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CHAPTER 4: RESOURCE MANAGEMENT ELEMENT



Introduction

This Element of the Mendocino County General Plan addresses a broad range of natural resources, from water to air to the plants and animals which live in the county. The County recognizes that these resources are important and should be protected both for their own sake and for the values they add to life in the county. Mendocino County's natural resources are the source of many of its livelihoods, from timber harvesting to tourism, and make human activities possible by providing the water, soils, and other resources needed to sustain life.



4-1 Water: Watersheds, Groundwater, and Recharge


Healthy, functioning watersheds are vital for a healthy environment and a healthy economy. Watersheds collect all precipitation, filter or treat much of it, store water, and release water into rivers and groundwater aquifers. The natural processes that make watersheds valuable are vulnerable to damage and degradation from various factors, including insufficient flows. The results of such damage include decreased water infiltration, degraded water quality, increased maintenance costs from erosion-related impacts, changes in runoff patterns and timing, and decreased populations of native plants and wildlife.

Watersheds

Mendocino County can be broadly divided into three watersheds: the Coastal, Eel, and Russian river basins. The Coastal system consists of numerous relatively short streams flowing west to the Pacific Ocean. Major stream systems located in the Coastal watershed include the Ten Mile, Noyo, Big, Albion, Navarro, Garcia,

and Gualala rivers. The interior county is drained by the two larger drainage systems – the Eel River and Russian River systems. The Eel River system drains the northern interior, while the Russian River system drains the southern interior. Only portions of these interior watersheds lie within the county. The Eel River watershed is shared with Humboldt, Lake, and Trinity counties, while the Russian River watershed includes significant portions of Sonoma County.

What is a “Watershed”?



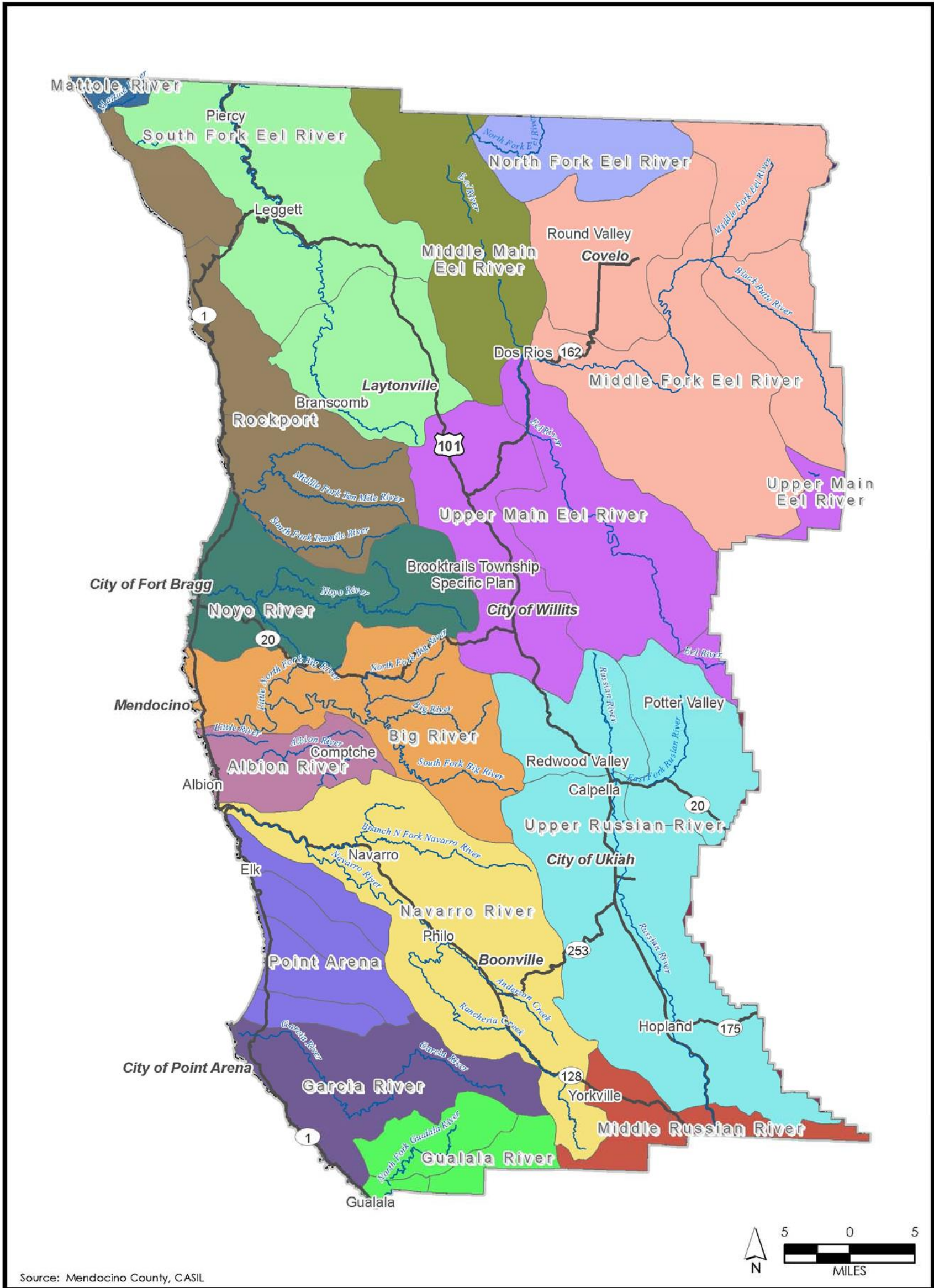
A watershed is an area of land in which all water drains to a single place, such as a creek or river. For planning purposes, a watershed includes living (including people living and working in the watershed) and non-living elements in a defined geographical area generally characterized by the flow of water. The flow of water defining a watershed includes both surface and groundwater as it moves through natural and manmade features, from higher elevations to lower elevations. In some cases, watershed planning boundaries are affected by administrative boundaries, such as city limits. In other cases, watershed boundaries are adjusted to accommodate water conveyance systems such as canals.

Surface runoff in each basin is derived almost entirely from rainfall, although snow does fall in the mountains in the eastern portion of the Eel River watershed. Streamflow responds directly to the rainfall pattern; high stream flows will drop quickly without sustaining rainfall. During the dry summer months, stream flow must be supplied from groundwater seepage, channel storage, reservoir storage, diversions, natural springs, and artesian wells.

Each main watershed may be said to contain smaller watersheds. These smaller watersheds are defined by the streams to which water drains, meaning every stream has its own watershed. Mendocino County contains or is part of 16 watersheds, shown in **Figure 4-1**.



FIGURE 4-1
MENDOCINO COUNTY WATERSHEDS





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Several individuals and organizations throughout Mendocino County are involved in managing watershed resources. There are approximately 15 public agencies and 25 private organizations which work on Mendocino County watershed-based issues. Interviews with these organizations indicate that other smaller, less well-organized groups and individuals, whose focus may be on a single local issue or short-term project, are also active in the county. Organizations and agencies collaborate in data collection, planning, management, sharing technical expertise, pooling funding resources, and implementing watershed projects.

A major focus of these watershed efforts is water quality improvement in the streams and restoration of native fish habitat and native aquatic species. Water can be polluted by excessive soil sediments or contaminants such as motor vehicle oils and fluids, pesticides, or heavy metals. The sources of these pollutants vary by the watershed—examples include discharges from industrial plants and runoff from agricultural fields, graded construction sites, landslides, and urban developments. Pollutants can be controlled by using “best management practices” (BMPs), which are activities, prohibitions, maintenance procedures, and other management practices designed to prevent or reduce the discharge of pollutants to waters. The County is subject to the National Pollutant Discharge Elimination Standards or NPDES Phase II regulations, and BMP’s can help address these regulations. Examples of BMPs include:

- Runoff control - check dams, slope drains, infiltration galleries.
- Erosion control - revegetation and preservation of existing vegetation (shown in the photo at left), riprap, mulching, soil binders.
- Sediment control - fiber rolls (shown in the photo below), sandbag barriers, silt fences, sediment traps.



- Water treatment - stormwater detention basins, swales, treatment wetlands.
- Drainage protection - outlet protection (riprap at outlets), inlet filters to remove sediment and hydrocarbon contaminants.
- General site and materials - water conservation practices, stockpile management, street sweeping, spill prevention and control, handling and storage of materials.

Typically, BMPs are required as conditions of permits issued to activities such as construction to reduce their potential impacts on water quality.

Chapter 4: Resource Management Element



4-2 Water Supply

The basic source of all water in Mendocino County is precipitation in the form of rain or snow. Average annual rainfall in Mendocino County ranges from slightly less than 35 inches in the Ukiah area to more than 80 inches near Branscomb. Most of the precipitation falls during the winter, and substantial snowfall is limited to higher elevations. Rainfall is often from storms that move in from the northwest. Virtually no rainfall occurs during the summer months.

At the time this General Plan was updated (2009), California is experiencing drought conditions¹. Droughts occur in California from time to time. Although tree ring records suggest that the frequency of drought in California in the 20th Century was lower than normal, the recent (2008-2009) drought has been determined by the State of California to be among the worst ever measured. According to the State Department of Water Resources, the months of March and April 2008 combined were the driest in the northern Sierra since record-keeping began in 1921.

Surface water in Mendocino County is used for a variety of agricultural, urban, and industrial activities. **Agricultural** uses include drinking water for livestock, wash water on dairies, irrigation of crops and pasturelands, and frost protection of sensitive crops in the spring. **Urban** uses include water used for drinking water and other indoor and outdoor household activities, including flushing toilets and irrigation of gardens. **Industrial** users of water include mining, hydroelectric power, and sewage treatment activities.

As discussed in the Development Element of this General Plan, significant development of surface water resources has not occurred in Mendocino County. There are only two reservoirs of note in the county: Van Arsdale Reservoir and Lake Mendocino, northeast of Ukiah. There are, however, numerous smaller reservoirs and ponds.

Groundwater is the main source for municipal and individual domestic water systems outside of the Ukiah Valley and contributes significantly to irrigation. Wells throughout Mendocino County support a variety of uses, including domestic, commercial, industrial, and agricultural needs, and for fire protection.

In Mendocino County, groundwater is found in two distinct geologic settings: the inland valleys and the mountainous areas. Mountainous areas are underlain by consolidated rocks of the Franciscan Complex, which are commonly dry and generally supply less than five gallons per minute of water to wells. Interior valleys are underlain by relatively thick deposits of valley fill, in which yields vary from less than 50 gallons per minute to 1,000 gallons per minute. There are six identified major groundwater basins in Mendocino County:

- Round Valley
- Little Lake Valley (Willits Valley)
- Ukiah Valley
- Laytonville Valley
- Potter Valley
- Anderson Valley

¹ Governor Schwarzenegger in June 2008 issued an Executive Order to address the ongoing drought.



Groundwater recharge is the replacement of water in the groundwater aquifer. Recharge occurs in the form of precipitation, surface runoff that later enters the ground, irrigation, and in some parts of California (but not in Mendocino County) by imported water. Specific information regarding recharge areas for Mendocino County's groundwater basins is not generally available. Still, recharge for inland groundwater basins comes primarily from infiltration of precipitation and intercepted runoff in stream channels and from permeable soils along valleys' margins. Recharge for coastal groundwater basins occurs in fractured and weathered bedrock and coastal terraces, and along recent alluvial deposits and bedrock formations.

If recharge areas are protected from major modification - such as paving, building, and gravel removal - it is anticipated that continued recharge will re-supply groundwater reservoirs. However, several factors, including groundwater pumping, can combine to result in "overdraft" conditions when groundwater being recharged is exceeded by the amount being extracted.

Users obtain their water through private wells, deliveries from a water system, or a combination of both. Chapter 3.0, Development Element, discusses water systems in the county. As noted in the Development Element, several areas of the county face uncertainties in water supply, including Redwood Valley, Hopland, the Brooktrails development northwest of Willits, and coastal areas.

Updated General Plan policies recognize the importance of water conservation as part of a sustainable management plan. The County will work with agencies in developing long-term water supplies to meet the growth needs planned in this General Plan. Part of this policy approach includes opposing the transfer of water resources and rights out of the county.

4-3 Water Quality

The most critical surface water quality problem in Mendocino County is sedimentation²—the carrying of dust and soils into bodies of water. Major sources of sediment include erosion from barren or poorly vegetated soils, erosion from the toes of slides along stream channels, and sediments from roads.

Human-made sources of sedimentation are a byproduct of current and historical land uses, including logging, agriculture, mining, processing of alluvial aggregate material, road construction and erosion from unpaved roads, and other development-related projects within the county.

Water temperature is affected by the volume of water flowing in the stream, the amount of sunlight reaching the stream water surface, and the daily average air temperature. Elevated water temperature can detrimentally affect different life stages of anadromous fish (e.g., salmon). Shade cover from riparian vegetation has been reduced through current and historical land uses fire and flood events. The Eel and Russian rivers and several coastal rivers have been identified as having degraded water quality due to sediments and water temperature.

While groundwater in Mendocino County is generally of good quality and suitable for most uses, the potential for groundwater contamination exists in any area. The most significant risk of contamination occurs in recharge areas containing excavation sites, septic tanks, and agricultural areas with heavy applications of fertilizers or pesticides. Other factors that may lead to potential groundwater contamination include urban runoff (mostly oils

² And to a lesser degree, water temperature.



and chemicals from paved roadways and parking lots), improperly drilled or sealed wells, and saltwater intrusion in coastal areas. Illegal marijuana growers and drug labs also degrade water supplies through the dumping of chemicals and fertilizers. This potential increases in the major valley areas because of the shallow depth of the water table.

4-4 Ecosystems and Resources Overview

The plants and wildlife of Mendocino County provide benefits to county residents in several important ways. Vegetation, both living and non-living, significantly decreases the rate of soil erosion. Healthy plant communities may also reduce the likelihood and severity of fires and flooding. Vegetation often determines the type and productivity of wildlife habitat and determines, to a large extent, the suitability and value of fish habitat. Through filtering contaminants and soil retention processes, vegetation is instrumental in maintaining the quality of water in the county. Healthy plant communities and the fish and wildlife they sustain support an active tourism and recreation industry and are essential to the quality of life in Mendocino County.

Mendocino County has a wide range of climates, topography, soils, and watershed conditions, all of which produce very diverse plant and animal communities. Vegetation predominant in the region includes valley grassland and oak woodland in lowlands and valleys, coastal scrub and prairies along the Pacific Ocean, and mixed chaparral, hardwood forest, and coniferous forest in the mountains.

Biological Communities and Ecosystems



A **biological community** is a group of plants, animals and other living things that interact with each other in a common area.

An **ecosystem** is similar to a biological community, but it also includes the non-living components of the environment, such as soil and water. This section discusses biological communities, with focus on the plants and wildlife that live in them. However, some of the sensitive habitats discussed later in this introduction could be considered ecosystems, as non-living components are significant factors in their existence. These include wetlands and habitats in areas of serpentine soils.



Mendocino County has an extensive range of biological communities, some of which are highly productive or contain rare plant communities. These include redwood, Douglas-fir, montane hardwood, chaparral, grasslands, closed cone pine-cypress, oak woodland, agricultural, white fir, ponderosa pine, Klamath mixed fir, coastal scrub, urban, red fir, barren, and aquatic habitats. **Figure 4-2** contains a map of the biological communities in Mendocino County. A more detailed description of these communities follows.

- **Redwood forests** are generally found within 25 miles of the Pacific coast on cool, moist slopes and along streams. The redwood community is characterized by a highly variable assemblage of conifer and hardwood species. The coastal redwood is the dominant tree on slopes nearest the coast and in riparian areas within the coastal influence. Drier slopes within the redwood community are characterized by an increasing dominance of Douglas fir in the upper canopy and an assemblage of hardwoods and conifers in the lower canopy. Nearly 200 species of wildlife can be found in the redwood community. These species include the Pacific giant, California giant, and California slender salamanders, northern alligator lizard, western terrestrial garter snake, turkey vulture, great horned owl, gray jay, Pacific-slope flycatcher, Swainson's thrush, varied thrush, pine siskin, coyote, gray fox, black-tail deer, black bear, opossum, skunk, mountain lions, and wild turkeys.



Redwood grove, Henry Woods State Park

- In Mendocino County, **Douglas fir forest** is common in areas that are too dry for redwood or hardwood communities and too low in elevation for other conifer types. Douglas fir communities are characterized by an upper canopy dominated primarily by Douglas fir and a lower canopy composed of a number of conifer and hardwood species. Douglas fir forests support a high density of birds. Wildlife commonly found in the Douglas fir forests includes Ensatina, Pacific giant, California giant, and California slender salamanders; tailed frogs, northern alligator lizards, northwestern garter snakes, western flycatchers, chestnut-backed chickadees, golden-crowned kinglets, solitary vireos, varied thrush, turkey vultures, great horned owls, gray jays, Stellar's jays, olive-sided flycatchers, pine siskins, bushy-tailed woodrats, coyotes, gray foxes, elk, black-tailed deer, fishers, deer mice, Douglas' squirrels, and shrew-moles.



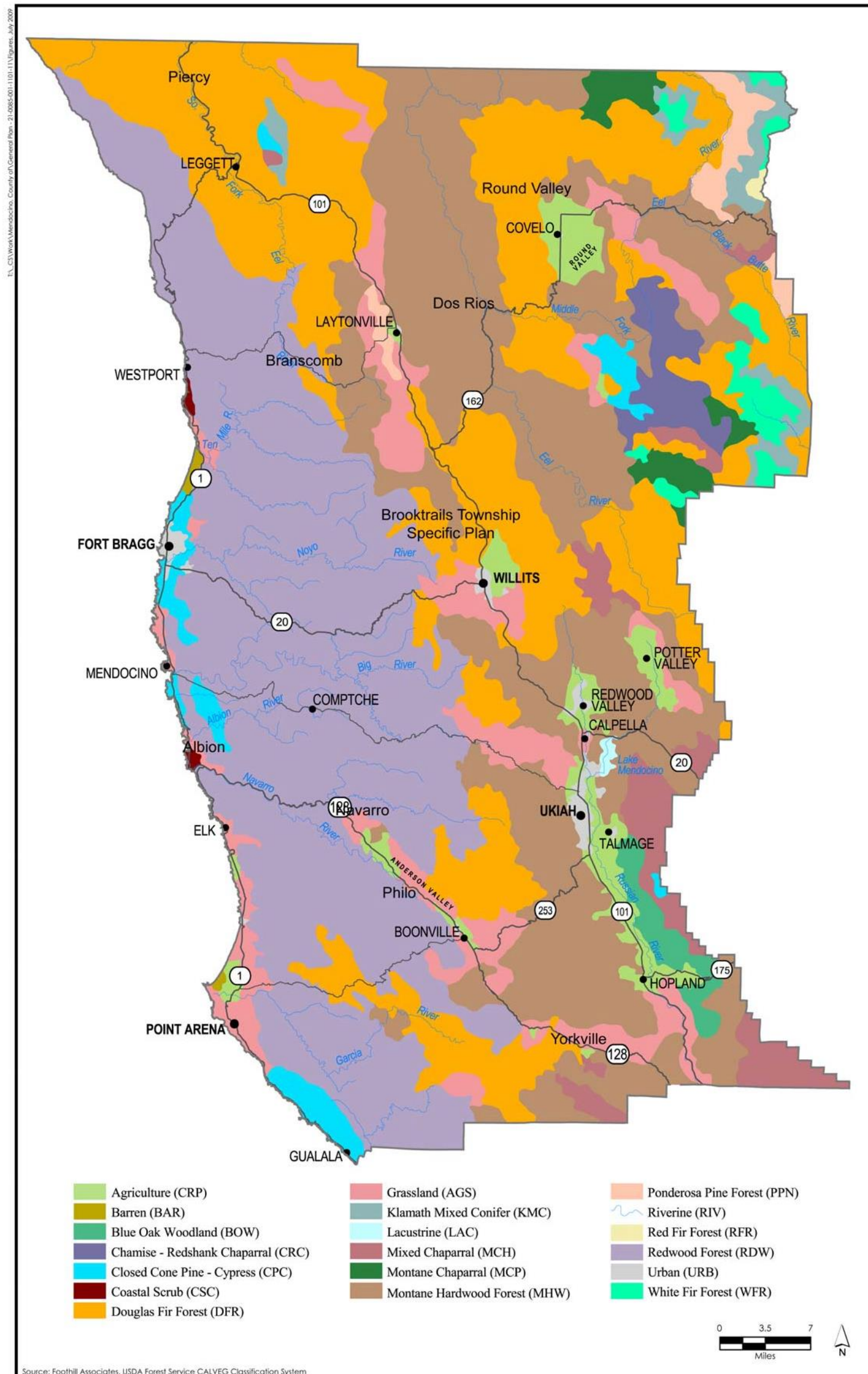
- **White fir forests** can be found on higher peaks of the mountain ranges in the county's northeastern portion. Wildlife species found in white fir forests are generally similar to those found in Douglas fir forests and oak woodlands. White fir forests are probably the coolest, moistest non-riparian habitat in northern California at lower to mid-elevations. As it stands mature, windthrow and heart fungus provide downed logs and standing snags that greatly benefit cavity-dependent wildlife species, such as pileated woodpeckers. White fir is the preferred species for insect-gleaning yellow-rumped warblers and western tanagers, and other insectivorous birds.
- **Red fir forests** occur only on the highest peaks in northeastern Mendocino County. Red fir forests are characterized by open to moderately dense stands of red fir. Both the tree and shrub layer is generally devoid of other species. Wildlife found in a red fir forest is similar to that found in white fir forests. There are fewer species found in red fir habitats, particularly amphibians and reptiles, because of the high elevation.
- **Ponderosa pine forests** commonly occur on the lower slopes in the northeastern region of the county and isolated patches on ridgetops in the southern and western portions. Wildlife found in ponderosa pine forests is similar to other forested habitats in the region, including those found in Douglas and white fir forests and oak woodlands.
- The **Klamath mixed conifer** habitat type is a mid-elevation forest occurring throughout the Klamath Ranges in northwestern California. Within Mendocino County, the Klamath mixed conifer is restricted to the northeastern portion of the county. Klamath mixed conifer is typically characterized by a moderate to dense canopy formed from various conifer species. Dominant conifers include ponderosa pine, Douglas fir, and white fir. On serpentine soils, Jeffrey pine is often the dominant tree. Wildlife found in Klamath mixed conifer forests is similar to those species found in Douglas fir, ponderosa pine, and white fir habitats.
- **Oak woodlands** have a patchy distribution in valleys and foothills in Mendocino County. Blue oaks are the most common trees, but coast live oaks, interior live oaks, and valley oaks also occur in some areas of the county. Foothill pines often grow in blue oak-pine communities. In Mendocino County, blue oak woodland is most common east of State Route 101 from Ukiah to the Sonoma County line. Wildlife occurring in oak woodlands includes Pacific chorus frog, Ensatina, northwestern, arboreal, and California slender salamanders, bullfrog, western fence lizard, southern and northern alligator lizards, western terrestrial garter snake, western rattlesnake,



The spreading branches of the Coast Live Oak are a common sight in many parts of the county



FIGURE 4-2
BIOLOGICAL COMMUNITIES OF MENDOCINO COUNTY



Note: This map is based on information from the USDA Forest Service, and shows only areas of habitat more than one square mile in size. Conspicuously absent from this map are areas of pygmy forest, which are too small to be noted on the USDA map.



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great horned owl, red-tailed hawk, red-shouldered hawk, acorn woodpecker, western meadowlark, American kestrel, turkey vulture, Hammond's flycatcher, dusky flycatcher, northern flicker, western kingbird, chestnut-backed chickadee, ruby-crowned kinglet, western scrub-jay, Stellar's jay, Pacific-slope flycatcher, Hutton's vireo, hermit thrush, wild turkey, common raven, cliff swallow, California ground squirrel, big brown bat, dusky-footed woodrat, gray fox, raccoon, black-tailed deer, coyote, black bear, and white deer.

- **Montane hardwood forests** are one of the most abundant habitat types, occurring throughout Mendocino County and most commonly in the central part of the county's mountains. Species composition in hardwood forests is variable. Common trees include canyon live oak, Pacific madrone, California black oak, coast live oak, and California bay-laurel. Blue oaks occur on dry, steep slopes with poor soil. Wildlife found in montane hardwood forests includes several types of salamander, western fence lizard, northern alligator lizard, western rattlesnake, Hammond's flycatcher, northern flicker, ruby-crowned kinglet, Cassin's vireo, acorn woodpecker, wild turkey, great horned owl, Stellar's jay, dusky-footed woodrat, coyote, gray fox, black bear, black-tailed deer, deer mouse, and western gray squirrel. **Closed-cone pine-cypress forests** are typically associated with rocky sites or infertile soils. This community is fire-dependent and often forms even-aged stands after a fire. In Mendocino County, this community frequently occurs along the southern and central coast and in patches in the north and east mountainous areas, usually associated with serpentine soils. Pygmy forest, a rare closed-cone habitat unique to poor coastal soils, is found on the county's central coast. Wildlife commonly found in closed cone pine-cypress forests includes several types of salamanders (including *Ensatina*, Pacific giant, California giant, and California slender), bullfrog, southern alligator lizard, western terrestrial garter snake, western rattlesnake, dusky flycatcher, chestnut-backed chickadee, ruby-crowned kinglet, Hutton's vireo, hermit thrush, turkey vulture, great horned owl, red-tailed hawk, western scrub-jay, Stellar's jay, Pacific-slope flycatcher, pine siskin, big brown bat, dusky-footed woodrat, coyote, gray fox, raccoon, and black-tailed deer.
- **Chaparral** communities are found in the southern, eastern, and northeastern areas of Mendocino County. These communities are characterized by an open to a very dense assemblage of woody shrubs with a canopy that can reach nearly 20 feet. Dominant plants include chamise, ceanothus, and manzanita. Other associated plants may include foothill pine, scrub oak, and chinquapin. The chaparral communities provide habitat for a wide variety of wildlife, particularly rodents, rabbits, black-tailed deer, and other herbivorous mammals. Birds utilize the seeds, fruits, insects, and cover found in chaparral, and raptors prey on these birds and on small reptiles and mammals. Common among the species in chaparral communities are northern and southern alligator lizards, common kingsnake, rattlesnake, turkey vulture, Ash-throated flycatcher, gray vireo, barn owl, common raven, Pacific kangaroo rat, desert cottontail, coyote, black-tailed deer, and elk.
- **Grasslands** in Mendocino County are often maintained by cattle grazing in areas that might otherwise develop forest or chaparral communities. A variety of grassland types, including annual grassland, perennial grassland, montane meadow, wet meadow, and coastal prairie, occur within the county. Annual grasses and forbs characterize areas that are heavily grazed or otherwise disturbed. In areas lacking disturbance and on slopes with high serpentine content, perennial grasses are dominant. Coastal



prairies are also often dominated by native perennials, although grazing pressure can encourage invasion from non-native annual species. Moist areas, such as wetlands and meadows, support a variety of plants adapted to saturated or inundated soil conditions. Wildlife found in grasslands includes Pacific chorus frog, western fence lizard, common garter snake, western rattlesnake, burrowing owl, western meadowlark, American kestrel, turkey vulture, willow flycatcher, northern flicker, western kingbird, wild turkey, great horned owl, common raven, cliff swallow, California ground squirrel, coyote, black bear, and white deer. Non-native invasive plants have replaced most native grassland in Mendocino County.



Coastal scrub extending from a forest to the Mendocino coast.

- **Coastal scrub** occurs in a coastal strip along the length of California. Although not the most prevalent coastal habitat in Mendocino County, coastal scrub communities occur in discontinuous patches along most of the county's coastline. In Mendocino County, coastal scrub communities usually occur as patches on south-facing slopes or in sandy soils. The composition of coastal scrub communities is highly variable throughout California. Along the north coast, coyote bush is typically the dominant shrub. Relatively little is known about the importance of coastal scrub habitat to wildlife. Wildlife species found in this habitat are generally similar to those species found in closed cone pine-cypress habitats. Species include *Ensatina*, bullfrog, Western fence lizard, western terrestrial garter snake, western rattlesnake, turkey vulture, blue-gray gnatcatcher, western bluebird, great horned owl, Trowbridge's shrew, California ground squirrel, gray fox, raccoon, and black-tailed deer.
- **Open dune** areas occur in coastal Mendocino County, where shifting sand dunes prevent the establishment of vegetation. Where vegetation occurs, the cover is generally sparse, consisting of salt-tolerant shrubs and forbs. Dunes have a low habitat value for wildlife. However, shorebirds, gulls, terns, and other species can be found using these habitats in conjunction with the intertidal zone for feeding and nesting.
- **Aquatic habitats** occur throughout California at nearly all elevations and in association with all habitat types. *Lacustrine* (lake) habitats are freshwater bodies that vary from large perennial lakes to shallow, seasonal ponds and water that collects on marine terraces. *Riverine* habitats occur throughout the county and include seasonal and perennial streams, rivers, and drainages. *Estuarine* habitats are transitional between riverine and marine zones. They occur where freshwater runoff combines with saltwater to form a brackish habitat that supports a salt-tolerant plant community. Estuarine habitats are both highly productive and highly threatened. The *marine* habitat consists of a zone extending from the upper limit of the barren shoreline to twelve miles offshore and is continuous along the coastal portion of the county. Both the vegetation and the wildlife species in the aquatic habitats vary, depending on the type of habitat.



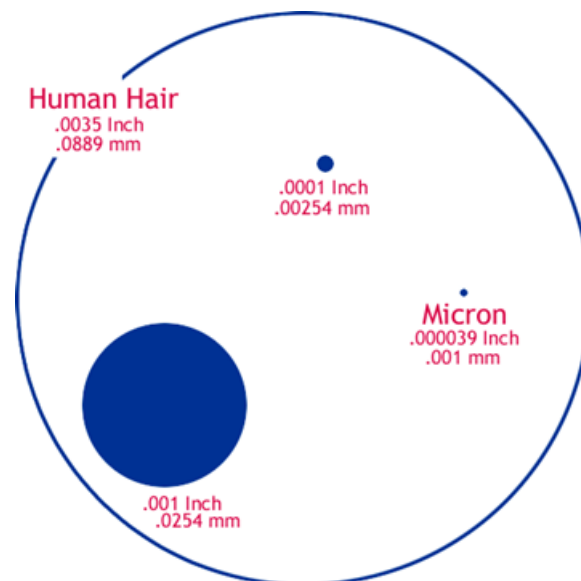
- Agricultural** areas in Mendocino County occur primarily on the valley floors and lower elevations and are often associated with populated areas in proximity to major roads and highways. Presently, agricultural land in Mendocino County is dominated by vineyards, followed by pear and apple orchards, row crops, and pasture. Fruit and nut orchards and fields or pasture provide food and cover for squirrels, numerous birds, raccoons, and black-tailed deer. Other species that take advantage of these food sources are feral pigs, ring-necked pheasant, American crows, turkeys, ravens, Western scrub jays, rats, coyotes, opossums, and striped skunk. Seasonally flooded pastures can provide critical habitat for migratory waterfowl.
- Urban** includes all ranges of urban development, from metropolitan areas to suburban and rural communities. In Mendocino County, the largest urban areas are Ukiah, Willits, and Fort Bragg. Smaller urban areas include Hopland, Redwood Valley, Potter Valley, Laytonville, Covelo, and Point Arena. Plant composition in urban areas is highly variable. It can include areas with an abundance of exotic ornamental plants and areas dominated primarily by native vegetation. The wildlife value of urban habitats varies from very low in dense, highly urbanized areas to relatively high in areas with a lower human density and a significant amount of natural vegetation remaining. The most densely developed urban areas provide wildlife habitat for western scrub-jay, rock dove, northern mockingbird, European starling, and house finch. Associated mammals include raccoon, Norway rat, little brown myotis, Virginia opossum, squirrels, and striped skunk. Suburban areas provide habitat for a greater diversity of native birds and mammals, such as wrentits, bushtits, oak titmouse, chestnut-backed chickadee, California quail, wild turkeys, and black-tailed deer.

4-5 Air Quality

Air Quality and Air Pollution

The air in Mendocino County is generally very good. As of 2006, the county meets most state and federal air quality standards. However, the air in the county did not meet the state’s standard for particulate matter (dust) less than 10 microns in diameter (PM₁₀) (see illustration at right).

The main source of PM₁₀ in Mendocino County is dust generated from unpaved roads, accounting for approximately 60 percent of PM₁₀ emissions. Other significant sources included home heating (fireplaces and wood stoves), ocean spray (along the coast), pollen from trees and plants, dust from paved roads, and construction and demolition. The sources of PM₁₀ vary by season—woodsmoke is more prevalent during the winter months when outdoor burning is allowed, and woodstoves are in use, while dust levels are higher in the summer and early fall. Along the coast, salt from ocean spray contributes to PM₁₀ levels most often when winds blow the salt spray inland; when the wind



This illustration shows a micron (0.000039 inch) compared to a human hair. PM₁₀ particles are ten microns across.



is not blowing, and the other sources noted above are more prevalent³.

Concentrations of PM₁₀ in Mendocino County have been reduced since the mid-1980s. The implementation of a Major Source Control Program, Burn/No Burn days, and a ban on paper burning coincide with a steady decline in measured concentrations between 1987 and 1993.

Nevertheless, state PM₁₀ standards are still exceeded; Mendocino County is a designated non-attainment area for both the state's annual and 24-hour average PM₁₀ standards, indicating ongoing exceedances). Also, as previously noted, dust from travel on unpaved roads and residential wood burning are the largest existing sources of PM₁₀ and PM_{2.5} in Mendocino County. Aside from state standards for new wood-burning devices, the County lacks control programs for emissions from these sources, which generally increase in proportion to population growth. Construction of more miles of unpaved roads and an increase in total miles traveled would exacerbate the problem, as would increased use of wood-burning devices for heating.

Trends for ozone appear good. No exceedances of state or federal ozone standards were recorded at the two monitoring stations for ozone (Ukiah and Willits) from 1999 to 2006, the latest year for which data are available. Future maintenance of the county's attainment status for ozone is threatened by continuing growth, primarily in the Ukiah Valley. The majority of human-made ozone precursors are emitted from the tailpipes of automobiles. Although newer vehicles are cleaner and older vehicles are being retired, increased automobile use in Mendocino County has the potential to surpass the reductions in emissions from other sources. The Sanel and Ukiah Valleys are also threatened by the transport of ozone from northern Sonoma County.

Climate Change

Climate change has become an issue of increasing concern globally. Climate change is presently thought to be both naturally occurring and induced by increases in the amounts of carbon dioxide (CO₂) and other greenhouse gases (GHGs) in the earth's atmosphere attributable to the burning of fossil fuels.

Air Pollutants

Particulate matter includes a wide range of solid and liquid particles, including smoke, dust, aerosols, and metallic oxides. Of specific concern are particles less than 10 microns in diameter, called PM₁₀. These particles can be more easily inhaled into lungs, and therefore can have more serious health impacts. Recently, air quality standards have been established for particles less than 2.5 microns in diameter, or PM_{2.5}. These particles can bypass the body's natural filtration system more easily than larger particles and lodge deep in the lungs.

Ozone is not directly emitted into the air but is a product of chemical reactions between nitrogen oxides (NO_x) and reactive organic gases (ROG) in sunlight and heat. The principal sources of NO_x and ROG, often termed ozone precursors, are automobile emissions and evaporation of solvents, paints, and fuels. Exposure to ozone can cause eye irritation, aggravate respiratory diseases, and damage lung tissue, as well as damage vegetation and reduce visibility.

Under the federal Clean Air Act, air quality standards are established for particulate matter, ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. California's Clean Air Act requires standards for these pollutants and for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. In some cases, California's standards are more stringent than the federal standards.

³ Source: "Particulate Matter Attainment Plan," Mendocino County Air Quality Management District, March 15, 2005.



Since 2005, there have been several legislative changes that cover greenhouse gas impacts from land-use planning decisions. Governor Schwarzenegger issued executive order (S-3-05) in June 2005, setting GHG emission targets for the state to meet, starting with a reduction to 2000 GHG emission levels by 2010 and concluding with a reduction to 80% below 1990 numbers by 2050. This order directed the California EPA, Business Transportation and Housing Agency, California Air Resources Board (CARB), the California Energy Commission and the Public Utilities Commission to work together to develop a Climate Action Plan and report back on the progress of meeting the statewide targets under the Governor's executive order. In 2006, the governor signed AB 32, which established the first set of limits on GHG emissions for California and put into place the regulatory framework needed to reach those targets. AB 32 set the 10% below 1990 GHG emissions level as a target to be achieved by 2020. To meet this goal, CARB is required to develop greenhouse gas emissions reporting procedures and adopt rules and regulations for reducing emissions by January 1, 2011, enforceable by January 1, 2012. Taken together, both S-3-05 and AB 32 set the eventual emission targets that Mendocino County will eventually be required to attain locally. While explicit thresholds and requirements have yet to be developed, various state agencies have begun to examine proposed land use plans and specific projects for their potential GHG impacts.

Because Mendocino County is primarily rural, the amount of greenhouse gases generated by human activities (primarily the burning of fossil fuels for vehicles, heating, and other uses) is small in total compared to other, more urban counties (although higher per capita due to the distances involved in traveling around the county) and minuscule in statewide or global terms. However, like all other areas worldwide that contribute to global warming, Mendocino County will be affected by climate change and shares a responsibility to address this issue. Long-term efforts will focus on reductions in greenhouse gas sources in the county through a comprehensive greenhouse reduction plan for both County operations and the broader area governed by Mendocino County. In the near term, this General Plan identifies energy-reducing policies that will also lower overall CO₂ emissions.

4-6 Energy Resources

Mendocino County primarily relies on imported electricity and natural gas for most of its energy needs. The Development Element of this General Plan discusses the electricity and natural gas supply systems in the county. Two sources of locally produced electricity in the county include:

- PG&E's Potter Valley Project on the Eel River. The Potter Valley Powerhouse is adjacent to Adobe Creek.
- The City of Ukiah also owns a hydroelectric power facility at Coyote Valley Dam/Lake Mendocino, designed to produce three megawatts of power when water flows are adequate.

Nonrenewable energy sources are found in the county or offshore: oil and gas, oil shale, and coal. The economic feasibility of developing these resources and their environmental implications, particularly for air quality and climate change, is challenging. Access to offshore reserves was prohibited until 2008 by federal moratoria; the last moratorium was lifted in 2008, opening the possibility of additional drilling off the Mendocino Coast. However, the County operates under a voter-approved prohibition of on- and off-shore oil and gas facilities (this is reflected in Policy RM-69 in this Element of the General Plan).

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A variety of alternative energy supplies exist in Mendocino County:

- The southeastern corner of the county is within the Geysers-Calistoga Known Geothermal Resource Area. Injection of effluent water from sources in Lake and Sonoma counties is helping to increase reservoir pressure in the Geysers geothermal fields in Lake County.
- Solar and wind power have great potential in many areas of Mendocino County.
- PG&E owns a site at Point Arena that is a possible location for an experimental wind-powered generation machine but could be used for other types of generating facilities (i.e., solar, tidal).
- Wood residue, manure, and agricultural crop wastes can be converted into liquid fuels combusted directly. Alcohol fuel can be produced from wood residues, manure, and plant residue.
- A potential new source of energy is ocean wave. According to a 2005 report by the California Energy Commission, California Small Hydropower and Ocean Wave Energy Resources, the conversion of ocean wave energy along the Mendocino County coast to electricity has a raw production potential of 3,709 megawatts. One megawatt, or one million watts, is roughly equal to the peak power demand of 1,000 homes. By comparison, the peak electrical delivery capacity in California as of 2008 is approximately 55,000 megawatts.) However, the potential impacts of wave energy facilities on the coast's ecosystem remain a concern, and as of 2009, the County is closely watching proposals by PG&E to construct such facilities.
- Although technically not “renewable,” several closed landfills offer the possibility for the short-term recovery of methane, which can be used as an energy source and potential greenhouse gas emission reduction credits.

Facilities and activities using alternative energy sources are not widespread in the county, although several agencies and businesses promote alternative energy. Electric-powered motor vehicle projects have been funded by the Mendocino Council of Governments, the Mendocino County Air Quality Management District, and PG&E public benefit funds. Some ‘off the grid’ construction, most commonly residences, use solar, wind, and other power sources. Wood heat is common in urban and rural areas but leads to air quality impacts and resultant health problems (particularly for children and other sensitive persons).

4-7 Soil and Agricultural Resources

Soil resources in Mendocino County are the basis for local agricultural operations. Agriculture has a significant role in the Mendocino County economy. According to the 2006 Mendocino County Crop Report, the total value of agricultural production, excluding timber, was approximately \$136.7 million. This was a 14 percent increase above the 2005 production value and the second-



Vineyards near Talmage



highest total in the past ten years. Fruit and nut crops accounted for approximately 78 percent of the county's agricultural production value. Most of this value was in wine grapes, with pears accounting for a significant share. Another 10 percent was accounted for by livestock and related products. Mendocino County ranked 35th among California counties in the value of agricultural production⁴.

Agricultural Soils

The Soil Surveys of Mendocino County, Eastern Part (1991) and Western Part (2001), prepared by the U.S. Department of Agriculture, describe soil characteristics, including suitability for agriculture. The following soil series are found in areas of Mendocino County used for non-grazing agriculture:

- **Feliz-Russian soil series.** Most areas of this soil series in the Ukiah Valley are used for irrigated crops. Areas of this unit that are protected from flooding have few limitations for crops.
- **Cole soil series.** This soil is found on alluvial plains and alluvial fans and in basins in Hopland, Covelo, and Potter Valley. It is used mainly for irrigated crops. The area near Covelo is used for hay and pasture. The areas near Hopland and Potter Valley are used mostly for vineyards and orchards. This unit is limited for crops mainly by the slow soil permeability (the ability of water to flow through a soil).
- **Pinole-Yokayo-Redvine soil series.** This soil type is found on terraces of the Ukiah, Redwood, Willits, and Laytonville valleys. Most areas of this unit in the Ukiah and Redwood valleys are used for irrigated crops. Areas in the Willits and Laytonville valleys are used for livestock grazing. The Redvine and Yokayo soils are limited for crops by slow and very slow permeability. The Pinole soils have few limitations for crops.
- **Boontling-Pinole-Cole soil series.** This soil type is found on river terraces and floodplains in the Laytonville and Anderson valleys. This unit's areas are used mainly to produce wine grapes and apples in the Anderson Valley and livestock grazing in the Laytonville Valley. In areas of Boontling and Cole soils that are used for the production of wine grapes and apples, the major limitation is the seasonal saturation of the soils. No significant limitations affect the use of the Pinole soils for the production of wine grapes and apples.

Among the ways the County will seek to preserve agricultural soils is to use more compact development patterns, including the use of multi-story buildings to accommodate needed housing and commercial uses on less land.

Soil Erosion

Areas susceptible to erosion occur throughout the county where surface soils possess low-density and/or low-strength properties. Slopes are another factor in soil erosion – the greater the slope, the greater the erosion hazard, especially if the soil is bare. Most soils in the above soil series have only a slight erosion hazard at slopes less than nine percent, except for Redvine soils, which have a moderate hazard. Soils on 9 percent slopes and greater have a moderate erosion hazard, and soils on slopes greater than 15 percent have a high erosion hazard.

⁴ Note: Although it is recognized that illegal marijuana cultivation is a major industry in the county, the value of this crop is not known and is not included here.

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Geology

The vast majority of the county is underlain by the bedrock of the Franciscan Formation. Thick soil development and landslides very commonly cover the underlying bedrock throughout the county. Due to the weak and deformed nature of the Franciscan rocks, they are prone to deep weathering and the development of thick overlying soils. Soil deposits in swales and on the flanks of slopes commonly contain substantial amounts of clay and weathered rock fragments up to boulder size. These soils can be unstable when wet and are prone to slides. Landsliding of such soils is widespread in Mendocino County, particularly in the eastern belt of the Franciscan Formation beneath the county's eastern portion. Human activities that affect vegetation, slope gradients, and drainage processes can also contribute to landslides and erosion.

4-8 Mineral Resources

Minerals play an essential role in the economy of Mendocino County. Unlike some natural resources, such as timber, minerals are essentially non-renewable.

A variety of mineral resources are known to exist in the county. The most predominant minerals found in Mendocino County are aggregate resources, primarily sand and gravel. Three sources of aggregate materials are present in Mendocino County: quarries, instream gravel, and terrace gravel deposits. For most aggregate uses, rock from each of these sources requires varying amounts of processing. Depending on the site, the processing operations may include site preparation, removal of overburden, blasting, excavation, crushing, screening, classifying, washing, and product batching. Additional processing operations used less frequently are those necessary to develop specialty products and remove various deleterious substances.

The demand for aggregate is typically related to the size of the population, and construction activities, with demand fluctuating from year to year in response to major construction projects, large development activity, and overall economic conditions. After completing U.S. 101 in the late 1960s, the bulk of aggregate production and use shifted primarily to residential and related construction. However, since 1990, use has begun to shift back toward highway construction.

Deposition of sand and gravel along a meander of a stream may occur every year, but this does not mean that the resource is infinitely renewable. The long-term effects of yearly harvesting of sand and gravel resources are largely unknown but have resulted in streambed location and depth changes. Other impacts associated with instream mining include impacts on fishery resources such as reduction in spawning gravel, sediment input into waterways as a result of road construction, impediments to fish migration due to the construction of summer road crossings, and impacts to bridge abutments due to streambed alterations. Instream mining has decreased significantly in Mendocino County in recent years, replaced by increased quarrying and terrace mining permit requests.

4-9 Biological Resources Overview

In many of the biological communities described previously, special plant and wildlife habitats are known as "sensitive habitats." Sensitive habitats include those that are of special concern to resource agencies or those that are protected under CEQA, Section 1600 of the California Fish and Game Code, the California Coastal Act, California Department of Forestry and Fire Protection directives, and Section 404 of the Federal Clean Water Act. Sensitive habitats in Mendocino County include:



- **Serpentine Soils and Rock Outcrops.** Serpentine soils and rock outcrops are common in the northern and eastern portions of Mendocino County. Areas of serpentine or rock-outcrop dominated soils are known to support a large number of special-status species. Vegetation on serpentine and rock outcrop soils can vary drastically from adjacent non-serpentine soils due to the harsh soil conditions existing on these sites. An estimated 90 to 100 plant species are restricted wholly or in large part to serpentine and related soil types in the northern coast ranges of California. A combination of the soil conditions and potential human disturbance (e.g., mining, grazing, logging, recreation, etc.) has led to the listing of special-status species associated with serpentine soils. Although the serpentine and rock inclusions are found in a variety of habitat types, most of the serpentine soils and rock outcrops are found in Klamath mixed conifer forests, closed-cone pine-cypress forests, Douglas fir forests, montane hardwood forests, and chaparral.

- **Pygmy Forest.** A habitat unique to several areas along California's north coast, pygmy forest occurs in the western region of Mendocino County. Climatic and soil conditions and have created a highly specific plant community with limited growth. In the pygmy forests, the soil has been leached of its nutrients, is highly acidic, and is underlain by an iron hardpan. Due to the poor soil conditions, these communities are dominated by dwarf species of plants such as pygmy manzanita, pygmy cypress, Bolander pine, and lichens.



Visitors tower over mature trees in a Pygmy forest

- **Wetlands/Waters of the United States.** Wetlands and waters of the United States are protected under Section 404 of the federal Clean Water Act. They include freshwater and saltwater marshes, seasonal wetlands, lakes, ponds, streams, and rivers. Wetlands are often the most ecologically productive portions of the landscape. Moreover, wetlands provide habitat for many special-status wildlife species, directly affect the habitat of most special-status fish species and provide habitat for some of the special-status plant species in Mendocino County. Wetlands and waters of the U.S. located within Mendocino County may be negatively affected by residential and commercial development and by agricultural and forest management practices. The rivers and streams in Mendocino County, and the wetlands and seasonal drainages that are tributaries to those rivers, are essential fish habitat. Land use activities in the county that affect the volume and quality of surface water runoff may consequently affect the value and production of fish habitat.

- **Old-Growth Forest.** There is no single definition of old-growth forest. Numerous factors, such as stand age, size and density, canopy layers, and the presence of decay in live trees, determine the



classification of old-growth forests. Valued as a source of high-quality timber, these forests also provide critical wildlife habitat and have been seen as crucial components of genetic reserves, biodiversity, climate stabilization, and nutrient cycling. Over two-thirds of the pristine old-growth in northwestern California is in Douglas fir forest. Redwood forests influenced by coastal moisture are also considered key old-growth forests. According to the U.S. Forest Service, most old-growth forests in California are on federal property. Despite the sensitive ecological, political, and economic nature of old-growth forests, these forests are decreasing in size, and management needs to address the amount, distribution, value, use, and quality of these forests in the coming decades. Mendocino County contains many special-status plant and wildlife species. Table 4-A lists special-status plant and wildlife species found in Mendocino County. The biological communities with the highest numbers of special-status species are the forests and aquatic ecosystems, including wetlands and streams, and communities in the coastal zone. They provide habitats for many of the most sensitive and well-known fish, birds, and mammals. The biological communities with the least number of special-status species are the grassland, urban, and agricultural communities. However, within these broad categories, there are sensitive habitats such as wetlands and serpentine soils that support a variety of special-status species.

4-10 Freshwater and Marine Resources

Coho salmon, Chinook salmon, and steelhead trout habitats are found in large portions of Mendocino County. The status of these and other species is of concern to federal, state, and local resource agencies. The primary threats to these species include sedimentation caused by erosion in the watersheds, high water temperatures exacerbated by the loss of riparian cover, invasive plants and fish, and blockage of fish passage due to incorrectly designed and installed culverts and dams. Moreover, predation of juvenile salmonids by invasive fish and the illegal harvest of adult salmonids are intensified in fish blockage areas because they cannot escape as easily. Since all land use activities have the potential to impact water quality and other downstream resources, these impacts will be considered during the process of planning and designing land use and development.

Amphibians are negatively impacted by the direct loss of habitat, particularly wetlands and forests, habitat

Special-Status Species



Point Reyes Checkerbloom

As defined in this General Plan, special-status species include:

- Species listed under the federal Endangered Species Act and the California Endangered Species Act.
- Species on the list of “Species of Special Concern” developed by the California Department of Fish and Game (CDFG). The list tracks species in California whose numbers, reproductive success, or habitat may be threatened.
- Species on the California Native Plant Society (CNPS) list of plant species native to California that have low numbers, limited distribution, or are otherwise threatened with extinction.
- Raptors (birds of prey), migratory birds, and other bird species protected by the Federal Migratory Bird Treaty Act, Section 3503.5 of the California Fish and Game Code, and other regulations.



degradation in the form of water quality impacts, and the loss of migration corridors. Some amphibian species are heavily preyed upon by bullfrogs, an invasive species that may be spread inadvertently when ditches and ponds are constructed.



**TABLE 4-A
SPECIAL-STATUS SPECIES IN OR POTENTIALLY OCCURRING
IN MENDOCINO COUNTY⁵**

Plants		
North Coast sand-verbena*	Round-headed Chinese houses*	Milo Baker's lupine
Blasdale's bent grass*	Mendocino (=pygmy) cypress	Mendocino bush-mallow
McDonald's rock-cress	Snow Mountain willowherb	Northern microseris
Sonoma manzanita	Oregon fireweed	Baker's narvarretia
Pygmy manzanita	Supple daisy	Northern adder's tongue
Hopland (=Raiche's) manzanita	Red Mountain (=Kellogg's) buckwheat	Gairdner's yampah
Marsh sandwort	Menzies's wallflower*	North Coast phacelia*
Marsh milkvetch	Stinkbells	Bolander's pine
Point Reyes blennosperma	Roderick's fritillary	Mayacamas popcorn-flower†
Small groundcone	Mendocino gentian	Northcoast semaphore grass
Thurber's reed grass	Yarrow-leaf (=manyleaf, dark-eyed) gilia*	Nuttall's pondweed
Swamp harebell	American manna grass	Dwarf alkali grass
California sedge	Glandular dwarf-flax (=western flax)	Great burnet
Livid sedge	Bolander's horkelia	Red Mountain stonecrop
Deceiving sedge	Point Reyes horkelia*	Point Reyes checkerbloom
Green sedge	Thin-lobed horkelia	Maple-leaved checkerbloom
Oregon coast Indian paintbrush*	Water howellia	Marsh checkerbloom
Humboldt Bay owl's-clover	Burke's goldfields	Red Mountain catchfly (=campion)
Mendocino coast Indian paintbrush*	Contra Costa goldfields	Seashore (=coast, =beach) starwort*
Rincon Ridge ceanothus	Colusa layia	Dune (=camphor) tansy*
Vine Hill ceanothus	Stebbins' lewisia	Beaked tracyina
Howell's spineflower*	Coast lily	Showy indian clover
Whitney's clarkia (=Whitney's farewell-to-spring)	Western lily	Marsh violet
Davy's clarkia	Baker's meadowfoam	
	Anthony Peak lupine	
Wildlife		
Invertebrates		
Sandy beach tiger beetle	Leech's skyline diving beetle	Scaphinotus behrensi (ground beetle – no common name)
Brownish dubiraphian riffle beetle	Lotis blue butterfly	
Black abalone*	Behren's silverspot butterfly*	
Pomo bronze shoulderband snail	California freshwater shrimp	

⁵ For more information on these species, including their scientific names, please see the Environmental Impact Report prepared for the General Plan Update.

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Wildlife		
Amphibians and Reptiles		
Tailed frog	Northwestern pond turtle	California red-legged frog
Loggerhead turtle*	Leatherback turtle*	Foothill yellow-legged frog
Green turtle*	Del Norte salamander	Southern torrent (seep) salamander
Olive ridley sea turtle*	Northern red-legged frog	
Fish		
Green sturgeon	Navarro roach	Northern California steelhead
Tidewater goby	Gualala roach	Summer-run steelhead trout
Russian River tule perch	Coho salmon – central CA coast	California coastal chinook salmon
River lamprey	Coho salmon, So OR/No CA	
Pacific lamprey	Central California Coastal steelhead	
Mammals		
Point Arena mountain beaver	Steller (=northern) sea-lion*	Long-eared myotis bat
California red tree vole	California wolverine	Fringed myotis bat
Pale big-eared bat	American (=pine) marten	Long-legged myotis bat
Pacific western big-eared bat	Pacific fisher	Yuma myotis bat
Birds		
Northern goshawk	Hermit warbler	Lewis' woodpecker
Tricolored blackbird	Yellow warbler	Long-billed curlew
Grasshopper sparrow	Short-tailed albatross*	Ashy storm-petrel*
Short-eared owl	Snowy egret	Osprey
American bittern	White-tailed kite	California brown pelican*
Marbled murrelet	American peregrine falcon	Purple martin
Aleutian Canada goose	Tufted puffin*	Bank swallow
Rhinoceros auklet*	Common loon	Rufous hummingbird
Vaux's swift	Bald eagle	Allen's hummingbird
Western snowy plover	Yellow-breasted chat	Northern spotted owl
Olive-sided flycatcher	Loggerhead shrike	California thrasher

Notes:

* Restricted to coastal or marine habitat. The County's Coastal Element contains policies to protect coastal species.

† Believed extinct.

Source: Background Report for the County of Mendocino General Plan Update, January 2003.



Some of the special-status species potentially occurring in Mendocino County: Coho salmon, Western lily, marbled murrelet



4-11 Forest Resources

As described in the Development Element, approximately 46 percent of Mendocino County is in National Forest land managed by the U.S. Forest Service or in private Timber Protection Zones. Other forests are located on land managed by the Bureau of Land Management and other public agencies. Historically, Mendocino County has been one of California's leading counties in timber production. However, harvest volumes in Mendocino County have been decreasing since the mid-1950s, reflecting the conversion of old-growth forests to younger stands of timber and reliance on smaller trees. Increasingly stringent enforcement of regulatory requirements under the Endangered Species Act, State Water Resources Control Board rules, and the Timber Harvest Plan process has further affected the industry, along with protest of logging practices in State and National Forests, increased scrutiny, and litigation. More recently, the influence of global markets has affected timber prices and consequently harvest rates.



Forested area near the Anderson Valley

Timber harvest in the county in 2005 was 120,841,000 board feet with a market value of \$89,441,000 (**Table 4-B and Figure 4-3**), which decreased to 103,031,000 board feet valued at \$74,594,400 in 2007. The decrease in harvest yields essentially represents 100 percent extraction from private lands because of the California Department of Forestry and Fire Protection's inability to harvest timber from the Jackson Demonstration State Forest. Mendocino County was ranked fifth among California counties in 2006 in timber harvest, behind Humboldt, Siskiyou, Shasta, and Plumas counties. However, it ranked second in total timber value due to the high value of redwood. The most productive timber forests in Mendocino County are the Douglas fir and redwood forests. The combined effects of soils and climate have created conditions that produce high growth rates for both species.

The United States Forest Service's forest inventory and analysis program updated the forest inventory data for Mendocino County in 2007. The Forest Service data shows that the net saw log volume of stock for the two primary growing species (redwood and Douglas fir) in Mendocino County is more than 15-billion board feet. This is a 4.5-billion board foot increase over the 1994 inventory. Currently (2009), the County has four operating sawmills with an approximate combined capacity of less than 100-million board feet per year. Without additional sawmill capacity, the county will potentially be a log exporter. Both Sonoma and Humboldt counties have sawmills that rely on Mendocino County logs. Additional counties receiving logs produced in Mendocino County include Trinity, Shasta, and Placer.



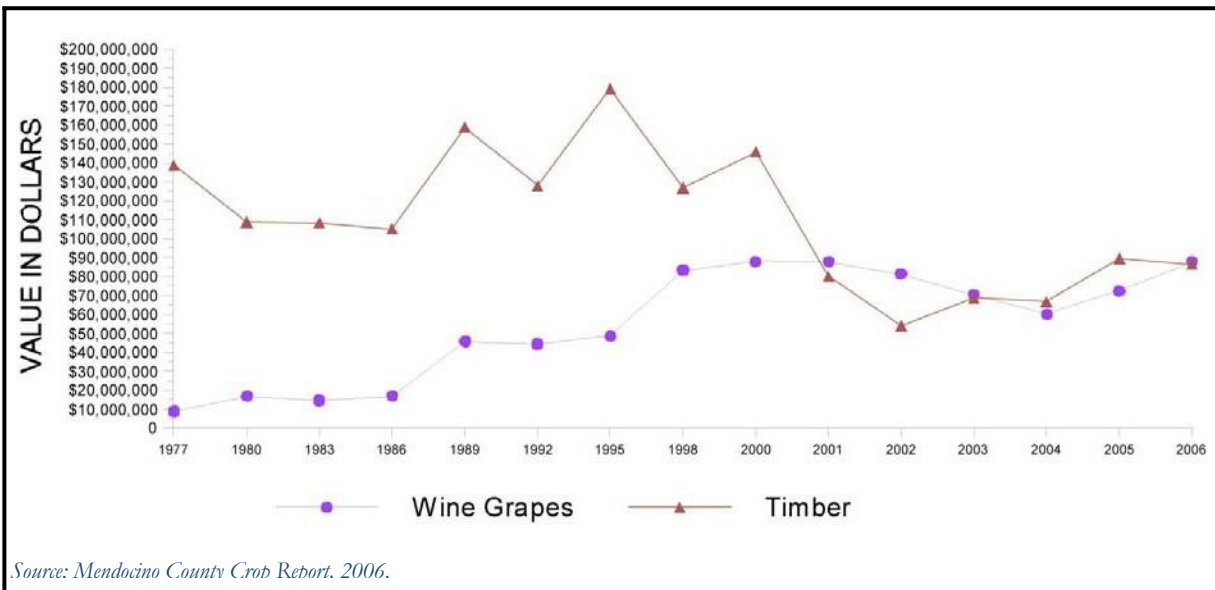
TABLE 4-B
MENDOCINO COUNTY TIMBER HARVEST, 2000-2006

Year	2000	2001	2002	2003	2004	2005	2006	2007	Average Annual Harvest
Timber Harvest (1000 board feet)	156,101	117,596	97,722	112,568	109,548	120,841	110,168	103,031	115,947

Notes: "Board feet" is the quantity of timber cut and scaled. Source: Mendocino County Crop Report, 2006.

When compared to other harvested products, timber has made a relatively reduced contribution to the total value of output. According to the county's 2006 crop report, while the dollar value of timber harvests was approximately \$86.5 million, the county's fruit and nut production value was approximately \$106.7 million. The value of one fruit product—wine grapes—was greater than that for timber. **Figure 4-3** shows the trends in the dollar value of production for timber and wine grapes.

FIGURE 4-3
VALUE OF TIMBER AND WINE GRAPE HARVEST IN MENDOCINO COUNTY, 1977-2006





The forests of Mendocino County have other uses and values, including recreation, tourism, watershed protection, habitat conservation, special-status species recovery areas, scenic value, harvesting of non-timber resources, and carbon sequestration.

While there is debate, both scientific and political, on sustainable management practices for forests, this General Plan is based on the premise that addressing human and biological communities' needs and requirements are critical in evaluating management practices for Mendocino County. Historically, the economic foundation of the county has been based on the extraction of its natural resources. The use of these natural resources will continue to be a vital element to the county's economic well-being. The use of sustainable management practices will be key to minimizing conflicts and maximizing the potential benefits to the county. Providing for economic development, limiting erosion; protecting watersheds, special-status species, and sensitive habitats; reducing conflicts between residents and resource areas; and limiting the potential for wildfires are important considerations in the sustainable management of Mendocino County forests.

4-12 Open Spaces, Rural Landscapes, and Scenic Resources

As discussed in this element and in Chapter 3.0, the Development Element, Mendocino County is a predominantly rural county. Most of the land in the county is in forest or in agricultural production. Both forest and agricultural lands are considered open spaces that add to the quality of life of county residents and attract tourists. The various state and county parks protect areas with scenic value, particularly redwood groves. The coast is considered a scenic resource, and policies in the County's Coastal Element are designed to protect its scenic value. Some ecological communities in the county provide unique scenic value, most notably the pygmy forests.

- Many open spaces and scenic areas in Mendocino County are protected under easements managed by land trusts. The number of land trusts with interests in Mendocino County has significantly increased in recent years. Those with a local focus or known to be active in the county as of 2007 include. Anderson Valley Land Trust: Preservation and restoration of the rural landscape with an emphasis on the Navarro River watershed. Twenty conservation easements totaling more than 1,300 acres.

Land Trusts



Land trusts or conservancies are nonprofit public-benefit corporations that work to conserve natural resources through education, planning, site-specific projects, or acquisition of land in fee title, conservation easements or by other means. Voluntary conservation easements recorded between the land trust and property owner restrict development rights to the extent necessary to protect biological, ecosystem, watershed, agricultural, forestry, open space, visual, public recreation or access, cultural or historic values. The land trust has the responsibility to preserve those conservation values set forth in the easement. Financial incentives for landowners are provided by the Taxpayer Relief Act of 1997 and other laws and funding sources. While conservation easements do not require local governmental approval, occasionally they have been incorporated into projects to reduce development impacts.



-
- California Institute of Man in Nature: Jug Handle Farm and Nature Center south of Fort Bragg.
 - Caspar Community: Community planning to conserve resources and facilitate public access in the Caspar area; was involved in the acquisition of Caspar Headlands.
 - Comptche Land Conservancy: Preservation and protection of conservation values, i.e., healthy forest ecosystem, wildlife habitat, watershed, and viewshed in the Comptche environs. Two conservation easements, 50 and 120 acres, reserving commercial timber rights to owners.
 - Coastal Land Trust: Manages two dedicated easements for trails to the Pacific Ocean from Navarro Viewpoint, north of Albion; owns two parcels at Seaside Beach, north of Ten Mile River.
 - Golden State Land Conservancy: Four conservation easements, 6,000+ acres, Mendocino County.
 - Inland Mendocino County Land Trust: One conservation easement, 187 acres, Redwood Valley. Emphasis on farmlands.
 - Mendocino Land Trust: 10 conservation easements totaling 3,501 acres in Willits, Hopland, Anderson Valley, the South Coast, and Albion. There are 7,334 acres protected by the Land Trust at Big River, 74 acres at Caspar Headlands, and 37 acres at Glass Beach were conveyed to California State Parks. Two acres, Heider Field in Mendocino Village, are managed under an operating agreement with State Parks. Fifty-five acres are owned and managed at Navarro Point for botanical resources and coastal access. Seventy-five acres are owned and managed at Caspar Beach and the Caspar South uplands. Seven acres of coastal access easements are managed at Cantus Cove, Belinda Point, the Mendocino Bay Viewpoint, and Navarro Harbor. The Land Trust holds 21 offer-to-dedicate coastal access easements.
 - Moat Creek Managing Agency: Accepted two offers to dedicate land at a bluff south of Point Arena.
 - Pacific Forest Trust: Conservation easements on 10,765 acres in Mendocino County, including Sinkyone Wilderness Park and Leonard Lake Reserve.
 - Redwood Coast Land Conservancy: Coastal areas, Navarro River to Russian River, Sonoma County.
 - Westport Village Society: Westport community and Headlands assisted in Headland's acquisition. Interest in the area from Ten Mile River to Rockport.



The County’s Scenic Highways Element, adopted in 1977, recommended the designation of SR 1 through the county and SR 162 from Longvale to Inspiration Point as official state scenic highways upon completion of corridor studies to characterize scenic qualities and corridor boundaries. Several communities also recommended local protection of the natural character of their scenic corridors. The Laytonville community proposed local scenic highway designation on several roads in the area, while Anderson Valley citizens desired local ordinances to ensure scenic protection of the valley. However, as of 2007, no scenic designations had been adopted for any roads or highways in Mendocino County. Two State Scenic Byways pass through the forests of Mendocino County: the North Central Coast Heritage Corridor on SR 1 and the Tahoe-Pacific Heritage Corridor encompassing sections of SR 20 and U.S. 101.



The Eel River was designated as both a federal and California Wild and Scenic River, one of several rivers in the state “which possess extraordinary scenic, recreational, fishery, or wildlife values” and are to be “preserved in their free-flowing state, together with their immediate environments, for the benefit and enjoyment of the people of the State.”⁶ The State Resources Agency has not prepared a management plan.

4-13 Dark Sky

“Dark sky” refers to a sky that is free (or relatively free) of human-made lighting. Proponents of “dark sky” regulations point out the many benefits of reducing the upward spread of light, including conserving energy, reducing glare, maintaining rural community character, safeguarding wildlife in their natural environment, and restoring the view of the starry night sky⁷. By focusing and directing light, lighting fixtures designed to improve the dark sky can also result in cost savings.

⁶ Quoted from the California Wild and Scenic Rivers Act (1972)

⁷ Source: Dark Sky Society, at www.darksksociety.org



Resource Management Goals

The following are the County of Mendocino's Goals related to the topics addressed in this Resource Management Element. These Goals are based on the Planning Principles contained in Section 2 of this General Plan; all of the Policies and Objectives in this Element are in turn based on these Goals.

- | | |
|---|---|
| Goal RM-1 (Watersheds) | Land uses, development patterns, and practices that facilitate functional and healthy watershed ecosystems. |
| Goal RM-2 (Water Supply) | Protection, enhancement, and management of the water resources of Mendocino County. |
| Goal RM-3 (Water Quality) | Land use development and management practices that protect or enhance water quality. |
| Goal RM-4 (Ecosystems) | Protection and enhancement of the county's natural ecosystems and valuable resources. |
| Goal RM-5 (Ecosystems) | Prevent fragmentation and loss of the county's oak woodlands, forests, and wildlands and preserve their economic and ecological values and benefits. |
| Goal RM-6 (Air Quality) | Air quality throughout Mendocino County that meets or exceeds all state and federal standards for all persons. |
| Goal RM-7 (Biological Resources) | Protection, enhancement, and management of the biological resources of Mendocino County and the resources upon which they depend in a sustainable manner. |
| Goal RM-8 (Marine Resources) | Protection and restoration, and enhancement of Mendocino County's freshwater and marine environments. |
| Goal RM-9 (Energy) | Safe and reliable energy sources emphasizing conservation and renewable sources to meet Mendocino County and regional needs. |
| Goal RM-10 (Agriculture) | Protection of agriculture as a primary industry essential to the economy and quality of life and food security of the county by maintaining extensive agricultural land areas and limiting incompatible uses. |
| Goal RM-11 (Forestry) | To protect and enhance the county's diverse forest resources for all uses, including timber harvest. |
| Goal RM-12 (Soil Resources) | Protection, enhancement, and management of the soil resources of Mendocino County. |
| Goal RM-13 (Mineral Resources) | Mineral resources conserved and used in a manner compatible with environmental, social, and economic objectives. |
| Goal RM-14 (Visual Character) | Protection of the visual quality of the county's natural and rural landscapes, scenic resources, and areas of significant natural beauty. |

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Goal RM-15 (Dark Sky)

Protection of the qualities of the county's nighttime sky and reduced energy use.

Resource Management Policies

The following are the County of Mendocino's Development policies related to the topics addressed in this Resource Management Element. These policies implement the goals shown earlier in this Element and are accompanied by specific actions to implement the policy. Policies in this Element address the following general topics:

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Water Resources

Watershed Policies

Policy RM-1: Protect stream corridors and associated riparian habitat.

Action Item RM-1.1: Require adequate buffers for all projects potentially impacting stream corridors and/or their associated riparian habitat.

Policy RM-2: Promote and participate in watershed restoration and enhancement projects.

Policy RM-3: Work cooperatively with property owners, agencies, and organizations to develop and support programs that maintain the integrity of stream systems for flood control, aquatic habitat, and water supply.

Policy RM-4: Promote and support public outreach and education programs pertaining to watershed and water resources stewardship.

Action Item RM-4.1: Develop a Riparian Systems Management Plan to facilitate coordination and cooperation between organizations and individuals responsible for the diverse functions – flood control, stormwater management, groundwater stewardship, aquatic habitat protection/enhancement – occurring in watersheds throughout the county.

Policy RM-5: Promote and encourage land-use activities that maintain or improve channel elevation and banks for rivers and streams in the county.

Water Resources Policies

Policy RM-6: Promote sustainable management and conservation of the county's water resources.

Action Item RM-6.1: Develop and implement a methodology to determine the supply and water use in all the county's watersheds.

Action Item RM-6.2: Use the Water Management Initiative as a forum and avenue for greater focus on water resources and coordination among all water users in the county.

Action Item RM-6.3: Develop and implement (in cooperation with the State of California) standards for gray water and rainwater harvest systems.

Policy RM-7: Promote the incorporation of efficient indoor plumbing fixtures in new development and redevelopment. Where appropriate, promote drought-tolerant landscaping and the implementation of other water conservation best management practices.

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Action Item RM-7.1: Develop a list of drought-tolerant landscaping plants, and make this available to the public, landscape contractors, and the development community.

Policy RM-8: The County will demonstrate leadership in water conservation by including water-saving plumbing and landscaping at all County facilities and reducing its water use to the extent possible.

Action Item RM-8.1: The County will demonstrate leadership in energy conservation and renewable energy by including energy-saving design and equipment at all County facilities and reducing its energy use to the greatest extent possible.

Policy RM-9: The development and implementation of new water-conserving technologies should be encouraged as a means of reducing water demands.

Policy RM-10: Continue to seek and advocate for dependable water resources necessary to support all sectors of the economy and other beneficial uses.

Policy RM-11: Work with local, state, and federal agencies and organizations to develop and protect water supplies in a manner that is consistent with adopted General Plan policies, recognizing sustainable yields and protections for the environment. The County will:

- Promote and support the development of water storage facilities.
- Promote wastewater reclamation and reuse for irrigation, landscaping, and other appropriate uses.
- Support detailed water supply yield studies of all significant groundwater basins in the county.
- Protect existing groundwater recharge areas from sediment, chemical inputs, and other negative effects of development.
- Promote the formation of groundwater management areas by existing water districts or by the County, where the competition for the available groundwater resource is resulting in lowering water tables.
- Investigate and pursue opportunities to prevent the loss of existing water supplies, including the Eel River diversions through the Potter Valley Project.
- Work with the State Department of Water Resources to finalize the State's "Instream Flow Policy."

Policy RM-12: The County supports the creation of a comprehensive plan for surface and groundwater resources in Mendocino County. The comprehensive plan should include the following components:

- Prioritizing watersheds for detailed analysis, based on unmet needs.
- Groundwater assessments.



- Assessing existing surface water resources, including water quality and instream flows.
- Creating a centralized database of water-related permits.
- Creating a centralized source of information about water-related programs.
- Identifying County departments and personnel who will work with state and federal agencies on water issues.

Policy RM-13: Local water resources should be reserved for in-county use.

Policy RM-14: Existing water uses shall have priority over new water uses.

Policy RM-15: Maximize the use of existing water supplies while proceeding with the development of new water supplies.

Policy RM-16: The County will cooperate with other agencies, including the State of California Department of Water Resources, to halt illegal diversions of water from streams and rivers.

Policy RM-17: No development shall be allowed by the County beyond proof of the capability of the available water supply.

Policy RM-18: No division of land or Use Permit shall be approved without proof of an adequate (as defined by the County Environmental Health Division) potable water supply for each parcel being created or proposed for special use.

Note to the Reader: Please see Policies DE-121 and DE-191 for the County's policy regarding the coordination of water supply with development.

Water Quality Policies

Policy RM-19: Promote the incorporation of project design features that will improve water quality by minimizing impervious surface areas, maximizing on-site retention of stormwater runoff, and preserving existing vegetation to the extent possible. Examples include:

- Using Low Impact Development (LID) techniques.
- Updating the County's Building Codes to address "green" building and LID techniques that can reduce pollution of runoff water and promoting these techniques.

Policy RM-20: Require integration of stormwater best management practices, potentially including those that mimic natural hydrology, into all aspects of development and community design, including streets and parking lots, homes and buildings, parks, and public landscaping.

Policy RM-21: Promote and support agricultural best management practices that protect or enhance surface and groundwater quality.

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Policy RM-22: Support public and private programs to reduce water contamination and improve the water quality in county rivers and streams, specifically those that do not meet federal water quality standards.

Policy RM-23: The County shall work with other responsible regulatory agencies to prevent the discharge or threatened discharge of sediment from any activity in amounts harmful to beneficial uses of the water.

Biology and Ecology Resources

Ecosystems Policies

Policy RM-24: Protect the county's natural landscapes by restricting conversion and fragmentation of timberlands, oak woodlands, stream corridors, farmlands, and other natural environments.

Policy RM-25: Prevent fragmentation and loss of our oak woodlands, forests, and wildlands and preserve the economic and ecological values and benefits.

Policy RM-26: Protect, use, and manage the county's farmlands, forests, water, air, soils, energy, and other natural resources in an environmentally sound and sustainable manner.

Policy RM-27: Conserve, restore and enhance natural resources, sensitive environments, and ecological integrity.

Action Item RM-27.1: Identify and maintain wildlife movement corridors to support biodiversity and healthy natural processes.

Policy RM-28: All discretionary public and private projects that identify special-status species in a biological resources evaluation (where natural conditions of the site suggest the potential presence of special-status species) shall avoid impacts to special-status species and their habitat, to the maximum extent feasible. Where impacts cannot be avoided, projects shall include the implementation of site-specific or project-specific effective mitigation strategies developed by a qualified professional in consultation with state or federal resource agencies with jurisdiction (if applicable) including, but not limited to, the following strategies:

- Preservation of habitat and connectivity of adequate size, quality, and configuration to support the special-status species. Connectivity shall be determined based on the specifics of the species' needs.
- Provision of supplemental planting and maintenance of grasses, shrubs, and trees of similar quality and quantity to provide adequate vegetation cover to enhance water quality, minimize sedimentation and soil transport, and provide adequate shelter and food for wildlife.



- Provide protection for habitat and the known locations of special-status species through adequate buffering or other means.
- Provide replacement habitat of like quantity and quality on- or off-site for special-status species.
- Enhance existing special-status species habitat values through restoration and replanting of native plant species.
- Provision of temporary or permanent buffers of adequate size (based on the specifics of the special-status species) to avoid nest abandonment by nesting migratory birds and raptors associated with construction and site development activities.
- Incorporation of the provisions or demonstration of compliance with applicable recovery plans for federally listed species.

Action Item RM-28.1: The County shall develop CEQA standards that require disclosure of impacts to all sensitive biotic communities during a review of discretionary projects. These standards shall require the following mitigation:

- **Sensitive Biotic Communities** – For all sensitive biotic communities, restore or create habitat at a no net loss standard of habitat value lost. Where it is determined that restoration or creation are ecologically infeasible, preserve at a 2:1 ratio for habitat loss.
- **Oak Woodland** – Maintain and improve oak woodland habitat to provide for slope stabilization, soil protection, species diversity, and wildlife habitat through the following measures:
 - To the maximum extent possible, preserve oak trees and other vegetation that occur near the heads of drainages or depressions to maintain the diversity of vegetation type and wildlife habitat as part of agricultural projects.
 - Comply with the Oak Woodlands Preservation Act (PRC Section 21083.4) to conserve the integrity and diversity of oak woodlands, and retain, to the maximum extent feasible, existing oak woodland and chaparral communities and other significant vegetation as part of residential, commercial, and industrial approvals.
 - Provide appropriate replacement of lost oak woodlands or preservation at a 2:1 ratio for habitat loss.

Policy RM-29: All public and private discretionary projects shall avoid impacts to wetlands if feasible. If avoidance is not feasible, projects shall achieve no net loss of wetlands, consistent with state and federal regulations.

Policy RM-30: Individual development projects and conversions from rangeland to intensive agriculture should retain movement corridor(s) adequate (both in size and in habitat quality) to allow for continued wildlife use based on the species anticipated to use the corridor and maintain

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compatibility with adjacent uses.

Policy RM-31: For the purposes of implementing this General Plan, the County defines “special status species” and “sensitive biotic communities” to include all species and habitat identified as such by the California Department of Fish and Game, U.S. Fish and Wildlife Service, or NOAA Fisheries.

Policy RM-32: Use conservation and open space easements, growth boundaries, tax incentives, and other tools to:

- Protect, restore, and enhance significant resource values.
- Reduce premature conversion of resource lands in and around community areas.
- Provide linkages between natural resource areas.

Policy RM-33: Reduce development of open space and agricultural land by encouraging multistory buildings.

Policy RM-34: Protect and enhance watershed ecosystems by supporting and integrating local, state, and federal requirements avoiding regulatory duplication.

Action Item RM-34.1: Advocate education, technical and financial assistance, collaboration, and best management practices to protect, enhance, and manage the county’s watershed, earth, and biological resources.

Policy RM-35: The County shall protect open coastal dune habitat by conducting habitat restoration and maintaining the ecosystem in coordination with the North Coast Integrated Regional Water Management Plan.

Action Item RM-35.1: The County shall develop a Coordinated Dune Ecosystem Management Plan that includes the following:

- Coordinated restoration efforts
- Regional permitting for development
- Providing a forum for public input and discussion on dune issues
- Development of scenarios for the protection and acquisition of unprotected, high-priority lands
- Education, signage, and public outreach to residents and recreationists, including trail coordination and development
- Monitoring and enforcement

Air Quality Policies

Policy RM-36: The County shall work to maintain ‘attainment status’ for state and federal air quality standards that are currently met and work toward attainment for currently exceeded standards.



Action Item RM-36.1: Work with the Mendocino County Air Quality Management District, Mendocino County Solid Waste, and fire agencies to reduce outdoor burning impacts on populated areas.

Action Item RM-36.2: Continue to refer complaints about fumes, smoke, dust and other potential stationary or non-point airborne pollutants to Mendocino County Air Quality Management District for investigation.

Action Item RM-36.3: Continue to participate in regional planning activities to maintain air quality goals and standards.

Action Item RM-36.4: Work with local and regional agencies in the North Coast Air Basin and in northern Sonoma County to monitor and reduce the creation of ozone that could be carried by air currents into southern Mendocino County.

Policy RM-37: Maintain Federal Clean Air Act, Class 1 air quality standards in Federal Wilderness Areas and work to reduce out-of-county transport of significant pollution that will impact other Class 1 areas.

Policy RM-38: Public and private development shall not exceed the Mendocino County Air Quality Management District emissions standards.

Policy RM-39: The County shall work to reduce or mitigate particulate matter emissions resulting from development, including emissions from wood-burning devices.

Policy RM-40: The County shall encourage the use of heating devices that reduce particulate emissions.

Policy RM-41: The County shall review all proposed wood heating devices to ensure they comply with Mendocino County Air Quality Management District regulations.

Action Item RM-41.1: Urge the Mendocino County Air Quality Management District to create incentive programs to install or retrofit Environmental Protection Agency EPA- certified wood-burning devices or gas fireplaces in place of traditional fireplaces and older wood-burning devices.

Policy RM-42: Reduce dust generation from unpaved roads.

Action Item RM-42.1: Adopt road standards that reduce dust and other impacts from unpaved roads.

Action Item RM-42.2: Consider imposition of an impact fee for development utilizing unpaved roads dedicated to funding projects that reduce particulate matter emissions (i.e.,

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paving or dust-suppression).

Action Item RM-42.3: Work with agencies and organizations to develop programs to improve and reduce emissions from unpaved roads.

Policy RM-43: Direct new development to community areas and limit development of rural resource lands.

Policy RM-44: Reduce the effects of earth-moving, grading, clearing, and construction activities on air quality.

Action Item RM-44.1: Continue to inform applicants about Mendocino County Air Quality Management District dust control and grading requirements.

Policy RM-45: New development should be focused within and around community areas to reduce vehicle travel.

Action Item RM-45.1: Implement transit-, bicycle-, and pedestrian-oriented land use and site design strategies.

Policy RM-46: Encourage the use of alternative fuels, energy sources, and advanced technologies that result in fewer airborne pollutants.

Policy RM-47: Reduce or eliminate exposure of persons, especially sensitive populations, to air toxins.

Policy RM-48: Minimize the exposure of sensitive uses, such as residences, schools, daycare, group homes, or medical facilities, to industrial uses, transportation facilities, or other sources of air toxins.

Action Item RM-48.1: Support the Mendocino County Air Quality Management District in their efforts to implement incentive programs for local businesses to retrofit or modify facilities, vehicles, and equipment to reduce diesel exhaust and ozone precursor emissions.

Policy RM-49: Reduce potential health hazards from disturbance in areas classified as likely to contain Naturally Occurring Asbestos (NOA).

Action Item RM-49.1: Work with the Mendocino County Air Quality Management District to enforce development standards within areas likely to contain Naturally Occurring Asbestos, including road construction, surface mining, and grading operations.

Policy RM-50: Prohibit new road construction through areas with known Naturally Occurring Asbestos when feasible alternative transportation modes or routes are available.

Policy RM-51: Mendocino County acknowledges the real challenge of climate change and will implement existing strategies to reduce greenhouse gas emissions and incorporate future measures that the State adopts in the coming years.



Action Item RM-51.1: Inventory existing and historical sources of greenhouse gas emissions in Mendocino County. Coordinate those efforts with other jurisdictions to ensure completeness and avoid unnecessary duplication.

Action Item RM-51.2: Create a greenhouse gas reduction plan for the county's unincorporated areas that sets specific reduction strategies and targets to meet.

Action Item RM-51.3: Reduce Mendocino County's greenhouse gas emissions by adopting measures that reduce fossil fuel energy resources consumption.

Policy RM-52: The County shall seek to improve the quality of indoor air by promoting techniques such as:

- The use of low-VOC-emitting building materials.
- The use of passive solar design for natural light and heating (to reduce the use of heating systems).
- Make information available on methods to reduce mold growth.

Energy Resources

Energy Resources Policies

Policy RM-53: Identify, map, and protect resources and areas that may provide energy production opportunities, such as geothermal reserves and solar easements.

Policy RM-54: Encourage the installation of solar or other renewable energy systems to adequately address year-round need.

Action Item RM-54.1: Amend the Zoning Code to allow exceptions from height limits or other restrictions to accommodate solar heating or electrical systems.

Action Item RM-54.2: Consider adopting reduced fees for solar heating or electrical systems to encourage their installation.

Policy RM-55: Encourage research and development of distributed, renewable energy sources to meet current and increasing energy demands.

Action Item RM-55.1: Inventory and/or map solar, wind, tidal, geothermal, methane/landfill gas, biomass/biofuel, and micro-hydro resources.

Action Item RM-55.2: Encourage investment in distributed renewable energy resources either through incentives offered to commercial developers or under the Community Choice Aggregation model.

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Action Item RM-55.3: Review all County, State, and federal law, codes, or policies that restrict the placement of distributed energy generating devices in the county and suggest changes wherever those restrictions are not supported by health, safety, or environmental concerns or where new technologies have rendered past concerns obsolete.

Action Item RM-55.4: Ensure that CC&Rs for new development projects comply with County policies supporting the use of alternative energy sources such as solar or wind power and do not preclude the installation of these facilities.

Action Item RM-55.5: Consider offering low-interest loans to improve the energy efficiency of homes or to install solar electricity or water heating systems.

Policy RM-56: Require the incorporation of energy conservation and renewable energy sources for public, residential, educational, institutional, commercial, and industrial facilities and uses.

Action Item RM-56.1: Incorporate renewable energy opportunities into new County facilities and retrofit existing facilities.

Action Item RM-56.2: Periodically conduct energy audits of County facilities and operations and implement energy conservation measures.

Policy RM-57: Require the incorporation of strategies for renewable energy and energy conservation into development planning, design, and operation, such as:

- Subdivision, lot orientation and building design for optimal heating, cooling and cogeneration opportunities, including passive solar heating.
- Increasing the amount of tree cover to provide shade during the hot summer months.
- Facilities and operations that accommodate the use of alternative and renewable energy transportation modes.

Action Item RM-57.1: Create a timetable for all future structures to meet specific renewable energy standards to gain approval and permits.

Action Item RM-57.2: Determine a feasible transition to renewable energy use by all future development projects. (This work may be combined with the responsibilities of a Green Building Task Force.)

Policy RM-58: High density residential and intense non-residential land uses should be located in areas that minimize transportation energy consumption and/or increase alternatives to single-occupant automobiles.

Policy RM-59: Promote transportation modes and systems that are energy-efficient, incorporate renewable energy sources, and increase alternatives to single-occupant automobiles.



Policy RM-60: The County shall work with Pacific Gas and Electric Company and other utility providers to reduce the electrical power system's vulnerability.

Action Item RM 60.1: The County shall coordinate with local and regional utility providers to ensure that areas below and adjacent to power lines are kept clear of plant matter and other accumulated debris.

Action Item RM-60.2: The County shall collaborate with local and regional utility providers to conduct regular evaluations and retrofits of energy transmission and delivery infrastructure.

Action Item RM-60.3: The County shall work with utility providers to underground electrical power lines throughout the County.

Policy RM-61: The County shall reduce barriers to ensuring homes and commercial buildings have resilient energy systems.

Action Item RM-61.1: The County shall update the Mendocino County Code to incentivize the installation of renewable backup energy in homes and commercial buildings.

Action Item RM-61.2: The County shall explore grant funding opportunities to support renewable backup energy systems, prioritizing battery storage systems wherever possible.

Action Item RM-61.3: The County shall require new homes to be built compatible with the installation of solar and electric vehicle charging stations.

Action Item RM-61.4: The County shall work with Sonoma Clean Power, Pacific Gas and Electric Company, and other utility providers to educate residents and businesses about energy conservation and renewable energy options.

Soil Resources

Soil Resources Policies

Policy RM-62: Promote soil conservation practices by public and private landowners and managers.

Policy RM-63: Improve the understanding and use of soil conservation tools, including soil models and Natural Resource Conservation Service (NRCS) soils surveys, during the development process.

Policy RM-64: Development shall be located, designed, constructed, and managed as follows to protect soil resources and minimize soil loss and erosion:

- Slopes over 15 percent: Limit land uses, densities, intensities and disturbances, vegetation removal, and hydrologic modifications on slopes exceeding 15 percent.

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- Slopes 20 percent or more: In addition to standards for slopes over 15%, establish slope stability requirements for areas with, or directly adjacent to, slopes of 20 percent or greater within geologic units susceptible to slope failure and areas of mapped landslides.
- Slopes 30 percent or more: In addition to standards for slopes over 20%, discourage road and building site construction in areas that exceed 30 percent slopes or cross slopes.

Action Item RM-64.1: Before development, require evaluation of slope stability in areas with the potential for landslides, including structural foundation engineering and potential impacts to adjacent lands. The Building Official may waive this evaluation for existing single-family lots.

Policy RM-65: Discourage development and conversion from rangeland to intensive agriculture in areas of known landslides or slopes where weak geologic materials are susceptible to failure.

Policy RM-66: Promote clustering and density transfers where appropriate to reduce soil loss and impacts on watersheds and fisheries.

Policy RM-67: Continue identifying and reducing soil erosion and sedimentation associated with lands, facilities, and operations owned or operated by the County.

Mineral Resources Policies

Policy RM-68: Environmental protection is a high priority during mineral extraction and associated processing operations and site reclamation. Recovery of mineral resources is not allowed when the County finds that adverse environmental impacts outweigh the public benefit.

Action Item RM-68.1: Identify and protect resources/areas that may provide mineral extraction opportunities, including rock quarries and gravel.

Action Item RM-68.2: Continue to administer the California Surface Mining and Reclamation Act (SMARA).

Action Item RM-68.3: Evaluate the effectiveness of Surface Mining and Reclamation regulations and project conditions in achieving County goals.

Action Item RM-68.4: Promote off stream terrace mining or hard rock quarrying operations over instream operations.

Policy RM-69: Restrict development that conflicts with the extraction of essential mineral deposits when maps become available from the State Geologist under the California Surface Mining and Reclamation Act.

Action Item RM-69.1: Restrict development that conflicts with the extraction of important mineral deposits when maps become available for the State Geologist under the California



Surface Mining and Reclamation Act.

- Policy RM-70: Surface mining sites, especially those in areas with cultural, scenic, or recreational values, shall be restored to harmonize with the natural environment when the mine's reclamation plan is implemented.
- Policy RM-71: Surface mining permits for large-scale low-grade nickel extraction from the Red Mountains east of Leggett shall not be allowed by the County.
- Policy RM-72: The County supports maintaining the Outer Continental Shelf as a petroleum reserve for use only in time of national emergency.
- Policy RM-73: New onshore development directly related to offshore oil and gas development is not allowed in Mendocino County.

Biological Resources Policies

- Policy RM-74: Promote land uses and management practices that protect biological diversity and productivity.
- Policy RM-75: New development shall protect sensitive environments and resource corridors while maintaining compatibility with adjacent uses.
- Policy RM-76: The design of new development should emphasize avoiding sensitive resources and environments rather than their removal and replacement.
- Policy RM-77: Discretionary development shall be designed or conditioned to achieve no net loss of sensitive resources.
- Policy RM-78: Protection of existing sensitive resources is the highest priority. Onsite replacement or offsite replacement, protection, or enhancement is less desirable.
- Policy RM-79: Limit land use density and intensity within and adjacent to critical wildlife habitats, such as wetlands, deer wintering range, old-growth forests⁸, and riparian corridors.
- Policy RM-80: Maintain resource diversity and integrity by protecting and enhancing continuous resource corridors compatible with adjacent uses through project design.
- Policy RM-81: Conserve native vegetation, critical habitats, and soil resources through education, technical and financial assistance, cooperative endeavors, best management practices, and soils and vegetation management plans for development and resource uses.

⁸ Generally, "old growth forests" are those which have not been logged.

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Policy RM-82: Encourage farmers, landowners, and property managers to protect sensitive environments, and minimize the effects of recreation, tourism, agriculture, and development on these resources. Promote techniques and features such as:

- Habitat contiguity,
- Wildlife corridors,
- Maintaining compatibility with adjacent uses,
- Maintaining habitat for sensitive plant and animal species.

Action Item RM-82.1: Work with agencies and organizations to educate the public about effective ways to protect listed plant and animal species and preserve sensitive habitats.

Action Item RM-82.2: Seek private and public funding for fish habitat restoration programs such as the County Fish and Game Advisory Committee, community salmon and steelhead rearing, and other efforts.

Action Item RM-82.3: Promote conservation easements to protect wildlife habitat, wetlands, and other sensitive environments.

Action Item RM-82.4: Provide information to landowners, developers, and the public on the importance and value of maintaining wildlife corridors.

Policy RM-83: Vegetation removal should be reviewed when involving five (5) or more acres, assessing the following impacts:

- Grading and landform modifications including effects on site stability, soil erosion and hydrology.
- Effects on the natural vegetative cover and ecology in the project area.
- Degradation to sensitive resources, habitat and fisheries resources.
- Compatibility with surrounding uses.
- Visual impacts from public vantage points.
- Cumulative and growth-inducing impacts.

For the purposes of implementing this policy, “vegetation removal” does not include state-regulated timber harvest.

Action Item RM-83.1: Consider adopting an ordinance for the regulation of vegetation removal.

Policy RM-84: Vegetation management and landscaping for public and private development should emphasize the protection and continuity of natural habitats and hydrology.



Policy RM-85: Promote the conservation and use of native species or drought-tolerant, fire-resistive, and noninvasive vegetation.

Policy RM-86: In rural areas, promote vegetation and landscape management programs that protect wildlife and livestock habitat, discourage pest species and non-native species, reduce wildfire risk, and conserve water resources.

Policy RM-87: Protect “pygmy” ecosystems (“pygmy” and “transitional pygmy” vegetation and soils) through the use of measures that include minimizing:

- Vegetation removal,
- Disruption of vegetation continuity, and
- The introduction of water and nutrients due to human activity, sewage disposal systems, animals or agricultural uses.

Also:

- Limit subdivision of land on agricultural lands adjacent to “pygmy” ecosystems, and
- Promote best management practices to minimize impacts.

Policy RM-88: Conserve and replant oak woodlands and stands of native oaks in community areas and developments. Protect oak woodlands in other areas through limitations on density and clustering.

Policy RM-89: Maintain and enhance the urban tree canopy, which creates a sense of open space.

Action Item RM-89.1: Review construction and landscaping site plans to ensure that healthy trees in community areas are not removed unnecessarily.

Policy RM-90: Conserve the county’s hillside vegetation (consistent with fire safety standards) by incorporating density transfers, clustering, small building sites, shared improvements, and other measures that:

- Are compatible with the natural terrain and hydrology.
- Conserve continuous critical habitats, oak woodlands, and natural vegetation.
- Minimize visual impacts.

Policy RM-91: Protect wildlife and livestock from depredation by domestic animals.

Action Item RM-91.1: Enforce County laws regulating wildlife and livestock depredation by

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dogs or other domestic animals.

Policy RM-92: Conserve and enhance watercourses to protect habitat, fisheries, soils, and water quality.

Policy RM-93: Conserve and enhance streamside (riparian) vegetation through development design and standards.

Policy RM-94: Stream restoration and maintenance programs shall conserve riparian vegetation and the floodwater carrying capacity of river and stream channels.

Policy RM-95: Whenever possible, use riparian vegetation in conjunction with natural or appropriate structural materials to achieve a natural appearance.

Fisheries Policies

Policy RM-96: Encourage public agencies and private property owners to protect fishery habitat and participate in fishery enhancement projects (including removal of barriers to fish passage) for coastal and inland waterways of Mendocino County.

Action Item RM-96.1: Continue participation in the 5-County Salmonid Conservation Program and work with organizations and agencies at all levels to formulate strategies and implement actions to improve watershed conditions and fisheries habitat.

Policy RM-97: Support instream flows adequate to maintain and protect fisheries and beneficial uses.

Policy RM-98: Support implementation of fisheries and watershed management plans adopted by public agencies, such as the Summer Steelhead Management Plan for the Middle Fork Eel River and Mendocino County Salmon and Steelhead Management Plan.

Policy RM-99: Support the restoration of spawning and nursery habitat in all salmonid-bearing streams and rivers.

Policy RM-100: The County encourages the State of California to re-establish a fish hatchery at Cape Horn.

Policy RM-101: Water development projects shall apply for all required permits and shall include mitigation and enhancement features for fish and wildlife if required to address adverse environmental impacts.

Action Item RM-101.1: Support State and Federal measures to protect and enhance the freshwater and marine ecology through the development process, such as:

- Stream corridor protection and restoration.
- Riparian vegetation protection and restoration.
- Erosion and sediment control measures.



- Surface mining controls.

Action Item RM-101.2: Update all County application forms as needed to indicate the source of water for all water development projects.

Policy RM-102: Protection of the county's fisheries shall take priority over the short-term benefits of oil extraction.

Natural and Rural Landscapes Resources

Agricultural Resources Policies

Policy RM-103: Maintain extensive agricultural land areas and limit incompatible uses.

Policy RM-104: The County supports policies and programs to maintain and enhance the viability of agricultural operations and retention of agricultural land.

Action Item RM-104.1: Develop vertical integration opportunities for adding value to natural resources, including local agricultural and timber processing facilities.

Policy RM-105: The County will work to protect important farmlands under the State Farmland Mapping and Monitoring Program.

Action Item RM-105.1: Adopt a map and standards for locally important farmlands and ensure they are appropriately zoned.

Policy RM-106: The County shall prioritize the protection of lands designated as "Type I Contracts" under the Williamson Act over the protection of lands designated as "Type II Contracts."

Policy RM-107: Support the diversification and expansion of the agricultural economic base.

Policy RM-108: The County Agricultural Commissioner's Office shall coordinate with University of California (UC) Cooperative Extension to support sustainable agricultural operations through research, vegetation management programs, best management practices, and technical assistance for agricultural operators to maintain and improve soil health, identify use opportunities for sites no longer appropriate for agricultural activities, and encourage alternative crop types that are drought-, heat-, and severe weather-resistant.

Policy RM-109: Land shall not be converted from the Agricultural Lands or Range Lands classifications to non-agricultural classifications unless all of the following criteria are substantiated:

- The project will not result in a need for unintended expansion of infrastructure in conflict with other policies.

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- The project will not adversely affect the long-term integrity of the agricultural areas or agricultural uses in the area.
- The proposed use in the subject location will achieve the long-range objectives of the General Plan.

Action Item RM-109.1: Enforce County ordinances that protect agricultural lands and operations from nuisances, trespass, vandalism or theft, livestock predation, and contamination from abandoned or uncared for orchards.

Policy RM-110: Maintain land use compatibility and minimize conflicts between agricultural and non-agricultural uses.

Action Item RM-110.1: Consider adopting regulations, standards, or guidelines for wine tasting rooms and similar uses to address the potential effects of these uses on adjacent properties, roadways, and their communities.

Policy RM-111: Discretionary projects shall not undermine the integrity and economic viability of agricultural operations by causing or contributing to piecemeal land-use conversion, land fragmentation, urban encroachment, the introduction or concentration of incompatible uses on lands adjoining or within agricultural areas, or the extension of growth-inducing urban services such as public water or sewers.

Policy RM-112: Discretionary projects and parcels created by land divisions shall be designed and sized to be compatible with contiguous lands classified as Agricultural Lands or Range Lands. Criteria include but are not limited to the following:

- The number of ownerships and land-use intensities adjacent to parcels classified as Agricultural Lands or Range Lands shall be minimized.
- Projects shall be designed to reduce growth-inducing impacts and maintain a stable limit to urban development. Building envelopes, clustered development, and commercial, industrial, civic, and sensitive uses shall be designed with buffers or setbacks from lands classified as Agricultural Lands or Range Lands. Buffers are generally defined as a physical separation of 200 - 300 feet (depending on pesticide application impacts) with the potential for a reduced separation when a topographic feature, substantial tree-stand, landscaped berm, watercourse, or similar existing or constructed feature is provided and maintained.
- Potential conflicts related to noise, dust, odor, pesticide use, spraying, burning, lights, late or early hour activities, vandalism and trespass, and other issues associated with agricultural operations on agriculture zoned land shall be mitigated by the new discretionary project, respecting the County's "Right to Farm" ordinance. Residential uses and subdivisions shall maintain a ten (10) acre minimum parcel size adjacent to lands under active Williamson Act contracts which are classified Agricultural or Range Lands. Parcels classified with a smaller minimum parcel size or zoned Planned Development or Clustering may exceed these densities, provided that the criteria in policies RM-101 to RM-112 are also employed to



reduce impacts.

Policy RM-113: Consistent with State funding, encourage the creation and renewal of Williamson Act contracts on eligible agricultural lands, including implementing the Farmland Security Act.

Action Item RM-113.1: Continue to monitor and update the County's Williamson Act program for conformance with State law and the General Plan.

Action Item RM-113.2: Maintain land use classifications with minimum parcel sizes sufficient to meet County standards for Agricultural Preserves.

Action Item RM-113.3: Publicize provisions allowing small agricultural preserves with unique characteristics.

Action Item RM-113.4: Evaluate whether intensively farmed prime lands zoned Rural Residential-10 Acre Minimum or Remote Residential should be eligible for enrollment in Williamson Act contracts.

Action Item RM-113.5: Evaluate whether to modify the County Agricultural Preserves program to reflect the State Farmland Mapping and Monitoring Program.

Policy RM-114: The County shall develop an agricultural disaster training program and networking opportunities for farmers and agricultural agencies to increase agriculture's resilience to climate change hazards.

Forest Resources Policies

Policy RM-115: The County considers carbon sequestration, timber growing, and harvesting to be the highest and best uses of land zoned Timberland Production.

Policy RM-116: Encourage the forest agencies to continue their forest inventory program.

Policy RM-117: Protect the county's timber resources by discouraging the conversion or fragmentation of lands zoned "TPZ" to housing or some other use that permanently precludes its use for carbon sequestration, timber production or timber growing.

Policy RM-118: The County recognizes the importance of the infrastructure necessary to utilize timber as a product and shall protect Forest Lands and the industrial zoning necessary to provide for related manufacturing facilities. The County will also identify land uses that are supplemental, accessory, and compatible with timber operations on Forest Lands (FL) and Timber Production Zones (TPZ) and amend the Zoning Ordinance as necessary to include these uses.

Policy RM-119: Maintain the 160-acre minimum parcel size for Timberland Production Zones.

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Policy RM-120: Promote sustainable forest management practices (e.g., carbon sequestration, reforestation, timber stand improvement, stream corridor, and water quality protection).

Policy RM-121: Encourage forest owners and managers to manage the county's diverse commercial timber resources, including hardwood resources, on a sustained yield basis.

Action Item 121.1: The County shall coordinate with private and public landowners to protect forest-growing stocks and timber supply from bark beetles and other forestry pests and diseases and provide infrastructure (such as facilities that can store and process bark beetle-infested wood and debris) to support a diversified wood products industry.

Policy RM-122: Support agency monitoring of water quality, species of special concern, habitat connectivity, wetlands, and riparian areas as barometers of forest health and productivity.

Policy RM-123: Support improved forest management through education, technical and financial assistance, cooperative endeavors, and best management practices.

Policy RM-124: Protect forest conservation and timber harvesting operations by minimizing conflicts posed by non-resource uses.

Policy RM-125: Prohibit rezoning and development of prime timberland (Site Classes I, II, and III) classified for resource uses, including proposed resort uses, unless:

- The project is determined to be in the public interest, and
- State timber conversion permits are approved, and
- The project is consistent with land use, resource management, and other applicable General Plan goals and policies.
- Managing the property for carbon sequestration or timber production is no longer sustainable.

Policy RM-126: Discretionary projects and parcels created by new land divisions shall be designed and sized to be compatible with contiguous lands zoned Forestlands or Timberland Production.

Policy RM-127: Require parcel sizes on commercial timberland subdivisions to be sufficient to provide for productive economic timber use and practical management. Parcels split of TPZ lands shall also require provision for adequate timber access routes in conformance with a timber management plan.

Policy RM-128: The following guidelines shall apply to all projects (including land divisions) contiguous to lands designated as Forest Lands on the Land Use Map of this General Plan:

- The number of ownerships and land-use intensities on adjacent parcels shall be



minimized.

- Building envelopes, clustered development, and commercial, industrial, civic, and sensitive uses on non-resource lands shall be designed with buffers or setbacks. Buffers shall generally be defined as a physical separation of 200 feet with the potential for a reduced separation when a topographic feature, substantial tree-stand, landscaped berm, watercourse or similar existing or constructed feature is provided and maintained.
- Projects shall be designed to reduce growth-inducing impacts and maintain a stable limit to urban development.
- The new discretionary project shall mitigate potential conflicts related to noise, dust, chemicals, spraying, burning, vandalism and trespass, and other forest management or timber operations issues.
- Residential uses and subdivisions shall have a ten (10) acre minimum. Parcels classified with a smaller minimum parcel size or zoned Planned Development or Clustering may exceed these densities, provided that the criteria above are employed to reduce impacts.

Open Spaces, Rural Landscapes, and Scenic Resources Policies

Policy RM-129: New development should incorporate open space and resource conservation measures, coordinated with the surrounding area.

Policy RM-130: Support land trusts and similar organizations in identifying and protecting lands and corridors with significant resource, recreational or scenic values.

Action Item RM-130.1: Continue to protect the scenic qualities of uplands and rural landscapes through measures such as Timberland Production and large lot zoning controls, clustering, the Williamson Act, the Forest Practices Act, and good management of public lands.

Policy RM-131: Protect the scenic values of the county's natural and rural landscapes, scenic resources, and areas of significant natural beauty.

Policy RM-132: The County will encourage the State of California to consider aesthetics and community character in all its roadway and bridge construction/rehabilitation projects.

Policy RM-133: Protect the outstanding values of designated river corridors within the State Wild and Scenic River System by limiting land use and site development impacts (including grading and vegetation removal but not including regulated timber harvesting).

Policy RM-134: Lakes, stream corridors, large reservoirs, and other water bodies have scenic values that shall be maintained or enhanced and restored when necessary.

Policy RM-135: Maintain and enhance scenic values through development design principles and guidelines, including the following:

- Development scale and design should be subordinate to and compatible with the setting.

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- Reduce the visual impacts of improvements and infrastructure.
- Minimize disturbance to natural features and vegetation but allow selective clearing to maintain or reveal significant views.

Policy RM-136: Recognize the continuation of private property rights on private lands designated for open space, parklands, or resource conservation.

Dark Sky Policies

Policy RM-137: The County shall seek to protect the qualities of the nighttime sky and reduce energy use by requiring that outdoor nighttime lighting is directed downward, kept within property boundaries, and reduced both in intensity and direction to the level necessary for safety and convenience.

Action Item RM-137.1: Amend the County's Codes to incorporate standards for outdoor nighttime lighting that implement Policy RM-137.

Action Item RM-137.2: Encourage the use of motion sensors for indoor and outdoor lighting to reduce energy use.

Policy RM-138: All County streetlights shall be of a “full cutoff” design to limit the upward spread of lighting.