

# Wildlife

## Commonly Hunted Big Game

### Introduction

White-tailed deer, mule deer, and elk are MIS for commonly hunted big game species on the Flathead National Forest (USDA 1985). Meeting the habitat needs for white-tailed deer, mule deer, and elk would indicate that the habitat needs for other commonly hunted big game species, such as black bear, mountain lion, and moose, would also be met. Habitat needs that each of these species has in common would include cover (hiding and thermal), forage, and security (Witmer et al. 1998).

Natural disturbances such as fire, wind events, or major insect infestations, and man-caused disturbances, including timber harvest, road construction, agricultural conversion, or residential development, alter the landscape, changing the amount and juxtaposition of cover and forage. These changes affect big game use patterns as they search out forage and cover, and can affect habitat security.

### Analysis Area

#### Spatial Bounds

The Mid Swan Blowdown Salvage Project Area was considered for the evaluation of direct and indirect effects on big game MIS. This approximately 4,480 acre area is large enough to include the home range of several individuals and is representative of the effects of fire, natural tree mortality, timber harvest, and road management across the landscape. The actions proposed in the alternatives that could directly or indirectly affect big game wildlife species are contained within this area. The Upper Swan Valley was considered in the cumulative effects analysis. This area is sufficiently large enough to evaluate the ability of the habitat to support other big game species considered under the MIS umbrella.

#### Temporal Bounds

The length of time for effects from the proposed salvage treatment is approximately 3 to 5 years. This is based on the probable contract length for the proposed salvage project, and the timeframes for related activities.

### Data Sources, Methods, & Assumptions Used

Data used included open road densities, stand exam surveys, aerial photography, VMAP Data, project area field visits, research literature, and GIS and dataset information for features such as riparian habitats, wet areas, old growth stand layers, white-tailed deer winter range, elk winter range, and general forest attributes like habitat type, forest type, canopy cover, elevation, and slope.

## Measurement Indicators

Important considerations for winter range habitat for deer and elk include thermal cover, hiding cover, forage, and general habitat security, especially during hunting season. These elements of big game winter habitat, and the anticipated effects to these elements from project implementation, are the measurement indicators used in this analysis.

## Affected Environment

### Historic Conditions

The Swan Valley has historically provided year-round habitat for deer and elk, as well as for other big game species covered under the MIS umbrella. White-tailed deer habitat consists of a mixture of various forested communities providing cover, foraging habitat, and water within a reasonable distance. While elk and mule deer use similar habitats, white-tailed deer are more closely associated with riparian features than elk or mule deer. White-tailed deer exhibit a broad range of summer and fall habitat use, but are commonly associated with warm and moist mixed-species coniferous forest and lowlands interspersed with aquatic wetlands, meadows, and stream bottoms. The wetland complexes in the Swan Valley, including river and stream riparian zones, fens or peat lands, marshes, vernal pools, ponds and lakes, are quite extensive (SEC 2004). Habitats favored by elk during the summer months include moist parks, meadows, and riparian areas, offering succulent forage and bedding sites. Elk remain on higher elevation summer ranges until forced down to lower elevations by snow and severe weather. Both elk and mule deer are also commonly associated with shrub, seedling, and sapling habitats. Mule deer have similar seasonal habitat and elevational range preference as elk. Like elk, mule deer elevational range is dictated by food availability and weather conditions.

In the past, ungulate populations undoubtedly fluctuated between mild winter years and hard winter years. The use patterns of deer and elk have also undoubtedly shifted as a result of natural disturbances such as wildfire, windfall, and insect infestations, which typically remove or alter hiding cover, thermal cover, and forage. Thermal cover describes the ability of a forested stand to intercept snow and provide winter protection for deer or elk (e.g., shallow snow depths, warmth). Winter thermal cover is very important to white-tailed deer populations. Hiding cover for both deer and elk refers to trees of sufficient size and density to conceal an animal from view at approximately 200 feet. Forage areas, as the name implies, are habitats that provide food for deer and elk.

Historically, there were large patch sizes of thermal cover and hiding cover, interspersed with patches of forage. As mentioned previously, the pattern across the landscape of cover and forage naturally fluctuated in response to winter severity, wildfire, insect and disease, windstorms, etc. Early surveys indicate that the white-tailed deer population in the Swan Valley ranged from approximately 4,000 to 8,000 animals in the 1930s, when surveys were first initiated, up to the 1990s. There are few reliable estimates for elk or mule deer. It was believed that white-tailed deer reached a population high in 1900 to 1915. Large scale logging was at its peak in 1917 (on private land holdings), and it was the opinion of the local people that this reduced cover to such an extent that the deer population suffered (Studies 1976, Freedman 1983, Munding 1982). Munding (1981) described the Swan Valley white-tailed deer population as one that is characterized by low and stable annual turnover and recruitment. He concluded that the population was stable, with an annual recruitment rate of 29 percent, and an annual survival rate of approximately 70 percent.

The Mid Swan Blowdown Salvage Area has historically provided spring, summer, fall, and winter range for white-tailed deer, mule deer, elk, and other big game species. White-tailed deer have probably always been the most numerous of the big game species occurring in the blowdown area and throughout the Swan Valley.

## Existing Conditions

The greatest change from historic to current conditions for deer and elk, throughout the Swan Valley, has been the change in human activity. The level of human activity in the Swan Valley has obviously increased over early settlement and pre-settlement conditions. The result of increased human activity has been an increase in the amount of timber harvest, road construction, recreational use (hunting), residential development, grazing, and agriculture. Residential and agricultural developments have permanently altered potential deer and elk habitats. Timber harvest across the valley has altered the amount and juxtaposition of thermal cover, hiding cover, and forage. Timber harvest typically removes big game cover and creates foraging areas by reverting forest succession to its earliest stage. As these foraging areas go through succession and become reforested, they again begin to provide cover; first hiding and then thermal cover. Where cover exceeds forage by a wide margin, removal of cover may enhance deer and elk habitat by increasing edge, increasing diversity, and increasing forage. In contrast, when an adequate distribution of cover is not present, additional removal of cover can reduce habitat values for deer and elk. The blocks of cover were more connected in the absence of timber management and residential development (SEC 2004).

The increase in miles of road, largely a result of land management activities, has resulted in a decrease in security for deer and elk, especially during hunting season. Security was higher in the absence of extensive road building and recreational hunting. Road closures for grizzly bear management in the Swan Valley have undoubtedly benefited both deer and elk.

In 1986, the Flathead Forest Plan allocated approximately 12,000 acres of NFS land in the Upper Swan Valley as white-tailed deer winter range (MA 9). These lands are to be managed with an emphasis on providing cover and forage areas suitable for white-tailed deer winter habitat. The management standard for winter range areas (MA 9) is to maintain thermal cover on at least 50 percent of the designated winter range area. In the cumulative effects area, from Van Lake in the north to Cooney Creek in the south, there are approximately 10,000 acres of designated white-tailed deer winter range. On this winter range, the existing amount of thermal cover is approximately 54 percent. This figure takes into account logging activity in the Meadow Smith and Cooney McKay Projects (as if they were completed), and includes a decrease in thermal cover as a result of the recent wind event.

The Forest Plan has also allocated lands in the Swan Valley as elk and mule deer winter range areas (MA 13). There is no designated elk and mule deer winter range in the Mid Swan Blowdown Salvage Project Area.

White-tailed deer sightings are common and their numbers are thought to be stable (MDFW&P 2007). Based on 2007 post-hunting season data, MDFW&P estimates that there were between 4,240 to 6,360 white-tailed deer in the Swan Valley (Hunting District 130). They estimated mule deer populations in the Swan at 144 to 216 based on 2007 post-hunting season data. The population size estimates were generated using a population reconstruction model based on bucks and does harvested. The range represents a 20 percent confidence interval. The estimates for Region One (northwestern Montana) were 9,464 to 14,196 mule deer and approximately 54,680 to 82,020 white-tailed deer. Elk numbers in the Swan Valley were estimated at between 270 to 330 individuals (10 percent confidence interval). The estimates for Region One were approximately 9,698 to 11,853 elk. The elk population estimate was generated by MDFW&P based on ground and aerial survey information, anecdotal reports, and professional judgment.

## Environmental Consequences

The Mid Swan Salvage Blowdown Project consists of three alternatives and a No Action Alternative. The alternatives are described in detail in Chapter 2 of this EA. The Cumulative Effects Worksheet, located in the Wildlife Project File (Project File Exhibit F-12) considers and describes proposed

activities in addition to past, current, and reasonably foreseeable activities listed at the beginning of this chapter in Tables 3-1 and 3-2. Those activities that cumulatively contribute indiscernible effects to Big Game Species are not included in this section. Those activities that cumulatively affect these species are discussed below.

***Alternative A - No Action  
Direct, Indirect, and Cumulative Effects***

There would be no proposed blowdown salvage under this alternative. There would be no direct effects to existing hiding cover and thermal cover; no direct effects to white-tailed deer or elk/mule deer winter range as a result of implementing Alternative A. The occurrence and abundance of forage and cover would fluctuate and change over time as the area progresses through various successional stages. Security for white-tailed deer and elk/mule deer would remain the same. There would be no changes in the level of general motorized access, or hunting access.

Indirectly, if a wildfire were to burn across an area with large accumulations of blowdown, the burn intensity would likely be greater, increasing the risk under Alternative A of a decrease in hiding and thermal cover. The likelihood of this happening would depend on when and where a wildfire might occur, the weather at the time, slope, aspect, etc.

Changes in landownership and continued likely increases in human occupancy of private lands in the Swan Valley could lead to more human use and possible associated disturbance of deer and elk, even under Alternative A. However, nothing about the No Action Alternative is likely to interact with these in such a way as to cumulatively increase impact beyond that which would intrinsically exist independent of this alternative.

***Alternative B  
Direct and Indirect Effects***

**Thermal Cover**

All of the salvage units in Alternative B are located on lands designated as MA 9 with a small amount of MA5 (visual from Highway 83) also included in Unit 23. Implementation of Alternative B would not decrease the existing amount of thermal cover on white-tailed deer winter range because live overstory trees (e.g., canopy cover) are not targeted for removal. There may be some incidental removal of green trees for skid trails or temporary roads if needed, but very little green tree removal is anticipated. The effects associated with this possibility are very small and would not contribute to any measureable decrease in thermal cover. Forest Plan standards for white-tailed deer winter range would be adhered to; a minimum of at least 50 percent thermal cover would be maintained across the white-tailed deer winter range in the Swan Valley.

**Hiding Cover**

Most of the mature and immature forest stands where blowdown salvage is proposed currently provide hiding cover for big game species, including deer and elk. Hiding cover for deer and elk would be retained in the salvage units. Only blowdown trees are targeted for removal. There may be a slight, short-term decrease in hiding cover as a result of ground disturbance during the removal of the logs. This potential decrease would not be significant. Currently, hiding cover is not a limiting factor in the blowdown area. There is approximately 70 percent hiding cover on NFS lands in the Lion Creek Area and approximately 66 percent hiding cover on PCTC lands (Project File Exhibit F-10). Refer to Map 3-4 for a display of hiding cover in the analysis area. Vegetative screening would be retained along open roads in the project area (Project File Exhibit F-10).

## **Forage**

The forest stands where blowdown salvage is proposed offer foraging opportunities for deer and elk, although vegetative forage may be limited where thicker canopy cover occurs. The proposed salvage of blowdown trees would initially decrease the amount of available forage due to ground disturbance; forage opportunities would increase over existing conditions within 1 to 5 years as a greater amount of sunlight and moisture reach the forest floor. As with hiding cover, forage is not limiting across the project area.

## **Habitat Security**

There is a potential for short-term displacement of deer and elk from the immediate area during proposed salvage under Alternative B. It is expected that deer and elk use patterns would change slightly as the animals avoid areas of high human activity.

There is no permanent road construction under Alternative B; however, 0.3 miles of temporary road and 1.0 mile of use of historic road templates would be needed to access treatment units. Proposed temporary roads would be reclaimed following use. Existing open roads and closed roads would be used to salvage blowdown in the various proposed units. Use of open roads would not be a change from the existing condition. Vegetative screening would be maintained along open roads. This would help to provide habitat security for deer and elk, especially during hunting season. Roads that are currently closed, but that would be used for proposed activities, would be closed to the public during the time that they are used for salvage activities.

Under Alternative B, there would be salvage of blowdown in old growth forest stands and in RHCAs, important components of deer and elk habitat. If these areas presently provide cover, forage, and security, they would continue to do so following salvage activities, but there is a greater potential for short-term displacement in these habitats.

Design Criteria in place for grizzly bear protection would benefit deer and elk, and other big game species. For instance, in order to avoid potential disturbance of grizzly bears in important spring habitat, salvage activities would not occur within the spring period (April 1 through June 15). This timing restriction would apply to all of the salvage units in Alternative B and would be beneficial to deer and elk (See Design Criteria, Table 2-14).

## ***Alternative B Cumulative Effects***

The Mid Swan Blowdown Salvage Project is located near the community of Condon, Montana. There are part-year and yearlong residences in the area, as well as other established human activities, including residential development, recreational trails, firewood cutting, hunting, various road use permits and easements, ongoing outfitter guide permits, and a major highway. The level of human activity in the area increases the chance for disturbance or displacement of wildlife species and decreases security levels for most wildlife species, including white-tailed deer, mule deer, and elk. Road closures in effect for grizzly bear have helped to mitigate this situation and provide security for deer and elk.

Timber harvest activities on PCTC lands and on NFS lands in the Swan Valley peaked during the mid to late 1980s, although lower levels of timber harvest continue up to the present on all ownership lands. Timber harvest activities in the area have decreased and/or fragmented hiding cover, thermal cover, and forage. Other ongoing forest management projects occurring on NFS lands in the vicinity of the Mid Swan Blowdown Salvage Project include the Meadow Smith and Cooney McKay Projects. Cumulative effects in the blowdown analysis area include the effects of these projects, as well as ongoing and proposed timber harvest on PCTC lands.

Recently, PCTC has offered up tracts of land in the Swan Valley for sale to the Forest Service, conservation buyers, and other private individuals. There is a concern that the increase in private parcels of land in the Swan Valley may further fragment wildlife habitat. Many of the land sales by PCTC have been to conservation buyers, which should help mitigate some of the effects to wildlife that are associated with private land development. In addition, it is anticipated that, in the future, this condition would improve due to the Montana Legacy Project, a project whereby many of the PCTC sections in the Swan Valley have been purchased by The Nature Conservancy and The Trust for Public Land, to be eventually conveyed to the Forest Service. This future land conveyance would create larger blocks of public land that can be managed in larger patch sizes to maintain natural landscape linkages. The Lands Section of this chapter provides a detailed discussion of this change in land ownership.

The activities proposed under Alternative B of the Mid Swan Blowdown Salvage Project, in conjunction with effects discussed in this section, would not cause significant negative cumulative effects to the white-tailed deer, mule deer, or elk population because:

1. White-tailed deer, mule deer, and elk are all widespread species with high population numbers (Project File F-4);
2. Big game habitat is quite diverse and widespread across the Flathead National Forest;
3. The Mid Swan Blowdown Salvage Project would not significantly decrease thermal cover, hiding cover, or forage across the project area;
4. Forest Plan standards for white-tailed deer winter range would be adhered to and a minimum of at least 50 percent thermal cover would be maintained across the white-tailed deer winter range in the Swan Valley; and
5. Forest management standards in place on the Flathead National Forest provide the habitat composition, structure, and processes necessary for big game habitat needs.

### ***Alternative C*** ***Direct and Indirect Effects***

#### **Thermal Cover**

Even though all of the salvage units in Alternative C are located on lands designated as MA 9, implementation of Alternative C would not decrease the existing amount of thermal cover on white-tailed deer winter range because live overstory trees (e.g., canopy cover) are not targeted for removal.

#### **Hiding Cover**

Only blowdown trees are targeted for removal. There may be a slight, short-term decrease in hiding cover as a result of ground disturbance during the removal of the logs; this potential decrease would not be significant. Currently, hiding cover is not a limiting factor in the blowdown area. There is approximately 70 percent hiding cover on NFS lands in the Lion Creek Area and approximately 66 percent hiding cover on PCTC lands (Project File Exhibit F-10). Vegetative screening would be retained along open roads in the project area (Project File Exhibit F-10).

#### **Forage**

The proposed salvage of blowdown trees would initially decrease the amount of available forage due to ground disturbance; forage opportunities would increase over existing conditions within 1 to 5

years as a greater amount of sunlight and moisture reach the forest floor. As with hiding cover, forage is not limiting across the project area.

### **Habitat Security**

There is a potential for short-term displacement of deer and elk from the immediate area during proposed salvage under Alternative C. It is expected that deer and elk use patterns would change slightly as the animals avoid areas of high human activity.

There is no permanent road construction under Alternative C; however approximately 0.5 miles of use of historic road templates would be needed to access treatment units. Temporary roads would be reclaimed following use. Existing open roads and closed roads would be used to salvage blowdown in the various proposed units. Use of open roads would not be a change from the existing condition. Vegetative screening would be maintained along open roads. This would help to provide habitat security for deer and elk, especially during hunting season. Roads that are currently closed, but that would be used for proposed activities, would be closed to the public during the time that they are used for salvage activities.

Under Alternative C, there would be no salvage of blowdown in old growth forest stands, important components of deer and elk habitat.

Design Criteria in place for grizzly bear protection would benefit deer and elk, and other big game species. For instance, in order to avoid potential disturbance of grizzly bears in important spring habitat, salvage activities will not occur within the spring period (April 1 through June 15). This timing restriction would apply to all of the salvage units in Alternative C and would be beneficial to deer and elk.

### ***Alternative C*** ***Cumulative Effects***

As described above under Alternative B, the level of human activity in the area increases the chance for disturbance or displacement of wildlife species and decreases security levels for most wildlife species, including white-tailed deer, mule deer, and elk.

Timber harvest activities in the area have decreased and/or fragmented hiding cover, thermal cover, and forage. Other ongoing forest management projects occurring on NFS lands in the vicinity of the Mid Swan Blowdown Salvage Project include the Meadow Smith and Cooney McKay Projects. Cumulative effects in the blowdown analysis area include the effects of these projects, as well as ongoing and proposed timber harvest on PCTC lands.

There is a concern that the increase in private parcels of land in the Swan Valley may further fragment wildlife habitat. It is anticipated, however that, in the future, this condition would improve due to the Montana Legacy Project, a project whereby many of the PCTC sections in the Swan Valley have been purchased by The Nature Conservancy and The Trust for Public Land, to be eventually conveyed to the Forest Service.

The activities proposed under Alternative C of the Mid Swan Blowdown Salvage Project would not cause significant negative cumulative effects to white-tailed deer, mule deer, or elk populations because:

1. White-tailed deer, mule deer, and elk are all widespread species with high population numbers (Project File F-4);
2. Big game habitat is quite diverse and widespread across the Flathead National Forest;

3. The Mid Swan Blowdown Salvage Project would not significantly decrease thermal cover, hiding cover, or forage across the project area;
4. Forest Plan standards for white-tailed deer winter range would be adhered to and a minimum of at least 50 percent thermal cover would be maintained across the white-tailed deer winter range in the Swan Valley; and
5. Forest management standards in place on the Flathead National Forest provide the habitat composition, structure, and processes necessary for big game habitat needs.

### ***Alternative D Direct and Indirect Effects***

#### **Thermal Cover**

The salvage units in Alternative D are located on lands designated MA-9. Implementation of Alternative D would not decrease the existing amount of thermal cover on white-tailed deer winter range because no live overstory trees (e.g., canopy cover) would be removed. There is no proposed blowdown salvage in MA 13 under Alternative D.

#### **Hiding Cover**

Hiding cover for deer and elk would be retained in the salvage units. Only blowdown trees are targeted for removal. There may be a slight, short-term decrease in hiding cover as a result of ground disturbance during the removal of the logs. This potential decrease would not be significant.

#### **Forage**

The proposed salvage of blowdown trees would initially decrease the amount of available forage due to ground disturbance; forage opportunities would increase over existing conditions within 1 to 5 years as a greater amount of sunlight and moisture reach the forest floor. As with hiding cover, forage is not limiting across the project area.

#### **Habitat Security**

There is a potential for short-term displacement of deer and elk from the immediate area during proposed salvage under Alternative D. It is expected that deer and elk use patterns would change slightly as the animals avoid areas of high human activity.

Under Alternative D, there would be salvage of blowdown in old growth forest stands, an important component of deer and elk habitat. If these old growth habitats presently provide cover, forage, and security, they would continue to do so following salvage activities, but there is a greater potential for short-term displacement in these important habitats. Under Alternative D, there would be no salvage of blowdown from RHCAs. These riparian areas are preferentially used by big game species, especially white-tailed deer. There would be less potential disturbance to deer and elk by deferring salvage in the RHCAs.

There is no permanent road construction under Alternative D; however, approximately 0.1 miles of temporary road construction and 1.0 mile of use of historic road templates would be needed to access treatment units. Proposed temporary roads would be reclaimed following use. Vegetative screening would be maintained along open roads. This would help to provide habitat security for deer and elk, especially during hunting season. Roads that are currently closed, but that would be used for proposed activities, would be closed to the general public during the time that they are used for salvage activities.

Design Criteria in place for grizzly bear protection would benefit deer and elk, and other big game species (e.g., spring timing restrictions and road closures).

### ***Alternative D Cumulative Effects***

The Mid Swan Blowdown Salvage Project is located near the community of Condon, Montana. There are part-year and yearlong residences in the area, as well as other established human activities, including residential development, recreational trails, firewood cutting, hunting, various road use permits and easements, ongoing outfitter guide permits, and a major highway. The level of human activity in the area increases the chance for disturbance or displacement of wildlife species and decreases security levels for most wildlife species, including white-tailed deer, mule deer, and elk. Road closures in effect for grizzly bear have helped to mitigate this situation and provide security for deer and elk.

Timber harvest activities in the area have decreased and/or fragmented hiding cover, thermal cover, and forage. Other ongoing forest management projects occurring on NFS lands in the vicinity of the Mid Swan Blowdown Salvage Project include the Meadow Smith and Cooney McKay Projects. Cumulative effects in the blowdown analysis area include the effects of these projects, as well as ongoing and proposed timber harvest on PCTC lands.

Recently, PCTC has offered up tracts of land in the Swan Valley for sale to the Forest Service, conservation buyers, and other private individuals. There is a concern that the increase in private parcels of land in the Swan Valley could further fragment wildlife habitat. Many of the land sales by PCTC have been to conservation buyers, which should help mitigate some of the effects to wildlife that are associated with private land development. It is anticipated that the Montana Legacy Project would create larger blocks of public land in the future that can be managed in larger patch sizes.

The activities proposed under Alternative D of the Mid Swan Blowdown Salvage Project, in conjunction with effects discussed in this section, would not cause significant negative cumulative effects to the white-tailed deer, mule deer, or elk population because:

1. White-tailed deer, mule deer, and elk are all widespread species with high population numbers (Project File F-4);
2. Big game habitat is quite diverse and widespread across the Flathead National Forest;
3. The Mid Swan Blowdown Salvage Project would not significantly decrease thermal cover, hiding cover, or forage across the project area;
4. Forest Plan standards for white-tailed deer winter range would be adhered to and a minimum of at least 50 percent thermal cover would be maintained across the white-tailed deer winter range in the Swan Valley; and
5. Forest management standards in place on the Flathead National Forest provide the habitat composition, structure, and processes necessary for big game habitat needs.

## **Regulatory Framework and Consistency**

Amendment 21 to the Forest Plan establishes a Forest-wide goal to “provide appropriate habitat and access to maintain desired hunting, fishing, and viewing opportunities, in coordination with the Montana Department of Fish, Wildlife and Parks.” The Forest Plan has identified white-tailed deer, elk, and mule deer as Commonly Hunted Big Game Management Indicator Species that use general forest habitat. Conditions favorable to these species would generally also benefit other big game

species found within the project area, such as moose, black bear, and mountain lion, which are considered under the umbrella of MIS evaluation. Goals, objectives, and standards in the Forest Plan, specific to managing white-tailed deer, elk, and mule deer have been followed in the preparation and analysis of the Mid Swan Blowdown Salvage Project.

For each of the alternatives, there appears to be little risk of population loss. Alternatives A and C would have the least impact on white-tailed deer, mule deer, elk, and other big game species, followed by Alternative D and Alternative B.