The use of traditional knowledge in species assessment: a case study of northern Canada wolverine[1]

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This is a summary of Nathan's masters thesis

As human society has changed and evolved, our interaction with the surrounding landscape has also changed, compounded by rapid technological development and an ever-increasing demand for natural resources. While some of these interactions have led to substantial social and economic gains, they have also resulted in significant deleterious impacts on the environment, which consequently affect all segments of human society and economy. Furthermore, contemporary methods of understanding and resolving such impacts are insufficient. Because of the complex relationships between humans and the environment that we are only beginning to understand, problems and corresponding solutions to these impacts are often increasingly multifaceted. Better tools are needed to help understand and mitigate these impacts. *Tools* imply not only technological fixes, but also changes in thinking and perspectives.

While society is beginning to realize the magnitude of these impacts on the surrounding biodiversity, there is a simultaneous increase in the international recognition of Indigenous peoples and their role in biodiversity conservation. In fact, more than three-quarters of the world's population rely on Indigenous knowledge for their health and security (UNDP 1994). Meaningful involvement of Indigenous peoples in conserving biodiversity not only confirms Indigenous rights and claims to land and resources, but also helps to maintain Indigenous cultures and counteract the socioeconomic problems affecting many Indigenous communities (Karjala, Sherry, and Dewhurst 2004). Recognition of Indigenous and Aboriginal rights is also confirmed through recent court decisions such as R. v. Sparrow (1990) and Delgamuukw v. B.C. (1997). Such decisions will increasingly impact biodiversity and its conservation "by regulating access to the knowledge and resources of indigenous and local communities, and by requiring that policy and management be made with their full participation" (Mauro and Hardison 2000, p.1263). These legally-recognized rights provide Indigenous people with legitimate access to resources, and require others to ensure active participation of Indigenous peoples in biodiversity conservation. These factors have also resulted in the recognition of the inherent value of Indigenous people's traditional knowledge (TK) in biodiversity conservation.

In Canada, both the inherent value and the lawful recognition of Aboriginal people's traditional knowledge are epitomized in the Species at Risk Act (SARA). Unlike the field of environmental impact assessment where attempts have been made to include TK (Sallenave 1994; Usher 2000), such information has rarely been used in species conservation and the assessment of wildlife. A 2002 study of 190 status reports (reports that summarize the status of a species) revealed that only one report referenced Aboriginal use; none incorporated TK (Ellis 2001). However, because of certain clauses in the SARA which call for the active inclusion of TK, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), the organization responsible for assessing wild species in Canada, is now required to include "scientific knowledge, community knowledge, and aboriginal traditional knowledge" (SARA 2002, c.15.2) in the assessment of a species. The current COSEWIC species assessment process necessitates a heavy reliance on scientific information; many of the standards used to evaluate a species' status, such as rates of genetic decline, require a scientific approach. While the lack of TK may be acceptable for certain species, such a significant reliance on scientific information, combined with a disregard for other types of knowledge, will result in improper assessments for certain species due to a lack sufficient information required to draw a conclusion regarding their status (Barichello 2001). The inclusion of other types of knowledge such as TK can readily improve a species' assessment, and can also supply much of the information required for a proper species assessment when combined with existing

[1] Although the plural of wolverine is *wolverines*, in northern Canada, *wolverine* is often used as the singular and plural.

literature (Barichello 2001a). While extremely beneficial for species, the inclusion of TK via the SARA can more importantly signal meaningful involvement of Aboriginal people in species conservation, which may ultimately improve local-level acceptance of a species' status and associated recovery programs.

While calling for the active inclusion of traditional knowledge into the COSEWIC species assessment process, the SARA gives little direction regarding how to meet such a requirement. Therefore, I conducted a TK study on wolverine in northern Canada to provide recommendations to COSEWIC regarding the incorporation of TK into the COSEWIC species assessment process. Regardless of its legendary behaviour, there is a paucity of scientific information available for wolverine because of a combination of biological and geographic factors. Few scientific studies have ever been conducted on wolverines in northern Canada, even though the region contains a substantial portion of both the wolverine's range and abundance in North America. To gather TK on wolverine, a subset of the wolverine's range was chosen in which to conduct the study. I conducted interviews with 30 different recognized wolverine knowledge holders in 10 different communities across Nunavut, NWT, and the Yukon. Wolverine knowledge holders were identified with the help of regional and community wildlife organizations as well as various Aboriginal organizations.

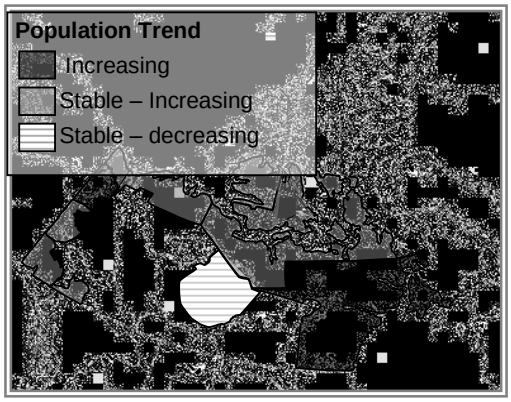
The wolverine TK study contributed invaluable information regarding the status of wolverine in northern Canada, providing information on the special significance of wolverine to Aboriginal people, the biological characteristics of the species, relative trends in abundance, and information regarding any significant threats. Knowledge holders admired wolverine for their strength and intelligence and while regarded as vicious, they were admired for their toughness. Wolverine are considered very important by local people, both from a cultural and subsistence standpoint. Wolverine fur is highly prized in local communities as parka trim because of its frost-resistant quality (see figure 1). Few people ate wolverine, but it was considered an important source of food during nomadic times. Knowledge holders shared many stories and legends about wolverine, and it was personified as a trickster and thief.

Figure 1. A woman wearing a parka with wolverine trim

Wolverine were described as both a scavenger and a predator. In a number of regions across the North, the wolverine's main food source is caribou, obtained mainly through carrion created by wolf kills. Carrion is also important in the remaining regions, but other, smaller animals such as rabbits and ptarmigan provided for a more varied diet. Wolverine were described as naturally rare and solitary, except on 2 occasions: during breeding season when one or more males would be seen tracking a female; and during winter, when groups were observed feeding on large carrion. Seeing a wolverine with young was rare, but common litter sizes ranged from 2 to 4. One knowledge holder reported seeing a litter of 5, which is larger than any litter size reported in scientific studies. Wolverine were generally thought to have home ranges, but some wolverine were thought to be transient with no home range.

Knowledge holders thought wolverine were naturally uncommon across the North. People in eastern Nunavut identified a significant decrease in wolverine numbers during the past 50 years, for which they blame wolf control programs in the mid-1900s as the root cause, which threatened local populations with extirpation. Knowledge holders in this region report an increase in the wolverine population since the 1960s when the wolf control program ended (see figure 2). Wolverine populations in the northern portion of mainland Nunavut were reportedly stable, and large enough to support strong harvest pressure.

Figure 2. map of wolverine trends in northern Canada



Wolverine populations in the Yellowknife area were described as stable or decreasing, with resource development cited as a cause. Populations in the northwestern portion of the Northwest Territories and throughout the Yukon were described as stable or increasing.

Knowledge holders portrayed wolverine as being sensitive to development, but also noted that some older wolverine would return to areas of development if left alone. Few active threats were identified in the North because of the lack of development; consequently, the main source of wolverine mortality is hunting and trapping. Wolverine harvest often goes unreported in Nunavut and the Yukon because wolverine fur is used locally for fur trim and harvest goes unreported; hence, harvest statistics for Nunavut and NWT underestimate actual wolverine harvest. However, harvesting is mostly opportunistic and incidental, and is largely restricted to certain areas, generally resulting in small personal harvests. Therefore, wolverine migrating from other unharvested regions sustain other populations that may be reduced by local harvesting pressure. Knowledge holders across the North identified regions where wolverine have continually migrated from. Populations in these areas could act as source populations and are important in developing future conservation plans and management.

TK provided a wide breadth of information regarding wolverine status, information which can improve the current assessment of wolverine in the North, and proved to be hugely beneficial for improving the validity and acceptability of species assessments. TK from the study proved to be congruent with contemporary scientific knowledge of wolverine, supporting various studies conducted on wolverine behaviour (Boles 1977), habitat use (Hornocker and Hash 1981), and food requirements (Mulders 2000). It provided finer-scaled information than currently available for many areas in the North, and further refined the present relative abundance maps for wolverine. TK also contributed new information regarding wolverines and clarified threats to wolverine, especially regarding regional differences in impacts due to wolverine harvest.

It must be noted that not all species are created equal, and the availability and depth of ATK is different for every species. However, the inclusion of ATK improves the quality of species assessments to some degree. Furthermore, active involvement of Aboriginal people and their knowledge in the assessment process will increase the acceptability of decisions resulting from assessments at a local level. Because of the unique cultural and historical characteristics of ATK, extreme care must be taken in its gathering in order to ensure the proper respect and acknowledgement for which the knowledge and its holders deserve.

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