

5.0 CUMULATIVE EFFECTS

5.1 Introduction

The CEQ defines cumulative effects as:

The impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

This chapter analyzes the incremental effects on resources by the proposed action and alternatives from:

- Past actions
- Present actions that are not part of the proposed action or action alternatives
- Reasonably foreseeable future actions that are not part of the proposed action or action alternatives

These effects would be collectively evaluated against legal or administrative thresholds to evaluate the level of significance of the effects. If the proposed project and alternatives would have no effect on a particular resource, there would be no cumulative effect either.

Public scoping comments, local trend analyses (demographic and recreational), and consultation with various agencies or entities, such as the Forest Service, USFWS, BLM, municipalities, and project stakeholders, were used to develop an inventory of past, present, and reasonably foreseeable projects for this cumulative effects analysis.

The effects of various past, present, or future actions (regardless of the entity pursuing the action) and natural processes have the potential to coincide either in time or space with the effects of the Granby Pumping Plant Switchyard-Windy Gap Substation Transmission Line Rebuild Project. The nexus of these effects will be discussed by resource throughout the remainder of this chapter. Identifying past and present activities is especially important to understanding the environmental baseline of resources within the analysis area.

The geographic scope of cumulative effects analysis varies by resource. Each resource described in the following sections indicates the geographic analysis area relevant for that resource.

5.1.1 Past, Present, and Reasonably Foreseeable Future Actions

The following resource cumulative effects analyses have considered, at a minimum, the effects of the following past, present, and reasonably foreseeable future actions:

Past

- Construction and operation of Reclamation reservoirs

- Multiple communications facilities on Table Mountain, including cell phone and microwave towers for Verizon Cellular and Union
- Habitat fragmentation as a result of development
- Existing and expanding recreational uses
- Construction of subdivision roads
- Private inholdings, conservation easements, subdivision of large parcels
- Construction of local highways

Present

- Mountain pine beetle epidemic
- Salvage harvests
- Prescribed fire activities
- Recent and current population growth
- Large-scale residential development
- Recreation and tourism development
- Various federal/nonfederal land exchanges
- Climate change effects
- Reservoir water level fluctuations
- Spread of noxious weeds

Future

- Mountain pine beetle epidemic
- Forest health planning and treatments
- Proposed water development projects, including increased West Slope diversions
- Various land exchanges – Forest Service/NCWCD, NCWCD/BLM
- Habitat fragmentation as a result of development, build-out
- Climate change effects
- Existing and expanding recreational uses
- New subdivision roads/access
- Private inholdings, conservation easements, subdividing of large parcels
- Reservoir water level fluctuations
- Spread of noxious weeds
- Modifications at the Granby Pumping Plant Switchyard, including the relocation of a transformer

5.2 Air Quality, Climate, and Global Climate Change

5.2.1 Analysis Area

For all of the action alternatives, the geographic scope of the cumulative effects analysis is determined to be the regional area shown on Map 1-1.

5.2.2 Cumulative Effects Assessment

The direct and indirect air quality effects of Alternative A are negligible to minor and would not result in measureable contribution to cumulative effects.

Alternative A would have no direct or indirect effects on climate change; therefore, there would be no incremental contribution to cumulative climate change effects.

As described in Chapter 4.0 of this EIS, the proposed action and alternatives would result in short-term construction related fugitive dust and exhaust emissions. The proposed action would conform to the SIP and would not trigger a conformity determination under Section 176(c) of the CAA. Due to the temporary nature of construction emissions, regional construction emissions from the proposed action (in conjunction with development of the projects listed in Section 5.1) would not result in a cumulatively adverse effect on air quality. Moreover, implementation of Western's adopted SCPs would ensure that all emissions from proposed construction activities within the project region, in combination with any reasonably foreseeable future emission source, would not result in adverse cumulative effects. With these measures, temporary dust associated with construction would be confined to the Project Area and would not result in cumulative effects of dust generated from other projects.

No adverse air effects are expected from ongoing operation and maintenance associated with the proposed action and alternatives. Emissions associated with maintenance activities would be minor, and when added to the impacts from the other projects listed in Section 5.1, would not result in an adverse cumulative effect on air quality.

The direct and indirect effects of vegetation clearing along the ROW are not anticipated to have any measurable incremental contributions to cumulative global climate change effects. Much of the forested area along the existing and new ROWs has been devastated by the recent mountain pine beetle epidemic. Many of the forested stands have died and are no longer serving as carbon sinks in the Project Area. Relative to this widespread die-back of pine forests in the Project Area, the proposed vegetation clearing would be negligible.

In the short term, the incremental contribution of increased emissions from electrical generation resources, as a result of this voltage upgrade, are difficult to quantify and would likely be negligible on a local or regional scale. There is no direct nexus identified between the voltage increase and generation increases. In the short term, the action alternatives would not result in measurable cumulative effects on generation emissions.

Ultimately, with the implementation of an action alternative and the imminent failure of the Adams Tunnel cable, there would be no net change to the loads served in the Project Area. Therefore, in the long term, the action alternatives would not have any measurable cumulative effect on generation emissions.

5.3 Soil Resources

5.3.1 Analysis Area

From west to east, the cumulative effects analysis area for soil resources extends from U.S. Highway 40 east to Lake Granby. From north to south, it extends from Stillwater Tap in the north, then southward to the town of Granby.

5.3.2 Cumulative Effects Assessment

Cumulative impacts to soil resources result from surface disturbance related to fire, timber harvest, agriculture, recreation, urban development, infrastructure, and other natural and anthropogenic activities within the analysis area.

Although a variety of activities have some potential to produce cumulative effects with the project, mountain pine beetle-related activities are one of the more evident. Timber harvest is expected to increase due to the mountain pine beetle epidemic. Salvage harvests could include large clear cuts. Impacts from these types of activities typically result in increased compaction and erosion. A decrease in soil productivity would occur due to the resulting decline in organic matter additions to the soil.

Prescribed fire is commonly used as a tool to reduce fuel loads and restore forest health. Prescribed fires can result in a temporary increase in erosion and sedimentation where vegetation, duff, and litter are removed. Wildfires of high severity result in increased water repellent (hydrophobicity) soil, which limits infiltration, combustion, and increased mobility of some soil nutrients; mortality of some soil organisms; combustion of surface soil organic matter; and loss of effective ground cover, which leaves the soil susceptible to erosion and could contribute to noxious weed spread (Korb et al 2004). Due to the increase in beetle kill timber, wildfires could become more common in the Project Area. High severity fires would be expected to contribute to the cumulative impacts in the Project Area.

However, with implementation of standard and additional mitigation measures, the proposed project and other alternatives would result in only minor long-term impacts on soils. Therefore, little or no cumulative impacts to soil resources are expected.

5.4 Paleontological Resources

5.4.1 Analysis Area

For all the action alternatives, the geographic scope of the cumulative effects analysis is determined to be the regional area shown on Map 1-1.

5.4.2 Cumulative Effects Assessment

Cumulative impacts result from individually minor but collectively significant actions taking place over a period of time. In general, if previously unrecorded scientifically significant paleontological resources are present within the Project Area, the potential cumulative impacts would be low, so long as mitigation was implemented to preserve the resources. The mitigation measures described in Chapter 4.0 would effectively recover the value to science and society of significant fossils that would otherwise have been destroyed by ground-disturbing actions.

Cumulative impacts associated with the proposed transmission line rebuild are anticipated to be negligible.

5.5 Cultural Resources

5.5.1 Analysis Area

The cumulative impacts analysis/influence area is the same as that for direct and indirect impacts and includes the boundaries of adjacent cultural resources.

5.5.2 Cumulative Effects Assessment

The resumption of increased residential or commercial development within the area presents a potential for cumulative effects with the project. Future utilities to support projected growth may also follow similar paths as the proposed alternatives due to topographic and physical constraints in the area.

Over the last decade, there has been an increase in residential housing development as a result of population growth in the area. Alternatives B1, C1, C2, and D pass through or are adjacent to a planned 1,500-acre mixed-use development to be located north of the intersection of U.S. Highway 40 and 34. Should this project re-emerge in the future, along with other future residential development, the result could be a cumulative adverse effect on cultural resources. New roads, structures, and utilities associated with this growth would potentially affect cultural resources. The increased presence of people in the area could also result in the damage or collection of cultural resources.

Several mechanical and prescribed burn treatments are being implemented in response to mountain pine beetle infestations. Burning or mechanical treatment can harm cultural resources. Damage to cultural resources could result over time from fire or repeated incremental damage caused by motorized vehicles associated with mechanical treatment or agriculture. Cumulative impacts would not occur if ground disturbance activities from anticipated projects occur outside of the site boundaries.

Because Western would implement mitigation measures such as avoidance, monitoring, and data collection, the cumulative effects on cultural resources from the action alternatives are expected to be negligible.

5.6 Electric and Magnetic Fields (EMF)

5.6.1 Analysis Area

The cumulative effects analysis area is confined to the existing and proposed ROWs.

5.6.2 Cumulative Effects Assessment

Since there are no state or federal guidelines regarding EMF, there is no standard for evaluating cumulative effects. Calculated EMF levels at the ROW edges decrease from existing levels (no action) to the proposed levels (all action alternatives) due to the vertical configuration used for each of the proposed circuits, additional ground clearance, optimum phasing arrangement, and lower loading (less amps). The proposed project, combined with past, present, or reasonably

foreseeable future actions, would have less of a cumulative effect than the existing line, both within and outside the ROW.

5.7 Land Use

5.7.1 Analysis Area

The cumulative impacts analysis area is the same as that for direct and indirect impacts, and includes the proposed and alternative transmission line ROWs, existing access roads, substation sites, construction areas, and surrounding land uses within the project vicinity.

5.7.2 Cumulative Effects Assessment

The Project Area is largely used for agriculture, residential developments, recreation facilities, transportation corridors, and some commercial development. Irrigated hay production and grazing are expected to continue into the foreseeable future. In the near term, the outlook for increased residential or commercial development within the area is limited, but eventually economic conditions could improve and these activities are expected to resume. The project's cumulative effects on land use are closely related to other development activities, including existing and planned residential developments and planned water development.

Agricultural use in Grand County faces many challenges, particularly from conversion to second home development and other residential uses. A project that adds to these challenges presents a potential for cumulative effects. However, the proposed project is primarily a rebuild of an existing transmission line. With any of the alternatives, agricultural use can continue within the new or expanded ROW, and the direct effects of replacing one set of transmission structures with another would not result in substantial impacts to grazing use or the cultivation of hay. Cumulative effects on agricultural use are therefore not anticipated.

The recent adverse economic conditions, combined with the extensive loss of forest cover due to the mountain pine beetle infestation, have diminished the pace of development activity in Grand County. Those alternatives that use the existing alignment for most of their distance or move the transmission line further from sensitive locations, such as portions of the Scenic Byway, are unlikely to measurably contribute to cumulative impacts on land use.

Transmission lines, pipelines, substations, pumping plants, and other utilities are currently part of the landscape of the Project Area. Reasonably foreseeable future actions include planned residential development. Alternatives were located to avoid, where possible, sensitive receptors such as existing homes and the Scenic Byway. Where possible, alternatives follow the path of existing transmission line or pipeline ROW. Future residential developments are planned in the area. If planned mixed-use development north of the intersection of U.S. Highway 40 and 34 proceeds in the future, and the design does not adequately integrate the transmission line, Alternative C2-Option 1 and Alternative D-Option 1 may have limited cumulative effects this future development.

5.8 Visual Resources

5.8.1 Analysis Area

The cumulative impacts analysis area is the same as that for direct and indirect impacts, and includes viewsheds within the project vicinity.

5.8.2 Cumulative Effects Assessment

The existing scenic and recreational landscape character is defined by a combination of dense conifer stands and more open areas. In forested areas, visibility is limited to the immediate foreground due to mature stands of lodgepole pine, ponderosa pine, and Engelmann spruce. Extensive mountain pine beetle infestations have affected large portions of these stands, resulting in a brown hue to the forest and large-scale die-off. Several mechanical and prescribed burn forest treatments are and would continue to be implemented in response to mountain pine beetle infestations. As a result of large-scale forest succession and planned treatments, the existing landscape character would likely transition from a densely forested, evergreen condition to a mosaic of open patches of grasses, shrubs, deciduous trees (i.e., aspen), and evergreen forests of varying age classes. Openings within forested areas from large-scale die-off, forest succession, planned treatments, and residential and commercial uses may also potentially increase visibility of the project.

Past actions have also modified the landscape character, including reservoir development, water flow changes, transmission infrastructure, state highway and local transportation networks, and residential and commercial land development. The existing scenic values and recreational opportunities continue to attract recreational, residential, and commercial development. As described in the Land Use and Socioeconomic sections, land conversion from ranching and natural open space landscapes to more intensive recreational resorts and residential and commercial subdivisions could continue in the foreseeable future. Land development and forest fragmentation would result in a loss in quality of the existing landscape character.

In combination with past, present, and reasonably foreseeable future actions, the long-term presence of a 138-kV line would incrementally contribute to adverse visual character changes in the region. However, because this project is replacing an existing transmission line, effects are reduced relative to a new ROW in an area without an existing transmission line. The incremental contribution to cumulative effects would be adverse but minor.

5.9 Socioeconomics and Environmental Justice

5.9.1 Analysis Area

For all action alternatives, the geographic scope of the cumulative effects analysis is determined to be the regional area shown on Map 1-1.

5.9.2 Cumulative Effects Assessment

The project is not anticipated to result in any notable cumulative impacts on socioeconomics or environmental justice. The minor amount of additional local spending would not be substantial enough to interact with other economic activities in a manner that would influence local economic conditions, either positively or negatively. Any such effects would be minor and short term. Also, the small workforce required for construction of the project would not result in cumulative effects on housing, demographics, or employment. Any effects would be minor and short term.

In the long term, the effects of the proposed project and alternatives would be to provide a more reliable electrical power system for area residents. This alone would not result in any cumulative effects or economic conditions, trends, or demographics.

5.10 Recreation and Wilderness

5.10.1 Analysis Area

The cumulative impacts analysis area is the same as that for direct and indirect impacts, and includes the entire Project Area for all alternatives and recreation on surrounding lands, including tracts of land managed by the BLM Kremmling Field Office; Forest Service, ARNF, Sulphur Ranger District, including portions of the ANRA; Colorado State land; and private land.

5.10.2 Cumulative Effects Assessment

It is not anticipated that the Granby Pumping Plant Switchyard-Windy Gap Substation Transmission Line Rebuild Project, in conjunction with any other identified past, present, or reasonably foreseeable future actions, would have a cumulative effect on recreation access or opportunities in the Project Area. See Section 5.8 for a discussion of the potential cumulative effects to viewsheds within the Project Area.

As described in Chapters 3.0 and 4.0, the nearest designated wilderness area is located approximately 5 miles away. There is no potential for direct or indirect impacts to the wilderness as a result of any of the project alternatives. Therefore, there is no potential for cumulative effects to wilderness resources.

5.11 Aquatic Resources

5.11.1 Analysis Area

The analysis area for aquatic resources would be the same as discussed for the Windy Gap transmission line rebuild project direct and indirect impact areas. Specifically, the study area would include perennial (Willow, Stillwater, and Soda creeks) and intermittent (Coyote Creek and unnamed) streams and canals that drain into the Colorado River and Lake Granby. The Project Area also includes the western portion of Lake Granby and Willow Creek Reservoir.

5.11.2 Cumulative Effects Assessment

The project proposes to construct and operate transmission lines in the Granby area that may result in soil disturbance within the ROW at crossings of perennial and intermittent streams and canals. This disturbance could result in short-term sediment input to these water bodies, which could adversely affect aquatic communities. However, the proposed project incorporates various SCPs to minimize or avoid sediment input into these water bodies. Water quality effects on aquatic habitat and biota would therefore be considered to be negligible to minor.

Past, present, and future cumulative activities (e.g., new subdivision roads and access, expanding recreation use, salvage harvests, and prescribed fire) have or would result in soil disturbance that could affect streams, canals, Lake Granby, and Willow Creek Reservoir. Present and future activities could overlap with the construction and operation (maintenance) periods for the project.

Overall, the incremental contribution of this project to other activities in the Project Area would be negligible. Therefore, the proposed project would result in negligible adverse cumulative effects in the Project Area.

5.12 Vegetation Resources

5.12.1 Analysis Area

The analysis area for cumulative effects on vegetation resources is based on the Project Area, as shown in Map 1-2.

5.12.2 Cumulative Effects Assessment

Current mountain pine beetle infestation is causing a landscape-scale change in Colorado forests, including the Project Area. The mountain pine beetle infestation is visible throughout the Project Area and is occurring along each of the five project alternatives. This situation is certain to change the forest dynamics of the Project Area for the foreseeable future. Conditions in local and regional forests will continue to be adversely impacted. To address mountain pine beetle effects, the Forest Service and private landowners are conducting salvage harvests in lodgepole pine forests in and near the Project Area. These harvests open the forest canopy, changing the habitat suitability for some species and fragmenting habitat for vegetation that remains in the nonharvested areas. Forest salvage harvesting may also result in weed invasion into some parts of the Project Area, as machinery access areas need to be cut and as soils are disturbed by the harvesting process.

In November 2010, the ARNF issued a Decision Notice and Finding of No Significant Impact for implementation of an Emergency Power Line Clearing Project. This decision provides the utility companies a one-time authorization to fell or remove hazard trees up to 200 feet on either side of center line for transmission lines crossing NFS lands on the ARNF, which includes lands both in and outside the present utility companies authorized ROWs (Forest Service 2010). Environmental effects of this decision were determined to be local in context and not significant. Western and the Forest Service are also in the early stages of preparing an EIS on Western's proposal to change vegetation management practices on NFS lands in Colorado, Nebraska, and Utah. This proposal does not contribute to cumulative effects within the analysis area.

Each of the action alternatives would require some clearing of existing vegetation along new ROWs or in existing, expanded ROWs. However, because of the widespread die-off of forests and salvage harvests in the Project Area, the incremental contribution of ROW clearing is anticipated to be minor (until sufficient regrowth has occurred) and negligible in the long term. The cumulative effects of this project on vegetation resources in the Project Area are adverse but negligible in the long term.

5.13 Special Status Plant Species

5.13.1 Analysis Area

The analysis area for cumulative effects on special status species includes the analysis area described in Chapter 4.0, and expands to special status plant populations locally, regionally, and on a Forest-wide basis.

5.13.2 Cumulative Effects Under ESA

Western consulted with USFWS throughout the NEPA process. USFWS determined that the project would have no effect on federally listed plant species, and therefore is not expected to

result in cumulative effects to federally listed species. Further information and explanation of the no effect determination on federally listed species can be found in the BA.

5.13.3 Cumulative Effects Assessment Under NEPA

No federally listed plant species were determined to have suitable habitat in the Project Area based on field survey work in 2008 and 2009, nor were any FSS detected. A total of 31 FSS and 25 Forest Service plant species of local concern were determined to potentially have habitat in the Project Area. Three Forest Service species of local concern – western moonwort, Mingan moonwort, and cupped penstemon – were identified in the Project Area during rare plant surveys in summer 2009.

Past actions have likely caused loss of individuals, loss of suitable habitat, and habitat fragmentation as a result of residential development. Residential development has included roads and other associated infrastructure. Sensitive plant species may also have been impacted historically from increasing recreational use in the Project Area. That increase in recreation likely led to the loss of individuals, loss of suitable habitat, and an increase in habitat fragmentation resulting from access roads, trails, and the construction of reservoirs. The NCWCD pipeline runs parallel to and crosses all five alternative routes for this project. The disturbance created by the pipeline has likely been responsible for an increase in the presence of weeds across a portion of the Project Area.

Current mountain pine beetle infestation is causing a landscape-scale change in Colorado forests and is having a cumulative effect in the area of this project. The mountain pine beetle infestation is visible in every direction from the project vicinity, and is occurring along each of the five route alternatives. This situation is certain to change the forest dynamics of Middle Park for the foreseeable future. This change would result in some level of change to habitat for special status plant species. One FSS and approximately 18 Forest Service plant species of local concern for this project are found in lodgepole pine forest habitats. Conditions suitable for these forest-dwelling species have been and would continue to be adversely impacted. In conjunction with mountain pine beetle effects, the Forest Service and private landowners are conducting salvage harvests in lodgepole pine forests in and near the Project Area. These harvests open the forest canopy, changing the habitat suitability for some species and fragmenting habitat for special status plants that remain in the nonharvested areas. Forest salvage harvesting may also result in weed invasion into some parts of the Project Area, as machinery accesses areas to be cut and as soils are disturbed by the harvest process.

It is anticipated that there could be future population growth in Middle Park, which would put more pressure on the Project Area from residential construction and the associated infrastructure necessary to provide for the larger population. Several portions of the Project Area are privately held and could be affected by future development. This development, should it occur within the vicinity of the project alternatives, could lead to loss of special status plant individuals, loss of suitable habitat, and habitat fragmentation effects.

Each of the project alternatives would have little or no effect on special status plant species. Given this limited effect, any cumulative effects resulting from mountain pine beetle and other activities within the Project Area are also expected to be minor in the short term and negligible in the long term.

5.14 Wetland Resources

5.14.1 Analysis Area

The analysis area for cumulative effects on wetland resources includes the analysis area described in Chapter 4.0, and expands to address wetland ecosystems locally and regionally.

5.14.2 Cumulative Effects Assessment

Past actions in the Project Area have caused the loss of wetland ecosystems and riparian acreage as a result of residential development. Residential development has included roads and other associated infrastructure. Site preparation for the former Shorefox development project north of the intersection of U.S. Highway 40 and 34 resulted in the loss of wetlands adjacent to the Colorado River on the southwest end of the Project Area. It is uncertain how loss of wetlands at Shorefox is being mitigated and at what point in the mitigation process the project proponent may currently be.

Wetlands in Middle Park have been impacted historically from the increase in water resource development and recreational use. These activities likely led to the loss of wetlands from the construction of access roads, trails, and the construction of Willow Creek and Granby reservoirs. The total acreage of wetlands/riparian areas lost due to reservoir construction is unknown.

It is anticipated that there would be future population growth in Middle Park, which would put more pressure on the Project Area from residential and infrastructure construction. Several portions of the Project Area are privately owned and could be affected by future development. This development, should it occur within the project alternatives, could lead to loss of wetland acreage or could adversely affect the hydrology that supports downstream wetlands. Fens located north of CR 41 would be especially susceptible to modification of groundwater flow regimes.

Unlike the effects of residential or other developments in the Project Area, which may permanently affect wetland vegetation or other defining characteristics, the effects of the proposed project are primarily short term, such as temporary trampling and crushing of wetland vegetation, compaction of wetland soils, and temporary changes in surface and groundwater flow regimes. Negligible to minor long-term direct effects are likely, but would be limited to the removal of less than 0.1 acre of wetland vegetation for all alternatives. The loss of less than 0.1 acre of wetland vegetation is negligible overall when combined with the effects of other past, present, and reasonably foreseeable future actions' effects on wetland resources in the Project Area.

For all alternatives, the incremental contribution of this project to cumulative effects on wetland resources in the Project Area is anticipated to be adverse but negligible in the long term.

5.15 Terrestrial and Avian Wildlife Resources

5.15.1 Analysis Area

The analysis area for cumulative effects on wildlife resources includes the Project Area as shown on Map 1-2.

5.15.2 Cumulative Effects Assessment

Existing and planned residential developments, agriculture, and planned water developments, have resulted in habitat loss and fragmentation to the north and south of the Project Area. Planned development on the former Shorefox property is expected to result in impacts to vegetation on the 1,553-acre Horn Ranch. Planned residential developments on the northern and southern end of the Project Area could result in long-term impacts to big game migration corridors as well as big game severe winter range.

Residential developments in proximity to the Project Area could also increase the propagation of noxious weeds. This is of particular concern on the former Shorefox property where ground has been cleared and the area has not been revegetated. Propagation of noxious weeds can result in decreased foraging opportunities for wildlife and can alter drainage patterns across a landscape.

Although construction of the proposed transmission line would result in relatively minimal direct impacts to habitat, it could result in aerial habitat fragmentation. Aerial habitat fragmentation is a new concept that focuses on how overhead transmission lines may affect avian species and their prey. Depending on the alternative selected, aerial habitat fragmentation may become a cumulative effect, similar to habitat fragmentation. Transmission lines and the communication tower on Table Mountain can increase collision risk for avian species that occur in the Project Area.

The mountain pine beetle epidemic also contributes to wildlife impacts in the Project Area. Forest-dwelling species have been impacted by the loss of lodgepole pine communities on the Hot Sulphur Ranger District. Many of the nest sites observed in the Project Area are currently found in dead lodgepole pine stands. Over time, suitable nesting sites for raptors are expected to decline across the Forest. Cavity nesting species and insectivores, such as woodpeckers, are expected to benefit from the mountain pine beetle epidemic in the short term. Over time, stand replacing fires may occur and habitat for these species would also be significantly impacted. The mountain pine beetle epidemic has altered the structure and density of forests and wildlife habitats. The loss of forest communities on the Hot Sulphur Ranger District, and throughout the state, would have adverse impacts to forest dwelling species in the long term.

The construction and operation of the transmission line, using any of the alternative alignments, would have relatively minor impacts to wildlife resources. Therefore, even considering the trends previously discussed, including residential development and mountain pine beetle, any cumulative effects resulting from the project are also expected to be minor.

5.16 Special Status Terrestrial, Avian, and Aquatic Wildlife Species

5.16.1 Analysis Area

The analysis area for cumulative effects on special status species includes the analysis area described in Chapter 4.0, and expands to address wildlife, fisheries, and special status populations locally, regionally, on a Forest-wide basis, and state scales.

5.16.2 Cumulative Effects Under ESA

Western consulted with USFWS throughout the NEPA process. USFWS has determined that the project would have no impact on federally listed and avian, aquatic, and terrestrial wildlife

species, and therefore is not expected to result in cumulative effects to federally listed species. Further information and explanation of the no effect determination on federally listed species can be found in the BA.

5.16.3 Cumulative Effects Assessment Under NEPA

Similar cumulative effects discussed above for wildlife resources are expected for special status species that occur or have suitable habitat in the Project Area. Of particular concern are impacts to the greater sage grouse population that occurs on the southwestern end of the project and golden eagles that nest on the west side of Table Mountain. A combination of residential developments, water developments, transmission lines, access roads, and the propagation of noxious weeds would likely result in permanent impacts to the long-term viability of greater sage grouse populations in the Project Area and within Grand County. Greater sage grouse would be impacted by loss of sagebrush habitats, habitat fragmentation, and the ability to disperse into adjacent breeding habitats.

The Middle Park sage grouse population is located primarily in Grand County, but also occurs in portions of Eagle and Summit counties. The population is bordered by the Gore Range to the west and includes the areas surrounding the towns of Kremmling, Hot Sulphur Springs, and Granby. According to the GSGCP (2008), the lowest density of sage grouse within the Middle Park population is in sagebrush rangelands near Granby. Sage grouse were historically observed along the Colorado River near Granby. Agricultural development and now residential development has resulted in the permanent loss of habitat for sage grouse in proximity to the Project Area. Loss of habitat or increased disturbance to these populations may result in the permanent loss or abandonment of this segment of the Middle Park sage grouse population. The sagebrush communities found west of Lake Granby have been identified as suitable habitat for grouse under the CSGCP and also as areas where restoration activities are recommended. Further residential and water developments on the west side of Table Mountain would compromise existing habitats and potential restoration of currently unsuitable habitats.

The presence of an existing communication tower on Table Mountain, as well the transmission line in the area, may increase golden eagle collision risks around the Table Mountain area.

FSS found in lodgepole pine forests would continue to be impacted by the mountain pine beetle epidemic. Construction and operation of the transmission line is not expected to have cumulative effects to forested habitats for the species associated with those habitats.

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