SECTION 4

LOOMIS LANDSCAPE PLAN GUIDELINES

I. Introduction

The following section includes desired future conditions (Citizen Advisory Committee goals) for all resources in the forest, and a brief discussion of planning decisions that address each resource. Management guidelines for achieving the desired future conditions have been developed in consultation with foresters, range managers, biologists, and specialists, and are based on policies found in the Forest Resource Plan.

These guidelines do not try to prescribe site specific applications in all locations throughout the forest. Rather, the intent is to provide field managers with enough guidance to facilitate consistency across the landscape, while at the same time allowing latitude for professional judgement.

II. Resource Guidelines

This section considers each of the 10 resources identified and examined by the Loomis Citizen Advisory Committee. In alphabetical order they are:

1) Air
2) Archaeological/Historical
3) Fish
4) Grazing
5) Mineral
6) Recreation
7) Soil
8) Timber
9) Water
10) Wildlife

Each resource guideline is considered in the following context:

1. Desired Future Condition - Describes the general condition of each resource at the end of the long-term planning horizon. The desired future condition for each resource is expressed as a resource goal, identified by the Loomis Citizen Advisory Committee (See "Loomis State Forest Planning Process: Recommended Goals and Objectives", DNR - May 13, 1994).

2. Planning Concepts to Achieve Desired Future Condition - Describes applicable management policies and procedures (Forest Resource Plan, Forest Practices Act) and landscape planning concepts used in developing guidelines. Some actions as identified in the plan are subject to obtaining funding, joint partnerships with other agencies, etc., and will be implementable over time.

3. Guidelines - Describe management considerations that can be applied generally on the landscape to meet the plan's objectives, protect resource values and environmental conditions (i.e. riparian protection, soil productivity). Guidelines are flexible and intended to provide management sideboards. Guidelines should be followed as closely as possible; however, when necessary they may be adjusted to allow for site-specific conditions.

1. AIR RESOURCE - Landscape View

Desired Future Condition:

"The Loomis State Forest contributes to good air quality."

Planning Concepts to Achieve Desired Future Condition:

Since fire is a primary cause of short-term air quality reduction, there is a need to plan for suppression of wildfire as well as to recognize its importance within the ecological network. Under certain conditions, prescribed fire could be used as a forest management tool to promote better forest health as well as to provide wildlife habitat.

The use of prescribed fire in the forest has been almost non-existent in the past, but the concept is being developed through this landscape planning effort to reduce, in a controlled way, the buildup of fuels in certain areas where burning will be safe.

The Department currently has inter-agency agreements with the United States Forest Service, United States Bureau of Land Management, and British Columbia Forest Service for coordinated fire control efforts. Annual meetings are held to update and discuss pre-suppression and suppression plans. The Department also maintains a highly trained fire fighting staff available for response to fires in the forest. This level of preparedness will continue with the goal of keeping fires controlled.

A fire suppression plan will be prepared and updated by district staff as conditions in the forest change over time. The suppression plan should incorporate an adequate transportation network that includes access to, water sources, heliports and hele-spots, staging areas and road closures. Road closures as shown conceptually in zones 1 and 2 of the Recreation map, page 57, will help decrease potential of fire ignitions. In addition the plan should exist consider existing or potential fuel breaks and timber harvest plans for reducing fire potential by promoting increased use of wood residue and decreasing accumulations of potentially hazardous fuel. A complete and updated fire suppression plan will enable the department to maintain a high degree of responese rediness so that fire suppression actions can be quick and effective in "Hitting-Fires-Hard/Keeping-Fires-Small".

Guidelines:

1.1 Slash burning and underburning will be conducted in adherence to the Department's "Smoke Management Plan" (DNR, 1993) and Department of Ecology air quality standards.

1.2 Do not use natural fire (let burn) as a management option on trust lands. Low intensity fires that may occur in the Chopaka Natural Area Preserve may be allowed to burn to the boundaries, depending on risk of spread. *

1.3 The primary strategy is to keep all wildfires small. To help facilitate this, a pre-suppression plan will be updated annually noting road revisions, water holes and fuel loading risks.

1.4 Provisions may be placed in timber sale contracts and similar management documents requiring:

1.4.a Increased fire prevention measures.

1.4.b Road watering to control dust during periods of heavy use where needed.

* Footnote: The Chopaka Natural Area Preserve has a separate management plan in place and is outside the scope of this landscape plan.

2. ARCHAEOLOGICAL/HISTORICAL RESOURCE - Landscape View

Desired Future Condition:

"All historical and cultural sites of significance are identified and protected."

Planning Concepts to Achieve Desired Future Condition:

The Department does not know the location of all the archaeological and historic sites in the Loomis Forest. The Department will protect all known archaeological and historic sites registered with the Washington State Office of Archaeological and Historic Preservation (OAHP). The Department maintains a record of these sites on a computerized tracking system called Total Resource Application Cross Reference System (TRAX).

The Department currently works with the Colville Confederated Tribes on archaeological and resource issues through regulatory processes identified under the Forest Practices Act and SEPA notification. If any sites are discovered in the course of planning or conducting site specific management activities, they will be protected as provided for in WAC 222-16-050(1)(g) and chapters 27.44 and 27.53 RCW, or as otherwise provided by law. These processes will be continued, but a more proactive approach may be helpful to achieve the desired future conditions. The Department intends to work with the Colville Confederated Tribes to preserve, where possible, their traditional and cultural heritage as it relates to the Loomis State Forest.

The Department is currently developing a statewide policy to guide its mission in regards to historic, archaeological and cultural resources. At the same time, it is working with OAHP and Washington State Parks on developing a training course to be offered to appropriate Department field managers, to help them recognize and identify archaeological and historic sites in the preliminary phases of harvest unit and road design and layout.

With funding and in cooperation with the Colville Confederated Tribes, OAHP, and the Okanogan County Historical Society, the Department can participate in an archaeological survey and help educate the public about the forest's rich cultural and historic heritage. By maintaining accurate records of current activities and natural occurrences, the Department can provide a basis for future land managers and forest users to comprehend the decisions and forces that shaped the Loomis Forest they inherit.

Guidelines:

2.1 Prior to conducting management activities (specifically: timber harvest, road construction, recreation facility development, mining and grazing), the Department will check its computerized tracking system (TRAX) for any known historical or archaeological sites.

2.2 If TRAX reveals a potential conflict, the Department will confer with the Office of Archaeology and Historic Preservation and the Colville Confederated Tribes to determine exact locations.

2.3 The Department will consult with affected tribes for assistance regarding protection of the tribe's identified traditional and cultural heritage sites on the forest, prior to conducting operations that could potentially damage a site.

2.4 Confidentiality of existing and newly discovered sites will be a high priority for the Department.

3. FISH RESOURCE - Landscape View

Desired Future Condition:

"Loomis Forest has healthy, viable fish populations and the aquatic organisms and habitat to support them."

Planning Concepts to Achieve Desired Future Condition:

"Fish are indicators of watershed conditions and water quality. The current threats to fish populations on the Loomis Forest are unstable streambanks, diminished riparian vegetation and scarcity of large organic debris. Management plans and practices must lead to the creation and maintenance of land and water conditions which support viable fish populations, especially of sensitive species." -- Citizen Advisory Committee

The Department will consider the effects of timber harvest and related activities, such as road construction, on watersheds, riparian areas and wetlands. In most cases, stream channels and fish habitat are protected when riparian areas are identified and protected. Riparian areas are generally defined as the terrestrial environment bordering rivers and other bodies of water. It includes stream banks, plants, saturated soils and in some cases the adjacent upslope land. The area of influence is defined generally for the Loomis Forest as a zone of approximately one tree height on either side of streams.

Riparian management zones will be designed to maintain proper riparian function. Although timber harvest of up to 30% by volume is allowed, harvest may be limited, or in some instances deferred for those RMZs where the remaining numbers of trees would be inadequate to provide needed large woody debris, or where shading needs to be maintained to meet stream temperature needs. Site specific conditions will determine harvest practices in RMZs. Typically no ground based timber harvest equipment will be allowed to operate in the riparian management zone to limit vegetation and soil disturbance.

Inventory work has already begun in conjunction with the USDA Natural Resource Conservation Service to determine baseline conditions for the forest and to assess areas of livestock damage as identified in the Grazing Resource discussion. As inventory work is completed, steps will be taken to protect and rehabilitate riparian habitats that have been unacceptably impacted, and protect remaining habitats.

The Department as land manager supports watershed analysis which surveys fish habitats, water quality, assesses the impacts of land management activities on the fish resource, and establishes accurate forest practices water typing. The Department participated in the Forest Service sponsored Toats Coulee watershed analysis. Results from this study and other watershed analysis studies as they are completed, can assist in the development of site specific management actions on the Loomis Forest.

It is suggested that one watershed per calendar year may undergo landowner initiated watershed analysis starting in 1997. This is dependent on funding availability and in-kind participation from agencies, tribes, and other landowners within the WAU.

The following guidelines have been designed to maintain or improve fish habitat. (Closely related guidelines are also noted under the Water Resource.) Forest managers in collaboration with the biologists and other specialists as needed, will develop site-specific recommendations to implement these guidelines as management activities occur.

Guidelines:

3.1 Fish bearing streams and ponds (Type 1-3 waters) will have a variable width Riparian Management Zone (RMZ) on each side of streams and all sides of ponds. The RMZ will adequately protect riparian function, maintain a source for large woody debris, and maintain a source of shade producing vegetation.

Generally Type 1-3 waters will have riparian management zone widths averaging 100 feet each side, and allow up to 30% removal of timber by volume once during a timber harvest rotation. Remaining riparian timber should be representative of size and species present prior to harvest. When shortfalls of large woody debris (lwd) compromises function as identified by biologists, site specific harvest prescriptions will be developed that identify what measures are needed to provide lwd. This may include volume removals of less than 30%, or deferral.

3.2 Non-fish bearing streams and intermittent streams (Type 4 waters) will have a variable width Riparian Management Zone (RMZ) as necessary to protect riparian function, and maintain a source of shade-producing vegetation. Type 4 streams will normally have a 50 foot RMZ each side, and allow up to 30% removal of timber by volume; Type 5 streams will not have RMZ's except as needed to protect slope stability.

The department will protect type 5 waters based on site specific evaluations when necessary for water quality, fisheries habitat, streambanks, wildlife, and other important elements of the aquatic system.

3.3 Where necessary, restore fish habitat which has been unacceptably impacted from timber harvest or grazing.

3.3.a This may include placement of large woody debris in streams to create pool habitat and planting of conifers in riparian corridors for long-term large woody debris inputs where needed as identified by department biologists.

3.3.b Efforts will be initiated to restore streambank integrity in areas of severe grazing damage. Techniques such as fencing or creating slash barriers will be used where necessary to block livestock access routes to streams identified as being potentially impacted by grazing.

3.4 Review the road system with the goal of improving the location in and frequency of drainage structures to reduce or eliminate the direct input of sediment into stream courses. Roads that are not in active use will be gated.

4. GRAZING RESOURCE - Landscape View

Desired Future Condition:

"Ecologically acceptable grazing is a viable component of the Loomis Forest."

Rangelands and grazeable woodlands are managed for long-term sustainability of livestock production and other resources.

Planning Concepts to Achieve Desired Future Condition:

All nine permit areas within the Loomis Forest, (see grazing map page 52) are currently involved in the Coordinated Resource Management (CRM) process. This process voluntarily brings people together to address resource management concerns, reach consensus and implement actions to improve resource management. The nine permits make up five CRM planning groups. These groups are actively involved in implementing actions to improve range conditions and protect and enhance other resources, and seeking funding sources for grazing capital improvements.

The Department will work with the permittees in the Loomis Forest to implement grazing guidelines and requirements in order to move the resources toward the conditions described by the HB 1309 Ecosystem Standards for State-owned Agriculture and Grazing Land. To support this effort, the Department's Northeast Region will add a range conservation staff position, as well as continue to work with the USDA Natural Resource Conservation Service. Grazing management will be implemented initially through the CRM process.

When grazing problems are not corrected voluntarily through the CRM process, the Department can require appropriate changes through Resource Management Plans (RMP). These plans can be developed as needed to correct resource problems noted on permit ranges.

Additional grazing management controls are available in existing permit agreements such as setting turn out dates and adjusting the number of Animal Unit Months (AUMs), as necessary, depending on range conditions. If a permittee does not comply with required changes, the permittees use of the permit range can be terminated.

The inventory of Range Conditions (rated as poor - fair - good - excellent) and Woodland Grazing Suitability (low - medium - high) is being used as a planning and monitoring tool. This survey also identifies rangeland plant communities and areas sensitive to grazing. Results of this inventory will be stored on GIS for map-based planning and monitoring. Both short and long-term monitoring will be conducted to assess progress towards the grazing resource desired future conditions and the conditions described by the Ecosystem Standards. Needed changes in grazing prescriptions will be accomplished voluntarily through the CRM process, or through the process of writing an RMP, and through the existing permit agreement.

As grazing guidelines are implemented, several forest ecosystem conditions will be reviewed: 1) healthy, vigorous, productive, desirable plant species and communities must be maintained; 2) ecologically-based grazing systems and base annual stocking rates calculated on forage production and available forage will be maintained; and 3) water resources, stream channel features, and riparian areas which support fish and wildlife habitat needs and watershed functions will be maintained and improved.

A stream channel geomorphology inventory was started in 1994 and expanded in 1995. Included in the inventory is an assessment of geomorphology, vegetation characteristics, riparian conditions, and potential conflicts between livestock grazing and riparian values. This inventory assessment will determine where grazing practices have negatively impacted streams, identify streambanks that need protection and restoration strategies implemented, and establish baseline erosion rates to be used in monitoring.

Guidelines:

4.1 Where geographically feasible, graze each pasture unit no more than half of the active growth period (the start of forage plant growth in the Spring to seed maturity in early Summer [approximately March 1 to June 15 in lower elevation, June 1 to September 1 in higher elevation.]). Alternate livestock use by grazing during the first half of the active period one year and the second half of this period the second year and deferred grazing on the third year until after seed set.

4.2 Limit grazing utilization to remove no more than 50% of the top growth during active growth period and no more than 60% during dormancy.

4.3 When revegetating degraded ranges, the use of native plant species is encouraged. If this is not feasible, the use of a similar non-native species will be acceptable, under an approved Department resource management plan or through the CRM process.

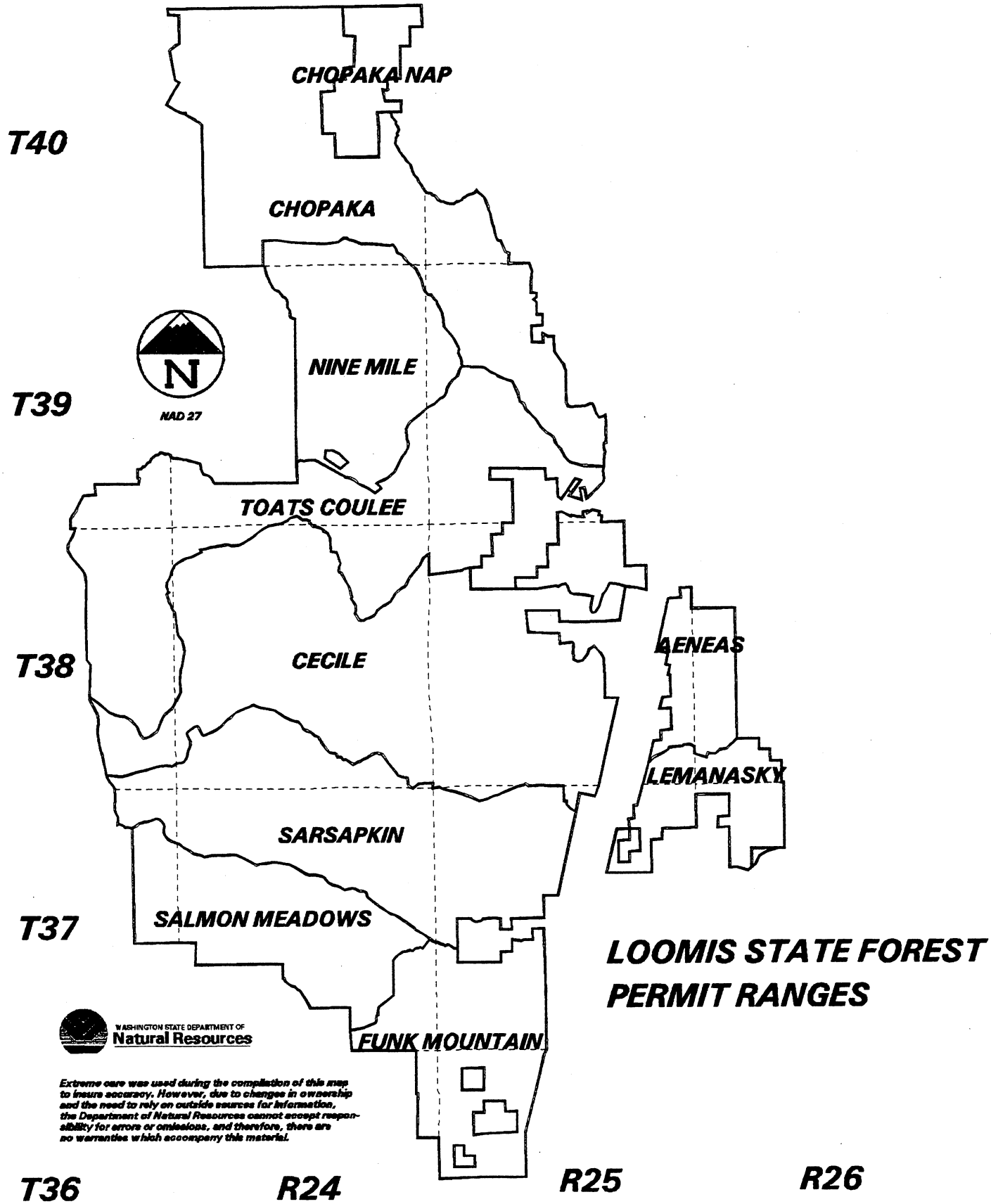
4.4 Adjust grazing practices to conform with "Ecosystem Standards for State-Owned Agricultural and Grazing Lands". Needed adjustments will be determined through Coordinated Resource Management or as required by Resource Management Plans. When resource damages from grazing occur which are not corrected through the CRM and RMP processe's, the department will limit or terminate the permittees use the range.

4.5 Maintain or manage for site conditions which prevent or minimize the potential for noxious weed invasion. When noxious weeds are identified implement effective, timely control programs including integrated mechanical, biological and chemical controls to minimize the problem.

4.6 Improve livestock distribution through the use of upland water developments, placement of salt licks, improved palatability, improved grazing rotation systems, and fencing where and when feasible. Rest-rotation grazing or other techniques may be recommended to allow recovery of over grazed areas. In this technique, cattle are excluded from portions of ranges for extended periods of time.

4.7 Defer livestock grazing on burned areas for one year after a fire, depending on fire intensity.

4.8 Evaluate and monitor cattle access to RMZs after timber harvest and provide for fencing or slash barriers where necessary to prevent cattle induced streambank damage.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Extreme care was used during the compilation of this map to insure accuracy. However, due to changes in ownership and the need to rely on outside sources for information, the Department of Natural Resources cannot accept responsibility for errors or omissions, and therefore, there are no warranties which accompany this material.
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5. MINERALS RESOURCE - Landscape View

Desired Future Condition:

"Mineral exploration and extraction occur only where it is environmentally sound."

Planning Concepts to Achieve Desired Future Condition:

There has been no recent mineral prospecting or mining activity in the Forest. Consequently, mining has not been a major planning issue.

During the first decade the Department will plan pro-actively and identify particularly sensitive parcels in relation to other resource values identified in this plan. Sensitive archaeological and cultural areas, riparian areas, critical wildlife habitats and sensitive plant communities will be mapped and stored on the Department's GIS system. As funding becomes available, the Department will conduct an evaluation of what mineral potential is available in the forest, and where. This information would be available for map-based review and analysis for any proposed mineral activities.

It is anticipated that most lands are available for mineral exploration and extraction, but that sensitive areas would have more constraints regarding surface disturbance, road construction, etc. However, identification and implementation of formal recreational gold panning sites in the forest have been deferred under this landscape plan. This issue will be included as part of a recreation user survey and analyzed as part of a recreation plan based on survey needs.

Guidelines:

5.1 Mining will be dealt with on a site-specific basis. Proposed surface-disturbing activities in the forest will undergo either a SEPA review, or for actions exempted under SEPA, a formal project evaluation modeled after SEPA and evaluated internally by the Department. If demand or potential warrants, a matrix will be developed showing possible combinations of mining options and other resource protection needs to help weigh cost/benefit ratios for potential projects.

6. RECREATION RESOURCE - Landscape View

Desired Future Condition:

"A mix of recreation and visual opportunities compatible with other resources is available in the Loomis Forest."

Planning Concepts to Achieve Desired Future Condition:

"Recreational use of the Loomis Forest should be offered on a formal and an informal level without posing a financial burden to the trust. Recreation must be managed in harmony with achieving the goals of the other forest resources. Recreation is perceived as an important benefit but not a major focus for the forest at this time. There is no anticipation of significant development, such as a destination resort on the Loomis Forest" -- Citizen Advisory Committee

The Department's role is not as a primary recreation provider; therefore our emphasis will continue to be on recreation semi-primitive opportunities consistent with trust obligations and the Multiple Use Act.

Having an accurate inventory of levels and locations of recreational use and opportunities will help in planning future actions to achieve desired future conditions. A campground use inventory was started in 1995 and will be continued to determine use levels. A formal user survey will be conducted as funding becomes available.

The Department does not have policies established under the Forest Resource Plan for visual management, but is currently developing procedures for visual management, as part of landscape planning. Visual management will be addressed for the Loomis Forest after statewide procedures are established.

Five "organizing" concepts are proposed to achieve the desired future condition for recreation in the Loomis State Forest. They are:

- Forest Loop Road - It is proposed that the forest loop road, comprised of National Forest System Road 39 (Toats Coulee Road), National Forest System Road 38 and Sinlahekin County Road, continue to be used as a key element to organize public access, recreational facilities and visual management in the forest. Currently, most existing DNR developed recreation sites are along or nearby this loop road. Several Forest Service and Washington Fish and Wildlife recreation sites are also located along this loop road. Public access within the forest will be managed from this loop road through road type, ease of travel and gate placement. (See accompanying conceptual recreation and road access zone map).

- Recreation Experience and Public Demand - Recreational use is on the increase in and adjacent to the forest. At different times, due to changing levels of public demand for particular types of recreation, different types of facilities and levels of management may be needed to maintain the type of experience described by the desired future condition.

For example, the department is actively upgrading its recreation facilities to comply with the Americans with Disabilities Act (ADA). By the end of 1996, it is expected that the Chopaka campground will have sites, toilets and a dock, the Cold Springs viewpoint will have a toilet and viewpoint trail, and Palmer Lake (adjacent to the forest) will have a toilet and trail all meeting ADA standards. To best respond to recreation demand and facility needs, the Department may conduct a user survey inventory of use patterns, dependent on available funding. This information could then be used to determine levels of management necessary to achieve desired future conditions in the forest. Ongoing monitoring of the use of the forest, in particular the use of provided facilities, needs to be done.

- Context - The Loomis State Forest is one part of a larger land use pattern in Okanogan County. With planning, the patterns of recreation use and management can be compatible with adjacent uses (i.e. Okanogan National Forest Plan), and consistent with trust obligations.

- Operations - Any existing or proposed recreation facility or management technique needs to be evaluated both in terms of its effectiveness, efficiency and economy in achieving the desired future condition . Thoughtful planning of places where users might be concentrated, such as trailheads, can help provide better information to users, reduce maintenance costs and monitor impacts.

- Impacts - Recreation can have an impact on wildlife, riparian areas and vegetation. Careful planning of facilities along with education of users can help alleviate potential negative impacts. Road closures will aid in minimizing certain impacts. The Department will work with the state Department of Fish and Wildlife to develop cooperative road closures and enforcement programs.

To help manage impacts, the Loomis forest is classified into three zones as shown conceptually on the following map. At this time, these zones are conceptual and focus primarily on recreational road driving (automobile, all terrain vehicles, motorcycles, etc.), with the purpose of allowing historic areas of use. If monitoring detects detrimental impacts to resources, the department will work with organized groups and individuals to reduce impacts.

Conceptual forest use zones are:

1. Zone 1 - To allow for medium public use impacts. This zone accommodates campgrounds and established public use loop roads for motorized and non-motorized uses.

2. Zone 2 - To allow for low impact public use impacts. This zone includes all areas where new road construction will take place, but where motorized recreational uses will be prohibited.

3. Zone 3 - To restrict public use impacts and maintain the ecological character of the land. The Chopaka Natural Area Preserve is classified as Zone 3.

The following guidelines have been developed to reduce impacts to trust resources.

Guidelines:

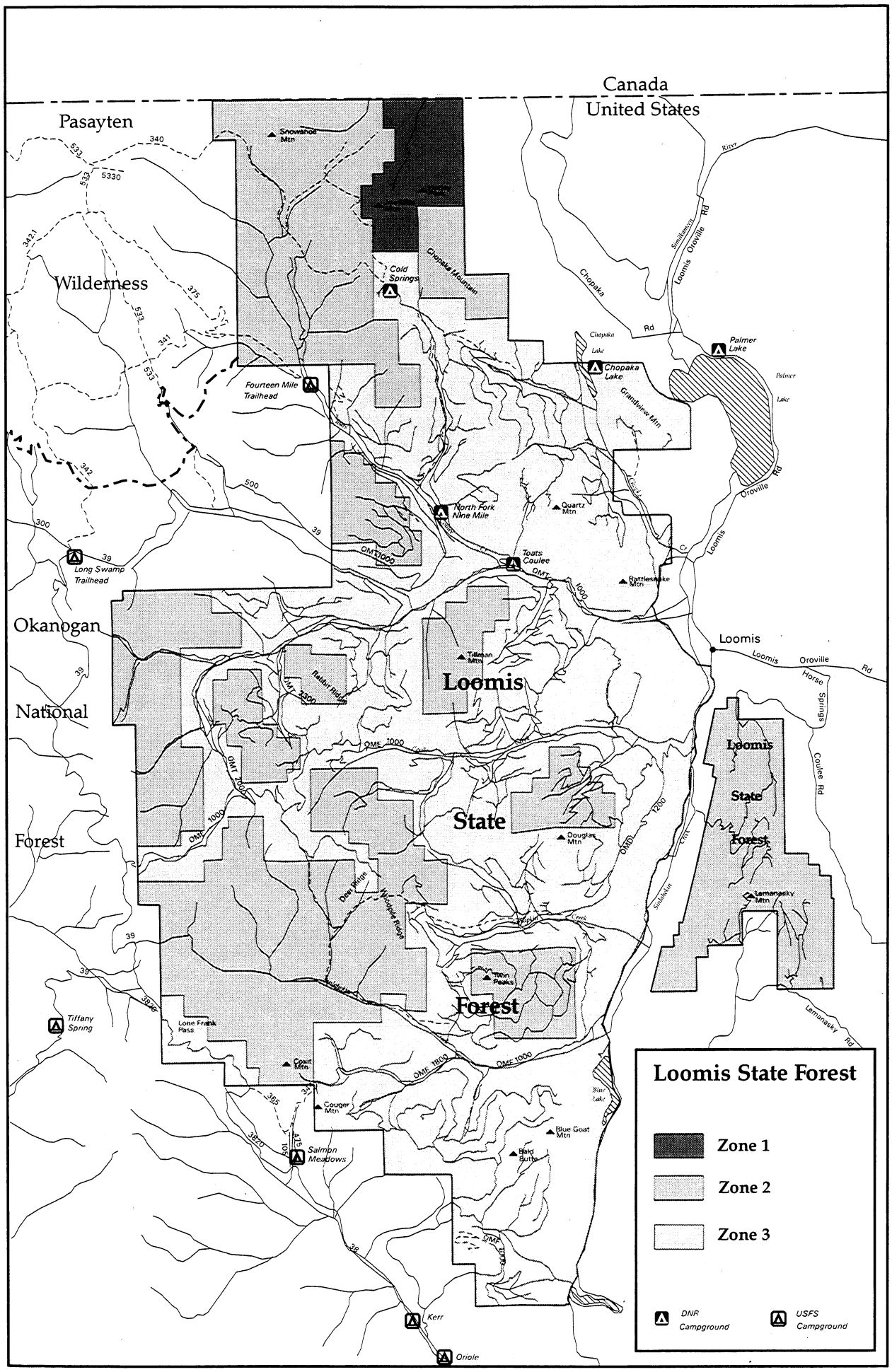
6.1 Evaluate existing recreation sites and design new recreation sites to avoid conflicts with critical wildlife habitat, sensitive archaeological and cultural sites, and riparian functions.

6.2 Consider potential conflicts between recreation users when planning a project.

6.3 Work with user groups whenever possible, recognizing them as a valuable volunteer, construction and maintenance resource.

6.4 Emphasize education, signing and enforcement appropriate to funding levels.

6.5 Prohibit off-road recreational vehicle use in sensitive areas (eg., shrub steppe, meadows, riparian and alpine areas) where damage would occur.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Cold Springs
Chopaka Mountain
Fourteen Mile Trailhead
Long Swamp Trailhead
Tiffany Spring
Chopaka Lake
Palmer Lake
Grandview Mtn
North Fork Nine Mile
Quartz Mtn
Toats Coulee
Rattlesnake Mtn
Tillman Mtn
Rattlesnake Ridge
Douglas Mtn
Lemanasky Mtn
Lone Frank Pass
Court Mtn
Cougar Mtn
Blue Goat Mtn
Bald Butte
Salmon Meadows
Kerr
Oriole
Loomis
Loomis Oroville Rd
Horse Springs
Coulee Rd
Lemanasky Rd
Loomis State Forest
Zone 1
Zone 2
Zone 3
DNR Campground
USFS Campground

7. SOILS RESOURCE - Landscape View

Desired Future Condition:

"Soils are stable, productive and in a functioning state."

Planning Concepts to Achieve Desired Future Condition:

This desired future condition for the soil resource will be achieved by a combination of guidelines and monitoring standards designed to maintain potential soil productivity and minimize management-influenced erosion impacts for each management activity area on the Loomis State Forest.

"Soil is a major resource requiring careful, thoughtful management to ensure ongoing high levels of forest productivity and health, good water quality and necessary wildlife habitat. In conducting activities on the Loomis Forest, we must recognize soil's integral bond with other resources and apply best management practices to minimize degradation and erosion and enhance soil stability and productivity." -- Citizen Advisory Committee

Soil productivity needs to be maintained, and soil displacement and compaction minimized to help achieve the desired future condition.

The Department needs an accurate inventory and map of the soils, and field training to apply proper management practices to protect the soils. A supplemental and more detailed soil inventory can be conducted, if and when funding is made available, to develop accurate, detailed soils maps which identify areas of special concern. Information collected during this soil inventory will add to silvicultural and management activity guidelines. The objective is to minimize erosion and maintain potential soil productivity.

A conceptual slope stability map on page 61 shows the estimated mass wasting potentials of soil delineations on the Loomis State Forest based on the current information in the Department's GIS Soil Layer. Current soil mapping on the Loomis State Forest is too broad to provide accurate site-specific mass wasting interpretations. Therefore, the estimated mass wasting potential ratings were developed to indicate the need for additional site-specific evaluations to determine actual mass wasting potential prior to managing any site.

Management activity sites in soil delineations with the higher estimated mass wasting potential ratings will require higher levels of on-site inspection to determine the actual mass wasting potential of these sites. Management activities could even occur on sites within delineations with High estimated mass wasting potential ratings, but only after thorough on-site inspections of slope percent, slope shape, soil depth, etc. indicated that the actual mass wasting potential was low and that the management activity would not be likely to cause mass wasting.

Timber harvest, road construction and other activities will meet or exceed the Forest Practices Rules and Regulations. The following guidelines have been developed through landscape planning to meet more specific resource needs across the forest.

Guidelines:

7.1 Conduct road maintenance inventory and develop a road maintenance plan as soon as possible to identify and correct road segments with a high potential for mass wasting and/or surface erosion impacts.

7.2 Inspect roads with potential mass wasting or surface erosion problems shortly after major rainfall, and/or snowmelt events to locate and repair roads with high mass wasting or surface erosion potential.

7.3 Restrict road construction and log hauling when thawing soils and/or very wet soil conditions create a high potential for soil disturbance, rutting and erosion.

7.4 Each proposed road location or activity area will receive an on-site evaluation by the field manager to identify potential for surface erosion or mass wasting impacts. Specialists will assist in on-site evaluations and preparing site-specific prescriptions where the manager's observations or data on soils, topography, etc. indicate a significant potential for impacts.

7.5 Roads will be located, designed, constructed and maintained to disperse surface flow and direct it to safe disposal sites, allowing water to filter into the forest floor prior to its entry into streams. Avoid constructing roads and landings in riparian and wetland zones.

7.6 Sizes of Riparian Management Zones along Type 5 waters and associated headwall areas will be determined by on-site evaluations of mass wasting potential.

7.7 Limit ground-based harvest systems to sites where slopes average less than 40% and where ground-based harvest on the steeper slopes, if present, would not damage water quality or other public resources.

7.8 Degrade less than 20% of the soil surface of ground-based harvest activity sites by limiting operations to designated skid trails that will include existing roads and skid trails.

7.9 To minimize soil compaction, ground-based harvest activities will occur only when soils are frozen, have a protective snow cover or are not too wet. Soils are too wet for ground-based harvest when 20% or more of the trail surfaces have ruts 6 inches deep or more.

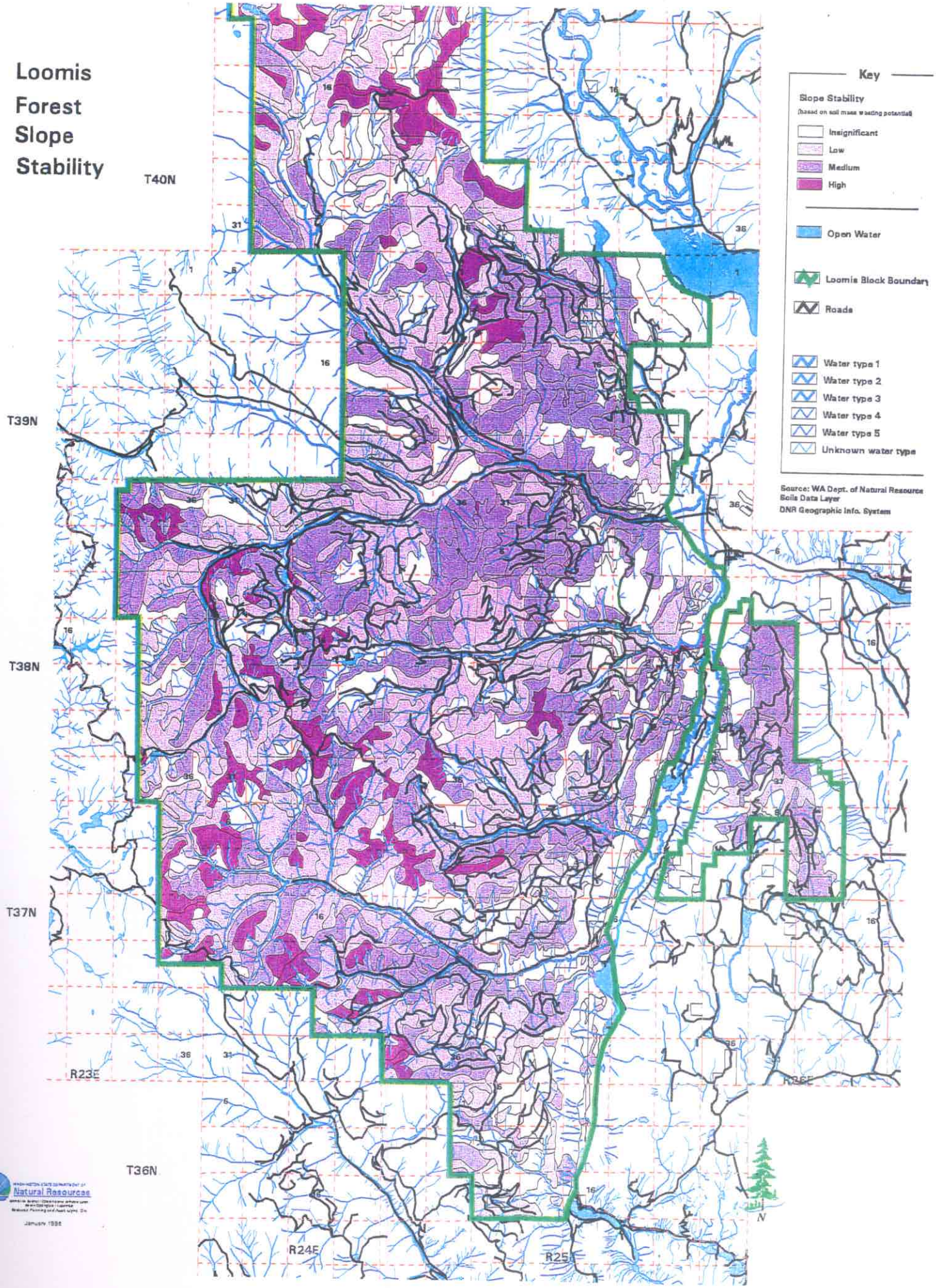
7.10 Conduct on-site evaluations of active and completed timber harvest units on a regular basis to assess potential surface erosion and sediment delivery problems. Problems are greatest during major rainfall or snowmelt events in the five years following completion of harvest. Problems will be corrected prior to the next winter season.

7.11 After harvest, skid trails will be water barred to minimize surface flow and surface erosion and grass seeded to promote soil rehabilitation.

7.12 Broadcast or underburn only during the spring or early summer and while the surface soil is moist in order to minimize soil organic matter and soil productivity losses.

7.13 Post-wildfire rehabilitation plans will be based on fire intensity and size of burned area, focusing on soil erosion issues. Rehabilitation plans will be monitored annually after fire occurrence until site rehabilitation is accomplished. Input from a range specialist, soil scientist or forest hydrologist may be requested for sites with medium or high intensity.

Loomis Forest Slope Stability



Natural Resources

January 1995

8. TIMBER RESOURCE - Landscape View

Desired Future Condition:

"Maintain a healthy, productive and diverse forest which provides for the long-term support of the trust."

A healthy forest is a resilient and sustainable forest ecosystem that meets management objectives defined in this plan. "Resilient" and "sustainable" imply that the risk of present or future major damage by insects or disease is minimized.

Planning Concepts to Achieve Desired Future Condition:

The term forest health is used here in the context of the health status of forest stands and trees with respect to destructive forest insects, diseases and abiotic agents. Abiotic agents, usually created by adverse weather, include drought and winter injury. The broader spectrum of what could be called forest ecosystem health is discussed in Appendix B of this plan. Forest health problems can result in negative impacts to timber productivity, certain wildlife habitats, recreational opportunities, and susceptibility to fire.

* Much of the mature lodgepole pine forests are being affected by the mountain pine beetle. This bark beetle attacks the largest trees in a stand, and populations continue to cause significant mortality.
* In the lodgepole pine, Douglas fir and western larch stands there are varying amounts of dwarf mistletoe infection which deforms trees, slows growth and eventually kills host trees.
* Root disease is apparent in approximately 15 to 20 % of the forest stands in the Douglas fir zone. Root disease causes reduced height growth, loss of foliage, decay, windthrow and increases susceptibility to insect attack.
* Populations of defoliating insect such as the western spruce budworm fluctuate. Current forest conditions would favor future increases in populations.

Management guidelines and silvicultural regimes have been developed in this plan for timber harvest activities that address forest health, economic and other resource values. Timing and locations of timber harvests will address forest wide health issue over the long term.

Forest health, productivity and stand diversity are addressed in a phased harvest approach, by decade, as outlined in Section 3 of this plan. To bring the forest back to a long-term healthy and productive state, timber harvest will be heavier in the first decade and then will lower significantly. The level will eventually stabilize over the length of the rotations.

After the first decade, the proposed timber harvest will continue to address forest health problems and will begin to deal more fully with forest structure and diversity issues.

Expansion of the road system is systematically planned to effectively meet economic, insect-outbreak reduction, and ecological goals. Road construction meeting landscape plan guidelines and forest practice regulations will minimize soil and other environmental impacts.

The Department will schedule harvest and other activities for Harvest System Planning using SNAP [Scheduling and Network Analysis Program] . This modeling will occur at both the landscape and individual harvest planning level. This will be a dynamic process. New information that becomes available through monitoring and adaptive management may modify landscape planning assumptions and SNAP results. This model will also optimize the return to the Common School Trust.

The Forest Resource Plan Policy 4 states "The department will manage state forest lands to produce a sustainable, even-flow harvest of timber, subject to economic, environmental and regulatory considerations."

The current mountain pine beetle epidemic is both an environmental and economic consideration under this policy that would affect sustainable harvest volume levels in the short term. The harvest of dead and dying timber does not count against the sustainable harvest, since this timber is no longer growing in volume. The acres occupied by dead and dying timber do count in harvest calculations once reproduction is established. Responding to epidemic insect damage is an example of how short-term management strategies must be flexible while striving to achieve the desired future condition. Other natural occurrences such as fire, may play a role in altering short-term harvest plans.

Inventory information completed in 1994 is stored in Geographic Information System and is updated as management activities occur. The map on page 66 shows primary timber species currently in the forest. Updated inventory information will be used to calculate an appropriate sustainable harvest level for the forest.

Harvest levels were calculated for planning purposes by using a computerized timber growth model that adds annual growth volume to basic inventory information as well as deletes volume for assumed mortality and harvest deductions. Computer modeling provided a feasibility study to insure all landscape planning assumptions could be applied across the landscape. Assumptions included 1) harvest strategies, 2) harvest constraints (RMZ widths, adjacency, harvest unit size, late successional characteristics), 3) silvicultural regimes by vegetation zone, 4) current inventory information on a stand by stand basis, 5) operational harvest areas (on base acres), 6) even flow harvest (after decade one). Calculations show that it is feasible to harvest 825.5 MMBF over 80 years based on landscape planning assumptions, and that an even flow of approximately 9 MMBF/year (8 mmbf in the subalpine fir and Douglas fir zones, 1 mmbf in the ponderosa pine zone) after decade one. It is important to note that these figures are based on harvest planning and scheduling assumptions are not meant to replace the department's sustainable harvest calculation per Forest Resource Plan Policy 4.

Estimated volumes to be harvested as a result of small wood thinning are not used as part of the sustainable harvest calculations, but are rather viewed as an intermediate silvicultural treatment in growing stands to final harvest. The allowable annual harvest after decade one of approximately 9 MMBF is higher than previous calculations because of updated and more precise information being available.

During the landscape planning process, the Department reaffirmed for silvicultural harvest calculations that the Highlands and South Okanogan ownership group would be sustained, consistent with Forest Resource Plan policy. The Loomis State Forest is a subset of this ownership group and the Region will allocate harvest levels accordingly.

Other forest management activities, including regeneration, pre-commercial thinning, and pest and disease control are also important in achieving the desired future condition of the forest. Forest management activities will consider time and space issues and will be sensitive to other resource needs. To accommodate landscape plan implementation, monitoring, and adaptation, the Department will use the GIS Planning and Tracking system currently being developed. This system will record site specific timber management activities and access other GIS information (wildlife habitats, sensitive areas, etc.) for planning purposes.

Procedures will be developed and implemented to determine the likelihood of individual and cumulative effects of all projects to impact endangered, threatened and sensitive plant species through ground disturbance. Additional procedures will be developed and implemented to determine though monitoring the progress of the Loomis forest toward the desired future condition on both the stand and landscape level.

Guidelines:

Roads

8.1 Limit the expansion of the road network to that which is necessary to achieve management objectives. Most newly constructed roads will be closed by gates or other means necessary to control motorized use.

8.2 Road maintenance is scheduled and performed as part of the region's overall road maintenance program. The frequency and degree of maintenance on each road segment is based on need (e.g. problem roads and roads with heavy haul are recognized as requiring a more intensive effort than others.)

8.3 Stabilize and close access to roads that no longer serve a management function.

8.4 Maintain active roads to minimize sedimentation and drainage problems.

8.5 Continue an aggressive roadside noxious weed control program, combined with road closures, to minimize noxious weed introduction and spread. As funding allows, develop a GIS based inventory system that maps locations and populations of noxious weeds and other targeted species, and tracks control treatment applications. Monitor effectiveness of treatments.

Forest Regeneration

8.6 Stand management plans will be designed to insure regeneration that achieves a proper species composition and stocking levels.

8.6.a In harvest areas designated for natural regeneration, approximately 25 trees per acre will be left as a seed source. Conduct a reproduction survey at five years and eight years after harvest. If 150 well-distributed seedlings per acre do not exist within 8 years after harvest, plant the stand within two years to establish at least 150 trees per acre. (Once reproduction is established, some of the seed trees may be available for harvest.)

8.6.b In harvest areas designated for artificial regeneration, seedlings of appropriate diversity for the site will be planted at a minimum of 250 seedlings per acre within 3 years following harvest.

8.7 Site preparation (logging disturbances or scarification) for natural regeneration should expose about 40% bare mineral soil.

Pre-Commercial Thinning

8.8 Pre-commercial thinning will be designed to address health and value in the future forest.

8.8.a Ponderosa pine/larch stands should be targeted for thinning at about 15 years, at 12'-14' spacing.

8.9 Slash from pre-commercial thinning should be treated only as necessary to reduce hazards from fire and animal pests.

Prescribed Fire

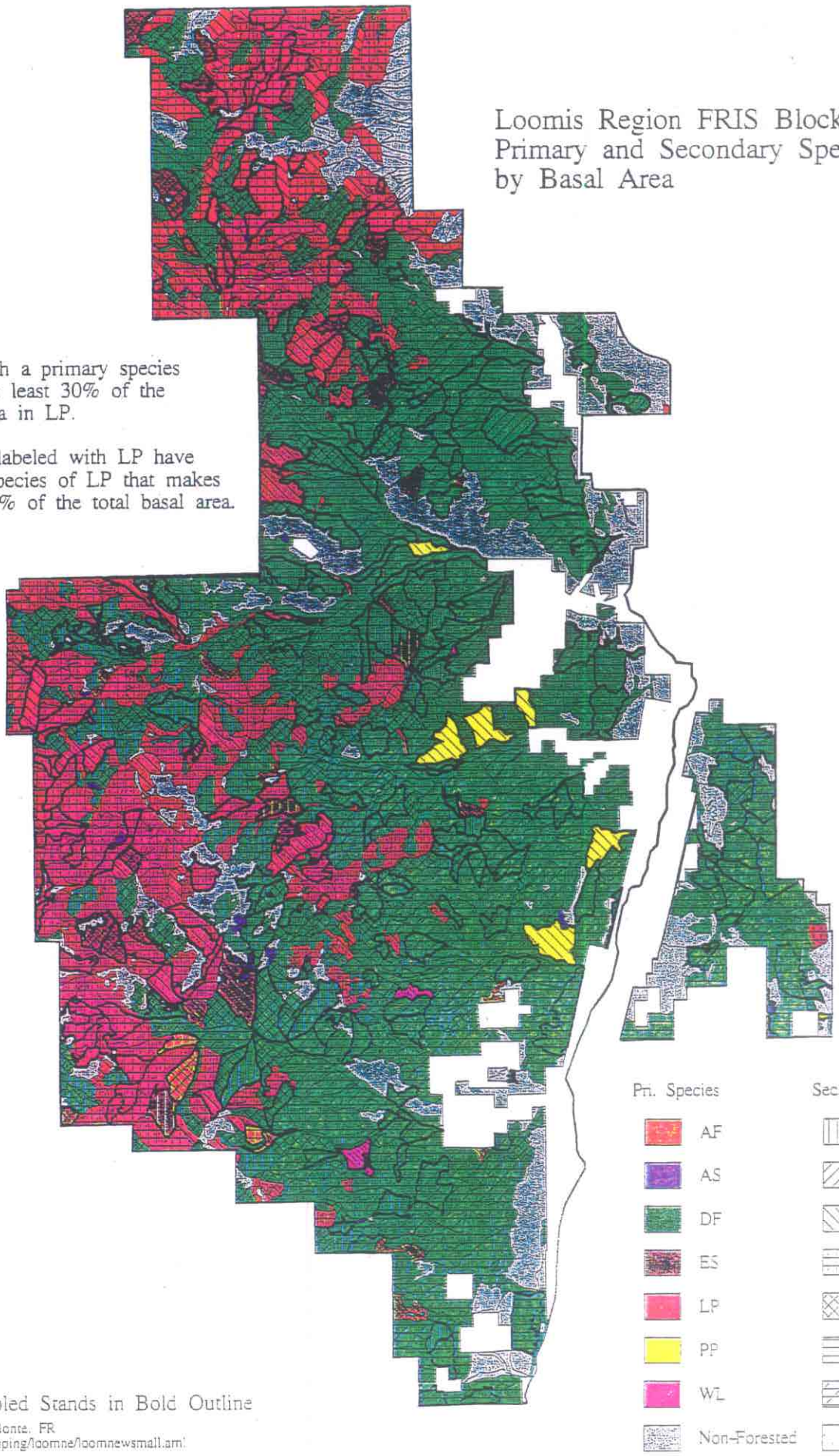
8.10 Prescribed fire should be designed to reduce late successional species in the ponderosa pine zone and to consume only fuels less than 3" diameter. Prescribed fire underburning should not reduce site occupancy below full stocking.

Slash burning may occur on selected lodgepole pine stands in the subalpine fir zone to create lynx forage habitat. Results will be monitored and prescriptions adapted as necessary.

Loomis Region FRIS Block Primary and Secondary Species by Basal Area

All stands with a primary species of LP have at least 30% of the total basal area in LP.

Those stands labeled with LP have a secondary species of LP that makes up at least 30% of the total basal area.



Sampled Stands in Bold Outline

J. DalMonte. FR
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9. WATER RESOURCE - Landscape View

Desired Future Condition:

"Water is of excellent quality and appropriate quantity in each watershed of the Loomis State Forest."

Planning Concepts to Achieve Desired Future Condition:

Aquatic areas such as streams, wetlands and lakes, and their associated riparian zones are essential components of watershed diversity and complexity. These areas are utilized by a large number of species, populations and communities. Riparian zones will be used as one of the primary landscape features for connectivity.

Natural actions such as weather, fire and forest mortality, and management actions such as roads, timber harvest and grazing can all have effects on water quantity and quality. All road construction, road maintenance, and timber harvest activities will meet or exceed Forest Practice Regulations.

Guidelines have been developed in this plan for grazing and timber harvest activities to reduce introduction of sediment into streams and wetlands. Threshold impact levels for various activities will also be identified.

The Department will estimate open-equivalent thresholds for each WAU, and maintain the quantity and timing of water flow by not exceeding the thresholds appropriate for each WAU. The Department will consider adjacent landowner plans and management activities (i.e. USFS) when estimating open-equivalent thresholds.

Acceptable harvest levels will be determined based on the percentage of each forested watershed area that is hydrologically mature. Forest stands are considered hydrologically mature when evapotranspiration, interception of precipitation, and influencing of snowmelt processes are the same as fully stocked, mature stands. New clear-cut and shelterwood harvests, and dead stands are considered open and hydrologically immature. The level of hydrologic maturity of a stand is described by an open-equivalent factor which is a function of basal area.

(Open-equivalent threshold refers to clear-cut acres that would cause snowmelt season to begin earlier in the spring. Equivalent acres are determined by multiplying the area of disturbed stands by a stand cover density factor. The factor will range between 0 and 1, with 0 representing maximum cover density, and 1 representing a clear-cut condition.)

Monitoring of these thresholds and impacts will be ongoing and will help determine our success in maintaining water quantity and quality and identify where changes are necessary.

An additional monitoring project was begun in September 1995 in conjunction with the Department of Ecology to examine cumulative effects of management practices in the forest on stream channel condition and macro invertebrate populations on several representative stream plots. Follow-up monitoring assessments will be conducted annually from 1996 through 1999 with

the Department of Ecology to determine effects of landscape plan implementation on stream conditions. The depatment will continue monitoring as apprpriate after 1999 to determine effects of landscape plan implementation.

Guidelines:

9.1 Timber harvest may be deferred, or removal limited to not more than 30%, in RMZ's and WMZ's where necessary to maintain an adequate source of large woody debris for fish habitat, or maintaining adequate cover for wildlife travel routes.

9.2 Landings in wetland zones will be avoided. If roads in riparian zones can not be feasibly avoided, then roads will be minimized.

9.3 Road approaches and crossings of Type A and B wetlands and Type 1 - 3 waters, as defined by the Forest Practices Act, will be of non-erodible surfacing rock as needed to maintain water quality.

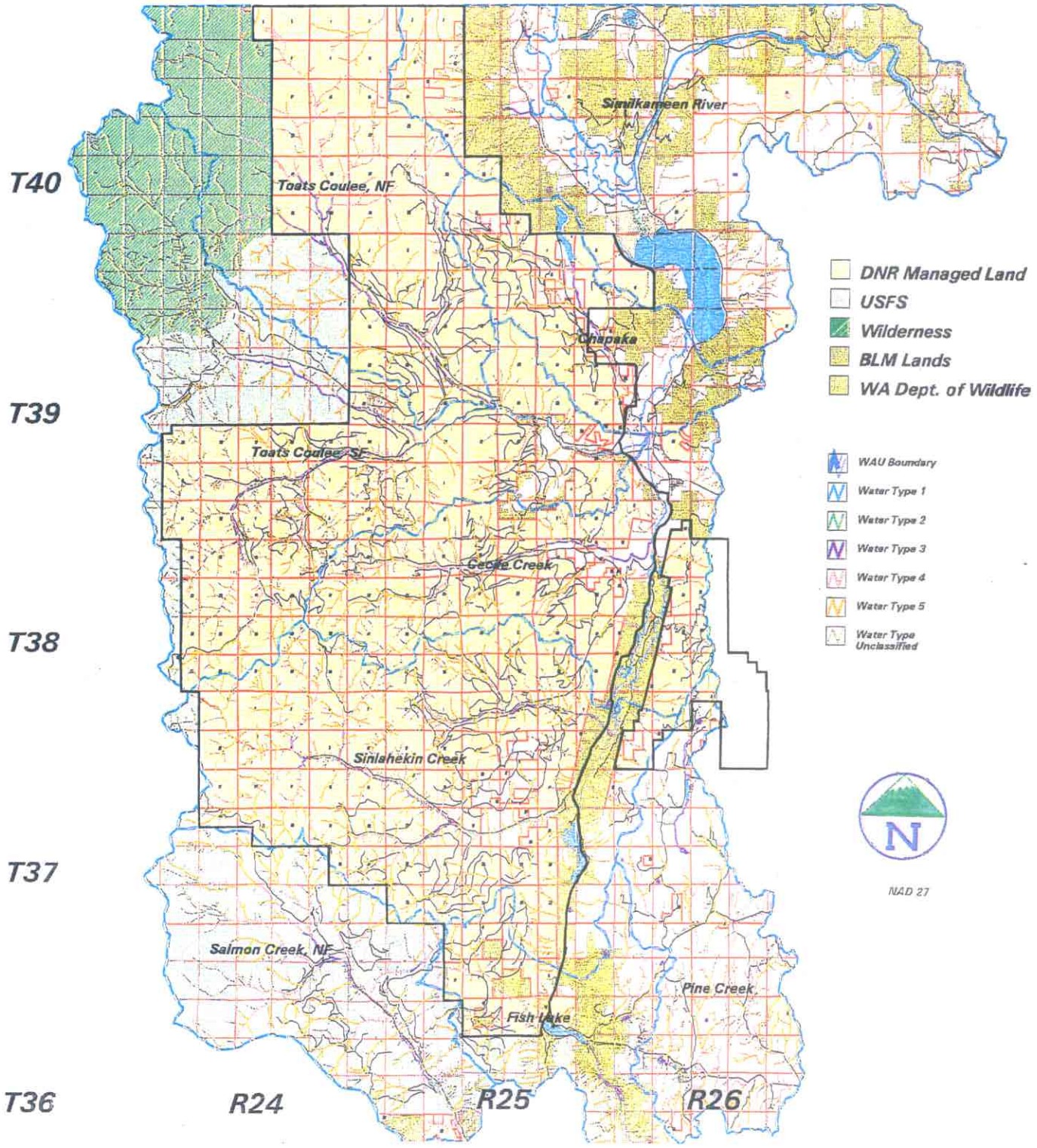
9.4 Disruption of natural hydrologic flow paths will be minimized, including diversion of streamflow and interception of surface and subsurface flow.

9.5 All streams and wetlands within a timber harvest, mining or recreation proposal will be identified and classed correctly during planning, under the forest practices process and coordinated with agencies, Colville Confederated Tribes and adjacent landowners (if affected).

9.6 Known sources of sediment that are causing unacceptable impacts to water quality as a result of management activities will be rehabilitated and stabilized.

9.7 Restore hydrologic maturity of dead and dying stands as rapidly as possible to help maintain quantity and timing of water flow.

LOOMIS STATE FOREST
WATER TYPES
and WAU s



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Extreme care was used during the compilation of this map to insure accuracy. However, due to changes in ownership and the need to rely on outside sources for information, the Department of Natural Resources cannot accept responsibility for errors or omissions, and therefore, there are no warranties which accompany this material.

10. WILDLIFE RESOURCE - Landscape View

Desired Future Condition:

"The Loomis Forest as part of a larger ecosystem contributes to the viability of the existing species of wildlife and a diversity of habitats capable of supporting them."

Planning Concepts to Achieve Desired Future Condition:

"The DNR needs to assure continued habitat capability for those wildlife species which now exist in the Loomis Forest. To achieve this in a working forest which yields commodities will require an integrated landscape planning process. The planning must provide for a mosaic of different wildlife habitats across time in different watersheds as well as post-harvest monitoring of wildlife and vegetation, continued cooperation among state and federal agencies (USFWS, WDF&W, DNR, Okanogan National Forest), governments and partnerships and education with the public" -- Citizen Advisory Committee

It may take the entire planning period to create some of the desired future conditions, and they will not be present in every decade described in Section 3. However, at the end of this planning period, habitat diversity and stability will provide for long-term wildlife conservation.

Groups of wildlife species associated with six vegetation zones and three types of physical components were identified for management emphasis on the Loomis. In accordance with Forest Resource Plan Wildlife Policy #22, the Department will strive to provide those habitat conditions that have the capacity to sustain identified wildlife populations and communities over time.

The landscape guidelines developed for this plan are based upon commonly accepted biological conservation strategies for maintaining biological diversity, ecological processes and functions, and providing connectivity in the landscape. They are based on an ecosystem approach to habitat management which includes assessments of habitat needs within the forest. There are no "reserves" or "set-asides" on Loomis trust lands. However, harvest in areas such as lynx denning habitat may be deferred to meet wildlife requirements. This plan seeks to create habitat conditions which complement and contribute to wildlife and biodiversity conservation strategies being implemented on adjacent federal lands.

The late successional conifer forest interiors and early/middle seral stages are intended to provide well-distributed forest blocks containing varying amounts of key environmental, structural and spatial attributes representative of the variety of late successional forest conditions. Specific details on how late successional habitat characteristics will be maintained across the landscape are discussed in Appendix D of this plan. They are designed to provide for wildlife dispersal and movement among adjacent late successional forest reserves on federal lands, contribute individuals and pairs to populations of animals with large home ranges, sustain rare, locally endemic species, and improve distribution of species with weaker dispersal abilities and small home ranges.

As habitat management strategies and assumptions were designed, the SNAP computer program displayed the potential results through time and space. The results were used to determine how closely assumed management actions would reach desired future conditions. This method of planning will continue as the plan is implemented and information updated. As the plan is implemented, adaptive management will accommodate monitoring results and new information.

The Department follows applicable state and federal laws, and forest practice regulations regarding habitat management for endangered, threatened, and sensitive wildlife species. These requirements have been incorporated into the landscape plan design and analysis. In addition, the department will follow its Lynx Habitat Management Plan when approved by the Forest Practices Board.

The Department, through policy provides a higher degree of protection to wildlife with the intent to prevent future listings of wildlife species. Application of habitat guidelines will help preclude impacts on the trust from possible future listings and avoid potential added regulatory restrictions.

The following habitat guidelines are designed to be compatible with timber production, grazing and other uses of DNR trust lands. When planning management activities, forest managers in collaboration with wildlife biologists and other specialists as needed, will develop site-specific strategies to implement the following guidelines:

Guidelines:

10.1 Manage riparian areas to provide habitat conditions that: (1) meet the needs of associated wildlife species; and (2) provide linkages that function as suitable connective habitat for species associated with late successional interior conifer forests.

10.2 Provide an amount and distribution of dead and damaged live trees, standing and down, in each vegetative community throughout the forest at the following average target levels:

10.2.a Approximately 5 standing dead or damaged low value live trees per acre from largest available.

10.2.b An average of 8 live dominant, co-dominant and large damaged low value trees per acre (size representative of the stand).

10.2.c An average of 5 large down wood components per acre maintained through time, well distributed as fallen trees, at least 12" diameter/small end by 20' long. If large down logs are unavailable, upturned rootwads and/or piled heavy slash (8' x 8' piles of > 5" x 8' pieces) may be substituted. Increase to 10 down wood components per acre within 200' of RMZ's, meadows, deciduous and shrub steppe ecotones. Increase to 15 down wood components per acre within areas managed for late successional characteristics.

10.3 Where rock features (cave, cliff, rimrock, talus, etc.) and associated micro habitats occur, conserve characteristics such as soil stability, native vegetation composition, structure and density, temperature and moisture regimes, and minimize human disturbance.

10.4 Minimize impacts from roads and vehicle use by road closures or abandonment, limiting loop roads, limiting road locations in meadows, deciduous stands greater than 1 acre, riparian areas, wetlands and alpine areas, and maintaining visual buffers of dense brush and sapling trees along active roads.

10.5 Manage approximately 25% of the Douglas fir and subalpine fir (wet and mesic) zones to develop five well distributed large blocks of late successional habitat averaging approximately 2,950 acres each. RMZ's, lynx corridors, lynx denning habitat and inoperable areas may contribute to the make-up of these larger blocks. Block location, shape and composition are depicted conceptually on the following Late Successional Forest map, page 77. Timber harvest within these blocks will be designed to create and/or maintain late successional characteristics by retaining more large trees per acre, increasing RMZ widths, and leaving large woody debris on the ground. Criteria for late successional forest block management and stand management within these blocks is more fully described in Appendix D.

10.6 Manage the remainder of the Douglas fir and subalpine fir zones to develop a mosaic of well distributed stands possessing early, middle and late successional characteristics.

10.6.a Approximately 10% of the area will be comprised of small scattered patches (0.5 to 7 acres) possessing late successional forest characteristics and may include RMZ's, inoperable areas, ecotones and lynx denning sites.

10.6.b The remainder of the area will be managed to maintain a fairly even proportion of early to middle seral stands in each Lynx Analysis Unit (LAU).

10.7 Manage the alpine vegetation zone to:

10.7.a Maintain existing native vegetational communities and structural components (rock, down wood, etc.).

10.7.b Develop and/or maintain approximately 25% of the subalpine forest fringe around alpine areas in stands possessing late successional characteristics (may be incorporated into the late successional blocks described in Guideline 10.5).

10.7.c Manage timber harvest in the remaining adjacent conifer ecotones, (within one tree height) to maintain at least 40% canopy cover and a variety of tree sizes.

10.8 In the ponderosa pine zone retain 4 live ponderosa pine trees per acre of the largest diamenter available

10.9 When managing the ponderosa pine zone:

10.9.a Retain 3 live ponderosa pine trees per acre of the largest diameter available.

10.9.b Retain 3 dead or damaged live trees per acre, two of which are greater that 24" dbh x 40' tall, and the third being greater than 17" dbh x 40' tall (or the largest available if these size requirements can not be met.)

10.10 When managing the shrub steppe vegetation zone:

10.10.a Design grazing management activities to maintain composition and density of native vegetation (vascular and nonvascular) associated with the site's climax vegetation

10.10.b Conserve shrub steppe vegetation and manage adjacent conifer ecotones by managing timber harvest within one tree height to maintain at least 40% canopy cover and a variety of tree sizes

10.11 Conserve deciduous and meadow (shrub, herb, grass) vegetation greater that one acre in size, and manage adjacent conifer ecotones by restricting timber harvest within one tree height to maintain at least 40% canopy cover and a variety of tree sizes.

Lynx Guidelines:

10.12 Provide forested habitat for lynx that includes foraging and denning components through implementation of the Department's Lynx Habitat Management Plan guidelines.

10.12.a Designated travel routes along major ridges, saddles and streams will be maintained. Where the travel routes are naturally forested, maintain forested conditions with a density of ≥ 180 trees per acre on at least one side of the travel route at least 300 feet wide.

Limit harvest activities in corridors along ridges, saddles and streams. When harvest activities occur on ridges and saddles, minimize opening to less than 300'. Use techniques to ensure rapid regeneration and leave forested areas on lower slopes to provide lynx with an alternative travel route.

Avoid placing roads on ridgetops. If roads must be placed on ridgetops due to slope stability or water quality concerns, minimize road width, encourage vegetative cover on both sides of the roads, reduce sight distance, avoid loop connections and close the roads to public vehicles as soon as possible and/or discourage frequent use of such roads.

10.12.b On lands capable of producing forested lynx habitat that are managed by the department (excludes permanently open and sparsely forested areas), manage to maintain the following ratios of habitat for lynx in each LAU:

- a minimum of 70% forested habitat.
- a maximum of 20 - 30% in future forage areas (harvested or burned areas; non-permanent non-lynx habitat).

Denning and foraging components included as forested habitat should be maintained at the following proportions within each LAU:

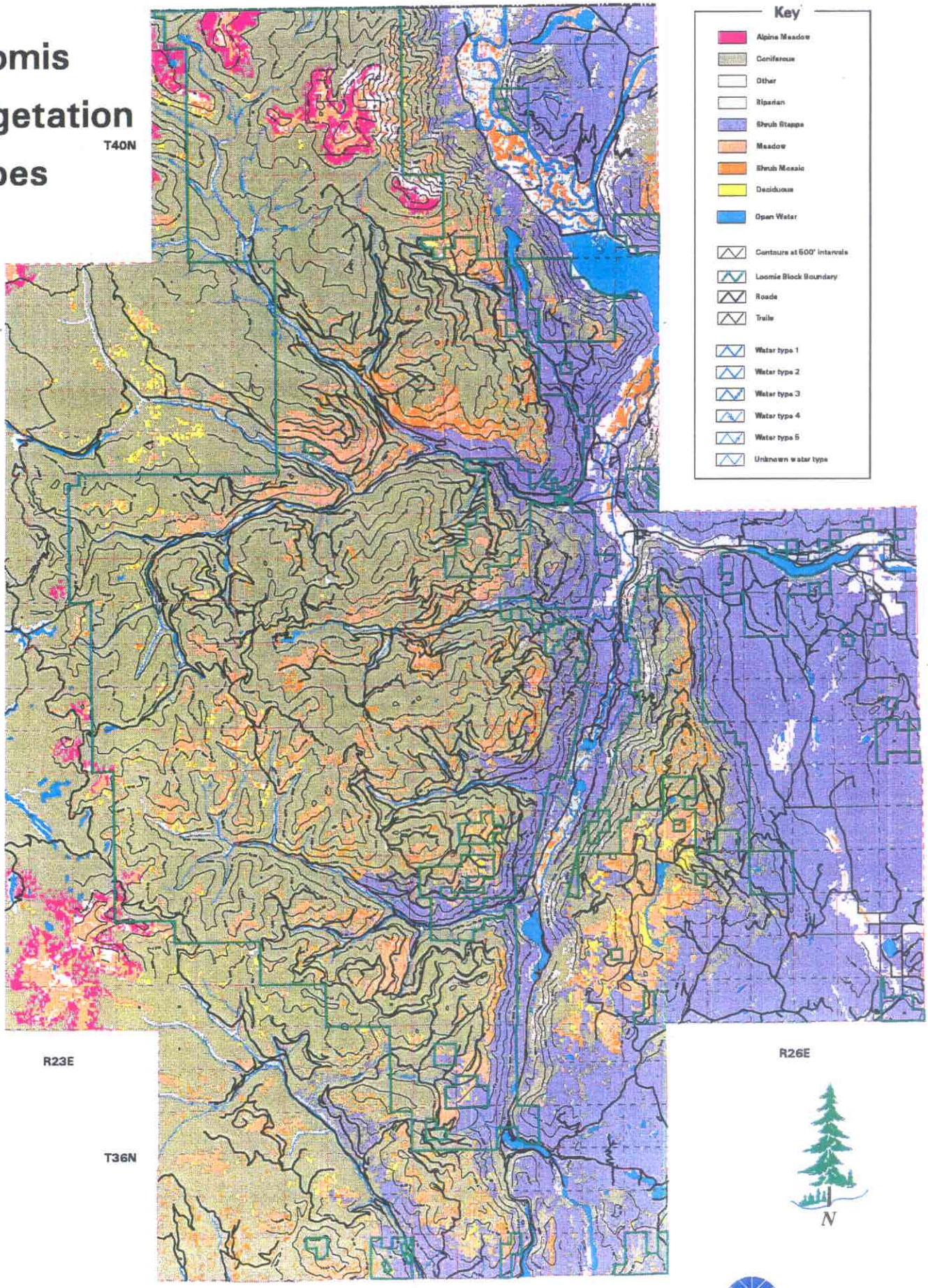
- 20 - 40% in forage (prey) habitat.
- a minimum 10% in denning habitat.

10.12.c Maintain connectivity between forage and denning areas.

- Two denning sites will be provided for lynx per section (mi^2) of each LAU. This will result in denning opportunities for lynx approximately ½ mile apart. If no suitable denning habitat can be found, artificial den sites will be created. Den sites are the physical structures such as piles of jack-strawed logs that lynx may use for denning. Den sites creation will follow protocol developed by the DNR region biologist based on quantified surveys of known den sites.

10.13 High quality shrub steppe, riparian, wetlands, deciduous, and meadow wildlife habitats which have been unacceptably impacted from management actions will be restored where operationally feasible. Restoration activities could include: seeding and planting native grasses; herbs and shrubs associated with those sites; addition of down wood; prescribed fire and; road deactivation.

Loomis Vegetation Types



Source: Landsat Imagery 1989. North Cascades Vegetation Classifications.
Data supplied by the WA Dept. of Fish and Wildlife.

Cartography by K.J.

Map produced: March 28, 1995

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