

June 10, 2021

Ms. Erin Phelps

New Meadows District Ranger

Payette National Forest

P.O. Box J

3674 Highway 95

New Meadows, ID 83654

(208) 347-0300

Electronically Submitted Through Project Webpage:

<https://cara.ecosystem-management.org/Public//CommentInput?Project=60060>

**RE: Idaho Conservation League’s Scoping Comments for the Proposed Cold July Forest Restoration Project**

Dear Ms. Phelps:

Please accept the Idaho Conservation League’s scoping comments for the proposed Cold July Forest Restoration Project. Since 1973, the Idaho Conservation League has had a long history of involvement with public lands issues. As Idaho’s largest state-based conservation organization, we represent over 30,000 supporters who have a deep personal interest in restoring our forests to more resilient conditions and reducing the likelihood of uncharacteristic wildfires. We also work to restore wildlife habitat and improve ecosystem and watershed health.

We appreciate the details included in the scoping notice and the interactive map. ICL understands that the Cold July Project retains a vegetation management focus as we begin to redesign and appropriate resources to accomplish Forest Service and Payette Forest Coalition goals in the Lost Creek/Boulder Creek area, and we generally support these efforts. We do believe that it is in the Forest Service and public’s best interests to conduct the NEPA for foreseeable restoration efforts into the environmental analysis so restoration activities can be implemented as soon as funding allows. “Front-loading” the analysis and approval of proposed actions, like watershed restoration undertakings (road decommissioning, Aquatic Organism Passage (AOP) approved culvert installation), recreation improvements, or general infrastructure upgrades within the project area could provide an increased efficacy while making the most of committed resources.

We support the general comments submitted by the Payette Forest Coalition (PFC) and the Idaho Department of Fish and Game. Included in our comments are some specific recommendations that we believe should be considered in the Cold July Environmental Assessment and incorporated into the proposed actions. These comments focus primarily on specific recommendations regarding vegetation management treatments to enhance White-headed woodpecker and Northern Idaho ground squirrel habitats, which is a central theme of the project’s Purpose and Need.

We do have concerns, however, about the increased amount of regeneration harvests compared to that approved in the Lost Creek Boulder Creek decision. While we understand that the actual amount of regeneration harvest is likely to be far less and below the 40-acre threshold, the Forest Service has not done an adequate job to date explaining how the vegetation conditions or wildlife habitat prescriptions have changed so dramatically as to warrant such an increase in regeneration harvest. We recommend that the Forest Service develop an alternative consistent with the silvicultural prescriptions similar to the original LCBC project for comparison purposes. We also recommend that the Forest Service develop an alternative tailored toward white headed woodpeckers and Northern Idaho Ground Squirrels and an alternative with no new road construction. Multiple alternatives can allow the Forest Service to better customize a project to address public concerns. In the past the Forest Service selected elements from different alternatives and created a “blended” alternative that met the project’s purpose and need and the interests of multiple stakeholders better than any single alternative. The Records of Decisions for all four of the last CFLRP projects on the Payette consisted of blended alternatives selected from multiple alternatives.

While not related to this particular project, we also wish to see the Forest Service commit to advancing other watershed restoration projects and recreation improvements in the general area in the same timeframe. The Forest Service had previously committed to address 36 fish passage barriers to reconnect 52 miles of fish habitat. There are still 25 AOPs to be replaced, 2 vault toilets to install, 83 miles of unauthorized route treatments, 68 dispersed camping sites to upgrade, and 2 new trailheads to construct. There may also be unmet opportunities to address recreation use in the Boulder Creek and Lost Creek areas regarding sanitation facilities, identifying and hardening dispersed recreation areas, and developing new trail opportunities.

Thank you for the opportunity to submit comments for the proposed Cold July Forest Restoration Project. Should you have any questions regarding these comments and recommendations, please do not hesitate to contact me. We look forward to working with the New Meadows Ranger District on this and future projects.

Respectfully submitted,



Randy Fox

Conservation Associate

Idaho Conservation League

rfox@idahoconservation.org

(208) 345-6933 x 110

Idaho Conservation League’s Scoping Comments for the Proposed Cold July Forest Restoration Project

**Payette Forest Coalition Aligned Comments**

The Idaho Conservation League (ICL) concurs with the comments submitted to the Payette National Forest (PNF) by the Payette Forest Coalition (PFC), an organization committed to building diverse community support for forest restoration projects. ICL retains an active role within the collaborative and is a member in good standing. The PFC’s specific comments and recommendations are:

* Encourage the ID Team to look for opportunities to include watershed restoration, such as removing or blocking unauthorized routes, and recreation improvements, such as creating new trails or hardening dispersed camping sites, within the project area. It would seem that efficiencies could be gained in accomplishing this work while equipment for logging, temporary road building and road maintenance activities is already on site. Since these activities were not objected to nor litigated in the LCBC decision, we see little downside to including these activities when it’s within the footprint of the vegetation treatments proposed.
* We ask the Payette National Forest to consider doing road maintenance and updating signage within the project area even if these actions are not specific elements of this project.
* While the purpose and need for this project clearly describes restoration goals which are wholly consistent with PFC goals and recommendations to the Forest Service, we are concerned that some of the treatments proposed differ from those within the PFC recommendations for treatments in this area. This makes it difficult for some PFC members to garner support from their organization’s leadership or members.
* To help the public better understand what is proposed concerning regeneration harvesting, we request that the terminology used better reflect the true nature of these treatments. For instance, we recommend the treatment called “patch cut” be changed to reflect your intention to also thin within these treatment units in addition to creating smaller openings sufficient for regenerating early seral species. Also, non-commercial activities such as aspen regeneration, prescribed burning, and non-commercial thinning are listed within the proposed action as “to be determined.” These treatments are typically essential components of a forest restoration project and are beneficial for wildlife and watershed health. Developing estimated acreages for these types of treatments would demonstrate a stronger commitment to non-commercial activities and may help garner support for this project among conservation interests.
* The PFC asks the Forest Service to develop actions to prevent and/or manage unauthorized travel on roads (including unauthorized routes) that will be used to access treatment areas over a 20+ year period.
* Consider impacts of understory prescribed fire on huckleberry harvest.
* Explain condition-based management in a way that is easily understood.
* The PFC recommends that slopes prone to landslides be identified so that treatments which might destabilize them can be avoided.
* Before the PFC can fully support this project, we desire to better understand what silvicultural practices are intended in stands slated for regeneration harvest units (patch cut and shelterwood prescriptions) as they appear to differ from what the Coalition supported under the LCBC project. We intend to facilitate this understanding through field discussions with Forest Service staff.

We have additional comments and recommendations that supplement those provided by the PFC. Regarding understory prescribed fire impacts to huckleberry populations, we recommend that the Forest Service set the prescribed burn schedules and locations in such a way that prescribed fire does not adversely impact huckleberry production and subsistence gathering over multiple locations within a single season.

Condition Based Management (CBM) can be a difficult concept for the uninitiated to absorb, comprehend, and support, in spite of the Forest Service’s increasing use of the management tool in recent years. In fact, the PNF has previously employed CMB-like strategies on recent CFLR projects that were adopted and supported by the PFC, the primary difference being that the agency did not use this specific term or name in those projects. If the PNF hopes to explain CBM in simple, easily understood terms, we recommend that the New Meadows District Ranger contact Mr. John Riling, Silviculturist with the Boise National Forest. Mr. Riling has developed multiple presentations of varying lengths and detail that describe CBM to the uninitiated. Having participated in several CBM presentations over the past 1.5 years, our Conservation Associate Randy Fox found those by Mr. Riling the most helpful and informative.

While CBM can play a role in increasing efficiencies in the planning process, we do have concerns about deferring the “hard look” required in NEPA analysis until after the decision is issued. As such, we recommend utilizing a cautious approach for CBM and ensuring that the Forest Service still collects the most relevant baseline information needed to disclose environmental effects, inform development of alternatives, and plan the project in a way that avoids, minimizes and mitigates impacts to resources.

We understand that the PNF intends to reduce the size of the proposed regeneration harvests and shelterwood prescriptions from the polygons displayed in the scoping documents to final sizes less than 40 acres. We appreciate the agency implementing this size limit as clearings that exceed the 40-acre limit are allowable but require Regional Forester approval. While there may be some ecological justifications for openings as large as 40 acres, we recommend design features for selecting leave trees, retaining snags, reducing edge effects, and selecting “aggregates” or “skips” as retention areas in at least 29% of an opening. We also recommend that the Forest Service use these openings to help satisfy multiple portions of the stated Purpose and Need. First, the openings can work toward restoring vegetation health and reducing single-aged stands. The openings can also be placed in such a way and in areas that help improve Northern Idaho ground squirrel habitat, a second stated Need of the Cold July Restoration Project. We encourage the Forest Service to identify areas where these two Needs intersect and plot potential openings accordingly.

**Fuel reduction**In order to address high fuel loads that may lead to uncharacteristic wildfire events, the silvicultural prescriptions should be designed to complement any natural fuel breaks in the local landscape.

**Slash treatment**

The slash from tree removal can create hazardous fuels for short-term periods. The Forest Service will need to ensure that such fuels are managed appropriately and in a timely manner. For slash not needed to be retained on site for nutrient cycling, we support the utilization of slash piles from restoration activities for biomass utilization or firewood supplies. We recommend that contractors deck any wood material that is not commercially viable for area residents or campers to utilize as fuel wood. Leftover woody debris from the project could potentially be utilized for aquatic restoration projects in the area.

**Prescribed Fire**

We support the use of prescribed fire to complement the mechanical vegetation treatments. Prescribed burning should be timed to avoid impacts to nesting birds.

**Soils**Skid trails should be designed and managed to reduce impacts to soils. For units where soil disturbance is a concern, we recommend that the Forest Service consider ground hauling over sufficient snow and frozen roads. Areas should be restored within three years of project activities and not five years as proposed.

**Stream protections**

We expect the Forest Service to ensure that vegetation thinning and prescribed burning will still leave sufficient vegetative cover to stabilize stream banks and riparian areas and continue to provide shade to keep stream temperatures from becoming elevated.

**White-Headed Woodpeckers**

The USFS Rocky Mountain Research Station (RMRS) has been studying white-headed woodpeckers and their habitat needs on the Payette National Forest. The RMRS has made observations about how the location and distribution of these clumps appears to affect the density of white-headed woodpeckers.

Preliminary results show the following effects:

· Stand-level treatments are substantially reducing fuels, while maintaining woodpecker occupancy.

·Large diameter pines are reduced after treatments.

·Large diameter pines are essential to woodpecker

·foraging.

· Nest densities increased in treated units; nests are typically placed in relatively open-canopied forests that are created after treatments.

· Home range sizes increased in treated units.

· Woodpeckers potentially range farther after treatments to obtain foraging needs in relatively closed-canopied, untreated forests with large diameter pines.

We understand that the PNF has readily available access to the 2017 and 2018 progress reports, and we include a link to the recent thesis by Adam Kehoe who worked with the RMRS on a radio telemetry study of white-headed woodpeckers as part of CFLRP monitoring.

https://www.researchgate.net/publication/316451673\_Space\_Use\_and\_Foraging\_Patterns\_of\_the \_White-headed\_Woodpecker\_in\_Western\_Idaho

The results of these studies appear to show that home range size and foraging distance increases after treatments in order to travel to and feed within closed-canopied, untreated forests with large diameter pines. Within a 1 km radius of a nest, white headed woodpeckers appear to need a mosaic of both open canopy and closed canopy stands:

Nest placement frequently occurs in open-canopied forest patches often adjacent to relatively closed-canopy forest thought to provide critical food resources (Wightman et al. 2010, Hollenbeck et al. 2011).[[1]](#footnote-0)

Heterogeneity in canopy cover is a key element of suitable nesting habitat for white-headed woodpeckers (Wightman et al. 2010, Hollenbeck et al. 2011).[[2]](#footnote-1)

Locations with high Maxent HSIs were characterized by canopy openings adjacent to closed canopy forests.[[3]](#footnote-2)

[Nest] Sites were consistently dominated by ponderosa pine (70–72%) and contained 64–68 m/ha of edge between open- and closed-canopy patches.[[4]](#footnote-3)

This combination is consistent with white-headed woodpecker nest placement in relatively open-canopied locations adjacent to more closed-canopied forests where nesting individuals presumably forage (Wightman et al. 2010, Hollenbeck et al. 2011).[[5]](#footnote-4)

Because white headed woodpeckers are positively associated with large diameter Ponderosa pines, we recommend retaining all Ponderosa pine 20” dbh and greater unless there are compelling circumstances (hazard tree removal, etc). This diameter limit is not a new idea. For example, the Soda Bear Project on the Malheur National Forest started with a prescription that preserved all trees with old growth characteristics and all trees 21” dbh and greater. They then incorporated a design feature that allowed for tree removal of trees greater than 21” only if they were determined to be less than 150 years old. They also added a design feature to address the circumstance when a large diameter tree is competing with an even larger, more desirable tree and poses a risk to the larger tree. From the center of the larger, more desirable tree, the Forest Service established a circle equivalent to two times the diameter of the drip line. Should a less desirable tree occur within this area, it could be considered for removal. We recommend developing a similar set of criteria which will accomplish silvicultural, fuel reduction goals and wildlife habitat protection goals.

For any areas in which even-aged harvest is being considered, we recommend limiting the size of such openings, leaving clumps of leave trees for wildlife within openings, feathering the edges and locating such areas to minimize visual concerns.

In summary, it appears the Forest Service is retaining or improving white headed woodpecker nesting habitat but is increasing the distance to foraging habitat and decreasing the overall quality of the habitat. Prescribed burning should be implemented to retain the overall vegetation densities of foraging stands. This increased foraging distance may affect chick rearing and retention success.

We recommend the Forest Service design treatment protocols that consider these research findings. This summer the Forest Service should conduct monitoring efforts to locate nest sites around which the vegetation can be managed to optimize future nest success. This information should be included in the draft EA. Finally, the monitoring program should not only assess baseline conditions but also the effectiveness of the different treatments on the productivity of these species.

**Northern Idaho Ground Squirrels (NIDGS)**

Despite habitat restoration being listed as a priority, effective treatments at identified locations are 8 years behind schedule at Treatment A 170. The Forest Service also needs to be cautious about mortality from hauling traffic in and around squirrel habitat, particularly site A167. There are a number of design features relating to truck speed and hauling season. Ideally, timber harvest, log haul and prescribed burning in and around NIDGS colonies would be limited to the times the squirrels are estivating or hibernating. The timing for these restrictions should be tailored for each colony as they are located at different aspects and elevations and the timing of their estivation/hibernation may differ. Treatments intended to benefit NIDGS should be targeted on southeast, south and southwest aspects and should result in less than 15% canopy cover for colony locations instead of the 15-30% as proposed. We recognize the overall desire to reduce the number and extent of regeneration units to minimize the degradation of other resources, but in specific areas where NIDGS colonies exist, the Forest Service should actually increase canopy removal.

**Botanical resources**

We recommend that the Forest Service botanist review proposed fire lines and make adjustments in thinning, harvest and prescribed burn placement or design or in the timing of activities to avoid, minimize and mitigate impacts to plant species and their habitat.

**Pollinators**

The Forest Service should design project activities to avoid, minimize and mitigate impacts to native pollinators and in fact design activities to optimize habitat for native pollinators, including monarch butterflies and bumblebees.

**Wildlife habitat**We have concerns that the intensity and locations of the vegetation treatments will decrease security cover for elk as well as habitat for pileated woodpeckers, flammulated owls and Northern goshawks. Additional steps should be taken to avoid, minimize and mitigate these impacts. These steps could involve adjusting the treatment locations and prescriptions so that wildlife corridors and any security areas are not adversely impacted or developing additional design features to provide wildlife security.

We also recommend the retention of clusters of snags in stands and specifically those trees with broken tops, cavities, lightning scars, and dead portions as available. While some vegetation management may be beneficial to raptors, the prescription and timing of these activities may need to be adjusted.

Thinning activities and prescribed burns should be conducted during times to minimize disturbance and mortality of nesting birds.

**Snags**

Individual trees or stands of trees that represent large diameter trees or are important trees for wildlife should be marked for retention at the base and at breast height. Design features such as a site-specific diameter limit should be in place to ensure the persistence of any large-diameter snags that serve as important wildlife habitat.

Snag densities should reflect the variability across the landscape and should vary, roughly according to a normal statistical distribution. If there is a lack of snags in the project area, the Forest Service should design the silvicultural prescription to recruit additional snags over time. Before any areas are opened for firewood gathering, the Forest Service should clearly mark trees and snags important for wildlife habitat. These snags need to be monitored to ensure their continued existence.

We recommend tailoring the burns to maximize the retention of large-diameter snags:

Retention of large-diameter snags and decayed trees, particularly ponderosa pine, can provide vital nesting and roosting habitat for a variety of wildlife species (Bull and others 1997; Martin and Eadie 1999). For example, the sapwood of ponderosa pine is relatively thick compared to other conifers and exceptionally valuable for the excavation of nesting and roosting tree cavities (Bull and others 1997).[[6]](#footnote-5)

Prescribed burns can have the unintended effect of decreasing large downed wood, which plays an important role in nutrient cycling, carbon sequestration and habitat for small animals, among other roles:

Nearly half of large downed wood (≥ 9 inch LED) was consumed by prescribed fire in both regions. Drought conditions, followed by low wood moistures prior to fire treatments, may have contributed to the large loss of downed wood. When moisture contents are less than 15 percent, fire generally consumes about half of large downed woody materials (Brown and others 1985). Efforts to retain these large structures may require seasonal adjustments for burning times when moisture contents are higher and fire severity effects are lower (Thies and others 2005). Maintenance of large, downed wood is important ecologically because these structures provide foraging habitat, thermal cover, and concealment for many sensitive wildlife taxa (Bull and others 1997; Szaro and others 1988), although logs may have been a limited resource in low-severity fire regimes (Agee 2002).[[7]](#footnote-6)

and

In contrast to our results that suggest increased densities of large snags after fire, Horton and Mannan (1988) reported that large ponderosa pine snags were reduced by about 50 percent within the first year after a moderately-intense prescribed fire. Detrimental effects of prescribed fire on suitable nesting snags were also reported in ponderosa pine forests of Canada, where burning caused heavy scorching of large snags (Machmer 2002). Differences in fire severity among studies likely contributed to the opposing results of snag changes after prescribed fire.[[8]](#footnote-7)

We believe that negative effects to snags and large woody debris can be avoided by project design and implementation:

Several authors suggest protecting nest trees by removing combustible materials around their base prior to burning to reduce losses of suitable nest/roost snags (Horton and Mannan 1988; Machmer 2002; Tiedemann and others 2000). Specifically, Horton and Mannan (1988) recommend protecting large (>50 cm [20 inch] d.b.h.) snags and logs with moderate decay. Tiedemann and others (2000) recommended removing combustible material around snags > 30 cm (12 inch) d.b.h. These methods are labor intensive and cost prohibitive for large-scale prescribed fire programs, unless snag protection is required for Threatened and Endangered species.[[9]](#footnote-8)

Due to the labor intensive nature of some of these measures, we recommend focusing on areas of known old growth and nesting sites for sensitive bird species and species of greatest conservation concern. One way to remove combustible materials around the base of large trees or snags is to conduct early spring prescribed fires in the snow-free tree wells while snow still blankets the larger area. This treatment method has been conducted in the Boise Experimental Forest on the Idaho City Ranger District.

**Effects on nesting birds**

We are also concerned that springtime burns may cause adverse impacts to other bird species during nesting and fledgling:

Direct effects of prescribed burning on wildlife should also be considered. For example, prescribed fires conducted during spring or early summer may cause direct mortality to nestlings and fledglings (Lyon and others 2000).[[10]](#footnote-9)

Fires during the nesting season may reduce populations more than fires in other seasons; and migratory populations may be affected only indirectly, or not at all, by burns that occur before their arrival in spring or after their departure in fall.[[11]](#footnote-10)

Spring burns may destroy active nests (Ward 1968).[[12]](#footnote-11)

As such, we recommend that the Forest Service consider shifting the burn times to early spring before nesting occurs or in the fall. If this is not possible, we recommend that the Forest Service develop additional design features, including multiple surveys for nesting birds in advance of spring burns.

**Northern goshawk**

The presence of a goshawk nest may require establishing a “no impact” buffer around nests. According to Reynolds, et al., all management activities in the Post Fledging Family Area should be limited to the period from October to February. Vegetation management should be designed to maintain or promote habitat requirements for Nest Areas, Post Fledging Family Areas and Foraging Areas.

**Aspen Restoration**The Forest Service should take proactive measures to restore aspen stands within the project area. Treatments could include removing or girdling encroaching conifers. Prescribed fire or scarification may also be needed to stimulate aspen suckers. Because grazing by sheep, cattle, deer or elk may adversely affect aspen sucker regeneration, the Forest Service should work with permittees to discourage grazing in these areas by modifying livestock herding patterns and timing and by stacking felled conifers around the aspen stand to serve as natural fencing.

**Noxious weeds**

We recommend surveying and treating noxious weeds before project activities begin since roadwork, thinning and logging can spread noxious weeds.

**Lost Valley Reservoir**

There are several regeneration units planned on or adjacent to the shorelines of Lost Valley Reservoir. We are concerned about both visual effects and potential soil disturbance and sedimentation into the reservoir. We recommend switching regeneration harvests to free thin prescriptions within ¼ mile of the reservoir.

**Public outreach and education**

The treatment activities will impact recreationists in the area. We recommend informing the public well in advance that activities will be occurring so the public can make alternative plans if desired. The Forest Service should also disclose in the EA if any campgrounds will need to be closed or used to host logging crews, what roads will be unavailable for access, and for how long. Log haul should not be allowed on holidays or the first day of hunting season.

**Vegetation maintenance**

The Forest Service also needs to describe the future maintenance work needed to maintain the effectiveness of these treatments and make a commitment to do this work.

**Temporary Road Construction**

The Forest Service should minimize the amount of temporary road construction and disclose any unauthorized routes discovered this summer. These unauthorized routes could either be decommissioned if causing resource degradation or considered for a variety of recreational uses (motorized and non-motorized trails) if consistent with protection of other resources.

**Road decommissioning**

Regarding road decommissioning, we recommend removing all culverts from unneeded roads and laying slash across the initial stretch of road within sight distance of the main road to discourage illegal motorized use. Signage with US flags should be posted explaining the reason for road closures (“Closed to motorized use for elk habitat improvement,” etc.).We recognize that if some roads have already revegetated, it may be acceptable in certain circumstances to not conduct additional obliteration activities. Where roads are closed, we recommend working with user groups on education and enforcement activities for the public.

**Rock pit expansion and development**

We understand the importance of local rock sources for proper road maintenance which can be important for preventing resource degradation such as excess sedimentation to streams. However, rock pit development will also negatively affect other resources. The Forest Service should estimate the size of the gravel pit, the amount of material the gravel pit could provide and the duration the pit may be active. This description should include whether a crusher will be utilized and the noise, dust and fuel issues associated with the crusher. The Forest Service needs to disclose noise and dust pollution from rock pit development and crushing activities. We are also concerned about the establishment of noxious weeds in rock development areas and the spread of noxious weeds with rock placement on roads. The Forest Service needs to proactively and continuously manage noxious weeds at all these sites to prevent noxious weed establishment and spread. We also recommend placing notification signs informing the public when gravel operations and diesel fuel transportation is happening on Forest System roads. Gravel operations should be limited to weekdays to minimize disturbance to recreationists. The Forest Service needs to develop a restoration plan for the pit which includes reestablishing soil and native vegetation on the site and returning the site to a productive part of the Forest or converting these sites into dispersed recreational areas.

**Monitoring**
In addition to the previous monitoring needs covered above, the Forest Service needs to prioritize the establishment of a comprehensive monitoring program for forest health, illegal motorized use, noxious weeds, and wildlife habitat.

**Cumulative effects**

The Forest Service should carefully consider the cumulative effects of the other activities in the surrounding area.

1. Latif et al. 2014. Evaluating Habitat Suitability Models for Nesting White-Headed Woodpeckers in

Unburned Forest, The Journal of Wildlife Management 79(2):263–273; 2015; DOI: 10.1002/jwmg.842 [↑](#footnote-ref-0)
2. Ibid. [↑](#footnote-ref-1)
3. Ibid. [↑](#footnote-ref-2)
4. Ibid. [↑](#footnote-ref-3)
5. Ibid. [↑](#footnote-ref-4)
6. Changes in Downed Wood and Forest Structure After Prescribed Fire in Ponderosa Pine Forests. Victoria Saab, Lisa Bate, John Lehmkuhl, Brett Dickson, Scott Story, Stephanie Jentsch, and William Block, appearing in Fuels Management, p. 482—How to Measure Success: Conference Proceedings. 28-30 March 2006; Portland, OR. Proceedings RMRS-P-41. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 809 p.

<https://www.fs.fed.us/rm/pubs/rmrs_p041.pdf> [↑](#footnote-ref-5)
7. Ibid. p. 482. [↑](#footnote-ref-6)
8. Ibid. p. 482 [↑](#footnote-ref-7)
9. Ibid. p. 483 [↑](#footnote-ref-8)
10. Ibid. p. 483 [↑](#footnote-ref-9)
11. Wildland Fire in Ecosystems, L. Jack Lyon Mark H. Huff Edmund S. Telfer David Scott Schreiner Jane Kapler Smith, USDA Forest Service Gen. Tech. Rep. RMRS-GTR-42-vol. 1. 2000. Page 25. <https://www.fs.fed.us/rm/pubs/rmrs_gtr042_1.pdf> [↑](#footnote-ref-10)
12. Ibid. p. 26 [↑](#footnote-ref-11)