3.3 WILDLIFE RESOURCES

The following is a summary from the wildlife report (located in the project file). This summary only discusses the effects to wildlife as they are connected to the issues or Federal rules and regulations (Endangered Species Act, National Environmental Policy Act, National Forest Management Act, etc.). Other effects are documented in the wildlife report, Biological Assessment (BA), and Biological Evaluation (BE), also located in the project file and available upon request.

3.3.1 Methodology

The landscape in the Baltimore VMP provides a diversity of habitat that supports a wide variety of wildlife species. In an effort to address this diversity, this analysis focused on key habitat processes and components, species groups, species of concern, and the potential of the proposed alternatives to affect these aspects of the wildlife community.

Topics selected for analysis are those with the greatest potential to influence wildlife populations in the project area and those for which particular concern was expressed during this project. Topics addressed in the wildlife report are as follows:

- Habitat Fragmentation
- Biodiversity
- Old Growth
- Corridors
- Aspen Management
- Snags, Cavities, and Down Woody Debris
- Neotropical Migratory Bird Species
- Threatened, Endangered, and Sensitive Species
- Management Indicator Species

Topics to be discussed in the EIS are as follows:

- Habitat Fragmentation (as it is related to aspen management)
- Biodiversity (as it is related to aspen management)
- Aspen Management
- Threatened, Endangered, and Sensitive Species
- Management Indicator Species

Definitions

Young Forest -- Forest stands ≤ 15 years of age, regardless of tree species composition.

Vertical Diversity -- Within-stand characteristics such as how many canopy layers, complexity of branch and foliage structure, density and complexity of shrub and forb layers.

Structural Diversity -- Within-stand characteristics such as quantity and arrangement of downed wood and cavity trees, diameter distributions of trees, and number of tree species.

Interior Forest -- Intact, closed canopy forest that is far from a hard edge.

3.3.1.1 Habitat Fragmentation

The distribution of open/early-seral habitat, open-canopy mid or late-seral forest, and closed-canopy mid or late-seral forests were evaluated for each alternative to facilitate analysis of habitat fragmentation and potential impacts to habitat.

Open/early seral habitat includes those aspen stands less than 25 years old or non-forest habitat such as wetlands and permanent openings.

Mature open-canopy stands were identified based on forest type, age, and knowledge of the interdisciplinary team. Quaking aspen, bigtooth aspen, paper birch, and mixed aspen stands over 60 years old were assumed to have a mature open canopy.

Mature closed-canopy stands consist of forested stands that are older than 60 years of age and are not jack pine, quaking aspen, bigtooth aspen, paper birch, and mixed aspen

stands. These are the oldest stands in the project area and have a closed canopy.

Note that there are stands that do not meet the characteristics of any of the three categories.

3.3.1.2 Biodiversity

The biodiversity analysis dealt primarily with potential impacts from proposed activities on habitat types (see fragmentation discussion) and possible resulting effects on wildlife species.

Biodiversity includes all forms of life (microorganisms to large vertebrates) at all levels (genes to ecosystems) and all the ecological functions and processes that bind those forms and levels together. Given the complexity of the natural world and all the components that go into biodiversity, it is rather impossible to understand every aspect of biodiversity and all the ways in which human activities impact it. The challenge is to develop resource management plans that are likely to conserve biodiversity based on available knowledge.

National Forest managers emphasize those aspects of biodiversity that we can best understand and evaluate, such as vegetation diversity (structure, age, species…), habitats for wildlife species, and ecosystems. This approach is based on the assumption that if we maintain plants, animals, and their habitats, then their genetics and the ecological processes that connect those species and systems will be maintained as well.

3.3.1.3 Aspen Management

Managing aspen for wildlife is usually done by rotating the stands through four age classes. The aspen management analysis dealt with these four age classes, which are 0-10 years; 10-20 years; 20-40 years; and over 40 years of age. Each age class has advantages for certain wildlife species.

3.3.1.4 Threatened, Endangered, and Sensitive Species (TES)

(See discussion below in Section 3.3.3.4.)

3.3.1.5 Management Indicator Species (MIS)

The MIS analysis dealt with MIS species for which habitat occurs in the project area and considered their habitat requirements. It also dealt with Forest Plan habitat objectives for each of these species and the potential for each alternative to impact that habitat.

3.3.2 Wildlife Resources in the Affected Environment

The majority of the project area is in Management Area 1.1, which is managed primarily for early successional forest species. When considering the project area as a whole (all MAs), 73% of the land it encompasses is National Forest System land. The majority of this land is forested with aspen or an aspen/conifer mix. These acres of aspen forest are diverse due to size, age, distribution on the landscape, and amount of other species growing in the stands. The forested vegetation overall is also diverse due to the other forest types that are intermixed among the aspen types.

3.3.2.1 Area of Potential Effect

The direct and indirect effects analysis was conducted at the project area scale because this is where the effects of the proposed activities would occur.

Most of the proposed management activities would not have any potential measurable impact to habitat more than a few hundred feet outside the immediate harvest area. Some projects could potentially have an impact immediately outside the project area. An example would be improvement to roads to reduce sediment delivery from the transportation system, which in turn would improve water quality in a stream system. Another example would be increasing the deer forage within the project area, which could attract more deer to the area and increase potential browse damage outside the project area.

3.3.3 Direct/Indirect Effects on Wildlife Resources

The effects analysis includes potential effects of doing no new management, proposed timber harvest and site preparation activities, transportation system management (including snowmobile trail reroute), watershed improvement projects, wildlife habitat management projects, and recreation improvement projects.

3.3.3.1 Direct/Indirect Effects on Habitat Fragmentation of All Alternatives

Habitat fragmentation occurs when a large, fairly continuous tract of a vegetation type is converted to other vegetation types, or when a change in land use results in only scattered fragments of the original vegetation type remaining.

The typical result of fragmentation is often a landscape of agriculture or development interspersed with patches of the original forest or grassland habitats. The result is usually a reduction in the amount of the original habitat, reduced habitat quality in the remaining patches, an increase in edge habitat, changes in species composition, and restriction of dispersal and migration for those species with limited ability to move across non-habitat areas.

Fragmentation within the forest environment is less dramatic and impactive than that in agricultural or urban settings. It can refer to dividing the landscape into multiple forest types or seral stages that make patches of a habitat unsuitable for dependent species.

Almost all species are affected to some degree by changes in habitat patterns on the landscape. Within forest fragmentation, edges resulting from management of the landscape are often distinct, sharp edges, while natural edges are typically more gradual or transitional. This difference influences impacts to microclimate and therefore, habitat in adjacent stands. Edge habitat of varying types is beneficial to species that rely on a diversity of habitat types, and detrimental to others that rely on monotypic habitat types.

The distance into a stand that is affected by edge effects determines how much of that stand remains suitable (unaltered) for species dependent on interior habitat characteristics. The unaltered area varies depending on its size and shape, and the adjacent habitat or management. For example, the changes in a stand adjacent to a clearcut are typically more dramatic and continue farther into a stand than those in a similar stand adjacent to a bog.

Management and natural processes in the project area have resulted in open and early-seral habitats interspersed with mid and late-seral forests with both open and closed canopies. The natural open and edge conditions are provided by open wetlands, beaver ponds, and riparian habitats, as well as frost pockets. In many aspen and mixed aspen stands the canopy closure has been reduced by windthrow and mortality due to age and insect infestation. Quaking aspen, bigtooth aspen, paper birch, and mixed aspen stands over 60 years old that are left to natural succession would have an open canopy within the next 5-10 years sufficient to alter microclimate and habitat suitability for some species.

There are approximately 8,010 acres of forest habitat less than 20 years old scattered across the project area. Most of these areas of young forest are less than 40 acres in size and are adjacent to mid and late-seral forest. These stands are all likely to be shorter than the adjacent mid and late-seral stands and could be altering microclimate and other habitat factors in the adjacent stands. This acreage, when combined with riparian habitat, frost pockets, and openings, all contributes to edge habitat in the project area.

Table 3.3.1 below summarizes the habitat fragmentation by alternative. The trailing figure (Figure 3.3.1) depicts the existing aspen age class distribution across the project area, and how the distribution of these age classes is varied.

Table 3.3.1. Summary of Habitat Fragmentation by Alternative for the Project Area.

(Numbers are approximate)

Measure of Fragmentation	Alternative			
	1	2	3	4
Edge (in miles)	89.4	87.3	87.5	87.9
Early Seral Habitat (acres)	9,976	12,152	14,096	12,885
Mature Open Habitat (acres)	8,957	7,010	5,178	5,165
Mature Closed Habitat (acres)	9,521	8,177	7,260	7,260

Note: There are stands that do not meet the characteristics of any of the three categories; therefore, the total acres for each alternative may not be equal.

Fragmentation Summary

All action alternatives would not treat at least 29% of the forested National Forest System land due to Management Area guidelines or Land Suitability Class. Although the action alternatives would result in a reduction in interior forest habitat, retaining 29% of the habitat would allow interior forest species to survive in the project area and to repopulate treated stands as they return to suitable habitat.

All action alternatives would have minimal impact to forest type fragmentation; however, in descending order of seral stage fragmentation, Alternative 3 would fragment the most aspen habitat, followed by Alternative 4, then Alternative 2, and lastly Alternative 1 with no action.

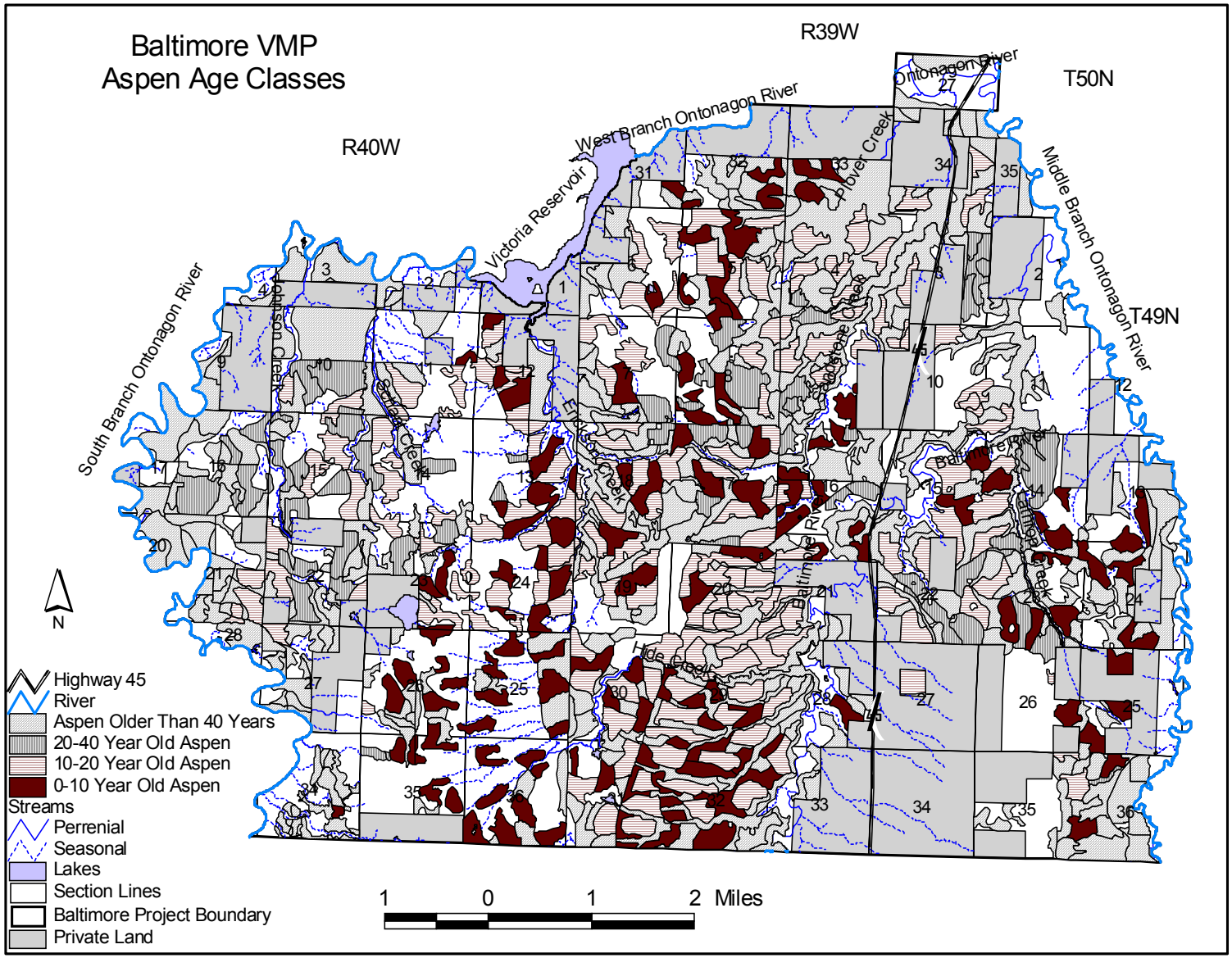

Figure 3.3.1. Existing Aspen Age Class Distribution Across the Baltimore Project Area.

3.3.3.2 Direct/Indirect Effects on Biodiversity of All Alternatives

The project area contains over twenty four species of trees, likely hundreds of species of other plants and fungi, dozens of species of vertebrate wildlife, and an unknown number of insects and other invertebrates. Add in the variety of microorganisms and ecological processes, and the approximate 35,900 acres contained in the project area are diverse indeed.

Biodiversity Summary

All of the action alternatives would provide a diversity of forest habitats across the landscape. Some alternatives provide greater amounts of certain habitat types than other alternatives, but the diversity would still be present. It just is not, however, present in the same proportions under each alternative.

The greatest differences between alternatives are in the amount of early-seral forest created, its distribution across the landscape (see Fragmentation discussion), and the area proposed for conversion toward long-lived species. Effects on biodiversity would be similar to the effects mentioned under fragmentation.

Implementation of Forest Plan objectives and considerations taken for wetland, lake, and stream habitats would all help retain the existing biological diversity that would benefit a number of species.

3.3.3.3 Direct/Indirect Effects on Aspen Management of All Alternatives

In the Pre-settlement era there was approximately 3,760 acres of aspen in the project area, with the remainder being either spruce/fir or hardwoods. The forested landscape and vegetation across the Ottawa National Forest was drastically altered during the logging era of 1880-1920. The conifer and mixed hardwood/conifer forests were cut and extensive slash fires burned the area, sometimes repeatedly.

Aspen is a pioneer tree species that grows well in disturbed areas and reproduces by seed or root suckering. As a result of the logging era, extensive slash fires, and other past management, there are approximately 20,700 acres of aspen or mixed aspen stands in the project area at this time.

Aspen that is clearcut sprouts back from roots and stumps, which can result in a large number of stems per acre and create dense young aspen habitat. Certain wildlife species use this young aspen habitat for certain portions of their life cycle. As the aspen stands age different wildlife use it for different parts of their life cycle as well. Because aspen is self thinning, a fully stocked stand of aspen usually remains on the site as the aspen ages.

When considering stand size, most species prefer 10-20 acre size stands due to the amount of edge and the availability of habitat in adjacent stands. Aspen stands across the project area average 20-30 acres in size. This is mostly due to earlier clearcuts being limited to less than 40 acres in size.

Aspen Summary

Assuming no future management, Alternative 1 would result in the aspen component in the project area being slowly (over 80-120 years) removed from the landscape as the aspen becomes replaced by other species through natural succession. Barring large natural disturbances, the aspen is likely to remain a small component of other stands, but pure aspen stands would be gone. This in turn would eventually create a mature climax forest condition over the long-term.

The action alternatives manage and regenerate various amounts of aspen and would allow it to remain as a pure stand for at least another rotation (approximately 40-60 years). Alternative 3 would manage and regenerate the most aspen in the project area of all alternatives. In the short-term (0-20 years), Alternative 3 would provide the most habitat for wildlife species needing young aspen stands. By maintaining much of the aspen, Alternative 3 would also provide the best opportunity for continued management of such habitat in the future.

The other two action alternatives would provide less young aspen habitat for these species. Most of the aspen stands considered for management under Alternative 2 would be managed for aspen retention, but this would only occur on a portion of the project area. This leaves many of the mature aspen stands unmanaged and subject to natural succession.

Alternative 4 would manage some aspen stands for aspen retention, but would manage most of the mixed aspen stands for longer-lived species. This would return the area towards a mature climax forest condition faster than the no action under Alternative 1.

If no future aspen management is considered, the result of all action alternatives is nearly the same for aspen in the long-term.

3.3.3.4 Effects on Threatened, Endangered, and Sensitive Species of All Alternatives

There is no indication that any alternative would move a threatened, endangered, or sensitive species towards federal listing or increase its present federal listing.

3.3.3.5 Effects on Management Indicator Species (MIS) of All Alternatives

The premise of MIS is that this analysis addresses potential impacts to the individual species and the habitat used by the MIS. This is intended to translate into effects to all other species that rely on that same habitat. Refer to Table 3.3.2 for a summary of the effects on Management Indicator Species and other species relying on the same habitat. More detailed analysis is contained in the wildlife report located in the project file.

Table 3.3.2. Summary of Effects on MIS Species of All Alternatives.

MIS Species	Guild	Species in Guild[1]	Trend on the Forest[2]	Effects from the EIS
Bald Eagle	Lakes and Open Water Wetlands	Herring, Gull, Ring-billed Gull, Bank Swallow, Cliff Swallow, Mink, River Otter	Stable to Increasing	No measurable effect to Forest trend from any alternative due to protection measures.
Osprey	Same as Bald Eagle	Great Blue Heron, Hooded Merganser, Spotted Sandpiper, Alder Flycatcher, Eastern Kingbird, Purple Martin, Tree Swallow, Snapping Turtle	Stable	No measurable effect to Forest trend from any alternative due to protection measures.

MIS Species	Guild	Species in Guild[1]	Trend on the Forest[2]	Effects from the EIS
Goshawk	Poletimber to Mature-sized Northern Hardwood Forest	Cooper's Hawk, Red-tailed Hawk, Rough-legged Hawk, Pileated Woodpecker, Eastern Wood Pewee, Warbling Vireo, Ovenbird, Evening Grosbeak	Stable to Increasing	Short term negative effect to individuals in project area from harvest activity in the action alternatives. Should not affect Forest trend. No measurable effect from Alternative 1.
Barred Owl	Mature and Old Growth Hardwoods, Red Pine, Upland Spruce, Hemlock, and Swamp Conifers	Wood Duck, Red-shouldered Hawk, Great Horned Owl, Yellow-bellied Sapsucker, Chimney Swift, Common Crow, Black Capped Chickadee, Brown Creeper, Wood Thrush, Cedar Waxwing, Canada Warbler, Big Brown Bat, Raccoon, Spotted Salamander, Tree Frog	Stable	Short term negative effect to individuals in project area from harvest activity in the action alternatives. Should not affect Forest trend. No measurable effect from Alternative 1.
Ruffed Grouse	Aspen Habitat and a Variety of Aspen Age Classes	Woodcock, Hairy Woodpecker, Least Flycatcher, House Wren, Gray Catbird, Red-eyed Vireo, Black and White Warbler, Rose-breasted Grosbeak, Short-tailed Shrew, Woodland Jumping Mouse	Stable to Increasing	Alternative 2, 3, and 4 would have minor positive effects on Forest trend from aspen treatment. Alternative 1 would have minor negative effects to Forest trend from no aspen treatment.
Blackburnian Warbler	Mid-aged to Mature Coniferous Habitats	Sharp-shinned Hawk, Spruce Grouse, Black-backed Woodpecker, Gray Jay, Boreal Chickadee, Common Raven, Winter Wren, Golden-crowned Kinglet, Hermit Thrush, Connecticut Warbler, Pine Grosbeak, Purple Finch, Artic Shrew, Hoary Bat, Snowshoe Hare, Red Squirrel	Stable to Increasing	Short term negative effect to individuals in project area from harvest activity in the action alternatives. Should not affect Forest trend. No measurable effect from Alternative 1.

MIS Species	Guild	Species in Guild[1]	Trend on the Forest[2]	Effects from the EIS
American Bittern	Wetland Communities	Least Bittern, Mallard, Northern Pintail, Northern Harrier, Virginia Rail, American Coot, Sandhill Crane, Black Tern, Marsh Wren, Red-winged Blackbird, Northern Water Shrew, Muskrat, American Toad, Leopard Frog, Blanding's Turtle	Stable to Increasing	No measurable effect to Forest trend from any alternative due to riparian guidelines.
Common Loon	Lake Habitat	Ring-neck Duck, Lesser Scaup, Common Goldeneye, Common Merganser, Red-breasted Merganser, Belted Kingfisher	Stable to Increasing	No measurable effect to Forest trend from any alternative. No habitat present.
White-tail Deer	"Generalist" Habitat, Edge Habitat, Disturbed Areas	American Kestrel, Sharptailed Grouse, Killdeer, Mourning Dove, Whip-poor Will, Northern Flicker, Eastern Bluebird, Golden-winged Warbler, Dark-eyed Junco, Song Sparrow, Brown-headed Cowbird, Red Bat, Eastern Cottontail, Meadow Vole, Ermine, Striped Skunk, Eastern Garter Snake	Increasing	Alternative 2, 3, and 4 would have minor positive effects on Forest trend from aspen and conifer treatment. Alternative 1 would have minor negative effects to Forest trend from no aspen treatment.
Black Bear	Remote Habitat	Turkey Vulture, Moose, Meadow Jumping Mouse, Porcupine, Eastern Chipmunk, Northern Flying Squirrel, Coyote, Gray Wolf, Red Fox, Long-tailed Weasel, Lynx, Bobcat, Pine Martin, Fisher, Four-toed Salamander	Stable to Increasing	Alternative 2, 3, and 4 would have minor positive effects on Forest trend from harvest treatment and reducing road density. Alternative 1 would have minor negative effects to Forest trend from not reducing road density and not improving forage with harvest.

MIS Species	Guild	Species in Guild[1]	Trend on the Forest[2]	Effects from the EIS
Brook Trout	Stream Habitat	Common Grackle, Common Yellowthroat, Pickeral Frog, Wood Turtle, Beaver, Lake Sturgeon, Rainbow Trout, Brown Trout, Coho Salmon, Chinook Salmon, Red-sided Dace, Long-nose Sucker, Iowa Darter, Mottled Sculpin	Stable to Increasing	All action alternatives would have a minor positive effect to the Forest trend due to protection measure and repairing road related sediment sources. Alternative 1 would have a minor negative effect on the Forest trend from not treating road related sediment sources.
Smallmouth Bass	Lakes with Clear Rocky Bottom	Lake Trout, Rainbow Smelt, Cisco, Lake Whitefish, Sand Shiner, Mimic Shiner, Rockbass, Black Crappie, Yellow Perch, Walleye	Stable to Increasing	No measurable effect to Forest trend from any alternative due to riparian guidelines.
Northern Pike	Lakes With Marshy Edges and Relatively Warmer Than Smallmouth Bass Lakes	Central Newt, Bull Frog, Chorus Frog, Green Frog, Mink Frog, Painted Turtle, Tiger Musky, Muskellunge, White Sucker, Common Shiner, Bluegill, Largemouth Bass	Stable to Increasing	No measurable effect to Forest trend from any alternative due to riparian guidelines.

[1] This is a representative list of the species in these guilds. A complete list of the species is in the wildlife report located in the project file.

[2] Interpreted from Ottawa National Forest FY 2001 Monitoring and Evaluation Report (Revised June, 2003).

3.3.4 Cumulative Effects to Wildlife and Wildlife Habitat

The scope of this cumulative effects analysis is the project area and other portions of MAs 1.1, 8.1, 9.2 and 9.3 that are connected to the project area. These additional areas were selected because the management in these areas is the same as the project area. The cumulative effects area is also large enough to encompass entire home ranges for most species, as well as large segments of the home range for even the farthest roaming species such as wolves.

The cumulative effects area encompasses approximately 43,600 acres of National Forest System land and approximately 10,400 acres of private land (see Figure 3.3.2 below).

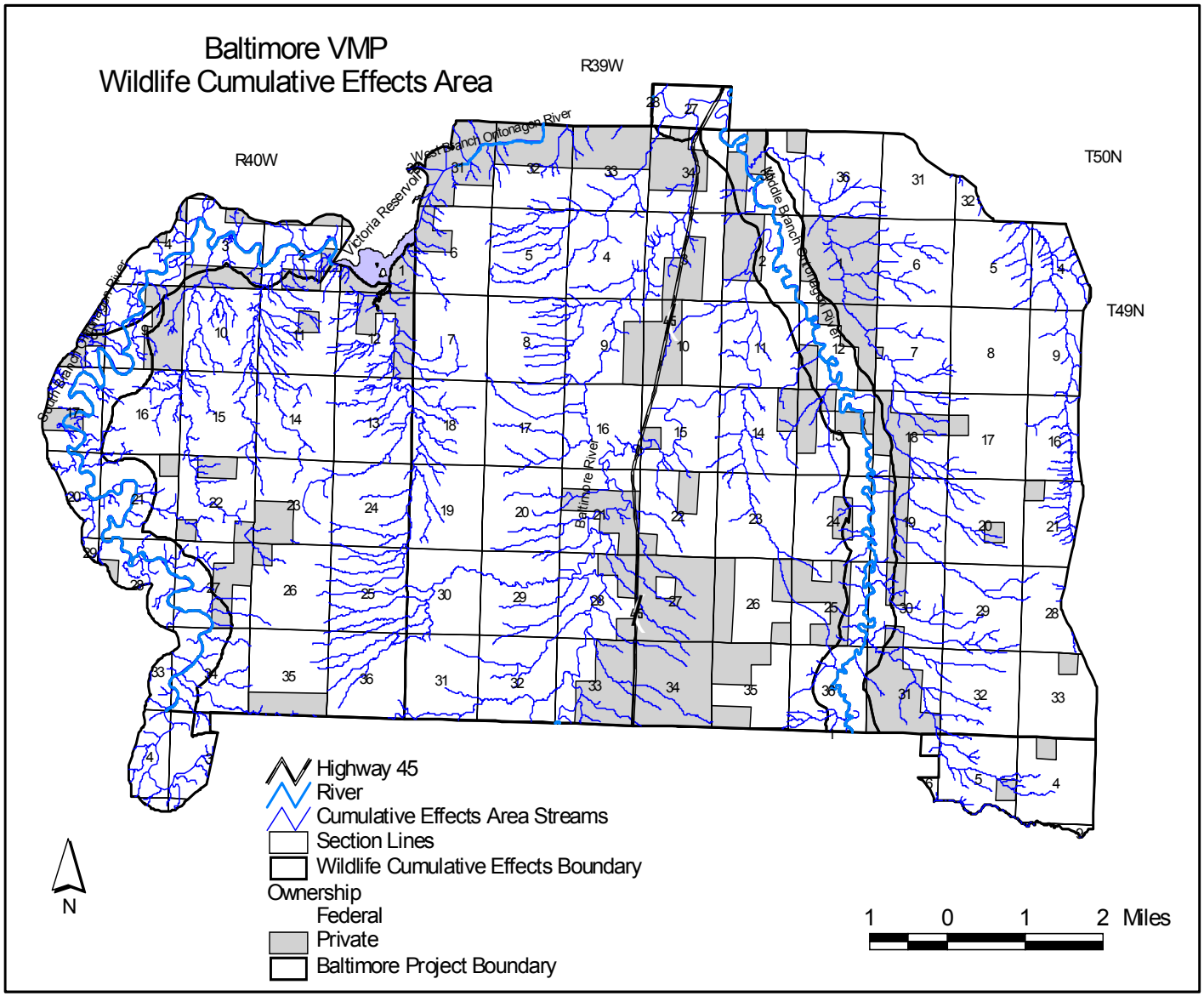

Figure 3.3.2. Wildlife Cumulative Effects Analysis Area.

Approximately 42,100 acres of the National Forest System land in the cumulative effects area is forested, and approximately 910 (2.2 percent) of these acres are currently classified as old growth. The National Forest System land in the cumulative effects area also contains about 1,500 acres (3 percent) of non-forested land (i.e., gravel pits, lowland brush, upland brush, open habitat, roads, rock or cliffs, or open water).

The cumulative effects analysis considered all activities, but only those with the potential to impact wildlife species or their habitat are discussed below.

3.3.4.1 Past, Present, and Reasonably Foreseeable Actions

As previously mentioned, the forested landscape and vegetation across the Forest was drastically altered during the logging era of 1880-1920. The conifer and mixed hardwood/conifer forests were cut and extensive slash fires burned the area, sometimes repeatedly. This drastic alteration of wildlife habitat, in addition to market hunting and direct persecution/exploitation of wildlife by humans, led to the extirpation or reduction of numerous herbivores and predators. Aided by recovery efforts and restoration of habitats, several species and population numbers are now on their way back.

Sharptail grouse have migrated into the area because the logging era created large grassy areas. However, over time the trees have grown in and the available habitat for these birds has decreased. As the trees grew in populations of other species (deer, ruffed grouse, and bear) increased. As these stands aged further and became a more mature climax forest type, species like the pine marten are able to survive and increase their population levels.

National Forest System lands

Past Actions

In the last 24 years (best records available) there have been approximately 13,300 acres of forested land managed in the cumulative effects area. Approximately 8,035 of those acres have been managed in the last 15 years.

In the last 15 years, about 6,880 acres (approximately 17 percent of Federal forested acres) in the cumulative effects area had clearcut, shelterwood, or salvage/sanitation harvest management. These harvest treatments alter landscape patterns and dramatically change habitat suitability for some wildlife species.

Because of the distribution across the landscape, past forest management has increased fragmentation, but has not made enough habitats unsuitable for mature forest species to affect their viability (i.e., species such as barred owl, Blackburnian warbler, and black bears have stable or increasing populations trends). It may have, however, forced some individuals to move to other areas where forest conditions and management emphasize mature forest.

Most of these treatments that caused fragmentation have been in aspen forest types. This fragmentation was a direct result of the 40-acre clearcut limitation. The following is a breakdown of this past management:

Aspen

There are approximately 23,255 acres (about 56 percent of the Federal forested acres) typed as aspen or an aspen mix (see Figure 3.3.3 below). Approximately 6,605 acres of this aspen (28 percent of the aspen or 16 percent of the forested acres) are 0-15 years old.

Hardwoods

There are approximately 11,130 acres (about 27 percent of the Federal forested acres) typed as hardwoods (see Figure 3.3.3 below). Approximately 1,000 of those acres (9 percent of the hardwoods or 2 percent of the Federal forested acres) have been treated or planned for treatment in the last 15 years. The majority of these stands have had a selection harvest to improve stand health.

Conifers

There are approximately 7,085 acres (about 17 percent of the Federal forested acres) typed as conifers (see Figure 3.3.3 below). Approximately 430 of those acres (6 percent of the conifers or 1 percent of the forested acres) have been treated or planned for treatment in the last 15 years. The majority of these stands have been treated by commercial thinning to improve the health of the stands.

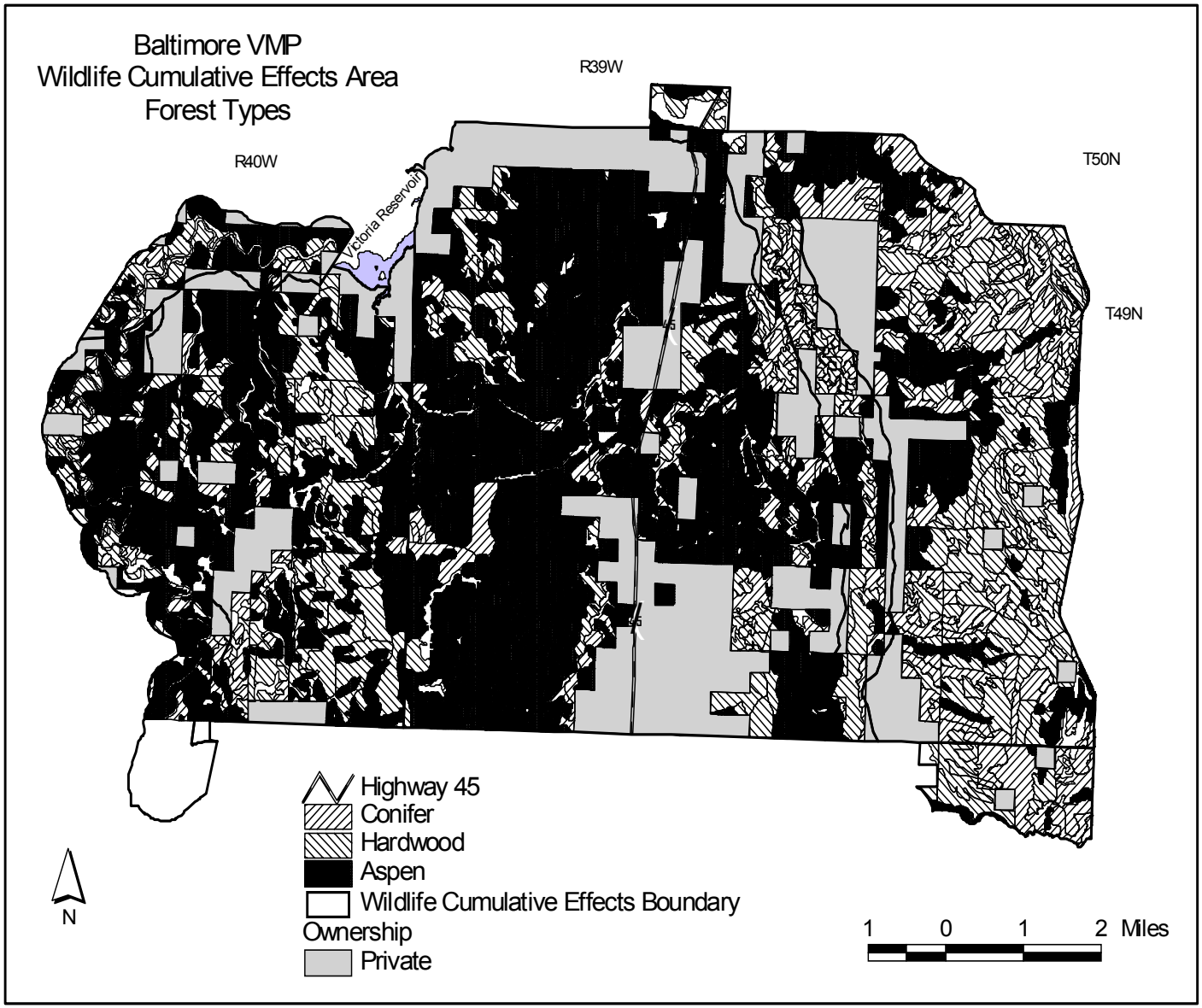

Figure3.3.3. Existing Forest Types in Cumulative Effects Analysis Area.

Private Lands

Past Actions

Clearcutting of aspen and selection harvest of hardwoods has occurred on private lands in the last 15 years; however, most of the known activity has been work on seasonal cabins and year-round residences. These harvests are similar to the harvest activity on Federal lands and effects are expected to be similar.

National Forest System land

Present Actions

The no action alternative would continue the slow trend of converting early successional stands to mature climax stands. For this analysis, assuming that the next logical entry (barring natural disaster) would be in 10 years, approximately 10% of the present aspen mixed stands would no longer be suitable for conversion to aspen.

Cumulatively (if this management style is continued) aspen would slowly be removed from the cumulative effects area as a dominate stand type. Wildlife species using this habitat type would also slowly decrease population size to meet the available habitat. This would naturally reduce the number of hunters that use the area for recreation.

Sediment delivery from the road system would slowly reduce as it heals over time. While this is a minor effect it is an important one to note.

Old Growth

There are 910 acres classified as old growth in the cumulative effects area, which is 2.2 percent of the forested lands.

Early Seral Habitat

There are approximately 11,940 acres (approximately 29 percent of the Federal forested acres) of early seral habitat within the cumulative effects area. The early seral forest types are well situated throughout the cumulative effects area, mostly in small blocks (see Figure 3.3.4 below for a visual representation of where the early seral habitat is located).

Mature Open Canopy Habitat

There are approximately 9,820 acres (approximately 24 percent of the Federal forested acres) of mature open canopy habitat within the cumulative effects area (see Figure 3.3.4 below for a visual representation of where the mature open canopy habitat is located).

Mature Closed Canopy Habitat

There are approximately 19,410 acres (approximately 47 percent of the Federal forested acres) of mature closed canopy stands within the cumulative effects area (see Figure 3.3.4 below for a visual representation of where the mature closed canopy habitat is located). The mature closed canopy forest types are well situated throughout the cumulative effects area, mostly in large blocks.

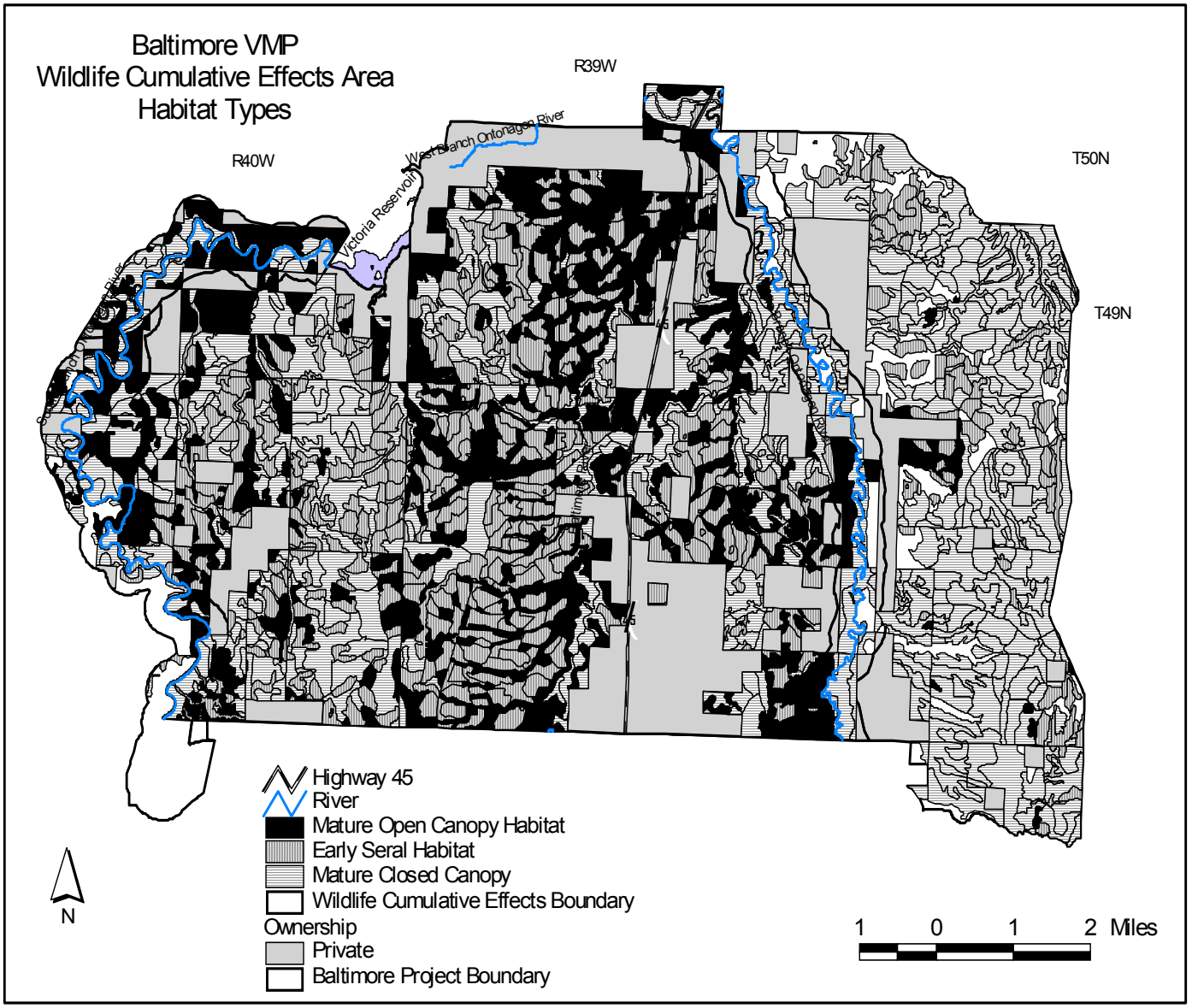

Figure 3.3.4. Existing Habitat Types in Cumulative Effects Analysis Area.

Transportation System

The ONF has been closing and/or repairing roads that have soil or water concerns and closing roads that are not needed for the foreseeable future. This reduction in roads will affect some species, though most of the effect is beneficial.

In the cumulative effects area there are approximately 67 square miles of Federal land. Within this area there are approximately 122 miles of system roads and approximately 100 miles of unclassified roads. This equals 1.8 miles per square mile of system roads and 1.5 miles per square mile of unclassified roads, for a total road density of 3.3 miles per square mile. Considering that there are Wild and Scenic River Corridors within this area (that have few roads), this is a high road density for species that prefer remote habitat such as bear and wolf.

The proposed change to the transportation system in all action alternatives would reduce the road density in the cumulative effects area to approximately 2.6 miles per square mile. This road density is still high for those species that prefer remote habitat. However, the populations of species such as bear and wolf are increasing on the Forest, so this road density should not have any detrimental effect.

Annual road maintenance should have minimal impact on wildlife in the area. Some species may alter movement patterns during this activity, but this should not affect their ability to use the overall area because road management activity would be restricted to a small area at any given time.

Some removal of snags and dying trees near main roads is likely to occur as part of road maintenance; however the number of snags removed would be low, especially relative to the number available in much of the area. Even with the minor loss of dead wood habitat that would occur during timber harvest under all action alternatives due to damage and operational safety concerns, the loss of a few additional snags for safety concerns along roads should not have a significant impact on snag or down woody debris dependent species.

The proposed road construction (including temporary road construction) and reconstruction in the action alternatives would not substantially increase potential disturbance or negatively impact more than a few individuals of any species.

Snags and Down Woody Debris

The amount of down woody debris in unmanaged stands is directly related to the number of snags in the stand. The amount of down woody debris in managed stands is directly related to management. The forest types surveyed across the Ottawa National Forest in the Forest Inventory and Assessment process contain an average of 6.7 snags/acre that are larger than 10 inches DBH (diameter at breast height).

Logging slash from harvest treatment increases the amount of down woody debris. Clearcuts and salvage/sanitation harvest increases the amount more than selection type harvest. Animals such as black bear, chipmunks, mice, and flickers would find suitable habitat in these areas with higher amounts of down woody debris.

Other Activities

The only other activities known or expected to occur in the cumulative effects area in the foreseeable future are recreational pursuits including hunting, trapping, fishing, and ATV and snowmobile use.

Hunting, Trapping, and Fishing

Hunting, trapping, and fishing have been occurring in these areas for centuries. The disturbance levels are highest during firearm deer season, and there is moderate activity during the period allowed for training bear dogs.

Deer, grouse, bear, waterfowl, snowshoe hare, furbearers, and fish species would be affected directly through these harvest activities. Predators and other species dependant on these hunted species would be affected to a lesser degree by the decrease in population numbers from these activities. Population and harvest levels are managed by MI-DNR to

maintain viability of all game species and ensure future harvests.

The impacts of proposed timber harvest on game species should be beneficial (due to increased forage opportunities and less roads), so there should be no negative cumulative effects from these other activities.

Snowmobile and ATV use

Snowmobile and ATV use are other recreational uses that have been occurring in the area for decades. Snowmobiles are used on designated trails, which occur in the cumulative effects area, and on main roads closed to other vehicles by snow. ATVs are used more during fall hunting seasons and use is usually on roads. Occasionally people use snowmobiles and ATVs to explore the forest by riding cross-country.

The amount of this recreational activity is increasing. Wildlife in this area has likely adapted to occasional use of these machines. Nothing in the action alternatives is designed to alter long-term use of ATVs and snowmobiles, so no cumulative effect changes are expected.

Private Lands

Present Actions

Work on seasonal cabins and year-round residences continues to occur. Presently there are no known harvesting activities occurring on private lands within the cumulative effects area.

National Forest System land

Reasonably Foreseeable Future

In the future this area will be looked at again for management needs. Until the Ottawa National Forest Plan is revised all management will be tiered to the present Plan.

It is assumed that the present trends in habitat and wildlife species will continue because MIS are stable or increasing. Therefore, no cumulative effects are expected.

Private Land

Reasonably Foreseeable Future Actions

As timber harvest activities on private land mirror the Forest's harvest (due to market availability), it is assumed that the effects on private land would be similar to effects on National Forest System land. There would be minor differences, such as people not harvesting near camps or cabins, but at the cumulative effects level these differences would not be measurable. Therefore, no cumulative effects are expected.

Summary

All alternatives provide habitat for all species in differing amounts and at different time scales.

Early Seral Habitat

Alternatives 1 and 4 provide the least amount of early seral habitat in both the short-term and the long-term. Alternative 2 provides more early seral habitat in the short-term than these alternatives, and close to the same amount in the long-term. Alternative 3 provides the most early seral habitat in both the short-term and the long-term.

The increase in early seral habitat from pre-settlement conditions has benefited species dependent on that habitat, and on edge habitats, probably enough to alter population levels. If all the past clearcut, shelterwood, and salvage/sanitation harvest had not been accomplished, the population level of species using this early seral habitat (deer, grouse, etc.) would be lower. This would cause a shift in species distribution, with mature forest dependent species concentrating in the remaining blocks of suitable habitat and young forest species expanding into new habitat, especially as other habitat ages.

Mature Habitat

Alternative 1 provides the most mature habitat (older-aged stands) in the short-term (10-15 years) and about the same amount as all action alternatives in the long-term (60+ years) because early seral stands would die and be

replaced naturally. Alternative 4 provides less mature habitat in the short-term, but provides more in the long-term due to improvements in stand growth and health and conversion of stands to longer-lived species. Alternative 2 is in the middle, providing some mature habitat in the short-term and improving stand health and growth in the long-term. Alternative 3 provides the least amount of mature habitat in the short-term (due to the larger amount of aspen treatment), but would provide the most in the mid-term (40-50 years) as the early seral stands that are harvested regenerate and mature.

Conclusion

Except for these differences, all alternatives are very similar at the cumulative effects scale. No alternative would threaten the viability of any wildlife species population, and at the cumulative effects scale they would have little effect on population trends.

Beneficial Impacts

- The impacts of proposed timber harvest on game species should be beneficial (due to increased forage opportunities and less roads);
- Improved road conditions reducing sediment delivery into the streams should be beneficial to aquatic and riparian species;
- Maintaining habitat diversity should be beneficial for all species;
- Improvement to thermal cover for deer should be beneficial.

Negative Impacts

- There would be some reduction in snags numbers;
- There may be harvest activity which damages down woody debris;
- There would be disturbance from harvest activity.

The small differences in proposed road system management, wildlife projects, watershed projects, and recreation projects are not measurable at the cumulative effects scale, so there should be no negative cumulative effects.