Grant Eligible Conservation Fund Project List 2008-2009

Mapping rangeland and rangeland change using remote sensing
Agriculture and Agri-Foods Canada

The objectives of this study are: (a) To develop a method to map native grassland at a scale less than quarter-section using optical satellite remote sensing technology; (b) To develop a method of estimating change in rangeland over time as a consequence of natural or anthropogenic activities using historical remote sensing data. In this initial study attention will focus on two mixed dry prairie sites in southern Alberta for which satellite data are already available (Onefour and Newell County). Various classification methods will be tested for identifying rangeland from other vegetation categories and urban development using the most current imagery. The methods will be tested using single date and multi-date imagery. This will be done at the pixel level, the spatial resolution of which varies depending on the sensor from 20 to 30 m. Validation of the classification procedures will be conducted using independent data sources supplied by ASRD and ACA. The data will be overlaid with quarter section boundaries etc. to provide spatial context. The same techniques will be applied to current and historical imagery to provide a measure of change over time. As part of this endeavour we will look at the reason for change e.g. gas and oil well activity or cultivated agriculture. Reports, a journal article (submission 2009) and a digital database on rangeland locations and changes for the test areas will be the deliverables for this project.

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Heritage 100 Project / Book Title: Conservation - Pride and Passion
Alberta Fish and Game Association

The main objective of the project is to document the history of conservation in Alberta. The most diversely distributed conservation organization in Alberta, the AFGA, celebrates 100 years of active conservation work in 2008. Not only is the history of hunting and fishing in our province important to document, but particularly the "why" did the hunters and anglers organize in the first place? From the earliest game regulations, to the dramatic changes to game and fish populations over the decades are important to document for our current and future citizens. Dedicated volunteers that worked to improve and protect the habitat that our wildlife depends on made the AFGA a driving force in conservation in Alberta. The book is professionally written by Don Meredith and Duane Radford, former Fish and Wildlife professionals and long-term members of the AFGA. "*Conservation – Pride and Passion*" will make an outstanding contribution to the history of conservation in Alberta. It will be an excellent resource for school students interested in conservation and will be provided to all schools and municipal libraries in Alberta. Secondary education institutions will also find it a gold mine of information covering 100 years of conservation and game management issues and how they were dealt with. Outdoor publications, history students and even governments will find the book useful in providing a look at how various issues were handled by the volunteers and professionals of their day. AFGA members, and other conservation minded citizens, will use the history book to inform themselves on what has transpired in the first 100 years of active conservation in Alberta. Perhaps we can avoid some mistakes of the past by being aware of our conservation history. The book may even interest more people to take up hunting.

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Operation Grassland Community
Alberta Fish and Game Association

The main objectives for the project in 2008-2009 are: to expand the scope of our Management Plans from species-specific to multiple species-at-risk (emphasis on Burrowing Owl, Ferruginous Hawk, Loggerhead Shrike, and Sprague's Pipit), and broaden its extent of application from site-specific to Farm- or Ranch-wide, building on previous years' experience and landholders knowledge to jointly develop a series of practical and relevant pasture-specific management opportunities based on Beneficial Management Practices for multiple species at risk (expected 15-20 plans) and to continue our long-term monitoring of Burrowing Owl (18th year) and Loggerhead Shrike (5th year) populations on our members' land through our annual mail census; To re-assess and make adaptive management recommendations on 37 sites where Management Plans were developed in 2004 for the Burrowing Owl (22 sites) and the Loggerhead shrike (15 sites); To develop another 3-4 Burrowing Owl foraging habitat projects (under 10 year conservation agreement) consisting of a fenced ephemeral or permanent wetland or dugout (and riparian area) with the addition of a cost-shared off-site watering system (foraging habitat) where appropriate; In partnership with DUC, develop an additional 1-3 cost-shared projects under 10 year agreement involving conversion of cropland (total ~160 acres) to perennial grassland to increase availability of Burrowing Owl and other grassland birds breeding habitat; To expand habitat enhancement projects to the Ferruginous Hawk by installing 2-4 nest platforms at nest sites that are or have recently (< 2 years) been occupied and where the nest has fallen or is about to fall; To monitor a minimum of 12 habitat enhancement projects created in previous years to assess their status and need for maintenance, and implement repairs, and management activities (e.g., grazing, mowing, weed control, etc.) as required; To strategically place cattle oilers or mineral blocks at another 2-3 sites to intensify grazing pressure around existing or high-potential Burrowing Owl nesting sites (short grass). Also, to promote the notion of habitat heterogeneity for grassland wildlife, salt blocks will be sent along with a letter of explanation to an estimated 300 OGC members who manage grassland habitats.

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Alberta Game Warden Magazine - Electronic format
Alberta Game Warden Association

This project is intends to take a 20 year-old published magazine which has always promoted the responsible stewardship and conservation of Alberta's Fisheries, Wildlife, and Public Lands, into an electronic format providing more provincial and world-wide exposure to its message and content. Upon completion of the published magazine format, the document will then be reduced into PDF form, and reformated into EZEE PAGE, after which it will then be made available on our website free of charge. The electronic format AGWM will be produced every three months, beginning with the March 1, 2008 issue, (which will be paid for by the Alberta Game Warden Association). The magazine will then again be electronically produced on June 1, 08, September 1, 08, December 1, 08, and finally March 1, 09. Continuation with the electronic format will be based on the perceived success of the program – which will be assessed on the number of subscribers to the free magazine, and the number of pages read on-line.

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Hunter Safety and Marksmanship Mobile Training Units
Alberta Hunter Education Instructors' Association (AHEIA)

The objective is to construct mobile training units to travel to sport shows, local communities, schools and events throughout the Province. Trailers will provide opportunity for 1 on 1 coaching in the safety and marksmanship for rifle shooters and archers. This introductory experience will in many cases be the inaugural experience with a firearm (pellet and rifle) and a bow (compound and re-curve). This opportunity will be provided as part of the curriculum to every registrant of the Conservation and Hunter Education program. The opportunity will be made available at numerous Sportsmen's Shows in Alberta (Calgary, Red Deer, and Edmonton) reaching approximately 75,000 Albertan. Through travel to schools in communities Province wide, approximately another 25,000 Albertans will be exposed to the program.

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Alberta Hunters Who Care "Wild game for the foodbank program"
Alberta Hunters Who Care

The project's objective is to use a renewable food source, wild game, which is harvested and donated by hunters. This high quality meat is then distributed through the Edmonton Foodbank following a stringent handling and inspection process. This is done in coordination with both the general hunting season and cull hunts to support the CWD management program. Support is needed to help with the cost of meat processing. Usually between 15 and 20 thousand pounds of wild game (elk, moose and deer) are donated annually by hunters to this program. Last year was an exceptional year with over 30,000 pounds donated.

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Biodiversity of Fungi in Alberta: a provincial database
Alberta Mycological Society

The aim is to increase the knowledge of fungal biodiversity in Alberta and to gain a better understanding of the importance of fungi to Alberta's ecosystems. This will be achieved via the: continued development of a

searchable fungal database with digital images and distribution maps; identification of fungi of economic, gourmet, industrial, and medicinal values; education of Albertans about the values of fungi via the development and dissemination of educational materials (poster about medicinal mushrooms of Alberta); and identification of difficult to identify fungi. Alberta Mycological Society (formerly known as the Edmonton Mycological Society) is in the process of producing the first searchable database of fungi in Alberta. This database will contain as many fungi as possible that have been collected and officially recorded in this province along with complete curatorial information (*e.g.*, fungus names, collection location, date, images, etc.). In addition to this information, we are producing distribution maps for each fungus and indicate its frequency of occurrence in Alberta. Compiling information of fungi in Alberta has been ongoing since spring 2006. The database currently has about 6,800 records of fungi in it. The 2008-09 project will (1) continue the databasing effort, particularly continuing to compile existing information about fungi in Alberta from mycological collections and the scientific literature, (2) design the web interface for the database, and (3) produce additional educational material (a brochure about edible mushrooms of Alberta (summer 2008); a poster about poisonous fungi of Alberta (March 2009).

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From microbes to macrophytes: assessing major wetland health indicators along a disturbance gradient

Alberta Research Council

Our present knowledge of wetland health in the aspen parkland of Alberta is poor, and we lack a comprehensive sampling program to measure wetland health at meaningful temporal and spatial scales. The main objective of this project is to test potential indicators and sampling protocols that can be used to estimate the health of individual wetlands; this will be done in wetlands which represent a range of disturbance conditions to determine how the indicators respond to perturbations. A secondary objective is to collect baseline data on wetland health to provide a benchmark for use in wetland remediation and restoration. We will sample a range of potential indicators, including biological, chemical, and physical parameters, in 20 to 30 wetlands representing a range of conditions from relatively pristine to heavily impacted. Data from separate indicators will be analysed to determine if they respond in a predictable way across the disturbance gradient. Those that do respond across the gradient will be combined to form a multimetric index of wetland health. In addition, this project will generate data on wetland-association taxa, including invertebrates and plants, and relate abundance and community structure of these groups to physical and landscape-level data derived from GIS layers (e.g. landuse in the area around each wetland). Deliverables include a report and publications (2010).

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Boreal Toad Habitat Use and Response to Disturbance in the Boreal Mixed Hardwood Forest

Alberta Research Council

This project focuses on the boreal toad, which is listed as “sensitive” in Alberta, and has been placed on the International Union for the Conservation of Nature’s (IUCN) Red List because of declines over much of its range in the USA. This project will (1) determine if boreal toads use habitat in a non-random fashion in the boreal mixed wood, and how habitat use is related to industrial activity; (2) use data on toad movement to construct and test a GIS-based model of boreal toad habitat use and response to disturbance; (3) determine if borrow pits are viable breeding and rearing habitats for boreal toads, and therefore suitable as mitigation tools for industrial disturbance, or if they are actually ecological traps; (4) contribute to our general knowledge of amphibian populations in northern Alberta, where little amphibian inventory and research has occurred. Boreal toads will be captured at wetlands and man-made structures (e.g. borrow pits) using visual surveys. Radio transmitters will be attached to a subset of captured animals. These toads will be located every 2 – 4 days throughout the field season; at each re-location of a radioed toad a series of habitat measurements will be taken to determine if individuals are non-randomly selecting habitat. These data will be used to model toad movement, habitat selection, and response to disturbance in a boreal mixedwood forest landscape. In addition, the value of borrow pits as mitigation tools for habitat disturbance will be evaluated by comparing the quality of metamorphic toads emerging from anthropogenic wetlands with those from natural wetlands.

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Wolverine abundance and habitat use in the Rocky Mountain Parks of Central Alberta, Canada

Alberta Research Council

The wolverine (*Gulo gulo*) has experienced considerable range reduction over the last two centuries. Wolverines inhabit the mountains, foothills and boreal plain of Alberta, with the foothills and boreal plain being areas of increasingly rapid development from forest harvesting and oil and gas activities. Wolverines are currently *May be at Risk* in Alberta and *Special Concern* in Canada. Preliminary information from the Alberta Wolverine Experimental Monitoring Project suggest that wolverines occur in very low densities in Alberta - lower than in other jurisdictions to the south, west, and north. In an era of unprecedented economic growth, and concomitant habitat loss to fuel this growth, few areas in Alberta remain sufficiently remote and undisturbed to support and protect wolverines. The notable exception is Alberta's network of Parks and Protected Areas. This project's objective is to answer two main questions: 1) What is the current population estimate of wolverines in west central Alberta’s Willmore Wilderness Park (WWPark); and 2) Will the area and habitat represented in the WWPark be sufficient to support a viable population of wolverines? This project is set to make unprecedented strides in wolverine conservation in Alberta. By the end of the field season wolverine had been detected at 29 of 30 sites, and DNA from 12 individual wolverines had been collected – an unparalleled detection success rate. Excitement over this early success was heightened by the knowledge that wolverine have been identified as important predators of caribou calves. Thus, the continuation of this project not only contributes to wolverine conservation, but also has broad-reaching influence on other species-at-risk in Alberta. The present funding request allows for completion of: 1) the DNA analysis of hair collected during the final year of field sampling; 2) analysis of all DNA, remote camera detection, and GIS-habitat data; and, 3) preparation of a final project report (including manuscripts for submission to scientific journals).

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Biologist workshop 2008
Alberta Trappers Association

The main goal of the workshop is to serve as a gathering session for wildlife managers and trappers where ideas and trends can be discussed in an open forum facilitated in a structured agenda. Specific objectives are: introducing the trapping profession to wildlife managers; examining the tools and strategies trappers use to manage the resource; viewing and discussing the latest on trap standards and research; have an opportunity to visit trap sets and examine how fur is handled; to discuss fur bearer and animal management and the role trappers can play in assisting researchers; to give an overview of fur bearer biology and management concerns, population dynamics and the role forestry can have on habitat alteration. A three-day fur management workshop will be held the Dave Unger Trappers College. It is anticipated that there will be 15 participants. Dr. David Hatler (PhD, RPbio), author of the Alberta and BC trappers manual, will be one of the main speakers. The workshop will be written up in an issue of the Alberta Trapper magazine and discussed on our e newsletter.

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Educational Bird Science Events with Beaverhill Bird Observatory
Beaverhill Bird Observatory

The main objectives of this initiative are to: bridge the gap between science and the general public by inviting members of the public to witness science firsthand, increase awareness and appreciation natural history & local conservation designations; and highlight spring and fall migration, a critical aspect of the life of many birds that breed in the north. Beaverhill Bird Observatory (BBO) is seeking support for two 'on-site' public events i.e. '*Big Birding Breakfast*' a spring songbird migration event (end of May) and '*Steaks and Saw-whets*' a fall owl and waterfowl migration event that will be held in late September, 'on-site' events for structured groups such as School groups and youth groups, and 'out-trip' public events, events will be held at various locations around central Alberta. As well as the events, the deliverables will include: two articles summarizing the events for the BBO's newsletter 'The Willet'; event advertisements on the BBO's website at www.beaverhillbirds.com and through posters in public libraries, announcements in naturalist newsletters, and through the media; and evaluation forms filled in by participants of this project to provide a tangible measure of effectiveness and provide direct feedback about the project.

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Long-term songbird and raptor monitoring in Alberta
Beaverhill Bird Observatory

Beaverhill Bird Observatory (BBO) was established in 1985. Since that time, many bird studies have been conducted, with most of them being long-term standardized monitoring initiatives. The objectives of this project are: To continue migration monitoring of songbirds and saw-whet owls; To publish papers on BBO's bird monitoring data; To continue coordinating our three major volunteer-based programs (Alberta Nocturnal Owl Survey, Alberta Raptor Nest Card Program, BBO Nestbox Program); To submit all data from BBO's bird monitoring programs to Alberta SRD for their database and which will assist with bird status determination. The BBO still have large amounts of data that need to be analyzed. This application will continue to help with analyzing the various data that has been collected in the past 20 years, and disseminating the information through scientific publications and natural history journals, as well as helping with our ongoing long-term programs. Deliverables for this project are: data files on all banding data submitted to province; data from nocturnal owl survey submitted province; journal paper on phenology of nesting and occupancy rates/number of young of American Kestrels in boxes; presentation of data at the annual Raptor Research Conference in Missoula Montana; and final report.

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Developing the marsh monitoring program in Alberta's Prairie and Aspen Parklands region
Bird Studies Canada

This project will design a **monitoring and assessment program for non-waterfowl wetland birds** that will initially be piloted in selected study plots in the Prairie and Aspen Parklands Region (PAPR) of Alberta. The specific objectives are as follows: 1) Design a spatial sampling framework taking into account existing wetland classification information and other available spatial land cover datasets; 2) Design and implement wetland-associated bird survey protocols for Alberta's PAPR based on continental standards but adapted to meet conditions unique to this region, including focal species, wetland habitat types, and timing of surveys; 3) Design habitat description and measurement protocols to meet conditions required for an Alberta PAPR region-wide wetland-associated bird monitoring program that will include all applicable wetland-dependent migratory birds (e.g., rails, grebes, bitterns, shorebirds, and passerines); 4) Examine alternate program delivery systems and strategies, including both technical and administrative/social factors; 5) Develop training programs and strategies for survey participants (volunteers and contracted personnel); 6) Implement the MMP in selected pilot study plots in Alberta. This will entail beginning the process to establish a network of trained volunteers who will be able to carry the project forward beyond the year-one pilot project period, as well as hiring, training and deploying a field crew to ensure adequate data are collected during the first year of this two-year pilot project; 7) Consolidate and evaluate all operational information from project activities into a final project report to guide efforts to achieve long-term program sustainability and expansion to the entire PAPR of Alberta; 8) Ultimately, contribute resulting monitoring and assessment information to benefit various conservation planning initiatives in Alberta (e.g., Alberta NAWMP, PHJV), as well as bird conservation planning and status assessments for waterbirds, shorebirds and applicable passerines that depend on wetland habitats in the PAPR of Alberta. Project deliverables include a final report with an appended copy of an electronic database including the species, habitat and associated data collected during this Phase I pilot project and an associated meta-database describing the structure and nature of the data in the database.

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Millennium creek stream reclamation and fish habitat enhancement project, Phase 2, 2008
Bow Valley Habitat Development

The primary objective of the reclamation and enhancement project is to reclaim the stream channel back to its natural state, with the channel width being adequate to create a self cleaning result, if any future silt loading occurs. The other primary benefit or objective is to create a suitable environment for trout and the aquatic invertebrates that they depend on for a source of food. Finally, the use of a site for environmental education, which is already being used by the Rockyview School Division, the Town of Cochrane and other educational groups. This project is now three quarters complete. Starting in May 2008, in-stream activities will be directed at completing the balance of the original enhancement work and design. The deliverables for Phase II of the project are as follows: Construct 10 Log and 3 Rock V-weir pools with cover habitat; install 10 concrete baffles (velocity breaks) in the Griffin Road Culvert; enhance aquatic invertebrate habitat on 40 metres of creek channel; construct a rock deflector and pool habitat on Bighill Creek, just upstream of the existing one at the mouth of Millennium Creek; elevate the primary spring pond water levels to pre-2005 levels; maintain silt containment pools and remove silt; modify the channel gradient below the Griffin Road culvert pool; remove invasive thistle weeds from the stream channel by hand; deepen 4 v-weir pools that were constructed in 2006; install cover habitat in the primary silt trap pool.

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Hunter Education and Youth Shooting Program
Brooks and District Fish and Game Association

The objective of this project is to introduce new participants to hunting and the shooting sports. This project will: conduct the Alberta Conservation and Hunter Education program for approximately 25 new hunters, included will be a field day which will include trap shooting, archery and rifle shooting; have a minimum of five youth trap shooting evenings (15-20 youth shooters per evening); have a minimum of one youth sporting clay shoot (15-20 youth shooters); hold a novice pheasant hunt for 24 first-time pheasant hunters.

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Research, Conservationa and Education of Amphibians at the Calgary Zoo
Calgary Zoo

Worldwide, amphibian populations are in decline. Chytrid fungus and Ranavirus are two emerging pathogens of amphibians that have been implicated in a series of global declines. Scientists believe many more species may go extinct before we are able to act. Here in Alberta, the northern leopard frog (*Rana pipiens*) has disappeared from much of its historical range in west central and southern Alberta and is currently listed as Threatened under Alberta's Wildlife Act. This project will survey amphibian species at the Devonian Wildlife Conservation Centre as an initial step for establishing a long term monitoring program ; Assess local population for disease; Assess water quality; Training in conservation/breeding programs; Obtain necessary equipment to begin a breeding program; and Educational display promoting research and conservation of local amphibian species. Deliverables to include: a press release at the beginning of the project; a report for our shareholders, describing the results of this project (December 31, 2008); a new amphibian display of an Alberta species in the Cequel Energy Lodge (December 31, 2008); a symposium and workshop on amphibian husbandry at the Calgary Zoo (December 31, 2008); publish findings in the newsletters of the Calgary Zoological Society, the Canadian Association of Zoos and Aquariums (CAZA) and the Calgary Field Naturalists Society with permission of the editors (March 31, 2009); The findings will also be presented in a paper presentation at the 2008 CAZA conference in Granby, Quebec with permission of the organizers; an article describing the need for amphibian and wetland conservation in 2009 and 2010 Alberta Hunting and Fishing Regulations.

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Riparian area fencing project at Aspen Ranch Outdoor Education Facility
Camps for Children Education Association

The project objective is to protect the riparian area on Aspen Ranch. In addition to keeping livestock out, this area has been put aside for the purpose of educating the public as to the importance of such an area, as well as, to help them become aware of the flora and fauna of the area. A cutline for the fence will be in place by the end of June and the fence will be installed by the end of July. This fenced in area will contain our Riparian Area Interpretive Trail.

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Castle Wilderness Restoration, on the Ground and on othe Web
Castle-Crown Wilderness Coalition

The objectives of this project are to: observe as many of the trails as possible, especially stream crossings in the 1000 sq km of the Castle Wilderness; record what improvements are needed; prioritize those needs in

consultation with staff of Cows and Fish, SRD, DFO, and appropriate consultants; improve damaged areas, for instance remove invasive species where appropriate; and do significant outreach so that the public understands the impacts that have been taking place, and how to avoid, minimize and restore them. This outreach will include posting information on CCWC's nearly completed new website, which will have a map section for posting this information. Activities and deliverables include: Contacting partners, compiling a list of needed information and how our tasks support their work most appropriately; plan and implement the outreach program; travelling (by bike, foot or horse) the hundreds of miles of trails of the Castle Wilderness observing and recording changes from previous years and determine top priority tasks; carrying out restoration tasks (such as removing invasive weeds where appropriate, bioengineering eroded stream banks, remove debris from old broken bridges and engage fishermen in saving scales/fins to determine prevalence of west slope cutthroat trout); developing outreach materials (leaflets and display) and deliver them widely at face-to-face events; develop outreach materials (stewardship reports and final report), and deliver them by the website; and write and distribute regular newspaper pieces and press releases where appropriate.

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Scout and Youth Fishing Pond
Coaldale 4th Scout Troop

The objectives of the project are: to establish a youth fishing pond; create awareness of fish and their habitant; to create a safe environment for fishing and provide opportunities for youth to learn how to fish, within minutes of their home. The developer of the Waterfront subdivision is building the pond with a clay liner, graveling the shoreline, creating a marshland with an infiltration gallery, floating dock, irrigation water supply, and aeration system. He will also be providing the landscaping of the surrounding area. The scouts will help with this project. Lethbridge College will be providing monitoring of the project to insure a proper environment for the fish, and other aquatic life, and wildlife surrounding the pond. Lethbridge College will also be designing and constructing a sign for the project. Information on the project will be posted on the scout troop web site. There is a good chance articles will be published in the local newspapers, scouting publications, and engineering publications. Lethbridge College will be completing a report that will be available to other schools and environmental associations. The establishment of fish and the ability to fish will depend on how fast the habitant for the fish develops.

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Outdoor Women's Program
Conservation Education W.I.S.E. Foundation

This seminar hosts hundreds of women (~200) for a 5-day weekend of learning, camaraderie, fun and an opportunity to begin to master the outdoors. This year's seminar will take place August 5th - 10th at the Alford Lake Conservation Education Center for Excellence. Women of all ages are encouraged to experience, explore, and develop an understanding of the natural world through over 21 different hands-on

programs. The event is held at the Alford Lake Conservation Centre for Excellence. The first session was held in 1993 and has grown in popularity ever since. Women participate at their own speed and level of interest. They are welcome to try their hand at everything from fly fishing, shooting, backing up a trailer, to using a digital camera. Topics covered include GPS, outdoor survival, how to handle a canoe, outdoor cooking, building a diamond willow walking stick, edible plants, and of course, firing a gun. Patient and knowledgeable instructors encourage each woman towards her own level of confidence and competence with each new skill. The goal is to increase numbers of outdoors women.

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Youth Hunter Education Camps
Conservation Education W.I.S.E. Foundation

The future of hunting and fishing in Alberta lies with our youth. If the youth of today don't take an interest in these outdoor activities then the number of hunters and fishermen will continue to decline. Therefore seminars and fun activity days such as the "Youth Hunter Education Camp" target and attract youth to these activities which in turn provides introductory opportunities to become hunters, anglers and responsible outdoorsmen and women. The Youth Hunter Education Camps provide a safe, responsible and fun introductory opportunity to introduce young people to the outdoors that will nurture and develop their interest in outdoor pursuits. Two weeklong camps will be held, each offering a one-week full immersion Hunter Education program. Participants will receive certification in Hunter Education to meet the requirements and also receive certification in the CFSC (Canadian Firearms Safety Course) to meet the Federal requirements. Students will cover the topics, such as: canoeing, fishing, legal responsibilities, bowhunter education, First Aid (to name a few). These camps are attended by approximately 200 youth annually.

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Youth Seminar
Conservation Education W.I.S.E. Foundation

The purpose of this project is to provide a fun, hands-on, low cost, education event for young Albertans. The future of hunting and fishing in Alberta lies with our youth. If the youth of today don't take an interest in these outdoor activities then the number of hunters and fishermen will continue to decline. Therefore seminars and fun activity days such as the "Youth Seminar" target and attract youth to these activities which in turn provides introductory opportunities to become hunters, anglers and responsible outdoorsmen and women. The seminar will focus on the pursuits of hunting and fishing by providing opportunity to gain confidence, increase competence, acquire experience and promote personal growth. This two-day seminar is designed to help young people develop basic skills that will help them use the outdoors with confidence. These camps are attended by approximately 150 youth annually. They will practice archery, shooting, map and compass, survival skills, wildlife identification and fishing, amongst other things.

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Re-print of Conservation and Hunter Education Manuals
Conservation Education W.I.S.E. Foundation

The purpose of the project is to provide a fun, hands-on, low cost, education event for young Albertans. The future of hunting and fishing in Alberta lies with our youth. If the youth of today don't take an interest in these outdoor activities then the number of hunters and fishermen will continue to decline. Therefore seminars and fun activity days such as the "Youth Seminar" target and attract youth to these activities which in turn provides introductory opportunities to become hunters, anglers and responsible outdoorsmen and women. The seminar will focus on the pursuits of hunting and fishing by providing opportunity to gain confidence, increase competence, acquire experience and promote personal growth. This two-day seminar is designed to help young people develop basic skills that will help them use the outdoors with confidence. These camps are attended by approximately 150 youth annually. They will practice archery, shooting, map and compass, survival skills, wildlife identification and fishing, amongst other things.

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Fish 101 and Biodiversity 101 - making linkages between healthy populations and management
Cows and Fish - Alberta Riparian Habitat Management Society

The objective of the project is to work with landowners, riparian land managers and others, delivering new targeted outreach messages related to fish ecology, fish habitat and biological diversity. These awareness presentations will improve understanding for the general public, but also be used to assist natural resource conservation professionals to increase their professional skills in working with the public and designing programs. Results from recent surveys on fish ecology/ management and biodiversity will be used to modify presentations we and other use, because they will identify knowledge gaps and areas for improvement in program design and delivery, based on the perceptions and attitudes of Albertans. In addition, key, landowner-useful results from fish habitat management improvement projects will be factored into presentations. Ultimately, these presentations and training opportunities will enable people to make more informed, responsible decisions and choices, improving riparian areas and fish and wildlife resources.

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Deadmans Pass / Allison Creek
Crowsnest Pass Quad Squad Association

The objective of this project is to supply and install a 50' engineered bridge over Allison Creek. This provincial trail is groomed and maintained; and heavily used by all off highway traffic; ATV's, bikes, hikers, as well as equestrian and the proposed bridge is the only one on this watershed and will replace an old washout. Currently users are fording 50m downstream to access the trail. This trail is tied into the Atlas Staging Area, the Allison Creek Recreation Area (camping, hiking and cross country ski trails). The bridge will also be close by Western Adventures; an equestrian adventure company. Signage will identify sensitive areas; encourage users to stay on existing trail systems and out of the creek; education / interpretive component including increasing awareness and responsibility of users. Assessment and evaluation of water crossing will be done involving representatives from Alberta Sustainable Resource Development and Department of Fisheries as required. Project deliverables include a bridge and signage.

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Fiesta Lake dock construction
Dickson Fish and Game

The Dickson Fish and Game Association plans to build a dock on Fiesta Lake allowing fisherman, birdwatchers and the general public to gain access to this new fishery and beautiful lake. Fiesta Lake is located 10 km south of Caroline, Alberta on provincial lands and was stocked by the province of Alberta (fall 2007) to create a new trophy trout fishery. ACA is currently developing aeration on this water body to allow these fish to winter over. The lake is virtually an undeveloped lake with no access to wade or shore fisherman and has no boat launching areas. The dock will only allow personal water craft to be launched thus limiting motor boats keeping the lake free of two stroke engine exhaust; therefore there will be no hydrocarbons entering the water and disturbing local wildlife. The dock will be 50 ft long and will extend past the cattail margin around the lake. The dock will be constructed with treated lumber and spray foam insulation (a proven dock construction technique). This combination makes for a safe, durable long lasting dock maintaining access to the lake for years to come. The club is looking for money to buy the materials to build the dock. The dock will be constructed and hauled to the site and launched on the ice. This type of floating construction is deemed a temporary structure and falls outside of the scope of a beds and shore development outlined in the Federal Fisheries Act. The dock will be anchored and can be removed and repaired if needed. The club will place signs indicating that swimming and diving from the dock is not a recommended activity. The dock will be constructed with the help of other outside contributions.

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Duvegan Fish and Game Association Waterfowl Nestbox Project
Dunvegan Fish and Game Association

The objectives are to assist school students to construct waterfowl nesting boxes in Whitelaw/ Fairview area; Enhance nesting habitat for goldeneye and bufflehead; Educate students about importance of wetland habitat, wildlife and habitat conservation and habitat improvement; and to Create awareness of DFGA, ACA, AFGA programs and awareness that hunters and non-hunters can work together to benefit wildlife. DFGA club members will cut and prepare the materials for 50 duck nest boxes and assemble them at Whitelaw and Fairview area schools. Club members will take students on field trips to install the boxes in local wetlands. DFGA club members will volunteer time, labour, mileage and woodworking tool usage to make the project successful. DFGA club members give wetland presentations annually to students and this will continue. Club members will strive to involve students in annual nest box maintenance and monitoring of occupancy.

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Comparison of grassland bird diversity and abundance in fall- and spring-seeded wheat and planted and native grasslands in South Central Alberta
Environment Canada, Canadian Wildlife Service (CWS)

The objectives are: to determine the relative value of winter wheat crops for priority land- and wetland-associated birds and whether the amount of cultivation in the landscape influences bird use; to record Species At Risk (SAR) locations and general breeding behaviours of birds in cultivated fields and grassland habitat; to provide information collected in this study to conservation partners. We will conduct systematic bird surveys on winter wheat and neighbouring spring-seeded wheat fields on four to five 41 km^2 landscapes (4 sections by 4 sections) and on randomly selected planted grassland (i.e., hayland and pasture planted with introduced species) and native grassland quarter sections (64 ha; 160 acres) surveyed in 2007. Abundance and occurrence data of SAR (e.g., Sprague's Pipit, McCown's Longspur, Long-billed Curlew, Short-eared Owl) collected for this study will be shared with provincial and federal conservation agencies along with location coordinates. Deliverables include a database, reports and scientific publication.

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Heart River Restoration Project
Heart River Watershed Advisory Council

The main objective of the Riparian Restoration Project is to restore/enhance an unhealthy riparian area along the shores of the Heart River. By restoring/enhancing a riparian area, wildlife, waterfowl and fish habitat will also be improved. The second objective of this project is to designate the restored/enhanced riparian area as a riparian demonstration area that can be used for educational purposes. By educating the general public, agricultural community and industry on the importance of riparian areas we can work

together to conserve the remaining healthy riparian areas and restore more unhealthy riparian areas. The project activities include: conducting a Riparian Health Assessment for the Heart River, and/or a reach near Nampa; choosing a suitable site for restoration; identification of extent and method of restoration (type and number of plants, bank stabilization, etc.) and carrying out restoration activities and put up educational signage. The deliverables will be a Riparian Health Assessment; educational signage and a restored riparian area.

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Fact Sheets
Hunting for Tomorrow Foundation

The Hunting For Tomorrow Foundation has developed 20 Fact Sheets to date, including the following: 1. Hunting For Tomorrow; 2. Adult First Time Hunter; 3. Youth First Time Hunter; 4. Spring Black Bear Hunting; 5. Alberta's Hunting License System; 6. The Draw System; 7. Hunting With Firearms; 8. Subsistence Hunting; 9. Alberta's Outfitted Hunting Industry; 10. About Alberta Hunters; 11. Hunters Who Care; 12. Disabled Hunter – The Facts about Mobility Impaired Hunters; 13. Understanding the Hunt; 14. Ladies – Let's Go Hunting; 15. From The Field To the Table – The Benefits of Eating Wild Game; 16. Hunting – Good Recreational Value For Your Dollar; 17. Wildlife Diseases - What's Bugging Wild Critters?; 18. Métis Harvest Agreement; 19. Field Dressing and Meat Care; 20. Inventory of Available Fact Sheets. These documents are intended to inform both the hunting and non-hunting audiences about specific issues. They are written in "easy to read", plain language. The Fact Sheets are posted on the HFTF web-site and distributed through Sportsman Shows, public presentations and through the major licensing vendors across the Province. Annually these documents are updated with new information, which is necessary to ensure that all information is timely and accurate. Presently, the majority of topics suitable for the Fact Sheets have been completed. It is estimated that 4 to 5 additional/ new topics will be added annually. Annual distribution is approximately 7,500 copies per fact sheet. It is necessary to re-print all of the existing Fact Sheets, in order to meet the existing demands. Each fact sheet will be reviewed and updated as appropriate.

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Hunting…Give it a Shot!
Hunting for Tomorrow Foundation

The focus of this program is to create a positive public relations and promotional campaign around hunting. This theme would be used in all promotional material produced and it is intended to reach a broader audience. Endorsements from popular public figures or celebrities will be utilized in posters, public service announcements and other media promoting this theme. The phrase "Hunting...Give it a Shot!" is similar to the development of the "Go Fish" programs and is intended to catch people's interest and invite them to contact us. Documents supporting this "catch phrase" will include information about hunting in general, the

safety of hunting (compared to other recreational activities), the contributions of hunters and how to get started. Our ongoing and active promotion of hunting, including: brochures, advertisements, radio, internet and television are all necessary tools to maintain public support and encourage new or return participation. Materials will be distributed at all events attended.

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Provincial Hunting Day Celebration
Hunting for Tomorrow Foundation

This past year marked another milestone in conservation history, as ASRD Minister Ted Morton and the Government of Alberta declared Saturday, September 22, 2007 as Provincial Hunting Day. Across the Province in an effort to honor this day, hunters were encouraged to participate by taking a newcomer out and offering the opportunity to participate in a mentored hunting opportunity. September 27, 2008, as the 4th Saturday of September, is Provincial Hunting Day in Alberta and gives the opportunity to share our passion, appreciation and commitment to the outdoors, as we honor our hunting heritage. The 2007 date was a first step towards this initiative and the time frame between the formal announcement and the actual date was limited. An expanded program for 2008 is planned. The 2008 initiative includes: (a) Development of a 1-day youth apprentice hunting opportunity for upland game birds. The youth hunter could hunt under the license of the mentor on this date and would not require a hunter license. (b) Various "celebration" events across the Province, including formal waterfowl mentorship activities, workshops and coordinated activities with participating retailers. (c) Strategic media campaign to lead up to the event, including a series of Press Release documents featuring Getting Started, The Benefits of Hunting and Hunting and Safety. (d) Celebration and recognition items to be provided to mentors and participants including Provincial Hunting Day lapel pins, t-shirts for all participants and other memorabilia to commemorate the experience. (e) Collaborate efforts with ASRD Fish & Wildlife Division, public information, education resources and communication services, to produce joint marketing and public relations materials in a coordinated and complimentary strategy.

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Best Practices Across North America - Workshop
Hunting for Tomorrow Foundation

HFTF will host a 1-2 day workshop with participation from across the USA and Canada to discuss Best Practices related to recruitment and retention of hunters. Specifically the objectives will focus on: increase the recruitment rate of youth; increase the recruitment rate of adults; increase the retention rate of current hunters; and reintegrate former hunters. Our Best Practices discussion will look at current programs in place and their effectiveness in the various jurisdictions including: Shooting Opportunities; Outdoor Mentorship programs; Hunting Access; Marketing and Promotion of hunting; Education and awareness about hunting and hunters; and Special hunt opportunities. A summary from the discussions will be

compiled and distributed amongst the members in attendance and to other organizations or jurisdictions that have an interest in this data.
The second part of this initiative will focus specifically on Alberta and will involve a careful review of the current hunter participation numbers and the demographics associated with the various segments. This information is available through the RELM licensing system, but will require ASRD, Fish & Wildlife Division to formally request the data. Ultimately "armed" with a series of Best Practice initiatives and accurate data about the characteristics of our Alberta hunters, we will continue to develop future programming that will specifically target this audience utilizing programs with a history of success.

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The Red Deer Brook Area Structure Plan
Lac La Biche County

An economic evaluation was completed in 2006 through a partnership with Simon Fraser University. Through this study, it was discovered that approximately $1,000,000 in environmental goods and services is provided to the community per year by this tract of wetland. Because the Red Deer Brook provides the community with these services, Lac La Biche County is taking the next required steps to protect the area. Lac La Biche County has enlisted the services of Tarin Resources, Urban Systems and Aquality Environmental Consulting to complete the Red Deer Brook Area Structure Plan. To determine developable lands and un-developable lands within the Area Structure Plan, the Riparian Setback Matrix Model will be used. The Riparian Setback Matrix Model is a legally defensible tool used to determine Environmental Reserve dedication under the Municipal Government Act. By using photo interpretation to apply the matrix (Tarin Resources), policy and planning (Urban Systems), as well as environmental sustainability (Aquality Environmental Consulting) the resulting Area Structure Plan for Red Deer Brook will ensure protection of this environmentally sensitive area. Once the matrix is applied, environmentally sensitive lands will be deemed un-developable and dedicated at Environmental Reserve while the remaining land required for conservation will experience controlled development.

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Riparian health inventory done by Cows and Fish
Lac La Nonne Watershed Stewardship Society

Through this riparian health inventory, the LWSS would like to achieve the following objectives: to create awareness among people around the lakes about riparian areas, why they are important and how what we do impacts them either positively or negatively; Be proactive and show that we are willing to identify and face any issues we might have; Find examples of good riparian management so these can be demonstrated to others; Get a baseline data of current conditions so we can monitor changes in the riparian health over time; Integrate riparian areas and health into longer term watershed planning and update the current state of the watershed report. Community meetings will be held including a follow up meeting - all community

members (landowners and seasonal) will be invited to attend. A Riparian workshop will be held with all landowners invited to attend. Data collection and field work will include: Project area stratification/aerial photo interpretation, Landowner contacts/on-site visits; and completion of lentic riparian health inventories. A Community report for the LWSS plus participating landowner reports will be prepared and delivered.

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Blue Bird House kit building projects
Lamont Fish and Game Association

Lamont Fish and Game Association intends to construct approximately 500 bird house kits to be given away to the youth of Lamont and surrounding area over the 2008 and 2009 nesting periods. We will do this in conjunction with the elementary school and have bird house building days in classrooms, with the suitable age groups. Also plan to have a bird house building station at the Lamont Fair days and other suitable locations as we can.

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Ecology, population dynamics, and conservation of mountain goats in Alberta
Laval University

Based on the long-term study of mountain goats at Caw Ridge and aerial surveys of several populations that have been subjected to different management regimes throughout Alberta, our objectives are to: a) measure variation in individual survival and reproductive success in both sexes using marked animals; b) identify the causes of this variation (linked to density dependence, individual quality, climate, fecal crude protein, Normalized Difference Vegetation Index (NDVI). c) quantify variation in mortality and population sex-age structure among years; d) assess the effects of current reproduction on foraging behavior, survival, growth, and future reproductive success in adult females ; e) document for the first time the reproductive strategies and reproductive success of males using genetic markers; f) identify the factors (including hunting) that affect population size and that are therefore important for management; g) monitor the dispersal of juvenile mountain goats; h) examine whether mountain goats can habituate to helicopter and all-terrain-vehicle traffic. Our research involves the continued monitoring of survival and individual reproductive success of goats on Caw Ridge and the marking of juveniles to provide accurate information on population size and recruitment. We will continue to monitor radiocollared young males for evidence of dispersal. If funding from ACA is granted, we will install 5 new radiocollars on 2-year-old males in 2008. During captures, an ear punch from each individual will be collected to conduct genetic analyses. We will continue collections of fecal samples at biweekly intervals. To assess whether mountain goats have habituated to helicopter traffic over the last 10 years, we will monitor their responses to helicopter flights and will also monitor goat responses to all-terrain vehicles (ATVs) because they have increased from about 30 ATVs per summer in 1994-1995 to >300 in 2004-2007. No study has ever assessed the effects of ATVs on the behavior of mountain ungulates. A book on the ecology and behavior of mountain goats (13

chapters, 265 pages; Festa-Bianchet and Côté 2008) has just been published by *Island Press*. This monograph is entirely based on research conducted at Caw Ridge and it will become the leading international publication on mountain goat ecology. This is the first scientific book on mountain goats. The team will continue to present many reports, scientific articles and conferences (at least six) in the next year.

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Migratory and breeding bird research
Lesser Slave Lake Bird Observatory

Changes in distribution, status, productivity and survivorship serve as an "early-warning system" for environmental problems and as an indication of general trends in ecological health and biological diversity. Changes in avian species populations can be detected through monitoring and focus research on causation and the development of conservation initiatives. We are committed to the Canadian Landbird Monitoring Strategy, which is designed to meet the needs of Canada's *National Framework for the Conservation of Species at Risk* for periodic reporting on the status of landbird species. Conservations efforts must include a strong education component to be effective.
The project's objectives are:
1) To document population status and trends of migratory and breeding avian species;
2) To maintain the ongoing core avian monitoring programs of the LSLBO including: a) Spring and Fall Migration Monitoring program; b) MAPS Program – the study of local breeding bird populations including productivity and survivorship; Northern Saw-whet Owl Fall migration monitoring program.
3) To complete a formal technical report that evaluates 15 years of data collected by the LSLBO no later than March 31, 2009 including a review of BSC Population Trend Analysis.

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Lee Creek Fisheries and Riparian Health Assessment
Lethbridge College

The objective is to conduct a fisheries health assessment of Lee Creek for the purpose of establishing an information base to assist Cardston County and the Lee Creek Watershed Group in prioritizing watershed rehabilitation and remediation locations. This will involve 5 days of electrofishing and riparian assessments along the creek to obtain required information. This is one component of a Lee Creek watershed rehabilitation plan. A final report will be submitted to Cardston County and Watershed group, and all funding partners. Promotional materials and news items may be produced at various times throughout the project. This is one component of a larger project to achieve a functional watershed network that includes professionals and volunteers to maintain and increase local watershed health.

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Maximizing the Utility of Native Riparian Trees and Shrubs for Bioengineering Projects in Prairie Ecosystems

Lethbridge College

A significant issue that surrounds Southern Alberta bio-engineering projects is the lack of moisture, especially during the summer months when stem cuttings are most vulnerable to desiccation. The overall focus of this project is to investigate and describe factors associated with stem cuttings within the context of a bio-engineering project that maximizes the establishment of the tree and shrub species. The specific objective addressed by this project is to determine the combination of factors that provide the best rooting and establishment success from stem cuttings within Southern Alberta subject to the following conditions: a) Semi-hardwood cutting; b) Hardwood cutting; c) Hormone/auxin treatment; d) Hormone/auxin relative concentration; e) Pre-soaking with water; and f) Dry planting (no pre-soak). Hardwood cuttings (*Salix*, *Populus*, *Alnus* and *Amelanchier*) from the local environment will be obtainted. The hardwood cuttings will be properly stored in the freezer (not applicable to semi-hardwood cuttings) to preserve the samples and to prevent desiccation. Stem cuttings will be treated with two different concentrations of the root promoting auxin called indolebutyric acid (IBA). The stem cuttings will be pre-soaked prior to planting in a bucket of water for two different time periods (24 and 48 hours). The prepared stem cuttings will be out-planted back to the local environment following a “live stake” bioengineering methodology. A sub-sample of each species and treatment will be dug up at the end of the growing season to assess the level of root growth development. Establishment of remaining plants will be assessed in the spring after exposure to one winter before a true success of planting can be determined. The deliverables will be a report and a publication is anticipated.

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Intro to Fishing - Southern Alberta

Lethbridge Fish and Game Association

The objective of this project is to introduce people to angling in Southern Alberta. Participants will: experience bait casting, spin casting and fly casting; learn to identify local game fish; learn catch and release techniques; be able to care for the catch including cleaning and cooking; be aware of the rules and regulations regarding angling and how to use lakes, streams and reservoirs responsibly; be aware of boat safety; participate in a fly tying session and complete the Alberta Fishing Education course. The deliverable is a minimum of 30 new anglers. Local media will be informed.

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Project to attract new bird hunters
Lethbridge Fish and Game Association

The objective is to develop skills necessary to become a bird hunter in Alberta. The emphasis is on safe, responsible, legal and ethical hunting. Participants will receive one on one supervision and instruction; will develop skills necessary to be effective with a shotgun; will know how to identify up-land and waterfowl; will receive all training required to get a hunting and firearm license. This project will result in at least 30 new bird hunters per year for 3 years.

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Recreation and wildlife in the Rockies in Southwestern Alberta: Analysis and recommendations for human use management
Miistakis Institute

This study aims to analyze the relationships between human use of trails, with a particular emphasis on OHV use, and wildlife movement. The results will be used to determine human trail use and access thresholds with respect to habitat fragmentation, and will contribute to regional land-use management that includes considerations for the maintenance and restoration of ecological connectivity while providing for appropriate levels of human use. This project examines the relationship between OHV use and wildlife, through the use of remote cameras. The 2003 field season focused on testing methodologies and gathering preliminary data and conducting social surveys. The 2004 - 2007 field seasons have proven to be very successful with the combined seasons totaling 269, 14 day sampling periods including over 297,000 hours of camera operation. Results include over 4456 unique wildlife events (18% large carnivores) with 7902 human events on recreation trails. Results have confirmed that our cameras and research design are ideally suited to meeting project goals. Four field seasons have allowed us to conduct preliminary analysis, and generate adequate sample sizes required to statistically determine the spatio-temporal relationship between human uses of the landscape and wildlife use and to determine human-use thresholds. This funding request is for comprehensive data analysis, report writing and results dissemination. Our past efforts and resources have focused on data collection and the current need is to dedicate time and resources to analyzing collected data and compile results into reports, manuscripts and presentations for wide dissemination. The relevance of this project lies in our ability to communicate the results to a broad suite of stakeholders including land managers, communities, conservation organizations, recreation users and the scientific community.

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Restoring the future
Moose Lake Watershed Society

The specific objectives of the creek restoration are to: Maintain and improve water quality around Moose Lake to help protect the Lake and its inhabitants; Conserve riparian buffer zones, and protect important fish habitat to keep aquatic life numbers high and contamination from runoff minimal; Keep high angling numbers in the Watershed by maintaining a healthy ecosystem and increasing the sports fish numbers by upholding water quantity and quality. The steps needed to complete creek restoration are: 1) Planning – a record of pre-restoration needs to be complete including state of the creek, photos, history of use and current use. 2) Bioengineering and fencing – The creek bank will be stabilized through use of a willow fence and the planting of native tree saplings. The area will be fenced off from livestock access, and an offsite watering system will be implemented. 3) Monitoring and Study – Careful documentation of the site after the restoration will be conducted. Pictures will be taken and notes will be made. Articles will record the project during every stage (what is happening, future plans). Deliverables include newspaper articles, newsletters and the creek itself will be restored by Sept, 2008 and both the pre-restoration and the post-restoration report will be completed by Nov, 2008.

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Riparian area management improvements
Mountain View County

The project objectives are to: improve the health of the riparian areas & wildlife habitat in Mountain View County and local watersheds; improve riparian health to increase opportunities for anglers; increase awareness of sustainable agriculture and new rules & regulations; increase the number of livestock producers that have taken steps to protect riparian areas and waterways, amongst others. Areas targeted will be lotic riparian areas where Bull Trout are present. A call for project proposals will be given to livestock producers. Once applications are received the project will be presented to our Agricultural Service Board for review and for approval for funding. The riparian projects that will be approved shall be ones that will improve the health and management of the area. A contract will be made between MVC and the landowner. The landowner will have to meet contract deadlines in order to receive the funding. Upon completion of the projects a project inspection will take place prior to the landowner being paid. Project profile sheets will be done for each project which will be made available and the results from the riparian health assessments will be made available. Tours of projects can be arranged.

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Stewardship of Nature Conservancy of Canada's Rocky Mountain and Foothills properties
NCC - Alberta region

The objectives of this program are to support and enhance NCC's conservation activities through annual monitoring of NCC properties. Under this specific project through ACA, we propose to utilize Summer Conservation Interns for monitoring 44 NCC properties, approximately 51,126 acres (20,690 hectares) within the Rocky Mountain and Foothills Natural Regions of Alberta. Other Summer Conservation Interns

within the larger program will be monitoring the rest of NCC's conserved properties in Alberta, and are funded from other sources. Monitoring of each property is done in reference to the Baseline Inventory that is completed for each property after it is conserved by NCC. The biodiversity present on each property is monitored, including wildlife and plant species inventories, range and riparian health and other effectiveness measures. A monitoring report is produced for each property monitored. Utilizing the baseline inventory and subsequent monitoring reports, NCC is able to establish effectiveness of our conservation work in terms of our securement activities (targeting critical conservation targets) and our ongoing stewardship of the properties for its conservation targets. Management plans are created through the information collected in the Baseline Inventory, but are updated annually with the data collected during the monitoring process. Our management plans are implemented by our full-time Conservation Operations staff as necessary. Data collected on species occurrence from the monitoring reports will be forwarded to the ANHIC and ASRD's FWMIS database. Communication tools and activities (e.g. signage, landowner toolkit) will be developed to promote and increase public awareness and access to conservation-rich habitat within the Rocky Mountain and Foothills Natural Regions of Alberta.

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Onoway and district Fish & Game Assoc. bird-house project
Onoway & District Fish and Game Association

The project's objective is to involve more youth in bird house construction, and continue to make them more aware of natural habitat for both birds and wildlife. By fostering an interest in this type of project, hopefully, as they go on in life, they will become involved in organizations that contribute to a natural environment for wildlife in general. By working with the youngsters, in constructing the birdhouses, members are able to answer the many questions put forward...the "hows" and the "whys" of the need for habitat for the bluebirds, and the reasons for specific locations for the birdhouses. When this project was undertaken a number of years ago, the sighting of a bluebird in this area, was a very rare occurrence. Since the start of the program, there has been a slow, but steady increase in their population in this area. Many of our young people did not know of these birds, now they are making a special effort to sight them as they travel about. The monies will be used to purchase the plywood and screws to construct the birdhouses. This sum will enable the construction of approximately 160 houses. Members volunteer their time and the tools needed to complete the job.

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Partners in Habitat Development
Partners in Habitat Development, Eastern Irrigation District

The Partners in Habitat Development Program (PHD) is an initiative developed ten years ago to mitigate for the loss of wildlife habitat (benefiting game species with upland game birds being key species) in Southern Alberta, habitat loss due in part to the upgrading of irrigation canal systems and the intensification of agricultural practices. The PHD program works with landowners, watershed groups and other organizations to create, preserve and restore critical wildlife habitat. The PHD project encourages and

assists the landowners to fence off natural and potential habitat areas from livestock access to promote growth and development, and also helps landowners with project planning and design, access to trees, planting supplies and fencing materials and assistance with the labour and expertise to develop the project. Along with planting the trees and shrubs the PHD program will restore, protect and enhance nesting habitat that will improve nesting success of many bird populations. Field trials will continue on several plant species providing alternate plant materials that will survive under drought and saline conditions. The deliverables include the following: excess of 100,000 trees and shrubs will be planted; a minimum of 15 kilometres of fencing will be installed; construct or enhance 2 wetland development projects – working with landowners and various watershed organizations; buffer strip vegetation creation adjacent to irrigation conveyance canals on a number of projects sites; reseed a minimum of 50 hectares of permanent grass cover; distribution of Public Access signage and completion of Public Access Questionnaires; youth planting days – planting of habitat sites with Southern Alberta Scouts and local school classes; several food plots will be established that will leave free standing grain throughout the winter to be used as an alternate food source for wildlife; and several field trials will be conducted on Giant Wild Rye, Alkali grasses and salt bush in cooperation with the Lethbridge Research Centre and the Alberta Agriculture and Food Crop Diversification Centre–South.

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Assessment of Electric Fencing as a Riparian Management Tool for Agricultural Producers

Red Deer County

This project will engage Red Deer County (RDC) producers in stewardship of the riparian and/or wildlife habitat on their operations, through the use of fencing as a livestock management tool, which will protect and/or restore riparian and/or wildlife habitat in RDC, especially in the tributary watersheds of our sport-fishing streams, rivers and lakes. This protection and/or restoration of the habitat will come about through fencing and associated management innovations, by the producers. This year RDC will assess the effectiveness of electric fencing methods, as a riparian/wildlife habitat management tool for producers, and communicate the results of that assessment to other producers and to Alberta's agro-environmental extension community. Step one entails a Call for Participants (via written articles and advertisements, the local watershed groups, one-one contact, etc.) asking interested producers to contact the County's Conservation Coordinator. Detailed plans will be developed with each of the interested producers, regarding the type of fencing (focus will be electric fencing, but will be flexible and support other kinds of fencing, if appropriate). The plans will also involve other management tools, such as carrying capacities, rotations, rest periods, etc. Step two entails Project Review: RDC's Agricultural Services Board will review the individual fencing project plans submitted by the producers and the Conservation Coordinator, to provide independent producer perspective and experience to the projects, and to make decisions regarding what funding will go to what fencing project(s). ACA funding is for purchase of fencing materials and producers will contribute the labour and the equipment required to install and subsequently maintain/repair the fence. RDC and other partners, as appropriate, will contribute technical expertise to planning the projects, determining management tools, etc. Step three is monitoring; RDC and the producers will conduct Riparian and/or Pasture or Range Health Assessments, at the beginning of each on-farm project. Follow-up assessments will be done in later years, to compare to the baseline condition. RDC will conduct informal interviews / discussions with the producers, during installation, and regularly afterwards, to assess the effectiveness of the various fencing methods. These "effectiveness assessments" will rely heavily on producer input, and include: a) cost comparisons, b) installation and maintenance pros and cons, c) reaction of livestock, and d) reaction of wildlife.

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Northern Alberta non-game fish status assessment - year 6
Royal Alberta Museum

Although much effort has been directed toward monitoring game fish populations in Alberta, little is known of population trends for those fishes that support our commercially important species. This is the sixth year of a project coordinated by the Royal Alberta Museum that aims to provide the data needed to determine trends in size and distribution of non-game fish populations in northern Alberta. Such trends are an indicator of ecosystem health and an aid to fisheries managers in dealing with increasing demands on our sport and commercial fish resources. Non-lethal fish sampling protocols - beach seining, minnow trapping, hoop netting and backpack electroshocking – are applied consistently at both long-term monitoring localities and one-time inventory sites. This consistency ensures spatial and temporal data comparability among localities. Sampling effort, habitat characteristics, and specimen data are incorporated into the Fisheries Management Information System (FMIS) database. Voucher specimens from each site are retained for preservation at the Royal Alberta Museum and are available for examination by any interested users.

Since non-game fish status surveys were initiated by the Royal Alberta Museum in 2002 (one year prior to commencement of this project), 229 lakes and streams have been sampled in the St. Paul, Cold Lake, Lac La Biche, Swan Hills, Slave Lake, Grande Prairie, Peerless Lake, Calling Lake and Edmonton areas. Seven of these sites have been monitored for six consecutive years. The remaining sites have been surveyed from one to five times. In 2008, a minimum of 45 sites will be studied including at least 25 that have been visited already on multiple occasions. Reconnaissance sampling will be conducted at 20 new locations in the lower Peace River watershed.

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Conservation Education 2008
Sandy Cross Conservation Foundation

The Conservation Education Program was created in 1998 to address a growing community need for conservation-based programming for families, adults and children. The Conservation Education Program 2008 aims to offer 19 education programs and 4 weeks of summer camp to an anticipated 600 participants. Children, families and adults from Calgary and the surrounding areas of the MD of Foothills and the MD of Rockyview are engaged in environmental conservation through outdoor, hands-on learning opportunities and issues-based programming. The following programs are offered: Environmental Education, Alternative Energy-Renewable Energy in The Home, Water Conservation and Climate Change, Wildlife Education, Survival Techniques and Health - Eating for Conservation, Agriculture and Suburban Planning - to name a

few. First quarter of 2008 program finalized and complete Spring, Summer and Fall list for 2008 is currently being developed and finalized.

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Sarcee Fish and Game sponsored Alberta Junior Project
Sarcee Fish and Game Association

Approximately 10 acres of productive farm land is taken out of production and is converted into habitat suitable for cover for pheasants to be hunted, using an annual rotation of corn and alfalfa. 650 –1000 birds are released at a rate of 80-100 per weekend for 8- 10 weeks depending on the number of applications received. Our volunteers and dog handlers teach and guide ~ 80 youth and first time hunters, firearms safety and handling, hunter training, hunting ethics along with some clay bird shooting, then off to habitat to try for 2 birds permitted. A spin off from this program is the habitat is left through the winter to sustain birds that escape the gun as well as other wildlife.

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Reptiles at risk on the road 2008 Alberta Phase
Sciensational Sssnakes!!

This project is part of a larger effort (in partnership with Laurentian University and the Canadian Amphibian and Reptile Conservation Network) entitled "Reptiles at Risk on the Road". The purpose is to conduct outreach programs specifically aimed at people who live, work, or visit areas where species at risk reptiles still occur. Teams of 2-4 interpreters will travel throughout Alberta, delivering programs featuring species at risk reptiles, within the portions of the region that these species actually occur. Program locations will be selected in consultation with species recovery personnel to ensure maximum conservation benefit. The objectives are to increase the participants' knowledge of, and attitude towards, Alberta's reptiles, especially species at risk. These objectives will be achieved through interactive, hands-on programs provided for participants. Target participants include landowners and their families, students, seasonal residents and visitors, farm workers, and possibly others as directed by species recovery personnel. Each program begins with an interpretive presentation about reptiles found in the region, and elsewhere in Canada. Live specimens are handled by the presenters to assist in demonstrating identifying features, and to dispel myths regarding these animals. After this, participants have the opportunity to touch and hold various species under the supervision of interpretive staff, who are post-secondary students or recent graduates with a career interest in reptile conservation. A total of 12 programs will be conducted during the two weeks, reaching approximately 1800 local participants. Also attract local media attention and expect at least 6 newspaper features.

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Factors contributing to, and depredation avoidance methods for reducing carnivore-livestock conflicts during winter in Southern Alberta

Southern Alberta Conservation Cooperative

The overall objective of this project is to improve our understanding of factors contributing to wolf-livestock conflicts and reduce livestock losses to large carnivores in southern Alberta. To reach that objective we plan to 1) extend our geographic analysis of factors that contribute to wolf-livestock conflicts, and 2) based on our first year results, begin the process of applying depredation avoidance methods at a home range scale to reduce livestock losses to wolves during winter-spring. This project builds on emerging ranching interests in preventing livestock conflicts with large carnivores by altering seasonal grazing and husbandry practices. We propose to assist area ranchers by 1) collecting information on seasonal shifts in prey abundance and vulnerability, 2) reducing livestock conflicts via application of depredation avoidance methods during January-May, and 3) sharing our improving understanding of the role traditional management practices can play in contributing to increased association of livestock as prey by wolves.

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Late fall fisheries investigation in diversion canals in Southern Alberta

Trout Unlimited Canada

Numerous irrigation diversion structures exist on many river systems and on-stream reservoirs in southern Alberta. However, most of these structures do not have operable fish exclusion devices to keep wild sportfish in our rivers from entering diversion canals. Wild sport fish that enter irrigation canals are generally lost to the fishery when canal structures prevent fish from returning to the river system. Until TUC Fish Rescues began in 1996, the extent of the problem was very poorly documented and received little attention. The objective is to go into these canals, remove all fish that we encounter by electrofishing and seine netting, and place them back into the river systems from where they came. Volunteers of all ages are involved in the fish rescue. Data is recorded. All fish collected are counted, while all trout species are measured for length and weight. All other species are identified, and counted, while those individuals that exceed 200mm (fork length) are also weighted and measured. To date TUC has rescued over 588,000 fish from certain death. In 2008, TUC plans to revisit the same six canal systems in Southern Alberta and data will be provided on the numbers recovered in each system.

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Habitat enhancement program for Alberta's East Slopes Fishery
Trout Unlimited Canada

Through consultation with various residents, anglers and scientists in the East Slopes, it has come to the attention of TUC that significant measures can be taken to improve fish habitat and angling opportunities in these waters. In particular, several key projects have been identified, which, if successfully implemented, would positively impact fish populations via the improvement of spawning, rearing or holding conditions in the various waterways and tributaries that comprise the eastern slopes watersheds. In 2008 TUC plans to initiate the restoration of Bill Griffith Creek with small scale v-weir installation and spawning habitat improvement projects. The chapter will also continue work to improve habitat and angling opportunities along Policeman's Creek, as well as take steps to make the needed changes at Lac des Arcs. There are also opportunities to work on some culvert mitigation projects over the course of the year. TUC is working with partners to recreate habitat along Bearberry Creek in Sundre. The role of TUC would be to help drive many of the bioengineering efforts in this area as well as local information initiatives. TUC will be continuing efforts as part of the Quirk Creek brook trout removal program. TUC is also currently investigating the opportunity to take part in remediation of a dam in the eastern slopes. This dam is located on the Waterton drainage and currently blocks upstream passage of fish species including bull trout. The removal or augmentation of this structure will enhance the spawning opportunities in this area, as well angling possibilities. In addition to this there will also be many different volunteer days (clean up efforts, weed pulls, electrofishing demonstrations, fieldwork days) for the coordinator to help support. For each project there will be a reporting process to account for the activities undertaken, a photo journal for each activity will be created, and a list of accomplishments will be provided.

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Bow River Riparian Fencing Project
Trout Unlimited Canada - Bow River Chapter

This project seeks to address the severe bank degradation, soil compaction, and slumping caused by cattle throughout much of the Bow River watershed, but specifically between Calgary and Carseland. This damage negatively affects wildlife, insect, and fish habitat in the river. In response, the Bow River chapter of Trout Unlimited has devised a project that will manage cattle grazing activities along the river for the benefit of the river's ecosystem, recreational users, and landowners alike. The goal of this project is to work with each landowner to help develop and implement the best grazing management strategy for each specific property. Following the completion of our first project, we have continued to approach landowners who are currently grazing livestock along the Bow River with this project and their response has been very positive. They realize that revitalizing the riparian part of their property will increase the yield and value of their land, as well as preserve the health of the river for future generations. One of these landowners, Mr. Greg Percival, was approached because his property displayed significant degradation from cattle in recent years. He contacted Mr. Groeneveld, the landowner from our pilot project, and he has since committed to having the second installment of the project on his property. On this particular property (as with the first project), exclusion fencing will be employed that will provide an ample buffer along the river. Further, a solar-powered off-stream watering site for his cattle will be installed, which will provide a supply of fresh water even in the absence of river access. Photographic documentation of the project as it is completed (including the recovery that has occurred since the project's completion). Progress of the riparian area will be monitored, documenting the changes periodically. This documentation will be available to the ACA throughout the project. Finally, as both of our project sites are in visible locations, informational signs will

be posted which will include a list of project partners, providing excellent visibility for the project and its supporters.

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Outpost (Police) Lake Aeration
Trout Unlimited Canada - Oldman River Chapter

The main project objectives are: to work with Alberta Parks and Alberta Fish and Wildlife to cooperatively manage and operate the lake aeration system at Police Lake; to upgrade the aerators over the next 3 years as the current ones are old and in need of repair; to ensure that lake aeration at Police Lake continues to provide recreational sport fishing benefits. The project entails acquisition of 3 replacement aerators; installation of 3-5 aerators in fall and removal of aerators in spring; installation of public caution signage (e.g. danger thin ice); and monitoring dissolved oxygen levels. The aeration equipment and methodology is identical to that used by the ACA at other aerated lakes throughout the province. The anticipated result of the project is successful aeration of lake: more fish, bigger fish and more satisfied anglers. This aeration project was started by Alberta Parks about 5 years ago. Alberta Parks paid for electric power to the site, purchase of 5 aeration units and has been providing for aeration at the lake since the aeration project's inception. At the present time Alberta Parks is looking to Trout Unlimited or the ACA to take a more active role in maintenance of the aeration program similar to operating procedures at other aerated sportfish lakes in the province.

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Assessment of Riparian Health and Fish Assemblage Integrity in the Raven River, Alberta
Trout Unlimited Canada (Edmonton Chapter)

The main objectives for this project are: 1) to assess current status and temporal changes in brown trout abundance in the Raven River; 2) describe riparian conditions and fish habitat of the Raven River, from the headwaters to the Red Deer River confluence; 3) evaluate the success of previous riparian restoration efforts (e.g., stream bank fencing, livestock crossing installations) on fish assemblages in the Raven River basin; and 4) to identify critical spawning areas for brown trout. The goal is obtain brown trout population estimates using electrofishing mark-recapture methods in the three river sections examined in Rhude and Kraft (1978). To evaluate effects of riparian structure and composition on fish distribution and abundance, fish assemblages will be sampled in summer 2008 using electrofishing methods. Sampling will be conducted in representative river reaches including: degraded, intact and restored riparian areas. The riparian assessment program will involve two complementary components: Low-Level Videography (LLV) and Riparian Health Assessment (RHA). LLV using a two passenger ultralight aircraft will be carried out on the Raven River from the headwaters to the Raven-Red Deer River confluence (approx. 100km). We are proposing a RHA using the protocol for "Small Streams and Small Rivers" developed by the Cows and

Fish Program. Based on the LLV data and air photo interpretation, 10 or more “critical” sections will be selected for site investigation and analyses. These will include known or suspected brown trout spawning areas. The integrity of fish assemblages will be compared among treatments using an information-theoretic approach to rank *a priori* models, and multivariate regression methods that will incorporate key covariates that may also influence fish assemblages. Deliverables include a report, video on riparian conditions of the Raven River, and a spatially-explicit database of fish and habitat sampling. Maps will also be provided showing areas of high priority (i.e., degraded riparian areas) that would benefit from conservation extension programming. Future deliverables will include a report summarizing the field work on redds conducted by Trout Unlimited volunteers, submission of a papers to both the 2009 Great Plains Fisheries meeting in Lethbridge and Canadian Journal of Fisheries Aquatic Sciences.

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Development of Biophysical Criteria to Measure Restoration Success and Enhance Best Management Practices in the Montane and Subalpine Regions of Alberta

University of Alberta

The overall goal is to determine whether or not reclamation of historical disturbances has been successful in restoring native habitat in the montane and subalpine regions and to use this data to develop scientifically sound management practices for reclaiming future industrial disturbances in these regions. Specific objectives are: to collect detailed site, soil and vegetation data from previously disturbed and reclaimed areas within the park to quantify the relationship between site history and current conditions; to develop biophysical criteria for assessing restoration success, based on literature review and field assessments, that capture both ecosystem form and function and reclamation method performance; to develop enhanced best management practices for future disturbances within the park or other areas in the montane and subalpine regions. In May 2008, 10 to 20 sites will be selected for this research. The primary criteria for site selection is the presence of industrial activity that has altered the physical landform and some form of reclamation, whether natural recovery or assisted recovery. Each site will be mapped. Field assessments of soil and vegetation parameters will be conducted on each reclamation site. Standardized assessment methods will be developed following initial site visits. As the ideal biophysical criteria for evaluating reclamation success are not yet known for the montane and subalpine regions of Alberta, a wide range of soil and vegetation parameters will be assessed initially. Vegetation parameters will include canopy cover by species, ground cover and total species richness. At each site, adjacent undisturbed communities will be used as controls or references and the same soil and vegetation parameters assessed. The deliverables include: Biophysical criteria to assess ecosystem form and function following land disturbance in the montane and subalpine regions; Science based best management practices for reclaiming disturbances in the montane and subalpine regions; a MSc thesis; Published article in peer-reviewed journal; and Presentations at scientific and management meetings.

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Ecological effects of sportfish stocking and aeration in Boreal Foothills lakes
University of Alberta

The central goal of this study is to apply principles of impact assessment to the basic question: what are the consequences of trout stocking and lake aeration on invertebrate, fish, and amphibian communities in small boreal foothills lakes? Because of the popularity of the stocking-and-aeration program, and plans to continue and expand it, there is a need to examine how these management actions impact the lakes' native communities. The current lack of information is unsettling, but the flip-side is that the management program is essentially a whole-lake experiment, for which impact-assessment protocols are available. 2008 will be a critical year that builds upon the multi-lake Control-Impact comparative design of 2005-2007, while initiating a more concentrated Before-After-Control-Impact experiment. The specific objectives for the 2008 field season are: 1) To collect trout tissue, forage fish, and invertebrate samples for stable isotope analysis from 12 lakes (6 stocked, 6 unstocked). 2) To collect trout stomach contents for diet documentation in the 6 stocked lakes. 3) To use mark/recapture sampling to estimate forage fish populations in 3 stocked and 3 unstocked lakes. 4) To use 24-hour forage fish sampling in 2 stocked and 2 unstocked lakes to determine daily feeding, activity and habitat use of forage fishes. 5) To collect quantitative invertebrate samples (littoral and limnetic) from 3 stocked and 3 unstocked lakes. 6) To collect epilimnetic water samples from all 12 study lakes. Deliverables will include: M.Sc. theses (3; 2008); Ph.D. dissertation (2011); Articles for peer-reviewed scientific journals (2008-2011); Annual reports to ACA/ASRD (2006-2010); Annual Presentations to ACA/ASRD staff and public at outreach meetings in RMH (2005-2009); Presentations at provincial (e.g., Wildlife Society), regional (PUBS), national (SCL/CCFFR), and international (AFS, ESA, SIL) conferences (2006-2011).

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Russian Thistle (*Salsola kali*) impact on native ungulate habitat
University of Alberta

The objectives are to determine the effect of russian thistle (*Salsola kali*) on native montane grassland habitat for wildlife. Specifically, this study will address how russian thistle impacts wildlife forage by altering native plant communities, methods to manage russian thistle, and the role wildlife grazing has on russian thistle establishment and persistence. Montane grassland ecosystems found within the foothills of the eastern Rocky Mountains provides critical winter range habitat for a number of ungulate species, such as elk and bighorn sheep. Invasion of non-native plant species can have a significant impact on the function and integrity of natural ecosystems. In Jasper National Park, large areas of russian thistle have been observed in native montane grassland communities used for winter grazing by bighorn sheep and other ungulates. These areas of invasion have been increasing in size. Due to a large sheep population, it is believed that critical areas may be overgrazed. This reduced range condition may be permitting russian thistle to become established and compete with already stressed native plant species, potentially reducing wildlife forage. In May 2008, site reconnaissance surveys will be conducted and at least three montane grassland sites, invaded by russian thistle and part of the bighorn sheep winter grazing area, will be selected for research. Deliverables include: Quantitative data on habitat impact, loss and recovery from russian thistle invasion; Permanent monitoring plots for long term assessment of habitat recovery and use; MSc thesis (December 2009); Publication in a peer reviewed scientific journal (February 2010); Presentations at scientific and management meetings and annual reports to Parks Canada.

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Effects of roads and road access management on grizzly bear (*Ursus arctos*) habitat use and movement

University of Alberta

The main objective of this project is to determine the effects of access management on grizzly bear habitat use and movement and thus assess its utility as a conservation tool. The specific objectives of this project will be to 1) examine grizzly bear habitat selection and movement near roads, 2) investigate the effects of scale on these relationships, 3) determine the effects of road access management and new roads on grizzly bear habitat selection and movement, 4) evaluate the effectiveness of gating roads on seasonal human use of the roads, and 5) develop predictive models that will aid managers and planners. With the information gained from this project, managers will be able to target roads whose closure will have the greatest positive impact on grizzly bears, and thus not unnecessarily limit access to hunters and anglers. While the hunting moratorium has been in place for two years, there has been little implementation or research on access management. As access management was identified by the Recovery Team to be the primary means to recover bear populations, along with the hunting moratorium, it is imperative to understand how bears will be affected. Our study will provide managers with information on the efficacy of gated access management of grizzly bear habitats, and ensure that hunters and recreationists are not denied access unnecessarily. M.Sc. thesis to be completed in fall 2009. Pertinent results will be published in scientific journals as soon as completed. Results will be presented at scientific conferences and provided to managers, and planners with models capable of predicting changes in grizzly bear habitat use and movement, with the management of road access, in 2009.

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Does petroleum development affect burrowing owl nest-site selection, reproductive success or nocturnal space use?

University of Alberta

The objects are as follows: to determine the impacts of energy-sector footprint on burrowing owl reproduction; to determine whether burrowing owls are avoiding, attracted to, or neutral with respect to each component of industrial infrastructure and each industrial activity; with respect to gas & oil infrastructure and activities, to communicate recommendations for i) modifying management of burrowing owls, ii) defining & 'effectively protecting' critical habitat from destruction, and iii) outlining any additional data needs for future work. Approximately 20 burrowing owl nests will be located by visiting known Alberta nesting locations from 2007. An additional 20 nests will be discovered during surveys that target areas with a predicted high probability of containing breeding owls. By monitoring nesting activities at each of 40 burrowing owl locations in 2008, we will be able to correlate reproductive success with degree of energy-sector footprint. A very recent technological advance (8-gram Global Positioning System datalogger) enables spatial location of individuals to within ~10 m. This unprecedented accuracy and precision allows for make robust inferences about effects of energy-sector activities on burrowing owl

space-use. In Alberta, a total of 15 male owls will be fitted with GPS dataloggers in the 2008 breeding season. Only male owls with confirmed hatched young will be chosen to wear dataloggers, as movements of males are much larger than those of females, and movements are greatest during the nestling period. Key target audiences for communicating project recommendations for modifications to burrowing owl management would be wildlife managers, land managers, and decision makers from: agencies with jurisdictional responsibility, provincial and national recovery teams, recovery implementation groups, energy companies, and environmental conservation groups. Recommendations from this study are likely to have an important impact for burrowing owl management, given that most members of this project team are involved in recovery planning for burrowing owls at national and provincial levels.

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Effects of access management of elk in Southwestern Alberta
University of Alberta

This project is part of a collaborative research program initiated by Shell Canada to better understand the effects of industrial development and their associated activities on elk ecology. The goal of our project is to provide a better understanding of how roads, motorized activity on those roads (both industrial & recreational), and access management influences the response of elk to these disturbances. Shell Canada, along with other agencies have committed funding to this project over the next 3-4 years to address *their* specific goals (including delineating an elk wintering range, assessing the effects of gas well/drilling sites and their effects on elk migration patterns). We are proposing to develop a concurrent and complementary elk project addressing access management to mitigate the effects of industrial development. Specifically, our objectives are to implement a before-after-control-impact (BACI) design to experimentally manipulate motorized access on the landscape to determine its effectiveness at enhancing elk habitat, movement, and ultimately demographics. We will do this by examining four aspects of the elk's life history characteristics: habitat selection, movement, survival, and recruitment (calving success—and relate this to habitat selection patterns). Further, we propose to use models of habitat selection, movement and survival to project how implementation of access management could influence population demographics and change the amount of suitable habitats available across a larger landscape. The results of this study will have direct implications for the management of elk in Alberta and throughout their distribution in North America. As noted, access management is a contentious issue, but has been increasingly proposed as a critical management tool for enhancing wildlife populations across North America in areas with industrial development and significant habitat encroachment. In addition to the scientific merit of our experimental approach, this study will also demonstrate how access management can modify elk behavior and link access management with demographics. Further, these results will differentiate the effects of roads versus motorized activity on roads, which will be important to understand as Alberta undergoes further industrial development.

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Cougar predation on wild ungulates in a multi-prey, multi-predator system in West-Central Alberta

University of Alberta

In several western states and provinces, management agencies have been responding to a perceived increase in cougar (*Puma concolor*) numbers. The current management plan for cougars in Alberta calls for a maximum allowable harvest of 10% of the estimated population. Since1991 the provincial quota has risen from 66 cougars to in excess of 120 cats. Moreover, the growth of cougar populations appears to have been spatial as well as numerical, with cougars re-occupying suitable habitat from which they had been extirpated. The chief objective of this study is to better understand cougar predation patterns and the factors that might influence the potential for cougars to impact big game populations. To achieve this objective, kill rates by cougars of various prey will be measured and related to factors that might predispose a cougar to the predatory pattern it exhibits. Landscape variables are likely to be among the most powerful predictors of predation and hence constitute a major focus of this exercise. Also other likely influences on prey selection will be examined, including, prey availability, individual cougar characteristics, and the hypothesized development of different prey niches between cougars and wolves. An important objective of the project is thus to develop techniques to estimate relative abundance of ungulate prey across the landscape and apply this at the scale of a predator's home range. As of January 2008 the goals have almost been reached (with 36 cougar GPS collared) and we expect to break the 40 cougar mark by the end of March 2008. Specifically, ACA funding for the final year of research will allow us to monitor cougar collared in the 2007/2008 cycle. No additional cougar will be collared after March 2008 and this final year of monitoring will help us to achieve all of our data collection goals and to compile the data for final analysis. Deliverables include reports, presentations, journal articles (2008) and a thesis (2009).

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The role of behavioural adaptation in safeguarding a species:Grizzly bear (*Ursus arctos horribilis*) response to encroaching development in the foothills of Alberta

University of Alberta

The main purpose of this study is to assess grizzly bear response to industrial development in the Foothills of Alberta. The impact of open-pit mining on grizzly bear spatial, foraging, and habitat ecology, focusing on areas near the Cheviot & Cadomin mines, immediately east of Jasper National Park, will be investigated. The specific objectives are to: Build models to compare grizzly bear movement and activity budgeting, 'pre-' vs. 'post-' development; Investigate predation on ungulates by grizzly bears, and build a model to predict ungulate kill sites; Apply novel technologies to assess microhabitat use by grizzly bears; and to build and test a mechanistic home range model, capable of predicting grizzly bear response to open-pit mining development. Grizzly bear fine-scale movement patterns, habitat selection, and activity budgeting are expected to differ for the same area, before and after industrial development. Increased bear predation on ungulates is expected 'post'-development, because reclaimed mine sites attract herbivores for grazing. We expect the novel technologies (i.e., digital cameras and accelerometers fitted to GPS-radiocollars) to adequately reveal habitat selection by grizzly bears. Also, we expect our model to accurately predict ungulate kill events (i.e., kill vs. no kill), but be less accurate at differentiating between prey species killed (i.e., elk vs. moose). Our mechanistic home range model is expected to reveal changes in home range sizes, shapes, and overlap, under different simulated scenarios (i.e., 'natural' vs. industrial development). Predation pressure by grizzly bears in the Cheviot and Cadomin area will be assessed, and more precisely quantify animal protein foods used by bears. For grizzly bear hunting to be restored in

Alberta, ways to cope with the effects of industrial development on bear habitats need to be developed. Advanced statistical models will be capable of predicting changes in grizzly bear movement, and habitat use, in response to industrial development, particularly open-pit mining, and will bring considerable advancement to the management of grizzly bears in Alberta. Additional models will be able to forecast predation events by grizzly bears on ungulates. Deliverables will include: interim and annual reports, a PhD thesis (2012), scientific papers (2012) and advanced statistical models will be available to the Minister of SRD (2012), as well as presentations, conference attendances, and popular publications (2009).

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Long-term vegetation and population monitoring for managing the Ya Ha Tinda elk herd

University of Alberta

Since 2001, Hebblewhite and Merrill in collaboration with project partners (H. Spaedtke & C. Cassidy-St. Clair, U. of Alberta; C. White, Parks Canada, N. Webb, U of Alberta) have monitored 169 radiocollared adult female elk and 1-2 wolves in 2-3 wolf packs/yr to determine how changes in adult elk population dynamics are affected by human (harvest, habitat management), natural factors (predation, climate), and natural vegetation dynamics. Alberta Fish and Wildlife also have collected long-term population data since 1972 on population size and calf recruitment. In these efforts, our focus was on understanding the changing migratory behaviour of elk. Combined, our studies of elk population dynamics at Ya Ha Tinda (YHT) represent one of the longest-term population studies of elk in a system with intact natural predators including wolves (*Canis lupus*), grizzly bears (*Ursus arctos*), and human hunting. Our long-term objective is to continue the past population monitoring while assessing short-term management actions on vegetation and elk responses. The specific project objectives are to: 1. Determine vegetation and elk summer distribution in response to the on-going burning program of forested areas adjacent to the Ya Ha Tinda winter range complex. 2. Assess long-term trends in forest encroachment in fescue (*Festuca campestris*) grasslands in and around YHT from historical photography and relate these to fire history and climatic trends in the area. 3. Continue field efforts to monitor annual variation in grassland production based on past sampling protocols and initiate remote sensing studies to document annual changes in growing season dynamics. 4. Continue past efforts to determine elk distribution, migratory behaviour, seasonal abundance on YHT winter range, and demography (survival, pregnancy rates, age structure) of individually marked elk in the Ya Ha Tinda elk population. The planned project activities are: Capture and collaring of elk (VHF only; funded by Parks in 2007); Forest burns, monitor migratory elk presence/ absence at YHT; Conduct pellet counts in spring and fall, sample vegetation composition in late July; monitor elk habitat use; monitoring elk; Conduct aerial photography analysis; Capture and collaring of elk (GPS/VHF); monitoring of elk. Deliverables include reports and newsletters, scientific publications.

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Developing Alternative Wolf Management Strategies
University of Alberta

The overall project objectives are to: Determine the effectiveness and costs of a new wolf management approach that combines selective culling with sterilization to maintain wolves at low densities. Criteria used to assess effectiveness, using a before-and-after design, include: Do manipulated wolf packs maintain pair bonds and territory boundaries after reduction?; Do adjacent wolf packs expand territories and/or increase use of the experimental area? Do kill rates of manipulated wolf packs decline?; Do elk calf:cow ratios increase after the wolf reduction? In 2008, we will collect pre-manipulation data on wolf territory boundaries, kill rates, prey composition and elk calf:cow ratios. This information will be compared to postcontrol estimates to determine the effectiveness of the management approach. This project will occur in 2 phases; this application seeks funding from the ACA Grants Eligible Program for monitoring wolf kill rates and prey composition during Phase I. This is a critical component of our before-and-after design, and the project cannot continue, nor the effectiveness of the management approach be assessed, without successful completion of this work. Phase I (2008) includes: 1) Capture, collar, and monitor the territory boundaries, reproduction, prey composition and kill rates of 4 "experimental" wolf packs; 2) Capture, collar and monitor the territory boundaries and reproduction in ~ 10 adjacent wolf packs; 3) Monitor elk calf:cow ratios in herds within the boundaries of the experimental wolf packs.
As large carnivores continue to expand their range in North America and human populations increase, it is critical that publicly acceptable predator management options exist if wildlife managers are to balance the conservation and continued human harvest of ungulates with predation. Wolf culls are currently ongoing in Alberta to benefit threatened woodland caribou herds. Current wolf culls are extremely expensive, require extensive annual wolf removal, and are controversial. This project will test a new wolf management approach and provide recommendations for its implementation in other areas. If successful, use of this approach will result in increasing ungulate herds, with resulting increases in hunting opportunities as well as the assessment of the program for addressing conservation of threatened woodland caribou herds. In addition, we anticipate several key deliverables will result from this project, including peer-reviewed research papers, media reports, and popular articles that describe the utility and benefits of the management approach.

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Development of a prairie-deer sightability model for aerial surveys
University of Alberta

This project takes advantage of deer already radiocollared to conduct "sightability trials", which allow us to develop statistically rigorous "sightability functions" to correct aerial survey estimates for animals that are missed during the surveys. The objectives of this deer sightability study are to: Conduct 100 sightability trials on white-tail (50) and mule deer (50) during the winters of 2007-08 (in progress) and 2008-09.
(2) Develop a statistically based sightability model for white-tailed and mule deer in the prairie environment and determine whether the species-specific models significantly differ.
(3) Test the robustness of the model(s) using a k-fold cross validation approach.
(4) Assess survey designs for estimating in deer populations.
The sightability models can be applied to surveys of mule deer and white-tailed deer in the study area for purposes of management, particularly to assess populations change due to reductions for CWD. The function can be used in other prairie areas in the province after the study is completed as well. Similar models were developed successfully for elk in the central east slopes and are now an integral part providing credible estimates of elk population numbers in this area of Alberta.

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Cohesive conservation: Aligning Alberta Land Use Policy with Sage Grouse (*Centrocercus urophasianus*) Conservation

University of Calgary

The objective of this master's project is to support the current Alberta sage grouse recovery initiatives through analysis of multi-jurisdictional legal, regulatory, policy and institutional guidelines relevant to the successful implementation of a conservation design for the species. Without cohesion between conservation initiatives, policy, and legislation, recovery efforts are often unsuccessful. Research will determine both conservation impediments and opportunities that exist within the Alberta legislative framework. It will consider the *Alberta Greater Sage Grouse Recovery Plan* (Action Group, 2005) and recent research on sage grouse and their habitat in ascertaining whether current policy and legislation address the conservation needs of the species. Project activities will include focused literature reviews and policy analyses. As well, analysis of international conservation initiatives and endangered species legislation will be vital in determining the existence of best management practices for species recovery presently unrealized by current recovery initiatives. Participation in a multi-stakeholder roll-out of a sage grouse conservation design project will determine where implementation barriers exist. Collection of land allocation data will assist in determining affected parties within the study area. Key-informant interviews will be run with representatives from government, industry and stakeholders to determine the practicality for implementation of recovery plan objectives and the necessity for new/amended policy/regulations regarding land use activities within recognized sage grouse habitat. This research project will provide written recommendations to Alberta Sustainable Resource Development (ASRD) and the Alberta Sage Grouse Recovery Action Group on how to best align land use policy and regulations with sage-grouse conservation planning within south-eastern Alberta's sagebrush range.

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Mating systems at large spatial scales: breeding migration in Rocky Mountain bighorn sheep

University of Calgary

A landscape-scale study of social networks in Rocky Mountain bighorn sheep is proposed. Our previous work suggests that (i) both sexes routinely make long-distance migrations during the breeding season (ii) such "breeding migrations" generate social networks encompassing multiple populations (iii) these movements are likely a primary source of gene and disease flow and (iv) breeding migrants potentially function as both "super spreaders" and "super shedders" of disease. Breeding-related social networks therefore likely have population-level effects relevant to all major aspects of bighorn conservation planning (genetic and disease management, reserve and corridor design, level and type of sport harvest). GPS technology and backcountry surveys will be used to determine which individuals migrate to breed, when

they migrate, how far and by what routes they travel and, especially, *why* some individuals choose to migrate and others do not (i.e., the *logic* of individual migration). Such information is essential for identifying strategies to protect and restore ecological connectivity in threatened or disturbed habitat. This funding request it to support the fieldwork required in 2008 to answer the question: What are the fitness consequences of migration and what rules govern the distribution of migrant and non-migrant males and females among populations in a region? The project will generate a variety of scientific publications in 2008, 2009 and 2010.

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Development of aquatic communities in high altitude mine pit lake systems
University of Lethbridge

The project will test the following hypothesizes: Do spawning activities change downstream of mine pit lakes relative to baseline conditions?; How do aquatic communities (algae, invertebrates, fish, macrophytes etc.) develop in mine pit lakes with connectivity; Do aquatic stream communities (algae, invertebrates, fish, etc.) upstream of pit lakes differ from those downstream of pit lakes?; Does overall productivity (relative to fish) increase in systems following pit lake modification?; Do condition and health factors for fish increase in systems after pit lake modification? The proposed project sites are Pit Lake "A" North and Sphinx Lake and Sphinx Creek. Proposed activities are: survey electro fishing of the Gregg River immediately upstream of the diversion culvert; operate a fish trap on the Gregg River, downstream of the existing diversion culvert; carry out population estimates for fish in two study sections of the Gregg River, one section upstream of Highway 40 culvert crossing and one downstream of Highway 40 culvert crossing; observational and quantitative assessment of macrophytes, microphytes and invertebrates in the existing pit lake using plankton nets, dredge samples etc; quantitative assessment of invertebrates in the Gregg River within the two downstream study sections and upstream control section; record climatic conditions, water temperatures and stream flows; habitat mapping of the two downstream study sections and upstream control section; water sampling of the two downstream study sections and upstream control section; spawning surveys of the two downstream study sections; and fry trapping (if spawning is observed). Similar activities will be carried out at the second site. Deliverables include reports and a Masters Thesis.

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Modelling mercury biomagnification in the South Saskatchewan River Basin
University of Lethbridge

Since food is the dominant pathway through which Mercury enters fish, one of the long-term research goals of the Rasmussen laboratory has been the development of models for mercury bioaccumulation based on bioenergetics and food web interactions based on stable isotope techniques. Specific goals are: (1) To identify the effect of food web complexity on bioenergetics in northern pike and identify potential lake

management practices aiming at lowering mercury levels in northern pike in new reservoirs; (2) To identify the mercury gradient along the Oldman River based on data from primary consumers (suckers, dace, and invertebrates) downstream of our current boundaries between Maycroft and Taber; (3) To analyze bioenergetic budgets of rainbow trout, cutthroat trout, and their hybrids using a mercury mass balance approach. This knowledge may prove useful for watershed management of the upper Oldman River; and (4) The flooding of soils associated with new reservoirs can release significant quantities of mercury accumulated over long periods in the soil, and sulphate reducing bacteria in the anoxic reservoir mud can methylate this mercury causing it to biomagnify within the food chain, thus resident fish are often above the health advisories. We are proposing to study mercury biomagnification in new and old irrigation reservoirs throughout southern Alberta. Deliverables include: manuscripts in scientific journals, annual reports, and presentations at conferences such as CCFFR (Canadian Conference for Fisheries Research), SETAC (Society of Environmental Toxicology and Chemistry), ASLO (American Society of Limnologists and Oceanographers).

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Moose habitat models for management in west-central Alberta
University of Montana

Moose populations throughout Alberta, and especially west-central Alberta, have not been studied, despite their key role in Alberta's provincial moose harvest and the regional balance of multiple large-mammal predators and prey. We plan to integrate aerial moose surveys, GPS collar technology, and resource selection modelling to 1) understand the habitat relationships of moose relative to forest characteristics and human disturbance, and 2) estimate moose population densities across the greater region to better guide management of moose harvest and the conservation of other sensitive species (woodland caribou). Deliverables include: First deployment of 12 Moose GPS collars, March 2008; Moose project website, Fall 2008; Preliminary regional moose RSF models for managers, Fall 2009; Aerial survey moose RSF design for high and low intensity moose strata, Winter 2009; Conference presentations; ACTWS, MTTWS, ACA-PIC, Alces conference (depending on location in 2009), Winter 2009; Masters thesis on moose habitat ecology in west-central Alberta, Fall 2010; Scientific papers for publication, Fall 2010.

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Amphibian Education Outreach Program
Valley Zoo & John Janzen Nature Centre

Amphibian Ark (AArk) works with a mandate to ensure the global survival of amphibians. AArk has launched a "2008 Year of the Frog" (YOTF) global awareness campaign. The primary goals of the campaign are to generate public awareness and understanding of the amphibian extinction crisis, and gain financial support for in situ conservation efforts and captive population management**.** As participating facilities, the Valley Zoo (VZ) and John Janzen Nature Centre (JJNC) are launching several initiatives in

support of the YOTF messages. The primary focus from these facilities is on an education campaign for the Capital region. The initiatives include installation of a new 8 species amphibian exhibit, pond naturalization, and a series of amphibian focussed events, public drop-in programs, and registered child, adult & family courses. Our goal is to reach the maximum number of people we can, through different means and methods. In order to reach an audience that does not regularly access the facilities, we would like to develop an interactive outreach program that would visit the 16 Edmonton Public Library locations, the Edmonton Heritage Festival, the Edmonton International Fringe Festival, and the City of Edmonton Free Admission Day. This outreach opportunity would be offered free of charge to encourage maximum participation. We anticipate that through this initiative, we will reach 20,000 people with our messages.

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Lac La Biche Watershed Project
Watershed Advisory Committee & La La Biche Watershed Steering Committee

The project aims to enhance the state of the Lac La Biche Watershed by improving the health of the riparian areas and increasing biodiversity. By sampling the lakes, beaches and inflows information can be compiled to make a watershed management plan to decrease the impacts on the watershed and riparian areas. In addition, by changing practices through education, having a safe secure drinking water source along with a healthy aquatic ecosystem will be possible. Combined, this will provide the community with the sustainability it will require to remain existent for future generations. Project activities include: lake sampling tests for several parameters such as temperature, pH, conductivity, dissolved oxygen, % saturation of oxygen, chlorophyll a. The project is also partnered with the University of Alberta to test for nitrites/nitrates, ammonium, total phosphorous and total nitrogen in each sample; Inflow samples are tested by the UofA from May until freeze up; Swimming and recreation areas (waters by beaches) are tested for faecal coliforms and E. coli by another partner the Aspen Regional Health Authority. In total 11 recreation sites are sampled. The Mad About Science program is a free program for youth aged 6-12 that is held weekly for a few hours with the Fun in the Sun program from July through August. In addition, three day camps are held at three different locations within the County during the summer. The Watershed newsletter containing watershed project activities and accomplishments as well as information on various environmental topics are published four times throughout the year to increase public awareness and education.

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Willmore Wilderness Park trail clearing partnership
Willmore Wilderness Foundation

The main project objectives are: To spend fourteen-days clearing the proposed trail, some of which goes through areas of severe windfall and burnt timber; To set up a base camp on Boulder Creek at a place

known as Many Faces camp; To have a staff of six persons. Outfitter, wrangler, chainsaw man, 2 trail clearers, and a cook; To take GPS co-ordinates, tracking and waypoints; To take detailed journals and photographs of the project. The historic trail to be cleared runs from the mouth of Boulder Creek, up stream on the Smoky River to the mouth of the Jackpine River; then following the trail from the Smoky to the confluence of Boulder Creek and Me and Charlie Creek, then upstream on Boulder Creek to the Mt. deVeber Basin and Emerald Lakes. The historic trail will be re-opened allowing the public to use the area. Whitefox Circle Inc. will donate a professional video production of the project showcasing the Willmore Wilderness Foundation and the ACA Trail Clearing.

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Riparian Reforestation and Wildlife Habitat Enhancement of Beaverlodge Watershed - Phase 1

Woodlot Association of Alberta / Woodlot Extension Program

The Beaverlodge River Watershed's riparian areas, bordering woodlands and wetlands have experienced extensive deforestation and habitat degradation that has led to poor water quality, significant bank erosion, higher water temperatures and the loss of many native fish and wildlife species such as Arctic Grayling and Northern Pintails. This project hopes to build awareness of how habitat adjacent to the river can be restored through reforestation to improve riparian health and wildlife habitat. The goal is to demonstrate the restoration of riparian buffers and upland forests within the Beaverlodge River Watershed. The project aims to work with landowners in this watershed to reforest degraded riparian and buffer zones. In phase I we plan to coordinate the reforestation 50 acres along the Beaverlodge River and its tributaries. Our long-term goal would be to continue this work for a total of three years until approximately 150 acres are planted. Establish selection criteria for landowners - in order for land to be eligible access by livestock and cultivation must be controlled and managed appropriately while trees establish themselves. Land within riparian and buffer areas that are fenced off or under some sort of protection will be given consideration over those that are not protected. A total area of 50 acres will be planted with approximately 22 000 trees. A tree-planting contractor will be hired to plant and will be supervised by project staff. Cows and Fish will be contacted to conduct Riparian Health Inventories of each site. The summer student will coordinate these and other activities and will be responsible for advising other landowners in the watershed on how to conduct similar projects. Deliverables include: Reforestation of 50 acres in 2008 (completed June 2008); One riparian seminar and field day held to discuss and tour project completed by September 2008; Project signage at each site and media coverage of the project activities; Final report evaluating activities and discussing results.

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