
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.

South Parks Highway 13b. Timber in this subunit will be harvested only after the land is sold for agriculture unless sales will not be held for at least 10 years after harvesting. If timber is harvested before agricultural sales are scheduled, scarification and reforestation will be required. DOF will consult with the Division of Agriculture to design timber sales and access.

Agricultural Homesteads. Susitna Lowlands subunits 11g and 13g and Willow 2a are agricultural homestead subunits. Unless the designation for this subunit is changed under the SAP, timber on these lands will be sold with the agricultural rights.

Kashwitna Knobs. Susitna Lowlands 14b is designated for agriculture. It will not be offered for sale for at least five years, nor until year-round roads have been funded. The five-year holding period is intended to allow sufficient time to 1) inventory and plan timber harvest from the site, and 2) review and evaluate the results of previous agricultural disposals to determine the economic feasibility of farming at Kashwitna Knobs. The Susitna Area Plan will determine whether or not timber can be sold before agricultural sales are designed in this subunit.

BALD EAGLE HABITAT

Eagle Nest Setbacks. Under 11 AAC 95.120 (d), harvesting is prohibited within 330 feet of eagle nesting trees. Wider setbacks may be established for individual nest sites where DFG or the US Fish and Wildlife Service (USFWS) identifies activities or site-specific factors that make special provisions necessary. Determination of where wider setbacks are appropriate will be made with due deference to DFG. DFG will consult with USFWS before making recommendations to DNR on setbacks.

DNR, DFG, and USFWS are reviewing existing eagle nest policies and may develop new statewide policies. If new policies are adopted by DNR, they can be applied to the SFG without an amendment to these guidelines. Known nests exist in: South Parks Highway subunits 2, and 9c; Susitna Lowlands 1a, 1b, 3a, 4b, 5f, 9a, 13d, 13e, 14a, and 14e; Mount Susitna 3c, and 3f; and Willow 6, and 8a.

Seasonal Restrictions. In the Susitna Forestry Guidelines area, forestry activities will be prohibited from March 15 through August 31 within 660 feet of known eagle nesting trees. If a nesting tree is not occupied by June 15, operations can occur between June 15 and August 31 between 330 feet and 660 feet from the nest tree. This guideline reflects existing constraints on summer harvesting along the major rivers where nesting occurs and will help protect local bald eagle populations. These constraints include lack of summer access across most streams and wetlands.

Nesting and Perching Habitat. In addition to known nesting sites, DNR will provide and maintain nesting and perching habitat approximately every two miles along major rivers with cottonwood stands on state land. Sites managed for this purpose would be approximately 40 acres each and would include cottonwood or white spruce trees of various sizes. Eagles prefer to nest in cottonwoods; they require the tallest or largest cottonwoods for nesting. Eagles use conifers as roosting areas. Both cottonwoods and white spruce are used for perching. A portion of the cottonwood trees shall be suitable for eagle nesting. Harvesting can take place within these sites as long as the remaining stand meets these conditions. If proposed harvesting would not leave sufficient cottonwoods to meet these requirements, it will be allowed only if another site will be identified to replace it. Replacement sites must meet the criteria in this guideline for suitable bald eagle nesting sites. DOF will consult with DFG on forest management on these sites.

This guideline applies to state land along the following rivers:

- ◆ Susitna River in South Parks Highway 2, 9c, and 14b; Petersville Road 7d; Susitna Lowlands 9a, 11a, 14a, and 14e; Willow 6 and 8a,
- ◆ Chulitna River in South Parks Highway 2,
- ◆ Yentna River in Susitna Lowlands 12b.

USFWS Authority. The US Fish and Wildlife Service (USFWS) has authority for managing bald eagle populations. To protect bald eagle populations in the SFG area, USFWS will be notified of all planned sales. Notification will occur through interagency notification of the Five-Year Schedule of Timber Sales and Forest Land Use Plans for individual sales. Where timber sales contain eagle nesting trees, DOF will design the sale in consultation with DFG and USFWS.

Under the Bald Eagle Protection Act (16 USC 688a), individual logging contractors are legally responsible for avoiding the taking "at any time, in any manner of any bald eagle...or any part, nest, or egg thereof." Taking is defined as "pursue, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb."

BROWN BEAR HABITAT

Brown Bear Habitat. Cover types which satisfy important brown bear habitat requirements occur in all regions of the SFG area. However, the extent and number of areas that are important brown bear habitats are limited due to their specific composition. Important brown bear habitat types include denning areas, activity centers, moderately moist habitat types where soil disturbance from forest operations could be high, and slopes greater than 35%. These habitat types are rare in the lowlands of the SFG area. Careful management of these limited areas is important to continuing healthy populations of brown bear in the Susitna valley. Timber sales shall be designed to avoid negative impacts on areas identified by DFG as important brown bear habitat, for example by scheduling harvesting to avoid brown bear concentration areas during the season when they are actively used. DFG will identify important brown bear habitat in individual subunits during the timber sale design process.

See also:

Access Location and Design - Bear Habitat
in Section IV of this chapter

DECEPTION CREEK

The Deception Creek Land Use Plan (see map in back pocket) must be consulted prior to timber sale design information for guidelines on:

- ◆ Timber Harvest And Wildlife Enhancement,
- ◆ Areas Where Timber Harvest/Habitat Enhancement Activities Will Be Limited, and,
- ◆ Term and Type of Timber Sale.

The *interim* forestry guidelines in the Deception Creek Land Use Plan are replaced by the guidelines in this chapter, including the following guidelines specific to the Deception Creek planning area.

Peregrine Falcon Nests. Peregrine falcon nests shall be protected as required by federal law. There will be no disturbance of natural vegetation within a 330' radius of any peregrine falcon nesting site.

Unique Habitat or Plant Communities. Timber harvest shall be restricted in certain limited areas with unusual habitats. Examples include isolated stands of over-mature timber valuable for tree-hole nesting bird life and other wildlife species or plant species such as Calypso orchid habitats. DNR will consult with DFG and the US Fish and Wildlife Service prior to resource development in the area of rare or endangered species if any are identified.

Slope Restrictions. Special consideration will be given to any timber harvest/habitat enhancement projects on slopes exceeding 40%. On steeper slopes, rubber-tired skidders may slip, causing erosion. Mechanical scarification is discouraged where a slope is greater than 40%. Research projects on contoured mechanical scarification are allowed. Findings may increase the acceptable slope for scarification applications.

Riparian Management. The no-harvest zone on Deception Creek will be 200' on either side of the creek consistent with the Deception Creek Management Plan guidelines, "Lakeshores and Stream Corridors". See *Rivers, Streams, and Lakes* guidelines in this section for shoreline management zones on other waterbodies.

Reforestation. All harvested units shall be reforested to the original forest type.

Seed trees. The DNR Division of Forestry shall identify the amount and location of birch seed trees that shall be left standing in timber cuts to produce seeds for birch reproduction. Typically, 4-8 trees per acre are left standing to get regeneration that meets standards in AS 41.17.060 and 11 AAC 95.170.

Pre-commercial Stand Management. Mechanical crushing, hydro-axing, or chain-saw thinning may be used independently or in conjunction with other methods to manipulate vegetation changes as a method of pre-commercial stand management. These methods will be used only where salvage of forest products is not feasible.

FISH AND WILDLIFE HABITAT -- GENERAL

General. Fish and wildlife habitat is one of the uses for which state-owned forests will be managed. All state lands in the Susitna Forestry Guidelines area provide habitat for a variety of species. The Forest Management Program, Timber Sale Design and Management and Access Design and Management Sections of this chapter contain guidelines to protect and enhance fish and wildlife habitat wherever timber is harvested. Riparian and lakeshore habitat is particularly important for fish and many wildlife species. The guidelines on Rivers, Streams, and Lakes in this section are designed to protect this important habitat. Specific guidelines are also provided in this section for Bald Eagle Habitat, Brown Bear Habitat, Moose Habitat, Trumpeter Swan Nesting Areas, and Wetlands.

Mount Susitna 2b and 2c. Timber harvests in these subunits will be designed to minimize adverse impacts on visual quality from the air and to maintain or enhance fish and wildlife habitat. DOF will consult with DFG and DPOR to design sales in these subunits.

Willer-Kash Road. The Kashwitna Management Plan establishes a buffer and special management zone to provide wildlife cover and protect scenic values along the Willer-Kash Road.

A buffer zone to provide wildlife cover, provide recreation opportunities, and protect visual quality exists along the road. The buffer extends 380' from the centerline of the road (330' from the edge of the right-of-way). This distance is reserved to provide hiding cover and travel corridors for moose and other wildlife, and to provide visual screening between cutting areas and the road.

Vegetation management (including timber harvest) is allowed within the buffer only to maintain or enhance wildlife habitat, recreation, or visual quality; to clear the right-of-way for transportation and public safety; or to prevent or control outbreaks of insects, disease, wildfire, or hazards to public safety. For example, trees could be cut to open scenic vistas and increase visual diversity along the road. The Department of Fish and Game and the DNR Division of Parks and Outdoor Recreation will be consulted on the design of vegetation management projects in this zone. Vegetation management by DNR will be designed and conducted with due deference to the Department of Fish and Game.

Land adjacent to the buffer is important for additional wildlife cover and public use. A special management zone next to the buffer will be managed to provide cover, minimize the attraction of game to the road, minimize displacement of wildlife, and provide diverse recreational settings. This zone 170' from the edge of the road buffer. DOF will design timber harvests in this area in consultation with the Department of Fish and Game and the Division of Parks and Outdoor Recreation.

See also in this section:

Recreation & Scenic Resources -

South Parks Highway 12a and 12b,

Recreation & Scenic Resources - Susitna Lowlands 11f

Recreation & Scenic Resources - Susitna Lowlands 14e

Recreation & Scenic Resources - Willow 4a

HERITAGE SITES

Known Heritage Sites. The Division of Parks and Outdoor Recreation Office of History and Archaeology (OHA) will review proposals for timber management activities through the interagency review processes for the Five-Year Schedule of Timber Sales and Forest Land Use Plans for individual sales.

The Alaska Historic Preservation Act (AS 41.35) governs state management of heritage resources. This Act states that, "If [DNR] determines that historic, prehistoric, or archaeological sites, locations or remains will be adversely affected by the public construction or improvement, the proposed public construction or improvement may not be commenced until the department has performed the necessary investigation, recording and salvage of the site, location or remains. All investigation, recording and salvage work shall be performed as expeditiously as possible so that no state construction project will be unduly impaired, impeded, or delayed."

Areas of known historic, archaeological, or paleontological sites should not be disturbed. Timber operations shall not occur within 300 feet from the boundaries of known sites unless the State Historic Preservation Office (SHPO) determines, in consultation with DOF, that certain activities can occur without significantly impacting the cultural resource. On unique sites, a larger buffer may be needed. The SHPO shall, within the limits of staffing and funding, assess the extent and significance

of the cultural resource and work with DOF to develop site-specific mitigation measures to protect the cultural site while allowing timber management.

Known sites exist in Susitna Lowlands subunits 1b (4 sites), 2a, 2d, 2f, 4b (3 sites), 5f (4 sites), 6a (2 sites), 6b, 6e (2 sites), and 13e; South Parks Highway subunit 2; Willow subunits 6 (3 sites), 8a, and 12d; and in the Fish Creek Management Plan. These sites are identified on maps maintained by the SHPO.

MARTEN HABITAT

See in this chapter:

Timber Sale Design - Cutting Unit Size & Shape
Slash disposal - Marten Habitat

MOOSE HABITAT

Moose Winter Range. In winter moose range areas identified by DFG where slopes are steep and cause extensive shade, timber harvest on south-facing slopes is preferred over harvest on north-facing slopes. North-facing slopes accumulate more snow and hold it longer. Moose conserve energy by feeding on south-facing slopes with more winter sunlight. Areas where this guideline should be applied will be identified in individual management units.

Petersville Road 3a. To provide escape cover for moose, especially during rutting season, and to minimize moose-motorist conflicts, there will be a no-harvest zone along the Petersville Road in Petersville Road 3a. This zone extends 300' from the centerline of the Petersville Road. Vegetation management is allowed in this zone for the following purposes.

- ◆ For maintenance or enhancement of habitat and recreation values.
- ◆ To prevent or control outbreaks of insects or disease or to suppress wildfire. Harvesting to prevent or control outbreaks of insects or disease will require prior public notice and prior approval by DOF. Harvest operations for these purposes in this buffer must comply with the requirements for reforestation in the SFG, AS 41.17.060, and 11 AAC 95.170.
- ◆ To remove hazards to public safety. For example, overhanging trees along roadways may be removed if they endanger road users.

See also in Section II of this chapter:

Harvesting Systems - Felling and Limbing

Harvesting Schedules - Moose Concentration Areas

Harvesting Schedules - Data Collection

Slash Disposal - Rights-of-way

in Section IV of this chapter:

Access Location & Design - Moose Forage Areas

Access Location & Design - Straight Stretches

Access Location & Design - Cuts and Fills

Access Management - Restrictions in Sensitive Moose Areas

PRIVATE LANDS

Liability. To prevent damage to private lands from trespass, blowdown, or other hazards created by timber harvest on state lands adjacent to private lands, DOF will use the following guidelines when designing timber sales:

Avoid Conflicts. Timber management activities near private land will be designed to avoid conflicts with adjacent landowners to the extent feasible and prudent.

Buffer. A buffer adjacent to private land will be established on a site-by-site basis. The minimum width of this buffer will equal the average height of codominant trees on state land adjoining the private land. DOF will determine average codominant tree height during the reconnaissance or design of a timber sale or personal use area. Average codominant tree height and buffer width will be included in the Forest Land Use Plan for the sale or personal use area. Within this buffer, management will:

- a. Minimize impacts of timber management and timber harvesting on private land.
- b. Consider insect and disease prevention, blow down, wildfire, and public safety hazards when designing timber management activities.

Harvest Methods. All harvest methods, including selective harvesting and other forms of partial cutting will be considered when designing timber management activities in the buffers. DNR will invite affected private landowners to review and comment on proposed buffer management.

RECREATION AND SCENIC RESOURCES

General. Recreation (see *Appendix A - Glossary*) and scenery are two of the uses for which state-owned forests will be managed. The Forest Management Program and the Timber Sale Design and Management sections of this chapter contain guidelines which help protect or minimize adverse impacts to recreation opportunities and visual quality where timber is harvested. The Access Design and Management section contains guidelines which help provide opportunities for road-accessible recreation activities. In addition, the guidelines in this section contain measures to help protect specific recreation and scenic resources.

Recreation activities are dispersed throughout the SFG area, with concentrations of activities along rivers, roads, and trails, and near clusters of private parcels. The impact of timber operations on recreation depends on the type of recreation, harvesting guidelines, and how timber access is developed and managed. Timber operations can benefit some recreation activities and scenic resources, for example by providing road access to a trailhead for snowmachining or opening views along a road. Harvesting and timber access will be incompatible with some recreation activities and scenery, such as those that require a wilderness setting.

Design of timber operations and timber access will consider the likely impacts on recreation, such as changes in levels of use, displacement of existing uses, including commercial recreation activities, and changes in the types of recreation experiences available. See *Appendix E - Recreation Opportunity Spectrum for the Susitna Forestry Guidelines Area* for a description of the types of recreation opportunities currently available in the Susitna Forestry Guidelines area. Forest lands will be managed to ensure that the range of opportunities described in Appendix E continues to be available in the Susitna Forestry Guidelines area.

Commercial Recreation Sites. Design of timber operations adjacent to lodges and other commercial recreation sites will consider impacts of timber harvesting, timber access, and noise or visual quality and recreation opportunities provided at the recreation sites. DOF staff are encouraged to consult commercial recreation operators when designing timber operation.

South Parks Highway 12a and 12b. Fish and wildlife habitat values, recreation values, scenic values, and hunting and fishing use are very high along the Kashwitna River, North Fork Kashwitna River, and Sheep Creek. Timber resources in these areas are limited and access is difficult. Therefore, timber sales will not be allowed in South Parks Highway 12b, nor in the portion of 12a between the Kashwitna River and the North Fork Kashwitna River. Vegetation management is allowed in these areas for maintenance or enhancement of habitat and recreation values.

Timber sales are allowed in the rest of subunit 12a, north of the North Fork of the Kashwitna River. To protect the high non-timber values, timber sales and personal use harvesting in this area will be limited to sales with a total of 45 acres or less in cutting units and with a duration of five years or less.

Vegetation management is allowed throughout subunits 12a and 12b to prevent or control outbreaks of insects or disease or to suppress wildfire. Harvesting to prevent or control outbreaks of insects or disease will require prior public notice and prior approval by DOF. Harvest operations for these purposes must comply with the requirements for reforestation in the SFG, AS 41.17.060, and 11 AAC 95.170. Vegetation management also is allowed to remove hazards to public safety. For example, overhanging trees along trails may be removed if they endanger trail users.

Susitna Lowlands 11f. This is a narrow subunit between the Moose Creek and Kroto Creek branches of the Deshka State Recreation River corridor. Timber harvest and access design in this subunit will consider and minimize potential adverse impacts on the recreation and habitat values of the corridors.

Susitna Lowlands 14e. Subunit 14e is very important for fish, wildlife habitat, and public recreation. Timber harvests and access in this subunit will be designed to protect riparian and aquatic habitat, provide continued browse and cover for moose, and protect scenic and recreation values. Timber harvests and access will be designed by DOF in consultation with DFG and DPOR.

Willow 4a. To protect scenic values, recreation opportunities, and important riparian habitat, timber sales and personal use harvesting are prohibited within 1/4-mile of Little Willow Creek. Vegetation management is allowed in this subunit to maintain or enhance habitat or recreation values.

Visual Quality from the Air. Visual quality contributes to the value of commercial and private aircraft activity in the SFG area. Harvest areas will be designed to reduce visual impacts of harvesting. Cutting units should be designed to reflect natural vegetation patterns, natural openings in the forest cover, and topography. Under the Timber Sale Design and Management guidelines in this chapter, cutting areas will be small and irregularly shaped. Other techniques such as leaving more seed trees or using shelterwood cuts, and leaving parts of subunits uncut will be considered to reduce impacts to scenic areas.

Susitna and Chulitna Rivers. The scenic values along the Susitna and Chulitna rivers in South Parks Highway 2, Susitna Lowlands 14a and 14e, and Willow 6 and 8a are important for boating. To protect scenic values, timber harvests and access in these subunits will be designed to minimize adverse impact on views from the Susitna and Chulitna rivers.

The Willow Subbasin Area Plan additionally prohibits clearcuts within 200' of the shore of both the mainland and islands which can be viewed from the main channel of the river in Willow subunits 6 and 8a. "This distance may be modified based on site specific visual analysis. This buffer also applies adjacent to heavily used boating routes in smaller channels of the river and on islands easily viewed from shore. DOF will plan all timber sales and analyze visual impacts in consultation with the Division of Parks and Outdoor Recreation." These sales should also be planned in consultation with DFG.

The guideline for Willow 6 and 8a differs from the regionwide SFG guidelines on Shoreline Management Zones and Islands and Upwelling Areas. The area plan update should review these standards and wherever possible develop consistent guidelines for the area.

Little Susitna River Corridor. No clearing or use of land for residential, commercial or industrial use shall occur in areas viewed from the Little Susitna River in Willow 8a. Roads shall be prohibited within 1/4-mile of the river except as approved by DPOR. Efforts shall be made to protect water quality and to prohibit noise impacts on the corridor.

Petersville Road 7c. This subunit has high values for scenery, recreation, fisheries, and moose habitat, and has good road access. To protect these values, and provide for public use, DOF will work with DPOR and DFG to design timber harvests and access, including joint field review of harvest sites.

Scenic Resources in Susitna Lowlands 11a, 11c, and 11f. Scenic values are important to recreational boating along the Susitna, Kahiltna, and Deshka rivers in these units. To protect scenic values in these subunits, timber harvests and access will be designed to minimize adverse impacts on visual quality from the Susitna, Kahiltna, and Deshka rivers.

Parks Highway Scenic Values. Views along the Parks Highway are important for recreation and tourism, especially during the summer. To protect the visual quality along the highway,

- ◆ Timber harvests in South Parks Highway 2, 11, and 14b, Petersville Road 7c, and Willow 4a will be designed to maintain or enhance visual quality along the Parks Highway. DOF will consult the report *Scenic Resources along the Parks Highway* when designing timber sales or personal use harvest areas in this subunit.
- ◆ Staging areas for logging (including yarding, decking, and equipment storage) in South Parks Highway 2, 11, and 14b should not be visible from the highway during the summer months (June 1-August 31). Exceptions to this guideline may be made when necessary to protect public safety. Staging areas will be put-to-bed following completion of harvesting.
- ◆ The study *Scenic Resources along the Parks Highway* recommends a buffer where the highway crosses the Kashwitna River in South Parks Highway 14b. Timber sales and personal use harvesting will not be allowed within 300' of the Kashwitna River in the area 1/4-mile upstream and downstream of the Parks Highway. Vegetation management is allowed in this buffer to prevent or control outbreaks of insects or disease or to suppress wildfire. Harvesting to prevent or control outbreaks of insects or disease will require prior public notice and prior approval by DOF. Harvest operations for these purposes in this buffer must comply with the requirements for reforestation in the SFG, AS 41.17.060, and 11 AAC 95.170. Vegetation management also is allowed to remove hazards to public safety. For example, overhanging trees along roadways may be removed if they endanger road users.

Talkeetna Cutoff, Petersville Road, and Alaska Railroad Scenic Values. Views along the Talkeetna Cutoff, Petersville Road, and Alaska Railroad are important for recreation and tourism, especially during the summer. To protect the visual quality along these highways, and the railroad,

- ◆ Timber harvests will be designed to maintain or enhance visual quality along the Talkeetna Cutoff in South Parks 9c, along the Alaska Railroad in South Parks 9c and Willow 4a, and along Petersville Road in Petersville Road 3a.
- ◆ Staging areas for logging (including yarding, decking, and equipment storage) should not be visible from the Talkeetna Cutoff, Petersville Road, or Alaska Railroad during the summer months (June 1-August 31). Exceptions to this guideline may be made when necessary to protect public safety. Staging areas will be put-to-bed following completion of harvesting.

Petersville Road 1a. The following sites will be managed for public recreation (see Map 4, page 31). Commercial and personal use timber harvesting is not allowed in these sites. Vegetation management is allowed in these sites to prevent or control outbreaks of insects or disease or to suppress wildfire. Harvesting to prevent or control outbreaks of insects or disease will require prior public notice and prior approval by DOF. Harvest operations for these purposes in this buffer must comply with the requirements for reforestation in the SFG, AS 41.17.060, and 11 AAC 95.170. Vegetation management also is allowed to remove hazards to public safety. For example, overhanging trees along roadways may be removed if they endanger road users.

- ◆ Approximately 150 acres at the *Peters Creek confluence*. This site includes approximately 100 ac of high site forest and 50 acres that includes black spruce, wetlands, and the rivers. If road access develops into this area, it will receive high public use for camping and fishing. Enough land should be retained in the recreation site to allow for campground development. A recreation site reserved from harvesting should be established at the confluence of Peters Creek and the Kahiltna River. This site should be large enough to accommodate camping and a staging area for raft trips, as well as day use for fishing and picnicking.
- ◆ Five-acre parcel of state land on the north shore of *Amber Lake*. This land adjoins a parcel of borough land. Together, the state and borough lands could provide public access to the north shore of the lake.

- ◆ A 55-acre parcel on the western shore of *Schneider Lake*. The parcel includes approximately 43 acres of forest and 12 acres of wetlands. If road access develops to this lake it could be a destination for camping.

Susitna Lowlands 11c Recreation Site. This subunit is designated a recreation site under the Susitna Area Plan. Prior to design of recreation facilities for this site, timber harvesting in this subunit will occur only at the request of DPOR. Vegetation management is allowed in this subunit to prevent or control outbreaks of insects or disease or to suppress wildfire. Harvesting to prevent or control outbreaks of insects or disease will require prior public notice and prior approval by DOF. Harvest operations for these purposes in this buffer must comply with the requirements for reforestation in the SFG, AS 41.17.060, and 11 AAC 95.170. Vegetation management also is allowed to remove hazards to public safety. For example, overhanging trees along roadways may be removed if they endanger road users.

Susitna Lowlands 12a and 12b. If timber sales are designed adjacent to the lakes in T20N R7W sections 9-10 and T20N R8W section 29, recreation sites should be identified. These lakes are large enough for floatplane landings. If road or trail access is developed for timber sales, increased public recreation use is likely and will necessitate establishment of a recreation site.

Willow 4a. The Willow Subbasin Area Plan identifies a recreation site (Site #79) on lower Little Willow Creek. This site will be managed for public use and to protect opportunities to develop recreation facilities such as campgrounds and boat launches, and to protect public access to trails, streams, and wilderness areas.

Willow Creek State Recreation Area. This recreation area was established by the legislature after the Willow Subbasin Area Plan was adopted. It includes part of Willow subunit 6. Lands within the Willow Creek State Recreation Area are managed by the Division of Parks and Outdoor Recreation and are not available for timber harvesting.

Willow 8a. DPOR will identify opportunities for recreation sites during interagency review of the Five-Year Schedule of Timber Sales and Forest Land Use Plans for individual sales if such sales are proposed.

MAP 4.
Recreation Sites

Key



Recreation sites



Peters Creek - Kahiltna River confluence



Schneider Lake



Amber Lake

Scale in Miles

Kashwitna 1a and 1b. Two trailhead recreation sites are identified on state lands in the Kashwitna Management Plan. To retain flexibility for designing appropriate trailhead facilities, timber harvesting is not allowed on these sites.

See also:

Fish and Wildlife Habitat - General, Mount Susitna 2b and 2c, Willer-Kash Road in this section.

RIVERS, STREAMS, AND LAKES

Fish Habitat and Water Quality Objectives. Under AS 41.17.115, the DNR commissioner shall protect riparian areas from the significant adverse effects of timber harvest activities on fish habitat and water quality. The management objectives for fish habitat and water quality on state lands adjacent to lakes and anadromous or high value resident fish waterbody, are adequate preservation of fish habitat by maintaining a short-and long-term source of large woody debris, stream bank stability, channel morphology, water temperatures, stream flows, water quality, adequate nutrient cycling, food sources, clean spawning gravels, and sunlight.

Wildlife Habitat Objectives. The management objective for wildlife habitat is to maintain or enhance existing riparian habitat by protecting and maintaining the following wildlife habitat components:

- ◆ a diverse mosaic of early through late successional vegetation communities,
- ◆ sufficient structural diversity among the various overstory and understory layers to meet the habitat needs of terrestrial and avian wildlife species,
- ◆ adequate availability of cover habitat, including security or hiding cover, thermal cover, and snow interception cover,
- ◆ sufficient forage biomass production for wildlife species dependent on browse,
- ◆ sufficient cover for daily movements and seasonal migrations,
- ◆ adequate water quality, streambank stability, and regular stream flow rates for aquatic furbearers, and
- ◆ access to mineral licks.

Recreation Objectives. Recreation activities occur throughout the SFG area but particularly concentrate along rivers, streams, and lakeshores. Waterbodies provide access routes and support recreation by boats, snowmachines, floatplanes and ski planes. Waterbodies are key elements of the beauty and diversity of the landscape. The management objective for recreation is maintenance of diverse recreation opportunities in waterfront areas and the adjacent riparian and woodland areas, and maintenance or enhancement of the scenic values of these lands. (See *Appendix E - Recreation Opportunity Spectrum for the Susitna Forestry Guidelines Area* for the range of opportunities currently available)

0-100'(0-30m) Zone. Anadromous and High Value Resident Fish Waterbodies. Under the AS 41.17.118(a)(2), harvests of timber may not occur within 100 feet (30 meters) immediately adjacent to an anadromous or high value resident fish waterbody.

Lakes. In the SFG area, the no-harvest zone also applies to land within 100' (30m) of all permanent lakes. Exceptions may be made for lakes less than 10 acres if they do not have significant recreation or habitat value and do not contain anadromous or high value resident fish. The determination of significance will be made by DOF with due deference to DFG for habitat values and to DPOR for recreation values. On lakes that are not anadromous or high value fish waters, vegetation management is allowed in this zone to prevent or control outbreaks of insects or disease or to suppress wildfire. Harvesting to prevent or control outbreaks of insects or disease will require prior public notice and prior approval by DOF. Harvest operations for these purposes in this buffer must comply with the requirements for reforestation in the SFG, AS 41.17.060, and 11 AAC 95.170. Vegetation management also is allowed to remove hazards to public safety. For example, overhanging trees along roadways may be removed if they endanger road users.

Shoreline Management Zones. Anadromous and High Value Resident Fish Waterbodies. Under AS 41.17.118(a)(2), a shoreline management zone exists for the area 100'-300' (30m-90m) from all anadromous and high value resident fish waterbodies. Timber harvest in the shoreline management zone is an allowed use, but must be consistent with maintenance of important fish and wildlife habitat and water quality. In the SFG area, harvest must also be consistent with scenic and recreation values.

Lakes. In the SFG area, this zone also applies to land within 100'-300' (30m-90m) of permanent lakes. Exceptions may be made for lakes less than 10 acres if they do not have significant recreation or habitat value and do not contain anadromous or high value resident fish. The determination of significance will be made by DOF with due deference to DFG for habitat values and to DPOR for recreation values.

The Susitna Forestry Guidelines widen the shoreline management zone on certain rivers and streams with unusually high public use, scenic values, or fish and wildlife habitat values (see list of rivers and streams at the end of this guideline). The intent of the wider zones is to protect the scenic and recreation values, provide high quality recreation experiences along the waterways, and identify habitat areas that merit extra consideration.

In shoreline management zones the following guidelines apply:

Road Crossings. To minimize adverse impacts to the environment and risks of degradation to fish and wildlife habitat and water quality, timber access roads will not be located within the shoreline management zone except where a road must cross a stream or access a cutting unit within the shoreline management zone and there exists no feasible alternative. Road construction will occur only where road design, construction, use, and maintenance will maintain important fish and wildlife habitat.

Windfirmness Risk. Timber harvest design within the shoreline management zone will consider the risk of blowdown in residual stands. Risk of blowdown will be evaluated on a site-specific basis. Minimum buffer widths will not be reduced because of a risk of blowdown.

Fish Habitat. Site-specific stream conditions including stream flow rate, dissolved nutrient levels, large woody debris sources, water temperatures, probability of surface erosion, stream gradient, water quality, stream type (glacial vs. clearwater types), soil type, steepness of adjoining slopes, adjoining timber stand type and condition, and other local physical characteristics will be considered before any timber harvesting occurs. DFG will provide recommendations to DOF on the design of timber sales and road access based on these considerations during interagency review of the *Five-Year Schedule of Timber Sales and Forest Land Use Plans*.

Unstable Stream Channels. If there is evidence or a high likelihood that a stream could change course and move into the existing 100' (30m) no-harvest area within 15 years after a proposed timber harvest, then harvesting in the area 100-300' (30-90m) beyond the waterbody will not occur. Along waterways with shoreline management zones wider than the 100-300' (30-90m) zone, the need for expanding the no-harvest area beyond 300' (90m) will be considered case-by-case.

Wildlife Habitat. Wildlife concentration areas, particularly for moose, bears, and furbearers, will preclude any logging activity in the area 100-300' (30-90m) beyond the waterbody, unless the proposed harvesting will maintain or enhance important wildlife habitat. In shoreline management zones wider than the standard 100-300' (30-90m) zone, timber harvest may occur if wildlife concentration areas will be maintained or enhanced. DFG shall identify wildlife concentration areas within the wider shoreline management zones and provide information on how to maintain or enhance these areas during the review of the Five-Year Schedule of Timber Sales. Final decisions on timber sale design in Forest Land Use Plans will be made with due deference to DFG in identified wildlife concentration areas. See Appendix A - Glossary for the definition of due deference.

Public Use. Timber harvest design within the shoreline management zone will consider existing public use in the zone. Timber harvesting may occur in the shoreline management zone if it can be demonstrated that existing public uses including sport fishing and hunting, trapping, fish and wildlife viewing, hiking, and camping will be maintained or enhanced.

Scenic Values. Timber harvest design within a shoreline management zone will consider scenic values along the waterbody. To protect scenic values, timber harvests and access in these zones will be designed to minimize adverse impacts on views from the waterbodies. Design will vary based on topography and vegetation. For example, dense vegetation or high bluffs may hide harvesting beyond the 100' no-cut buffer in some areas, but sparse cover and gradual slopes may reveal impacts over a wider area.

Rivers in Phase 1 and Phase 2 with shoreline management zones wider than 100-300' (30-90m) follow. Waterbodies in Phase 3 have not been reviewed to determine whether wider shoreline management zones are appropriate. Zone width will be established at the time Phase 3 is considered for new access or commercial harvesting.

- ◆ *Susitna River* – 1/4-mile from the ordinary high water mark on either side of the river in South Parks 2, 4a, 9c, and 14b; Petersville Road 7d; Susitna Lowlands 11a and 14e; and Willow 6 and 8a,
- ◆ *Chulitna River* -- 1/4-mile from the ordinary high water mark on either side of the river in South Parks 2,
- ◆ *Kahiltna River* -- 1/4-mile from the ordinary high water mark on either side of the river in Petersville Road 1a,
- ◆ *Yentna River* -- 1/4-mile from the ordinary high water mark on either side of the river in Susitna Lowlands 12b,
- ◆ *Theodore River* -- 1/4-mile from the ordinary high water mark on either side of the river in Mount Susitna 2b and 2c,
- ◆ *Chijuk Creek* -- 400' from the ordinary high water mark on either side of the creek in Susitna Lowlands 11a,
- ◆ *Montana Creek, south and middle forks* -- 1/2-mile from the ordinary high water mark on either side of the creeks in South Parks 12a,
- ◆ *Peters Creek* -- 1/4-mile from the ordinary high water mark on either side of the creek in Petersville Road 1a,
- ◆ *Moose Creek* -- land in T28N R6W S.M. sections 28, 33 N1/2, N1/2S1/2, and 34 NW1/4NW1/4, W1/2SW1/4NW1/4. The Susitna Basin Recreation Rivers Management Plan recommends that this land be added to the Deshka recreation river corridor. The SFG will no longer apply to this parcel if the legislature adds it to the recreation river.

Trapper Creek Shoreline Management Zone. SAP establishes a 1/4-mile "natural setting" guideline on Trapper Creek in Susitna Lowlands 14b. Timber harvesting within 1/4-mile of Trapper Creek in 14b will be by single-tree selection only.

Review of Uncatalogued Streams. DOF should identify streams for which field review is needed by year 2 of the Five-Year Schedule of Timber Sales to allow enough time to plan field review during the seasons when salmon are likely to be present.

If timber sales are offered with less than two years notice, DNR will try to limit the number of stream reviews needed by locating sales in areas previously reviewed through the Five-Year Schedule of Timber Sales or a Forest Land Use Plan, in areas already field-checked for anadromous streams, or in areas without streams. (See *Public Notice - Five-Year Schedule of Timber Sales and Forest Land Use Plan* in Section V of this chapter.)

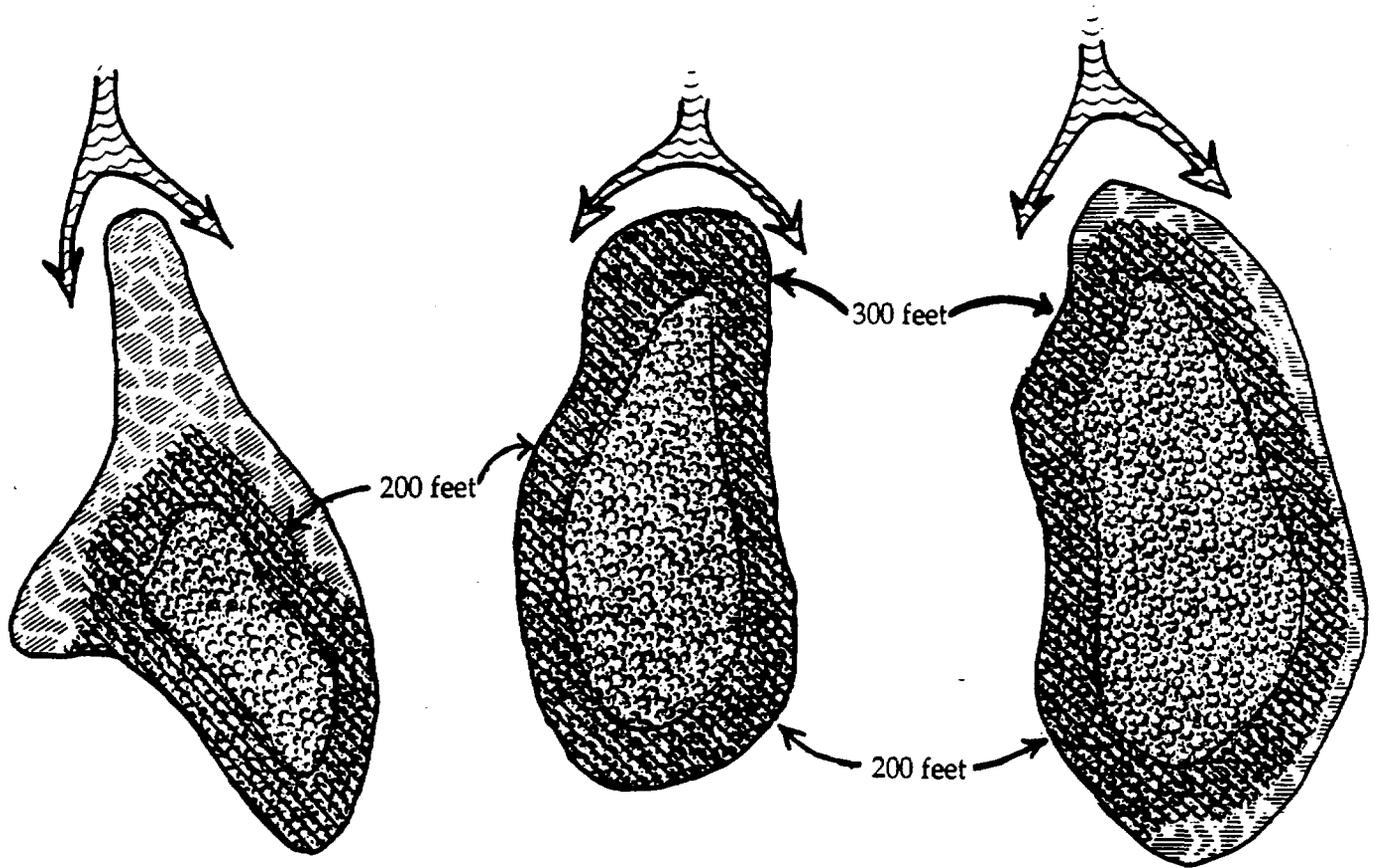
Islands and Upwelling Areas. Timber harvests on islands in braided rivers will be designed to prevent island erosion and protect upwelling areas in the river channels and sloughs. There will be a no-harvest zone that extends inland 200' from the boundary between mature forest stands and nonforest or sapling vegetation. At the upstream tip of these islands, the no harvest zone will include a minimum of 300' inland from the boundary of herbaceous vegetation or 200' from the boundary of the mature forest, whichever is greater. See Figure 2, page 34a for examples. DOF will consult with DFG to design sales in this unit.

Vegetation management for habitat enhancement is allowed in this zone, except for timber harvesting within the 100' no-cut required under AS 41.17.118(a)(2). Decisions on sale offerings and sale design for timber sales for habitat enhancement will be designed with due deference to DFG. Vegetation management also is allowed in this zone to prevent or control outbreaks of insects or disease or to suppress wildfire. Harvesting to prevent or control outbreaks of insects or disease will require prior public notice and prior approval by DOF. Harvest operations for these purposes in this buffer must comply with the requirements for reforestation in the SFG, AS 41.17.060, and 11 AAC 95.170. Vegetation management is allowed to remove hazards to public safety. For example, overhanging trees along roadways may be removed if they endanger road users.

This guideline applies islands in the Susitna, Chulitna, and Yentna rivers in the following units: South Parks Highway 2, Petersville Road 7d, Susitna Lowlands 5f, 11a, 12b, 13d, 13e, 14a, and 14e; and Willow Subbasin 6 and 8a.

Lakeshore Habitat for Moose. Timber within 330 feet of the wetted perimeter of ponds and lakes should be maintained to provide security cover for moose feeding on aquatic plants. Selective removal of merchantable timber from lake fringes beyond the 100' no-cut zone required by AS 41.17.118(a)(2) would be encouraged to maintain shorter (≤ 50 ft)

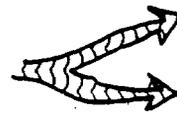
FIGURE 2.
Examples of Harvesting Setbacks on River Islands



 Non-forest Vegetation

 Forest Vegetation

 No-harvest Buffer



Direction Of River Current

 200 Feet

 300 Feet

stands with less crown closure (<60%) for habitat enhancement. A more open canopy would encourage the establishment of shade-intolerant browse species such as willow or aspen. This guideline applies to lakes greater than 10 acres in size that can support aquatic vegetation that supply sodium for moose.

See also:

Recreation - General: Willow 4a in this section,
Access Location & Design - Stream Buffers
in Section IV of this chapter

TRAIL CORRIDORS

Iditarod Trail. The Susitna, Willow, and Fish Creek plans establish the guidelines for determining the width of the Iditarod National Historic Trail (INHT) corridor. Within the SFG, the corridor width will be determined in accordance with these guidelines. If changes in these guidelines are proposed, they will be considered during the update of the Susitna and Willow plans, not in the SFG.

The INHT is an historic site. Timber sales and permits for personal use harvesting will not be allowed within 300 feet of the trail (see also *Heritage Sites* in this section). Selective commercial timber harvesting will be permitted in the remainder of the INHT trail corridor only if such harvests protect or enhance the visual, sound, and other characteristics of the trail. Other harvesting techniques, such as clearcutting or seed tree harvesting, may be permitted subject to consultation with DPOR where necessary to prevent or control outbreaks of insects, disease, wildfire, or hazards to public safety.

Personal use harvesting by individual permits will be permitted in the remainder of the corridor only if such harvests protect or enhance visual, sound, and other characteristics of the trail. Timber cutting incidental to recreation will be allowed throughout the trail corridor. Use of only dead and down wood will be encouraged for harvesting incidental to recreation.

All timber harvests within the Iditarod Trail corridor will be designed in consultation with the DNR Division of Parks and Outdoor Recreation.

The INHT crosses the following subunits: Susitna Lowlands 2a, 2d, 2f, 4b, 6a, 6b, 6e, and 13e, and Willow 8a and 12d.

Regional Trails. Trails other than the Iditarod Trail mapped in the SFG Atlas are classified as follows. Mapped trails in the Susitna Area Plan are considered "regional trails" unless otherwise specified. Mapped trails in the Willow Subbasin Area Plan are considered "other recreation trails" unless otherwise specified. "Regional trails" and "other recreation trails" are subject to the following guidelines.

Trail Buffer Width. Trails shall be protected by publicly-owned corridors that have a minimum width of 150 feet each side of the centerline.

Land Use in Corridors. The standards for trail management in the Willow and Susitna area plans differ. The Susitna and Willow plan updates should review the trail guidelines and develop consistent standards for trail corridor management. In both plans, trail buffers are intended to protect the quality of the experience of the user and to minimize negative effects such as noise or dust from adjacent land uses. Land uses immediately adjacent to the trail should not adversely affect the recreational enjoyment of the trail. Examples of negative effects are trees blown down, removal of protective trees, or pollution of streams caused by timber operations or timber access.

Under the Susitna Area Plan, to the extent feasible and prudent, timber operations within a trail corridor will be managed so as to not adversely affect trail use or the aesthetic character of the trail.

Under the Willow plan, "Trail corridors are available for personal and selective commercial timber harvest only if such harvests protect or enhance the visual, sound, and other characteristics of the trail. Harvest practices, timing, and transportation should be coordinated with the Division of Parks and Outdoor Recreation, DFG, and the Matanuska-Susitna Borough Trails Committee."

Both plans allow trail crossings or rerouting of trails where necessary. Where necessary for timber roads to cross trail corridors, crossings should be as near to perpendicular as possible. An exception is when a trail corridor is deliberately combined with a public facility or transportation corridor.

Trail Mapping and Identification of New Trails. Field work may find errors or duplications in the trails mapped in the SFG atlas. Trail mapping may be revised in consultation with DPOR.

Additional trails may be identified during review of the Five-Year Schedule of Timber Sales and Forest Land Use Plans. Steps for identifying additional trails follow. These steps should be completed before the final FLUP is published to allow for public review.

- ◆ Identify actively used trails within proposed harvesting units or timber access corridors.
- ◆ In consultation with DFG, DPOR, and the Matanuska-Susitna Borough, the Director of the Division of Land will decide what trails qualify under the standards in the land use plan for the area in question.
- ◆ Assign the trail to the appropriate category and apply the land use plan guidelines for that category.

South Parks Highway 12a. Trails that provide access through this subunit to more remote lands to the east should be maintained and improved during forestry operations.

South Parks Highway 13b. The fisherman's trail to the North Fork of the Kashwitna River through subunit 13b in T22N R3W sections 19 and 20 will not be used for timber sale access. This route should be maintained as a recreational trail. The Susitna Area Plan update should consider establishing a ROW for this trail that would be limited to trail use only.

TRUMPETER SWAN NESTING AREAS

Seasonal Restrictions. Forestry activities that may damage trumpeter swan nesting habitat or cause visual or noise disturbance shall be prohibited from April 1 through August 31 within at least 1/4-mile of waterbodies that have identified trumpeter swan nesting sites or staging areas. The area to which seasonal restrictions apply may be increased or decreased if the potential level of damage or disturbance warrants change as determined by the Division of Forestry with due deference to the Department of Fish and Game. DFG will consult with the US Fish and Wildlife Service before making recommendations to DOF. If a waterbody that has been used for nesting is not occupied by trumpeter swans by June 15, forestry activities may be allowed between June 15 and August 31 within the 1/4-mile zone.

Site-specific Buffers. Site-specific buffers to minimize visual disturbance to identified trumpeter swan nesting sites will be established by the Division of Forestry in consultation with the Department of Fish and Game and the US Fish and Wildlife Service at the time individual sales are designed. Known nests exist in Petersville Road subunits 2b and 6c; Susitna Lowlands 1b, 2a, 3a, 3c, 5a, 5f, 6a, 6b, 6e, 7a, 8b, 11a, 12a, 12b, 13b, 13d, 13e, 14a, and 14b; Mount Susitna 2b; Willow 8a; and Sunflower Basin 6c.

See also:

Access Location & Design - Trumpeter Swan Nesting Areas in Section IV of this chapter.

WETLANDS

Definition. The definition of wetlands is the definition adopted by the State of Alaska under the regulations of the Coastal Management Program (6 AAC 80.900(19)): "*Freshwater wetlands mean those environments characterized by rooted vegetation which is partially submerged either continuously or periodically by surface freshwater with less than 0.5 parts per thousand salt content and not exceeding three meters in depth.*"

For purposes of these management guidelines, wetlands are divided into three classes:

- ◆ **CLASS I:** wetlands larger than 100 acres and all wetlands with a locatable stream outlet. The stream shall be considered part of the wetland;
- ◆ **CLASS II:** wetlands between 40 and 100 acres with no outlet; and
- ◆ **CLASS III:** wetlands less than 40 acres with no outlet.

Wetlands Management. The Army Corps of Engineers regulates all activities that result in discharge or placement of dredged or fill material in wetlands. Corps permits for these activities are reviewed by the Department of Environmental Conservation, DFG, and the Division of Governmental Coordination in the Governor's office. National wetlands policy is currently being reviewed, under the lead of the federal Domestic Policy Council. The State of Alaska, through the Governor's office, is participating in this review.

Section IV - Access Design & Management

Wetland Buffers. Wetlands help protect water quality and stabilize water supply, provide important feeding, rearing, and breeding grounds for wildlife, provide for winter recreation, and add to landscape diversity. Buffers adjacent to wetlands will, to the extent feasible and prudent, protect these important wetland functions. Buffers should include public lands within 100 feet of Class I wetlands and public lands within 60 feet of Class II wetlands.

Harvesting near Wetlands. Only single-tree selection harvesting is allowed within 100 feet of Class I and II wetlands except when other harvesting techniques are necessary to prevent or control outbreaks of insects, disease, wildfire, or hazards to public safety. For example, overhanging trees along trails may be removed if they endanger trail users. See *Appendix A - Glossary* for definition of Class I and II wetlands.

See also:

Access Location and Design - Access Across Wetlands in Section IV of this chapter.

The guidelines in this section cover the location, design, construction and management of timber access roads. They apply to timber access roads throughout the SFG area.

ACCESS LOCATION AND DESIGN

General. The location, design, and development of roads shall consider multiple use values of state lands, and reflect the management intent and primary uses for the affected area. The goal is to optimize long term public use benefits from new access while minimizing adverse effects on existing public uses, including maintaining the range of recreation opportunities described in *Appendix E - Recreation Opportunity Spectrum*.

Access Information. Descriptions of proposed access corridors and type of access will be included in the Five-Year Schedule of Timber Sales for sales that will be offered in the current year or the two subsequent years. The Forest Land Use Plan for each sale will include preliminary location of any proposed primary and secondary roads and identify the type of access.

Sensitive Vegetative Cover. Permanent logging roads generally shall be aligned to avoid sensitive vegetative cover types such as riparian zones, wetlands, aquatic feeding sites (ponds), and naturally occurring forest openings. Roads in these cover types will be designed in concurrence with DFG.

Bear Habitat. Roads should be planned to minimize potential increases in vulnerability of black and brown bears to hunting and physical displacement from important foraging and denning habitats by avoiding locations near important feeding sites. DFG will provide DOF information on feeding sites during the timber sale design process. (See also *Brown Bear Habitat* in Section III of this chapter.)

Moose Forage Areas. Natural terrain features should be used to ensure the usability of moose forage areas, as well as other important seasonal use areas, by shielding these forage areas from road traffic. Permanent logging roads generally shall be located in dense timber away from forest openings.