5a. Biodiversity: Other Habitat Components

Goals and Objectives: Manage young-growth to improve habitat for wildlife and for commercial timber products. Review standards and guidelines for applicability to young-growth stands. Maintain habitat capability sufficient to sustain and produce wildlife populations that support the use of wildlife resources for sport, subsistence, and recreational activities. Include a young-growth management program to maintain, prolong, and/or improve understory forage production, and to improve habitat distribution, including future old-growth timber stands for wildlife (e.g., deer, moose, black bear, and other species) on both suitable and unsuitable lands.

Background: The Tongass National Forest has over 400,000 acres of young, even-aged stands created through clearcut logging. Stand development following this method of harvest typically includes natural regeneration of western hemlock and Sitka spruce (Alaback 1982a; Deal et al. 1991) and rapid growth of residual shrubs (Alaback 1980). This stage, referred to as the "stand initiation" stage, persists for 15 to 25 years, depending on site quality. Within 10 years of clearcutting, newly established conifers begin to overtop the shrubs, and crown closure may be complete by 25 years. During this "stem exclusion" phase there is a nearly complete elimination of understory vegetation (Alaback 1980, 1982b; Tappeiner and Alaback 1989). Around 100 years after harvest, the understory vegetation begins to re-establish, but does not become well-developed until the stand reaches 120- to 150-years old (Alaback 1982b, 1984; Tappeiner and Alaback 1989).

The stem exclusion stage of forest regeneration after clearcut logging has little value as wildlife habitat (Wallmo and Schoen 1980; Schoen et al. 1981, 1988; Thedinga et al. 1989; Hanley 1993; Dellasala et al. 1996; Brinkman et al. 2010). Therefore, management strategies are needed to minimize the length and severity of this stage. Successful silvicultural treatments will either delay the onset or hasten the end of the stem exclusion phase, or they will reduce its intensity by increasing light transmission through the overstory canopy.

Pre-commercial thinning of stands not suitable for commercial thinning may improve wildlife habitat of treated stands, as well as their future timber value. Commercial thinning of older stands may provide these benefits while also increasing the supply of available timber. Some results indicate that understory plants may benefit from pruning, girdling, commercial thinning, and the inclusion of hardwoods such as red alder in the stand (Hanley et al. 2013).

Biodiversity Question: *Are young-growth treatments improving other key habitat components for old-growth associated species?*

Monitoring Objectives

Objectives of this monitoring question included assessment of understory species composition to determine if the change in understory vegetation following young-growth treatments provided improved habitat for key old-growth associated species, and if young-growth treatments improved other key habitat components for old-growth associated species. These objectives provided the basis for developing a habitat monitoring protocol for implementation following silvicultural treatments in young-growth forests on the Tongass National Forest.

Evaluation Criteria

A suggested habitat monitoring protocol has been proposed for addressing this question, but has not been tested or applied in the field (Suring 2011). Preliminary work to develop Graphical Interface (GI) tools to establish baseline values for the landscape attributes was planned in fiscal year (FY) 2014 but personnel constraints have delayed that work until FY2016. According to the protocol, there will be reports at the start and end of the five-year reporting period.

Suggested metrics are:

- Landscape
    - Total area of productive forest and seral stages calculated from the CoverType and SIZE_DENSITY data bases.
    - Patch size of contiguous habitat, density of edge, and habitat connectivity metrics will be calculated from CoverType and SIZE_DENSITY data bases using FRAGSTATS (McGarigal et al. 2002).
- Site
    - Canopy closure (as defined by Jennings et al. 1999)
    - Amount and quality of forage.

Criteria for changes that would suggest further investigations will be developed based on the outcome of the initial operational testing of the protocol in FY2016.

Citations

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