

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

Branch of Recreational Planning and State Cooperation
601 Sheldon Building
San Francisco, California
December 10, 1936

SUPERINTENDENT		
CHIEF CLERK		
NATURALIST		
CHIEF RANGER		
FILE	1	

Mr. David H. Canfield
Superintendent
Crater Lake National Park
Medford, Oregon

Subject: Special Report on the Wildlife
of Oregon Caves National Monument
and Adjacent Territories

Dear Sir:

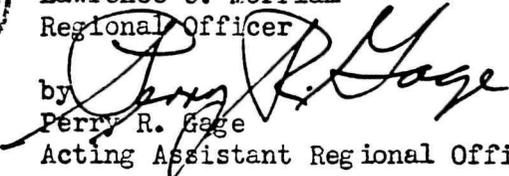
Enclosed are two copies of a special report by Associate Wildlife Technician Richard M. Bond on the above subject.

The San Francisco Office of the Wildlife Division received the request for this report in a letter dated February 21, 1936 from Acting Chief Victor H. Cahalane; however, the pressure of other work made it impossible to do the field work until the months of July and October, 1936.



Sincerely yours,

Lawrence C. Merriam
Regional Officer

by 
Perry R. Gage
Acting Assistant Regional Officer

Encl. 1218317
cc The Director
S.F. Regional Office
Wildlife files
Mt. Astrup

C O P Y

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NATIONAL PARK SERVICE

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December 10, 1936.

Memorandum to Mr. Merriam

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Acting Chief Victor H. Cahalane; however, the pressure of other work
made it impossible to do the field work until the months of July and
October, 1936.

We have given this report a careful review and consider that
it could well be used as a model for future wildlife investigations
in state park areas.

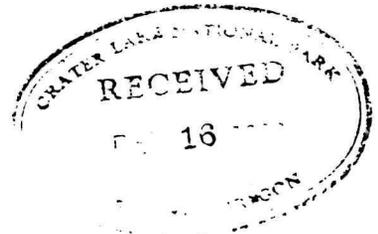
Sincerely yours,

/s/ E. LOWELL SUMNER, JR.

E. Lowell Sumner, Jr.
Wildlife Technician

encl. 1218314

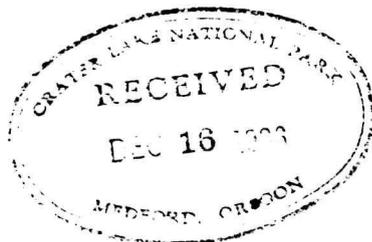
cc Dr. Bond



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

SPECIAL REPORT
ON THE
WILDLIFE OF
OREGON CAVES NATIONAL MONUMENT
AND ADJACENT TERRITORY

Submitted:
December 4, 1936



Richard M. Bond
Richard M. Bond,
Associate Wildlife Technician,
Region IV, District B.

BRANCH OF RECREATIONAL PLANNING AND STATE
COOPERATION
712 Spalding Building
Portland, Oregon

SPECIAL REPORT ON THE WILDLIFE OF OREGON CAVES NATIONAL MONUMENT AND
ADJACENT TERRITORY, BY RICHARD M. BOND, ASSOCIATE WILDLIFE TECHNICIAN

1. INTRODUCTION

The information on which this report is based was gathered by personal observation during visits to the area, July 9-14, and October 24-25, 1936. To my own observations were added many by Dr. Elmer Applegate of Stanford University, and by various reliable local residents, and also some material from the scanty literature touching on the biology of the region.

The map is a synthetic product of three others: a County map of the Township that contains the monument; a Forest Service map; and the Grants Pass U.S.G.S. sheet (cf. Figs. 1,2,& 3). The maps do not agree with each other, and their relative accuracy was not known. It is doubtful, however, if there are inaccuracies greater than 500 feet vertical or 1/4 mile horizontal, and the greater part of the map is certainly much more accurate than that.

2. LOCATION OF MONUMENT

Oregon Caves National Monument contains three-fourths of a square mile lying in sections 9,10,15, and 16, Twp. 40 S, R. 6 W, in Josephine County, Oregon (cf. Map). It lies some 40 miles by road from Grants Pass, the nearest large town.

Surrounding the monument is the Oregon Caves Game Refuge, containing about 45 square miles, and consisting of the watersheds of Grayback Creek, Cave (and Lake) Creek, and of the tributaries of the north side of Sucker Creek and the left Fork of Sucker Creek. The west boundary of the refuge is the line between Ranges 6 and 7 W. (See large map).

3. TOPOGRAPHY

Land. The game refuge and the monument are both moderately rugged, with few even approximately level areas. Elevations in the monument range from about 3800 feet near the northwest corner to about 5500 feet near the southeast corner. Elevations in the game refuge range from a small area below 2000 feet along Grayback and Sucker Creeks to 7043 feet on Grayback Mountain. There are few cliffs or crags in the area. Above about 5000 feet

evidences of past glaciation are in many places conspicuous.

Waters. The area included in this study is well supplied with streams, all of which flow eventually into the Illinois River and thence into the Rogue River. (Williams Creek and Carberry Creek, shown in part on the map flow into the Applegate River, which is also a tributary of the Rogue.) There are two small lakes or ponds, the Biglow Lakes, very shallow and covered with pond lilies, which are of glacial origin and which lie in the game refuge, a mile or two east of the monument. They drain into Lake Creek. To distinguish streams from contours and other lines on the map they are broken by three dots. This does not mean that the streams are temporary; most of those shown, even the smaller tributaries, are permanent, though they are not very large.

4. CLIMATE

Accurate records of weather have not been kept in the monument. The climate is rather mild, with dry summers and moist winters, though precipitation is considerably less than on the coast. Above 4000 feet there are usually 3 or more feet of snow on the ground during part of the winter, sometimes for several weeks. On sheltered north slopes above 6000 feet a little snow may remain till the first of August. At 2000 feet more than a foot of snow on the ground is unusual, and it usually disappears within 2 or 3 days. At 4000 feet temperatures below 20 degrees F. and above 75 degrees F. are unusual.

5. VEGETATION AND LIFE ZONES

No extensive consideration of the vegetation of this area is necessary since the subject is well treated in a report for the Superintendent by Dr. Elmer Applegate. It may be pointed out, however, that great botanical interest is attached to the region, not so much because of the few plants found nowhere else, as because of the mingling of northern, southern, coastal and Cascadian elements in the flora. (The birds and animals are equally interesting for the same reason.)

The life zones of the monument include humid (Fig. 4) and dry (Fig. 5) Transition and Canadian (Figs. 6,7,8). The game refuge also includes some Hudsonian (Fig. 9) (especially on north-facing slopes) above 6000 feet.

The region shows dry Transition with Western Yellow Pines (Pinus ponderosa) and other typical plants up to about 1500-2000 feet. Above that the Transition becomes moister, with Douglas Fir, (Pseudotsuga taxifolia), (False Hemlock, (P. mucronata), according to Dr. Applegate's terminology) and Western Hemlock (Tsuga heterophylla) largely replacing the pines up to about 4000-4500 feet on north-facing slopes and to nearly 6000 feet on south-facing slopes. From these levels upward Sugar Pine (Pinus lambertiana), (for a short distance) and White Fir (Abies concolor) appear in increasing numbers, with Incense Cedar (Libocedrus decurrens) on the drier ridges, so that the shading from ^{moist} Transition into Canadian Zone is gradual. Above and outside the monument, on open ridges at about 5500 feet, (Fig. 10), Red Fir (Abies magnifica ssp.) makes its appearance, along with the endemic Saddle's Oak (Quercus sadleriana), and on north slopes above 6000 feet there

are stands of Mountain Hemlock (Tsuga mertensiana) along with the Red Fir, Weeping Spruce, (Picea breweriana), another Hudsonian Zone tree of the Siskiyou may occur in the game refuge, but was not found on Lake Mountain.

On the sites of old burns, especially on south-facing slopes, dry Transition (Fig. 5), dominated by Manzanita (Arctostaphylos) may extend even above 6000 feet. On the south side of Lake Mountain typical Hudsonian Zone and typical dry Transition Zone are separated by only a few hundred feet. In this area Green-tailed Towhees were seen at a slightly higher elevation in the Manzanita chaparral than Western Golden-crowned Kinglets in Red Firs less than half a mile away across a ridge.

Throughout the monument and over most of the refuge undergrowth is from sparse to practically absent (Fig. 4) under the dense crown-cover of the humid Transition Zone trees. Aside from the chaparral, the only really dense growth is along a few of the streams where reproduction of Port Orford Cedar (Chamaecyparis lawsoniana) and Western Hemlock may be heavy, and in wet meadows or glades, where Willow (Salix sp), Dwarf Maple (Acer glabrum) and Red Alder (Alnus oregona) may form dense, twisted thickets. (cf. near and to right of the lake, Fig. 8.)

6. MAMMALS OF THE MONUMENT

The following rather incomplete list is partly from personal observation but largely from Mr. Dick Rowley, Chief Guide of the caves, who has resided in and about the area for many years. Forms in parentheses have not been reported from the monument itself, but from within a few miles (and, with one exception) in the game refuge.

Talpidae - Moles; numerous burrows show these animals to be reasonably common, but no specimens have been taken; from their known distribution either or both of Scapanus townsendii or S. orarius orarius might be present.

Microchiroptera - Insectivorous Bats; not rarely seen in the evenings; formerly sporadically abundant about the caves, apparently less so since the installation of electric lights and constant visits by humans; one seen in exit tunnel October 24, 1936; no specimens have been taken in the monument but from Bailey (1936) any or all of 7 species might possibly occur. According to Jewett (1924) Lasiorycteris noctivagans is "probably the most abundant" in the Siskiyou region of Oregon.

Ursus (Euarctos) americanus altifrontalis - Olympic Black Bear; occasionally seen in and about the monument, in both color phases; the Oregon Caves were originally discovered by Elijah Davidson when he followed a wounded bear; (Rowley reports that neither he nor Davidson ever saw a grizzly in the neighborhood of the monument, but Bailey (1936) considers this general area to have been within the former range of Ursus klamathensis.)

Procyon lotor pacifica - Pacific Raccoon; according to Rowley present sparingly, commoner in the valleys below the level of the monument.

Bassariscus astutus raptor - California Ring-tailed Cat; according to Rowley:

very common, though seldom seen.

(Martes caurina caurina - Pacific Marten; according to Rowley:

still trapped occasionally on Sucker Creek a few miles south of the monument) (An example of M. pennanti pacifica was reported taken by a trapper in Josephine County during the season of 1913-14 (Bailey, 1936). According to Jewett (1924) the Pacific Fisher is a resident of the Siskiyou Mountains in Oregon.)

Mustela ^{sp.} - Weasel; according to Rowley: Three killed on monument in
^ last few years, one by CCC boys in winter of 1935-36; these appear to have been large, long-tailed and not bridled and hence probably M. longicauda saturata; though Jewett (1924) lists M. xanthogenys as the Siskiyou form, neither subspecies of this species is known to occur as far north as the Oregon Line in California (Cf. Grinnell, 1933).

Spilogale gracilis latifrons - Oregon spotted Skunk; according to Rowley; common; a female with young seen first week of July 1936 near the Chateau. (Anthony (1924) and Bailey (1936) call this form S. phenax latifrons; the name used here is taken from Grinnell (1933).)

Mephitis mephitis occidentalis - California Striped Skunk: common, especially below monument, according to Rowley. (Name taken from Grinnell (1933); Anthony (1924) - Bailey (1936) call it M. occidentalis occidentalis).

(- ----- Fox: according to Rowley: occurs rarely in the neighborhood (he is not sure if red or gray); (Bailey (1936) suggests the possibility of the Cascade Red Fox's, Vulpes Fulvus cascadenis (V. Fulva necator according to Grinnell, 1933) occurring in the region. It would appear also from Bailey and from Jewett that Urocyon cinereoargenteus townsendi, though also occurring in southwestern Oregon, would probably not range as high as the immediate neighborhood of the monument.)

Canis latrans lestes - Mountain Coyote; according to Rowley: sometimes fairly common; has been heard from monument headquarters.

(Canis lycaon gigas - Puget Sound Wolf; according to Rowley: formerly common, six seen eight years ago (1928-29) and three of them killed within twenty miles of the monument).

Felis concolor californica - California Mountain Lion; according to Rowley: always present in region, especially common every eight or ten years, tracks have been seen on monument; (Anthony, 1928, calls this F. oregonensis oregonensis; Bailey, 1936, calls it F. concolor oregonensis

Lynx rufus fassiaatus - Northwestern Bobcat; according to Rowley; occurs, but is not common.

Citellus douglasii -- Douglas Ground Squirrel; common below monument; one tame individual seen at Chateau October 25, 1936.

Callospermophilus chrysodeirus ssp. - Golden-mantled Ground Squirrel; abundant (several hundred) around Chateau where they subsist largely on peanuts; rare elsewhere in the region; Bailey (1936) calls this C.c. trinitatis, but Grinnell (1933) considers this a synonym of C.c. chrysodeirus, (Figs. 11, 13, 14).

Eutamias sp. - Chipmunk; common all over monument; those at Chateau appear much darker and somewhat larger than those on ridges even within monument. Possibly the darker examples are tending toward E. townsendi ochrogenys of the coast, while the others are E. t. siskiyou; or possibly the darker ones are E. t. siskiyou and the lighter E. amoenus ochraceus. Collecting will be necessary to determine this point.

Sciurus douglasii ssp. - Chickaree; moderately common throughout; this may be S.d. cascadiensis or S.d. douglasii, only collecting can determine which.

Sciurus griseus griseus - Western Gray Squirrel; formerly common below the monument, entering its boundaries occasionally; now locally rare or absent; a pair of this species caught near Grants Pass will shortly be liberated near the Chateau.

Glaucomys sp. - Flying Squirrel; one killed by Rowley, who mistook it for a Wood Rat; the only species given for the region by Bailey (1936) is G. sabrinus fuliginosus whose distributional map shows a specimen to have been taken near Oregon Caves on the upper Illinois river (of which Sucker Creek is a tributary).

Thomomys sp. - Gopher; locally, especially on the more open ridges, extremely abundant; from the small size of the burrows and the choice of habitat, it appears likely that T. monticola ssp, probably (from the known range) T.m.mazama, is the form present, though others may also occur.

Peromyscus maniculatus ssp. - White-footed Mouse; common throughout the region; a pest about the Chateau and cottages; casual inspection of a few caught around the cottages suggests that the local form is P.m. gambeli, but some tendency toward P.m. rubidus as suggested by Jewett (1924), may be found on more careful comparison.

Neotoma cinerea occidentalis - Western Busy-tailed Wood Rat; not rare about

the monument; a nest in the cave near the upper (natural) entrance. (Bailey (1936) shows the range of Neotoma fuscipes fuscipes including the general region, but this species is unknown about the monument (Rowley) and quite possibly does not even enter the game refuge.)

Microtus sp. - Meadow Mouse; the runways of this genus, which are fairly common about the monument, according to the data of Bailey (1936), may have been made by either or both of M. californicus californicus or M. oregoni oregoni; M. mordax mordax is recorded from the Oregon Siskiyou by Jewett (1924) and may possibly include the monument in its range.

(Ondatra sp. - Muskrat; a species of unknown provenance said to have been introduced into the lower Biglow Lake (outside the monument) some years ago. Two visits in July (1936) to the lake failed to disclose any definite evidence of their present residence there.)

Aplodontia rufa ssp. - Mountain Beaver; no burrows or other definite sign seen by me in summer of 1936, but Rowley states they were quite common in parts of the monument up to two or three years ago; the distribution in this part of the State has not been worked out, and either A. r. rufa or A. r. pacifica may be the local form.

Zapus sp. - Jumping Mouse; Rowley's description of a mouse seen on the monument seems definitely attributable to this genus; from the data in Bailey (1936), the form might be either Z. trinotatus trinotatus or Z. t. pacificus.

Erithizon erivanthum erivanthum - Yellow-haired Porcupine; no porcupine sign was seen by me but Rowley says it is fairly common in the region of the monument.

Lepus? sp. - Rabbit; according to Rowley, "a few, small, snow-shoe type Rabbits are found in the monument." No specimens of the subgenus Lepus are known from this section of the state; according to Grinnell (1933) the nearest form is L. (washingtoni) klamathensis which has been taken in the Trinity Mountains of California; according to Anthony (1928) (who spells it washingtoni) also this is the nearest Snow-shoe Rabbit, though he does not give the Trinity Mountain record; Bailey (1936) gives L. americanus washingtoni as the name of the form from the lower western slopes of the Cascades in Oregon. L. (Macrotolagus) californicus californicus was seen dead on the highway close to the mouth of Little Grayback Creek but probably does not enter the refuge, much less the monument. Sylvilagus bachmani ubericolor, which is dark and short-eared and might be thought of as being

"small, Show-shoe type" must occur very close to the refuge and possibly inside it, but has never been taken at any such altitude as that of the monument.

Cervus roosevoti - Roosevelt Elk; this splendid animal, once abundant, is now extinct in the region of the monument; (the name given by Anthony (1928) is C. canadensis occidentalis).

Odocoileus columbianus columbianus - Columbian Black-tailed Deer, abundant in and all about the monument; it would probably be still more numerous if the game refuge included an adequate amount of winter range. About 18 of these animals remain about the Chateau where they subsist on natural vegetation, plantings by the Landscape Architects, and kitchen scraps. The plantings stand up very well despite the nibblings of the animals, and the deer do not depend on scraps except in periods of heavy snow, so that the situation is by no means dangerous at present, (Fig. 12).

7. BIRDS OF THE MONUMENT

Almost all the birds on this list were observed by me in July 1936, though two additions were made in October. Species in parentheses were either definitely identified outside but close to the monument in the refuge, or were believed seen in the monument, but not certainly identified.

The following quotation from a letter of August 19, 1936 from Professor Joseph Grinnell, of the Museum of Vertebrate Zoology, University of California, will show something of the interest that attaches to the birds of the region, and also the necessity for taking specimens of some of the forms:

"You mention certain avian peculiarities of the Oregon Caves region. The same obtains (that is, close approach of interior forms to the sea-coast) for the Siskiyou Mountains along the California-Oregon boundary. With some species, it is the interior race that goes to within 50 miles or so of the coast; in other species it is the coast form that goes to (nearly) Shasta Valley. Then, too, in some other groups there is a nice graduation from one end of the Siskiyou Mountains to the other. You will have to get actual specimens for satisfactory determination."

(Cathartes aura septentrionalis - Turkey Vulture; several seen about Lake Mountain.)

Astur atricapillus - American Goshawk - One believed seen over south boundary of monument; a molted feather (5th? primary) of an immature male? bird picked up in "glade."

Accipiter velox velox - Sharp-shinned Hawk; one seen near glade, over Lake Mountain trail.

(Accipiter cooperi - Cooper's Hawk; an adult male seen on Panther Creek; possibly inside the monument.)

- Buteo borealis calurus - Western Red-tailed Hawk; several seen just outside monument; one seen in glade.
- Dendragapus fuliginosus sierrae - Sierra Grouse; fairly common in and about the monument; a female picked up dead near the Big Tree (Cf. my monthly report for October, 1936) proved to be this form.
- Oreortyx picta ssp. - Plumed? Quail, several seen above monument; a pair and young seen just inside.
- Trochilidae - Hummingbird; fairly common in the glade and other open places; almost certainly Selasphorus rufus, the Rufous Hummingbird, (the only species mentioned by Jewett, 1924) but specimens will be needed for sure determination.
- (Megaceryle alcyon caurina - Western Belted Kingfisher; one seen on Grayback Creek, near the CCC camp.)
- Colaptes cafer ssp. - Flicker; common; a nest with young about 200 yards from Chateau; Jewett (1924) states that the local form is C.c. collaris but specimens are needed.
- Ceophloeus pileatus picinus - Western Pileated Woodpecker; male seen on Big Tree trail; work of these birds fairly common all over area.
- Sphyrapicus varius ruber - Northern Red-breasted Sapsucker; several seen in and around monument. Jewett (1924) lists S.v. daggetti as the Siskiyou form, but the males seen by me certainly approached typical S.v. ruber very closely.
- Dryobates albolarvatus albolarvatus - Northern White-headed Woodpecker; seen on Lake Mountain trail, and also outside monument near Biglow Lakes.
- Empidonax sp. - Flycatcher; apparently two species in the region, one in the monument and above, and the other near the CCC camp and below; birds of this genus, however, cannot be safely identified without specimens.
- Myiochanes richardsoni richardsoni - Western Wood Pewee; extremely common everywhere.
- Perisoreus obscurus obscurus - Oregon Jay; said to have been formerly common in the monument; four seen outside monument on Lake Mountain Trail in July; two seen and several heard in monument near Big Tree in October.
- Cyanocitta stelleri ssp. - Jay; a good many seen and heard in and around monument; this might be either C.s. carbonacea or C.s. frontalis (considered the latter by Jewett (1924) specimens are needed.

- Penthestes gambeli ssp. - Chickadee; common; nests with young, and young out of nest, July 9-15.
- Psaltriparus minimus ssp.- Bush-Tit, one seen on Big Tree trail in July.
- Sitta canadensis - Red-breasted Nuthatch; only a few actually seen, but they were heard constantly.
- (Certhia familiaris ssp.- Creeper; a family seen on Panther Creek (possibly inside monument - boundary here is not marked).)
- Cinclus mexicanus unicolor - Dipper; several said to have been shot in past years, near the Chateau, where they were said to have been catching introduced trout-fry in an artificial pool.
- Turdus migratorius propinquus - Western Robin; moderately common.
- (Ixoreus naevius naevius - Pacific Varied Thrush; seen on Panther Creek, possibly within the monument; heard (but not seen) at several points in the monument.)
- (Hylocichla guttata ssp.- Hermit Thrush; commonly heard, occasionally seen, in July.
- (Hylocichla ustulata ustulata - Russet-backed Thrush; common below the monument, especially near the CCC camp.)
- (Regulus satrapa olivaceus - Western Golden-crowned Kinglet; common in the upper Canadian Zone, above the monument, (Fig. 9 shows habitat).)
- Virio gilvus swainsoni - Western Warbling Vireo; a family group seen just below the Chateau.
- Vermivora celata lutescens - Lutescent Warbler; two or three seen.
- Dendroica auduboni auduboni - Audubon's Warbler; fairly common.
- Dendroica nigrescens - Black-Throated Gray Warbler; a pair seen on the Big Tree trail.
- Dendroica townsendi - Townsend's Warbler; a family seen near the Chateau; also seen elsewhere in the monument.
- Dendroica occidentalis - Hermit Warbler; seen on lower part of Lake Mountain trail.
- Coorornis tolmiei - Macgillivray's Warbler; a pair seen on lower part of Lake Mountain trail.
- Wilsonia pusilla chryseola - Golden Pileolated Warbler; seen on the lower part of the Lake Mountain trail.
- Piranga ludoviciana - Western Tanager; common throughout the whole region.

Hedymeles melanocephalus melanocephalus - Black-headed Grosbeak; seen inside the monument near Panther Creek.

Passerina amoena - Lazuli Bunting; common in openings in and around the monument.

Carpodacus purpureus californicus - California Purple Finch; several seen.

Spinus pinus pinus - Northern Pine Siskin; common throughout the whole region.

(Spinus tristis salicamans - Willow Goldfinch; a small flock seen on thistles along the road a short distance below the monument.)

Oberholseria chlorura - Green-tailed Towhee; one seen singing in the glade; another seen on Lake Mountain.

Pipilo maculatus ssp. - Oregon? Towhee; several seen.

Junco oreganus ssp. - Thurber's? Junco; common throughout. Jewett (1924) lists only J.o. thurberi from the Siskiyou region, but I have seen no specimens from near the monument.

Spizella passerina arizonae - Western Chipping Sparrow; common, especially in open spaces.

Zonotrichia leucophrys nuttalli - Nuttall's Sparrow; not rare in more parts.

(Passerella iliaca ssp. - Fox Sparrow; one seen definitely near upper Biglow Lake; others believed seen in the neighborhood, stayed so much in the brush that positive identification was impossible.)

(Melospiza lincolni lincolni - Lincoln's Sparrow; several sparrows seen and heard in the glade and elsewhere were almost certainly this species.)

Melospiza melodia ssp. - Song Sparrow; common throughout, but subspecies cannot be determined without specimens.

8. REPTILES OF THE AREA

Gerrhonotus sp. - Alligator Lizard; one seen near southeast corner of monument

Thamnophis sp. - Garter Snake; apparently subspecies of both T.sirtalis and T. ordinoides are present in moderate numbers.

9. AMPHIBIA OF THE AREA

(Triturus torosus - California Newt; abundant in Biglow Lakes; another tailed amphibian is said to occur in the monument, but the descriptions offered are too vague to allow

of identification.)

Rana pretiosa - Frog; common in Biglow Lakes. An "edible" frog is said to have been introduced into the lower Biglow Lake, but was not seen by me.)

Hyla regilla - Pacific Tree Toad; a few seen and heard in the monument and near Biglow Lakes, especially during rains.

Bufo boreas - Western Toad; one seen by Chateau.

10. FISH OF THE AREA

The waters of the monument are not large enough for fish, though a few hundred assorted "trout" (Salmo, Salvelinus, and Oncorhynchus) have been planted in two artificial pools at the Chateau.

Sucker Creek and its larger tributaries contain trout of unidentified species, and a small run of Chinook Salmon (Oncorhynchus tshawytscha) and Steelheads (Salmo Gairdneri) is said to occur.

11. EFFECTS OF PAST AND PLANNED DEVELOPMENTS ON WILDLIFE

Physical developments within and close to the monument have had very little effect on wildlife. The most conspicuous exception is the enormous concentration (Figs. 11, 13, & 14) of Golden-mantled Ground Squirrels about the Chateau. It is certain that the squirrels in 3 or 4 acres of human concentration many times outnumber those of all the rest of the monument. Deer also (Fig. 12), which are fed there, are more numerous than in other parts of the area, especially in winter, when most of the really wild ones have left the neighborhood of the monument for lower elevations. The few developments planned for the monument promise to be equally innocuous.

Despite the few buildings and single road in the monument human activities and human pressure, and human developments below the game refuge have had a very real effect on the wildlife of the area.

To understand this effect it will be necessary to reconstruct the wildlife situation and wildlife movements in the region before the coming of white men to Oregon. So far as I know, in this part of the country, a given group of Elk and of Deer kept very largely to one watershed. They scattered all over the area in the summer (Fig. 8 shows typical summer Elk range), especially in the higher parts, but concentrated very largely below the level of 3 foot snow in winter (Fig. 15 shows winter range (in summer)). The elk perhaps were not driven down as far as the shorter-legged deer, but would tend to concentrate more along the streams than the latter. Since summer growth is luxuriant (Figs. 6 & 16), and nutritious, 100 deer (for example) can summer on a relatively small area. But in late winter, when many of the summer's plants are dead, the same 100 deer usually require a considerably larger actual acreage to obtain sufficient food.

Elk and Deer that used to summer on the present game refuge, probably wintered in the valleys of Sucker Creek and its lower tributaries from Grayback Creek (Fig. 15) down to about as far as the present Redwoods Highway (U.S. 199). They can no longer do so. The rich bottom land that once enabled

great game herds to go through the winter, are now pre-empted for farming and domestic stock. Mere protection from hunting is not enough. A large population of game animals would need, in winter, the food and cover that is no longer there, or at least no longer available.

On the Elk and Deer population there preyed a number of Mountain Lions and Wolves. These predators, unlike their prey, were not limited to one water-shed, but ranged widely, following local abundance of the Elk and Deer (and of Rabbits, and in the case of Wolves, probably even Mice.)

When there are no predators at work on game animals, the latter increase in numbers until one of two things happens: disease sweeps through them, (because they are so crowded that each sick animal infects many others); or they eat back plants more rapidly than these can grow, and this destroys the range. In either case the Deer or Elk become enormously abundant and are then suddenly reduced to a small fraction of their former numbers through starvation or disease, only to increase gradually again until they repeat the cycle.

When there is an ample predator population, on the other hand, the sickly, the weak, and the excess are killed off, so that game numbers tend to remain at a relatively constant level; lower than the dangerous peaks that occur without predators, but far higher than the low levels that follow these peaks. Human predators are poor substitutes for natural ones. A wolf prefers a sick deer to a healthy one, because it is easier to kill, and a Wolf does not adorn its den with the mounted heads of the finest specimens--the very individuals that would make the best breeding stock.

The Wolves and Cougars preferred the slow and stupid domestic animals, however, to the fleet and alert wild ones (which were already becoming scarce through hunting and farming), so the Wolf has been exterminated from that part of the country, and even the slinking Mountain Lion is almost gone.

Coyotes, smarter than their bigger relatives, and formerly kept in check by them, have increased, while the Red Fox, the Martens and the Fisher have been nearly or entirely exterminated for their skins.

Thus the wildlife picture in the neighborhood of the Oregon Caves is very different from what it once was, even though physical changes over hundreds of square miles have been few.

12. LOCAL SENTIMENT ON THE MONUMENT, ESPECIALLY ON WILDLIFE

My knowledge of local sentiment has been obtained mostly at second hand, but is, I believe, substantially correct. People in Josephine County in general seem to be proud of the monument, and "boost" it for all they are worth, quite as much because of their feeling for it as because of money spent in Grants Pass and elsewhere by outsiders visiting the area. There are said to be a good many people in the region who would like to see the area of the monument greatly increased, and its status changed to that of a national park. I understand that an abundance of wildlife was one of the aims of the proponents of this plan.

In contrast to this general attitude, a small number of people are said to invade the game refuge annually to obtain deer-meat. And it would be quite easy

for fur trappers as well to make their sets within this area with little danger of discovery, though it is not known if this is ever actually done.

13. SUGGESTED WILDLIFE PROGRAM AND POSSIBLE BOUNDARY CHANGE

In the light of the foregoing considerations, it would appear that the situations with respect to (a) large animals and some of the smaller predators; and (b) birds, most of the smaller mammals, and plants, are very different.

Large Animals. To bring about the return of a natural abundance and balance of the larger species formerly inhabiting the region (by re-introduction), and by protection of those still present in reduced numbers, it would be necessary to set aside at least 200 square miles, and probably more, of which perhaps a third would have to be land now in private ownership, and in large part under cultivation. Obtaining the whole of the Sucker Creek water shed to the Illinois River would (with proper planting) allow the development of large, and no doubt interesting, numbers of Elk and Deer. But without a much vaster territory it would be impossible to maintain adequate numbers of the wide-ranging predatory animals formerly associated with the large game.

Within 10 to 20 years the Elk and Deer would become so numerous that they would become subject to terrible epidemics, or they would destroy their own range and begin to starve to death wholesale (cf. Section 11 of this report), and would have to be artificially controlled. A situation of this sort has already developed in Yellowstone National Park, and it is very unlikely that the National Park Service would care to risk the recurrence of such difficulties in the future.

On the other hand, if taking over the 200 + square miles for a self-contained and naturally controlled big game range be advocated, it must be pointed out that much the greater part of such an area would have no value whatever as part of a National Park or Monument except for its use by wildlife. As far as my own prejudices are concerned, I greatly favor every action designed to protect the wilderness from encroachment, or to turn back to the wild many areas already taken over for the uses of man, but I certainly could not conscientiously recommend this particular territory to the National Park Service. My official attitude would be quite different if this sort of wildlife restoration program were proposed by another agency; say, the State, or the U. S. Forest Service, especially since such an agency could properly help correct any Biological unbalance that might appear by carefully controlled hunting--a recourse not open to the National Park Service.

Elk under present land control. Given freedom from poaching, the present refuge would probably support a small herd of elk (say 100 or so) without undue competition with the deer. Those used for reintroduction would of course have to be the west coast subspecies, and they would have to be caught as wild adults, or they would almost certainly move down the valley to the farms and become semi-domestic if allowed to do so. There is some danger that even wild-caught adults would do the same thing until eliminated for breaking down small fruit trees and doing similar damage. Some arrangement would also have to be made for taking care of the unwanted increase. Probably the only practical method for such a small herd would be by individual permit-hunting.

Fur bearers. The valuable Marten and Fisher have practically, if not entirely disappeared from this region, and while it is hardly my place to

mention it, a 5 or 10 year closed season (for all the Siskiyou-Trinity Mountains complex), as recently suggested by the Chief of the Biological Survey, (for the whole United States) might restore these animals to such numbers that they could supply a steady, if not impressively large, source of income to the people of the state. My reason for discussing the matter is that such a closed season might also allow them to increase enough so that they might become regular visitors to the monument, or even permanent residents.

Birds, Small Animals, and Plants. Except for the immediate vicinity of the Chateau, the most of the small mammals and the birds, appear to be present in practically their original kinds and numbers, with their original foods and natural enemies present to make a satisfactory biological balance. At present it is difficult to imagine any reason for more than a temporary change in this happy state of affairs.

As pointed out earlier in this report, the great biological interest of the Siskiyou region lies very largely in the diverse origins of the plants and animals present, and interest would be increased for the monument if it could be enlarged somewhat so as to include portions of life zones lying close to but outside its present borders. Such an area as that shown by the heavy dashed line on the map would be practically a complete biological cross-section of the Siskiyou, and should, I believe, be considered by the Superintendent, and others interested in the monument, for possible future inclusion. This suggested area would contain nearly double the number of species of vertebrate found within the present monument, and would considerably more than double the number of species of plants. It would also, especially at its upper end, add some beautiful and impressive country, and some beautiful views. A very much greater enlargement might be made without adding anything of value not already found in the small area here suggested.

14. RECOMMENDATIONS

Cf. the preceding section of this report.

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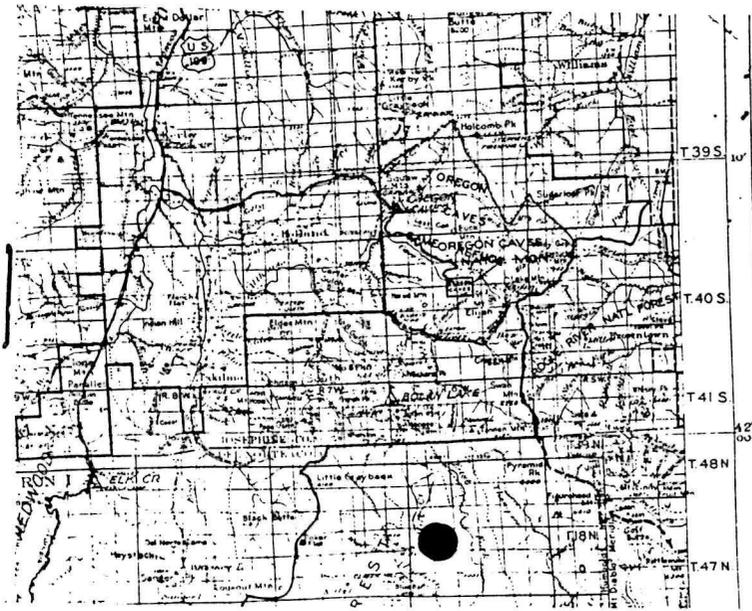


Fig 1. Forest Service map of Oregon caves region. Section lines and game refuge outlines were taken from this map.

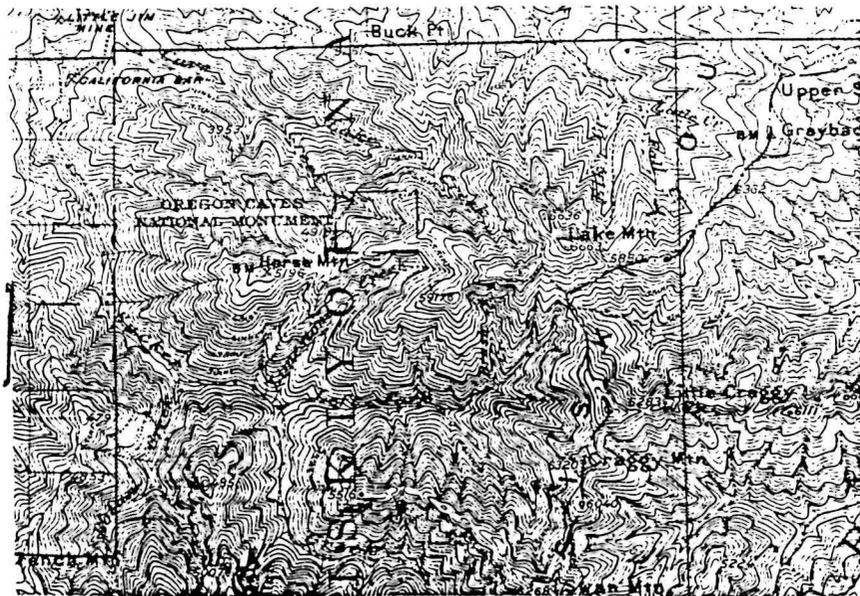


Fig. 2. Part of U.S.G.S. Grants Pass sheet. Elevations and some of the streams taken from this map.

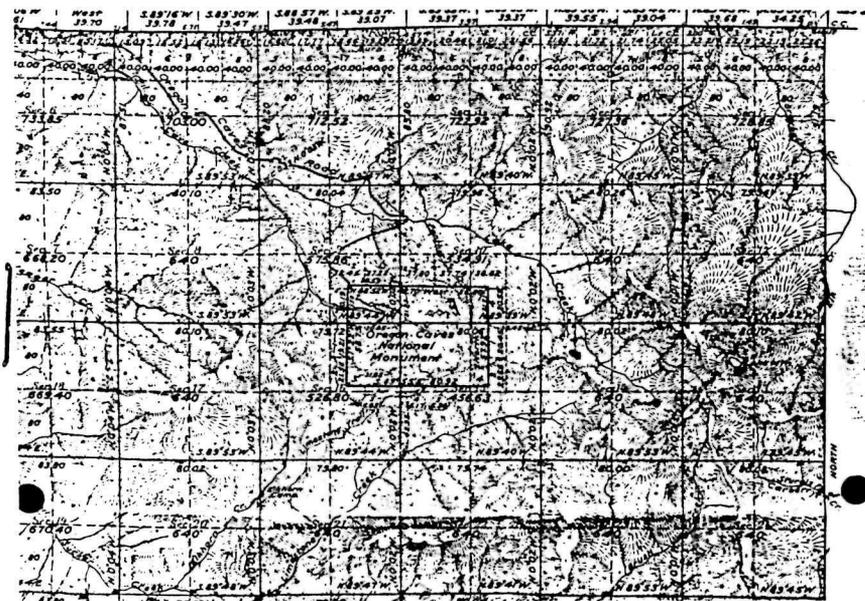


Fig. 3. County map of Twp 40 S, R 6 W.
 Monument boundaries and some of the
 streams taken from this map.



Fig. 4. Humid Transition Zone forest, mostly Douglas Fir. Typical absence of underbrush is shown. Photo taken on Big Tree Trail.

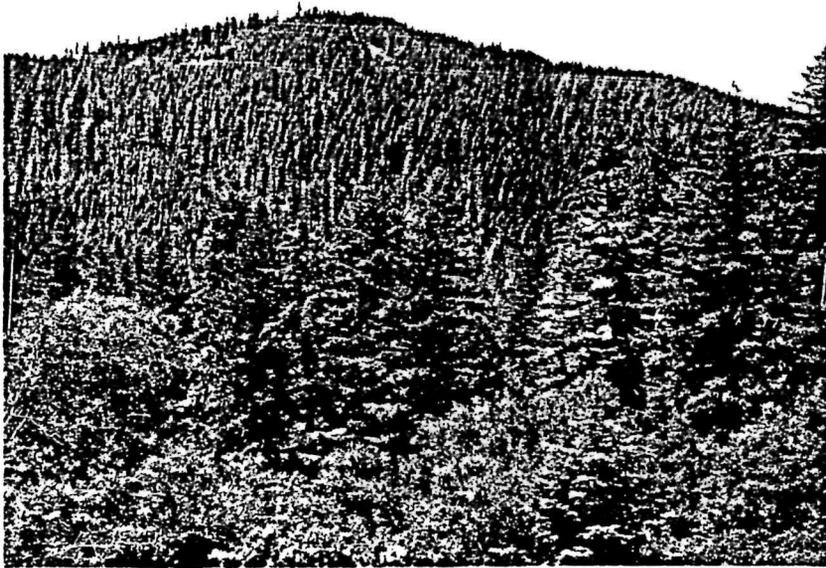


Fig. 5a. View south from dry Transition in old burn on Big Tree Trail.

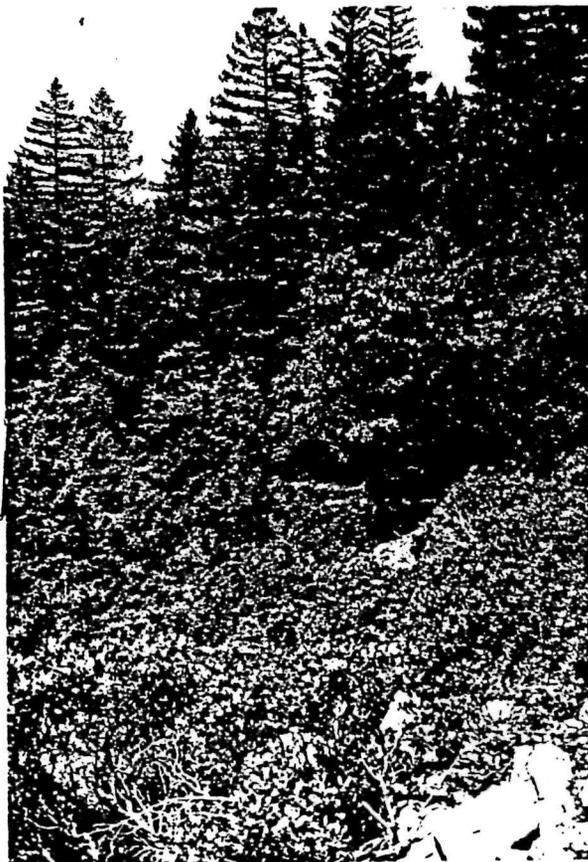


Fig. 5. View west from same point as above. Manzanita, Oak and Chinquapin have replaced the fire-killed Douglas Fir and Western Yellow Pine of this small burn.



Fig. 6. View east in "The Glade." Transition-Canadian Zone margin. This steep meadow has more wildflowers and birds than any other part of the monument.



Fig. 6a. Another small glade at the head of Panther Creek. Mountain Beaver said to have been abundant here a few years ago.



Fig. 7. Open Canadian Zone with Red Fir, Douglas Fir and Incense Cedar on the ridge just outside the southeast corner of the monument. This is a favored haunt of Quail and other birds.

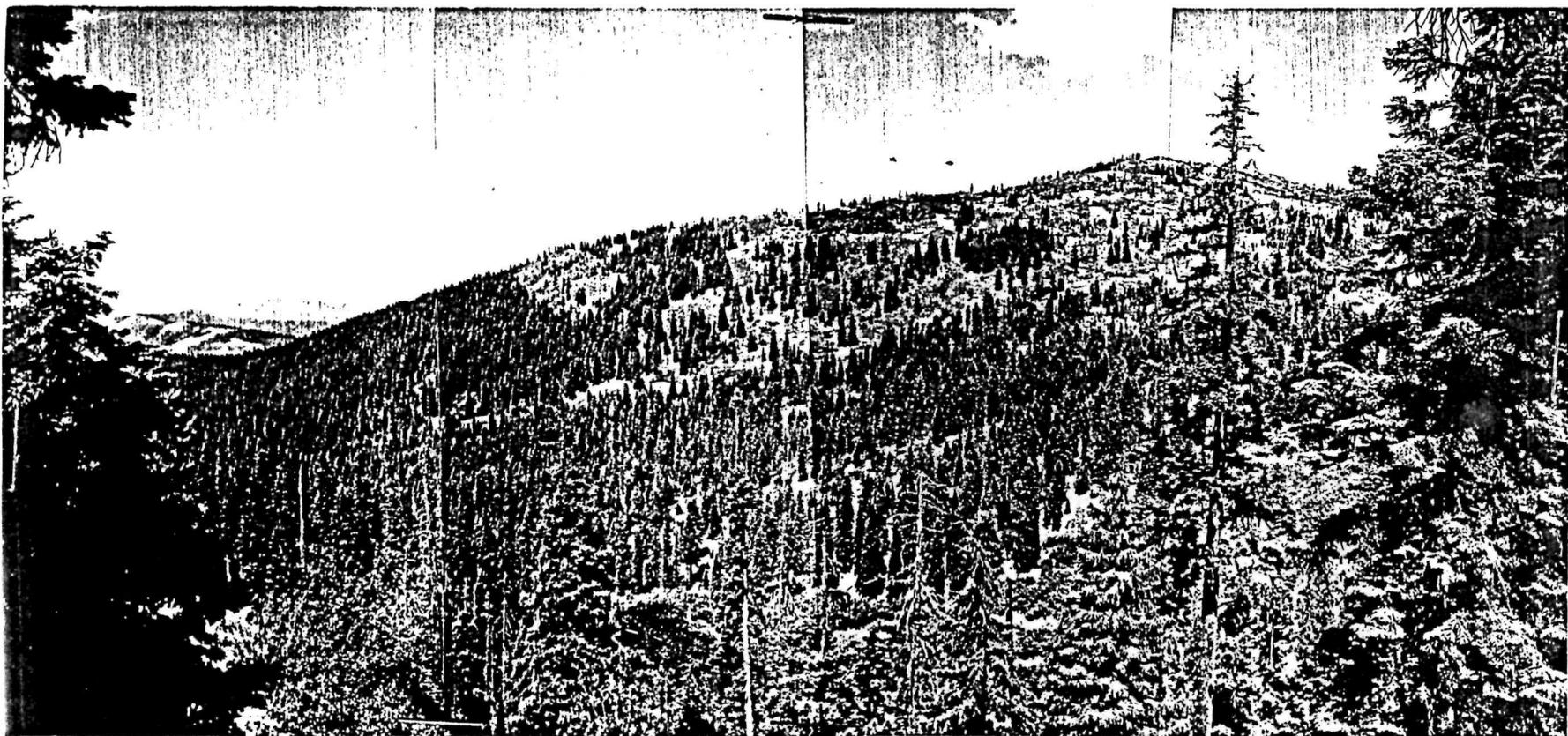


Fig. 8. Lake Mountain from south and west. Lower Biglow Lake in left center foreground. The area shown is largely Canadian Zone, and would make excellent summer Elk range.

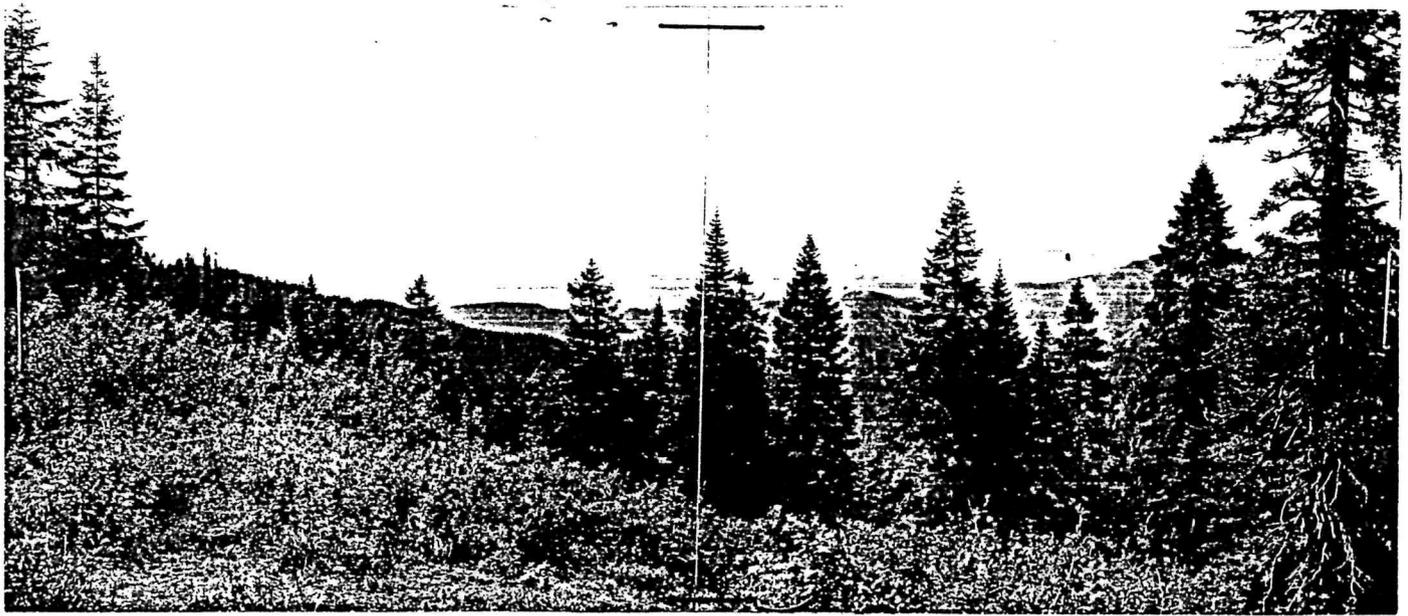


Fig. 8a. Looking west across monument from Lake Mountain Trail.

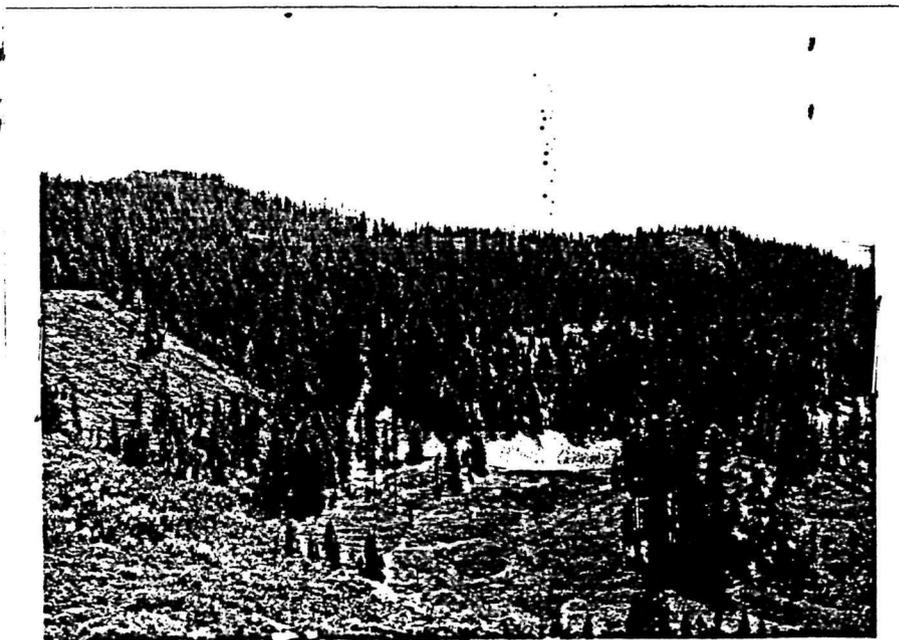


Fig. 9. View from east of upper Biglow Lake. Some of the trees at left center are the Hudsonian Mountain Hemlock. This is the most beautiful part of the Oregon Caves country.



Fig. 10. Dr. Applegate standing in a growth
of False Hellebore on Lake Mountain.
The trees are Red Fir.



Fig. 13.
See below.



Fig. 14. Golden-mantled Ground Squirrels eating peanuts. Note the bulging cheek-pouches of the individual with his back to the camera.



Fig. 15. Meadow, largely man-made along Grayback Creek. This would be good winter range for Elk.

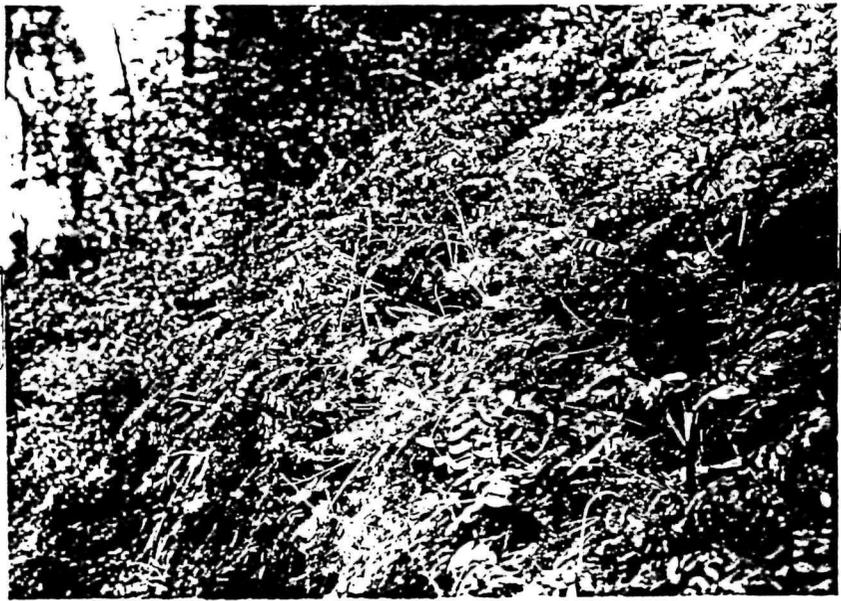


Fig. 16. Wild Sweet Pea along Lake Mountain Trail in the monument. A favorite summer food of deer.