THE UNCOMPAHGRE PLATEAU
PROJECT AREA

LOCATION

Located in Southwest Colorado, the Uncompahgre Plateau Project (UP) area is bounded by Highway 62 on the south, the Gunnison and Uncompahgre Rivers on the east, Highway 141 on the north, and Highways 141 and 145 on the west. (Appendix 1, Map A).

DESCRIPTION

PARADOX ON ALL SIDES

In her book, *Uncompahgre*, Muriel Marshall (Marshall 1981), describes the Uncompahgre Plateau as a “great sky-long roller-wave crest” surrounded by paradoxes. South of the Plateau the rugged San Juan Mountains, rich with a history of gold and silver, dominate the skyline in bold contrast to the flat, fertile farmlands of the Uncompahgre Valley to the north. To the west, the Dolores River flows perpendicular to its valley and the Unaweep Canyon drains in two directions. To the east, the Gunnison River has cut one of the greatest gashes on earth when a much easier course was a short distance away. Between these incongruities, the Uncompahgre Plateau sweeps 70 miles across Western Colorado in an almost inconspicuous way.

AREA, LAND OWNERSHIP, ADMINISTRATION

The UP area encompasses 2,290 square miles. Approximately 75% of the project area is public land. The USFS manages 545,907 acres (37%), BLM manages 545,280 acres (37%), and the State of Colorado manages 8,689 acres (<1%) (Appendix 1, Map B). Federal land administration on the Plateau is shared among three USFS Ranger Districts and two BLM field offices. State lands are administered by the Colorado State Land Board and Colorado Division of Wildlife. Private lands account for 365,547 acres (25%) and are located primarily in or near the Uncompahgre Valley. The UP area is divided among five counties (Delta, Mesa, Montrose, Ouray, and San Miguel) and is bordered by the communities of Ridgway, Colona, Montrose, Olathe, Delta, Whitewater, Gateway, Naturita, Nucla and Norwood.
PHYSICAL/GEOGRAPHIC FEATURES

When looking at a satellite image of the Colorado Plateau Geographic Province, the Uncompahgre Plateau is one of the major geologic uplift formations in the region. The Plateau rises from 4600’ at Gateway to over 10,300’ at the top of Horsefly Peak. The summit is relatively flat with an average elevation of 9,500’ that runs southeast to northwest. The summit drops off quickly on the west side and more gradually slopes downward on the east side. The Plateau is incised by many deep canyons separated by relatively flat mesas that generally run perpendicular to the summit. Large canyons such as Big Red, Tabeguache, Spring Creek, Roubideau, Escalante, Big Dominguez, and Unaweep expose numerous geologic layers of Precambrian granite, Morrison and Dakota sandstones, and Mancos shale.

The Plateau watersheds include four major drainages of the Colorado River (Dolores, Gunnison, San Miguel and Uncompahgre Rivers) The project area is divided into 23 principal watersheds (Appendix 1, Map C).

VEGETATION

The Uncompahgre Plateau supports a wide variety of plant communities (Appendix 1, Map D). Landsat Satellite Imagery (2002) for vegetation has been used to determine acerages and locations of vegetation. Plant community identification was done using ground truthing. The species composition and productivity of the Plateau’s plant communities are dependent on soil types, precipitation levels, elevation, slope, and aspect. The more productive soils and higher precipitation rates found at the higher elevations correlate with the richer variety of vegetative types and abundance. Annual precipitation on the Plateau varies from less than 10” at the lowest elevations to more than 30” along the summit. Winter snowfall accounts for the majority of the precipitation at the higher elevations. Monsoon precipitation between July and September is also an important source of moisture at all elevations.

Below approximately 6000’ near the Dolores, San Miguel, Uncompahgre and Gunnison Rivers, a salt-tolerant, desert plant community is the predominant, extant vegetation type. Important species in this community include four-wing saltbush, shadscale saltbush, black sagebrush, winterfat, rabbit-brush, cacti, snakeweed, greasewood, and in the Gateway area, black-brush. In the Uncompahgre Valley and in the area surrounding Nucla, irrigated agricultural areas dominate this zone where land clearing, leveling, water re-distribution, and cultivation have dramatically changed the landscape and vegetation. Invasive plants in these lower elevation areas include Russian knapweed, Canada thistle, halogeton, Russian thistle, cheatgrass, tamarisk, and whitetop.

Riparian areas on the Plateau are limited and therefore are of primary importance. In lowland riparian and wetland areas the dominant native plant species include coyote willow, narrowleaf cottonwood, boxelder, chokecherry, sumac, silver buffaloberry, hawthorn, cattails, rushes, and a variety of grasses, sedges, and forbs. Willows, birches, thinline alder, and blue spruce are characteristic of higher elevation riparian areas.
Plant communities on the Plateau change with elevation gradient. Between 6,000’-7,500’, pinyon pine and Utah juniper are generally the dominant vegetation types. Pinyon-juniper (PJ) forests cover approximately 40% of the project area. Other species associated with the pinyon-juniper zone include big basin sagebrush, mountain big sagebrush, Wyoming big sagebrush, black sagebrush, cacti, saltbushes, western wheatgrass, Indian ricegrass and a variety of forbs. At the higher end of the PJ zone, mountain shrubs such as mountain mahogany, serviceberry and Gambel oak and a variety of grasses and forbs become increasingly abundant.

Above approximately 7,500’, the PJ community gives way to mountain shrub, Gambel oak, and ponderosa pine. Vegetation types associated with this zone include serviceberry, mountain mahogany, mountain big sagebrush, snowberry, and bluegrass. On the northwest side of the Plateau, manzanita is also a common component of the mountain shrub type.

Above about 8,000’, the mountain shrub/Gambel oak and pine/oak communities transition into aspen and spruce/fir forests and open meadows. Important species include quaking aspen, Douglas fir, sub-alpine fir, Engelmann spruce, blue spruce, snowberry, cinquefoil, mountain big sagebrush, and silver sagebrush. Grasses and forbs expand in diversity and number particularly in areas with relatively open canopies such as the aspen stands.

The only federally listed threatened and endangered plant species known to occur on the Plateau is the Unita Basin hookless cactus (*Sclerocactus glaucus*). Its status is threatened. The Uinta Basin hookless cactus is found on Salt-Desert/Grassland sites west and northwest of Delta in the vicinity of Cactus Park, lower Roubideau, lower Escalante Canyon and McCarty Bench. These populations appear to be in good condition. Several plant species present on the Plateau are considered “sensitive” by BLM, USFS and the State of Colorado (Appendix 2).

**WILDLIFE**

Prominent wildlife species on the Plateau include mule deer, elk, desert bighorn sheep, pronghorn antelope, black bear, mountain lions, Merriam’s turkeys, peregrine falcons, golden eagles, Gunnison’s sage grouse (federal candidate species, state special concern), Colorado River cutthroat trout (state special concern), midget faded rattlesnakes (state special concern), and a wide variety of other aquatic, reptile, avian, and mammal species. Several federally threatened or endangered species are of concern in and around the UP area. These species include the bald eagle (threatened), the Mexican spotted owl (threatened), and blackfooted ferret (endangered, all five UP counties), Colorado pikeminnow (endangered; critical habitat Gunnison River and the Dolores River), razor-back sucker (endangered; critical habitat Gunnison River), humpback chub (endangered; Gunnison River), and bonytail chub (endangered; Gunnison River). In addition, occasional visitors to the UP area include the re-introduced Canada lynx (threatened) and the cross-fostered whooping crane (endangered). State threatened and endangered species found in the Uncompahgre area include the river otter (endangered; San Miguel and Dolores River drainages), the kit fox (endangered; the Uncompahgre Valley), and the burrowing owl (threatened; Uncompahgre and Gunnison Valleys). A list of other wildlife and insect species of concern is shown in Appendix 2.
CURRENT USES

Farming & Ranching

Farming and ranching are important industries on private land in the UP Project area. Farming primarily occurs in and around the Uncompahgre Valley with corn, pinto beans, alfalfa and grass hay, and onions among the major crops. The Norwood/Nucla communities are important livestock and hay producing areas. Cattle and/or sheep grazing occurs over most of the Plateau on federal, state and private lands. Grazing allotments on BLM and USFS lands are tied to privately owned base properties in the UP Project area (Appendix 1, Map E). Currently sheep allotments only occur on the eastern part of the Plateau, south of Escalante Canyon. Regulated grazing on National Forest lands generally occurs in the period between June and October whereas regulated grazing on BLM lands primarily occurs in the period between October and June. Water rights to divert and store water for irrigation and livestock are an important part of the farming and ranching industry. Livestock watering facilities also benefit wildlife, particularly during drought conditions.

Logging

Commercial logging has occurred on the Plateau for 100 years. Reduced timber sales by the USFS have significantly decreased timber harvest on the Plateau. Small sales of saw logs and firewood are the current logging operations. Federal agencies also issue personal use permits for post cutting, Christmas trees and firewood. Some logging occurs on private land.

Recreation

Recreational use of the Plateau has steadily increased. Sightseeing, hunting, fishing, off-highway motorized vehicle use, snowmobiling, mountain biking, river running, camping, hiking, four-wheeling and cross-country skiing are among the many recreational activities. Hunting is a major recreation use on the Plateau. The Division of Wildlife has divided the UP area into two Game Management Units, (GMUs) 61 and 62. GMU 61, the west side of the Plateau, has been managed as a quality elk unit since 1983 and as a quality deer unit since 1992. All GMU 61 licenses are limited and antlered licenses can take several years to draw. GMU 62, the east side of the Plateau, has historically been one of the most heavily hunted units in the state for deer and elk. It has been managed as an over-the-counter license unit for elk.

Development

The Uncompahgre area attracts many people because of its great scenic beauty, outdoor opportunities, and quality of life. Areas of rapid development on the Plateau include the Uncompahgre Valley, Ridgway/Loghill Mesa, Government Springs, Dave Wood Road, the
Norwood area, the San Miguel Canyon, and the Iron Springs Mesa area. Land values and housing development have increased considerably on the south end of the Plateau due to proximity to Ridgway and Telluride.

**Roads**

The Plateau has a high density of roads (Appendix 1, Map F). Many roads follow trails used by Native Americans who took advantage of natural topographic features to facilitate travel. The Divide Road is the primary road on the Plateau running northwest and southeast from one end of the Plateau to the other. Major roads connecting with the Divide Road include Dave Wood Road, Highway 90, the Transfer Road, and 25 Mesa Road. In addition to the major roads, an extensive network of minor roads have been created by agencies, counties, hunters, loggers, ranchers, miners, motorized recreationists, and others. Roads and traffic are a major impact on the resources on the Plateau.

**Mining and Energy**

Very little mining activity currently occurs on the Plateau. Much of the mining activity is related to reclaiming uranium and vanadium mines and mills on the northwestern portion of the Plateau. An open pit coal mine is still in operation near Nucla. Gravel mining is prevalent throughout the area and is primarily located close to development and towns. Federal land management agencies issue permits for commercial and private rock gathering.

Several electrical and natural gas transmission lines, sub-stations and pumping facilities are located on the Plateau. Opportunities exist to enhance and re-design transmission right-of-ways to manage vegetation, re-establish native vegetation, restore ecosystem functions and protect these important facilities from catastrophic wild fire. Vegetation management will enhance energy reliability and security. Opportunities for enhancing scenery management objectives include feathering the vegetation along the right-of-way for improved visual quality and increasing habitat diversity for wildlife.

**HISTORICAL PERSPECTIVE**

**PRE-SETTLEMENT**

The Uncompahgre Plateau had long been a favorite hunting ground of Native Americans when the first Spanish explorers came to Southwestern Colorado in the 1760’s. The Ute Indians continued to inhabit the Plateau for almost 120 more years as an ever-increasing number of trappers, explorers and prospectors came to the area. The descriptions in Marshal’s book *Uncompahgre* (Marshall 1981) and the Hayden Survey (Hayden 1877) magnify the mystique of this remarkable landscape and history of the native inhabitants. The Ute Indian name Uncompahgre roughly translates to mean, “Rocks made red by dirty water”.

HAYDEN SURVEY

Excerpts from the Hayden Survey (Hayden 1877) completed in 1876 describe the Plateau as follows: “Westward from the valley of the Uncompahgre the country rises gradually. It is impossible to say along what line the valley ends and the slope of the plateau begins. At a mean distance from the Uncompahgre River of 20 miles, and at a mean elevation of 10,000 feet, this long slope suddenly ends, in most places breaking off abruptly in a succession of two or three steps to the canyon of the San Miguel or Dolores at a steep angle. The crest of this inclined plateau extends from the foot of the San Juan Mountains in a direction nearly northwest to the head of the northern bend of the Grand River. (Colorado). It decreases gradually as it recedes from the mountains from a height of 10,000 feet at its head to 8,600 feet near its northwestern end.”

Hayden continues, “No where is the influence of elevation on the character of the vegetation more plainly marked than on this plateau. In the interior, near the crest, the land is, to the Utes, one flowing with milk and honey. Here are the fine streams of clear, cold water, beautiful aspen groves, the best of grass in the greatest abundance, and a profusion of wild fruit and berries, while the country is a perfect flower garden. This extends as low as 7,000 feet; below which the scene changes to one in all respects the reverse. Aspen gives place to pinyon and cedar. Then to grasses, fruit, and flowers, to sage, cacti and bare rock. The streams become confined in rocky canyons, turn muddy and warm and gradually disappear. The game changes. Grouse disappear, while rattlesnakes and centipedes assert their proprietorship. In the place of an open rolling country, a country difficult in the extreme to traverse, without a knowledge of its few highways.”

The Hayden Survey further depicted the Uncompahgre Valley as a harsh environment except along the rivers. Additional quotes describe the barren adobe hills moving west toward the Plateau as such: “The buttes are found on the eastern side of the valley. They are from two hundred to four hundred feet high, and form two lines, those nearest the canyon of the Gunnison being the highest. The buttes are not so numerous in the lower part of the valley, where the general level is but a few feet above the river bed. It is more plain-like, without grass, having only a sparse growth of low sage, interspersed with spots of alkali, giving the country a most desolate aspect. Along the river is an alluvial bottom, with good grass, the river being bordered with cottonwoods, willows, and low bushes of various kinds. The bottom becomes much wider as we descend, and is a favorite wintering place for the Ute Indians. We found traces of their camps, while their trails run in every direction. In one place we found a field where corn had been raised, the stalks of which were still standing.” (Hayden 1877).

POST-SETTLEMENT

European settlement brought about rapid changes on the Uncompahgre Plateau after the Ute Indians were relocated to Utah by the US government in 1881. Settlers built towns and roads, mined minerals, harvested timber, introduced cattle, diverted and stored water, cleared land and cultivated crops, and built railroads to import and export commodities.
Soon after the Utes were forced to leave the Plateau, the cattlemen moved in with their herds. The lands were unmanaged, grazing was uncontrolled, and livestock numbers increased rapidly. On the south end of the Plateau, Placerville became the number one railhead in the world for shipping cattle (Marshall 1981). Grazing was a free-for-all and range disputes were commonplace. According to Marshall (1981), “Competition for grass reached self-destruct excesses when the range was wide open. The herds were enormous… Many of the huge cattle companies were absentee owners… they mined grass the way they mined gold veins – to get it all and get out”. Domestic sheep were introduced to the Plateau early in 1915 and further increased grazing pressure (Smith 1937).

A 1944 BLM Range Management Plan for the Escalante Unit of the Uncompahgre Plateau (BLM 1944) provides some perspective on how quickly the Plateau changed after settlement. According to this document, Jefferson Davis Dillard, a cowboy that began working on the Plateau in the 1880’s, “claimed (that initially) the creeks and streams on the mountain (Uncompahgre) were flowing on top of the ground, meandering through the meadow grass, without the deeply defined channels now present. There was no underbrush in those days and a cow was visible for long distances unless hidden by the tall lush grass. He often spoke of how many of the streams had cut deep channels lowering the bed of the stream many feet in the space of 40 years or less and of how the underbrush and aspen had come in so thickly during his lifetime. The Indians made a practice of burning if off in the early days”.

As a result of the 1934 Taylor Grazing Act, the federal government regulated grazing on the public domain. This congressional act had a major impact on the West. Cattle numbers on the Plateau fluctuated based on demand and drought but numbers generally remained high well into the 1940’s. As a result of modern grazing management practices initiated by agencies and ranchers, range conditions have significantly improved in most areas during the last 50 years.

Extensive logging operations in the 1880’s were the result of demand for lumber in the growing communities around the Plateau. Sawmills were constructed on the Plateau and moved to the timber sources as the need arose. Timber operations occurred along the entire length of the Plateau. Some of the best timber was found on the south end. Marshall (1981) describes the cost of lumber sold by the military at $40 per thousand board feet (in the 1880’s), but in a short time so many sawmills were working on the Plateau that competition and efficiency had brought the cost of lumber to $8 per thousand. Marshall (1981) further describes the impacts of logging. “In those boom construction days when mushrooming towns, mines, and railroads were lumber hungry, many of the mills ran all winter, right through deep snows. The lumber was loaded from the mill onto bobsleds and dragged by horse or oxen down to an altitude where the snow could be cope with better by wheels than runners. There it was loaded onto wagons and hauled the rest of the way to Montrose, Olathe and Delta and by railroad to Ouray, Nucla, Norwood, Grand Junction, and other points east, west, north and south. As lumber companies moved onto the Plateau, roads were hacked in, opening up stands of timber pre-empted by the Stone and Timber Act. Logging roads, contemporaneous with livestock salt roads provided some of the earliest access routes on the mountain”.

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The Uncompahgre National Forest was established in 1905 to manage natural resources, including planning and regulating timber harvest, grazing, road building and other activities. This was the beginning of active management on the Plateau.

Local logging began to greatly diminish in the 1970’s as a result of numerous factors, including outside competition, tighter regulations on waste burning and air quality, reduced availability of timber sales, NEPA appeals, environmental compliance and other factors. Very few new roads have been authorized for construction since the mid 1980’s as a result of the reduction in timber sales by the USFS.

Intensive gold and silver mining activity began in the San Juan Mountains just to the south of the Plateau in the 1870’s. With the exception of some placer mining for gold along the San Miguel and Dolores Rivers, very little precious metal mining actually occurred on the Plateau. The Dave Wood Road was built across the Plateau in 1881 to haul supplies to the mines and the Plateau became a source of timber, wild game meat, and livestock for the miners.

Intensive exploration and mining for uranium and vanadium occurred on the northwest part of the Plateau between the 1930’s and 1980’s. The effects of this industry (i.e., roads, runways, seismic lines, mines, mills, and tailings) are readily apparent between Nucla and Unaweep Canyon. Reclamation of prior mining and milling sites is now the primary focus of the uranium/vanadium industry on the Plateau.

Early settlers followed many of the trails used by the Ute Indians. It is speculated that many of the existing roads were constructed along these routes. As demand for lumber for mining camps and settlements increased, logging expanded throughout the Plateau resulting in the construction of numerous roads. As cattle and sheep grazing increased, trails and roads to distribute livestock salt expanded into more remote locations. Uranium and vanadium exploration and mining resulted in extensive road development in the northwest portion of the Plateau. Hunters and outdoors recreational enthusiasts continued to expand the road and trail system. The Forest Service has recently implemented a travel management plan which will have a great bearing on off road use by motorcycles, four wheel vehicles and ATV’s.

Unregulated hunting and habitat changes brought about by settlement resulted in the extirpation of elk, wolves and grizzly bears from the Plateau early in the 20th century and deer numbers were greatly reduced. A cowboy reminisced that in the 1920’s “…if one of the men saw a deer during the course of a day’s ride that it was worthy of mention that evening to the rest of the men.” (BLM 1944).

By the late 1930’s, deer numbers on the Plateau began to noticeably increase, presumably as a result of restricted hunting and habitat changes favorable to deer. Livestock grazing and the absence of fire likely caused forbs and shrubs preferred by deer to replace grass. Agricultural areas in the Uncompahgre Valley and around the Nucla/Norwood areas also benefited deer. By the 1950’s, deer numbers had soared and there was concern deer were becoming too numerous and destroying their habitat. Hunting seasons and bag limits were greatly liberalized in an attempt to control the exploding deer population. Deer numbers probably reached their peak in the late 1950’s and early 1960’s. By 1970, deer had declined to the point that hunting was
restricted to bucks only and management was directed once again towards trying to increase deer numbers. The deer population rebounded in the late 1970’s and early 1980’s only to go into a steady decline in the 1990’s despite the elimination of doe harvests.

Elk were reintroduced to the Plateau in 1923 with a release of 18 animals west of Montrose. Over the next 34 years, elk numbers slowly increased resulting in the first legal hunting season on the Plateau being held in 1957. Elk numbers began to increase very rapidly during the 1970’s and 1980’s reaching an estimated post-hunt population of approximately 9,000 in 1990. Over the last decade, greatly increased cow elk harvest has maintained the elk population at approximately 9,000.

Between the 1930’s and the early 1970’s, extensive habitat treatments occurred on the Plateau primarily to benefit livestock. These treatments included contouring, plowing, chaining of pinyon-juniper, herbicide spraying of sagebrush and Gambel oak, burning, and water developments. Most treatments were not re-seeded or were re-seeded with non-native species such as crested or intermediate wheatgrass. These treatments reached their peak between 1956 and 1965. According to Kufeld (1979), “…during the 1956-65 period when deer populations were very high and the heaviest harvests were achieved in an effort to reduce deer herds in an overpopulated range, vast acreages of deer range were being sprayed (27,112 acres) and chained (4,699) on the north half (of what is currently Game Management Unit 62), with perhaps detrimental effects to deer habitat, while large areas (8,642 acres) were being modified to improve conditions for deer on the south half through pinyon-juniper chaining.

Prior to European settlement, Native Americans frequently used fire to improve hunting conditions and remove undergrowth to facilitate movement. In a last act of defiance, the Utes set fires on the Plateau before they were forced to leave in 1881 (Marshall 1981). After settlement, fires were suppressed to protect timber and property. Throughout most of their existence, the USFS and the BLM have had policies to actively suppress natural fires on public lands.

In the past 120 years the Plateau has been grazed, fenced, logged, sprayed, plowed, contoured, chained, seeded, mined, quarried, laced with an extensive network of roads, subdivided and developed, used for a wide variety of recreational activities, crossed by electrical transmission and gas pipe lines, invaded by exotic plants and altered by water diversions and developments (Appendix 3). Some of these activities have been benign, some have been beneficial, and others have had negative effects on the overall health and sustainability of the natural systems of the Plateau ecosystem. All of these uses have had an impact on the landscape and are major components of the cultural, social and economic values of the surrounding communities.
ECOLOGICAL CONDITION AND THE NEED FOR RESTORATION

LAND HEALTH ISSUES

In the opinion of many federal and state natural resource managers, historic grazing practices and over a century of active fire suppression have led to declines in diversity, productivity, and nutritional value of some native plant communities on the Uncompahgre Plateau. These effects appear to be most pronounced in the zone occupied by pinyon, juniper, and Wyoming/black sagebrush. Development, roads, past vegetation treatments, wildlife management practices, and non-native plants have also likely contributed to changes in the ecological complexion of the Plateau. Studies by Colorado State University, University of Colorado, University of Massachusetts, and University of Wyoming are underway on the Plateau to better understand the historic range of variability in plant communities and the extent of anthropogenic-related changes over the past 125 years.

Many plants have evolved under a dynamic disturbance regime. Disturbance resets vegetative processes and creates a mosaic of vegetation across the landscape. Without periodic disturbance, diversity, productivity, and resilience of some native plant communities can decline over time. In southwestern Colorado, fire is believed to be the primary form of natural disturbance. Other major natural disturbance factors include drought, disease, and insects with blowdowns, floods, and landslides playing minor roles.

In the absence of disturbance, some predominant woody plant species can become larger, denser, and more widespread and eventually begin suppressing other plant species in their understory. The result can be a less diverse and less productive community. In some cases, transpiration and runoff can increase as plant communities mature and become dominated by a few species. It should be noted that many factors including soil characteristics and precipitation play a role in determining whether and to what extent understory suppression and increased water loss will occur.

The influence of maturing plant communities on productivity and diversity can be demonstrated by measuring the response of a site before and after intentional disturbance. The BLM has made many such comparisons between mechanically treated and non-treated areas (Tables 1 & 2). The results show a significant increase in plant diversity and productivity after setting back succession with mechanical disturbance.
Table 1. A Comparison of Uncompahgre Plateau Browse Stand Conditions on Untreated and Mechanically Treated BLM Areas. Treatment ages range from 3 to 40 years. Data were collected in 1988 by weight estimate method.

<table>
<thead>
<tr>
<th>Treatment Class</th>
<th>Average Number Species</th>
<th>Percent in each Age Class</th>
<th>Hedging</th>
<th>Plants per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Seedling</td>
<td>Young</td>
<td>Mature</td>
</tr>
<tr>
<td>Untreated</td>
<td>2.7</td>
<td>1.9</td>
<td>5.1</td>
<td>67.2</td>
</tr>
<tr>
<td>Treated</td>
<td>3.4</td>
<td>3.7</td>
<td>6.9</td>
<td>79.3</td>
</tr>
<tr>
<td>Difference</td>
<td>+0.7</td>
<td>+1.8</td>
<td>+1.8</td>
<td>+12.1</td>
</tr>
</tbody>
</table>

1 Hedging is the form taken on by the browse plants due to foraging by animals over several years. It is judged in classes of light, moderate, and severe.

Table 2. A Comparison of Herbaceous Vegetation Annual Production (pounds/acre) and Composition (%) on Untreated and Mechanically Treated BLM Areas on the Uncompahgre Plateau. Treatment ages range from 3 to 40 years. Data collected in 1988 by weight estimate method.

<table>
<thead>
<tr>
<th>Treatment Class</th>
<th>Grass</th>
<th>Forb</th>
<th>Shrub</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>84 (18.7%)</td>
<td>55 (12.2%)</td>
<td>310 (69.1%)</td>
<td>449 (100%)</td>
</tr>
<tr>
<td>Treated</td>
<td>262 (39.1%)</td>
<td>68 (10.1%)</td>
<td>340 (50.8%)</td>
<td>670 (100%)</td>
</tr>
<tr>
<td>Difference</td>
<td>+178 (212.0%)</td>
<td>+13 (24.0%)</td>
<td>+30 (10.0%)</td>
<td>+221(49.0%)</td>
</tr>
</tbody>
</table>

LAND HEALTH INDICATORS

Comparative photos spanning 33 to 50 years show a decrease in open meadows and sagebrush parks and an increase in woody species and forest age structure on parts of the Uncompahgre Plateau. These changes are particularly evident in the PJ zone. (Figures 1 & 2). The same trend is also apparent in some of the higher elevation shrub communities.

The BLM and USFS have completed a number of land health assessments on the Uncompahgre Plateau that indicate an overall reduction in land health in many areas. For example, an
assessment of the Escalante Resource Area (approximately 100,000 acres) conducted by the BLM in 1998 identified land health issues that appear to typify problems occurring in many areas across the Uncompahgre Plateau (BLM, 1998. Escalante Land Health Assessment):

**Soils**
- Lack of protective cover and a high percentage of bare soil.
- Accelerated erosion.

**Plant Communities**
- High levels of exotic plants, mainly cheatgrass.
- Presence of noxious weeds.
- Low levels of perennial grass.
- Low plant vigor.
- Lack of cool season grasses.
- Low vegetation diversity.
- Lack of forbs.
- Pinyon-juniper invasion into sagebrush and mountain shrub communities.
- Dominance by late seral stage vegetation.
- Old shrubs with low vigor.
- Changes in habitat structure, condition and arrangement of habitat components as indicated by vegetative change.
- Declining winter range quality and quantity for mule deer and elk.

**Wildlife**
- Reduced mule deer population.
- Increased elk population.
- Reduced neo-tropical bird populations.

**Water Quality & Riparian Areas**
- Incised channels, presence of noxious or invasive vegetation, braided channels, and inadequate streamside vegetation.
- Non-point source water pollutants from the area include: sediment, nutrients, and biological pathogens (primarily bacteria and protozoan) and much of the accelerated levels of sediment are a result of historic and some present uses that have resulted in poor watershed conditions and unstable stream channels.
- Wetland and riparian degradation due to water diversions, incised drainages resulting in lower water tables, removal of beaver, loss of beaver ponds, heavy livestock grazing in riparian areas, road crossings etc.
Figure 1. Comparative Range Photos (Sagebrush/Pinyon-Juniper Zone).


2000. Horsefly Point, Uncompahgre Plateau. Taken at same location as above photo showing the succession of pinyon pine. USFS Range Transect Photo.
Figure 2. Vegetative Succession (pinyon-juniper zone).


Showing extensive vegetative succession after 50 years.

WILDLIFE INDICATORS

Wildlife populations can serve as a barometer of land health. Some species such as the Black-throated gray warbler and Plain titmouse depend on mature, dense PJ woodlands. Conversely, many species such as mule deer and a wide variety of small mammals and neo-tropical birds depend on early and mid-seral plant communities and their numbers decline when maturing plant communities reduce diversity and understory productivity.

NEO-TROPICAL MIGRANT BIRD DECLINES

Several neo-tropical migrant bird (NTMB) species that nest on the Plateau show population trend declines in Western Colorado. It is not known if these declines are the result of ecological changes on the Plateau or changes in other eco-regions used by these birds. The Breeding Bird Survey (BBS) provides the most complete and accurate data available for NTMB species throughout their range and in the Escalante Area of the Uncompahgre Plateau (Table 3).

Table 3: NTMB species showing declines during the 26 & 10 Year BBS data sets in Western Colorado.

<table>
<thead>
<tr>
<th>NTMB SPECIES</th>
<th>HABITAT</th>
<th>26 year Population Trend Ranking (PT26)</th>
<th>10 year Population Trend Ranking (PT10)</th>
<th>Abundance Ranking (AB)</th>
<th>Importance of Area Ranking (IA)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vesper Sparrow</strong></td>
<td>Annuals/Grassland</td>
<td>4</td>
<td>5</td>
<td>3</td>
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</tr>
<tr>
<td><strong>Swainson’s Hawk</strong></td>
<td>Annuals/Grassland</td>
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<td>4</td>
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<tr>
<td><strong>Say’s Phoebe</strong></td>
<td>Annuals/Grassland</td>
<td>4</td>
<td>4</td>
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<td>5</td>
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<tr>
<td><strong>Rock Wren</strong></td>
<td>Barren Land</td>
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<td>5</td>
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<td><strong>Loggerhead Shrike</strong></td>
<td>Riparian</td>
<td>5</td>
<td>4</td>
<td>3</td>
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</tbody>
</table>

Priority #1 species: PT26 & PT10 ranking = 4 or 5, AB ranking = 3, 4, or 5, and IA ranking = 3, 4, or 5.

| **Horned Lark**   | Annuals/Grassland | 5                                      | 5                                      | 1                      | 5                                |
| **Common Nighthawk**| Annuals/Grassland | 4                                      | 5                                      | 2                      | 5                                |
| **Killdeer**      | Annuals/Grassland | 4                                      | 4                                      | 1                      | 3                                |
| **Northern Flicker**| Generalist        | 5                                      | 5                                      | 1                      | 3                                |
| **Western Wood-Pewee**| Generalist       | 4                                      | 4                                      | 2                      | 3                                |
| **Chipping Sparrow**| Ponderosa Pine-Doug Fir | 5                                    | 5                                      | 1                      | 4                                |
| **Sage Thrasher** | Sagebrush         | 4                                      | 5                                      | 2                      | 4                                |
| **Brewer’s Sparrow**| Sagebrush         | 4                                      | 4                                      | 2                      | 5                                |

Priority #2 Species: PT26 & PT10 ranking = 4 or 5, AB ranking = 3-5, and IA ranking = 3-5.

Breeding Bird Survey rankings: 1 = low concern, 5 = high concern.
* = Low, **=moderate, ***=highest potential for effects (+ or -) in Escalante area based on Breeding Bird Atlas information.
THE MULE DEER DECLINE

Based on estimates by the Colorado Division of Wildlife (CDOW), the mule deer population on the Uncompahgre Plateau declined by approximately 50% between the early 1980’s and the late 1990’s with concomitant declines in December fawn/doe ratios and buck harvest (Figures 3 & 4). In response to concerns from local CDOW managers/ biologists and the public, the CDOW began studying mule deer on the Uncompahgre Plateau in 1997 to better model the deer population and understand the reasons for the decline. CDOW deer studies on the Uncompahgre Plateau have since indicated the most recent decline in the deer population has been primarily due to low fawn survival prior to six months of age. Inadequate nutrition of does during winter is believed to be a major factor contributing to the subsequent poor early survival of fawns. The decline in mule deer on the Plateau is believed to be indicative of a much larger problem related to overall ecosystem health. Deer rely heavily on sagebrush and other browse species during winter. Pinyon and juniper have little food value for deer and mature PJ stands with limited understory have little value for deer except as cover.

Fig. 3. Post-hunt deer population estimates and observed, December fawn:doe ratios on the Uncompahgre Plateau 1980-2001 (D19, GMUs 61 & 62, CDOW data).
Fig 4. Post-hunt deer population estimates, fitted population trendline, and buck harvest data for the Uncompahgre Plateau 1980-2001 (D19, GMUs 61&62, CDOW data).
CURRENT MANAGEMENT

Public lands on the Plateau are managed by three USFS Ranger Districts, two BLM Field Offices and a CDOW Area Office. For the most part, each agency manages land within their jurisdiction for their respective goals with little interagency coordination. Cooperative management is difficult. Agencies must take into account a complex array of rules, regulations and jurisdictional authorities prior to implementing projects.

Most of the Plateau’s public lands are currently being managed for multiple-use. Prescriptions for grazing, logging, fuel-wood cutting, wildlife habitat, recreation, mining, transportation, watershed protection and reducing fuel loads are the primary management practices occurring on the Plateau. Private lands are primarily managed for farming, ranching, recreation, summer homes and development.

CURRENT MANAGEMENT PLANS

A variety of agency management plans currently exist that apply to the UP area (Appendix 4). Each agency functions within constraints of their management plans, rules and regulations while PLP works within the framework of its annual work plan to achieve their goals and assist the agencies. Plans range from city and county master plans, collaborative management plans for the San Miguel River watershed, CDOW state wildlife area management plans, and BLM and USFS management plans. These plans have received considerable public input and provide a wealth of information on resource areas, management planning, and direction.

LAWS & REGULATIONS

All UP restoration efforts must be accomplished within the framework of existing laws and regulations (Appendix 5). Each state or federal agency must comply with the laws and regulations pertaining to lands they manage. A goal of UP is to work with the community and partners within the legal and regulatory sideboards to efficiently accomplish resource management goals for a healthy ecosystem. Projects involving federal land or dollars require some degree of environmental assessment compliance under the National Environmental Policy Act (NEPA). A NEPA document is a disclosure and decision making document. NEPA requires that several alternatives for a project (including no action) be considered before recommending a preferred alternative. This process goes through public and agency scoping, issues identification, and a decision and appeals process. State, county and city projects normally follow a strategic or master plan involving public input before a decision can be made, unless there is federal funding involved, at which time NEPA compliance is also required.

Some of the more significant federal acts that have directed resource management include the Organic Act, Preservation of American Antiquities Act, Clean Water Act, Clean Air Act, Endangered Species Act, Federal Land Policy and Management Act, Fish and Wildlife Coordination Act, Multiple Use Sustained-Yield Act, Reclamation Act, U.S. Mining Laws Act, Taylor Grazing Act and the Wilderness Act.