

Conservation Analysis
for the
Great Basin Gophersnake
(Pituophis catenifer deserticola)
in British Columbia

Prepared by:

A. Haney and M. Sarell,
Ophiuchus Consulting
ophiucon@vip.net

March 2007

Prepared for:

Biodiversity Branch,
BC Ministry of Water, Land & Air Protection,
Victoria, BC

and

BC Ministry of Forests,
Victoria, BC

EXECUTIVE SUMMARY

The Great Basin Gophersnake (*Pituophis catenifer deserticola*) inhabits most of the low and mid-elevation valleys in the southern interior of British Columbia. This snake is most at home in native, grassland-dominated ecosystems where it spends most of its time underground in small mammal burrows. Eggs often are laid on dry, warm slopes, sometimes with the clutches from other snakes. Gophersnakes are known to use deep fissures in rock and talus as well as deep mammal burrows as hibernacula.

The same valleys that provide optimal conditions in the northernmost extent of the gophersnake's range have attracted human settlement over the past 150 years. This sprawling change in the landscape displaces gophersnake populations by creating unsuitable habitats and threats to individuals, forming population sinks. The fire dynamics of natural areas have changed due to fire suppression, to produce infrequent hot fires, forest ingrowth and colonization of non-native plants. The culmination of habitat loss, numerous threats, and suspected population declines, resulted in the Committee on the Status of Endangered Wildlife listing the species as Threatened. A recovery team has prepared a draft recovery strategy and will be implementing recovery actions. The main challenge for recovery efforts is maintaining connectivity within each population and between populations. Four distinct populations are proposed for British Columbia, the Kettle, Thompson-Nicola, Fraser and Okanagan-Similkameen.

This report provides a spatial analysis of habitat suitability and land tenures within the potential range of the gophersnake. Conservation strategies are proposed with an emphasis on maintaining connectivity and promoting the most effective strategy for each population, depending on the dominating land tenure. One of the main questions which challenges recovery planning is whether sufficient lands with formal protection for the species and its habitat exists, and if not, can provincial Crown land that is part of the non-contributing land base (NCLB) be used as a surrogate.

Analysis showed that the majority of suitable habitat generally exists on unprotected Crown land, with relatively little formally protected lands (including Protected Areas, Wildlife Habitat Areas, private conservation). The Kettle population, however, is situated primarily on private lands, and virtually none of the habitat is protected. Although Crown land dominates the suitable habitat in the Thompson-Nicola population, more of the best habitat is on private land, and only about 6% of habitat is protected. The Fraser and Okanagan-Similkameen populations have the highest amounts of good habitat protected, at approximately 15% and 13%, respectively.

There is insufficient protected land to confidently recover the species, unless there is a means to conserve gophersnake habitat on Crown lands in good condition throughout their range. The NCLB contains most of the high and moderate suitability habitat but these lands are often subject to a number of threats, including road construction and traffic, utility corridor construction and maintenance, intensive grazing, and recreational uses. Conservation tools like Wildlife Habitat Areas are considered the best mechanism to effectively protect these habitats. Conservation strategies may also be required on protected lands. Stewardship and applied best practices are seen as essential tools for conserving gophersnake habitat on private and First Nations' lands.

This analysis, and subsequent conservation strategies, is intended to be used at a landscape scale. Action plans and implementation will require more detailed information, such as accurate land tenure, within each population of gophersnakes.

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INTRODUCTION

The Great Basin Gophersnake is a large, non-venomous snake that is often mistaken for a rattlesnake, especially as it mimics their defensive behaviours. Gophersnakes den in two distinct conditions, one being in rocky fissures or deep talus, the other in deep soiled areas where small mammal burrows enable them to penetrate below the frost line. Movement to summer ranges is rapid, taking less than several days and directional (Waye and Shewchuk 2002). The summer ranges can be a kilometre or more from the hibernacula (Shewchuk 1996, Bertram et al. 2001). Therefore, barriers greater than two kilometres in width, likely prevent breeding between adjacent subpopulations. Summer home ranges are variable in size but appear to be between 5 and 15 hectares (Shewchuk 1996, Bertram et al. 2001), although there are discreet areas within the home range that are used for disproportionately longer periods (Waye and Shewchuk 2002, Rodriguez-Robles 2003). It is suspected that the same home ranges are used in consecutive years. This species of snake lays eggs in distinct areas, usually on warm, sandy slopes and gravid females engage in deliberate travel to get there (Shewchuk 1996). These snakes are long-lived, with their reproductive potential and familiarity with the landscape, increasing with age. Demographically, the older snakes contribute the greatest to the viability of the population.

Many species are becoming more at risk as humans continue to dominate the landscapes of the southern interior of the province. Fur trading, mining, selective timber harvesting and intensive cattle grazing dominated much of the 1800s. Agriculture boomed in the 1900s and cities were formed. The 2000s are experiencing rapid growth in housing, golf courses, and vineyards. The Great Basin Gophersnake is a species that is particularly vulnerable to threats associated with human activities. Gophersnakes are extremely limited in their ability to relocate, and are therefore affected as development occurs, and later, if individuals venture into developed areas. Their fossorial nature places them at risk as lands are tilled or excavated, and they may be at risk when vegetated areas are mowed or hayed. These snakes have been persecuted as well, due mainly to their resemblance to rattlesnakes. Like many smaller wildlife species, they are prone to predation by domestic animals. However, other than the broad loss of habitat, their greatest threat is thought to come from road traffic (Waye and Shewchuk 2002, Sarell et al. 2004).

The vulnerability of this species to human threats, coupled with apparent population declines, has placed it on the province's Blue List¹ and the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has designated it as Threatened². A recovery team is currently developing a recovery strategy and action plan. The Federal government now has the capability to protect Residences³ (e.g. hibernacula and egg laying sites) on Federal lands through the Species at Risk Act (SARA). Descriptions of residences are currently being developed (Bertram

¹ **Blue List:** *List of indigenous species, subspecies and natural plant communities of special concern (formerly vulnerable) in British Columbia* (BC Conservation Data Centre 2005).

² **Threatened species:** *A wildlife species that is likely to become an endangered species if nothing is done to reverse the factors leading to its extirpation or extinction* (SARA 2003).

³ **Residence:** *A dwelling-place, such as a den, nest or other similar area or place that is occupied or habitually occupied by one or more individuals during all or part of their life cycles, including breeding, rearing, staging, wintering, feeding or hibernating* (SARA 2003).

2005 draft). In addition, SARA also has the ability to protect Critical Habitat⁴. Critical habitat is more likely to provide adequate protection for subpopulations. This recovery tool is unlikely to be available in the near future, as the recovery team must first describe the critical habitat that then must pass a number of procedural steps (Environment Canada 2004). The Province has also engaged in developing conservation strategies for the Gophersnake. The most effective tool on unencumbered provincial Crown lands is by designating spatially defined Wildlife Habitat Areas (WHA)⁵ through the Identified Wildlife Management Strategy (IWMS) established under the Forest and Range Practices Act of British Columbia. Wildlife habitat areas are made up of den sites and surrounding foraging habitat and summer range. Both measures attempt to protect important gophersnake habitat on Crown lands. Ultimately, the conservation of the species will depend on how well populations are maintained throughout their range, sustaining viable populations that have genetic connectivity.

Effective recovery for this species must look at issues on a landscape scale, which relate to land tenures and subsequent management of important habitat, and then on a local scale, where inventory and specific measures can be implemented. The rationale for this project was to provide the landscape perspective, in particular, to establish how lands with existing mandates for conserving gophersnake habitat contribute to the recovery objectives for the gophersnake and whether additional provincial Crown lands are necessary to achieve the recovery targets, established by the recovery team.

This report consists of an update to a previous conservation analysis (Haney and Sarell 2005). More detail on methodology and potential conservation strategies for various land tenures can be found in the original document.

⁴ **Critical Habitat:** *The habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in a recovery strategy or in an action plan for the species (SARA 2003).*

⁵ **WHA:** *An appropriate feature that triggers establishment of a WHA (e.g., active nest area, maternity colony or hibernacula). Typically these will be based on limiting habitats, significant concentrations or those habitats not addressed by coarse filter provisions that are currently occupied. The general design of WHAs is based on important life history characteristics such as home range size. In some cases, WHAs may be recommended for potentially or historically suitable sites for recovery or recruitment purposes. Generally these will be recommended or endorsed by established recovery teams to meet the requirements of the national Species at Risk Act (Paige 2003).*

METHODS

A variety of interpretive maps were developed in 2005 to help illustrate the current broad-scale conservation situation for the Great Basin Gophersnake in British Columbia (Haney and Sarell 2005), including known and potential range, a suitability model based on biogeoclimatic subzone, land status within the range of gophersnakes, and a conservation analysis portraying suitability on lands with high conservation potential (protected, non-THLB crown, and IR). The coverages developed in 2005 included six approved WHAs, and have been updated to incorporate six new WHAs. All mapping was conducted in ArcView 3.2a Geographic Information System (GIS).

RESULTS

Suitability

Almost all of the high suitability habitat (97%) is in the range of the Okanagan-Similkameen and Thompson-Nicola populations (Table 1). Moderate suitability habitat is more spread out, with the majority in the Thompson-Nicola (40%) and Fraser (30%) populations, followed by the Okanagan-Similkameen population (15%). The Fraser and Kettle populations, and the area of the two connections make up the remainder of moderate habitat about equally.

Table 1: Areas of suitable gophersnake habitat by population.

| Population | Suitable Habitat (ha) | | | | % of Population | | | % of Total Range | | | |
|-------------------------------|-----------------------|--------|--------|--------|-----------------|------|-----|------------------|------|------|-------|
| | High | Mod. | Low | Total | High | Mod. | Low | High | Mod. | Low | Total |
| Kettle (Boundary) | 7369 | 20371 | 4675 | 32415 | 23% | 63% | 14% | 2% | 6% | 4% | 4% |
| Okanagan - Similkameen | 182503 | 58284 | 43225 | 284012 | 64% | 21% | 15% | 54% | 16% | 41% | 35% |
| Thompson - Nicola | 143829 | 140800 | 26149 | 310778 | 46% | 45% | 8% | 43% | 39% | 25% | 39% |
| Fraser | 1855 | 108796 | 28129 | 138780 | 1% | 78% | 20% | 1% | 30% | 27% | 17% |
| Westwold connection | 0 | 16574 | 616 | 17190 | 0% | 96% | 4% | 0% | 5% | 1% | 2% |
| Pavilion connection | 31 | 18387 | 3178 | 21596 | 0% | 85% | 15% | 0% | 5% | 3% | 3% |
| Total | 335587 | 363212 | 105972 | 804771 | 42% | 45% | 13% | 100% | 100% | 100% | 100% |

Within each population, high and moderate suitability habitat appears to be fairly contiguous and well connected, except in the Kelowna and Vernon areas, and to a lesser extent in the Kamloops area (Figure 1).

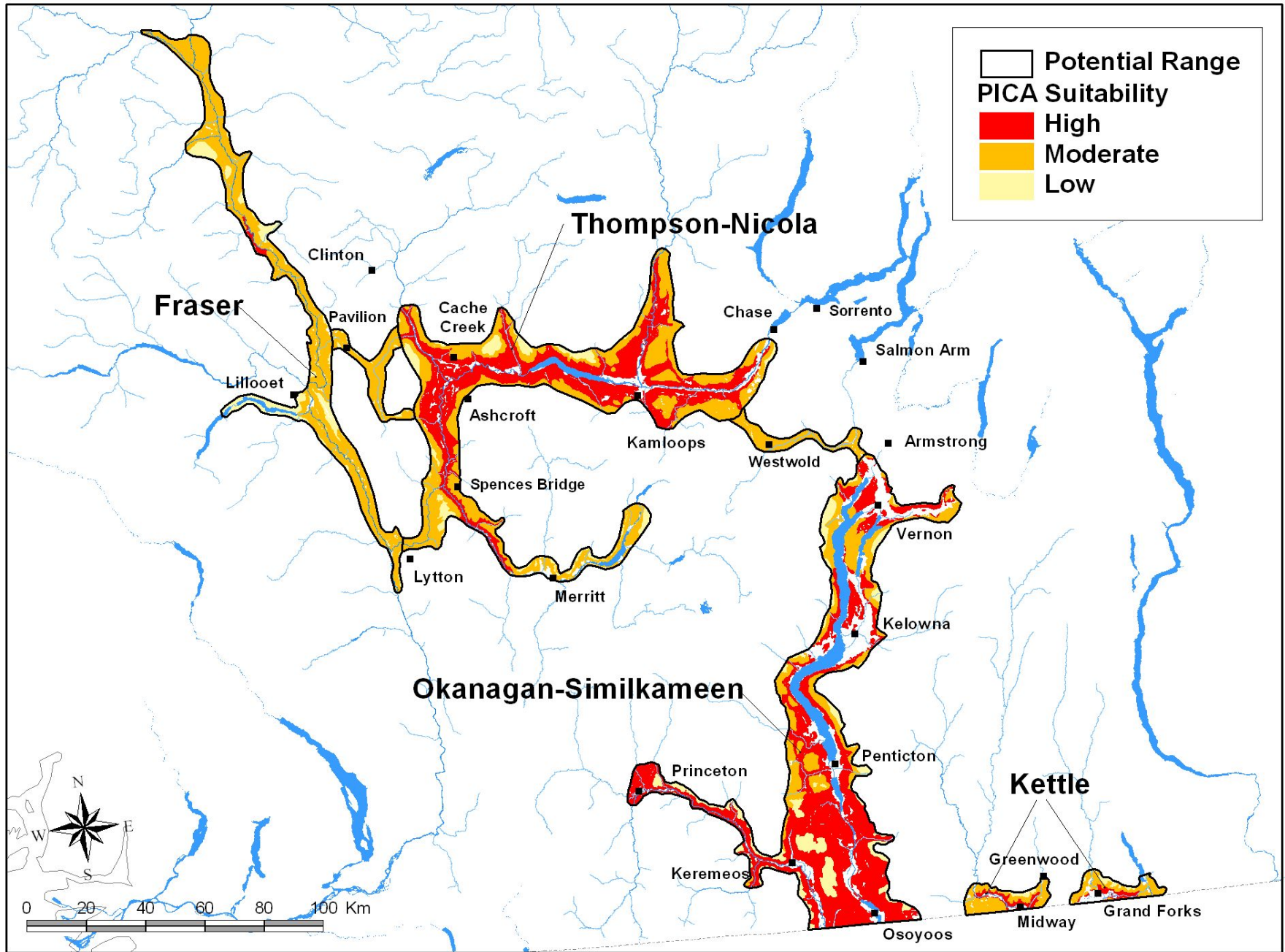


Figure 1: Final gophersnake suitability model.

Land Status

Six additional WHAs have been approved since 2005: four in the Okanagan-Similkameen (800 ha), and two in the Kettle (350 ha). Land status within suitable habitat for gophersnakes is presented in Figure 2.

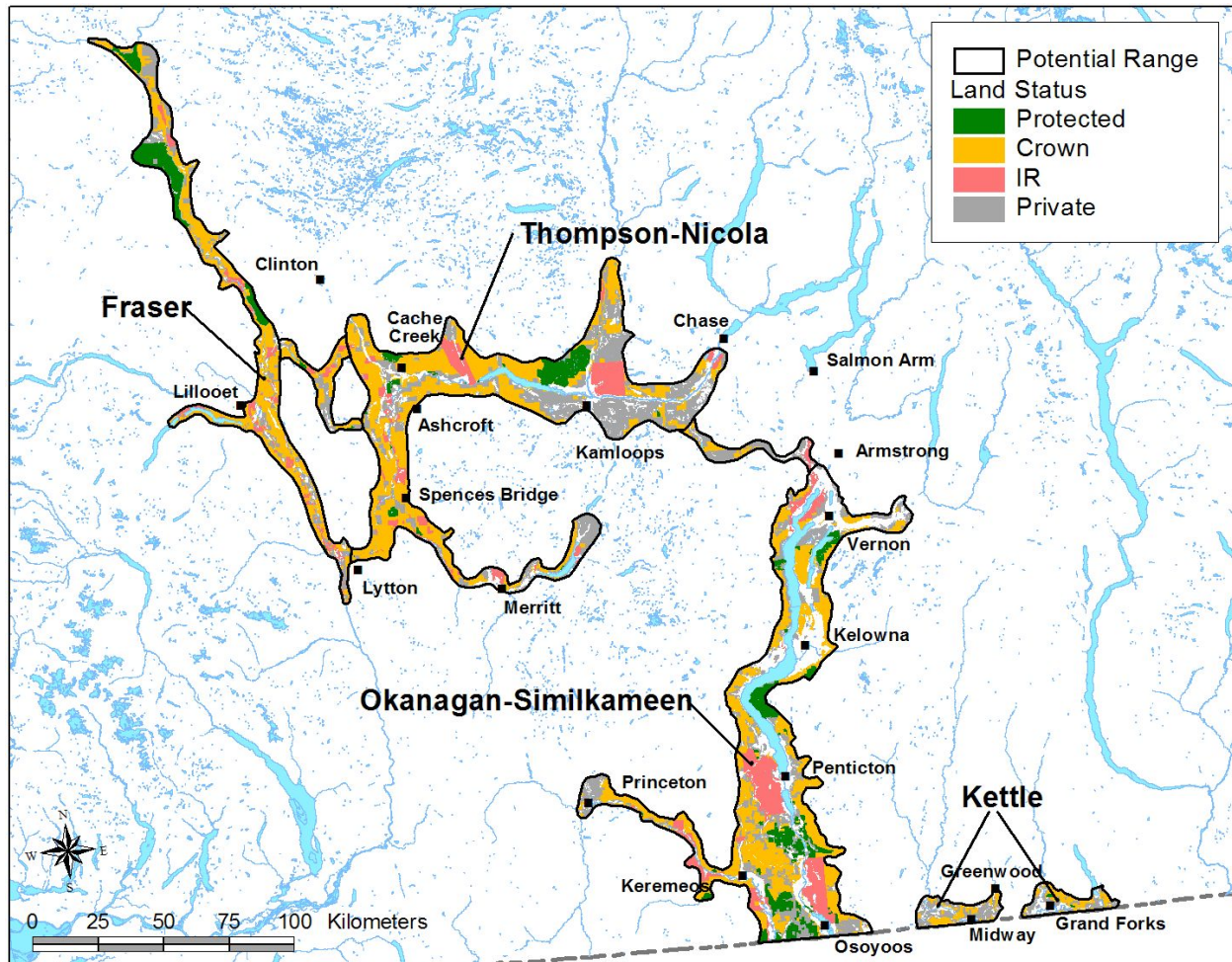


Figure 2: Land status of suitable habitat within the potential range of gophersnakes.

Almost half of all protected lands (including Protected Areas and WHAs, and in the South Okanagan federal and private conservation lands as well) within the potential range fall in the Okanagan-Similkameen population (46%), with most of the rest in the Fraser (29%) and Thompson-Nicola (24%) populations.

The Fraser population has the highest proportion of protected lands within suitable habitat (16%), followed by the Okanagan-Similkameen (12%) and the Thompson-Nicola (6%). The remaining areas have almost no land classified as protected (0-2%).

All populations have approximately 50% of the suitable habitat as unprotected Crown land, while the Pavilion connection (Thompson/Fraser) has 60% in Crown and the Westwold connection (Okanagan/Thompson) has only 30%. Indian Reserve constitutes approximately

10% of each population and connection, except the Okanagan-Similkameen that has 16%, and the Kettle that has none.

Private land makes up about 20 – 35% of suitable habitat in most populations and connections, except the Kettle population and the Westwold connection that have more than 50%.

Conservation Analysis

Figure 3 presents the array of suitability and land status combinations. A table listing the amount of suitable habitat occurring within each land status category is available in Appendix IV.

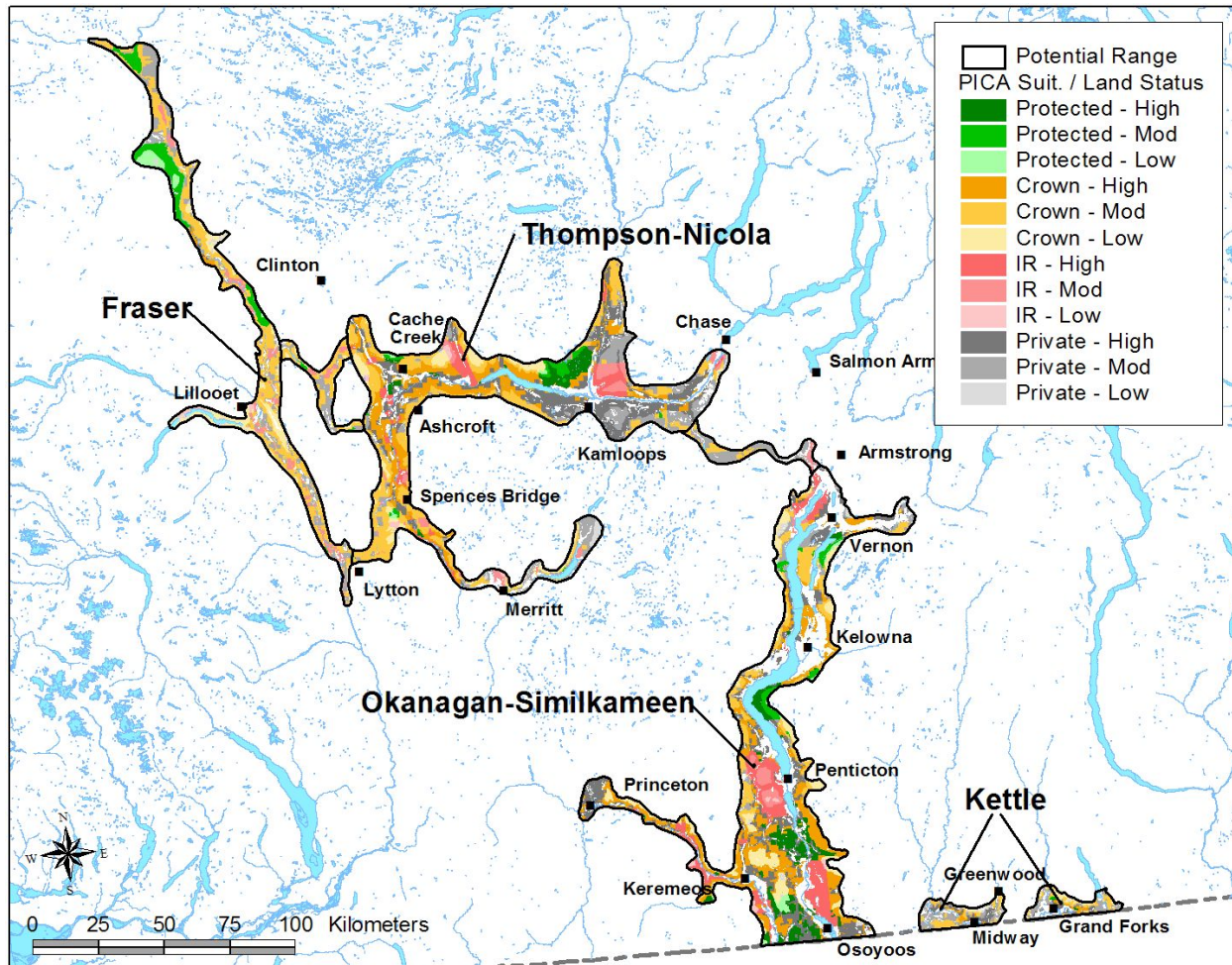


Figure 3: Gophersnake suitability portrayed by land status.

Overall, only 10% of suitable habitat occurs on protected lands. Half of all suitable habitat occurs on unprotected Crown land, and close to 30% on private land. The remainder occurs on IR. The Kettle population has the highest proportion of suitable habitat on private land, with two-thirds of the high suitability habitat on private land.

Because of the more detailed land status coverage for a portion of the Okanagan-Similkameen, it is likely that a more accurate percentage of the actual land tenure has been represented in this population compared to the other areas.

While gophersnakes do not generally travel more than 1 km from den sites, the vast majority of the suitable habitat occurs more than this distance from protected lands. In the most highly protected populations, the Okanagan and the Fraser, about 75% of suitable habitat is greater than 1 km from protected lands (Table 2). In the Kettle it amounts to 92% of suitable habitat, a definite improvement from the 98% in 2005.

Table 2: Suitable habitat more than 1km from protected land.

| Population | Suitable Habitat >1km from Protected (ha) | % of Suitable |
|-------------------------------|---|----------------------|
| Kettle | 29743 | 92% |
| Okanagan - Similkameen | 212131 | 75% |
| Thompson - Nicola | 276569 | 89% |
| Fraser | 105582 | 76% |
| Pavilion connection | 19330 | 90% |
| Westwold connection | 16888 | 98% |
| Total | 660859 | 82% |

Just over half of gophersnake populations' suitable habitat on Crown land appears to be included in the non-timber harvesting land base (non-THLB) layer. As previously discussed, the accuracy of this layer is questionable. The Fraser population is the only population with less than half of the suitable Crown habitat in the non-THLB layer, although 75% of high suitability habitat is on non-THLB Crown land. Only partial THLB coverage is available for this population.

Lands with high conservation potential, due at least to some mandated protection through policy or legislated under SARA, include protected lands, Indian Reserve, and non-THLB Crown land. Overall, these areas combined account for almost half of the suitable habitat within gophersnake populations, with more than 25% contributed by non-THLB Crown land (Table 3). The Kettle is the only population with the proportion of suitable habitat occurring on lands with high conservation potential well under half of the total suitable habitat (27%). Suitability on these lands is presented in Figures 4 and 5.

Table 3: Gophersnake habitat (ha and %) on lands with high conservation potential.

| | Suitable Habitat | High | | | Mod. | | | Total | | |
|-----------------------------------|--------------------|--------|--------|--------|------|------|-------|-------|------|-------|
| | | High | Mod. | Total | High | Mod. | Total | High | Mod. | Total |
| Kettle (Boundary) | Protected | 146 | 221 | 18 | 0% | 1% | 0% | | | |
| | Crown (non-THLB) | 1846 | 4746 | 8748 | 6% | 15% | 27% | | | |
| | IR | 0 | 0 | 0 | 0% | 0% | 0% | | | |
| | Subtotal | 1992 | 4967 | 8766 | 6% | 15% | 27% | | | |
| | Total Suitable | 7369 | 20371 | 32415 | | | | | | |
| Okanagan - Similkameen | Protected | 24684 | 6486 | 34320 | 9% | 2% | 12% | | | |
| | Crown (non-THLB) | 47180 | 19172 | 76872 | 17% | 7% | 27% | | | |
| | IR | 35016 | 7097 | 44770 | 12% | 2% | 16% | | | |
| | Subtotal | 106880 | 32755 | 155962 | 38% | 12% | 55% | | | |
| | Total Suitable | 182503 | 58284 | 284012 | | | | | | |
| Thompson - Nicola | Protected | 11455 | 5688 | 18438 | 4% | 2% | 6% | | | |
| | Crown (non-THLB) | 42112 | 40415 | 87612 | 14% | 13% | 28% | | | |
| | IR | 18343 | 12775 | 33335 | 6% | 4% | 11% | | | |
| | Subtotal | 71910 | 58878 | 139385 | 23% | 19% | 45% | | | |
| | Total Suitable | 143829 | 140800 | 310778 | | | | | | |
| Fraser | Protected | 7 | 17066 | 22368 | 0% | 12% | 16% | | | |
| | Crown (non-THLB) * | 1443 | 21342 | 30170 | 1% | 15% | 22% | | | |
| | IR | 0 | 10581 | 12645 | 0% | 8% | 9% | | | |
| | Subtotal | 1450 | 48989 | 65183 | 1% | 35% | 47% | | | |
| | Total Suitable | 1855 | 108796 | 138780 | | | | | | |
| Total | Protected | 36292 | 29461 | 75144 | 5% | 4% | 10% | | | |
| | Crown (non-THLB) | 92581 | 85675 | 203402 | 12% | 11% | 27% | | | |
| | IR | 53359 | 30453 | 90750 | 7% | 4% | 12% | | | |
| | Subtotal | 182232 | 145589 | 369296 | 24% | 19% | 48% | | | |
| | Total Suitable | 335556 | 328251 | 765985 | | | | | | |

* THLB coverage incomplete for this population

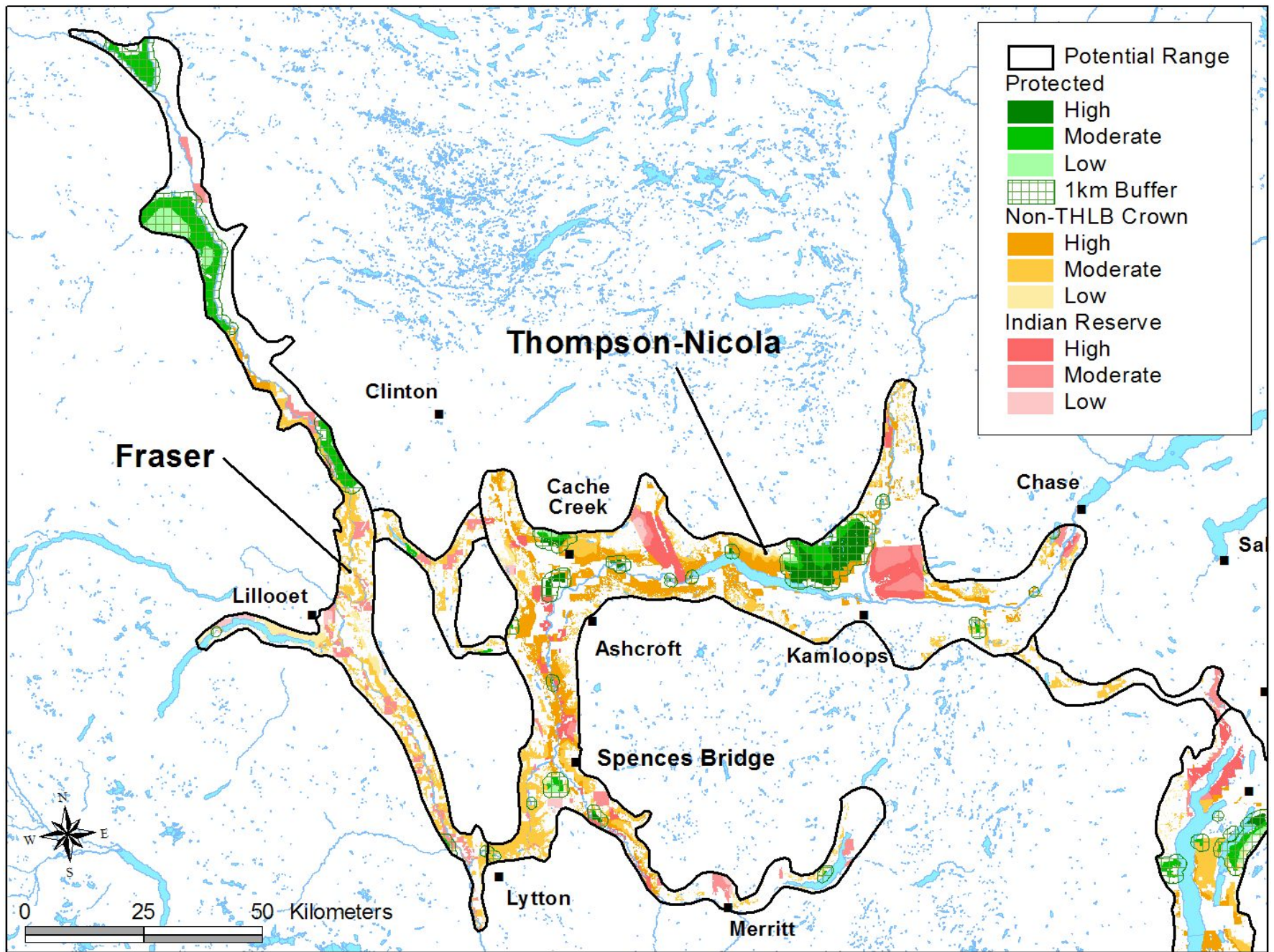


Figure 4: Habitat suitability on lands with high conservation potential in the western range of gophersnakes.

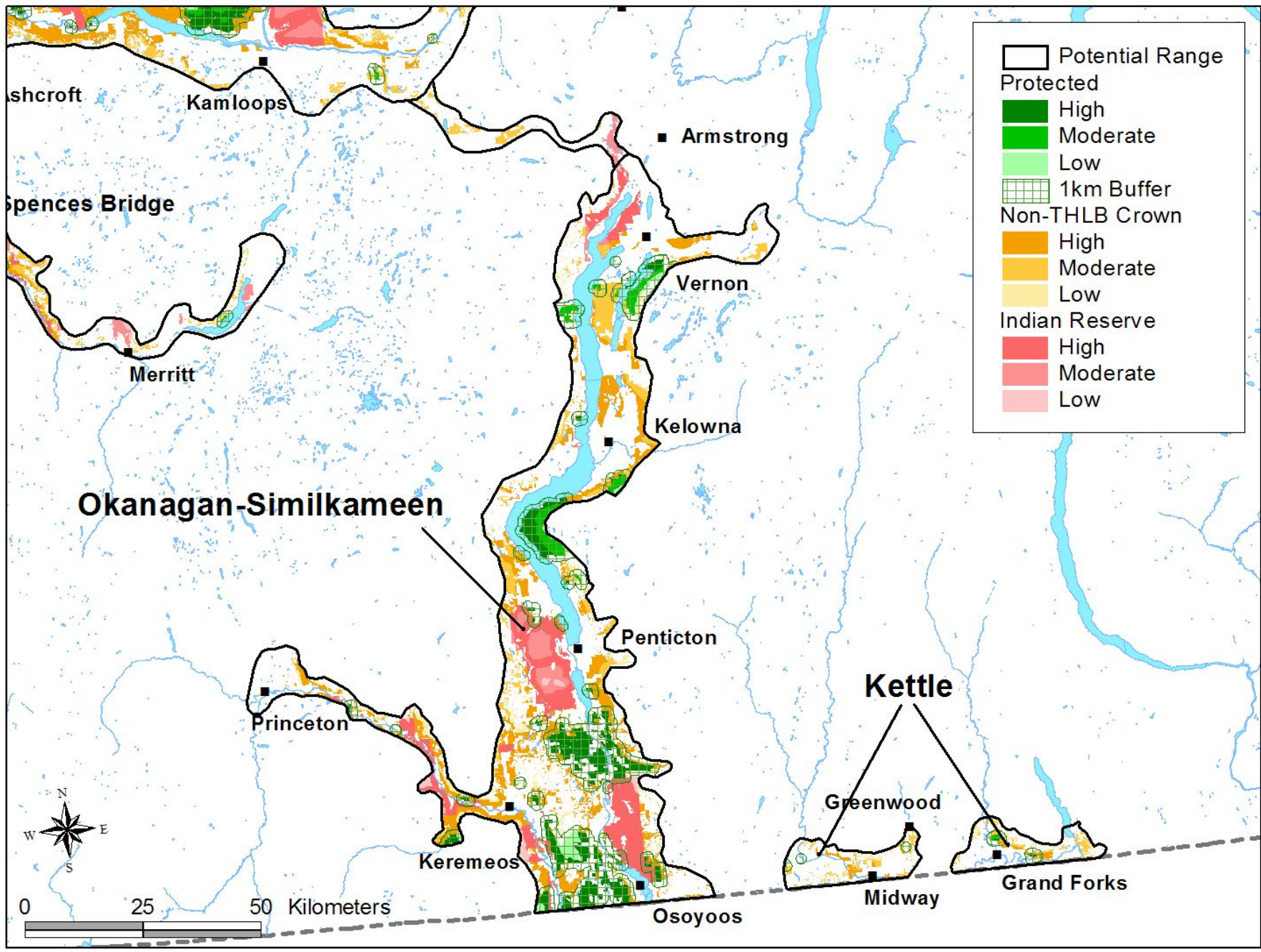


Figure 5: Habitat suitability on lands with high conservation potential in the eastern range of gophersnakes.

DISCUSSION

The Kettle subpopulations are connected in the United States through the Mount Vulcan corridor (not shown on maps). Although two new WHAs have been established, totalling about 350 ha, it has had little impact on the conservation analysis figures. The bulk of the good habitat (high and moderate suitability) in this population is on Private land (60%), which is much higher than the other populations. Fortunately, most of these properties are large, and most owners or long-time residents can recognize a gophersnake from a rattlesnake. Nevertheless, stewardship, targeting landowners with large holdings, could be an effective conservation strategy. With very little protected land, almost all of the remainder of good habitat occurs on Crown land. Most of this, and almost all of the best habitat, appears to be in the non-THLB layer. Much of the Crown lands have forest ingrowth and selective harvesting of smaller diameter stems could benefit gophersnake habitat, providing soil disturbance and soil compaction is minimized and rock outcroppings and areas with boulders are not disturbed. The establishment of additional WHAs should be a priority in this population.

The Okanagan-Similkameen population is considered a contiguous population, although there is considerable speculation whether the central Okanagan maintains metapopulation connectivity. Continuous human development across private lands along the valley floor, and progressing up the valley sides, threatens to sever the Okanagan subpopulation in the centre of the valley, and is causing increasing fragmentation elsewhere. About 800 ha of Crown land has now been protected in four new WHAs since 2005, which again has little effect on the numbers, but does contribute to connectivity. Private lands make up over 50,000 ha (30%) of the high suitability (best) habitat. Land use planning, stewardship and outreach are essential to implement conservation of gophersnakes and their habitats. Approximately 40% of the best habitat occurs on unprotected Crown lands (almost 70% of which is in the non-THLB layer), forming the bulk of the high suitability habitat. Therefore, establishing WHAs and promoting good resource uses is a high priority as well. Most unprotected Crown land occurs at higher elevations, although in the Okanagan-Similkameen, this can still be very good habitat. Significant amounts of high quality habitat exist on Indian Reserve (20%). Despite the intense efforts of conserving natural landscapes, especially in the South Okanagan, only 13% of the best gophersnake habitat occurs on conservation lands. Conservation issues need to be boldly addressed and effectively implemented in the Okanagan subpopulation due to high development pressures, and the fact that the valley forms the only corridor to the northern populations.

The Thompson-Nicola population appears to be contiguous through the southern Nicola watershed to Spences Bridge. There is no corridor identified through the Stump Lake area in the north Nicola, although grasslands with ground squirrels provide potential habitat. The high and moderate suitability habitat in this area is dominated by Crown (47%) and private (36%), although private lands have a higher percentage of high versus moderate suitability habitat, resulting in more high-valued habitat (42%) than on Crown lands (37%). The first conservation emphasis should be a stewardship/outreach program to all landowners with large holdings (especially those with high-valued habitat). Concurrently, inventories could be conducted on Crown lands and WHAs established where appropriate. Almost 80% of the high suitability habitat on Crown land occurs on the non-THLB layer. Smaller amounts of good habitat occur within Indian Reserve (10%), although most of this represents high suitability habitat. Lands with a conservation mandate represent only 6% of the high and moderate habitat. Conservation strategies involving land use planning are essential in the Kamloops area due to urbanization pressures.

The Fraser population is dominated by moderate-value habitat and has little high suitability. Unprotected Crown land accounts for most of the good habitat (52%), and a very high proportion of the little amount of best habitat (78%). The proportion of this area occurring on non-THLB is unknown, as the THLB coverage for this area is incomplete. Establishing WHAs is the most important conservation activity for this population. Private lands contain the second largest representation with 23% of good habitat. Stewardship/outreach with landowners with large holdings would be effective if the message centred on incorporating best agricultural practices for hayfields and open range. A contact program could also be initiated with First Nations, who have 10% of the gophersnake habitat. Lands with existing conservation mandates only account for 15% of good gophersnake habitat in the Fraser, with none of it high suitability.

Corridors need to be maintained between the Thompson-Nicola and Fraser populations through Lytton. The potential corridor through Pavilion should be investigated. The eastern corridor to the Okanagan through Westwold is not verified and should be investigated as well. Hypsothermal corridors (existing 8000 yrs ago during hotter climates) may have occurred through Sorrento, and between the Similkameen and Nicola drainages, but this is even more speculative. No further analysis of the two potential corridors, Westwold and Pavilion, is warranted until inventories deem that these are useable metapopulation corridors.

CONCLUSIONS

Gophersnakes and their habitat in the southern interior of British Columbia are at risk from a number of sources. Effective conservation is dependent on correctly identifying and conserving core sub-populations that form corridors throughout each population. A more aggressive approach is required to conserve gophersnake habitat on Crown lands, especially in light of the large amount of suitable habitat on unprotected Crown land. There also will need to be broad outreach programs initiated throughout their range, as well as stewardship that targets specific private lands. Ultimately, connectivity is most likely attainable at higher elevations, where gophersnake populations are likely smaller due to climatic conditions and poorer habitat quality, lack of deep soils, and ingressed forests. The Southern Interior Reptile Recovery Implementation Team will need to use detailed land tenure coverages to implement conservation activities, including ecosystem-based inventories to improve this broad-scale model and prioritize recovery activities.

RECOMMENDATIONS

1. Obtain accurate land tenure data throughout the range of the gophersnake to direct planning and conservation actions.
2. Inventory potential connections between populations to determine whether metapopulation connectivity exists.
3. Rigorously identify residences on Federal lands.
4. Work with First Nations to identify gophersnake residences and incorporate conservation objectives in land use plans and Stewardship Agreements.
5. Rigorously identify candidate WHAs for gophersnakes on Crown lands throughout their range and champion these until they are established. Establish Wildlife Habitat Features until WHAs are approved.
6. Determine other means to effectively protect gophersnake habitat on Crown lands through the Forest and Range Practices Act.
7. Work with local governments to promote gophersnake conservation through Sensitive Ecosystem Inventories and applying gophersnake habitat use models. Promote the inclusion of important habitats, including corridors, as Environmentally Sensitive Development Permit Areas.
8. Apply the Best Management Practices for Reptiles and Amphibians in Urban and Rural Environments in British Columbia (<http://www3.telus.net/public/leahmalk/BMP.pdf>) on private lands.
9. Promote the conservation of gophersnakes and their habitats on agricultural lands by integrating conservation objectives with Environmental Farm Plans (http://www.bcac.bc.ca/efp_programs.htm) and developing Best Management Practices for Reptiles and Amphibians on Agricultural Lands in British Columbia.
10. Update this conservation analysis again within 5 years to incorporate better coverages and new data, as well as to accommodate changes to gophersnake habitat.

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APPENDIX I: AMOUNT OF LAND (IN HECTARES AND PERCENT) OCCURRING IN THE VARIOUS SUITABILITY AND LAND STATUS CATEGORIES.

| | Suitable Habitat | High | Mod. | Low | Total | High | Mod. | Low | Total | % of H&M |
|--|------------------------|--------|--------|--------|---------|-----------------------|------|-----|------------|------------|
| Kettle (Boundary) | Protected ¹ | 146 | 221 | 0 | 367 | 0% | 1% | 0% | 1% | 0% |
| | Crown | 2334 | 8786 | 3666 | 14786 | 7% | 27% | 11% | 46% | 41% |
| | IR | 0 | 0 | 0 | 0 | 0% | 0% | 0% | 0% | 0% |
| | Private | 4889 | 11364 | 1009 | 17262 | 15% | 35% | 3% | 53% | 59% |
| | Subtotal | 7369 | 20371 | 4675 | 32415 | 23% | 63% | 14% | 100% | 100% |
| | Potential Range | | | | 42831 | Suit% of Range | | | 76% | |
| Okanagan - Similkameen | Protected ¹ | 24684 | 6486 | 3946 | 35116 | 9% | 2% | 1% | 12% | 13% |
| | Crown | 69922 | 33011 | 34024 | 136957 | 25% | 12% | 12% | 48% | 43% |
| | IR | 35016 | 7097 | 2657 | 44770 | 12% | 2% | 1% | 16% | 17% |
| | Private | 52881 | 11690 | 2598 | 67169 | 19% | 4% | 1% | 24% | 27% |
| | Subtotal | 182503 | 58284 | 43225 | 284012 | 64% | 21% | 15% | 100% | 100% |
| | Potential Range | | | | 407057 | Suit% of Range | | | 70% | |
| Westwold connection (Okanagan / Thompson) | Protected ¹ | 0 | 5 | 0 | 5 | 0% | 0% | 0% | 0% | 0% |
| | Crown | 0 | 4862 | 289 | 5151 | 0% | 28% | 2% | 30% | 29% |
| | IR | 0 | 1575 | 97 | 1672 | 0% | 9% | 1% | 10% | 10% |
| | Private | 0 | 10132 | 230 | 10362 | 0% | 59% | 1% | 60% | 61% |
| | Subtotal | 0 | 16574 | 616 | 17190 | 0% | 96% | 4% | 100% | 100% |
| | Potential Range | | | | 19214 | Suit% of Range | | | 89% | |
| Thompson - Nicola | Protected ¹ | 11455 | 5688 | 1295 | 18438 | 4% | 2% | 0% | 6% | 6% |
| | Crown | 53578 | 81133 | 18734 | 153445 | 17% | 26% | 6% | 49% | 47% |
| | IR | 18343 | 12775 | 2217 | 33335 | 6% | 4% | 1% | 11% | 11% |
| | Private | 60453 | 41204 | 3903 | 105560 | 19% | 13% | 1% | 34% | 36% |
| | Subtotal | 143829 | 140800 | 26149 | 310778 | 46% | 45% | 8% | 100% | 100% |
| | Potential Range | | | | 364586 | Suit% of Range | | | 85% | |
| Pavilion connection (Thompson / Fraser) | Protected ¹ | 0 | 466 | 48 | 514 | 0% | 2% | 0% | 2% | 3% |
| | Crown | 3 | 10168 | 2843 | 13014 | 0% | 47% | 13% | 60% | 55% |
| | IR | 28 | 1752 | 57 | 1837 | 0% | 8% | 0% | 9% | 10% |
| | Private | 0 | 6001 | 230 | 6231 | 0% | 28% | 1% | 29% | 33% |
| | Subtotal | 31 | 18387 | 3178 | 21596 | 0% | 85% | 15% | 100% | 100% |
| | Potential Range | | | | 23063 | Suit% of Range | | | 94% | |
| Fraser | Protected ¹ | 7 | 17066 | 5295 | 22368 | 0% | 12% | 4% | 16% | 15% |
| | Crown | 1454 | 56176 | 18063 | 75693 | 1% | 40% | 13% | 55% | 52% |
| | IR | 0 | 10581 | 2064 | 12645 | 0% | 8% | 1% | 9% | 10% |
| | Private | 394 | 24973 | 2707 | 28074 | 0% | 18% | 2% | 20% | 23% |
| | Subtotal | 1855 | 108796 | 28129 | 138780 | 1% | 78% | 20% | 100% | 100% |
| | Potential Range | | | | 152105 | Suit% of Range | | | 91% | |
| Total | Protected ¹ | 36292 | 29932 | 10584 | 76808 | 5% | 4% | 1% | 10% | 9% |
| | Crown | 127291 | 194136 | 77619 | 399046 | 16% | 24% | 10% | 50% | 46% |
| | IR | 53387 | 33780 | 7092 | 94259 | 7% | 4% | 1% | 12% | 12% |
| | Private | 118617 | 105364 | 10677 | 234658 | 15% | 13% | 1% | 29% | 32% |
| | Subtotal | 335587 | 363212 | 105972 | 804771 | 42% | 45% | 13% | 100% | 100% |
| | Potential Range | | | | 1008856 | Suit% of Range | | | 80% | |

¹ Includes Protected Areas, WHAs, and in the South Okanagan WMAs, private conservation and NRC federal land.