

Three Sisters Wilderness Air Quality Report

National Forest: Deschutes National Forest, Willamette National Forest

State: OR

Counties: Deschutes, Lane

General Location: Central Oregon Cascade Range

Acres: 281,190



Three Sisters Wilderness Air Quality Report

Wilderness ID: 073

Wilderness Name: Three Sisters Wilderness

Wilderness Categories	Information Specific to this Wilderness
Year Established	1964
Establishment Notes	Endangered American Wilderness Act of 1978, Oregon Wilderness Act of 1984, The Wilderness Act of September 3,1964
Designation	Clean Air Act Class 1
Administrative	Deschutes National Forest, Willamette National Forest
Unique Landscape Features	The high, snowcapped Three Sisters (North Sister at 10,085 feet, Middle Sister at 10,047 feet, and South Sister at 10,358 feet) embellish the eastern side of this Wilderness, the second largest in Oregon. If you include Broken Top at 9,175 feet just to the south, you have 14 glaciers offering perhaps the best example of the effects of glaciation in the Pacific Northwest. Collier Glacier, between North and Middle Sister, is the largest sheet of ice in Oregon. Here is a fabulous volcanically formed landscape of lava fields, waterfalls, alpine meadows, lakes and streams teeming with brook and rainbow trout, and a lush forest of Douglas fir, silver fir, subalpine fir, mountain hemlock, western hemlock, lodgepole pine, ponderosa pine, and true fir. The headwaters of the Wild and Scenic Squaw Creek likewise emerge here. Only State Highway 242 separates Three Sisters Wilderness from Mount Washington Wilderness to the north. Waldo Lake Wilderness shares the southern boundary. You'll find about 260 miles of trails, including 40 miles of the Pacific Crest Trail running north-south, and human traffic in multitudes estimated to exceed every other Wilderness in the state. Green Lakes, Obsidian, Sunshine, Erma Bell Lakes, and the climbing trail to South Sister are especially used and abused. The Chambers Lakes Trail leads 7.1 miles from Pole Creek to Chambers Lakes, all the while encompassed by the dramatic glaciers of South and Middle Sister, where ice can appear year-round, the growth is limited to wind-twisted pines, and the rock-rimmed beauty will take your breath away.
Lakebed Geology Sensitivity	N/A
Lakebed Geology Composition	Not reported in the database.
Visitor Use	Not reported in the database.
Mean Annual Precipitation	Not reported in the database.
Elevation Range	515 - 3144 (meters)
Mean Max Aug Temp	Not reported in the database.
Mean Min Dec Temp	Not reported in the database.
Lake Acres	1,745
Pond Acres	942
Lake Count	190
Pond Count	1,542

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TES Flora	Actaea elata, Allotropa virgata, Alpova alexsmithii, Alpova aurantiacus, Antitrichia curtispindula, Arnica viscosa, Botrychium pumicola, Buxbaumia viridis, Calicium glaucellum, Carex diandra, Carex livida, Chaenotheca brunneola, Chiloscypus gemmiparus, Clavariadelphus ligula, Clavariadelphus sachalinensis, Craterellus tubaeformis, Dermatocarpon luridum, Elaphomyces subviscidus, Galerina atkinsoniana, Galerina sphagnicola, Galerina vittaeformis, Gastroboletus subalpinus, Gastroboletus turbinatus, Gentiana newberryi, Gentiana newberryi var. newberryi, Gomphus floccosus, Gomphus kauffmanii, Gymnomyces abietis, Gyromitra californica, Gyromitra melaleucoides, Hydnum umbilicatum, Hydrothyria venosa, Leptogium tacomae, Leucogaster citrinus, Lobaria oregana, Lobaria pulmonaria, Lycopodiella inundata, Martellia fragrans, Mycena monticola, Mycocalicium subtile, Neournula pouchetii, Nephroma bellum, Nephroma helveticum, Nephroma occultum, Nephroma parile, Nivatogastrium nubigenum, Otidea onotica, Plectania melastoma, Pseudocyphellaria anomala, Pseudocyphellaria anthraspis, Ptilidium californicum, Ramaria conjunctipes var. sparsiramosa, Ramaria rubrievanescens, Ramaria rubripermanens, Rhizomnium nudum, Rhizopogon evadens var. subalpinus, Rhizopogon parksii, Rhizopogon truncatus, Sarcodon fuscoindicus, Sarcodon imbricatus, Scheuchzeria palustris, Scheuchzeria palustris ssp. americana, Spathularia flavida, Stenocybe major, Thaxterogaster pingue, Ulotia megalospora, Utricularia minor
TES Wildlife	Bald Eagle, Northern Spotted Owl
TES Fish	Not reported in the database.
Ozone Sensitive Plants	Blue elderberry, California black oak, Evening primrose, Jeffery pine, Mugwort, Ninebark, Ponderosa pine, Quaking aspen, Red alder, Red elderberry, Scoulers willow, Skunkbush, Snowberry, Thinleaf huckleberry
Air Quality Sensitive Lichens	Alectoria imshaugii, Alectoria sarmentosa, Bryoria capillaris, Bryoria fremontii, Bryoria fuscescens, Bryoria glabra, Bryoria trichodes, Cavernularia hultenii, Cavernularia lophyrea, Cladonia chlorophaea, Cladonia coniocraea, Cladonia fimbriata, Cladonia ochrochlora, Cladonia umbricola, Fuscopannaria leucostictoides, Hypogymnia apinnata, Hypogymnia occidentalis, Kaernefeltia merrillii, Nephroma helveticum subsp. sipeanum, Nodobryoria abbreviata, Nodobryoria oregana, Normandina pulchella, Parmelia pseudosulcata, Parmelia squarrosa, Parmeliopsis ambigua, Parmeliopsis hyperopta, Peltigera neopolydactyla, Sticta fuliginosa, Umbilicaria hyperborea, Umbilicaria polyphylla, Vulpicida canadensis
Cultural Resources	Not reported in the database.
Status/Trends: Acid Deposition:	Not reported in the database.
Status/Trends: Nutrient Enrichment:	Not reported in the database.
Status/Trends: Ozone Impacts:	Not reported in the database.

AQRV's

Fauna

Fauna Priority: Medium

Fauna Receptor: Fish

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Wilderness Name: Three Sisters Wilderness

Fauna Indicator: Concentration of methyl mercury

Fauna Trends: Not reported in the database.

Fauna Actions:

Sample resident fish for mercury from the most heavily fished lakes by people and fish-eating animals. Collect water quality data concurrently from these waters.

Flora

Flora Priority: High

Flora Receptor: Lichens

Flora Indicator: Changes in community composition

Flora Trends: Not reported in the database.

Flora Priority 2: High

Flora Receptor 2: Lichens

Flora Indicator 2: Concentrations of N, S, P, Cd, Cr, Pb, Hg, Ni, Ti, V and Zn

Flora Trends 2: Not reported in the database.

Flora Priority 3: Low

Flora Receptor 3: Ozone

Flora Indicator 3: Visible injury on ozone-sensitive plants

Flora Trends 3: Not reported in the database.

Flora Actions:

Repeat visits to lichen plots once every 10 years. Waiting for already-collected lichen to be evaluated for trends.

Visibility

Visibility Priority: High

Visibility Receptor: Scenic Views

Visibility Indicator: Regional haze

Visibility Trends: Decrease

Visibility Actions

The Three Sisters IMPROVE monitor (THSI1) represents this site. Refer to the Oregon Regional Haze Plan and the IMPROVE monitoring reports for additional information.

Water

Water Priority: Medium

Water Receptor: Water Chemistry

Water Indicator: ANC

Water Trends: Not reported in the database.

Water Priority 2: Medium

Water Receptor 2: Water Chemistry

Water Indicator 2: DIN: TP

Water Trends 2: Not reported in the database.

Water Priority 3: Not reported in the database.

Water Receptor 3: Diatoms

Water Indicator 3: Community Composition

Water Trends 3: Not reported in the database.

Water Actions:

Repeat visits needed to Campers, Eilleen, Helen, Krag, Merrill, Mink, No Name, Penn, and Raft Lakes for ANC and nutrient ratios.

Challenge Points

Fauna Challenge Points: Not reported in the database.

Flora Challenge Points: 8

Total Plots: 37

Desired Plots: 14

Additional Plots Needed: -23

Data Type: Trends

Round 1 Visits: 34

Round 2 Visits: 19

Baseline %: 263

Trends %: 114

Visibility Challenge Points: Not reported in the database.

Water Challenge Points: 4