

## Deschutes Basin

### Description

The Deschutes River drains over 10,000 square miles, making its basin one of the largest in Oregon. The terrain of the basin varies markedly, from the east slope of the Cascades and the western edge of the Ochoco Mountains to the Deschutes Valley and the high plateau between the Deschutes and John Day rivers. The climate of the basin is slightly influenced by the Pacific Ocean, making it a little warmer, and a little moister, than most other east side drainages.

The Deschutes Basin straddles parts of three different ecoregions – the Columbia Basin, East Cascades and the Blue Mountains. Its vegetation is as varied as its climate and elevation, and many ecological systems are represented here. On the west side of the basin, coming down from the crest of the Cascades, the slopes are covered by conifer forests. To the east, in the Blue Mountains ecoregion, Western juniper is dominant. Prior to European settlement, basin big sagebrush, native grasslands and riparian woodlands were also widespread in this area. Today, irrigated agriculture occupies most of the valley bottoms and plains, while juniper has spread into many former shrub-steppe vegetation types. About half the basin is in public ownership.

The Deschutes River itself, fed by snowfields in the Cascades, flows through high-elevation wet meadows and lava plains before dropping through scenic canyons and shrub steppe to join the Columbia. The Deschutes supports one of the few remaining wild spring chinook populations in the Columbia Basin, as well as fall chinook and summer steelhead. Bull trout and steelhead are listed under the federal Endangered Species Act.

Conservation issues in the Deschutes Basin include habitat loss and fragmentation due to rapid population growth and urban development around Bend, Redmond and Madras, and to recreational development in both these and outlying areas. In the eastern part of the basin, concerns include loss of grasslands and shrub steppe due to juniper invasion, agricultural development, the spread of exotic plant species, historic livestock management practices, and reduced fire frequency. Loss and degradation of wetland and riparian habitats is a concern throughout the basin.

Acquisition priorities in the Deschutes reflect these issues and the current pattern of land ownership in the basin. Included are relatively rare and/or degraded ecological system types adversely affected by development pressures and not well-represented on public lands, such as oak woodlands. Also included are many riparian and wetland habitats.

Of note is the inclusion of old growth western juniper as a priority. In general, western juniper has become a problem species in the basin, but the scattered remnants of healthy old growth juniper woodlands are important for a number of wildlife species, and little of this particular type of juniper habitat is currently protected on public lands.

Also of note is the exclusion of Ponderosa pine systems as an acquisition priority in this basin. While Ponderosa pine woodlands have declined significantly from historic levels in the Deschutes, most remaining stands are found on public lands.

Projects that address important systems and species and also provide for flow improvements in the Upper Deschutes and Crooked River systems would have particularly high ecological benefit in this basin. Similar to other east side basins, peak flows in the Deschutes occur in the spring and lowest flows (and highest demand) in late summer. The upper Deschutes has been fully appropriated since 1913; a volume representing about one-third of the consumptive water rights issued in the basin is diverted from the Deschutes near Bend. The most even flows in the basin are found in the Metolius drainage, and the greatest variability is found in Crooked River flows (another third of the volume of consumptive water rights issued in the basin is diverted from the Crooked River). The lower Deschutes, fed by springs originating as snowmelt in the upper basin, is characterized by more uniform flows.

#### Priority Ecological Systems

- Alkaline wetlands
- Aspen forest and wetland
- Black greasewood
- Deciduous swamp
- Foothill and lower montane riparian woodland
- Freshwater emergent marsh
- Lowland riparian woodland and shrubland
- Montane riparian forest and shrubland
- Oak woodland
- Palouse prairie grassland
- Rigid sage, bluegrass and buckwheat scablands
- Subalpine or montane wet meadow
- Western juniper woodland (old growth only)
- Xeric mixed sagebrush shrubland

#### Rare or At-Risk Plant Communities

- Basin big sagebrush / basin wildrye
- Basin big sagebrush / Sandberg bluegrass - bluebunch wheatgrass Palouse
- Basin wildrye bottomlands
- Bitterbrush / Idaho fescue - (bluebunch wheatgrass)
- Bitterbrush / Sandberg bluegrass
- Black cottonwood - white alder
- Black cottonwood / black hawthorn
- Black cottonwood / coyote willow
- Black cottonwood / Pacific willow riparian
- Black hawthorn - Woods rose
- Bluebunch wheatgrass - Idaho fescue palouse

Bluebunch wheatgrass - Sandberg bluegrass Palouse  
Chokecherry  
Douglas-fir / common snowberry / Hawkweed  
Douglas-fir / mountain mahogany  
Douglas-fir / western fescue  
Grand fir - western red cedar / vanillaleaf  
Grand fir / golden chinquapin  
Idaho fescue - (common snowberry)  
Idaho fescue - (houndstongue hawkweed)  
Mockorange  
Mountain alder - western birch  
Ponderosa pine - Oregon white oak / arrowleaf balsamroot  
Ponderosa pine / blue wildrye  
Ponderosa pine / low sagebrush  
Ponderosa pine / woolly wyethia  
Quaking aspen / aquatic sedge  
Sand dropseed  
Scouler willow riparian  
Shrubby cinquefoil / tufted hairgrass meadow  
Silver sagebrush / Nevada bluegrass  
Western birch - mockorange  
Western juniper / curlleaf mountain mahogany / elk sedge  
White alder / chokecherry  
White alder / hackberry  
White alder / mockorange  
White alder / serviceberry  
White alder / water birch  
White alder / woods rose  
White oak / blue wildrye  
White oak / bluebunch wheatgrass  
White oak / poison oak / blue wildrye  
Wyoming big sagebrush / needle-and-thread  
White alder / hackberry  
White alder / mockorange  
White alder / serviceberry  
White alder / water birch  
White alder / woods rose  
White oak / blue wildrye  
White oak / bluebunch wheatgrass  
White oak / poison oak / blue wildrye

Deschutes Basin - Priority Species

<i>Fish</i>	<i>Birds</i>	<i>Mammals</i>	<i>Amphibians and Reptiles</i>	<i>Invertebrates</i>	<i>Plants</i>
Inland Rainbow Trout Pacific Lamprey Steelhead (Middle Columbia Winter Run and Lower Columbia Winter and Summer Run) Chinook (Middle Columbia Fall and Spring Run) Sockeye Bull Trout	Ash-Throated Flycatcher Golden Eagle (nest sites only) Greater Sage Grouse Lewis's Woodpecker Loggerhead Shrike Long-Eared Owl (natural nest sites only) Pinyon Jay Townsend's Solitaire Yellow-Headed Blackbird	Pallid Bat Pygmy Rabbit Spotted Bat Townsend's Big-Eared Bat Western Gray Squirrel White-Tailed Jackrabbit	Columbia Spotted Frog Oregon Spotted Frog Striped Whipsnake Western Toad	<i>Anodonta californiensis</i> (California Floater) <i>Fisherola nuttalli</i> (Shortface Lanx) <i>Juga bulbosa</i> (Bulb Juga) <i>Juga hemphill Maupinensis</i> (Purple-Lipped (Deschutes) Juga) <i>Juga hemphill</i> ssp. nov. (Indian Ford Juga) <i>Juga</i> sp. nov. (Crooked River Juga) <i>Juga</i> sp. nov. (Purple Juga) <i>Monadenia fidelis</i> ssp. nov. (Deschutes Sideband Snail) <i>Monadensia fidelis minor</i> (Dalles Sideband Snail) <i>Oreohelix variabilis</i> ssp. nov. (Deschutes Mountainsnail) <i>Oreohelix variabilis variabilis</i> (Dalles Mountainsnail) <i>Satyrium sylvinum</i> (Sylvan Hairstreak)	<i>Astragalus tygensis</i> (Tygh Valley Milkvetch) <i>Penstemon peckii</i> (Peck's Penstemon)