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March 6, 2026

Objection Reviewing Officer (Michiko Martin, Acting Regional Forester)

Skyline HFRA EA

USFS Intermountain Regional Office

324 25th Street

Ogden, UT 84401

RE: OBJECTION AGAINST THE SKYLINE HFRA EA

1. **Objector's name and address**

Lead Objector Sara Johnson, Native Ecosystems Council, PO Box 125, Willow Creek, MT 59760; phone 406-579-3286; sjjohnsonkoa@yahoo.com.

Mike Garrity, Director, Alliance for the Wild Rockies, PO Box 505, Helena, MT 59624; phone 406-410-3373; wildrockies@gmail.com.

Jason Christensen, Director, Yellowstone to Uintas Connection, PO Box 363, Paris, ID 83261; phone 435-881-6917; jason@yellowstoneuintas.org.

Signed for Objectors this 6th day of March, 2026

Sara Johnson

Sara Johnson, Director NEC

2. Name and location of project being objected to

Skyline HFRA Project, Manti-la Sal National Forest, including the Sanpete, Ferron, and Price Ranger Districts

3. Responsible Official

Barbara Van Alstine, Forest Supervisor

4. Attachments

This objection includes one attachment, Attachment #1, that includes reports and/or publications provided in support of objection topics, and copies of correspondence with agency personnel.

5. Connection between previously-submitted comments by Objectors and the proposed project

Objectors submitted scoping comments on the proposed Skyline HFRA project on October 19, 2023. Objectors submitted an Objection against the proposed Skyline HFRA project on February 7, 2025. We are incorporating these various comments and concerns, including all references previously provided with these comments, into this second Objection against this project, in order to avoid repetition. However, we will discuss the major points raised in these previous comments;

In our 10/19/23 scoping comments for the Skyline HFRA project, we identified the following issues and concerns we would like to have addressed by the agency:

1. Please provide high-quality assessments of project impacts on birds. We identified a large list of birds that have various conservation concerns that we would like to have assessed as per project impacts. We note that these assessments were never subsequently completed by the agency.
2. We requested the agency to summarize pinyon-juniper treatments in the project area. This information was never subsequently provided.
3. We questioned why sagebrush and pinyon-juniper removal programs are consistent with the purpose of the HFRA. This conflict was never subsequently addressed by the agency.
4. We questioned how the HFRA requirements can be met with project activities outside the WUI; the agency never subsequently addressed this concern.
5. We questioned how only 2 alternatives could address public issue; the agency subsequently addressed this issue by adding another alternative.
6. We asked the agency to define catastrophic fire and where the potential was identified in the project area; this request was never addressed.
7. We asked how the agency identified "unnatural fuel levels" in the project area; this request was never addressed by the agency.
8. We requested the agency define why treatments in roadless lands were consistent with the Roadless Rule and wildlife management; what are the habitat objectives for wildlife within IRA; these requests were never subsequently addressed by the agency.
9. We noted that the forest needs to complete an amendment to the forest plan to evaluate how fuels treatments and logging in roadless lands will affect wildlife, and to receive public comments on such treatments.
10. We noted that the timeline for the project exceeds that allowed by the NEPA, which is 5 years, not 20-25 years as is planned; this concern was never subsequently addressed by the agency.
11. We noted that the agency needs to limit the size of proposed projects to a size that allows wildlife surveys to be completed during the public involvement process, so that this information is available to the public; this issue was not considered by the agency.

12. We raised a concern that the agency was not meeting the monitoring requirements of the Forest Plan and as requited by the NFMA; we were never able to obtain any monitoring data from the Forest for MIS or sensitive species.
13. We noted that the agency was violating the NFMA by failing to demonstrate specifically how Forest Plan direction was being implemented for the Skyline HFRA project.
14. We noted that at a minimum, the scope of the project requires completion of an Environmental Impact Statement (EIS); this concern was not subsequently addressed by the agency.
15. We noted that the project lacked the required level of project descriptions to the public, including impacts to MIS, including mule deer and elk; the public needs to be provided the information as to how specific units are mapped on the ground; these concerns were not subsequently addressed by the agency.
16. Finally, we requested the agency address why fuels, and not weather, is the most important contributing factor to wildland fire; this request was never subsequently addressed by the agency.

These various issues and concerns raised by Objectors were also summarized in the Objection we filed against the project on February 7, 2025. This objection expanded upon the 16 issues and concerns identified in the scoping comments. This previous objection also included one attachment with hard copies of 24 reports and/or publications in support of our issues and concerns. We are incorporating these previous scoping comments and previous Objection into this new Objection, in order to avoid repetition. However, almost all of the issues and concerns we previously raised during scoping were never addressed in the agency's final previous decision for the Skyline HFRA project, with the exception of adding another action alternative for no activities in roadless lands. We note in this current Objection that the agency still has only one valid action alternative, Alternative 3, which stays out of roadless lands. Until the agency completes a Forest Plan amendment to address wildlife impacts of implementing fuels reduction projects in roadless lands, these activities are illegal.

6. Suggested Remedies

As will be addressed below in the narrative description of how the proposed project will violate environmental law, regulation of policy, we are requesting that this proposal be withdrawn. This request is based on multiple legal violations this Skyline HFRA project will trigger, including multiple Forest Plan violations as per the National Forest Management Act (NFMA), such as a failure to monitor the impacts of vegetation treatments on the Management Indicator Species (MIS), the Northern Goshawk; including a National Environmental Policy Act (NEPA) failure to identify an ongoing population decline of the MIS Northern Goshawk; including both a NEPA and NFMA failure to establish habitat objectives and monitor populations for the sensitive species the Flammulated Owl and Three-toed Woodpecker; including a failure of the NEPA and the Migratory Bird Treaty Act (MBTA) to define expected impacts to a large suite of migratory birds as well as define specific mitigation measures for these migratory birds; and including a NEPA violation of including an invalid action alternative for massive vegetation treatments in Inventoried Roadless Areas without a Forest Plan amendment to disclose wildlife impacts and obtain public involvement. In addition, the agency did not demonstrate compliance with the Forest Plan direction for management of the Greater Sage-grouse. These and other legal violations also trigger a violation of the Healthy Forest Restoration Act (HFRA).

7. Narrative description as to how environmental law, regulation or policy would be violated.

A. The proposed Skyline HFRA project will violate the National Forest Management Act (NFMA), the National Environmental Policy Act (NEPA, the Administrative Procedures Act (APA), and the Migratory Bird Treaty Act (MBTA).

1. The agency is violating the NEPA by failing to identify a significant decline of the MIS, the Northern Goshawk (hereafter "goshawk") in the Skyline project area, and violating the NFMA by providing monitoring data on vegetation treatments in goshawk post-fledging areas to support claims that these will have no significant adverse impacts on active nesting territories; the agency is also violating the NFMA by failing to provide the required analysis of goshawk territory occupancy in regards to a decline of greater than 20% over a 3-year period; these reports were required every 3 years, but no such reports are available on the agency's web page.

The project Biological Evaluation (BE) at page 11 states there are 17 goshawk territories within the project area. These include 10 no longer active, and 7 still active, as follows:

Seven (7) Territories still active: Bear Creek, Blue Lake, Indian Creek, Manti-Ridge, Mary's Lake, Pete's Hole, and Wrigley Creek.

Ten (10) Territories not active: Canal Canyon, Duck Fork, Emery Reservoir, Enos Creek, Julius Flat, Little Horse Creek, Meadow Gulch, Six-Mile Creek, Six-Mile Ponds, and Tanager Spring.

A loss of 10 of 17 goshawk active territories is approximately a 60% decline of this population based on active territories. Yet the agency does not show or acknowledge this actual decline in the Project BE. The BE text states that the population on the forest has remained relatively stable, in spite of wide fluctuations between years (BE at 13). Figure 1 of this BE shows the goshawk occupied territories across the entire forest from 1995-2023. However, what the agency is measuring is not the trend in total goshawk territories. Instead, the agency is measuring only occupied nesting territories each year. The number of territories that have become unoccupied is not measured, even though this total amount of total territory occupancy is the valid measure of goshawk population trends. An example of this failure is demonstrated for the Skyline project area, where 10 of 17 total goshawk territories have become inactive. By not measuring

those territories that have become inactive, the agency is violating the NEPA by providing false, misleading assessments on this MIS. This failure to identify this huge decline in goshawks in this project area is all the more alarming given that the agency intends to do massive vegetation treatments (47,000 acres within a 173,976 acre project area (27% of the landscape), including 7-9 goshawk post-fledging areas. The purpose of MIS is being totally ignored by the agency. All of the wildlife species that depend upon older forest habitats are also reflected in this 60% decline of goshawks in the Skyline project area. This huge decline needs to be addressed by the agency, not ignored so that massive vegetation projects can be implemented. These treatments include 7-9 post-fledging areas. Yet to date, the agency has not demonstrated that treatments in post-fledging areas has maintained nesting territories. So to claim that the treatments planned for the Skyline project will have no significant adverse impacts on goshawks is clearly arbitrary and lacks any actual data due to a lack of the monitoring required by the Forest Plan. We have been unable to locate any goshawk monitoring data on the agency's web page, including effects of vegetation treatments.

The agency is also violating Forest Plan direction for goshawks, where a report is required every 3 years if there has been less than a 20% decline in territory occupancy over a 3-year period. There is no record of any such analysis since the goshawk amendment was implemented in 2000. The agency is apparently not counting abandoned goshawk territories after a certain period of time, which means the true decline in territories is not being identified. As per the Skyline project area, where there has been a 60% decline in occupied goshawk territories over time (time period unknown but may be 10 years), it does not seem possible that the a decline of greater than 20% over 3 years has not been triggered across the forest. As is required by the Forest Plan, the agency needs to provide the complete data available for each goshawk territory over the last 26 years, when the amendment was implemented, and demonstrate why a decline of over 20% of occupied territories has never occurred over a 3 year average.

The monitoring of vegetation treatments on goshawk breeding habitat is a Forest Plan standard that the agency has violated in the past. There were not plans

identified, as well, for the Skyline project. The Goshawk Forest Plan amendment (2000) includes the following monitoring direction: goshawk territory occupancy following vegetation management will be completed to assess potential abandonment of a territory, the first full breeding period following activity in all projects where pre-project surveys determined territory occupancy; these reports were to be provided annually. However, there are no such annual reports, which would be 25, on the agency's web page that we could locate. The agency has not demonstrated that this monitoring requirement is being met.

The monitoring of snag densities within goshawk territories is also not available on the agency's web page. The goshawk amendment requires that snag densities and sizes within a 100 acre block treated by mechanical or wildland fire use be monitored to ensure that 75% or more of the blocks measured meet the guideline; measurement frequency is 10% of more of the acre treated within a project area, within 2 years, following completion of vegetation treatments. The agency is not demonstrating that this monitoring requirement has been met.

We requested information from the Manti-la Sal National Forest personnel about past monitoring for the goshawk, as we were unable to locate any goshawk monitoring reports on the agency's web page. On March 2 and March 4, NEC director Sara Johnson e-mailed the contact for the Skyline project, Michael Scottorn, requesting copies of Forest Plan goshawk monitoring reports. Michael responded on March 4, and noted as follows:

"Sara, thanks for reaching out, sorry for the delay. Let me try to answer your emails to the best of my knowledge. For the Skyline HFRA project, I don't have any biennial monitoring reports in the file. I don't typically put those documents in the project record for projects like Skyline HFRA. There might be another contact on the forest that might be able to get you that report. For the goshawk, the wildlife resource report, and the biological assessment will cover analysis, effects, design features and any associations with this project for the northern goshawk."

The lack of any goshawk monitoring data in the Skyline HFRA project is inconsistent with the project BE, which at page 15 states:

> Monitoring requirements found within the goshawk amendment discuss the following process: Item to measure -less than 20% decline in territory occupancy over a 3-year period; measurement frequency annually (report every 3 years); ID m-2 Question: are mitigation measures (standards and guidelines) employed during vegetation management project implementation sufficient to prevent territory abandonment. Items to measure: goshawk territory occupancy following vegetation management treatments; acceptable range is no territory abandonment on projects where mitigation measures are used; measurement frequency is the first full breeding period following activity in all projects where pre-project surveys determined territory occupancy.

Monitoring data for this MIS is an important component of project NEPA documents and public information; it is a NEPA violation to not provide this monitoring information when an MIS is going to be impacted by a project.

2. The agency is violating the NEPA and the NFMA by failing to provide the required baseline information for the MIS goshawk in order to demonstrate that forest plan requirements are currently being met, or can be met with the proposed action.

The goshawk amendment has a guideline for general direction (e) that the desired percentage of land in goshawk habitat in mature and old structural stages be 40% in conifer forests, and 30% in aspen; where these percentages are not being met, activities in mature/old structural stages should be maintained. The agency has indicated that for goshawk habitat in the Skyline project area, the older structural stages are not being met, and that this landscape is dominated by the young/immature structural stages (1-3) (e.g., project BE at 14). Also the BE at 14 notes that structural stages 5-6 are low in numbers or "non-existent" in the

project area! Yet the proposed vegetation treatments on about 50,000 acres will likely include vast acres of goshawk habitat, including within the 7 currently active territories, where it is clearly noted that treatments will reduce structural stages to the young/immature structural stages (1-3). The agency needs to define the structural stages within each of the 17 goshawk territories in the project area, including active and inactive, in order to meet the requirements of the Forest Plan as well as baseline information essential to the public to understand existing goshawk habitat conditions. Guideline "l" states that if a historic nest is not associated with an active nest area, management direction for the home range should be applied. This means that the 10 abandoned goshawk nest territories in the Skyline project area still need to meet the mature/old forest structural stage compositions identified as general direction "e".

The agency needs to adhere to Forest Plan guideline "f" that snag densities and sizes are being met in goshawk habitat, based on a stand level average, every 100 acres; these densities require 2 ponderosa snags at least 18 inches dbh, 3 snags at least 18 inches dbh in mixed conifer and spruce/fir stands, every 100 acres, 2 snags per acre in aspen at least 8 inches dbh per 100 acres, and 3 snags per acre in lodgepole pine at least 8 inches dbh, per 100 acres. A snag inventory is required for any acre of planned vegetation treatments in goshawk territories in order to demonstrate that this measure of habitat quality is being met; if not, the agency's proposal to reduce the green trees that create snags will be a violation of the Forest Plan direction, along with a NEPA failure of the agency to demonstrate where habitat quality for goshawks is currently insufficient in the project area; the Skyline project analyses clearly states that all most all snags will be removed with vegetation treatments (e.g., project BE at 14).

The agency also needs to adhere to Forest Plan guideline "g" to maintain a given number and size of downed logs. Vegetation treatments will result in the removal of almost all existing snags, which are important for log recruitment. Also, existing logs will likely be removed due to logging treatments, and charred and destroyed with subsequent burning, or with prescribed burning without logging.

The agency needs to adhere to the Forest Plan standard "m" and guideline "n" that in active nesting territories, 2 alternate and 3 replacement nest areas need to be identified, each at least 30 acres in size. The agency needs to provide maps for each goshawk nesting area of the 7 occupied territories that clearly define where each of these 6 nesting areas are identified, and readable to the public, as is required by the NEPA to provide baseline information for a project area.

The agency needs to adhere to the Forest Plan guideline "r" that vegetation manipulation within active, alternate and replacement goshawk nesting habitat should be designed to maintain or improve desired conditions; use the active nest area habitat characteristics as an indicator of desired conditions. The Skyline project NEPA documents do not identify, let alone, define how vegetation treatments within the 7 occupied goshawk territories will maintain or improve the existing, alternate or replacement nest stands. These nesting areas for each currently active territory need to be mapped and clearly identified to the public, including any proposed treatments. At present, it is unknown if any of these nesting areas for these territories will be affected by the project, in violation of the NEPA. The monitoring data used to demonstrate treatments will not degrade nesting habitat also needs to be provided.

The agency needs to provide required baseline information for goshawks as per Forest Plan guideline "s", where a post-fledging area of at least 420 acres, exclusive of the 180 acres of nesting habitat, needs to be identified for each of the 7 active territories in the project area. This information needs to provide a readable map for each territory, along with a specific acreage identified as post-fledging areas. These maps should include the 6 nesting areas as well as the 420 acres of post-fledging habitat for each territory, at a scale that the public can see that these areas have been designated for each territory.

The agency needs to adhere to Forest Plan guideline "u" to complete a landscape assessment for the Skyline project area, and identify plant communities that provide important habitat for goshawk prey species; as noted in the Amendment,

landscape assessments provide sufficient information concerning resource conditions and risks to understand the effect (direct, indirect or cumulative) of a proposed site-specific project on goshawk habitat, relative to the broader landscape. In regards to the Skyline project, this landscape assessment needs to include analyses of how the proposed treatments could affect Forest Plan standards/guidelines/desired conditions), and whether or not they are currently being met. If these are not being met (e.g., a lack of older structural stages, a lack of snags, a lack of aspen regeneration), what is the rationale for further vegetation treatments, that may exacerbate habitat failures? At present, due to the lack of any landscape assessment for the Skyline project, the public is unable to make any connection between existing conditions for goshawks and proposed vegetation treatments. **For example, the public has no information as to why 10 of 17 goshawk territories in the project area are not occupied. This is key information that was never provided to the public.** It is clear this local population of goshawks is not doing well (a 60% decline). The required landscape assessment would provide this information to the public, including identifying what habitat problems or disturbances may have triggered territory abandonment. This is especially important information as is noted in the Skyline project BE, disturbances can cause nesting failures, and habitat for goshawks in mature and older forest structure will be reduced, even though these structures are currently below desired conditions.

The agency needs to adhere to the required direction for a landscape assessment in order to evaluate how the past treatments on 12,632 acres of goshawk habitat in the Skyline project area have impacted goshawk habitat. The project BE at 16 notes that these treatments have contributed to the loss of nesting habitat; the claim that these treatments improved goshawk foraging habitat was not supported with any monitoring or science, in violation of the NEPA and the NFMA. Without this assessment of how past vegetation treatments have impacted goshawks, the agency has no basis for proposing the Skyline project. Actually, there have been far more than the 12,632 acres of past treatments in the Skyline project area that have potentially impacted the goshawk population. As per Table 3 of the BE Appendix, there have been almost 30,000 acres of salvage harvest and fuels treatments, 10,295 acres of aspen and aspen/conifer treatments, including

burning, and 12,394 acres of prescribed burning in the project area. These come to almost 53,000 acres of past vegetation treatments in the Skyline project area. The agency has not completed a landscape assessment to determine how these 53,000 acres of past treatments have possibly impacted the goshawk population, which has had a 60% decline.

The agency needs to adhere to the Forest Plan guideline "v" which states that where it is determined through the landscape assessment process that ungulate grazing is contributing to an identified functioning-at-risk condition relative to habitat needed to support goshawk and it prey, modify grazing practices to maintain or restore the desired seed, mast, and foliage production defined in the landscape assessment process; review success of modifications annually; if modifications are not providing the desired progression towards production objectives defined in the landscape assessment, modify practices through the nest annual operating plan. Under direction for promotion of aspen regeneration, it is noted that corrective actions to meet desired aspen regeneration levels could include a change in pasture rotation, shorter season of use, or reduction in numbers of livestock.

The Skyline BE notes frequently that aspen habitat is very important to goshawks, both for nesting and for prey species. For example, the project BE at page 10 notes that aspen regeneration is an important component of the life history of goshawks on the forest; the loss of aspen is concerning. It is also noted that aspen regeneration is problematic, and as such, treatment in aspen habitats need to be the size of at least 500 acres so that browsing on aspen recruitment will allow some escape and regeneration success (project BE W8). Yet this concern about aspen and its importance to goshawks, a forest MIS, is never addressed in any of the action or no action alternatives, in violation of the Forest Plan as well as the NEPA. What is never evaluated, as well, is that the proposed vegetation treatments will create severe adverse impacts to aspen viability by triggered regeneration that will be subsequently destroyed by livestock. The agency needs to evaluate how livestock grazing is impacting goshawk populations in the Skyline

project area, and address these impacts through alternative development, since habitat "restoration" is one of the claimed purposes of this project.

3. The agency needs to clearly define to the public how the 10 goshawk territories that have been abandoned in the Skyline project area are being managed.

It is unknown what the agency direction is for goshawk territories that have been abandoned, even though there are 10 such territories in the Skyline project area. The agency has not provided any information as to how these abandoned territories are being managed in order to promote persistence of the MIS goshawk. Are any of the Forest Plan standards and guidelines, or desired conditions, still being applied to these 10 territories? If not, does this mean that once a goshawk territory is abandoned, no habitat management is required either for the goshawk or all the wildlife species "indicated" by this MIS? Given that there is a vast area of this project area that consists of abandoned goshawk territories, the agency needs to provide clear unambiguous information as to what the specific management direction is for these territories, as per both the NEPA and the NFMA. The project BE at page 4 identified W2 noting that "existing" territories will continue to be monitored. What does the term "existing territories" mean? If territories are abandoned, does this mean that management for all wildlife species indicated by the goshawk is stopped?

4. The agency is violating the NEPA and the NFMA by failing to map all the goshawk territory boundaries in the Skyline project area; this information is essential in order for the public to understand goshawk distribution and density in the project area, and how the project could impact this MIS.

The Skyline project BE at 8 noted that goshawk territory boundaries have been mapped by the agency, based on aerial phots maps using the best judgement of forested areas around the nest areas that may be used by goshawks; these

boundaries are good representations of the suitable territory habitat. Yet there are no territory maps for goshawks in the Skyline NEPA documents, either for occupied or abandoned territories. This information is essential in order for the public to understand how this MIS is distributed across the project area, and as well, how adverse project effects may change this distribution. The cumulative impacts of vegetation treatments within nesting areas, post-fledging areas, and foraging habitat cannot be understood by the public without a mapping of these areas that shows where vegetation treatments will occur within each territory. This information is also essential to the public in order for them to understand how the agency is managing abandoned goshawk territories. Once abandoned, does the agency consider that no management for goshawks is required? This would directly contradict the purpose of MIS, to reflect habitat for a variety of species indicated by an MIS, not just the MIS. Until the agency provides high qualify readable maps of each goshawk territory, both occupied and abandoned, including the nesting, post-fledging and foraging areas, the agency is violating both the NEPA and the NFMA.

5. The agency is violating the NEPA by failing to correctly identify the impacts on goshawk habitat the Skyline project will have.

The agency claims in the BE at 15 that the Skyline project alternative 3 will only impact 3,502 acres of goshawk foraging habitat. Yet there are a stated 17 goshawk territories in the project area. With an average of 6,000 acres per goshawk territory (Reynolds et al. 1992), this would indicate there are 102,000 acres of goshawk habitat, or were, in the project area of 174,000 acres. It is unclear why only 3,502 acres of goshawk habitat outside of IRAs will be impacted by this project. The agency stated that goshawk territories for this landscape have been defined, so the total goshawk acres is generally known for this project area. It appears that the goshawk territories that are not currently occupied are not being included as per impacts on goshawk habitat. This in turn leads one to believe that the agency is not maintaining goshawk habitat once territories are not occupied. This management strategy has not been identified in the Forest Plan amendment for goshawks. And it is clearly a violation of the NFMA, since

goshawk habitat is being eliminated across the forest even though this is an MIS for many other wildlife species. In addition, with a failure to maintain goshawk habitat in unoccupied territories, future occupancy is being ruled out. So if population increases do occur, this degraded habitat will not be available for occupancy. The strategy of eliminating MIS habitat is it is not currently occupied is clearly a violation of the NFMA. The agency needs to clearly define what the strategy is for currently-unoccupied goshawk territories, and how this ensures continued viability of this MIS and indicated species.

6. The agency needs to complete an Environmental Impact Statement (EIS) for the proposed Skyline project to address the current significant habitat impacts that exist for the MIS goshawk, which will be exacerbated by Alternative 3.

As is noted in the Skyline EA and BE, the goshawk population in the project area has declined by 60% in recent years (a loss of 10 of 17 active territories). The agency notes that the proposed Skyline project will degrade goshawk foraging habitat for 5-15- years (BE 14), and that goshawks will lose habitat in the short-term (BE 2). So in spite of the huge decline of goshawks in the project area, the agency is planning to trigger further reductions in habitat. This will clearly be a cumulative significant impact on this forest MIS, an impact that requires completion of an EIS.

7. The agency is violating the NEPA by failing to provide a meaningful description of the proposed project to the public.

There is no clear map of the Skyline Project Area. EA maps 1, 5 and 6 show multiple project area designations; it is unclear what these different designations for project areas mean.

There is no clear description to the public of the size of the project area. Instead, the actual project area size is difficult to determine, as it is only incidentally noted in the EA and BE. The EA at 44 states the project area is 173,976 acres.

There is no information as to what the acreage of IRAs is within the 173,976 acre project area. There is no information provided as to what the acreage of non-IRA lands is within the 173,976 acre project area. The public cannot understand what the intensity of proposed treatments outside the IRA lands will be as a result of this lack of information. What percentage of non-IRA lands will be impacted by this project for Alternative 3? Also, the public cannot understand what the effect of past treatments and fire is within non-IRA lands of the Skyline Project. These past treatments have been extensive, as was noted in the project BE in Table 3 of Appendix A. These past activities include 29,494 acres of salvage, 6,746 acres of fuels treatments, 10,295 acres of treatments in aspen and aspen/conifer stands, and prescribed burning on 12,394 acres.

The public cannot locate units on the ground, due to the microscopic maps provided for treatment areas. The schedule for treatment of units is never provided in order that the public can understand how localized disturbances for wildlife will be managed, including for MIS mule deer and elk. The public cannot see where the vast number of new roads will be located for this project. As a result, the public cannot have a relative idea as to what the localized road densities will be during project implementation, and how these will impact the MIS mule deer and elk during summer, when build-up of fat reserves is critical, or in the fall, when security for elk is key to avoid displacement to private lands. The agency has not identified where big game calving, fawning and winter range areas are located, so the required non-disturbance zones for these key big game areas are never identified to the public. There are no maps of Greater Sage-grouse priority management areas, or summaries of existing conditions as per the Forest Plan direction; claimed avoidance of these priority areas needs to be demonstrated by valid, readable maps provided to the public. There are no maps of the 17 goshawk territories that have been documented for this project area. There have been no surveys for the sensitive Flammulated Owl and Three-toed

Woodpecker in the Skyline project area, so occupied habitats are unknown; this baseline information is important in order for the public to have a general understanding of population viability of these 2 sensitive species in this landscape where significant new vegetation treatments are planned. Given the extensive past acreage that has been impacted in the Skyline project area from salvage harvest, logging, fuels treatments and prescribed burning, the current distribution of these sensitive species is key information that should be provided to the public as per the agency's demonstration that the NFMA requirement that viable populations of these species are being maintained.

There is no map of the Wildland Urban Interface for the project area.

8. The agency is violating the NEPA and the NFMA by failing to implement habitat objectives for two sensitive species, the Flammulated Owl and Three-toed Woodpecker, in the Skyline HFRA project area.

Forest Service Manual direction 2670.32 states that for sensitive species, the agency will establish management objectives when affected habitat may have significant adverse effects (BE 8). The agency has not identified suitable habitat for the Flammulated Owl in the Skyline HFRA project area. Nor have there been no surveys for the Flammulated Owl in the project area. The agency claims no such owls are present due to a lack of suitable habitat (BE 10).

The impacts to the Flammulated Owl are unknown, but potentially significant not only due to the current loss of nesting habitat, but due to the additional losses of nesting habitat. As is noted in the project BE at 10, the Flammulated Owl nests in large snags, generally over 20 inches dbh. AS is noted in the BE at 14, the structural stages that provide large snags (stages 5-6) are low or absent across the project area. The EA at 43 notes that the project area is dominated by structural stage 3, which have diameters of 5-10 inches. The proposed project will result in the removal of most all of the snags in treatment units (BE 14), while older structural stages with larger snags will be reduced to structural stage 3, where snags will be 12 inches dbh or smaller. This is likely why the BE at 2 notes that

owls will lose habitat with the proposed project. Past salvage activities (29,494 acres), past fuels treatments (6,746 acres), past aspen treatments (10,295 acres) and past prescribed burning (12,394 acres) in the project area (BE Table 3 Appendix A) will have removed vast amounts of nesting snags for this cavity nesting bird on up to over 50,000 acres in the project area. However, there was no analysis for the Skyline project area for adherence to the Forest Plan snag standard of 2-3 per acre over 18 inches dbh. Thus the availability of habitat for this sensitive species appears very limited in the project area. Without addressing this existing habitat level, the agency cannot proceed with up to another 50,000 acres of snag removal while claiming this sensitive species will not be significantly impacted by this project. This claim is a violation of the NEPA. In addition, the project emphasis to remove both snags and insects and disease will reduce habitat for woodpeckers, even though the project BE at 10 notes that the Flammulated Owl depends upon larger woodpeckers to create nesting cavities. It is clear that the lack of any valid conservation strategy for the Flammulated Owl is a violation of the NFMA. Any vegetation activities that remove habitat for this owl cannot legally proceed until the agency amends the Forest Plan to include conservation measures (habitat objectives) for this sensitive species.

There is a similar lack of analysis of existing or cumulative impacts on the sensitive Three-toed Woodpecker, even while the agency claims this species will not be significantly affected by the Skyline HFRA project. As noted previously, past impacts on Three-toed Woodpecker habitat amount to about 50,000 acres in the project area. There have also been no surveys for this sensitive species in the project area (BE 8). Instead of doing any surveys, the agency has estimated that there are 8,777 acres of Three-toed Woodpecker habitat in the project area. What this habitat consists of was never defined. This is only about 5% of the project area that is suitable. There was no analysis as to why 5% habitat is enough for local population viability and persistence. The agency is not monitoring this sensitive species, but is using Breeding Bird Survey data instead, surveys which do not define woodpecker densities within the Manti-la Sal National Forest, or the Skyline project area. There have been no surveys for snag densities across the project area, to assess compliance with the Forest Plan direction. There has been no monitoring data provided to demonstrate the agency is monitoring snag

densities following vegetation treatments, in order to monitor Forest Plan compliance with maintaining 2-3 snags over 18 inches dbh per acre. The agency notes that this woodpecker depends upon insects and diseases that both kill trees, then reproduce on dead trees (BE 18). In violation of the NMFA, the agency has no conservation strategy for this sensitive species. This strategy requires that specific areas of the landscape need to be preserved, without disturbances, so that natural processes, like insects and diseases, can occur and provide habitat for the Three-toed Woodpecker (Goggans et al. 1989). Given there is no actual conservation strategy for this sensitive species for the Manti-la Sal National Forest, the agency cannot legally implement any management activities that reduce/remove habitat for this sensitive species until the Forest Plan is amended to provide a conservation strategy for this sensitive species.

9. The agency is violating the NEPA and the NFMA by failing to demonstrate that treatments in old growth, or structural stage 6, will maintain habitat for both the MIS goshawk and the 20 or more other bird species 'indicated" by the goshawk for old growth habitat (USDA 2018).

The Forest Plan direction for old growth, or structural stage, allows vegetation treatments within these old growth stands, including goshawk nesting, post-fledging and foraging habitat old growth, as long as the following conditions are met (Guideline "h" in Goshawk Forest Plan Amendment): the percent of group acreage covered by clumps of trees with interlocking crowns should typically range from 40-70% in post-fledging and foraging areas, and 50-70% in nesting areas; groups should be of a size and distribution in a landscape that is consistent with disturbance patterns defined in Regional or local proper functioning condition assessment; clumps typically have 2 to 9 trees in the VSS 6 size class with interlocking crowns (this would be trees at least 24% in dbh). The agency has never provided any actual documentation/analysis that these conditions created by logging in goshawk old growth habitat maintain any of the goshawk habitat types, either nesting, post-fledging or foraging. As an example, the Skyline HFRA project intends to do extensive treatments in post-fledging habitats, as well as vast treatments in foraging habitat. There is no analysis as to how much current

structural stage 6 goshawk habitat will be affected. In addition, there was no information provided as to how much structural stage 6 habitat in the project area has been previously treated. It is unknown whether these complex criteria for structural stage 6 logging/burning have been effective for either the old growth MIS the goshawk or 20 or more other bird species "indicated" by the goshawk, even though this guideline has been in place for 25 years. Due to a failure to monitor and demonstrate logging in structural stage 6 actually maintains any goshawk habitat, any further implementation of this Forest Plan guideline is invalid for old growth management for the MIS for old growth, the goshawk. Any treatments in structural stage 6 habitat, or old growth, cannot occur until the agency completes a forest plan amendment to evaluate whether past direction for structural stage 6 has been effective in maintaining old growth habitat values for the goshawk and at least another 20 bird species.

The agency also needs to demonstrate in this forest plan amendment for management of goshawk old growth (structural stage 6) that this structural stage is consistent with current science, including old growth descriptions and recommendations by Mehl (1992) and Pope et al. (1992).

10. The agency needs to amend the current Forest Plan to include an MIS for snags, and define a valid conservation strategy that ensures long-term viability of this MIS and other species "indicated" by this MIS; until this is come, any further vegetation treatments and burning are illegal.

The current Forest Plan for the Manti-la Sal National Forest does not have a Management Indicator Species for snag habitat. Thus the NFMA requirement to monitor populations of bird associated with snags (at least 30 or more bird species as per USDA 2018), is not being met. The snag standard, which is several snags per acre of a minimal size as per various forest types, is not even being monitored, as demonstrated for the Skyline HFRA project and the agency's web page for monitoring. However, this snag standard is not a valid "proxy" as indicators of woodpeckers and other bird populations. There is no current science that has defined snag numbers alone as indicators for populations of cavity

nesting birds. In fact, use of snag numbers as a proxy for bird populations has been identified as invalid for many years. For example, a Forest Service publication from the Pacific Northwest Research Station (Bull et al. 1997) reported over 25 years ago that snags alone do not indicate populations of associated species. And over 35 years ago, research noted that management for the Three-toed and Black-backed Woodpecker require the retention of large blocks of undisturbed forest landscapes where insects, disease and fire are allowed as natural ecosystem processes (Goggans et al. 1989). Given the vast acreage of vegetation treatments in the Skyline HFRA project area (roughly 50,000 acres), the cumulative impact on snag-associated wildlife is likely already quite high, although not actually known. The agency cannot legally implement any more vegetation activities that reduce snag habitat for wildlife until a Forest Plan amendment is completed to implement a valid conservation strategy for this large suite of forest birds, along with a monitoring program to assess effectiveness of this strategy to maintain viable populations of birds associated with snags.

11. The agency is violating the NEPA, the NFMA and the MBTA with the proposed Skyline HFRA project be failing to evaluate project direct, indirect and cumulative impacts on western forest birds and aridland birds.

We previously provided references to the agency regarding ongoing declines in landbirds of North American (Rosenberg et al. 2019, North American Bird Conservation Initiative (2022). We have added one more recent publication regarding declining bird populations in North American. The Guardian (2025) published a recent article titled "Collapsing bird numbers in North American prompt fears of ecological crisis." The report notes that three-quarters of nearly 500 species of birds are in decline. One of the species identified as declining is the Williamson's Sapsucker, a cavity-nesting species present on the Manti-la Sal National Forest. A graph in this report notes that 67% of bird species in North America are in decline.

In spite of this dire situation for North American birds, including a 64.5% decline in 67 species of western forest birds, and a 56.5% decline in 62 species of aridland birds (Rosenberg et al. 2019), the Skyline HFRA NEPA documents do not consider or evaluate how the proposed treatments will affect these declining bird populations. The analyses provided simply say that some birds will be harmed, and some will be benefited in the short term, but all species will benefit in the long term due to the creation of "habitat mosaics." Apparently "habitat mosaics" is the conservation strategy for all western forest and aridland birds. What this actually means on the ground remains undefined by the agency, including in the Forest Plan EIS. Also, the claim that habitat mosaics ensure viability of all forest bird species was not actually defined for the Skyline HFRA project. Specifically, without defining habitat objectives for any groups of these birds, the agency cannot actually measure impacts of vegetation treatments. For example, what are the objectives for "habitat mosaics" for western forest and aridland birds in the project area? What is the science that demonstrates these habitat mosaics are needed for population persistence? How are these habitat mosaics measured? What monitoring data has been collected to show habitat mosaics are needed for persistence of western forest and aridland birds? How do these habitat mosaics ensure adequate hiding cover, thermal cover, nesting substrates, and forage for western forest and aridland birds? The agency claim that managing for habitat mosaics ensures viability of birds in the project area is clearly a NEPA/NFMA/MBTA violation, which invalidates this proposal.

One particular analysis failure for the Skyline HFRA project as per birds was the lack of any analysis as to past and expected mortalities that will be triggered on birds due to direct killing. This direct mortality will occur from various vegetation treatment activities, including tree cutting, mastication, and burning. Yet without any assessment of expected mortality, or how such mortality may exacerbate ongoing declines, the agency has determined the Skyline HRFA project will not significantly impact western forest and aridland birds. The agency is required by the NEPA, the NFMA and the MBTA to evaluate what the expected direct mortality will be to birds from this project.

This analysis needs to include what the expected impact will also be on forest raptors that may be present in the project area. Given the recommended protection buffers for forest raptors (Romin and Muck 2002), what is the expected loss of reproductive success for these species given that no surveys will be completed for any of them?

-Golden Eagle, 0.5 miles 1/1-8/31.

-Northern Harrier, 0.5 miles 4/1-8/15.

-Cooper's Hawk, 0.5 miles 4/1-8/13.

-Ferruginous Hawk, 0.5 miles 3/1-8/1.

-Red-tailed Hawk, 0.5 miles 3/15-8/15.

-Swainson's Hawk, 0.5 miles, 3/1-8/13.

-Turkey Vulture, 0.5 miles 5/1-8/15.

-Prairie Falcon, 0.25 miles 4/1-8/31.

-Merlin, 0.5 miles 4/1-8/31.

-Boreal Owl, 0.25 miles 2/1-7/31.

-Flammulated Owl, 0.25 miles, 4/1-9/30.

-Great Horned Owl, 0.25 miles 12/1-9/31.

-Long-eared Owl, 0.25 miles 2/1-8/15.

-Northern Saw-whet Owl, 0.25 miles 3/1-8/31.

-Short-eared Owl, 0.25 miles 3/1-8/1.

-Mexican Spotted Owl, 0.5 miles 3/1-8/31.

-Northern Pygmy Owl, 0.25 miles 4/1-8/1.

-Western Screech Owl, 0.25 miles 3/1-8/15.

12. The agency is violating the NEPA, the NFMA and the MBTA by failing to evaluate direct, indirect and cumulative impacts on birds associated with

pinyon-juniper woodlands/forests; the agency is also violating the NEPA by failing to disclose how severe adverse effects on birds is an acceptable impact if the identified purpose of the project (fuels reduction and timber production) are still being met.

The impact of the proposed degradation/removal of pinyon pine-juniper woodlands in the Skyline HRFA project was not provided to the public, even though the agency acknowledged that some birds in this vegetation type have current conservation concerns, including the Pinyon Jay. There is no conservation strategy for any bird associated with pinyon-juniper woodlands, including for the Pinyon Jay. The only measure that is proposed for these birds are claims that surveys for the Pinyon Jay will be conducted at some time in the future, and nest sites will be protected. This assumption that only nest sites need management for this species of conservation concern was not explained. In addition, the NEPA requires that mitigation measures (nest surveys) be identified to the public during the public involvement period. The results of any Pinyon Jay surveys need to be provided to the public during public involvement, not only so that the public is provided this essential baseline information, but so that the agency can demonstrate to the public that these surveys have actually been done. In addition, survey results are essential to the public so that they can see how planned vegetation treatments have been adjusted as per survey results. The public also needs to know how past pinyon-juniper treatments in the project area have possibly affected the distribution of the Pinyon Jay. The agency needs to provide good maps showing all past pinyon-juniper treatments that have occurred in the project area, along with results of Pinyon Jay surveys.

The agency is violating the NEPA, the NFMA and the MBTA also by failing to evaluate the importance of pinyon-juniper habitats to birds, including many species of conservation concern. We previously provided reports/publications addressing the high value of pinyon-juniper woodlands to various birds (e.g., Somershoe et al. 2020; Gillihan 2006; and Balda and Masters 1980). We have added an additional reference (Zhoa et al, In Press) that includes Table 1 with a summary of pinyon-juniper birds identified in 10 research studies. This list

confirms the large number of bird species are associated with pinyon-juniper woodlands; Table S1 identified the Black-chinned Hummingbird, Broad-tailed Hummingbird, Black-throated Gray Warbler, Canyon Towhee, Gray Vireo, Mountain Chickadee, Stellar's Jay, Vesper Sparrow, and Western Bluebird as species of "moderate conservation concern, while the Virginia's Warbler, Woodhouse's Scrub-Jay, Pinyon Jay, Juniper Titmouse were identified as species with a high conservation concern. We have also previously provided reports/publications regarding the imperiled status of the Pinyon Jay (Defenders of Wildlife 2022, and Magee et al. 2019). We are adding another report (Zhoa et al. In Press) that provided additional research data on the effects of thinning pinyon-juniper woodlands on birds. This report notes in the abstract that "overall, pinyon-juniper thinning had negative effects on the species group of high and moderate conservation concerns, mainly through reduced tree density and canopy cover; pinon-juniper thinning also has negative effects on five priority species (Pinyon Jay, Woodhouse' Scrub-Jay, Juniper Titmouse, Virginia's Warbler, and Black-throated Gray Warbler).....while the pathways of the effects of pinyon-juniper thinning on avian biodiversity may be complicated and multi-faceted our results clearly indicate that a reevaluation of thinning in pinyon-juniper woodlands is necessary."

The Skyline HFRA proposal did not evaluate any effects on any pinyon-juniper bird species for the proposed project. This failure means the public is not being provided with "high quality information" on project effects. The public is also not being provided a valid rationale for the purpose of the project, since severe adverse effects are not being disclosed. The purpose of a project needs to address why severe adverse effects still result in an overall project benefit to the public. If these severe adverse effects are not actually disclosed, the agency's rationale for the project is invalid. This includes the Skyline HFRA project.

13. The agency is violating the NEPA by failing to evaluate project effects between action alternatives.

The Skyline HFRA NEPA assessment includes one analysis for both action alternatives, the Proposed Action and Alternative; The effects of both alternatives are described as being essentially similar to wildlife, which is impossible given the huge difference in size of proposed vegetation treatments, as well as the vast amount of treatment proposed for the roadless lands for the Proposed Alternative versus Alternative 3. It is impossible that these different alternatives will have very similar, if identical, impacts on wildlife, as is claimed by the agency. Given the huge difference in acreage and location of planned vegetation treatments, the agency has not provided a reasonable assessment that wildlife impacts increase in acreage treated, and especially that wildlife effects will be much more severe with treatments within roadless lands. This NEPA analysis of alternatives is clearly invalid, which makes the Decision Notice and Finding of No Significant Effects (FONAI) invalid as well. IN order to provide a valid NEPA document and decision document, the agency must provide a reasonable detailed comparison between action alternatives to the public.

14. The agency is violating the NEPA by including an invalid action alternative, the proposed action, within the decision document (EA and DN, FONSI) for the Skyline HFRA NEPA analysis.

The proposed alternative for the Skyline HFRA project is invalid because the proposed treatments within IRAs is illegal. The Manti-la Sal National Forest Plan has never evaluated the effects on birds of massive fuels reduction treatments within IRAs, nor as well, disclosed the implementation of such projects to the public. Without a Forest Plan amendment to correct this deficiency of the forest plan and the associated FEIS, the agency cannot move forward with any vegetation management actions within IRAs. It is clear that these fuels reduction activities within IRAs will create significant changes to wildlife habitat on this forest. For example, thermal cover, hiding cover, and prey habitat for the MIS goshawk will be reduced with these treatments, even though the Forest's goshawk population is in decline. These treatments will severely reduce snag habitat essential for at least 30 bird species, including 2 sensitive species on the forest, the Flammulated Owl and Three-toed Woodpecker. These treatments

ensure that large numbers of migratory birds will be killed via vegetation treatment activities, due to logging, mastication, and prescribed fire. These treatments in IRAs also ensure that many forest raptor nests will be destroyed/disturbed with vegetation management activities, as no raptor surveys are required, including within IRAs. These treatments insure that vast amount of hiding cover, thermal cover, nesting sites, and forage for western forest and aridland birds will be removed/reduced, even though many are currently experiencing population declines. And these treatments ensure that old growth structural stage 6 habitat will be degraded, as these areas within roadless lands have never been mapped. Old growth forests are important for up to 22 bird species. In summary, the undisturbed natural conditions of IRAs is clearly important for the continued viability of western forest and aridland birds. The impact of eliminating these unique features provided to a vast number of birds needs to be fully evaluated in a Forest Plan amendment before this new management strategy, to manage IRAs for fuels and logging, is implemented.

Attachment #1 for the Objection against the Skyline HFRA Proposed Project by NEC et al. submitted on March 6, 2026.

This attachment includes copies of 3 publications/reports as well as a copy of 3 e-mails between NEC Director Sara Johnson and Michael Scottorn, USDA.

Bull, E., C. Parks, and T. Torgersen. 1997. Trees and log important to wildlife in the Interior Columbia River Basin.

Goggans, R., R. Dixon, and L. Seminara. 1989. Habitat use by Three-toed and Black-backed Woodpeckers, Deschutes National Forest, Oregon. Nongame Project Number 87-3-02. Oregon Department of Fish and Wildlife, USDA Deschutes National Forest.

The Guardian. 2025. Collapsing bird numbers in North America prompr fears of ecological crisis – research. 6/22/25

USDA. 2026. Correspondence from Michael Scottorn regarding the Skyline HFRA project regarding Forest Plan monitoring; 3 e-mail exchanges between NEC director Sara Johnson and Michael Scottorn on March 2 and 4.

Zhoa, Q., M. Darr, Q. Latif, and M. McLaren. In Press. Thinning effects and underlying pathways for birds of conservation concern in New Mexico pin-juniper woodlands. Journal of Avian Conservation and Ecology.

Trees and Logs Important to Wildlife in the Interior Columbia River Basin

Evelyn L. Bull, Catherine G. Parks, and Torolf R. Torgersen

Companion to General Technical Report
PNW-GTR-390

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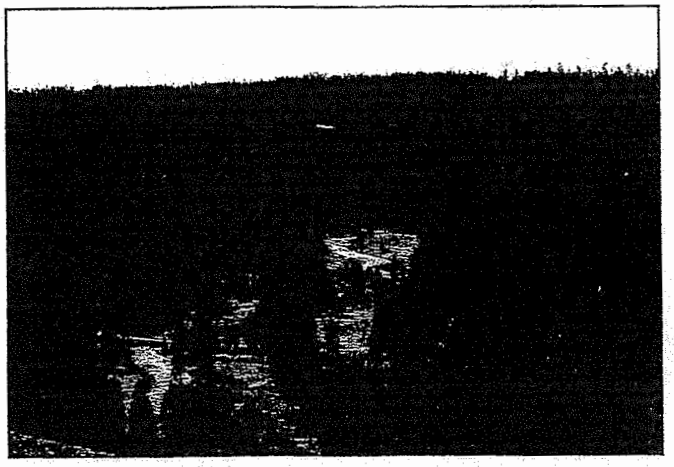
Pacific Northwest Research Station
General Technical Report PNW-GTR-391
May 1997



INTRODUCTION

More than 80 species of birds, mammals, reptiles, and amphibians use living trees with decay, trees with brooms, hollow trees, snags, and logs in the interior Columbia River basin. Animals use these structures for foraging, nesting, denning, roosting, and resting. Most notable of these wood-using wildlife species are the primary cavity nesters, the woodpeckers and nuthatches, that excavate nest cavities in decayed wood in standing trees. Their vacated cavities are subsequently used by many other birds and mammals. About 25 percent of the bird species nesting in the northern Rocky Mountain forests are cavity nesters (McClelland and others 1979). Many of the primary and secondary cavity-nesting birds eat forest insects and thus play an important role in regulating their populations. Machmer and Steeger (1995) provide a thorough review of the effect these birds have in reducing numbers of tree-feeding insects.

Tree decay is an important ecological process affecting wildlife habitat. Once begun, the decay process can take hundreds of years as a tree dies, falls to the ground, and decomposes into the forest floor. As it decays, the tree supports many different wildlife groups that use it for foraging substrate, for nesting, and for shelter. The group of wood decomposers is diverse. It includes many arthropods, but in this publication, we focus on decay fungi as the primary organisms in decay. Decay fungi are an essential resource to forest ecosystems in storing and retaining nutrients and in soil development.

This publication provides managers with a description of the ecological processes that create wildlife trees, snags, and logs. It provides qualitative and quantitative information on five distinct structures: living trees with decay (such as internal decay), hollow trees, trees with brooms (misshapen branches), dead trees (snags), and down woody material (logs). We describe the value of these structures to wildlife, the decay or infection processes that produce each type of structure, principles to help in selecting the best structures to retain, and management implications. Although this document cannot prescribe the amount of landscape to manage for a particular species or a specific, desired population size, it does present information managers can use to make informed decisions regarding the conservation and enhancement of dead wood structures most valuable to wildlife. Forest management practices that fail to properly manage wood components may adversely affect wildlife, soil and stream quality, and forest ecosystem functions.

The information included here applies to coniferous forest lands in the interior Columbia River basin: the area east of the crest of the Cascade Range in Oregon and Washington, all of Idaho, and a portion of western Montana (fig. 1). Tree species characteristic of high-elevation forests, (such as whitebark pine [*Pinus albicaulis*], alpine larch [*Larix lyallii*], mountain hemlock [*Tsuga mertensiana*], and Pacific silver fir [*Abies amabilis*]) are excluded because they typically grow where active management for wildlife trees is seldom needed; these areas are seldom logged. Most of the tree species we deal with here are conifers, although black cottonwood (*Populus trichocarpa*), quaking aspen (*Populus tremuloides*), and paper birch (*Betula papyrifera*) are

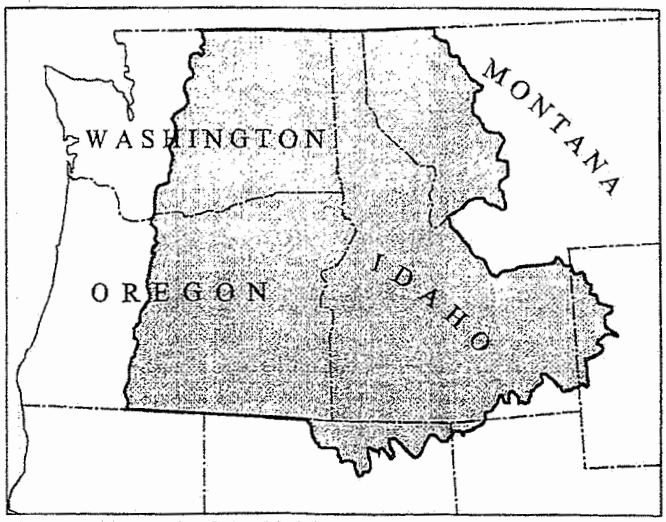


Figure 1—The interior Columbia River basin.

Snag distribution—Snags can either be left in clusters or scattered across the landscape, although where to retain them depends largely on where they currently are. Typically, snags are in clumps naturally because the agents of disease, insects, fire, or flooding that kill many trees act in a localized area. Clusters of snags may be easier to protect during management activities than snags evenly distributed across the landscape. Worker safety is an issue when harvesting adjacent to snags. Retaining snags in clusters, as well as the live trees between the snags, keeps workers away from snags and provides canopy cover for wildlife using the snags.

Two studies on woodpecker use of snag clusters reported different results. No difference was found between woodpecker use of snag clusters versus scattered snags in western Oregon (Chambers 1997). In areas where stand-replacement fires had burned in ponderosa pine/Douglas-fir stands in Idaho, Saab and Dudley (1997) found that cavity nesters as a group select clusters of snags for nest sites instead of evenly spaced trees.

Most studies recommend managing snags in every 5- to 25-acre patch (Bate 1995, Evans and Martens 1995). Because woodpeckers are territorial, only one pair of each species occupies the same territory; therefore, to attain the maximum density of cavity nesters, snags need to be distributed across the landscape.

In addition, retaining snags on all aspects and on all positions of the slope ensures habitat availability for wildlife species with different preferences. For example, pileated woodpeckers tend to roost in draws during summer but roost higher on slopes in winter (Bull and others 1992). Martens rest or travel in riparian areas a third of the time in summer but only half that often in winter; upper slopes are used half the time in winter but only a third of the time in summer (Bull 1995).

Retaining snags close to living trees provides cover for cavity users. If snags are retained in the middle of a clearcut, species like northern flickers, Lewis' woodpeckers, bluebirds, and American kestrels (*Falco sparverius*) will use them for nesting, but most other woodpeckers will not nest in open areas.

In many areas, fuel-wood cutters are likely to remove snags along roads. This potential problem can be remedied by not leaving snags in areas that are accessible to fuel-wood cutters or by not counting snags left adjacent to accessible roads toward the number retained for a particular stand.

In summary, wherever the objective is to provide viable populations of primary and secondary cavity nesters, prudent managers will provide large-diameter snags when available, snags in a variety of structural classes, snags in every 5- to 25-acre stand and in clusters if available, and snags on all slope aspects and positions of the slope, and adjacent to green trees.

Snag densities—Limited information is available on numbers of snags to retain for wildlife species in the interior Columbia River basin (Bate 1995, Bull and Holthausen 1993, Dixon 1995, Evans and Martens 1995) (table 1). The guide most widely used in the past, Thomas and others (1979), prescribed the number of nest and roost trees to leave for specified woodpecker populations, but the number was based on a hypothetical, untested model and did not include any snags for foraging. Three studies (Bate 1995, Bull and Holthausen 1993, Dixon 1995) conducted in eastern Oregon have shown that retaining foraging structure is essential, in addition to nest and roost trees in managed landscapes. The Thomas model provided only two roost trees per pair per year, yet research has shown that individual pairs of pileated woodpeckers and white-headed woodpeckers use considerably more than two per year (Bull and others 1992, Dixon 1995). Radio-telemetry studies have shown that home range sizes of pileated woodpeckers (Bull and Holthausen 1993), white-headed woodpeckers (Dixon 1995), and three-toed and black-backed woodpeckers (Goggans and others 1988) are considerably larger than those used in the Thomas model. Raphael and White (1984) found that the relation between numbers of snags and cavity nesters is not linear, which was assumed in the Thomas model. The substitution factor used in the Thomas model is variable and largely a function of snag density. Neitro and others (1985) thought allowing substitution of snags that reduced the number retained was not appropriate. The Thomas model did not take into account the habitat needs of some of the secondary cavity nesters, like bats and brown creepers, that use such snag features as loose bark. In addition, Bull and Holthausen (1993) found lower densities of pileated woodpeckers in nine study areas than predicted by Thomas and others (1979) based on the number of snags present. The above studies present new data suggesting that some of the assumptions and data used in the Thomas model are not valid, and that the prescribed snag densities need to be revised upward.

We know of only three studies in the interior Columbia River basin that have calculated both the density of snags and woodpeckers in managed and unmanaged landscapes. Bate (1995) used six study areas in ponderosa pine stands and found woodpecker abundance was best predicted by hard snag density, large green tree density, canopy height, and number of canopy layers. Of the nine study areas, only one represented a relatively unmanaged forest with the number of snags that probably approximated historical ones. In this stand, Bate found 3.8 snags greater than 10 inches d.b.h., and 60 percent were larger than 20 inches d.b.h. These snag numbers supported 32.3 woodpeckers per 247 acres and represented the study area that most likely supported viable populations of cavity nesters. Dixon (1995) found similar results in some of the same study areas Bate used.

Another study relating woodpecker density to snag density was conducted in northeastern Oregon (Bull and Holthausen 1993). The two study areas that contained viable populations of pileated woodpeckers had an average of 4.2 and 3.8 snags (10 inches or larger d.b.h.) per acre and 0.5 and 0.4 nesting pairs per 247 acres, respectively. The two study areas were in lightly managed landscapes predominated by mixed-coniferous stands with a high density of logs.

Evans and Martens (1995) recommended densities of snags for retention on the Payette National Forest based on their ecological value, encompassing soil health, seedling regeneration, moisture retention, nutrient recycling, and wildlife use (table 1). The numbers that they recommended were derived from actual snag numbers identified during

timber inventory and vegetation plots but were scaled down to the lower ranges of the snag numbers for the recommendations and include snags 10 inches d.b.h. and larger.

Ideally, data would be available on the exact number of snags required to support specific populations of primary and secondary cavity nesters. Unfortunately, this kind of information is not available. We do know, however, that the snag numbers presented by Thomas and others (1979) are not adequate to support the populations intended because of a lack of foraging strata and invalid assumptions used in the model. If management agencies have an objective to manage for viable populations of woodpeckers, providing numbers of snags that have been shown to support viable populations in the recent studies would be prudent.

Although snags are the key structure typically focused on for cavity nesters, realizing the importance of the forest surrounding the snags also is essential. Some species like the pileated and white-headed woodpeckers and American martens are associated with older forests. For white-headed woodpeckers, the snags must be in association with large-diameter ponderosa pines. For pileated woodpeckers and martens, logs, large-diameter green trees, and a dense canopy are needed. Leaving large-diameter snags or green trees in younger forests, also has value as providing biological legacies.

Snag retention in burns—The above management implications apply to healthy green stands. With vast areas of Oregon, Washington, and Idaho burned by wildfires in the 1990s, there is much interest in determining numbers of snags to retain in burned areas after harvesting. Saab and Dudley (1997) reported that woodpeckers selected nest sites with snag densities greater than those measured at random sites in ponderosa pine/Douglas-fir forests with stand-replacing fires. From 10 to 14 snags per acre were retained in burned stands that were harvested; about 38 to 42 snags per acre were in the unharvested burned stands. Seven species of cavity nesters using the burned stands selected nest sites with more than 20 snags per acre, where snags were distributed in clumps. Lewis' and white-headed woodpeckers, and American kestrels selected the largest, most heavily decayed snags available for nesting. Evans and Martens (1995) presented recommendations for numbers of snags to leave in burned stands.

Green tree replacements—Snags are a dynamic resource; old snags fall and living trees die to become new snags. Snag-dependent wildlife need a continuous supply of snags over time. To provide a continuum of snag habitat, future snags must be planned for by leaving green trees to eventually become snags in managed stands. To determine the number of green tree replacements, information on fall rate of standing snags, snag density, live stem density, and mortality rate of live stems is required. Various models have been developed to calculate the number of green trees to provide for recruitment when specific stand inventory information is available (Bull and others 1980, Cimon 1983, Schommer and others 1993). If snags are to be created by killing green trees when the stand becomes snag deficient, the number of green trees required is less because the manager does not have to rely on natural mortality to replace those snags that fall. Creating snags is costly, however, and stands are seldom monitored to determine when trees need to be killed.

Snag Longevity

Snag longevity, or the amount of time a snag stands, is essential information for managing the snag resource. The length of time snags stand is a primary factor in determining the number of green tree replacements needed to maintain a specific snag density over time. Snag longevity is a function of many factors including species, diameter and height, percentage of heartwood, cause of death, soil type and moisture, forest type, and prevalence of windstorms. Because so many factors influence how long a snag stands, fall rates should be determined by species and size class on each management area. Listed below are studies that report snag fall rates. When possible, the amount of time when 50 percent of snags in a particular study have fallen will be reported.

Several studies have reported fall rates of beetle-killed ponderosa pine. Keen (1955) reported that 50 percent of the ponderosa pines in southern Oregon and northeastern California fell 9 to 10 years after death on pumice soils and 6 to 7 years after death on loam soils. The percentages of snags that fell after 7 years by diameter class, are presented in the following tabulation:

Diameter class (inches)	Percentage
10-18	75
20-28	65
30-38	50
40-48	35
> 50	30

Most of the beetle-killed ponderosa pines in Colorado fall between 7 and 10 years after infestation (Schmid and others 1985). Trees were 7 to 22 inches d.b.h.

In northeastern Oregon, half the ponderosa pines less than 10 inches d.b.h. fell 7 to 8 years after death and half those 10 to 19 inches d.b.h. fell after 8 to 9 years (Bull 1983). Beetle-killed lodgepole pines have similar fall rates, with half of those less than 10 inches d.b.h. falling within 6 to 7 years and half of those 10 inches and larger falling after 7 to 8 years (Bull 1983). In a second study in northeastern Oregon (Bull and Partridge 1986), half of the ponderosa pine snags less than 20 inches d.b.h. fell after 6 years; half of the ponderosa pine snags 20 inches and larger fell after 9 years.

Beetle-killed spruce in Colorado stood much longer than ponderosa pines reported in the studies above. Mielke (1950) found that 84 percent of beetle-killed spruce remain standing after 25 years. Hinds and others (1965) found that 72 percent of beetle-killed spruce remain standing after 20 years.

Fire-killed snags may or may not stand longer than beetle-killed snags, depending on the area. Dahms (1949) reported that a little over half the ponderosa pine snags are down 10 years after a fire in central Oregon. In Montana, nearly half of all lodgepole pine snags fall by the fifth season (Lyon 1977). In California, Kimmey (1955) described the

breakup of a fire-killed stand, although specific fall rates were not presented. In the fourth and fifth year after the fire, many ponderosa and Jeffrey pine (*Pinus jeffreyi*) broke off at the ground or up to 50 feet above the ground. By the fifth year, the general breakup continued until only scattered barkless snags and stubs remain.

In northeastern Oregon, different methods of killing ponderosa pines were investigated (Bull 1996c, Bull and Partridge 1986). Trees that had been topped stand the longest; half of those less than 20 inches d.b.h. are down after 10 to 12 years; half of those 20 inches or larger are down after 12 to 17 years. Half the trees injected with a silvicide are down 7 years after treatment. Half the girdled trees are down 9 years after treatment.

Fall rates of snags that have been created differ. Ponderosa pines infected with dwarf mistletoe were frilled and poisoned with an herbicide in the Southwest; after 10 years, 95 percent of those trees are down (Fairweather 1995).

All of these studies suggest that most ponderosa pine and lodgepole pine that died from fire or beetles in the interior Columbia River basin have fall rates of less than 10 years. Small-diameter snags fall sooner than do larger ones.

Sampling Techniques

Knowledge of snag density is essential for managing forest stands effectively, as well as for complying with standards and guidelines. Various methods have been used to determine snag densities: area-wide counts, fixed-radius circular plots, variable-radius plots using prisms (Bull and others 1990), and variable-strip transects (Bate and others, in press). Total counts of snags over large areas are very time-consuming but yield the most accurate density information. Fixed-radius plots typically need to be at least 1 acre because snags are usually scarce and variance is high. Many plots are usually required to accurately estimate snag density.

Bate and others (in preparation) have developed a more efficient method of sampling snags than either area-wide counts or fixed-radius plots: data are collected from a pilot sample transect and used in a computer program. The program determines the optimal length and width of a strip transect within a given area; the optimal size is that which minimizes the cost and variance. The program then provides the necessary sample size to obtain a snag density within the desired statistical bounds. Transect lengths are either 164 or 328 feet; transect widths range from 33 to 131 feet. The

Table 1—Density of snags reported or recommended in four areas; numbers are snags per acre larger than 10 inches d.b.h. (unless otherwise stated), and the percentages represent snags larger than 20 inches d.b.h.

	Locality			
Forest type	Western Idaho[a]	Central Oregon[b]	Northeast Oregon[c]	North-central Idaho[d]
Ponderosa pine:				
Open canopy[e]	1.6(75%)			
Closed canopy[f]	4.8(44%)	4(60%)		
Mixed conifer:				
Open canopy	2.5(72%)			
Closed canopy	9.0(39%)		3.8(29%)	10-48
Lodgepole pine:				
Open canopy	4.5			
Closed canopy	7.7			
Spruce/fir	9.5(21%)			

[a] Recommendations for snag densities selected from the lower ranges of snag numbers on timber inventory plots and fixed-radius plots on the Payette National Forest; different snag levels recommended for burned and unburned stands (Evans and Martens 1995).
[b] Snag numbers based on variable-width transects conducted in an unmanaged stand of old growth in central Oregon where woodcutting was prohibited (Bate 1995).
[c] Numbers based on density of snags in two 4,000-acre study areas in northeastern Oregon that supported viable numbers of pileated woodpeckers; areas had some timber harvest but no woodcutting (Bull and Holthausen 1993).
[d] Densities based on timber inventory plots in unmanaged stands of large saw timber. The snag density varied depending on what snags were included in the count. The 10 snags per acre included only snags 15 inches d.b.h. or larger and 50 feet or taller. The 48 snags per acre included all snags 15 inches d.b.h. or larger of any height. Western white pine snags were not counted (Craig 1995).
[e] Stands with less than 30 percent canopy closure.
[f] Stands with more than 30 percent canopy closure.

program also provides a "distribution index," which is an estimate of the percentage of the sampled landscape supporting target snags or trees.

Creating Wildlife Trees

In managed stands, retaining existing snags is the most ecologically sound and economical approach to providing wildlife trees. If stands are devoid of snags, however, an option is to alter or kill living trees. Depending on the method used, killing trees can be costly and may not produce the desired decay conditions. Years may pass before the decay is sufficiently advanced to promote cavity-nester excavations.

Bull and Partridge (1986) investigated six methods of killing ponderosa pine. They determined that topping trees with either a chainsaw or explosives produced snags that stood the longest and received the greatest nest use by woodpeckers (figs. 48 and 49). In this study, girdling, fungal inoculation, and beetles attracted by pheromones did not consistently kill the tree. Trees killed by girdling or silvicides fell over too quickly to provide wildlife nest trees.

In a study in New Mexico, all of the ponderosa pines killed by girdling were used for foraging by woodpeckers. Most of the trees greater than 16 inches d.b.h. were standing after 7 years, and about 30 percent contained woodpecker nest sites (Parks 1996b). Because the climate in the New Mexico sites is drier than in the Oregon study area used by Bull and Partridge (1986), basal decay of killed trees may have been less, so the trees stood longer.

Recent work by Parks and others (1996a, 1996b) documents a new method of inoculating live trees with decay fungi. Six years after inoculation of 60 living western larch, 14 percent contained woodpecker cavities near the point of inoculation. These trees may remain alive for decades with a pocket of decay that woodpeckers can use for nesting. Trees may be logged next to these trees without safety concerns, and live trees are less likely than dead trees to be lost to fuel-wood cutters. These preliminary results for western larch suggest that inoculation produces desirable wildlife trees at a lesser cost than killing trees to create snags.

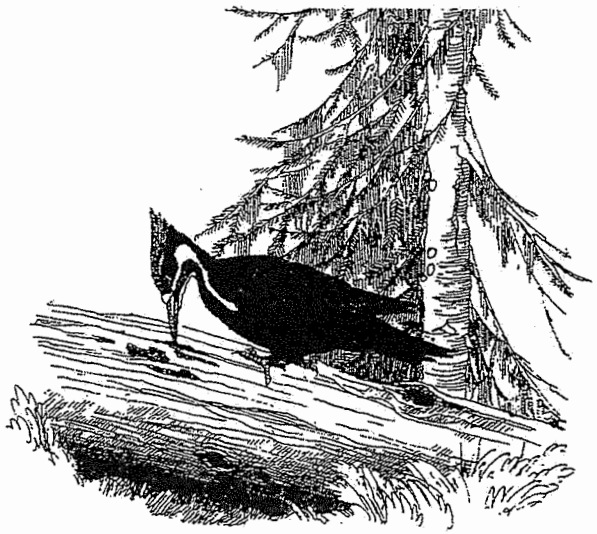
A variety of wildlife tree structures can be created with a chainsaw in standing, living trees. Trees can be topped leaving a horizontal branch structure on which ospreys (*Pandion haliaetus*) can build nests (fig. 50). A depression can be cut into the top of a tree that has been topped to produce a nest site for great gray owls (fig. 51). Artificial cavities and hollows can be cut into standing and downed trees (figs. 52, 53, and 54). Slits can be cut into trees to create roosting habitat for bats (fig. 55). These techniques and others are described by Brown (1996).

Three primary considerations in creating wildlife trees are the target wildlife species for which the structure is being created; the tree species, size of tree, and habitat locality most likely to be used by the targeted wildlife species; and the method of altering or killing trees that is most likely to produce long-standing trees in a given geographic area. Rainfall, snowfall, incidence of windstorms, and prevalent decay organisms all must be considered.

Thousands of trees have been killed to create snags in the interior Columbia River basin in the last 15 years. Few of them have been monitored, however, to determine whether long-lasting, quality snags were actually produced. Because climate and decay organisms differ with area, results of management activities, such as snag creation, must be monitored to ensure that results warrant the cost of these treatments. We include a data form to monitor wildlife use of created snags in appendix A.

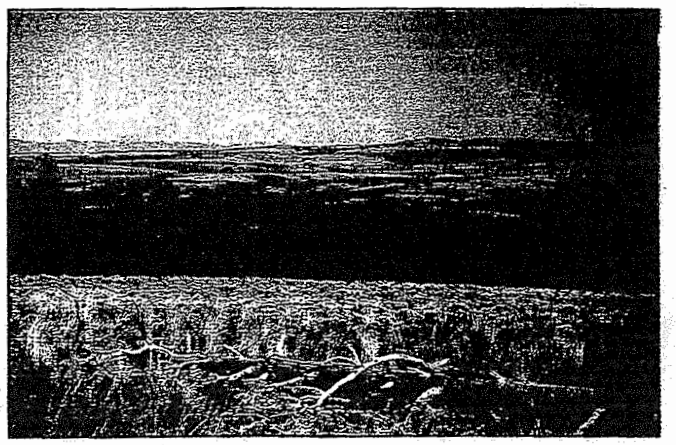
Review

- Ponderosa pine, western larch, quaking aspen, and paper birch are favored tree species for nest sites of woodpeckers in many areas in the interior Columbia River basin.
- Large-diameter snags provide nest habitat for the greatest variety of cavity nesters and stand longer than smaller snags.
- Snags can be classed into three structural classes that are a simplified version of past decay class categories.
- Snags should be provided in every 5- to 25-acre stand, in clusters if available, on all slope aspects and positions of the slope, and adjacent to green trees.
- Recent studies have shown that the snag model developed by Thomas and others (1979) did not accurately predict woodpecker abundance based on snag abundance. New information suggests that foraging strata (snags and other structures) must be incorporated into any snag model, and that snag numbers need to be revised upward.
- Published data suggest that populations of cavity nesters were viable in stands of ponderosa pine and mixed-conifer forests that contained about four snags per acre, a large component of old-growth stands, and abundant logs.
- Snags can be retained over time by using models for green tree replacements.
- Snag longevity depends on cause of death, tree species, diameter, height, amount of heartwood, geographic area, and site conditions.
- Creating snags and other wildlife structures can mitigate the loss of natural habitat, but retaining existing structures is most cost effective and ecologically sound.



Review

- Size, species, and number of logs per acre are fundamental descriptors of the suitability of log resources for wildlife.
- Logs 15 inches or greater in large-end diameter are particularly important for species such as pileated woodpeckers.
- In mixed-conifer stands, logs of western larch, Douglas-fir, and grand fir were favored for foraging by pileated woodpeckers in northeastern Oregon.
- Late- and old-seral stands of mixed conifers have about 90 logs per acre in northeastern Oregon.
- Logs averaged 34 feet long in mixed-conifer stands in northeastern Oregon, but logs should be as long as possible to offer the greatest range in diameters.
- Hollow logs of any species and size class are important structural components to favor.



CONCLUSIONS

This document presents new information on the retention and selection of trees and logs most valuable to wildlife. This new information may be useful in the forest planning process. As additional information becomes available, agencies can incorporate it into their management guidelines.

Current direction for providing wildlife habitat on public forest lands does not reflect this new information. Since the publication of Thomas and others (1979), new research suggests that to fully meet the needs of wildlife, additional snags and habitat are required for foraging, denning, nesting, and roosting. Although we do not suggest specific numbers of snags to retain by forest type, two recent studies indicate that viable woodpecker populations occurred in areas with about four snags per acre (Bull and Holthausen 1993, Dixon 1995).

We suggest that the next step in snag management should involve creating a model that incorporates the new information on woodpecker foraging substrates (live trees, snags, and logs), home range sizes, number and characteristics of roost trees, multiple occupancy of snags, and needs for other habitat structures. Once this information is incorporated, the model may suggest changes to guidelines that specify numbers of snags and other habitat features by forest type and geographic area. Additional information on fall rates of snags, foraging needs of black-backed and three-toed woodpeckers, relation of the density of woodpeckers to that of secondary cavity nesters, and relation of snag density to woodpecker density would greatly improve the model.

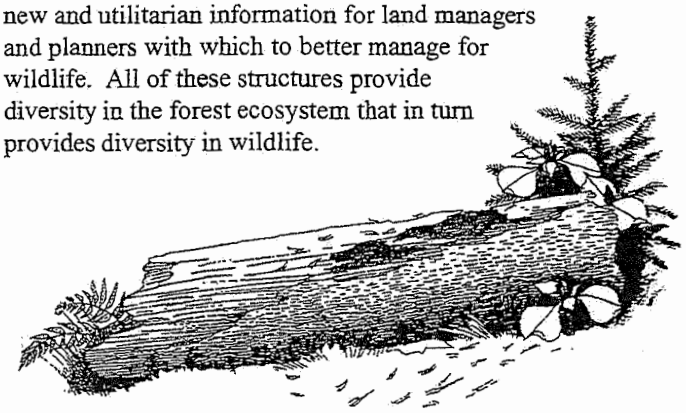
Although hollow trees provide benefits to many wildlife species, no framework regarding their management exists. Additional research is needed to clarify how and when heart-rot decay is initiated, and how long hollow trees persist. Management actions that foster the development and retention of hollow trees need to be developed.

In spite of the value of dwarf mistletoe brooms to wildlife, many managers are still reluctant to retain such structures in stands. With creative management, selected areas can be identified in which to retain trees with dwarf mistletoe brooms but still minimize the risk of spread of dwarf mistletoe to the rest of the stand. Information presented here suggests that retaining trees with brooms caused by broom rusts or Elytroderma offers little risk of tree mortality within a stand.

We are just beginning to recognize the importance of logs in wildlife management. Inventories in 22 areas in northeastern Oregon showed that late- and old-seral stands of mixed conifers contained about 90 logs per acre. These inventories raise questions regarding current guidelines that call for only 6 to 20 logs per acre. Logs are important not just for wildlife but for maintenance of nutrient recycling, water economy, and structural properties for plant growth and soil development that logs provide.

For any management plan to be effective, a reasonable estimate of existing conditions is essential. To obtain this information, inventories of snags, logs, hollow trees, and trees with brooms can be done by using techniques recommended in this text. For down logs, the minimum information needed for wildlife purposes are large-end diameters of logs, lengths, and numbers per acre. Fuel inventories do not provide this information. Once existing conditions are known, management direction can dictate the number and type of structures to retain and the number that can be removed without jeopardizing wildlife objectives.

We hope that this document will provide some new and utilitarian information for land managers and planners with which to better manage for wildlife. All of these structures provide diversity in the forest ecosystem that in turn provides diversity in wildlife.



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HABITAT USE BY THREE-TOED AND BLACK-BACKED WOODPECKERS, DESCHUTES NATIONAL FOREST, OREGON

by

Rebecca Goggans, Rita D. Dixon, and L. Claire Seminara

Nongame Project Number 87-3-02
Oregon Department of Fish and Wildlife
U.S.D.A. Deschutes National Forest

ABSTRACT

Patterns of habitat use for home ranges, foraging, nesting, and roosting, were described for three-toed (Picoides tridactylus) and black-backed (Picoides arcticus) woodpeckers on the Deschutes National Forest, Oregon, during April-September, 1986 and 1987. A severe mountain pine beetle epidemic had created an abundance of dead and dying trees, and an agressive pest management and timber salvage program had created a patchwork of logged areas, primarily shelterwood cuts, on the study area.

All nests excavated by three-toed and black-backed woodpeckers were in portions of lodgepole pine (Pinus contorta) trees with heartrot. Evidently, both species require soft wood for excavating cavities, because of morphological adaptations associated with 3 toes on each foot. Habitat selection for mature and overmature forest stands, and against younger stands and logged areas, was documented for three-toed woodpeckers using 16 nests, 493 forage bouts, and 16 roosts, and for black-backed woodpeckers using 35 nests, 395 forage bouts, and 20 roosts. Home range sizes for 3 radio-tagged three-toed woodpeckers were 751, 351, and 131 acres (n=170, 352, and 131 locations, respectively). Home range sizes for 3 radio-tagged black-backed woodpeckers were 810, 303, and 178 acres (n= 124, 86 and 112 locations, respectively). Intra-specific home range overlap among both species appeared limited or nonexistent, except among paired individuals near the nest site. Inter-specific home range overlap was common between three-toed and black-backed woodpeckers and other Picidae.

Guidelines for management included establishing Management Areas which retain the characteristics of mature and overmature lodgepole pine or lodgepole pine-mixed conifer forest stands. Recommended sizes of Management Areas were 528 acres per pair of three-toed woodpeckers, at a minimum elevation of 4500 ft, and 956 acres per pair of black-backed woodpeckers, with some Areas at elevations less than 4500 ft. One Management Area could be designated for both species, if the respective habitat needs were met.

SUMMARY

INTRODUCTION

Three-toed and black-backed woodpeckers are two of the least known species of woodpeckers in North America. They are sympatric over most of their North American range and both are nonmigratory residents on the east slope of the Cascade Mountain Range. The woodpeckers are associated with trees characterized by scaly or flaky bark, but differ in the species of trees with which they are associated; the three-toed woodpecker is more closely associated with spruce (Picea spp.), and the

roosts were on the lower study area where only lodgepole pine forest type was available. Mean canopy closure at roost sites was 40%. Mean dbh of trees in the roost stand was 6.0 in. Mean basal area of roost stands was 115 ft^2/acre. Lodgepole pine trees were used for 14 roosts. Mean dbh of roost trees was 11.0 in. Mean tree height was 65 ft.

MANAGEMENT IMPLICATIONS

Mature and overmature forest stands have a high incidence of disease, decay and mortality. Trees with disease and decay are undesirable components of a managed forest, but were used by three-toed and black-backed woodpeckers for home range, nesting, roosting, and foraging habitat. Nests were excavated in trees with heartrot, roosts were in diseased portions of trees or decayed snags, and forage sites were in mature and overmature stands, which have abundant disease and decay, and consequently abundant wood-boring insects. Conversion to and maintenance of lodgepole pine and lodgepole pine-dominated mixed conifer stands in a young, vigorous condition may eliminate or severely restrict incidence of wood-boring insects and heartrot, leading to declines in populations of three-toed and black-backed woodpecker.

Acreage of mature and overmature lodgepole pine forest stands are declining throughout the Oregon Cascades, because these stands are the prime target of the mountain pine beetle. Stands which experience high mortality nonetheless provide habitat for three-toed and black-backed woodpeckers. Individual trees within a stand may remain standing 10, 15 or 20 years, thus providing a continuum of habitat. Treating these stands, by logging, immediately converts them to a vigorous condition where incidence of death and decay is severely restricted, thus potential nesting and foraging substrate is drastically reduced. Although in time, stands without treatment may be structurally similar to treated stands, the time to reach that condition differs significantly. Because stands without treatment continue to provide habitat over a longer time than treated stands, thus there is a shorter period when old growth lodgepole pine is absent or scarce on the Deschutes or other National Forests. Consequently, a larger population of woodpeckers may survive,

thereby increasing the potential for maintening viable populations of both species.

Designation of the three-toed woodpecker as an Indicator Species for mature and old growth lodgepole pine appeared appropriate, but only at elevations greater than 4500 ft. Much of the pure lodgepole pine on the east slope of the Cascade Mountain Range in Oregon occurs at elevations less than 4500 ft. We recommended the black-backed woodpecker as an Indicator Species for mature and old growth lodgepole pine, instead of the three-toed woodpecker. Unlike the three-toed woodpecker, the black-backed woodpecker used a range of elevations coincident with lodgepole pine. Futher, it responded to play-back recordings more frequently, over a longer time period, and with louder vocalizations than the three-toed woodpecker, thus may be more effectively monitored than the three-toed woodpecker.

Until more information is available, we believe the most effective method of insuring habitat for three-toed and black-backed woodpeckers is to exempt areas (i.e. Woodpecker Management Areas) from commercial or salvage timber management and place these areas under a special management strategy, which retains the characteristics of mature or overmature lodgepole pine habitat as long as possible, without treatment. Woodpecker Management Areas should be in lodgepole pine or lodgepole pine-dominated stands with the greatest probability of surviving the longest time, but if these stands no longer retain the characteristics of mature and overmature stands, or if the number of trees remaining is inadequate to support a pair of woodpeckers, then the designated Woodpecker Management Area should be relocated to a selected replacement. Replacement stands should be selected now, to provide the earliest possible replacement for declining Woodpecker Management Areas. Woodpecker Management Areas, and replacement areas, may be within areas previously designated as protected, such as old-growth areas, Spotted Owl Habitat Areas, winter recreation sites, Research Natural Areas, etc. Management Areas for each pair of three-toed woodpeckers should be 528 acres of lodgepole pine or mixed conifer forest in mature and overmature condition and at an elevation of 4500 ft or higher. Management Areas for each pair of black-backed woodpeckers should be 956 acres of lodgepole pine or lodgepole pine-dominated mixed conifer forest in mature and overmature condition. One Management Area of 956 acres, at an elevation of

4500 ft or higher, could be designated for 1 pair of both species. However, Management Areas for black-backed woodpeckers should not be restricted to elevations greater than 4500 ft because this species may be better adapted to conditions at lower elevations.

Black-backed woodpeckers are not currently assigned a special status (e.g. Indicator Species), thus designation of Woodpecker Management Areas may not be practical at this time. An alternative management strategy can be applied on a sale-by-sale basis. On each sale, habitat can be preserved for each pair of black-backed woodpeckers by removing 956 acres of inter-connected blocks of mature/overmature habitat from harvest. For example, if a sale area is 9500 acres of mature or overmature lodgepole pine-dominated habitat, management at 60% of potential would be for 6 pairs, or 6 areas of 950 acres each. The traditional approach for management of cavity-nesters at 60% of potential by retaining 60% of the snags and live replacement tree may be ineffective for black-backed and three-toed woodpeckers for two reasons. One - snags provide more than nesting habitat; snag retention at the 60% level is unlikely to occur in sufficient amounts to provide adequate feeding substrate for species dependent on wood-boring insects associated with trees with flaky/scaly bark. Two - this approach addresses a singular, albeit a key, component of the species' habitat. The interrelationships of an old growth, or mature/overmature ecosystem, and the species associated with it, are little known, but likely complex. Land managers do not, at this time, have the information necessary to manipulate habitat and insure these interrelationships will be maintained.

The figures for home range sizes and the amount of mature or overmature stands used by woodpeckers were estimated under conditions of abundant food supply. As the mountain pine beetle epidemic runs its course, and prey abundance declines, it is likely that the amount of area required to support a pair of three-toed or black-backed woodpecker will increase.

Three-toed and black-backed woodpeckers should be monitored to track changes in population levels as the mountain pine beetle epidemic runs its course and as the forest becomes increasingly managed, resulting in reduced levels of disease and decay. Survey routes to document number of woodpecker responses

should be monitored annually. Population levels of three-toed and black-backed woodpeckers prior to the mountain pine beetle epidemic were undocumented, thus the effects of the mountain pine beetle epidemic on population levels is unknown. A review of population irruptions by three-toed and black-backed woodpeckers in eastern North America suggested that numbers of black-backed woodpeckers increase with increasing prey abundance, but that populations of three-toed woodpeckers are much less responsive to changes in prey abundance. It is possible that numbers of black-backed woodpeckers increased as the density of mountain pine beetles increased on the Deschutes National Forest. Similarly, populations may decline as the epidemic runs its course and prey for the woodpeckers becomes scarcer. It may be difficult to distinquish between the effects of the epidemic, and of timber management to control the epidemic, on populations of black-backed and three-toed woodpeckers. Documenting breeding success in Management Areas may be an effective method of combatting public outcry if woodpecker populations decline on the Forest.

This study provides a preliminary data base on habitat use by three-toed and black-backed woodpeckers; it is intended as a springboard for other studies. The pioneering nature of the study required a limited time frame, geographic scope, and sample size. Consequently, management recommendations represent the best available information at this point in time, but are intended to evolve as more information becomes available. Additional research should be a priority for land managers. Research needs include: (1) information on habitat use in areas without a bark beetle epidemic, (2) estimates for home range sizes of individuals of both species under a range of conditions, (3) estimates for breeding home range sizes of both species, (4) information on flexibility of the species to adjust to managed forest habitat, (5) information on the relationship of habitat quality and fragmentation to home range size, and (6) information on juvenile dispersal.

The age of extinction Birds

This article is more than **1 month old**

Collapsing bird numbers in North America prompt fears of ecological crisis – research

Study using citizen data finds three-quarters of nearly 500 species in decline, with steepest trend in areas where they once thrived

Bird populations across North America are falling most quickly in areas where they are most abundant, according to new research, prompting fears of ecological collapse in previously protected areas.

Analysis of nearly 500 bird species across North America has found that three-quarters are declining across their ranges, with two-thirds of the total shrinking significantly.

The study, published in the journal Science, indicates that former strongholds for bird species are no longer safe, particularly in grasslands, drylands and the Arctic.

In one of the most ambitious uses of citizen science data so far, scientists at the Cornell Lab of Ornithology used observations from eBird, a popular application used by birdwatchers to record sightings, to model changes between 2007 and 2021. The granularity of the data allowed researchers to track the rate of change in 27 sq km (10 sq miles) segments across North America, showing dramatic declines in areas where less than two decades ago bird species had thrived.

Williamson's sapsucker is threatened in more than half of the states and provinces where it breeds, according to the report. Photograph: Blair Dudeck/Cornell Lab of Ornithology/Macaulay Library

"We've known for several years that a lot of bird species in North America have been declining. With this study, we were aiming to understand in much

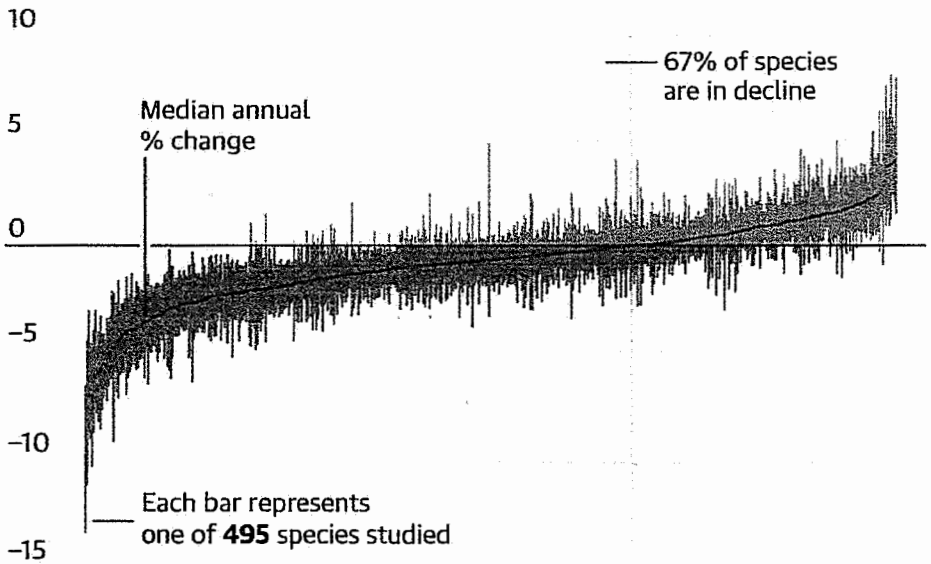
finer spatial resolution where birds were declining and where they might be increasing. Rather than having a range-wide trend to see if a species is going up or down, we want to know where it is going up and down," said Alison Johnston, director of the Centre for Research into Ecological and Environmental Modelling at the University of St Andrews, UK, who led the study.

"The main ecological finding is that the locations where these species were thriving in the past, where the environments were really well suited to birds, are now the places where they are suffering the most," she said.

The researchers said further studies were needed to explain the reasons behind the changes, many of which were dramatic, with populations falling by more than 10% a year in some areas. Global heating and habitat change were put forward as the main theories behind the shifts, but Johnston said they ultimately did not know.

Most North American bird species are in decline

Median annual % change in abundance 2007-2021, in 27 sq km areas



Guardian graphic. Source: Cornell University

"The way I interpret this result is that it's indicative of major changes in our world," she said. "The fact that where birds used to have strongholds, where there used to be a lot of resources, where the environments were really suitable, are now the places where they are declining most, that suggests to me that we are just seeing fundamental changes to the environments around us. The birds are like the canary in the coalmine," she said.

The research adds to a recent series of studies that have documented severe declines of birds in nature reserves and protected areas.

Despite the worrying overall picture, the researchers found pockets of stability in bird populations in their analysis, such as the Appalachians and western mountains. In addition, 97% of all bird species had some pockets where their populations were increasing.

The team at Cornell University has previously developed methods for reliably converting citizen science observations in apps such as eBird into data that can be used to monitor population changes in a single species. The study authors only included results that had passed strict reliability checks.

Prof Amanda Rodewald from the Cornell Lab of Ornithology, a co-author on the study, said the methods would allow conservationists to target their efforts.

"It is this kind of small-scale information across broad geographies that has been lacking and it's exactly what we need to make smart conservation decisions," she said. "These data products give us a new lens to detect and diagnose population declines and to respond to them in a way that's strategic, precise and flexible. That's a gamechanger for conservation."

Ian Burfield, a global science coordinator with BirdLife, who was not involved in the study, welcomed the research and said it highlighted areas for further investigation.

"North American birds are one of very few taxonomic groups and regions where such data exist to facilitate this approach. This emphasises the vital need for more field data collection, both through formal monitoring schemes and citizen science efforts, in many other parts of the world, especially in the biodiversity-rich tropics," he said.

Find more age of extinction coverage here, and follow the biodiversity reporters Phoebe Weston and Patrick Greenfield in the Guardian app for more nature coverage

This article was amended on 2 May 2025. An earlier version incorrectly attributed the referenced study to Princeton, rather than Cornell University.

Most viewed

Biennial monitoring reports for the Manti-la Sal

From: Sara Johnson (sjjohnsonkoa@yahoo.com)

To: michael.scottorn@usda.gov

Date: Monday, March 2, 2026 at 02:38 PM MST

Hi Michael,

I have been unable to find the biennial monitoring reports for the 1986 forest plan. Could you provide me electronic copies of these, or at least the most recent one?

Sara Johnson, Director, Native Ecosystems Council

monitoring reports for the Manti-la Sal National Forest

From: Sara Johnson (sjjohnsonkoa@yahoo.com)

To: michael.scottorn@usda.gov

Date: Wednesday, March 4, 2026 at 09:27 AM MST

Hi Michael,

Yesterday I e-mailed you about the lack of monitoring reports on the forest's web page. I am interested in these reports in order to respond to the Skyline proposal. Could you please e-mail these monitoring reports, or provide the link to access them, including for the goshawk.

Sara Johnson, Native Ecosystems Council

RE: [External Email]monitoring reports for the Manti-la Sal National Forest

From: Scottorn, Michael - FS, UT (michael.scottorn@usda.gov)
To: sjjohnsonkoa@yahoo.com
Cc: reggie.swenson@usda.gov; concetta.brown@usda.gov
Date: Wednesday, March 4, 2026 at 12:20 PM MST

Sara, thanks for reaching out, sorry for the delay. Let me try to answer your emails to the best of my knowledge. For the Skyline HFRA project, I don't have any biennial monitoring reports in the file. I don't typically put those documents in the project record for projects like the Skyline HFRA. There might be another contact on the forest that might be able to get you that report.

For the goshawk, the wildlife resource report, and the biological evaluation/biological assessment will cover analysis, effects, design features, and any associations with this project for the northern goshawk. https://www.fs.usda.gov/r04/manti-lasal/projects/64839

I have cc'd the project environmental coordinator and the District Ranger to weigh in the event I can't answer your questions fully.

Feel free to call, thanks a bunch

Michael Scottorn, Forester
Timber Program Manager
Forest Service
Manti-La Sal National Forest, Sanpete Ranger District
p: 435-636-3327
c: 435-851-1959
michael.scottorn@usda.gov
540 North Main Street
Ephraim, UT 84627

From: Sara Johnson <sjjohnsonkoa@yahoo.com>
Sent: Wednesday, March 4, 2026 9:28 AM
To: Scottorn, Michael - FS, UT <michael.scottorn@usda.gov>
Subject: [External Email]monitoring reports for the Manti-la Sal National Forest

Hi Michael,

Yesterday I e-mailed you about the lack of monitoring reports on the forest's web page. I am interested in these reports in order to respond to the Skyline proposal. Could you please e-mail these monitoring reports, or provide the link to access them, including for the goshawk.

Sara Johnson, Native Ecosystems Council

Thinning effects and underlying pathways for birds of conservation concern in New Mexico piñon-juniper woodlands

Qing Zhao, Margaret Darr, Quresh Latif, Matthew McLaren

Abstract

Piñon-juniper woodlands are one of the largest ecosystems in the United States and harbor many piñon-juniper-associated bird species. It is a common practice to reduce tree cover and density of these woodlands for various objectives, including increasing livestock forage and reducing wildfire hazard. Understanding the different pathways of how piñon-juniper thinning affects bird species of conservation concern is important for both woodland management and avian conservation and thus warrants investigation. In this study, we aimed to understand the pathways of the effects of piñon-juniper woodland thinning on bird species groups of high, moderate and low conservation concern, as well as seven priority bird species. During the month of May from 2021 to 2023, we collected count data with distance sampling and removal sampling information from 46 1km × 1 km plots (23 treated ≤10 years previously and 23 controls). We then used these data to estimate abundance of bird species across the gradients of piñon-juniper thinning and eight environmental factors such as canopy cover. By using a path analysis based on N-mixture modeling, we were able to decompose the effects of piñon-juniper thinning on avian abundance that can be explained by the environmental factors considered or by other unmeasured factors. Our results revealed multiple pathways of the effects of piñon-juniper thinning on bird groups and species. Overall, piñon-juniper thinning had negative effects on the species group of high and moderate conservation concerns, mainly through reduced tree density and canopy cover. Piñon-juniper thinning also had negative effects on five priority species (Pinyon Jay, Woodhouse's Scrub-Jay, Juniper Titmouse, Virginia's Warbler, Black-throated Gray Warbler) and a positive effect on one priority species (Gray Vireo), with this total effect being explained by environmental factors considered or unmeasured factors, depending on the species. While the pathways of the effects of piñon-juniper thinning on avian biodiversity may be complicated and

multifaceted, our results clearly indicate that a reevaluation of thinning in piñon-juniper woodlands is necessary.

Keywords: avian conservation, avian diversity, pinyon-juniper, woodland structure, woodland management, abundance modeling, Bayesian hierarchical model, path analysis

le 1. Summaries of literatures that show the negative associations between birds and thinning in piñon-juniper woodland.

er-reviewed reference	**Ecological communities and species**	**Year(s) of the study**	**Type of woodland change**
mbaci and Pejchar 2016	piñon-juniper woodland bird community	n/a[a]	thinning, clear cutting, burning
mbaci et al. 2017	piñon-juniper woodland bird community	2012-2013	clear cutting
	Ash-throated Flycatcher (*Myiarchus cinerascens*)		
	Black-chinned Hummingbird (*Archilochus alexandri*)		
	Black-throated Gray Warbler (*Setophaga nigrescens*)		
	Blue-gray Gnatcatcher (*Polioptila caerulea*)		
	Broad-tailed Hummingbird (*Selasphorus platycercus*)		
	Cassin's Finch (*Haemorhous cassinii*)		
	Chipping Sparrow (*Spizella passerina*)		
	Dark-eyed Junco (*Junco hyemalis*)		
	Evening Grosbeak (*Hesperiphona vespertina*)		
	Hairy Woodpecker (*Leuconotopicus villosus*)		
	Juniper Titmouse (*Baeolophus ridgwayi*)		
	Mountain Bluebird (*Sialia currucoides*)		
	Mountain Chickadee (*Poecile gambeli*)		
	Mourning Dove (*Zenaida macroura*)		
	Northern Flicker (*Colaptes auratus*)		
	Plumbeous Vireo (*Vireo plumbeus*)		
	Red Crossbill (*Loxia curvirostra*)		
	Spotted Towhee (*Pipilo maculatus*)		
	Violet-green Swallow (*Tachycineta thalassina*)		
	White-breasted Nuthatch (*Sitta carolinensis*)		
	Woodhouse's Scrub-Jay (*Aphelocoma woodhouseii*)		
ow and Van Riper 2010	piñon-juniper woodland bird community	2005-2006	thinning
	Brown-headed Cowbird (*Molothrus ater*)		

	Chipping Sparrow (*Spizella passerina*)		
	Gray Vireo (*Vireo vicinior*)		
ir et al. 2018	piñon-juniper woodland bird community	2003-2013	natural mortality, thinning
allo and Pejchar 2017	American Robin (*Turdus migratorius*)	2013-2014	thinning
	Cassin's Finch (*Haemorhous cassinii*)		
	Dark-eyed Junco (*Junco hyemalis*)		
	Juniper Titmouse (*Baeolophus ridgwayi*)		
	Mountain Chickadee (*Poecile gambeli*)		
	Mourning Dove (*Zenaida macroura*)		
	Plumbeous Vireo (*Vireo plumbeus*)		
	Spotted Towhee (*Pipilo maculatus*)		
	Vesper Sparrow (*Pooecetes gramineus*)		
	Violet-green Swallow (*Tachycineta thalassina*)		
	White-breasted Nuthatch (*Sitta carolinensis*)		
lmes et al. 2017	Gray Flycatcher (*Empidonax wrightii*)	2013-2014	clear cutting
hnson et al. 2018	Pinyon Jay (*Gymnorhinus cyanocephalus*)	2017-2018	thinning
agee et al. 2019	Ash-throated Flycatcher (*Myiarchus cinerascens*)	2014-2015	thinning
	Black-headed Grosbeak (*Pheucticus melanocephalus*)		
	Black-throated Gray Warbler (*Setophaga nigrescens*)		
	Blue-gray Gnatcatcher (*Polioptila caerulea*)		
	Broad-tailed Hummingbird (*Selasphorus platycercus*)		
	Brown-headed Cowbird (*Molothrus ater*)		
	Bushtit (*Psaltriparus minimus*)		
	Clark's Nutcracker (*Nucifraga columbiana*)		
	Gray Flycatcher (*Empidonax wrightii*)		
	Juniper Titmouse (*Baeolophus ridgwayi*)		
	Mountain Chickadee (*Poecile gambeli*)		
	Mourning Dove (*Zenaida macroura*)		
	Northern Flicker (*Colaptes auratus*)		

	Pinyon Jay (*Gymnorhinus cyanocephalus*)		
	Plumbeous Vireo (*Vireo plumbeus*)		
	Steller's Jay (*Cyanocitta stelleri*)		
	Townsend's Solitaire (*Myadestes townsendi*)		
	Virginia's Warbler (*Leiothlypis virginiae*)		
	Western Tanager (*Piranga ludoviciana*)		
	Western Wood-Pewee (*Contopus sordidulus*)		
	White-breasted Nuthatch (*Sitta carolinensis*)		
	Yellow-rumped Warbler (*Setophaga coronata*)		
Meara et al. 1981	piñon-juniper woodland bird community	1977	Clear cutting
	Black-throated Gray Warbler (*Setophaga nigrescens*)		
	Chipping Sparrow (*Spizella passerina*)		
	Gray Flycatcher (*Empidonax wrightii*)		
	Hermit Thrush (*Catharus guttatus*)		
	Juniper Titmouse (*Baeolophus ridgwayi*)		
	Mountain Bluebird (*Sialia currucoides*)		
	Mountain Chickadee (*Poecile gambeli*)		
	Northern House Wren (*Troglodytes aedon*)		
	Northern Flicker (*Colaptes auratus*)		
	Plumbeous Vireo (*Vireo plumbeus*)		
	White-breasted Nuthatch (*Sitta carolinensis*)		
	Williamson's Sapsucker (*Sphyrapicus thyroideus*)		
n Lanen et al. 2023a	Pinyon Jay (*Gymnorhinus cyanocephalus*)	2008-2020[b]	conifer removal[c]
n Lanen et al. 2023b	Bewick's Wren (*Thryomanes bewickii*)	2008-2020[b]	conifer removal[c]
	Gray Flycatcher (*Empidonax wrightii*)		
	Pinyon Jay (*Gymnorhinus cyanocephalus*)		
n Lanen et al. 2023c	Bewick's Wren (*Thryomanes bewickii*)	2008-2020[b]	conifer removal[c]
	Black-throated Gray Warbler (*Setophaga nigrescens*)		
	Gray Flycatcher (*Empidonax wrightii*)		

	Gray Vireo (*Vireo vicinior*)		
	Juniper Titmouse (*Baeolophus ridgwayi*)		
an Lanen et al. 2024	Pinyon Jay (*Gymnorhinus cyanocephalus*)	2008-2020[b]	conifer removal[c]

Study was a literature review

Study used data from the Bird Conservancy of the Rockies' Integrated Management in Bird Conservation Regions (IMBCR) ogram

Study evaluated importance of piñon-juniper cover for individual bird species and speculated that conifer removal, through any eans, would negatively affect birds that need higher levels of piñon-juniper cover

642 **Table S1.** The list of all 40 species considered in this study, their common English names, Latin
643 names, level of conservation concern, the highlights of the 7 priority species, and their counts at
644 treatment and control sites. The level of conservation concern is defined according to the New
645 Mexico Avian Conservation Partners (NMACP) conservation lists (New Mexico Avian
646 Conservation Partners 2016).

Common English name	Latin name	Concern	Priority	Treatment	Control
Ash-throated Flycatcher	*Myiarchus cinerascens*	low		240	314
Black-chinned Hummingbird	*Archilochus alexandri*	low		10	11
Black-chinned Sparrow	*Spizella atrogularis*	moderate	yes	31	24
Bewick's Wren	*Thryomanes bewickii*	low		46	104
Blue-gray Gnatcatcher	*Polioptila caerulea*	low		15	10
Black-headed Grosbeak	*Pheucticus melanocephalus*	low		66	108
Broad-tailed Hummingbird	*Selasphorus platycercus*	moderate		74	62
Black-throated Sparrow	*Amphispiza bilineata*	low		13	31
Black-throated Gray Warbler	*Setophaga nigrescens*	moderate	yes	73	130
Bushtit	*Psaltriparus minimus*	moderate		138	196
Cassin's Kingbird	*Tyrannus vociferans*	low		134	32
Canyon Towhee	*Melozone fusca*	moderate		22	23
Chipping Sparrow	*Spizella passerina*	low		199	175
Dusky Flycatcher	*Empidonax oberholseri*	low		13	7
Gray Flycatcher	*Empidonax wrightii*	low		214	232
Gray Vireo	*Vireo vicinior*	moderate	yes	12	16
Green-tailed Towhee	*Pipilo chlorurus*	moderate		59	25
Hairy Woodpecker	*Dryobates villosus*	low		18	11
Hepatic Tanager	*Piranga flava*	low		24	36
Hermit Thrush	*Catharus guttatus*	low		1	9
House Finch	*Haemorhous mexicanus*	low		156	47
House Wren	*Troglodytes aedon*	low		17	5
Juniper Titmouse	*Baeolophus ridgwayi*	high	yes	121	186
Lark Sparrow	*Chondestes grammacus*	low		94	68
Lesser Goldfinch	*Spinus psaltria*	low		7	4
Mountain Chickadee	*Poecile gambeli*	moderate		10	19
Northern Flicker	*Colaptes auratus*	low		45	25
Pinyon Jay	*Gymnorhinus cyanocephalus*	high	yes	10	24
Plumbeous Vireo	*Vireo plumbeus*	low		91	104
Say's Phoebe	*Sayornis saya*	low		17	5
Spotted Towhee	*Pipilo maculatus*	low		600	520

Steller's Jay	*Cyanocitta stelleri*	moderate		20	11
Vesper Sparrow	*Pooecetes gramineus*	moderate		43	22
Virginia's Warbler	*Oreothlypis virginiae*	high	yes	5	10
Western Bluebird	*Sialia mexicana*	moderate		57	18
Western Tanager	*Piranga ludoviciana*	low		73	98
Western Wood-Pewee	*Contopus sordidulus*	low		85	78
Wild Turkey	*Meleagris gallopavo*	low		12	6
Woodhouse's Scrub-Jay	*Aphelocoma woodhouseii*	high	yes	74	107
White-winged Dove	*Zenaida asiatica*	low		20	9

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