Coconino National Forest Plan Revision

Mixed Conifer with Infrequent Fire (also referred to as Wet Mixed Conifer)

General Description

- Mixed conifer with infrequent fire covers approximately 79,060 acres on Coconino NF (along with mixed conifer with frequent fire). This forest type occurs at elevations ranging from approximately 5,500 to 10,000 *[will supplement with specific Coconino NF elevation]* feet on mountain slopes and may also occur in canyons and north-facing slopes at lower elevations.

- Tree species composition varies depending on seral stage, elevation, and moisture availability. It can be composed of early and mid-seral species such as aspen, Douglas fir, New Mexico locust, southwestern white pine and limber pine, and late seral species such as maple, white fir and blue spruce. Ponderosa pine may be present in minor proportions. The absence of Engelmann spruce and/or corkbark fir distinguishes wet mixed conifer from the spruce-fir forest. Aspen may occur as individual trees or small groups.

- Disturbances typically occur at two temporal and spatial scales: large scale infrequent disturbances (mostly fire) and small scale frequent disturbances (fire, insect, disease, wind).

- This forest has an understory of a wide variety of shrubs grasses, and forbs depending on soil type, aspect, elevation, disturbance, and other factors. It generally has more sedges, mosses, and liverworts than mixed conifer with frequent fire. Lichens may occur on the Douglas fir. Vegetation tends to flower more in the spring and compositionally be more similar to vegetation in adjoining spruce fir type or in canyons. It has more leaf litter than dry mixed conifer because there are more deciduous species.

- Mixed conifer understory in canyons is older geologically because the canyons have been in place longer than mountains on the forest. Consequently, mixed conifer vegetation in canyons provides additional biological and genetic diversity.

- Direction regarding Mexican spotted owl habitat (MSO) in this vegetation community is contained in the MSO Recovery Plan. Direction for species listed as threatened and endangered species takes precedence over direction for species not listed by U.S. Fish and Wildlife Service.

Desired Conditions (landscape scale: 10,000 + acres)

- This forest type is a mosaic of structural and seral stages ranging from young trees through old. The landscape arrangement is an assemblage of variably-sized and aged groups and patches of trees and other vegetation associations similar to historic patterns.

- Tree groups and patches are comprised of variable species composition depending on forest seral stages. An approximate balance of seral stages is present across the landscape, each seral stage characterized by distinct dominant species composition and biophysical conditions.

- Old growth is well-distributed in the landscape. Canopies are generally more closed than in dry mixed conifer. An understory consisting of native graminoids, forbs, and/or shrubs is present.

- The mixed conifer with infrequent fire community is composed predominantly of vigorous trees, but older declining trees are a component and provide for snags, top-killed, lightning- and fire-scarred trees, and coarse woody debris, all well-distributed throughout the landscape. Number of snags and the amount of downed logs (>12 inch diameter at mid-point, >8 feet long) and coarse woody debris (>3 inch diameter) vary by seral stage.

- The composition, structure, and function of vegetative conditions are resilient to the frequency, extent and severity of disturbances and climate variability.

- The forest landscape is a functioning ecosystem that contains all its components, processes, and conditions that result from endemic levels of disturbances (e.g. insects, diseases, wind, and fire), including snags, downed logs, and old trees.

- Mixed severity fire (Fire Regime III) is characteristic. High severity fires (Fire Regime IV & V) rarely occur. Natural and anthropogenic disturbances are sufficient to maintain desired overall tree density, structure, species composition, coarse woody debris, and nutrient cycling.

- Organic ground cover and herbaceous vegetation provide protection of soil, moisture infiltration, and contribute to plant and animal diversity and to ecosystem function.

- Mosses and lichens are prevalent and function for recycling soil nutrients and for filtering air. These require moisture for part of their life cycle.

Desired Conditions (mid-scale: 100-1,000 acres)

- The size and number of groups and patches vary depending on disturbance, elevation, soil type, aspect, and site productivity. Patch sizes vary but are frequently in the hundreds of acres, with rare disturbances in the thousands of acres. Groups and patches of tens of acres or less are relatively common.

- A mosaic of groups and patches of trees, primarily even-aged, and variable in size, species composition, and age is present. Aspen is occasionally present in large patches.

- Grass, forb, shrub openings created by disturbance, may comprise 10 to 100 percent of the mid-scale area depending on the disturbances and on amount of time since disturbance.

- Tree density ranges from 20 to 180 square foot basal area per acre depending upon time since disturbance and seral stages of groups and patches. Snags 18 inches or greater at Diameter at Breast Height (DBH) range from 1 to 5 snags per acre, with the lower range of snags of this size associated with early seral stages and the upper range associated with late seral stages.

- Snag density in general (>8 inches DBH) averages 20 per acre. Coarse woody debris, including downed logs, vary by seral stage, with averages ranging from 5 to 20 tons per acre for early-seral stages; 20 to 40 tons per acre for mid-seral stages; and 80 tons per acre or greater for late-seral stages.

- Mixed (Fire Regime III) and high (Fire Regime IV) severity fires and other disturbances maintain desired overall tree density, structure, species composition, coarse woody debris, and nutrient cycling. High severity fires generally do not exceed 1000 acre patches of mortality. Other smaller disturbances occur more frequently.

- Forests in the wildland urban interface (WUI)[1] are dominated by early-seral fire-adapted species growing in an overall more open condition than the general forest. These conditions result in fires that burn primarily on the forest floor and rarely spread as crown fire.

- Basal area per mid-aged to old tree group in northern goshawk PFAs is 10 to 20 percent higher than northern goshawk foraging areas and the general forest. Nest areas have forest conditions that are multi-aged but are dominated by large trees with relatively dense canopies.

- Where they naturally occur, all age classes of aspen and maple are present in groups or patches and are regenerating and vigorous. A diverse understory comprised of native

[1] Note –provide WUI definition.

herbaceous and shrub species is has a variety of seral and age classes and is vigorous and regenerating.

Desired Conditions (fine scale: ≤ 10acres)

- In mid-aged and older forests trees are typically variably-spaced with crowns interlocking (grouped and clumped trees) or nearly interlocking. Trees within groups can be of similar or variable species and ages. Small openings (gaps) are present as a result of disturbances.