHEAD

Occurrence number: 017
 Site name: FALLS CREEK (SOUTH)
 COUNTY: LEWIS & CLARK
 Township & Range: 017N007W Section: 10 Subsection/additional sections: SW4
 Latitude: 471421 Longitude: 1122901 Elevation: 4990
 USGS Quad: BLOWOUT MOUNTAIN
 Location: ROCKY MOUNTAIN FRONT RANGE, FALLS CREEK DRAINAGE, 20 FT.
 NORTH OF FALLS CREEK TRAIL (#299) AT FORD WHERE IT CROSSES
 TO MEET TWIN BUTTES CREEK TRAIL.

TABLE 1B. Orchis rotundifolia locations in areas other than U.S. Forest Service lands, Montana.

Occurrence number: 010
 Site name: WILLOW OPENING, EAR MOUNTAIN ONA
 COUNTY: TETON
 Township & Range: 024N008W Section: 07 Subsection/additional sections: NW4;S6SW4
 Latitude: 475123 Longitude: 1124107 Elevation: 5640
 USGS Quad: EAR MOUNTAIN
 Location: CA. 2.3 MILES NORTH OF EAR MOUNTAIN, CA. 1.1 MILES SOUTH OF SOUTH FORK OF TETON RIVER, NEXT TO MAJOR CREEK.

Occurrence number: 011
 Site name: JOSLIN BASIN
 COUNTY: LEWIS & CLARK
 Township & Range: 018N007W Section: 35 Subsection/additional sections: SW4SE4
 Latitude: 471559 Longitude: 1122714 Elevation: 5300
 USGS Quad: BEAN LAKE
 Location: ROCKY MOUNTAIN FRONT RANGE, JOSLIN BASIN, CA. 1.5 AIR MILES ESE OF DIAMOND BAR X RANCH.

Occurrence number: 016
 Site name: FALLS CREEK (NORTH)
 COUNTY: LEWIS & CLARK
 Township & Range: 018N007W Section: 34 Subsection/additional sections: NE4SW4
 Latitude: 471603 Longitude: 1122849 Elevation: 4910
 USGS Quad: BEAN LAKE
 Location: ROCKY MOUNTAIN FRONT RANGE, FALLS CREEK DRAINAGE, ALONG TRAIL ON EAST SIDE OF CREEK CA. 0.3 MILES NORTH OF FOREST BOUNDARY, CA. 0.5 MILES SOUTH OF DIAMOND BAR X RANCH.

site names; these correspond to the occurrence numbers provided in the tables and computer print-outs.

3. HISTORICAL SITES (MONTANA): None.
4. UNVERIFIED/UNDOCUMENTED REPORTS (MONTANA): None.
5. AREAS SURVEYED BUT SPECIES NOT LOCATED: Field surveys on the Lewis & Clark National Forest in 1988 emphasized thorough searches along tributaries of the Sun River in the Front Range. Drainages which were surveyed on foot, but in which no sites for O. rotundifolia were found, include:
 - a. Cutreef Creek (T21N, R9W, Sections 26, 27, 35, 36).
 - b. Patricks Basin (downstream along Lange Creek from Stovepipe Creek; T21N, R10W, Sections 11, 13, 14).
 - c. Stovepipe Creek (T21N, R10W, Sections 13, 24; T21N, R9W, Section 18).

No additional suitable habitat, aside from the White River and Butcher Mountain Meadow sites, was observed in the South Fork Flathead River drainage. Moist forests and meadow areas were searched in the vicinity of Big Prairie (lower Cayuse Creek), but no populations were found.

E. HABITAT

1. ASSOCIATED VEGETATION: In Montana, Orchis rotundifolia is found in mossy, moist seepage areas, along stream shores, and on the ecotonal margins of sphagnum bogs, often in full or partial shade of coniferous trees. The sites are most typically associated with forests of Picea engelmannii (Engelmann Spruce); in some areas it also occurs with Pinus contorta (Lodgepole Pine). Additional frequently associated plants, which include a large number of other orchid species, include:

Angelica arguta (Sharptooth Angelica)
Carex aurea (Golden Sedge)
Carex dioica (= C. gynocrates; Yellow-bog Sedge)
Carex disperma (Softleaved Sedge)
Carex interior (Inland Sedge)
Corallorhiza trifida (Yellow Coral-root)
Cornus canadensis (Bunchberry)

Cornus stolonifera (Red Osier Dogwood)
Cypripedium passerinum (Sparrow's-egg Lady's-slipper)
Disporum trachycarpum (Wartberry Fairy-bell)
Equisetum arvense (Field Horsetail)
Equisetum scirpoides (Sedgelike Horsetail)
Galium boreale (Northern Bedstraw)
Habenaria dilatata (White Bog-orchid)
Habenaria hyperborea (Northern Green Bog-orchid)
Habenaria obtusata (Blunt-leaf Rein-orchid)
Ledum glandulosum (Trapper's Tea)
Linnaea borealis (Western Twinflower)
Listera borealis (Northern Twayblade)
Listera convallarioides (Broad-lipped Twayblade)
Mitella nuda (Bare-stemmed Mitrewort)
Osmorhiza chilensis (Mountain Sweet-root)
Pyrola uniflora (Woodnymph)
Salix scouleriana (Scouler Willow)
Smilacina stellata (Starry Solomon-plume)
Streptopus amplexifolius (Clasping-leaved Twisted-stalk)
Symphoricarpos albus (Common Snowberry)
Thalictrum occidentale (Western Meadowrue)

The co-occurrence of Cypripedium passerinum with O. rotundifolia at many sites, owing to the similar ecological requirements of both species, should be emphasized. Both plants are U.S. Forest Service Region 1 sensitive species, and careful management will be needed to protect the following sites where they occur together:

Blacktail Gulch (006)
 Butcher Mountain Meadows (003)
 Clary Coulee (010)
 Dry Fork Lange Creek (007)
 Green Timber Basin (002)
 North Fork Birch Creek (011)
 White River (004)

2. TOPOGRAPHY: In Montana, populations of O. rotundifolia are most often found on gently sloping areas, varying from approximately 0-10% slope. It was found on all aspects.

The known sites in Montana range from 1390 m. (4560 ft.) to 1805 m. (5920 ft.).

3. SOIL RELATIONSHIPS: All of the known sites for O. rotundifolia in Montana occur in areas with calcareous substrates. The soils are typically weathered from beds of the Madison Limestone formation, especially in the Rocky Mountain Front Range (Veseth and Montagne 1980). One of the most

important features of nearly all known sites appears to be semi-permanent water seepage near the surface. Orchis rotundifolia is often found on moist, mossy hummocks in these seepage zones. The soil environment of the species is described by Luer (1975) as follows: "(o)n the cold open tundra or limestone barrens of the far North, this...species grows dwarfed but abundantly in full exposure, but...southward, it becomes increasingly rare in increasingly sheltered habitats. Plants of cold coniferous forests and at moderate elevations in the West may thrive in the humus of dry spruce needles, but farther south plants are restricted to shaded bogs where...moist beds of sphagnum moss offer (cool microhabitats). Good drainage of a constant water supply over sufficient lime is essential for the frail roots, which can tolerate neither heat nor acid."

4. REGIONAL CLIMATE: The climate of northwestern Montana west of the Continental Divide can generally be classified as moist and temperate, while the Front Range is more likely to be influenced by cold, dry continental air masses. For the distributional area of O. rotundifolia in Montana, the nearest climatological stations are located at Gibson Dam (1399 m. (4590 ft.)) and Hungry Horse Dam (963 m. (3160 ft.)). Data for the period 1951-1980 are provided by the U.S. Department of Commerce (1982). At Gibson Dam, the mean annual precipitation was 47.04 cm. (18.52 in.); the mean annual temperature was 5.4°C (41.7°F), the mean January minimum was -11.6°C (11.2°F), and the mean July maximum was 25.5°C (77.9°F). At Hungry Horse Dam, the mean annual precipitation was 85.09 cm. (33.50 in.); the mean annual temperature was 6.1°C (43.0°F), the mean January minimum was -9.7°C (14.6°F), and the mean July maximum was 26.8°C (80.2°F).

F. POPULATION DEMOGRAPHY AND BIOLOGY

1. PHENOLOGY: In Montana, O. rotundifolia typically begins blooming during the second week of June; peak flowering was observed at the end of the third week in June. Some flowers persist until mid-July, but the species then goes out of bloom rapidly. Fruiting extends from late June into late July or early August.
2. POPULATION SIZE AND CONDITION: In Montana, populations of Orchis rotundifolia range in size from 35 to approximately 3000 individuals; these contain from one to seven subpopulations. The

average number of plants per population observed to date is approximately 760; the total number of plants observed in Montana to date is approximately 13,000-15,000.

Details regarding population size and condition are summarized in Table 2.

3. REPRODUCTIVE BIOLOGY

- a. TYPE OF REPRODUCTION: Two methods of reproduction are known to occur commonly in the Orchidaceae: vegetative spread, and sexual production of seeds (Williams and Williams 1983). It appears that reproduction by seeds is the predominant mode of population maintenance for Orchis rotundifolia. Luer (1975) states that "(a)fter watching a colony of this orchid wax and wane and shift position for well over ten years, (it was) concluded that the plants are short-lived and depend upon reseeding to maintain their numbers."
- b. POLLINATION BIOLOGY: Most orchid species rely on insects, especially members of the Hymenoptera and Lepidoptera, for pollination and subsequent fertilization. In the Orchidaceae, the anthers, containing the pollen grains, are grouped in masses called pollinia. When insects visit the flowers, they come into contact with the viscidium, a sticky disk connected by a stalk to the pollinia. The viscidium adheres to the insect, taking with it the pollinia, which can then be carried on to another flower. However, in cases where a flower is not visited by an insect, the viscidium shrinks as the flower withers, pulling the pollen masses away from the anthers to hang forward above the stigma. Wind movement is then sufficient to bring the pollen into contact with the stigma, and self-pollination is thus achieved (Williams and Williams 1983). It is possible that self-pollination is prevalent in O. rotundifolia, as no insect visitors were observed during field surveys in 1988.
- c. SEED DISPERSAL AND BIOLOGY: Upon maturation of the capsules, the walls split upon drying to release the numerous seeds they contain. The seeds of orchids are very small, and are typically dispersed by wind. It is well known that most orchids rely on a

TABLE 2. Population size and condition, Orchis rotundifolia, Montana.

Occurrence number: 001
 Site name: GREEN TIMBER BASIN
 Acreage: 15
 Population size and condition: CA. 1900-2000+ FLOWERING PLANTS OBSERVED, 3 SUBPOPULATIONS; DRAINAGE WAS PARTIALLY LOGGED IN THE PAST, AND IS CURRENTLY GRAZED DURING MID-LATE SUMMER.

Occurrence number: 002
 Site name: BEAVER CREEK
 Acreage: 15
 Population size and condition: CA. 1000-1200 PLANTS, 7 SUBPOPULATIONS; SOME SITES LITTLE DISTURBED, WITH EVIDENCE OF ONLY LIGHT GRAZING IN THE PAST; OTHER SUBPOPULATIONS DIRECTLY ADJACENT TO BEAVER CREEK ROAD, AND IMPACTED BY STOCK MOVEMENT.

Occurrence number: 003
 Site name: SAWMILL FLAT
 Acreage: 5
 Population size and condition: CA. 1600-1800+ INDIVIDUALS; SURROUNDING AREA USED FOR GRAZING, FORESTRY, AND RECREATION; POPULATION IS ADJACENT TO BEAVER CREEK ROAD.

Occurrence number: 004
 Site name: BUTCHER MOUNTAIN MEADOWS
 Acreage: 15
 Population size and condition: EST. 2000-3000+ PLANTS, IN 5 SUBPOPULATIONS.

Occurrence number: 005
 Site name: WHITE RIVER
 Acreage: 4
 Population size and condition: CA. 200-400 FLOWERING INDIVIDUALS, AND MANY VEGETATIVE PLANTS, IN TWO COLONIES; SOME HABITAT NEAR WEST END OF SITE HAS BEEN INFLUENCED BY A SMALL LANDSLIDE.

Occurrence number: 006
 Site name: BLACKTAIL GULCH
 Acreage: 3
 Population size and condition: CA. 700 PLANTS, IN TWO COLONIES; AREA APPEARS TO HAVE SLUMPED AROUND SPRING SEEPS.

Occurrence number: 007
 Site name: MORTIMER GULCH
 Acreage: 4
 Population size and condition: CA. 350 PLANTS. HABITAT IMPACTED BY SELECTIVE LOGGING AND HORSE GRAZING; AREA USED FOR RECREATION BY ADJACENT GUEST RANCH.

TABLE 2. (cont.).

- Occurrence number: 008
 Site name: DRY FORK LANGE CREEK
 Acreage: 3
 Population size and condition: 185 PLANTS COUNTED; HABITAT CURRENTLY UNDISTURBED.
- Occurrence number: 009
 Site name: LEAVITT CREEK
 Acreage: 5
 Population size and condition: CA. 600-650 PLANTS, IN FOUR SUBPOPULATIONS; LIGHT GRAZING EVIDENT, AS WELL AS A HUNTING TRAIL; THREE SOUTHERN SUBPOPULATIONS CONTAIN MAJORITY OF PLANTS (CA. 600), WITH 10-15 OBSERVED IN NORTH COLONY.
- Occurrence number: 010
 Site name: WILLOW OPENING, EAR MOUNTAIN ONA
 Acreage: 2
 Population size and condition: CA. 800 PLANTS; ALONG EDGES OF BOG, FLOWERING AND WELL-ESTABLISHED. GRAZING LEASE HELD BY THE NATURE CONSERVANCY, HORSES RUN IN JULY-SEPTEMBER.
- Occurrence number: 011
 Site name: JOSLIN BASIN
 Acreage: 1
 Population size and condition: CA. 100+ PLANTS; SITE MAY HAVE BEEN DISTURBED BY CANYON CREEK FIRE IN SEPTEMBER, 1988.
- Occurrence number: 012
 Site name: ARSENIC CREEK
 Acreage: 1
 Population size and condition: 101-1000 PLANTS; LIGHT HORSE GRAZING EVIDENT; AREA APPARENTLY HAS EXTENSIVE SPRINGS WHICH HAVE BEEN DAMMED IN THE PAST BY BEAVERS, AND THE PONDS ARE NOW IN VARIOUS STAGES OF SUCCESSION.
- Occurrence number: 013
 Site name: CLARY COULEE
 Acreage: 2
 Population size and condition: 101-1000 PLANTS, TWO SUBPOPULATIONS; SEEPAGE AREAS ADJACENT TO HIKING TRAIL.
- Occurrence number: 014
 Site name: NORTH FORK BIRCH CREEK
 Acreage: 2
 Population size and condition: CA. 1200 PLANTS, THREE SUBPOPULATIONS; NO GRAZING OCCURRING, BUT SITE IS NEAR TRAIL, WHICH COULD DESTABILIZE SLOPE.

TABLE 2. (cont.).

Occurrence number: 015

Site name: GREEN GULCH

Acreage: 1

Population size and condition: TWO SUBPOPULATIONS. CA. 80 PLANTS AT EDGE OF BOG; 30 PERCENT FLOWERING; CA. 15 PLANTS 100 PERCENT IN FLOWER, OPEN EDGE OF BOG AND CLEARCUT.

Occurrence number: 016

Site name: FALLS CREEK (NORTH)

Acreage: 1

Population size and condition: CA. 100-300 INDIVIDUALS; MANY WERE PICKED NEAR THE TRAIL. THIS SITE IS OUTSIDE THE CANYON CREEK FIRE PERIMETER.

Occurrence number: 017

Site name: FALLS CREEK (SOUTH)

Acreage: 1

Population size and condition: 35 FLOWERING PLANTS COUNTED. SITE PROBABLY SEVERELY BURNED BY CANYON CREEK FIRE ON 88-09-09; IT IS WELL WITHIN BURN PERIMETER, IN AREA OF HEAVY FUELS.

symbiotic relationship with certain soil fungi (mycorrhizae) for effective seed germination and subsequent growth. If the necessary mycorrhizal fungi are lacking in a particular area, it is not likely that a species such as Q. rotundifolia could become established on such a site.

G. POPULATION ECOLOGY

1. BIOLOGICAL INTERACTIONS

- a. COMPETITION: Owing to its specialized habitat, Q. rotundifolia would probably not possess strong competitive ability in other more densely vegetated areas to which it is not ecologically adapted. However, within the microhabitats where it does occur, individuals are often found on small hummocks where cover of other herbaceous vegetation is fairly high; these sites are also often at least partially shaded by overhanging shrub and tree species. Thus, it appears that, within its own habitat, the species has some tolerance for interspecific competition.
- b. HERBIVORY: Field observations during 1988 did not indicate that Q. rotundifolia is subject to heavy browsing by native herbivores. However, the Green Timber Basin (002) site is subject to livestock grazing each summer beginning in early July, and the area is moderately to heavily grazed. The long-term effects of this activity should be closely monitored, to determine population trends.

H. LAND OWNERSHIP

1. The land ownership for the 17 occurrences currently known in Montana is given below. The exact locations are provided in Table 1, pp. 5-8.
 - a. U.S. FOREST SERVICE:
 - i. Flathead National Forest, Spotted Bear Ranger District, Bob Marshall Wilderness Area:

Butcher Mountain Meadows (004)
White River (005)

ii. Lewis & Clark National Forest, Rocky Mountain Ranger District:

Green Timber Basin (001)
 Beaver Creek (002)
 Sawmill Flat (003)
 Blacktail Gulch (006)
 Mortimer Gulch (007)
 Dry Fork Lange Creek (008)
 Leavitt Creek (009)
 Arsenic Creek (012)
 Clary Coulee (013)
 North Fork Birch Creek (014)
 Green Gulch (015)
 Falls Creek (South) (017)

b. U.S. BUREAU OF LAND MANAGEMENT:

i. Lewistown District, Great Falls Resource Area:

Willow Opening, Ear Mountain ONA (010)

c. PRIVATE OWNERSHIP:

Joslin Basin (011)
 Falls Creek (North) (016)

II. ASSESSMENT AND MANAGEMENT RECOMMENDATIONS

A. THREATS TO CURRENTLY KNOWN POPULATIONS (MONTANA):

Based on field observations in 1988, populations of Orchis rotundifolia are potentially or currently threatened by i) grazing, ii) recreational activities, and iii) timber harvesting. The sites threatened by these activities are reviewed below:

1. GRAZING: The site that is currently being most impacted by cattle grazing is Green Timber Basin (001), on the Lewis & Clark National Forest. Cattle are turned into the area around 1 July each year, and they concentrate in the basin area in the old clear-cuts, as well as the forests in which O. rotundifolia occurs. As discussed in Section I.G.1.b., some impacts to the population probably result from this activity. Cattle grazing also occurs along the Beaver Creek drainage (002), and some subpopulations at this site are impacted by stock movement along the road (D. Field, pers. comm.). Although not observed in June 1988, these impacts could also occur in the adjacent, much larger Sawmill Flat (003) site. Light cattle grazing was evident at the Leavitt Creek (009) site. A grazing allotment may

potentially be established in the Clary Coulee (013) drainage (D. Field, pers. comm.).

Two sites, on Lewis & Clark National Forest lands in the Front Range, are in areas used for horse grazing. Of these, the Mortimer Gulch (007) site appeared to be the most impacted; the drainage is used for grazing by an adjacent guest ranch. Light horse grazing was also evident at the Arsenic Creek (012) site (D. Field, pers. obs.).

Two other sites on U.S. Forest Service lands in the Front Range are in areas which may be subject to cattle grazing, but they do not currently appear to be threatened by this activity:

Blacktail Gulch (006)
Dry Fork Lange Creek (008)

2. RECREATIONAL ACTIVITIES: Two populations studied in 1988 occur in the Bob Marshall Wilderness Area:

Butcher Mountain Meadows (004)
White River (005)

Neither of these appear to be seriously threatened by recreational use at this time, although the following observations were made. The Butcher Mountain Meadows area is lightly used by outfitters for hunting in the fall, well after the growing season (Maria Ash, pers. comm.); the Butcher Mountain trail (#133) does bisect the area, but it is only lightly used, and does not pass within the immediate area of the bog meadows or the orchid subpopulations. If the meadows or adjacent forests were to be used for hunting camps, some impacts might occur.

The White River site is along the south side of the river, adjacent to a trail which is no longer maintained; the current White River trail (#112) follows the north shore. However, the south trail is still used occasionally by outfitters and U.S.F.S. personnel; it is becoming more difficult to use, because landslides have removed portions of the trail near the O. rotundifolia site. Although a portion of the habitat near the west end of the site may have been impacted by these slides, the majority of the habitat is intact and not easily accessible.

In the Front Range, four populations on Lewis & Clark National Forest lands (Blacktail Gulch (006), Clary Coulee (013), Mortimer Gulch (007),

and North Fork Birch Creek (014)) are located near maintained trails. In Blacktail Gulch, the trail (#223) is a National Recreation Trail, and is fairly heavily used for hiking and horseback riding. The O. rotundifolia population is located along the east side of the trail about 1 mile north of the trailhead. Although it is directly adjacent to the trail, the site does not appear to be impacted at this time. The boggy seepage area is not easily traversed, and is thus not likely to be heavily impacted by trail use in the current situation. In Clary Coulee, the habitat of O. rotundifolia is adjacent to a hiking trail (#177). The trail is steep, and eroded in places to 3-5 m. wide (D. Field, pers. comm.). Trail relocation may eventually be necessary here, to protect the seepage area. The Mortimer Gulch site is also adjacent to a hiking trail (#252); this trail is heavily used for horse trips by a nearby guest ranch. At the North Fork Birch Creek site, a hiking trail (#105) traverses all three seepage areas which contain O. rotundifolia, and could eventually lead to destabilization of the slope (D. Field, pers. comm.).

3. **TIMBER HARVESTING:** Two populations are known to have been impacted by timber harvest activity: Green Timber Basin (001) and Green Gulch (015). In Green Timber Basin, some past clearcutting has occurred adjacent to the existing orchid populations, and it is possible that the habitat was partially influenced by this activity. The forest that currently contains part of the northernmost subpopulation was selectively logged, and some direct impacts to individuals probably occurred as a result. In Green Gulch, the northernmost (smallest) subpopulation is directly adjacent to a logging road, which was constructed through the seepage zone with which the plants are associated. The southernmost population is just beyond the end of the road; it is not known whether this area is going to be harvested.

Three other sites in the Front Range, outside the Bob Marshall Wilderness Area, which could potentially be impacted by timber harvesting include Blacktail Gulch (006), Dry Fork Lange Creek (007), and Sawmill Flat (003). A timber sale had been marked on the east side of the Beaver Creek road across from the Sawmill Flat site. However, it did not appear that timber harvest activities are imminent at the other two sites.

- B. **MANAGEMENT PRACTICES AND RESPONSE:** Little detailed information exists regarding the response of Q. rotundifolia to management practices such as grazing and timber harvesting. Owing to its specialized habitats and complex obligate interactions with soil mycorrhizal fungi, it is not likely that the species would respond favorably to such activities. Ecodata studies recently established in Green Timber Basin and along Beaver Creek will be useful in obtaining a more detailed understanding of the species' response to disturbance.
- C. **RECOMMENDATIONS FOR MAINTAINING VIABLE POPULATIONS:** The following recommendations are made to insure the long-term persistence of viable populations of Q. rotundifolia on U.S. Forest Service lands in Montana:
1. Protection of natural habitats which currently support populations. Although afforded some degree of protection by wilderness designation, the two populations in the Bob Marshall Wilderness Area should be considered in any proposed recreational developments which may occur in the vicinity of the known sites. Management plans elsewhere on the Lewis & Clark National Forest should take all other known populations into consideration.
 2. Notification of U.S. Forest Service personnel of locations on U.S.F.S. lands. To prevent inadvertent impacts to known populations, all appropriate personnel involved in planning should be provided with detailed location information for Q. rotundifolia. It is especially important that Ranger District timber sale managers, engineers, and range conservationists know the precise locations, so that disturbance may be prevented.
- D. **RECOMMENDATIONS FOR FURTHER ASSESSMENT**
1. Further surveys in potential habitats. Further field surveys may reveal the existence of additional populations, especially in the Front Range. Drainages in the Front Range which contain seepage zones in Picea engelmannii forest types are particularly likely to support additional sites. Especially promising would be further surveys in the North Fork Birch Creek drainage, upstream from the known site.
 2. Establishment of monitoring studies to assess population condition and status. In order to more accurately determine the effects of habitat alteration on populations of Q. rotundifolia,

monitoring studies should be established in several locations, especially at Green Timber Basin (002) (note: ecodata plots were established at this sites in 1988). Similar studies, if established in one of the large populations in the Bob Marshall Wilderness Area, would provide useful comparisons. The method outlined by Lesica (1987) is a good one for obtaining data on both demographic trends and reproductive success, and could perhaps be combined with the ecodata plot studies.

- E. SUMMARY: Orchis rotundifolia is an orchid species distributed broadly across boreal North America. The southern portion of its range includes northwestern Montana, where it has been found on the Flathead and Lewis & Clark national forests. The occurrences in Montana are the majority of those known to occur in the western United States (one site has been found in northwestern Wyoming). It is currently listed as a sensitive species in Region 1 of the U.S. Forest Service. There are presently 17 known sites in Montana; 14 of these occur on U.S. Forest Service lands (12 on Lewis & Clark National Forest, 2 on Flathead National Forest). During field surveys on these lands in 1988, four previously known locations were verified, and ten new occurrences were found. Owing to specialized habitat requirements and obligate relationships with soil fungi, the species does not appear to be one which would tolerate any severe habitat alteration. Management planning should take all Montana sites into consideration, in order to maintain viable populations on Region 1 lands.

III. LITERATURE CITED

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IV. ELEMENT OCCURRENCE PRINT-OUTS AND MAPS (pp. 24-53)

ELEMENT OCCURRENCE RECORD

EOCODE: PMORC01010.001
 NAME: ORCHIS ROTUNDIFOLIA
 COMNAME: ROUND-LEAVED ORCHIS
 MARGNUM: 1 TENTEN: 10,4 IDENT: Y EORANK: B
 SURVEYSITE: GREEN TIMBER BASIN
 EORANKCOMM: LARGE POPULATION, IN PARTIALLY DISTURBED DRAINAGE.
 SURVEYDATE: 1988-06-28 LASTOBS: 1988-06-28 FIRSTOBS: 1976 GRANK: 65
 SRANK: S2 STATE: MT COUNTYNAME: MTLWI
 QUADCODE: 4711257
 QUADNAME: PATRICKS BASIN PRECISION: SC
 LAT: 473441 LONG: 1124515 S: 473429 N: 473443 E: 1124510 W: 1124523
 TOWNRANGE: 021N009W SECTION: 15 MERIDIAN: PR TRSCOMM: W2NW4, 16E2N
 E4
 PHYSPROV: NR WATERSHED: 10030104 RIVERREACH:
 DIRECTIONS: ROCKY MOUNTAIN FRONT RANGE, GREEN TIMBER BASIN, HEAD OF
 DRAINAGE OF TRIBUTARY OF BEAVER CREEK, CA. 1.7 AIR MILES
 SOUTH OF GIBSON DAM.
 GENDESC: SEEP AREAS ON GENTLE NORTH-FACING SLOPES; PARTIALLY LOGGED
 DOUGLAS FIR-SPRUCE WOODS, WITH EQUISETUM ARVENSE, E.
 SCIRPOIDES, CAREX AUREA, PYROLA UNIFLORA, MITELLA NUDA.
 ELEV: 5130 SIZE: 15
 EODATA: CA. 1900-2000+ FLOWERING PLANTS OBSERVED, 3 SUBPOPULATIONS;
 DRAINAGE WAS PARTIALLY LOGGED IN THE PAST, AND IS CURRENTLY
 GRAZED DURING MID-LATE SUMMER.
 COMMENTS: VOUCHERS-MEHRHOFF, L. (7848), 1976, MONTU; SHELLY, J.S.
 (1479), 1988, MONTU.
 MACODE1: FFSPLGREE1MTUS CONTAINED1: Y MACODE2: FFSNFLEWI9MTUS CONTAINED2:
 Y
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: F SITECODE:
 SITENAME:
 OWNER: LEWIS & CLARK NATIONAL FOREST
 OWNERCOMM:
 PROTCOMM: GREEN TIMBER BASIN-BEAVER CREEK PROPOSED NNL.
 MGMTCOMM:
 MONITOR: MONITORNUM: -
 BESTSOURCE: SHELLY, J.S. 1988. FIELD SURVEYS IN ROCKY MOUNTAIN FRONT
 RANGE OF 27 JUNE-1 JULY & 12 JULY.
 SOURCECODE: F88SHE05MTUS S76MEHUMMTUS PNDSEHE01MTUS PNDPHI01MTUS PNDLES01MTUS
 DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 86-03-14 JSS CDREV: Y MAPPER: 86-03-14 JSS QC: Y
 UPDATE: 88-09-15 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PMORC01010.002
 NAME: ORCHIS ROTUNDIFOLIA
 COMNAME: ROUND-LEAVED ORCHIS
 MARGNUM: 4 TENTEN: 1,5 IDENT: Y EORANK: AB
 SURVEYSITE: BEAVER CREEK
 EORANKCOMM: RELATIVELY UNDISTURBED SITES, SOME ADJACENT TO ROAD.
 SURVEYDATE: 1983-07-04 LASTOBS: 1988-06-28 FIRSTOBS: 1948 GRANK: G5
 SRANK: S2 STATE: MT COUNTYNAME: MLEWI
 QUADCODE: 4711256
 QUADNAME: SAWTOOTH RIDGE PRECISION: SC
 LAT: 473357 LONG: 1124441 S: 473322 N: 473449 E: 1124425 W: 1124453
 TOWNRANGE: 021N009W SECTION: 22 MERIDIAN: PR TRSCOMM: N2,SE4;15,S2
 PHYSPROV: NR WATERSHED: 10030104 RIVERREACH:
 DIRECTIONS: ROCKY MOUNTAIN FRONT RANGE, ALONG BEAVER CREEK, CA. 3 AIR
 MI. SSE. OF GIBSON DAM, CA. 3 AIR MI. S. OF NORTH FORK SUN
 RIVER.
 GENDESC: NEAR CALCAREOUS SPRINGS, ORGANIC SOIL; MOIST SPRUCE WOODS,
 WITH EQUISETUM ARVENSE, E. SCIRPOIDES, ANGELICA ARGUTA,
 CORNUS STOLONIFERA, LISTERA BOREALIS.
 ELEV: 5000 SIZE: 15
 EODATA: CA. 1000-1200 PLANTS, 7 SUBPOPULATIONS; SOMES SITES LITTLE
 DISTURBED, WITH EVIDENCE OF ONLY LIGHT GRAZING IN THE PAST;
 OTHER SUBPOPULATIONS DIRECTLY ADJACENT TO BEAVER CREEK ROAD,
 AND IMPACTED BY STOCK MOVEMENT.
 COMMENTS: BEAVER CREEK DRAINAGE IS RICH IN ORCHID SPECIES; VOUCHERS-
 HITCHCOCK (18025), 1948, WTU; MEHRHOFF III (7842).
 MACODE1: FFSNFLEWI9MTUS CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: F SITECODE:
 SITENAME:
 OWNER: LEWIS & CLARK NATIONAL FOREST
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM: -
 BESTSOURCE: FIELD, DANA.
 SOURCECODE: PNDFIE01MTUS S48HITUWMTUS U85LES02MTUS PND SHE01MTUS PNDLES01MTUS
 F86SHE07MTUS PNDM0001MTUS F88SHE05MTUS PNDPHI01MTUS
 DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-03-14 JSS CDREV: Y MAPPER: 86-03-14 JSS QC: Y
 UPDATE: 88-11-03 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PMORC01010.003
 NAME: ORCHIS ROTUNDIFOLIA
 COMNAME: ROUND-LEAVED ORCHIS
 MARGNUM: 5 TENTEN: 1,6 IDENT: Y EORANK: B
 SURVEYSITE: SAWMILL FLAT
 EORANKCOMM: FAIRLY LARGE POPULATION, ADJACENT TO LOGGING ROAD.
 SURVEYDATE: 1983-07-04 LASTOBS: 1988-06-28 FIRSTOBS: 1948 GRANK: 65
 SRANK: S2 STATE: MT COUNTYNAME: MTLWEI
 QUADCODE: 4711256
 QUADNAME: SAWTOOTH RIDGE PRECISION: SC
 LAT: 473301 LONG: 1124445 S: 473256 N: 473305 E: 1124440 W: 1124448
 TOWNRANGE: 021N009W SECTION: 22 MERIDIAN: PR TRSCOMM: SW4

PHYSPROV: NR WATERSHED: 10030104 RIVERREACH:
 DIRECTIONS: ROCKY MOUNTAIN FRONT RANGE, MAINLY ALONG W. SIDE OF BEAVER
 CREEK, ADJACENT TO SAWMILL FLAT.

GENDESC: MOIST SPRUCE WOODS ADJACENT TO CREEK; SPRINGS ARE COMMON,
 AND WATER IS PROBABLY CALCAREOUS; WITH EQUISETUM SPP.,
 HABENARIA SPP., LISTERA BOREALIS, CORALLORHIZA TRIFIDA.

ELEV: 5060 SIZE: 5
 EODATA: CA. 1600-1800+ INDIVIDUALS; SURROUNDING AREA USED FOR
 GRAZING, FORESTRY, AND RECREATION; POPULATION IS ADJACENT TO
 BEAVER CREEK ROAD.

COMMENTS:

MACODE1: FFSNFLEWI9MTUS CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: F SITECODE:
 SITENAME:
 OWNER: LEWIS & CLARK NATIONAL FOREST
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM: -
 BESTSOURCE: SHELLY, J.S. 1988. FIELD SURVEYS IN ROCKY MOUNTAIN FRONT
 RANGE OF 27 JUNE-1 JULY & 12 JULY.
 SOURCECODE: F88SHE05MTUS PNDM0001MTUS S48HITRMMTUS PNDLES01MTUS PNDSE01MTUS
 PNDFIE01MTUS
 DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 86-04-08 JSS CDREV: Y MAPPER: 86-04-08 JSS QC: Y
 UPDATE: 88-10-12 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PMORC01010.004
 NAME: ORCHIS ROTUNDIFOLIA
 COMNAME: ROUND-LEAVED ORCHIS
 MARGNUM: 1 TENTEN: 1,1 IDENT: Y EORANK: A
 SURVEYSITE: BUTCHER MOUNTAIN MEADOWS
 EORANKCOMM: LARGE POPULATION, EXCELLENT HABITAT.
 SURVEYDATE: 1988-06-22 LASTOBS: 1988-06-22 FIRSTOBS: 1987 GRANK: 65
 SRANK: S2 STATE: MT COUNTYNAME: MTPOWE
 QUADCODE: 4711342
 QUADNAME: PILOT PEAK PRECISION: SC
 LAT: 472939 LONG: 1131437 S: 472917 N: 472942 E: 1131359 W: 1131440
 TOWNRANGE: 020N013W SECTION: 15 MERIDIAN: PR TRSCOMM: E2NW4,S2NE4,
 N2SE4
 PHYSPROV: NR WATERSHED: 17010209 RIVERREACH: 1701020908500.00
 DIRECTIONS: BOB MARSHALL WILDERNESS AREA, "BUTCHER MOUNTAIN MEADOWS",
 0.3-1.0 MI. WEST OF SOUTH FORK FLATHEAD RIVER, ADJACENT TO
 BIG PRAIRIE.
 GENDESC: MOIST, MOSSY AREAS ON EDGES OF BOGS; MOSTLY UNDER PICEA
 ENGELMANNII, BUT ALSO IN MORE OPEN SALIX AND LEDUM
 GLANDULOSUM SHRUB; WITH EQUISETUM ARVENSE, (CONT.)
 ELEV: 4750 SIZE: 15
 EODATA: EST. 2000-3000+ PLANTS, IN 5 SUBPOPULATIONS.

GENDESC (CONT.): CYPRIPEDIUM PASSERINUM, MITELLA NUDA,
 HABENARIA OBTUSATA, STREPTOPUS AMPLEXIFOLIUS, CAREX AUREA.
 COMMENTS: VOUCHER-SHELLY, J.S. (1466), M. ASH & A. EVENDEN, 1988,
 MONTU.

MACODE1: FFSWABO01MTUS CONTAINED1: Y MACODE2: FFSNFFLAT4MTUS CONTAINED2:
 Y
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: F SITECODE:
 SITENAME:
 OWNER: FLATHEAD NATIONAL FOREST
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1988. FIELD SURVEYS IN BOB MARSHALL WILDERNESS
 AREA OF 20-26 JUNE.
 SOURCECODE: F88SHE04MTUS PND8SHE01MTUS PNDASH01MTUS PNDEVE01MTUS S88SHEUMMTUS

DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 87-07-20 JEG CDREV: Y MAPPER: 87-07-23 JEG QC: Y
 UPDATE: 88-09-28 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PMORC01010.005
 NAME: ORCHIS ROTUNDIFOLIA
 COMNAME: ROUND-LEAVED ORCHIS
 MARGNUM: 2 TENTEN: 1,5 IDENT: Y EORANK: AB
 SURVEYSITE: WHITE RIVER
 EORANKCOMM: MODERATE-SIZED POPULATION, IN REMOTE UNDISTURBED AREA.
 SURVEYDATE: 1988-06-23 LASTOBS: 1988-06-23 FIRSTOBS: 1988 GRANK: 65
 SRANK: S2 STATE: MT COUNTYNAME: MTPQWE
 QUADCODE: 4711352
 QUADNAME: HAYSTACK MOUNTAIN PRECISION: SC
 LAT: 473410 LONG: 1131417 S: 473408 N: 473412 E: 1131412 W: 1131430
 TOWNRANGE: 021N013W SECTION: 14 MERIDIAN: PR TRSCOMM: SE4SW4

 PHYSPROV: NR WATERSHED: 17010209 RIVERREACH: 1701020911400.00
 DIRECTIONS: BOB MARSHALL WILDERNESS AREA, SOUTH SIDE OF WHITE RIVER,
 2.15 AIR MILES WSW OF CONFLUENCE OF SOUTH FORK AND MAIN
 STEM, CA. 3 AIR MILES EAST OF SOUTH FORK FLATHEAD RIVER.
 GENDESC: SHADED BANKS & SLOPE ALONG RIVER, IN MOIST MOSSY AREAS; WITH
 PICEA ENGELMANNII, EQUISETUM ARVENSE, HABENARIA HYPERBOREA,
 LINNAEA BOREALIS, CYPRIPEDIUM PASSERINUM, PYROLA UNIFLORA.
 ELEV: 4560 SIZE: 4
 EODATA: CA. 200-400 FLOWERING INDIVIDUALS, AND MANY VEGETATIVE
 PLANTS, IN TWO COLONIES; SOME HABITAT NEAR WEST END OF SITE
 HAS BEEN INFLUENCED BY A SMALL LANDSLIDE.

 COMMENTS: VOUCHER - SHELLY, J.S. (1478), A. EVENDEN & M. ASH, 1988,
 MONTU.
 MACODE1: FFSWABOBM1MTUS CONTAINED1: Y MACODE2: FFSNFFLAT4MTUS CONTAINED2:
 Y
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: F SITECODE:
 SITENAME:
 OWNER: FLATHEAD NATIONAL FOREST
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1988. FIELD SURVEYS IN BOB MARSHALL WILDERNESS
 AREA OF 20-26 JUNE.
 SOURCECODE: F88SHE04MTUS PND8SHE01MTUS PNDEVE01MTUS PNDASH01MTUS S88SHEUMMTUS

 DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 88-08-09 JSS CDREV: Y MAPPER: 88-08-09 JSS QC: Y
 UPDATE: 88-08-15 MEZ

ELEMENT OCCURRENCE RECORD

EOCODE: PMORC01010.006
 NAME: ORCHIS ROTUNDIFOLIA
 COMNAME: ROUND-LEAVED ORCHIS
 MARGNUM: 1 TENTEN: 10,10 IDENT: Y EORANK: AB
 SURVEYSITE: BLACKTAIL GULCH
 EORANKCOMM: MODERATE, STABLE POPULATION, IN FARILY SECURE LOCATION.
 SURVEYDATE: 1988-06-29 LASTOBS: 1988-06-29 FIRSTOBS: 1988 GRANK: 65
 SRANK: S2 STATE: MT COUNTYNAME: MTTETO
 QUADCODE: 4711267
 QUADNAME: ARSENIC MOUNTAIN PRECISION: S
 LAT: 473747 LONG: 1124526 S: 473745 N: 473752 E: 1124523 W: 1124529
 TOWNRANGE: 022N009W SECTION: 28 MERIDIAN: PR TRSCOMM: SE4

PHYSPROV: NR WATERSHED: 10030104 RIVERREACH: 1003010401900.00
 DIRECTIONS: ROCKY MOUNTAIN FRONT RANGE, BLACKTAIL GULCH, CA. 1.1 MILES
 NORTH OF TRAILHEAD ON BLACKTAIL GULCH TRAIL (#223), CA. 2
 MILES NORTH OF GIBSON DAM.

GENDESC: IN MOSSY SEEPAGE AREA; PICEA ENGELMANNII/EQUISETUM ARVENSE
 HABITAT, WITH PYROLA UNIFLORA, EQUISETUM SCRIPPOIDES, SALIX
 SCOULERIANA, MITELLA NUDA.

ELEV: 4960 SIZE: 3
 EODATA: CA. 700 PLANTS, IN TWO COLONIES; AREA APPEARS TO HAVE
 SLUMPED AROUND SPRING SEEPS.

COMMENTS: VOUCHER - SHELLY, J.S. (1480), 1988, MONTU.

MACODE1: FFSNFLEWI9MTUS CONTAINED1: Y MACODE2: CONTAINED2:

MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:

MOREMGMT: F SITECODE:

SITENAME:

OWNER: LEWIS & CLARK NATIONAL FOREST

OWNERCOMM:

PROTCOMM:

MGMTCOMM:

MONITOR:

MONITORNUM:

BESTSOURCE: SHELLY, J.S. 1988. FIELD SURVEYS IN ROCKY MOUNTAIN FRONT
 RANGE OF 27 JUNE - 1 JULY AND 12 JULY.

SOURCECODE: F88SHE05MTUS P88SHE01MTUS S88SHEUMMTUS

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:

TRANSCRIBR: 88-08-12 JSS CDREV: Y MAPPER: 88-08-12 JSS QC: Y

UPDATE: 88-12-01 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PMORC01010.007
 NAME: ORCHIS ROTUNDIFOLIA
 COMNAME: ROUND-LEAVED ORCHIS
 MARGNUM: 3 TENTEN: 9,8 IDENT: Y EORANK: BC
 SURVEYSITE: MORTIMER GULCH
 EORANKCOMM: FAIRLY LARGE POPULATION, HABITAT LIGHTLY DISTURBED
 SURVEYDATE: 1988-06-29 LASTOBS: 1988-06-29 FIRSTOBS: 1988 GRANK: 65
 SRANK: S2 STATE: MT COUNTYNAME: MTTETO
 QUADCODE: 4711267
 QUADNAME: ARSENIC MOUNTAIN PRECISION: SC
 LAT: 473858 LONG: 1124609 S: 473855 N: 473902 E: 1124606 W: 1124613
 TOWNRANGE: 022N009W SECTION: 21 MERIDIAN: PR TRSCOMM: NW4
 PHYSPROV: NR WATERSHED: 10030104 RIVERREACH: 1003010402000.00
 DIRECTIONS: ROCKY MOUNTAIN FRONT RANGE, MORTIMER GULCH, ALONG TRAIL
 #252 (MORTIMER GULCH TRAIL), 1.5 MILES NORTH OF JJJ GUEST
 RANCH (TRAILHEAD).
 GENDESC: MOSSY SEEPAGE AREA IN PICEA ENGELMANNII FOREST, WITH
 LISTERA BOREALIS, EQUISETUM ARVENSE, PYROLA UNIFLORA,
 EQUISETUM SCIRPOIDES, MITELLA NUDA.
 ELEV: 5670 SIZE: 4
 EODATA: CA. 350 PLANTS. HABITAT IMPACTED BY SELECTIVE LOGGING AND
 HORSE GRAZING; AREA USED FOR RECREATION BY ADJACENT GUEST
 RANCH.
 COMMENTS: VOUCHER - SHELLY, J.S. (1483), 1988, MONTU.
 MACODE1: FFSNFLEWI9MTUS CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: SITECODE:
 SITENAME:
 OWNER: LEWIS & CLARK NATIONAL FOREST
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1988. FIELD SURVEYS IN ROCKY MOUNTAIN FRONT
 RANGE OF 27 JUNE - 1 JULY AND 12 JULY.
 SOURCECODE: F8BSHE05MTUS PNDSEHE01MTUS S8BSHEUMMTUS
 DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 88-08-12 JSS CDREV: Y MAPPER: 88-08-12 JSS QC: Y
 UPDATE: 88-12-01 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PMORC01010.008
 NAME: ORCHIS ROTUNDIFOLIA
 COMNAME: ROUND-LEAVED ORCHIS
 MARGNUM: 4 TENTEN: 5,4 IDENT: Y EORANK: AB
 SURVEYSITE: DRY FORK LANGE CREEK
 EORANKCOMM: MODERATE-SIZED POPULATION, REMOTE UNDISTURBED AREA.
 SURVEYDATE: 1988-06-30 LASTOBS: 1988-06-30 FIRSTOBS: 1988 GRANK: 65
 SRANK: S2 STATE: MT COUNTYNAME: MTLWEI
 QUADCODE: 4711257
 QUADNAME: PATRICKS BASIN PRECISION: SC
 LAT: 473509 LONG: 1124919 S: 473507 N: 473511 E: 1124912 W: 1124921
 TOWNRANGE: 021N010W SECTION: 12 MERIDIAN: PR TRSCOMM: E2SE4

PHYSPROV: NR WATERSHED: 10030104 RIVERREACH: 1003010402100.00
 DIRECTIONS: ROCKY MOUNTAIN FRONT RANGE, DRY FORK LANGE CREEK DRAINAGE,
 1.32 AIR MILES SSE OF LANGE FALLS, 1.0 AIR MILES EAST OF
 LANGE CREEK.

GENDESC: MOIST SEEPAGE AREA IN FOREST OPENING; WITH PICEA
 ENGELMANNII, EQUISETUM ARVENSE, HABENARIA HYPERBOREA,
 PYROLA UNIFLORA, CAREX GYNOCRATES, EQUISETUM SCIRPOIDES.

ELEV: 5700 SIZE: 3
 EODATA: 185 PLANTS COUNTED; HABITAT CURRENTLY UNDISTURBED.

COMMENTS: VOUCHER - SHELLY, J.S. (1484) & D. FIELD, 1988, MONTU.

MACODE1: FFSNFLEWI9MTUS CONTAINED1: Y MACODE2: CONTAINED2:

MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:

MOREMGMT: F SITECODE:

SITENAME:

OWNER: LEWIS & CLARK NATIONAL FOREST

OWNERCOMM:

PROTCOMM:

MGMTCOMM:

MONITOR:

MONITORNUM:

BESTSOURCE: SHELLY, J.S. 1988. FIELD SURVEYS IN ROCKY MOUNTAIN FRONT
 RANGE OF 27 JUNE - 1 JULY & 12 JULY.

SOURCECODE: F88SHE05MTUS P88SHE01MTUS S88SHEUMMTUS

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:

TRANSCRIBR: 88-08-23 JSS CDREV: Y MAPPER: 88-08-23 JSS QC: Y

UPDATE: 88-12-01 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PMORC01010.009
 NAME: ORCHIS ROTUNDIFOLIA
 COMNAME: ROUND-LEAVED ORCHIS
 MARGNUM: 2 TENTEN: 8,5 IDENT: Y EORANK: B
 SURVEYSITE: LEAVITT CREEK
 EORANKCOMM: MODERATE-SIZED POPULATION, RELATIVELY UNIDSTURBED AREA.
 SURVEYDATE: 1988-07-12 LASTOBS: 1988-07-12 FIRSTOBS: 1988 GRANK: G5
 SRANK: S2 STATE: MT COUNTYNAME: MTLWI
 QUADCODE: 4711257
 QUADNAME: PATRICKS BASIN PRECISION: SC
 LAT: 473431 LONG: 1124654 S: 473421 N: 473530 E: 1124651 W: 1124701
 TOWNRANGE: 021N009W SECTION: 17 MERIDIAN: PR TRSCOMM: E2,8NE4
 PHYSPROV: NR WATERSHED: 10030104 RIVERREACH: 1003010402100.00
 DIRECTIONS: ROCKY MOUNTAIN FRONT RANGE, LEAVITT CREEK, 1.25-2.25 AIR
 MILES SW TO SSW OF GIBSON DAM, 0.57-1.85 AIR MILES SOUTH OF
 TETON-LEWIS & CLARK COUNTY LINE.
 GENDESC: MOSSY SEEPAGE AREAS ALONG DRAINAGE; WITH PICEA ENGELMANNII,
 EQUISETUM ARVENSE, E. SCIRPOIDES, PYROLA UNIFLORA, PARNASSIA
 FIMBRIATA, CAREX AUREA.
 ELEV: 5430 SIZE: 5
 EODATA: CA. 600-650 PLANTS, IN FOUR SUBPOPULATIONS; LIGHT GRAZING
 EVIDENT, AS WELL AS A HUNTING TRAIL; THE THREE SOUTHERN
 SUBPOPULATIONS CONTAIN MAJORITY OF PLANTS (CA. 600), WITH
 10-15 OBSERVED IN NORTH COLONY.
 COMMENTS: VOUCHER - SHELLY, J.S. (1487) & C. LUND, 1988, MONTU.
 MACODE1: FFSNFLEWI9MTUS CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: F SITECODE:
 SITENAME:
 OWNER: LEWIS & CLARK NATIONAL FOREST
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: SHELLY, J.S. 1988. FIELD SURVEYS IN ROCKY MOUNTAIN FRONT
 RANGE OF 27 JUNE - 1 JULY & 12 JULY.
 SOURCECODE: FB8SHE05MTUS PND8SHE01MTUS SB8SHEUMMTUS
 DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 88-08-24 JSS CDREV: Y MAPPER: 88-08-24 JSS QC: Y
 UPDATE: 88-12-01 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PMORC01010.010
 NAME: ORCHIS ROTUNDIFOLIA
 COMNAME: ROUND-LEAVED ORCHIS
 MARGNUM: 1 TENTEN: 5,2 IDENT: Y EORANK: A
 SURVEYSITE: WILLOW OPENING, EAR MOUNTAIN ONA
 EORANKCOMM: EXCELLENT LOCATION, LARGE POPULATION.
 SURVEYDATE: 1988-06-20 LASTOBS: 1988-06-20 FIRSTOBS: 1988 GRANK: G5
 SRANK: S2 STATE: MT COUNTYNAME: MTTETO
 QUADCODE: 4711276
 QUADNAME: EAR MOUNTAIN PRECISION: SC
 LAT: 475123 LONG: 1124107 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 024N008W SECTION: 07 MERIDIAN: PR TRSCOMM: NW4;S6SW4

PHYSPROV: NR WATERSHED: 10030205 RIVERREACH:
 DIRECTIONS: CA. 2.3 MILES NORTH OF EAR MOUNTAIN, CA. 1.1 MILES SOUTH OF
 SOUTH FORK OF TETON RIVER, NEXT TO MAJOR CREEK.

GENDESC: WILLOW BOG IN CALCAREOUS LOAM; BENEATH PICEA ENGELMANNII,
 WITH SALIX DRUMMONDIANA, DODECATHEON SPP., FRAGARIA
 VIRGINIANA, AND PYROLA ASARIFOLIA.

ELEV: 5640 SIZE: 2
 EODATA: CA. 800 PLANTS; ALONG EDGES OF BOG, FLOWERING AND WELL-
 ESTABLISHED. GRAZING LEASE HELD BY THE NATURE CONSERVANCY,
 HORSES RUN IN JULY-SEPTEMBER.

COMMENTS: VOUCHER - SCHAASSBERGER, L.A. (228), 1988, MONTU.

MACODE1: FBLONEARM1MTUS CONTAINED1: Y MACODE2: FBLDLEWI2MTUS CONTAINED2:
 Y

MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:

MOREMGMT: F SITECODE:

SITENAME:

OWNER: BUREAU OF LAND MANAGEMENT

OWNERCOMM:

PROTCOMM:

MGMTCOMM:

MONITOR:

MONITORNUM:

BESTSOURCE: SCHAASSBERGER, L.A. 1988. BLM FIELD SURVEYS OF DEEP CREEK-
 BATTLE CREEK, CHUTE MTN, EAR MTN. AND BLINDHORSE O.N.As.

SOURCECODE: F8BSCH04MTUS PND SCH02MTUS S8BSCHUMMTUS

DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:

TRANSCRIBR: 88-08-04 LAS CDREV: Y MAPPER: 88-10-04 LAS QC: Y

UPDATE: 88-11-21 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PMORC01010.011
 NAME: ORCHIS ROTUNDIFOLIA
 COMNAME: ROUND-LEAVED ORCHIS
 MARGNUM: 2 TENTEN: 4,9 IDENT: Y EORANK: C
 SURVEYSITE: JOSLIN BASIN
 EORANKCOMM: FAIRLY SMALL POPULATION; AREA DISTURBED BY FIRE.
 SURVEYDATE: 1988-06-27 LASTOBS: 1988-06-27 FIRSTOBS: 1988 GRANK: G5
 SRANK: S2 STATE: MT COUNTYNAME: MTLWI
 QUADCODE: 4711234
 QUADNAME: BEAN LAKE
 LAT: 471559 LONG: 1122714 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 018N007W SECTION: 35 MERIDIAN: PR TRSCOMM: SW4SE4 0

PHYSPROV: NR WATERSHED: 10030102 RIVERREACH: 1003010200000.00
 DIRECTIONS: ROCKY MOUNTAIN FRONT RANGE, JOSLIN BASIN, CA. 1.5 AIR MILES
 ESE OF DIAMOND BAR X RANCH.

GENDESC: SEEPAGE AREA, AROUND MARGINS OF OLD BEAVER PONDS IN VALLEY
 BOTTOM; WITH PICEA ENGELMANNII, PSEUDOTSUGA MENZIESII,
 CORNUS STOLONIFERA, SYMPHORICARPOS ALBUS, EQUISETUM.

ELEV: 5300 SIZE: 1
 EODATA: CA. 100+ PLANTS; SITE MAY HAVE BEEN DISTURBED BY CANYON
 CREEK FIRE IN SEPTEMBER, 1988.

COMMENTS: SIGHT RECORD.

MACODE1: PRIVATEOWNMTUS CONTAINED1: Y MACODE2: CONTAINED2:

MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: F SITECODE:

SITENAME:

OWNER: DIXIE WHIPPLE

OWNERCOMM: 3349 13TH AVE. S., GREAT FALLS, MT.

PROTCOMM:

MGMTCOMM:

MONITOR:

MONITORNUM:

BESTSOURCE: FIELD, DANA.

SOURCECODE: PNDFIE01MTUS PNDPHI01MTUS

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 88-10-13 JSS CDREV: Y MAPPER: 88-10-13 JSS QC: Y
 UPDATE: 88-11-18 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PMORC01010.012
 NAME: ORCHIS ROTUNDIFOLIA
 COMNAME: ROUND-LEAVED ORCHIS
 MARGNUM: 4 TENTEN: 3,8 IDENT: Y EORANK:
 SURVEYSITE: ARSENIC CREEK
 EORANKCOMM:
 SURVEYDATE: 1988- - LASTOBS: 1988- - FIRSTOBS: 1988 GRANK: 65
 SRANK: S2 STATE: MT COUNTYNAME: MTTETO
 QUADCODE: 4711267
 QUADNAME: ARSENIC MOUNTAIN PRECISION: SC
 LAT: 473917 LONG: 1125035 S: 473914 N: 473920 E: 1125032 W: 1125038
 TOWNRANGE: 022N010W SECTION: 23 MERIDIAN: PR TRSCOMM: N2NE4NE4,14S
 2SE4SE4
 PHYSPROV: NR WATERSHED: 10030104 RIVERREACH:
 DIRECTIONS: ROCKY MOUNTAIN FRONT RANGE, ARSENIC CREEK, CA. 1.6 AIR MILES
 NNE OF MEDICINE SPRINGS, 1.7 AIR MILES NORTH OF GIBSON
 RESERVOIR.
 GENDESC: HUMMOCKS, SWALES, AND DRAINWAY EDGES, IN PICEA ENGELMANNII/
 EQUISETUM ARVENSE HABITAT TYPE; WITH E. SCIRPOIDES,
 HABENARIA HYPERBOREA, H. OBTUSATA.
 ELEV: 5350 SIZE: 1
 EODATA: 101-1000 PLANTS; LIGHT HORSE GRAZING EVIDENT; AREA
 APPARENTLY HAS EXTENSIVE SPRINGS WHICH HAVE BEEN DAMMED IN
 THE PAST BY BEAVERS, AND THE PONDS ARE NOW IN VARIOUS STAGES
 OF SUCCESSION.
 COMMENTS: SIGHT RECORD.
 MACODE1: FFSNFLEWI9MTUS CONTAINED1: Y MACODE2: CONTAINED2:
 MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: F SITECODE:
 SITENAME:
 OWNER: LEWIS & CLARK NATIONAL FOREST
 OWNERCOMM:
 PROTCOMM:
 MGMTCOMM:
 MONITOR: MONITORNUM:
 BESTSOURCE: FIELD, DANA.
 SOURCECODE: PNDFIE01MTUS
 DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 88-11-02 JSS CDREV: Y MAPPER: 88-11-02 JSS QC: Y
 UPDATE: 88-12-01 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PMORC01010.013
 NAME: ORCHIS ROTUNDIFOLIA
 COMNAME: ROUND-LEAVED ORCHIS
 MARGNUM: 4 TENTEN: 4,8 IDENT: Y EORANK: B
 SURVEYSITE: CLARY COULEE
 EORANKCOMM: LARGE POPULATION; HABITAT IN GOOD CONDITION.
 SURVEYDATE: 1988-08-10 LASTOBS: 1988-08-10 FIRSTOBS: 1988 GRANK: G5
 SRANK: S2 STATE: MT COUNTYNAME: MTTETO
 QUADCODE: 4711286
 QUADNAME: CAVE MOUNTAIN PRECISION: SC
 LAT: 475343 LONG: 1124210 S: 475338 N: 475345 E: 1124207 W: 1124212
 TOWNRANGE: 025N009W SECTION: 25 MERIDIAN: PR TRSCOMM: NE4

PHYSPROV: NR WATERSHED: 10030205 RIVERREACH:
 DIRECTIONS: ROCKY MOUNTAIN FRONT RANGE, CLARY COULEE, ALONG TRAIL (#177)
 CA. 0.8 MILE NORTH OF NORTH FORK TETON RIVER ROAD (#144).

GENDESC: MARGINS OF SEEPY AREAS; WITH PICEA ENGELMANNII, CAREX
 GYNOCRATES, C. AUREA, LINNAEA BOREALIS, PARNASSIA FIMBRIATA,
 CYPRIPIEDIUM PASSERINUM.

ELEV: 5600 SIZE: 2
 EODATA: 101-1000 PLANTS, TWO SUBPOPULATIONS; SEEPAGE AREAS ADJACENT
 TO HIKING TRAIL.

COMMENTS: SIGHT RECORD.

MACODE1: FFSNFLEWI9MTUS CONTAINED1: Y MACODE2: CONTAINED2:

MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:

MOREMGMT: F SITECODE:

SITENAME:

OWNER: LEWIS & CLARK NATIONAL FOREST

OWNERCOMM:

PROTCOMM:

MGMTCOMM:

MONITOR:

MONITORNUM:

BESTSOURCE: FIELD, DANA

SOURCECODE: PNDFIE01MTUS

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:

TRANSCRIBR: 88-11-02 JSS CDREV: Y MAPPER: 88-11-02 JSS QC: Y

UPDATE: 88-12-01 JSS

ELEMENT OCCURRENCE RECORD

ECCODE: PMORC01010.014

NAME: ORCHIS ROTUNDIFOLIA

COMNAME: ROUND-LEAVED ORCHIS

MARGNUM: 1 TENTEN: 8,8 IDENT: Y EORANK: B

SURVEYSITE: NORTH FORK BIRCH CREEK

EORANKCOMM: LARGE POPULATION, HABITAT IN GOOD CONDITION.

SURVEYDATE: 1988-08-15 LASTOBS: 1988-08-15 FIRSSTOBS: GRANK: G5

SRANK: S2 STATE: MT COUNTYNAME: MTPOND

QUADCODE: 4811228

QUADNAME: SWIFT RESERVOIR

PRECISION: SC

LAT: 480928 LONG: 1125404 S: 480926 N: 480931 E: 1125357 W: 1125407

TOWNRANGE: 028N010W SECTION: 28 MERIDIAN: PR TRSCOMM: N2

PHYSROV: NR WATERSHED: 10030201 RIVERREACH:

DIRECTIONS: ROCKY MOUNTAIN FRONT RANGE, NORTH FORK BIRCH CREEK, 0.1 AIR
MILE SSW OF CONFLUENCE WITH HAYWOOD CREEK, NEAR WEST END OF
SWIFT RESERVOIR.GENDESC: SEEPAGE AREAS IN GULLIES, ON MORE STABLE EDGES; PICEA
ENGELMANNII/GALIUM TRIFLORUM HABITAT TYPE, WITH CYPRIPEDIUM
PASSERINUM, ANTENNARIA PULCHERRIMA.

ELEV: 5040 SIZE: 2

EODATA: CA. 1200 PLANTS, THREE SUBPOPULATIONS; NO GRAZING OCCURRING,
BUT SITE IS NEAR TRAIL, WHICH COULD DESTABILIZE SLOPE.

COMMENTS: SIGHT RECORD.

MACODE1: FFSNFLEWI9MTUS CONTAINED1: Y MACODE2: CONTAINED2:

MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:

MOREMGMT: F SITECODE:

SITENAME:

OWNER: LEWIS & CLARK NATIONAL FOREST

OWNERCOMM:

PROTCOMM:

MGMTCOMM:

MONITOR:

MONITORNUM:

BESTSOURCE: FIELD, DANA.

SOURCECODE: PPDFIE01MTUS

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:

TRANSCRIBR: 88-11-02 JSS CDREV: Y MAPPER: 88-11-02 JSS QC: Y

UPDATE: 88-12-01 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PMORC01010.015
 NAME: ORCHIS ROTUNDIFOLIA
 COMNAME: ROUND-LEAVED ORCHIS
 MARGNUM: 7 TENTEN: 10,3 IDENT: Y EORANK: BC
 SURVEYSITE: GREEN GULCH
 EORANKCOMM: MAIN SITE IN GOOD CONDITION; LOWER SITE THREATENED.
 SURVEYDATE: 1988-06-23 LASTOBS: 1988-07-09 FIRSTOBS: 1988 GRANK: 65
 SRANK: S2 STATE: MT COUNTYNAME: MTTETO
 QUADCODE: 4711277
 QUADNAME: OUR LAKE
 LAT: 475045 LONG: 1124514 S: 475043 N: 475102 E: 1124512 W: 1124518
 TOWNRANGE: 024N009W SECTION: 09 MERIDIAN: PR TRSCOMM: S10 (BORDER)

PHYSPROV: NR WATERSHED: 10030205 RIVERREACH:
 DIRECTIONS: CA. 1.3 MI. UP LOGGING ROAD ON E SIDE OF GREEN GULCH; SUB-
 POPULATION CA. 0.12 MILE SOUTH OF LAST CLEARCUT; SECOND SUB-
 POP. CA. 10 FT FROM CLEARCUT, CA. 0.12 MILE BEFORE TRAILHEAD
 GENDESC: ALONG THE EDGES OF TWO WILLOW BOGS; BENEATH PICEA
 ENGELMANNII, WITH HABENARIA DILATATA, H. OBTUSATA,
 PARNASSIA KOTZEBUEI, AND LINNAEA BOREALIS.

ELEV: 5920 SIZE: 1
 EODATA: TWO SUBPOPULATIONS. CA. 80 PLANTS AT EDGE OF BOG; 30 PERCENT
 FLOWERING; CA. 15 PLANTS 100 PERCENT IN FLOWER, OPEN EDGE OF
 BOG AND CLEARCUT.

COMMENTS: POPULATIONS MAY BE THREATENED BY CLEARCUTTING; LOGGING ROAD
 10 FEET FROM LOWER POPULATION. SIGHT RECORD, NO COLLECTION.

MACODE1: FFSNFLEWI9MTUS CONTAINED1: Y MACODE2: CONTAINED2:

MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: F SITECODE:

SITENAME:

OWNER: LEWIS & CLARK NATIONAL FOREST

OWNERCOMM:

PROTCOMM:

MGMTCOMM:

MONITOR:

MONITORNUM:

BESTSOURCE: FIELD, DANA.

SOURCECODE: PNDFIE01MTUS PNDSCH02MTUS

DATASENS: N BOUNDARIES: Y PHOTOS: Y OWNERINFO:
 TRANSCRIBR: 88-11-03 LAS CDREV: Y MAPPER: 88-11-03 LAS QC: Y
 UPDATE: 88-12-01 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PMORC01010.016
 NAME: ORCHIS ROTUNDIFOLIA
 COMNAME: ROUND-LEAVED ORCHIS
 MARGNUM: 3 TENTEN: 2,9 IDENT: Y EORANK: BC
 SURVEYSITE: FALLS CREEK (NORTH)
 EORANKCOMM: MODERATE-SIZED POPULATION, ADJACENT TO HIKING TRAIL.
 SURVEYDATE: 1988- - LASTOBS: 1988- - FIRSTOBS: 1988 GRANK: 65
 SRANK: S2 STATE: MT COUNTYNAME: MTLWEI
 QUADCODE: 4711234
 QUADNAME: BEAN LAKE PRECISION: SC
 LAT: 471603 LONG: 1122849 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 018N007W SECTION: 34 MERIDIAN: PR TRSCOMM: NE4SW4

PHYSPROV: NR WATERSHED: 10030102 RIVERREACH:
 DIRECTIONS: ROCKY MOUNTAIN FRONT RANGE, FALLS CREEK DRAINAGE, ALONG
 TRAIL ON EAST SIDE OF CREEK CA. 0.3 MILES NORTH OF FOREST
 BOUNDARY, CA. 0.5 MILES SOUTH OF DIAMOND BAR X RANCH.
 GENDESC: SPRING SEEP ABOVE CREEK BOTTOM; WITH PICEA ENGELMANNII,
 SALIX SPP., CORNUS STOLONIFERA, POPULUS TREMULOIDES,
 PARNASSIA FIMBRIATA, ANGELICA ARGUTA, CYPRIPIEDIUM SP.
 ELEV: 4910 SIZE: 1
 EODATA: CA. 100-300 INDIVIDUALS; MANY WERE PICKED NEAR THE TRAIL.
 THIS SITE IS OUTSIDE THE CANYON CREEK FIRE PERIMETER.

COMMENTS: SIGHT RECORD.

MACODE1: PRIVATEOWNMTUS CONTAINED1: Y MACODE2: CONTAINED2:

MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:

MOREMGMT: F SITECODE:

SITENAME:

OWNER:

OWNERCOMM:

PROTCOMM:

MGMTCOMM:

MONITOR:

MONITORNUM:

BESTSOURCE: FIELD, DANA.

SOURCECODE: PNDFIE01MTUS

DATASENS: N BOUNDARIES: Y PHOTOS: N OWNERINFO:
 TRANSCRIBR: 88-11-16 JSS CDREV: Y MAPPER: 88-11-17 JSS QC: Y
 UPDATE: 88-11-21 JSS

ELEMENT OCCURRENCE RECORD

EOCODE: PMORC01010.017
 NAME: ORCHIS ROTUNDIFOLIA
 COMNAME: ROUND-LEAVED ORCHIS
 MARGNUM: 6 TENTEN: 2,1 IDENT: Y EORANK: D
 SURVEYSITE: FALLS CREEK (SOUTH)
 EORANKCOMM: SMALL POPULATION; SITE WITHIN CANYON CREEK FIRE PERIMETER.
 SURVEYDATE: 1988- - LASTOBS: 1988- - FIRSTOBS: 1988 GRANK: 65
 SRANK: S2 STATE: MT COUNTYNAME: MTLWEI
 QUADCODE: 4711224
 QUADNAME: BLOWOUT MOUNTAIN PRECISION: SC
 LAT: 471421 LONG: 1122901 S: 0 N: 0 E: 0 W: 0
 TOWNRANGE: 017N007W SECTION: 10 MERIDIAN: PR TRSCOMM: SW4

PHYSPROV: NR WATERSHED: 10030102 RIVERREACH:
 DIRECTIONS: ROCKY MOUNTAIN FRONT RANGE, FALLS CREEK DRAINAGE, 20 FT.
 NORTH OF FALLS CREEK TRAIL (#299) AT FORD WHERE IT CROSSES
 TO MEET TWIN BUTTES CREEK TRAIL.

GENDESC: MOSS LAYER, ON BENCH ABOVE CREEK; CANOPY OF PICEA
 ENGELMANNII, CORNUS STOLONIFERA, WITH POTENTILLA FRUTICOSA,
 HABENARIA HYPERBOREA, SWERTIA PERENNIS.

ELEV: 4990 SIZE: 1
 EODATA: 35 FLOWERING PLANTS COUNTED. SITE PROBABLY SEVERELY BURNED
 BY CANYON CREEK FIRE ON 88-09-09; IT IS WELL WITHIN BURN
 PERIMETER, IN AREA OF HEAVY FUELS.

COMMENTS: SIGHT RECORD.

MACODE1: FFSNFLEWI9MTUS CONTAINED1: Y MACODE2: CONTAINED2:

MACODE3: CONTAINED3: ADLMAS: MORELAN: MOREPROT:
 MOREMGMT: F SITECODE:

SITENAME:

OWNER: LEWIS & CLARK NATIONAL FOREST

OWNERCOMM:

PROTCOMM:

MGMTCOMM:

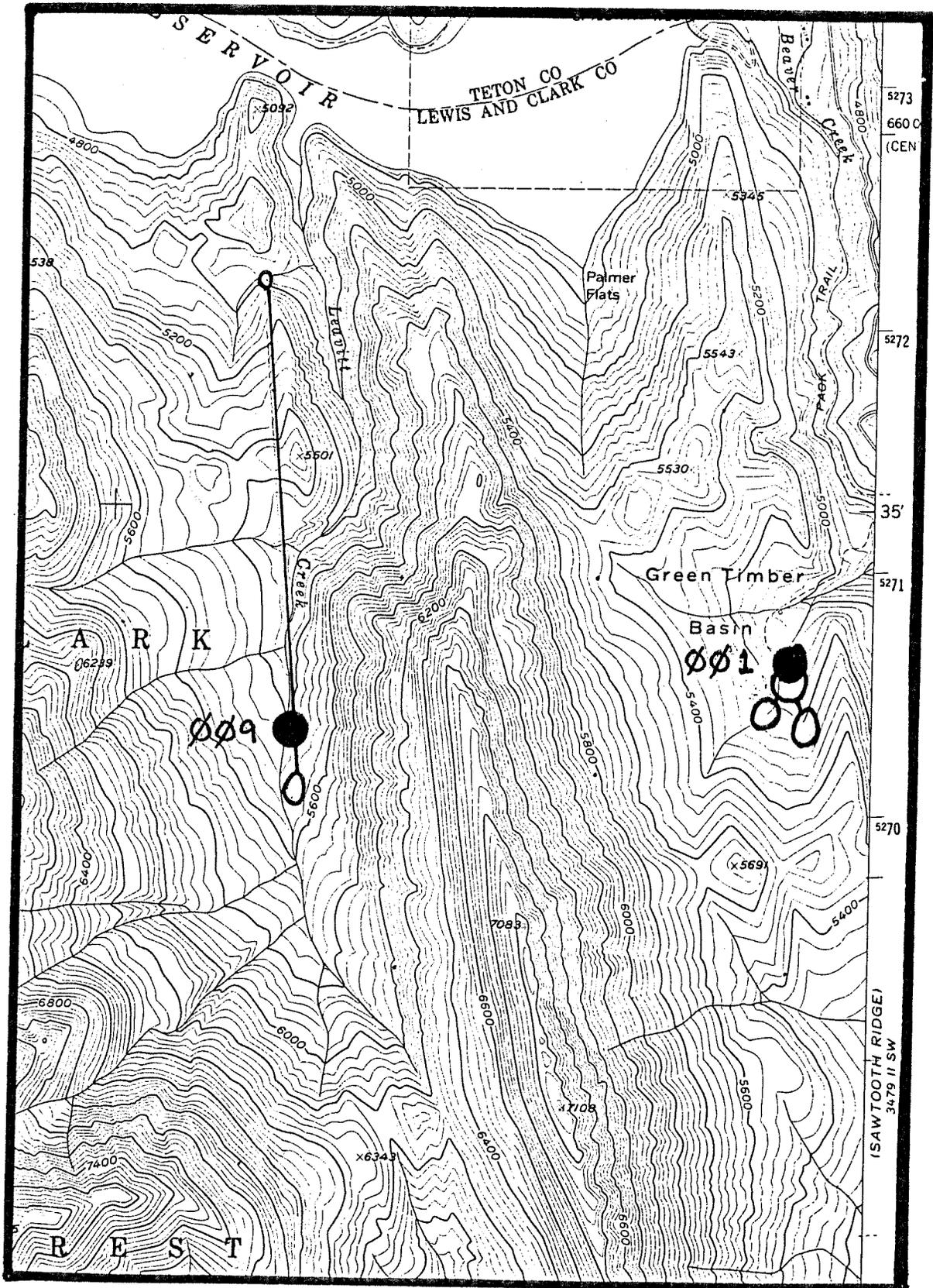
MONITOR:

MONITORNUM:

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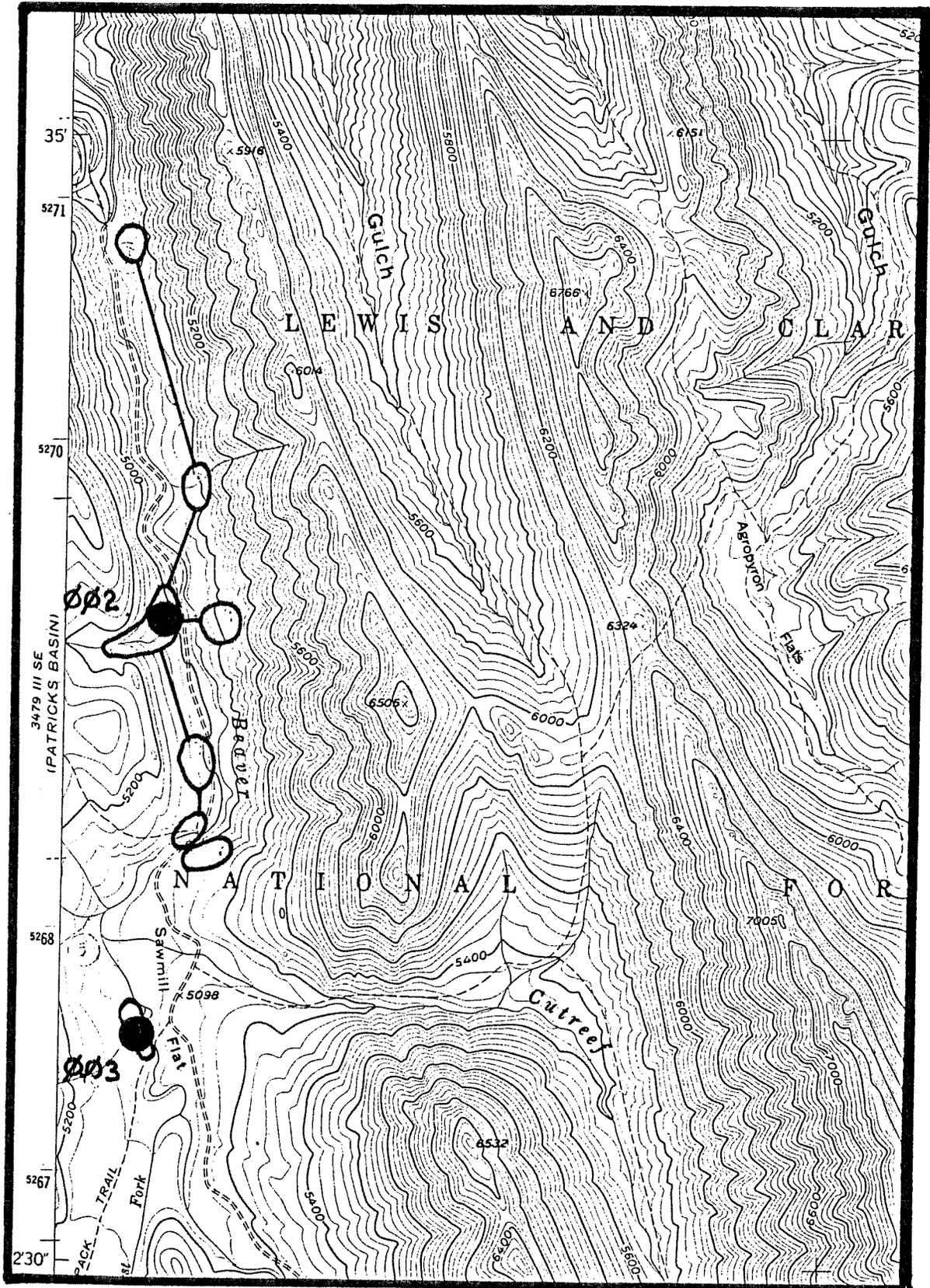
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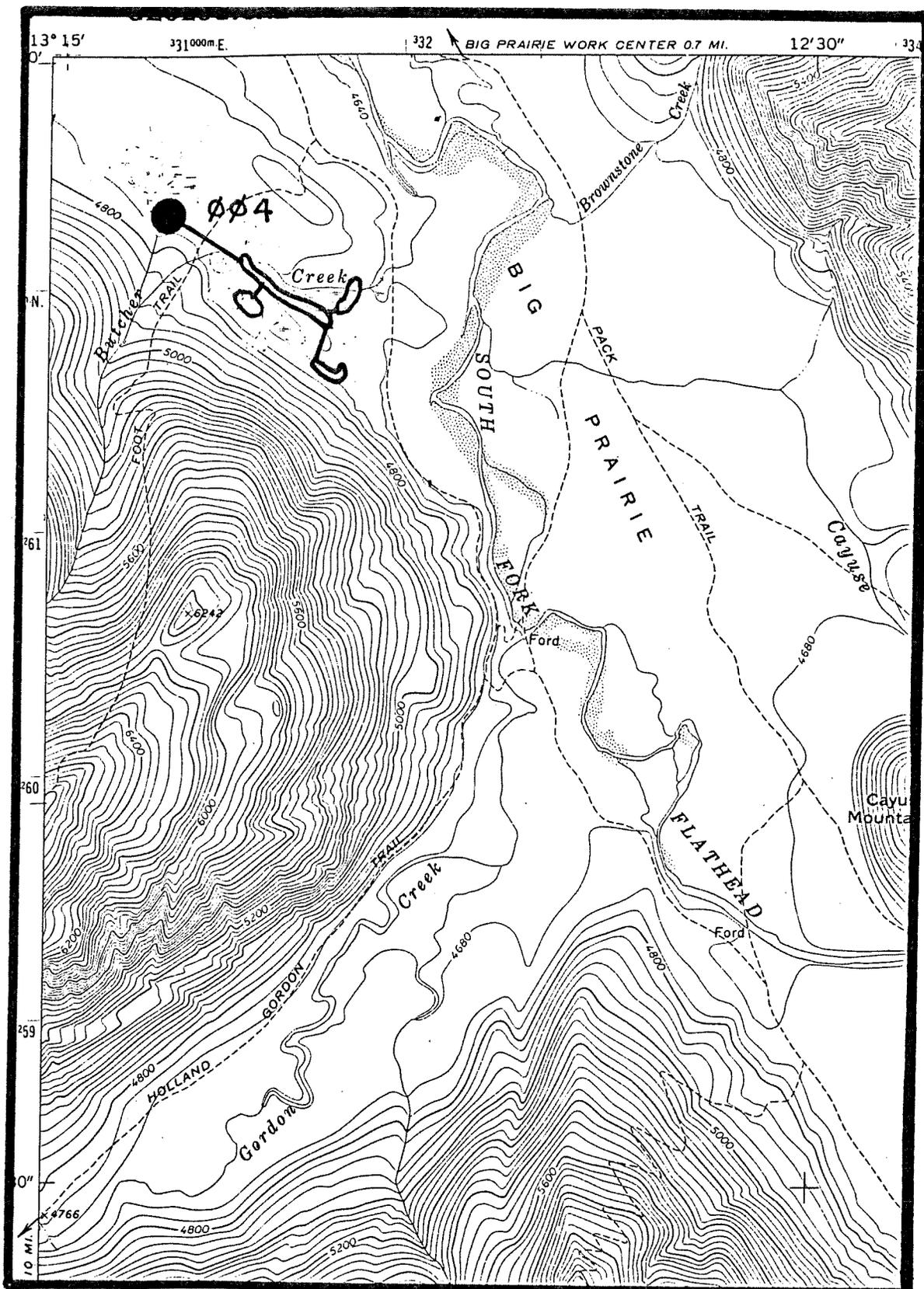
USGS Patricks Basin Quadrangle (7.5')

Orchis rotundifolia



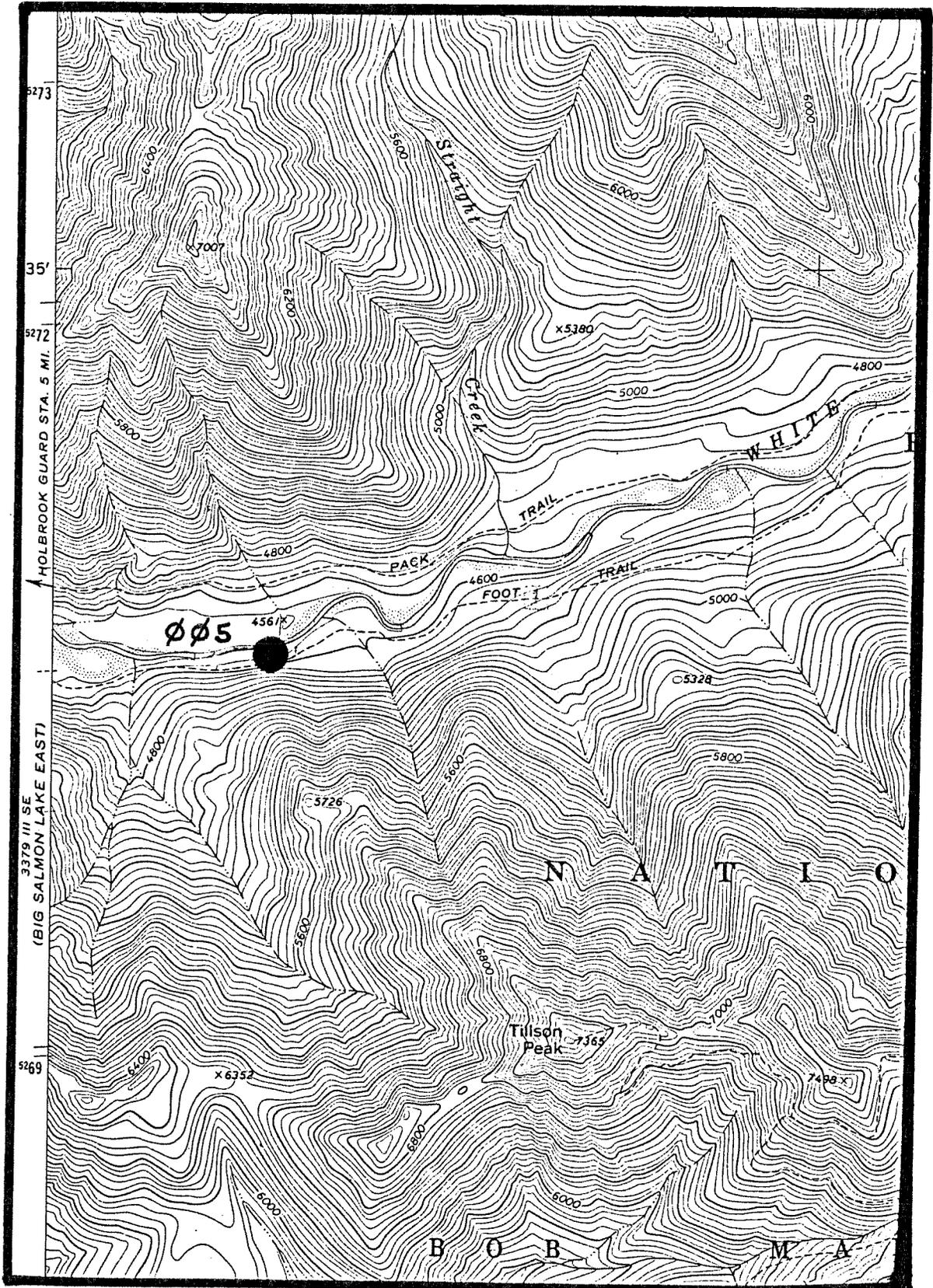
USGS Sawtooth Ridge Quadrangle (7.5')

Orchis rotundifolia



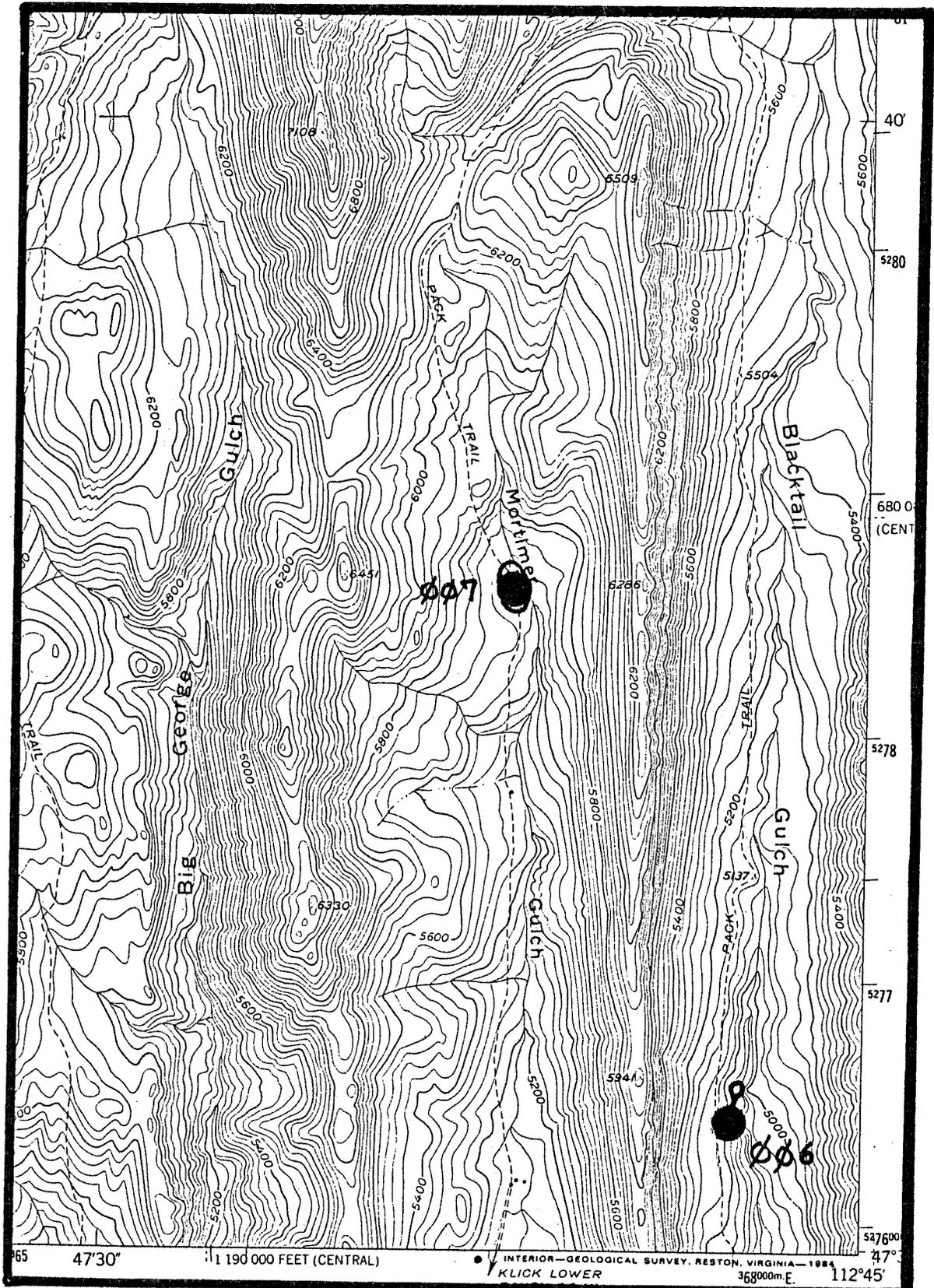
USGS Pilot Peak Quadrangle (7.5')

Orchis rotundifolia



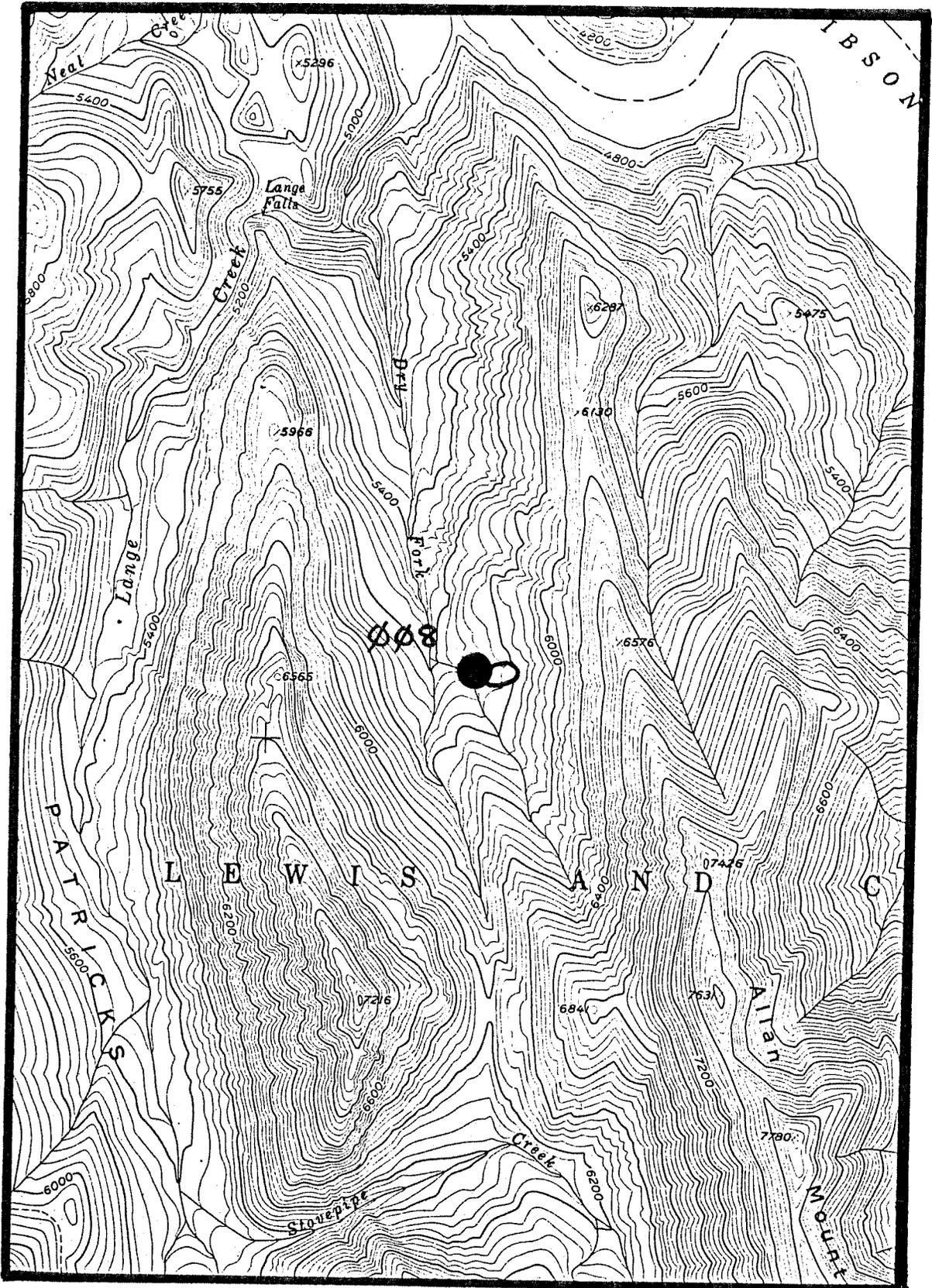
USGS Haystack Mountain Quadrangle (7.5')

Orchis rotundifolia



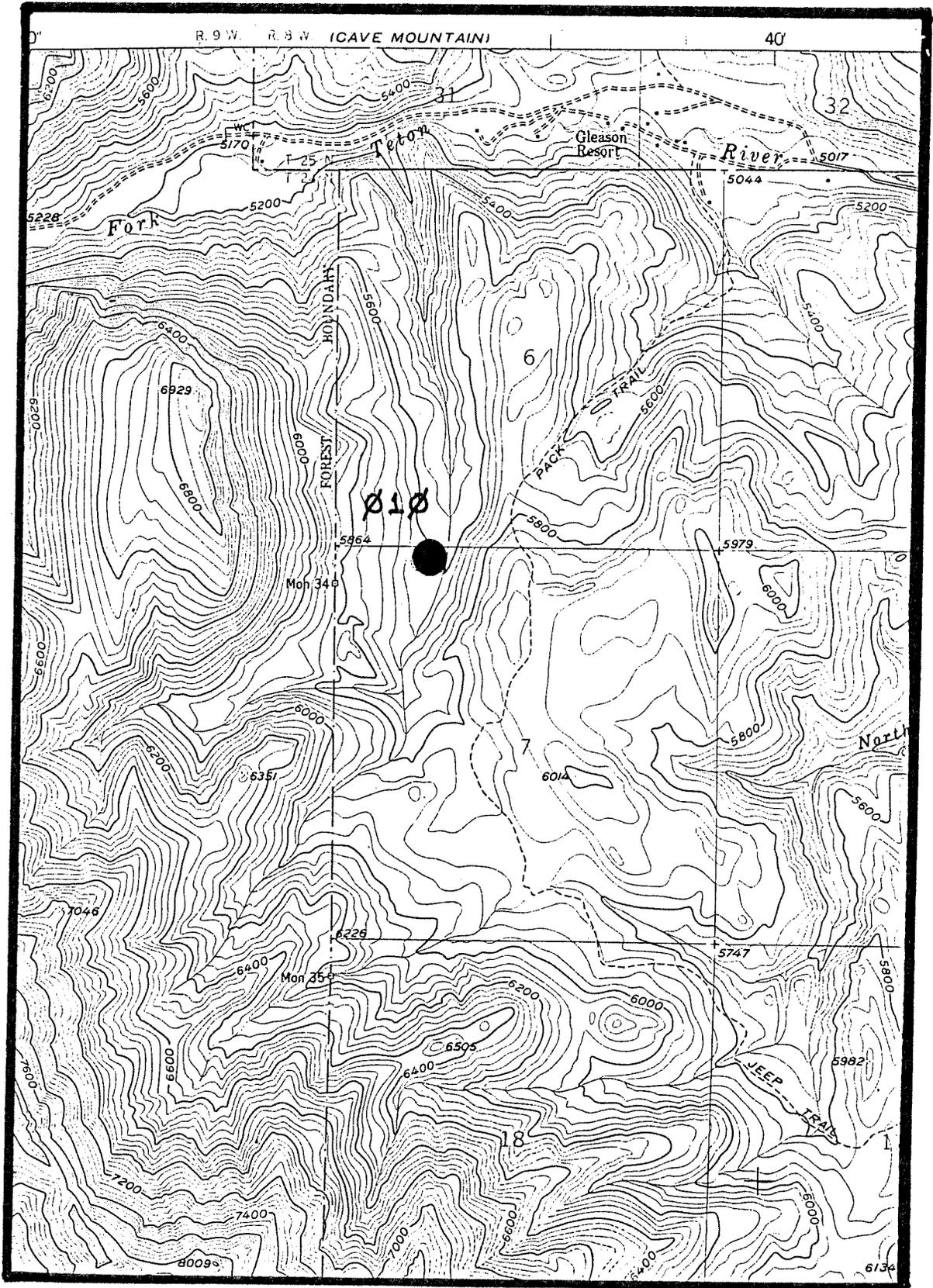
USGS Arsenic Mountain Quadrangle (7.5')

Orchis rotundifolia



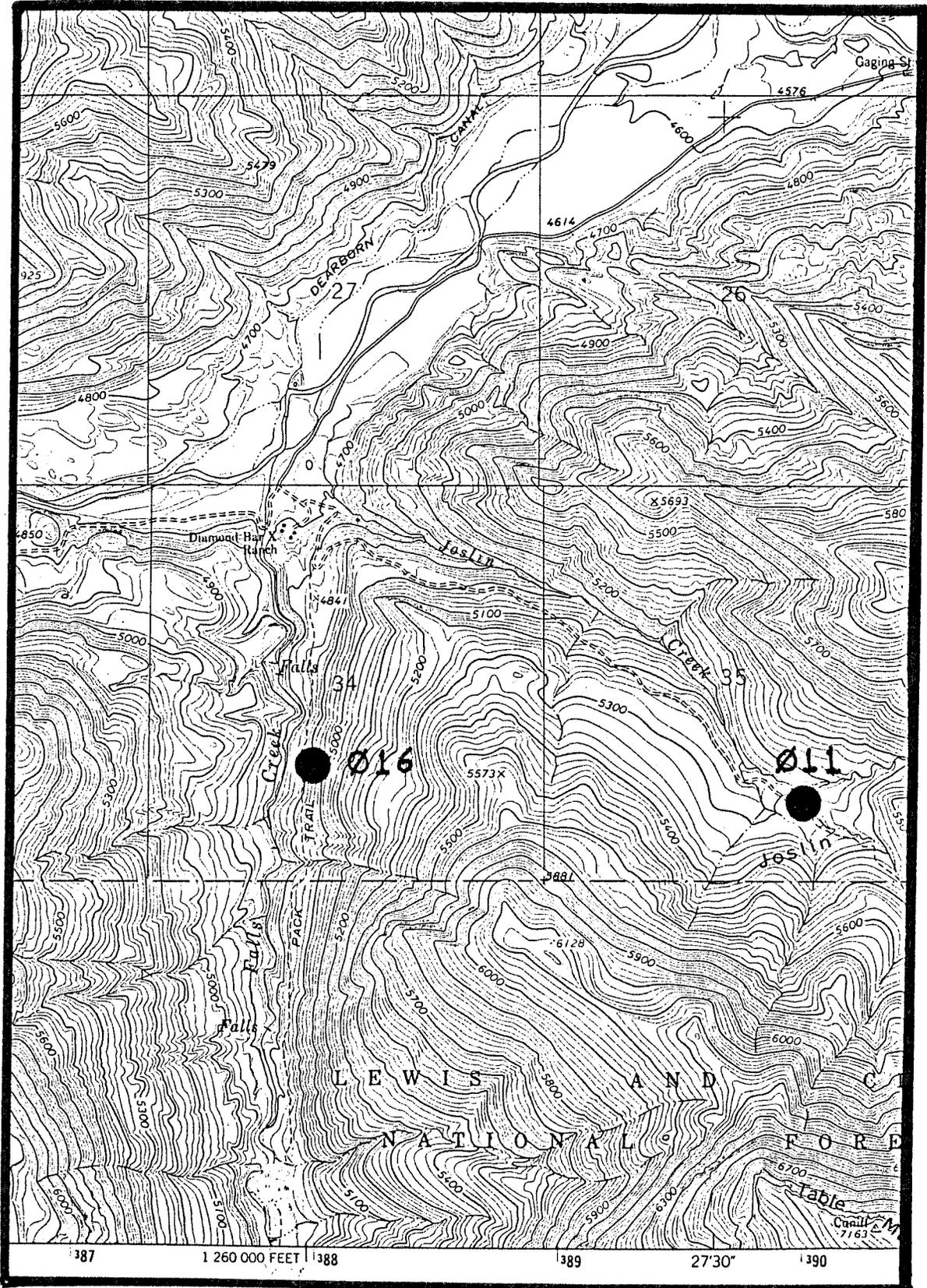
USGS Patricks Basin Quadrangle (7.5')

Orchis rotundifolia



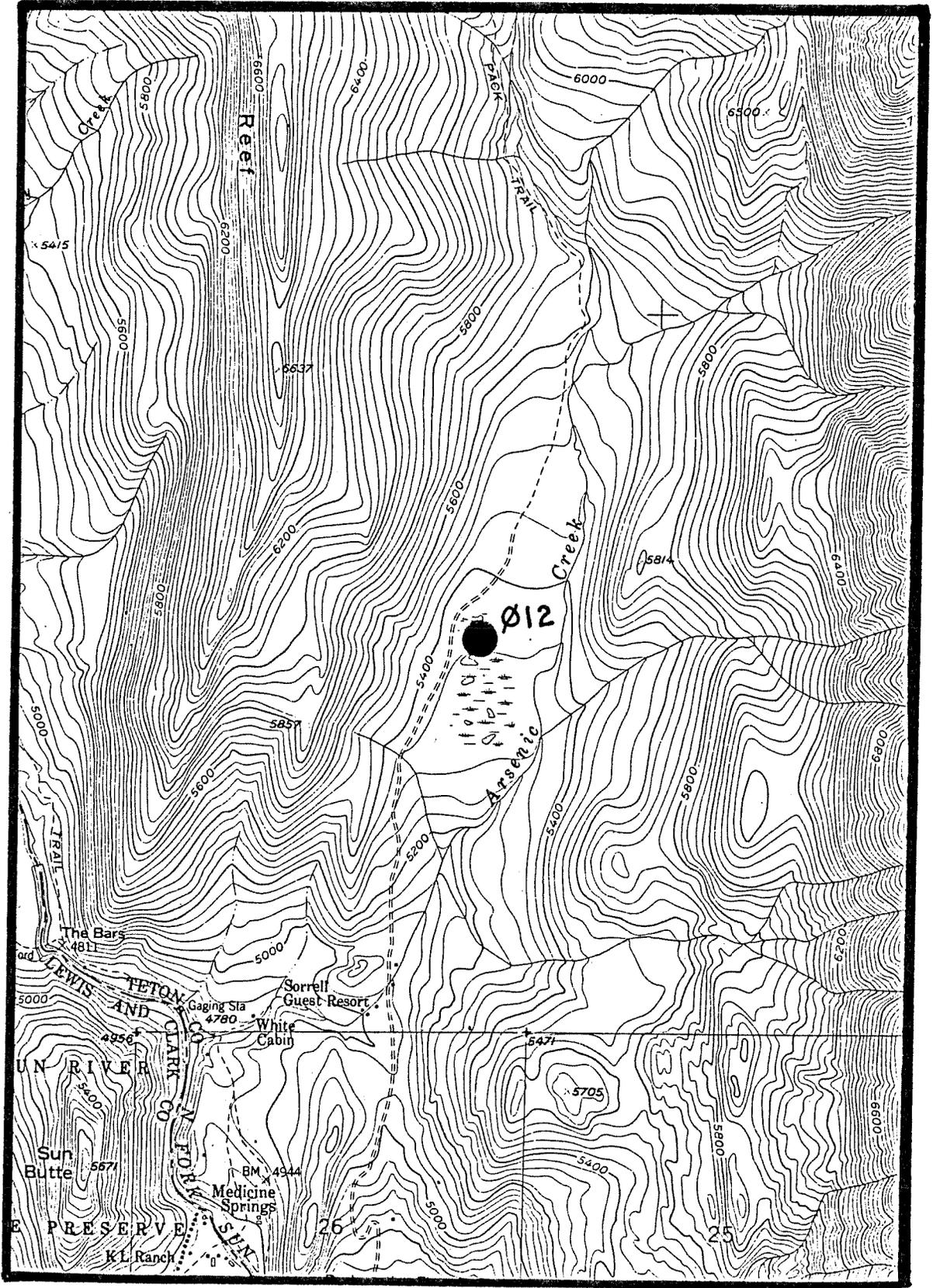
USGS Ear Mountain Quadrangle (7.5')

Orchis rotundifolia



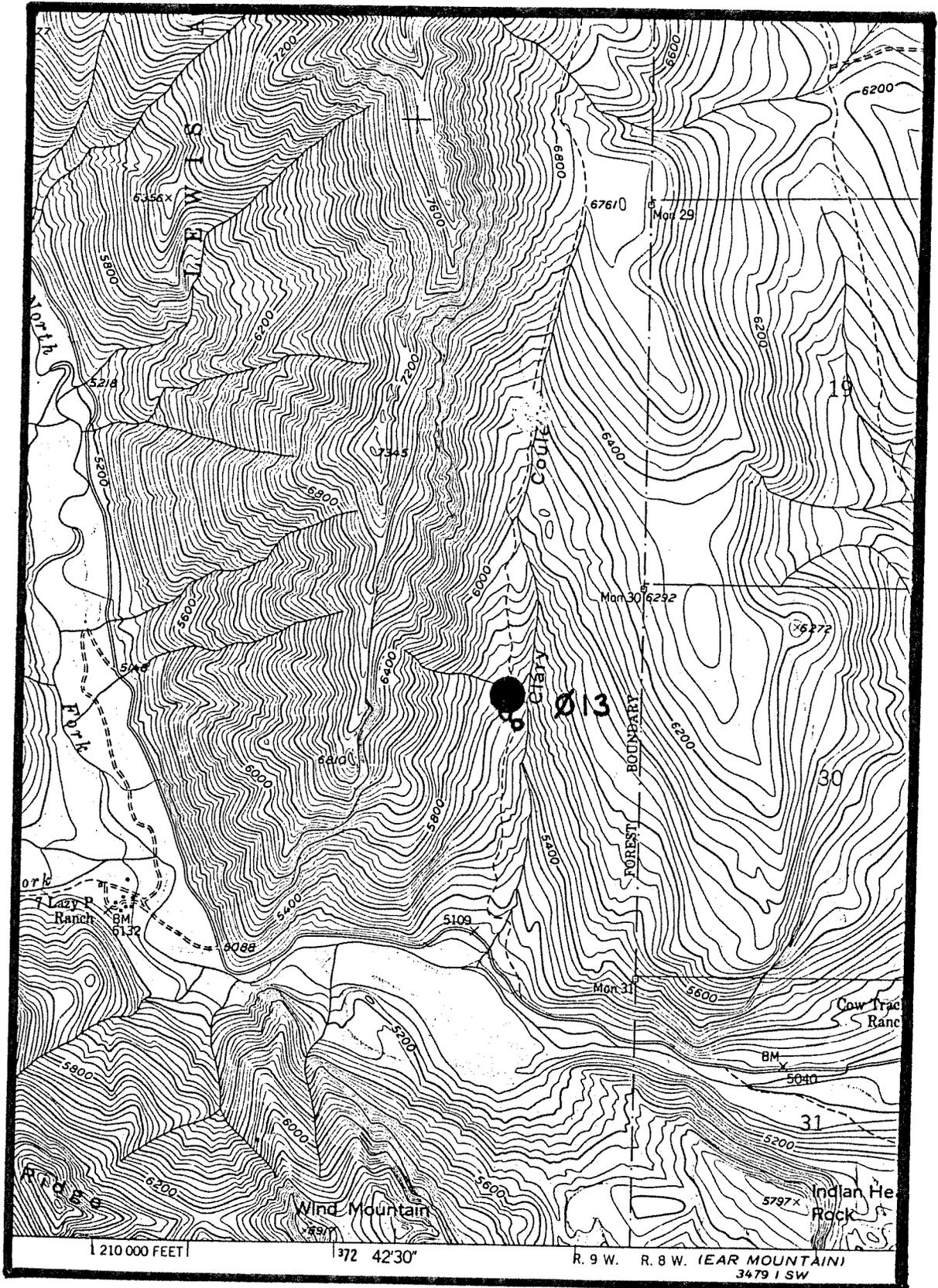
USGS Bean Lake Quadrangle (7.5')

Orchis rotundifolia



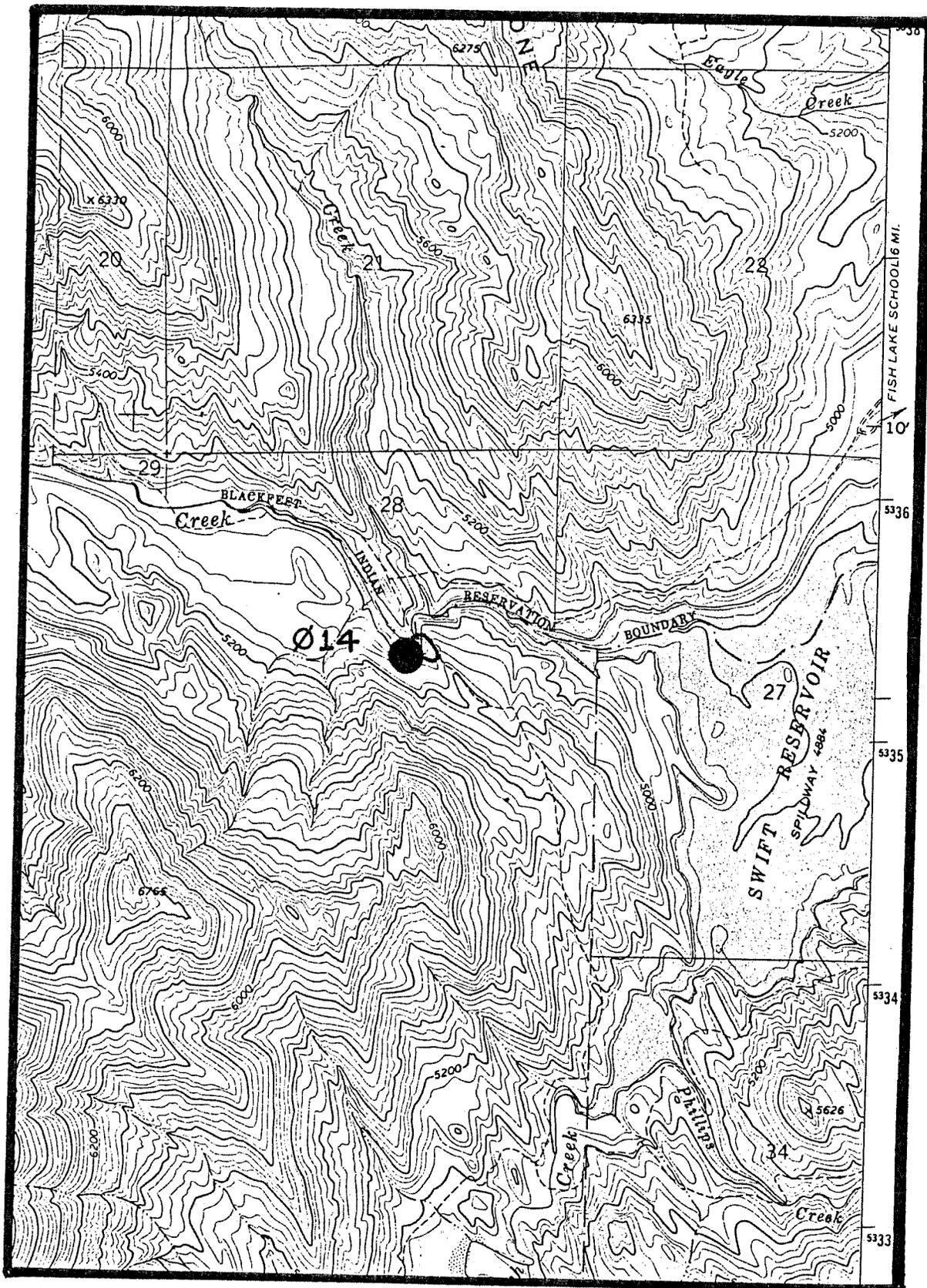
USGS Arsenic Mountain Quadrangle (7.5')

Orchis rotundifolia



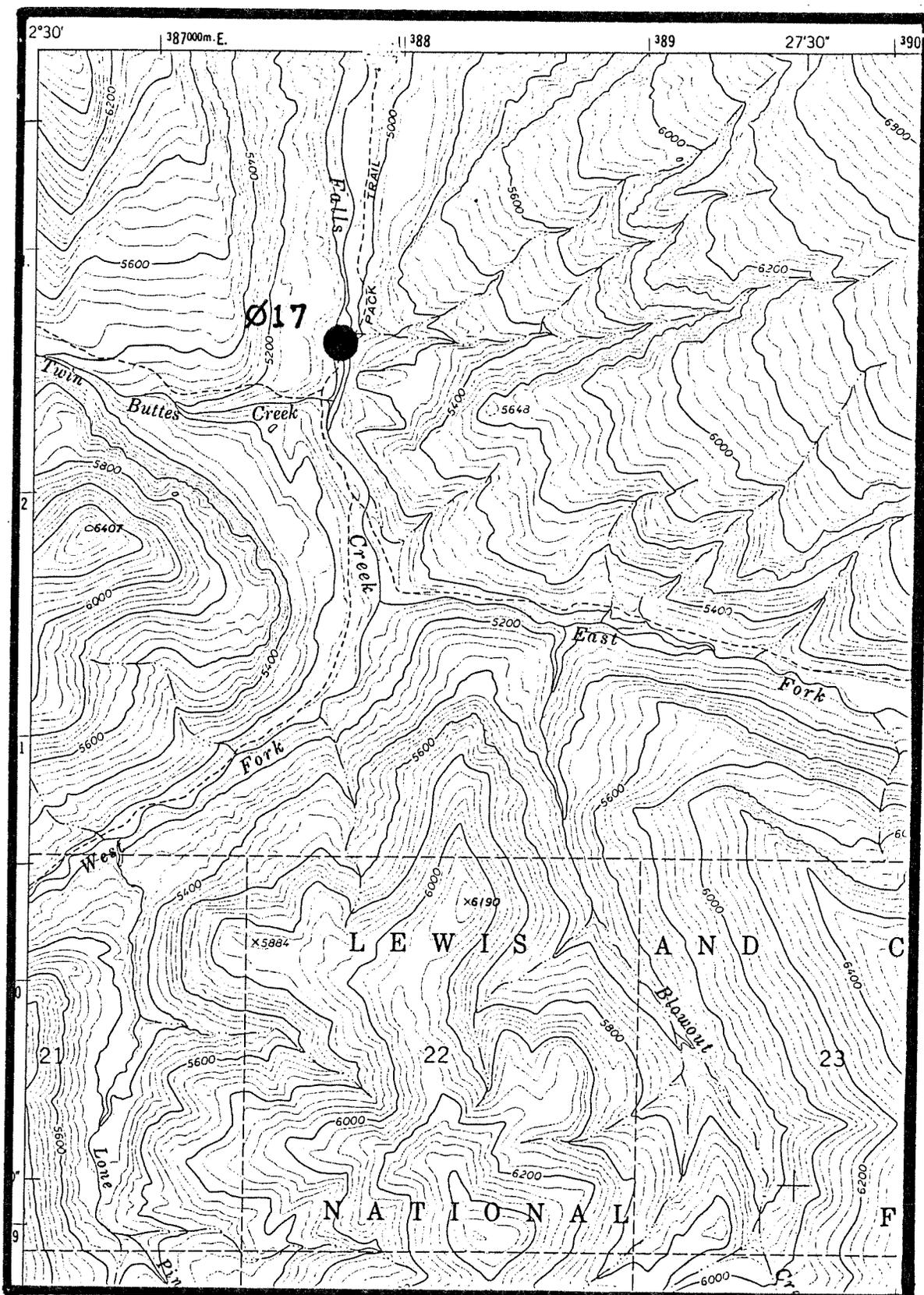
USGS Cave Mountain Quadrangle (7.5')

Orchis rotundifolia



USGS Swift Reservoir Quadrangle (7.5')

Orchis rotundifolia



USGS Blowout Mountain Quadrangle (7.5')

Orchis rotundifolia

V. PHOTOGRAPHS



A. Orchis rotundifolia - habit (White River (005) site).



B. Orchis rotundifolia - inflorescence (Butcher Mountain Meadows (004) site).



C. Orchis rotundifolia - habitat (Butcher Mountain Meadows (004) site).



D. Orchis rotundifolia - habitat (Leavitt Creek (009) site).



E. Orchis rotundifolia - landslide in portion of habitat along the White River (005).