



New Mexico Audubon Council

Representing Four Local Chapters of the National Audubon Society in New Mexico, Conserving and restoring natural ecosystems, focusing on birds, other wildlife, and their habitats for the benefit of humanity and the earth's biological diversity

United States Forest Service and Bureau of Land Management
Response to request for Information on Old Growth and Mature Forests
Executive Order 14072 #NP-3239

Folks:

The New Mexico Audubon Council, representing over 6,000 members in New Mexico is very concerned about the future of forest habitats in New Mexico and the habitat they provides for birds and other wildlife. We have been engaged in these issues for nearly forty years, including advocacy for the Collaborative Forest Restoration Act. Throughout, we have argued that the values of healthy forest ecosystems to the larger public overwhelmingly trump the limited benefits to a limited number of extractive industries. We continue to believe that this is true.

The forests of the American Southwest have been exploited at varying intensity since long before the creation of the United States Forest Service [Service] in 1905. The earliest uses were by Native American cultures for firewood and construction timbers/material. Because of the relatively low population densities of these cultures, impacts on these Forests were localized and limited. As Europeans entered the Southwest in the 16th century of the current era [CE], more advanced technology and more demand for forest products were brought to bear on these Forests. Demand for timbers and construction materials to support the mining industry in the middle of the 19th century CE grew substantially with the coming of railroads to the region in the latter half of that century as demands for mine timbers, railroad crossties and fuel for steam locomotives and mining equipment exploded. This exploitation was largely unregulated prior to the creation of Federal Forest Reserves (1891) and subsequently the Service in 1905. The first Federal timber sale to the Homestake Mining Co in 1899 (Case Number One) in the Black Hills of South Dakota was the first attempt to regularize the cutting of Federal timber.

For the first half of the 20th century CE, the service responded to the demands of a slowly growing industry for these products and growing demand for dimension lumber . The demand for dimension lumber grew enormously following WW II as returning GIs sought housing. The Service responded with an expanded timber program. Improved transportation meant that the physical distance between the sources of timber and the demand for forest products meant little, and increased the pressure on the forests of the American West generally to meet the housing demand. Although this demand was for generally smaller size products, the economics of lumber production continued to favor the cutting of large trees.

Paralleling the development of the timber/lumber industry, a growing livestock industry came into being starting in the latter part of the 19th century CE with the penetration of railroads which connected the wide-open spaces of the West to packing houses further east. Abuses from unregulated grazing was another impetus for the creation of the Forest Reserves.

As with the timber industry, earlier livestock operations were small and largely inconsequential in terms of their impact on forest lands. Large scale grazing operations responding to demand created by WW I were again largely unregulated until the passage of the Taylor Grazing Act in 1934.

In the latter half of the 20th century CE, an increasing awareness of the role of these developments in altering the silvicultural structure of our National Forests developed. A hundred years of "scientific forest management" had resulted in a dearth of large trees and an unhealthy abundance of smaller trees and shrubs in most western National Forests including those in the Southwest. This situation was made manifest by the increasing number, intensity, and size of forest fires throughout the West. Forest Service policies created following the "Big Burn" of 1910 exacerbated the fire situation by preventing occurrences of "good fire" which cleared out small trees and undergrowth. These policies resulted in increasingly common and severe fires that were not amenable to control or containment and resulted in stand replacing fires that in many instances killed large trees that had survived by virtue of their inaccessible locations.

This human history and the different life histories of the trees that make up the Southwest's forests make it difficult to create a blanket definition of "old growth" or "mature forests". The task is further complicated by the present and reasonably predicted effects of climate change on the life history of these forests.

Ponderosa Pine (*Pinus ponderosa*), long the focus of the timber industry in the Southwest, can live for several hundred years and attain sizes (diameter at breast height, dbh) in excess of 48". A mature Ponderosa is typically 60-100' tall with a spread of 25-30'. The oldest Ponderosa was 600 years old, the largest recorded dbh is 102", and the tallest was 232'. They are well adapted to frequent "good" fire, which results in tall, branch-free trunks that further resist damage by fires below the crown, but vulnerable to stand-replacing crown fires when undergrowth which results from the absence of "good" fire provide fuels that ladder to the crown. Mature, old growth Ponderosa Pine stands are characterized by a relatively open understory with pine densities of less than 50 trees per acre, though this varies with soil and moisture regimes. These stands are created and maintained by a fire return interval of 10--20 years. The Ponderosa Pine "belt" is at middle elevations in the Southwest. *The history of exploitation of this species suggests that any stands of trees older than 100 years (as determined by core sampling) be considered "mature" and "old growth" and maintained through the use only of prescribed fire. Areas of younger trees should be managed as "potential old growth" and managed likewise.*

There are several true fir species (*Abies* spp.) in the Southwest but the term fir herein includes Douglas Fir (*Pseudotsuga* spp) which is similar in size and life history to the true firs. Firs may reach heights in excess of 100' and dbh of 36" or more. Firs are generally faster growing than pines and in the southwest are dominant at higher elevations than Ponderosa Pines and wetter soils. A mature fir forest is typically multi-aged and is characterized by an almost completely closed canopy. Because of their proclivity for higher elevations approaching timberline and their dense growth forms, fir forests are characterized by longer fire return intervals (100-300 yrs.) but when fires occur, they are usually stand-replacing. Old growth fir stands may also include Bristlecone Pines (*Pinus aristata* in the Southwest), which can grow to great age usually near the tree line. *The vulnerability of these high elevation species to climate change effects--specifically extended drought--suggests that all high elevation stands (> 7,500') of whatever species be protected from any management activities.*

In addition to Ponderosa Pine and fir forests, the Southwest is also home to several growth forms of Pinyon-Juniper forests. Three types of these forests are recognized*: Persistent

Pinyon-Juniper forests, Pinyon-Juniper grassland savannahs, and areas of expanding or contracting woodlands into non-wooded areas.

Persistent Pinyon-Juniper forest, characterized by larger trees of great age and a nearly closed canopy, the result of a fire-return interval of 200-600 years should be considered as mature old growth and protected from all management actions. Pinyon-Juniper Savannah and areas of potential expanding and contracting woodlands are transient forms resistant to management action (e.g. chaining) other than prescribed fire.

These considerations mean that management for "old growth" and "mature forests" must recognize that the forests of the Southwest are generally depauperate of these stand types. Existing remaining examples of these stand types should be preserved and maintained by appropriate use of prescribed fire in the case of Ponderosa Pine, which can also serve to restore old growth areas of mature forest. The nature of fir forests and persistent Pinyon-Juniper forests suggests that "management" be limited to the recognition that natural processes (lightning) are the most appropriate disturbance regimes in these stand types and they should be left alone.

Please keep us apprised as this policy is developed. Our forests are an important legacy for our members and the birds and wildlife that depend on them.

Sincerely,

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* Romme, W.H., Allen, C.D., Bailey, J.D.; [et al.]. 2009. Historical and modern disturbance regimes, stand structures, and landscape dynamics in piñon-juniper vegetation of the western United States. *Rangeland Ecology and Management*. 62: 203-222.