

**APPENDIX Q:
ECOREGION DESCRIPTIONS**

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An ecoregion is defined as an area that has a general similarity of ecosystems and is characterized by the spatial pattern and composition of biotic and abiotic features, including vegetation, wildlife, geology, physiography, climate, soils, land use, and hydrology (EPA 2006). Ecoregions of the United States as mapped and described by the U.S. Environmental Protection Agency (EPA) are presented here as the basis for describing visual resources and ecosystems at a general level. The Level III ecoregion classification includes 34 ecoregions covering the 11-state area (Figures Q-1¹ through Q-12). Thirty of the ecoregions would contain federally designated energy corridors under the Proposed Action. The ecoregion descriptions presented here are derived primarily from EPA (2002), except where noted.

Coast Range. The Coast Range ecoregion is located along the coasts of Washington, Oregon, and California. The elevation ranges from 0 to 4,000+ feet, and the ecoregion is approximately 20,600 square miles in size. Topography ranges from beaches and low terraces to steeply sloping capes and volcanic slopes. The dominant types of vegetation originally were Sitka spruce and coastal redwood forests along the coast, with a mosaic of western red cedar, western hemlock, and seral Douglas-fir in the inland areas. The low Coast Range mountains support highly productive coniferous forests, and the area is now widely managed for timber production and supports extensive plantations of Douglas-fir. Due to the high precipitation levels, there are

numerous streams and rivers. High scenic values attract many recreationists. Logging, wildlife habitat, dairy farming, recreation, and rural residential, residential, and commercial development are important land uses within the ecoregion.

Puget Lowland. The Puget Lowland ecoregion occurs entirely within the state of Washington, and is about 6,300 square miles in size. Located within a continental glacial trough, it includes numerous islands, peninsulas, and bays. The ground moraines, outwash plains, floodplains, and terraces originally supported coniferous forest; however, this ecoregion now supports a mix of pastures, croplands, forests, and urban centers (Pater et al. undated), including Portland and Seattle. Forest composition is influenced by a maritime climate and the rain shadow of the Olympic Mountains.

Willamette Valley. The Willamette Valley ecoregion occurs primarily in Oregon, with a small portion in southwestern Washington. Elevation ranges from 0 to 2,200 feet, and the ecoregion is approximately 5,750 square miles in size. This broad, lowland valley includes terraces, floodplains, and rolling hills. A few buttes and low mountains occur. Originally supporting rolling prairies, deciduous and coniferous forests, and extensive wetlands, the Willamette Valley is now an important agricultural region, supporting pastureland; small grain, timber, fruit, and vegetable production; and vineyards (University of Oregon 1999). The ecoregion includes the Portland urban area. Salem is a smaller urban area within the ecoregion.

¹ Shaded text indicates portions of the document that underwent revision between the draft and the final PEIS in response to comments received during the public comment period as well as additional information provided by local federal land managers and resource specialists.

Cascades. The Cascades ecoregion occurs primarily in Washington and Oregon, with a



FIGURE Q-1 Level III Ecoregions of the 11 Western States

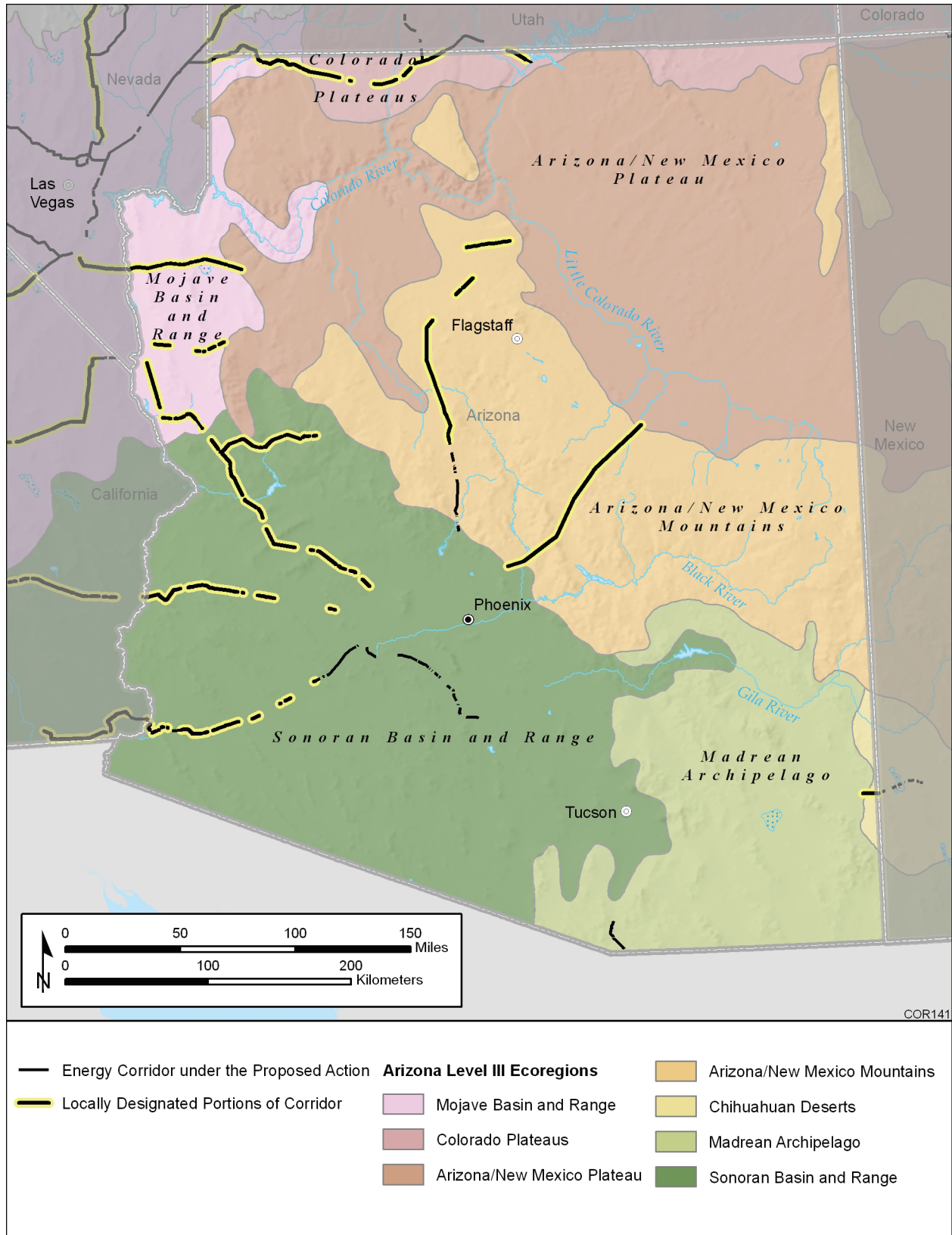


FIGURE Q-2 Level III Ecoregions of Arizona and the Proposed Energy Corridors



FIGURE Q-3 Level III Ecoregions of California and the Proposed Energy Corridors

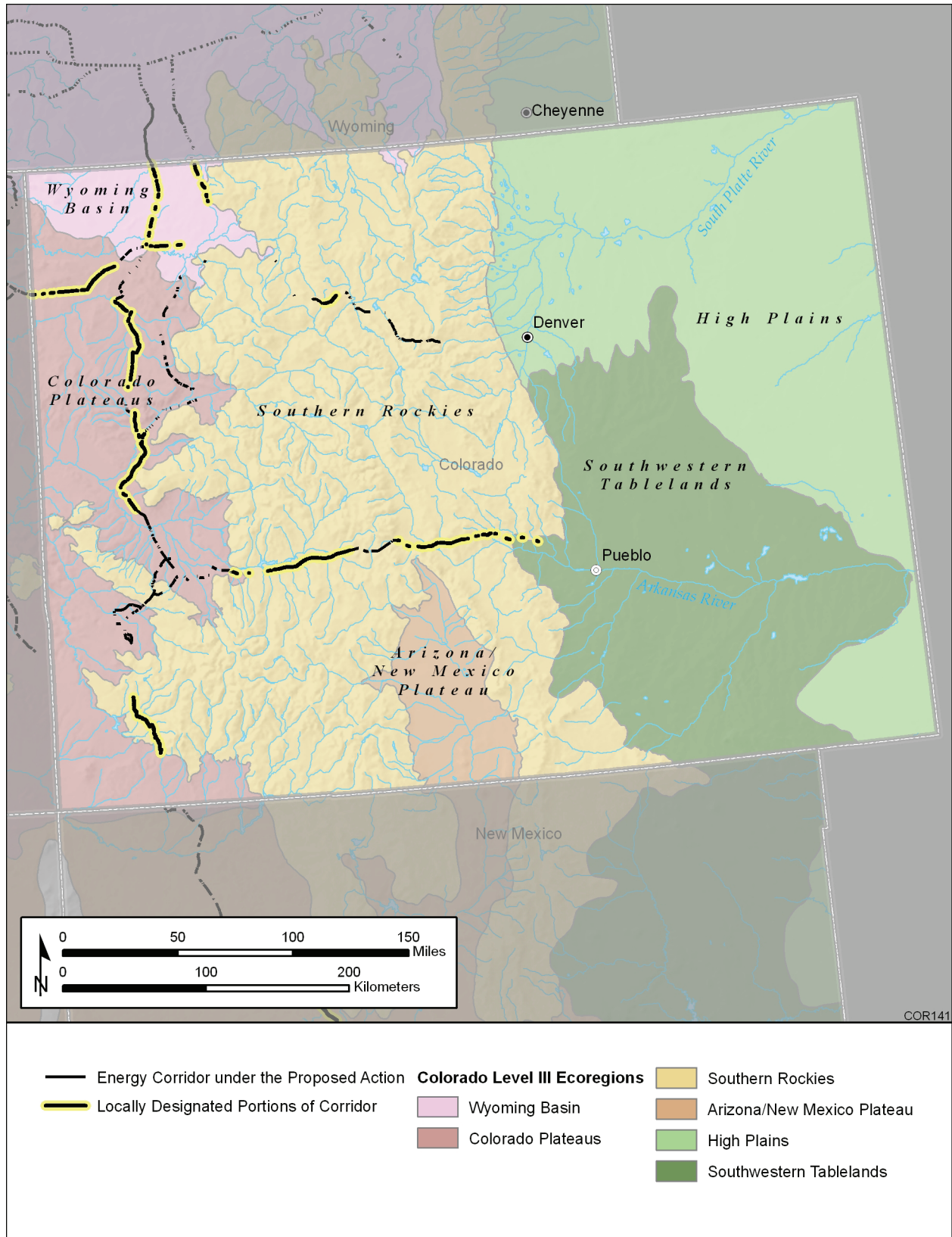


FIGURE Q-4 Level III Ecoregions of Colorado and the Proposed Energy Corridors

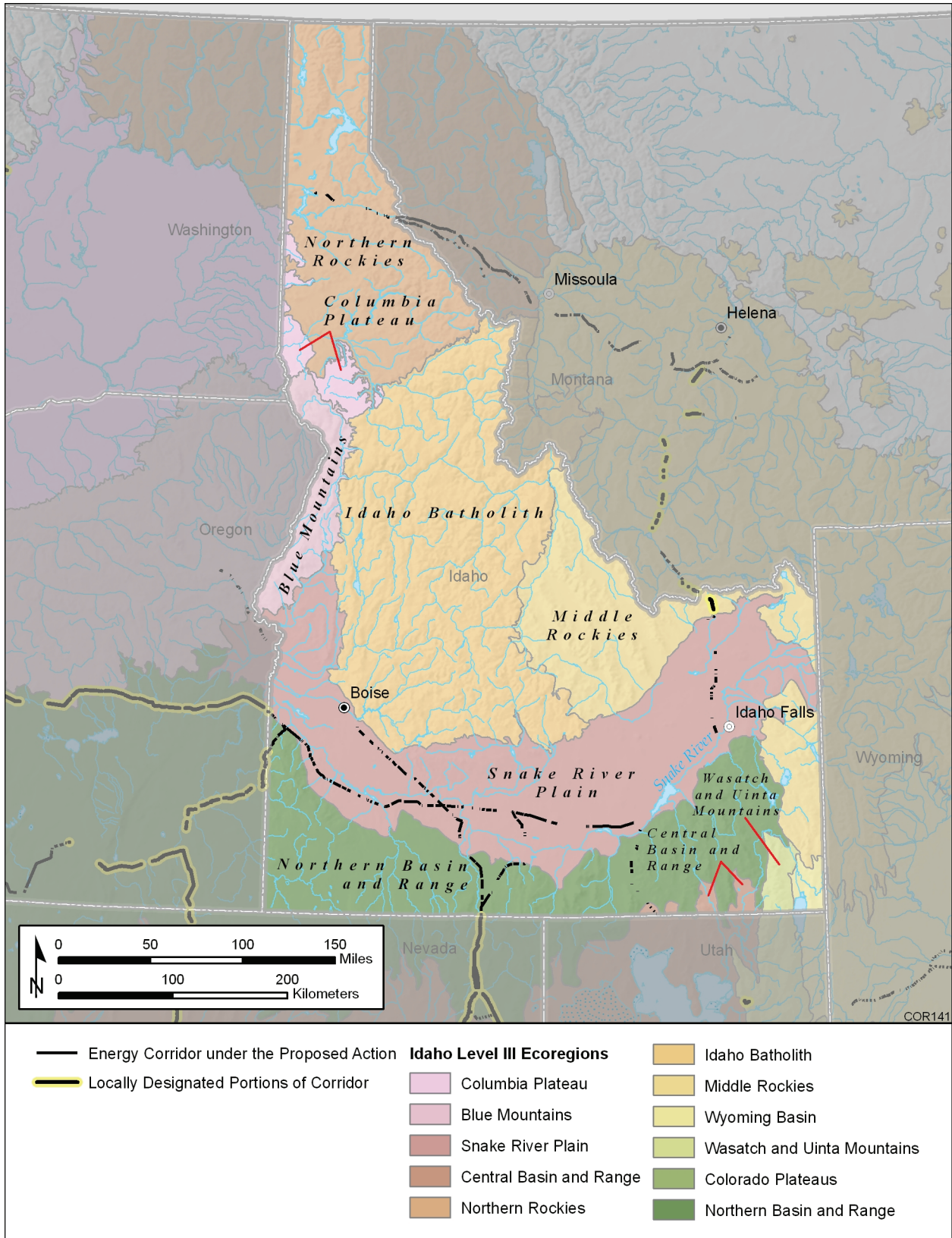


FIGURE Q-5 Level III Ecoregions of Idaho and the Proposed Energy Corridors



FIGURE Q-6 Level III Ecoregions of Montana and the Proposed Energy Corridors

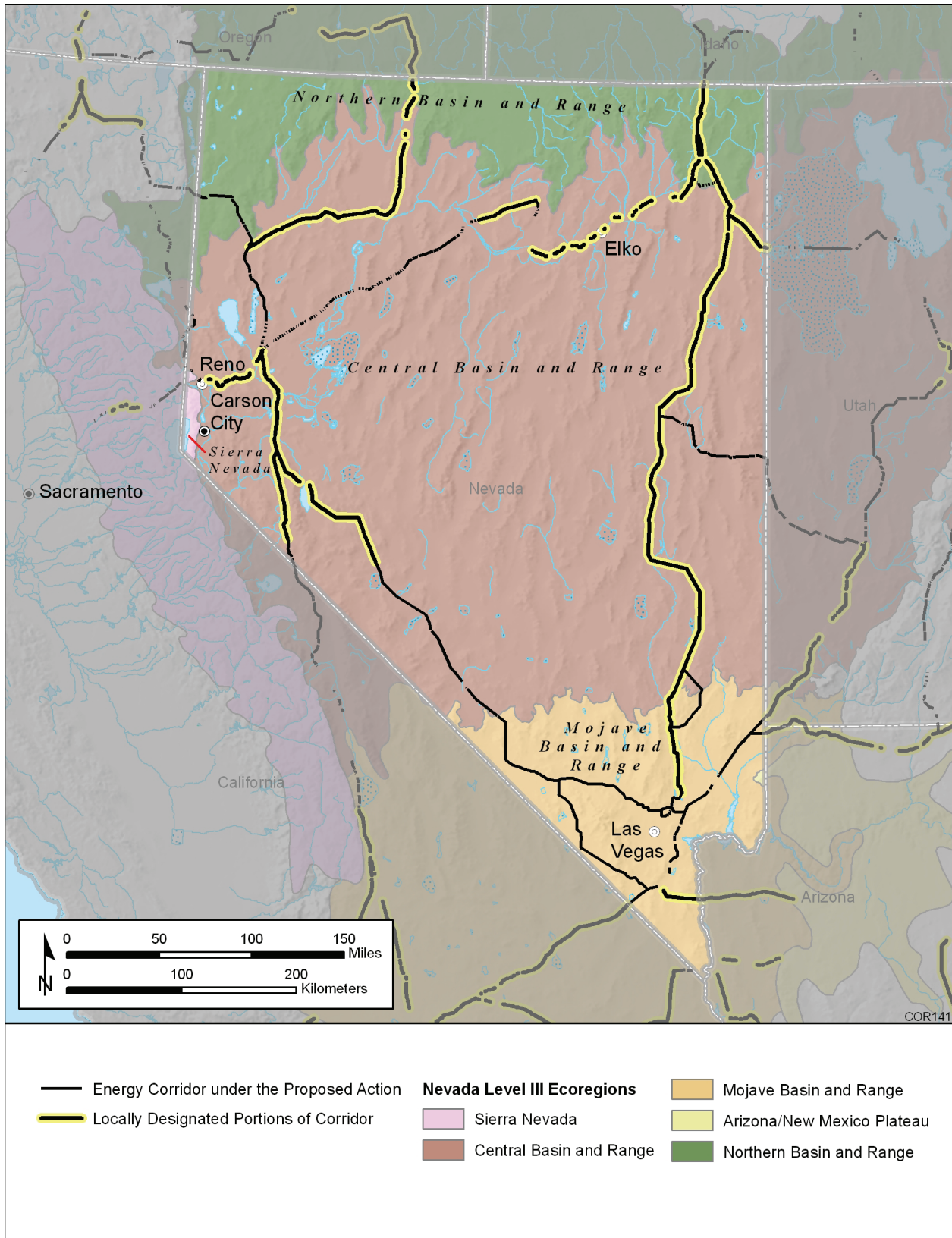


FIGURE Q-7 Level III Ecoregions of Nevada and the Proposed Energy Corridors

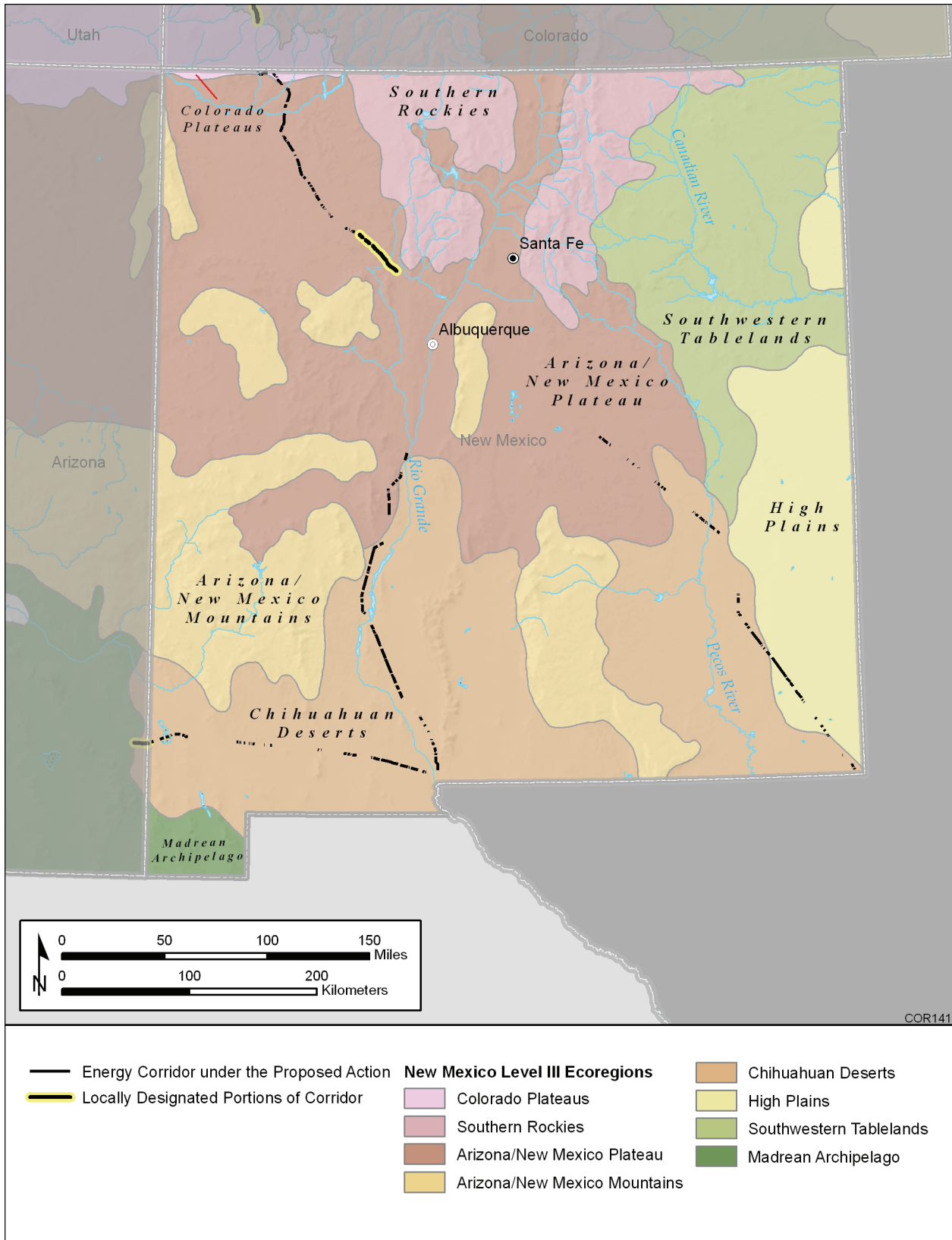


FIGURE Q-8 Level III Ecoregions of New Mexico and the Proposed Energy Corridors

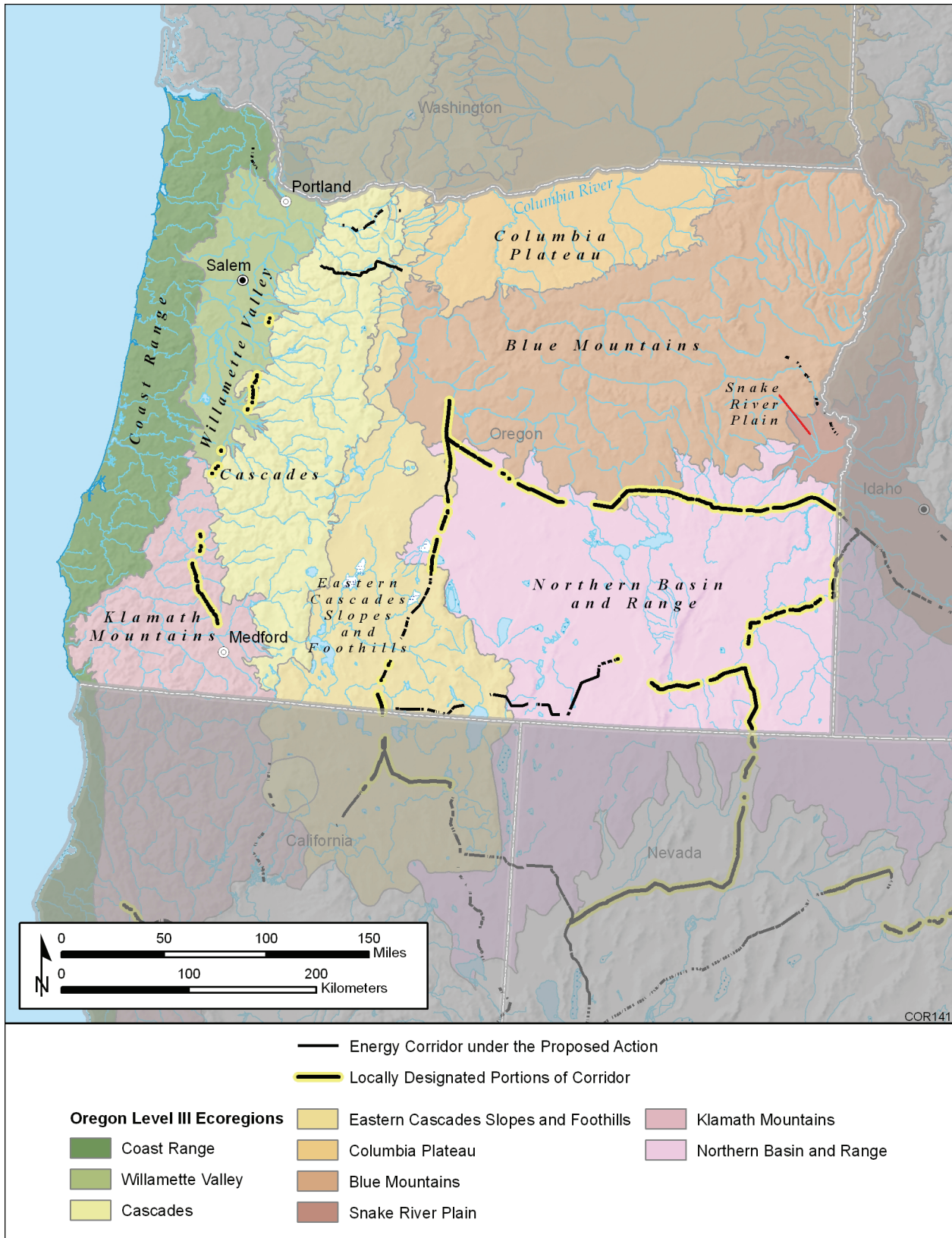


FIGURE Q-9 Level III Ecoregions of Oregon and the Proposed Energy Corridors

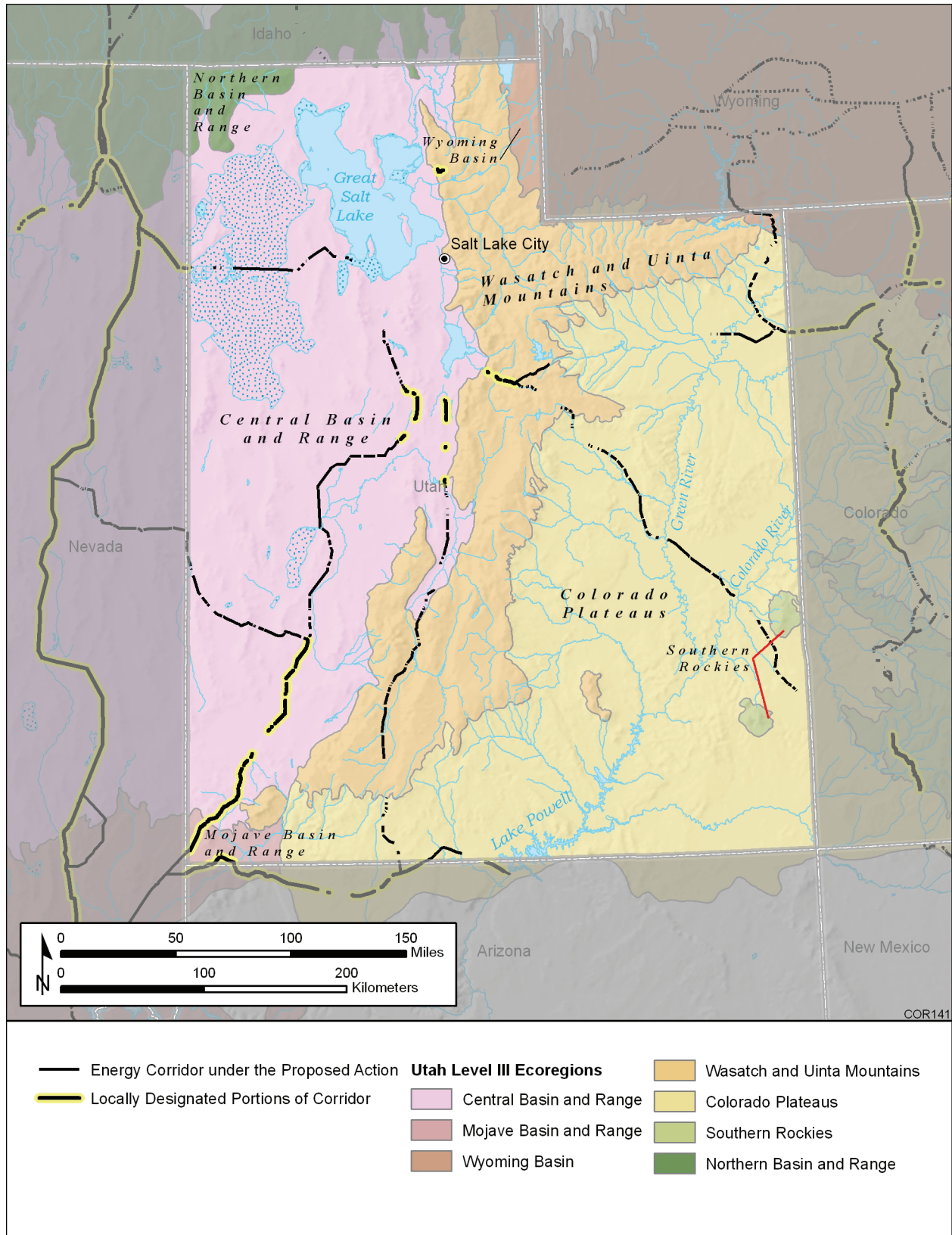


FIGURE Q-10 Level III Ecoregions of Utah and the Proposed Energy Corridors



FIGURE Q-11 Level III Ecoregions of Washington and the Proposed Energy Corridors

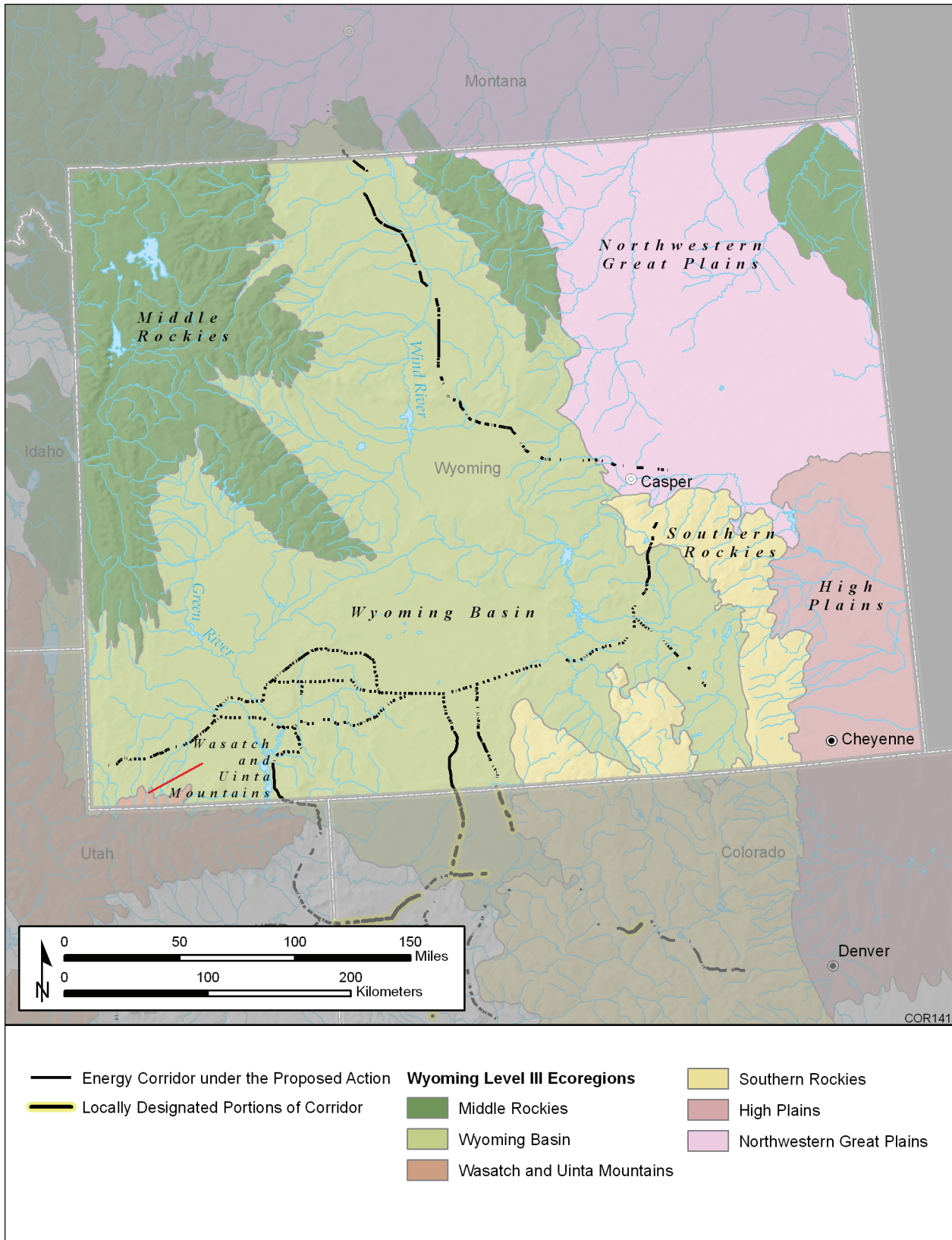


FIGURE Q-12 Level III Ecoregions of Wyoming and the Proposed Energy Corridors

small portion in California. Elevation ranges from 600 to 14,400 feet, and the ecoregion is approximately 17,930 square miles in size. This mountainous ecoregion contains steep ridges and river valleys in the west and a high plateau in the east. Landscape includes westerly-trending mountain ridges and steeply sloping mountains and scattered lakes in glacial-rock basins, as well as glaciers and year-round snowfields on the highest peaks. It includes active and dormant volcanoes. Its moist, temperate climate supports extensive coniferous forests, with subalpine meadows occurring at high elevations. Timber management and recreation are major land use activities.

Sierra Nevada. The Sierra Nevada ecoregion is located almost entirely in California, except for a small portion in west-central Nevada. Elevation ranges from 5,000 to 11,000 feet, and the ecoregion is approximately 20,300 square miles in size. This deeply dissected ecoregion slopes gently down to the west and drops sharply on the eastern edge. The eastern portion has been strongly glaciated, and is characterized by high mountain slopes, peaks, ridges, moraines, and lakes. Lower elevations support mostly ponderosa pine in the west and lodgepole pine in the east, with fir and spruce at higher elevations. Alpine conditions exist at the highest elevations. The Sierra Nevada is famed for its scenic resources, and its close proximity to San Francisco and other major urban areas leads to high levels of recreational use. Other land uses include logging, wildlife habitat, rangeland, and woodland grazing.

Southern and Central California Chaparral and Oak Woodlands. The Southern and Central California Chaparral and Oak Woodlands ecoregion is located entirely within California, and covers a sizable portion of the state. This ecoregion is approximately 38,650 square miles in size. Open low mountains or foothills comprise most of the region, with some irregular plains in the south. The ecoregion exhibits a Mediterranean climate

of hot, dry summers and moist, cool winters, and supports mainly chaparral and oak woodlands vegetation. Grasslands occur at some lower elevations and small stands of pine at higher elevations. Numerous urban areas are found within the ecoregion, including the urban areas of Los Angeles, San Francisco, and San Diego.

Central California Valley. The Central California Valley ecoregion is located entirely within California. This ecoregion is about 17,750 square miles in size. The ecoregion is a flat, intensively farmed plain that has long, hot, and dry summers and cool winters. Nearly half the region is cropland, most of which is irrigated. The region once supported an array of prairies, oak-grass savannahs, desert grasslands, riparian woodlots, and wetlands. However, human activities have affected most of the native plant communities (Olson and Cox 2001).

Southern California Mountains. This ecoregion covers approximately 6,900 square miles. The Southern California Mountains ecoregion occurs only in California. This ecoregion has a Mediterranean climate of hot, dry summers and moist, cool winters, but because of a higher elevation than adjacent ecoregions, it has slightly cooler temperatures and more moisture. Comparatively dense chaparral and oak woodlands are the predominant vegetation types, along with stands of ponderosa pine.

Eastern Cascades Slopes and Foothills. The Eastern Cascades Slopes and Foothills ecoregion is located in California, Oregon, and Washington. Elevations range from 600 to 8,300 feet, and the ecoregion is approximately 21,690 square miles in size. This ecoregion, with a dry continental climate, lies in the rain shadow of the Cascade Mountains and supports open forests of ponderosa pine and some lodgepole pine. Landscapes include marshy basins to steeply sloped low mountains, volcanic plateaus, and canyons. The region also contains Douglas-

fir and hemlock forests, oak savannas, and sagebrush and bunchgrass in upland areas (Pater et al. undated). Important land uses include timber management, recreation, grazing, rural residential development, orchards, and cropping in valleys.

Columbia Plateau. The Columbia Plateau ecoregion occurs in Idaho, Oregon, and Washington. Elevations range from 300 to 4,400 feet, and the ecoregion covers approximately 32,100 square miles. Landscapes range from low, nearly level basins to higher plateau and mountain foothills, with steeply dissected canyons, in some areas. This ecoregion supports arid sagebrush steppe and grassland, but formerly supported large expanses of native bluebunch wheatgrass, Idaho fescue, and other grasses. A large portion of this ecoregion has been converted to agriculture (Noss et al. 2001). Much of the ecoregion supports irrigated and nonirrigated cropland, as well as rangeland.

Blue Mountains. The Blue Mountains ecoregion is located primarily in Oregon, with smaller portions in Idaho and Washington. Elevation ranges from 1,000 to 10,000 feet, and the ecoregion covers approximately 27,380 square miles. The landscape is complex, ranging from nearly flat or rolling alluvial valleys to high plateaus and steep mountain slopes, with some deeply dissected canyons. Vegetation includes sagebrush steppe and saltbrush-greasewood communities, as well as deciduous and coniferous forest (McGrath et al. 2002; Idaho Gap Analysis 2002). Extensive areas of old-growth coniferous forest are present (DellaSala et al. 2001) that include large stands of western juniper (Oregon Progress Board 2000). Woodland grazing, logging, and recreation are important land use activities, along with crop raising in basins, valleys, and some uplands.

Snake River Plain. The Snake River Plain ecoregion is located primarily in Idaho, with a

small portion in Oregon. Elevation ranges from 2,100 to 3,500 feet, and the ecoregion covers approximately 20,700 square miles. A xeric intermontane basin and range area of plains and low hills characterizes this ecoregion. Topography includes flat to rolling valleys with many canals and rivers, rolling hills, barren lava fields, benches, and alluvial fans. Except for scattered barren lava fields, the natural vegetation of this ecoregion is sagebrush steppe that is now used for cattle grazing. There are few perennial streams. A large proportion of the alluvial valley is used for agriculture. Urban areas include Boise and Idaho Falls. Land uses include irrigated cropland, pasture, and residential and commercial development.

Central Basin and Range. The Central Basin and Range is located in California, Nevada, and Utah. Elevations generally range from 3,400 to 13,000+ feet, but with large portions between 4,000 and 9,000 feet, the ecoregion covers approximately 119,672 square miles. This internally drained ecoregion is characterized by a mosaic of xeric basins, scattered mountains, and salt flats. The topography is characterized by alternating basins and mountain ranges, generally running north-northeast to south-southwest. Great Basin sagebrush and saltbush-greasewood shrubland are the dominant vegetation types in the basins, with mountain brush and woodland also occurring in the ecoregion (EPA 2002; McGrath et al. 2002). Some portions of this ecoregion are very sparsely vegetated desert, while other areas support saltbrush-greasewood, shadscale, winterfat, sagebrush, and a variety of perennial grasses and herbaceous plants (Woods et al. 2001). Juniper-pinyon woodlots and coniferous forests occur in areas of higher elevation and precipitation. The region is generally very sparsely populated, but has some large urban areas on its periphery, including Carson City and Reno to the west and Salt Lake City to the northeast. Important land uses include rangeland, wildlife habitat, military reservations, and mining, with some irrigated farming.

Mojave Basin and Range. The Mojave Basin and Range ecoregion is located in Arizona, California, Nevada, and Utah. Elevations range from below sea level in Death Valley (-479 feet) to 5,300 feet, and the ecoregion covers approximately 50,000 square miles. It has a warm, temperate climate with little precipitation and includes the Mojave Desert and scattered mountains (Holland et al. 2001; EPA 2002). The ecoregion is rich in endemic ephemeral plants. Creosote bush shrubland is the predominant natural vegetation. Mesquite, creosote bush, all-scale, brittlebush, desert holly, and sagebrush are dominant species at low elevations (Holland et al. 2001); big sagebrush, blackbrush, Mormon tea, yellowbrush, galleta, Indian ricegrass, cheatgrass, and cholla are dominant at elevations of 3,000 to 5,000 feet; and pinyon, juniper, and oak woodlots dominate at elevations of 4,000 to 7,000 feet (Woods et al. 2001; Bryce et al. 2003). The ecoregion includes the urban area of Las Vegas. Important land uses include rangeland, wildlife habitat, urban development, military bases, recreation, gravel operations, and some pastureland and cropland.

Northern Rockies. The Northern Rockies ecoregion is located in Idaho, Montana, and Washington and is a high, rugged, mountainous region. Elevations range from 2,400 to 10,700 feet, and the ecoregion covers approximately 31,600 square miles. Landscapes include northwest-southeast trending forested mountains, some glaciated and intermountain valleys, and generally treeless foothills. The climate and vegetation have a maritime influence, despite an inland position. Douglas-fir, subalpine fir, Englemann spruce, and ponderosa pine occur in this ecoregion, as well as Pacific Coast indicators, such as western red cedar, western hemlock, and grand fir. Alpine characteristics, including numerous glacial lakes, occur at the highest elevations. Logging, mining, wildlife habitat, and recreation are important land uses, with grazing, cropping, and some residential use in valleys.

Idaho Batholith. The Idaho Batholith ecoregion is located primarily in Idaho, with a small portion in Montana. This dissected, partially glaciated mountainous plateau contains the headwaters of numerous perennial streams. Grand fir and Douglas-fir occur in this ecoregion, with Engelmann spruce and subalpine fir at higher elevations. Sagebrush, bunchgrass, and Ponderosa pine grow in valley floors and deep canyons (McGrath et al. 2002). This ecoregion covers approximately 23,750 square miles.

Middle Rockies. The Middle Rockies ecoregion occurs in Idaho, Montana, and Wyoming. Open forest is present in this ecoregion, and foothills are partly wooded or shrub- and grass-covered (Chapman et al. 2004). Intermontane valleys are grass- and/or shrub-covered. Forests of Douglas-fir, subalpine fir, and Engelmann spruce, as well as alpine areas, occur on mountains. In Idaho, Douglas-fir, subalpine fir, lodgepole pine, Engelmann spruce, aspen, and sagebrush occur in mountain and plateau areas, while shadscale and greasewood occur in areas of low precipitation (McGrath et al. 2002). Many mountain-fed perennial streams are present (Chapman et al. 2004). This ecoregion covers approximately 60,400 square miles.

Wyoming Basin. The Wyoming Basin ecoregion is located primarily in Wyoming, with portions in Colorado, Idaho, Montana, and Utah. Elevation ranges from 3,700 to 7,900 feet, and the ecoregion covers approximately 51,470 square miles. This ecoregion is a broad intermountain basin with terraces, scattered high hills, and low mountains (Chapman et al. 2004). The dominant vegetation types are arid grasslands and shrublands supporting bunchgrasses and sagebrush. Poorly drained floodplains and low terraces support sedges, rushes, cattails, and grasses. Well-drained alluvial fans and foothills support sagebrush grasslands (McGrath et al. 2002). Wetland plants occur in poorly drained floodplains,

alluvial fans, and terraces (Woods et al. 2001). Important land uses include intensive oil and gas production, mining, grazing, and some irrigated farming and timber management.

Wasatch and Uinta Mountains. The Wasatch and Uinta Mountains ecoregion occurs primarily in Utah, with smaller portions in Wyoming and Idaho. Elevation ranges from 5,000 to 9,000+ feet, and the ecoregion covers approximately 17,600 square miles. This ecoregion is composed of high mountains with narrow crests and valleys, bordered in some areas by dissected plateaus and open high mountains. Lower elevation semiarid foothills support pinyon-juniper woodlands, mountain mahogany-oak scrub, and maple-oak scrub; middle elevations support Douglas-fir forests, aspen parklands, and ponderosa pine; Engelmann spruce and subalpine fir occur at higher elevations (Woods et al. 2001; McGrath et al. 2002). Alpine meadows are present above 11,000 feet. Land uses include timber production, seasonal range and livestock grazing, recreation, and wildlife habitat, with some irrigated farming in mountain valleys and oil production.

Colorado Plateaus. The Colorado Plateaus ecoregion is located in Arizona, Colorado, and Utah, with a small portion in New Mexico. Elevation ranges from 3,200 to 10,000 feet, and the ecoregion covers approximately 48,790 square miles. This ecoregion is characterized by a rugged tableland topography, with large basins, ridges, spectacular canyons, and colorful geological formations. The ecoregion is heavily visited for recreational purposes. The higher elevations support extensive pinyon-juniper woodlands. Between the trees, the ground is sparsely covered by grama, other grasses, herbs, and various shrubs, such as big sagebrush and alderleaf cercocarpus (Primm 2001). Lower areas contain saltbrush-greasewood shrublands, typical of hotter, drier areas. Land uses include livestock, some

irrigated farming, recreation, mining, and oil and gas production.

Southern Rockies. The Southern Rockies ecoregion is located primarily in Colorado, New Mexico, and Wyoming, with a small portion in Utah. Elevation ranges from 7,500 to 14,400 feet, and the ecoregion covers approximately 55,420 square miles. The ecoregion is characterized by high, steep, rugged mountains. Coniferous forest covers much of the region. The lowest elevations are generally grass- or shrub-covered. Low to middle elevations support a variety of vegetation, including Douglas-fir, ponderosa pine, aspen, and juniper-oak woodlands. Middle to high elevations are predominantly coniferous forest. The highest elevations have alpine characteristics. Important land uses include timber management, recreation, hunting, wildlife habitat, grazing, mining, and oil production.

Arizona/New Mexico Plateau. The Arizona/New Mexico Plateau occurs primarily in Arizona, Colorado, and New Mexico, with a small portion in Nevada. Elevation ranges from 7,400 to 9,100 feet, and the ecoregion covers approximately 73,900 square miles. The ecoregion's landscapes include low mountains, hills, mesas, and foothills, irregular plains, alkaline basins, some sand dunes, and wetlands. This ecoregion is a large transitional region between the semiarid grasslands to the east, the drier shrublands and woodlands to the north, and the lower, hotter, less vegetated areas to the west and south. Vegetation communities include shrublands with big sagebrush, rabbitbrush, winterfat, shadscale saltbush, and greasewood, and grasslands of blue grama, western wheatgrass, green needlegrass, and needle-and-thread grass (Chapman et al. 2006). Higher elevations may support pinyon pine and juniper forests. San Luis Lake is fed by regional groundwater and mountain streams. In Colorado, a high water table supports numerous ephemeral lakes, wetlands, springs, and flowing wells

(Chapman et al. 2006). The ecoregion includes the urban areas of Santa Fe and Albuquerque. Important land uses include irrigated farming, recreation, rangeland, and wildlife habitat.

Arizona/New Mexico Mountains. The Arizona/New Mexico Mountains ecoregion occurs in Arizona and New Mexico, and covers approximately 41,870 square miles. It is characterized by low-elevation mountains that support vegetation indicative of dry, warm environments. Chaparral is common on lower elevations, while pinyon-juniper and oak woodlands are found on the lower and middle elevations. Open-to-dense ponderosa pine forests predominate at higher elevations, with forests of spruce, fir, and Douglas-fir in a few high-elevation areas. The ecoregion includes the urban area of Flagstaff, Arizona.

Chihuahuan Deserts. The Chihuahuan Deserts ecoregion occurs in Arizona and New Mexico. This ecoregion covers approximately 29,300 square miles. The broad basins and valleys of this ecoregion are bordered by sloping alluvial fans and terraces. The central and western parts of the region contain isolated mesas and mountains. Arid grassland and shrubland are the predominant vegetation types. The higher mountains, however, support oak-juniper woodlands.

High Plains. The High Plains ecoregion occurs in Wyoming, Colorado, and New Mexico, and covers approximately 40,953 square miles. This ecoregion consists of smooth to slightly irregular plains. Blue grama-buffalo grass prairies dominate the natural vegetation in this region, which also includes sandsage prairie with sand sagebrush, rabbitbrush, sand bluestem, prairie sandreed, and Indian ricegrass (Chapman et al. 2006). Also occurring are bluestem-grama prairie and wheatgrass-bluestem-needlegrass prairie (Cook et al. 2001). Much of this ecoregion is in cropland. The ecoregion includes the Denver,

Colorado, and Cheyenne, Wyoming, urban areas. Other important land uses include grazing and oil and gas production.

Southwestern Tablelands. The Southwestern Tablelands ecoregion is located in Colorado and New Mexico, and covers approximately 35,660 square miles. This ecoregion is an elevated tableland that supports subhumid grassland and semiarid rangeland. The natural vegetation in this ecoregion is grama-buffalo grass, with mesquite-buffalo grass also occurring in the southeast portion. Midgrass prairie and open low shrubs occur along the Canadian River. Juniper-scrub oak-grass savanna occurs on escarpment bluffs (Chapman et al. 2006). This ecoregion includes the urban area of Pueblo, Colorado. Land uses include grazing, dry and irrigated farming, and wildlife habitat, with increasing urban and residential development in some areas.

Canadian Rockies. A portion of the Canadian Rockies ecoregion occurs in Montana, and covers approximately 7,270 square miles. Lower elevation areas primarily support Douglas-fir, spruce, and lodgepole pine; alpine fir is predominant at middle elevations. Higher elevations are treeless alpine habitats.

Northwestern Glaciated Plains. The Northwestern Glaciated Plains ecoregion occurs in Montana, and covers approximately 37,000 square miles. Elevation generally ranges from 1,900 to 5,500 feet, but with isolated buttes up to 8,200 feet. The landscape bears strong evidence of glaciation, with treeless rolling plains, moraines, and hummocks, and includes a moderately high concentration of prairie potholes, which are semipermanent and seasonal wetlands. Some canyons occur, with tree and shrub vegetation. The ecoregion is a transitional region between the generally more level, moister, more agricultural areas to the east and the generally more irregular and drier areas to the west and southwest. Vegetation of this

ecoregion is primarily composed of grasses, such as grama, wheatgrass, and needlegrass, with areas of shortgrass prairie and sagebrush steppe. Land uses include grain farming, grazing, and oil production.

Northwestern Great Plains. The Northwestern Great Plains ecoregion occurs in Montana and Wyoming, and covers approximately 77,900 square miles. Elevation ranges from 1,900 to 7,800 feet. This ecoregion is a semiarid, rolling plain, sometimes dissected, with isolated buttes and canyons. Much of the ecoregion is treeless, except in draws and canyons, which may contain scrub and trees. It is part of the largest grassland area in North America (Primm et al. 2001). Native grasslands persist in rangeland areas of broken topography, but on level ground are mostly replaced by agriculture. The dominant grass communities include grama-needlegrass, wheatgrass, and wheatgrass-needlegrass (Primm et al. 2001). Many species of shrubs and herbs also occur, with sagebrush predominating. This ecoregion includes the urban areas of Billings, Montana, and Casper, Wyoming. The major land use is grazing, with some farming, mining, timber production, and recreation.

North Cascades. The North Cascades ecoregion occurs in Washington, and covers approximately 11,700 square miles. This ecoregion is composed of high, rugged mountains with many active alpine glaciers. The climate varies from a mild, maritime rain forest climate in the west to a dry continental climate in the east. Higher elevation areas support forests with Engelmann spruce, subalpine fir, lodgepole pine, white spruce, Douglas-fir, and quaking aspen (Kavanagh and Sims 2001). The lowest elevation areas, on the eastern side, contain parkland of bluebunch wheatgrass and sagebrush with scattered ponderosa pine.

Klamath Mountains. The Klamath Mountains ecoregion occurs in California

and Oregon, and covers approximately 18,700 square miles. This ecoregion is physically and biologically diverse, with highly dissected, folded mountains; foothills; terraces; and floodplains. The vegetation is a mosaic of conifers and hardwoods. The valleys and foothills support grassland-savanna and grasslands with bunchgrass and wheatgrass, oak woodlands, oak savanna, Douglas-fir, Ponderosa pine, madrone, incense cedar, and an understory chaparral community (Thorson et al. 2003). Forests composed of tanoak, Douglas-fir, port orford cedar, and madrone occur on mountain areas. Seasonal ponds occur on mesa tops. This ecoregion includes the Medford, Oregon, urban area. Land uses include logging, grazing, crop and tree fruit production, recreation, rural residential development, mining, and some commercial development.

Madrean Archipelago. The Madrean Archipelago ecoregion occurs in Arizona and New Mexico, and covers approximately 16,100 square miles. It consists of basins and ranges with medium to high local relief. Native vegetation in the basins is mostly grama-tobosa shrubsteppe. Oak-juniper woodland is the dominant vegetation type on the ranges; however, ponderosa pine is predominant at higher elevations.

Northern Basin and Range. The Northern Basin and Range ecoregion occurs in California, Idaho, Nevada, Oregon, and Utah, and covers approximately 54,905 square miles. Elevation ranges from 2,500 to 9,700 feet. Landscapes include arid tablelands, intermountain basins, dissected lava plains, and scattered mountains. Elevation ranges from 2,500 to 9,700 feet. Arid tablelands, intermontane basins, dissected lava plains, and scattered mountains characterize this region. Nonmountainous areas, where cool-season grasses are common, support sagebrush grassland and saltbrush-greasewood steppe (McGrath et al. 2002). The dominant species on ranges are mountain sagebrush, mountain brush, and Idaho fescue at lower and middle elevations.

Douglas-fir and aspen are common at higher elevations. Valleys within the ecoregion support sagebrush steppe or saltbush vegetation; and juniper woodlands occur on rugged, stony uplands. Livestock grazing, recreation, and wildlife habitat are important land uses, with some farming.

Sonoran Basin and Range. The Sonoran Basin and Range ecoregion occurs in Arizona, California, and New Mexico, and covers approximately 45,100 square miles. This ecoregion includes the Sonoran Desert and scattered low mountains. The climate is slightly hotter than the Mojave Desert to the north. The potential natural vegetation of this arid ecoregion is predominantly creosote bush-bur sage with large areas of palo verde-cactus shrub and giant saguaro cactus.

REFERENCES

- Bryce, S.A., et al., 2003, "Ecoregions of Nevada," color poster with map, descriptive text, summary tables, and photographs, U.S. Geological Survey, Reston, Va.
- Chapman, S.S., S.A. Bryce, J.M. Omernik, D.G. Despain, J. ZumBerge, and M. Conrad, 2004, "Ecoregions of Wyoming," color poster with map, descriptive text, summary tables, and photographs, U.S. Geological Survey, Reston, Va.
- Chapman, S.S., G.E. Griffith, J.M. Omernik, A.B. Price, J. Freeouf, and D.L. Schrupp, 2006, "Ecoregions of Colorado," color poster with map, descriptive text, summary tables, and photographs, U.S. Geological Survey, Reston, Va.
- Cook, T., et al., 2001, *Western Short Grasslands (NA0815)*, World Wildlife Fund. Available at http://www.worldwildlife.org/wildworld/profiles/terrestrial/na/na0815_full.html. Accessed December 16, 2006.
- DellaSala, D., et al., 2001, *Blue Mountains Forests (NA0505)*, World Wildlife Fund. Available at http://www.worldwildlife.org/wildworld/profiles/terrestrial/na/na0505_full.html. Accessed December 16, 2006.
- EPA (U.S. Environmental Protection Agency), 2002, *Primary Distinguishing Characteristics of Level III Ecoregions of the Continental United States, Draft*. Available at http://www.epa.gov/wed/ecoregions/us/useco_desc.doc. Accessed July 5, 2006.
- EPA, 2006, *Level III Ecoregions*, Western Ecology Division, Corvallis, Ore. Available at http://www.epa.gov/wed/pages/ecoregions/level_iii.htm. Accessed July 5, 2006.
- Holland, B., et al., 2001, *Mojave Desert (NA1308)*, World Wildlife Fund. Available at http://www.worldwildlife.org/wildworld/profiles/terrestrial/na/na1308_full.html. Accessed December 16, 2006.
- Idaho Gap Analysis, 2002, *Idaho Vegetation and Land Cover Classification System*, Idaho Cooperative Fish and Wildlife Research Unit. Available at <http://gapanalysis.nbii.gov/portal/server.pt>. Accessed December 16, 2006.
- Kavanagh, K., and M. Sims, 2001, *Cascade Mountains Leeward Forests (NA0507)*, World Wildlife Fund. Available at http://www.worldwildlife.org/wildworld/profiles/terrestrial/na/na0507_full.html. Accessed December 16, 2006.
- McGrath, C.L., et al., 2002, "Ecoregions of Idaho," color poster with map, descriptive text, summary tables, and photographs, U.S. Geological Survey, Reston, Va.
- Noss, R., et al., 2001, *Palouse Grasslands (NA0813)*, World Wildlife Fund. Available at http://www.worldwildlife.org/wildworld/profiles/terrestrial/na/na0813_full.html. Accessed December 16, 2006.

Olson, D., and R. Cox, 2001, *California Central Valley Grasslands (NA0801)*, World Wildlife Fund. Available at http://www.worldwildlife.org/wildworld/profiles/terrestrial/na/na0801_full.html. Accessed December 16, 2006.

Oregon Progress Board, 2000, "Blue Mountains Ecoregion," Section 4.7 in *State of the Environment Report 2000*, Salem, Ore. Available at <http://www.oregon.gov/DAS/OPB/soer2000index.shtml#Statewide%20Summary%20and%20Ordering>. Accessed January 3, 2007.

Pater, D.E., et al., undated, "Ecoregions of Western Washington and Oregon," poster. Available at ftp://ftp.epa.gov/wed/ecoregions/or_wa_id/ORWAFront90.pdf. Accessed December 16, 2006.

Primm, S., 2001, *Colorado Plateau Shrublands (NA1304)*, World Wildlife Fund. Available at <http://www.nationalgeographic.com/wildworld/profiles/terrestrial/na/na1304.html>. Accessed December 16, 2006.

Primm, S., et al., 2001, *Northern Short Grasslands (NA0811)*, World Wildlife Fund. Available at http://www.worldwildlife.org/wildworld/profiles/terrestrial/na/na0811_full.html. Accessed December 16, 2006.

Thorson, T.D., et al., 2003, "Ecoregions of Oregon," color poster with map, descriptive text, summary tables, and photographs, U.S. Geological Survey, Reston, Va.

University of Oregon, 1999, *Ecoregions, Lane County, Oregon*, Department of Geography, Eugene, Ore. Available at <http://geography.uoregon.edu/infographics/lcweb/ecotext.htm>. Accessed December 16, 2006.

Woods, A.J., et al., 2001, "Ecoregions of Utah," color poster with map, descriptive text, summary tables, and photographs, U.S. Geological Survey, Reston, Va.

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