Fire Refugia

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The term “fire refugia” is used several times in the draft Proposed Action and in Appendix 3 of the draft. There is no clear definition of what constitutes a “fire refugia” in either the Proposed Action text or in its glossary. At first reading the concept seems at odds with oft-cited description of many forest and grassland habitats in western Montana as “fire dependent.”

Once again we have a terminology problem in which the technical language put forth by scientists and Agency representatives is at odds with common usage by public. Most people would associate the terms refugia and refuge, as used, for example, in the phrase “an elk refuge” as a place where something can exist in a protected status without human disturbance.

In the absence of clearer definitions, it is unclear to the reader whether the Forest is describing a refuge for fire or a refuge from fire.

In the scientific literature cited in the proposed action there seem to be at least two descriptions of what might constitute a “fire refugia.” These two definitions are reflected on page 148 of the Revised Assessment and should be included with fuller explanation in the Plan.

The first type of refugia is an area that appears to have escaped several fires that have occurred at “regular” intervals in the surrounding forest matrix. Stand conditions include old fire-intolerant trees (e.g. tree species characterized by thin bark), multiple canopy layers, and significant coarse woody debris on the forest floor. Identifying an area of forest as a refugia of this type requires determining that it has indeed escaped several fires that have affected the matrix of surrounding forest stands and not just a single escape of a recent fire because of some random (stochastic) event like shifting wind or a control action. The draft Proposed Action provides no evidence or inventory of such refugia on the Lolo NF. However, the concept and description of fire refugia certainly overlaps the discussion of old growth forests, and it seems that the management principles for some types of old growth would overlap the management of this type of “fire refugia.”

The maintenance of this type of old growth/refugia requires the management of the surrounding forest habitat that does not qualify necessarily as old growth/refugia at the present time, but perhaps could in the future. This perspective is embedded in the following statement from Camp et al. (1997, see full citation in the Revised Assessment):

*“Current management goals of increasing amounts and connectivity of old, refugia-like forests for the benefit of species associated with late-successional habitat increase the risk of insect and pathogen outbreaks and catastrophic wildfires".*

In their study of fire-intolerant old forest (refugia) these researchers noted that protecting refugia characteristics from the possibility of catastrophic disturbance requires that the surrounding forest matrix be managed to reduce the severity of disturbance. Appendix 3 of the Proposed Action also reiterates these similar needs for protective management of old-growth stands in a list of cautionary actions on pages A3-9 and A3-10.

The second type of refugia noted in some scientific literature are the stands of old forest and large trees that are maintained by frequent low-intensity fire and other low intensity disturbance. Example include old forests in the warm-dry Ponderosa cover type, as well as some of the warm-moist Larch cover types. These open-grown, old growth Ponderosa and Western Larch stands exist because they are protected from stand replacement fire by frequent low intensity fire and other management. To rephrase the terminology of refugia, these stands are in fact “fire-dependent fire refugia.

The LRC does not believe that there is any utility in providing separate plan components for fire refugia beyond the plan components for managing old growth, including fire-dependent old growth. We also believe that it is critical that the Plan differentiate the old growth stands comprised of mostly fire-intolerant species and the old growth in fire-dependent stands. The LRC believes that managing both of these types of forest conditions is well covered by plan components covering fire adapted ecosystems and old growth forest conditions.

**Recommendations**

1. Do not use the term “fire refugia” or, at a minimum, downplay the phrase except possibly to note that the term is used by some researchers to explain how some discrete forest areas comprised of fire intolerant species may have escaped multiple, potentially high-intensity fires because of site conditions including favorable topography and/or high moisture locations (e.g. riparian areas) and/or treatment/disturbance of surrounding stands that reduce the probability of catastrophic disturbance.
2. Focus on the need to reintroduce some types of disturbance to the forest landscapes to protect residual old forest sites and reduce the chance of high severity fires especially where they are ecologically inappropriate in scale and intensity.
3. Explain that a high percentage of forested landscapes on the Lolo NF require management **with** fire and other tools to recreate conditions that allow fire to play its long-standing role as a mediator of sustainable ecosystem conditions. And affirm that the Forest has concerns that the term “fire refugia” could distract and confuse people on this last important message and indirectly convey the message that “no fire” is the desired condition across large swaths of the Forest.
4. Explain that some of our rarest old forest conditions are Ponderosa Pine and Western Larch types where over many millennia low-intensity fire contributed to the old forest conditions by protecting these stands from fuel accumulation and high-intensity fire. Explain that these stands have been negatively affected by protection **from** fire and by some types of past timber harvest. And if some insist on using refugia terminology for these dry forest types call them more accurately “fire-maintained fire-refugia.”

In summary, use the term “fire refugia” with full ecological explanations of the variety of conditions on our forested landscaped or use it not at all.