

A Conservation Action Plan for Species at Risk in the Grand Forks Area

by
Jenny Coleshill, BSc, MEdes
March 31st, 2010



EXECUTIVE SUMMARY

Grand Forks in the Boundary region of the southern interior of BC has a suite of red and blue listed species; this is due mostly to the diverse habitat of the area including grasslands, conifer forests, and river valleys. Little is known about the current status of many of the species here which adds to the list of threats of habitat loss, development, motorized recreational use, livestock conflict, invasive species, and climate change. Conservation actions are critical to preserve these ecosystem and its plant and animal species at risk. If nothing is done, these threatened populations face extirpation; cumulatively this would be detrimental to the species. This report outlines some action plans for target species at risk that may be used by government, municipalities and local stewardship groups.

The target species at risk for which conservations actions were developed are: Lewis Woodpecker *Melanerpes lewis* (red listed), Western Screech Owl *Megascops kennicottii macfarlanei* (red listed), Bobolink *Dolichonyx oryzivorus* (blue listed), Tiger Salamander *Ambystoma tigrinum* (red listed), Great Basin Spadefoot *Spea intermontana* (blue listed), Western Rattlesnake *Crotalus oreganus* (blue listed), Golpher Snake *Pituophis catenifer deserticola* (blue listed), Yellow-Bellied Racer *Coluber constrictor mormon* (blue listed), River Jewelwing *Calopteryx aequabilis* (red listed), Olive Clubtail *Stylurus olivaceus* (red listed), Western River Cruiser *Macromia magnifica* (blue listed), Emma's Dancer *Argia emma* (blue listed), Pronghorn clubtail *Gomphus graslinellu* (blue listed) and Badger *Taxidea taxus jeffersonii* (red listed). These species are at risk due to their historical loss of critical habitat and vulnerable population characteristics.

The conservation of these species will involve elements of inventory to identify occupied areas and critical habitat, monitoring each species and their habitat to identify threats, and the protection of habitat through existing legislative tools and stewardship agreements. Education and public outreach will also be a critical component of this conservation strategy. Providing the tools to assist people in contributing to the conservation of species at risk will help the overall goal of protecting these species in the Grand Forks area.

ACKNOWLEDGEMENTS

This project was possible with the funding support of the BC Conservation Foundation.

INTRODUCTION

The City of Grand Forks in the Boundary region of the southern interior of British Columbia is part of the Southern Okanagan Highland Ecoregion. The Boundary lies between the Okanagan and the Kootenay Regions. The City of Grand Forks lies at the confluence of the Kettle River, an east west valley; and the Granby River, a north south valley. Approximately 23 km east is the Village of Christina Lake which lies at the south end of the northward trending Christina Lake depression. There are two valley systems trending southward from this area, the Kettle/Curlew/Sanpoil and the Kettle/Columbia system. The area is at the southern end of the Monashee Mountains Range. As a result of these landscape features the area allows multiple species migration and is a biodiversity hotspot.

The Grand Forks area is home to numerous species at risk. The south facing slopes in the area comprised of grassland habitat supports many of these species. Grasslands are in critical need of further protection; more than 25% of grasslands in this ecoregion have already been lost and less than 40% of remaining grasslands are on Crown land. The Grand Forks area offers some protection for these species through recently established provincial parks, the Gilpin Grasslands and the Boothman's Oxbow, and some Wildlife Habitat Areas (WHAs). However, issues remain that threaten these species and their habitat such as off-road vehicle use, cattle activity, degradation of wetlands, development, introduced species and loss of habitat (e.g. loss of riparian areas and wildlife trees).

This project will be a work in progress to develop strategies detailing conservation actions that will lead to the conservation of species at risk in the Grand Forks area. The goal is to protect¹ high priority locations for these species through existing legislative tools and voluntary stewardship on Crown land and through outreach and voluntary stewardship on private land by 2015. This report provides direction for government, municipalities, and local stewardship groups that will contribute to the conservation of these target species over the next 5 years. The general strategy is to conserve habitat by identifying, monitoring, and protecting critical habitats in the Grand Forks area; educate the public and raise awareness regarding these species and related conservation issues; and to promote and foster environmental stewardship on private and crown lands.

The species in the report (see Table 1 below) include both red and blue listed species identified by the BC Conservation Framework. However, there are many more species at risk in the area that require attention. There is a suite of other priority 1, 2, and 3 species that will need to be included in this strategy at a later date.

The measures of success will be the amount of habitat protected for the target species at risk. In addition to on the ground habitat protection, the number of local people who become involved in conservation projects and become educated will also indicate success. The Granby Wilderness Society (GWS) and the Christina Lake Stewardship Society (CLSS) will be instrumental in this process.

¹ This may involve protection in any form including following best management practices for maintaining species at risk and their habitat; stewardship agreements; conservation covenants; eco-gifts; sale of private lands by willing landowners; land use designations and management on Crown lands; and protection in federal, provincial, and local government protected areas.

Figure 1. The Grand Forks Area in the Boundary Region of the Southern Interior of British Columbia.

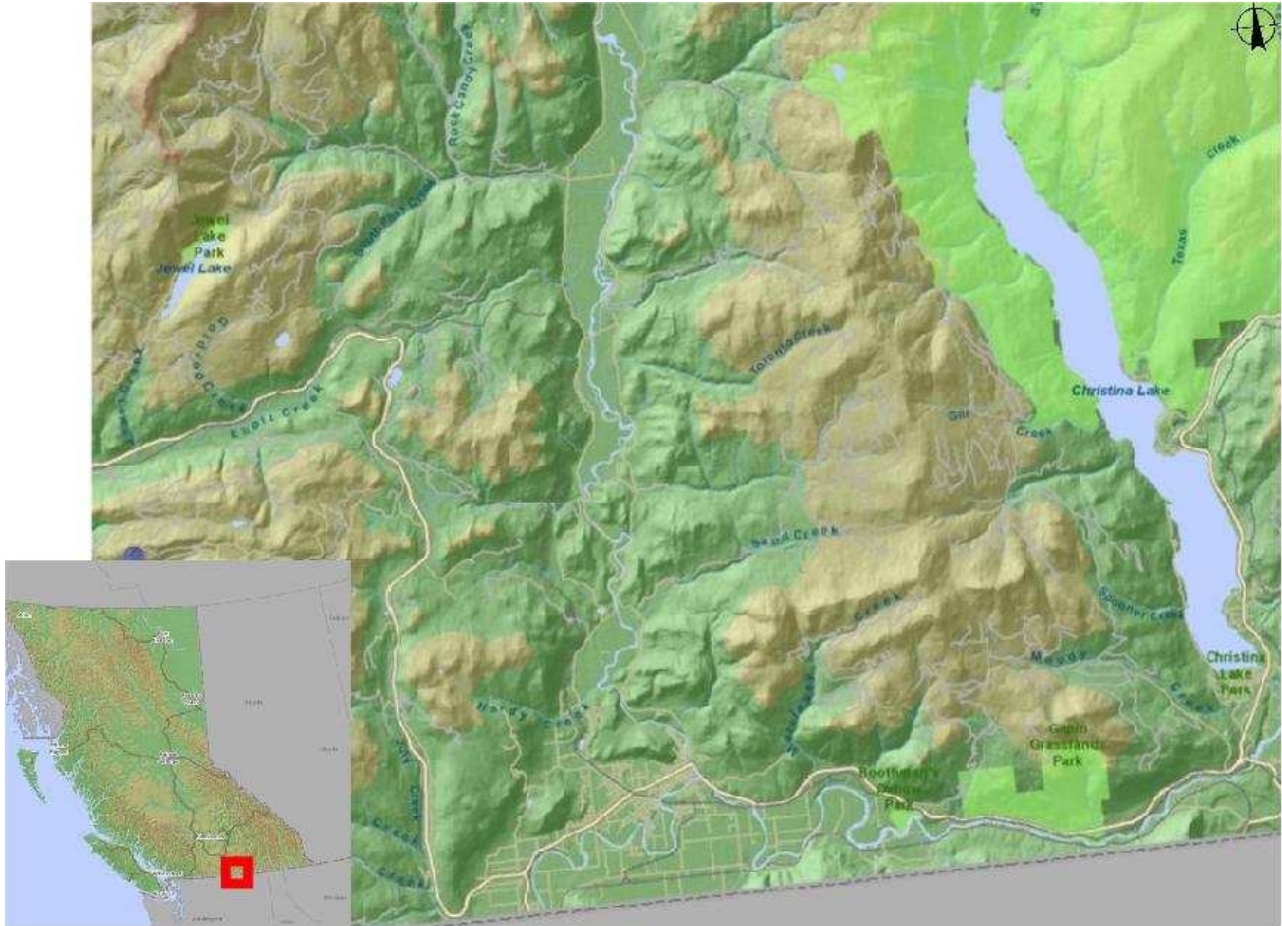


TABLE 1. Conservation objectives and actions outlined for Lewis Woodpecker *Melanerpes lewis* in the Grand Forks area.

Target	Objectives	Actions	Action Undertaken by	Timeline
Determine habitat of Lewis Woodpecker in the Grand Forks area	Determine locations of currently occupied sites in the area	<ul style="list-style-type: none"> • Compile known locations of existing nest sites <ul style="list-style-type: none"> ▪ Ministry of Environment records ▪ Local birders ▪ City Works people 	GWS	Jun 31 st 2010
	Determine locations of unknown occupied sites in the area	<ul style="list-style-type: none"> • Inventory potential habitat to detect Lewis Woodpecker presence • Organize volunteers to inventory potential sites • Promote reporting system where people can report sightings and known nest sites 	GWS	Sept 31 st 2010
Conserve habitat of Lewis Woodpecker in the Grand Forks area	Protect Lewis Woodpecker habitat in the Grand Forks area	<ul style="list-style-type: none"> • Identify threats and plan mitigation efforts • Urban and park management • Propose Wildlife Habitat Areas (WHA) in areas with high nest density • Re-plant cottonwoods in riparian area i.e. GF City Park 	GWS Lisa Tedesco MoE	Apr 2010-2015 Sept 2011
	Foster stewardship of the Lewis Woodpecker	<ul style="list-style-type: none"> • Apply for funding through Habitat Stewardship Program (HSP) for landowner contact • Contact land owners with Lewis Woodpecker occupancy and promote stewardship of habitat 	GWS	Nov 6 th 2010 Apr 2011 - 2015

		<ul style="list-style-type: none"> • Create a stewardship agreement with the City of Grand Forks regarding habitat and wildlife trees • Distribute best management practices to City Works division, land developers, contractors • Organize a workshop on wildlife tree stewardship for City Works division, land developers, contractors, land owners, interested individuals • Distribute information on Lewis Woodpecker status • Provide education to public on Lewis Woodpecker habitat 		
	Monitor occupied sites of the Lewis Woodpecker	<ul style="list-style-type: none"> • Monitor known nest sites • Monitor development in vicinity of Lewis Woodpecker habitat 	GWS	Apr 2011-2015

Table 2. Conservation objectives and actions outlined for Western Screech-Owl *Otus kennicottii macfarlanei* in the Grand Forks area.

Target	Objective	Actions	Undertaken By	Timeline
Determine habitat of the Western Screech-Owl in the Grand Forks area	Determine locations of currently occupied sites in the area	<ul style="list-style-type: none"> • Compile known locations of existing nest sites <ul style="list-style-type: none"> ▪ Ministry of Environment records ▪ Local birders • Organize volunteers to do voluntary call playback monitoring of known Screech-owl sites 		

	<ul style="list-style-type: none"> Identify additional sites for inventory Organize volunteers to inventory sites with call playback Promote reporting system where people can report sightings and known nest sites 		
<p>Determine locations of unknown occupied sites in the area</p>	<ul style="list-style-type: none"> Apply for funding through Habitat Stewardship Program for landowner contact Propose WHAs on Crown land at 2 known sites of occupancy Conduct landowner contact on 5 private lands in Grand Forks to inform owners of Screech-owls, encourage habitat protection and best management practices; annual follow up Identify threats to known occupied sites and plan mitigation efforts Monitor occupied sites 	<p>Protect habitat of the Western Screech Owl in the Grand Forks area</p>	
<p>Conserve habitat of the Western Screech Owl in the Grand Forks area</p>	<ul style="list-style-type: none"> Apply for funding through Habitat Stewardship Program for landowner contact Contact land owners with Western Screech Owl occupancy and promote stewardship of habitat Create a stewardship agreement with the City of Grand Forks regarding habitat and wildlife trees Distribute best management practices to City Works division, land developers, 	<p>Foster stewardship of the Western Screech-Owl</p>	

		<ul style="list-style-type: none"> contractors Organize a workshop on wildlife tree stewardship for City Works division, land developers, contractors, land owners, interested individuals Distribute information on Western Screech Owl status Provide education to public on Western Screech Owl habitat 		
--	--	--	--	--

TABLE 3. Conservation objectives and actions outlined for Bobolink *Dolichonyx oryzivorus* in the Grand Forks area.

Target	Objectives	Actions	Action Undertaken by	Timeline
Determine habitat of Bobolink in the Grand Forks area	Determine locations of currently occupied sites in the area	<ul style="list-style-type: none"> Compile known locations of existing occupied sites <ul style="list-style-type: none"> Ministry of Environment records Local birders 		
	Determine locations of unknown occupied sites in the area	<ul style="list-style-type: none"> Inventory potential habitat to detect Bobolink presence Organize volunteers to inventory potential sites Promote reporting system where people can report sightings and known nest sites 		
Conserve habitat of the Bobolink in the Grand Forks area	Protect Bobolink habitat in the Grand Forks area	<ul style="list-style-type: none"> Propose WHAs in occupied nesting habitat on Crown lands Restore native grasslands on Crown lands 		
	Foster stewardship of	<ul style="list-style-type: none"> Apply for funding through Habitat 		

	the Bobolink	<p>Stewardship Program (HSP) for landowner contact</p> <ul style="list-style-type: none"> • Contact land owners with Bobolink occupancy and promote stewardship of habitat • Distribute best management practices to land developers, farmers with hay fields • Stewardship agreements – no haying during nesting season • Distribute information on Bobolink status • Provide education to public on Bobolink habitat 		
	Monitor occupied sites of the Bobolink	<ul style="list-style-type: none"> • Monitor known nest sites • Monitor development in vicinity of Bobolink habitat 		

Table 4. Conservation objectives and actions outlined for Tiger Salamander *Ambystoma tigrinum* in the Grand Forks area.

Target	Objective	Actions	Undertaken By	Timeline
Determine the distribution of Tiger Salamanders in the Grand Forks area	Determine locations of known occupied sites in the area	<ul style="list-style-type: none"> • Compile known locations of existing nest sites <ul style="list-style-type: none"> ▪ Ministry of Environment records ▪ Identify local experts and knowledge 	GWS	Jun 30 2010
	Determine locations of unknown and potentially occupied sites in the area	<ul style="list-style-type: none"> • Inventory suitable sites with no previous detection <ul style="list-style-type: none"> ▪ Recruit volunteers ▪ Road cruising during spring rains 	GWS	Apr 2010 - Aug 2011

<p>Conserve habitat of Tiger Salamanders in the Grand Forks area</p>	<p>Protect Tiger Salamander habitat</p>	<ul style="list-style-type: none"> ▪ Use minnow traps/dipnetting sweeps to trap larvae to detect presence in unknown wetland sites ▪ Systematic surveys/pitfall traps • Apply for funding through Habitat Stewardship Program (HSP) for landowner contact • Provide best management practices to land users and land owners on lands with Tiger Salamander habitat • Propose habitat protection for wetlands and surrounding uplands occupied by Tiger Salamanders • Propose Wildlife Habitat Areas at breeding sites • Maintain connection between aquatic and terrestrial habitats • Implement General Wildlife Measures 	<p>GWS</p> <p>Lisa Tedesco MoE</p>	<p>Nov 6th 2010</p> <p>Sept 30th 2010 – 2015</p> <p>Oct 2011</p>
	<p>Mitigate known threats to Tiger Salamanders habitat</p>	<ul style="list-style-type: none"> • Assess existing threats to known sites of presence in critical habitat e.g. introduced gold fish at Saddle Lake • Attempt to eradicate gold fish from Saddle Lake • Reduce road mortality at known sites of high mortality • Tiger Salamander habitat priority for Gilpin Grasslands Restoration project 	<p>GWS</p> <p>GWS</p>	<p>Sept 2010 – 2012</p> <p>Sept 2010</p> <p>Sept 2011- 2015</p> <p>Apr - Oct 2010</p>
	<p>Monitor Tiger Salamander populations</p>	<ul style="list-style-type: none"> • Establish monitoring program for breeding sites • Annual surveys near breeding ponds to 	<p>GWS</p>	<p>Mar 2011</p> <p>Mar 2011-</p>

	Foster stewardship of Tiger Salamanders and their habitat	<p>identify population trends – Ward’s Lake, Saddle Lake, Boothman’s Oxbow PP</p> <ul style="list-style-type: none"> Use Saddle Lake restoration project as an education campaign to educate public on Tiger Salamanders Use Saddle Lake project as an education campaign to promote and foster stewardship of Tiger Salamanders 	GWS	2015
Collection of DNA samples of the Grand Forks Tiger Salamander population	Initiate DNA collection program	<ul style="list-style-type: none"> Acquire necessary permits Collect Tiger Salamander mortalities for DNA samples Find freezer for storage of samples 		April 2010-2015

Table 5. Conservation objectives and actions outlined for Great Basin Spadefoot *Spea intermontana* in the Grand Forks area.

Target	Objective	Actions	Undertaken By	Timeline
Determine habitat of the Great Basin Spadefoot in the Grand Forks area	<p>Determine locations of currently occupied sites in the area</p> <p>Determine locations of potential sites of occupancy to detect presence</p>	<ul style="list-style-type: none"> Compile known locations of existing nest sites <ul style="list-style-type: none"> Ministry of Environment records Identify local experts and knowledge Inventory suitable sites with no previous detection <ul style="list-style-type: none"> Recruit volunteers Road cruising during spring rains Use minnow traps/dipnetting sweeps to trap larvae to detect presence in unknown wetland sites 		

Conserve habitat of Great Basin Spadefoot in the Grand Forks area	<p>Protect Great Basin Spadefoot habitat</p> <p>Mitigate known threats to Great Basin Spadefoot habitat</p>	<ul style="list-style-type: none"> ▪ Systematic Surveys • Propose habitat protection for wetlands and surrounding uplands • Apply for funding through Habitat Stewardship Program (HSP) for landowner contact • Implement best management practices for land users and private lands • Assess existing threats to known sites of presence in critical habitat • Identify and facilitate movement corridors • Identify locations of high rates of road mortality – employ crossing structures • Spadefoot habitat priority for Gilpin Grasslands Restoration project 	GWS	Apr - Oct 2010
Monitor Great Basin Spadefoot populations	<p>Foster stewardship of Great Basin Spadefoot and their habitat</p> <p>Initiate DNA collection program</p>	<ul style="list-style-type: none"> • Establish monitoring program for breeding sites • Annual surveys near breeding ponds to identify population trends – Boothman’s Oxbow PP • Promote Frog Watch • Educational signage at Boothman’s Oxbow and Gilpin Grassland Provincial Park • Acquire necessary permits • Collect Spadefoot mortalities for DNA samples • Find freezer for storage of samples 		
Collection of DNA samples of the Grand Forks Great Basin Spadefoot population				

Table 6. Conservation objectives and actions outlined for Odonata species: Olive Clubtail *Stylurus olivaceus*, River Jewelwing *Calopteryx aequabilis*, Western River Cruiser *Macromia magnifica*, Emma’s Dancer *Argia emma*, and Pronghorn clubtail *Gomphus graslinellus* in the Grand Forks area.

Target	Objective	Actions	Undertaken By	Timeline
Protect populations of Odonata species in Christina Creek	Establish baseline population numbers and determine if trends are evident	<ul style="list-style-type: none"> • Compile known records <ul style="list-style-type: none"> ▪ Ministry of Environment records ▪ Identify local experts and knowledge ▪ R.G. Cannings Status reports • Conduct Odonata species survey in Christina Creek <ul style="list-style-type: none"> ▪ Coordinate a volunteer crew ▪ Host training workshop in identification of invertebrate species • Monitor to assess changes in population trends • Inventory Kettle River 	CLSS	
	Protect habitat for Odonata species in Christina Creek	<ul style="list-style-type: none"> • Place educational signage • Maintain riparian buffers and structural vegetation diversity to protect streamside adult habitat • Apply for funding through Habitat Stewardship Program (HSP) for landowner contact • Create conservation covenants on private land parcels along creek • Propose Wildlife Habitat Areas 		
	Mitigate threats to Odonata species in Christina Creek	<ul style="list-style-type: none"> • Restrict ATV and other traffic in area • Prevent fertilizer and pesticide run-off in area 		

		<ul style="list-style-type: none"> Restrict urban development close to creek Control water crafts in river that create wakes and lead to bank erosion and instability Control introduced fish densities – predatory on larvae Control invasive aquatic plants e.g. Eurasian Millfoil Ensure efforts to retain native aquatic plants Monitor for invasive species i.e. Shrimp <i>Mices relicta</i> and Zebra mussel <i>Dreissena polymorpha</i> 		
--	--	--	--	--

Table 7. Conservation objectives and actions outlined for Western Rattlesnake *Crotalus oreganus* in the Grand Forks area.

Target	Objective	Actions	Undertaken By	Timeline
Protect snake den sites in the Grand Forks area	Determine locations of currently occupied sites in the area	<ul style="list-style-type: none"> Compile known locations of existing den sites <ul style="list-style-type: none"> Ministry of Environment records Identify local experts and knowledge Confirm suspected snake dens – 12 sites 		
	Establish protection of den sites	<ul style="list-style-type: none"> Propose WHAs – 11 sites Apply for funding through Habitat Stewardship Program (HSP) for landowner contact Contact land owners to promote 		

		<ul style="list-style-type: none"> stewardship – 14 sites Confirm suspected snake dens and propose WHAs or contact land owners – 12 sites 		
	Mitigate threats to Western Rattlesnake habitat	<ul style="list-style-type: none"> Assess existing threats to den sites Assess locations of road mortality Assess human conflict Work with Trails Society of Grand Forks to educate and make sure trail building does not disturb snake habitat 		
	Monitor Rattlesnake populations	<ul style="list-style-type: none"> Establish monitoring program of den sites 		
Collection of DNA samples of the Grand Forks Rattlesnake population	Initiate Rattlesnake DNA collection program	<ul style="list-style-type: none"> Acquire necessary permits Collect Rattlesnake mortalities for DNA samples Find freezer for storage of samples 		

Table 8. Conservation objectives and actions outlined for the Gopher Snake *Pituophis catenifer deserticola* in the Grand Forks area.

Target	Objective	Actions	Undertaken By	Timeline
Protect habitat of in the Grand Forks area	Determine locations of currently occupied sites in the area	<ul style="list-style-type: none"> Compile known locations of existing den sites <ul style="list-style-type: none"> Ministry of Environment records Identify local experts and knowledge 		
	Determine locations of unknown occupied sites in the area	<ul style="list-style-type: none"> Identify areas of potential habitat to inventory for presence and critical habitat features 		
	Establish protection of	<ul style="list-style-type: none"> Propose WHAs in critical habitat on 		

	habitat on crown and private lands	<p>Crown land</p> <ul style="list-style-type: none"> • Apply for funding through Habitat Stewardship Program (HSP) for landowner contact • Contact land owners to promote stewardship and provide options such as conservation covenants 		
Collection of DNA samples of the Grand Forks Golpher snake population	Mitigate threats to Golpher snakes	<ul style="list-style-type: none"> • Assess existing threats to known occupied habitat (minimal dispersal distances from where they individually den) • Assess locations of road mortality • Assess human conflict • Work with Trails Society of Grand Forks to educate and make sure trail building does not disturb snake habitat 		
	Initiate Golpher Snake DNA collection program	<ul style="list-style-type: none"> • Acquire necessary permits • Collect Golpher Snake mortalities for DNA samples • Find freezer for storage of samples 		

Table 9. Conservation objectives and actions outlined for the Yellow-Bellied Racer *Coluber constrictor mormon* in the Grand Forks area.

Target	Objective	Actions	Undertaken By	Timeline
Protect habitat of the Racer in the Grand Forks area	Determine locations of currently occupied sites in the area	<ul style="list-style-type: none"> • Compile known locations of existing den sites <ul style="list-style-type: none"> ▪ Ministry of Environment records ▪ Identify local experts and knowledge 		

	<p>Determine locations of unknown occupied sites in the area</p> <p>Establish protection of habitat on crown and private lands</p>	<ul style="list-style-type: none"> Identify areas of potential habitat to inventory for presence and critical habitat features Propose WHAs in critical habitat on Crown land Apply for funding through Habitat Stewardship Program (HSP) for landowner contact Contact land owners to promote stewardship and provide options such as conservation covenants 		
Collection of DNA samples of the Grand Forks Racer population	<p>Mitigate threats to Racers</p> <p>Initiate Racer DNA collection program</p>	<ul style="list-style-type: none"> Assess existing threats to known occupied habitat Assess locations of road mortality Educate public regarding threats e.g. prevent domestic cat predation Acquire necessary permits Collect Racer mortalities for DNA samples Find freezer for storage of samples 		

Table 10. Conservation objectives and actions outlined for the Speckled Dace *Rhinichthys osculus* in the Grand Forks area.

Target	Objective	Actions	Undertaken by	Timeline
Conserve the population of the Speckled Dace in the Grand Forks area	Establish baseline population numbers and determine if trends are evident	<ul style="list-style-type: none"> Population inventory Establish monitoring program 		

	Protect habitat of the Speckled Dace	<ul style="list-style-type: none"> • Work with City of Grand Forks, Kettle River Watershed Planning Committee, and private land owners to reduce hard shoreline edges (habitat requires edge slow current and shallow water) • Educate local ranchers and recreational users regarding the unique attributes of the speckled dace 		
--	--------------------------------------	---	--	--

Table. 12 Conservation objectives and actions outlined for Badger *Taxidea taxus jeffersonii* in the Grand Forks area.

Target	Objective	Actions	Undertaken By	Timeline
Protect habitat of Badgers in the Grand Forks area	Determine locations of currently occupied sites in the area	<ul style="list-style-type: none"> • Compile known locations of existing den sites <ul style="list-style-type: none"> ▪ Ministry of Environment records ▪ Identify local experts and knowledge 		
	Determine locations of unknown occupied sites in the area	<ul style="list-style-type: none"> • Inventory potential habitat for badger presence and den sites 		
	Establish protection of habitat on Crown land	<ul style="list-style-type: none"> • Propose WHAs in critical habitat on Crown land 		
	Encourage protection of badgers on private lands - promote stewardship	<ul style="list-style-type: none"> • Apply for funding through Habitat Stewardship Program (HSP) for landowner contact • Contact land owners to promote stewardship • Provide options such as conservation covenants 		

		<ul style="list-style-type: none"> • Encourage best management practices on private lands i.e. ranchers, farmers, golf course owners • Communicate importance of ground squirrels and other rodents • Educate through schools, radio, brochures, and newspapers • Promote reporting sightings 		
	<p>Mitigate threats to Badgers</p>	<ul style="list-style-type: none"> • Assess existing threats to known den sites and occupied habitat • Incorporate badger sightings in Road Watch program currently being established by GWS • Assess locations of road mortality – install culverts • Badger habitat priority for Gilpin Grasslands Restoration project 	GWS	Apr – Oct 2010
Contribute data for meta-populations analysis	<p>Identify if the Boundary/West Kootenay is an important corridor between 2 primary populations in BC i.e. Thompson-Okanagan and East Kootenay populations</p>	<ul style="list-style-type: none"> • Acquire necessary permits • Collect road kill mortalities to obtain DNA samples (Work with Conservation Officer and road contractors (EMCON)) • Assess feasibility of DNA hair snagging program 		