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A PRELIMINARY ENVIRONMENTAL ASSESSMENT
AND RESOURCE INVENTORY OF DEVIL'S POSTPILE
NATIONAL MONUMENT, MADERA COUNTY, CALIFORNIA

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I. INTRODUCTION

Devil's Postpile National Monument today lies in federal protection (National Park Service, U.S. Department of Interior) by Presidential Proclamation No. 1166, July 6, 1911. This geologically significant area, once a part of Yosemite National Park (1890), received little public attention, partly due to its inaccessibility. In 1905, more than 500 ^{square miles} ~~acres~~ were withdrawn from Yosemite National Park in the Minaret Range and Devil's Postpile area and returned to the public domain. Only 800 acres were returned to protected status in 1911. Today the Monument is two and one-half miles long and one-half mile wide. It lies on the western slope of the Sierra Nevada in Madera County, California. The Monument is reached by traveling a dead-end road from Mammoth Lakes, Mono County, California.

The Monument was established because of two important geophysical features, the postpiles themselves and Rainbow Falls.

Much has been written about the postpiles as a geological feature. The most recent geological treatment is by N. King Huber of the U.S. Geological Survey in ^{Yosemite Park} ~~Palo Alto~~, California. Interest continues in postpile formation and decay. New techniques have posed the possibility of a later (more recent) date for the postpile flows, perhaps by as much as 300,000 years. This would put the main flows at approximately 600,000 years ago. Earthquake activity in the winter of 1980 and the spring and summer of 1981 have dislodged numerous postpiles. These fallen columns have been photographically recorded. Numerous other columns lean towards the talus-pile at angles considered dangerous to the public. Because of this, public access to the talus-pile has been denied by Superintendent's order. Previously the talus-pile was accessible and enjoyed by thousands each season.

An in-depth treatment of the Monument's geological history is provided in the guidebook "Devil's Postpile National Monument", edited by Wymond Eckhardt.

The second major geophysical feature in the Monument is Rainbow Falls. This spectacular waterfall exists near the southern end of the Monument at a bend in the San Joaquin River. Here the river falls freely 101 feet into a shallow pool below. Earlier printed matter indicated the falls were 140 feet in height. They were measured in the summer of 1978 to establish the present, corrected height.

The geology at Rainbow Falls is different than that of the postpile formation. The area is overlain by the common, and more recent rock, pumice. This shallow surface layer of pumice is underlain by "platy andesite", a term given to the extrusive rock found here. This andesite, while appearing here at approximately the same period of time as the postpile basalt, is different in its composition and general structure. It forms cracks both vertically and horizontally. The horizontal cracks create its flattened and plate-like character. When these rocks strike each other they tinkle like china plates, adding to their "platy" character.

The formation of Rainbow Falls has been an item of interest and speculation. Certainly, the area was influenced by local glaciation. The platy andesite must have crumbled easily under the weight of Pleistocene glaciers. Perhaps the original precipice was formed by localized glacial "plucking".

It is thought by some that the river has moved from its earlier course and now falls over banks that it cut at an earlier date.

II. SOILS AND SURFACE MATERIALS

Soil formation in high-Sierra regions depends upon many important factors. Parent materials, slope, exposure, hydrology, organic matter content, and surface vegetation are only a few of such factors. Extensive soil formation in any Sierran ecosystem depends upon the right combination of these factors. The percentage of well-developed (mature) areas of soils is low in the high Sierra. It is much more common to find poorly-developed soils or bare parent material.

It is difficult to locate an area within the 800 acres of the Monument that is not covered by pumice. The pumice within the Monument indicates post-glacial volcanic activity in the Mono Lake - Mono Basin area. Pumice is probably the commonest rock found for hundreds of square miles.

The pumice at the Monument plays an important role in the area's phytogeography and vegetation development. Most of the pumice found in the Monument is less than one centimeter (1 cm) in diameter suggesting that it traveled some distance before falling. The Mono Craters are certainly considered as a possible source.

Little soil formation probably occurred before the present pumice cover appeared. This is probably due to the facts that: 1) glaciated volcanic rock-surfaces are very slow to decompose, 2) slopes did not allow particle accumulation, 3) montane and sub-alpine climates do not foster rapid development of pioneer plant communities, and 4) snowpack and rainfall contribute to rapid soil erosion.

Enough post-glacial pumice has fallen to create a dominant upper mantle of this siliceous rock. In most areas of the Monument it is less than 20 cm in depth. In flatter areas (meadow areas and "tables") the pumice accumulation is much deeper (25-50 cm).

On slopes underlain by basalt and andesite, where water table is low and percolation is high, a sparse conifer forest normally exists. Here, pines and firs contribute little organic matter towards extensive soil formation. The soils remain barren with a paucity of litter and insufficient moisture to enhance soil-formation. It is common, on steeper slopes, to see bare rock and few plants. The plants, with the "creeping" soil, move downhill, further inhibiting soil development.

Thundershowers often occur within the Monument and create surface disturbances of pumice "washouts". These occurrences may lay an area bare until a later event carries "new" pumice in.

The instability of such surface materials inhibits soil formation and thusly the vegetation or plant cover. Little "understory" or underbrush develops within

these "unstable" areas within the Monument.

Pumice also creates numerous management problems within the Monument. Soils which are slow in developing are also slow in plant cover development. Whenever human disturbances occur to such soils, recovery is slow and "visual aesthetics" are degraded. Such disturbances include "spur path" development, off-road encroachment by vehicles and over-use by visitation. Once a "spur path" is cut, it is easily identified and used by others and degradation is rapid.

Soil development is best seen in the meadows of the Monument. While some meadow bases are fluvial in origin, others are found to have bases formed from simple mechanical weathering. Meadow formations will be discussed in another section.

III. NATURAL HISTORY

The Monument's headquarters are at 7560' in elevation above sea level. There is considerable variation in elevation within the boundaries since the Monument lies in a mountainous region of the Sierra Nevada.

While huge areas of exposed granite (of the Sierra batholith) are present, there are also older metamorphics (of the Ritter Range) and more recent volcanics contributing to the area's physiography. This region is geographically near the eastern escarpment of the Sierra Nevada and yet establishes the divide of drainage for the eastern and western watersheds. The Ritter Range (to the Monument's West) is clearly higher in elevation but the San Joaquin River was forced to go west here (due probably to volcanic "plugging" or "damming"). Hence the vegetation in the Monument area has both east-slope and west-slope affinities.

The Monument occupies an area within Pleistocene glacial trough that was created by huge ice-flows originating in the Mt. Ritter area. The main glacier moved southward and was fed by numerous smaller glaciers that also created present alpine watersheds. Glacier-polish, glacial striations, and glacial grooves are

found throughout the Monument. Glacial erratics are also commonly found.

A. The San Joaquin River

The San Joaquin River travels the entire length of the Monument and is a constant source of public enjoyment. It is not stocked or planted with hatchery fish. It's "wild" fish fauna is enjoyed by hundreds of anglers each season.

The river changes in character many times throughout its journey through the Monument. It enters the Monument in a relatively slow meander coming from Pumice Flat and Minaret Falls campground. Soon after, it enters and fills a deep (10-12 feet) pool formed by a volcanic obstruction just north of the Monument campgrounds. After this pool, the river cascades to a lower elevation and enters the Soda Spring Meadow. After a series of broad meanders, the river enters the narrow "funnel" of another volcanic obstruction in the area of the postpile formations and the Monument's northern footbridge. From here the river continues quite rapidly through the north half of the Monument.

An unnamed creek from Red's Meadow enters the river by falling more than thirty feet near the eastern boundary of the Monument. From here, the river travels rather slowly, with great meanders and leaves the Monument boundaries. It does not reenter the Monument until after Boundary Creek joins it, near the southern one-third of the Monument. The river enters the eastern boundary shortly before it drops 101 feet at Rainbow Falls. After a major bend southward the river exits the Monument and travels to "Lower Falls", a small series of cascades. The river then turns in a northwestern direction and makes a sharp turn nearly due-south at the southwest corner of the Monument. Here King Creek enters the river.

The river represents a continuum of aquatic variations from the north boundary to the south boundary. It continues on to race through a narrow granite gorge south of "Lost Camp" and towards Mammoth Pool, the first man-made obstruction on the San Joaquin River. This pristine portion of the river is being considered for National Wild River status and the whole area for inclusion into the National Wilderness Area system as a portion of the proposed San Joaquin Wilderness Area. This would bridge a large gap between the Minaret and John Muir Wilderness Areas.

Few have traveled by foot through this narrow gorge of the river. In the Summer of 1980, three men (Royal Robbins, Doug Tompkins, and Reg Lake) made the first known river passage down the San Joaquin River from the Monument to Mammoth Pool. They used white-water kayaks when possible and portaged where it was too dangerous. They often had to use technical climbing gear to scale the steep granite walls of the gorge, transporting all of their gear, including kayaks, via modern climbing techniques.

B. Vegetation

The vegetation of the Monument is characteristic of a montane forest dominated by Red Fir and Lodgepole Pine. Numerous other elements occur making the area an interesting mosaic of conifers and deciduous trees typical of numerous plant communities.

The most common conifer near the ranger station and along the Monument's trails is the Lodgepole Pine. This opportunistic tree can be found in most areas where at least some soil is present (even if only pumice). The Lodgepole Pine is dominant (but not dense) on the near-horizontal surfaces of the Monument. Seedlings and young trees of this species are also found at the meadow's edge, slowly invading wherever possible.

Where slope increases or soils are shallower, the lodgepole gives way

to Red Fir and in some cases, White Fir. Red Firs are common in the Monument while White Firs are more scarce. A relatively large White Fir grove exists around the postpiles and numerous mature specimens can be viewed along the trail that leads to the top of the postpile formation.

Western White Pine is commonly seen in the Monument, especially along the western boundary in the granite and higher volcanic flows. Jeffery Pine is also common throughout the Monument.

In certain portions of the Monument, Mountain Hemlock and Western Juniper can be found. Numerous Junipers can be found in the high granite ridges west of the postpile formation. A very large and impressive Western Juniper exists just north of the Monument's water well, along the trail towards Minaret Falls Campground.

At Rainbow Falls, the visitor can locate, within near reach, all of the conifer species that can be found within the Monument's boundaries.

The forest floor under the dominant conifer cover of the Monument is sparsely covered with a few perennials and numerous annual species. Most of these plants must be able to tolerate the relatively low water-holding capacity of local soils. Bottlebrush squirreltail grass and Duran's lupine are very common in open forest situations. Later in the blooming season, Parry's Rabbitbrush and chaenactis can be found. In only a few areas within the Monument, manzanita, bush-chinquapin and similar shrubs develop a woody understory.

Along the San Joaquin River and the few creeks that flow into it within the boundaries, typical montane riparian vegetation can be found. This includes Quaking Aspen, Black Cottonwood, Creek Alder and willows.

A number of meadows, of various subtypes, can be located within the Monument. "Dry Meadows" where seeps or intermittent drainages occur form shallow meadows occupied by sedges and grasses. In dry years these

may not even "green up" after the snow melt.

A few larger meadows occur in the southern Monument region that are regularly wet and occupied by sedges, mannagrass, wildryes and other grasses. Some of these southern meadows are bordered with robust specimens of Quaking Aspen.

A large (by local comparison) meadow exists near the Ranger Station. This meadow, the Soda Springs Meadow, is the largest of the meadows within the Monument and probably represents a "typical" Sierran montane meadow. This open and spacious meadow is filled with perennial sedges, grasses and wildflowers. It is quite wet in June and early-July and becomes quite dry by late-August and early-September. The large meadow is divided by the San Joaquin River and appears to be, at least in part, formed by classic fluvial events. Numerous test-holes dug throughout the meadow revealed shallow river rocks of considerable size overlain with smaller alluvial deposits and finally pumice.

The meadow is used by large colonies of Belding Ground Squirrels during the Spring and Summer months. Mule deer visit this meadow in evening and early-morning hours. Long-tailed weasels and martens are occasionally seen in late-Summer. Goshawks preying upon the ground squirrels are also often seen at this late time.

Portions of the meadow are dominated by early wildflowers - especially shooting stars, cinquefoils and bistorts. Later, many other wildflower species such as asters, monkey-flowers, yampahs and yarrows are found. Willows border the river's edge on the meadow and under these shrubs may lie paintbrushes, lupines and columbines.

Closure of a central meadow trail has enabled natural revegetation to occur. This previous "eyesore" has nearly vanished and visitors are encouraged to enjoy the meadows by seeking random, less damaging pathways.

At the southern edge of this large meadow lies the soda spring for which it is named. Totally submerged in the June snow-melt, the spring gradually becomes more accessible by July. In August and September it is normally separated by a few meters from the river and easily spotted. Iron in the water oxidizes to reddish-brown and clearly marks the spring's location. The spring provides a continuous flow of carbonated water throughout the year.

C. Fauna

The fauna within the Monument is clearly more diverse in invertebrates than in vertebrates. While this is common in most terrestrial ecosystems, it is certainly obvious here.

Species lists are kept but the vertebrate diversity, at any one time, is relatively low. Migratory and occasional visitors expand the list of vertebrate fauna. Without question, squirrels and birds are the most often encountered vertebrates.

While the bird list is not surprising, the human visitor probably contacts the Stellar's Jay, the Western Tanager or the Dark-eyed Junco most frequently. The more adept "birder" may find an interesting variety of smaller birds and forest-dwellers. Hairy woodpeckers are normally common. A Black-backed Three-toed Woodpecker mating pair nested and raised a hatch in the employees area during the summer of 1979. This species has not been recorded since.

In late-Summer Goshawks appear to prey primarily upon Belding Ground Squirrels. Great Horned Owls are commonly noted at this time as well.

The most common squirrel in the Soda Springs Meadow is the Belding Ground Squirrel. This species is present early in June, with numerous young. Foraging continues through July and early August. Often by late August very few Beldings can be located. Apparently preparing for

hibernation, they are rarely seen in numbers during September. During June and July they eat leaves and stems of grasses and sedges. Later they seem to enjoy the seeds of sedges, horkelia and a variety of grasses.

An interesting early-Fall behavior was observed of Beldings. On at least three occasions during the 1979 season, Beldings were observed frantically running up and downstream along the river's edge, with what appeared to be a desire to gain the opposite bank. Finally the squirrels dove into the San Joaquin River and swam to the other side. The current carried the small mammals downstream but they all succeeded in reaching the opposite bank. This was additionally perplexing as the opposite bank provided only shear walls, loose pumice and partially-exposed tree roots - no meadow habitat to gain.

Other common mammals within the Monument include the Golden-Mantled Ground Squirrel, the Lodgepole Chipmunk and the Chickaree. Chipmunks and "Golden-Mantels" are common in the campgrounds where Chickarees are reclusive and spend hours tearing fir and pine cones apart for their seeds.

Small mammals are probably quite common within the Monument. A live-trap and release program would greatly enhance our knowledge of this fauna.

Black Bears are occasionally seen within the Monument boundaries. While more common before 1980, the use of bear-proof garbage receptacles has disappointed this occasional mammal. This bear is, however, more often observed in surrounding National Forest campgrounds (without bear-proof garbage containers). It is not known if any Black Bears den or reside within the Monument.

Porcupines, coyotes and marmots are occasionally sighted, especially on or near the entry road to the Monument.

The Pacific Treefrog represents the only observed amphibian. The

garter snake is often seen in the meadows. Alligator lizards have been found in dry forest situations and two unconfirmed rattlesnake observations have been reported. While other reptiles are unsuspected, a search for additional amphibians might prove successful.

The San Joaquin River is not "planted" with fish within the Monument's boundaries. Upstream, the California Department of Fish and Game plants fish (normally Rainbow Trout) at numerous sites. Few of these "plants" make it downstream to the Monument. Fishes caught within the Monument are considered "wild" and include Rainbow, Brown, and Brook Trout. Brown Trout of 21" and 27" in length have been taken from deeper pools in the river but near the Monument campgrounds.

IV. GOALS AND OBJECTIVES

In observance with the enabling legislation for National Parks and Monuments, Devil's Postpile National Monument is to be managed as a natural area. It is to be protected so that it remains as unchanged (by man) as possible for the enjoyment of future generations. Management objectives must be aligned with this clear mandate. However, high visitor use makes it difficult to achieve such a goal.

A. HIGH-USE AREAS

The postpiles formation and Rainbow Falls areas receive high visitor use. These areas must be constantly monitored and managed to avoid environmental degradation. Litter, "spur path" formation, soil surface disturbance, excessive noise and large crowds can all contribute to such degradation. Measures should be taken to "steer" crowds of people and horses in appropriate directions to avoid negative environmental impacts. However, care must be taken to avoid the visitor's impression of being "herded". This might be difficult to achieve.

B. BUILDINGS AND STRUCTURES

Care must be taken to avoid more human encroachment into the natural environment within the Monument. Roads, buildings, campgrounds, picnic areas, bridges, and similar man-made structures should be kept to a minimum. Attempts must constantly be made to encourage visitors to "walk away" from the parking lots. They need to be invited, in every way possible, to seek out and enjoy the natural aspects of the Monument, where human influence is negligible. A visitor may get the impression that Devil's Postpile National Monument is virtually all "front country". The Monument staff needs to devise methods to insure that visitors see beyond this. While this is easily done for visitors who attend interpretive walks and campfires, such visitors represent a small percentage of annual visitation.

C. CAMPGROUNDS

The current campgrounds within the Monument are in need of redesigning and upgrading. They are clearly better than in earlier days, where twice the number of campsites existed and proper sanitation facilities were absent. Current bear-proof garbage cans have helped greatly. Because the soil within the campgrounds area is also pumice, it is difficult to maintain visual aesthetics. The following represents a few possible suggestions:

- 1) Pave a one-way loop road in Section A to clearly mark the appropriate path upon which vehicles may travel.
- 2) Mechanically disturb areas where old trails and roads existed and seed with appropriate (local) native species.
- 3) Develop clear and obvious sites or pads where campers may pitch their tent and park their vehicle. Too many choices are left up

to the visitor without such devices.

- 4) Develop a few "walk in" sites for campers preferring a primitive camp.
- 5) Establish a clearer trail system in Section B to discourage bank degradation along the river.

D. PICNIC AREA

The main picnic area at the Monument is spacious and functional. It is obviously serving its purpose.

- 1) This area is one of frequent visitor violations of wild animal feeding. Perhaps a signing program might reduce such violations.

E. INTERPRETATION

Current interpretation techniques include:

- 1) Ranger station/bookstore/contact station
- 2) D.P.N.M. Brochures and Pamphlet
- 3) Guided walks
- 4) Evening Campfires
- 5) Casual (unscheduled) visitor contact
- 6) Campground visitation
- 7) Communication with neighboring personnel from Inyo National Forest.

Interpretation is a high priority at the Monument. Techniques and approaches are continuously reviewed. New ideas are routinely attempted in order to "keep up" with the changing types of Monument visitors.

From 1970 to 1981 the Monument has gone from low annual visitation (entering on an unpaved and rough road) to high annual visitation (entering on a paved road). The paving of the entrance road has greatly modified the complexion of Monument visitation. Additionally, a shuttle-bus system, occasional road blockage, and the partial allowance of private vehicles

on the entrance road has caused the Monument staff to continuously reassess and readjust their service and management techniques. The selection of a stable entrance system by U.S.F.S. and N.P.S. administration would enable Monument personnel to provide more regular and efficient visitor services.

Interpretation within the Monument is aimed at:

- 1) public enjoyment of a natural area
- 2) public understanding of local ecological principles
- 3) public familiarity with local landforms and common species of fauna and flora
- 4) public appreciation, care, and maintenance of the Monument's natural elements.
- 5) public safety while present
- 6) public observation of applicable federal, state, and local laws.

Continued development of an interpretive program requires continuous and careful observations. Some ideas for betterment might include:

- 1) Add to, delete from, or otherwise update and maintain the Monument's species lists.
- 2) Live-trap and inventory small mammals.
- 3) Make or maintain working collections (voucher specimens only) of plants, small mammals, common birds, common rock-types. Much thought should be given to such a collection with close attention being paid to sensitive species.
- 4) Continue photographic slide collection of representative fauna, flora, geomorphology, geological items (glacier polish, erratics, etc.) and images that illustrate local geophysical processes or events.
- 5) Continue to inventory all areas within the Monument boundaries to add to a more complete understanding of the area.

- 6) Develop "satellite" interpretive areas (e.g. at trail-heads, etc.).

V. SUMMARY

Devil's Postpile National Monument represents an exciting and adventuresome natural area that is easily accessible by roadway. While the geological features of the postpiles and Rainbow Falls are clearly the key features that attract public visitation, the Monument has much more to offer.

Many day-hikes to secluded areas are possible from the Monument. A wide variety of short-term and extended overnight trips can originate or continue from the Monument. Overnight camping along a near-pristine river is possible.

This Monument represents an important recreation spot for metropolitan Southern California and other areas. It needs to be managed as a high-use facility of the National Park Service. To do this, careful plans and management objectives should be established and observed.

APPENDIX

The following checklists have been compiled from contributions from the following employees and friends of Devil's Postpile National Monument. These lists are not complete and are continuously updated. We welcome all professional comments.

Julie Brandlin
Leslie Brandlin
Ann Hoffmann
Walt Hoffmann
Joseph L. Medeiros
Sandy Morey
Steve Morey
Jan Nachlinger
Gary Ogden

INSECTS

Acrididae

Andrenidae

Anisoptera

Bombidae

Bombyliidae

Buprestidae

Carabidae

Cerambycidae

Chironomidae

Coccinellidae

Collembola

Culicidae

Cynipidae

Ephemeroptera

Formicidae

Camponotus sp.

Formica fusca

Formica rufa

Gerridae

Hesperiidae

Ichneumonidae

Isoptera

Lycaenidae

Mecoptera

Meloidae

Muscidae

Myrmeleontidae

Nymphalidae

Papilionidae

Pieridae

Plecoptera

Pterophoridae

Grasshopper

Mining bees

Dragon flies

Bumble bees

Bee flies

Metalic wood borers

Ground beetles

Long-horned beetles

Gnats

Lady beetles

Springtails

Mosquitos

Gall wasps

May flies

Ants

Carpenter ants

Brown ants

Red ants

Water striders

Skippers

Ichneumon wasps

Termites

Blues, Coopers, Hairstreaks

Scorpion flies

Blister beetles

House flies

Antlions

Brush-footed butterflies

(Monarch, Fritillarys, Checker spots,

Mourning cloak, Admirals, Ladys,

California Sister, Buckeye)

Swallowtails

Sulfurs

Stoneflies

Plume moths

INSECTS CONTINUED

Raphidiidae

Scolytidae

Dendroctonus sp.

Sphingidae

Tabanidae

Tenebrionidae

Thysanura

Tipulidae

Trichoptera

Vespidae

Xylocopidae

Zygoptera

Snake flies

Bark beetles

Western Pine beetle

Sphinx moths

Horse flies

Darkling Ground beetles

Silverfish

Crane flies

Caddis flies

Yellow jackets

Carpenter bees

Damsel flies

AMPHIBIANS

Hyla regilla

Pacific Treefrog

REPTILES

Crotalus viridis

Western Rattlesnake

Gerrhonotus coeruleus

Northern Alligator Lizard

Thamnophis elegans

Western Terrestrial Garter Snake

FISHES

Salmo gairdnerii

Rainbow Trout

Salmo trutta

Brown Trout

Salvelinus fontinalis

Brook Trout

A PARTIAL CHECKLIST OF THE BIRDS OF
DEVILS POSTPILE NATIONAL MONUMENT

Accipitridae

Goshawk
Red-tailed Hawk

Alcedinidae

Belted Kingfisher

Caprimulgidae

Common Nighthawk

Certhiidae

Brown Creeper

Cinclidae

Dipper (Water Ouzel)

Corvidae

Steller's Jay
Clark's Nutcracker
Common Raven

Fringillidae

Cassin's Finch
Pine Grosbeak
Pine Siskin
Dark-eyed Junco
White-crowned Sparrow
Fox Sparrow
Song Sparrow
Red Crossbill

Hirundinidae

Violet-green Swallow
Tree Swallow

Icteridae

Brewer's Blackbird
Brown-headed Cowbird
Red-winged Blackbird

Laridae

California Gull

Motacillidae

Water Pipit

Paridae

Mountain Chickadee

Parulidae

Yellow-rumped Warbler
Wilson's Warbler

Phasianidae

Mountain Quail

Picidae

Blackbacked three-toed Woodpecker
Common Flicker
White-headed Woodpecker
Yellow-bellied Sapsucker
Hairy Woodpecker

Scolopacidae

Spotted Sandpiper

Sittidae

White-breasted Nuthatch
Red-breasted Nuthatch

Strigidae

Long-eared Owl
Great Horned Owl
Spotted Owl (imm.)
Great Gray Owl (unverified)

Sylviidae

Ruby-crowned Kinglet

Tetraonidae

Blue Grouse

Thraupidae

Western Tanager

Troglodytidae

Canyon Wren (V.O.) 21AUG81

Turdidae

Robin
Townsend's Solitaire
Hermit Thrush
Mountain Bluebird

Tyrannidae

Empidonax - Willow Flycatcher
- Western Flycatcher
Western Wood Pewee
Olive-sided Flycatcher

Vireonidae

Warbling Vireo
Hutton's Vireo

MAMMALS

Canis latrans

Erethizon dorsatum

Eutamias speciosus

Marmota flaviventris

Martes americana

Microtus sp.

Mustela frenata

Odocoileus hemionus

Peromyscus maniculatus

Procyon lotor

Sorex palustris

Spermophilus beldingi

Spermophilus lateralis

Tamiasciurus douglasii

Thomomys monticola

Ursus americanus

Coyote

Porcupine

Lodgepole Chipmunk

Yellow-bellied Marmot

Marten

Vole

Long-tailed weasel

Mule Deer

Deer Mouse

Raccoon

Water Shrew

Belding Ground Squirrel

Golden-mantled Ground Squirrel

Chickaree

Mountain Pocket Gopher

Black Bear

A CHECKLIST OF PLANTS OF
DEVILS POSTPILE NATIONAL MONUMENT
MADERA COUNTY, CALIFORNIA

<u>FAMILY</u>	<u>GENUS SPECIES</u>	<u>COMMON NAME</u>
AMARYLLIDACEAE	<i>Allium validum</i>	Swamp Onion
	<i>Brodiaea gracilis</i>	Slender Brodiaea
	<i>Brodiaea lutea</i> var. <i>analina</i>	Golden Brodiaea
APIACEAE	<i>Heracleum lanatum</i>	Cow-Parsnip
	<i>Ligusticum grayii</i>	Gray's Lovage
	<i>Lomatium torreyi</i>	Torrey's Lomatium
	<i>Osmorhiza chilensis</i>	Mountain Sweet-cicely
	<i>Perideridia bolanderi</i> (?)	Bolander's Yampah
	<i>Perideridia parishii</i>	Perish's Yampah
	<i>Pteryxia terebinthina</i> var. <i>californica</i>	Terebinth Pteryxia
	<i>Sphenosciadium capitellatum</i>	Ranger's Button
APOCYNACEAE	<i>Apocynum adrosaemifolium</i>	Spreading Dogbane
ASPIDIACEAE	<i>Cryptogramma acrostichoides</i>	Parsley-fern
	<i>Cystopteris fragilis</i>	Brittle Fern
ASTERACEAE	<i>Achillea lanulosa</i>	Yarrow
	<i>Agoseris glauca</i> var. <i>monticola</i>	Short-beaked Agoseris
	<i>Anaphalis margaritacea</i>	Pearly Everlasting
	<i>Antennaria argentea</i>	Silvery Everlasting
	<i>Arnica mollis</i>	Cordilleran Arnica
	<i>Artemisia ludoviciana</i> ssp. <i>incompta</i>	Western Mugwort
	<i>Aster chilensis</i>	Common California Aster
	<i>Aster integrifolius</i>	Entire-leaved Aster
	<i>Chaenactis alpigena</i>	Southern Sierra Chaenactis
	<i>Chaenactis douglasii</i> var. <i>rubicaulis</i>	Hoary Chaenactis
	<i>Chrysothamnus parryi</i>	Parry's Rabbit-brush
	<i>Cirsium andersonii</i>	Anderson's Thistle
	<i>Cirsium californicum</i>	Bigelow Thistle
	<i>Cirsium drummondii</i>	Dwarf Thistle

<u>FAMILY</u>	<u>GENUS SPECIES</u>	<u>COMMON NAME</u>
ASTERACEAE (Cont.)	<i>Erigeron breweri</i>	Brewer's Fleabane
	<i>Erigeron coulteri</i>	Coulter's Fleabane
	<i>Erigeron peregrinus</i> var. <i>angustifolius</i>	Wild Daisy Fleabane
	<i>Eupatorium occidentale</i>	Western Eupatorium
	<i>Haplopappus bloomeri</i>	Bloomer's Goldenbush
	<i>Helenium bigelovii</i>	Bigelow's Sneezeweed
	<i>Hulsea brevifolia</i>	Short-leaved Hulsea
	<i>Microseris nutans</i>	Nodding Scorzonella
	<i>Senecio canus</i>	Wooly Butterweed
	<i>Senecio integerrimus</i> var. <i>exaltatus</i>	Groundsel
	<i>Senecio triangularis</i>	Groundsel
	<i>Solidago canadensis</i> ssp. <i>elongata</i>	Meadow Goldenrod
	<i>Stephanomeria tenuifolia</i>	Narrow-leaved Stephanomeria
	<i>Taraxacum officinale</i>	Common Dandelion
	<i>Wyethia mollis</i>	Mountain Mule-ears
BETULACEAE	<i>Alnus rhombifolia</i> (?)	White Alder
	<i>Alnus tenuifolia</i>	Creek Alder
BORAGINACEAE	<i>Cryptantha</i> sp.	Cryptantha
	<i>Cryptantha torreyana</i>	Torrey's Cryptantha
	<i>Hackelia mundula</i>	Pink Stickseed
	<i>Hackelia velutina</i>	Velvety Stickseed
	<i>Mertensia ciliata</i> var. <i>stomatechoides</i>	Ciliate Lungwort
BRASSICACEAE	<i>Arabis rectissima</i>	Bristly-leaved Rock Cress
	<i>Barbarea orthoceras</i>	Winter-Cress
	<i>Dentaria californica</i>	California Toothwort
	<i>Descurainia richardsonii</i> ssp. <i>viscosa</i>	Mountain Tansy-Mustard
	<i>Draba stenoloba</i> var. <i>nana</i>	Alaska Whitlow-grass
	<i>Erysimum capitatum</i>	Wallflower
	<i>Erysimum perenne</i>	Sierra Wallflower
	<i>Rorippa curvisiliqua</i>	Western Yellow-cress
	<i>Streptanthus tortuosus</i> var. <i>orbiculatus</i>	Mountain Jewel Flower

<u>FAMILY</u>	<u>GENUS SPECIES</u>	<u>COMMON NAME</u>
CAPRIFOLIACEAE	<i>Lonicera conjugialis</i>	Double Honeysuckle
	<i>Lonicera involucrata</i>	Twin-berry
	<i>Sambucus microbotrys</i>	Mountain Red Elderberry
	<i>Symphoricarpos vaccinoides</i>	Snowberry
CARYOPHYLLACEAE	<i>Stellaria longipes</i>	Long-stalked Starwort
	<i>Stellaria umbellata</i>	Umbellate Chickweed
CORNACEAE	<i>Cornus occidentalis</i> (?)	Western Dogwood
	<i>Cornus stolonifera</i>	Creek Dogwood
CUPRESSACEAE	<i>Juniperus occidentalis</i>	Western Juniper
CYPERACEAE	<i>Carex whitneyi</i>	Whitney's Sedge
EQUISETACEAE	<i>Equisetum arvense</i>	Common Horsetail
ERICACEAE	<i>Arctostaphylos patula</i>	Greenleaf Manzanita
	<i>Rhododendron occidentale</i>	Western Azalea
FABACEAE	<i>Lotus nevadensis</i>	Sierra Nevada Hosackia
	<i>Lotus purshianus</i>	Spanish Clover
	<i>Lupinus albicaulis</i>	Sickle-keeled Lupine
	<i>Lupinus duranii</i>	Duran's Lupine
	<i>Lupinus latifolius</i> var. <i>columbianus</i>	Broad-leaved Lupine
	<i>Lupinus polyphyllus</i> ssp. <i>superbus</i>	Large-leaved Lupine
	<i>Lupinus sellulus</i>	Torrey's Lupine
	<i>Trifolium cyathiferum</i>	Bowl Clover
	<i>Trifolium longipes</i>	Long-stalked Clover
	<i>Trifolium microcephalum</i>	Small-headed Clover
	<i>Trifolium monanthum</i>	Carpet Clover
FAGACEAE	<i>Castanopsis sempervirens</i>	Bush Chinquapin
	<i>Quercus vaccinifolia</i>	Huckleberry Oak

<u>FAMILY</u>	<u>GENUS SPECIES</u>	<u>COMMON NAME</u>
GENTIANACEAE	<i>Frasera speciosa</i> <i>Gentiana holopetala</i>	Giant Frasera Sierra Gentian
GERANIACEAE	<i>Geranium richardsonii</i>	Richardson's Geranium
HYDROPHYLLACEAE	<i>Hesperochiron pumilus</i> <i>Phacelia frigida</i> <i>Phacelia hastata</i> <i>Phacelia hydrophylloides</i>	Dwarf Hesperochiron Timberline Phacelia Silverleaf Phacelia Waterleaf Phacelia
HYPERICACEAE	<i>Hypericum anagalloides</i>	Tinker's Penny
IRIDACEAE	<i>Sisyrinchium idahoense</i>	Idaho Blue-eyed Grass
JUNCACEAE	<i>Juncus nevadensis</i>	Sierra Rush
LAMIACEAE	<i>Agastache urticifolia</i> <i>Monardella odoratissima</i> <i>Stachys albens</i>	Horse-mint Mountain Monardella White Hedge-nettle
LILIACEAE	<i>Calochortus leichtlinii</i> <i>Lilium kelleyanum</i> <i>Lilium pardalinum</i> <i>Lilium parvum</i> <i>Smilacina racemosa</i> var. <i>amplexicaulis</i> <i>Smilacina racemosa</i> var. <i>glabra</i> <i>Smilacina stellata</i> <i>Veratrum californicum</i>	Leichtlin's Mariposa Lily Kelley's Lily Leopard Lily Alpine Lily Racemose False Solomon's-seal False Solomon's-seal Panicked False Solomon's-seal Corn-lily
LOASACEAE	<i>Mentzelia dispersa</i>	Nada Stickleaf
LORANTHACEAE	<i>Arceuthobium campylopodon</i>	Golden Mistletoe
ONAGRACEAE	<i>Circaea alpina</i> var. <i>pacifica</i> <i>Epilobium angustifolium</i> <i>Epilobium brevistylum</i> <i>Epilobium glaberrimum</i>	Enchanter's Nightshade Fireweed Slender Willow-herb Glaucous Willow-herb

<u>FAMILY</u>	<u>GENUS SPECIES</u>	<u>COMMON NAME</u>
ONAGRACEAE Cont.	<i>Epilobium hornemannii</i>	Hornemann's Willow-herb
	<i>Epilobium paniculatum</i>	Panicled Willow-herb
	<i>Epilobium pringleanum</i> var. <i>tenu</i>	Pringle's Willow-herb
	<i>Gayophytum diffusum</i> ssp. <i>parviflorum</i>	Diffuse Gayophytum
	<i>Oenothera hookeri</i> ssp. <i>angustifolia</i>	Hooker's Evening-primrose
	<i>Zauschneria californica</i> ssp. <i>latifolia</i>	California Fushia
OPHIOGLOSSACEAE	<i>Botrychium simplex</i>	Little Grape-fern
ORCHIDACEAE	<i>Habenaria dilitata</i>	Sierra Rein Orchid
	<i>Habenaria sparsiflora</i>	Sparse-flowered Bog Orchid
	<i>Habenaria leucostachys</i> (?)	
OROBANCHACEAE	<i>Orobanche fasciculata</i>	Fascicled Broom-rape
PINACEAE	<i>Abies concolor</i>	White Fir
	<i>Abies magnifica</i>	Red Fir
	<i>Pinus jeffreyi</i>	Jeffrey Pine
	<i>Pinus monticola</i>	Western White Pine
	<i>Pinus murrayana</i>	Lodgepole Pine
	<i>Tsuga mertensiana</i>	Western Hemlock
POACEAE	<i>Agropyron trachycaulum</i>	Slender Wheatgrass
	<i>Agrostis idahoensis</i>	Idaho Bentgrass
	<i>Bromus carinatus</i>	California Bromegrass
	<i>Bromus ciliatus</i>	Fringed Bromegrass
	<i>Bromus suksdorfii</i>	Suksdorf's Bromegrass
	<i>Calamagrostis inexpansa</i>	Narrow-spiked Reedgrass
	<i>Deschampsia caespitosa</i>	Tufted Hairgrass
	<i>Deschampsia elongata</i>	Slender Hairgrass
	<i>Elymus glaucus</i>	Blue Wildrye
	<i>Elymus triticoides</i>	Creeping Wildrye
	<i>Glyceria elata</i>	Tall Mannagrass
	<i>Hordeum brachyantherum</i>	Meadow Barley
	<i>Melica harfordii</i>	Harford's Melic
	<i>Melica stricta</i>	Nodding Melic

<u>FAMILY</u>	<u>GENUS SPECIES</u>	<u>COMMON NAME</u>
POACEAE Cont.	<i>Muhlenbergia filiformis</i>	Slender Muhly
	<i>Muhlenbergia montana</i>	Mountain Muhly
	<i>Muhlenbergia richardsonis</i>	Richardson's Muhly
	<i>Phleum alpinum</i>	Mountain Timothy
	<i>Phleum pratense</i>	Cultivated Timothy
	<i>Poa incurva</i>	Sandberg's Bluegrass
	<i>Poa nervosa</i>	Hooker's Bluegrass
	<i>Poa pratensis</i>	Kentucky Bluegrass
	<i>Sitanion hystrix</i>	Bottlebrush Squirreltail
	<i>Stipa californica</i>	California Stipa
	<i>Trisetum spicatum</i>	Spike Trisetum
POLEMONIACEAE	<i>Collomia linearis</i>	Narrow-leaved Collomia
	<i>Gilia capillaris</i>	Smooth-leaved Gilia
	<i>Gilia leptalea</i>	Bridge's Gilia
	<i>Ipomopsis aggregata</i>	Scarlet Gilia
	<i>Leptodactylon pungens</i> <i>ssp. pulchriflorum</i>	Granite-gilia
	<i>Linanthus ciliatus</i> var. <i>neglectus</i>	Whisker-brush
	<i>Phlox diffusa</i>	Spreading Phlox
	<i>Polemonium caeruleum</i> ssp. <i>amygdalinum</i>	Great Polemonium
POLYGONACEAE	<i>Eriogonum nudum</i> var. <i>nudum</i>	Nude Buckwheat
	<i>Eriogonum spergulinum</i>	Wild Buckwheat
	<i>Eriogonum umbellatum</i> ssp. <i>polyanthum</i>	Sulfur Buckwheat
	<i>Eriogonum wrightii</i>	Wright's Buckwheat
	<i>Oxyria digyna</i>	Mountain Sorrel
	<i>Polygonum bistortoides</i>	Snakeweed
	<i>Polygonum douglasii</i>	Douglas' Knotweed
	<i>Polygonum kelloggii</i>	Kellogg's Knotweed
	<i>Polygonum minimum</i>	Leafy Dwarf Knotweed
PORTULACACEAE	<i>Rumex triangulivalvis</i>	Triangular-fruited Dock
	<i>Calyptridium umbellatum</i>	Pussy Paws
	<i>Claytonia chamissoi</i>	Spring Beauty
	<i>Lewisia nevadensis</i>	Nevada Lewisia
	<i>Montia chamissoi</i>	Toad-lily

<u>FAMILY</u>	<u>GENUS SPECIES</u>	<u>COMMON NAME</u>
PRIMULACEAE	<i>Dodecatheon jeffreyi</i>	Jeffrey's Shooting Star
PTERIDACEAE	<i>Pteridium aquilinum</i> var. <i>pubescens</i>	Bracken Fern
PYROLACEAE	<i>Pterospora andromedea</i>	Pine-drops
	<i>Pyrola picta</i>	White-veined Wintergreen
	<i>Sarcodes sanguinea</i>	Snow Plant
RANUNCULACEAE	<i>Aconitum columbianum</i>	Monk's-hood
	<i>Aquilegia formosa</i>	Crimson Columbine
	<i>Delphinium glaucum</i>	Glaucus Larkspur
	<i>Delphinium pratense</i>	Meadow Larkspur
	<i>Ranunculus alismaefolius</i> var. <i>alismellus</i>	Water Plantain Buttercup
	<i>Ranunculus cymbalaria</i> var. <i>saximontanus</i>	Desert Buttercup
	<i>Thalictrum fendleri</i>	Meadow-Rue
RHAMNACEAE	<i>Ceanothus cordulatus</i>	Snow Bush
	<i>Rhamnus crocea</i> ssp. <i>ilicifolia</i>	Holly-leaf Redberry
ROSACEAE	<i>Amelanchier pallida</i>	Pallid Service-berry
	<i>Fragaria californica</i>	California Strawberry
	<i>Geum macrophyllum</i>	Large-leaved Avens
	<i>Holodiscus microphyllus</i>	Small-leaved Cream Bush
	<i>Horkelia fusca</i> ssp. <i>parviflora</i>	Dusky Horkelia
	<i>Ivesia santolinoides</i>	Mouse-tail Ivesia
	<i>Potentilla glandulosa</i>	Sticky Cinquefoil
	<i>Potentilla gracilis</i> ssp. <i>nuttallii</i>	Slender Cinquefoil
	<i>Prunus emarginata</i>	Bitter Cherry
	<i>Rosa californica</i> (?)	
RUBIACEAE	<i>Spiraea densiflora</i>	Mountain Spiraea
	<i>Kelloggia galioides</i>	Kelloggia

<u>FAMILY</u>	<u>GENUS SPECIES</u>	<u>COMMON NAME</u>
SALICACEAE	<i>Populus tremuloides</i>	Quaking Aspen
	<i>Populus trichocarpa</i>	Black Cottonwood
	<i>Salix lemmonii</i>	Lemmon's Willow
SAXIFRAGACEAE	<i>Heuchera rubescens</i> var. <i>alpicola</i>	Allum-root
	<i>Lithophragma glabrum</i>	Rock-star
	<i>Parnassia palustris</i> var. <i>californica</i>	Grass-of-parnassus
	<i>Ribes cereum</i>	Squaw Current
	<i>Ribes montigenum</i>	Alpine Prickly Currant
	<i>Ribes roezlii</i>	Sierra Gooseberry
	<i>Ribes viscosissimum</i>	Sticky Currant
	<i>Rubus parviflorus</i>	Thimbleberry
	<i>Saxifraga odontoloma</i>	Brook Saxifrage
SCROPHULARIACEAE	<i>Castilleja applegatei</i>	Wavy-leaved Paintbrush
	<i>Castilleja miniata</i>	Great Red Paintbrush
	<i>Collinsia parviflora</i>	Small-flowered Blue-eyed Mary
	<i>Mimulus guttatus</i>	Common Monkey-flower
	<i>Mimulus leptaleus</i>	Least-flowered Monkey-flower
	<i>Mimulus lewisii</i>	Lewis' Monkey-flower
	<i>Mimulus moschatus</i>	Musk Flower
	<i>Mimulus pilosus</i>	Downy Monkey-flower
	<i>Mimulus primuloides</i> var. <i>pilosellus</i>	Primrose Monkey-flower
	<i>Mimulus tilingii</i>	Larger Mountain Monkey-flower
	<i>Orthocarpus hispidus</i>	Hairy Owl's Clover
	<i>Pedicularis attollens</i>	Little Elephant Heads
	<i>Pedicularis groenlandica</i>	Elephant Heads
	<i>Pedicularis semibarbata</i>	Pine-woods Lousewort
	<i>Penstemon azureus</i>	Azure Penstemon
	<i>Penstemon bridgesii</i>	Bridge's Penstemon
	<i>Penstemon heterodoxus</i>	Sierra Penstemon
	<i>Penstemon laetus</i>	Gay Penstemon
	<i>Penstemon newberryi</i>	Mountain Pride
	<i>Veronica alpina</i> var. <i>alterniflora</i>	Alpine Speedwell
	<i>Veronica americana</i>	Brooklime
	<i>Veronica serpyllifolia</i> var. <i>humifusa</i>	Thyme-leaved Speedwell

<u>FAMILY</u>	<u>GENUS SPECIES</u>	<u>COMMON NAME</u>
URTICACEAE	<i>Urtica serra</i>	Mountain Nettle
VALERIANACEAE	<i>Valeriana capitata ssp. californica</i>	California Valerian
VIOLACEAE	<i>Viola macloskeyi</i>	Macloskey's Violet

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