

# FISH, WILDLIFE AND FORESTRY

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Policy on habitat enhancement and forestry is presented in a single section because most habitat enhancement efforts will occur as part of timber harvests, for either personal or commercial use. The guideline portion of this section begins with a combined section on timber harvest/habitat enhancement methods. This is followed by guidelines that deal with habitat enhancement and forestry actions separately.

## A. GOALS

1. Maintain, improve and enhance moose habitat and populations and other wildlife resources of the area, and provide opportunities for related public uses, including hunting, trapping, fishing and wildlife viewing;
2. Harvest timber in a manner that maintains or enhances moose habitat and moose populations, while simultaneously making timber available to meet public demands for firewood and, to a lesser extent, for houselogs and sawtimber;
3. Develop and use timber harvest/habitat enhancement methods which will protect scenic values and other environmental values wherever possible.

## B. MANAGEMENT STRATEGY

In the Moose Range as a whole, habitat enhancement activities will be given priority over the goals of maximum timber harvest and provision of opportunities for public recreation. The location, amount and type of timber harvested will be determined primarily through a consideration of the habitat needs of moose and/or other wildlife. At any given time, large portions of the Moose Range will be managed to produce moose forage (willow, aspen, birch, and cottonwood) rather than commercial or personal use timber products.

ADF&G has developed a moose habitat enhancement schedule for the entire Moose Range in conjunction with the DNR, Division of Forestry (DOF) timber harvest schedules for 1986 - 1990. The major objective of the habitat enhancement schedule is to continuously maintain at least 10,000 acres of early successional deciduous vegetation suitable for wintering moose habitat. The schedule will reflect a 45 - 60 year rotation with sustained yield over that period. (A 45 - 60 year rotation is necessary to produce personal use forest products.) If necessary to maintain at least 10,000 acres of moose habitat in an early seral stage, the rotation period may be interrupted in certain areas for habitat enhancement purposes. (Seral stages are the complete series of stages occurring in succession in communities of plants and animals until the climax is reached.) Site-specific timber harvest/habitat enhancement areas are identified in Chapter Four on pages 151-161, 174-178 and 189-190. This includes ADF&G's initial details for the habitat enhancement schedule. ADF&G and DOF will

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work cooperatively to approve the 1986 - 1990 schedule by January 1987 and to design the 1990 - 2005 timber harvest/habitat enhancement schedules.

The Range has the potential to produce substantial sustained yields of timber. Timber stands will be needed for moose escape and thermal cover, to act as buffers on trails, roads and private property, and to provide for personal use firewood. In the near term, timber harvest levels can be relatively high because much of the Range is covered by stands of mature timber and therefore is not of much value to moose as a food source.

While moose habitat enhancement is an overriding goal in the area, it is important that these activities occur in a way that limits their adverse impacts on other wildlife species and other beneficial uses of public lands. These limitations will include prohibitions of habitat enhancement in certain limited areas, such as campgrounds or burning adjacent to communities.

### C. GUIDELINES

#### 1. TIMBER HARVEST/HABITAT ENHANCEMENT METHODS

a. Enhancement Priorities. For the Range as a whole, protecting and enhancing moose habitat will be given priority.

b. Timing of Enhancement Activities. Habitat enhancement activities for fish and/or wildlife species other than moose shall occur when biological and/or population statistics indicate that improvements in survival, reproduction and/or population numbers may be significantly improved through habitat enhancement/rehabilitation activities.

c. Areas Where Timber Harvest/Habitat Enhancement Activities will be Limited

(1) Timber Harvest/Habitat Enhancement Buffers. Timber harvest/habitat enhancement buffers will be laid out in the field during the actual sale design and will be based upon the following guidelines:

(a) Buffers Around Cutting Units. Cutting units should generally be surrounded by a 100 foot buffer unless such a buffer is disadvantageous to wildlife or their habitat or unnecessary as a screen between the cutting area and most users of the area. However, required buffers shall be increased or decreased based on specific summer line-of-sight requirements necessary to maintain a natural-looking environment and to provide for restricted views from one cutting unit to another cutting unit.

- (b) Buffers Around Private Lands. A minimum buffer of 200 feet will be left on state land between all operations resulting in forest clearings and any private lands. However, single-tree selection harvest may occur within these buffers up to 50 feet from private lands. No harvest may occur within 50 feet of private land.
- (c) Eagle and Peregrine Falcon Protection Buffers. Eagle nest trees and Peregrine Falcon nests shall be protected as required by federal law. There will be no disturbance of natural vegetation within a 330' radius around any eagle or Peregrine Falcon nesting trees and/or nesting sites. (Mike Jacobson, Ecobiologist, Juneau, USFWS, 586-7244.)
- (d) Activities Allowed in Timber Harvest/Habitat Enhancement Buffers
- \* Selective-tree cutting as approved by ADF&G (Habitat Div.) and DNR.
  - \* Disease and insect control and prevention with pesticides and herbicides as approved by ADF&G, DNR and DEC.
  - \* Grazing as approved by ADF&G and DNR, consistent with the grazing guidelines in this chapter, on pages 103-117.
  - \* Access and utility line development across buffer areas should be kept to a minimum. Access and utility facilities should be located
    - outside of buffers to the extent feasible and prudent,
    - perpendicular to buffers, upon entering the buffer, to the extent feasible and prudent,
    - so as to reduce visual impacts from primary access routes,
    - and require approval by DNR and ADF&G.

Note: See page 137 for a summary of all buffer requirements.

- (2) Other Unique Habitat and/or Plant Communities. Habitat enhancement shall be restricted in certain limited areas with unusual habitats. Examples include isolated stands of overmature timber valuable for tree-hole-nesting bird life and other wildlife species or plant species such as Calypso orchid habitats. Calypso orchids are known to occur in wooded areas along the Chickaloon River Trail. Presently, there are no recorded rare or endangered species nesting sites on public land in the Moose Range. Peregrine falcons are known to migrate through the Moose Range, but to date, there are no known nesting sites. Should any nesting sites be located, they will be protected by Federal laws (see (1)(c) above). Interagency review will be required prior to resource development in the area of rare or endangered species if identified in the future.

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- (3) Scenic Areas. Timber sales, cuts or enhancement activities in alpine/subalpine zones visible from the Glenn Highway should minimize visual impact wherever possible. DNR, including DOPOR, should be consulted prior to actions affecting these areas. See Map 10 on page 199 to locate the scenic areas. The areas visible from the Glenn Highway are Arkose Bench, Wishbone Hill, Granite Peak, Little Granite Creek bench, and Castle Mountain. This guideline also applies to Puddingstone Hill as seen from the Chickaloon River Trail and the Chickaloon-Knik-Nelchina Trail.
- (4) Elevation Restrictions. Timber harvests should generally be restricted to areas below the 1,100 foot contour on Arkose Ridge and the 2,000 foot contour below Castle Mountain. Until more research can specify the types of timber harvest methods that are the most appropriate at higher elevations, the state will concentrate timber harvesting efforts at lower elevations.
- (5) Slope Restrictions. Special consideration will be given to any timber harvest/habitat enhancement projects on slopes exceeding 40%. Mechanical scarification is discouraged where slope is greater than 40%. Research projects on contoured mechanical scarification are allowed. The findings may increase the acceptable slope for scarification applications.
- (6) Burning Near Coal Seams. Habitat enhancement methods which apply burning as a management tool are discouraged in areas with coal seams at or near the surface.
- (7) Areas with Heritage Resources. DOF and DOPOR will work cooperatively to survey timber harvest areas for cultural and historic values when staffing and funding capability permits. All state agencies will make every effort to protect heritage resources and to notify DOPOR if any are found in the Moose Range. Timber harvest and wildlife enhancement will not be allowed in areas of known and recorded Alaska Heritage Resources until DOPOR has approved the method for protecting the heritage resource and given approval to proceed with timber harvest/habitat enhancement methods. The Castle Mountain Mine Road area will be surveyed before timber harvest.
- (8) State Highway System. Moose browse enhancement areas should not be located near the Glenn Highway or in areas that will attract wintering moose to the highway corridor. The state will not purposefully increase moose browse within the Glenn Highway right-of-way.

d. Locations of Habitat Enhancement Activities.

- (1) Utilize Existing Roads. Because enhancement activities have been based primarily on timber harvests, the locations of these activities in the near term generally will be in areas with sufficient road access to permit timber harvests. Habitat enhancement activities may take place in the future, in other areas, as access becomes available. At present, the four main road accessible harvest areas in the Range are located off the Permanente, Buffalo Mine, Fishhook and Castle Mountain Mine roads.
- (2) Roadless Areas. Enhancement activities may also occur in roadless areas by utilizing existing trail systems and aircraft (helicopters) as necessary to maintain wildlife species.
- (3) Grazing Leases. Moose habitat enhancement activities may be conducted on grazing leases or permit areas upon a 30-day notice to the lessee or permittee.
- (4) Based on Research. Another factor influencing location and design of timber cuts is the availability of results from research currently underway on vegetation regeneration. To the extent practical, new habitat enhancement activities should wait until the results of initial activities are evaluated. Research efforts currently are concentrated in the southwestern portion of the Range. Additional research projects may be initiated in other management subunits to assist in developing vegetation regeneration techniques. Once evaluated and proven successful, habitat enhancement in other areas may proceed according to the five-year timber harvest/habitat enhancement schedules.
- (5) Eastern Management Subunit. Timber harvest or enhancement efforts may not take place in the Eastern Management Subunit until more information is available on the likely success of regeneration in this area. Pilot habitat enhancement projects may be conducted in the Eastern Management Subunit for the purposes of identifying the basis on which to conduct additional habitat enhancement activities. Timber harvest/habitat enhancement efforts are being concentrated in the western and middle two-thirds of the Range (the Middle and Western Subunits) in the near term. Habitat enhancement may occur wherever the need exists and newly developed timber harvest access provides the opportunity to enter habitat areas having a high to moderate potential for providing moose browse. It is important to distribute moose enhancement areas throughout the Moose Range in order to better distribute forage production areas and moose.

e. Process for Scheduling Timber Harvest/Habitat Enhancement Activities

- (1) Completion Dates. DNR and ADF&G will prepare five-year timber harvest/habitat enhancement schedules. The initial steps for the first five-year schedule are included in Chapter Four of this plan. ADF&G and DOF will complete the first schedule by January 1987. The final schedule must be made available for public and interagency review and must be approved by DNR (including the DLWM) and ADF&G. Succeeding five-year schedules may be submitted for interagency and public review at any time, but no later than 60 days prior to their effective implementation dates of January 1, 1991; January 1, 1996; January 1, 2001.
- (2) Requirements. Physical data inventory may be completed as part of the individual project layout in the field. The five-year timber harvest/habitat enhancement schedule will include:
  - (a) Project description, including individual timber sales.
  - (b) Location or sale area of the cutting unit.
  - (c) Existing and proposed access.
  - (d) Estimated size of cutting units and volumes (if any) to be removed.
  - (e) Physical data inventory for the sale area including: vegetation; slope/aspect; description; elevation; general soil description including depth, moisture content, and analysis; and general wind condition.
  - (f) Ownership analysis
  - (g) Target vegetation for revegetation/enhancement
  - (h) Proposed regeneration enhancement methods including use of chemicals and controlled burning.
  - (i) Restrictions that are required for protection of critical and/or sensitive habitats, visual quality, water quality or other resources.
  - (j) Follow-up research plans to ascertain success of project, including control plots, photo plots and monitoring requirements.
  - (k) Compatibility with recreational uses and visual qualities of the area.
- (3) Research Report. A report will be developed by DOF and ADF&G for each activity unit and completed by June of the year following completion of the project. The report will include discussion of the regeneration and plant competition in each area and the information required in the five-year timber harvest/habitat enhancement schedule, as detailed above.

- (4) Interagency Field Reconnaissance. Interagency field reconnaissance of the proposed five-year timber harvest/habitat enhancement schedules will be performed. The purpose of the field work is for DOF, DLWM, ADF&G (and other affected Divisions) to work cooperatively towards accomplishing the requirements in e(2) above. The first reconnaissance sessions will be held in summer 1986.
- (5) Review and Approval. Timber harvests and habitat enhancement activities require DNR and ADF&G approval. Each five-year timber harvest/habitat enhancement schedule must be approved by DNR (including DLWM) and ADF&G prior to implementation. If a new cutting area is proposed after review and approval of the five-year schedule, it requires amending the five-year schedule through the same review and approval process as the original schedule. Minor modifications to the schedule (e.g. changing the order in which areas are to be cut, or minor boundary adjustment once the exact site is located in the field) require only ADF&G and DNR approval.

The approval process will follow existing procedures: burning, the use of pesticides or other chemicals, or commercial timber harvest activities require public and agency review. In areas where habitat enhancement is the intent for management of the subunit, habitat enhancement activities (scarification or hinge and brush cutting) do not require additional public review.

The only exception to following existing procedures for amendments to the approved five-year timber harvest/habitat enhancement schedule involves personal firewood cutting. Normally, the Division of Forestry only solicits agency comments on personal firewood cuts, and does not notify the public. In the Moose Range, any additions to or new personal firewood cutting areas, not approved by the public as part of the five-year schedule or this plan, require public and agency review. Adding personal firewood cuts in areas shown on Map 10 on page 199 as timber harvest areas will not require additional public review, as the timber harvest areas on Map 10 were approved by the public and agencies during the development of the management plan.

- (6) Agency Yearly Review. The DLWM will hold a yearly review of the proposed timber harvest/habitat enhancement activities with DOF and ADF&G. The meeting will be held in April of each year to review the entire year's proposals. The meeting will be used to determine whether or not there are any proposed changes and to determine if any changes are major enough to warrant public review. Any major changes in location of cuts or types of timber harvest or habitat enhancement techniques will also require public review.

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- (7) Public Notice and Review. Public notice requires DNR and/or ADF&G to notify the public of actions to be taken by the agencies in at least two local newspapers (Anchorage, Palmer, or Sutton). Public review requires public notification of at least one public meeting, holding at least one public meeting (Palmer or Sutton) and allowing the public to mail in written comment on the proposed agency actions.

### f. Design of Timber Cuts to Maximize Moose Habitat Enhancement

- (1) Forest Clearing Size. The width of any harvest enhancement operation resulting in forest clearings shall be cooperatively developed by DOF and ADF&G. The DNR will consult with ADF&G to design forest clearings that are most appropriate for moose habitat enhancement consistent with other public benefits. As a general guideline, large group selection cuts or clearcuts should not exceed 600 feet in width. The edge of these clearings may not exceed 1,000 feet without meandering. The preferred size of timber cuts may cover 15 acres or less. No harvest unit resulting in a forest clearing shall exceed 50 acres except when approved by ADF&G and DNR. The shape of the clearcut will consider the prevailing wind direction. Topography, elevation and other on-site factors will be considered in determining forest clearing size. These guidelines may be changed in the future, based upon research findings from habitat enhancement research efforts on the Moose Range or other applicable research projects.
- (2) Revegetation of Cuts. All harvested units shall be revegetated. Site preparation operations shall be designed to encourage principally the natural regeneration of one or more of the following preferred moose browse species: paper birch, black cottonwood, quaking aspen and/or willow. Site preparation methods shall be determined by ADF&G and DNR.

DOF in consultation with ADF&G shall identify the amount and location of birch seed trees that shall be left standing in timber sales/cuts/enhancement projects to produce seeds for birch reproduction.

- (3) Escape Cover. Moose require forested areas for escape cover. ADF&G will determine the suitable vegetation width for escape cover. Escape cover shall be left on appropriate locations within each harvest unit. These areas should be wide enough to prevent line-of-sight viewing through the escape cover. Utilization of coniferous species may be used to strengthen buffers and/or to develop cover as approved by ADF&G.
- g. Erosion Control. Silvicultural operations and access development will be designed to minimize erosion.

- h. Habitat Enhancement Methods. Specific habitat enhancement methods should be determined through consideration of their cost effectiveness, browse production capabilities and impact on goals for other resources. In addition to timber harvests, the following methods may be applied.
- (1) Grazing. Carefully managed intensive grazing is, at this time, an unproven habitat enhancement technique that may improve moose habitat in areas where the growth of browse species is limited by rapidly growing bluejoint reedgrass. Research pilot projects will be conducted at the request of ADF&G to determine if using intensive grazing as an enhancement method will reduce competitive grasses.
  - (2) 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.
    - (a) Burning Prescription. All broadcast burning operations shall require preparation of a site specific burning prescription and a burn plan. No broadcast burning will be conducted outside the area described in the burning prescription. Members of the public who will be affected by the burn will be contacted according to DOF policy. 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.
    - (b) Burning Near Private Land. No broadcast burning operation will be conducted within 1,320 feet (1/4 mile) of privately owned buildings or improvements and 1/8 mile of undeveloped private land.
    - (c) Slash Disposal Burns. DOF slash disposal burns utilizing the pile and burn method will not require a burn plan, except where the Area Forester determines this to be in the best interest of the State.
    - (d) Heliotorch. Aerial habitat enhancement techniques including the use of the heliotorch may be used in roadless areas and will be defined in the five-year timber harvest/habitat enhancement schedules.
  - (3) Pesticides and Herbicides. Pesticides and herbicides may be used on the Range when the Area Forester determines the use will benefit habitat enhancement efforts, meet DEC requirements and receive ADF&G concurrence for use.

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- (a) Plan of Operations. Any use of pesticides and/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 the chemicals will be used in, the method of application, and the application rates. In addition to this, the plan shall describe how an evaluation of the effectiveness will be prepared after the application.
  - (b) Application. Generally, pesticide/herbicide application will 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 outbreak. Pesticides and/or herbicides will not be applied within one-quarter mile of private dwellings.
  - (c) Evaluation. After pesticide/herbicide application, an evaluation of the effectiveness will be prepared.
  - (d) Agency Review and Public Notice. Interagency review and public notice and the opportunity for written public review of and comment on the plan of operations is required prior to application of pesticides and herbicides in the Range. The Sutton and Chickaloon Community Councils will be notified prior to use of pesticides and/or herbicides in the Range.
- (4) Mechanical Crushing/Hydro-axing. Mechanical crushing, hydro-axing or chain-saw thinning may be used independently or in conjunction with other methods to manipulate vegetation changes. This method will be used where salvage of forest products is not feasible.
- (5) Scarification. Scarification will be used in the Moose Range to enhance wildlife habitat. Regeneration of desired browse species in the southwest corner of the Moose Range has proven more successful when the seedbed is scarified. Scarification, the mechanical removal of the surface organic layer or the mixing of this layer with mineral soil, removes competitive plant species and allows seedlings to establish themselves.
- i. Acreage Target for Moose Winter Habitat. The Range will be managed to continuously maintain at least 10,000 acres of early successional deciduous vegetation suitable for wintering moose habitat.
  - j. Timber on Coal Leases. The Division of Forestry will utilize timber on public lands that are leased for coal development wherever possible. The Division of Mining and Geology (DOMG) and the lessee will work cooperatively with DOF and review all proposed timber sales on state lands leased for coal development. DOF, DOMG and the mining lessee will work cooperatively to utilize surface and subsurface resources in an appropriate manner and sequence.

k. Cooperative Research Efforts

- (1) Monitor Enhancement Activities. DNR, ADF&G and the University of Alaska will work cooperatively to establish plots and techniques to monitor the success of past and planned habitat enhancement activities. This may include, but is not limited to, gathering resource inventory data on specific soil typing, slope, elevation, aspect, ground water, existing vegetation types (overstory and understory), indicator species, small mammal populations, and wind and climatic conditions. Research is needed to gain knowledge regarding alternative regeneration techniques, livestock and wildlife food habits, use of grazing to enhance wildlife habitat, habitat enhancement costs, impacts of enhancement costs, and impacts of enhancement on water quality and other resources. This knowledge will be used to modify and improve the five-year timber harvest/habitat enhancement schedules and activities.
- (2) Calypso Orchid. DNR, with assistance from the U of A or other plant ecologists, should perform field analysis and biological studies to determine the habitat requirements for the Calypso orchid. The studies will determine whether or not the Calypso orchid requires special protection and/or warrants establishment of an ecological preserve. The only field verified sites known to date in the Moose Range are two areas along the Chickaloon River Trail -- mile 3 and 6.
- (3) Lands Mined For Coal. The state encourages research for enhancing moose browse on lands mined for coal.

## 2. WILDLIFE VIEWING

In order to provide opportunities for wildlife viewing, DNR and ADF&G will take the following steps (contingent on available funding):

- a. Preserve Wildlife Habitat. Preserve wildlife habitat, especially special features like snags, beaver ponds/waterways, naturally occurring mineral licks, raptor nest trees, fish and wildlife breeding and seasonal concentration areas, and transition zones.
- b. Avoid Important Areas. Avoid disturbance/development in fish and wildlife nesting, calving, spawning and other birthing and rearing areas.
- c. Education. Educate the public through information displays in facilities serving the Moose Range. Included should be information about wildlife-habitat relationships, so that people know the right place to look for certain species and the right season and time of day to look for desired wildlife.

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- d. Scenic Turnouts. ADF&G, DOPOR and DOT/PF will work cooperatively to designate the appropriate vehicle pullouts at locations determined to be good for wildlife viewing during realignment of the Glenn Highway.
- e. Public Information. Provide information about trails to wildlife viewing overlooks or special habitat features.
- f. Interpretive Signs. Post interpretive signs along roads, the Chikaloon River Trail, the Chickaloon-Knik-Nelchina Trail, the Old 98 Trail, trailheads, picnic areas and campgrounds.

### 3. DALL SHEEP

- a. Minimize Impact. Surface resource uses such as timber harvests and other methods of habitat enhancement will be designed in a manner that minimizes their impact on Dall sheep habitat. DNR will consult with ADF&G on the location of these areas and appropriate stipulations to apply to them during the preparation of the timber harvest/habitat enhancement schedules. (Guidelines regarding domestic sheep grazing in Dall sheep range is addressed in grazing guidelines, C5c, on page 114.)
- b. Mineral Licks. Subsurface resource development effects on Dall sheep mineral licks are covered in the subsurface resource guidelines section C3d. See pages 84-86.

### 4. HIGHWAY REALIGNMENT

During the environmental review process for the future reconstruction of the Glenn Highway, DOT/PF will evaluate a mitigation option to offset any significant loss of important fish and/or wildlife habitat in cooperation with ADF&G and the Federal Highway Administration. Implementation of the option agreed upon by all three parties shall take place during the construction phase.

### 5. HABITAT VALUES ON PRIVATE LAND

The plan does not direct the use of private lands. However, where the private landowner desires, DNR and ADF&G should seek to develop cooperative agreements with willing private landowners living within the Moose Range for game and habitat management purposes. Wherever agreed to by private owners, habitat enhancement principles should be implemented on private land. DOF will assist private landowners to enhance wildlife habitat on their lands through the Cooperative Forest Management Program when funding and staff are available.

6. ANADROMOUS FISH STREAMS

ADF&G will work toward maintaining, protecting, and enhancing anadromous fisheries in Wasilla, Moose, Eska, Young and Boulder Creeks and in Kings and Chickaloon Rivers. ADF&G will obtain the necessary data for reserving instream flow requirements for fish and wildlife, funding permitting.

7. ACCESS TO TIMBER HARVEST/HABITAT ENHANCEMENT AREAS

Guidelines for access for timber harvest operations or wildlife habitat enhancement are covered in the Transportation and Access section of this chapter on pages 125-127. Buffer requirements for access routes are also covered in the above referenced section.

8. MAINTENANCE OF EXISTING MOOSE HABITAT

The plan does not preclude the protection of existing wildlife habitat as a method of enhancing moose and other populations; it allows for known suitable habitat areas be undisturbed where appropriate as determined by ADF&G.