B

Fire Management Units

Areas where unplanned wildland fire is not desired because of current conditions.

General Description:
Fire plays a natural role in the function of the ecosystem, however these are areas where an unplanned ignition could have negative effects unless/until some form of mitigation takes place. Sagebrush ecosystems, for example, can fall into this category because of encroachment of cheatgrass or a prolonged lack of fire which leads to large monotypic stands of sagebrush that won't burn as they would have historically.

Fire Mitigation Considerations:
Emphasize prevention/mitigation programs that reduce unplanned ignitions and threats to life, property, natural and cultural resources.

Fire suppression/use considerations:
Fire suppression is usually aggressive.

Fuel treatment considerations:
Fuel hazard reduction as a major means of mitigation potential risks and associated loss are a priority. Fire and non-fire Fuels treatments are utilized to reduce the hazardous effects of unplanned wildland fire. Restorative treatments may consist of multiple non-fire treatments before the use of fire will be considered. Unit costs for prescribed fire are high and require stringent mitigation and contingencies. Try to concurrently achieve fire protection and resource benefits, when possible.

Upper De Beque B-130-01

Location: This FMU is located north of the town of De Beque and consists of the Kimball Creek and Dry Forks of Roan Creek Drainages plus the Logan Wash and Conn Creek drainages on the east portion of the unit (See Map B-130-01 Upper De Beque). This area contains a total of 167,516 acres encompassing 103,475 acres of BLM administered lands and 64,041 acres of private lands;

Characteristics: This FMU consist of a long step-sided ridge with corresponding drainages. The elevation ranges from 5,073 ft. in the lowest to 8,010 ft. on the highest ridge top. At the lower elevations, soils are developing in parent materials from the Mesa Verde and Wasatch Formation sandstone and shales; soils from the Wasatch Formation generally have the highest clay content. The sandstones of the Green River Formation at the higher elevations are very channery, and have a high erosion potential. Use in this unit includes livestock grazing and natural gas production. The areas rough terrain limits travel to the existing roads that are found in the drainage bottoms and ridge tops. Some new roads are being constructed to service natural gas wells.

Water Quality: The unit lies within the lower Roan creek watershed which feeds the Colorado River near De Beque. Kimball Creek and Dry Fork are perennial streams that flow to the east. Clear and Conn Creeks also have perennial flow, but a southerly or southwesterly flow pattern. Logan Wash is an intermittent to ephemeral system consequently is dry most of the year. All perennial streams natural flow pattern has been modified by irrigation withdrawal and return. USGS operated gaging stations on Dry Fork and Roan Creek. Dry Fork discharge data indicate flows range from a high of 235 cubic feet per second (cfs), to no flow for numerous days in 1998 and 2001. The mean flow was 3.7 cfs during the 1995 through 2001 water years. Water quality data indicate total dissolved solids as low as 344 milligrams per liter (mg/l) during high flow, ranging up to 3580 mg/l during base flow periods. pH was commonly in the 8.4 to 8.6 range. Elevated levels of sodium, magnesium, sulfate, alkalinity, total dissolved solids, and total suspended sediment have been recorded, probably from the area's geology, eg. Wasatch Shale is also perennial. A gaging station was operated for over 20 years on Roan Creek. Those data showed flow ranged from 3.2 cfs to 2020 cfs, with an average flow of 42.3 cfs. Sediment data collected on Roan Creek indicate levels are commonly below 200 milligrams per liter (mg/l) during normal flow conditions, but can range to over 20,000 when flooding occurs. Roan Creek and associated tributaries within the FMU have been classified by the State of Colorado Aquatic Life Warm Water 1, Recreation 1b, Water Supply, and Agriculture. A comprehensive list of physical, biological, inorganic and metals standards have been developed to protect those uses. The 303(d) list, which is prepared and updated every couple of years, identifies impaired waters within the state. Lower Roan Creek, Kimball Creek, and their tributaries are not listed. This suggests water quality standards are currently being met. Dry Fork is included on the list for selenium. Origin of selenium is generally leaching from irrigated land on Mancos and Wasatch derived soils. Increased selenium loading is not anticipated from fire.

Riparian: The lower reaches of Roan Creek are primarily a willow dominated system

with some cottonwood intermingled. Riparian species along the lower reaches of Roan Creek are willow spp, with some sedges and rushes. The lower reaches of Roan Creek's riparian area would not respond well to wildland fire at this time due to most of the private land in this system Functioning at Risk (FAR) or not meeting properly functioning condition (PFC) along with some short reaches of BLM FAR or not meeting PFC. The current riparian vegetation would not properly protect the stream banks and filter the initial sediment load that could follow a large wildland fire, thus creating an unsuitable habitat for fish. Species absent or lacking in the lower riparian system are the amount of willow, sedges, and rushes. Up in the headwaters of this creek the community type changes from what is or should be a willow dominated community in the lower reaches to a community composed of a conifer overstory with a riparian herbaceous understory along the waters edge in the upper reaches, which is not as dependant upon vegetation for its functionality. However, these systems would not respond well to large areas of the riparian being compromised by fire, small fire runs and patches would allow for some regeneration within the system without compromising the entire reach. These systems in general are very flashy and large sediment loads are not uncommon with large convective summer thunderstorms, large fast snow melts or precipitation following

Vegetation: Sagebrush and greasewood dominate most drainage bottoms. The piñon-juniper zone extends higher on the south-facing slopes. Douglas-fir is found on steep north-facing slopes. Aspen can be found scattered among the tall conifer stands on north slopes and higher ravines. Sagebrush and mountain shrub communities dominate on the ridgetops which may also have aspen and conifers.

Wildlife and rare plants: The area is key big game range and hosts a number of hunters every year. Deer and elk winter and summer ranges are approximately equal in area. Wild turkey habitat includes the Doug fir roost trees, fruiting mountain shrubs, roadside weeds, and private hayfields. Sage grouse historically occupied and may yet sporadically appear in the sagebrush on the ridgetops, benches, and valley bottoms (esp. Corcoran Wash). The sagebrush/greasewood east of Roan Creek is used by all of the native sagebrush obligate species. Several sites of rare plants occur in the lowland eastern quarter of this FMU, on both sides of Roan Creek and Dry Fork.

Weeds:
The southwestern and southern boundaries of this unit approximate the extent of abundant houndstongue (*Cynoglossum officinale*). Houndstongue also extends west into C-07 to the Utah border. The upper elevations of this unit harbor the most of this weed. Other noxious weeds known to exist are isolated pockets of Russian knapweed (*Acroptilon repens*), Canada thistle (*Cirsium arvense*), Hoary cress (*Cardaria draba*), and musk thistle (*Carduus nutans*), and bull thistle (*Cirsium vulgare*). An expanding population of jointed goatgrass (*Aegilops cylindrica*) is moving north from the town of De Beque along the Roan Creek road. A new and unknown annual mustard is rapidly expanding through the dry piñon/juniper foothills from the town of Debeque toward the north. Preliminary work through CSU extension is pointing toward an escaped birdsrape cultivar. Abundant tamarisk (*Tamarix ramosissima*) occurs in lower reaches of perennial stream systems.

Cultural: The following cultural resource class is within this FMU: CR-0 Minimal Value/Minimal Risk

Fuels and Fire Behavior: The fuels are primarily mountain brush with stringers of Douglas-fir on the moist aspects of the ridges. Human caused fires in this unit have the potential for extreme fire behavior due to the fuels and steep topography.

Fire History: Lightning is the primary fire cause. There are few fires that escape initial attack.

Fire Regime/Condition Class: The vegetative composition of the Upper De Beque area is generally in a late seral stage, with the composition and structure of the sagebrush/grass and Douglas-fir communities being moderately departed from their natural range of variability (NRV). These communities are considered to be in a condition class (CC) 2 moving towards a condition class 3. The mountain shrub and piñon/juniper communities are considered to be within their respective NRV, and are generally considered to be in CC 1.

There is a high risk of conversion to cheatgrass of the sage/grass communities at the lower elevations, therefore these areas should be considered within a CC 3.

Values at Risk:

Special Status Species – Table III.D.5 gives the status of each species, locational information, and provides the fire suppression prescriptions for the species in this unit. The species of concern to this FMU are six big river fish species, bluehead sucker, bald eagle, greater sage-grouse, northern goshawk, fringed myotis bat, northern leopard frog, *Sclerocactus glaucus, Penstemon debilis, Phacelia submutica, Astragalus debequaeus, Circium perplexans, and Mentzelia argillosa*. The plants are listed by scientific name and are italicized. There are other rare plants present that grow in natural fire breaks and places too hazardous to construct fire control lines. All known locations for rare plants as well as any State Potential Conservation Area in this unit are in the BLM GIS system to insure protection/avoidance during fire suppression efforts.

Aquatic Habitat – Dry Fork, Kimball and Conn Creeks, springs, seeps, and ponds in the FMU provide aquatic habitat for wildlife. Protection of the riparian areas and watersheds in the unit will protect the aquatic resources.

Riparian Areas – This vegetation type is scarce on the public lands in this FMU. Upper Kimball Creek, lower Dry Fork and the upper ends of this drainage, spots along Conn Creek, a quarter mile in mid-Roan Creek, and around springs describes it. Although small in area, protection from wildfire is important for this habitat and that on adjacent private land.

The area has a low density of Archaeological and Historic Resources that are eligible or potentially eligible for nomination to the National Register of Historic Places. Greatest sensitivity is anticipated on the benches overlooking the creeks and their tributaries. Sites at risk in all three categories, **(A), (B)**, and **(C-2 and C-3)** have been recorded (see Chapter 3.1.1). Most BLM land bordering private land in the unit has been surveyed and sites are mapped. The greatest risk is from surface disturbing suppression activities. Cultural resource management may best be mitigated during post fire evaluation and ESR project work.

Sagebrush – Large sagebrush stands threatened with dominance by serviceberry or

Gambel oak should be managed to allow for treatments and prescribed fire. Low country sagebrush requires more protection from fire than do the higher bench and ridge top sagebrush. In the lower country, Wyoming big sagebrush (12 to 40 inches tall) needs more protection than does Basin big sagebrush (3.5 to 9 feet tall).

Oakbrush/mountain shrub – Fires in the oakbrush/mountain shrub community have no size constraints.

Aspen – Aspen needs open areas to regenerate. Remnant conifer-invaded stands of aspen could be allowed to burn in order to re-establish this species.

Doug fir – In the Douglas fir stands, due to the steepness of the slopes they are found on, fire is not likely to stay close to the ground but grow into crown fires. These stands should be protected.

Communities at Risk: The town of De Beque is near the unit but not within the boundary. There are numerous private homes and out buildings in this FMU. There are an ever increasing number of natural gas production facilities found throughout the unit.

Plateau Valley **B-130-02**

Location: This FMU is located in the Plateau Creek drainage surrounding the communities of Mesa and Collbran. (See Map B-130-02 Plateau Valley) This area consists of 222,550 acres encompassing 151,634 acres of private lands, 3,313 of State land (Colorado Division Wildlife Plateau Creek Wildlife Area and Vega Reservoir State Recreation Area), and 67,415 acres of BLM administered lands.

Characteristics: This FMU consists of steeply dissected foothills and upland hills found below the U.S. Forest boundary. The elevation ranges from 4,747 ft. below the mouth of Plateau Creek to 9,960 ft. above the rim of Grand Mesa three miles north of Lands End (highest point under management of GJFO). Use in this unit consists of livestock grazing, minor amounts of natural gas exploration and big game hunting. Access is variable with a combination of State highways to privative two track routes.

Glacial till, basaltic alluvium overlying the Wasatch Formation, and the sandstone/shale of the Wasatch Formation, are the principal materials in which soils are developing in the areas surrounding Collbran and Mesa. Soils are shallow to deep; most are very stony, on the surface and in the profile. Textures range from sandy loam to very stony loam in the surface; the subsurface layers range in texture from clay to extremely stony or gravelly loam to clay loam. The erosion hazard is moderate to high. On the benches and sideslopes to the north of Plateau Creek and around its western end, soils are developing in residuum and alluvial sediments of the Wasatch Shale and Mesa Verde Formations. Soils are clayey, shallow to deep over shale/sandstone, and are alkaline: rock outcrop is a significant feature. The erosion hazard is high. Because of the differences in vegetation and soils between the Collbran/Mesa area and the remainder of the FMU, fire behavior will also exhibit major differences.

Most of this FMU lies within the Plateau Creek watershed which feeds the Colorado River in De Beque Canyon. The exception is the northwest portion of this FMU which is drained by a series of northwest trending ephemeral tributaries to the Colorado River. There are numerous perennial streams flowing over private ground within the unit. Perennial streams on BLM include short reaches of Plateau Creek, Big Wash, Spring Creek, Bull Creek, East Salt Creek, Collier Creek, Hawxhurst Creek, Kimball Creek, and Grove Creek. Most of these streams have irrigation ditches, small reservoirs or stock ponds that have modified the natural flow characteristics. Seasonal flow variation is common with highest yield resulting from snowmelt, but flood flows resulting from summer convective storms on the smaller tributaries. Water quality is variable, with excellent quality waters generally in the higher elevations and poorer quality in the lower country especially where the watershed includes exposed Wasatch shales. For example BLM collected data on Big Salt just upstream of the confluence with Plateau Creek. Those data indicate the water to be a sodium bicarbonate, magnesium sulfate type. The pH was in the 8.3 range, turbidity rather high with a mean of 246 milligrams per liter (mg/l), total dissolved solids (TDS) had a mean of 1096 mg/l. These data indicate that runoff generates elevated salts and sediment levels resulting from the Wasatch shales within the watershed. In contrast data collected on Hawxhurst Creek indicate it has calcium bicarbonate type water, pH averaging 8.0, TDS averaging 383 mg/l, and very low turbidities. Generally Plateau Creek has very good water quality as indicated by data collected near the mouth by the US Geological Survey and BLM. Total dissolved solids (salinity) are generally less than 500 mg/l, no nutrient violations are indicated. Plateau Creek including all tributaries is classified by the state recreation 1a, aquatic life

cold 1, water supply, and agriculture. A comprehensive list of physical, biological, inorganic and metals standards have been developed to protect those uses. No violations of standards were identified with the limited water quality data available. The 303(d) list which includes impaired waters does not include Plateau Creek or its tributaries. This is an indication of water quality appropriate for designated uses.

The vegetation types here are from desert shrub to sagebrush parks and piñon-juniper woodland to mountain shrub to aspen and then Engelmann spruce/ subalpine fir at the rim of the Grand Mesa.

Plateau Valley harbors isolated, small infestations of many noxious weed species. These include yellow starthistle (*Centaurea solstitialis*)(on private land), musk thistle (*Carduus nutans*), Scotch thistle (*Onopordum acanthium*), Hoary cress (*Cardaria draba*), Dalmation toadflax (*Linaria genistifolia*,spp. *dalmatica*), Russian knapweed (*Acroptilon repens*), Canada thistle (*Cirsium arvense*), and tamarisk (*Tamarix ramosissima*). Yellow starthistle is located T11S, R96W, and Section 9 and is considered one of the state's highest priority infestations. Dalmation toadflax is located in T10S, R95W, sections 33 and 34 on BLM and private. Moderate amounts of musk thistle populate the Beehive area, but the population seems to be in check by the presence of biological agents. The most important species for this area in relation to fire effects are listed below under values at risk.

Riparian: There are a number of perennial streams that cross BLM within this unit, Plateau Creek, Big Wash, Spring Creek, Bull Creek, East Salt Creek, Collier Creek, East and West Hawxhurst Creek, and Leon Creek. All the tributaries to Plateau Creek were found to be Properly Functioning in 1993 along with Plateau Creek. Most likely any wildfire would be put out in Plateau Creek due to the high number of residence, so riparian is not an issue there. The other tributaries have the type of riparian that would re-sprout after fire. Most of these areas are wet enough and have enough riparian vegetation that they might work as a firebreak for some fires. This should be evaluated on a case by case basis in discussion with the resource advisor.

The following cultural resource classes are within this FMU: **CR-1** High Value/High Risk: West of Mesa (Unit #463), both sides of DeBeque Cutoff Road, N. & S. of Plateau Creek (#463, #409 & #499), Beehive/Breaks area **CR-0** Minimal Value/Minimal Risk: Upper Plateau Creek east of Molina

Fuels and Fire Behavior: Fuels are primarily mountain brush with some piñon-juniper. While the potential for large fires exist, most fires are contained during initial attack. This is due to a fairly high population density and that most of the public lands are visible. This is the area with some of the highest potential for a significant wildland/urban interface event in the Grand Junction Field.

Fire History: This unit has a higher than average percentage of human caused fires. This is due primarily to the intermixed land ownership.

Fire Regime/Condition Class:
The vegetative composition of the Plateau Valley area is generally in a late seral stage, with the composition and structure of the sagebrush/grass communities being moderately departed from their natural range of variability (NRV). These communities are considered to be in a condition class (CC) 2 moving towards a condition class 3. The

mountain shrub, piñon-juniper, aspen, and Engelmann spruce communities are considered to be within their respective NRV, and are generally considered to be in CC 1.

There is a high risk of conversion of sagebrush/grass communities to cheatgrass at the lower elevations, therefore these areas should be considered within a CC 3.

Values at Risk:

Special Status Species – Table III.D.5 gives the status of each species, locational information, and provides the fire suppression prescriptions for the species in this unit. The plants are listed by scientific name. The species of concern to this FMU are the six big river fish species, bluehead sucker, bald eagle, northern goshawk, greater sage-grouse, Canada lynx, fringed and Yuma myotis bats, boreal toad, northern leopard frog, *Sclerocactus glaucus, Phacelia submutica, Astragalus debequaeus, A. naturitensis, and Circium perplexans.* All known locations for rare plants as well as any State Potential Conservation Area in this unit are in the BLM GIS system to insure protection/avoidance during fire suppression efforts.

Riparian Areas and Aquatic Habitat – Map-view clockwise through this FMU, the 21 streams recognized as having public land riparian values are Lower Plateau Creek, Smalley Gulch, Hawxhurst Creek, Grassy and Bloss Gulches, Collier and Buzzard Creeks, Leon, Upper Plateau, East Salt, Swanee and Oak Creeks, Deacon Gulch, Bull and Spring Creeks, South Side Canal, Coon and Tate Creeks, King Gulch, Little and Big Washes. The eight streams underlined have fish values, with trout and other native fish species; the others have amphibian habitat and water-enriched vegetation.
These and the other live streams in the unit, along with springs, seeps, and ponds provide aquatic habitat for various species.

Protection from wildfires and fire management disturbance is prescribed.

Water resources – Ute Water Conservancy has water rights on numerous streams within this unit. Most water is currently obtained from the tail race of the Molina Power Plant and stored in Jerry Creek Reservoirs. Coordination with Ute for prescribed fire and/or mechanical treatment for watersheds used for municipal supply should occur.

Desert Shrubland – Full suppression is appropriate in this type. Aridland shrubs are susceptible to incremental replacement by cheatgrass from successively larger fires. When this happens, desert wildlife populations dwindle.

Sagebrush – Prescribed fire and mechanical treatment is appropriate for some sagebrush habitat types. Like desert shrubland, sagebrush is susceptible to cheatgrass replacement. It is also susceptible to invasion by piñon pines and Utah juniper at lower elevations and mountain shrub species at upper elevations. Where fire brings in cheatgrass, fire suppression is most important. Where fire reverses PJ and mountain shrub invasion it serves a natural and possibly desirable function for sagebrush dependant wildlife. It should be noted that sagebrush re-colonizes large burn areas slowly and consideration should be give to managing fire size in this vegetation community.

Piñon – Juniper – Well-stocked PJ woodlands provide a fire break under mild burning

conditions and a fire danger under severe burning conditions. The woodland stands in this unit should be protected from fire. Use of mechanical means should be used for fuel reduction projects to create fuel breaks and to provide firewood. PJ types provide winter cover for many deer and elk and yearlong cover for a few. Where mixed in good proportion with sagebrush and grass it forms a complete winter habitat especially for deer.

Mountain Shrub – Fires in this community should have no size constraints.

Aspen – Aspen needs open areas to regenerate. Remnant stands of aspen could be allowed to burn in order to re-establish this species. Aspen stands are the major summer foraging area for black bears, elk calving areas, important summer range for deer, habitat for several cavity-nesting birds, and important warm-season range of blue grouse. Mature and old stands are most useful for these services. Under a natural fire regime an adequate percent of aspen stands will likely be mature and old stands.

Spruce-Fir – The bulk of this vegetation type is under the rim of Grand Mesa next to the top of Rapid Creek Watershed. These stands contain extreme fuel loading in the form of windfall timber. This makes excellent Canada lynx denning habitat and so the fire risk should be tolerated and, if possible, maintained. Elsewhere tall conifers include scattered riparian and moist slope Douglas-fir and riparian Engelmann and blue spruces. These have value to red squirrels, roosting wild turkeys, wintering blue grouse, and various song birds.

Noxious weed safety (Post fire yellow starthistle colonization) – The reduction in competition and litter, exposure of the soil surface to light, release of nutrients, and stimulation of germination in yellow starthistle seed associated with either wild or prescribed fire all provide ideal conditions for postfire colonization by yellow starthistle. Asher and others [5] cite a case in the Ishi Wilderness Area of northern California in which yellow starthistle provides an example of "severe postfire weed spread and impacts".

To prevent infestation, re-establish vegetation on bare ground as soon after fire as possible, using either natural recovery or artificial techniques as appropriate to site conditions and objectives. When reseeding after wildfires and prescribed burns, use only certified weed-free seed. Monitor the burn site and associated disturbed areas after the fire and the following spring for emergence of yellow starthistle, and treat to eradicate any emergent yellow starthistle plants. Regulate human, pack animal, and livestock entry into burned areas at risk for weed invasion until desirable site vegetation has recovered sufficiently to resist weed invasion. Additional guidelines and specific recommendations and requirements are available [5, 47,154].

Noxious Weed Safety (Dalmation toadflax) – Toadflax is likely to be top killed by fire, however its deep, extensive root system is likely to survive even severe fire and allow reestablishment of the population from vegetative buds on roots. Many root-sprouting plants, including toadflax, have high fire survival rates, regardless of burn severity. This is because even the most severe fires typically damage roots only to 4 inches (10 cm) below the soil [29], and toadflax roots typically penetrate the soil to a depth of several feet.

Postfire colonization is an important concern. Because of its propensity to establish in

dry, open areas with little plant competition, toadflax has high potential for establishing after fire (when competition from other vegetation is removed or reduced) either by seed imported to the site or by soil-stored seed. Several examples follow where toadflax established following fire. It is not clear in any of these examples whether toadflax plants or seeds were on-site prior to burning.

Cultural Resources – The CR-1 areas have a high density of Archaeological and Historic Resources that are eligible or potentially eligible for nomination to the National Register of Historic Places. Sites at risk in all three categories, (**A)**, **(B)**, and all levels of **(C)** have been recorded (see Chapter 3.1.1). Areas on maps showing no cultural resources have not had previous inventory. The most sensitive vegetation community is the piñon-juniper woodland that has not had fire events in the last 400 years. These locales may be small islands and would be extremely vulnerable to crown fires. Post fire monitoring or surveys in the CR-0 areas may be productive as lack of survey often has to do with poor visibility due to heavy vegetation.

Communities at Risk: The communities of Collbran, Mesa, and Molina are within this FMU.

Rabbit Valley and McDonald Creek B-130-03

Location: This FMU is located west of Loma and is found south of the old Highway 6&50 and the north rim of Ruby Canyon. This FMU is within the Colorado Canyon National Conservation Area. (See Map B-130-03 Rabbit Valley and McDonald Creek). The unit encompasses 32,423 acres including 1,933acres of private land, 357 acres of Bureau of Reclamation administered lands, and 30,132 acres of BLM administered lands.

Characteristics: This FMU consists of mesas with drainage ways flowing down to the Colorado River. The elevation ranges from 5,095 ft. at the highest point to 4300 ft. near the bottom of Ruby Canyon. Soils are developing from the Morrison and Dakota Formations, and have clayey textures and a high stone content, particularly on the mesa and hill sideslopes. Much of the valley bottoms and bench areas have deep, very sandy soils (McDonald Creek area). This FMU is characterized by salt desert shrub community with mesas and rocky hill sides supporting juniper stands. Cheatgrass is a major component of the desert shrub community and in some areas is the only vegetation present on the site. The area is crisscrossed with numerous roads and trails. Use in this area includes transportation corridors (railroad and highways), utility corridors or sites (pipeline, power lines, communication towers), livestock grazing, but recreation predominates, with activities such as mountain biking, hiking, OHV riding and equestrian pursuits. The McDonald Creek Cultural Area is within the unit. Due to its wildlife examples of the Intermountain West deserts and its access (I-70), the area west of Salt Creek is a designated Colorado Watchable Wildlife Site and a Colorado Important Bird Area.

Most of the FMU lies within the McDonald and lower Salt Creek watersheds. McDonald Creek is an ephemeral drainage that generally only flows in response to convective summer storms. Salt Creek is the only perennial stream within the unit. The United States Geological Survey (USGS) collected flow data at gaging Station No. 09163490 which operated on Salt Creek near Mack, from April 1973 to September 1983. Flow data collected at this station mostly reflect return flow and wastewater from lands irrigated below the Government Highline Canal. The flow pattern has been influenced by many small retention reservoirs, stock ponds on tributaries above the station, and by Highline Lake with a capacity of 3,400 acre-feet. Additionally, there are a few diversions for irrigating hay meadows above the station. Mean monthly flow is generally in the 100 to 200 cubic feet per second (cfs) range during the irrigation season, April through October, dropping into the 10 to 20 cfs range during the balance of the year. The annual mean flow for 10 years of record is 93.8 cfs, with the highest daily mean of 1,580 cfs on August 8, 1974, and the lowest daily mean of 4.2 cfs on January 24, 1974. The state of Colorado has established water quality standards for streams in the state, based on existing or potential water uses. The use classifications for the tributaries to the Colorado River within the unit are Aquatic Life Warm Water 2, Recreation 1a, and Agriculture. A comprehensive list of standards for physical, biological, inorganic and metals parameters have been established to protect these uses. There are limited data available for the Salt Creek station. The data collection period ranged from the mid-1970s to 1998. Generally, data were collected several times each year for pH, hardness, temperature, and the more common ions. Other constituents like heavy metals, pesticides, and herbicides may have as few as one sample. While these data are limited, they do not reflect violations of water quality standards with the exception of selenium. Review of the Colorado 303(d) list, a listing of impaired waters within the state, substantiates general water quality standard compliance. Salt Creek is listed for

selenium. Salt Creek was sampled 37 times with an ambient level of 56 micrograms per liter. The existing chronic aquatic life standard for selenium is 4.6 micrograms per liter. The source of elevated selenium is primarily deep percolation of irrigated soils developed from Mancos shale. This occurs on the private ground north of this FMU. The 303(d) monitoring and evaluation (M&E) list does include the tributaries north of the river in this FMU for sediment. Inclusion on the M&E list suggests there is a perceived problem but data are not adequate to meet credible evidence standards. As additional data are collected, these streams maybe added to the 303(d) list.

Riparian: Salt Creek is the only perennial stream in the unit. Since this is along the railway system there is likely to be fire starts in the vicinity. Most of the vegetation is of the nature to reclaim itself. However, there are mature cottonwood galleries further down on private land that would not regenerate if fire were to consume them. Protection of cottonwoods would be the main riparian objective for this FMU.

As part of the Rabbit Valley Watchable Wildlife Site, Six-&-fifty Reservoir is the top draw for local "watchers", but the antelope, burrowing owls, and bird species at the edge of their ranges are the sole reason for some visitors choosing this area.

Drainages from this unit empty into the Colorado River which is designated by the U.S Fish and Wildlife Service as Critical Habitat for the four species of big river fishes, the Colorado Pikeminnow (*Ptychocheilus lucius*), Humpback Chub (*Gila cypha*), Razorback Sucker (*Xyrauchen texanus*), and the Bonytail Chub (*Gila elegans*). There are also numerous other fish species in the river.

The vegetation types here are from desert shrub to islands of Utah juniper on mesa tops and rocky hillsides. This area is characterized by invasions several annual species including cheatgrass (*Bromus tectorum*), bur buttercup (*Ranunculus testiculatus*), redstem filaree (*Erodium cicutarium*), halogeton (*Halogeton glomeratus*), purple mustard (*Chorispora tenella*), tumble mustard (*Sisymbrium altissimum*), and Russian thistle (*Salsola iberica*). Very few of the classic noxious weeds exist in the Rabbit Valley area. A few isolated Russian knapweed (*Acroptilon repens*), Curly dock (*Rumex crispus*), and Hoary cress (*Cardaria draba*) infestations exist. Of these, Curly dock is most abundant in scattered patches along the Colorado/Utah border near Kokopelli Trail.

The Colorado Natural Heritage Program registered in the 6&50 Reservoir area as good and excellent examples of "globally imperiled" Western Slope Grasslands (*Achnatherum hymenoides)* Shale Barrens Community, and Needle-and-thread (*Hesperostipa comata*). There are seven rare plant species in the FMU that are variably vulnerable to the spread of cheatgrass. These species are four BLM listed species including the Ferron Milkvetch (*Astragalus musiniensis),* Grand Buckwheat (*Eriogonum contortum),* and the Osterhout Cat's-eye (*Cryptanth osterhoutii).* Two plants considered by the state to be of concern are the Eastwood Milkvetch (*Astragalus eastwoodiae),* and the Eastwood Evening Primrose (*Camissonia eastwoodiae).*

Rabbit Valley Staging Area, Castle Rocks CG, Rabbit Valley CG, Knowles Overlook CG, McDonald Creek TH, Mack Ridge TH, Kokopelli's TH, Rustler's Loop TH , and Trail Through Time TH, bridge across Salt Creek on Kokopell's Trail all should be protected

For a low desert environmental setting the area has a high density of prehistoric rock art as well as other types of sites. The following cultural resource classes are found within

this FMU: **CR-1** High Value/High Risk

Fuels and Fire Behavior: The greatest fire potential is in the areas of cheatgrass. These areas can exhibit large, high intensity, short duration fires. Most of the juniper areas do not usually have fuels continuous enough to support large fire development.

Fire History: This area has a light fire occurrence.

Fire Regime/Condition Class:
The salt desert shrub community of the Rabbit Valley area is generally in a condition class 3 due to the abundance of cheatgrass and the potential conversion of the vegetation communities to cheatgrass. While the juniper stands in the area are within the NRV, due to the potential for conversion of these stands following disturbance they are considered to be in a condition class (CC) 2.

Values at Risk:

Special Status Species – Table III.D.5 gives the status of each species, locational information, and provides the fire suppression prescriptions for the species in this unit. The plants are listed by italicized scientific name. The species of concern to this FMU are six big river fish species, bluehead sucker, ferruginous hawk, longnose leopard lizard, Great Basin spadefoot toad, northern leopard frog, *Amsonia jonesii, Astragalus musiniensis, Eriogonum contortum*, and *Oreocarya osterhoutii.* All known locations for rare plants as well as any State Potential Conservation Area in this unit are in the BLM GIS system to insure protection/avoidance during fire suppression efforts.

Aquatic and Riparian Habitat – Flannelmouth suckers and other suckers make annual spawning runs up Salt Creek to East salt and other tributaries. Flannelmouths have been sampled 13 miles up river. This stream and the other wet areas springs, seeps, and ponds provide aquatic habitat for various species. The cottonwoods in McDonald Creek should be protected for aesthetic and wildlife purposes.

Desert Shrubland – Full suppression of wildfire is prescribed. This is to prevent the expansion of weedy annual vegetation dominance (esp. cheatgrass). Past fires have reduced overall plant diversity and desert shrub communities have only partially recovered due to drought and cheatgrass competition. Annual vegetation dominance is responsible for the heavy dust storms that occur in Rabbit Valley. In drought years on windy days it can drive the visitors out. When the annuals are present and capable of holding the soil, but dry, they form a fire hazard to the remaining shrubs and adjacent native vegetation in good condition. Desert shrubs, such as the Fremont barbary provide visual attractiveness to the landscape. The shrubs provide the habitat foundation for almost every wildlife species present and Rabbit Valley is a Colorado Watchable Wildlife Site.

Juniper – The woodland stands in this unit should be protected from fire. There may be some justification for projects to create fuel breaks and to provide firewood for campers, but very little, for the following reasons. The juniper stands tend to not be densely stocked, so the fire hazard and the herbaceous response would not justify the expense. The juniper savannas are vital to Scott's orioles and gray vireos, two sought after species in this Watchable Wildlife Site, which is also a designated Colorado Important Bird Area. And finally, the Colorado Natural Heritage Program registers many of the

Utah juniper/mountain mahogany stands and Utah juniper/black sagebrush stands as representative examples of good condition.

All of the listed annual species respond well to a fire disturbance. The success of past fire rehab projects in Rabbit Valley have been challenged by the invasion of these annual species. Consideration should be given to post-fire options (herbicide, tillage) to reduce competing annuals.

Cultural Resources - This CR-1 area has a high density of Archaeological and Historic Resources that are eligible or potentially eligible for nomination to the National Register of Historic Places. Sites at risk in all three categories, (**A)**, **(B)**, and all levels of **(C)** have been recorded (see Chapter 3.1.1) on surveys in the entire FMU. The McDonald Creek cultural area has a high density of pictograph sites that are susceptible to contamination. This type of resource exists in other location in the FMU as well. Because fuels in the McDonald Creek drainage are light to moderate these sites are not currently at risk of thermal damage. Fuel loading near rock art sites needs to be part of site monitoring. Protection of sites from exposure and erosion needs to be a consideration during post fire ESR project planning.

Communities at Risk: There are no communities in this unit, although temporary "communities" are often present as groups set up camp at designated sites in this FMU. Mack and Loma (Country Jam) are considerations that make conversion of the Mack Ridge portion of the FMU from cheatgrass cover to native perennials a consideration.

Unaweep Canyon **B-130-04**

Location: This FMU is located in either side of Highway 141 between Whitewater and Gateway. (See Map B-130-04 Unaweep Canyon) The area includes 23,754 acres, of which 11,485 are privately owned and 12,269 administered by BLM.

Characteristics: This FMU consists of a deep canyon where the canyon bottom is privately owned and the steep canyon hillsides are BLM lands. One mile of the 22 mile length of this FMU has public land from canyon wall to canyon wall. This is at the east end of the FMU. Elevation ranges from 6,000 ft on the east end of the unit to 9150 on the northern boundary. Soils in the canyon bottom are deep sandy loams or sandy clay loams. The sideslopes extending to the canyon slopes are very stony sandy clay loams; canyon sideslopes are extremely stony and gravelly or cobbly sandy or silty clay loam to sand. Parent materials in the east part of the canyon are redbed sandstone and shale, while the western part is precambrian gneiss and granite. Vegetation ranges from sagebrush, pinyon-juniper, and mountain shrub, to small stands of aspen, ponderosa pine, and Douglas fir at the upper elevations. The access to this unit is Highway 141, most of the existing roads lead to private homes and ranches which may provide access to BLM lands. Much of the public lands within this FMU is very steep and rocky.

The unit lies within the East and West Creek watersheds. East Creek flows to the Gunnison River, while West Creek to the Dolores River. The only perennial streams with the FMU are upper Fish Creek, North Lobe Creek and Fall Creek, all tributary to West Creek. These tributaries have seasonal variation of flow. Most occurs in the spring from snowmelt, with baseflow conditions occurring in fall and winter. Flood flows generally occur from convective summer storms No water quality data have been collected on these streams but quality is projected to be excellent, with low total dissolved solids (below 250 mg/l) given the geology in the area. Data collected on West Creek indicates the waters are a calcium bicarbonate type. Both West and East Creeks are classified by the state recreation 1a, aquatic life cold 1, water supply, and agriculture. The 303(d) list, including the monitoring and evaluation list, does not include West Creek or its tributaries. East Creek is included on the 303(d) list for selenium

Riparian: Vegetation would re-sprout after a fire in the systems mentioned above. Some of the areas should work as fire breaks as they are wet and lush. North Lobe Creek has a fisheries and the amount of the creek allowed to burn would need to be evaluated. Fish Creek is controlled from a reservoir on Pinyon Mesa and has irrigation diversion on the lower end. The area below the diversion is not riparian. Fire in this system if severe enough has the potential to remove some of the Box Elder and Birch the other vegetation should re-sprout.

There have been several vegetative treatments on both BLM and private land within this unit to address big game damage through the HPP program, hazardous fuel reduction or wildland urban interface. Most of the treatments have involved rollerchopping within the sagebrush/mountain shrub communities. Wildland/Urban interface projects are identified in this FMU.

There is limited dispersed recreation, primarily big game hunting. Focused recreation occurs at specific rock climbing sites in Unaweep Canyon.

The following cultural resource class is found within this FMU: CR-0 Low Value/Low

Risk

Fuels and Fire Behavior: There is a wide variety of fuels in this highway corridor. They include pinon-juniper, sagebrush, mountain brush, and grass. The fire ignition potential is high due to the number of residences and the highway. The fire behavior potential is also high, in part due to the heavy fuel loadings and the funneling effect of the canyon on the winds.

Fire History: The majority of fires in this unit are human caused from the highway or escaped private land prescribed fires.

Fire Regime/Condition Class:
The vegetative composition of the Unaweep Canyon area is generally in a late seral stage, with the composition and structure of the sagebrush/grass and ponderosa pine communities being moderately departed from their natural range of variability (NRV). These communities are considered to be in a condition class (CC) 2 moving towards a condition class 3. The mountain shrub and pinyon/juniper communities are considered to be within their respective NRV, and are generally considered to be in CC 1. Due to the Ips beetle epidemic, further monitoring is needed to analyze the post-disturbance response.

Values at Risk:

Special Status Species – Table III.D.5 gives the status of each species, locational information, and provides the fire suppression prescriptions for the species in this unit. The plants are listed by scientific name. The species of concern to this FMU are fringed myotis and northern leopard frog.

Aquatic Habitat – West Creek, which is between the north and south sides of this unit, along with Fall and North Lobe Creeks which are within the unit have a cold water fisheries. West Creek is one of the best quality streams in the G.J.F.O., having suppored four species of trout. These and the other live streams in the unit, along with springs, seeps, and ponds provide aquatic habitat for various species.

Riparian Areas – The areas along the creeks, especially upper East Creek, should be protected from fire to preserve cottonwood, boxelder, and lesser native riparian plants.

Pinyon-Juniper – Mechanical means can be used to open areas in the P-J stands and to keep P-J from encroaching into areas that have been previously treated. Cutting of fuelwood should be allowed. Another major concern is that the P-J stands in Unaweep Canyon where the Ips beetle has killed a many pinyon pines in the unit (CSFS maps). These dead trees may cause a fire hazard until the needles fall. Home owners in the area should be allowed to harvest some of these trees for fuelwood.

Mountain Shrub – Bears, deer, elk, wild turkeys, band-tailed pigeons, and Virginia's warblers are priority species with habitat in this vegetation type in Unaweep Canyon. Within this type there is variety in shrub species, in age, size, fruit production and fall color. To manage for the best of these features is a finesse yet to be acquired. The uncommon communities of large stature curlleaf mahogany found along the rim of the canyon would benefit from fire suppression. They occur predominately on the north wall up to and above the rim.

Palisade WSA makes up western part of the unit. Fire is welcome in a WSA. Cottonwoods along West Creek, West Creek recreation site and the Unaweep Seep interpretive site need to be protected.

Cultural Resources: The area has a low density of Archaeological and Historic Resources that are eligible or potentially eligible for nomination to the National Register of Historic Places. Greatest sensitivity is anticipated on benches at the mouths of canyons or on the benches in the Snyder Flats area. Cultural resource management will best be mitigated during post fire evaluation and ESR project work.

General – There are no range improvement projects at risk in this FMU.

Communities at Risk: This unit has experienced a dramatic increase in development over the past 10 years with numerous private homes build in Unaweep Canyon. The BLM has under taken various fuel treatment projects to help protect these homes from wildfires.

West Glade Park **B-130-05**

Location: This FMU is located southwest of Grand Junction known as Glade Park and Piñon Mesa. (See Map B-130-05 West Glade Park) This area totals 244,317 acres encompassing 114,400 acres of private lands; 119,902 acres of BLM administered lands. This unit includes 2,617 acres in the north western corner of The Colorado National Monument. National Parks lands will be managed in conjunction with BLM lands. There is 7,397acres of Forest Service lands in the area. BLM lands are widely scattered in this unit with most of the better blocked lands found in the east and west portions of the unit, with more private concentrated in the middle and southern portions.

Characteristics: This FMU consists of terrain that varies from rolling sagebrush hills to mesa with rugged canyon slopes. The elevations range from 4,700 ft at the lowest location on the northeastern boundary to 8,833 ft on the southwest edge of Piñon Mesa.

Water Quality: The western portion of the FMU is primarily within the Little Dolores Creek, Coates Creek, Granite Creek watersheds, which are tributary to the Colorado River. These perennial streams are projected to have seasonal flow pattern, with snowmelt contributing the most yield, but flood flows resulting primarily from convective summer storms. Irrigation withdrawal and small impoundments have modified the flows especially in Coates Creek and Little Dolores River. Numerous ephemeral and intermittent streams and washes feed these streams. While no flow or water quality data exist for these tributaries, flow pattern and quality is projected to be similar to the main stems. The eastern portion of the FMU is within the East Creek, Bangs Canyon, Rough Canyon, Billings Canyon watersheds which are tributary to the Gunnison River. East Creek has seasonal flow pattern while Bangs, Rough, and Billings Canyons have an ephemeral flow pattern.

Some water quality and discharge data exists for Coates Creek, East Creek and Northeast Creek a tributary to East Creek. Those data indicate that Coates Creek has a calcium bicarbonate type water, with low total dissolved solids (average 264 mg/l). No data exist for Little Dolores River or Granite Creek however the quality is projected to be equally good. The state of Colorado has classified these streams use protected for aquatic life warm 2, recreation 1a, and agriculture. Coates Creek, Little Dolores River, and Granite Creek are not included on either the 303(d) or 303(d) monitoring and evaluation (M&E) list, suggesting water quality standards are currently being met. East Creek discharge ranged from no flow to over 80 cfs. Water quality was very good with pH averaging 8.2, and total dissolved solids averaging 416 mg/l. Waters are a bicarbonate-sulfate-sodium type. Selenium levels in of 5 micrograms per liter were measured in East Creek. A tributary to East Creek, Northeast Creek also lies within the unit. It is the same type water but with lower concentrations. The total dissolved solids averaged 401 mg/l. East Creek is classified aquatic life cold 1, recreation 1a, and agriculture, while the other tributaries are classified use protected for aquatic life warm 2, recreation 2, water supply and agriculture. The 303(d) list includes these tributaries because of selenium impairment.

Riparian: The west portion of the FMU is primarily within the Little Dolores River, Coates Creek, and Granite Creek watersheds, which are tributaries to the Colorado River riparian ecosystem. The composition and type of riparian vegetation present would

probably top kill from wildfire, but re-sprouting and seedlings would occur. There is a fishery in the Little Dolores River and Granite Creek riparian ecosystems and the amount of wildland fire allowed to enter the system should be monitored. If fire is allowed in these systems post fire evaluations should be done to monitor for noxious weed, recovery of native vegetation, and fish survival. The eastern portion of the FMU takes in East Creek, Bangs Canyon, Rough Canyon, Billings Canyon watersheds which are all tributaries to the Gunnison. Wildfire in the East Creek could cause a loss is riparian species diversity and since tamarisk are already present in the area an increase in non-native vegetation would be expected. Bangs Canyon in the upper reaches has several springs and a nice riparian system. Species present indicate, if a wildfire were to enter the area, re-sprouting and recovery of the area would occur. Fire in Rough Canyon and Billings Canyon would not be desirable due to the amount of recreation and the amount of Tamarisk, Burdock and Cheatgrass.

Vegetation types here range from shadscale desert at the lowest northeast edge, sagebrush and piñon-juniper at varying densities at the lower and middle elevations to mountain shrub and aspen at higher elevations. A some ponderosa pine stands occur at the southeast edge of the FMU.

Uses include livestock grazing and dispersed recreation.

Generally, limited dispersed recreation in upper elevations during big game seasons; intensive dispersed recreation on Wilderness Front Country

Fire History: This area has a history of a high number of fires, including a significant number of large fires, both human and lightning caused. Some of the large fires on the west side of the unit are fires that started in Utah and escaped into Colorado.

Fire Regime/ Condition Class: There are a number of fuels treatment projects that have been completed in this unit.

Values at Risk:

Aquatic Wildlife – Several streams in this unit support fish. Upper Little Dolores River and Payne Wash have cutthroat trout. The Little Dolores River also has brook and rainbow trout. Northeast Creek and East Creek (seasonal) have rainbow trout. Granite Creek currently has brook trout, but the BLM and Trout Unlimited are currently studying this stream for possible reintroduction of Colorado River cutthroat trout. Most wet areas, springs, seeps, and ponds provide aquatic habitat for various species.

Special Status Species – Table III.D.5 gives the status of each species, location information, and provides the fire suppression prescriptions for the species in this unit. The plants are listed by scientific name. The species of concern to this FMU are the big river fish (6 species), Colorado River cutthroat trout (see above), bluehead sucker, bald eagle, northern goshawk, Gunnison sage-grouse, fringed and Yuma myotis bats, northern leopard frog, and Great Basin spadefoot toad. All known locations for rare plants in this unit are in the BLM GIS system to insure protection/avoidance during fire suppression efforts.

Piñon-Juniper – There are large stands of commercial grade P-J on Glade Park. These stands can produce woodland products, such as fence posts, fuel wood and Christmas

trees. Fire should be excluded from these sites. Use of mechanical means for fuel reduction should be encouraged. This includes fuel wood cutting. The key to responsibly doing this is to manage to always have an ample percentage of PJ entering desirable fuelwood cutting stage. The expected wildfire return time must be factored in. This will assure that PJ dependant wildlife, which require mature and old trees, the same ones wood harvesters require, will have ample acreages.

Aspen: Aspen needs open areas to regenerate. Stands of aspen could be allowed to burn in order to re-establish this species.

Ponderosa Pine – On Snyder Mesa are two important stands of these pines. The understory is perennial grass, Gambel oak, and curlleaf mountain mahogany. These pines are relatively safe from wildfire due to the tree and understory densities, which are only moderate. Due to the importance of this vegetation to an elk herd, in addition to other wildlife (wild turkeys, blue grouse and ponderosa pine obligate species), fire security should be designed intensively.

Sagebrush – The sagebrush communities within this unit are habitat for Gunnison sage-grouse, deer, and other sagebrush dependant species. These plant communities are currently lacking plant diversity and are limiting the usefulness of these sites. Fire can be a useful tool to help improve plant diversity, but some past wildfire have allowed cheatgrass to dominate the burnt area. Fire, wild or managed, is not desired in sage grouse habitats. Mechanical treatments must be carefully planned with sage grouse shrub cover needs maintained.

Miracle Rock CG, Black Ridge Roads TH, and cottonwood stands in lower East Creek should all be protected. The utility corridor near the west boundary of the Colorado Nation Monument will be protected.

Communities at Risk: The Glade Park utility corridor is within this FMU. There are number dwellings that are found on private lands throughout this FMU. Protection of these private residents will be number one priority.

Sinbad Valley **B-130-06**

Location: This FMU is located south of Gateway in the extreme south east part of the Grand Junction Field Office. (See Map B-130-06 Sinbad Valley) This is a relative small unit totaling 7,183 acres of which 2,554 are private and 4,628 administered by BLM.

Characteristics: This FMU is a valley and the adjacent steep, rock hillsides. The elevation ranges from 5,364 ft up to 6,400 ft. Salt Creek is the only drainage that flows out of Sinbad Valley. Soils in the valley bottom are very deep fine sandy loams, with areas of small hills or knobs having shallow, gypsiferous soils. The valley edges are extremely stony on the surface, with sandy loam overlying gravelly coarse sandy loam to extremely gravelly and cobbly coarse sand. Erosion hazard is high. Vehicle access for the public is limited to one main road that enters the valley via Salt Creek. The primary use of this area is critical deer winter range and livestock grazing. Mining?

Water Quality: The entire unit lies within the Salt Creek watershed which was formed by the collapsing of a salt dome. Salt Creek, a tributary to the Dolores River, is intermittent within the FMU. USGS operated a gaging station on Salt Creek just downstream of the unit from 1979 through 1985. Those data indicate a seasonal flow pattern with snowmelt providing the highest yield, but flooding resulting exclusively from convective summer storms. The waters are a sodium chloride type, and have very high concentrations. Very high sediment loads during runoff events were common. The area is recognized as a significant salt contributor within the Colorado River basin. Salt Creek has been classified aquatic life warm 2, recreation 1a, and agriculture by the State of Colorado. It is included on the 303(d) monitoring and evaluation list for selenium.

Riparian: Salt Creek is not classified as riparian.

Vegetation types here range saltbush, sagebrush parks in the valley bottoms and pinyon-juniper on the steep, rocky hillsides. There is some cheatgrass, mostly on the private, but it is not a major component in most other areas.

Vegetation objectives include maintaining diversity in seral stages of the vegetation communities especially sagebrush and pinon-juniper.

The following cultural resource classes are found within this FMU: **CR-1** High Value/High Risk

Fuels and Fire Behavior: Fuels are primarily grasses and loadings are mostly light due to the grazing practices and lack of precipitation. Areas that have not been grazed have the potential for fire spread.

Fire History: The records indicate few fires in Sinbad Valley

Fire Regime/ Condition Class:
The vegetative composition of the Sinbad Valley area is generally in a late seral stage, with the composition and structure of the sage/grass communities being moderately departed from their natural range of variability (NRV) and at risk due pinyon/juniper encroachment and the presence of cheatgrass . These communities are considered to be in a condition class (CC) 2 moving towards a condition class 3. The mountain shrub and pinyon/juniper communities are considered to be within their respective NRV, and

are generally considered to be in CC 1.

Values at Risk:

Water quality—Area is recognized as a significant salt contributor within the Colorado River basin. Maintaining good vegetative cover within the watershed is important to control sediment and salt loading.

The few smalll springs, seeps, and ponds in this unit provide extremely important habitat for aquatic and various other species.

Special Status Species – Table III.D.5 gives the status of each species, location information, and provides the fire suppression prescriptions for the species in this unit. The only species of concern to this FMU are the fringed myotis bat and northern leopard frog.

The primary values to be protected consist of deer winter range, private lands and property and archaeological values.

Forestry –Fires should not be allowed to escape Sinbad Valley to impact the commercial timber stands of the Manti - La Sal National Forest.

Range/Wildlife – The sagebrush community in this area is in poor condition and is dying out with very little recruitment, which is of concern for deer winter range. Sagebrush parks that remain should be protected from wildfire. There are no high investment range improvements in this FMU that would need to be protected. Areas in the north have of this FMU could be mechanically treated (or smaller Rx) to increase the amount of open parks where PJ has increased. This would benefit the deer winter range. An exclosure in this area is an example of the PJ encroachment. Reseeding (with sagebrush in mix) is recommended following a treatment or substantial wildfire to reduce the threat of cheatgrass and improve herbaceous conditions in PJ areas.

Cultural Resources- The area has had minimal previous survey but all surveyed areas have a high density of Archaeological and Historic Resources that are eligible or potentially eligible for nomination to the National Register of Historic Places. Sites at risk in all three categories, (**A)**, **(B)**, and all levels of **(C)** have been recorded (see Chapter 3.1.1). There are unrecorded historic structures and other reported open architecture that should have assessments to determine future protection needs.

Communities at Risk: There are no identified communities at risk within this FMU. There is a residence and outbuildings located on the private land within this FMU.

Palisade and Upper Kannah Creek B-130-07

Location: This FMU is located on the western slope of the Grand Mesa. (See Map B-130-07 Whitewater and Upper Kannah Creek) The area covers a total of 23,848 acres all administered by BLM.

Characteristics: This FMU is below the U.S. Forest Service boundary and the escarpment of the Grand Mesa. The topography is rough rocky hillsides with most drainages flowing west. Soils are generally deep, extremely stony and bouldery loams from basaltic alluvium parent material that overlies shale. The major drainages include: Rapid Creek, Cottonwood Creek, Sink Creek, Whitewater Creek, Kannah Creek, Indian Creek and Deer Creek. Elevation ranges from 4,800ft near Palisade to 8,400ft at the highest point along the Forest boundary.

Water Quality: Rapid, Cottonwood and Sink Creeks are tributary to the Colorado River, while Whitewater, Kannah, Indian and Deer Creeks empty into the Gunnison River. These creeks generally have perennial flow within the FMU. Most yield is provided by snowmelt. Rapid and Cottonwood Creek watershed is the Palisade Municipal watershed, while upper Whitewater, Kannah, Indian and Deer Creeks are within the city of Grand Junction municipal watershed. Water quality in Rapid/Cottonwood is excellent with low total dissolved solids and the waters a sodium-sulfate-bicarbonate type. Data collected on Kannah Creek downstream where there is an influence from irrigation indicates the waters are good. Total dissolved solids averaged 656 mg/l with sodium, bicarbonate and sulfate the primary ions. The state of Colorado has classified Rapid/Cottonwood Creeks aquatic life cold 1, recreation 1b, water supply, agriculture. Upper Whitewater, Kannah, Indian and Deer Creeks are classified aquatic life warm 2, recreation 1b, water supply, agriculture. Review of the 303(d) list, a listing of impaired waters, includes the tributaries to the Gunnison River for selenium.

Riparian: Most of these creeks in the upper reaches of this FMU are perennial. Since these creeks make up the municipal watershed for the town of Palisade wildfire is not desirable. However, if fire were to enter these watersheds the amount and type of vegetation should re-sprout and recover quickly depending on fire severity. Kannah Creek, Whitewater Creek, in these upper reaches are municipal watersheds for Grand Junction where wildfire is not desirable. The amount and severity of fire in these systems should be carefully monitored and is not necessarily desirable since they are municipal watersheds.

Access: This area is accessible via a number of rough four wheel drive roads up the major drainages.

Use in this unit includes livestock grazing and dispersed recreation including big game hunting.

The predominant vegetation is pinyon-juniper woodland with very little understory. There are Cottonwoods along the main creeks in the unit. There are a number of piñon-juniper treatment areas that were designed to enhance the big game winter range in this unit.

The following cultural resource classes are found within this FMU: **CR-2** Moderate Value/Moderate Risk

Fuels and Fire Behavior: Pinyon-juniper is the dominant fuel type in this unit. This is an area with a high potential for large fires due to the fuels, slope, and difficulty in accessing a large part of the area. Being very visible from the Grand Valley, the visual resource is a higher than average concern.

Fire History: The majority of fires in this area are lightning caused. There have been numerous Type 3-5 fires in this area, both on BLM and USFS administered lands.

Fire Regime/Condition Class:
The vegetative composition of the Palisade and Kannah Creek area is generally in a late seral stage, with the vegetation communities being within their natural range of variability (NRV), but moving toward a CC2. There is a high risk of post-disturbance invasion of cheatgrass at the lower elevations of this FMU, so in general the area should be considered in a CC2.

Values at Risk:

Water quality—This FMU is within the municipal watersheds for the city of Grand Junction and the town of Palisade. Actions to minimize sediment production, nutrient flush, and other potential water quality impacts must be considered.

Aquatic Habitat - Kannah, the North Fork of Kannah, along with the Brandon Ditch have a fishery. The fisheries include brook, rainbow, and cutbows. These creeks, along with springs, seeps, and ponds in the unit provide aquatic habitat for various species.

Special Status Species – Table III.D.5 gives the status of each species, locational information, and provides the fire suppression prescriptions for the species in this unit. The species of concern to this FMU are six big river fish species, bluehead sucker, fringed myotis bat, and northern leopard frog.

Sagebrush – The small parks are vital to wintering deer and wildfire should be kept out of them, since they are a limiting resource in this area.

Pinyon-Juniper – Mechanical treatment has been used to open areas in the P-J stands and to keep PJ from encroaching into areas that have been previously treated. The PJ in the Whitewater Creek drainage is singularly the most invaded by cheatgrass and prone to being invaded following treatments in Mesa County. However, seedings have survived, after some years of competition with cheatgrass.

Cottonwoods-willow – The native plant species within the riparian areas should be protected from wildfire. Rapid, Cottonwood Creeks, Brandon Ditch, North Fork of Kannah Creek, and Indian Creek have significant riparian values. The quarter mile of Kannah Creek and the poor quality riparian on Deer Creek should also be guarded.

The area has a high density of Archaeological and Historic Resources that are eligible or potentially eligible for nomination to the National Register of Historic Places in an area originally designated in the GJFO RMP as Transect 7. A linear inventory also resulted in a high density of sites but because these projects may have utilized a topographical optimum, the FMU is classified as moderate but requires the involvement of an

archaeologist in resource planning. Although the terrain is steep it is anticipated that the same resources could be encountered in similar environments on the flanks of the mesa. Sites at risk in all three categories, (**A)**, **(B)**, and **(C-2 and C-3)** have been recorded (see Chapter 3.1.1). Areas on maps showing no cultural resources have not had previous inventory. Although some combustible sites have been recorded, the most risk will be fires that occur in the north half of the unit, or from surface disturbing suppression activities anywhere in the unit which may best be mitigated during post fire evaluation and ESR project work.

General – The basalt cobble strewn landscape makes for “bone-jarring”, exhausting cross-country travel for fire crews in vehicles.

Communities at Risk: There are no communities within the FMU, but there are homes in the area and are increasing in number as private range land is sold for development.

Grand Valley Desert **B-130-08**

Location: This FMU is located north of I-70 between Palisade and the Utah state line and south of the Book Cliffs. The area totals 268,595 acres encompassing 106,428 of private lands, 161,464 of BLM administered lands and 703 acres of state land. (See Map Grand Valley Desert B-130-08)

Characteristics: This FMU consists of rolling desert hills cut by drainages such as East Salt, West Salt and Big Salt Creeks. The elevation varies from 4,500 ft. on the valley floor up to 5,600 ft. at the foot of the Book Cliffs. Soils are developing from Mancos Shale alluvium and residuum; they are saline, alkaline, and have clayey textures. On the ridges and knolls, Mancos shale bedrock is often exposed, and soils are a shallow veneer. Nearer to the Bookcliffs, slopewash from the Mesa Verde sandstones and shales have moderately deep to deep soils with sandier textures; they often are stony. Of major concern is the salt-containing sediment that erosion produces during runoff events. This area has numerous roads and four wheel drive trails leaving the private lands and crossing BLM lands. Uses in this unit include livestock grazing and a great deal of dispersed recreation.

The unit consists of south trending ephemeral, intermittent and perennial tributaries to the Colorado River. The perennial flows are limited to the upper reaches of Big Salt Wash, East and West Salt Creeks. All others have either discontinuous flows or are dry with the exception of times with runoff is generated from summer convective storms. USGS has operated gaging stations on East Salt Creek, West Salt Creek, and in Badger Wash. Periodic water quality data were been collected. These data poor water quality with high salinity concentrations. Specific conductance occasionally exceeded 10,000 microsiemens per centimeter and suspended sediment of over 300,000 mg/l was measured. The primary ions were sodium, magnesium, and sulfates. High levels of these constituents are reflective of the Mancos shale geologic formation common in the Grand Valley and historic land use. Channel cross sections on Big Salt indicate significant channel erosion occurs during some high flow events. The classification by the state for these streams is warm water aquatic life class 2, class 1b recreation, and agriculture. Review of the 303(d) list, a listing of impaired waters, does not include these streams, but the monitoring and evaluation list does include these streams because of sediment

Riparian: Most streams contained within the desert floor are ephemeral and do not qualify as riparian. This is due to the nature of the area or irrigation withdrawals on all the major tributaries coming from the Bookcliffs. Wildfire is not desirable along the lower reaches of these drainages, East Salt, West Salt, Little Salt, Big Salt, McDonald Creek, and Salt Creek as it would destroy what cottonwoods are present.

Much of this unit drains into, toward, or into tributaries to the Colorado River which is designated by the U.S Fish and Wildlife Service as Critical Habitat for the four endangered species of Big River Fishes, the Colorado Pikeminnow (*Ptychocheilus lucius*), Humpback Chub (*Gila cypha*), Razorback Sucker (*Xyrauchen texanus*), and the Bonytail Chub (*Gila elegans*). There are also numerous other fish species in the river, including a diverse sucker population which make spawning runs up several of the drainages to spawn in the spring and early summer. Flannelmouth suckers have been found as far as the Mitchell Creek Road on East Salt Creek (13 miles from the Colorado River confluence). All springs, seeps, and ponds within this unit provide aquatic habitat

for various species. Protection of all riparian areas, regardless of size, along with any seeps, springs, small ponds, etc. will help insure the continued presence and health of this habitat type, especially in this otherwise dry environment.These streams as well as the springs, seeps, and ponds in this unit provide important habitat for aquatic wildlife and various other species.

Intensive, dispersed recreation

The largest desert shrub community is found in this FMU. The area is dominated by the salt desert community with juniper and sagebrush mixed in. A large portion of this area has a moderate to high composition of cheatgrass.

The following cultural resource classes are found within this FMU: **CR-0** Minimal Value/Minimal Risk, and **CR-2** Moderate Value/Moderate Risk associated with knolls and benches along the north boundary, the margins of the major drainages, and the historic Baxter Pass Railroad.

Fuels and Fire Behavior: Much of this area does not have the fuel quantity or continuity to allow for fire spread. There are some areas with expansive cheatgrass within the unit. These fires can be intense and fast moving.

Fire History: Fire starts tend to be split about evenly between human and lightning starts. Most human starts tend to be abandoned campfires and bonfires.

Fire Regime/Condition Class:
The salt desert shrub community of the Grand Valley area is generally in a condition class 3 due to the abundance of cheatgrass and the potential conversion of the veg communities to cheatgrass. While the sagebrush and juniper stands in the area are within their NRV, due to the potential for conversion of these stands following disturbance they are considered to be in a condition class (CC) 2

Values at Risk:

Special Status Species – Table III.D.5 gives the status of each species, locational information, and provides the fire suppression prescriptions for the species in this unit. The plants are listed by scientific name. The species of concern to this FMU are six big river fish species, bald eagle, ferruginous hawk, Greater sage-grouse, Yuma myotis bat, longnose leopard lizard, northern leopard frog, Great Basin spadefoot toad, *Astragalus musiniensis, Eriogonum contortum*, and *Gilia stenothyrsa.* All known locations for rare plants as well as any State Potential Conservation Area in this unit are in the BLM GIS system to insure protection/avoidance during fire suppression efforts.

Water quality -- The Grand Valley is recognized as the biggest salinity non-point contributor in the upper Colorado River basin. Compliance with the Colorado River Basin Salinity Control Act requires minimizing salt produced from this area. Studies indicate that most salt contributed from the area included in this FMU is directly related to sediment production. Consequently surface disturbing activities that reduce vegetative cover and increase sediment would also increase salt production. Efforts to maintain and/or increase vegetative cover need to be implemented.

Much of this unit drains into, toward, or into tributaries to the Colorado River which is designated by the U.S Fish and Wildlife Service as Critical Habitat for the four endangered species of Big River Fishes, the Colorado Pikeminnow (*Ptychocheilus lucius*), Humpback Chub (*Gila cypha*), Razorback Sucker (*Xyrauchen texanus*), and the Bonytail Chub (*Gila elegans*). There are also numerous other fish species in the river, including a diverse sucker population which make spawning runs up several of the drainages to spawn in the spring and early summer. Flannelmouth suckers have been found as far as the Mitchell Creek Road on East Salt Creek (13 miles from the Colorado River confluence). All springs, seeps, and ponds within this unit provide aquatic habitat for various species. Protection of all riparian areas, regardless of size, along with any seeps, springs, small ponds, etc. will help insure the continued presence and health of this habitat type, especially in this otherwise dry environment.These streams as well as the springs, seeps, and ponds in this unit provide important habitat for aquatic wildlife and various other species.

Desert Shrubland – There is a wildlife rule about deserts. The wildlife community is poor, if there are no shrubs or no prairie dogs. The wildlife rule about desert shrubs is the taller the better. Greasewood, four-winged saltbush, spiny hopsage, shadscale, Gardner's and mat saltbushes are in that order of height and value to wildlife from most to least. Wildfires destroy shrubs and replace them with cheatgrass (Greasewood, a vigorous resprouter, is an exception). Cheatgrass, in turn, increases the flammability of the plant community to intensify its dominance on the landscape. These facts form the rationale for full fire suppression is prescribed for the desert. The presence of rare plant species in this unit requires coordination during fire control events.

Sagebrush – Protecting from wildfire the sizeable sagebrush stands from immediately east of Colorado Highway 139 to the Utah line is prescribed. The unique role of sagebrush in the desert is evident in the wintering pronghorn antelope, the presence of black-tailed jackrabbits, sage sparrows and the rare wintering sage grouse in these stands in the Grand Valley desert. The adverse relationship between cheatgrass and desert shrublands is equally true for cheatgrass and sagebrush. When sagebrush leaves a site, returning it is slow because often the required mycorrhizae are gone too. In addition, sagebrush seed dispersal is slow.

Juniper – The Juniper stands in the desert should be protected to provide wildlife habitat. In years of greater than average growth, the ground fuel is sufficient to carry a tree destroying fire. Almost all of these stands are savannah type with a desert grass/forb layer. Wintering deer and elk somehow find cover value in these stands. The birdlife here resembles that which makes Rabbit Valley an Important Bird Area, with species at the edge of there global range. The aesthetic value of these trees at the rim of the desert is considerable. Invasion by cheatgrass is a concern.

Wildfire is not desirable along the lower reaches of these drainages, East Salt, West Salt, Little Salt, Big Salt, McDonald Creek, and Salt Creek as it would destroy what cottonwoods are present.

Trailheads at the end of 18 road and the shooting range at the end of 27 1/4 road should be protected (more infrastructure to be added with NFD plan) Junipers at the end of 18 Road where dispersed camping occurs should be protected. The Little Book Cliffs WSA intersects this unit on the east end. Fire's natural role would be welcome there.

Cultural Resources - The area has an overall low density of Archaeological and Historic Resources that are eligible or potentially eligible for nomination to the National Register of Historic Places. Sites at risk in all three categories, **(A), (B)**, and **(C-2 and C-3)** have been recorded (see Chapter 3.1.1). Greatest sensitivity for prehistoric sites is anticipated in the remnant woodlands at the base of the Book Cliffs and associated with the major drainages from the north. All sites associated with the Baxter Pass Railroad grade are eligible and susceptible to surface disturbing suppression activities. The greatest risk is from surface disturbing suppression activities anywhere in the unit which may best be mitigated during post fire evaluation and ESR project work.

General – This area contains numerous fences used to control livestock.

Communities at Risk: There no communities in this FMU but communities within the Grand Valley including Loma, Fruita, Grand Junction Clifton and Palisade are adjacent to this large unit.

Roan Creek **B-130-09**

Location: This FMU is located north of De Beque and is within the Upper Roan Creek, Brush Creek, and Carr Creek and Upper Clear Creek drainages. (See Map Roan Creek B-130-09) This area contains 117,504 acres encompassing 81,725 acres of private and 35,779 acres of BLM administered lands.

Characteristics: This FMU consists of three major ridges including Upper 4 A Mountain Brush Mountain and Skinner Ridge. The elevation ranges from 5,600 ft where Roan Creek leaves the unit to 8,833 ft on Upper 4 A Mt. Soils on the side slopes and ridge tops are shallow to deep, developing in weathered, fractured Green River shale. Textures are predominately channery loam, with a high erosion potential. The area is accessed using county roads and roads that service natural gas facilities. Use in this unit includes livestock grazing, natural gas production and big game hunting. Deer summer range is more abundant than winter range in this FMU. The seasonal ranges are about equal for elk.

The unit lies within the upper Roan creek watershed. Roan Creek flows into the Colorado River near De Beque. Roan, Brush, and Carr Creeks are perennial streams that flow to the southeast within the FMU. These streams have seasonal variation of flow with most resulting from snowmelt. Base flow conditions generally occur in fall and winter. Irrigation withdrawal and return flows have modified the natural flow characteristics of these streams. Water quality data were collected by BLM on these streams which generally indicate very good water quality. The total dissolved solids concentrations were generally below 700 milligrams per liter (mg/l), with bicarbonate, sulfate, and sodium the predominant ions. Suspended sediment data are not available, but visual observations indicated that high sediment levels are common during runoff events. This reach of Roan Creek and its associated tributaries have been classified by the state of Colorado aquatic life cold 1, recreation 1b, water supply, and agriculture. The 303(d) list, which is prepared and updated every couple of years, identifies impaired waters within the state. Roan Creek and its tributaries are not on the 303(d) list, but are included on the monitoring and evaluation list for sediment. This indicates there is a perceived problem but existing data are not adequate for official listing.

Roan Creek is a fishery for the Native Colorado Cutthroat Trout and the amount of wildfire in this system especially in the upper reaches above the fish barrier would need to be evaluated on a case by case basis. Wildfire in this farthest reach could increase sediment loading beyond what the stream is capable of carrying; this could lead to increased back shearing, raw banks and any removal of vegetation for stream shading. Brush Creek is will have Native Cutthroat Trout reintroduced in 2004/2005. Segments of this stream were affected by the Brush Mountain fire in 2003, and the vegetation is recovering nicely. This system can handle some wildfire, but with the reintroduction of the Cutthroat, consultation with the resource advisors is necessary. Carr Creek and the left fork of Carr Creek have some of the best riparian in the field office. This stream should be able to handle some wildfire and species present will re-sprout and recruitment will occur to reclaim the areas affected.

Douglas fir is found on steep north-facing slopes and subalpine fir stands replace them in the highest, coolest areas. Aspen can be found scattered between tall conifer stands on north slopes and in higher ravines. Mountain shrub cover the slopes drier than the tall conifer slopes and it occupies slopes recovering from fire. The driest south-facing

slopes are sparsely vegetated with shadscale, grasses and forbs. All, but one of the rare Green River formation plants are on this terrain. Sagebrush and mountain shrub communities dominate on the ridgetops which may also have aspen and conifers.

The following cultural resource classes are found within this FMU: CR-0 Minimal Value/Minimal Risk

Fuels and Fire Behavior: The fuels are primarily mountain brush with stringers of Douglas-fir on the moist aspects of the ridges. Human caused fires in this unit have the potential for extreme fire behavior due to the fuels and steep topography.

Fire History: This area gets a low number of fire starts; however it has a history of escaped private land fires.

Fire Regime/Condition Class:
The vegetative composition of the Roan Creek area is generally in a late seral stage, with the composition and structure of the sagebrush/grass, aspen, and Douglas-fir communities being moderately departed from their natural range of variability (NRV). These communities are considered to be in a condition class (CC) 2 moving towards a condition class 3. The mountain shrub and pinyon/juniper communities are considered to be within their respective NRV, and are generally considered to be in CC 1.

Values at Risk:

Special Status Species – Table III.D.5 gives the status of each species, locational information, and provides the fire suppression prescriptions for the species in this unit. The species of concern to this FMU are Colorado River cutthroat trout, bluehead sucker, greater sage-grouse, northern goshawk, fringed myotis bat, northern leopard frog, and *Mentzelia argillosa.* The one plant is listed by its scientific name italicized. All known locations for rare plants as well as the State Potential Conservation Area in this unit are in the BLM GIS system to insure protection/avoidance during fire suppression efforts.

Water quality – The streams have a perceived problem with high sediment and are included on the state 303(d) monitoring and evaluation list. Actions need to consider and be designed to minimize sediment inputs to protect aquatic resources.

Aquatic Habitat: Roan and Carr Creeks are the only known refugia for a rare forms of Colorado River Cutthhroat Trout in the Grand Junction Field. Roan Creek has a specific strain of these fish never found before, and they are considered by the CDOW and others to be very important for inoculating other streams. These and the other live streams in the unit, along with springs, seeps, and ponds provide aquatic habitat for various species.

Riparian Areas –Maintaining shade over streams is critical for cold water fish. Also liquid fire retardants (slurry) is a hazard to aquatic life and must be used with care..

Mountain Shrub – This type on the ridgetops is dominated by serviceberry, on the lower benches Gambel oak dominates, and on the slopes the dominant shrub species can be either of those, mountain mahogany, chokecherry or other less common shrubs. Fires in this community have no size constraints. While most wildlife species find their best habitat in the oldest, tallest stands, natural fire frequency in this type is low enough to not

threaten an adequate percentage of the old growth.

Douglas fir – In the dougfir stands, due to the steepness of the slopes they are found on, fire is not likely to stay close to the ground but grow into crown fires. These stands should be protected. Elk use the cover of more dense stands of dougfir and subalpine fir, especially during hunting seasons and during windy winter weather. Blue grouse are almost totally dependant on dougfir during the winter.

Aspen – Aspen needs open areas to regenerate. Remnant stands of aspen could be allowed to burn in order to re-establish this species. There are remnants of aspen stands in the area which served as shade producing elements that lends to the germination of the subalpine fir seedlings. In this FMU maintaining aspen is more important than expanding subalpine fir, although both forest covers are valued.

Subalpine fir –Subalpine fir can only germinate and grow in a tree-shaded environment. Aspen have functioned as the shade producing element. If the present stands of subalpine fir are destroyed these sites would have to be preceded by an aspen generation if they were to ever return. Given the small acreage of this type in the GJFO area it is prudent to exclude fire from this forest type.

Sagebrush – Low shrub types are important to browsing deer and elk and nesting birds (green-tailed towhee, Brewer's and vesper sparrows). The type supports blue grouse nesting and brood rearing and wild turkey foraging. On the ridgetops snowshoe hares range out from forest cover to forage. Also on the ridgetops are greater sage-grouse. This habitat in this FMU is the only area in the GJFO jurisdiction with sagebrush voles and 13-lined ground squirrels. Treatments to expand this type at the expense of the mountain shrub type would be appropriate for wildlife reasons.

The area has a low density of Archaeological and Historic Resources that are eligible or potentially eligible for nomination to the National Register of Historic Places. Greatest sensitivity is anticipated on the benches overlooking the creeks and their tributaries. Sites at risk in **(A)** and **(B)** have been recorded (see Chapter 3.1.1). Minimal BLM land in the unit has been surveyed and the majority of surveys were associated with roads on private lands. The greatest risk is to known wooden structural sites from severe fires along creeks.

General – Natural gas wells and production facilities are increasing in numbers within the unit. There are ranches and houses on the private lands along the valley bottoms.

Communities at Risk: No communities are found in this unit.

Riparian River Corridors B-130-10

Location: This FMU contains the river corridor riparian for the Colorado, Dolores, Gunnison Rivers and West Creek within the Grand Junction Field Office. (See Maps B-130-10 Riparian river Corridors 1,2&3) These corridors contain a total of 48,159 acres of which 40,780 acres are BLM administered lands; 7,054 acres are private lands; and 325 acres are lands administered by Bureau of Reclamation.

Characteristics: This FMU consists of the river Corridors of the Colorado, Dolores and Gunnison Rivers. Soils are developing in sandy and cobbly alluvium from various parent materials, and are subject to flooding. These corridors are characterized by native vegetations consisting of cottonwood stands, willow communities with understory plants such as skunkbush sumac, wild rose, rubber rabbitbrush, alkali sacaton and reedgrass. In some of the wetter areas Carex and rushes can be found. Non-native plants tamarisk and Russian olive are currently occupying as much a 50% of the riparian corridors along the subject rivers. Elevation ranges from 4300 ft where the Colorado River flows into Utah to the high point of 4920 ft where the Colorado River enters the Grand Junction Field Office administrative area.

The Colorado, Dolores, and Gunnison Rivers are the major perennial streams within the planning area. West Creek, an important trout fishery, is tributary to the Dolores River. USGS has or is operating gaging stations on these rivers. A gage (#09163500) located on the Colorado River near the state line has been operating from May 1951 to present. Natural flow of the Colorado River is affected by trans-mountain diversions, storage reservoirs, power development, and diversions for irrigation. Data indicate seasonal variation of flow. Most flow occurs mid-May through June from snowmelt, while low-flow conditions occur in fall and winter. The annual mean flow for 50 years of record is 6,394 cfs, with the highest daily mean of 68,300 cfs on May 27, 1984, and the lowest daily mean of 960 cfs on September 7, 1956. Water quality is highly variable and related to flow. The water is a sulfate-bicarbonate-calcium type, with pH in the 8.1 range, and sediment levels greater than 50 mg/l common. The use classification for the Colorado River is Aquatic Life Warm Water 1, Recreation 1a, and Agriculture. Data comparison, against the standards, indicates compliance with water quality standards, with the exception of selenium. Review of the Colorado 303(d) list substantiates general water quality standard compliance. This list identifies those water bodies impaired by one or more pollutants or not attaining assigned use designations. The Colorado River is listed for selenium. The Colorado River reach from the Gunnison River to the state line as been sampled 76 times with an ambient level of 5.2 micrograms per liter.
The Dolores River gaging station, 09179500--Dolores River at Gateway CO, was operated from 1936 to 1954. Mean flow for the 35 years of record was 810 cubic feet per second(cfs), with the maximum discharge of 15,100 cfs on May 14, 1941, and minimum daily of 23 cfs on September 6, 1950. That gage indicated the flow on the river before McPhee Reservoir was constructed in1984. Now flow is controlled somewhat by the releases from the reservoir and irrigation withdrawals. Seasonal variation of flow still occurs, in spite of the reservoir influence, with the high flow occurring in May and low flow occurring in the winter, typically in December and January. While no water quality data have been collected at this gaging station, water quality data have been collected at several upstream gages. Data collected at those locations indicate water quality ranging from very good to poor, depending on flow and location within the basin. Total dissolved solids ranged up to over 40,000 milligrams per liter (mg/l) during low flow, and as low as 250 mg/l during higher flow periods. No suspended sediment data were collected. The

mainstem of the Dolores River have been classified aquatic life warm class 1, recreation class 1a, and agriculture, while the tributaries in this area are classified aquatic life warm class 2, recreation class 1a, and agriculture. There is no indication that standards established to protect those classified uses are being violated. The 303(d) and the monitoring and evaluation lists, do not indicate impairment in the mainstem of the Dolores River or any tributary in the Dolores River basin. This indicates water quality is appropriate for designated.

A gaging station (#09152500) has been operated on the Gunnison River by USGS for more than 100 years. Data from that station indicate mean flow is approximately 2600 cfs (cubic feet per second), with the highest flows occurring in May and June, and low flow occurring in August and September. Natural flow is affected by diversions for irrigation, storage reservoirs, and return flow from irrigated lands. Data collected at the gage indicate water quality in the river is variable. Total dissolved solids can range from below 200 mg/l generally during higher flow periods, to over 1100 mg/l during baseflow conditions. Suspended sediment ranges from 6 mg/l during low flow to over 1500 mg/l during high flow. Sulfates are often elevated reflecting the Mancos shale geology in portions of the watershed. The pH is generally in the slightly basic range. The mainstem of the Gunnison River from a point immediately above the confluence with the Uncompahgre River to the confluence with the Colorado River is classified by the State of Colorado aquatic life cold 1, recreation 1a, water supply and agriculture. Accordingly water quality standards have been collected to protect those uses. This reach is included in the 303(d) list for selenium. Additionally, the 303(d) M&E list includes this reach because of sediment. Inclusion on the monitoring and evaluation list indicates that there is insufficient data to indicate if beneficial uses are being adversely affected. As additional data are collected, this reach will either be listed requiring a TMDL determination or delisted requiring no further action

West Creek typically exhibits seasonal variation of flow, however flood flows generally result from convective storms. Data collected on West Creek indicate very good water quality with total dissolved solids generally less than 300 mg/l and pH generally in the basic range of 8.3-8.4. The waters are a calcium bicarbonate type water. West Creek is classified by the state recreation 1a, aquatic life cold 1, water supply, and agriculture. No violations for these uses were noted with the limited available water quality data. The 303(d) list, including the monitoring and evaluation list, does not include West Creek or it's tributaries.

FMU objective for these areas are to directly protect the riparian resource along the Gunnison, Dolores and Colorado River Systems, in order to indirectly protect river banks, watershed resources for human use, fisheries, wildlife and livestock habitat. As in the previous fire plan this revision is still in agreement that a wildfire has the potential to be detrimental in these systems. These systems contain our largest galleries of Fremont Cottonwoods that would be very susceptible to wildfire and many galleries due to their location on the landscape would not be regenerated, especially along the Colorado River. Every effort should be made to protect these galleries. These corridors also contain a large fishery with several endangered fish calling these rivers home and are an important part of the greater Colorado River ecosystem. Control of non-natives along these corridors would help to deter fire and protect these ecosystems. Areas along the rivers edge would probably not burn to total consumption and some resprouting of riparian vegetation would occur. However, Tamarisk and Russian Olive pose a real threat to these river systems making it difficult for native vegetation to

reestablish after a fire due to their ability to resprout and out compete the native trees and shrubs, i.e., cottonwoods, willows, skunkbrush, coyotebush, silver buffaloberry, and golden current.

These corridors also contain the Big and Little Dominguez Creeks and the Unaweep seep. The upper reaches of Big and Little Dominguez are properly functioning and fire in these systems would not have a detrimental long term (>150 year) effect. Top kill of riparian vegetation may occur, however, resprouting of native vegetation would occur and stabilize the systems. The lower reaches of these systems do not have the same potential in terms of the amount and species richness of the upper reaches. Fire should be limited in these lower reaches to protect Cottonwood galleries and other riparian vegetation and reduce the amount of sediment from the uplands that could flow into the Gunnison and Colorado River System if a large fire were to occur. The Unaweep Seep is generally very wet and only top kill of vegetation would occur if fire would even carry across the seep. However, the fire should not be allowed to burn into the trees.

The Colorado and Gunnison Rivers are designated by the U.S Fish and Wildlife Service as Critical Habitat for the four species of Big River Fishes, the Colorado Pikeminnow (*Ptychocheilus lucius*), Humpback Chub (*Gila cypha*), Razorback Sucker (*Xyrauchen texanus*), and the Bonytail Chub (*Gila elegans*). There are also numerous other fish species in these rivers. The Dolores river is also know to support rare fish. In addition, numerous streams in these units support trout and other fish species,both native and non native.

The most abundant weeds of the riparian corridors are Russian knapweed and Tamarisk. Russian knapweed is probably top-killed by fire, while the roots are likely to remain unharmed. It is not known how Russian knapweed seeds are affected by exposure to heat. Research is needed in this area. Researchers in Wyoming burned plots of Russian knapweed after first mowing them to a height of 3 to 5 inches (8-12 cm). Observations made following these treatments suggest that Russian knapweed plants were injured to a depth of 2.5-4 cm below the soil surface, and that lateral roots at the 7.5 to 15 cm depth did not appear to be injured. Russian knapweed seedheads were also burned but the seed "appeared to be viable". However, Russian knapweed seedlings were not observed after burning [14]. Russian knapweed probably sprouts from root buds after fire, and may establish from on-site seed or from seed brought on site by people, animals, or vehicles. Evidence of past fires in Ruby Canyon suggests that Russian knapweed responds well to corridor fires and establishes near monocultures in a few years.
Numerous research papers exist on Tamarisk and in summary fire will favor tamarisk over cottonwoods and willows. Numerous fires in the Ruby/Horsethief areas have led us to believe that cottonwoods are especially at risk while tamarisk will re-sprout following fire and dominate the site over time.

Intensive dispersed recreation occurs on the Colorado and Gunnison Rivers during the summer months and there is limited dispersed recreation along the Dolores River during the spring.

This unit supports rare plants/plant communities within its boundary; these are listed by unit number in (Appendix 1A). In addition, this unit supports State Potential Conservation Areas, which are listed by unit, in (Appendix 1B).

Fuels and Fire Behavior: The major fuel type in this area is tamarisk. This invasive has converted the riparian areas into highly flammable fuel beds. Fires tend to be restricted to the riparian areas, but burn with high intensity.

Fire History: Most fires in this area are human caused. The major causes are escaped campfires along the river, highway fires, and railroad fires. Fires in this area, while constrained by topography and fuels, tend to burn fairly intensely due to the tamarisk fuel component.

Lightening, train-ignited fires and poorly attended campfires have been the source of wildfires in this FMU. Without the flammable tamarisk and the two human caused fires, the frequency of woodland destroying fires might be low enough to preserve the predominance of wooded riparian vegetation in this FMU without human intervention.

Because of the diversity of location and setting all three cultural resource classes are found within this FMU: CR-0 Minimal Value/Minimal Risk (Dolores River, West Creek), **CR-1** High Value/High Risk (East Creek, Little and Big Dominguez, and the Gunnison River), and CR-2 Moderate Value/Moderate Risk (Colorado River). However these generalizations can be modified because of specific local settings and in general the FMU is identified as CR-2, requiring active involvement of the archaeologist in fire management strategy implementation to determine exact resource values that may be involved.

Fire Regime/ Condition Class:
Due to the dominance of invasive species such as tamarisk, the riparian areas are generally in a condition class 3. The fire regimes have been significantly altered from their historical range, and the risk of losing cottonwood galleries due to the increase in fire frequency and severity is high.

Values at Risk:

Water Quality – Riparian vegetation is important to trap sediment and dissipate energy during high flow. Fire in these zones would increase channel scour, increasing sediment, modifying channel stability, increasing temperature from loss of shade, create a nutrient flush, introduce ash into the streams, generally degrading water quality.

Aquatic Habitat – Protecting of the waters and watersheds in these units are crucial as they are last defense for the fisheries in the rivers and streams found here. The Colorado and Gunnison Rivers are designated by the U.S Fish and Wildlife Service as Critical Habitat for the four species of Big River Fishes. There are also numerous other fish and aquatic species in these units. There are also wet areas, springs, seeps, and ponds that provide aquatic habitat.

Periodic prescribed fire at Unaweep Seep ACEC along West Creek is needed to reverse willow invasion of an important fen. This fen contains rare plants and butterflies. West Creek has a cold water fishery for which stream shading is vital.

Special Status Species – Table III.D.5 gives the status of each species, locational information, and provides the fire suppression prescriptions for the species in this unit. The plants are listed by scientific name. The species of concern to this FMU are the big

river fishes (see under Aquatic Habitat), bluehead sucker, bald eagle, western yellow-billed cuckoo, Yuma myotis bat, northern leopard frog, *Sclerocactus glaucus, Astragalus linifolius, A. naturitensis, A. piscator, A. rafaelensis, Oreocarya osterhoutii,* and *Lygodesmia dolorensis.* All known locations for rare plants as well as any State Potential Conservation Area in this unit are in the BLM GIS system to insure protection/avoidance during fire suppression efforts.

Riparian Area – The cottonwood stands in these corridors have been diminished due to past fires. These stands must be protected from fire and projects must be developed to make them more fire resistant. The high aesthetic and wildlife values of the major river riparian areas make this a priority. Failure to address this issue could lead to lawsuits under the Endangered Species Act, due to the value of the tree habitat for bald eagles, and, if they become listed, Western Yellow-billed Cuckoos.

Cultural Resources - The CR-1 areas have a high density of Archaeological and Historic Resources that are eligible or potentially eligible for nomination to the National Register of Historic Places. Sites at risk in all three categories, (**A)**, **(B)**, and all levels of **(C)** have been recorded (see Chapter 3.1.1). Greatest sensitivity is anticipated on the benches overlooking the water and sheltered sites along cliff overhangs. These sites may be threatened by encroaching tamarisk. Rock art sites need to be considered when ordering aerial retardant.

In addition, the cottonwood stands provide excellent camping opportunities and should be protected. Dominguez WSA, Sewemup WSA, Palisade WSA, and the Black Ridge Canyons Wilderness all intersect this unit along the rivers.

Communities at risk: The small town of Gateway is found along the Delores River corridor.