2.6 VEGETATION

Introduction

Vegetation along with water is one of the most important renewable resources in Garfield County, and is perhaps the only single resource that allows land managers the greatest opportunity for impacting land health, improving species habitat, protecting water resources, restoring streams, stabilizing riparian areas and watercourses and counteracting any effects of wildland fire and potential climate change.

Vegetation plays an important role in many key ecological processes and social values. Vegetation impacts water cycling (precipitation capture, storage, and redistribution), energy capture and cycling (conversion of sunlight to plant matter), and nutrient cycling (the cycle of nutrients such as nitrogen and phosphorus through the physical and biotic components of the environment). Vegetation also provides root systems that help maintain soil integrity and reduce erosion (particularly on steep slopes and areas adjacent to waterways) and provides soil-site stability by limiting redistribution and loss of soil resources (including nutrients and organic matter) by wind and water. Vegetation allows a site to capture, store, and release water from rainfall, run-on, and snowmelt.

Vegetation supports clean water, fish and wildlife habitat, livestock and wild horse forage and desirable conditions for recreation, carbon sequestration, and scenery. Vegetation provides such benefits as hiding cover, browse, and nesting habitat for a variety of wildlife species. All healthy vegetative communities, especially healthy forests, forbs and grasses, sequester vast amounts of carbon. Vegetation is a key component in establishing the capacity of a site to support characteristic functional and structural communities in the context of normal ecological variability and is the dominant indicator of productivity and land health.

Garfield County's plans, policies and programs for maintenance of soil and water resources, special status species conservation, protection of water quality, fish and wildlife health, forest management, livestock grazing, recreation and scenery incorporate a strong vegetative component. Conversely, ecological processes and resources that are not currently in a properly functioning condition are largely attributable to a substandard vegetative component.

The capacity of a site to a) support characteristic benefits, b) resist loss of function and structure due to disturbance, and c) to recover following disturbance is in direct correlation to the vegetation present at a site.

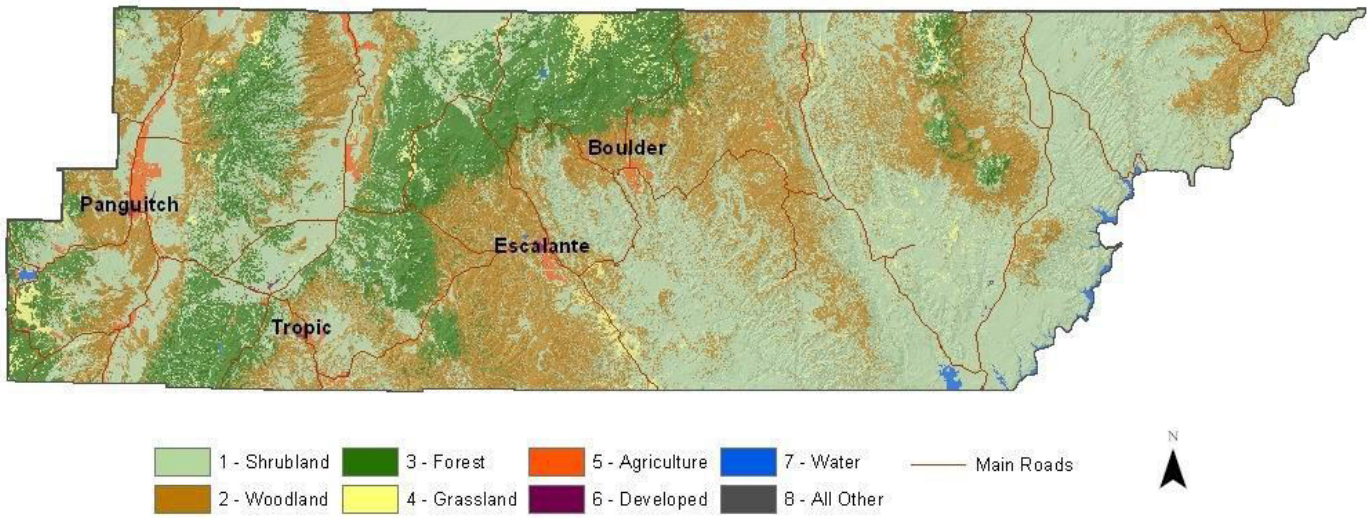
Vegetation can generally be characterized by ecological provinces, and more specifically by plant communities and associations. Plant communities and associations are groups of plant populations that coexist in space and time and directly or indirectly affect each other's population dynamics. Distinct plant communities are influenced by characteristics such as soil depth, texture, and salinity; climate variables, particularly temperature, total and seasonal distribution of precipitation, and wind; and topographic features, most importantly elevation, aspect and slope. The following discussions of plant communities that occur within the County show the diverse and complex nature of vegetation resources in the area. Plant communities can be represented by plant cover types that reflect the dominant species present in an area.

Plant communities and associations are often represented by regional, landscape level, rapid ecoregion, or remotely assessed processes such as the plant cover types documented by the Southwest Regional Gap Analysis Project (SWReGAP) data. The SWReGAP is an update of the Gap Analysis Program's mapping and assessment of biodiversity for the five-state region encompassing Arizona, Colorado, Nevada, New Mexico, and Utah. 43 SWReGAP land cover types were combined into nine vegetation cover types intended to reflect BLM's management of vegetation communities and associations. Due to the dispersed nature, large land area and generalized application of the process, SWReGAP landscape level remote sensing is not an accurate method for detailed inventories or condition assessments necessary for management decisions. However, they may be suitable for very broad planning processes that are followed by site specific refinement.

Vegetation communities can be represented by plant-cover types that reflect the dominant species of an area. However, nature is rarely as definitive as planning descriptions, so plant communities in Garfield County have been combined to facilitate planning level descriptions. The vegetation communities and associations generally discussed in this section comprise the major vegetation communities and associations in Garfield County. Upland vegetation, riparian/wetland vegetation are discussed in this section. Invasive species are discussed in Section 2.6.2 Invasive Species and Noxious Weeds. Special status plant species (T&E and sensitive plant species) are discussed in Section 2.7 Special Status Species.

The vegetation communities and associations generally discussed in this section comprise the major vegetation communities and associations in Garfield County. Upland vegetation, riparian/wetland vegetation, and invasive species are discussed in this section. Special status plant species (T&E and sensitive species) are discussed in the Special Status Species section.

Figure 2.6.1 Vegetative Cover Types



Need for Management Change

1) SWReGAP data needs to be refined before it is used for management actions, planning prescriptions, or site specific projects.

2) Management decisions need to be based on reliable, objective, site-specific data analyzed in accordance with the Data Quality Act (sometimes referred to as the Information Quality Act).

3) It needs to be recognized that there are no places left in Garfield County that are completely void of man's impact. Historic vegetative conditions need to be recognized as arbitrarily selected snapshots in time and space that may not be desirable or achievable.

4) In order to achieve a productive and enjoyable harmony between man and his environment, land managers need to aggressively implement actions that are consistent with desired future conditions, findings, policies, goals and objectives outlined in the Garfield County Resource Management Plan.

5) Desirable native and/or non-native vegetation need to be used when allowed by law. Native only vegetation needs to be used only when a) required by law, or b) it provides greater optimization and conservation of targeted resources.

6) Land managers need to implement more aggressive actions to restore, improve and maintain Garfield County's vegetative resources.

Desired Future Conditions
Garfield County Desires:

a) All management decisions are based on reliable, objective, site-specific data analyzed in accordance with the Data Quality Act.

b) Eco-region, landscape level or remote sensing such as SWReGAP data is field verified and refined before it is incorporated into management actions, planning prescriptions, or site specific projects.

c) Land managers aggressively implement actions that are consistent with desired future conditions, findings, policies, goals and objectives outlined in the Garfield County Resource Management Plan to restore, improve and maintain Garfield County's vegetative resources.

d) Land managers optimize vegetative resources in Garfield County by using native and/or non-native vegetation that best meets the desired objectives.

e) Native only prescriptions are limited to actions a) required by law, or b) where greater optimization and conservation of targeted resources occurs.

Findings, Policies, Goals and Objectives

Finding: Eco-region, landscape level or remote sensing such as SWReGAP data is insufficient for land use planning in Garfield County unless it is field verified and refined before it is incorporated into management actions, planning prescriptions, or site specific projects.

Policy, Goal & Objective: Land managers shall aggressively implement actions that are consistent with desired future conditions, findings, policies, goals and objectives outlined in the Garfield County Resource Management Plan to restore, improve and maintain Garfield County's vegetative resources.

Policy, Goal & Objective: Land managers shall optimize vegetative resources in Garfield County by using native and/or non-native vegetation that best meets the desired objectives.

Policy, Goal & Objective: Native only prescriptions shall be limited to actions a) required by law, or b) where greater optimization and conservation of targeted resources occurs.

2.6.1 Upland Vegetation

Upland vegetation refers to the dominant vegetation communities that are not directly associated with wetlands or streams. This vegetation type makes up the vast majority of Garfield County's vegetation with some estimates indicating upland composition in excess of 95% of all lands in the County not covered by water. Although not directly associate with water, upland vegetation, or lack thereof, can have a significant impact on water quality, runoff, erosion, and aquatic habitat. The County's upland vegetation types and dominant plant communities are discussed below.

2.6.1.1 Forests and Woodlands

Forests and woodlands are found throughout the County, especially in higher elevations, and consist of deciduous and coniferous species of trees and shrubs. These areas play a major role in the local ecosystem by providing wildlife habitat, stabilizing soils, reducing erosion, contributing to water quality, producing vegetative biomass, sequestering carbon dioxide from the air, producing oxygen, and serving as indicators of overall ecosystem health. Forests and woodlands have been subject to long-term natural and human manipulation. Historically forests and woodlands have be subject to wildland fire and since the mid-1800s timber harvests that supported local citizenry. More recently these valuable resources have been impacted through fire suppression and management approaches that exclude active and appropriate timber management. The primary components of this vegetation type are discussed below.

<u>Pinyon / Juniper (PJ)</u> Pinyon-juniper woodlands are the most widely distributed and largest

forest type community in the County. This community generally occurs on a variety of slopes and aspects, and its soils are usually coarse-texture, calcareous alluvium derived from sandstone and shale. There are significant amounts of bare ground, litter, and desert pavement at the soil surface. Estimates indicate approximately 1.13 million acres or 34% of the total land base in Garfield County are comprised of PJ occupation. PJ woodlands are the dominant forest type and make up approximately 69% of all forested areas in the County

PJ forests, as a result of their chemically competitive nature, inhibit grasses and forbs from germination, thereby creating and maintaining a nearly homogenous, sterile vegetation community. These habitat types provide very little forage opportunities to wildlife, especially big game. PJ woodland communities are increasing in the Western United States as other vegetation communities are invaded by pinyon-juniper woodland species. Utah juniper is expanding into open meadows, grasslands, sagebrush steppe communities, quaking aspen groves, riparian communities, and forestlands. The replacement of shrub steppe communities with juniper woodland has been largely attributed to the reduced role of fire, primarily facilitated by passive vegetative management and active fire suppression. The reduction of fine fuels through livestock grazing prior to the Taylor Grazing Act in 1934 may have played a role in initiating PJ encroachment, but failure to reintroduce a fire component in invasive woodlands has significantly expanded any such impact. This expansion of pinyon-juniper woodlands has been facilitated by a combination of climatic changes/drought and the removal of understory vegetation.

Pinyon-juniper woodlands areas also include lower montane riparian woodlands. These are linear areas or patches occurring primarily in the lowest elevations. The areas are dependent on the natural hydrologic regime and flooding and are often found near wet meadows.

Pinyon-juniper woodland stands can be classified as ephemeral or persistent on a landscape. Persistent stands are those that occupy a given site for a long period and typically have little fire disturbance or very infrequent fire disturbance (fire return intervals in excess of 200 years).

Ephemeral stands are those that periodically share a landscape with other vegetation types, such as sagebrush. The dynamic of area dominance has typically been controlled by the periodicity of fire on the site. Given that fire frequency on many of these sites has been altered (reduced) since pioneer times, more acres are now dominated by pinyon-juniper woodland than were historically reported, and the trees on these sites are often older than would have been expected in a pre-settlement stand.

These changes in fire occurrence and frequency incrementally modify vegetation cover, effecting wildlife habitat and overall landscape condition. Where fires in the sagebrush-steppe were once fueled primarily by herbaceous vegetation, many are now fueled by taller woody vegetation with higher fuel loads. This results in more intense fires that can be damaging to soils, creating habitat for noxious, invasive, and nonnative early successional species in the area.

In the absence of fire or mechanical treatment projects, ephemeral pinyon-juniper woodland will continue to opportunistically expand and increase in density. As tree density increases and tree

canopies close, fewer resources are available for understory species. In this situation, understory species (grasses, forbs, and shrubs) will be reduced and wildlife habitat and forage production will be adversely affected. Under juniper-dominated canopies, increases in bare ground and impaired hydrological function, resulting in high levels of erosion, are additional consequences of increasing juniper dominance.

A potential exacerbating force to the spread of pinyon-juniper woodland are the effects of climate change, which could limit resistance and resilience to PJ expansion into adjacent big sagebrush shrublands by expanding drought conditions and fire return intervals. In addition, the expanding range of pinyon-juniper woodlands will result in greater erosion loss of wildlife habitat

Due to increased fuel loadings and increased continuity of tree canopies, wildfires can burn readily and more intensively than historically through ephemeral pinyon-juniper woodland stands, causing both damage to the soil A-horizon and increased erosion from post-fire rains and snow runoff. The threat of canopy-burning fires at high intensities and rapid rates of spread can also impact stands of persistent pinyon-juniper woodland, ponderosa pine, and other tree species, as well as adjacent non-forest vegetation types.

Ponderosa Pine Ponderosa pine (*Pinus ponderosa*) is the most widely distributed pine species in North America, ranging from southern British Columbia to central Mexico and from central Nebraska to the west coast. In climax forests, ponderosa pine stands often contain many small, even-aged groups rather than a true uneven-aged structure. Interior ponderosa pine or shrub communities in central and southern Utah are usually the lowest coniferous forest type, and border shrublands or pinyon- juniper woodlands.

Ponderosa pine is found scattered through many of the mountain ranges in the region. It is a minor component in many stands of mixed conifer, pinyon-juniper woodland, aspen, and mountain mahogany. In a few areas it forms stands where it is the dominant cover type. Ponderosa pine is an important habitat type, providing high-quality wildlife habitat and visual diversity, often in areas that are otherwise dominated by low-growing woody vegetation.

As with other vegetation types, the fire regime of the ponderosa pine has been altered since pioneer times, and less frequent fires have allowed increases in understory vegetation. This understory vegetation is often pinyon, juniper, or mountain mahogany, all of which provide fuel "ladders" that allow damaging fires to move into the crowns of the taller ponderosa pine. Historically, fires remained largely in the understory of larger trees, causing little damage to the pine.

Wildfires have reduced acreages of mature ponderosa pine for several decades in many parts of southern Utah. Centuries-old trees that once withstood multiple ground-based fires have been lost to canopy fires. These trees are not a replaceable resource within the foreseeable future. Ponderosa pine will continue to be lost in the planning area if the current stand conditions, with substantial understory vegetation, are allowed to persist and spread throughout a stand. Mechanical removal through selective harvest, coupled with the removal of understory growth

and judicious use of prescribed fire, can be a long-term solution to promote fire resistance / resilience and to reduce stand-eliminating fires.

Mixed Conifer Mixed conifer stands can be composed of one or more of several species: Douglas-fir, white fir, ponderosa pine, limber pine, Great Basin bristlecone pine, and aspen. Occasionally, and primarily on the western side of the County at higher elevations, subalpine fir, Engelmann spruce, and blue spruce can make up a small percentage of a mixed conifer stand. Where aspen is a stand component, it typically indicates the site was once dominated or mostly dominated by aspen, and it likely indicates that fire has not played the same role in the ecosystem it once did.

Many parts southern Utah have seen an increase in drought-related bark beetle activity that has resulted in mortality of Engelmann spruce, white fir and Douglas-fir. Many of the mixed conifer stands are in areas managed for primitive recreation, making managers reluctant to approve use of mechanical management tools. In addition, many mixed conifer stands are on steep, inaccessible slopes where active management is limited.

Mixed conifer vegetation communities within the planning area are dominated by two primary associations: white fir and Douglas fir. Mixed conifer vegetation communities and associations are found at elevations ranging from 5,000 to 8,500 feet. This mesic vegetation community generally occurs on steep, lower slopes and benches with northern aspects, and in narrow canyons and ravines. Mixed conifer vegetation communities include upper montane/subalpine riparian forests, shrublands and herbaceous riparian areas. These riparian areas are linear or patches confined to specific environments occurring on floodplains or terraces of rivers and streams. Shrubs are often found in these areas. Understory conditions vary widely from dry, open-canopy forests with grassy undergrowth on open slopes and ridges to moist, closed-canopied stands dominated by numerous herbaceous plants in the canyons and ravines.

Species composition, forest density, structure, and disturbance regimes have been altered in many mixed conifer forests of southern Utah since settlement. Interruption of natural fire regimes has allowed succession to move these forests toward more shade-tolerant species. As a result, ponderosa pine is no longer dominant in mixed conifer forests and aspen populations have declined dramatically. Ponderosa pine has lost acreage to both Douglas-fir and white fir, and in turn, Douglas-fir has lost acreage to white fir.

The most dramatic change in mixed conifer forests is the increase in basal area, tree density, and species composition shift toward white fir at lower elevations and Engelmann spruce and subalpine fir at the higher elevations. For instance, in one area of Bryce Canyon, the largest and oldest trees (200 to 250 years old) are ponderosa pine, Douglas-fir, and white fir, but the regeneration for the past 100 years is mostly white fir and Douglas-fir. In another area of Bryce Canyon National Park, in 2007, white fir over-story density was 80 trees/acre compared to a ponderosa pine over-story density of 23 trees/acre. More striking is the regeneration layer where white fir seedlings density was 1,604 trees/acre, and ponderosa pine seedling density was 37 trees/acre.

Selective harvesting and fire exclusion has caused dense, multistoried Douglas-fir and white fir to largely replace the ponderosa pine component in mixed conifer stands. As a result, mixed conifer forests are now very susceptible to western spruce budworm, root disease, bark beetles, dwarf mistletoe, and stand-replacing fires. The higher densities and contiguity of forests has led to large regional insect outbreaks that are more severe than in the past. Larger outbreaks will result in continued changes in forest structure, composition, and function, including creation of openings, depletion of large diameter trees, and an increase in fire hazard due to greater surface fuel accumulations. With continued fire exclusion in mixed conifer forests, surface and ladder fuels will continue to coalesce with crowns of over-story trees. This change in vertical fuel structure will further increase the probability of severe stand replacement crown fires.

Spruce – Fir Mixed Engelmann spruce and subalpine fir forests comprise the upper extent of forest vegetation in southern Utah, occupying the coldest and wettest sites in the altitudinal continuum of ecologic conditions in the area. Precipitation regimes in these forests are dominated by snow, which can occupy these sites for 6 to 8 months of the year. Spruce-fir forests can exist on-site for extremely long periods, sometimes as long as 500 to 600 years, with reports of even longer periods. Harsh climates and short growing seasons result in infrequent, but large-scale disturbances including fire, insect attacks, wind, and avalanches, which historically interacted to create coarse-scaled mosaics of different aged patches on the landscape.

Spruce-fir forests have expanded into the mixed coniferous forests, as well as into high elevation meadows of southern Utah. Expansion into the lower elevations is a result of succession from aspen forests to mixed conifer forests due to fire suppression and because aspens provide suitable habitat for the establishment of shade tolerant conifers. Expansion into some higher meadows has also occurred over the past 100 years. If climatic warming is occurring, it would increase the length and warmth of the growing season, possibly improving seedling survival. Furthermore, fire suppression has allowed seedlings to establish on the edges of meadows and reduce the extremely high soil moisture making it easier for additional seedlings to establish in the center of the meadows.

The structure of spruce-fir forests in southern Utah is predominately uneven-aged. Engelmann spruce is the major species, followed by subalpine fir and aspen. Pure Engelmann spruce stands and spruce-fir forests (where spruce and subalpine fir are codominant) consist of all ages, although the majority of these trees are 51 to 150 years old. In addition, there are some Engelmann spruce trees 151 to 250 years old in the Dixie National Forest. Surveys on the Markagunt and Aquarius plateaus in southern Utah in the early 1970s revealed that subalpine fir stocking was uneven-aged, but not all-aged. A 50- to 70-year old prolific regeneration component existed in the understory, which corresponded with a spruce beetle outbreak in the 1930s. Subalpine fir was also present in the 70- to 130-year old age class indicating its ability to maintain itself under the Engelmann spruce canopy for long periods. The predominance of subalpine fir seedlings in the understory of southern Utah forests is indicative of its ability to successfully reproduce on duff-covered seedbeds, but spruce's average longevity over subalpine fir keeps it dominant in the over-story.

Insect activity has also dramatically increased in southern Utah in recent years. Spruce bark beetle populations have been at epidemic levels since 1991 on the Dixie National Forest and since 1989. Large areas of the Dixie, Fishlake, and Manti-LaSal National Forests have

experienced severe disturbances caused by spruce bark beetle. Most spruce trees greater than 6 to 8 inches were killed during these outbreaks. It is estimated from 2000 to 2004, spruce bark beetles have killed over 366,000 trees on over 100,000 acres of southern Utah National Forests. Hazard ratings indicate that 45 percent of spruce-fir forest types on the Dixie National Forest are at moderate to high risk of attack by bark beetles.

Aspen Quaking aspen is the most widely distributed tree in North America. Aspen stands provide excellent diversity for wildlife and ecological settings. The largest stands are in mountain environments at higher elevations. Other stands can be found scattered in many of the mountain ranges, typically in riparian areas or on the more mesic sites. Stands tend to be small, and sometimes clones can be composed of just a few individuals. Aspen has become subordinate to conifer in some stands, which are now classified as mixed conifer stands. On these sites, typically white fir, one of the most shade-tolerant conifers, has become the dominant species. On the drier aspen sites, junipers and pinyons have become a prominent understory component of aspen stands. The increase in coniferous species in aspen- and once-aspen-dominated stands is an indicator that fire has not played its former role in the ecosystem. In Garfield County, aspen reproduces primarily by vegetative reproduction. Without active management or fire use, aspen will likely continue to decline within the region. Aspen stands could regenerate following fire events in mixed conifer stands that have an aspen component.

Aspen provides habitat for a wide variety of wildlife needing young forests, including black bear, deer, elk, ruffed grouse, and a number of smaller birds and animals. Compared to conifer forests, aspen forests allow more surface water and/or groundwater recharge and streamflow because of their lower seasonal water losses to interception and transpiration. Aspen stands also produce abundant forage that amounts to as much as 1,000 to 2,500 pounds per acre annually, or three to six times more than typical conifer stands. These amounts are comparable to forage production on some grasslands.

Fire is a natural feature in much of the aspen ecosystem of western North America. It is responsible for the abundance of aspen in the West and for the even-aged structure of most stands. In some areas, many aspen stands are the same age, dating from a single great fire or a year of widespread fires. Fire appears to be necessary for the continued well-being of aspen on most sites. Many aspen stands are replaced by grass, forbs, shrubs, or conifers in the absence of fire. Because of low fuel accumulations, aspen stands have low flammability and make excellent firebreaks.

Aspen is considered a fire-induced successional species that will dominate a site until it is replaced by less fire-enduring and more shade-tolerant species, such as conifers - provided a coniferous seed source is present. Fire reduces the over-story, stimulates shoots to sprout, and kills invading conifers growing in the aspen clone. Since aspen can sprout from existing roots and these suckers grow faster than the new slowing growing conifers, aspen can dominate a grove for many years after a fire. Otherwise, aspen can be replaced relatively quickly by conifers, within 100-200 years, or the replacement may be slower taking more than 1,000 years.

Aspen forests do not readily burn. Aspen trees have moist green leaves and thick twigs that do not burn easily, unlike conifers, which have dry needles and twigs. Crown fires running through coniferous forest drop to the ground when they come to an aspen stand and may even extinguish after burning into the aspen only a few yards. Fires sometimes bypass stands of aspen enclosed within coniferous forest.

Although aspen forests do not burn readily, aspen trees are extremely sensitive to fire. A fire intense enough to kill the aspen over-story will stimulate abundant suckering, though some suckers arise after any fire. As many as 50,000 to 100,000 suckers can sprout and grow on a single acre after a fire.

Although many diseases attack aspen, relatively few kill or seriously injure living trees. Generally, the common leaf diseases are found throughout the range of aspen, while decay fungi and major canker-causing organisms are more locally distributed. Much remains to be learned of the disease organisms that infect aspen.

The aspen ecosystem is rich in number and species of animals, especially in comparison to associated coniferous forest types. Aspen forest types produce an abundance of forage, as much as many grasslands and more than 10 times that produced under associated conifers. Cattle and sheep grazing the aspen understory has been the primary consumptive use of the aspen forest in the West.

Browsing has a direct impact on aspen trees in this forest community. Through the early sapling stage, browsing reduces aspen growth, vigor, and numbers. Heavy browsing by large ungulates such as deer, elk, or sheep can drastically reduce or eliminate aspen sucker regeneration.

Beaver can also affect aspen. Beaver have the ability to cut and remove saplings to mature-sized aspen trees. Cutting, by itself, stimulates abundant aspen suckering. Beaver cut aspen of all diameters, feed on the bark and small branches of the felled trees, and utilize stems of medium diameter in their dams. The flooding resulting from the beaver dams may change the entire plant community, and even the landscape. A series of benches may result from siltation behind beaver dams. Each bench is relatively flat and wet along the stream course, often too wet for aspen to develop. These benches may become dominated by other vegetation for centuries.

Aspen is especially susceptible to gnawing or stripping of its bark by several species of mammals, such as elk, deer, rabbits, hares, mice, voles, and porcupines. Aspen buds are an important winter food source for wildlife. Aspen seedlings and saplings may also be trampled by large ungulates and may be affected by digging and feeding upon their roots by pocket gophers and other burrowing creatures.

Need for Management Change

1) Forest and woodland health needs to be restored to the historical range of variability, including but not limited to composition, age, size, and density in accordance with ecologic site descriptions.

2) Land managers need to increase the use of timber harvesting to restore resilience and resistance to fire, insects, and other disturbances.

3) Timber harvest appraisals need to be revised to reflect timber values in Garfield County and to encouraged resurgence of timber harvesting infrastructure and the timber harvesting industry.

4) Insect and disease epidemics that could degrade forest and woodland health need to be prevented.

5) Land managers need to use silvicultural practices to increase the presence of large trees in Ponderosa Pine stands.

6) Biomass or other markets need to be developed for smaller diameter materials to reduce competition and surface build up.

7) Mixed conifer forests need to be returned to earlier successional stages and have age and spatial diversity increased.

8) In mixed conifer forests, prescribed fire needs to be used judiciously after harvests, thinning, mechanical mastication, and other fuel reduction projects to eliminate undesirable seedlings.

9) Additional forage resulting from improved forest health needs to be allocated to livestock and wildlife in accordance with the County's plans, programs and policies.

10) Spruce fir forests need to be restored to healthy conditions and maintained in a condition that is resilient and resistant to fire and insect damage.

11) Aspen regeneration and rejuvenation need to be increased.

12) The impact of elk on forests managed for aspen regeneration needs to be controlled.

Desired Future Conditions
Garfield County desires:

a) Forest and woodland health is restored to the historical range of variability, including but not limited to composition, age, size, and density in accordance with ecologic site descriptions.

b) The use of timber harvesting is increased to restore resilience and resistance to fire, insects, and other disturbances.
c) Appraisals for timber sales are revised to reflect timber values in Garfield County and to encouraged resurgence of timber harvesting infrastructure and the timber harvesting industry.

d) Insect and disease epidemics that could degrade forest and woodland health are prevented.

e) Silvicultural practices are used to increase the presence of large trees in Ponderosa Pine stands.

f) Biomass or other markets are developed for smaller diameter and other materials that promote competition and surface build up.

g) Mixed conifer forests are returned to earlier successional stages and have age and spatial diversity increased.

h) Prescribed fire is used judiciously after harvests, thinning, mechanical mastication, and other fuel reduction projects in mixed conifer forests to eliminate undesirable seedlings.

i) Additional forage resulting from improved forest health is allocated first to livestock to restore suspended or un-used AUMs, second to wildlife to meet objectives in place on January 1, 2015 and third equally between livestock and wildlife.

j) Spruce fir forests are restored and maintained in a healthy condition that resilient and resistant to fire and insect damage

k) Aspen are regenerated and rejuvenated.

l) The impact of elk on forests managed for aspen regeneration is controlled.

m) 80 million board feet of timber are harvested annually to reduce high risk stands and increase short term resilience and long term resistance to insect outbreaks and crown fires.

Findings, Policies, Goals and Objectives

Finding: Forests and woodlands impact land health and the health, safety, welfare, custom, culture and heritage of Garfield County. It is imperative that forests and woodlands are restored to and maintained in a properly functioning condition.

Finding: Forests and woodlands that are susceptible to catastrophic fire, insects and disease threaten air quality, water quality, soil stability, wildlife, recreation and the health, safety, welfare, custom, culture and heritage of Garfield County.

Finding: Forests and woodlands that are a) outside a desirable range of variation or b) not in properly functioning condition fail to support an enjoyable and productive harmony between man and his environment.

Goal & Objective: Restore and maintain the County's forests and woodlands to a properly functioning condition consistent with the historical range of variability and ecologic site descriptions, including but not limited to composition, age, size, and density.

Goal & Objective: Restore and maintain the vigor of the County's timber harvest infrastructure and industry.

Goal & Objective: Timber harvesting is increased to restore resilience and resistance to fire, insects, and other disturbances.

Policy: Timber sale appraisals shall be specific to the area of the sale and shall reflect timber values in Garfield County. Wherever proposed harvests are susceptible to catastrophic fire, appraisals shall consider and include potential costs for no action and a fire taking place.

Policy: Timber and woodland resources shall be managed to prevent insect and disease epidemics that could degrade forest and woodland health. Integrated forest management, including harvesting, thinning, mulching, prescribed fire and other appropriate techniques, shall be implemented to restore forests and woodlands to a condition that prevents insect and disease epidemics.

Policy: Silvicultural practices are the preferred method of increasing the presence of large trees in Ponderosa Pine stands.

Goal & Objective: In order to improve forest and woodland health, develop biomass industries and other markets to process small diameter trees and other materials that promote surface fuel build up.

Goal & Objective: Return mixed conifer forests to earlier successional stages and have age and spatial diversity increased.

Policy: Consistent with forest / woodland health and ecologic site conditions and coordinated with Garfield County, ranger districts and field offices shall develop target values for successional stages, age diversity, basal area, tree density, and spatial diversity for forests and woodlands within their jurisdictions. Until site specific target values are developed by ranger districts and field offices the following target values shall apply:

> Successional Stages: 30% to 50% early; 20% to 40% middle; less than 25% late
>
> Age, Basal Area, Tree Density and Spatial Diversity: Within 10% of historic, pre-settlement values

Policy: Where stand conditions exceed the target values identified above for late successional stage, age, basal area or density by more than 5%, tree stands will be deemed a) susceptible to catastrophic fire, insect infestation and disease and b) failing to meet resistant and resilient conditions.

Policy, Goal & Objective: Land managers should focus treatment area prioritization on ponderosa pine and mixed conifer forests types where fire regimes and vegetation attributes have been significantly altered from their historical range of variability. These areas require moderate to high levels of mechanical restoration treatments before fire can be reintroduced to restore the historical fire regime.

Policy, Goal & Objective: In ponderosa pine forests, treatments should focus on converting to uneven-aged management, reducing or removing shade tolerant conifers and oak, and re-introducing frequent prescribed surface fires.

Policy, Goal & Objective: Mixed conifer forest treatments should focus on reducing the amount of shade tolerant species and leaving more fire-resistant tree species such as ponderosa pine and Douglas-fir.

Policy, Goal & Objective: Spruce-fir forest treatments should focus on maintaining a landscape of different age structures, successional stages, and fuel breaks to lessen the risk of catastrophic fire.

Policy: Based on a 10 year rolling average and consistent with desired ecological site descriptions, restore at least 25% of the Class II and Class III pinyon/juniper woodlands having a median age of less than 200 years to sagebrush / semi-desert grassland vegetation communities.

Policy: Prescribed fire is an appropriate tool for maintaining forest health and should be used judiciously after harvests, thinning, mechanical mastication, and other fuel reduction projects have been appropriately implemented.

Policy: Additional forage resulting from improved forest health shall be allocated on the following priority:

First – To restore suspended or un-used livestock AUMs;
Second - To wildlife to meet January 1, 2015 objectives;
Third - Equally between livestock and wildlife.

Goal & Objective: Spruce fir forests are restored and maintained in a healthy condition that resilient and resistant to fire and insect damage.

Policy, Goal & Objective: Land managers shall restore forests impacted by insects and disease to properly functioning condition with appropriate seral stages, ages, basal area, tree densities and spatial diversity at a rate of 10% annually.

Goal & Objective: Aspen are regenerated and rejuvenated.

Policy: Wildlife managers shall control the impact of elk on forests managed for aspen regeneration.

Goal & Objective: Harvest 80 million board feet of timber annually to reduce high risk stands and increase short term resilience and long term resistance to insect outbreaks and crown fires.

2.6.1.2 Sagebrush – Steppe/Semi-Desert

The word "steppe" is used to describe a large, dry, level, grassland or scrubland having few or no trees. Steppe areas, also referred to as "semi-desert," are dry, cold, grasslands found between deserts and forest or woodlands. Under natural conditions, steppes are covered with grasses and shrubs. Sagebrush steppe or sagebrush semi-desert is a dry site vegetation community with a mix of sagebrush, other shrubs, grasses, and forbs. The names come from sagebrush, which is the most abundant plant species that grows in this ecosystem.

Sagebrush steppe vegetation communities and associations are common in Utah, Washington, Oregon, Idaho, and adjacent Wyoming, and Nevada. Sagebrush steppes are mostly found at elevations between 2,000 and 6,000 feet. Sagebrush steppe is a major vegetation community in the County and is usually interspersed with pinyon-juniper woodlands and desert scrub vegetation communities. Precipitation in these areas is between 8–15 inches per year, and soils are dry with a thin organic horizon

Widely distributed in the Colorado River Basins and Great Basin, this vegetation community is often found in the valley portions of Garfield Counties west of Capitol Reef National Park. Sagebrush steppe communities generally occur on the drier portions of pinyon-juniper woodlands and mesic portions of the desert shrub community. Characteristic and dominant shrubs in this habitat may include basin sagebrush, Wyoming sagebrush, mountain sagebrush, antelope bitterbrush, and silver sagebrush. Each of these species can be the only shrub or appear in complex seral conditions with other shrubs. Rabbitbrush and short-spine horsebrush are common associates and often dominate sites after disturbance. Forbs with shallow root systems are favored in wetter years, whereas deeply rooted shrubs have the competitive advantage during droughts and survive by tapping deeply infiltrated moisture.

Numerous bird and mammal species are found in sagebrush steppe communities. These species can be grouped into sagebrush obligates (e.g., sage grouse, sage thrasher, sage sparrow, Brewer's sparrow, pygmy rabbit, sagebrush vole, sagebrush lizard and pronghorn); shrubland species (e.g., green-tailed towhee, black-throated sparrow, and lark sparrow); and Shrubland-Grassland species (e.g., Swainson's hawk, ferruginous hawk, prairie falcon, sharp-tailed grouse, and loggerhead shrike).

Shrubs typically provide 10 to 60 percent of the vegetation cover in undisturbed conditions, and in disturbed areas shrub cover varies between 10 and 30 percent. Vegetation structure in this community is characterized by an open shrub layer over a moderately open to closed bunchgrass layer. The more productive sites generally have a denser grass layer and sparser shrub layer than more xeric sites. The bunchgrass layer may also contain a variety of forbs. Sagebrush steppe vegetation communities generally have relatively little exposed bare ground, and mosses and lichens may carpet the area between taller plants. Moist sites may support tall bunchgrasses greater than 3.3 feet or rhizomatous grasses.

Sagebrush ecosystems have been degraded in the past several decades, largely as a result of invading pinyon/juniper, suppression of fire and failure to maintain historic disturbance cycles.

Need for Management Change

1) Sagebrush dominant vegetation communities need to be restored to the historical range of variability, including but not limited to composition, age, size, and density in accordance with ecologic site descriptions.

2) Land managers need to increase vegetative treatments in sagebrush ecosystems to restore the historic and natural range of variability.

3) Invading conifers, especially pinyon/juniper associations, need to be recognized as the greatest threat to a desired and healthy sagebrush ecosystem in Garfield County, and treatments need to be implemented to restore sagebrush ecosystems to their historic range.

4) Loss of sagebrush ecosystems to invading conifers needs be recognized for its impact on water quality, wildlife, erosion and other ecological resources.

5) Suspended AUMs for livestock need to be restored commensurate with restoration of invading conifers to desirable sagebrush communities.

6) Water gain from restoration of invading conifers to sagebrush communities needs to be optimized for rangeland health and multiple uses.

7) Additional water needs to be developed in current and restored sagebrush ecosystems to optimize multiple use / sustained yield benefits.

8) As sagebrush communities are restored, sage-grouse related prescriptions need to be removed.

Desired Future Conditions
Garfield County desires:

a) Sagebrush dominant vegetation communities are be restored to the historical range of variability, including but not limited to composition, age, size, and density in accordance with ecologic site descriptions.

b) Managers increase vegetative treatments in sagebrush ecosystems to restore the historic and natural range of variability.

c) Invading conifers, especially pinyon/juniper associations, are recognized as the greatest threat to a desired and healthy sagebrush ecosystem in Garfield County; and treatments are implemented to restore sagebrush ecosystems to their historic range.

d) Loss of sagebrush ecosystems to invading conifers needs be recognized for its impact on water quality, wildlife, erosion and other ecological resources.

e) Suspended AUMs for livestock need to be restored commensurate with restoration of invading conifers to desirable sagebrush communities.

f) Water gain from restoration of invading conifers to sagebrush communities needs to be optimized for rangeland health and multiple uses.

g) Additional water needs to be developed in current and restored sagebrush ecosystems to optimize multiple use / sustained yield benefits.

h) Prescribed fire is used judiciously after thinning, mechanical mastication, and other treatment projects are completed.

i) Additional forage resulting from improved rangeland health is allocated first to livestock to restore suspended or un-used AUMs, second to wildlife to meet objectives on January 1, 2015 and third equally between livestock and wildlife.

j) As sagebrush communities are restored, sage-grouse related prescriptions need to be removed

Findings, Policies, Goals and Objectives

Goal: Manage sagebrush steppe/semi-desert communities for desired future conditions, ensuring ecologically diversity, stability and sustainability.

Objective: Maintain or enhance the integrity of current sagebrush and sage-brush semi-desert communities and identify areas in need of restoration due to pinyon-juniper expansion or decadent stands of sagebrush.

Objective: Initiate restoration and/or rehabilitation efforts to ensure sustainable population of greater sage-grouse and other sagebrush-obligate species.

Objective: Maintain vegetation treatment areas to provide suitable habitats and forage for wildlife and livestock.

Objective: Respond to effects of possible climate change by maintaining vegetation communities in good vegetation and soil health. Manage communities to a standard that has decadent, dying, or dead vegetation less than 10 percent compared to live, vigorous vegetation.

Objective: Provide for vegetative restoration in semi-desert ecosystems, including control of noxious weed infestations, and invasive and undesirable nonnative species using optimal mixes of native and non-native species.

Objective: Utilize adaptive management principles for resource uses during times of extended drought and during times of abundant forage.

Goal: Restore sagebrush dominant vegetation communities to historical range of variability, including but not limited to composition, age, size, and density in accordance with ecologic site descriptions.

Policy: Managers shall increase vegetative treatments in sagebrush ecosystems to restore the historic and natural range of variability.

Finding & Policy: Invading conifers, especially pinyon/juniper associations, are recognized as the greatest threat to a desired and healthy sagebrush ecosystem in Garfield County. Treatments to arrest conifer invasion and restore sagebrush communities shall be prioritized.

Finding & Policy: Loss of sagebrush ecosystems to invading conifers is recognized for its impact on water quality, wildlife, erosion, potential climate change and other ecological resources.

Policy: Suspended AUMs for livestock will be restored commensurate with restoration of invading conifers to desirable sagebrush communities.

Policy: Water gain from restoration of invading conifers to sagebrush communities will be optimized for rangeland health and multiple uses.

Policy: Additional water needs to be developed in current and restored sagebrush ecosystems to optimize multiple use / sustained yield benefits.

Policy: Prescribed fire is most judiciously used after thinning, mechanical mastication, and other treatment projects are completed.

Goals & Objectives: Unless otherwise approved by Garfield County and consistent with ecologic site conditions, the following minimum objectives are established when lands are treated with prescribed or wildland fire in sagebrush habitats:

1. Retain 40 percent ground cover after the burn with recruitment to 60 percent ground cover before the first rainy season following the burn.
2. Cupped fire lines should have water gaps every 20 feet to allow captured water to exit.
3. Existing disturbance areas, such as roads and trails, should be used to the extent possible as fire lines.

Policy: Additional forage resulting from improved rangeland health and vegetative treatments in sagebrush communities shall be allocated first to livestock to restore suspended or un-used AUMs, second to wildlife to meet objectives of January 1, 2015 and third equally between livestock and wildlife.

Policy: As sagebrush communities are restored, sage-grouse related prescriptions need to be removed.

Policy: Managers of sage-grouse focal areas and sage-grouse priority habitat management areas shall ensure at least 75% of any focal area or priority habitat area in their jurisdiction maintain an NRCS Wildlife Habitat Evaluation Guide score of 0.7 or higher, consistent with ecologic site descriptions.

Policy: Managers of sage-grouse focal areas and sage-grouse priority habitat management areas shall ensure not more than 20% of any focal area or priority habitat area in their jurisdiction will have an NRCS Wildlife Habitat Evaluation Guide score of lower than 0.4, consistent with ecologic site descriptions.

Policy: Managers shall use of the full range of upland vegetation treatment methods and tools (i.e., prescribed fire, chaining, plowing, bull hog, pipe harrow, hand cutting, herbicide, aerial seeding, drill seeding, and broadcast seeding) to make progress toward achieving desired future conditions in sagebrush ecosystems.

Policy: Managers shall treat all vegetation types to achieve or make progress toward achieving desired future conditions in sagebrush ecosystems. Seed mixes shall be comprised of an optimum combination of native and non-native species and will be based on factors such as soil type, precipitation, and elevation, to provide for effective rehabilitation and the greatest opportunity for success of vegetation treatments. Seed mixes will be comprised of a diverse composition of appropriate species to allow for progress within the range of variability provided by the appropriate Ecological Site Description.

Policy: In PHMA and GHMA, conduct a) land health assessments that include indicators and measurements of structure, condition, composition, etc., of vegetation specific to achieving GRSG habitat objectives and b) NRCS Wildlife Habitat Evaluation Guide analysis to prioritize treatments in sage-grouse habitat.

Policy: Managers shall treat areas that contain cheatgrass and other invasive or noxious species in sagebrush habitats and shall reduced invasive species and noxious weeds by 10% annually.

Policy: Managers shall treat sage-brush semi-desert communities to a) provide a healthy, diverse mosaic of different height and age structures with components of native and non-native grasses and forbs, and b) limit the pinyon-juniper component for a given ecological site to Class II and Class III PJ woodlands with a median age of at least 200 years.

Policy: Implementation of vegetation treatments in sage-grouse habitat shall be consistent with Garfield County's Resource Management Plan and Sage-Grouse Conservation Plan to the maximum extent allowed by law.

Policy: Based on a 10 year rolling average and consistent with desired ecological site descriptions, restore at least 25% of the Class II and Class III pinyon/juniper woodlands having a median age of less than 200 years to sagebrush / semi-desert grassland vegetation communities.

Policy: Vegetation treatments conducted within 0.6 miles of a lek shall completely remove all conifers less than 200 years old.

Finding & Policy: Class I pinyon juniper trees and Class II and Class III pinyon juniper woodlands with a median age less than 200 years are invasive conifers that are inconsistent with managing for sage-grouse habitat or rangeland health.

Finding & Policy: Pinyon and juniper trees are invasive conifers that degrade rangeland health, water quality, soil stability, vegetative ground cover and other resources. Pinyon / juniper trees and stands shall not be protected as old growth unless they have an age greater than 300 years.

Finding & Policy: Managers have not objectively or scientifically proven native seeds have greater adaptability, probability of success or availability. In sage-grouse management areas and when restoring sagebrush communities, managers shall use an optimum mixture of native and non-native seeds until such time as native only seed mixtures are proven more productive and efficient.

2.6.1.3 Desert Shrub-Scrub

Desert shrub includes the salt shrubs; greasewood, black brush, and desert grassland vegetation cover types. Comprising large portions of Garfield County, mostly east of Capitol Reef National Park, this is the largest vegetation community in the BLM Richfield Field Office. Typically, this vegetation community and associations occupy the driest regions of the County. This vegetation community primarily located on the valley floors and is most common on well-drained, sandy to rocky soils; however, saline and alkaline soils are tolerated. Plants within this community are adapted to a wide temperature range, and many are capable of photosynthesis at temperatures as low as 11°F. Desert shrub areas are typically at elevations between 2,500 and 8,000 feet. Structural and compositional variations in this habitat are related to changes in salinity and fluctuations in the water table and can be described as occurring in two primary vegetation associations — saltbush and salt desert shrub.

The saltbush vegetation association is perhaps the most arid vegetation type in the intermountain West. These areas are characterized by accumulations of salt in poorly developed deep soils. Soils in these areas usually have a pH of 7.8 to 9, which restricts the uptake of water by all but the most salt-tolerant plants (halophytes). Halophytes function essentially to redistribute salts from the soil depths to the surface, thereby concentrating salts around the perimeter of the plant. This enables the plant to eliminate competition for scarce water and nutrients from other less salt-tolerant plants.

The salt desert shrub association is characterized by drought tolerant shrubs, with few grasses and forbs in the understory. The soils in these areas are shallow saline clays and loams. Typical shrubs in these vegetation types are shadescale, four-wing saltbush, spiny hopsage, greasewood, winterfat, broom snakeweed and bud sagebrush.

Black brush is less tolerant of saline soils than greasewood or salt shrubs and can form nearly monotypic stands with a high percent shrub cover. Fourwing saltbush is tolerant of saline or alkaline soils and has adaptations that enable it to concentrate and secrete salts on the leaf surface.

Wildlife and livestock use of desert shrub vegetation varies depending on the species present. Fourwing saltbush is very palatable and provides high-quality forage for wildlife and livestock even during drought conditions. Black greasewood is a valuable browse for livestock and

wildlife, particularly during fall and winter; however, when consumed in large quantities, the soluble oxalates it contains may be poisonous to livestock. The forage value for black brush is principally as browse for bighorn sheep. Domestic sheep and goats, and to a lesser extent cattle, browse black brush. During the winter in southwestern Utah, black brush provides fair forage for domestic sheep and cattle.

Grasslands are comprised of native, non-native naturalized and undesirable annuals. Arid grasslands are dominated by drought resistant plants that have adapted to harsh conditions by developing extensive root systems. Historically, this grassland system was maintained by frequent fires and was sometimes associated with specific soils, often well drained clay soils. A combination of precipitation, temperature, and soils limits this system to the lower elevations within the region. The dominant perennial bunch grasses and shrubs are all very drought resistant plants. Grasses that dominate these communities often develop a dense network of roots concentrated in the upper parts of the soil where rainfall penetrates most frequently. Blue grama, james galleta, indian ricegrass and other common species are generally tolerant to properly managed livestock grazing. Each of the native species has specific characteristics which allow them to adapt to their site specific soil and precipitation conditions.

Naturalized and biologically equivalent non-native species have also been introduced in the County. These species often serve as nurse crops or are used in specific applications such as seedings or post fire restoration. Naturalized and biologically equivalent non-native species are a valuable component of the desired vegetative regime, especially where rangeland health is threatened by the invasion of undesirable species.

Undesirable annual grasslands are generally isolated and are typically located in disturbed areas, especially those burned by wildfire. Areas that are dominated by undesirable annual grasses have typically achieved an ecological threshold and will require significant effort to restore native and biological equivalent non-native species.

Need for Management Change

1) Consistent with ecologic site descriptions and desired future conditions, land managers need to implement active treatments to restore and enhance rangeland health and the vigor of arid vegetative communities.

2) Undesirable annual grasses / cheatgrass needs to be controlled and reduced until it can be eradicated.

3) Where livestock grazing is allowed, additional water needs to be developed to diversify the use of available forage by livestock and wildlife.

4) Intense early season grazing, herbicide treatments and biologic agents need to be aggressively employed in areas of undesirable annual grass expansion.

5) Encroachment by undesirable native species, invasive non-native vegetation, and noxious weeds needs to be eliminated.

6) Areas previously encroached by undesirable native species, invasive non-native vegetation, and noxious weeds need to be restored to properly functioning and desired future conditions.

7) Naturalized and biologically equivalent non-native species need to be allowed when their use improves land health unless prohibited by law.

8) Managers need to restore an appropriate disturbance regime to maintain a desirable mix of seral stages.

Desired Future Conditions
Garfield County desires:

a) Land mangers implement a full complement of integrated management techniques to restore appropriate disturbance regimes, desirable seral stages and to enhance rangeland health and the vigor of arid vegetative communities.

b) Undesirable annual grasses / cheatgrass is reduced by 5% annually until it can be eradicated.

c) Additional water resources are developed to diversify forage utilization by livestock and wildlife.

d) Intense early season grazing, herbicide treatments and biologic agents are aggressively employed in areas of undesirable annual grass expansion.

e) Additional encroachment by undesirable native species, invasive non-native vegetation, and noxious weeds is eliminated.

f) Other than cheatgrass, areas previously encroached by undesirable native species, invasive non-native vegetation, and noxious weeds are restored to properly functioning and desired future conditions at a rate of 25% based on a 10 year average.

g) Unless prohibited by law, naturalized or biologically equivalent non-native species be allowed/used when they optimizes vegetative cover or improve land health.

h) Managers enhance vegetative production and forage by livestock and wildlife to combat any effects of climate change.

i) Where native grasslands or non-native seedings have been lost to pinyon and juniper encroachment, cheatgrass/halogeton invasion or other undesirable vegetation, lands are restored

to the native or treated condition. The desired future condition is that vegetative community (native or non-native) that optimizes rangeland health, ground cover and vegetative production.

j) Salt desert shrub communities consist of native and / or naturalized and biologically equivalent non-native open salt desert scrub vegetation with little to no cheatgrass or halogeton cover, and scattered pockets and patches of herbaceous material and forbs, primarily in the lower areas of the terrain.

k) Blackbrush and shrubland communities consist of dense-to-scattered shrubs and dense-to-open native and / or naturalized and biologically equivalent non-native grasses. Where surface disturbance occurs, areas are aggressively seeded with a seed mix optimized to reduce invasion of undesirable species and erosion.

l) Following fire, vegetative communities in this biome are seeded and revegetated, prior to the first rains supporting germination with a native and non-native mix designed to optimize short term and long term rangeland health.

Findings, Policies, Goals & Objectives

Finding: Rangeland health is optimized and the effects of drought and potential climate change are minimized when managers implement an integrated combination of mechanical, chemical, seeding and biological treatments to reduce cheatgrass and halogeton cover and restore native and desirable non-native communities.

Policy: Land managers shall implement an integrated combination of mechanical, chemical, seeding and biological treatments to optimize rangeland health and minimize the effects of drought and potential climate change.

Policy: Land managers shall implement an integrated combination of mechanical, chemical, seeding and biological treatments to reduce cheatgrass, halogeton and other undesirable vegetation and to restore native and desirable non-native communities

Policy, Goal & Objective: Undesirable annual grasses / cheatgrass shall be reduced by 5% annually until eradicated.

Policy, Goal & Objective: Additional water resources shall developed to diversify forage utilization by livestock and wildlife.

Finding: Intense early season grazing, herbicide treatments and biologic agents are appropriate and valuable techniques in combating undesirable annual grass expansion.

Policy, Goal & Objective: Land managers shall aggressively employ intense early season grazing, herbicide treatments and biologic agents in areas of undesirable annual grass expansion prior to prescribed management of other multiple uses.

Policy: Areas historically occupied by desert shrub / grassland communities that have been encroached upon by undesirable native species, invasive non-native vegetation, and noxious weeds shall be restored to properly functioning and desired future conditions at a rate of 25% based on a rolling 10 year average.

Policy: Unless prohibited by law, naturalized or biologically equivalent non-native species shall be allowed/used when they optimizes vegetative cover or improve land health.

Policy: Managers shall enhance vegetative production and forage by livestock and wildlife to combat any effects of potential climate change.

Policy: Where native grasslands or non-native seedings have been lost to pinyon and juniper encroachment, cheatgrass/halogeton invasion or other undesirable vegetation, lands shall restored to the native or treated condition. The desired future condition is that vegetative community (native or non-native) that optimizes rangeland health, ground cover and vegetative production.

Policy, Goal & Objective: Salt desert shrub communities shall consist of native and / or naturalized and biologically equivalent non-native open salt desert scrub vegetation with little to no cheatgrass or halogeton cover, and scattered pockets and patches of herbaceous material and forbs.

Policy, Goal & Objective: Blackbrush and shrubland communities shall consist of dense-to-scattered shrubs and dense-to-open native and / or naturalized and biologically equivalent non-native grasses. Where surface disturbance occurs, areas are aggressively seeded with a native/non-native seed mix optimized to reduce invasion of undesirable species and erosion.

Policy, Goal & Objective: Following fire, vegetative communities in this biome are seeded and / or revegetated, prior to the first rains supporting germination with a native and non-native mix designed to optimize short term and long term rangeland health.

2.6.1.4 Riparian & Wetlands

Riparian and wetland systems are found throughout the Rocky Mountain and Colorado Plateau regions within a broad range terrain and elevation conditions. These systems often occur as a mosaic of multiple communities that are often tree-dominated with a diverse shrub and grass component. Riparian areas are typically dependent on a natural hydrologic regime, especially annual to episodic flooding. Wetland areas are typically dependent upon continuous saturation

or inundation of soils to support wetland obligate species. Riparian occurrences are found within the flood zone of rivers, on islands, sand or cobble bars, and immediately adjacent to streambanks. They can form large, wide occurrences on mid-channel islands in larger rivers or narrow bands on small, rocky canyon tributaries and well-drained benches. Wetlands are typically found in backwater channels and other perennially wet but less scoured sites, such as floodplains, swales and irrigation ditches. Both riparian and wetland systems may also occur in upland dominant areas of mesic swales and hillslopes below seeps and springs.

Riparian and wetland systems in the County experience typically cold winters and hot summers. Surface water is generally high for variable periods. Soils are typically alluvial deposits of sand, clays, silts and cobbles that are highly stratified with depth due to flood scour and deposition. Highly stratified profiles consist of alternating layers of clay loam and organic material with coarser sand or thin layers of sandy loam over very coarse alluvium. Soils are often fine-textured with organic material over coarser alluvium. Some soils are more developed due to a slightly more stable environment and greater input of organic matter.

Riparian/wetland areas commonly contain specialized vegetation associated with surface or subsurface moisture. Riparian resources include wetland areas which require prolonged saturation of soils and contain certain vegetative species dependent upon saturation. Only a small percentage of lands in Garfield County contain riparian/wetland resources. Riparian and wetland ecological systems comprise less than 1 percent of the approximately 22 million acres of BLM-administered public lands in Utah, but are among the most important, productive, and diverse ecosystems on the landscape. Most of these resources are commonly located along major rivers, drainages, or spring sites with a higher density located in forests and areas of higher precipitation than in the arid lowlands.

Moisture for wet meadow community types is acquired from groundwater, stream discharge, overland flow, overbank flow, and on-site precipitation. Salinity and alkalinity are generally low due to the frequent flushing of moisture through the meadow. Depending on the slope, topography, hydrology, soils and substrate, intermittent, ephemeral, or permanent pools may be present. These areas may support species more representative of purely aquatic environments. Standing water may be present during some or all of the growing season, with water tables typically remaining at or near the soil surface. However, fluctuations of the water table throughout the growing season are not uncommon. On drier sites supporting the less mesic types, the late-season water table may be several feet or more below the surface. Soils typically possess a high proportion of organic matter, but this may vary considerably depending on the frequency and magnitude of alluvial deposition and flood conditions. Organic composition of the soil may include a thin layer near the soil surface or accumulations of material several feet thick.

Wet meadow ecological systems provide important water filtration, flow attenuation, and wildlife habitat functions. Properly functioning riparian/wetland areas help maintain the quality and quantity of water regularly used for both culinary and agricultural purposes. Riparian and wetland areas also support habitat for migratory birds, raptors, and fish; support forage and browse for wildlife, wild horses, and livestock; and provide numerous recreation opportunities.

Riparian areas occur throughout the County as long strips of vegetation adjacent to streams,

rivers, lakes, reservoirs, and other inland aquatic systems that affect or are affected by the presence of water. This vegetation contributes to unique ecosystems that perform a large variety of ecological functions Riparian areas are classified as lotic riparian resources (flowing water streams and rivers) or lentic riparian resources (non-flowing wetlands, meadows, lakes, and reservoirs).

Wetland areas differ greatly in species composition, hydrologic regime, geophysical orientation, and climactic circumstances than adjacent uplands. Wetland areas can generally be described as areas influenced by subsurface or surface hydrology, creating anaerobic soil conditions and hydrologic conditions suitable for the establishment of plant species growing wholly or partially in water.

For this discussion, riparian areas and wetlands are considered coincidental because a) these community types typically occur in similar ecological components (e.g., soil moisture, terrain, and precipitation) and a) the resources demonstrate similar response patterns from impacts generated by surface disturbing influences.

Riparian/wetland resources are described through reference to the Properly Functioning Condition (PFC), which is a qualitative analysis used to assess the condition of riparian/wetland areas. The term is used to describe the assessment process and define the potential functional capacity a particular riparian/wetland area could reach with appropriate management practices. PFC is a state of resiliency that measures the potential for an area to produce anticipated ecologic values. Riparian/wetland areas that are not reaching the functional capacity determined to be PFC are at risk of losing these values. Functioning condition is rated by category to reflect ecosystem health as follows:

> **Proper Functioning Condition** – When adequate vegetation, landform, or large woody debris is present to dissipate energy associated with high flow; filter sediment, capture bedload and aid floodplain development; improve floodwater retention and groundwater recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics; and support greater biodiversity.
>
> **Functioning at Risk** – Riparian/wetland areas that are in functioning condition, but an existing soil, water, or vegetation attribute makes them susceptible to degradation.
>
> **Nonfunctional** – Riparian/wetland areas that clearly are not providing adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows, and therefore are not reducing erosion, improving water quality, etc.
>
> **Unknown** – Riparian/wetland areas that have not been inventoried or where there is insufficient information to make any form of determination.

Riparian/wetland areas are meeting PFC when a stream channel exhibits morphology and functionality similar to riparian and wetland areas in the planning area that have not been substantially altered by outside influences. These areas would have vegetation capable of

attenuating flood flows, reducing erosion, and creating conditions suitable for the long-term and vigorous occupation of native vegetation on streambanks or in wetlands.

Riparian/wetland areas also can be monitored using quantitative short-term and long-term indicators. This monitoring procedure evaluates indicators for long-term trend, including vegetative composition near the water's edge, woody species regeneration, streambank stability, channel and water width and depth, and substrate composition. The procedures also help determine if short-term management practices are meeting allowable-use criteria. Examples of short-term indicators include woody species use, stubble height, and streambank alteration.

Vegetation in riparian areas and wetlands is a dominant characteristic and includes trees, shrubs, sedges, and grasses. Invasive vegetation is common within riparian areas and often consists of exotic trees (Russian Olive and Tamarisk) and other noxious species (Russian Knapweed and Purple Loosestrife). Generally, the upland vegetation surrounding riparian systems is different and definable and ranges from grasslands to forests. In recent decades pinyon and juniper have also invaded riparian areas, putting additional pressure on limited water supplies.

Grass communities and species are a major component in most riparian and wetland areas. A mix of grasses can normally be found, with wide variability in the number of species, extent or location within the riparian/wetland area. Depending on the degree of inundation or saturation, grasses can include obligate wetland species where sufficient saturation occurs yearlong, facultative wetland grasses, or upland grass species.

This ecological system contains early, mid and late-seral riparian plant associations. It also contains non-obligate riparian species. Cottonwood communities are early, mid or late-seral, depending on the age class of the trees and the associated species of the occurrence. Mature cottonwood occurrences do not reach a climax stage and do not regenerate in place, but regenerate by "moving" up and down a river reach. Over time a healthy riparian area with appropriate ecological site conditions supports all stages of cottonwood communities. Riparian ecosystems are extremely susceptible to fire, containing native woody species which are fire intolerant, often resulting in catastrophic loss to fire, especially when invaded by exotic species including tamarisk.

Associations in this ecological system are adapted to soils that may be flooded or saturated throughout the growing season. They may also occur on areas with soils that are only saturated early in the growing season, or intermittently. Typically these associations are tolerant of moderate-intensity ground fires and late-season livestock and wildlife grazing. Most appear to be relatively stable types, although in some areas these may be impacted temporarily by intensive livestock grazing.

Causal factors for riparian/wetland areas not meeting PFC vary across the rangelands in the County. These factors are inside and outside management control; and in most cases, no single factor is responsible for conditions less than PFC. Common causal factors include (in no particular order of importance) dewatering, drought, incised channels, excessive erosion/sedimentation because of poor upland conditions (i.e., pinyon-juniper woodland expansion), OHV use, wildlife & livestock grazing, and invasive species.

Federal land mangers emphasize maintenance of riparian areas and wetlands. Management actions and projects have been implemented to improve riparian/wetland conditions include planting willows to reintroduce a native-woody species component, stream bank stabilization, sediment reduction, flood attenuation, and vegetative recovery in riparian areas and wetlands. Agencies have also initiated adaptive livestock and wildlife management actions to balance grazing and resource protection.

Need for Management Change

1) Active management needs to be implemented to improve and enhance riparian and wetland resources to provide for appropriate physical, biological, and chemical function.

2) Vegetation, soil, landform, and water need to be managed to meet or make progress toward attainment of the Utah Standards and Guidelines for Healthy Rangelands according to riparian and wetland site capability.

3) Vegetative and soil resources need to be managed to increase the land area occupied by riparian and wetland areas.

4) Additional water needs to be developed on federal lands to increase the percentage of lands occupied by riparian and wetland areas.

5) Mangers need to implement structural and non-structural improvements in unstable water courses to restore riparian and wetlands to properly functioning / desired future conditions.

6) Riparian areas and wetlands need to be prioritized and managed to attain desired future conditions for riparian-related resources (e.g. fishery habitat, water quality, wildlife and livestock forage, and soil stability).

7) Riparian areas and wetlands need to be expanded and enhanced through integrated management of all types of vegetation including upland, pinyon/juniper woodlands, rabbitbrush, tamarisk, and Russian olive.

8) Riparian areas and wetlands need to be available for disposal and transfer to state and local entities for uses which meet or move toward desired future conditions.

9) Passive riparian and wetland management need to be abandoned and replaced with aggressive, active management aimed at enhancing existing resources and developing new riparian areas and wetlands.

Desired Future Conditions
Garfield County desires:

a) Riparian and wetland areas are maximized to provide the greatest productive harmony between man and his environment.

b) Properly functioning condition is achieved on riparian areas and wetlands in Garfield County.

c) Riparian/wetland areas support the appropriate ecological conditions, composition and age-class of native and desirable non-native communities to maintain a healthy and properly functioning ecosystem.

d) Managers implement a full suite of structural and non-structural projects (mechanical, chemical, biological and appropriate fire) to improve and expand the health and extent of existing riparian and wetland areas.

e) Managers aggressively implement a full suite of structural and non-structural projects (mechanical, chemical, biological and appropriate fire) to create new riparian areas and wetlands.

f) The impacts of uplands (especially rabbitbrush, encroaching conifers and Class II and Class III pinyon/juniper woodlands) on riparian areas and wetlands are recognized and mitigated.

g) Riparian areas and wetlands are managed for the mutual and maximum benefit of wildlife, livestock and special status species.

h) Russian olive, tamarisk, noxious weeds and undesirable native and non-native vegetation are eradicated in Garfield County's riparian areas and wetlands.

i) The optimum mixture of native and desirable non-native species are used to maximize riparian and wetland productivity, function and condition.

j) Land mangers cooperate and coordinate with Garfield County in the development of new riparian and wetland resources, especially at culvert crossings, bridges, drainage ditches and road related infrastructure.

k) Riparian areas and wetlands are transferred to state or local control when mangers are unwilling or unable to aggressively and actively expand the extent and health of riparian/wetland resources.

Findings, Policies, Goals & Objectives

Finding: Riparian and wetland resources have not been managed to maximize a) the productive and enjoyable harmony between man and his environment or b) their appropriate physical, biological and chemical functions.

Finding: Upland resources have not been managed to maximize the extent, health and condition of riparian and wetland resources.

Policy, Goal & Objective: Riparian and wetland areas shall be maximized to provide the greatest productive harmony between man and his environment and their appropriate physical, biological and chemical functions.

Goal & Objective: Properly functioning condition is achieved on riparian areas and wetlands in Garfield County.

Goal & Objective: Riparian/wetland areas support the appropriate ecological conditions, composition and age-class of native and desirable non-native communities to maintain a healthy and properly functioning ecosystem.

Policy: The optimal mix of native and desirable non-native species shall be used to support desired ecologic conditions and a properly functioning ecosystem. Native only communities shall be limited to areas where they optimize productivity and function.

Policy, Goal & Objective: Managers shall implement a full suite of structural and non-structural projects (mechanical, chemical, biological and appropriate fire) to improve and expand the health and extent of existing riparian and wetland areas. Active restoration techniques are preferred over passive methods.

Policy, Goal & Objective: Managers shall aggressively implement a full suite of structural and non-structural projects (mechanical, chemical, biological and appropriate fire) to create new riparian areas and wetlands.

Finding: Passive management of uplands (especially rabbitbrush, encroaching conifers and Class II and Class III pinyon/juniper woodlands) has had a negative impact on riparian areas and wetlands in Garfield County.

Policy, Goal & Objective: Aggressive, active management of uplands (especially rabbitbrush, encroaching conifers and Class II and Class III pinyon/juniper woodlands) shall be implemented to restore, enhance and develop riparian areas and wetlands in Garfield County.

Policy: Based on a 10 year rolling average and consistent with desired ecological site descriptions, restore at least 25% of the Class II and Class III pinyon/juniper woodlands having a median age of less than 200 years to sagebrush / semi-desert grassland vegetation communities.

Policy, Goal & Objective: Remove 5% of encroaching conifers in federal riparian areas and wetlands annually. In priority sage grouse habitat remove 10% of encroaching conifers in wet meadows, riparian areas and wetlands.

Policy, Goal & Objective: Riparian areas and wetlands shall be managed for the mutual and maximum benefit of wildlife, livestock and special status species.

Policy: Managers shall refrain from implementing utilization standards less than 50%, unless a) implementing a utilization standard between 30% and 50% on a temporary basis not to exceed 2 years is necessary to resolve site-specific concerns; and b) the federal agency consults, coordinates, and cooperates fully with local government.

Policy: Prior to implementing actions that reduce livestock grazing in riparian areas where livestock grazing is not the primary cause of substandard conditions, land managers shall implement structural and non-structural improvements designed to restore properly functioning conditions.

Policy, Goal & Objective: Russian olive, tamarisk, noxious weeds, encroaching conifers, and undesirable native and non-native vegetation shall be removed from Garfield County's riparian areas and wetlands at a rate of not less than 5% annually.

Policy: Optimum mixtures of native and desirable non-native species shall be used in Garfield County to maximize riparian and wetland productivity, function and condition.

Policy: Land managers shall cooperate and coordinate with Garfield County in the development of new riparian and wetland resources, especially at culvert crossings, bridges, drainage ditches and road related infrastructure.

Policy: Prescriptions on livestock grazing in riparian areas shall not be more restrictive than prescriptions for other large herbivores such as elk and wild horses.

Policy: Wildlife, wild horse and wild burro populations shall be maintained at or below objectives adopted prior to January 1, 2015 prior to implementing restrictions to livestock grazing in riparian areas and wetlands impacted by multiple species.

Policy: Structural and non-structural projects designed to restore wetlands and riparian areas to properly functioning condition are prioritized over livestock exclosures, especially where resources are being impacted by wildlife, wild horses or wild burros.

Finding & Policy: Garfield County finds that riparian areas and wetlands that are not properly functioning after 2 years of livestock grazing exclusions are not impacted by livestock grazing. Land managers shall implement active structural and non-structural restoration projects and restore appropriate livestock grazing at the earliest possible date.

Policy, Goal & Objective: Riparian areas and wetlands are transferred to state or local control when mangers are unwilling or unable to aggressively and actively expand the extent and health of riparian/wetland resources.

Finding: Exotic and native invasive plant species will continue to threaten and degrade riparian/wetland areas and adjacent uplands until land managers implement projects designed to restore properly functioning conditions and provide the desired vegetative communities.

Policy: Land managers shall implement the following priorities in restoring and maintaining

riparian and wetland areas to properly functioning condition:

1) Structural improvements that support desired cross section, grade, slopes, sinuosity and other physical characteristics of the area.
2) Maintenance of wildlife, wild horses and wild burros within population objectives and limited to herd management areas established on January 1, 2015.
3) Removal of undesirable native and non-native vegetative species.
4) Establishment of robust communities of desirable vegetative species, consistent with ecologic site descriptions.
5) Implementation of adaptive livestock grazing management techniques, consistent with principles of rangeland health.
6) Temporary (not to exceed 2 years) reduction of livestock grazing, when items 1 through 5 are proven to be ineffective.

Finding & Policy: Implementation of Garfield County's priorities for restoring and maintaining riparian and wetland areas is the most effective method for preserving resource health and preventing loss of riparian/wetland resources due to potential climate change.

Finding & Policy: Rapid ecoregion assessments and landscape level planning are insufficient to meet the management needs for riparian and wetland resources in Garfield County. Due to the limited area occupied by riparian areas and wetlands and the value of these resources to ecosystem health, site specific analysis shall be incorporated into actions which impact riparian and wetland resources.

Finding & Policy: Properly located and designed roads minimize impacts to riparian areas and wetlands. Where practical, roads located in riparian areas, wetlands and adjacent uplands will a) be located to minimize impacts to riparian/wetland resources, b) cross streams as close to right angles as possible, c) implement drainage systems which minimize vehicular contact with water and vegetation, d) incorporate slopes that can be revegetated, e) minimized soil loss and sedimentation, and f) optimize ecologic harmony between the road and resources.

Policy: Roads in riparian areas and wetlands claimed by federal agencies under 23 CFR 460 shall not be closed, gated or have seasonal restrictions without consultation, cooperation and coordination with Garfield County. Roads in riparian areas and wetlands not claimed by federal agencies under 23 CFR 460 shall be managed in accordance with the Garfield County Resource Management Plan and shall not be closed, gated or subject to seasonal restrictions without Garfield County approval.

Finding &Policy: Qualitative and quantitative monitoring provides limited snapshots in time and space and often mischaracterizes the overall health of riparian areas and wetlands. Monitoring data shall be used as indicators to identify areas where additional information may be needed and shall not serve as hard triggers that implement prescriptive management actions. Prescriptive management actions in riparian areas and wetlands shall be limited to those areas where accurate trends and conditions are known through comprehensive site specific analysis.

Policy: When land managers determine riparian areas and wetlands are not meeting or moving toward PFC, they shall coordinate with Garfield County by informing the County Commission of the location, extent, causes, and proposed remedy of the condition.

Policy: Surface disturbing activities will be avoided within 330 ft. of riparian areas and wetlands, unless it can be demonstrated a) there are no practicable alternatives, b) all long-term impacts can be fully mitigated, c) the activity will benefit and enhance the riparian area, or d) the activity will maintain the area's condition in a desired state.

Policy: Managers will implement changes in livestock grazing or recreation management to improve riparian areas before fencing water sources. Managers shall provide offsite water for resource uses when necessary.

2.6.1.5 Non Vegetated & Bare Ground

Non-vegetated lands consist of areas with less than 30 percent vegetation cover and occur in long term natural conditions, through natural events (wildfire, floods, landslides, etc.) or man-made disturbances.

Natural ares include lava outcrops, canyon cliffs, slickrock, and sparsely vegetated sand dunes. Volcanic areas are mostly exposed rock (usually greater than 90 percent of the groundcover with sparse alpine vegetation). These areas are often small but may be extensive and are mostly located at upper elevations in the mountainous portions of the County.

Lava outcrops occur throughout the intermountain west and are limited to non-vegetated and sparsely vegetated volcanic substrates such as basalt lava, basalt dikes, and basalt cliff faces with associated loose deposits of rock debris

Colorado Plateau cliffs, talus slopes, and canyons are in foothills to subalpine elevations and include non-vegetated and sparsely vegetated landscapes of steep cliff faces, narrow canyons, and smaller rock outcrops of various igneous, sedimentary rocks. The Colorado Plateau cliffs and canyons are largely composed of exposed bedrock (usually sedimentary) and scree; whereas the Rocky Mountain cliffs and canyons are composed of various igneous, sedimentary, and metamorphic rocks.

Active and stabilized sand dune areas are primarily located in the lower/drier portions of the County. These sand areas may have sparse to moderate vegetation adapted to unstable coarse sands. The soil supporting vegetation is unconsolidated windblown sand on active dunes. The surrounding habitat is either vegetated, stabilized sands, sandstone slickrock, or various exposed shales and other fine grained exposed geologic rock types or their finer grained developed soils. Plants associated with sand dunes may include a wide variety of species such as sand mulesears, blowout grass, sand dropseed, giant dropseed, Indian ricegrass, sandhill muhly, silky sophora, Kanab yucca, rubber rabbitbrush, winged wild-buckwheat, and Ponderosa pine, pinyon pine, Utah juniper, and Welsh's milkweed.

Areas impacted by natural events such as wildfires, floods and landslides were generally vegetated before the event and may or may not be restored to a vegetated condition. Where adequate soil conditions remain, it is likely vegetation will return, but may take a considerable length of time if left to the natural environment. Some natural events alter the ecological site descriptions to the point that restoration to the original ecologic community is not possible. This may leave an areas susceptible to invasion by noxious weeds or undesirable species.

Man-made disturbances in modern times generally result in temporary non-vegetated/bare ground conditions. Best management practices require restoration after disturbance, and man's activities are controllable when compared to the forces of nature.

Need for Management Change

1) Managers need to optimize the use of non-vegetated/bare ground to accommodate surface disturbing activities that would be unacceptable in vegetated areas.

2) Slickrock areas need to be made available for mountain biking and canyoneering.

3) Sand dunes and other appropriate areas need to be made available for off road/atv open areas.

4) Areas disturbed by natural events need to be restored as quickly as possible to desired ecological conditions.

5) Noxious weeds and invasive species need to be prevented from areas disturbed by natural events, especially wildfire, and man's activities.

6) Managers need to identify at least 2% of the lands in the County for open ATV use.

Desired Future Conditions
Garfield County Desires:

a) Managers optimize the use of non-vegetated/bare ground to accommodate surface disturbing activities that would be unacceptable in vegetated areas.

b) Slickrock and other suitable areas are made available for mountain biking, canyoneering and activities that are not fitting for vegetated areas.

c) At least 2% of the lands in Garfield County are designated as open for cross-country ATV use, including sand dunes.

d) Areas disturbed by natural events are restored to acceptable conditions as soon as possible.

e) Lands impacted by wildfire are reseeded prior to the first season with acceptable moisture for germination. A minimum of 60% recruitment of vegetative ground cover consistent with ecologic site descriptions is desired within the first year after a wildfire event.

f) Vegetative resources are managed in a manner that prevents establishment or expansion of noxious weeds and invasive species in areas disturbed by wildfire, other natural events and man's activities.

g) Desirable vegetative communities are prioritized over biologic soil crusts in the restoration of bare ground. Where ecologic site conditions permit, biologic soil crusts serve as a nurse crop succeeded by vascular plants as soon as practical.

h) Native and non-native vegetative communities are allowed to optimize the attainment of vegetative cover standards and to assure sites remain productive and stable.

Findings, Policies, Goals & Objectives

Finding: Bare ground or non-vegetated areas are often natural conditions that are suitable for multiple use activities that are not desired in vegetated areas.

Finding & Policy: Not all bare ground or non-vegetated areas are suitable for vegetation.

Policy, Goal & Objective: Managers shall optimize the use of non-vegetated/bare ground to accommodate surface disturbing, multiple use activities that would be unacceptable in vegetated areas.

Policy, Goal & Objective: Suitable areas shall be made available for mountain biking, canyoneering, ATV use and other multiple use activities that are not desired in vegetated areas.
Policy, Goal & Objective: At least 2% of the lands in Garfield County shall be designated as open for cross-country ATV use.

Policy, Goal & Objective: Areas denuded of vegetation by natural events will be reseeded prior to the first moisture capable of germination and will be restored to properly functioning/desired ecological conditions condition as quickly as possible.

Policy: Bared ground and non-vegetated areas shall be managed to prevent establishment or expansion of noxious weeds and invasive species.

Policy, Goal & Objective: Lands impacted by wildfire shall be reseeded prior to the first season with acceptable moisture for germination. A minimum of 60% recruitment of vegetative ground cover consistent with ecologic site descriptions shall be attained within the first year after a wildfire event.

Policy: Desirable vegetative communities are prioritized over biologic soil crusts in the restoration of bare ground. Where ecologic site conditions permit, biologic soil crusts will serve as a nurse crop succeeded by vascular plants as soon as practical.

Policy: Optimum mixtures of native and non-native vegetative communities shall be used to maximize the attainment of vegetative cover standards and to assure sites remain productive and stable.

References:

Ponderosa Pine, Mixed Conifer, and Spruce-fir Forests, USDA Forest Service Gen. Tech. Rep. RMRS-GTR-202, Michael A. Battaglia and Wayne D. Shepperd, 2007