

**Appendix B for the Objection filed against the Selway
Saginaw Vegetation Project by Native Ecosystems Council
and the Alliance for the Wild Rockies on August 7, 2023.**

Appendix B contains descriptions of the wildlife values that exist in the Selway Saginaw Project Area for birds associated with conifer forests, including both old growth and snag forests, wooded-shrublands and shrublands. The importance of sagebrush for the Pygmy Rabbit, elk and mule deer is also addressed. References cited in this appendix are provided in Appendix A of this Objection.

A. Western forest birds likely present in the Selway Saginaw Project Area as per Skaar 1996: (*) indicates is a neotropical migratory bird; includes 63 forest bird species, 31 which are neotropical migratory birds (Skaar 1996); includes 11 forest raptors.

Forest Hawks:

Sharp-shinned Hawk*

Cooper's Hawk*

Northern Goshawk*

Red-tailed Hawk*

American Kestrel*

Forest Owls:

Flammulated Owl*

Great Horned Owl

Northern Pygmy Owl

Great Gray Owl

Boreal Owl

Northern Saw-whet Owl

Forest Songbirds:

Chipping Sparrow*

Evening Grosbeak

Clark's Nutcracker

Pine Grosbeak

Varied Thrush

Hermit Thrush*
Rufous Hummingbird*
Brown Creeper*
Lewis's Woodpecker*
Pileated Woodpecker
Red-naped Sapsucker*
Williamson's Sapsucker*
Hairy Woodpecker
Three-toed Woodpecker
Black-backed Woodpecker
Northern Flicker*
Olive-sided Flycatcher*
Western Wood Pewee*
Hammond's Flycatcher*
Dusky Flycatcher*
Tree Swallow*
Violet-green Swallow*
Black-headed Grosbeak*
Dark-eyed Junco*
Slate-colored Junco*
Red Crossbill
Pine Siskin*
Gray Jay
Stellar's Jay

Common Raven
Black-capped Chickadee
Mountain Chickadee
Red-breasted Nuthatch
White-breasted Nuthatch
House Wren*
Winter Wren
Golden-crowned Kinglet*
Ruby-crowned Kinglet*
Townsend's Solitaire*
Veery*
Swainson's Thrush*
American Robin*
Cedar Waxwing*
Solitary Vireo*
Warbling Vireo*
Orange-crowned Warbler*
Yellow Warbler*
Yellow-rumped Warbler*
Townsend's Warbler*
Western Tanager*
Wilson's Warbler*
Brown-headed Cowbird*

B. Western birds associated with wooded-shrublands and shrublands likely present in the Selway Sagninaw Project Area as per Skaar (1996): (*) indicates is a neotropical migratory bird; 6 of these species are MOC (Ferruginous Hawk, Golden Eagle, Brewer's Sparrow, Cassin's Finch, Sage Thrasher, and Greater Sage-Grouse). The Short-eared Owl and Northern Harrier are USFWS BCC in the adjacent Great Basin Region (9). In Utah, the Ferruginous Hawk, Golden Eagle, Greater Sage-grouse are Species of Greatest Conservation Need (2021). In Idaho, the Short-eared Owl, Ferruginous Hawk and Golden Eagle are Species of Greatest Conservation Need (2016).

Hawks:

Ferruginous Hawk*
Prairie Falcon*
Merlin*
Short-eared Owl*
Northern Harrier*
Golden Eagle*
Swainson's Hawk*
Burrowing Owl*

Songbirds:

Brewer's Sparrow*
Cassin's Finch*
Sage Thrasher*
Greater Sage-grouse
White-crowned Sparrow*
Spotted Towhee*
Lazuli Bunting*
Mountain Bluebird*

The Cassin's Finch, Merlin, Mountain Bluebird, and to some extent, the Ferruginous Hawk depend upon trees for nesting.

C. Montana Western Forest Birds associated with old growth as per USDA (2018) and USDA (1990) likely present in Selway Sagninaw Project Area as per Skaar (1996); (*) indicates a Montana Species of Concern; () indicates Bird of Conservation Concern for USFWS; includes 20 bird species, 8 which are species of conservation concern. In Idaho, the Great Gray Owl and Lewis's Woodpecker are considered Species of Greatest Conservation Need (Idaho Department of Fish & Game 2022). In Utah, the Boreal Owl and Lewis's Woodpecker are Species of Greatest Conservation Need (2021). In Utah Region 4 USFS, the Three-toed Woodpecker, Northern Goshawk and Flammulated Owl are considered sensitive species (USDA 2022).**

Great Gray Owl*	Red-breasted Nuthatch
Boreal Owl	Varied Thrush
Flammulated Owl*	Hermit Thrush
Lewis's Woodpecker*	Swainson's Thrush
Black-backed Woodpecker*	Pine Grosbeak
Three-toed Woodpecker	Townsend's Warbler
Hairy Woodpecker	Winter Wren
Pileated Woodpecker*	
Williamson's Sapsucker**	
Northern Goshawk*	
Brown Creeper*	
Golden-crowned Kinglet	
Hammond's Flycatcher	

D. Western Forest Birds associated with snag habitat as per USDA (2918) and USDA (1990); presence in project area based on Skaar (1996); (*) indicates is a Montana Species of Concern (SOC); () indicates a USFWS Bird of Conservation Concern (BCC) and “tipping point” species; these birds total 23 species of forest birds; includes 5 MT SOC; (**) is the Williamson’s Sapsucker, a U.S. Fish and Wildlife Bird of Conservation Concern (BCC) that has experienced recent declines (North American Bird Conservation Initiative 2022); 11 of these snag-associated species are also associated with old growth: 7 of the snag-associated species are a MOC/BCC associated with old growth. In Region 4, the Three-toed Woodpecker is considered a sensitive species (USDA 2022); in Utah, the Northern Pygmy-owl and Boreal Owls are Species of Greatest Conservation Need (2021); in Idaho, the Great Gray Owl and Lewis’s Woodpecker are considered Species of Greatest Conservation Need (Idaho Department of Fish & Wildlife 2016).**

Mountain Bluebird	Lewis’s Woodpecker*
House Wren	Great Gray Owl*
Brown Creeper*	Northern Pygmy Owl
Black-capped Chickadee	Northern Saw-whet Owl
Mountain Chickadee	Flammulated Owl*
Red-breasted Nuthatch	Boreal Owl
White-breasted Nuthatch	American Kestrel
Violet-green Swallow	Red-naped Sapsucker
Tree Swallow	Williamson’s Sapsucker**
Northern Flicker	Hairy Woodpecker

Pileated Woodpecker*

Three-toed Woodpecker

Black-backed Woodpecker*

E. Western forest birds likely present in the Selway Saginaw Project Area that consume conifer seeds as per Smith and Balda (1979) and Smith and Aldous (1947); (*) indicates is a Montana Species of Concern; includes at least 17 bird species, including 3 Montana SOC.

Hairy Woodpecker

Lewis's Woodpecker*

Clark's Nutcracker*

Winter Wren

Gray Jay

Evening Grosbeak*

Stellar's Jay

Pine Grosbeak

Mountain Chickadee

Slate-colored Junco

White-breasted Nuthatch

Oregon Junco

Red-breasted Nuthatch

Chipping Sparrow

Crossbills

Pine Siskin

Common Flicker

F. Current best science on the status of North American landbirds.

Rosenberg et al. (2019) reported that 64% of 67 species of western forest birds are in decline; these declines are part of a loss of over 3 billion North American landbirds since the mid-1970s. A more recent report on U.S. bird populations (State of the Birds Report 2022) noted that over half of U.S. bird species are declining; conservation needs to be dramatically scale up of fast-disappearing bird habitat, as well as the effects of climate change. The Montana Department of Fish, Wildlife and Parks has published 2 recent articles on landbird declines, including in the November/December issue of 2019, and the March/April issue of 2023. There are an estimated 64 species of western forest birds that likely occur in the Selway Sagninaw Project Area. These include 32 species that are neotropical migratory birds. This include 5 forest hawks and 6 forest owls.

One factor that will impact birds will be increases in temperatures, especially where shade is removed across larger landscapes, such as large clearcuts. A recent book review in the Week, July 28, 2023 addressed a new book titled “The heat will kill you first: life and death on a scorched planet.” Although this book deals with the effects of climate change on humans, the increase in heat will also affect all wildlife species, including western birds in both forests and woodlands and wooded-shrublands. A March/April issue of Montana Outdoors also addressed the ongoing increase in temperatures from climate change. Also, the increasing frequency of severe weather events has been shown to cause widespread severe mortality of western birds. As noted in the Farmington Daily Times, hundreds of thousands, if not millions of migratory bird deaths were reported in New Mexico the fall of 2020; for those birds already in decline, these weather events can be devastating (D’Amassa 2020). The cause of these massive die-offs was reported by the U.S. Geological Survey National Wildlife Health Center to be unexpected weather, which caused starvation; some birds were already in poor condition, already succumbing to starvation; the unusual winter storm exacerbated conditions, likely causing birds to become disoriented and fly into objects and buildings; some were struck by vehicles and many landed on the ground where cold temperatures, ice, snow and predators killed them.

The State of the Birds Report (2022) noted that the loss of 3 billion breeding birds since 1970 included a loss of 1 in 4 birds; several aridland birds, such as the Sage Thrasher, exhibited accelerated rate of decline since 2010; Greater Sage-Grouse has a continued steep decline that warrants increased voluntary habitat conservation and renewed strong federal and state protections; the Greater Sage-Grouse is identified as a “tipping point” species; these are species that have lost 2/3rds of their populations in the past 50 years, and are on track to lose another 50% in the next 50 years; the Rufous Hummingbird is also identified as a “tipping-point” species; the Williamson’s Sapsucker is also experiencing recent declining trends; overall, about half of 40 western forest birds have declined by nearly 20% since reaching recent highs in the early 1990s; “tipping point” species, such as the Greater Sage-Grouse, could be next to face threatened or endangered status; immediate conservation actions are needed to turn around declines.

Logging directly removes habitat for western forest birds. Slashing and burning sagebrush and conifers directly removes habitat for woodland and wooded-shrubland birds. These direct habitat losses are long-term, such as for sagebrush up to 30 years to return to mature stature; it will take many decades for the killed trees (e.g., Douglas-fir, limber pine, juniper) to return to pre-burn stature. The long-term loss of these habitats will reduce carrying capacity for forest and aridland birds for many decades, and possibly, up to 80-100 years, when trees become large enough to create snags of 10 inches dbh or larger. The short-term impacts will be direct mortality to adult, juvenile and nestling birds due to nest destruction, nest abandonment, and/or direct killing from logging/slashing/burning activities. In addition, the direct mortality from prescribed burning may be locally severe as well. Defiance Canyon Raptor Rescue (2022) reported that prescribed burning near Bald Eagle nestlings resulted in their death; the State Wildlife Health Lab biologist wrote the following: “A bird’s respiratory system is more sensitive to toxins, including smoke, than a mammals’ respiratory system. This is because birds have a high oxygen demand than mammals and a birds’ lungs are 10 times more efficient at capturing oxygen. The rapid efficiency of gas exchange in bird lungs makes them more susceptible to

inhaled toxic agents, including smoke. Inhaled toxins, such as smoke, can cause irritation and damage the respiratory system. It also can compromise the immune system, making the bird more susceptible to infections. This is especially true in young birds in the nest that are unable to escape the smoke. Smoke inhalation toxicity in birds is caused by irritant gases (aldehydes, hydrogen chloride, and sulphur dioxide), particulate matter, and nonirritant gases (carbon monoxide, carbon dioxide, and hydrogen cyanide) released by combustion.

Of the 64 species of western forest birds likely present in the Selway-Saginaw Project Area, 20 species are associated with old growth forests (USDA 2018; USDA 1990), including 8 species of conservation concern. The current best science recommends at least 20-25% old growth forests for forest birds (Montana Partners in Flight 2000). This is just a recommendation, and is at the very low end of historical levels of old growth estimated by fire cycles, or 20-50% (Lesica 1996). For goshawks, 20% old growth is recommended (Reynolds et al. 1992), and for the Pileated Woodpecker, 25% old growth is recommended (Bull and Holthausen 1993). Several lynx experts estimated the historical amount of older forest habitat in the Northern Rockies based on fire cycles. McKelvey et al. (1999) noted that many areas of the Northern Rockies would have had up to 36-51% of the forests over 200 years old, based on fire return intervals. This would include lodgepole pine old growth, which is defined as old growth at 150 years old by Green et al. (1992).

Management of old growth forests is recommended by Region 1 of the Forest Service to occur on every 10,000 acres (USDA 1990). This recommendation is consistent with the definition of "well distributed" to be every 10,000 acres (Suring et al. 1993). Region 1 of the Forest Service defines old growth as follows: large-diameter overstory trees, presence of large standing dead and defective trees, presence of down logs, development of a deep duff layer, and formation of canopy gaps and several canopy layers; large trees are needed to provide suitable nesting sites for large birds; bark crevices in older trees provide important foraging sites; large-canopied trees can modify microclimate by providing shade, capturing moisture, and moderating winds; dead trees and defective trees

(partially dead, spike top, broken top) provide nesting and roosting sites for cavity-users; snags host invertebrates which are an important food source for woodpeckers; downfall supports insects and other invertebrates, provides habitat for fungi and saprophytic plants, provides cover and den sites for wildlife, and creates debris dams in streams; dead woody material holds moisture and contributes to nutrient cycling; in areas with high frequency of fire, the component will be less abundant; a relatively closed canopy, often with two or more layers, creates a more moderate microclimate; vertical diversity provides a variety of substrates for feeding or nesting, and supports development of forest components such as arboreal lichens; presence of heart rot, mistletoe, dead or broken tree tops, diseased trees, and saprophytic plants create a variety of microsites and food sources for wildlife.

Of the 64 species of western forest birds that likely occur in the Selway-Saginaw Project Area, 23 species are associated with snags as nesting substrate. These include 5 Montana Species of Concern, as well as the Williamson's Sapsucker, which is a USFWS BCC. Eleven of these species are also associated with old growth, including 7 species that are Montana SOC or USFWS BCC. Historically, the availability of older forest stands with abundant snags was likely high, given that the Vegetation Report for the Selway-Saginaw Project notes that bark beetles begin infesting lodgepole stands at around 80 years of age. McKelvey et al. (1999) reported that the Northern Rockies, based on fire return intervals, may have contained from 36-71% forests over 100 years in age, where abundant habitat for snag-associated birds would have been present periodically due to insect infestations. This historical abundance of forested snag habitat is why a recent Montana Outdoors article by the Montana Fish, Wildlife and Parks (Horowitz 2023) noted that more than 60 species of Montana wildlife use snags for feeding, nesting, roosting, resting, denning or drumming. This report noted that "Believe it or not, a dead tree often holds more living creatures than a similar-size live trees." This report also noted that "At the time a tree dies, it has only partially fulfilled its potential ecological function," as it will provide coarse woody debris that is especially critical to voles, shrews and mice in the winter that are in turn hunted by species as the pine marten in the winter; logs also provide habitat for carpenter ants, an important food resource for the Pileated Woodpecker. This

report noted that “Dying and dead wood provides one of the greatest resources for animal species in a natural forests; if fallen timber and slight decayed trees are removed, the whole system is gravely impoverished of perhaps more than a fifth of its fauna.”

Management of habitat for cavity nesting birds requires the provision of large blocks of unmanaged older forest habitat (up to 1,000 acres for the Black-backed Woodpecker) that have periodic infestations of insects (Goggans et al. 1987). Management for the Pileated Woodpecker calls for 3 1000-acre territories adjacent to each other, for a total management unit acreage of at least 3,000 acres (Bull and Holthausen 1993). Management of woodpeckers, who are primary cavity excavators (PCEs), is essential to provide nesting sites of a host of secondary cavity users birds (SCUs), who may comprise up to one-third of all vertebrate species in a forest (Lorenz et al. 2015); there are 8 woodpecker species that create cavities for other birds; these include the Black-backed Woodpecker, Three-toed Woodpecker, Hairy Woodpecker, White-head Woodpecker, Northern Flicker, and Williamson’s Sapsucker that occurred in their study area, but also the Lewis’s Woodpecker; (the Pileated Woodpecker also is a PCE as per Bull et al. 1997); this provides a total of 7-8 keystone woodpecker species key to management of all forest birds that nest in cavities; they found that only 4-14% of snags were suitable for cavity construction. The White-headed Woodpecker is not believed to occur in the Selway-Saginaw Project Area as per Skaar (1996). Ultimately, management of 23 species of cavity-using birds relies heavily on developing and maintaining large blocks of old growth forests; 7 of 8 keystone woodpecker species that create cavities for other species are associated with old growth forests, the exception being the Northern Flicker.

Clearcut logging will remove forested snag habitat for roughly 80-100 years for approximately 23 species of western forest birds, until trees again reach a dbh of 10 inches (Bull et al. 1997), and begin to develop infestations of pine beetles that create snags. Clearcut logging will remove old growth habitat for at least 64 total species of western forest birds, including 32 neotropical migratory birds for 150 years. It takes at least 150 years for lodgepole pine to be classified as old growth.

This is essentially an irretrievable impact for forest birds. Clearcut logging will also remove younger forest stands that are functioning as old growth due to complex structural characteristics being triggered by bark beetles (USDA 1993).

Clearcut logging will remove trees infested with dwarf mistletoe. The number of bird species and total species richness has been reported to be strongly correlated with the level of dwarf mistletoe within a forest stand (Bennetts et al. 1996).

Clearcut logging will also remove the conifer seed source for at least 17 species of western forest birds, including 3 Montana SOC, the Lewis's Woodpecker, Evening Grosbeak, and Clark's Nutcracker.

G. Value of wooded-shrublands and shrublands to birds, Pygmy Rabbits and big game.

The proposed burning of slashing and burning of woodlands and wooded-shrublands in the Selway Saginaw Project Area will remove and/or degrade habitat for at least 15 western birds associated with these habitats. This includes 8 raptors, all which are neotropical migratory birds, and 2 which are Montana SOC, the Golden Eagle and Ferruginous Hawk. Slashing and burning woodlands and wooded-shrublands will remove both sagebrush and scattered trees important for both raptors; trees provide nesting sites, and sagebrush provides habitat for a key prey species, the black-tailed jackrabbit (Knick and Dyer 1997, Kochert et al. 1999, Coates et al. 2014; Smith et al. 1981). Burning sagebrush will also destroy/degrade habitat by direct removal and/or fragmentation, for at least 6 neotropical migratory songbirds, including 3 that are Montana SOC, the Brewer's Sparrow, Sage Thrasher and Cassin's Finch, all species that use sagebrush for nesting and/or foraging habitat (Knick and Rotenberry 1994; Mewaldt and King 1985). Sagebrush is also an important perching substrate for Mountain Bluebirds (Swenson 1985) as well as Merlins (Decker and Sieg 1987),

while scattered conifers in sagebrush are important foraging sites for the Cassin's Finch (Mewaldt and King 1985). Scattered trees in sagebrush stands also provide nesting sites for the Merlin, and for the Mountain Bluebird if they contain cavities (Swenson 1985). Finally, scattered conifers within shrublands provide fall habitat for juvenile Northern Goshawks after they leave the parental territory at higher elevations (Weins et al. 2006). The presence of various conifer species within an ecotonal zone between lower elevation grasslands and sagebrush habitats and upper elevation forests is a natural process of succession, and provides different habitats for different bird species as the density of tree species increases (Reinkensmeyer et al. 2007). The habitats with the lowest density and diversity of birds are the low elevation grasslands, and the habitats with the highest density and diversity of birds are the older woodland areas developing into more dense forests. *Id.*

The Selway Saginaw Project claims that slashing and burning ecotonal areas that contain either just sagebrush, or a combination of some trees and sagebrush, is a management proposal for Greater Sage-grouse. This is clearly a false claim. Burning sagebrush removes mature plants which require up to 30 years to redevelop (Project Wildlife Report). Remaining patches of sagebrush are heavily fragmented and reduced in size. The science on sage grouse management has reported that the best predictor of sage grouse persistence is the amount of "tall sagebrush" within a landscape, and its patch size (Wisdom et al. 2011; Johnson et al. 2011). This clearly demonstrates that reductions of tall sagebrush from burning, and reductions of patches of tall sagebrush, is an adverse impact on sage grouse.

Burning sagebrush has been a long-standing practice to increase forage for livestock on the BDNF, as is evidenced in both the past and current Forest Plan. This practice has continued in spite of the recognized importance of sagebrush to wildlife. The Selway Saginaw Project Area contains several grazing allotments. Most of the proposed burning does not even include any conifers present, simply burning of sagebrush, as is demonstrated on the cover of the draft EA for this project. In 1998, the Montana Fish, Wildlife and Parks summarized the wildlife

species that use sagebrush habitat in southwest Montana (USFS/MFWP Memorandum of Understanding 1998). These species included roughly 8 species of reptiles and amphibians, roughly 24 species of mammals, roughly 41 species of birds.

The Forest Service claims that the sagebrush burning program will improve habitat for the Pygmy Rabbit, a Montana SOC. The Selway Saginaw Project Area overlaps with identified occupied Pygmy Rabbit habitat (MFWP 1997). This report notes, among other things, that the loss of preferred habitat through sagebrush removal programs is probably the greatest threat to the species; this species occurs in dense clumps of big sagebrush; Pygmy Rabbit reliance on large, tall, dense stands of sagebrush is well documented, consequently loss of habitat is the greatest threat to this rabbit in Montana; rangeland is often "improved" by removal of sagebrush by various means, which renders the habitat unsuitable for use by Pygmy Rabbits; in addition, fragmentation of sagebrush communities poses additional threats to populations by reducing the size of these communities and isolating populations; mountain slope and high mountain valley populations would probably perish if connections to larger expanses of sagebrush in the floodplains were severed; areas of planned sagebrush control should be evaluated for impact to Pygmy Rabbits prior to its manipulation; areas occupied by Pygmy Rabbits should not be damaged; travel corridors must be maintained. Katzner and Parker (1997) reported that small variations in vegetation structure in Pygmy Rabbit habitat may have significant impacts on behavior and feeding because these rabbits are such extreme specialists in sagebrush-dominated landscapes; habitats generally used by these rabbits had significantly denser vegetation profiles than surrounding areas; areas with low or no use by these rabbits had less cover by canopies of shrubs; tall sagebrush was also important to create winter subnivean habitat under the snow to ensure winter availability of forage; these rabbits are apparently reluctant to cross open habitat.

In correspondence between the BDNF and MFWP dates 1996, MFWP noted that even then the Pygmy Rabbit was considered a "species of special concern" by both MFWP and the Heritage Program; Pygmy Rabbits should be considered a sensitive species and given a correspondingly high priority in management

decision, data acquisition, and conservation efforts; areas showing evidence of Pygmy Rabbits should not be burned; patches of taller sage that show evidence of prior occupation or high potential for occupations should be left unburned; these areas would allow displaced Pygmy Rabbits to establish new burrows.

The Forest Service claims that the slashing/burning program in sagebrush on wooded-shrublands will improve big game winter and calving and fawning habitat for elk and mule deer. The requires that removing sagebrush is a benefit to elk and mule deer, which is clearly false. The 1998 USFS/MFWP MOU noted that sagebrush areas in southwest Montana provide critical elk winter and calving range. A 1995 publication by Peterson of the MFWP noted that sagebrush ranked first in mule deer diets in the Bridger Mountains; during a 7-year period the average utilization for the various sagebrush species by deer and elk on the Gardiner, Montana winter range was 59% for mountain big sage, 42% for Wyoming big sage, 32% for basin big sage, and 16% for black sage; big sagebrush is a highly nutritious and digestible food source for big game animals such as mule deer; during winter big sagebrush has a crude protein level of about 12.4%. while grasses have a crude protein level of only 3.7%; this report noted that the MFWP believes that sagebrush manipulation is too often initiated without proper understanding of effects to wildlife, wildlife habitat, and the overall ecosystem.

The importance of sagebrush to wintering elk and mule deer cited in Peterson (*1995) was based on research published by Wambolt (1998); he noted that the preferred habitats for elk and mule deer on the Northern Yellowstone winter range were 4 sagebrush taxa; mule deer diets averaged 52% big sagebrush over a climatically mild 10-year period in fact, sagebrush utilization by elk and mule deer held sagebrush populations below their potential; the crude protein level of grasses was insufficient to allow elk to meet their protein requirements during winter; he noted that big sagebrush taxa are not tolerant of fire; sagebrush had not recovered from burning 10-19 years later. Trees are also important to mule deer on their winter range. Research in Oregon found that predicted use by mule deer on their winter range was greater in areas with forest canopy cover; their study called in to question the removal of conifers such as juniper on mule deer winter ranges (Coe et al. 2018).