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Comments: 11 August 2016 Annette Fredette 4FRI Planning Coordinator ?Coconino National Forest ?1824 S. Thompson St. ?Flagstaff, AZ 86001 ? Dear Ms. Fredette, On behalf of the John Muir Project of Earth Island Institute, we offer the following scoping comments on the proposed 4FRI Rim Country Project. The proposal makes numerous assumptions that are inconsistent with current science with regard to fire history, fire trends, and post-fire effects in these forest ecosystems. These Forests Do Not Have an Unnatural Excess of Fire, or High-Intensity Fire, and Future Trends May Be Downward Current science from the Forest Service and others concludes: 1) there is currently a deficit of fire in the forests proposed for logging in this region, relative to natural levels (Parks et al. 2015--attached); 2) there is also less high-severity fire, in particular, now than there was historically, and fire severity is not increasing (Baker 2015--attached); and 3) the most comprehensive and current climate change projections from Forest Service and university scientists, incorporating not only future climate changes but also vegetation shifts that will result due to climate change this century, concludes that fire severity will, overall, decrease slightly to moderately over the 21st century in the forests of this region (Parks et al. 2016--attached). Large High-Intensity Fire Patches Did Sometimes Occur Historically in Ponderosa Pine and Dry Mixed-Conifer Forests of This Area Williams and Baker (2012) (Figure 3) reconstructed historical high-intensity fire patches in these forests and mapped numerous areas of large high-intensity fire patches hundreds, and in some cases, thousands of acres in size, and historical forest density was highly variable (Figure 2 of Williams and Baker 2012), with numerous areas of moderately to very dense forests. Historical fires were not almost homogeneously low-intensity, or low/moderate-intensity but, rather, had substantial portions of low, moderate, and high-intensity fire. As discussed in Williams and Baker (2012) and Williams and Baker (2014), their methodology was extensively accuracy-checked, and cross-checked against historical records. Moreover, Williams and Baker (2012) investigated whether there was an inconsistency between their findings and findings of previous tree-ring studies that reported open, low-intensity fire conditions on numerous local areas historically, and in every single case the Williams and Baker (2012) methods also found open, low-intensity fire conditions on these same sites, historically. The point is that open forests dominated by low-intensity fire did indeed exist historically in ponderosa pine and dry mixed-conifer forests of the proposed project area, but they were not the only condition that existed, and did not even represent the majority in many areas. In the same forest types in the same landscapes, simultaneously there were much denser forests with mixed- and high-intensity fire effects. These findings are further supported by paleoecological data (see, e.g., Jenkins et al. 2011). Even though some reconstructions of overall fire frequency indicate relatively frequent fire, on average, at localized sites, this same research reports that frequencies were highly variable, especially at larger spatial scales, and there were often fire-free periods of several decades in ponderosa pine forests of Arizona historically (Swetnam and Baisan 1996, Tables 3 and 4). Further, in the history of fire occurrence in southwest ponderosa pine forests, [ldquo]large crown fires[rdquo] have naturally occurred in particular during warm, dry periods that follow a couple of wet years (Roos and Swetnam 2011). Mexican Spotted Owls are Thriving in Large Mixed-Intensity Fires, in the Absence of Post-Fire Logging The current data indicate that large mixed-intensity fires, without post-fire logging, benefit Mexican Spotted Owl occupancy and reproduction (see attached reports by Moors and Ward, 2011-2013, from fires in Arizona). Moreover, Ganey et al. (2014) found that Mexican Spotted Owls left unburned old forest nest sites in the winter and traveled up to 14 kilometers to spend the winter months foraging in mixed-intensity fire areas (in comparable forests in terms of elevation and forest type), where the small mammal prey base (in terms of small mammal biomass) was 2-6 times greater than in their unburned nest sites. Optimal Conditions for Forest Birds are Created by Mixed-Intensity Fires in Southwest Ponderosa Pine Forests, Not By Nearly Homogeneous Low-Intensity Fires Latif et al. (2016) found, in ponderosa pine forests of Arizona, that overall forest bird diversity was maximized by mixed-intensity fire, including significant occurrence of high-intensity fire, since numerous species were strongly positively associated with high-intensity fire patches, while others selected low/moderate-intensity areas. These findings stand in contrast to common assumptions that biodiversity in southwest ponderosa pine forests will benefit to the greatest extent from a fire regime that is heavily dominated by low-intensity fire, and

which has very little moderate- and high-intensity fire. Large Forest Fires in Arizona Over the Past Decade Are Heavily Dominated by Low/Moderate-Intensity Effects A common misconception is that the largest fires that have occurred over the past decade in Arizona[rsquo]s forests, including ponderosa pine and dry mixed-conifer forests, have been predominantly high-intensity, whereas the data indicate that these fires are heavily dominated by low/moderate-intensity fire effects, and often have only about 8% to 12% high-intensity fire effects, based on the final categorical fire severity assessments by USGS and USFS, after experts from these agencies have corrected fire severity mapping from satellites for clear errors based on one-year post-fire imagery (www.mtbs.gov). Examples include the Wallow fire of 2011 and the Horsehoe2 fire of 2011 (www.mtbs.gov). One of the sources of misconceptions is that much of the reporting regarding these fires occurs shortly after the fires occur, based on initial, preliminary fire severity mapping from the [ldquo]RAVG[rdquo] system, which does not account for [ldquo]flushing[rdquo] of ponderosa pines at one year post-fire (i.e., production of new green needles from surviving terminal buds in pines where the needles were killed by radiant heat). This can result in a severe overestimation of fire severity, such as occurred with the Wallow fire, for example (compare RAVG and MTBS maps). Sincerely, Chad Hanson, Ph.D., Director and Staff Ecologist John Muir Project cthanson1@gmail.com