

## **Pike and San Isabel NF Forest Plan Direction**

### **Current Situation**

**Douglas-fir** - occurs from approx 8,500 to 11,000 feet elevation and occupies about 16 percent of the Forest. It typically occurs on steep, north-facing slopes at lower elevations and is frequently the only conifer vegetation in a large area. On south-facing slopes, Douglas-fir occurs sparsely on rocky ridges, steep hillsides, and canyon slopes. The Douglas-fir type has not been treated in the past resulting in mostly mature and overmature stands. Very little acreage of early successional stages of Douglas-fir are known to exist on the Forest. Douglas-fir is a climax species that reproduces from seed. Without treatment, stands mature and die, but perpetuate the Douglas-fir type. Currently the stands have a relatively uniform age structure. Natural succession will perpetuate the current uniform distribution.

**Ponderosa pine** - occurs from approx 6,000 feet elevation to 9,000 feet elevation and occupies 14 percent of the Forest. Ponderosa pine generally grows in pure stands, but can be associated with aspen, Douglas-fir, pinyon and Juniper and oakbrush. Ponderosa pine reproduces by seed. Natural regeneration requires the combination of a good seed crop, ample moisture the spring following seed fall to assure germination and seedling survival, and favorable seedbed conditions. These three conditions coincide rather infrequently. Historically, low-intensity wildfires burned through ponderosa pine stands at frequent intervals. These fires had little effect on established trees. Thick bark makes ponderosa pine fire resistant. However, these fires prevented the buildup of heavy duff accumulations and kept competing vegetation in check, thus maintaining seedbed conditions favorable to ponderosa pine. Fire suppression over the past several decades has resulted in a build up of organic litter, making seedbed conditions less favorable for ponderosa pine. Currently the type 1s mature to overmature, open grown and poorly stocked. There are some uneven aged stands. These are the result of past cutting activity. Ponderosa pine is important for timber production, livestock grazing, and wildlife habitat. Ponderosa pine is considered a climax species on many of the sites on which it occurs, particularly near the center of its elevational range. Major disturbances, such as high-intensity fires, heavy logging, or widespread mortality from insect or disease infestations may cause ponderosa pine sites to revert to more seral stages such as aspen, oakbrush or grass. The mountain pine beetle is currently at epidemic levels in some localized areas, but the rate of spread appears to generally be decreasing.

## **GOALS**

Allow natural succession to proceed without human intervention in all designated Wilderness and Wilderness Study Areas.

- Increase diversity for wildlife and habitat improvement.
- Increase winter range habitat capacities for deer and elk.
- Improve fish habitat on suitable streams and low elevation ponds and lakes.
- Provide for productive use of range forage while maintaining or improving other resource values.
- Practice vegetation management to provide multiple benefits using a comprehensive timber management program as a tool.
- Implement an integrated pest management program emphasizing silvicultural management of timber stands to prevent and control insect infestations and disease.
- Provide for increased production and productive use of wood fiber while maintaining or improving other resource values.
- Improve age class and species distribution of tree stands forest-wide.
- Perpetuate the aspen type.
- Improve the health and vigor of all vegetation types

Following the management direction set forth in this Plan. It will take more than 200 years (to the year 2200 or beyond) to achieve the desired goal.

Vegetation is a dynamic resource. It will change over time through natural succession.

### **Vegetation**

A more balanced distribution of ages and sizes (structural stages) improves visual and vegetation diversity, improves vegetation vigor and growth, reduces the risk of insect and disease epidemics, and reduces the potential for wildfire. Additional discussion of the character of the Forests' vegetation is included in Chapter III of the EIS.

### **Wildlife Habitat Diversity**

Vegetation diversity has a primary influence on Wildlife habitat quality, since most wildlife species require a variety of plants and plant communities for feeding, for security, and for breeding purposes. The majority of the Pike and San Isabel National Forests has good to excellent inherent diversity of its vegetation; however, most forested areas are mature to overmature and are in need of a better balance of age-classes. Aspen is a key habitat for many wildlife species. The maintenance, expansion, and renewal of aspen stands is important for habitat diversity. Generally, the aspen is overmature and in need of renewal as a result of limited treatment. Alpine and rockland non-forested habitats are generally in good condition. Only a few activities, primarily dispersed recreation, affect their wildlife habitat values. The mountain shrub and grassland habitats are in fair to good condition, with a few areas of livestock-big game competition. Riparian habitat is especially important for wildlife and fish. There are problems in some areas with excessive domestic livestock grazing and off-road vehicle use. The need for increased habitat diversity will continue in the future. As pressure on the Forest grows from loss of private habitat lands and from increased hunting and fishing, vegetation treatment will be called upon to provide more habitat opportunities for game species. More fisheries and fish habitat improvement projects will also be needed.

## **Fish and Wildlife**

Current Uses and Management. The planning area has a variety of wildlife due to the wide range of habitats ranging from the prairie to the high peaks. The greatest opportunity to increase wildlife populations is to improve habitat conditions on the planning area. This can be accomplished most efficiently through timber sales and with coordination with management of other resources. Inventories of forested land indicate a distribution of stand age classes across the Forest with the mature, older aged class predominating. Wildlife supply potentials are significantly improved by increased diversity through a better stand age class distribution, both in time and area. In addition to improved habitat diversity, improved habitat is needed to provide for desired populations of deer, bighorn sheep and elk. Fish and riparian habitat quality are currently below potential. Increased identification and protection of special habitats and potential threatened and endangered species habitats is also needed. Improved distribution of habitat components such as snags for cavity nesters, available water, and dead and down material is also necessary. Current trends indicate a small but steady decline in habitat quality and resulting fish and wildlife populations.

## **Timber**

Timber management on the Pike and San Isabel National Forests has not been a cost-effective program considering only the direct costs and revenues of selling timber. However, when all associated resource benefits are considered, a timber management program may become a realistic and cost-effective management tool. Other resource objectives provide the impetus for a coordinated timber management program and in so doing improve the effectiveness of their own programs. Without a timber management program, many resource management programs would cost a great deal more or could not be accomplished at all. In a sense, wood products are both an objective and a by-product of multiple use management.

The Forest has approximately 1,432,600 acres of tentatively suitable forest land. Of this total, 131,000 acres are reserved in classified wilderness and 121,000 acres are deferred in Wilderness Study Areas. Of the remaining area, about 115,000 acres are physically or administratively unsuitable for timber management and 241,000 acres are on slopes greater than 40 percent. Overall, about 824,000 acres are suitable, and available for logging with conventional tractor-skidder logging equipment commonly used in the area. This figure represents suitable land (1,065,200 acres) minus slopes too steep for conventional harvest methods (241,000 acres). Although high lead or other logging equipment capable of operating on slopes over 40 percent is available, these systems have not proven economical or practical locally.

## **Forest Protection**

Forest protection includes fire prevention and control, integrated pest management, and law enforcement. Because of mutual concerns, protection needs are closely coordinated with other Federal, state and local authorities. The Forest has the highest occurrence of fires in the Region. The average number is 140 per year, of which 52 percent are man-caused. Some increase in the number of man-caused fires can be expected as development and visitor use increase, although this will not drastically affect the wildfire situation.

Over the next 40 to 100 years, due to aging and decay of forested areas, fuel hazards will likely increase and could result in larger, more destructive fires. This is particularly true in areas of the Forest which receive little vegetation treatment. The overall fire management objective is to provide a cost effective program which responds to land and resource management goals and Objectives. This includes fire protection and use. Other fire management objectives for the

entire Forest are to protect air quality through management of wild and prescribed fires and to use prescribed fire to reduce fuel hazards and accomplish other resource management objectives.

The Forest's timber management program has not been at a sufficient level in the past few years to apply the stocking control and harvesting of mature timber necessary to maintain healthy, vigorous stands. As a result of this lack of silvicultural treatment many areas on the Forest are susceptible to epidemic insect populations. Currently the greatest concern in pest control has been the mountain pine beetle and spruce budworm. The mountain pine beetle predominantly occurs in older ponderosa pine stands. An increased timber management program will help relieve some of the insect problem. Cooperation with the State Forester in Integrated pest control programs has recently been successful in this area of forest protection.

## **THE NEED TO ESTABLISH OR CHANGE MANAGEMENT DIRECTION**

Included in the analysis of the management situation is a determination of the need to change current management direction on the Pike and San Isabel National Forests and Comanche and Cimarron National Grasslands. This was accomplished by assessing the current situation, determining productive potentials, and reviewing public issues and management concerns.

The following determinations were made:

**Vegetation** is a dominant feature of the landscape and its management is, to a large degree, the subject of the Forest Plan. Low levels of vegetation management in the past combined with an active program of wildfire suppression have resulted in a situation where most of the Forest is covered with mature vegetation. This situation is not likely to change dramatically in the future as large acreages of the Forest are classified wilderness or remain inaccessible. In these areas the pattern of natural succession will continue. To better address most of the issues and concerns, the Plan has been developed to more aggressively manage the vegetation where physical barriers permit and favorable economic conditions exist. It is the direction of the Plan to use the management activities of prescribed fire, fencing, seeding, timber sales, and thinning to enhance and protect a wide range of resource values that involve visual quality, recreation, and wildlife habitats. Management activities that are properly located and timed will significantly reduce the risk of vegetation losses caused by insect, disease, or wildfire.

### **Timber**

A change in timber management is needed to replace the role of natural forest succession. Forest cover types need insect and disease control, fire hazard reduction, wildlife habitat diversity improvement, and perpetuation of healthy and visually pleasing forest conditions. Emphasis needs to be placed on providing wood for growing firewood demand. Timber production needs to be concentrated on highly productive sites.

### **Fish and Wildlife**

More wildlife and fish habitats should be improved, and existing high quality habitats should be better protected. Habitat treatments should be directed toward the specific needs of those wildlife and fish species in high demand for recreational purposes, those particularly valuable for healthy forest or grassland conditions (such as woodpeckers), for threatened and endangered species and to maintain viable populations. Vegetation treatments should also be designed to provide for better long-term habitat diversity in terms of vegetative composition, forest structural stage distribution, and interspersions of different habitats. In forested areas more grass, forb, seedling-sapling, and old growth structural stages are needed. Much more aspen should be regenerated, particularly by cutting in conifer stands where there is all a significant aspen residual in the understory.

### **Forest Protection**

Protection in the form of fire prevention and control, integrated pest management, trespass prevention and law enforcement is an essential part of resource management. Fire prevention and control will continue to protect Forest and adjacent land resource values. Increased emphasis should be made in the application of fire as a management tool. The use of fire in vegetation treatment to improve wildlife habitat, improve rangelands, or to reduce fuels for fire control should be planned. Protection activities are closely coordinated with state, local and other Federal agencies and benefit local communities, while accomplishing Forest management goals. Pest management objectives are achieved while demonstrating sound forest management practices and providing wood fiber products.

## **Planning Questions:**

### **How can the Pike and San Isabel National Forests supply the variety of timber products desired by the public while insuring that timber harvest activities enhance other resource values?**

Public issues and management concerns related to this planning question address the growing and harvesting of trees for commercial wood products and the benefits or conflicts with other resource values and uses of forested lands. Conflicts between timber and other resources are addressed by the Forest Plan in that sales are designed specifically to benefit range, wildlife, or water resources. Visual resource management considerations will be an important part of sale design and layout. Roads constructed for timber access will be designed considering the needs for activities such as recreation, firewood gathering, and Christmas tree cutting. On lands unsuitable for timber management, vegetation treatment will be used to satisfy other purposes and objectives although merchantable timber volume may become available as a result. The Analysis of the Management Situation (Planning Action 4) shows that current timber production levels are below the capability of the Forest to produce and below expected demand, particularly for fuelwood. Timber production will be significantly increased. Past cutting practices have been to treat the more accessible ponderosa pine as opposed to lodgepole pine, aspen, spruce and fir. With low harvest levels many areas of lodgepole pine and spruce and fir are becoming increasingly susceptible to large scale attack by insects and disease because of old age and overly dense stocking conditions. More emphasis will be placed on management of Douglas-fir, lodgepole pine, spruce/fir and aspen. Cutting practices will, in turn, increase water yield and improve wildlife habitat conditions. Treatment of mature pine stands will provide an improved age class distribution reducing insect and disease impacts. Local dependent industries would be benefitted by increased availability of timber. Increased supplies of fuelwood will be made available to benefit local users and commercial suppliers. In addition to increased water yields and improved wildlife habitat, grazing capacity would be increased by added forage provided by decreased stand densities in suitable stands. Existing recreation opportunities will be maintained by appropriate travel management, planned access, and road maintenance activities following vegetation treatment.

### **What can be done to maintain or improve wildlife and fish populations by management of their habitat and how can riparian (wetlands) area management be emphasized on the Pike and San Isabel National Forests?**

Public issues and management concerns expressed strong interest in protection and improvement of wildlife and fish habitat. Habitat quality will be protected through application of general direction, standards and guidelines given in Chapter III of the Forest Plan. Wildlife habitats will be improved primarily through vegetative treatments in both forested and non-forested areas to meet habitat capability objectives. The need to increase the proportion and improve the interspersion of early forest seral stages to meet such objectives will be done by tree cutting. Prescribed fire will be used to improve forage quality and plant composition, and to reduce excessive slash material in some timber sale areas. Other habitat improvements, such as water developments, modified livestock grazing systems, seeding, tree and shrub planting, and fencing will be used to improve habitat quality. Thermal and hiding cover for big-game species and habitat for many nongame species will be provided by maintaining, restoring, and/or improving forest cover around natural and created openings and along riparian areas. The improved habitat resulting from vegetative treatment will be managed to provide habitat effectiveness through seasonal or year-round closure, selection of appropriate locations for new

roads, and closures of areas to dispersed recreation when needed. Management activities that could adversely influence important wildlife habitat effectiveness will continue to be coordinated with the Colorado Division of Wildlife and Kansas Forestry, Fish and Game Commission. Riparian and aquatic habitats receive special management consideration that will result in the maintenance or restoration of tall forest cover along perennial streams and lakes. Stream channel stability will be maintained or restored.

### **What is the role of the Forest in managing insects and diseases?**

This includes major public issues and management concerns of how the adverse effects of insects and diseases can be mitigated to protect resource values and productivity. A multitude of insects are either currently in an epidemic situation or have reached epidemic populations within the last twenty years. When these Insects reach epidemic proportions many forest values are diminished. Valuable wood fiber is lost. The hazard of wildfire is greatly increased. The Plan emphasizes those practices most likely to develop vegetative situations more resistant to epidemic Insect populations than presently exist. Each pest prefers certain conditions of vegetation. The Engelmann spruce bark beetle prefers older, overmature, overly dense stands of trees. Actions which gradually replace these stands with younger more vigorous trees are planned. The mountain pine beetle which attacks ponderosa pine finds tree stands which are overcrowded to be Ideal habitat. Overcrowding increases competition between trees and causes the trees to be stressed. The entire tree stand becomes vulnerable to rapid insect population buildup and epidemics are promoted. The Plan would feature operations regularly (every 20 or 30 years) to thin out excess trees. Spruce budworms are defoliators primarily of Douglas-fir and white fir trees. This pest is currently at epidemic populations. Vegetation management practices to reduce the impact of this insect are still being studied. Some practices show promise. The development of even-aged tree stands helps to reduce the "feeding ladder" whereby larvae drop onto immature trees from the large crowns of mature trees. In some areas, it may be possible to promote a better mixture of species in with susceptible Douglas-fir and white fir. Some individual Douglas fir and white fir appear to escape attack. Seed from these individuals may produce Young trees which are also less attractive to spruce budworm. The mountain pine beetle which attacks lodgepole pine tree stands prefers areas where the preponderance of trees are of large diameter and 80 years of age or older. The plan proposes to replace, over time, the present overmature and overstocked areas, with a mosaic of trees of different ages The result would produce a forest which is more resistant to Insect attack, produces better hiding cover, and is more visually attractive. Tree diseases present an even more complex picture. Tree death and fiber losses are often more insidious because they are not as evident or dramatic as Insect epidemics. The two main disease agents are mistletoe infections and heart rot. The plan proposes to treat mistletoe infections by removing Infected trees and replacing them with non-infected new trees, either naturally or by planting. Tree stands infected with mistletoe will have a high priority for vegetative management. Heart rot problems intensify as trees reach maturity and beyond. This problem will be addressed with two actions under the proposed plan. Tree stands with a high proportion of heart rot will receive high priority for vegetative management and rotation ages will be established which recognizes pathologic maturity. Management requirements contained in Chapter III of this Forest Plan and site-specific locations and design of projects will mitigate the effects of insect and disease damage where management activities occur. Vegetation treatment measures will convert portions of the Forest to more healthy plant communities which in turn will be more resistant to insect and disease infestations.

## **How should the Forest carry out fire protection and management including what suppression methods are appropriate within Wilderness?**

The public issues and management concerns recognized the importance of fire management on the Forest. The public is concerned about safety and security of property values where they adjoin Forest land, as well as the threat to Forest resources. The use of fire as a management tool is also recognized. Reducing the possibility of fire is accomplished through fire management procedures. Currently 1,500 to 2,000 acres per year are managed to reduce hazardous fire fuels. Prescribed or planned fire is sometimes used to eliminate slash and to accomplish other resource management objectives. Fuelwood programs have been initiated and coordinated with the State Forester and Bureau of Land Management which help meet fuel reduction objectives and contribute to local firewood needs. Fire suppression efforts require immediate action on wildfires in high risk areas and escaped fires. In addition to its own fire specialists, the Forest maintains cooperative fire suppression agreements with 25 other agencies which include communities, other Federal agencies, municipalities and the Colorado State Forest Service. The Forest maintains only one fire lookout within the planning area located on Devil's Head Mountain near Denver. Most fires are detected and reported by Forest users or from aircraft observations. The number of years required to establish and grow timber crops to a specified maturity for regeneration harvest. Fire-suppression measures and techniques will be used which achieve the wilderness management objectives with the minimum adverse impact on the wilderness resource. Preference will be given to the methods and equipment which least alter the landscape or disturb the land surface. Structures and improvements will be located outside the wilderness boundary when at all feasible. Temporary fire camps, helispots, etc., will be obliterated upon termination of use and the site(s) rehabilitated to as natural a state as possible.



## General Management Requirements:

### General Direction: Diversity of National Forest lands

- 01 Maintain structural diversity of vegetation on units of land 5,000 to 20,000 acres in size or fourth order watersheds that are dominated by forest ecosystems.
  - A Maintain or establish a minimum of 20% of the forested area within a unit to provide vertical diversity
  - B Maintain or establish a minimum of 30% of the forested area within a unit to provide horizontal diversity
  - C In forested areas of a unit, 10% or more should be in old-growth and 5% or more should be in grass/forb stages
  - D In forested units, create or modify created openings so they have a Patton edge-shape index of at least a 1.4 and have at least a medium edge contrast
- 02 Retain existing medium or high contrast edge within forested diversity units
- 03 In medium contrast edge areas created in units dominated by grasslands or shrubland, create openings with Patton edge shape index of at least 1.4. Manage unmanipulated plant communities to reach late seral stages.
  - A Maximum size of individual treated areas is 500 acres
- 04 In forested diversity units maintain at a minimum on each treated area an average of 20-30 snags (all stages of development) per 10 acres well distributed over the diversity unit.
  - A Retain all soft snags, except for where they are safety hazards
  - B In Ponderosa, Douglas Fir, cottonwood and aspen stands, provide hard snags 12 inches DBH or larger to a density of at least 5 per 10 acres, 10 inches DBH or larger to a density of at least 9 per 10 acres and 6 inches DBH or larger to a density of at least 6 per 10 acres (where biologically feasible)
  - D Retain an average length per acre of down-dead logs (where biologically feasible) of the following minimum diameters:
    - Ponderosa Pine, Douglas Fir and Spruce Fir:
      - 12 inch diameter 50 linear feet/acre
    - Aspen
      - 10 inch diameter 33 linear feet/acre
- 05 Manage aspen for retention where ever it occurs
- 06 If determine aspen stands are managed for retention treat contiguous areas no larger than 40 acres unless larger areas are needed to protect aspen regeneration and decadence.

### General Direction: Wildlife and Fisheries Management

- 02 Provide habitat for Management Indicator Species
  - C Abert's Squirrel – Protect or provide for one Abert's Squirrel nest tree clump (0-1 acres of 9" to 22" DBH ponderosa pine with a basal area of 180-220 and interlocking canopy per 6 acres on ponderosa pine sale areas)
- 06 Maintain habitat for viable populations of all existing vertebrate wildlife species

A Habitat for each species on the forest will be maintained at least at 40% or more of potential

**General Direction: Wildlife Habitat Improvement and Maintenance**

- 01 Use both commercial and noncommercial silvicultural practices to accomplish wildlife habitat objectives.
  - A In forested areas, maintain deer and elk hiding cover on 60% or more of the perimeter of all natural openings, all created openings and along at least 75% of the edge of arterial and collector roads and 40% along streams and rivers.
  - B In diversity units dominated by forested ecosystems, maintain a minimum of 40% of the diversity unit in deer or elk hiding cover.
- 04 Maintain edge contrast of at least medium or high between tree stands created by even-aged management.

**General Direction: Silvicultural Prescriptions**

- 01 Provide for wildlife habitat improvement and enhancement of other renewable resources in Sal Area Improvement plans
- 02 Apply a variety of silvicultural systems and harvest methods which best meet resource management objectives.

<b>A</b> Forest cover type	Appropriate Harvest Method	
	<u>Even-Aged</u>	<u>Uneven-aged</u>
Ponderosa Pine	Shelterwood Clearcut Seed Tree	Group Selection Single Tree Selection
Mixed Conifer (includes Douglas Fir)	Shelterwood Clearcut	Group Selection

**C** Silvicultural Standards by Harvest Method

1 Clearcut			
Cover Type	<u>Rotation</u>	<u>Growing Stock</u>	<u>Thinning</u>
	<u>Age</u>	<u>Level</u>	<u>Cycle</u>
Ponderosa Pine	70+yrs	60-120	10-50 yrs
2 Two Step Shelterwood			
Ponderosa Pine, Mixed Conifer	50-180 yrs	60-160	20-30 yrs

First Cut (seed cut) – Cut to BA of 25-60 BA for Ponderosa Pine, Mixed Conifer  
 Second Cut (removal cut) – remove all overstory when regenerated stand meets minimum stocking standard.

4. Selection		
Forest Cover Type	Residual BA	Cutting Cycle
Ponderosa Pine	60-120	20-30 yrs
Mixed Conifer		

**D** Permit conventional logging equipment on slopes of less than 20% where soil surveys or site-specific soil data are unavailable.

**06** Acceptable management intensity activities to determine harvest levels are:

Mgt Activity	Ponderosa Pine	Douglas Fire
Tree Improvement	X	Not standard Method
Site Preparation	X	X
Reforestation	X	X
Regeneration Protection	X	X
Pre-commercial Thinning	X	X
Commercial Thinning	X	X
Salvage	X	X
Harvest Method		
Clearcut	X	X
Shelterwood	X	X
Selection	X	X

**General Direction: Fuel Treatment**

- 01** Maintain fuel conditions which permit fire suppression forces to meet fire protection objectives for the area.

A Reduce or otherwise treat all fuels so the potential fireline intensity of an area will not exceed 400 BTUs/sec/ft (BI – 68) on 90% of the days during the regular fire season

Or

Break up continuous fuel concentrations exceeding the above standard into manageable units with fuel breaks or fire lands

Or

Provide additional protection for areas exceeding the above standard when such protection will not be required for more than five years.

**General Direction: Vegetation Treated by Burning**

- 01** Use prescribed fire to accomplish resource management objectives, such as reducing fuel load buildup, wildlife habitat improvement, etc
- 02** Limit use of prescribed fires on areas adjacent to riparian areas to protect riparian and aquatic values.

**General Direction: Insect and Disease Management/Suppression**

- 01** Prevent or suppress epidemic insect and disease populations that threaten forest tree stands with an integrated pest management (IPM) approach consistent with resource management objectives

## Specific Management Areas in CFLR Project Area

- 2A Semiprimitive Motorized Recreation Opportunities
- 2B Rural and Roaded Natural Recreation Opportunities
- 4B Wildlife Habitat for Management Indicator Species
- 5B Big Game Winter Range
- 7A Wood-Fiber Production and Utilization (sawlogs)
- 7D Wood-Fiber Production and Utilization for Products other than Logs
- 9A Riparian Area Management
- 10E Municipal Watershed and Municipal Water Supply

**Direction Management Area 2A and 2B** – the harvest method by forest cover type is clearcutting in aspen and lodgepole and shelterwood for all other forest cover types.

### Silvicultural Prescriptions

- 01 Manage tree stands using both commercial and noncommercial methods. Enhance visual quality, diversity and insect and disease control.
- 02 Manage forest cover types using the following harvest methods:
  - Interior ponderosa and mixed conifer – shelterwood
  - a. Apply harvest treatments to forest cover types as specified below on at least 80% of the forest cover type. Up to 20% of the type may be treated using other harvest methods specified in Forest Direction

**Direction Management Area 4B** – Vegetation characteristics are managed to provide optimum habitat for the selected species. Tree stands are managed for specific size, shape, interspersion, crown closure, age, structure, and edge contrast. Grass, forb, and browse vegetation characteristics are regulated. Rangeland vegetation is managed to provide needed vegetation species composition and interspersed grass, forb and shrub sites or variety in age of browse plants.

### Wildlife Habitat Improvement

- 01 Maintain hiding cover for elk and deer where present.
  - B In diversity units dominated by forested ecosystems, maintain a minimum of 50% of the diversity unit in deer or elk hiding cover. This hiding cover should be well distributed over the unit. Maintain 30% of the diversity unit in thermal cover (winter or spring/summer). Hiding cover can be used to meet thermal cover requirements if they indeed coincide biologically.
  - C In forested areas of a unit, 15% or more should be in old growth habitat.
- 02 Maintain wildlife habitat effectiveness. Permanent openings may be employed.
  - A Maintain at least 80% habitat effectiveness.

### Silvicultural Prescriptions

- 01 Manage forest cover types to provide a variety in stand sites, shape, crown closure, edge contrast, age structure, and interspersion.
- 02 Manage forest cover types using the following methods:
  - Ponderosa Pine, Mixed Conifer – Shelterwood (see forest direction for specific)

**Direction Management Area 5B** – Treatments to increase forage production or to create and maintain thermal and hiding cover for big game are applied. Tree stand treatments can be clearcut, shelterwood single tree selection, or group selection. Commercial and noncommercial stand treatments occur. Specific cover-opening ratios, and stand designs are maintained.

Treatments to grass, forb, browse, and noncommercial tree species include seeding, planting, spraying, burning, falling and mechanical chopping or crushing. A variety of browse age classes are maintained. Continuous forest cover is maintained on some sites.

### **Wildlife Habitat Improvement**

- 01** Provide big-game forage and cover and habitat
  - A Maintain at least 30% of the area in created or natural openings
  - B Do not eliminate the presence of any browse species
  - C Provide thermal cover for elk or deer on at least 20% of the area
  - D Maintain along 75% of all arterial and collector road edges cover that hides 90% of an adult standing deer or elk from human view
  - E In diversity units dominated by forested ecosystems maintain at least 50% of the diversity unit in deer or elk hiding cover. This hiding cover should be well distributed over the unit. Maintain 30% of the diversity unit in thermal cover (winter or spring/summer). Hiding cover can be used to meet thermal cover requirements if they indeed coincide biologically.

### **Silvicultural Prescriptions**

- 01** Manage forest cover types to achieve and maintain desired thermal and hiding cover, cover-opening ratios, and other habitat needs associated with tree cover
- 02** Manage forest cover types using the following harvest methods:  
Ponderosa Pine and mixed conifer – Shelterwood

**Direction Management Area 7A** – Management emphasis is on wood-fiber production and utilization of large roundwood of a size and quality suitable for sawtimber. Harvest method by forest cover type is clearcutting in aspen, lodgepole, and spruce/fire and shelterwood in ponderosa pine and mixed conifer. The area generally will have a mosaic of fully stocked stands that follow natural patterns and avoid straight lines and geometric shapes.

### **Silvicultural Prescriptions**

- 01** Manage forest cover types using the following methods:  
Ponderosa Pine and Mixed Conifer – Shelterwood
  - A Utilize the shelterwood method on south and west aspects to provide seed and shade protection if windfall risk is below average. It can also be used on other aspects when cold, droughty sites are present.
  - B Utilize clearcut methods on north and east aspects or on other aspects if moist site conditions are present. It should also be used on sites where windfall is above average.
- 02** Clearcuts may be applied to dwarf mistletoe infected stands of any forest cover type.

**Direction Management Area 7D** – Management emphasis is on production and utilization of small roundwood of a size and quality suitable for products such as fuelwood, posts, poles, etc... The harvest method by forest cover type is clearcutting in aspen and lodgepole and shelterwood in all other forest cover types.

### **Silvicultural Prescriptions**

- 01** Manage forest cover types using the following methods:  
Ponderosa Pine and Mixed Conifer – Shelterwood
- 03** Clearcuts may be applied to dwarf mistletoe infected stands of any forest cover type.

**Direction Management Area 9A** – Emphasis is on management of all the component ecosystems of riparian areas. Forest riparian ecosystems are treated to improve wildlife and fish habitat diversity specified in silvicultural objectives. Both commercial and noncommercial vegetation treatments are used to achieve multi-resource benefits. Clearcutting is used to regenerate aspen clones. Other forest cover types are treated with either small group or single tree selection methods.

**Wildlife Habitat Improvement**

- 01 Provide habitat diversity through vegetation treatments ....
- 02 Provide habitat for viable populations of all native vertebrate species of fish and wildlife.

**Silvicultural Prescriptions**

- 01 Manage forest cover types to perpetuate tree cover and provide healthy stands, high water quality and wildlife and fish habitat.
- 02 Manage forest cover types using the following methods:  
Group or single tree selection for all cover types except aspen.
- 03 Adjust stocking levels by site quality, higher stocking should occur on better sites.
- 06 Establish a satisfactory stand either naturally or through artificial regeneration methods within a five-year period after disturbance.
- 07 Prohibit log landing and decking area within the riparian area.
- 08 Reduce debris jam potential by cutting stumps to near ground level in the 100 year floodplain.

**Direction Management Area 10E** – Management emphasis is to protect or improve the quality and quantity of municipal water supplies. Management practices vary from use restrictions to water resource improvement practices.

**Silvicultural Prescriptions**

- 01 Manage forest cover types using the following methods  
Ponderosa Pine and Mixed Conifer - shelterwood