

Old Growth Forests & Species Management

Science Alliance for Forestry Transformation

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Managing Northern Goshawks and many of our other larger animal species that depend on old forests will not be achieved simply by old growth deferral of the most at-risk old forests. It is critical that we quickly move beyond the deferrals to the ultimate goal of effective landscape planning, with ecologically appropriate targets for forest retention at the core.

Review of the remaining known active Northern Goshawk territories in the Skeena Region indicates that:

- Although helping to support the nesting and foraging requirements of Northern Goshawks, old growth deferrals as being proposed will be insufficient to maintain the population or the viability of individual territories.
- However, if these now scattered and often disjunct old growth deferral areas were strategically designated within the remaining contiguous large tracts of forest—including the more productive valley bottoms—they could immediately provide very effective habitat cornerstones supporting the needs of Northern Goshawks, and a wide range of other focal old growth species.

Lessons learned from 25 years of monitoring and research on Northern Goshawks in B.C.

In west central B.C., there has been a precipitous decline in the population of Northern Goshawks as a direct result of clearcut logging (rate and extent of cut), and subsequent conversion of primary forests to short-rotation tree plantations. Northern Goshawks are year-round residents of our forest landscapes, where they are the apex avian predator within old forests. These large hawks are adapted to hunt beneath the canopy of these forests, where from hidden perches they ambush. They rely on fully functioning, older forest ecosystems, to provide the diversity and abundance of food they require (squirrels, grouse, hares, forest songbirds, etc.). They were once common in the region; now instead of thousands of pairs, we have a few hundred. Because their breeding areas and core foraging home ranges are usually located at lower elevations, nearly all known and “still occupied” territories are threatened by additional planned timber harvest. Logging to date has forced regional Northern Goshawk populations to the to the brink of viability, and we now must focus management on maintaining the remaining viable territories.

Northern Goshawk Habitat Needs

Species such as Northern Goshawks that evolved in old growth-dominated forest landscapes need mature and old growth forest to survive and thrive.

Like the vast majority of our forest birds and mammals, pairs of Northern Goshawks are territorial, and historically distributed themselves evenly across the forested landscape. The birds forage in the forest around their nests, and radio telemetry/GPS tracking studies have shown how the size of this foraging home range fluctuates through the year, according to prey abundance and habitat. They are year-round residents in their territories, and to breed they need sufficient food to survive the winter, sufficient food for the female to form and lay eggs in April, and sufficient food in spring and summer for the birds to reside and raise the young in their foraging home range.

Through the collective work in our landscapes, we now understand that a goshawk's breeding area is a fixture in the landscape, and the birds will use the same specific area for generations of birds. The size of the breeding area is governed by habitat competition and nest territoriality with other goshawks in the landscape. As such, by visiting these sites, biologists know very clearly how many birds there are, and how well they are responding to changes in their home range area. When the breeding area is excessively logged or burned, the birds do not seek other territory (already abandoned due to forest modification or presently occupied), resulting in further territorial abandonment. In fact, approximately 90% of the 150 known Northern Goshawk breeding areas within the Skeena Region are now quiet and are, or soon will be, abandoned. Unless we change how we manage our forests, we will never see the return of this species to historic breeding areas, and will further witness their extirpation across landscapes.

In the Skeena Region, breeding pairs are spaced regularly every 4-6 km in old-growth forests. This pattern and the validating research using radio telemetry show that in summer Northern Goshawk breeding home areas range from 2,400 to 4,000 ha, and in winter this expands to an area 2 or more times as large (3,000 – 8,000 ha). Within a breeding area, habitat analysis shows that on average ~75% of the forest cover is composed of mature and old-growth stands. This ~75% requirement for mature and old growth is an average. Many territories will fail before the ~75% level is reached, and nearly all will fail if we manage for just the lowest level (~60%) observed for an active territory in our region.

Northern Goshawk Habitat Management Challenge

Forests at a landscape scale (think Northern Goshawk home range area; several 1,000s ha), are a vast tapestry of several different tree species, stand types and ages, and myriad site types (understory vegetation, patchiness, wetlands, landforms, slope aspects, moisture status, etc.). This biophysical complexity affects the overall abundance of the birds and other animals within any given area. Given this complexity and the availability of prey species for Northern Goshawks, there is no definable home range boundary that we can determine prior to timber harvesting (*i.e.*, we cannot identify a habitat threshold for each territory that will ensure that the birds will have enough food). Each territory threshold is unique and could vary year to year.

Chillingly, for many species requiring larger tracts of older forest, habitat management is now about deciding which species and in what abundance we want to occupy our forested landscapes. Planning for these species will fail if left to chance, minimum thresholds, or deregulated resource industries and depopulated management agencies.

Rising to the Management Challenge:

Currently in the Skeena Region a team of biologists and foresters, in partnership with government, forest licensees and First Nations, are responding to the above findings. The focus is on developing Tactical Plans to maintain a viable long-term Northern Goshawk population, through the management of probable and known individual territories across given landscapes.

Integral to this approach is the integrated stewardship direction laid out by the BC Minister in "Together for Wildlife Strategy" (Doug Donaldson 20 August 2020, <https://engage.gov.bc.ca/wildlifeandhabitat/>), and the Forest Practices Board identified need for wildlife management to be built around a Tactical Plan (FPB. July 2019. Tactical Forest Planning: The Missing Link Between Strategic Planning and Operational Planning in BC. <https://www.bcfpb.ca/reports-publications/reports/tactical-forest-planning-the-missing-link-between-strategic-planning-and-operational-planning-in-bc/>).

At all scales, these long-term tactical plans must focus on the retention of the old growth structure that supports the requirements of Northern Goshawks and their prey (and of course apropos today's Climate Change headlines - this same structural retention will help mitigate flooding, rising stream temperatures, and greenhouse gas emissions). In B.C. we have a wealth of forest research, and we already know what combination of forest retention, timber harvest and post-harvest silvicultural techniques can deliver appropriate stewardship for Northern Goshawks while still allowing for timber extraction.

Not surprisingly, maintaining habitat for the large home range needs of Northern Goshawk also supports the habitat needs of many other forest dwelling wildlife species, including Fisher, Marten, Wolverine, Grizzly Bear, Moose, Caribou, Spotted Owl among others.

Fundamentally, stewardship of many of these species requires a new and long overdue approach to management of our forested landscapes, addressing the need for large unfragmented areas as cornerstones to wildlife species management. The ongoing discussion regarding old growth deferrals sets the stage for revitalized land use planning, and is a stepping-stone to ensuring support for keystone species such as the Northern Goshawk. Strategic placement of deferrals within the already mapped ~200 suitable Northern Goshawk territories in the Skeena Region could quickly provide the initial outcome that is urgently needed, as outlined in the integrated stewardship direction identified in the "Together for Wildlife Strategy". Northern Goshawks and many other old growth dependent species are relying on us.