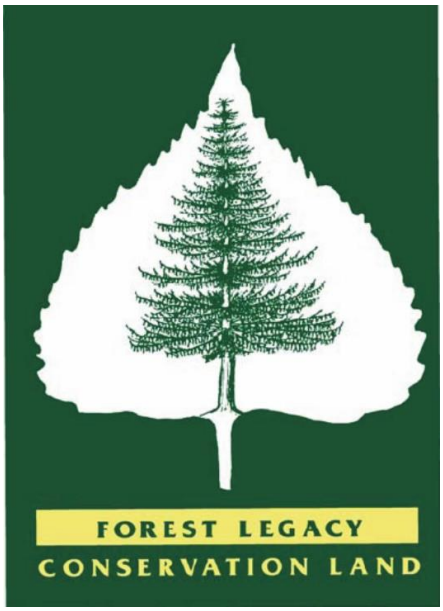
COLORADO STATE-WIDE FOREST LEGACY ASSESSMENT OF NEED



Colorado State Forest Service
Fort Collins, Colorado 80523-6010

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Presented to:

Colorado State Forest Service
Fort Collins, Colorado 80523-6010

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Assessment of Need

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Colorado State Forest Service
Colorado Cattlemen's Agricultural Land Trust
Colorado Open Lands
USDA Forest Service, Region 2
The Nature Conservancy
The Conservation Fund
Colorado Parks and Wildlife

Introduction

The Forest Legacy Program (FLP) authorizes the USDA Forest Service, State Forestry Agencies, or state governments to purchase permanent conservation easements on private forest lands to prevent those lands from being converted to non-forest uses. The forest lands in the program contain important scenic, cultural, and recreation resources, fish and wildlife habitats, water resources, and other ecological values that will support continued traditional forest uses receive priority. Those landowners who choose to participate in the program are required to follow a multi-resource management plan (MRMP) designed for ongoing management for the forest resources on the property. Activities consistent with the MRMP include timber harvesting, grazing, and recreation activities, are permitted, based upon the terms of the conservation easement. These activities are consistent with the conservation purposes outlined in the Deed of Conservation for FLP properties. This report serves as an update to that document.

For Colorado to participate in the FLP, the Colorado State Forest Service (CSFS) was identified by the Colorado State Governor as the lead FLP agency in 2000. The first task in 2001 was to produce an Assessment of Need (AON) for such a program. An updated AON with modified Forest Legacy Areas (FLAs) was created in 2006 to allow increased conservation opportunities. The current (2020) AON recognizes the prevailing ecological, economic, and social conditions. This document contains a background of Colorado's heritage and natural resources, an overview of the tasks performed, and descriptions of each (FLA), as well as project selection criteria.

The priority ranking of the criteria was addressed in 2020, based upon input from selected Colorado land conservation groups.

1. **Protection of water quality and production amounts.**
2. **Protection of significant wildlife habitat.**
3. **Reduction of forested land fragmentation as a result of development pressures, subdivision, and increasing housing density.**
4. **Maintaining continuity of forested lands adjacent to protected lands.**
5. **Protection of significant riparian communities.**
6. **Protection of unique ecological areas.**
7. **Reduction of risk and occurrence of wildfires especially in developed areas or ecologically sensitive areas.**
8. **Protection of private property owner's rights.**
9. **Protection of economically significant timber forest products through positive forest stewardship programs.**
10. **Protection of lifestyle for property owners.**

DESCRIPTION OF THE DOCUMENT

Section 1 of this document presents information pertaining to the historical, cultural, physical, biological, and ecological elements of Colorado, all of which influence the Forest Legacy Program implementation and project selection.

Section 2 presents the Forest Legacy criteria selection methodologies and Forest Legacy Area determination to identify areas in Colorado that are in danger of conversion from traditional forest uses. The original FLA boundaries were drawn on geo-political boundaries. While successful, this methodology was found lacking due to inflexibility resulting in failure to take advantage of conservation opportunities meeting the criteria outside of the designated FLAs when they arose. At the suggestion of State Forest personnel, the current AON utilized Hydrologic

Unit Codes (HUCs) as FLA boundaries intending to be 1) inclusive of privately owned forests, with 2) definable and easily recognized, and 3) readily modifiable boundaries.

Section 3 identifies eight FLAs within Colorado where protection efforts provided under the Forest Legacy Program should be applied. For each of the eight FLAs, this document (1) specifies location chiefly using Basin (HUC 6) boundaries, and (2) describes topography, ecology, recreation, water, and other resources.

Included in Section 4 are SFSCC project selection criteria for inclusion in the FLP along with procedures to implement the FLP.

Section 5 lists the numerous land trust organizations already in existence in Colorado.

STATEMENT OF PURPOSE

From 14,000-foot mountain peaks to open prairies, Colorado provides a broad range of scenic vistas. The state contains varied environments including high alpine meadows, spruce-fir forests, lodgepole and ponderosa pine forests, aspen meadows, mountain deserts, plains riparian areas, and shrub and grass prairies. Further, Colorado provides crucial habitat to numerous wildlife species. The states diverse landscape and ecology also facilitate an abundance of options for outdoor recreation.

Colorado's wide base of recreation opportunities, strong economy, and high quality of life has led to an influx of new residents. With a population increase of 14.5% between 2010 and 2019, Colorado was the third fastest growing state (US Census, 2019) in the nation. This immigration along with residents' desire to move out of developed urban environments in the Front Range poses a threat to currently undeveloped land including those traditionally covered by forests. Increased subdivision and development of forested areas has numerous adverse effects such as loss of biodiversity, altered hydrology, and deficiency of natural resources.

Fragmentation of traditionally large forested areas leads to declines in quality habitat and displacement of the wildlife. Additionally, ecologically significant environments such as riparian areas and unique flora and fauna communities are lost through development. Moreover, increased impervious surfaces from new roads and infrastructure threaten water quality by changes in groundwater and moisture availably, increased runoff, and pollution.

Development pressures on forested lands not only threaten ecological resources but have direct impacts on people. Many landowners find it hard to resist offers from developers to sell their land. Large forested areas, which had traditionally been in one family's stewardship for many generations, are separated into 35-acre or smaller parcels. Consequences related to the increase in subdivision include poor use of land, environmental impacts, and high costs for counties (Davis, 2006). More landowners of smaller parcels yield fewer traditionally commercial adjoining timber stands and less active stewardship management. Additionally, these smaller parcels result in restricted opportunities for conservation easement implementation or inclusion into local, state, or federally protected lands.

This Assessment of Need for the Forest Legacy Program in Colorado evaluates the current condition and use of privately owned forests in Colorado in 2020. Results of the values and attitudes regarding private forests identified by stakeholders in the 2001 AON were used with updated, or reformatted input by participating conservation groups, representing current conditions in 2020. The determination of the 2020 FLAs represent the importance of healthy forests. The conservation of these private forests, combined with existing of public forestlands, helps maintain the functioning forested landscape. The CSFS and SFSCC are recommending those eight FLAs for continued inclusion in the FLP.

SECTION 1: STATE OF COLORADO BACKGROUND INFORMATION

Cultural Heritage

Long before Colorado received statehood in 1876, humans inhabited the land and rich cultural and historical events occurred. Hundreds of archaeology sites across the state, both Native American and Euro-American, uncover artifacts from at least 12,000 years ago to the end of the last Ice Age. The Great Plains have a substantial archaeological record providing unique information about prehistoric and historic people who lived in the region. Archaeologists hypothesize the most uninviting areas of Colorado, the alpine tundra regions, were used by humans at least 7,000 years ago.

The earliest visitors to Curecanti Recreation Area in the Upper Gunnison River Basin were most likely large game hunters and gathers. This Native American presence occurred as early as the Paleo-Indian traditions up to 10,000 years ago. Until the European explorers first arrived in the 18th and 19th centuries, the natives spent only part of each year in the high country because of the cold winters and limited growing season (National Park Service, 2015).

Present day Colorado represents many cultures and backgrounds. The 2018 census estimated the state's population at 84.1% white, 21.7% Hispanic or Latino, 4.2% African American, and 4.5% Asian, with the remainder falling into the categories of Pacific Islander, American Indian, Alaska native, or 2 or more races (percentages do not total 100 because individuals may report more than one race).

Population

Demographic shifts throughout Colorado have been significant over the past several decades. During the 1960's, the resident population began increasing at a substantial rate as compared to the previous decades when growth was not nearly as notable. According to the U.S. Census Bureau, published July 1st, 2019, the population change from 2010-2019 was 14.5% for Colorado but just over 6.3% for the country. Since 1960, the state's population has more than tripled from 1,758,947 to the current population of over 5,758,736 people, with the median age of 36.9. These figures place an average of 52 people per square mile in Colorado. However, this population density is misleading in that 75% of the total Colorado population is contained within 9 of the 64 counties. See Figure 1 (below) for Colorado's population trend from 1860 to 2020.

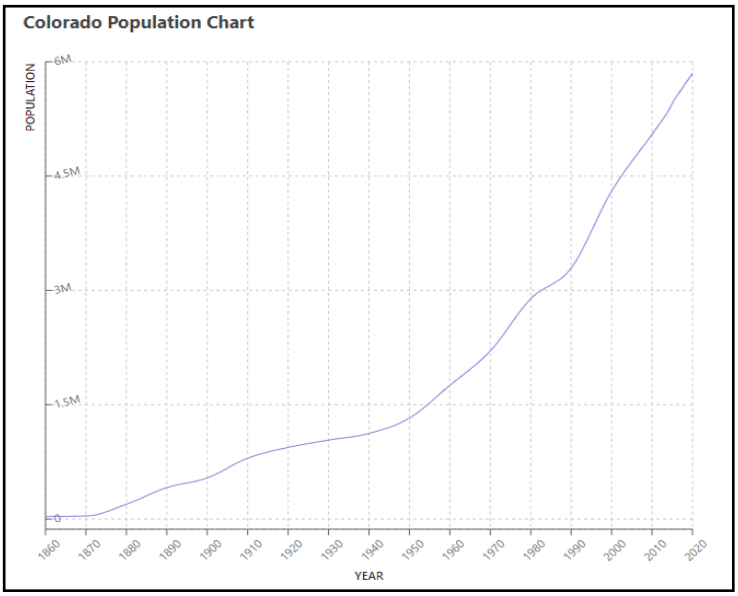


Figure 1. Colorado Population Chart, 2020, World Population Review

With 75% of the total population of the state residing in the Front Range Corridor (along I-25, from Fort Collins to Pueblo), developmental pressures on vacant property are expanding. Denver, the largest and most sprawling metropolitan area in Colorado, and its surrounding counties (Jefferson, Douglas, Arapahoe, Adams, Broomfield, and Boulder), is situated just east of the Rocky Mountains. The Front Range counties have seen population increases averaging 17.4% from 2010 to 2019 (U.S. Census Bureau, 2019).

Growth in Colorado is inevitable; conservation and sustainable development can help curtail the consequences of growing populations within a finite land mass, therefore a conservation program such as FLP should be considered.

Land Ownership and Use

Of the 66.6 million acres in Colorado, 38 million (57%) are privately owned, 24.1 million acres (36%) are managed federally (Federation of American Scientists, 2020), and 2.8 million surface acres (4%) are managed by the state (Colorado State Land Board, 2019). Federal land ownership within the state is composed of 60% U.S. Forest Service, 35% Bureau of Land Management, 3% National Park Service, 2% Department of Defense, and 1% U.S. Fish and Wildlife Service. From 1990 to 2018, federal ownership of land increased by 520,457 acres (Congressional Research Service, 2020). Approximately 22.9 million acres (34%) of Colorado is forested. Of the forested land in the state, approximately 73.1% is federally owned, 23.6 % is owned privately, and 3.3% is owned by the state and local entities (Colorado State Forest Service, 2020). As of 2012, approximately 48% of Colorado was in farmland (Farmland Information Center, 2012). See Figure 2 (below) for land ownership within the state.

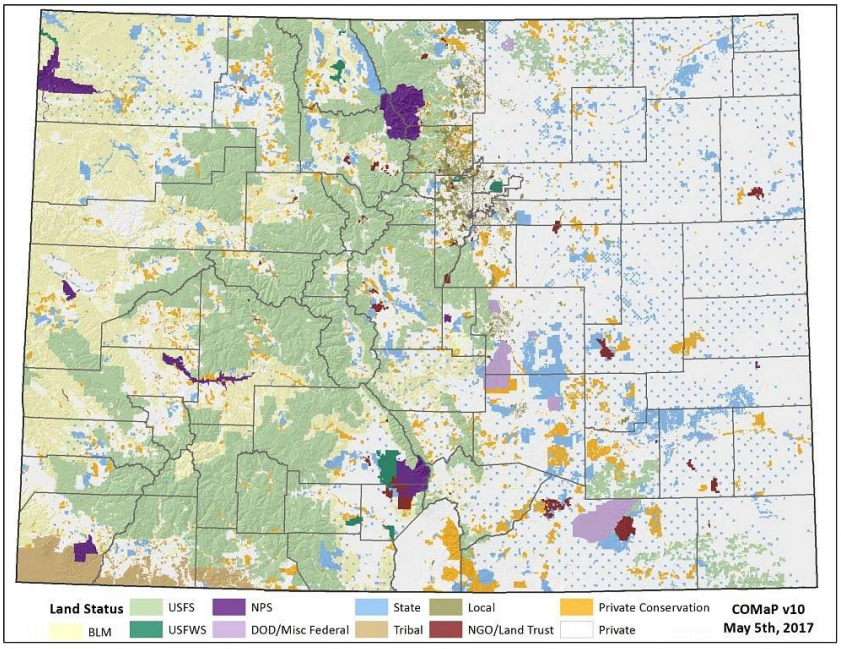


Figure 2. Colorado Land Ownership Map, 2017, Colorado Natural Heritage Program

Economics

Since the days of fur trapping, buffalo hunting, beef production and mining Colorado has experienced profound changes in the areas on which its economy depends. The recent past has produced significant economic increases. Since 2010 employment growth has increased annually by approximately 50%. Review of Colorado economic metrics indicated that real GDP over 5 years grew at 3.6% ranking the State as 5th in the nation. Additionally, during 2019, employment increased by 2.1% ranking the state 11th overall and unemployment at 2.7% earned Colorado a

place among the five lowest. Colorado's average unemployment rate has decreased from 9.6 % in 2010 to 2.7% in September 2019. During the same 10-year period, personal income growth averaged 4.4 % Wage and salary income rose from an average of $40,436 in 2010 to $54,446 in 2018 (CU Leeds School of Business 2019).

The Trade, Transportation and Utility (TTU) sector employees' one sixth of Colorado work force, increasing by 1.3% in 2019 to a total of 397.500 jobs. Construction, which had been the main source of Colorado's recent boom, decreased by a statistically misleading 29% in 2019 due to completion of large projects. The challenges to the industry include continued shortages of skilled workers. Colorado's net farm income is estimated to increase 21% in 2019 to $1.52 billion well ahead of the estimated US increase of 4%. This is due to Colorado agriculture being weighted toward cattle which continued to show strong growth (CU Leeds School of Business 2019).

NOTE: At the time of the preparation of this discussion, COVID 19 economic disruption has, at least temporally, made all prediction of economic status imposable.

Climate

The state of Colorado has low humidity and an average annual precipitation of 17 inches. The average annual temperature is 43.5 ^{o}F. Flooding, thunderstorms, hail, tornadoes, lightning, blizzards, and avalanches occur within the state. Although the temperature decreases and the precipitation increase with altitude, the climate is also dependent on winds and topographic features. The Rocky Mountains are the main source of the diverse weather conditions in most areas of Colorado. An increase of 1000 feet in elevation translates to a temperature decrease of 4-5 ^{o}F. Cooler air holds less water than warmer air causing more precipitation to fall on the windward (west) side of the mountains. Air is forced up, it cools, and the water vapor condenses and falls as rain or snow. Therefore, the humidity and precipitation are lower and winds more intense along the Eastern Slope as opposed to the Western Slope (Doesken, et al., 2003).

The mountains of Colorado have summer highs around 80 ^{o}F in the valleys while higher mountains experience highs around 60 ^{o}F. Winter low temperatures can drop below -30 ^{o}F and in extreme cases have been below -60 ^{o}F. Winds on the mountain peaks, or above 11,000 feet, can exceed 50 to 100 mph. The majority of precipitation within peaks and mountain ranges occurs during winter months (Doesken, et al., 2003).

The Eastern Plains of Colorado is usually dry and windy. The maximum summer temperature is around 95 ^{o}F, with winter low temperatures of 0 to -15 ^{o}F. Although precipitation can be heavy during the summer months, the region is typically in a state of drought or on the verge of it. The western edge of the plains, near the foothills of the mountains, experience more mild daily temperature changes, with lower summer temperatures and higher winter temperatures. This is also where most of the population resides (Doesken, et al., 2003).

Western Colorado's topography is less extreme than the mountains, with lower elevations, canyons, and plateaus. Closer to the Utah border, the temperature is warmer and precipitation is lighter. Compared to the Eastern plains, western Colorado has colder but calmer and less variable winters. Temperatures can drop below zero, but most of the region receives abundant sunshine. Areas around Grand Junction have particularly mild weather and support extensive fruit growing. Summer high temperatures exceed 100 ^{o}F at elevations below 5,500 feet. Temperatures rarely drop below -10 ^{o}F. Precipitation is more evenly distributed than other parts of the state. Annual precipitation is only between 8 to 14 inches in the western valleys (Doesken, et al., 2003).

The average temperature within the state has increased by 2.9 degrees since 1970, exacerbating existing issues such as snowpack, water scarcity, drought, and insect infestation. Warmer spring temperatures increase the speed of snowmelt in the Rocky Mountains which create more opportunity for flooding, erosion, and drought. Pine beetle infestation can reach higher elevations as temperatures rise, which increases the likelihood of a forest fires and rapid snow melt. An increase in the temperature and changing chemistry of water bodies effects water dwelling fauna,

thus destabilizing entire ecosystems. Flora and fauna which occupy specific habitat and range are driven to higher elevations in order find suitable habitat. This can result in habitat loss, species population reduction, and an increase in invasive species (Doesken, et al., 2003).

Rivers and Water Resources

Colorado's annual precipitation generates approximately 14 million acre-feet (AF) of water, approximately 80% of which is produced from snow. Eighty to 90 percent of the states' population resides east of the Continental Divide, while 70 to 80 percent of the states' water occurs west of it. An average of 500,000 AF of water is diverted from the western slope to the eastern slope annually. (Colorado State Web Portal, 2015). Eighteen (18) USGS delineated River Basins (HUC 6s) fall within the state, see Figure 3 (below).

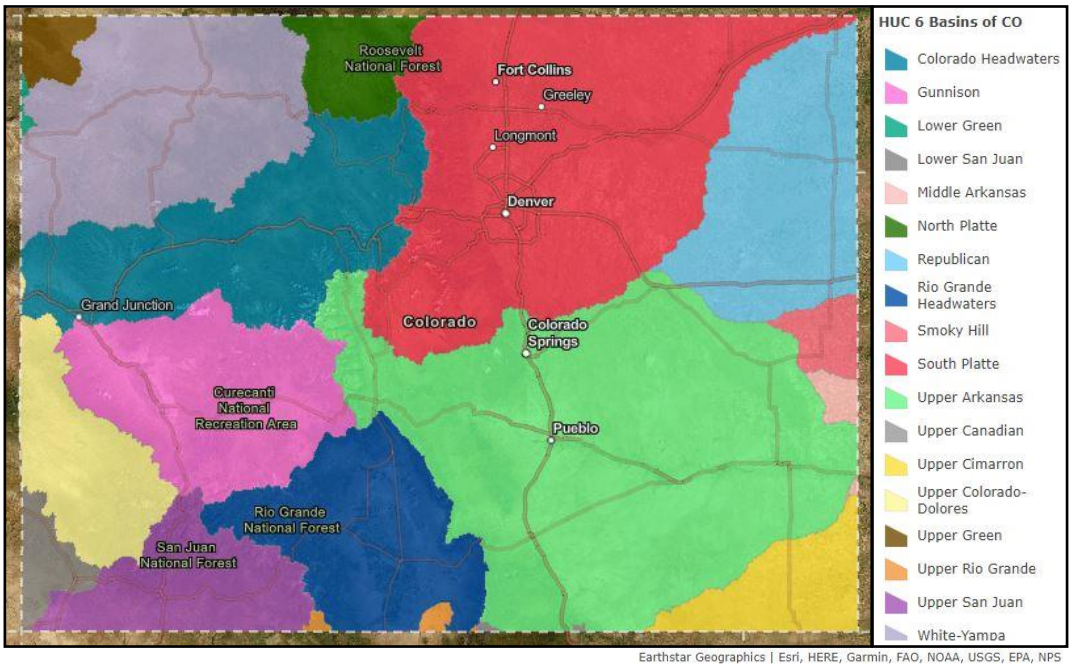


Figure 3. HUC 6 Basins of Colorado, 2013, ArcGIS.

Colorado, a headwater state, has more than 105,344 miles of rivers (CDPHE, 2019) with four major rivers originating within the state – the Colorado, South Platte, Arkansas, and Rio Grande. More than 60 percent of Colorado's water exits the state and flows downstream to eighteen states plus Mexico. Less that 5.3 million AF are consumed within the state annually, with approximately 83% supplied by surface water and 17% produced from groundwater. The percentage of statewide water delivery is broken down into the following water-use groups: 86.7% agriculture, 6.7% municipal and industrial, 5.5% recreational and environmental, and 1.1% self-supplied industrial (Colorado State University, 2020).

Increasing human population directly affects the demand for water. It is predicted that Colorado's water supply will be spread increasingly thin in the coming years. As a result, conservation and recycling of water will become more important, agricultural water rights will continue to be converted to other uses, and it is likely that new reservoirs and water diversions may be unavoidable despite their associated adverse impacts (Crockett, 2014).

Ecoregions

The physical environment of Colorado can be described and categorized using the Environmental Protection

Agency's (EPA, 2019) Ecoregion Descriptions. Ecoregions classify areas of general similarity in environments. There are six Level III Ecoregions within Colorado, see Figure 4 (below). These include the Wyoming Basin, Colorado Plateaus, Southern Rockies, Arizona/New Mexico Plateau, High Plains, and the Southwestern Tablelands.

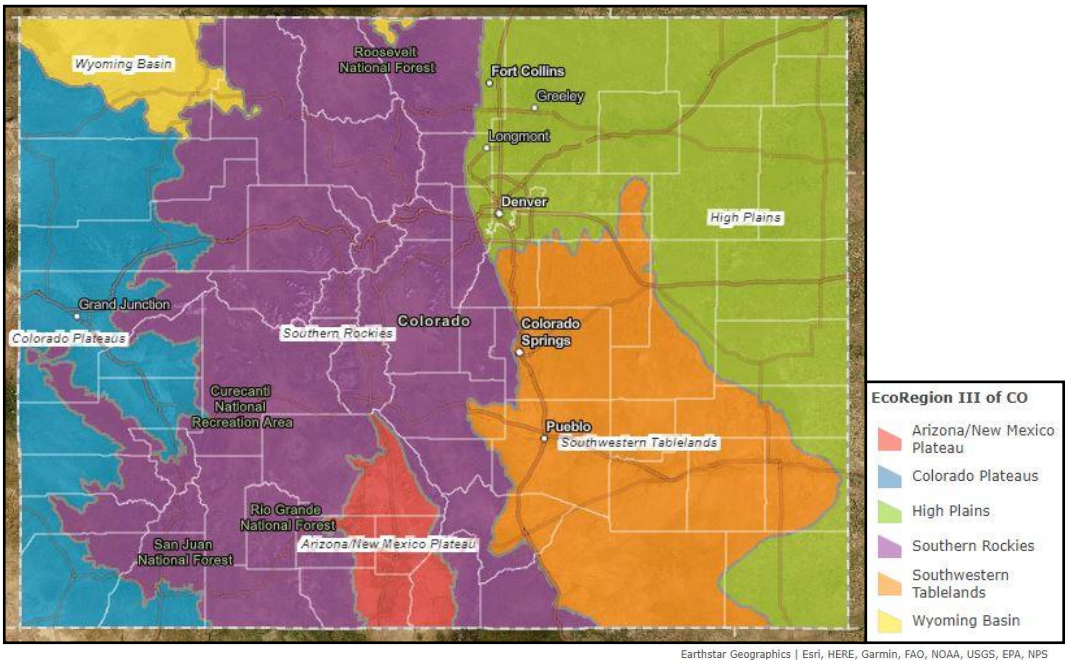


Figure 4. Level III Ecoregions of Colorado, 2016, ArcGIS.

The Wyoming Basin ecoregion is a broad intermontane basin dominated by relatively arid grasslands and shrublands, with high hills and low mountains. This region is utilized for livestock grazing, petroleum production, and mining of coal, trona, bentonite, clay, and uranium.

The Colorado Plateaus ecoregion has a variety of geologic formations, including canyons, mesas, plateaus, and mountains. The typical topography is rugged tableland, with extremely steep side-walls marking abrupt changes in local relief, often of 1000 to 2000 feet or more. However, the region contains large low-lying areas accommodating hot and dry tolerant vegetation such as saltbrush and greasewood.

The Southern Rockies are composed of high elevation mountains, with coniferous forest covering the majority of the region. Still, elevational banding denotes vegetation, soil type, and land use. The lowest elevations are generally grass or shrub covered and heavily grazed. Low to middle elevations are also grazed and covered by a variety of vegetation types. Middle to high elevations, having alpine characteristics, are largely covered by coniferous forests and have little grazing activity. The region includes the Colorado Mineral Belt, an area of ore deposits, ranging from the San Juan Mountains to the Colorado Front Range.

The Arizona/New Mexico Plateau represents a large transitional area between four ecoregions. However, only a portion of this ecoregion occurs within Colorado, known as the San Luis Valley. The local relief in this Valley is relatively low. The precipitation within the San Luis Valley is the lowest in the state, yet provides a valuable water supply due to the migration of runoff and groundwater to the low point at San Luis Lake. Desert and wetlands exist side by side. The valley wetlands provide crucial migratory bird habitat.

The High Plains contain smooth to slightly irregular plains having a high percentage of cropland. Grama-buffalo grass is the potential natural vegetation in this region. Gas and oil fields are found throughout Colorado's portion of the ecoregion, with the greatest concentration found in the Denver Basin area.

The Southwestern Tablelands contain red colored canyons, mesas, badlands, and dissected river breaks. Little of the Southwestern Tablelands is in cropland. Much of this region is in sub-humid grassland and semiarid rangeland. The natural vegetation in the Colorado portion of this region is mostly grama-buffalograss, with some juniper-scrub oak-grass savanna on escarpment bluffs (EPA, 2019).

Geology, Topography, and Soils

Surface features of the state's land are very diverse attributed to the three distinct geographical regions--the Great Plains in the east, the basins and plateaus in the west, and the Rocky Mountains rising to 14,000 feet at 53 peaks bisecting the state from north to south. All of this land rises well above sea level (the average elevation at 6800 feet), with Colorado's lowest point at 3350 feet where the Arkansas River flows into Kansas and the highest point at Mount Elbert (14,433 feet).

All of Colorado's rivers flow away from the Continental Divide, the division of eastern and western North America formed by the Rockies. A major hydrographic feature, the Divide directs water flow toward the Gulf of California on the Western Slope and toward the Gulf of Mexico on the Eastern Slope. Many rivers flow from Colorado, including one of North America's longest rivers, the Colorado River, which drains the western slopes containing about one-third of the land area of Colorado. The North and South Platte Rivers, the Arkansas, and the Rio Grande drain the eastern slopes in an array of complicated drainage patterns.

The Colorado Rockies occupy an active geologic region that stressed and disrupted a weak crust about 30 million years ago forming the current Rocky Mountains. Glacial erosion shaped many mountains and valleys creating an ancient erosion surface that still exists on flat-lying sedimentary rocks in the high country. Several small glaciers remain tucked away in northern ranges. Landslides have deeply scarred mountainsides and wind-formed sand dunes exist in several inter-montane valleys and the Eastern Plains. These weathering and erosional forces continually alter surface topography, yet Colorado's geology seems constant at a glimpse.

All geologic features, combined with climate, topography, vegetation, and animal activity, create complex patterns of soil distribution in Colorado. In general, soils differ from those of more humid regions by being lower in organic matter and higher in total plant nutrients. Colorado is home to many fossorial and den-producing mammal species that are distributed according to soil types (i.e. moles, ground squirrels, and prairie dogs). Agricultural areas are also restricted to certain soil types, for example, nearly all of the plains are covered by brown soils, producing valuable grasses for cattle grazing (Chronic, 1980).

Agriculture

The Eastern Slope of the Rockies represents the center of agriculture and urban and industrial development. Of the total land area making up the state (66.6 million acres), 16% is used as cropland (10,600,000 acres) with currently 2.6 million acres irrigated. While the total crop land has remained, for the most part, unchanged since 2000, total irrigated acres have been reduced by 24%. This reduction is a result of explosive urban growth in the Front Range communities (USDA, 2019).

Farms and ranches make up 31,600,000 acres of land and rank ninth in the nation (USDA, 2020), producing over 25 products. Corn, sunflower, and wheat are the crops produced in the largest quantities. However, Colorado ranks in the top ten for production of 15 crops including, Proso millet, barley, potatoes, onions and peaches. Colorado market sheep, lambs and cattle on feed are all 3rd in production for the country. Colorado agricultural cash receipts for 2017 were 6.8 billion, 68% from livestock products and 32% from crops (USDA, 2018).

Mineral Resources and Mining

Colorado's mining industry began in 1859 after gold was discovered near Denver in the bed of the Clear Creek. Since then, non-fuel mineral resource exploration and production has grown to a yearly contribution of $2.26 billion in 2014 ranking Colorado 13th in the nation. This industry derives direct and indirect benefits from mining significant amounts of gold, lead, gypsum, limestone, silver, molybdenum, uranium, and zinc. However, crushed stone, sand, and gravel account for over 80% of the revenues. The dollar value of aggregates' have increased steadily, except for a drop in 2008, since 2000. This increase is again reflective of the Front Range urban growth. Precious metals, molybdenum, Portland cement and Gemstones production, while only accounting for $406 million in 2014, has remained steady since 2008 (USGS, Minerals Yearbook 2014).

Forest Types and Distributions

Forest types identified by the Colorado State Forest Service include the following: spruce-fir, lodgepole pine, hardwood (primarily aspen), mixed conifer, conifer, conifer-hardwood, ponderosa pine, riparian, piñon-juniper, and oak shrublands. See Figure 5 (below) for forest type distribution.

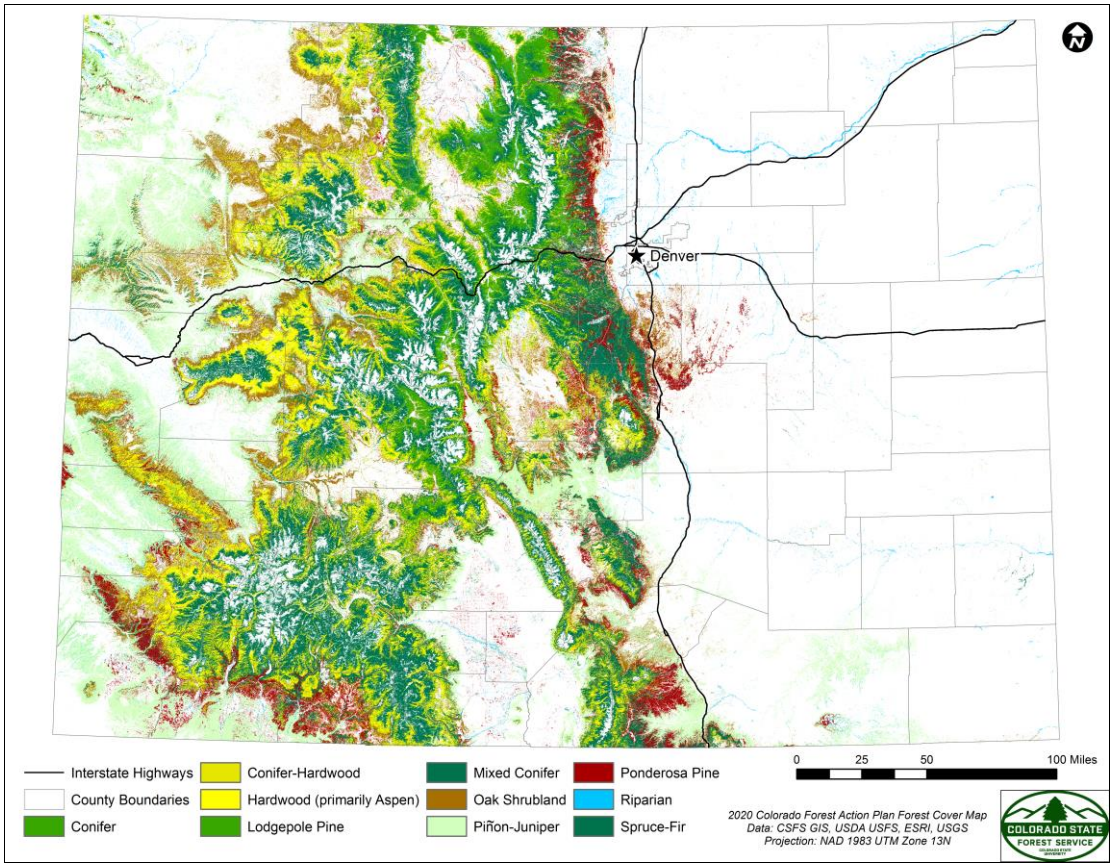


Figure 5. Colorado Forest Distribution Map

Forest Type Descriptions

Hardwood (primarily Aspen):

- One of the most extensive forest types in Colorado, aspen covers a broad elevation range from approximately 6900 to 10,500 feet above sea level.
- Approximately one-third of this forest cover type is on privately owned lands.
- Aspen forests have experienced die-off (e.g. sudden aspen decline) influenced by drought, warmer temperatures, aspect, elevation and age. In addition, fire suppression and browsing of young foliage are threats.
- Aspen forests provide critical habitat for a variety of species as well as wood stock for a variety of products.
- Important to water quality, and has aesthetic and recreation value.

Pinon-Juniper:

- Another of the most extensive forest types in Colorado, primarily distributed on Colorado's West Slope with some distribution in south-central Colorado and on the eastern plains, spanning an elevation range of approximately 4900 to 8000 feet above sea level.
- Approximately one-third of this forest type is on privately owned lands.
- Uses of pinon-juniper forests include elk habitat, firewood, pine nuts and biomass for energy production.
- Important to water quality, and has aesthetic and recreation value.

Spruce-Fir:

- Representing approximately one-fifth of Colorado's forests, this forest cover type occurs at an elevation range 0f 9,000 to 12,000 feet above sea level.
- Engelmann spruce, subalpine-fir and other conifers are included in this forest type, with aspen also occurring.
- A variety of species use this forest type as habitat including Canada lynx and boreal toads.
- Wood products include lumber and plywood.
- This forest type is a critical to water supply due to winter snow capture and retention.
- Has aesthetic and recreation value.

Ponderosa Pine:

- Takes a number of forms including forest, woodland, and savanna.
- Ponderosa pine represents approximately one-tenth of Colorado's forests, with almost half on privately owned land.
- Some of the species using this forest type include the Pawnee montane skipper a butterfly listed as threatened, northern goshawk and the American three-toed woodpecker.
- These forests comprise a significant portion of the wildland-urban interface.
- Threats include Mountain Pine Beetle (MPB), fire exclusion, and development. Fire exclusion has resulted in increased tree density, Douglas-fir encroachment, and greater crown fire risk. There has been a significant MPB outbreak in the last decade in this cover type.
- Ponderosa pine is milled for lumber and furniture.
- Important to water quality, and has aesthetic and recreation value.

Oak Shrublands:

- Oak shrublands cover approximately ten percent of Colorado, most abundant in western Colorado, along with the southern Front Range, and central Colorado.
- Almost sixty percent of this cover type is on private lands.
- Some of the species using this cover type include mule deer, elk, black bear, grouse, and turkey.

- Fire plays a role in promoting regeneration, removal of encroaching trees, and promoting density and cover of gamble oak. Fire suppression has altered fire characteristics.
- Important to water quality, and has aesthetic and recreation value.

Mixed Conifer:

- This forest type occurs between lower elevation ponderosa pine forests and higher elevation subalpine forests, and contains a diverse mix of conifers including White fir, Douglas-fir, Rocky Mountain juniper, Engelmann spruce, blue spruce, subalpine fir, bristlecone pine, and limber pine.
- Approximately one third of the forest type is in private lands.
- Elk, northern goshawks and owls, among other species use this forest type as habitat.
- Wildfire cycles vary considerably with historically low to mixed severity. Fire suppression contributes to denser forests and the resulting in denser forests with more dead fuel, resulting in greater chances for crown fires, threatening water supply.
- A variety of wood products are provided by this forest type.
- Important to water quality, and has aesthetic and recreation value.

Lodgepole Pine:

- This forest type occurs in relatively homogeneous stands at elevations similar to mixed conifer.
- Approximately one tenth of the acres are on private lands.
- Species using this forest type includes mule deer, elk, black bears, and Canada lynx.
- Wildfire played a key role in establishing lodgepole forests. A significant portion of these forests were impacted by a large epidemic of Mountain Pine Beetle in the past decade. Ski areas and real estate development have contributed to wildland-urban interface (WUI) expansion in these forests.
- A variety of wood products are derived from this forest cover type including lumber, log furniture, decking, plywood, and firewood.
- Important to water quality, and has aesthetic and recreation value.

Riparian:

- Consisting of Montane and Plains versions, these forest types provide critical habitat in the semi-arid climate of Colorado.
- Roughly one third of Montane acres are on private land while approximately three quarters of Plains acres are privately owned.
- Montane tree species include willow, alder and blue spruce, and can occur on ponderosa pine, aspen and spruce-fir forest types. Plains are mostly comprised of cottonwood and willow.
- Species in the Montane forest type include numerous amphibians, including the boreal toad, beaver, Elk, mule deer, and moose. In the Plains forest type including native fish, amphibians, Bald eagles, deer, turkey and owls.
- Threats to riparian areas include reduced water levels and soil disturbance. These disturbances can promote invasion by Tamarisk and Russian olive. Other threats can include pollution, surface water diversion, and groundwater depletions.
- Important to water quality, and has aesthetic and recreation value.

Conifer:

- This forest type is characterized by an open woodland structure. In Colorado, this forest type is best represented at higher elevations above Ponderosa pine ecosystems in dry, rocky environments. Primary tree species include Limber pine and Bristlecone pine, and Juniper may be mixed in the stands. Mountain Mahogany is also present. At higher elevations species such as Engelmann spruce, and sub-alpine fir dominate in an open distribution.
- This forest type is variable regarding fire dependency, due to sparse, rocky settings with limited fuels and

tree density.
- Species dependent on this forest type are small mammals and birds, especially Clark's nutcracker, which depend on the pine seeds for food.
- Important to water quality, and has aesthetic and recreation value.

Conifer-Hardwood:
- This forest type is characterized by occupying slopes and plateaus at mid-elevations. Species mix is aspen along with a wide variety of trees such as Douglas-fir, white fir, subalpine-fir, blue spruce, lodgepole pine, limber pine and ponderosa pine, and oak shrub. These forests tend to be transitioning from aspen to conifers, depending on disturbance.
- It is considered a fire-adapted community with aspen re-sprouting post-fire.
- Important to water quality, and has aesthetic and recreation value.

Forest Products

While Colorado has millions of acres of forested land, the forestry industry does not contribute greatly to the state's gross product. In fact, more than 90 percent of forest products used in Colorado is imported from outside of the state (CSFS). Colorado forest products include saw timber, fuelwood, posts, poles, and furniture wood. Economically important species include aspen, spruce, fir, Douglas-fir, lodgepole pine, and ponderosa pine.

Forests in Colorado have relatively low productivity rates so management is partially focused on restoring health. Major concerns include mountain pine beetle in north-central Colorado, decline of aspen stands due to fungal infections, and spruce beetle in southern Colorado. Management goals include: improvement of forest health for multiple use management, promotion of forestry-related projects, and emphasis on local and state wood-product markets. Increasing the consumption of local wood products helps keep forests healthy by reducing the number of older trees that are more prone to disease and infestation, as well as the reduction of wood biomass, reducing the intensity of a potential wildfire (BLM).

Wildlife and Fisheries

Colorado Parks and Wildlife (CPW) has statutory authority over 960 native species, including mammals, birds, fish, reptiles, amphibians, mollusks, and crustaceans. Colorado is home to approximately 500 native vertebrate species of animals, including 124 species of mammals, 260 species of birds, 46 species of fish, 17 species of amphibians, and 53 species of reptiles. Additionally, Colorado has 2,600 species of plants, and 50,000 to 100,000 species of insects (Colorado Parks and Wildlife, 2015). Some of these have always been rare, but many have become imperiled by changes in their habitats caused by human impacts on resources (Colorado Parks and Wildlife, 2015).

The CPW has developed a list of 159 Species of Greatest Conservation Need (SGCN) comprised of two tiers of species by need of conservation. Tier 1 is composed of the species in greatest peril and consists of 55 species (13 Mammals, 25 fish, 13 birds, 2 amphibians, and 2 reptiles). Tier 2 consists of 104 Species (23 Mammals, 2 fish, 48 birds, 8 amphibians, 14 reptiles, and 9 mollusks). Many fewer are listed as threatened, endangered, or of special concern by the U.S, Fish and Wildlife Service and the Colorado Division of Wildlife: birds (19), mammals (13), fish (23), reptiles (10), amphibians (7), and plants (16) (numbers are estimates as they reflect decisions only on animals and plants for which population information exists) (Colorado Parks and Wildlife, 2015).

The native biological diversity of Colorado is supported by its relatively intact natural landscapes. Approximately 80% of our vertebrate species are doing well and 20% require conservation action in order to survive. Of the at-risk categories of species, fish and amphibians have the highest percentage of at-risk taxa, at 43% and 41% respectively. These aquatic-dependent vertebrates are in the greatest need of conservation attention. The primary threat to fish

includes introduced species and water development. Amphibians are mostly threatened by disease and non-native species (Colorado Parks and Wildlife, 2015).

The percentage of at-risk species within the categories of mammals, birds, and reptiles are each roughly 20%. Direct mortality, and urban and energy development most significantly threaten mammals. Colorado has 240 native breeding bird species, the largest of the vertebrate groups. Although the percent of threated bird species is only 20%, they have 51 at-risk species; having the highest number of vulnerable species among the animal categories. The biggest threat to birds includes habitat loss due to conversion to cropland, forestry, energy development, and wetland/riparian alteration. Threats to reptiles are invasive species and energy development. Good planning, education, and adequate funding can protect and manage Colorado's unique biodiversity features and lower the number of at-risk species (Colorado Parks and Wildlife, 2015).

Protection of species is not only important for biodiversity, but for Colorado's heritage, quality of life, and economic prosperity (Ver Steeg, 2019). Hunting and fishing license sales support all of Colorado's wildlife management efforts, including threatened and endangered species programs, wildlife reintroductions, and habitat conservation without placing additional burdens on taxpayers. Further, hunting and fishing contribute a significant amount to state and local economies, rivaling only the ski industry in total revenue generated (Colorado Wildlife Council). Fifty four percent or 125 million dollars and the largest source of funding for the CPW is through licenses, passes, fees, and permits related to outdoor recreation. Excise taxes on hunting and fishing equipment, firearms and ammunition along with license fees contribute 78% of all wildlife revenue (CPW, 2015). The boreal toad, cutthroat trout, big horn sheep, black-footed ferrets, Sage-grouse, elk, and bats are just a few examples of species that have benefited from conservation efforts (Colorado Wildlife Council).

Aesthetics and Scenic Resources

From snow-covered mountains to deep canyons and expansive prairies, Colorado offers visual wonders of almost every kind. The main approach west along I70 into the Denver area is back-dropped by the impressive vertical horizon of the Southern Rocky Mountains. A short drive from the city takes a visitor suddenly into a seemingly infinite land of topographical marvels. Recreation opportunities exist, whether the visitor wishes to visit a National Park or hike in wilderness areas.

Within Colorado, 26 Scenic and Historic Byways, 11 of which are designated America's byways, provide routes between historic sites and magnificent scenery (Colorado Tourism, 2020). The state's diverse terrain can be viewed by following the sky-blue signs sporting the state flower, the columbine, and the words "Scenic Byway". Most byways travel through National Forest land; therefore, many recreational opportunities can be accessed.

The changing of seasons in Colorado brings a striking array of colors. As mountains give up their persistent covering of snow, spring weather delivers luscious wildflowers and brilliant greens on an otherwise drab-brown country. Waterfowl, shorebirds, and other viewable wildlife flood into areas of Colorado to breed and feed. As the fall approaches, quaking aspens turn gold adding spectacular hues to mountainsides that can often be seen from roads and paths.

Recreation

Colorado's millions of acres of forests, grasslands, and parks, resulting in 92% of the state's residents participating in outdoor recreation activities, contributing 62.5 billion dollars to the economy annually (State of Colorado, 2019). Eleven national forests, four national parks, two national grasslands, eight national wildlife refuges, 42 state parks, and numerous trails are used for backpacking, hiking, camping, boating, fishing, hunting, birding, and other activities. During winter months, outdoor enthusiasts can also snowshoe, winter camp, and backcountry ski and

snowboard in these areas. As winter turns to spring and summer, snow melts down from the mountains. Melting snow spills into rivers and streams creating prime areas for rafters and kayakers.

In addition to public park areas, there are 32 ski resorts available to the public, including such world-class resorts as Vail, Aspen, and Steamboat. Many of these resorts also have areas for cross-country skiing. During spring and summer months, most ski resorts are open to golfers, hikers, and mountain bikers.

Those wishing to get away from civilization and see more of the state can travel along the 485-mile Colorado Trail. Extending from Denver westward across the state to Durango, the trail passes through seven national forests, six wilderness areas, five major river systems, and eight Colorado mountain ranges. The trail is open to hikers, horseback riders, and, to some extent, mountain bikers (The Colorado Trail Foundation, 2020).

Unique Natural Areas

Many Colorado forests provide habitat for rare and important plant and animal species and are sometimes themselves a valuable resource. Established in 1977, the Colorado Natural Areas Program (CNAP) is a statewide initiative focused on the recognition and protection of areas that contain at least one unique or high-quality natural feature of statewide significance, such as community, geologic, paleontologic, rare plant, and rare fauna. CNAP has 95 designated State Natural Areas protecting over 250 rare, threatened or endangered species or plant communities. The program conserves 178,275 acres of significant land as well as 126 species of greatest conservation need, designated by the CPW (Colorado Parks and Wildlife, 2017). These natural areas occur mostly in the mountain and western parts of the state. Because of the need for watershed conservation, many of these areas contain riparian systems, especially along major rivers.

Many examples of important conservation areas exist among these selected natural areas. Owl Canyon in Larimer County includes 658 acres supporting a dense population of pinyon pine at the northeastern extremity of its range in North America. Individual trees from these stands are from 200 to 500 years old. Arapaho National Wildlife Refuge, located in an intermontane glacial basin south of Walden, was established in 1967 as a nesting and rearing stop-over for waterfowl. Garden Park, located 8 miles north of Cañon City in south central Colorado, harbors a rich diversity of vertebrate fossils. This natural area may possibly be the most valuable Jurassic dinosaur graveyard in the world.

Other unique areas of Colorado include North America's highest dunes rising over 700 feet against the Sangre de Cristo Mountains. The Great Sand Dunes National Park includes 39 square miles of dunes, alpine lakes and tundra, 6 peaks over 13,000 feet, ancient spruce and pine forests, large stands of aspen and cottonwood, grasslands, and wetlands.

Located in north central Colorado, Rocky Mountain National Park is a national icon with its rugged peaks and lush spruce and aspen forests. This home to countless species of plants and animals, including elk, black bear, moose, coyote, bobcat, and deer, is visited by 3 million people each year. Black Canyon of the Gunnison was elevated to National Park Status in 1999.

The Earth's oldest living inhabitants, the bristlecone pine, finds a home near tree line in the Colorado Rockies. With an average age of 1,000 years, bristlecones have been recorded at over 4,000 years old, which makes it a resource worth protecting. The Colorado species of bristlecone is locally abundant south of Berthoud Pass, especially in the subalpine environment of Park County. Pure stands of bristlecones grow in central and southern parts of the Southern Rocky Mountains.

Urban Influences

Perhaps the most recognized threat to private forested areas in the state is urban expansion. Residential and commercial developments are increasing within forested lands. Colorado's wildland-urban interface (WUI) is the area where man-made structures are built within or in close proximity to natural vegetation. Based on the CSFS 2017 Colorado Wildfire Risk Assessment, there were 2.9 million people living in the WUI. At that time, the WUI was estimated to cover roughly 3.4 million acres; one model projects this area could increase to roughly 9 million acres by 2040 (Theobald, 2015). Current data shows counties with moderate to high increases in housing density lie mostly in areas along the Front Range of Colorado. As many of the major wildfires in Colorado are caused by humans, the potential for more frequent wildfires within the WUI seems clear as populations continue to grow.

SECTION 2: CRITERIA AND FOREST LEGACY AREA DETERMINATION

In order to assess the need for protection of privately owned forest, and to develop the criteria by which those privately owned forests would be chosen, identification of areas of potential conversion and the consultation of selected Colorado land conservation groups, were needed. The primary goals of this assessment were 1) establish criteria that incorporated input from land conservation professionals, and 2) establish FLA boundaries that are inclusive of private forests with graphically definable and modifiable boundaries. The CSFS chose to accomplish this using the following two steps:

Step 1: Criteria, 2020

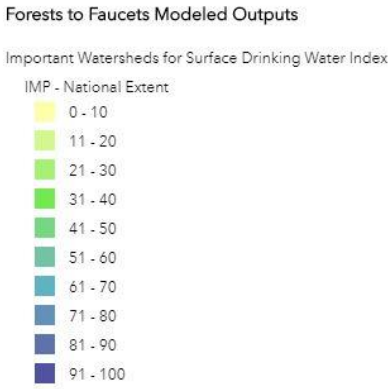
In 2020, the private forest land protection criteria were modified from the 2006 Forest Legacy Assessment of Need Five Year Review by consulting with Colorado land conservation groups. The following organizations were involved in updating the criteria and ranking: Colorado Cattlemen's Agricultural Land Trust (CCALT), The Conservation Fund (TCF), The Nature Conservancy (TNC), The Trust for Public Land (TPL), and Colorado Parks and Wildlife (CPW). Table 2 presents the cumulative ranking of these criteria:

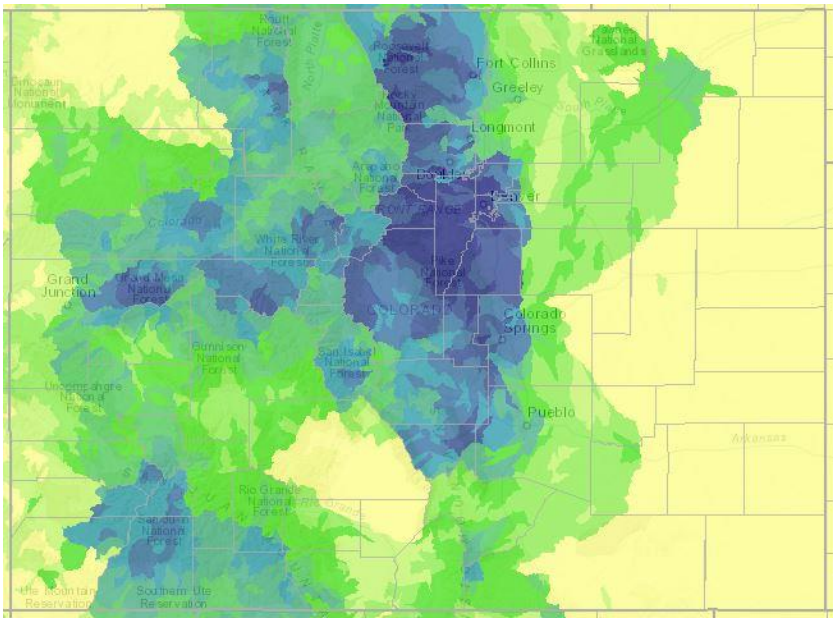
Table 1,
Private Forest Land Protection Criteria, 2020

Criteria	Priority
Water Quality/Quantity	1
Wildlife Habitat	2
Growth/Sprawl Control	3
Large Continuous Forest	4
Wetland/Riparian Areas	5
Unique Ecological Areas	6
Wildfire Control Issues	7
Private Property Rights	8
Forest Timber Products	9
Lifestyle Protection for Landowner	10

The updated criteria will be used to rank future projects according to their priority and emphasis.

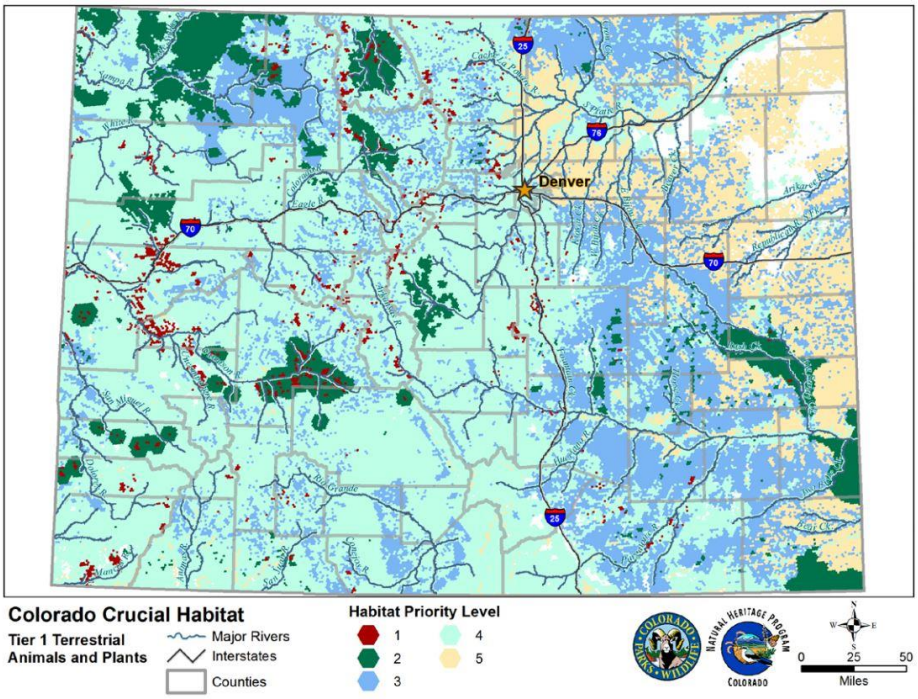
1. Water Quality/Quantity: The National Forests to Faucets 2.0 (F2F2), 2019 Assessment is a geographic analysis done by the US Forest Service that uses data to show importance of sub-watersheds for surface drinking water and to look at potential threats to those watersheds. Threats to these important forested watersheds include fire, insects and disease, development, and reduced run-off due to a changing climate.





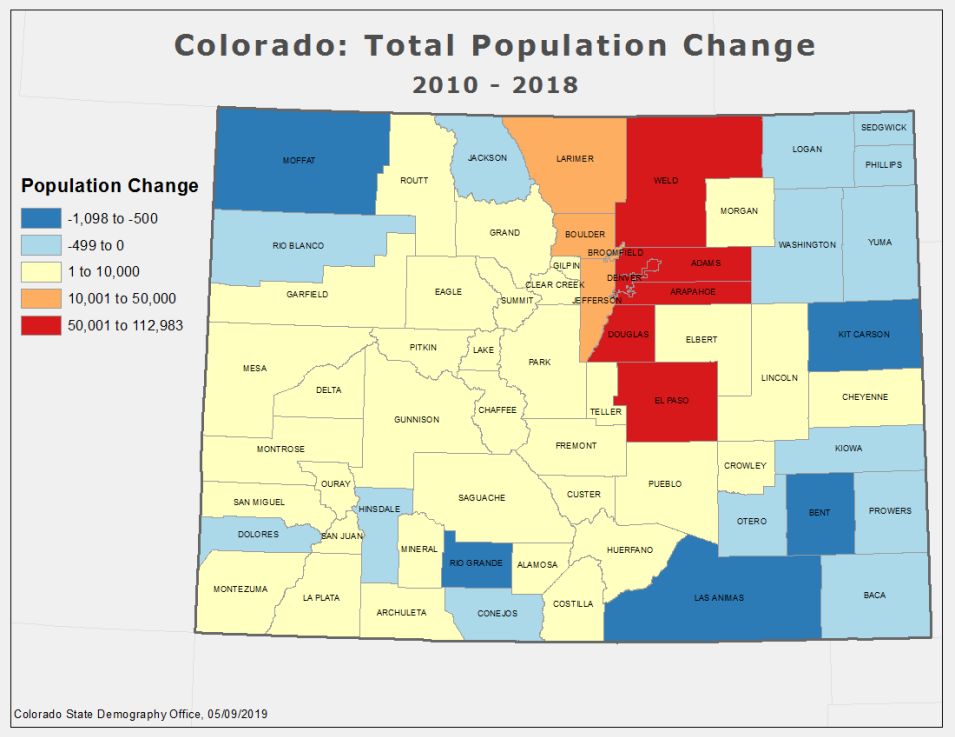
https://usfs.maps.arcgis.com/apps/MapSeries/index.html?appid=e84fc83c8be542079d3c1d489d45be21#

2. Wildlife Habitat: Colorado's 2015 State Wildlife Action Plan (SWAP) by Colorado Parks and Wildlife include several maps that relate to wildlife conservation in Colorado. The Colorado Crucial Habitat map (below) shows crucial habitat and priority level for Tier 1 terrestrial animal and plant species of greatest conservation need (SGCN).



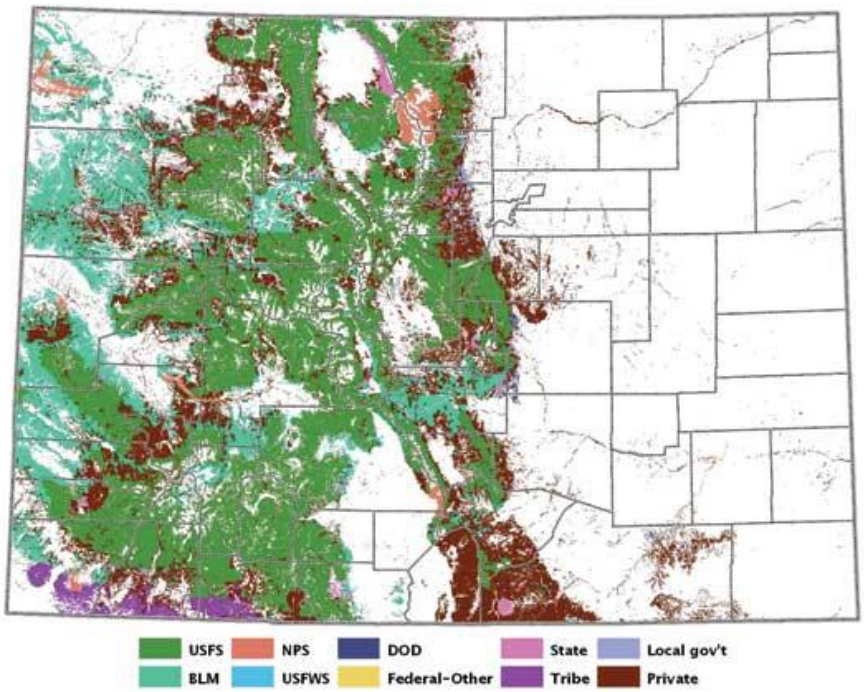
https://cpw.state.co.us/Documents/WildlifeSpecies/SWAP/CO_SWAP_FULLVERSION.pdf

3. Growth/Sprawl Control: To illustrate the housing density pressure and population sprawl, the Colorado State Demography Office, total population change 2010 – 2018 by county map was used.



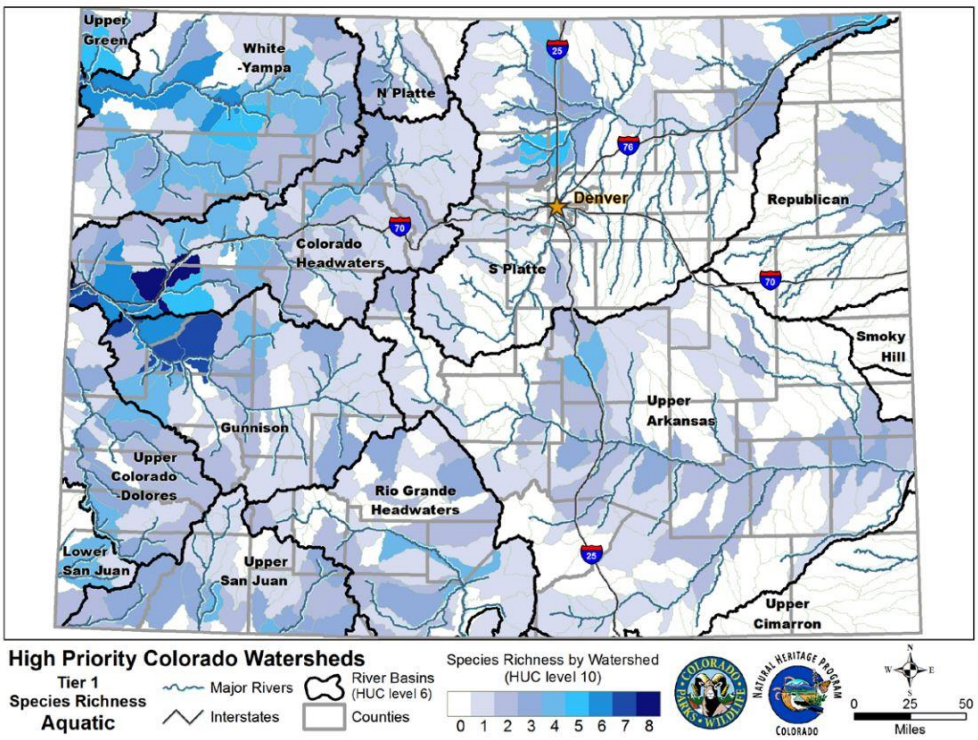
https://storage.googleapis.com/maps-static/TtlChg1018.png

4. Large Continuous Forest: A forest ownership map by the Colorado State Forest Service was used. The map illustrates the forest ownership within Colorado which includes the U.S. Forest Service (USFS), Bureau of Land Management (BLM), National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS), Department of Defense (DOD), Federal, State, Tribe, Local government, and Private.



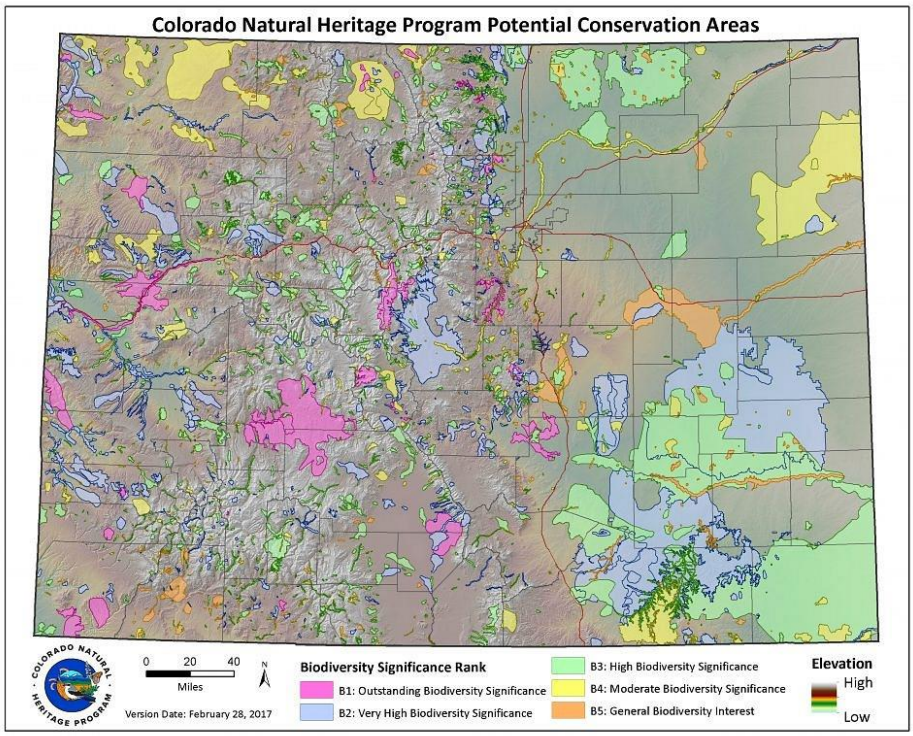
https://csfs.colostate.edu/colorado-forests/forest-types/

5. Wetland/Riparian Areas: The High Priority Colorado Watersheds map developed by the Colorado Parks and Wildlife as part of the 2015 SWAP was used to represent significant wetland/riparian areas. The map shows the priority of watersheds (HUC 10) in relation to the Tier 1 (SGCN) species richness.



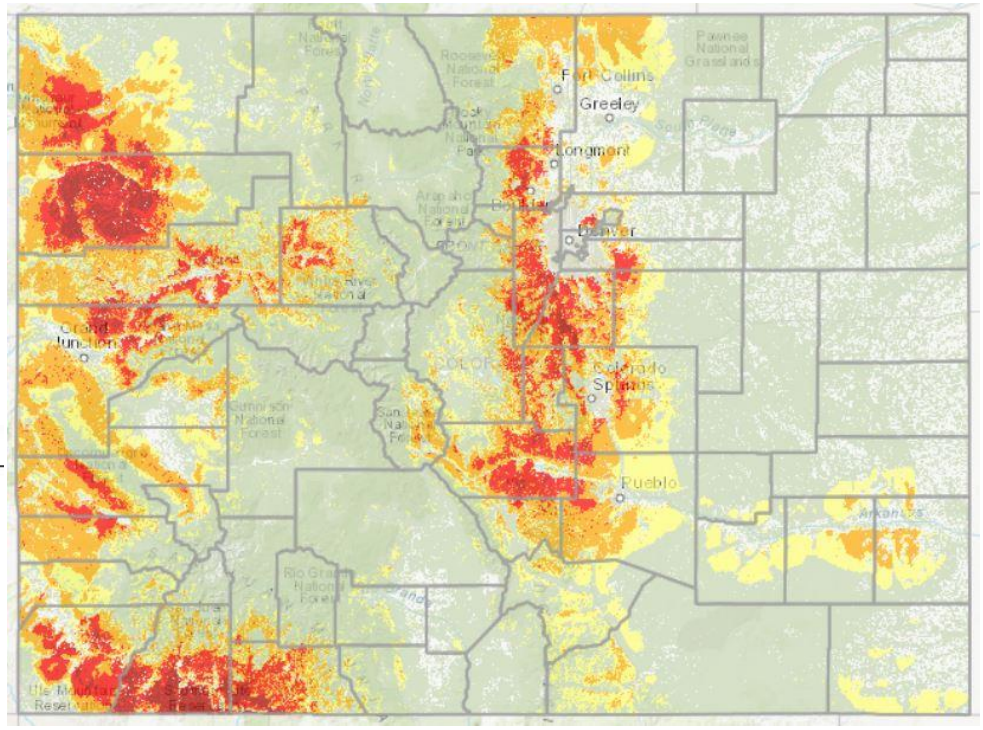
https://cpw.state.co.us/Documents/WildlifeSpecies/SWAP/CO_SWAP_FULLVERSION.pdf

6. Unique Ecological Areas: The Colorado Natural Heritage Program produced the Potential Conservation Areas map (below), showing the biodiversity significance ranking by area.



https://cnhp.colostate.edu/ourservices/mapping/

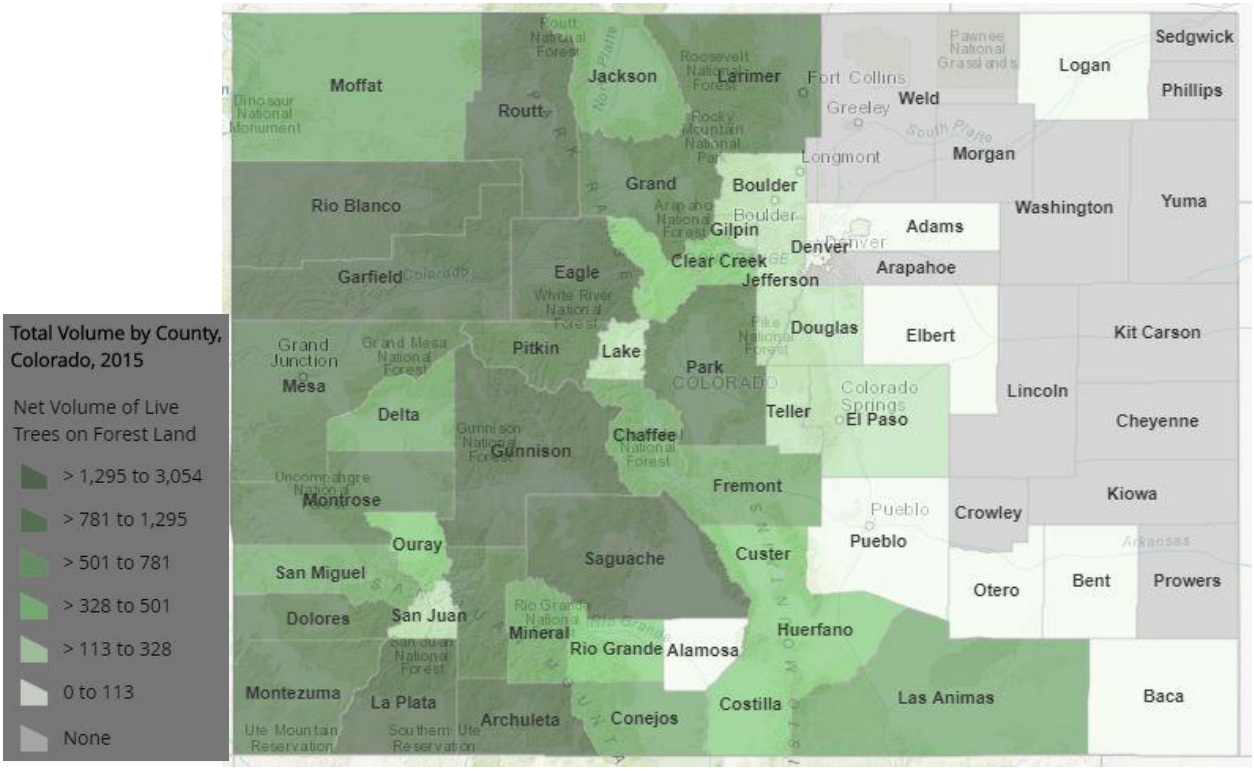
7. Wildfire Control Issues: The Wildfire Risk map (below), published by the Colorado State Forest Service, identifies areas with the greatest potential impacts from a wildfire.



https://co-pub.coloradoforestatlas.org/#/

8. Lifestyle Protection for Landowners: No data set could be identified which could represent lifestyle protection for landowners spatially. This value was not represented on the FLA map. This criteria will be assessed through the Forest Legacy application review process.

9. Forest Timber Products: This data set came from the 2015 Forest Inventory and Analysis (FIA) program at the Rocky Mountain Research Station of the U.S. Department of Agriculture Forest Service. The volume of wood in a forest can be an important indicator of forest health, sustainability, and structure. The map (below) illustrates the total wood volume (cubic feet) per county.



https://www.arcgis.com/apps/MapJournal/index.html?appid=707aec494f694647b88fc07952e8e78a

10. Lifestyle Protection for Landowners: No data set could be identified which could represent lifestyle protection for landowners spatially. This value was not represented on the FLA map. This criteria will be assessed through the Forest Legacy application review process.

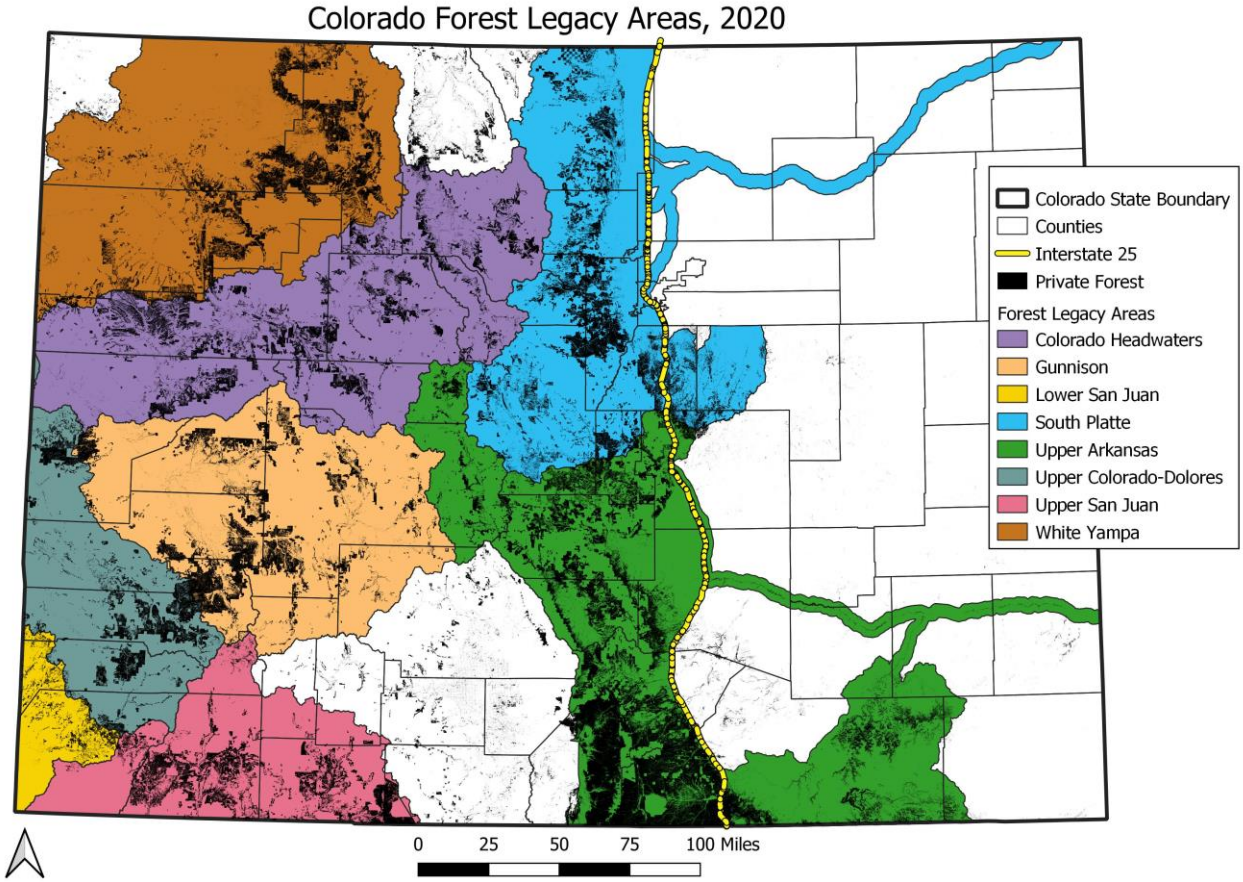
Step 2: Forest Legacy Area Determination, 2020

An update to Colorado's Forest Legacy Areas (FLAs) was required due to the previous FLA lack of private forest inclusivity. As a result, projects that were highly scored may not have been within the FLA boundary and therefore were ineligible for consideration within the Forest Legacy Program. The three objectives for the production of Colorado's 2020 (FLAs) were: 1) inclusive of privately owned forests, 2) definable boundaries, and 3) modifiable boundaries.

Without designating the entire state to be eligible for the Forest Legacy program, the first task was to identify the majority of Colorado's private forests. This was performed by intersecting the privately owned land (2019 COMap) GIS data and forest (2017 COWRAP) GIS data. The intersection of these two layers created a "private forest" layer. The inclusivity of this private forest layer was crucial to the composition of the 2020 FLAs.

The second and third objectives of the FLA selection were to have easily definable and modifiable boundaries. It was suggested that river basins (HUC 6s) be the foundation of the FLA boundaries as they are geographically depictable and encompass large areas. GIS shapefiles of hydrologic boundaries were downloaded from the USGS watershed boundary dataset. The basins were ranked according to the amount of private forests contained within each and chosen on the basis of those assessments as well as connectivity.

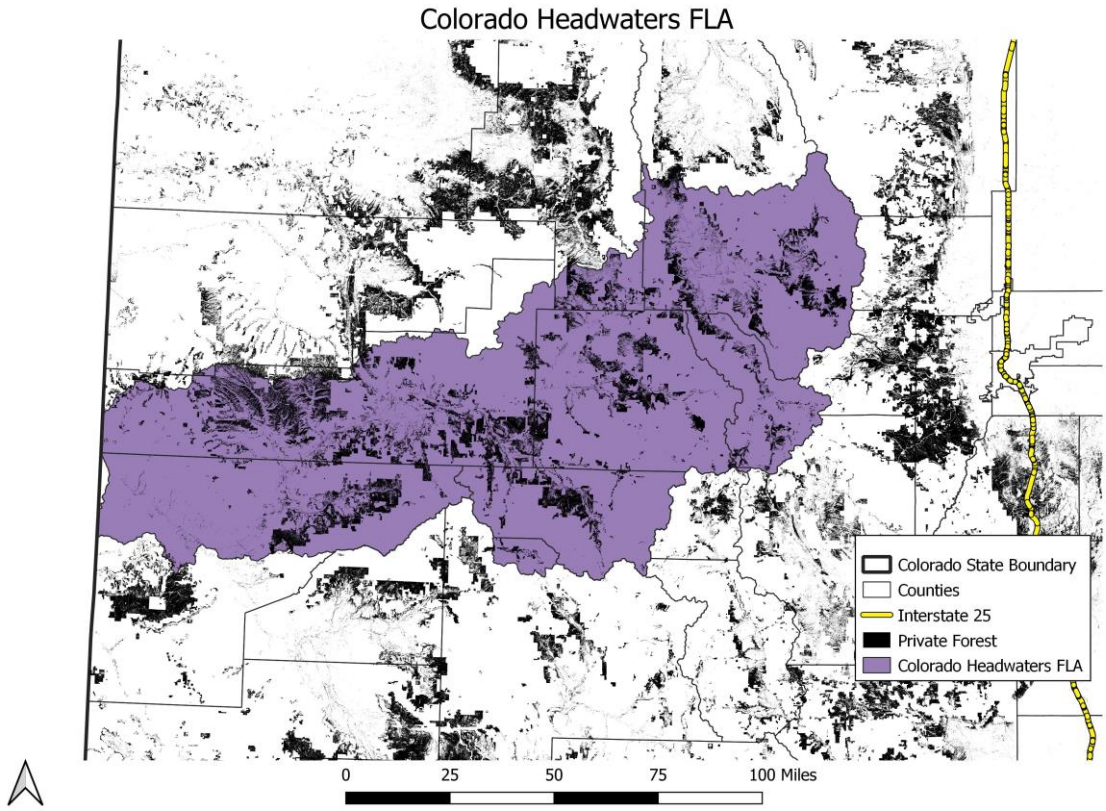
In order to eliminate zones that had little to no forest conservation potential, modifications to three of the basin boundaries (South Platte, Upper Arkansas, and Upper San Juan) were made. These modifications utilized both political and geographical perimeters. Political features used to modify HUC 6 boundaries included county lines and roads, while geographical boundaries used to modify FLAs were watersheds (HUC 10s) and riparian buffers on major water features.



SECTION 3: FLA DESCRIPTIONS

The Forest Legacy Area descriptions incorporate data from COMap 2019, chartered city and town populations from the US Census Bureau (Revised September 14, 2015), and EPA Level III and IV Ecoregions. The following FLA's were identified for the Forest Legacy Program in Colorado:

Colorado Headwaters Forest Legacy Area

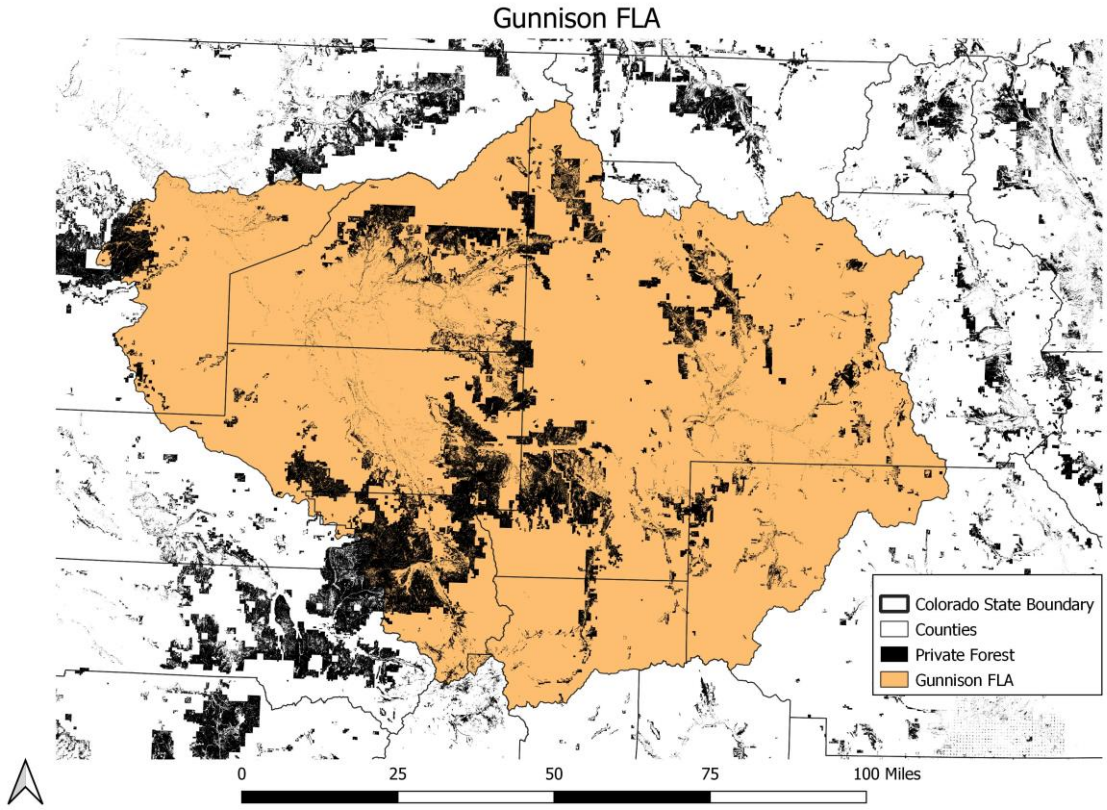


Area Coverage Description: The Colorado Headwaters Basin (140100) within Colorado forms the boundary of this FLA.

The population within this area is estimated to be 156,000 with a population density of 16 people per square mile. The Colorado Headwaters FLA makes up approximately 9.4% of the state and contains approximately 12% of Colorado's private forests. The land ownership within this FLA is 28.5% private, 24.5% BLM, 43% USFS, 1.9% NPS, and 0.7% CPW. Counties that occur in the Colorado Headwaters include Eagle, Garfield, Grand, Gunnison, Mesa, Pitkin, Routt, and Summit. Major cities in the region are Aspen, Glenwood Springs, Grand Junction, Rifle, and Vail. The Arapahoe, Grand Mesa, Routt, and White River National Forests occur in this region.

Included within this basin is the Southern Rockies (21) and the Colorado Plateaus (20) Level III Ecoregions. The Southern Rockies make up the eastern three quarters of the FLA, with the Level IV Ecoregions being the alpine zone (21a), crystalline subalpine forests (21b), crystalline mi-elevation forests (21c), foothill shrublands (21d), sedimentary subalpine forests (21e), sedimentary mid-elevation forests (21f), volcanic subalpine forests (21g), and volcanic mid-elevation forests (21h). The Level IV Ecoregions within the Colorado Plateaus include shale deserts and sedimentary basins (20b), semiarid benchlands and canyonlands (20c), and arid canyonlands (20d).

Gunnison Forest Legacy Area

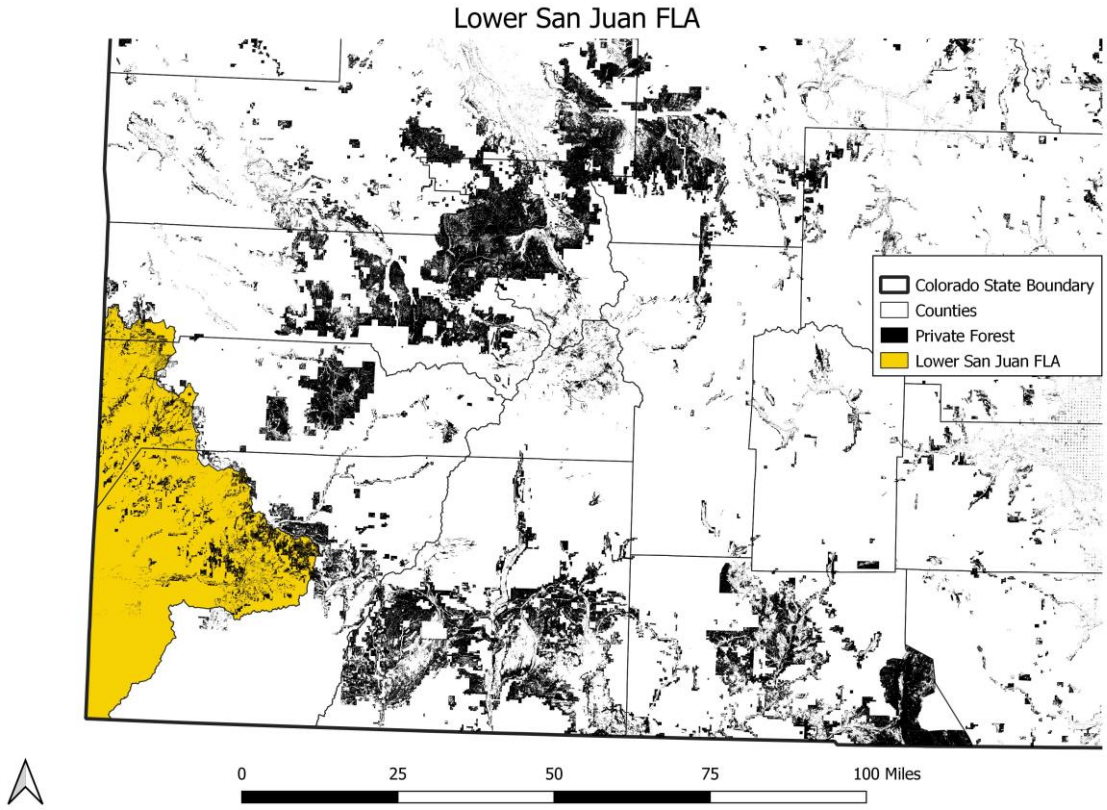


Area Coverage Description: The Gunnison River Basin (140200) forms the boundary of this FLA.

The approximate population within the Gunnison River Basin is 43,000, with a population density of five people per square mile. The region makes up an estimated 7.7% of the state and contains approximately 9.9% of Colorado's private forests. The land ownership within this FLA is 27.1% private, 25.3% BLM, 45.3% USFS, 1.3% NPS, and 0.7% CPW. Counties that occur within boundaries of this FLA include Delta, Gunnison, Hindsdale, Mesa, Montrose, Ouray, Saguache, and San Juan. Major cities in this region are Delta, Gunnison, and Montrose. The Grand Mesa, Gunnison, and Uncompahgre National Forests occur in this region.

Included within this basin is the Southern Rockies (21) and the Colorado Plateaus (20) Level III Ecoregions. The Level IV Ecoregions within the Southern Rockies of this FLA are the alpine zone (21a), crystalline subalpine forests (21b), crystalline mi-elevation forests (21c), foothill shrublands (21d), sedimentary subalpine forests (21e), sedimentary mid-elevation forests (21f), volcanic subalpine forests (21g), and volcanic mid-elevation forests (21h), sagebrush parks (21i), and grassland parks (21j). The Level IV Ecoregions within the Colorado Plateaus include shale deserts and sedimentary basins (20b) and semiarid benchlands and canyonlands (20c).

Lower San Juan Forest Legacy Area

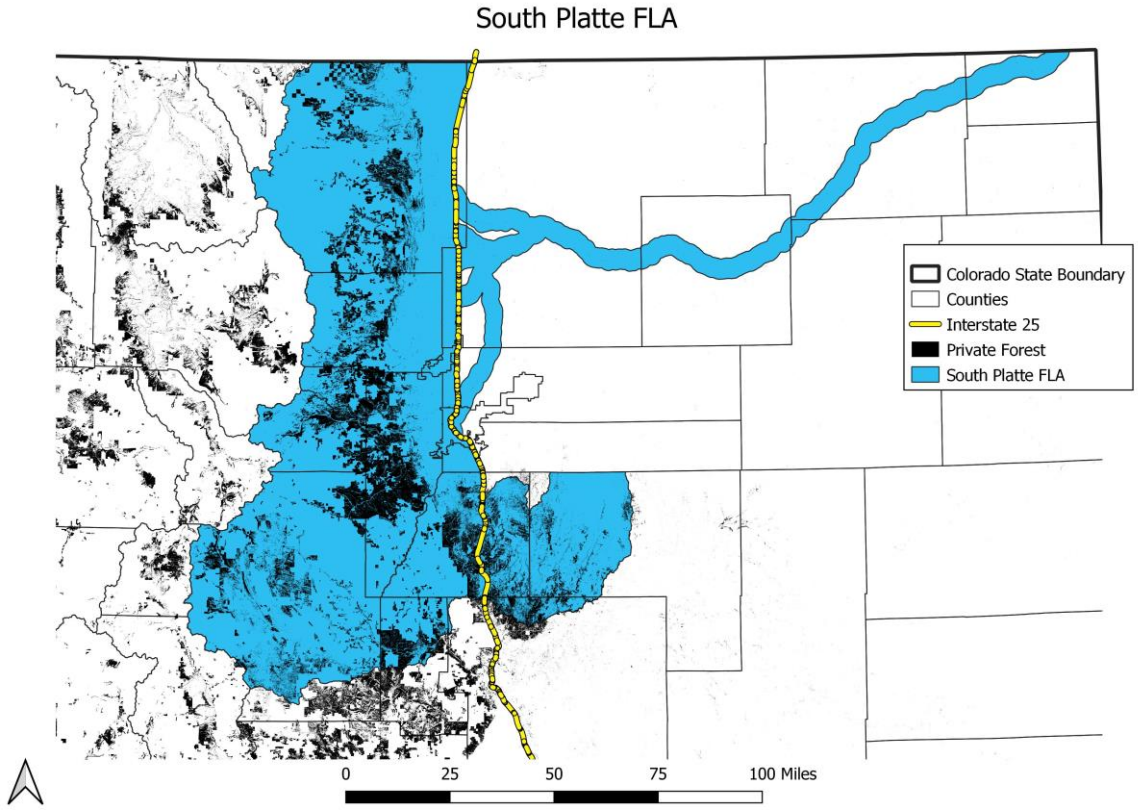


Area Coverage Description: This forest legacy area is comprised of the portion of the Lower San Juan River Basin (140802) that falls within the state of Colorado.

This forest legacy area contains an estimated 10,000 people and has a population density of nine people per square mile. This is the smallest FLA, covering an estimated 1.1% of the state, and containing 1.2% of private forests within the state. The land ownership within this FLA is 52.6% private, 26.8% BLM, 0% USFS, 0.8% NPS, 0.3% CPW, and 18.8% tribal. Counties included within the Lower San Juan are Dolores, Montezuma, and San Muigel. The major city within the area is Cortez. The Ute Mountain Ute Indian tribal lands occur in the southwest corner of the FLA. A very small part of the San Juan National Forest occurs within this region; however, it is such a small acreage that it comprises approximately only 0.03% of the area.

The vast majority of this FLA falls within the Colorado Plateaus (20), with the other portion within the Southern Rockies (21). The level IV ecoregions included in the Plateaus (20) are Monticello-Cortez uplands and sagebrush valleys (20a), shale deserts and sedimentary basins (20b), semiarid benchlands and canyonlands (20c), and arid canyonlands (20d). The level IV ecoregion within the Rockies is sedimentary mid-elevation forests (21f).

South Platte Forest Legacy Area



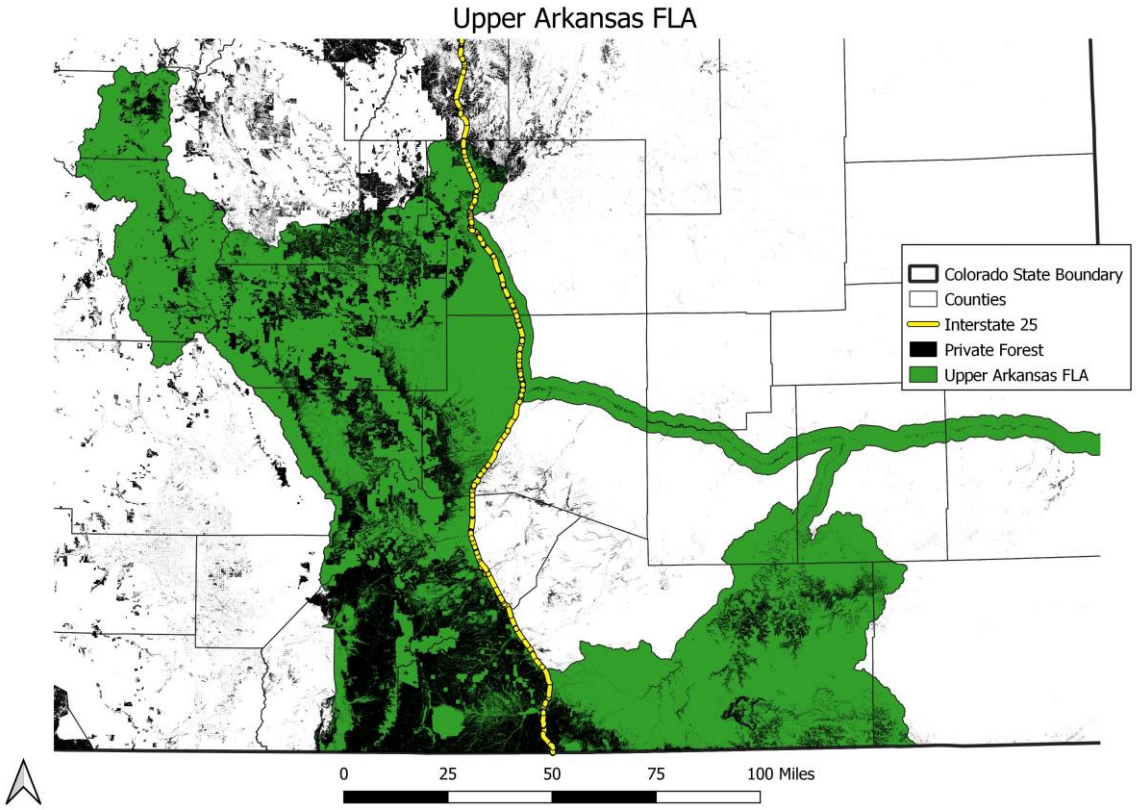
Area Coverage Description: This forest legacy area includes a portion of the South Platte River Basin (101900), within Colorado. The boundary of the FLA east of Interstate 25 was formed by using a 2.5-mile buffer along the South Platte, St. Vrain, Cache la Poudre, Little Thompson, and Big Thomson Rivers. Additionally, watersheds (HUC 10s) that encompassed the Black Forest, east of Interstate 25 were included. Because these watersheds extended further than the back forest, the shapes were cut at the north border of Elbert County.

Of the eight FLAs, the South Platte contains both the largest population and population density, at an estimated 2,000,000 people, and 212 people per square mile, respectively. Thus, experiencing the most development pressure of the FLAs. This area covers approximately 9% of Colorado and 13% of the private forests within the state. The land ownership within this FLA is 55.3% private, 1% BLM, 29.5% USFS, 2.9% NPS, and 1.8% CPW. Counties included within this FLA include Adams, Arapahoe, Boulder, Broomfield, Clear Creek, Denver, Douglas, El Paso, Elbert, Gilpin, Jefferson, Larimer, Logan, Morgan, Park, Sedgwick, Teller, Washington, and Weld. Major cities within this FLA are Boulder, Denver, Fort Collins, Greeley, Longmont, and Sterling. The Arapahoe, Pike, Roosevelt, and a small portion of the San Isabel National Forests occur in this region.

The majority of the area falls within the Southern Rockies (21), west of Interstate 25. The rest of the South Platte FLA lies in the High Plains (25) and Southwestern Tablelands (26). The alpine zone (21a), crystalline subalpine forests (21b), crystalline mi-elevation forests (21c), foothill shrublands (21d), sedimentary subalpine forests (21e), sedimentary mid-elevation forests (21f), volcanic subalpine forests (21g), and volcanic mid-elevation forests (21h), and grassland parks (21j), form the portion of the Rockies within this FLA. The Level IV Ecoregions within the plains (25) include the rolling sand plains (25b), moderate relief plains (25c), flat to rolling plains (25d), and the

front range fans (25l). Pine-oak woodlands (26i) and foothill grasslands (26j) occur within the tablelands (26), and form part of the Black Forest.

Upper Arkansas Legacy Area

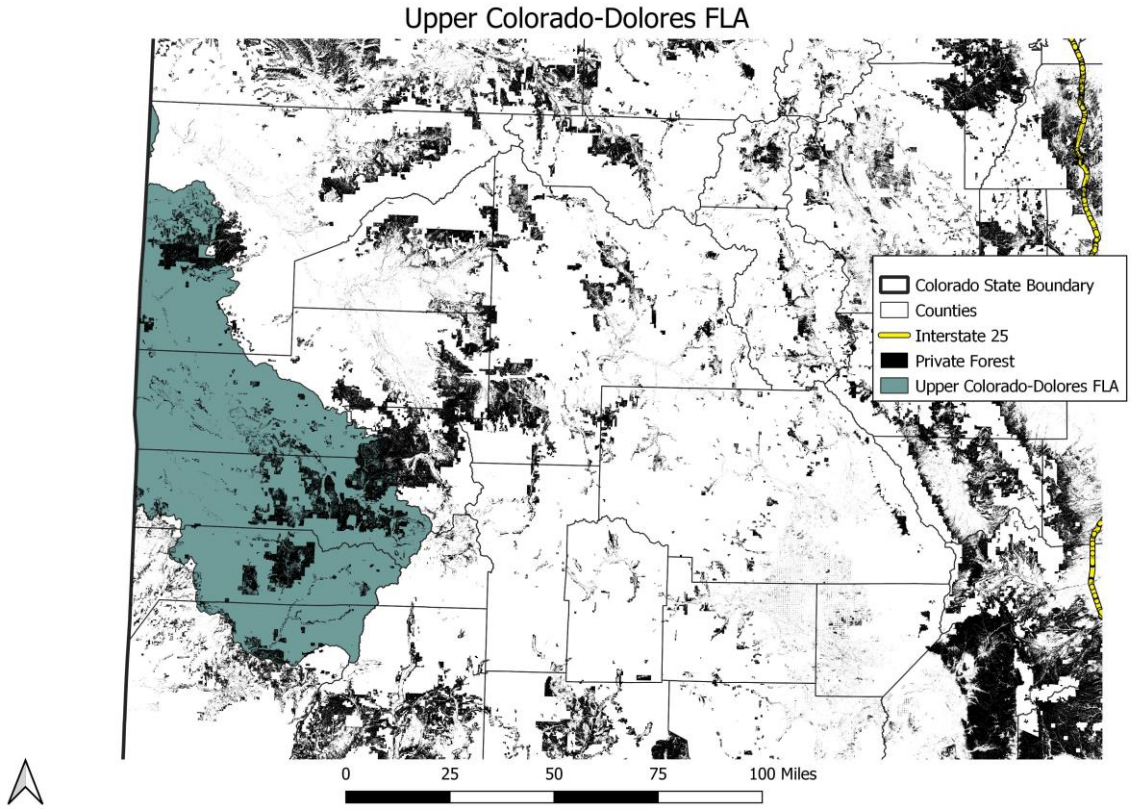


Area Coverage Description: Although this FLA is mostly comprised of the Upper Arkansas River Basin (110200), it also contains portions of the Upper Cimarron (110400), Middle Arkansas (110300), Upper Canadian (110800), Upper Rio Grande (130201), and Rio Grande Headwaters (130100) River basins. The east portion of the Upper Arkansas basin was disconnected at Interstate 25. The boundary of the FLA east of Interstate 25 was formed by using a 2.5-mile buffer along the Arkansas River, Purgatoire River, and Fountain Creek, and watersheds (HUC 10s) to include the Black Forest and plains riparian forests. Watersheds within the east portion of the Rio Grande Headwaters basin (in Costilla County) were incorporated in the FLA in order to include forests west of the Upper Arkansas basin. Because the selected watershed extended into non-forest land, the shapes were excluded at Colorado 159 and 4th Avenue (in Costilla County).

The Upper Arkansas contains approximately 622,000 people and has an approximate population density of 49 people per square mile. This area covers approximately 12.1% of Colorado and 29.1% of the private forests within the state, being the largest and containing the greatest amount of forest of the FLAs. The land ownership within this area is 67% private, 6.9% BLM, 17% USFS, 0% NPS, and 0.9% CPW. Counties that occur in the Upper Arkansas include Baca, Bent, Chaffee, Costilla, Crowley, Custer, El Paso, Fremont, Huerfano, Lake, Las Animas, Otero, Park, Prowers, Pueblo, Saguache, and Teller. The major cities found in this FLA are Canon City, Colorado Springs, La Junta, Pueblo, and Salida. The Pike and San Isabel National Forests, and the Comanche National Grassland occur in this region.

With the greatest environmental diversity of the FLAs, the Upper Arkansas encompasses four Level III Ecoregions: Southern Rockies (21), Arizona/New Mexico Plateau (22), High Plains (25), and Southwestern Tablelands (26). The level IV ecoregions within the region include: alpine zone (21a), crystalline subalpine forests (21b), crystalline mi-elevation forests (21c), foothill shrublands (21d), sedimentary subalpine forests (21e), sedimentary mid-elevation forests (21f), volcanic subalpine forests (21g), and volcanic mid-elevation forests (21h), sagebrush parks (21i), grassland parks (21j), San Luis shrublands and hills (22a), San Luis alluvial flats and wetlands (22b), rolling sand plains (25b), flat to rolling plains (25d), piedmont plains and tablelands (26e), mesa de Maya/Black mesa (26f), Purgatoire hills and canyons (26g), pinyon-juniper woodlands and savannas (26h), pine-oak woodlands (26i) and foothill grasslands (26j), and sand sheets (26k).

Upper Colorado-Dolores Forest Legacy Area

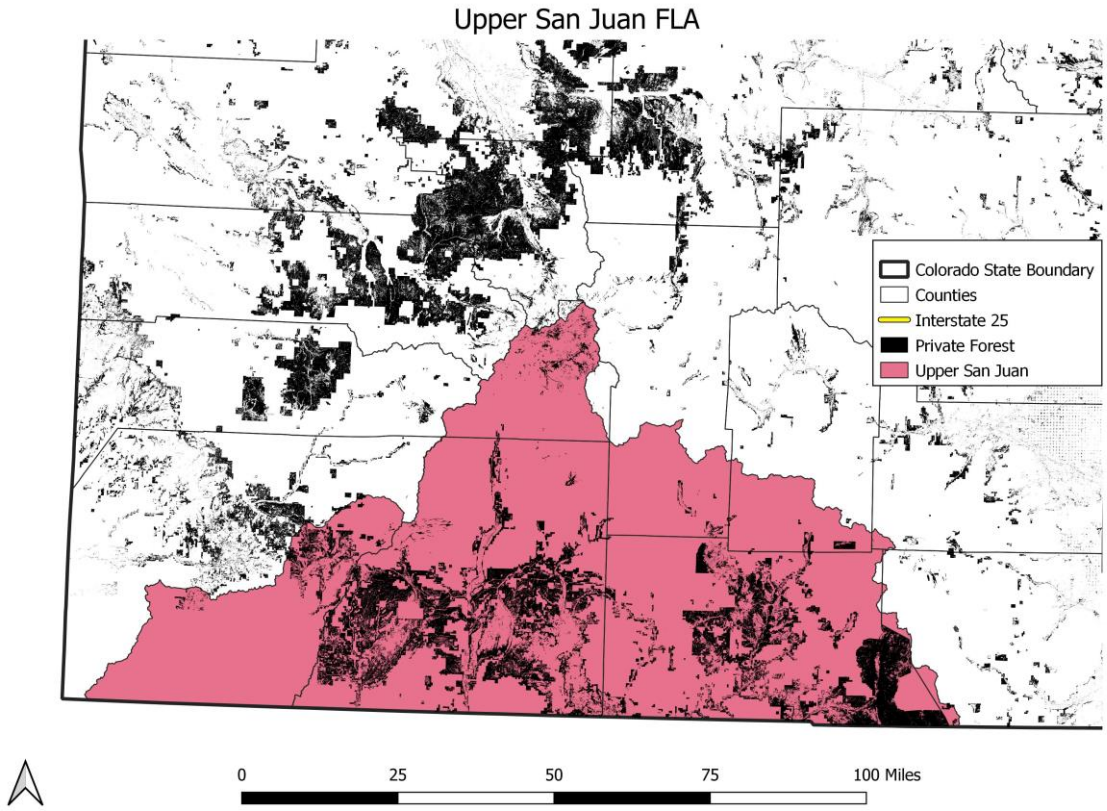


Area Coverage Description: The part of the Upper Colorado-Dolores river basin (140300) that falls within the state of Colorado comprises this FLA.

There is an estimated population of 5,400 and a population density of approximately one person per square mile within the Upper Colorado-Dolores. This area covers approximately 4.2% of the state and contains approximately 5.9% of private forests. The land ownership within this FLA is 24.8% private, 36.8% BLM, 36.1% USFS, 0% NPS, and 1.1% CPW. Counties within the Upper Colorado-Dolores include Dolores, Mesa, Montezuma, Montrose, and San Migel. The major city within this area is Telluride. The Grand Mesa, Manti-La Sal, San Juan, and Uncompahgre National Forests occur in this region.

The Colorado Plateaus (20) and the Southern Rockies (21) comprise this FLA. Monticello-Cortez uplands and sagebrush valleys (20a), shale deserts and sedimentary basins (20b), semiarid benchlands and canyonlands (20c), and arid canyonlands (20d) lie within the plateaus (20). The level IV ecoregions within the Southern Rockies are alpine zone (21a), sedimentary subalpine forests (21e), and sedimentary mid-elevation forests (21f).

Upper San Juan Forest Legacy Area



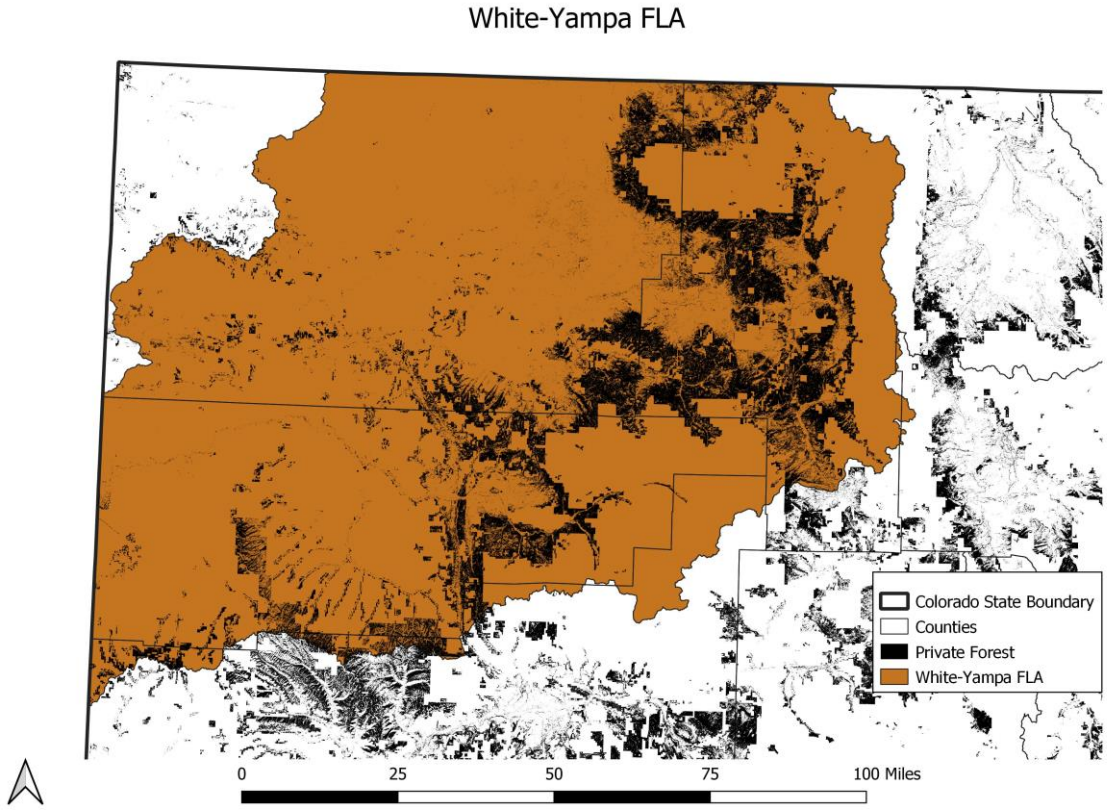
Area Coverage Description: This FLA includes the Upper San Juan River Basin (140801) within the state of Colorado. Additionally, the southeast portion of the FLA incorporates the Upper Rio Grande (130201), to encompass private forests on the eastern edge of Archuleta County.

The approximate population within this forest legacy area is 31,000 and the population density is seven people per square mile. The Upper San Juan FLA covers an estimated 4.5% of the state and 7.3% of private forests. The land ownership within this region is 28.1% private, 3.2% BLM, 45% USFS, 1.6% NPS, 0.4% CPW, and 20.9% tribal. Archuleta, Hindsdale, La Plata, Mineral, Montezuma, and San Juan counties are located in the region. Durango is the major city occurring within the area. The San Juan and Rio Grande National Forests can be found in this FLA. The Ute Mountain Ute Indian Tribal Lands and the Southern Ute Indian Tribal Lands occur in the southwest and southeast portions of the region, respectively.

The Colorado Plateaus (20) and Southern Rockies (21) Level III Ecoregions are identified within the Upper San Juan. Monticello-Cortez uplands and sagebrush valleys (20a), shale deserts and sedimentary basins (20b), semiarid

benchlands and canyonlands (20c), and arid canyonlands (20d) are within the plateaus (20) of the area. The Level IV Ecoregions within the Southern Rockies include the alpine zone (21a), crystalline subalpine forests (21b), crystalline mi-elevation forests (21c), foothill shrublands (21d), sedimentary subalpine forests (21e), sedimentary mid-elevation forests (21f), and volcanic subalpine forests (21g).

White-Yampa River Forest Legacy Area



Area Coverage Description: This forest legacy area includes the White-Yampa River Basin (140500), within the Colorado State borders.

With an estimated population of 28,000 and a population density of 3 people per square mile, this forest legacy area makes up approximately 9.3% of the state and contains approximately 12% of Colorado's private forests. The land ownership within this FLA is 37.5% private, 38.3% BLM, 17.9% USFS, 1.7% NPS, and 1% CPW. The counties within the White-Yampa include Garfield, Moffat, Rio Blanco, and Routt. Major cities found within this area area Craig and Steamboat Springs. The Routt and White River National Forests occur in this region.

Included within this FLA is the Wyoming Basin (18), Colorado Plateaus (20) Southern Rockies (21). The Level IV Ecoregions within the Wyoming Basin include rolling sagebrush steppe (18a), foothill shrublands and low mountains (18d), and salt desert shrub basins (18e). The shale deserts and sedimentary basins (20b), semiarid benchlands and canyonlands (20c), escarpments (20e), and Uinta basin floor (20f) are found within the plateaus (20). The Level IV Ecoregions included in that part of the Southern Rockies (21) are the alpine zone (21a), crystalline subalpine forests (21b), crystalline mi-elevation forests (21c), foothill shrublands (21d), sedimentary subalpine forests (21e), sedimentary mid-elevation forests (21f), and volcanic subalpine forests (21g).

SECTION 4: FOREST LEGACY PROJECT SELECTION CRITERIA AND PROCEDURE

In 2001, a list of 26 criteria were identified in which prospective FLP projects will be ranked. A subcommittee of the SFSCC will review project proposals. Each proposal will receive a qualitative ranking based on the extent to which they address the criteria. Criteria marked with a "*" are required and must be clearly addressed in the project proposal to establish eligibility. The remaining criteria will be evaluated as adding value to the proposal and used to select among multiple competing projects. No rank significance is implied by the order in which the criteria are listed.

1. ***FLA Area Inclusion:** The proposed property boundary must lie, at least in part, within a defined Forest Legacy Area.
2. ***Willing Landowner:** Written expression of interest must be received from the landowner.
3. ***Easement Condition:** Conservation easement terms must be clearly consistent with FLP guidelines.
4. ***Plan Quality:** The land management plan must encourage active forest stewardship through compliance with Forest Stewardship Program plan guidelines.
5. ***Money Leverage:** At least 25% of the project costs must be secured from non-federal cash or in-kind sources
6. ***Threat of Conversion to Non-Forest Use:**
7. ***Readiness:** Proposal must clearly describe the current status of project development and the time line for transaction completion.
8. ***Value of Project:** Proposal must clearly describe the cost-benefit relationships of the project.
9. **Size:** Size of the parcel will be given a value in ranking of the proposals submitted. Larger parcels will be given a higher value than smaller parcels. Smaller parcels may be given a high value during ranking based upon the other criteria.
10. **Forest Type:** Forest types will be ranked using a numbered grading system based upon forest types in Colorado and their economic and ecological values.
11. **Forest Condition:** Current condition of the forested area and its use will be graded on a numbering system.
12. **Continuity With Other Protected Lands:** Proposed lands which are contiguous or adjacent to other public and protected lands will be given a higher point value than those that do not border public or protected lands.
13. **Wildlife Habitat:** Proposed lands which demonstrate important habitat to wildlife, or demonstrate a high diversity of wildlife species on the land will be given a higher ranking to those lands which do not contain significant wildlife habitat.
14. **Urgency:** Submitted projects will be given consideration dependant on the urgency of the project need, i.e. projects with an immediate danger of development or other conversion to non-forest uses will be given a higher ranking than projects with a lesser threat of conversion.
15. **Partnerships:** Partnerships with other management agencies, either local or state/federal, or partnerships with other conservation organizations will give proposed projects a higher ranking than those that are relying on the FLP solely.
16. **Community Support:** Projects which can demonstrate support and/or acceptance from surrounding landowners or communities will be given a higher ranking than projects which have little or no acceptance from local community groups.
17. **Scenic Resources:** Proposed properties which have a positive aesthetic appearance or those properties

which would preserve an overall positive aesthetic appearance to the surrounding areas will be given higher ranking than areas that do not, or would not promote a positive aesthetic appearance.

18. **Ecological/Environmental Significance and Resources:** Projects which can demonstrate the occurrence of significant ecologic or environmental resources will be given a higher ranking than projects which do not have significant quantities or qualities of ecologic or environmental resources.

19. **Economic Significance:** Project areas which can demonstrate a significant economic impact through traditional forest use will be given a higher consideration than projects which will not provide economic returns from forest products or traditional forest uses

20. **Wildfire Hazard Reduction:** As Wildland Fire/Urban Interface concerns are an increasingly important issue in Colorado, projects located within the identified "Redzone" for Colorado, or projects which demonstrate a potential reduction of wildfire occurrences, or projects which provide access for wildfire mitigation and control will be given a higher consideration and ranking than projects which do not support wildfire control.

21. **Aquatic Resources:** Submitted project plans which show a demonstrated effort to protect or enhance aquatic resources such as lakes, rivers, wetland areas, and streams, will be given a higher ranking and consideration than projects which do not.

22. **Historic Land Use:** Lands which have demonstrated a historic and ongoing traditional forestry land use, and which ensure that such uses will continue, will be given a higher consideration in the ranking procedure than lands which have not historically demonstrated traditional forest uses.

23. **Public Access:** Project areas which allow public access for recreational, educational, or other use of the subject property, or use of adjacent public lands will be ranked higher than plans which do not allow for access.

24. **Water Quality Protection:** Submitted project plans which show a demonstrated effort to protect or enhance water quality resources in lakes, rivers, and streams, will be given a higher ranking and consideration than projects which do not.

25. **Cultural Resources:** Project areas which contain significant cultural resources, such as historic sites or archeological resources will be given a higher consideration than project areas which do not contain these resources.

26. **Other Public Values:** Other resources or assets contained within a proposed project area, or proposed project plan, will give additional ranking points to the project at the discretion of the SFSCC members.

The SFSCC will be the ongoing advisory group for establishing priorities in project selection. Additionally, the CSFS will be entirely responsible for enrollment in the FLP and administration of land or easement procurement. At the discretion of the CSFS and the State Forester, sub-contractors, land trust organizations, or other state or federal agencies may be used for land or easement procurement.

PROJECT SELECTION PROCESS

Project proposals will be identified through a periodic request process managed by the Colorado State Forest Service Forest Legacy Program Manager. A subcommittee of the State Forest Stewardship Coordinating Committee will support this process. The basic components will include 1) public announcement, 2) sub-committee ranking according to stated criteria, 3) recommendation/approval of ranked project list to State Forester, and 4) submission of list to national program manager for consideration.

SECTION 5: FOREST LAND CONSERVATION AND LAND TRUSTS

Existing Land Trusts Programs

National, Regional, and Local land conservation organizations play a vital role in the protection of private lands in Colorado. These organizations will be important partners in the success of Forest Legacy. Colorado is fortunate to have an extensive network of land trusts across the state.

Certified Conservation Easement Holders and Land Trust Alliance Members Operating in Colorado

Access Fund
Adams County Parks & Open Space
American Farmland Trust
Appalachian Trail Conservancy
Aspen Valley Land Trust
Black Canyon Regional Land Trust
Boulder County Parks and Open Space
Central Colorado Conservancy (Formerly Land Trust of the Upper Arkansas)
City of Fort Collins Natural Areas Department
City of Loveland Parks & Recreation Department
Clear Creek Land Conservancy
Colorado Cattlemen's Agricultural Land Trust
Colorado Headwaters Land Trust
Colorado Open Lands
Colorado Parks and Wildlife
Colorado West Land Trust
Crested Butte Land Trust
Douglas Land Conservancy
Ducks Unlimited, Inc. (Wetlands America Trust)
Eagle Valley Land Trust
El Paso County Environmental Division
Estes Valley Land Trust
Garden Conservancy
Jefferson County Open Space
La Plata Open Space Conservancy
Lake Superior Watershed Conservancy
Larimer County Natural Resources
Lower Arkansas Valley Water Conservancy District
Montezuma Land Conservancy
Mountain Area Land Trust
National Park Trust
Orient Land Trust
Palmer Land Trust
Pitkin County Open Space & Trails
Rio Grande Headwaters Land Trust
Roaring Fork Conservancy
Rocky Mountain Elk Foundation
San Isabel Land Protection Trust
San Miguel Conservation Foundation
South Metro Land Conservancy
Southern Plains Land Trust
The Conservation Fund
The Humane Society Wildlife Land Trust
The Nature Conservancy
The Trust for Public Land
Wilderness Land Trust

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