Summary Table: Characteristics of the Ecoregions of Utah

13. CENTRAL BASIN AND RANGE

Level IV Ecoregion	Area (square miles)	Physiography	Elevation/ Local Relief (feet)	Geology	Soil			Climate			Potential Natural Vegetation*/ Present Vegetation	Land Use
				Surficial material and bedrock	Order (Great Groups)	Common Soil Series	Temperature Moisture Regime	Precipitation (Mean annual inches)	Frost Free (Mean annual days)	Mean Temperature (January minimum, July maximum, °F)		
13a. Salt Deserts	8455	Unglaciated. Mostly barren nearly level playas, salt flats, mud flats, low terraces, and saline lower piedmont slopes; the eastern Lake Bonneville, 5 to 10% of small scattered mountains occur. Elevations below 5,000 feet are rather uniform in each Northern area and relatively flat. Playas and salt flats are ponded during wet intervals and evaporate to near obsolescence.	Mostly 4250–4650 ft; 50–150 commonly nearly level	Mostly very alkaline, Quaternary mud and silt flat deposits; also Quaternary eolian material, lacustrine sediments, and alluvium; bedrock exposures of much older rock occur.	Mostly Aridisols (Argidurids, Haplocalcids); also Solonchak (Natrargids).	Mostly Saltair, also Saltdale, Lakebeds, Bramwell. Soils are mostly clayey, light-colored, strongly alkaline to salt and alkali, poorly- or very poorly-drained, and often salt-crusted	Mostly Aridic (Ustic) Intergrades	Mostly 6- to 8- inches; ranges from 5- to about 12 inches	140–190	Cool.	Mostly barren; some recreational, military, and industrial activity. Salting areas; dikes; salt-processing plants, evaporation ponds. Low potential for mineral development; low to limited locally; have limited grazing potential. Largely uninhabited or cropland.	Wildlife habitat, livestock grazing, recreation, and water supply. Some commercially used vegetated areas have been chopped or mowed, and used for exotic grasses. Of production occurs in the Deseret Bell near Fillmore in Juniper County.
13b. Shadscale–Dominated Saline Basins	8102	Unglaciated. Level basin floor to gently sloping valley bottoms, lake terraces, fan skirts, and lower hillslopes. Scattered dunes and ephemeral streams occur. The area is internally drained.	4300–5000; 25–400	Quaternary lacustrine sediments, alluvium, colluvium, basalt, and eolian deposits.	Aridisols (Natrargids, Haplocalcids), Entisols (Torriorthents)	Ryanspah, Nazzle, Ulfkin, Gabbott, Dumas, Dora Ursula, Hike Springs, Ettam, Bubbleman, Timpie. Light-colored soils with light silt and alkali content are common and are dry for extended periods.	Mesic/ Aridic	6–8	100–150	15–44; 88–96; January minimums are highest in the south	Mostly saltbush-greasewood/ Shadscale, nuttalia, greasewood, and ephemeral grasses occur. The area is internally drained.	Rangeland, wildlife habitat, and localized irrigated agriculture. In Tooele Valley, irrigated alfalfa, hay, and dairy operations. Grazing and rare rain-induced native grasses and protected chenopods.
13c. Sagebrush Basins and Slopes	9194	Unglaciated. Intimate mesa-basin, lake terraces, valleys, alluvial fans, bajadas, mountain flanks, and stream terraces. Ephemeral streams occur. The ecoregion is internally drained.	4600–5400; 100–2600	Mostly Quaternary alluvium, Quaternary colluvium, and Tertiary valley-fill deposits; also some Quaternary lacustrine sediments, Tertiary volcanics, and Paleozoic sedimentary units.	Aridisols (Haplocalcids, Calciargids, Natrargids), Entisols (Torriorthents)	Bilko-Nuk, Gailor, Amtoft, Arvo, Harrisville, Bebergrange, Arbahaza. Soils are light-colored, often coarse-textured, and are dry for extended periods.	Mesic/ Aridic often Xeric/ Aridic Intergrading on Xeric	8–12	80–170	10–44; 88–96; January minimums are highest in the south	Great Basin sagebrush/ Wyoming big sagebrush, perennial bunchgrasses and herbaceous plants become progressively more common northward as available moisture increases.	Rangeland, wildlife habitat, and localized irrigated agriculture. In Tooele Valley, irrigated alfalfa, hay, and dairy operations. Grazing and rare rain-induced native grasses and protected chenopods.
13d. Shrubland- and Shrub-Covered Low Mountains	3459	Unglaciated. Low, rocky fault-block mountains, ridges, mountain slopes, hills, foothills, alluvial fans, and valley fill terraces. Ephemeral streams occur.	5000–8000; 200–2600	Quaternary colluvium and basalt; Tertiary sedimentary rocks; Tertiary volcanic units; Paleozoic sedimentary rocks; and Cambrian quartzite.	Entisols (Torriorthents), Cryosalepts	Eaglerock, Lynke, Lopring, Lake Lakeside, Alva, Cuna Squaw, Cropper, Sea	Mesic–Frigid Xeric intergrades; Isothermic on Aridic	10–22	60–120	10–44; 88–96; January minimums are highest in the south	Sagebrush, wheatgrass, wildlife habitat, and logging. Large livestock and public forest cleared in an effort to increase livestock forage. Grazing has depleted the woodland understory of grasses, which has increased fire frequency and altered watershed to juniper.	Rangeland, woodland, wildlife habitat, recreation, water supply, and limited logging.
13e. High Elevation Carbonate Mountains	116	Partially glaciated High rugged rocky, north–south trending, fault-block mountains with steep slopes. Some areas, especially in the Deep Creek Range, have been extensively glaciated and mountain-top. Some perennial streams occur, but only limited amounts of surficial water are available as streams are subsurface.	8000–12,050; 1000–4100	Quaternary glacial drift, alluvium, and colluvium; Mostly Paleozoic limestone, dolomite, and quartzite; also Precambrian metasedimentary and Tertiary granite, rhyolite, andesite, and basalt. Exposed bedrock occurs.	Mollisols (Paleargids, Haplocryolls, Haplocambids)	Pequop, Pahlone	Argid/ Mesic/ Xeric/ Aridic Intergrading on Xeric	25–40+	50–90	9/32; 64/82	Mountain mahogany–bluebunch wheatgrass/ Mountain mahogany, bluebunch wheatgrass, Idaho fescue, and Thurber needlegrass occur. Some perennial streams occur but only limited amounts of surficial water are available as streams are subsurface.	Seasonal rangeland, wildlife habitat, recreation, water supply, and limited logging.
13f. Moist Wasatch Front Footslopes	450	Unglaciated. Footslopes, alluvial fans, stream terraces, lake terraces, lake plains, deltas, and floodplains near the Wasatch Front and the Great Salt Lake. Many mountain-front perennial streams occur in detail, and also crossed canyons. They provide water to municipalities and to agriculture.	4200–5400; 10–500	Mostly Quaternary alluvium, colluvium, or lake sediments.	Mollisols (Argixerolls, Argialbolls, Calcixerolls, Calciargids, Paleargids), Aridisols (Natrargids)	Millcreek, Salt Lake, Timpanogos, Kimball, Parleys, Bonneville, Lakebed, Lewiston, Hyrum, Taylorsville, Timpanogos	Mesic/ Xeric	10–22	100–170; climate is affected by the Great Salt Lake	20/31; 73/93	Mountain mahogany–bluebunch wheatgrass/ Mountain mahogany, bluebunch wheatgrass, Idaho fescue, and Thurber needlegrass occur. Some perennial streams occur but only limited amounts of surficial water are available as streams are subsurface.	Widespread urban, suburban, industrial, and commercial activity. Elsewhere, irrigated pasture, irrigated pasture, recreation, water supply, and wildlife habitat. Large concentrations of birds occur.
13g. Wetlands	340	Unglaciated. Nearly flat to depressional areas containing brackish, very saline, and fresh water wetlands. Water levels are often managed.	4200–4450; 0–5	Quaternary lacustrine sediments and alluvium.	Aridisols (Argixerolls), Mollisols (Calciaquolls)	Mostly Saltair, also Kelsey, Salt Lake. Soils are poorly-drained or very poorly-drained and are often salty.	Mesic/ Aquic	8–15	100–170; near the Great Salt Lake; as short as 110 days elsewhere	20/31; 73/93; Minimums are lower in western Salt Creek	Mostly saltgrass, alkali sacaton, and Salina wildrye/ Saltgrass, alkali sacaton, Salina wildrye, and inland saltgrass. Many perennial streams occur but only limited amounts of surficial water are available as streams are subsurface.	Wildlife habitat, seasonal state and federal wildlife refuges, and rangeland. Large concentrations of birds occur.
13h. Halfaid and Cache Valleys	962	Unglaciated. Lake terraces, benches, stream terraces, valley bottoms, alluvial fans, hills, and foothills. Mountain-fed streams occur and provide water to municipalities and to agriculture.	Mostly 4200–5400; mountains 6000' Mostly 10–200; sometimes to 1000	Mostly Quaternary alluvium, Pleistocene lake sediments, or Quaternary colluvium; also Tertiary sedimentary rock.	Mollisols (Haplocalcids, Argixerolls, Calciaquolls), Aridisols (Calciargids)	Millcreek, Salt Lake, Timpanogos, Kimball, Parleys, Bonneville, Lakebed, Lewiston, Hyrum, Taylorsville, Timpanogos	Mesic/ Xeric	12–24; varies with elevation	100–170; varies with elevation	20/31; 73/93; varies with elevation	Mountain mahogany–bluebunch wheatgrass/ Mountain mahogany, bluebunch wheatgrass, Idaho fescue, and Thurber needlegrass occur.	Irrigated cropland and pastures, dryland farming, livestock farms, and rangeland. Large concentrations of birds occur.

14. MOJAVE BASIN AND RANGE

Level IV Ecoregion	Area (square miles)	Physiography	Elevation/ Local Relief (feet)	Geology	Soil			Climate			Potential Natural Vegetation*/ Present Vegetation	Land Use
				Surficial material and bedrock	Order (Great Groups)	Common Soil Series	Temperature Moisture Regime	Precipitation (Mean annual inches)	Frost Free (Mean annual days)	Mean Temperature (January minimum, July maximum, °F)		
14a. Creosote Bush–Dominated Basins	3148	Unglaciated. Arid low mesic area comprises of alluvial fans, basin plateaus, shrub-intricate, valleys, and scattered mesas and buttes.	2100–4000; 100–400	Quaternary alluvium, eolian sediments, and basalt; Jurassic and Triassic sedimentary rocks and Permian Limestone. Rock outcrops occur.	Gypsids (Aridisols), Torriorthents, Torripsamments; Aridisols (Petrocalcids, Haplocalcids)	Adkin, Hackleburg, Pahrim Cove, Jencreek, Toquerville, St. George, Winkel	Thermic/ Aridic	6–10	180–225+	36/54; 88–108	Creosote bush/ Creosote bush, big sagebrush, Indian rice, blackbrush, galleta, Indian ricegrass, and spiny hopsage. Big Water Mesa supports a diverse collection of cacti, sedges, rushes, and mosses.	Irrigated farming, grazing, rangeland, and wildlife habitat. Artifacts, small grain, mints, sorghum, and sugar beet seed are grown. Agaricia growing suburban developments near Sand Gorge.
14b. Arid Footslopes	128	Unglaciated. Arid footslopes, alluvial fans, beds, basin floors, mesas, and highly dissected, erodible, sparsely vegetated badlands. Badlands yield large amounts of sediment during thunderstorms.	3000–5000; 1000–2000	Quaternary alluvium, basalt, colluvium, and eolian deposits; also Tertiary sedimentary and Permian sedimentary rock including limestone. Rock outcrops are common.	Aridisols (Paleargids)	Cutlerbine, Parkers, Wyo, Wishel. Industrial carbonate hardpan occur.	Mesic/ Aridic	10–12	155–185	20–40; 88–108	Saltbush–greasewood/ Wyoming big sagebrush, blackbrush, Mormon tea, saltbushes, galleta, Indian ricegrass, and shrubs.	Wildlife habitat, recreation, and rangeland.
14c. Mountain Woodland and Shrubland	355	Unglaciated. Mountain, mountain slopes, and mesa tops. Ephemeral streams occur.	6000–7000; 300–2500	Basalt (Cenozoic); Mollisols (Argixerolls, Haplocalcids)	Wiring, Torrogar, Mowpen, Kolob Pinatanagat		Frigid, Mesic/ Udic Aridic, Xeric	12–16	120–170	12–32; 80–96	Mountain mahogany–bluebunch wheatgrass/ Mountain mahogany, bluebunch wheatgrass, Idaho fescue, and Thurber needlegrass occur.	Rangeland, recreation, and wildlife habitat.

18. WYOMING BASIN

Level IV Ecoregion	Area (square miles)	Physiography	Elevation/ Local Relief (feet)	Geology	Soil			Climate			Potential Natural Vegetation*/ Present Vegetation	Land Use
				Surficial material and bedrock	Order (Great Groups)	Common Soil Series	Temperature Moisture Regime	Precipitation (Mean annual inches)	Frost Free (Mean annual days)	Mean Temperature (January minimum, July maximum, °F)		
18a. Rolling Sagebrush Steppe	245	Unglaciated. Structural rolling plains, hills, ravines, terrain, and terraces. Footslopes, ridges, alluvial fans, and outbreak fans also occur near mountains.	5150–5650; Mostly 100–1600; locally 2000 maximum	Quaternary alluvium, colluvium, eolian deposits, and alluvium deposits over the Tertiary and Cretaceous sedimentary rock of the Uinta Mountain Group. Rock outcrops occur.	Aridisols (Haplocalcids, Calciargids, Haplargids), Entisols (Torriorthents)	Latton, Grayson, Pinetum, Chapper, Wrinkle, Bromacon, Dudrigan, Vara	Frigid/ Mesic/ Aridic Intergrading on Ustic	10–18; Potentially in mtns. and altitudinal maximum precipitation values	90–140	8/36; 48–86; Cool winters and mild summers	Sagebrush steppe/ Wyoming big sagebrush and grasses, also some shadscale, fescue-bunchgrass, wintercold, cheatgrass, and halogeton. Vegetation has been heavily modified by livestock grazing.	Mostly rangeland in Wildlife habitat, and irrigated agriculture growing alfalfa and small grains.
18b. Wet Valleys	470	Unglaciated. Cold- high elevation valleys containing mostly the floodplains and wet terraces. Bottomlands are characterized by many wetlands.	Mostly 6000–8650' 50–200	Mostly Quaternary alluvium, also Quaternary lacustrine sediments, colluvium, and glacial outwash. West of Fleming Gorge, Tertiary and Cretaceous sedimentary rock and limestone. Rock outcrops occur.	Mostly Mollisols in mountains (Cryoborolls, Cryoboralfs), Entisols (Cryofluvents), Histosols (Haplosaprists, Sphagnofibrists), Inceptisols (Cryaquepts)	Bear Lake, Antelope, Hobbogan, Holt, Water, Bonneville, Cotton, Redstone, Bottleneck, Uinta soils are rich in organic matter. Others are affected by salt and alkali.	Frigid/ Udic, Aquic, Aridic Intergrading on Ustic	9–12	55–90	8/36; 46/80	Sagebrush–grass/ Mountain big sagebrush, western wheatgrass, timothy, Kentucky bluegrass, and other introduced species. Willow carr, wet meadow, and aquatic communities occur.	Irrigated hayland, pasture, rangeland, and wildlife habitat.
18d. Semiarid Foothills	670	Unglaciated. Semiarid foothills, alluvial fans, hills, ridges, and valleys located at the transition of high mountains.	6300–7500; 50–1200	Quaternary alluvium, colluvium, and alluvium. Mostly Tertiary sandstone and conglomerate; also some shale, siltstone, and limestone. Rock outcrops occur.	Aridisols (Argidurids, Haplocalcids), Entisols (Torriorthents), Mollisols (Haplargids, Argixerolls), Inceptisols (Calciorthents)	Petrichor, Kazey, Carrell, Irelan, Hiawatha, Albach, Rockville, Thatcher, Ishlee, Fabine	Frigid/ Xeric, Aridic Intergrading on Xeric	10–16	90–120	8/36; 46/84	Sagebrush–grass/ Mountain big sagebrush, Indian ricegrass, bluebunch wheatgrass, and other grasses and forbs. Pinyon-juniper woodland occurs.	Mostly rangeland in Wildlife habitat, and irrigated agriculture growing alfalfa and small grains. Of production occurs.

19. WASATCH AND UINTA MOUNTAINS

Level IV Ecoregion	Area (square miles)	Physiography	Elevation/ Local Relief (feet)	Geology	Soil			Climate			Potential Natural Vegetation*/ Present Vegetation	Land Use
				Surficial material and bedrock	Order (Great Groups)	Common Soil Series	Temperature Moisture Regime	Precipitation (Mean annual inches)	Frost Free (Mean annual days)	Mean Temperature (January minimum, July maximum, °F)		
19a. Alpine Zone	510	Extensively glaciated. Very high, often extremely exposed ridges, mountains, and peaks above timberline. Dominated by glacial features including basins, aretes, moraines, U-shaped valleys, cirques, and many tarns. Few streams are continuous. Nivation areas are especially extensive in the Uinta Mountains.	Mostly 11000–12650' 50–1500	Quaternary colluvium, glacial till deposits, alluvium, and talus. Tertiary sedimentary and volcanic rocks. Mesozoic sedimentary and igneous rocks, and Precambrian quartzite. Many features originate from glaciation.	Cryumbrepts (Typic), Cryaquepts	Alpine Vasquez, Hennefy Acidic, very generally to stony, shallow soils are common. Meadow/dyke soils must abundant organic and are often wet.	Cryic/ Udic	30–50+; Average annual snowfall exceeds 300 inches	Less than 40	Long, cold winters	Alpine meadow/ Alpine meadow, alpine forb-grass, and sedge communities occur. Some vegetation is restricted to rock crevices.	Recreation, wildlife habitat, and water supply. Some livestock use occurs in the summer.
19b. Uinta Subalpine Forests	1107	Extensively glaciated. Hilly and rugged, high-elevation, forested mountainous ecoregion in the Uinta Mountains containing glaciated basins, mountain slopes, low-relief till plains, moraines, mountain tarns, and many good quality, perennial streams in their canyons.	About 10000–11000; 1000–4100	Quaternary glacial till, colluvium, and alluvium. Tertiary sedimentary and igneous rocks. Precambrian quartzite. Rock outcrops occur.	Inceptisols (Cryumbrepts, Cryaquepts), Aridisols (Cryoborolls)	Uinta, Moon Lake, Duchesne, Hurrah, Avintt	Cryic/ Udic	Dry, Mean annual precipitation exceeds 50 inches	Less than 40	Long, cold winters	Mountain spruce-fir forest/ Douglas-fir, aspen, subalpine fir, limber pine. Engelmann spruce, white fir, mountain big sagebrush, and associated grasses. Trees are most common on north-facing slopes. Carbonates extend the elevations of trees.	Logging, mineral range, recreation, wildlife habitat, and water supply.
19c. Mid-elevation Uinta Mountains	1199	Glaciated. Middle elevation forested mountainous ecoregion in the Uinta Mountains containing mountains and a few inter. Many good quality, perennial streams in deep canyons are found on the southern flank.	About 8000–10000; 400–2500	Quaternary glacial till, colluvium, and alluvium. Mostly Tertiary sedimentary rocks, siltstone, mudstone, and sandstone, and Precambrian quartzite; also some Tertiary igneous rocks.	Alfisols (Ochraqualfs, Haplocryalfs, Inceptisols (Cryochrepts, Cryumbrepts), Mollisols (Argixerolls, Haplocryolls, Argicryolls, Paleargids)	Uinta, Moon Lake, Duchesne, Hurrah, Mawad, Hannes, Kovas, Lazy Dog, Wanda, Sekichi, Trabo-Hollow, Tenoten	Frigid, Cryic/ Udic, Aridic	20–50; Average annual snowfall exceeds 300 inches	40–80	Long, cold winters	Douglas-fir forest/ Douglas-fir, subalpine forest, aspen, and associated sagebrush. On rocky ridges, limber pine. On with ridge tops, open grasslands. In some canyons, Engelmann spruce and subalpine fir.	Logging, mineral range, recreation, wildlife habitat, and water supply.
19d. Wasatch Montane Zone	1540	Partially glaciated. Middle elevation forested mountain slopes, mountain tops, ridges, and plateaus in the Wasatch Range, Mountains and lakes occur. East of the Wasatch divide, the terrain is more rolling, less steep, and less rugged than on the western side. Many good quality, perennial streams occur.	Mostly 8000–10000; locally lower than 7000 or higher than 11000; Mostly 400–3000; locally 4000+	Quaternary glacial till, colluvium, and alluvium. Sedimentary and metamorphic rocks are common in the western part of the range. Rock outcrops occur.	Mollisols (Argixerolls, Haplocryolls, Haplocryalfs), Alfisols (Paleboralfs, Argicryolls, Glossocryalfs)	Cache Star Cliff, Ironchest, Hobkosier, Pinetree, Hoogsloth, Rounds, Daybell, Skyhick, Stormmoon, Broad Canyon, Horton, Chalbeau, Yates, Embower, Cousin, Elwood, Croydon	Cryic/ Udic	30–40+; East-side is drier than west side. Deep winter snow pack	Less than 40–80	Long, cold winters	Douglas-fir forest/ Douglas-fir, subalpine forest, aspen, and associated sagebrush. On rocky ridges, limber pine. On with ridge tops, open grasslands. In some canyons, Engelmann spruce and subalpine fir.	Logging, mineral range, recreation, wildlife habitat, and water supply. Grazing is more common in the east of the divide than to the west.
19e. High Plateaus	3013	Partially glaciated. Largely forested high-plateaus and mountains. Includes the Aquarius, Awapa, Markagunt, Paunsaugunt, Sevier, and Wasatch plateaus.	Mostly 8000–10000; about 11000; locally lower than 7000 or higher than 12000; Mostly 400–3000; locally 4000+	Quaternary colluvium, alluvium, glacial drift, and basalt. Flat-lying, Tertiary igneous rock is common; also some Tertiary sedimentary rock and Cretaceous sedimentary rocks. Rock outcrops occur.	Mollisols (Argixerolls, Haplocryolls, Paleboralfs, Cryoborolls), Alfisols (Glossocryalfs), Inceptisols (Cryumbrepts)	Harvey Flats, Seamon, Ardunn, Howard, Combe, Joint, Nielsen, Salyan, Jonas, Parleys, Bob, Hannah, Many soils are derived from volcanic rock.	Cryic/ Udic	30–40+; Deep winter snow pack	Less than 40–80	Long, cold winters	Douglas-fir forest/ Douglas-fir, subalpine forest, aspen, and associated sagebrush. Grasslands occur. Logging occurs outside of protected areas, in the heavy mountains, where the Douglas-fir dominant land use and timber harvesting is very limited. Vanquish on the high plateaus provides irrigation and drinking water to the lower valleys during the late spring and summer seasons.	Wildlife habitat, rangeland, and logging. Seasonal heavy grazing on high meadows. Logging occurs outside of protected areas, in the heavy mountains, where the dominant land use and timber harvesting is very limited.

20. COLORADO PLATEAUS

Level IV Ecoregion	Area (square miles)	Physiography	Elevation/ Local Relief (feet)	Geology	Soil			Climate			Potential Natural Vegetation*/ Present Vegetation	Land Use
				Surficial material and bedrock	Order (Great Groups)	Common Soil Series	Temperature Moisture Regime	Precipitation (Mean annual inches)	Frost Free (Mean annual days)	Mean Temperature (January minimum, July maximum, °F)		
20a. Monticello Upland	366	Unglaciated. Nearly level to rolling, semiarid plain containing stream terraces, alluvial fans, low rolling hills, and ridges. Ephemeral streams occur.	6700–7350' 10–200	Quaternary eolian deposits, alluvium, and colluvium. Cretaceous shale and sandstone.	Mollisols (Argidurids, Haplocalcids, Paleargids, Calciorthids)	Monticello, Norfolds, Ecels, Abajo, Bonanza, Shiverdale, Deep, shallow, severely eroded soils have formed in sandy and silty eolian material.	Mesic/ Ustic	10–17	120–130	8/36; 86/90	Dry-deep, low-mixed, evolute and Great Basin sagebrush. On shallow or stony soils, redmond pinyon-juniper woodland. Wyoming big sagebrush, mixed sagebrush, western wheatgrass, bluebunch wheatgrass, western wheatgrass, and associated grasses. As sagebrush declines, grass and cool-season grasses and forbs increase. Pinyon-juniper woodland if not stressed by fire or grazing.	Mostly dryland farming, and rangeland. Winter wheat, other small grains, and pinto beans are grown. After some irrigated pastureland are alfalfa farming occurs. Shrublands provide important winter habitat for wildlife.
20b. Shale Deserts	3486	Unglaciated. Arid sparsely vegetated, nearly level to hilly plains and mesas with actively eroding, highly dissected, rounded hills. Benches, alluvial fans, and buttes are found locally, and badlands occur where shale is exposed. Water readily runs off shale during intermittent resulting in erosion, formed dissection, and high suspended sediment concentrations in stream flow. Salt leaching strongly affects downstream salinity levels in the Colorado River. Ephemeral streams occur.	4000–5000 (Mostly 25–500; maximum 1000 on scattered buttes	Quaternary colluvium, alluvium, and eolian material. Mostly Cretaceous Mancos Shale and Jurassic Morrison Formation. Rock outcrops occur.	Entisols (mostly Torriorthents), also Torrifluvents, Aridisols (mostly Paleargids), also Haplocalcids, Haplocambids, Calciargids, Paleargids)	Chipeta, Persayo, Ruthlevile, Park, Kilpack, Ravola, Mack, Billings, Robinson. Soils with clay loam, silty clay loam, and clay textures have formed in eolian material from eolian source rocks. They contain soluble salt, gypsum, and selenium. Active erosion and rapid runoff contribute salt to Colorado River.	Mostly Aridic (Ustic) Intergrades	5–8	120–160	8/40; 86/96	Saltbush–greasewood, galleta–three awn shrubsteppe/ Mixed saltbush, shadscale, and greasewood occur on fine-textured soils. Wyoming big sagebrush, associated grasses, and/or annual forbs. Badland areas are almost devoid of vegetation.	Grazing dominates; although much surviving capacity is limited. On floodplains and terraces, some irrigated cropland occurs and primarily produces hay and grass for pasture. Livestock forage capacity for wildlife is typically low although deep-gorge grasses provide dryland habitat. Oil and natural gas wells occur. Coal mining is an important land use.
20c. Semiarid Benchlands and Canyonlands	15192	Unglaciated. Semiarid benches, basins, ravines, alluvial fans, hillslopes, cliffs, arches, and canyons. A few isolated peaks or buttes rise above general erosion surface. Areas of low-relief alluvium with areas of rigid relief.	Mostly 5000–7500; locally higher/ 100–2000	Quaternary colluvium, alluvium, and eolian material. Tertiary, Cretaceous, Jurassic, Triassic, and Permian sandstone and limestone. Mesozoic shale occur and can be surrounded by a "rim" of mesozoic. Rock outcrop is common.	Mostly Entisols (Torriorthents), also Aridisols (Haplocalcids, Haplocambids, Calciargids)	Arches, Travessa, Hoyle Rimrim, Wapiston, Flyingarm, Slen, Bojjin, Woody, Calcona, Windwhistle. Soils with fine sandy loam and very fine sandy loam textures have formed in eolian deposits derived from sandstone. Depth of soil is influenced by topographic position and the rates of eolian deposition and erosion.	Mostly Aridic (Ustic) Intergrades	Mostly 5–8 (6–10 on highest mesa; 20–25	Mostly 80–140; on highest mesa; less than 90 days	6/44; 92/94	Juniper-pinyon woodland/ Utah juniper and pinyon or shallow or stony soils, also some black sagebrush. Big sagebrush, galleta, blue grama, blue grama, blue grama, saltbush, and blackbrush. Mormon tea, and associated grasses. At higher elevations sage parkland at mountain brush. Exposed rock has little or no vegetation.	Mostly woodland grazing and recreation; also some uranium mining, uranium processing, and oil production.
20d. Arid Canyonlands	9993	Unglaciated. Arid narrow chasms, cliffs, valley floors, floodplains, structural benches, mesas, and canyons. Terrace has been deeply eroded by major rivers and their tributaries.	3200–5000/ 300–1000	Quaternary alluvium, eolian deposits, and colluvium. Jurassic, Triassic, Permian, Pennsylvanian sandstone, limestone, and shale. Many rock (ice, shale rock) is very common.	Entisols (Torriorthents, Torripsamments, Torrifluvents), Aridisols (Haplocalcids, Haplocambids, Paleargids, Calciargids), Mollisols (Haplargids, Paleargids, Argiustolls)	Monticello, Gesti, Syant, Pods, Nedshoit, Cutler, Arches, Badlands, Rockcliff, Shelder, rockus, Rubo, Palezab	Mesic, Thermic/ Aridic Ustic/ Ustic Aridic Intergrading on Aridic	8–50	40–150	8/40; 90/96	Juniper-pinyon woodland, mountain shrub/steppe, and grass. Mixtegrass, blue grama, galleta, Indian ricegrass, and Douglas-fir forest. Arizona pine forest/ Vegetation varies according to aspect and moisture availability. Sagebrush, woodland, and Douglas-fir are most common where moisture is adequate. Ponderosa pine and Engelmann spruce.	Mostly recreation and wildlife habitat, although some limited grazing. Vast mining and gas production occurs locally. Steep slopes and accounts soils host various developments.
20f. Uinta Basin Floor	3615	Unglaciated. Arid saucer-shaped synclinal basin containing mountain-foot mesas, alluvial terraces, current streams, floodplains, hills, and ridges. Mesas are common in the basin. Many small, ephemeral streams occur. Rock outcrops are common.	4500–6400/ 800–1200; maximum	Quaternary colluvium, alluvium, eolian deposits, and colluvium. Tertiary sedimentary rocks including those of the Uinta Formation.	Entisols (Torriorthents, Torripsamments), Aridisols (Haplocalcids, Natrargids), Inceptisols (Haplocambids)	Wellsville, Cisnion, Atchee, Ilsites, Equinoxy, Myton, Pariette, Pariette Mountain, Chapper, Green River, Ironic, Ouray, Soft Shale, Tridell, Vernal	Mesic/ Aridic	5–8	115–140; Warmer inversion zone conditions	9/52; 86/96; Seasonal temperature extremes	Rangeland, rangeland, and wildlife. Irrigated pasture, irrigated pasture, and hayland. Irrigated alfalfa hay and corn for cattle. Grazed from Uinta Mountains livestock allotments under the Uintah Basin Replacement Project. Irrigation of eolian lands, irrigation of oil and gas fields occur.
20g. Northern Uinta Basin Slopes	707	Unglaciated. Southern foothills, mesa-tops, and mesa-top terraces. Ephemeral streams occur in the southern portion of the Uinta Mountains that are characterized by numerous, perennial, mountain-fed streams.	5500–6500/ 100–2600	Quaternary eolian deposits, colluvium, alluvium, and colluvium deposits. Tertiary sedimentary rocks.	Entisols (Torriorthents), Aridisols (Haplocalcids, Paleargids), Inceptisols (Haplocambids), Mollisols (Calciargids)	Clapper, Tridell, Hiller, Tyzak, Archer, Navajo, Ashley Rough	Mesic, Frigid/ Ustic, Aridic often Xeric Intergrading on Ustic	8–14	100–130	8/36; 86/96	Mostly juniper-pinyon woodland, also some sagebrush-steppe and bunchgrass/ Pinyon juniper woodland, also some small grain crops are grown. They are mainly used as winter feed for livestock. Turkey farms, feedlots, and dairy operations occur locally.	Mostly livestock grazing, woodland, and irrigated pasture/hayland also locally, some irrigated cropland. Phosphate mining and oil production occurs. Indian reservation land is extensive.
20h. Sand Deserts	1570	Unglaciated. Arid nearly level to hilly basin floors, mesa-tops, and dunes. Playas and dunes are found locally, and ephemeral streams occur. Channel depth is bedrock-controlled and usually shallow.	Mostly 4800–5600; 100–1000 maximum/ Mostly 50–400; 1000 maximum	Quaternary eolian deposits and alluvium. Cretaceous and Tertiary sedimentary rock. Characterized by shifting eolian material over bedrock.	Entisols (Torriorthents, Torripsamments, Torrifluvents), Aridisols (Haplocalcids)	Vaiza, Shuttpard, Stoneslope, Mellin, Mesah, Tusabatch, Wetsweix, Wide	Mesic/ Aridic	5–8	130–180	10/48; 92/98	Mostly galleta–three awn shrubsteppe; some sagebrush-grass and desert shrub. Vegetation is sparse, discontinuous, including galleta, sand dropseed, Indian ricegrass, and three awns; desert shrubs (including saltbrush and annual forbs. | Limited grazing; also locally, some irrigated hay and grain is grown for livestock and, in the south, Hackberry/ Vegetation, where present, is desert or semidesert shrubland and grassland. Indian ricegrass, sand dropseed, Indian ricegrass, and three awns); desert shrubs (including saltbrush and annual forbs.	Rangeland and non-irrigated winter, with irrigated barley, and irrigated alfalfa farming.

21. SOUTHERN ROCKIES

Level IV Ecoregion	Area (square miles)	Physiography	Elevation/ Local Relief (feet)	Geology	Soil			Climate			Potential Natural Vegetation*/ Present Vegetation	Land Use
				Surficial material and bedrock	Order (Great Groups)	Common Soil Series	Temperature Moisture Regime	Precipitation (Mean annual inches)	Frost Free (Mean annual days)	Mean Temperature (January minimum, July maximum, °F)		
21a. Alpine Zone	19	Glaciated. Steep slopes, ridges, and exposed, rocky peaks above timberline in the La Sal mountains.	About 11500–12700; 1000–2100	Quaternary, talus, glacial drift, and colluvial. Tertiary volcanics, Precambrian metamorphic rocks, and Cretaceous rocks. Many rock outcrops.	Inceptisols (Cryumbrepts)	Rentable	Cryic/ Udic	32+; Deep winter snow pack	Less than 40	Less than 30/70; less than 50/74	Alpine meadows and barren/ Low shrubs, sedges, grasses, forbs, mosses, and lichens occur. Cushion plants, rosettes, alpine grasses, wildflowers, and sedges.	Recreation, wildlife habitat, and native pastureland. Snow cover is a major source of water for home, town, and ecosystems.
21b. Subalpine Forests	198	Glaciated. Heavily forested mountainous terrain in the La Sal and Abajo Mountains. Moraines and outwash fans occur.	8800–abut 11500/ 800–1100	Quaternary glacial drift, colluvium, and alluvium. Tertiary sedimentary and igneous rocks. Many rock outcrops.	Mollisols (Argicryolls, Haplocryolls), Inceptisols (Cryumbrepts), Aridisols (Haplocryolls)	Pilgrim, Leighton, Skylick, Broad Canyon, Nanzen, Trent	Cryic/ Udic	34–40+	Less than 70	Less than 30/70; less than 50/74	Douglas-fir–blue spruce–Rocky Mountain maple forest, also Douglas-fir forest/ Douglas-fir, Engelmann spruce, blue spruce, Douglas-fir, and aspen predominate with an understory of mountain brush, on headwaters: mountain subalpine fir, Engelmann spruce, and limber pine.	Wildlife habitat, recreation, logging. Douglas-fir forest/ Douglas-fir, Engelmann spruce, blue spruce, Douglas-fir, and aspen predominate with an understory of mountain brush, on headwaters: mountain subalpine fir, Engelmann spruce, and limber pine. Logging is limited by: logging stockpads and climatic conditions in general. Snow cover is a major source of water for home, town, and ecosystems.
21c. Dry Forests and Shrublands	216	Partially glaciated. Low, forested mountain slopes and outwash fans. Perennial streams occur but summer flow is substantially reduced by diversions to irrigate croplands in lower ecoregions.	7500–8800/ 100–1700	Quaternary colluvium, alluvium, glacial drift, and outwash deposits. Mesozoic sedimentary rocks and Tertiary intrusive igneous rocks.	Mollisols (Haplocrolls, Argicrolls)	Sulcus, Abajo, Jerem, Pilgrim, Ruipido, Rockcliff, Nunsaki	Frigid/ Udic	30–35	Less than 80	18/56; 74/88	Pine-Douglas-fir forest, southwestern spruce-fir forest/ Douglas-fir, Engelmann spruce, Gambel oak, and widely spaced ponderosa pine with an understory of mountain brush. Ponderosa pine becomes more common at lower elevations.	Wildlife habitat, livestock grazing, logging, mineral extraction, and recreation.

80. NORTHERN BASIN AND RANGE

Level IV Ecoregion	Area (square miles)	Physiography	Elevation/ Local Relief (feet)	Geology	Soil			Climate			Potential Natural Vegetation*/ Present Vegetation	Land Use
				Surficial material and bedrock	Order (Great Groups)	Common Soil Series	Temperature Moisture Regime	Precipitation (Mean annual inches)	Frost Free (Mean annual days)	Mean Temperature (January minimum, July maximum, °F)		
80a. Historical High Lava Plains	833	Unglaciated. Historical lava, bajadas, gently rolling plains, hills, stream