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Comments: see attached uploaded file:

"RFIcomments_DuBay_Denis.docx"

OLD GROWTH AND MATURE FORESTS

Please find my concerns and ideas listed under each of the specific questions from the RFI.

[middot] What criteria are needed for a universal definition framework that motivates mature and old-growth forest conservation and can be used for planning and adaptive management?

---[ldquo]primary[rdquo] forest sites, that is, sites that have no history of removal or large scale, intensive harvesting, should be prime sites for protection. Such sites will retain many characteristics of old growth/mature forests, that is, high species diversity, high species richness, as well as deep soil with high levels of organic matter, fungi, microarthropods, and other members of a diverse and rich soil and decomposer ecosystem.

---non-primary forests that represent the mature successional stage for that ecosystem should be considered for protection, especially if they represent a significant portion of old growth/mature forest of that type in a region. That is, if [ldquo]primary[rdquo] forest sites are not available in a region, non-primary forests should gain high priority in order to conserve as much of the mature successional mix of aboveground and belowground species as possible for each of the distinct environments of a region. Distinct environments within a region include, for example, north versus south-facing slopes, and lowland versus highland sites.

[middot] What are the overarching old-growth and mature forest characteristics that belong in a definition framework?

---Forests that best represent late successional stages in a region should receive high priority for protection (for example, oak-hickory and beech-maple forests in much though not all of the Southeast US). Such late successional stages contain species not always found in early successional stages, species that are long-lasting and that form a rich array of connections to other species in the forest. Note that if the forest has only just reached this final stage of secondary succession, these late stage species may not as yet have attained significant size. Despite this, they represent the old growth/mature species of that forest type and deserve

protection, especially if there are few sites with older late stage species in the region.

[middot] How can a definition reflect changes based on disturbance and variation in forest type/composition, climate, site productivity and geographic region?

---a history of large-scale disturbances to the site should be considered, and if the site has not had large-scale disturbances that removed large portions of the canopy that still remain absent, that should qualify it as worthy of protection. Small-scale or very old disturbances should not disqualify a site from protection as old growth/mature if there are mature [ldquo]climax[rdquo] species still present.

[middot] How can a definition be durable but also accommodate and reflect changes in climate and forest composition?

---The definition should include the essential mix of species characteristic of the mature successional stage for that ecosystem. Such a mix of species will remain largely intact in the late successional forest even if there are changes to a species here and there caused by changes in climate and/or land-use practices.

[middot] What, if any, forest characteristics should a definition exclude?

---There should be no hard and fast rule requiring a specific age or lack of disturbance to a site. Rather, the consideration should be does the site provide a mix of species and environmental conditions that could lead to the continued maturation of the late-stage successional forest ecosystem if left undisturbed.

ALL forest ecosystems have the potential to become [ldquo]old growth/mature[rdquo] given enough undisturbed time. Given the opportunity to protect and conserve EXISTING old growth/mature forests, one should consider what it takes to be categorized as old growth/mature in ANY ecosystem. See below:

First, time since last disturbance is clearly of value, but since ALL ecosystems experience nearly continuous disturbance at some degree (both in spatial extent and intensity), we must consider these two factors. That is, (1) the larger the spatial extent that has remained undisturbed makes for a more valuable area to protect; and (2) even smaller areas with less intense disturbance histories would also be valuable to protect.

There is one other critical factor in classifying the degree and extent of disturbance in a forest ecosystem. Some disturbances are so severe and extensive that they return an ecosystem to a relatively primitive state, with little organic matter and no seed bank remaining in the soil, and little or no remaining woody vegetation. Such a severe disturbance sets an area back on the path of primary succession, where soil formation is required before the system can even begin to recover. Such a recovery would last at least several hundred years. A less severe disturbance, much more common, would leave a rich soil system with a bank of seeds for at least early successional species. This would characterize secondary succession, which, depending on the size of the area affected and the length of time the system remained disturbed, might last decades to a century or two.

For purposes of protecting and conserving old growth/mature forests, the maximum return on investment would come from identifying and protecting forests which are not in an early stage of primary succession, and which have not experienced a lengthy time period of disturbance.

That means conserving forest ecosystems that have rich soil development, with high percentages of soil organic matter and high soil organism species diversity and species richness, along with ample seed banks.