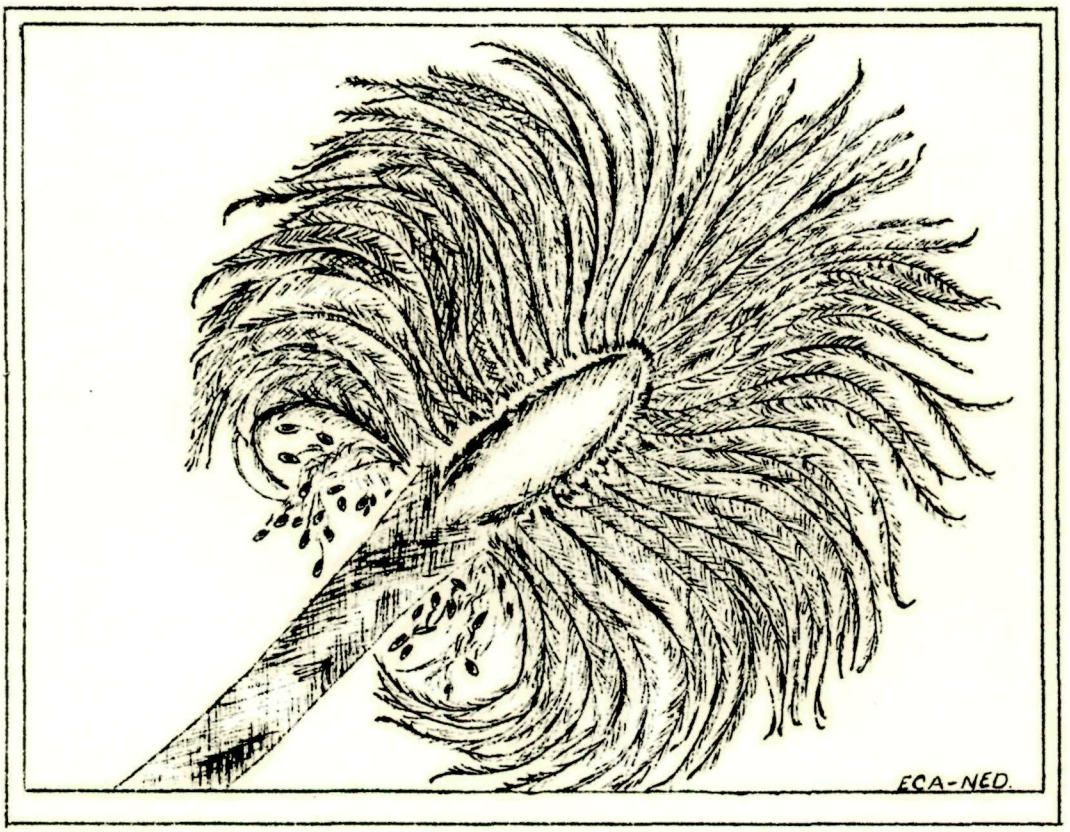
NATURE NOTES

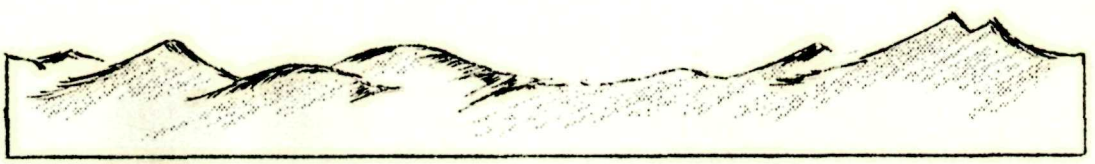
Crater Lake National Park

- OREGON -



ANEMONE ~ WIND-FLOWER
(CROSS-SECTION)

VOLUME XI - JULY 1938 - NUMBER 1.



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

CRATER LAKE NATIONAL PARK

NATURE NOTES

Volume XI July 1938 Number 1

Nature Notes from Crater Lake National Park are issued during the summer months. These pamphlets contain articles describing the natural features of the Park, Oregon Caves National Monument and Lava Beds National Monument, the two monuments being administered by the staff of Crater Lake National Park. Copies of Nature Notes may be obtained from the Park Superintendent, Crater Lake, Oregon. The reprinting of the articles appearing in Nature Notes is encouraged. Please give credit to the pamphlet and author.

E. P. Leavitt
Superintendent

John E. Doerr, Jr., Editor
Park Naturalist

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PREFACE

CRATER LAKE NATIONAL PARK

The park includes an area of 250 square miles on the crest of the Cascade Range in southern Oregon. The area was established as a national park in 1902, preserving the unsurpassed scenic beauty of Crater Lake, a deep lake, the clear fresh water of which is famous for its everchanging hues of blue. Its setting is unique. The lake, having an area of 20 square miles, is cupped within the crater of an extinct volcano. Cliffs 500 to 2000 feet high completely surround the lake. The crater walls are partially mantled with hemlock, fir, and pine trees. On the gentle outer slopes of the mountain which one ascends in approaching Crater Lake there are deep canyons, magnificent forests and open meadows supporting a colorful display of mountain wild flowers. Hiking and fishing are popular outdoor sports during the summer months. Skiing is popular in the winter, the park being accessible throughout the winter months by the west entrance road from Medford and the south entrance road from Klamath Falls.

OREGON CAVES NATIONAL MONUMENT

This national monument, an area of 480 acres, is located in the Siskiyou Mountains in southwestern Oregon. The caves, named "The Marble Halls of Oregon" by Joaquin Miller, are truly marble halls. Underground water penetrating to great depth along fractures in the marble formation has dissolved out an extensive system of chambers. Water dripping from the ceilings and walls has decorated the halls and passageways with fantastic stalactites and stalagmites which stimulate one's imagination as well as one's appreciation of the beauties of nature in caverns never touched by sunlight. In the magnificent forest around the cave entrance there are trails along which one gets inspiring views of forest-covered mountains and valleys. Along the trails one can observe many species of trees, mammals, and birds.

LAVA BEDS NATIONAL MONUMENT

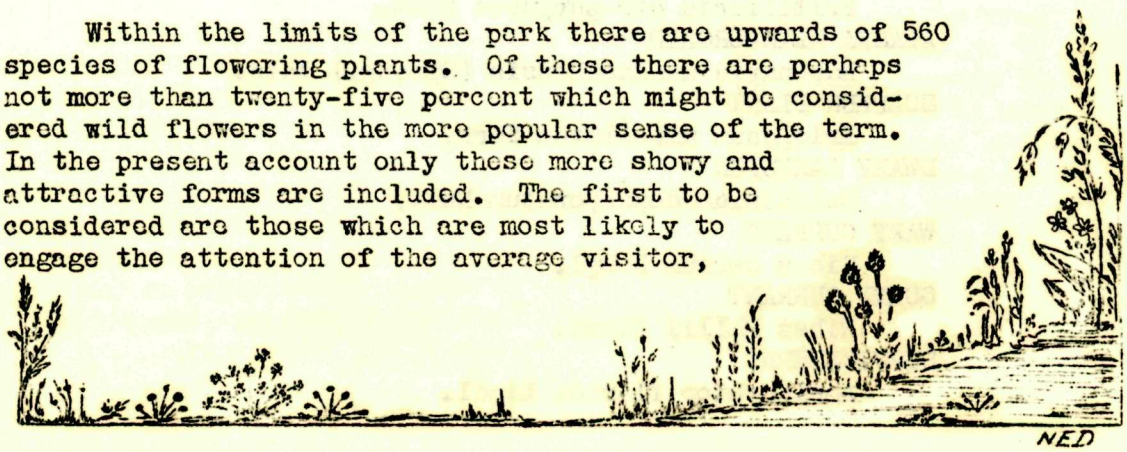
Located in northeastern California, the monument includes an area of 45,000 acres. As the name suggests, volcanic formations, some of quite recent origin, are of greatest importance. There are hundreds of lava tubes which were once the passageways for streams of molten lava. Volcanic cones rise above the general level of the adjacent country. There are excellent examples of various types of lava. Within the monument there are interesting historical features including battlefields of the Modoc War of 1872-73. There are important ethnological and archaeological features. Petroglyphs on cliffs and pictographs in caves are evidence that the region was inhabited by primitive people long before the coming of the white man.

The Editor

The FLOWERING SEASONS of CRATER LAKE PLANTS

Most of the Crater Lake National Park area is occupied by the truncated cone of Mt. Mazama, the crater of which cups the lake. The basal altitude is about 4,000 feet, culminating in the higher points of the crater rim at approximately 8,000 feet. Mt. Scott on the eastern margin is nearly a thousand feet higher. For a considerable portion of the year the park is covered by snow. Even at the south entrance, which reaches the edge of the level valley, not infrequently there are remnants of snowdrifts until late in May; and not before July is the ground entirely bare on the south rim. Rarely drifts remain a month later. Consequently the flowering season is very short. Usually there are few, if any, flowers out before the first of June; and the season is practically over by the middle of September. Beginning at the lower levels, they continue up the mountain slopes following the retreating snow. In general there is a gradual replacement by other forms. Some of the lower forms, more adaptable, find themselves at home on the higher reaches. These, however, for the most part, ascend the warmer, more exposed slopes, just as plants of the upper levels tend to drop down the cold streams and shady sides of canyon walls. Radiating glacier valleys and stream-cut canyons, wet meadows, bogs, rocky walls, talus slopes, pumice flats, forest areas--all these are among the local contributing factors in distribution and time of flowering.

Within the limits of the park there are upwards of 560 species of flowering plants. Of these there are perhaps not more than twenty-five percent which might be considered wild flowers in the more popular sense of the term. In the present account only these more showy and attractive forms are included. The first to be considered are those which are most likely to engage the attention of the average visitor,



such plants are to be seen along the main thoroughfares, improved trails, about camp grounds and other more frequented places. A second group includes those found off the beaten paths and in more distant and inaccessible places, in reach of visitors who have more time and interest in plant exploration.

The growing time is so brief that it is difficult to draw the line between seasons. Late spring soon merges into early fall. By the first of August, normally, before the first flowers are gone, most of the latest plants are in bloom; thus for a short season nearly all are in flower at the same time. So in an attempt to list the plants with reference to their time of blooming, it seems convenient to divide them into two groups: (A) the earliest or lower level flowers typically associated with the ponderosa pine, as at the south entrance; and (B) the later appearing flowers of the upper slopes, characteristic of the hemlock forest area, as for example around Park Headquarters. Between the hemlock and the ponderosa pine is a more indefinite belt dominated by lodgepole pine. A similar situation exists in the more open spaces above the main hemlock belt, extending up to the highest points, such for example as Cloudcap and Llao Rock. This area is typified by the white-bark pine, a timberline tree of the higher peaks of the Cascades and other ranges. Much of the moisture is here lost in the loose soil and by the more rapid evaporation characteristic of high altitudes. These conditions limit the plants both in number of species and of individuals. While a few mat plants with well developed root systems and other adaptive features are peculiar to this windswept area, and a lesser number of the ponderosa pine association occur here, most of them are found in the main hemlock region below.

Group A

The earliest or lower level flowers typically associated with ponderosa pine, arranged in accordance with their respective habitats.

(1) Dry Land Plants

PURPLE FRITILLARY
Fritillaria atropurpurea Nutt.
ALASKA REIN-ORCHID
Habenaria unalaschensis (Spreng.) Wats.
SULPHUR PLANT
Eriogonum umbellatum Torr.
DWARF LARKSPUR
Delphinium depauperatum Nutt.
WAXY CURRANT
Ribes cereum Dougl.
GUMMY CURRANT
Ribes Hallii Jancz.
SERVICEBERRY
Amelanchier florida Lindl.

GLANDULAR FIVE-FINGER
Potentilla glandulosa Lindl.
BITTER-CHERRY
Prunus emarginata (Dougl.) Walp.
BITTERBRUSH
Purshia tridentata (Pursh) DC.
NAKED-FRUIT ROSE
Rosa gymnocarpa Nutt.
MOUNTAIN ASH
Sorbus sitchensis Roem.
DOUGLAS SPIRAEA
Spiraea Douglasii Hook.
SCOULER WILLOW
Salix Scouleriana Barr.
SQUAW CARPET
Ceanothus prostratus Benth.
SNOWBRUSH
Ceanothus velutinus Dougl.
FIREWEED
Epilobium angustifolium L.
OREGON SUNSHINE
Eriophyllum lanatum (Pursh) Forbes
YELLOW COLLOMIA
Collomia grandiflora Dougl.
SCARLET GILIA
Gilia aggregata (Pursh) Spreng.
DOUGLAS PHLOX
Phlox Douglasii Hook.
CURLY-BLOOM
Phacelia heterophylla Pursh.
WESTERN HOUND'S TONGUE
Cynoglossum occidentale Gray
PINE PAINTBRUSH
Castilleja pinetorum Fernald.
HEART-LEAF ARNICA
Arnica cordifolia Hook.
ENTIRE-LEAF RAGWORT
Senecio integerrimus Nutt.
GREEN-LEAF MANZANITA
Arctostaphylos patula Greene.
PINEDROPS
Pterospora andromeda Nutt.
SNOWBERRY
Symphoricarpus albus (L.) Blake

(2) Streambank and Meadow Plants

SLIM SOLOMON
Smilacina sessilifolia Nutt.
MONK'S HOOD
Aconitum columbianum Nutt.

BANEBERRY
Acteae spicata arguta Torr.
COLUMBINE
Aquilegia formosa Fisch.
HENDERSON BUTTERCUP
Ranunculus occidentalis dissectus Hend.
BIG-LEAF AVENS
Geum macrophyllum Willd.
ST. JOHNSWORT
Hypericum Scouleri Hook.
MEADOW PAINTBRUSH
Castilleja miniata Dougl.
COMMON MONKEYFLOWER
Mimulus guttatus DC.

Of the foregoing lists, the earliest to bloom are purple fritillary, slim Solomon, Douglas phlox, gummy currant, waxy currant, serviceberry, bitter-cherry, ragwort and manzanita.

Group B

The later appearing flowers of the upper slopes, characteristic of the hemlock forest area, arranged in accordance with their respective habitats.

(1) Dry Land Species

SPOTTED CORALROOT
Corallorrhiza maculata Raf.
MERTENS CORALROOT
Corallorrhiza Mertensiana Bong.
RATTLESNAKE PLANTAIN
Peramium decipiens (Hook.) Piper
GORMAN STONECROP
Cormania Watsoni Britton
NEWBERRY KNOTWEED
Polygonum Newberryi Small
PYROLA-LEAF ERIOGONUM
Eriogonum pyrolaefolium coryphaem T & G.
MOUNTAIN SORREL
Oxyria digyna (L.) Campt.
PUSSY-PAWS
Calyptridium umbellatum (Torr.) Greene
WESTERN WINDFLOWER
Anemone occidentalis S. Wats.
CRATER LAKE SANDWORT
Arenaria pumicola Coville & Leiberg
BROAD-POD ROCKCRESS
Arabis platysperma Gray

CRATER LAKE CURRANT
Ribes erythrocarpum Coville & Leiberg
TOLMIE SAXIFRAGE
Saxifraga Tolmaei Torr. & Gray
FAN-LEAF FIVE-FINGER
Potentilla flabellifolia Hook.
CREEPING RASPBERRY
Rubus lasiococcus Gray
DESERT LUPINE
Lupinus aridus Dougl.
MAT MANZANITA
Arctostaphylos nevadensis Gray
PRINCE'S PINE
Chimaphila umbellata (L.) Nutt.
STRIPED PYROLA
Pyrola picta Smith
ONE-SIDED PYROLA
Pyrola secunda L.
BLUE STICK-SEED
Hachelia Jessicae (McGregg.) Brand
APPLEGATE PAINTBRUSH
Castilleja Applegatei
SPIDERWEB PAINTBRUSH
Castilleja pilosa arachnoidea (Greenman) Jepson
DWARF MONKEYFLOWER
Mimulus nanus Hook. & Arn.
LOUSEWORT
Pedicularis racemosa Dougl.
DAVIDSON PENTSTEMON
Pentstemon Menziesii Davidsonii (Greene) Piper
ROCK PENTSTEMON
Pentstemon rupicola Howell
RED ELDERBERRY
Sambucus racemosa callicarpa (Greene) Jepson
BLACK TWINBERRY
Lonicera involucrata Banks
RED TWINBERRY
Lonicera conjugialis Kell.
COVILLE ASTER
Aster lodophyllus Gray.
BLOOMER RABBITBRUSH
Chrysothamnus Bloomeri (Gray) Greene
THOROUGHWORT
Eupatorium occidentale Hook.

(2) Wet Land Species

WESTERN TOFIELDIA
Tofieldia occidentalis S. Wats.
GREEN CORN-LILY
Veratrum viride Ait.

BOG ONION
Allium validum S. Wats.
ST. JOHN YELLOW LAMBSTONGUE
Erythronium grandiflorum pallidum
BLUE-EYED GRASS
Sisyrinchium idahoense Rick.
LADIES' TRESSES
Spiranthes Romanzoffiana Sham. & Schl.
WHITE BOG-ORCHID
Habenaria dilatata.(Pursh) Hook.
GREEN BOG-ORCHID
Habenaria stricta Lindl.
SMARTWEED
Polygonum bistortoides Pursh
SPRING-BEAUTY
Claytonia lanceolata Pursh
GORMAN BUTTERCUP
Ranunculus Gormani Greene
BREWER MITREWORT
Mitella Breweri Gray
DENSE-FLOWERED SPIRAEA
Spiraea densiflora Nutt.
KLAMATH LUPINE
Lupinus latifolius ligulatus (Greene) C. P. Sm.
YELLOW WOOD VIOLET
Viola glabella Nutt.
WHITE BOG VIOLET
Viola Macloskeyi Lloyd
MOUNTAIN LAUREL
Kalmia polifolia microphylla Rehd.
ALPINE SHOOTING-STAR
Dodecatheon alpinum Greene
LEWIS MONKEYFLOWER
Mimulus Lewisii Pursh.
PRIMROSE MONKEYFLOWER
Mimulus primuloides Benth
ELEPHANT HEADS
Pedicularis groenlandica Retz.
GRAY BLUE FLEABANE
Erigeron salsuginosus (Richards) Gray

Among the very earliest of the last list are: yellow lambstongue, spring beauty, western windflower and alpine shooting-star.

The following list is made up of flowers not included in any of the foregoing, plants found in outlying sections not often seen by

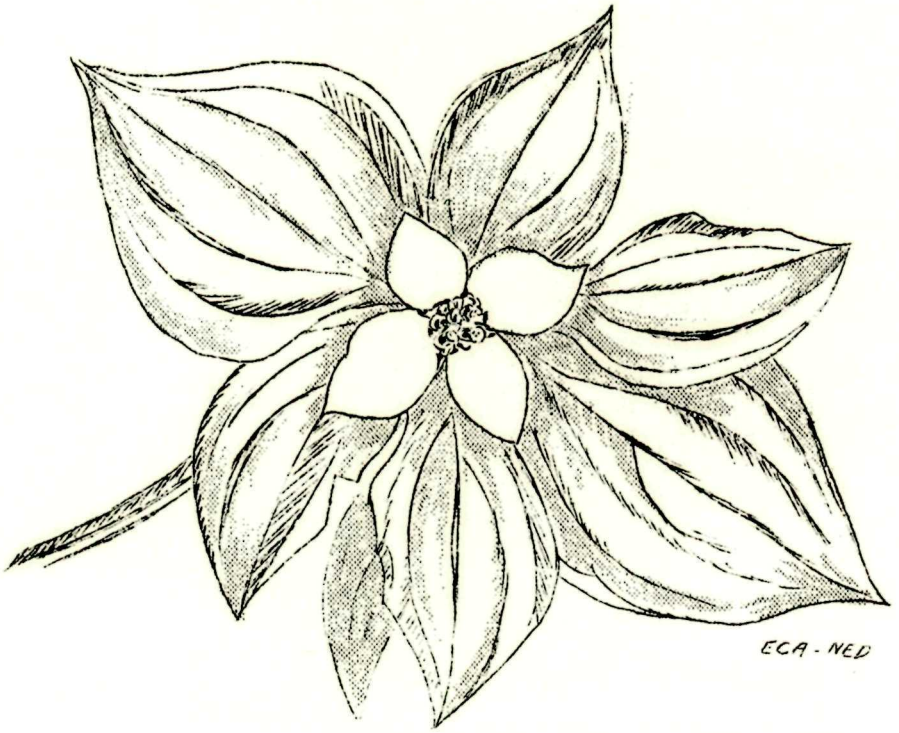
visitors. They are more common on the west slope of the Cascades, especially in the deep glacial valley of Redblanket Creek which at the southwest corner of the park drops to about 3700 feet altitude. This provides a gateway for the entrance of many westcoast plants. A few of these plants reach the east side via the Klamath Gap, reaching the park up Annie and Sun Creeks.

FAIRY BELLS
Disporum oregonum (S.Wats.) Benth. & Hook.
TWISTED-STALK
Streptopus amplexifolius (L.) DC.
WAKE-ROBIN
Trillium ovatum Pursh
OOKOW
Brodiaea pulchella (Salisb.) Greene
WHITE BRODIAE
Brodiaea hyacinthina (Lindl.) Baker
CAT-EAR
Calochortus elegans Pursh
LARGE CAMAS
Camassia Leichtlinii (Baker) Wats.
KLAMATH LAMBSTONGUE
Erythronium klamathense Applegate
WASHINGTON LILY
Lilium Washingtonianum Kell.
CALIFORNIA IRIS
Iris californica Leicht.
TWAYBLADE
Listera carina Piper
WOOD-ANEMONE
Anemone deltoidea Hook.
DRUMMOND WINDFLOWER
Anemone Drummondii S. Wats.
MARSH MARIGOLD
Caltha biflora DC.
TALL LARKSPUR
Delphinium scopulorum glaucum Gray
DEER-FOOT
Achlys triphylla (Smith) DC.
MOUNTAIN OREGON GRAPE
Mahonia nervosa (Pursh) Nutt.
PIPER OREGON GRAPE
Mahonia Piperiana Abrams
INSIDEOUT
Vancouveria hexandra (Hook.) Morr. & Dec.

GRASS OF PARNASSUS
Parnassia intermedia Rydb.
SYRINGA
Philadelphus Lewisii Pursh
OCEAN-SPRAY
Holodiscus discolor (Pursh) Maxim.
THIMBLE-BERRY
Rubus parviflorus Nutt.
BAKER VIOLET
Viola Bakeri Greene
ROUND-LEAF VIOLET
Viola orbiculata Geyer
CLARKIA
Clarkia rhomboidea Dougl.
CANADA DOGWOOD
Cornus canadensis L.
NUTTALL DOGWOOD
Cornus Nuttallii (T. & G.) Coville
MADRONO
Arbutus Menziesii Pursh
ROUND-LEAF PYROLA
Pyrola rotundifolia incarnata DC.
STAR-FLOWER
Trientalis europae latifolia Torr.
SIMPLE GENTIAN
Gentiana simplex
MAZAMA COLLOMIA
Collomia mazama
WESTERN JACOBS LADDER
Polemonium occidentale Greene
NARROW-LEAF PHACELIA
Phacelia linearis (Pursh) Holzinger
MCBRIDE LUNGWORT
Mertensia paniculata subcordata (Greene)
NARROW-LEAF SKULLCAP
Scutellaria angustifolia Pursh.
SCOULER BELLFLOWER
Campanula Scouleri Hook.
BLUE BELLFLOWER
Campanula prenanthoides Dur.

ALICE FLEABANE
Erigeron Aliceae Howell
GOLDENROD
Solidago elongata.

by Elmer I. Applegate
Ranger Naturalist.
1937



DOGWOOD
Cornus canadensis L.