

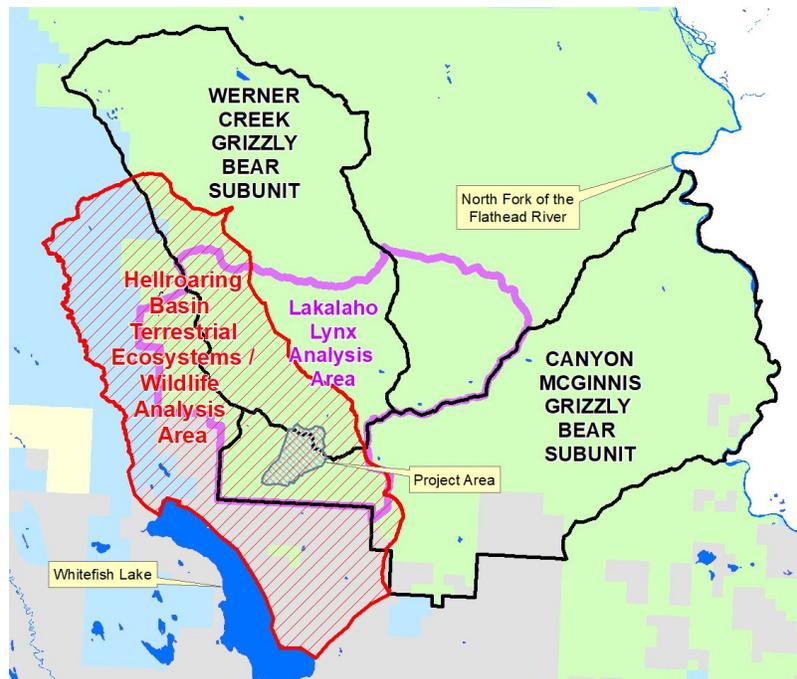
Cumulative Effects for Species of Conservation Concern and Other Wildlife Species

Big Game, Nutcracker, Fisher, Wolf, Marmot, Pika, Goshawk, Big-eared Bat, Toad, and Eagles, plus Old Growth and other Habitats

This analysis covers the Hellroaring basin Terrestrial Ecosystems/Wildlife Analysis Area, also referred to as the “wildlife analysis area”.

1. All Wildlife Species and Wildlife Habitats

Past timber harvest and fires converted a considerable amount of the hiding and thermal cover into seedling and sapling stands important for forage for big game and many other species, although most of these areas have progressed to hiding cover. Other timber clearing for ski runs, utility corridors, livestock



pasture, and a variety of smaller developed sites have also reduced cover and removed all or most of the larger trees that might have later become snags or downed wood or components of old growth habitat. Wildland fire suppression has been largely beneficial to species like big game, fisher, and gray wolf, as it helps maintain dense forest in a network of foraging habitat existing in natural openings or created by timber harvest. Alternatively, fire suppression has had negative effects on species like black-backed woodpeckers and flammulated owls, which depend on post-fire habitats or areas with open understories. At the stand-level, past understory thinning may have aided these species. The cumulative effects of these factors on forested/cover values are shown in Table A.

Table A. Forested Cover Across the Wildlife Analysis Area and Cover with Altered Effectiveness.

	% Cover Across Analysis Area			% Altered Across Analysis Area
	Hiding Cover	Hiding/Thermal Cover	Total Cover	
Before Taylor Hellroaring Project Implementation	11.8%	68.0%	79.8%	0%
After Taylor Hellroaring Project Implementation	15.9%	62.2%	78.1%	4.3%

Some areas of foraging appear to be unavailable to deer and elk (Table B) as a result of the distance to cover, a cumulative effect of this project with past timber harvest, wildfire, and other disturbances. One regeneration unit in Taylor Hellroaring Project would reduce available forage in a recently harvested area

on DNRC land. Past events have affected forested connections, as detailed in *Project File Exhibit 12-09*. The two largest openings in the analysis area were due to development near Whitefish Lake and the 2001 Werner Fire. The Hellroaring Basin Project would not add to this effect.

Table B. Forage in Wildlife Analysis Area Unavailable to Elk and Deer

	White-tailed Deer (available forage is < 165 feet from cover)		Elk (available forage is < 500 feet from cover)	
	Acres	% of potential forage	Acres	% of potential forage
Before Taylor Hellroaring Project Implementation	2,767 acres	46.9%	692 acres	11.7%
After Taylor Hellroaring Project Implementation	2,993 acres	50.8%	729 acres	12.4%

Numerous recreational opportunities across the Wildlife Analysis Area, particularly motorized trail and road use, snowmobiling, hiking, cross-country skiing, and bicycling, can cause displacement of wildlife species. The trail construction and other recreation upgrades in this project would cumulatively to these effects. Miles of system and user-created trails occur across the Analysis Area, with far fewer in the higher elevations. Hunting and trapping continue to take a portion of the ungulate and wolf population every year, as do road collisions and predation. The Analysis Area is part of MDFWP's Region 1, which now has an annual trapping quota of one fisher, and incidental mortality is possible with trapping for other species. Human population and access are dramatically increased over historical conditions. Development of private land has permanently altered habitats and displaced wildlife from prime areas, especially near Whitefish Lake. Dogs that run free may kill many wildlife species directly or cause them to waste their energy reserves.

Proposed ski lift construction, ski run creation, and glading from the Hellroaring Basin Improvement Project within the Whitefish Mountain Resort permit area would change tree species composition, density, and size class in habitats used by many species detailed in this exhibit, such as hiding cover used by ungulates and potential nest habitat for northern goshawks. Additional individual western toads using upland habitats could be killed by activities authorized in that project. These effects are expected to be cumulative to other effects listed in this exhibit but minimal in the context of the greater analysis area.

There are currently approximately 35 miles of road under USFS jurisdiction within the Wildlife Analysis Area; of which 12 miles are open year-long, 13 miles are open seasonally, and 10 miles are closed yearlong. Records show that there are also approximately 128 miles of non-Forest Service road within the analysis area. Overall, roads have resulted in vehicle-caused mortality of wildlife and increased access for hunting, trapping, and firewood cutting. Neither the Taylor Hellroaring Project nor the Whitefish Watershed Municipal Project would increase public motorized travel routes. Table C shows total amounts of all roads passing through old growth and recruitment old growth habitats, including permanent road construction in the Taylor Hellroaring Project. Over 15 miles of Forest Service roads pass through old growth or recruitment old growth habitat in the Taylor Hellroaring Wildlife Analysis Area. At least 10 times as many miles of non-USFS roads occur in the Wildlife Analysis Area. Other than about 3.5 miles of state road on DNRC lands, non-USFS roads do not access old growth habitat except where it might occur on private land.

Table C. Miles of Forest Service Roads through old growth habitat and other forests, by land ownership:

Hellroaring Basin Improvements

	FOREST SERVICE	PRIVATE	STATE	Miles
Old Growth	4.35			4.35
Recruitment OG	11.23	0.26	0.81	12.30
Other	24.14	0.40	0.70	25.24
Total	39.72	0.66	1.51	41.89

Other cumulative effects are varied, but most do not differ by alternative. A variety of research and monitoring efforts are likely to continue to occur with little or no effect on these species. A reasonably foreseeable action would be control of tansy ragwort and other weed species, which would have positive effects on big game, marmots, pikas, and other species by improving forage availability. On private land, grazing and fencing has reduced forage and habitat diversity and altered movement patterns. Predator control in the early part of the last century affected species like gray wolf and fisher and reduced or negated the selective pressures provided by predators. Beaver control reduced the amount of wetland habitat that wildlife often prefer and that species like boreal toads depend on. Other past, current, and future activities and events, such as shrub planting, and noxious weed control have little or no long-term effects on these species.

See Appendix A for more information.

2. Big Game

The Taylor Hellroaring project's action alternatives would remove 505 acres of cover and reduce the effectiveness of cover on 1,242 acres, although an uncut buffer would be left around riparian areas and regeneration treatments would stimulate grasses and shrubs over the short term. Regeneration harvest in both action alternatives would affect forested connections, although longer alternate routes would persist. Possible shrub slashing, tree and shrub planting, and seeding of bare areas would enhance big game forage and cover values.

Open road densities on lands administered by the Forest Service in the Analysis Area are 0.97 miles/square mile in summer and 0.42 miles/square miles fall through spring, which is deemed appropriate for "areas where elk are one of the primary resource considerations" (Christiansen, et al. 1993). Road construction in both action alternatives would be near roads currently open to public motorized use yearlong so they would not create additional displacement and all would be left in reclaimed condition. In all alternatives, motorized access would remain as is and the elk security areas would retain their current extents. The security area in the Hellroaring/Smith drainages would be less effective due to non-motorized but heavy use of trails constructed in Alternatives 2 and 3. All alternatives are consistent with elk security direction.

Trail construction effects would be both short and long term, disturbing or displacing big game and other wildlife. In both action alternatives, Trails 3, 4, and L7 would pass through relatively remote areas that may function as wallows. Alternative 2 would construct substantially more trails near these sites.

If no further timber harvest or wildland fire occurs over the next five years, the amount of hiding cover would increase and the availability of high-quality grazing and browse forage would decrease slightly. Without treatment, the probability of intense wildland fire would continue to increase in some areas, resulting in the loss of extensive areas of cover.

According to Lyon 1983, the amount of roading across this analysis area (discussed above) indicates a Habitat Effectiveness level for elk of 60% or higher, a level deemed appropriate for “areas where elk are one of the primary resource considerations” (Christiansen, et al. 1993). Although it would be limited by the locations of open roads and natural permanent openings, the available elk hunting season security area is expected to increase over the next 15 to 30 years, as most of the harvested stands would have regrown hiding cover.

3. Clark's Nutcracker

Breeding bird surveys indicate a nonsignificant decline in numbers of Clark's nutcrackers of 2.2 percent per year in Montana from 1980-2007, coincident with declines in whitebark pine due to blister rust infection in northwest Montana. Although it is not at risk across its range, there is concern on the scale of the FNF due to an introduced disease that caused a substantial decline in mature whitebark pine. The decline in whitebark pine puts both Clark's nutcrackers and whitebark pines at risk in localized areas due to human-caused disruption of seed-dispersal mechanisms (McKinney, Fiedler, & Tomback, 2009), and loss of mature whitebark and ponderosa pines may lead to local and widespread nutcracker population declines (Tomback 1998). Changing climate also has the potential to have positive or negative impacts on whitebark pine and ponderosa pine ecosystems (Bartlein, Whitlock, & Shafter 1997) and Clark's nutcrackers.

In the Taylor Hellroaring project, the acreage of whitebark and ponderosa pine cover types would increase by approximately 77 acres through regeneration harvests, commercial thinning, and prescribed burning treatments along with natural regeneration and tree planting. The regenerated stands would be dominated by ponderosa pine, western larch and western white pine and expected to attain the large tree size class in the future due to the presence of these long-lived, resilient species. In some stands, planted trees would provide future higher-quality snags than the species expected to regenerate naturally. Cone-bearing individual whitebark pines would be avoided during harvest activities. Prescribed burning is designed to restore whitebark pine habitat in a mosaic of forest structure that includes openings suitable for establishment of whitebark pine. Some whitebark pine would likely be killed during burning, although measures will be taken to protect cone-bearing individuals that exhibit potential rust resistance.

4. Fisher

Cumulative effects in the analysis area include: trapping; loss and alteration of prey species' habitat due to timber harvest, firewood cutting, road construction, agriculture, power lines, development and past wildland fires; predator control; disturbance; and direct mortality through collisions with vehicles.

The Taylor Hellroaring project's action alternatives would change some areas of denning/resting habitat and temporarily remove other areas from current fisher habitat, while enhancing large tree habitat over the long term. Effects of timber harvest and burning on forested connectivity habitat for fishers would be minor partly because vegetation treatments would not occur in riparian management zones. Approximately 2.1 miles of permanent and temporary road construction would occur through potential denning/resting fisher habitat. Fisher have not been detected in the project area, so no disturbance to fisher is anticipated. However, fisher could possibly be disturbed to some degree by trail use on 26 (Alternative 3) to 40 miles (Alternative 2) of new trails if fisher occupy the project area in the future. Seeding, tree and shrub planting, and shrub slashing would enhance habitat values for a variety of species preyed upon by fishers.

5. *Gray wolf*

Cumulative effects in the analysis area include: hunting and trapping; loss and alteration of prey species' habitat due to timber harvest, firewood cutting, road construction, agriculture, power lines, development and past wildland fires; predator control; disturbance; and direct mortality through collisions with vehicles.

Timber harvest, fuel reduction, and road construction in the Taylor Hellroaring Project's action alternatives would affect cover, forage for prey, and security, as discussed above for big game. There would be no direct or indirect effects on wolves from disturbance to key habitat areas such as den sites, rendezvous sites, or whelping sites in or beyond the area where this project is proposed. However, impacts of trail development would be long term, and wolves would be disturbed to some degree by trail use on 26 (Alternative 3) to 40 miles (Alternative 2) of new trails. Over-snow motorized travel would not occur on new temporary or system roads.

6. *Hoary marmot and pika*

Hoary marmot and pika may be susceptible to summer heat stress associated with summer warming. In the northern Rocky Mountains, the temperature tolerance limits of pika are not likely to be reached in the near future (McKelvey & Buotte, in press). Specific microhabitat features such as local moisture sources, the physical structure of talus fields, and northerly aspects may help to buffer the effects of climate changes (Millar & Westfall, 2010).

7. *Northern goshawk*

In the past, regeneration harvest likely resulted in loss of goshawk nesting habitat on NFS lands as well as State and private timber lands. In the future, goshawk habitat could be negatively impacted by loss of large trees for nesting on all lands if drought, insects and disease, or stand-replacing wildfires are extensive and frequent in the future, but habitat suitable for hunting of prey species may be increased by wildfires. On all lands, future effects due to vegetation management as well as effects due to climate changes and the potential for increased fire, insects, and disease would depend upon distribution across the landscape, which cannot be predicted. Because goshawks are highly territorial, their nesting density is naturally low. Goshawks are highly mobile and are likely to be able to find sufficient nesting habitat.

8. *Townsend's big-eared bat*

Cumulative effects in the analysis area include: loss and alteration of roosting and foraging habitat due to timber harvest, firewood cutting, road construction and maintenance, agriculture, power lines, and development; past wildland fires; beaver control; and livestock grazing. White-nose syndrome is a disease that kills large numbers of some species of bats. White-nosed syndrome has been documented in two of the bat species known to occur on the Forest, the big brown bat and the little brown bat (Maxell, 2015). Caving equipment or clothing can spread disease from cave to cave if decontamination measures are not used. Bats can fly long distances across many land ownerships. Closure of caves to reduce vandalism can make habitat inaccessible to bats if there are no other entry points. Humans can cause disturbance to nesting birds or roosting bats in key habitats.

In the Taylor Hellroaring project's action alternatives, part of proposed understory fuel reduction Unit 108 is within 1/10 mile of the area that appears to provide prime feeding habitat for Townsend's big-eared bats. Proposed activities could reduce potential feeding habitat by removing live trees or shrubs near beaver ponds, meadows, or streams. Although no trees or snags would be removed from RMZs, roosting habitat could be reduced by the removal of snags or live trees with roost characteristics. Disturbance or mortality of bats could occur if bats were using a roost snag or tree that was cut down. The isolated area of wetland habitat suitable for this species would not be affected whether or not the proposed BMP improvements or culvert replacement occur.

9. Western (boreal) toad

Cumulative effects in the analysis area include: loss and alteration of habitat due to timber harvest, firewood cutting, road construction and maintenance, agriculture, power lines, and development; past wildland fires; beaver control; livestock grazing; and direct mortality through collisions with vehicles and equipment.

In the Taylor Hellroaring project's action alternatives, part of proposed understory fuel reduction Unit 108 is within 1/10 mile of the area that appears to provide boreal toad breeding habitat, and activities throughout the project may kill individual adult and juvenile boreal toads using upland habitats. The isolated area of wetland habitat suitable for this species would not be affected whether or not the proposed BMP improvements or culvert replacement occur.

10. Bald and Golden Eagles

Cumulative effects in the analysis area include loss and alteration of nest trees and nesting habitat due to timber harvest, firewood cutting, road construction, agriculture, power lines, development and past wildland fires; exposure to DDT and chemicals used for predator control; recreational disturbance; and direct mortality through collisions with vehicles.

Maxell, B. A. (2015). Montana's bats: Distribution, conservation status, and roost site overview. Helena, MT: Montana Natural Heritage Program. Retrieved from <http://mtnhp.org/animal/presentations/presentations.asp>.

McKelvey, K. S., & Buotte, P. C. (in press). Climate change and wildlife in the northern Rocky Mountains. In J. E. Halofsky, D. L. Peterson, S. K. Dante-Wood, L. Hoang, J. J. Ho, & L. A. Joyce (Eds.), Climate change vulnerability and adaptation in the northern Rocky Mountains. (pp. 383-434). Fort Collins, CO: USDA Forest Service, Rocky Mountain Research Station. Retrieved from http://adaptationpartners.org/nrap/docs/NRAPFinalDraft_2016.07.25.pdf.

Millar, C. I., & Westfall, R. D. (2010). Distribution and climatic relationships of the American pika (*Ochotona princeps*) in the Sierra Nevada and western Great Basin, U.S.A.: Periglacial landforms as refugia in warming climates. *Arctic Antarctic and Alpine Research*, 42(1), 76-88. doi:10.1657/1938-4246-42.1.76. Retrieved from <http://apps.webofknowledge.com/InboundService.do?product=WOS&SID=3AjtPMBs6x4X3mH3ic&UT=WOS%3A000275560500008&SrcApp=EndNote&DestFail=http%3A%2F%2Fwww.webofknowledge.com&action=retrieve&Init=Yes&SrcAuth=ResearchSoft&Func=Frame&customersID=ResearchSoft&IsProductCode=Yes&mode=FullRecord>.

Amy Jacobs, May 16, 2019

Appendix A. Cumulative Effects Worksheet

Resource: Wildlife Species across the Terrestrial Ecosystems / Wildlife Analysis Area

Cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular time. It is the combination of these effects, and any resulting environmental degradation, that should be the focus of cumulative impact analysis. While impacts can be differentiated by direct, indirect, and cumulative, the concept of cumulative impacts takes into account all disturbances since cumulative impacts result in the compounding of the effects of all actions over time.

1. Description of the affected area for the cumulative effects analysis.

a. Spatial bounds - What geographic area have you selected to include the potential cumulative effects to this resource? Why was this area selected?

The analysis area for old growth associated wildlife species is the Hellroaring Basin Improvements Project Terrestrial Ecosystems / Wildlife Analysis Area. At approximately 45.6 square miles (about 29,000 acres), it is large enough to include the home range of numerous wildlife species and to represent the effects of wildland fire, natural tree mortality, timber harvest, prescribed fire, fuel reduction, firewood cutting, and recreation across the landscape. It is sufficiently large to evaluate the ability of the habitat to support populations of wildlife and plant species using these habitats, but small enough to not obscure the effects of the alternatives. All of the actions proposed in the alternatives that could directly or indirectly affect these species are contained within this area. No known or suspected population sinks for these species occur in or near the area.

b. Temporal bounds - What is the length of time the effects of the proposed activities will last, either singly or in combination with other anticipated effects? Why was this timeframe appropriate?

Wildlife Species or Group	Extent	Rationale
Old growth habitat and associated species	100 years	This is enough time for some mature stands to develop into old growth habitat and for snag and downed wood habitat to develop as well.
All species	Indefinite	Due to future recreation, operations, and maintenance activities.

2. Identified past, present, and reasonably foreseeable actions – actions to be considered in your cumulative effects analysis are summarized in the following table. Detailed information about these actions are included in the Project File.

• Place a “Yes” in the table below if the activity has had any impact or will have any impact on your resource. Those items need to be described in the EA. You do not need to elaborate in the table.

• Place a “No” if the activity does not have or will not have any impact. If you mark it with a **No**, briefly describe the rationale in that box or in a supplemental note. These items are not discussed any further after here.

IDENTIFICATION of CUMULATIVE ACTIONS

Cumulative Actions - Actions, which when view with past, present, and/or reasonably foreseeable actions, could contribute to cumulative effects for **YOUR** resource(s).

	Past	Present	Reasonably Foreseeable	Does it Contribute?
Wildfires and Wildland Fire Suppression	There is evidence of wildland fire in and near the analysis area over the last several hundred years. Most fires have been less than one acre and were suppressed using hand crews, but there have been large fires in recent years. The 2006 Werner Peak Fire burned 18 acres, the 2001 Werner Fire burned about 859 acres, and an unnamed 1994 fire burned 35 acres. Since about 1930, wildland fires have been actively suppressed by the Forest Service and other agencies and wildland fires will continue to be suppressed.			Yes
Hunting, Trapping, and Predator Control	These activities have been and continue to be popular uses of National Forest System land and other ownerships. Popular hunted species include white-tailed deer, mule deer, elk, moose, and gray wolf. Some species that are now currently listed as threatened, such as grizzly bears and Canada lynx, were hunted and trapped in the past. Some predator populations, such as gray wolves and coyotes, were reduced in numbers from the analysis area in the early part of the last century.			Yes
Fishing	Fishing within the analysis area is not a common activity except on Smith Lake, on Lazy and Swift Creeks and their low-elevation tributaries, and along the shore of Whitefish Lake.			Yes
Firewood and Other Miscellaneous Forest Product Gathering	Firewood gathering has occurred and will continue in the future. Recent higher than historic energy costs may increase the public’s desire to obtain firewood but air quality concerns may also reduce reliance on this source of fuel in the future. Other products gathered in small quantities in the area include posts and poles, mushrooms, berries, and Christmas trees.			Yes
Snowmobiling	Snowmobiling is allowed on designated roads, NFS trails, and areas as identified on the Tally Lake and HH/GV Over Snow Maps (https://www.fs.usda.gov/main/flathead/maps-pubs). Groomed routes include Upper Whitefish Lake road on DNRC lands, NFSR 9790 which access the back side of WMR and NFSR 316 in Canyon Creek which is a designated groomed over snow trail.			Yes
Camping	There are no developed camping sites in the analysis area although a dispersed camping is recognized at the Holbrook area. On USFS lands, dispersed camping is allowed within 300 feet of open roads.			Yes
Other Developed Recreation Sites or Areas	Whitefish Mountain Resort has an array of ski runs, ski lifts, trailheads, and buildings, which includes the Summit House Restaurant. DNRC has a lookout cabin on Werner Peak which is accessed by the Taylor Road NFSR 9790. The Holbrook Overlook is a popular viewpoint and picnic spot.			Yes
Hiking, Mountain Biking, and Horseback Riding	These activities occur on roads and trails throughout the analysis area, with numerous formal trailheads. The highest density of trails are in the Whitefish Mountain Resort (WMR) permit area and have increased in popularity. Dispersed, hiking, hunting, biking, and ORV activities are expected to increase in popularity on adjacent lands in the area. An set of			Yes

Hellroaring Basin Improvements

	Past	Present	Reasonably Foreseeable	Does it Contribute?
	non-motorized trails is under development through Whitefish Legacy Partners. A proposed trail addition to the Whitefish Trails system will occur with a trailhead in the Haskill Basin area which could eventually link to FS lands.			
Motorcycle and ATV Riding	There are no trails available for motorcycle or ATV (Four-wheeler) use on NFS lands other than on roads open to regular vehicle traffic. This activity occurs on and off roads on other ownerships.			Yes
Road Construction	The analysis area has approximately 34.5 miles of USFS system roads. Most were built since 1960. In 2014, The Forest Service authorized an easement to the DNRC allowing for construction of two segments of permanent road through NFS lands totaling .84 miles.	See table below for the ongoing Whitefish Municipal Watershed Project.	Road construction with the proposed Taylor Hellroaring Project.	Yes
Road Maintenance, BMPs, and road use	Driving, sightseeing, and wildlife viewing on open Forest, State, and private roads will continue. Roads on all ownerships will be maintained for use either by all users or for individual landowners. Roads used for the transport of forest products are generally maintained to meet Montana Best Management Practices (BMP). Road work to improve surface drainage, stabilize slopes, and reduce erosion and stream sedimentation has occurred on roads used by the Forest Service. Roads designated for motorized use by the public are maintained with safety as a high priority. This primarily involves repairing drainage features and clearing of live and down vegetation. Some roads have been closed and are maintained at a lower level. There are currently approximately 34.5 miles of road under USFS jurisdiction within the project area; of which 12.0 miles are open year-long, 12.7 miles are open seasonally, and 9.8 miles are closed yearlong. Records show that there are approximately 128 miles of non-Forest Service road within the analysis area including state, private, county, and special use roads. Road maintenance with the proposed Taylor Hellroaring Project is reasonable foreseeable.			Yes
Road Decommissioning	Roads have been removed from the transportation system and rendered undrivable to improve wildlife security, landscape hydrologic function, and reduce maintenance costs.		Roadwork with the proposed Taylor Hellroaring Project.	Yes
Beaver Control	Trapping of beavers and destruction of beaver dams occurred up to the 1990s on a variety of ownerships.	This activity may continue to take place on private property.		No , Beaver dams and their absence or presence has no tangible effect on old growth habitat.

Hellroaring Basin Improvements

	Past	Present	Reasonably Foreseeable	Does it Contribute?
Timber Harvest	See tables below for harvest history on USFS lands. Timber harvesting has also occurred in the past on DNRC, Weyerhaeuser, F.H. Stoltze, and small private lands.	See tables below, including a table for the ongoing Whitefish Municipal Watershed Project. Timber harvesting on private property is currently unknown. Lands owned by DNRC are expected to continue to have resource management in the currently and in the foreseeable future. Timber harvest with the proposed Taylor Hellroaring Project is reasonably foreseeable.		Yes
Thinning for Hazardous Fuels Reduction	See table below. Removal of live and dead vegetation for the purpose of reducing wildland fire intensity has been accomplished on private and state property within the analysis area. This activity is expected to continue.	See tables below, including a table for the ongoing Whitefish Municipal Watershed Project. Fuel reduction with the proposed Taylor Hellroaring Project is reasonably foreseeable.		Yes
Prescribed Burning	Prescribed fire will continue to be used in the future as a management tool. Prescribed burning with the proposed Taylor Hellroaring Project is reasonably foreseeable.			Yes
Precommercial Thinning	See table below.	The amount of pre-commercial thinning to reduce the density of sapling sized stands and decrease wildland fire intensity in the WUI adjacent to private lands is unknown. It is expected that it has occurred and would continue to occur in the future.		Yes
Special Use Permits	Communications towers and Winter Sports Incorporated operations and facilities are mentioned above and the Knights of Columbus have a permit for a religious statue nearby.		Any permit in good standing that meets the Forest's screening process, is current with their yearly fees, and requests a renewal, would be eligible for a permit.	Yes
Trail Construction / Maintenance	On USFS lands central to the analysis area, the Ralph Thayer Memorial NFS Trail 26, or the Whitefish Divide trail, is a National Recreation Trail and the Smokey Range NFS Trail 270 is nearby. Both trails have been maintained in recent years. Miles of other system and user-created trails occur across the area, with far fewer in the higher elevations. Trail construction with the proposed Taylor Hellroaring Project is reasonably foreseeable.			Yes
Noxious Weed Control	Noxious weed control as outlined in the 2001 Flathead National Forest Noxious and Invasive Weed Control Environmental Assessment and Decision Notice will continue to take place in the analysis area and is expected to increase in the future. Individual landowners will continue to control weeds with primarily spot applications on their property.			Yes
Communication Towers, Utilities, and Transmission Lines --	Communications towers occur west of Whitefish Mountain Resort, with an underground powerline coming from the east. A sewer line reaches from			Yes

Hellroaring Basin Improvements

	Past	Present	Reasonably Foreseeable	Does it Contribute?
Construction and Maintenance	the Whitefish Mountain Summit Area to private land to the south and through the Holbrook area.			
Private Land Development	Some amount of construction of driveways, buildings, and other improvements on private land in the analysis area has been occurring for decades and will continue.			Yes

Past Forest Service Vegetation Treatments, in Acres, Across the Taylor Hellroaring Wildlife Analysis Area (based on 11/2017 query of the FACTS database)

Timber Harvest Activities	60s	70s	80s	90s	00s	10s	Total
Liberation Cut	281	0	0	0	0	0	281
Salvage Cut (intermediate treatment, not regeneration)	103	0	0	0	0	0	103
Shelterwood Removal Cut (EA/NRH/FH)	18	0	0	0	0	0	18
Single-tree Selection Cut (UA/RH/FH)	547	0	0	0	0	0	547
Stand Clearcut (EA/RH/FH)	1,751	0	0	0	0	0	1,751
Total Harvest	2,700	0	0	0	0	0	2,700

Precommercial Thinning Activities	No date	60s	70s	80s	90s	00s	10s	Total
Pre-Commercial Thin	0	0	0	0	0	0	0	0

Past Forest Service Timber Sales across the Taylor Hellroaring Wildlife Analysis Area.

Sale Name	Year Accomplished	Acres in Taylor Hellroaring Wildlife Analysis Area
Upper Big Creek	1960-69	2,700
Total:		2,700

Past Vegetation Management of DNRC land in Taylor Hellroaring Wildlife Analysis Area (King Hemlock Timber Sale):

	Acres
Clearcut	379.4
OG Maintenance	247.3
Overstory Removal	100.5
Seed Tree	575.5
ST w/ group retention	178.6
Total	1,481.3

Whitefish Municipal Watershed Project activities:

COMMERCIAL AND NONCOMMERCIAL HARVEST TREATMENT ACRES	
Seed Tree with Reserves	196
Commercial Thin	58
Understory Removal	103
Fuel Break	1
Total Treatment Acres	358
PRESCRIBED BURN ACRES	
Prescribed Burn Units within the Wildland Urban Interface	756
ROAD MANAGEMENT MILES	

COMMERCIAL AND NONCOMMERCIAL HARVEST TREATMENT ACRES	
Haul Routes (BMPs to be applied to meet Timber Sale Requirements)	10
Temporary Roads (2.06 on NFS Lands and 0.49 on Private and State Lands)	2.55

