Species at Risk and Land Management: A Framework for Integration

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Abstract: In northwestern British Columbia, a species and land management framework has been applied to land use decision making in two planning areas. The North Coast and the Morice Land and Resource Management Plans (LRMPs) establish direction for broad scale land use by specifying resource indicators and targets for a suite of values including species at risk. The long-term success of these and other planning initiatives depends upon local and provincial resource information and on the integration of appropriate organizational bodies to successfully implement and monitor plan status at the relevant scale.

Through a collaborative modeling process, technical elements of both LRMPs have been synthesized using spatio-temporal landscape models that include submodels of natural disturbance, forest harvesting, and road building, ecosystem models, and individual species models. Species models for the grizzly bear (*Ursus arctos*)[1], mountain goat (*Oreamnos americanus*), and northern goshawk (*Accipter gentilis*) have been used in both planning areas, and models for the marbled murrelet (*Brachyramphus marmoratus*) have been used in the North Coast plan area. A core modeling team works with domain experts who in turn work with the government technical team and the planning table to explore and capture knowledge about landscape changes and their implications for resource values. External to the LRMPs but related to them are First Nation land use plans, and on the North Coast, the 'Coast Information Team'. These groups share information, landscape forecasts, and results from species models that are then used in their decision-making processes.

The establishment of a shared data access and management facility, the Northwest Data Sharing Network, has enabled long-term resource and species assessment and monitoring. Forest licensees, First Nations, and government have formalized their collaborative relationship through a local governance structure. As well as sharing information in a timely manner, trust and relationships between participants are maintained.

Complex social and biological systems are interwoven through the collaborative species and land management framework, which maximizes participants' feelings of ownership of relevant

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[1]NatureServe Explorer (version 4.0, July 2004) lists *Ursus arctos* as the brown bear, and *Ursus arctos horribilis* as the grizzly bear.

submodel components. Submodel development is explicit and is done transparently and in consultation with process stakeholders, capturing their interests and enhancing their understanding of the landscape. Land use decision making is a complex system with organizational, ecological, technical, and social dimensions. The species and land management framework applied in northwestern British Columbia provides an environment where these complex systems can interact and self-organize to assist in making land use decisions. The interaction of stakeholders, domain experts, and modeling groups in a collaborative framework with shared responsibility and decision making is an application of self-directed work teams within a knowledge network, which are well documented business tools used to meet organizational objectives.