Comments: Comments for the 'Request for Information on Federal Old-growth and Mature Forests'
(re: Executive Order 14072)by Robert E. Messick Jr. - 8/12/22

Old-growth in the Southern Blue Ridge Region

Recent work has been done to consolidate the old-growth field work of 20 primary contributors in five national forests in the Southern Blue Ridge Region (SBRR). A combined figure of 272,491 acres (110,275 ha) includes the best estimate for the Great Smoky Mountains National Park (55% of the total) and ArcGIS delineations of examined old-growth in five national forests (45% of the total). Dots were placed for numerous sites that were visited-not-delineated. A list of prioritized candidate sites was also generated, and numerous sites were rejected due to not reaching classification. The combined figure could be the third largest concentration of old-growth forests in the eastern United States by region. Details and methods of this survey have been published as a book chapter and a report at:
URL: https://www.sciencedirect.com/science/article/pii/B9780128211397000313#s0015
URL: https://drive.google.com/file/d/1ET86zeaqqVKmaub4D7zV5HSQNmFZnYRe/view?usp=sharing

Results of this survey have been adopted by the North Carolina Natural Heritage Program and by local Land Trusts. Data from this survey has been used by a team of international scientists that is working to map the worlds remaining primary forests. The lead scientists are from Griffith University in Australia, and as of 2021 the team was in the process of producing a coast to coast map of mature forests in the USA with application to a 30 x 30 target setting and carbon reserves. The team is using the latest satellite imagery from the JEDI sensor plus published datasets on carbon, biodiversity (T&E spp), and drinking water source areas.

Serious questions have emerged about the accuracy of US Forest Service estimates of existing old-growth on national forest lands in the eastern US that are based on CISC and remote sensing techniques, cursory methods used in the Southern Appalachian Assessment of the mid-1990s, and the more recent USDA 'Inventory and Analysis Program'. The GSMNP Old Growth Team and subsequent work in the national forests by numerous practitioners has shown that some degree of skilled ground-truthing is needed, and there is currently very little support for work of this kind among agencies, academia, standard grantors, and some non-profit organizations in the southern US. Numerous contributors to the consolidated survey of old-growth in the SBRR that is sourced above have found that the USFS CISC information system about stand condition is unreliable and in some cases problematic and inaccurate.

National Forest Land Acquisitions and Old-growth Forests

It is important to keep in mind that 23% of lands that were acquired for national forests in the eastern US up to 1931 were uncut or minimally culled.* At least five researchers have identified important connections between the early land acquisitions process for the national forests and existing old-growth forests in the SBRR (see comments related to the National Forest Reservation Commission in the results section of the 2020 report sourced above). At least one correlation of this kind has been found in each of the large geographic areas (or mountain ranges) in the region - including the Smoky Mountains before acquisitions for the park (see Figure 8 in the report sourced above).

* Ashe, W. W. "The Eastern National Forests", Southern Lumberman, January 1, 1932, page 36

Defining and Classifying Old-growth

The request for information notice for executive order 14072 asks if it is possible to create a 'universal definition' for old-growth and mature forests in North America based on criteria. It also asks how a definition of old-growth can be useful, durable, and changeable related to climate change. In my view a regional or ecoregional approach brings definitions and classifications of old-growth into sharper focus (see "Ecological Units of the Eastern United States" J. E. Keys et al. 1995-2007). This provides a context in which relevant old-growth definitions and classifications related to forest communities can continue to evolve. From a practical perspective an ecoregional approach could at least focus on parts of Minnesota, the Adirondacks in upstate New York, and the Southern Blue Ridge Region (SBRR) where significant concentrations of old-growth forests are known to exist in the eastern US.

An ecoregional approach would make it possible to address complexity and changes in forest conditions identified with: a) differences between forest communities related to a range of physical factors, b) other site specific conditions such as tree age, c) characteristic disturbances, d) geographic locations such as within mountain ranges, and e) climate. An example can be found in the work of Steve Simon and colleagues (see "Ecological Zones in the Southern Appalachians" S. A. Simon et al. 2005). The disparity in defining forest types and communities that is found between oversimplified approaches such as those adopted by the Society of American Foresters all the way back to the 1920s and more ecological approaches such as those used by the NC Natural Heritage Program should be resolved in favor of the latter (see Figure 1 in the report sourced above, and the NCNHP 4th Approximation of 2012).

In the SBRR most fieldwork practitioners have avoided problems with old-growth definition per forest community and have adopted a classification system that sets reasonable parameters of tree age and lower amounts of human disturbance. The Class A, B+, and B system has been applied by numerous field workers and it has origins with the GSMNP Old Growth Team (see the report sourced above for details). Large, medium, and small disturbance patterns with corresponding infrequent to frequent occurrences have been identified in the region (J. R. Runkle et al. 1985). One practical issue that has come up with assessing old-growth in the region is distinguishing between forests that have old trees in the canopy and some second generation forests that have near ideal growth conditions in coves and have been logged only once. Some researchers have referred to the latter as 'supercoves' and they have been identified through ground-truthing. The SBRR also has areas that can be excluded such as some grassy balds, areas with severe repeated burns related to drought (like Linville Gorge), old fields, and areas on mountains or in valleys that have extensive early successional forests.

Threats, Specific Pests, and Tree Migration Due to Climate Change

The national forests experience less fragmentation and intrusion pressures from roads and housing developments than most private lands, and this provides an important opportunity to maintain blocks of forests and older forests for carbon sequestration. The RFI notice uses the term 'climate smart management' and this must include an awareness of effects of the hemlock woolly adelgid, the ash borer, the gypsy moth, and other insect infestations. In the SBRR some of the largest effects of climate change will be in islanded high elevation forests like Spruce-Fir, Red Spruce Forests, and Northern Hardwood. Significant differences have been found between uncut upland forests dominated by red spruce verses those that were accessed for logging in the past. Recognizing pockets of uncut or minimally culled forests in these environments will provide an important test for issues like tree migration. Most of the old-growth forests found in the SBRR are at mid-elevations, though these and some of the important lower elevation occurrences of old-growth will also provide important baselines for studies of climate change and tree migration (see Figure 6 in the report sourced above).

Allowing timber sales in remaining old-growth forests on national forest lands in the eastern US, or ignoring pockets of old trees that may occur in stands slated for timber sales, stands in sharp contrast to: a) being able to study patterns of tree migration related to climate change, and b) keeping forests that are important for carbon sequestration. Other significant ecological concerns related to existing old-growth forests are listed in links

provided above.

Changing Policy about Old-growth Forests in National Forests in the Eastern United States

Planners and land managers should acknowledge the need to change policy about old-growth on national forest lands in the eastern US. Policies related to timber sale activity in this regard have not changed for over 30 years in the US Forest Service, and Biden's Executive Order 14072 offers an opportunity to recognize the relative scarcity of existing old-growth forests in the eastern US and protect what remains on the national forests. Recent work that includes catalog listings and ground-truthed old-growth sites contributes to a better understanding of how to make these policy changes.