

FIRE MANAGEMENT

Fire management is directed by the Alaska Interagency Fire Management Plan for the Matanuska/Susitna area². Fire management practices, including suppression priorities and prescribed burning, are designed to implement the land management policies laid out in the land use plans for this area.

The highest level of protection from wildfire is given to critical protection areas (see Map 3, page 18). These are populated areas and areas with physical developments. In this region, critical protection areas include the roaded area from Palmer to Willow, the Talkeetna and Trapper Creek areas, and cabin sites scattered through the valley. Most of the remaining lowlands are in the next level of protection, the full protection zone. The third level of protection, the modified action area, applies to the Susitna Flats State Game Refuge, the high elevation areas from Mount Susitna to Beluga Mountain, the lower slopes of the Talkeetna Mountains, upper Lake Creek, and the Happy River valley. In the area affected by the Susitna Forestry Guidelines, only the upper Skwentna drainage receives the lowest level of protection -- a limited action area. See *Appendix A - Glossary* for definitions of the protection levels.

Section II - Timber Sale Design & Management

This section sets guidelines that apply throughout the SFG area. These guidelines cover timber sale design, harvesting systems and schedules, slash disposal, site preparation, and reforestation, and use of chemicals for forest management.

PUBLIC USE

Timber harvest areas will be available for public use except when special restrictions are necessary to protect public safety, prevent damage to natural resources including regrowth, or protect the safety of the operator and security of the operator's equipment or materials.

See also:

Road Management - Public Use
in Section IV of this chapter.

² ADNR. 1986. Alaska Interagency Fire Management Plan-Mat/Su Planning Area. Anchorage, AK. 51 pp.+ maps

TIMBER SALE DESIGN

Overall Intent. Forest management in the Susitna Forestry Guidelines area is intended to create and maintain a mosaic of age classes that will provide for a mixture of cut and uncut areas to provide and protect fish and wildlife habitat, and produce timber. Forests will also be managed to provide areas for public recreation in a variety of settings (also *Appendix E - Recreation Opportunity Spectrum*). To meet this intent, DOF will use the practices described in this section when designing timber sales. These general guidelines may be varied on a site-by-site basis by DOF in consultation with DFG.

Multiple Use. Forested lands open to timber harvesting shall be managed in a manner consistent with the maintenance of the site-specific conditions necessary for multiple use and with the management intent for the subunit.

Cut and Leave Areas. To ensure that adequate year-round cover is available to meet wildlife species needs, harvests will be designed to leave no less than 40% of the cover habitat in each subunit in cover at all times. Leave areas can be cut after the original harvests regenerate enough to function as cover habitat similar to the uncut areas. All buffers set aside from harvesting that meet the criteria for cover habitat (see *Appendix A - Glossary*) are included in the cover area calculations. Vegetation left as cover habitat may contain either commercial forests or non-commercial vegetation, but must be suitable cover. Visual quality and recreation needs will also be considered in determining what percentage of cover to retain in each subunit.

The DNR Division of Forestry, after interagency review with the DNR divisions of Land and Parks and Outdoor Recreation and the Department of Fish and Game, will determine the rotation age, reentry timing, and species composition for each stand. These decisions will be based on co-primary designations and management intent, site characteristics, markets, habitat conditions, and objectives for wildlife management, recreation, and visual quality within the stand and in the surrounding forest. (See *Appendix E - Recreation Opportunity Spectrum for the Susitna Forestry Guidelines Area* for the range of recreation opportunities and setting considered in the SFG.)

Fish and Wildlife. DFG will identify the main fish and wildlife species managed in each timber sale area. This information will be included in the Five-Year Schedule of Timber Sales and Forest

Map 3. Generalized Fire Protection Levels



Critical Areas



Full Protection



Modified Action



PLANNING AREA

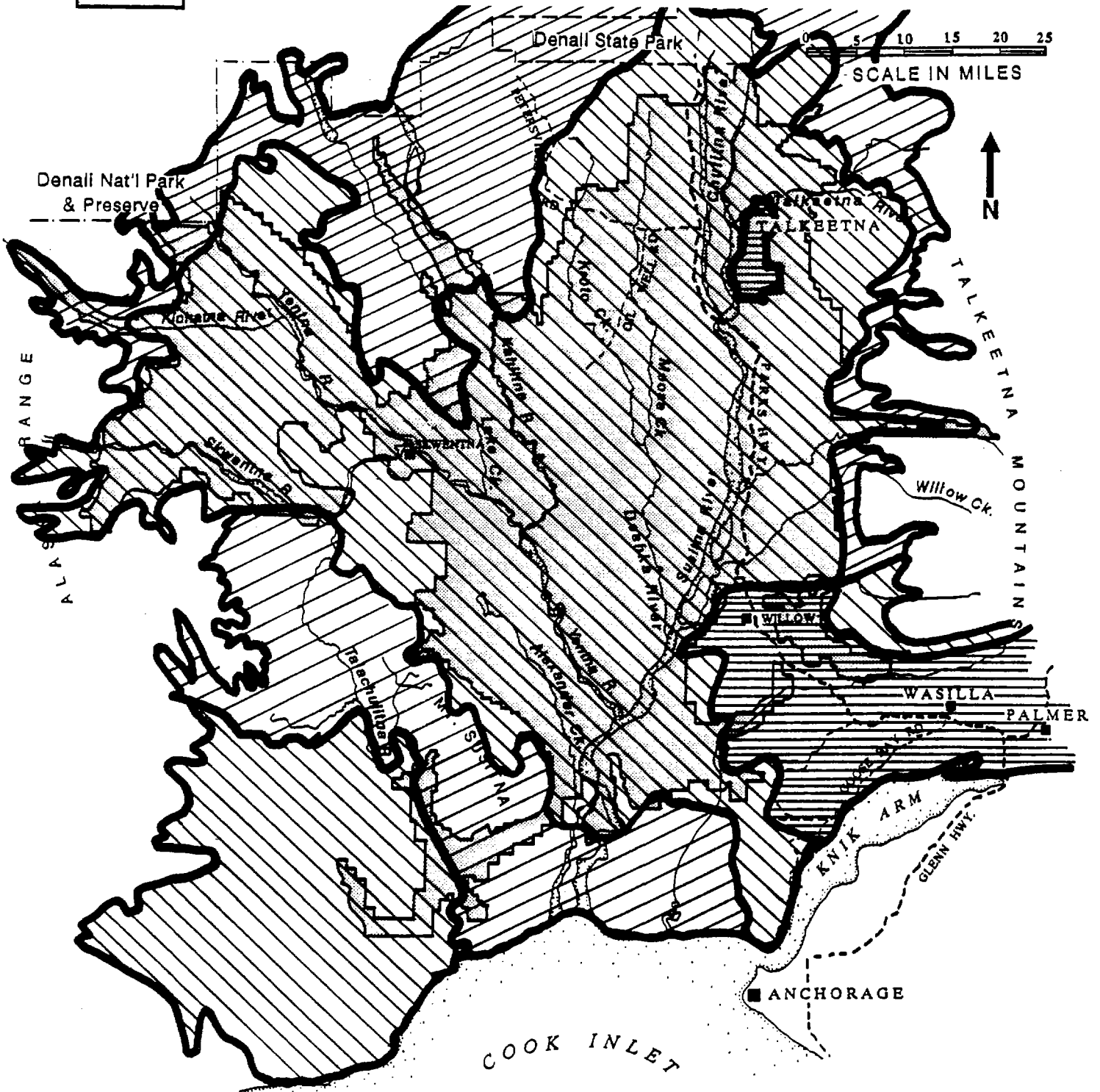
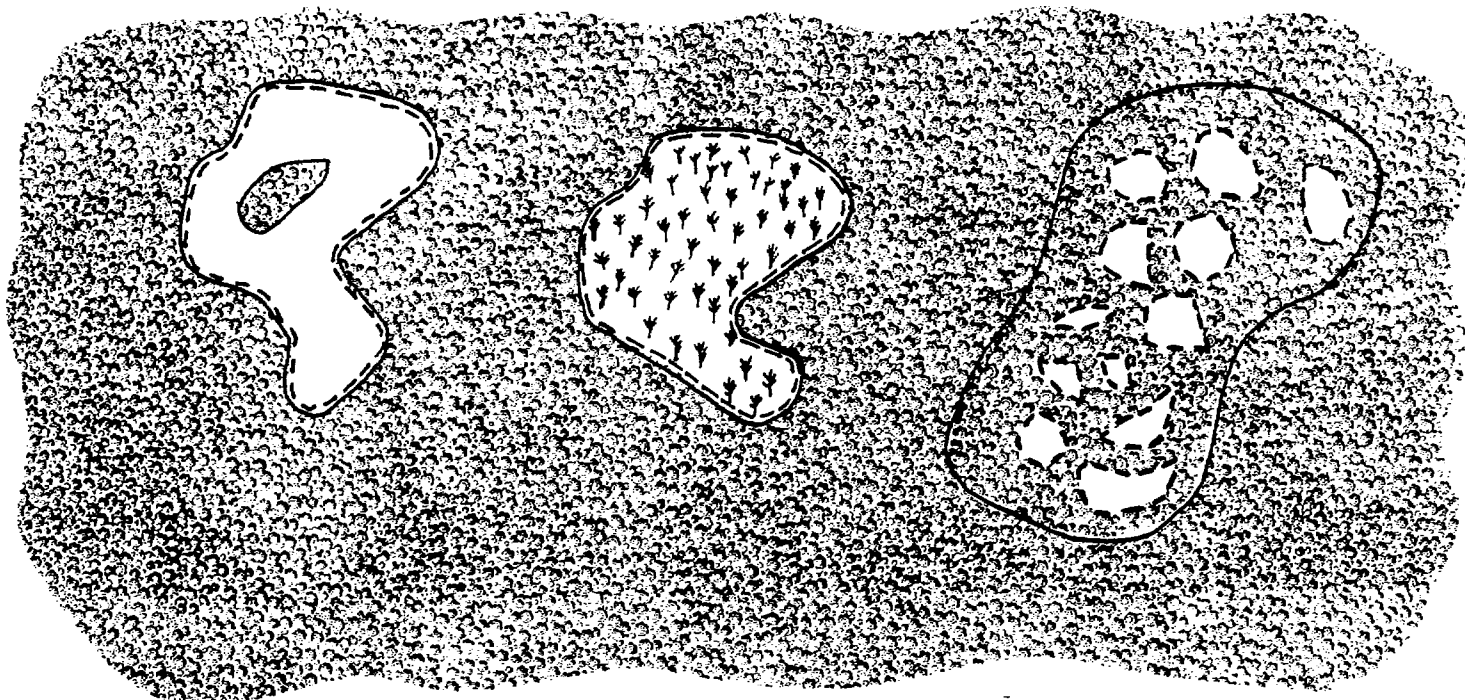



FIGURE 1.
Examples of Cutting Units and Harvest Units




 Cutting Unit Boundary

 Harvest Unit Boundary

 Uncut Vegetation

 Seed Trees

 5 Acres

A Clearcut Harvesting System:
55-acre clearcut with 50-acre cutting unit and 5-acre island

B Seed Tree Harvesting System:
50-acre harvest unit and cutting unit, harvest unit and cutting unit boundaries are the same

C Group Selection System:
150-acre harvest unit with twelve 1 - 5 acre cutting units

Land Use Plans (FLUPs) for individual sales. The public will be able to comment on the guidelines for habitat management by commenting on the schedule and FLUPs.

Cutting Unit Size and Shape. *Size.* The total area of cutting units within a harvest unit shall be 5-50 acres to optimize benefits for wildlife habitat (see Figure 1, page 18a). The 50-acre limit applies to all harvesting systems except single-tree selection. Total cutting unit area may be increased on a site-by-site basis by DOF in consultation with DFG and DPOR only so long as the enlarged cutting area continues to meet the other guidelines in this document that address fish and wildlife habitat, recreation, and visual quality, and to meet the management intent for the subunit. Preliminary cutting unit design will be included in the Forest Land Use Plan available for public and interagency review. If a proposed cutting unit is greater than 50 acres, the Forest Land Use Plan for the timber sale will state the reasons for enlarging the cutting unit and describe the techniques that will be used to address the other uses in the area.

Unharvested strips at least 330 feet wide shall be left between harvest units. Leave strips are intended to provide escape cover, thermal cover, resting cover, visual screens in hunting areas, and travel corridors for marten, moose, bear, and other wildlife.

Shape. Timber stands shall be designed for shape and edge contrast to provide for wildlife needs and visual quality. In general, cuts shall be designed with irregular borders to increase the amount of forage-producing edge habitat and habitat diversity.

Width. Cutting openings generally shall be no wider than approximately 660 feet to allow access to cover for bears and moose and to encourage full utilization of browse. In areas where DFG identifies important marten populations, openings shall be no wider than approximately 330 feet, to avoid creating open areas that are barriers to marten travel.

Where maximum cutting opening widths are greater than approximately 660 feet, or in cuts larger than 50 acres, residual islands of dense cover shall be left within the opening to provide cover, bedding, and shelter for moose. Islands shall be 0.5 - 5 acres, spaced 660-990 feet apart. Where possible, islands should be designed to maximize conifer cover to provide snow interception and have trees at least 13-20 feet high for hiding cover.

Orientation. In areas of heavy snow accumulation where drifting may bury browse, harvest openings should be oriented downwind. Openings shall also be oriented to minimize blowdown and loss of moose habitat. In other areas, a variety of cutting opening orientations shall be included in timber harvest plans to cover the range of conditions that may be important to moose.

South Parks Highway 9c. To disperse moose browse and minimize conflicts between moose and motorists in revegetating harvest areas, timber harvest openings in South Parks Highway 9c will be limited to 10 acres.

South Parks Highway 14b. To minimize conflicts between moose and travel along the highway and railroad, timber harvests in South Parks Highway 14b will be designed to minimize moose browse production near the road and railroad. Timber sales east of the Parks Highway should be by single-tree selection only. Individual cutting units west of the highway should be no larger than five acres.

Petersville Road 3a. Timber in Petersville Road 3a will be managed to maintain or enhance wildlife habitat, especially for moose. Timber in this subunit may be harvested for personal use or commercial sales with harvest units of up to 30 acres.

See also:

Personal Use Wood - Petersville Road 7c
in Section I of this chapter.

Site Preparation - Site Reconnaissance in this section.

Arrangement of Cutting Units. Wildlife habitat, including escape and thermal cover, refuges from deep snow, and alternate food sources, shall be considered when designing the arrangement of cutting units and leave areas. The location of mature conifer stands near early winter moose concentration areas will benefit moose.

Well-drained upland sites that produce abundant browse are preferred sites for clearing; poorly-drained upland sites that produce less browse are better suited for maintenance as wildlife cover in moose winter range.

Recreation and Visual Quality. The size and shape of cutting areas will be designed with consideration of recreation values and scenic quality. Cutting areas will reflect local topography and be designed to appear similar to natural openings after revegetation. Sales will be designed by DOF in consultation with DPOR. The Department of Commerce and Economic Development Division

of Tourism will have the opportunity to comment on proposed sales during interagency review of the Five-Year Schedule of Timber Sales.

Resource Management Lands. Timber harvesting is an allowed use in subunits designated resource management. However, because the appropriate long-term designation of these lands has not been determined, timber sale contracts shall not exceed five years. Subunits designated for resource management are: Susitna Lowlands 2f, 5b, 6b, 8b, 9c, and 12a and Mount Susitna 3c, 4d, and 6c.

HARVESTING SYSTEMS

Preferred Systems. Where birch is the primary species harvested, seed tree harvesting (see *Appendix A - Glossary*) is the preferred harvesting system for wildlife habitat and timber production. Seed tree harvests provide a natural seed source for regeneration, and exposed mineral soil and sunlit openings that are needed for abundant germination and growth of birch seedlings. Where white spruce is the primary species harvested, single-tree selection is the preferred system. Single-tree selection allows harvest of spruce large enough to provide house logs and sawtimber while leaving forest cover on the site. Spruce are more tolerant of shade than birch and can grow under forest cover. Single-tree selection, group selection, or shelterwood cutting may be prescribed on certain sites where beneficial for wildlife, timber management, recreation, visual quality, or other considerations.

Full-tree Logging. Full-tree logging is encouraged in most areas to provide disturbance of the organic soil for site preparation and to achieve maximum wood utilization from harvested areas. Other logging systems may be used where appropriate because of topography, economic factors, or management of other resources.

Single-tree Selection. Where single-tree selection harvesting is used, stands will be managed to retain forest cover, maintain a variety of tree ages, and keep openings small. Residual stands in areas harvested by single-tree selection must meet the following standards for trees per acre. (See *Appendix A - Glossary* for definitions of high and low sites.)

Average Stand Diameter	Minimum Number Of Trees Left Per Acre	
	High sites	Low sites
≥14 inches	50 trees/ac	90 trees/ac
12-13.9 inches	60 trees/ac	100 trees/ac
10-11.9 inches	75 trees/ac	120 trees/ac
8-9.9 inches	90 trees/ac	150 trees/ac
6-7.9 inches	110 trees/ac	190 trees/ac

HARVESTING SCHEDULES

Concentrate Harvesting. Logging activities should be concentrated in the shortest possible time for each unit. Where timber sales are planned to progress through a series of adjacent subunits, harvest activity should be completed in one subunit before starting in the next. Intensive harvest activity in a single season typically causes less disturbance to wildlife than low level activity over several seasons.

Moose Concentration Areas. DFG will identify winter moose concentration areas in individual subunits before a timber sale is offered. DFG will provide DOF with recommendations on harvest scheduling in winter concentration areas during the timber sale design process. Recommendations will reflect the size of the proposed timber operation and the likely severity of winter conditions. For example, small operations with little equipment may provide browse with little disturbance to moose, while large operations might disrupt use patterns. Similarly, moose in areas that receive high snowfall and have difficult conditions for travel are more sensitive to disturbance.

Coordination with Other Activities. Where possible, timber harvest schedules should be coordinated with other activities to reduce overall impacts.

Seasonal Scheduling. Most current timber harvesting is done in winter when access is easier and disturbance to aquatic habitats, wetlands, and bear activity areas is lowest. Winter logging also benefits suckering in aspen and cottonwood. On the other hand winter harvesting can make site preparation more difficult.

Future harvesting will also be concentrated in the winter. Schedules for harvesting may be specified in individual sales based on considerations of access, site preparation, and forest regeneration. Summer

harvesting will be directed to well-drained sites where summer harvests can aid site preparation. Potential contractors will be advised of requirements for winter operations (e.g., the need to leave equipment on site) before a contract is issued.

Data Collection. Where practical, DFG should complete site-specific habitat evaluations of units scheduled for timber harvest before harvesting occurs. In particular, DFG should evaluate moose browse quantity, quality, and utilization. These data can be used to better define moose range distribution and quality.

See also:

Bald Eagle Habitat and Trumpeter Swan Nesting Areas in Section III of this chapter.

SLASH DISPOSAL

General. Slash disposal benefits reforestation, helps avoid insect and disease outbreaks, reduces the amount of fuel available for wildfires, improves habitat, and aids movement through cutover areas. Slash disposal can also be designed to benefit visual quality, and aid recreational use of cutover areas. Logging and road construction slash should be disposed to avoid hindering wildlife from using cutover areas. Disposal can be accomplished either mechanically, or by burning, or by a combination of both methods. Slash that falls on uncut lands adjacent to harvest areas should be cleaned up or removed to facilitate moose use of cover and feeding areas.

The preferred method of slash disposal is to mix the mineral soil and organic matter. This minimizes the amount of piled material that could hinder public access through the site and degrade visual quality. The Division of Forestry and the Department of Fish and Game are cooperating on experiments to determine the best techniques for mixing the mineral soil and organic matter.

Controlled Burning. Controlled burning may be used as a means of manipulating vegetation, as a method of site preparation and/or as a means of slash disposal. Controlled burning is recommended when climate, soil, and fuel load conditions are conducive to safely removing slash, maintaining forest openings, and improving the quality and quantity of moose forage.

DEC Permits are required for all open burning used for forest management (18 AAC 50.030(e)). All open burns must comply with DEC regulations for open burning in 18 AAC 50.050. Applicants

should contact DEC before stacking slash and designing their burning program. DOF burning permits are required on all projects, from May 1 through September 30. Burn barrels, or warming, cooking, or signal fires are exempt from DOF permit requirements.

Fire Prescriptions. If burning is proposed for slash disposal, the Forest Land Use Plan for the timber sale will state whether broadcast burning or piling and burning will be used. Fire prescriptions and a burn plan specific to the residue and topography of the site will be prepared by DNR after harvesting is completed. No broadcast burning will be conducted outside the area described in the burning prescription. A heliotorch may be used in roadless areas for controlled burning for regeneration or other silvicultural purposes. Use of a heliotorch requires a burn plan. Slash disposal burns using the pile and burn method will not require a burn plan, except where the Area Forester determines a plan is in the best interest of the State.

Public Notice. Members of the public who will be affected by the burn will be contacted by DOF. The public and local community councils will receive written notice of burning activities when DOF prepares the burn plan. Signs will be posted on major roadways to notify the public of any ongoing controlled burning in process.

Private Land. No broadcast burning operation will be conducted within 1/4-mile of privately owned buildings or improvements nor within 1/8-mile of undeveloped private land.

Windrows. If extensive windrows are built, openings should be cut through the windrows to allow moose passage, especially on moose trails.

Marten Habitat. In areas where DFG has identified important marten populations, slash piles and other logging debris that will protrude through the snow should be retained to provide marten access to prey beneath the snow and to improved denning and cover habitat.

Winter Operations. Prior to spring break-up each year, winter roads and skid trails must be cleared of all logging debris and slash in the areas over and immediately adjacent to all bodies of water in and adjoining the harvest unit. (See 18 AAC 70.020.)

Solid Waste Management. Non-wood solid waste must be removed from the site of forest operations and properly disposed of in a permitted landfill facility. (See 18 AAC 60.200 and 95.130.)

See also:

Road Construction - Right-of-way Slash
in Section IV of this chapter.

SITE PREPARATION

General. Site preparation promotes quicker reforestation and reduces grass competition. This benefits habitat and visual quality. Where natural regeneration, artificial seeding, or planting will be used for reforestation, a bed adequate for regeneration will be required after timber harvest. The site preparation method used will depend on site characteristics and vegetation desired for reforestation and habitat. Requirements for site preparation and recommended site preparation methods will be included in the Forest Land Use Plan for individual sales.

Site Reconnaissance. During reconnaissance of a potential timber sale area, DOF will assess ground cover to determine whether grass is likely to invade after timber is harvested. DOF will develop recommendations for site preparation techniques and timing to reduce grass competition with establishment of new forest cover. These recommendations will be included in the Forest Land Use Plan for the sale.

Choice of Techniques. DOF should use the following practices when determining site preparation strategies for timber sales. These general guidelines may be varied on a site-by-site basis by DOF in consultation with DFG.

Disking or other *mechanical disturbance* should be considered to break up soils that are compacted during harvesting. Compaction may reduce seedling growth or cause mortality.

On *aspen sites*, cleared areas should be heavily scarified or lightly burned to produce maximum sucker response.

On *paper birch sites*, scarification should mix the organic layer into the upper mineral soil layer (A horizon) providing optimum conditions for seed germination and seedling survival.

Timing. Areas should be scarified no later than two growing seasons following completion of harvest to minimize grass invasion. Scarification should be done just prior to peak annual seedfall or just prior to artificial seeding to ensure optimum seedbed receptivity.

Soil Exposure. Mineral soil should be exposed uniformly over the harvested area to encourage uniform distribution of trees. Mineral soil must be exposed on at least 50% of the harvested area. Mineral soil patches should be as large as feasible.

See also in this section:

Harvesting Systems - Full Tree Logging

Harvesting Schedules - Seasonal Scheduling

Slash Disposal - Controlled Burning

REFORESTATION

Goal. The goal of reforestation in the Susitna Forestry Guidelines area is to reestablish forests that include a mix of the species currently present (spruce, birch, aspen, and cottonwood). The primary species on each reforested site will vary depending on site conditions, the original forest type, and management intent for the subunit. Harvested areas will generally be regenerated to the original forest type. Non-native species will be planted only for research purposes such as determining species survival and growth rates, not for forest management operations that would convert large areas to new forest types.

Statutes and Regulations. AS 41.17.060 and 11 AAC 95.100 and .170 govern regeneration of forest land. The regulations require regeneration of stands that are not intended for conversion to other uses within seven years in Region II (interior forest) and within five years in Region I (Coastal forest). Currently, most of the SFG area is in Region II. Proposed revisions to these regulations are likely to include all of the SFG area in Region II. Where specific regeneration goals are known (for example, managing for cottonwood or converting to white spruce), they will be specified in individual management units.

Regeneration Information. Forest management reports for timber sales shall specify target species and stocking levels, site preparation requirements, regeneration methods, and a schedule for inspecting regeneration on the site.

Regeneration Methods. Natural regeneration is the main regeneration method currently used in the SFG area. Natural regeneration will continue to be used on most sites in the SFG area, but seeding or planting may be used for a specific timber sale based on the results of a reforestation study on the sale. Reforestation surveys are generally performed two years after scarification.

USE OF CHEMICALS

Prevention of Pest Outbreaks. Forest pest management will emphasize prevention of pest outbreaks. An annual insect and disease detection survey will be conducted by the DNR Division of Forestry in cooperation with the USDA Forest Service. DNR will emphasize silvicultural practices that enhance natural mortality of pests and improve tree vigor to reduce the risk of outbreaks. Examples include harvesting mature trees of susceptible species, using group selection cuts, suppressing intermediate host species, using lethal trap trees around harvest areas, disposing of slash, and establishing utilization standards that minimize slash.

DOF has not used pesticides at an operational scale in the SFG area. Pesticides may be used as a forest management tool to control vegetative competition, assist in establishing regeneration, or control forest damage from insects and diseases. If chemical use is proposed for a specific timber sale, public notice for the sale will include a description of the proposed action and its likely effects on forest growth and the environment.

DEC Authority. The Department of Environmental Conservation (DEC) and US Environmental Protection Agency have primary authority for regulating pesticide use, which includes herbicide use. DEC regulations cover pesticide use and disposal. DEC regulations require applicants for pesticide permits to give public notice of the proposed action. If a local government or 50 residents so request, a public hearing will be held to review the proposed action.

Herbicides. Herbicide application can help promote establishment of desired forest species, especially conifers. However, herbicides have not been widely used for forest management in the SFG area. A study of herbicide effects on fish and wildlife populations and habitat should be conducted prior to operational herbicide use in the Susitna Valley. See *Chapter 3 - Research* for recommendations on this study.

Aerial Application. Generally, pesticide application would be done through ground application to remove grass. It is unlikely aerial application will be used. Aerial application may be used to prevent a large disease or insect outbreak. Pesticides will not be applied within 1/4-mile of private dwellings, anadromous streams, or lakes with fishing or other recreational potential to protect fish and

wildlife habitat and human uses from direct toxicological effects. Pesticides will not be applied within 250' of undeveloped private lands to avoid adverse impacts on private property.

Plan of Operations. Any use of pesticides or herbicides shall require a written plan of operations describing in detail the pesticides or herbicides to be used, the reasons for use; potential effect on humans, wildlife, and vegetation types, the expected results; the area where the chemicals will be used, the method of application, and the application rates. In addition, the plan shall describe how and when an evaluation of the effectiveness will be prepared after the application.

Public Notice. Public notice must be given prior to the use of pesticides or herbicides, and signs must be posted in areas where pesticides or herbicides have been used.

Evaluation. After pesticide or herbicide application, an evaluation of the effectiveness will be prepared.

Fertilization. Fertilization can improve the nutritional status of nutrient-poor soils and make sites more hospitable to seedlings. Nitrogen fertilization of mineral soils should be considered early in the post-logging period to improve the seedbed.

Section III - Management of Special Areas

The guidelines in this section apply only to portions of the Susitna Forestry Guidelines area. They apply either to special types of lands, for examples shorelines or wetlands, or to particular subunits, for example Willow 2 or Susitna Lowlands 11g. See the map in the back pocket to locate subunits or to find the name of a subunit.

AGRICULTURAL LANDS

Fish Creek. The Fish Creek Management Plan was amended in 1987 to allow timber harvesting prior to agricultural sales if harvesting is done before 1995. DNR will not propose new sales in the Fish Creek area before 1995. After 1995, the amendment terminates and timber sales must wait until after design and sale of agricultural parcels. After 1995, if timber sales are proposed before agricultural development, the Fish Creek plan must be amended.