Upper Owyhee Watershed Assessment

Appendix C. Descriptions of the ecoregions in different systems of classification

All descriptions are from the identified source. Some descriptions may have material edited out, but no material has been added.

A. Description of the NRCS common resource areas in the upper Owyhee subbasin (see Figure 2.5)

25.2 – Owyhee High Plateau - Dissected High Lava Plateau: This unit consists of alluvial fans, rolling plains, and shear-walled canyons that are cut into extrusive rock. Sagebrush grassland is common, and scattered areas of woodland are on the rocky uplands. This unit supports cooler season grasses than do the valleys to the south, and it does not support saltbush and greasewood. Frigid and mesic Aridisols and Mollisols are in this unit. Grazing is the primary land use. Cropland is less common on this unit than it is on the Snake River Plain. High-quality water and native fish assemblages are in isolated canyons.[3]

25.3 – Owyhee High Plateau - Owyhee Uplands and Canyons: This unit contains deep, precipitous river canyons, barren lava fields, badlands, and tuffaceous outcroppings that are riddled by caves. The unit supports sagebrush grassland.[4]

25.4 - Owyhee High Plateau - High Desert Wetlands: The High Desert Wetlands ecoregion is critical habitat for nesting and migratory birds. Sedges, meadow barley, creeping wildrye, and Nevada bluegrass are found in wetter areas. Water levels in its lakes and wetlands fluctuate seasonally and annually.[4]

25.6 - Owyhee High Plateau - Semiarid Uplands : The disjuct semiarid uplands ecoregion includes mid-elevation zones in the Bull Run and Independence mountains and volcanic cones, buttes and rocky outcrops that rise out of neighboring, drier lava plains. Mountain sagebrush, western juniper, mountain brush and grasses grow in the ecoregion. The density and extent of juniper woodland varies with long term climate changes, grazing pressure, and fire suppression.[3]

25.8 - Owyhee High Plateau - Upper Humboldt Plains: This unit consists of broad fans and rolling tuffaceous hills and plains. Isolated low mountains and hills also occur. Soil temperature regime is mostly mesic and frigid. Soil moisture regime is mainly aridic bordering xeric. Common vegetation includes Wyoming big sagebrush, basin big sagebrush, low sagebrush, bluebunch wheatgrass and basin wildrye.[3]

B. EPA (See Figure 2.6)

80a - Northern Basin and Range - Dissected High Lava Plateau ecoregion: The Dissected High Lava Plateau ecoregion is a broad to gently rolling basalt plateau cut by deep, sheer-walled canyons, with perennial and intermittent streams draining to

the Snake River. Elevation varies from 4,000 to 7,300 feet. Potential natural vegetation is mostly sagebrush steppe; Wyoming big sagebrush and black sagebrush are abundant, as well as Douglas rabbitbrush, Idaho fescue, bluebunch wheatgrass, western wheatgrass, Thurber's needlegrass, bottlebrush squirreltail, Great Basin wildrye, Sandberg's bluegrass, Indian ricegrass, and cheatgrass. Juniper-pinyon woodlands grow on rocky and gravelly uplands.[2]

80e - Northern Basin and Range - High Desert Wetlands ecoregion: The nearly level High Desert Wetlands ecoregion consists of high desert lakes and surrounding wetlands that provide critical habitat for nesting and migratory birds and associated upland birds and mammals. Elevation varies from 4,000 to 5,200 feet (1,219 to 1,646 m). The fine-textured soils are poorly-drained, and basins collect water seasonally. Water levels fluctuate from year to year. Sedges, rushes, black greasewood, tufted hairgrass, mat muhly, meadow barley, creeping wildrye, and Nevada bluegrass occur in wetter areas. Drier areas support basin big sagebrush, Wyoming big sagebrush, silver sagebrush, bluebunch wheatgrass, basin wildrye, Idaho fescue, Thurber's needlegrass, and cheatgrass.[2]

80f - Northern Basin and Range - Owyhee Uplands and Canyon ecoregion: The Owyhee Uplands and Canyons ecoregion is a sagebrush steppe containing deep river canyons, barren lava fields, badlands, and tuffaceous outcrops that are riddled by caves. Elevation varies from 2,500 to 6,600 feet (762 to 2,012 m). Although the region's climate and vegetation are similar to the Dissected High Lava Plateau, its lithology is more varied, stream density is higher, and water availability is greater. These attributes, combined with its remote location, make the region a particularly valuable refuge for wildlife. The steppe is characterized by Wyoming big sagebrush, basin big sagebrush, Douglas rabbitbrush, bluebunch wheatgrass, Idaho fescue, bottlebrush squirreltail, Sandberg's bluegrass, and cheatgrass. Rocky areas support scattered western juniper. Cheatgrass has replaced depleted bunchgrasses in overgrazed areas.[2]

80j - Northern Basin and Range - Semiarid Uplands ecoregion: The disjunct Semiarid Uplands ecoregion includes scattered hills, low mountains, volcanic cones, buttes, and rocky outcrops that rise out of the drier Dissected High Lava Plateau and High Lava Plains. Elevation varies from 4,800 to 9,700 feet (1,463 to 2,957 m). Finely textured soils support big sagebrush, low sagebrush, antelope bitterbrush, serviceberry, snowberry, mountain-mahogany, and associated grasses, such as Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass, Nevada bluegrass, Great Basin wildrye, bottlebrush squirreltail, mountain brome, and Thurber needlegrass. Aspen and chokecherry are found in protected snow pockets, with willow and chokecherry in riparian areas. Rockier soils support juniper steppe woodlands. The density and extent of juniper varies over time and is dependent on long-term climate fluctuations, grazing pressure, and fire suppression.[2]

80k - Northern Basin and Range - Partly Forested Mountains ecoregion: The Partly Forested Mountains ecoregion occupies the elevational belt above the Semiarid Uplands the Independence mountains, from 6,500 to 10,900 feet. These are partially glaciated, high, rugged mountains with glacial features including moraines, cirques, and tarn (lake)s. Perennial or intermittent, high gradient, cold streams are fed

by snowmelt and springs. Riffle segments have cobble or boulder substrates. Annual precipitation is sufficient to support a Great Basin pine forest community of Douglas-fir, subalpine fir, ponderosa pine, and limber pine, with whitebark pine near the tree line, and aspen stands in riparian meadows, moist draws, and wet depressions. The understory features low juniper, mountain big sagebrush, mountain brush, serviceberry, snowberry, mountain-mahogany, Idaho fescue, sheep fescue, rough fescue, bottlebrush squirreltail, prairie lupine, mountain brome, bluebunch wheatgrass, and Sandberg bluegrass. Small areas of tundra and alpine meadows are found at the highest elevations.[2]

13m - Central Basin and Range - Upper Humboldt Plains ecoregion: The Upper Humboldt Plains ecoregion is an area of rolling plains punctuated by occasional buttes and low mountains. It is mostly underlain by volcanic ash, rhyolite, and tuffaceous rocks. Low sagebrush is common in extensive areas of shallow, stony soil, as are cool season grasses, such as bluebunch wheatgrass, Idaho fescue, and Sandberg bluegrass. Lightning fires are common and a post-fire monoculture of cheatgrass tends to replace the native grasses and shrubs. Grazing is the major land use.[2]

C. USDA Forest Service

Section 342B--Northwestern Basin and Range - This section has nearly level basins and valleys bordered by long gently sloping alluvial fans with linear mountain ranges. Soils are formed mostly from rocks of volcanic origin. Vegetation consists of sagebrush and desert shrub cover types.[1]

> Geomorphology. This area occurs within the Basin and Range physiographic province. Northwestern Basin and Range Section is located in the northern portion of Nevada, southeastern Idaho, and south-central Oregon. It extends into northern Utah also. Nearly level basins and valleys are bordered by long, gently sloping alluvial fans. North-south trending mountain ranges and few volcanic plateaus rise sharply above the valleys. Large alluvial fans have developed at the mouths of most canyons. Elevation ranges from 4,000 to 7,200 ft (1,200 to 2,200 m).[5]
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> Lithology and Stratigraphy. Pliocene volcanic and shallow intrusive igneous rocks occur, along with andesite, breccias, and basalt flows. Alluvial deposits, playas, marshes, and flat deposits occur in the valleys.[5]
>
> Soil Taxa. There are Aridisols in combination with frigid and mesic soil temperature regimes, along with xeric and aridic soil moisture regimes. Large areas have saline-sodic affected soils.[5]
>
> Potential Natural Vegetation. Kuchler vegetation types include sagebrush steppe. The Soil Conservation Service identifies the potential natural vegetation as shrub-grass with saltbush-greasewood vegetation.[5]
>
> Fauna. A major migration route for waterfowl crosses this Section. It is characterized particularly by tundra swans, lesser snow geese, American widgeons, and pintail, canvasback, and ruddy ducks, which use the wetlands around interior basin lakes. Sandhill cranes, western snowy plovers, and white-faced ibis nest here. California bighorn sheep and California quail

characterize the uplands. Small bands of bison once roamed the margin of Malheur Lake but disappeared prior to white settlement. Rare kit foxes live in the desert lowlands. Pronghorn and mule deer are present. Wolverines are occasionally found. Gray flycatchers, Townsend's solitaires, northern sage sparrows, and broad-tailed hummingbirds are characteristic. Spotted frogs and Malheur shrews are uncommon riparian species. Antelope ground squirrels occupy areas of pale desert soils. Sharptail grouse, once common, are no longer present. Warner Lake suckers, Alvord chubs, and Soldier Meadows desertfish are endemic fishes of interior basin lakes and springs. Lahontan cutthroat trout also characterize this Section.[5]

Climate. Precipitation ranges from 4 to 20 in (100 to 790 mm) annually; mountains receive as much as 20 in annually. Precipitation is evenly distributed throughout fall, winter, and spring, but is low in the summer. Summers are hot and dry and winters are cold and dry. Temperature averages 41 to 50°F (5 to 10°C). The growing season ranges from 30 to 140 days.[5]

Surface Water Characteristics. Water is scarce except at higher elevations. Few streams and little water storage occurs in this Section. Large ground water supplies have been untapped. Pyramid Lake is the major lake in this Section.

Disturbance Regimes. Short duration and low intensity brush fires occur due to summer thunderstorms. Water and wind erosion is also occurring.[5]

Land Use. Livestock production is the primary use, with little farming. Some mining has also occurred.[5]

Section 342C--Owyhee Uplands- This section consists largely of a nearly flat, deeply dissected plateau where block-faulted mountain ranges are less pronounced than in other parts of the Basin and Range physiographic province to the south. Annual rainfall averages from 4 to 8 inches. Unlike the Basin and Range province, however, drainage is not internal and erosion by surface streams has formed steep-walled canyons. Rock formations are mostly volcanic tuffs and basalts, with some granites. Soils on plains are generally shallow and clayey, but are deeper and loamy on slopes. The main vegetation consists of sagebrush and pinyon-juniper cover types.[1]

Geomorphology. This area occurs within the Columbia Plateau physiographic province, also known as the Columbia Intermontane province. The Owyhee Uplands Section is part of southwest Idaho, southeast Oregon, and northern Nevada. This area is an uplifted region with doming and block-faulting common. It is deeply dissected from erosional processes. Lavas are older than that of the Snake River Plains. The Owyhee Mountains are made of granite; however, most of the uplands are rhyolites and welded tuffs with silicic volcanic flows, ash deposits, and wind-blown loess. Elevation ranges from 4,000 to 8,000 ft (1,200 to 2,500 m).[5]

Lithology and Stratigraphy. Miocene basalt rocks occur here. Rhyolites, welded tuffs, and silicic volcanic flows are also found in this Section. Columbia basalts occur along the Snake River.[5]

Soil Taxa. Aridisols, Entisols, Alfisols, Inceptisols, and Mollisols occur in combination with mesic and frigid soil temperature regimes, and xeric and aridic soil moisture regimes. Cryic temperature regimes occur at higher elevations.[5]

Potential Natural Vegetation. Kuchler vegetation types are sagebrush steppe with *Artemisia* and *Agropyron* and small areas of wheatgrass-bluegrass. The Soil Conservation Service identifies the area as having a sagebrush-grass potential natural vegetation.[5]

Fauna. A major migration route for geese crosses this Section, and it is used particularly by the intermountain population of Canada geese. This Section also is a major wintering area for mallards and common mergansers. California bighorn sheep live in rocky canyons. Gray flycatchers, northern sage sparrows, and mountain quail live in the sagebrush and juniper uplands. Wolverine once lived here but have not been seen for decades. Once common, sharptail grouse are scarce in grasslands and sagebrush foothills. Spotted frogs have been found here. Small bands of elk roam the uplands year-round, and elk from surrounding Sections winter here. Pronghorn, mule deer, and sage grouse inhabit this Section. Remnant bull trout populations are found in cold headwater streams. Other Columbia and Snake River system species include northern squawfish, biglip sucker, bridgelip sucker, Utah sucker, and Columbia redside shiners.[5]

Climate. Precipitation ranges from 7 to 15 in (200 to 400 mm) annually; it is close to evenly distributed throughout the year, but is low from mid summer to early autumn. Precipitation is only 20 percent of the evaporation potential during the frost-free period. Summers are dry with low humidity. Temperature averages 35 to 45 °F (2 to 8 °C). The growing season ranges from 90 to 120 days but is less than 60 days at higher elevations.[5]

Surface Water Characteristics. Water supply from precipitation and streamflow is small and unreliable, except along the Owyhee, Bruneau, and Humboldt Rivers. Snow accumulation at the higher elevations contributes to streamflow. Few small lakes and reservoirs are found in this Section.[5]

Disturbance Regimes. After fire, grasses and forbs replace higher seral species. Water and wind erosion is also occurring.[5]

Land use. Livestock grazing, and dryland and irrigated farming are the major land uses. Recreation is also important.[5]

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