Aquatic Invasive Species

The introduction and colonization of aquatic invasive species (AIS) pose potentially serious threats to Yukon waterways. For example, the diatom *Didymo* a potentially invasive organism (algae) is present in Yukon and should be evaluated. In Alberta and elsewhere it has heavily impacted streams and rivers. We need to establish if Didymo is a native, naturally-occurring species in Yukon and determine its level of invasiveness and potential impacts on our waterways.

Project Description: What we're going to do

This project promotes public awareness and prevention of the unintentional introduction or spread of aquatic invasive species. We will be gathering data and communicating the potentially high-risk behaviours surrounding fishing or boating practices (as examples) that can lead to unintentional introductions. This is the foundation year of the project during which we also want to identify any longer term projects and monitoring activities.

Management Implications: Why we're doing it

Introduction of AIS could pose a significant risk to Yukon's economy and aquatic environments. This project will help to mitigate the risk by raising awareness and understanding of which activities are most likely to result in an accidental introduction of AIS.

This project flows from the 2010-2011 Yukon Aquatic Invasive Species Threats Assessment project and will support a future Environment Yukon AIS strategy.

Project Activities: How we'll get it done

We will produce and distribute educational materials (in the form of a pamphlet and advertisements) to increase public awareness of AIS and provide information on how to help prevent their introduction and spread.

Nathan Millar, Senior Fisheries Biologist

Fish and Wildlife Communications

This project co-ordinates and facilitates Fish and Wildlife Branch communication initiatives. It provides editorial support to technical staff to develop and deliver appropriate communication tools to achieve their program's conservation and management objectives.

Project Description: What we're going to do

This is an ongoing project. We will assist in developing and producing technical and plain language reports and other materials as needed for varied audiences (public, legislature, boards, and councils), establish and maintain publication review protocols and authorizations to ensure consistency and effective information transfer to the public.

A focus this year will be the production of a final roll-up of species and habitat management guidelines following collaborative reviews completed by the appropriate sections.

Management Implications: Why we're doing it

Communication is central to all of the primary responsibilities of the Fish and Wildlife Branch. By producing and providing accessible, trustworthy, and useful information this project supports the meaningful participation of Yukon people in planning and decision-making processes.

This program assists with the numerous requests from the public, land claim Boards/Councils, other interested parties (Yukon Outfitters Association, Yukon Fish and Game Association, Yukon Conservation Society) including national and international organizations, for current, up-to-date information associated with Branch Programs.

Project Activities: How we'll get it done

We will produce final roll-up of species and habitat management guidelines following collaborative reviews completed by the appropriate sections.

We will provide editorial services directly or through contractors as needed.

We will travel to meet with individual Renewable Resource Councils to help identify their specific information needs and challenges and deliver products such as the annual "Fish and Wildlife Branch Highlights" report and YFWMB annual summary report.

Jean Carey, Co-ordinator Technical Reporting Program

Fish, Wildlife and Habitat Planning

This project supports the development of fish, wildlife, habitat management and work plans undertaken in co-operation with First Nations, Renewable Resources Councils (RRCs), and the Yukon Fish and Wildlife Management Board. This project is also currently supporting the review of the 1992 Wolf Conservation and Management Plan (WCMP).

Project Description: What we're going to do

We will continue to develop community-based fish and wildlife work plans. These plans are multi-year work plans that identify and address management issues within the mandate of the Fish and Wildlife Branch, First Nations and Renewable Resources Councils. We will also support the development of Habitat Protection Area (HPA) management plans and finalize the bison and amphibian management plans.

We will maintain two public and jointly-managed websites that support fish and wildlife planning initiatives.

We will continue our work with the Yukon Fish and Wildlife Management Board in leading the review of the Wolf Conservation and Management Plan.

Management Implications: Why we're doing it

Development of community-based fish and wildlife work plans, engagement of non-Final Agreement First Nations, wildlife and habitat plans, and maintenance of the Fish and Wildlife plan tracking database support our work with communities to coordinate management activities and ensure conservation of natural resources.

Since the Wolf Conservation and Management Plan was released in 1992, considerable research about wolf management, animal ethics and ungulate recovery programs has been completed. We need to review the WCMP's recommendations to see if they need to be updated to reflect all this new information.

Project Activities: How we'll get it done

We will complete community-based fish and wildlife work plans for Little Salmon/Carmacks FN Traditional Territory and potentially Champagne and Aishihik FNs Traditional Territory, Dezadeash Lake and North Yukon. In addition, we will initiate a plan for Aishihik Lake to deal with managed and changing water levels, fish populations, and human use.

We will support the participation of two non-Final Agreement First Nations in management planning.

We will initiate the management plan process for Whitefish Wetlands Special Management Area. We will complete the bison and amphibian plans.

We will continue to maintain and update a functional website used by public, staff, and boards and councils.

The Wolf Conservation and Management Plan review committee will hold public meetings and meetings with First Nations, Renewable Resources Councils, and other groups in early 2011. The review committee is to recommend a Wolf Conservation and Management Plan to the Yukon Fish and Wildlife Management Board and Environment Yukon by June 2011.

Michelle Sicotte, Fish and Wildlife Planner

Fisheries Education and Communication

This project delivers educational programs and information materials to facilitate public involvement in fisheries management, policies, and initiatives. Education is a core component of fisheries management programs. It promotes participation, stewardship, and compliance with regulations. Education is consistently identified as the first step to addressing management challenges.

Project Description: What we're going to do

We will develop and deliver programs that educate anglers about overharvested and stressed populations as a way to decrease angling pressure without regulatory measures. This will be accomplished with signage at lakes and streams or targeted messaging about fish populations in jeopardy. Education initiatives will also focus on communicating information about regulations to improve the rate of compliance. This will be done along with regular enforcement activities and will focus on topics like the use of barbless hooks, and local size, catch, and possession limits.

Management Implications: Why we're doing it

The Status of Yukon Fisheries identifies the importance of public education. Education and communication are ongoing initiatives critical to effective management. An informed, engaged, and responsible angling public will benefit fisheries resources and anglers alike, and promote sustainable management and compliance with fisheries regulations.

Project Activities: How we'll get it done

Education components include:

- Public activities such as Family Fishing Weekend designed to promote fishing and engage young anglers
- Signage at lakes and streams informing anglers as to the status of populations
- Continued development of a freshwater fish interpretative program at the Whitehorse Rapids Fishway in cooperation with other agencies including co-sponsor talks about fish and fishing at the Fishway, interpretative materials including interactive fish and aquatic displays and brochures.

Nathan Millar, Senior Fisheries Biologist

Northern Furbearer Conference, April 2011

The Northern Furbearer Conference brings together North American biologists, scientists, and managers from a wide range of backgrounds to discuss matters relating to the biology, harvest, and management of furbearers. This event usually occurs once every 3 years. This will be the thirteenth conference. Responsibilities for hosting the conference are shared between Alaska and Yukon. The last conference was held in Juneau in April 2007. Approximately 70 to 80 participants are expected to attend.

Project Description: What we're going to do

In April, Environment Yukon will host the 2011Northern Furbearer Conference. We will take our turn in organizing and hosting this conference of trappers, fur industry specialists, biologists, and trapline managers to exchange information on programs and innovations.

Management Implications: Why we're doing it

Information presented and gathered from this conference will be used to inform decisions made in Yukon relating to management and harvest of furbearers.

Project Activities: How we'll get it done

Conference organization will be shared between sections in Fish and Wildlife (Species, Biodiversity and Regional sections), as well as with Conservation Officer Services (Program Specialist - Fur Industry Development and Support). Communications will be involved in developing a communication strategy and planning advertising. No proceedings will be prepared. Presenters will be requested to provide summaries to post on the event website and the Department website.

Carol Foster, Wildlife Harvest Specialist

Species Management and Habitat Protection Guidelines

This project supports the development and amalgamation of habitat protection and species management guidelines. Habitat protection guidelines are used to inform regulation proposals, land use planning, resource development, and planning, and environmental assessment processes. Species guidelines provide direction when making management recommendations, quota allocations, and regulations proposals.

Project Description: What we're going to do

This is an ongoing program. The respective species management teams will complete draft management guidelines for moose, caribou, sheep, goats, and bears. We will amalgamate species management and habitat protection guidelines where feasible.

We expected to complete the updated habitat protection guidelines this year. We will follow-up with presentations to interested Renewable Resource Councils and First Nation land managers so that they are aware of the updated guidelines.

Management Implications: Why we're doing it

We receive many requests from the Yukon Environmental and Socio-economic Assessment Board, Renewable Resource Councils, non-government organizations and other agencies for comments or recommendations about the potential impacts of various land use activities on wildlife and their habitats. We need to be able to provide consistent, current technical information and advice regarding wildlife management, habitat conservation and management. Although there is still a need for individual project reviews, the compilation and development of minimum recommendations or guidelines will enable us to provide consistent, timely responses to information requests.

Project Activities: How we'll get it done

The compilation and amalgamation of the guidelines will be done by a contract editor/writer once they have undergone a thorough internal technical review. The final product will consist of technical and operational documents, a reference database, and eventually a web-based tool linking all components.

Bruce McLean, Senior Habitat Protection Biologist

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Technical Reporting Program Development

This program works to provide Yukon people with accessible, trustworthy, and useful technical information to support their meaningful participation in planning and decision-making.

Project Description: What we're going to do

This is an ongoing project. We will produce the foundational reference materials that can be categorized as "Wildlife Management 101" for use by Boards, Councils, and interested members of the public. This will create an enhanced presence on the Internet and establish non-traditional avenues of information distribution, including interactive presentations and narrated slideshows, with a strong visual focus for a wide audience.

Management Implications: Why we're doing it

This program supports the departmental objective to improve the sharing and communication of data and information.

Project Activities: How we'll get it done

The aim is to build on products previously developed in a way that is responsive to emerging issues and needs. Depending on the scope of the topic we will produce two to five projects and anticipate a focus on grizzly bear biology and management.

Products produced through this program are hosted on the department Internet site.

Jean Carey, Co-ordinator Technical Reporting Program

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Wildlife Harvest Management Administration

The Wildlife Harvest Management Program plays a pivotal role in the development and administration of wildlife harvest policies, guidelines, and programs that respect land claims and wildlife management agreements. The orderly and fair allocations of wildlife to Yukon residents and resource-based industries requires close co-operation between the Fish and Wildlife Branch and other branches of Environment Yukon, boards, councils, First Nations, wildlife users, interest groups, and the public.

Through the Wildlife Harvest Specialist and Harvest Technician, the Harvest Management program delivers quota administration, reviews harvest regulations, conducts harvester surveys, and shares information with First Nations, boards and councils, the public and stakeholders on harvest practices and regulations.

Project Description: What we're going to do

This programs funds the non-salary operational needs of the Wildlife Harvest Management Section, including travel, advertising, participation on the Quota Appeal Committee, and ongoing administrative expenses (i.e. postage, supplies, printing).

Management Implications: Why we're doing it

This program enhances effective working relationships with Renewable Resources Councils, First Nations, outfitters, and the public, relating to harvest management.

Ongoing advertising is necessary to promote and communicate new harvest management rules and to provide reminders about regulations and harvest reporting requirements.

Proposed changes to the Wildlife Act Regulations may result in requests from the communities for meetings to provide information about the background and rationale of the proposal.

We need to supply ongoing support for outfitter quota negotiations, including community meetings and Outfitter Quota Appeal Committee expenses.

Project Activities: How we'll get it done

We will update quotas for outfitters (five reviews are scheduled for 2011)

We will continue to inform the public about harvest-related issues through advertising and other effective means.

We will provide support for appeal processes for outfitters and trappers.

Carol Foster, Wildlife Harvest Specialist

Wildlife Viewing Program

The Wildlife Viewing Program creates a supportive atmosphere for conservation management actions and builds a sense of stewardship for the territory's wildlife. The program works to raise awareness of wildlife through public presentations and events; developing on-site interpretation facilities (trails and roadside pullouts); producing pamphlets and brochures; providing information through websites or answering phone or email enquiries; attending community meetings and workshops; and working together with governments, industry, and NGOs. The Wildlife Viewing Program's Celebration of Swans is the most popular and widely celebrated wildlife event in Yukon.

Project Description: What we're going to do

The Wildlife Viewing Program is guided by the Wildlife Viewing Strategy (2008). Program and event development, networking, training, promotion, and hosting occurs year-round although most events occur during peak wildlife viewing opportunities in spring, summer and fall. We will continue to host special events and programs, such as the Wild Discoveries series in order to create opportunities for residents and visitors of all ages and interests to engage in watching wildlife.

Management Implications: Why we're doing it

Creating awareness in the public and land claim public structures about wildlife, viewing opportunities, and biodiversity supports conservation and management programs. This project enhances the visitor experience in Yukon, fosters greater understanding and appreciation in residents and visitors for the natural attributes of Yukon, and increases opportunities for residents and visitors to engage in conservation and stewardship. Environment Yukon receives year-round requests for information on Yukon's wildlife and wildlife viewing opportunities.

Project Activities: How we'll get it done

We will continue to host Wild Discoveries events and participate in events such as Faro's Crane and Sheep Viewing Festival, the Biodiversity Forum and Environment Forum. We will also host Bear Awareness programs in most Yukon communities.

In April we will highlight activities surrounding spring bird migration by host events in Whitehorse, Tagish, Carcross, and Burwash. Celebration of Swans events include birding tours, a family activity weekend, bird identification and photography workshops, art exhibits, storytelling, guest speakers, contests, and good, peaceful swan watching opportunities around southern Yukon. The Swan Haven Interpretation Centre at M'Clintock Bay on Marsh Lake is the location of many of the celebration's activities.

We will publicise our events by distributing printed schedule to households throughout Yukon. We will also post a schedule of events on our website that includes wildlife appreciation events hosted by other organisations.

We will continue to produce information brochures (including a revision of the Wildlife in Whitehorse brochure) and create interpretive signage in several locations including Watson Lake, Whitehorse, and Dawson.

Bruce Bennett, Wildlife Viewing Biologist

Wolf: Humane Trapping Extension Project

In promoting and supporting the trapping industry and lifestyle, we have a responsibility to promote humane trapping methods to minimize suffering for trapped animals and to promote stewardship and respect for wildlife in management programs. This program supports extension and education programs intended for trappers who are interested in improving their trapping success and the application of humane trapping methods.

Project Description: What we're going to do

This is an extension of a one-year project initiated in 2010-2011 but has been in effect, informally, for more than 10 years. The objective of this project is to provide materials and demonstrate proper setups on the trappers' own traplines. An assessment of the humane attributes of these snares compared to more commonly used snares may require a large sample of snared wolves and will be a factor in deciding how long this program will run.

Management Implications: Why we're doing it

While there are no specific humane trapping standards for wolves, our long experience in the field of wolf management has helped us to improve capture efficiency and to reduce suffering of wolves caught in snares. Carnivore management programs in particular are subject to national and international scrutiny and as an agency working in this area it is essential that we demonstrate resource stewardship.

This work also provides the trapping community with sufficient skills and training to maintain the sustainability of the activity and their credibility when advocating for improved standards.

Project Activities: How we'll get it done

We will travel to select active traplines to provide instruction and technical advice to trappers who are using the newer quick kill snaring equipment. Remote cameras will be used to document captures to evaluate how well the setups are working. The camera images will also be used to demonstrate the effectiveness of properly established sites to other interested trappers.

Alan Baer, Coordinator, Wolf Management Program

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Angler Harvest Surveys

Angler harvest surveys are a central data source for fisheries management in Yukon. , We relate angler survey data and other sources of harvest, to stock assessment information and estimates of lake productivity to determine an appropriate management strategy for the fishery.

Based on this analysis, we will implement corrective measures such as education or regulation changes for overexploited stocks.

Project Description: What we're going to do

This is an ongoing project. Each year, we conduct angler harvest surveys on several high-use recreational fisheries in Yukon. The primary goals of these surveys are to determine angler effort, catch rates, harvest, and to gather biological data from fish harvested by recreational fisheries. Priority areas for 2011are Quiet Lake, Louise (Jackson) / Caribou Lakes, and Johnson's Crossing. Results of these surveys will be compared with past results to determine trends in the fishery and the sustainability of the current level of angler harvest. This information will guide allocation and regulation decision making processes.

Management Implications: Why we're doing it

Angler harvest surveys, in combination with other fish and fishery-related assessments, are used to determine if the angler effort and harvest are sustainable under the existing regulation regime. Regularly monitoring of key harvested stocks can also avoid costly interventions if harvest is too high.

Quiet Lake has been identified in the Teslin Management Plan as a priority and in the State of Yukon Fisheries (SOYF) as being harvested at sustainable limits. This lake has not been surveyed since 2001. Louise (Jackson) / Caribou Lakes are both identified in the SOYF as highly overharvested. Johnson's Crossing is an identified priority in the Teslin Management Plan and the SOYF.

Project Activities: How we'll get it done

A contracted field worker conducts face-to-face interviews with anglers on selected sample days throughout the summer. The worker asks a standard set of questions about the social and biological aspects of the fishery, such as the time spent angling and the species and number of fish caught.

Surveys on Quiet and Louise (Jackson) / Caribou lakes will be conducted from May through September. Johnson's Crossing will be the site of a spring harvest survey.

Nathan Millar, Senior Fisheries Biologist

Aquatic Health Monitoring for Placer Mining

This project comprises the Fish and Wildlife Branch's contributions to the Fish Habitat Management System for Yukon Placer Mining. We complete the annual monitoring component for Aquatic Health Monitoring and participate in the adaptive management process of the Regime.

Project Description: What we're going to do

This is an ongoing project to monitor how placer mining activities are affecting run-off water and stream organisms to ensure established standards are appropriate. Field work primarily takes place in mined watersheds in coordination with the federal Department of Fisheries and Oceans (DFO) and Yukon Energy, Mines and Resources. Forty sites are sampled annually. The final selection of these sites takes place at a coordination meeting each spring. Data gathered is shared to support regulatory decisions made under the Placer Regime.

Management Implications: Why we're doing it

The 2003 Record of Agreement commits the Yukon government, Council of Yukon First Nations and DFO to develop and implement a new regime for placer mining and its impacts on fish habitat. Environment Yukon and DFO are jointly responsible for carrying out the Aquatic Health Monitoring as laid out in the Aquatic Health Monitoring Protocol.

In combination, the Aquatic Health monitoring, the Water Quality Objectives monitoring, and the Economic Health monitoring inform the adaptive management process. Through this process, decisions are made to change discharge standards of placer mining to protect the health of the aquatic environments. The system is of great importance in affording sufficient protection to freshwater fish (and salmon) and their habitat and is therefore a joint concern of DFO and Yukon Fisheries.

Project Activities: How we'll get it done

Field work protocol is detailed in the Yukon Placer Secretariat Watershed Health Monitoring Protocol. In a typical year, Environment Yukon will sample 15 sites by helicopter and five sites will be sampled by boat / road access.

Field work will be done between July 15th and August 7th each year so that sampling of aquatic benthic macroinvertebrates is done consistently.

Results of the monitoring will be communicated through the Yukon Placer Secretariat in the Annual Monitoring Report.

Nathan Millar, Senior Fisheries Biologist

Fish Health Monitoring and Other Laboratory Functions

Monitoring the health of local fish enables Yukoners to have access to a healthy supplement of fish in their diets. Healthy fish also contribute to the health and sustainability of fish populations.

This project supports our ability monitor fish health and to provide quick feedback to the public if concerns about fish disease or parasite issues arise.

Project Description: What we're going to do

This is an ongoing project that includes several activities. These activities include conducting laboratory analyses of fish and other fish-related biological specimens as well as participating in sampling of fish for contaminant levels. We will also co-ordinate aquatic animal health activities (including the disease screening for introduced and transferred fish) and identify fish diseases and parasites.

Management Implications: Why we're doing it

The Yukon public expects us to maintain a system to monitor fish populations in order to detect any problems as they arise. This project also supports our ability to provide quick feedback to the public if concerns about fish disease or parasite issues arise. Ongoing monitoring contributes to the safety of fish stocks through the maintenance of appropriate screening processes.

Project Activities: How we'll get it done

We will monitor the health of fish populations throughout Yukon by examining diseased fish turned in by the public or caught in netting studies. Some work will focus on areas and stocks that have been identified as having potential or actual disease or parasite problems.

We will continue to collect and age between 250 and 500 fish annually. Age data will be incorporated into reports on fish populations where appropriate.

We will assess fish diet through the examination of stomach contents as part of ongoing stock assessments.

We will monitor the health of hatchery-raised fish at the Whitehorse Rapids Fish Hatchery through disease screening to ensure that no diseased fish are released into the wild.

We will co-ordinate the collection of samples and their analysis for contaminants and communicate results to the public (in part through annual updates to the Fisheries Synopsis) and will continue to participate on the Yukon Contaminants Committee.

Disease information will be incorporated, as necessary, into the *Common Parasites of Yukon Fresh Water Fishes* brochure. Information will also be

provided directly to the public when concerns are raised or fish with health problems are submitted for inspection.

Nathan Millar, Senior Fisheries Biologist

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Fisheries Stock Assessment and Monitoring

Stock assessments are one of the basic information needs that support fisheries management decision making. They provide the data needed to develop estimates of harvest potential and to support management strategies that are used to avoid or address over-harvest situations. They provide the oversight that ensures that management approaches are properly supported, from education campaigns to regulatory amendments, and to allow the department to evaluate the effectiveness of their fisheries programs. Stock assessments are the major source of long-term fisheries data and are collected in a systematic and consistent fashion year after year.

Project Description: What we're going to do

This is an ongoing annual project. Field work begins in May and is completed within the open water season as determined by fish biology, water temperature, and logistical constraints. Where appropriate, data are used in conjunction with other data (e.g., Angler Harvest Surveys) to produce summary reports for waterbodies of interest. We will develop posters and other communication methods for communities as is appropriate or required.

Specific project priorities are identified early in the season and considered in conjunction with the regional programs, First Nations, and Renewable Resource Councils. Community-based work plans identify fisheries stocks of particular concern.

Field activities vary based on the type of monitoring needed. Based on the level of risk (as outlined in the Status of Yukon Fisheries) netting studies, mark-recapture evaluations, or visual assessments are done and focus on indicator species like lake trout and Arctic grayling.

Management Implications: Why we're doing it

These surveys are the base data used in assessing the state of the fisheries resources and are used to make management decisions. Ongoing and regular evaluation of important stocks is necessary to detect and respond to changes in a timely manner. The information collected in this work allows the department to manage fish resources, to maintain healthy fish stocks and sustainable harvest opportunities, to assess the status of fish stocks, and to monitor changes over time that may be occurring due to anthropogenic (e.g., harvest) and environmental factors (e.g., climate change).

Project Activities: How we'll get it done

This is the third year we will be using the SPIN (Summer Profundal Index netting) method to assess key populations of lake trout. This method uses stratified random gill nets to capture lake trout and provides estimates of density and abundance. Louise (Jackson), Caribou, Ethel, and Tatla Mun lakes will be assessed this year.

We are developing underwater assessment methods to help assess key harvested populations of Arctic grayling. Surveyors wearing dry suits and snorkel gear swim streams and visually count grayling. The proportion of the total population seen by snorkellers is measured. Surveys produce estimates of grayling density and provide basic habitat assessments. This year we will assess Lubbock River and Lynx Creek.

We will be testing a newly developed mark-recapture method for assessing burbot. This will be a pilot study on Little Fox Lake. Burbot will be captured using barbless circle hooks on a long-line, marked and released. The number of marked burbot captured in a second capture event will allow us to estimate the population size.

Nathan Millar, Senior Fisheries Biologist

Bat Monitoring and Conservation

Bat sensitivity to landscape and climatic variation makes them a key focal species for a monitoring program. In addition, monitoring key bat habitat has the potential of finding previously unrecorded bat species in Yukon. We have been engaging the public and promoting stewardship and bat conservation by providing viewing and other educational opportunities.

Project Description: What we're going to do

We will continue to monitor colonies of marked bats to assess their response to climatic variation. Work will focus on monitoring populations of banded bats in bat houses erected in southern and central Yukon in order to assess population size and impacts of annual climate variation. We will also include a disease monitoring component to assess if white-nosed syndrome is present in Yukon bat populations. This work will also include public participation where possible and be the foundation for a wildlife viewing event to promote wildlife stewardship.

Management Implications: Why we're doing it

Bat monitoring describes population changes, may discover and document disease introduction (e.g. white-nose syndrome, a national disease concern in bats) and engage the public in stewardship and education opportunities with this very viewable animal.

Project Activities: How we'll get it done

We will visit bat colonies for recapture and assessment. In conjunction with Wildlife Viewing Program events, we will offer opportunities for public participation in echolocation monitoring, colony visits and bat house monitoring and maintenance.

Tom Jung, Senior Wildlife Biologist (Biodiversity)

Community Ecological Monitoring Project

Ecological Monitoring provides an early warning of change to the natural environment and contributes to understanding the resilience and vulnerabilities of Yukon's boreal forest food web to landscape changes including climate change.

The Community Ecological Monitoring Project (CEMP) is based on the established monitoring program in the Kluane Lake and Haines Junction areas. This program has been expanded and now includes Mayo, Watson Lake, Faro, Whitehorse, and Burwash. The knowledge base includes the collection of traditional and local ecological knowledge as well as scientific measures.

Project Description: What we're going to do

CEMP will continue to monitor key components of the boreal forest food web using standardized methods across a network of sites in the Yukon. The data we collect will be analyzed for trends on forest food products, keystone species population trends, and changes in furbearer species density. We will also collect local knowledge on environmental conditions. The CEMP central database is continually updated.

Management Implications: Why we're doing it

Long-term monitoring of the key components of the boreal forest food web gives us baseline data for understanding the effects of climate change. These effects can have management implications (e.g., trapper success, human-bear conflicts). The results of monitoring programs are used in State of the Environment reporting.

Monitoring carried out within the framework of adaptive management shows how well management actions are working and ultimately reduces the risk of long-term detrimental ecological effects.

CEMP monitoring provides baseline data on indicators of biodiversity and ecosystem health for assessment of development activities.

Project Activities: How we'll get it done

We will continue to measure abundance of key boreal food web components—berries, cones, mushrooms, spruce beetles, mice and voles, and snowshoe hares—on standardized monitoring sites during the summer, using consistent methods among regions. We will also continue monitoring the abundance of small and medium-sized carnivores using track counts in five communities (Mayo, Faro, Watson Lake, Kluane, and Whitehorse). Local observers and regional staff, conservation officers and Biodiversity Section staff will be involved with these surveys.

We will maintain our annually interviews with local residents in the Mayo area about conditions on the land and their subsistence activities. Local students will conduct these interviews.

We will continue to support the publication of articles about CEMP in community newspapers on a regular basis.

Todd Powell, Manager, Biodiversity Programs

Gyrfalcon Inventory and Monitoring

This monitoring project will examine the productivity of selected Gyrfalcon nest sites in the Southern Lakes region, contributing to the existing long-term data for this species in the region. The British Columbia government contributes to the joint management of this trans-boundary population.

Project Description: What we're going to do

We will conduct annual nest site productivity monitoring at the key period of nesting. This information is shared with British Columbia in a joint management/monitoring program. When the field survey is completed, we will discuss trans-boundary population status with British Columbia, followed by harvest recommendations.

Management Implications: Why we're doing it

This is the approximately 20th year of monitoring of these nest sites The Gyrfalcon monitoring program partially fulfills a commitment to the Yukon/BC Memorandum of Cooperation. Nest occupancy and productivity data can also be used for status assessments and a Non-Detrimental Finding for CITES, if necessary.

Project Activities: How we'll get it done

Aerial surveys using a helicopter will be done in mid- to late June

Tom Jung, Senior Wildlife Biologist (Biodiversity)

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Ogilvie Mountains Collared Lemming Distribution and Population Assessment

There is little information on the distribution, biology or conservation status of the Ogilvie Mountain collared lemming. This small mammal is known to live in only one location globally - Yukon's Ogilvie Mountains. We need information on their distribution and habitat use to inform land use decisions, particularly related to any mining activity within their range. We also need more information in order to assess the status of this species.

Project Description: What we're going to do

This season we will begin to determine and assess the distribution and range of this population. We will also identify similar range that may require further investigation in the future. We will store records of the collared lemming in the Yukon Conservation Data Centre database.

Management Implications: Why we're doing it

This program will provide information on range, abundance, and population for Species at Risk status assessments and management planning for the species. Given their limited distribution, small population and vulnerability to activity, a COSEWIC status assessment would likely result in a listing recommendation of Endangered. This program also contributes to monitoring of species at risk in Yukon Parks.

Project Activities: How we'll get it done

Our activities will include surveys, range mapping, and an assessment of habitat characteristics. We will use standard small mammal traps in suitable high alpine sites in the Ogilvie Mountains to document species occurrence. Sample sites will be accessed by foot and helicopter.

Tom Jung, Senior Wildlife Biologist (Biodiversity)

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Species at Risk

This project delivers Species at Risk programs and administration that meet Yukon government objectives and requirements in National/Provincial/Territorial Agreements, such as the National Accord for the Protection of Species at Risk, the Federal Species at Risk Act and the development and eventual implementation of Yukon's *Species at Risk Act*.

Project Description: What we're going to do

These activities involve the coordination and delivery of all the species at risk investigations and status reporting. It also supports Yukon's representation in national and international forums and committees for species at risk concerns, coordinating management and investigations with regional and species programs staff, and addressing topics of public and political concern as they arise.

Management Implications: Why we're doing it

This program supports Yukon's ability to adaptively manage for harvested species at risk, list and rank species in Yukon, and inform planning activities of the diversity and status of species affected by both human activity and climate change.

Project Activities: How we'll get it done

Activities for this project are:

- Produce status assessment reports, update species status ranks as information becomes available, and coordinate/participate in management planning for Yukon species at risk.
- Describe the state of biodiversity in Yukon.
- Prepare reports on investigations of species deemed as priority.
- Attend meetings of COSEWIC, RENEW and other national bodies responsible for addressing Species at Risk

Tom Jung, Senior Wildlife Biologist (Biodiversity)

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Yukon Conservation Data Centre

The Yukon Conservation Data Centre (YCDC) was established in 2002 and was formerly known as NatureServe Yukon. As part of an international network, its role is to gather, maintain, and distribute information on animals, plants, and ecological communities of conservation concern in the territory. YCDC is the primary body responsible for status rankings for all species in Yukon.

YCDC's database currently contains information on the locations and conditions of more than 115 species of conservation concern in Yukon. This information is available to anyone wishing to use it to make informed decisions about resource use. For example, the information collected by the CDC is used in environmental assessment, land-use planning, conservation actions, recovery planning, and conservation status assessments. The CDC also produces materials and hosts workshops designed to help people learn about species of conservation concern. As the central source for rare species and ecosystem data, YCDC eliminates redundancy by identifying data needs and coordinating field studies across the territory.

Project Description: What we're going to do

This is an on-going project. As the central source for rare species and ecosystem data, we will continue to collect data from multiple sources and serve as a point of contact for the public and government for all information related to rare or at risk species in Yukon.

We will continue to assign and update rankings for all Yukon species and play a proactive role in identification of rare elements (plants, animals, and ecosystems) and their conservation. YCDC will feed directly into general status reporting of species of conservation concern.

Management Implications: Why we're doing it

By providing information on rare species and ecosystems the YCDC is able to support all agencies involved with land use planning, species at risk recovery planning and environmental impact assessments.

YCDC meets government obligations to manage and conserve species at risk under the National Accord for the Protection of Species at Risk and the federal Species at Risk Act. The proposed Yukon Species at Risk Act also requires status assessments and ranking of species of conservation concern.

Project Activities: How we'll get it done

We will add information about rare species that we collected between 2003 and 2009 to the YCDC's database. We will also complete the ranking of current plant and animal species in the database.

We will finalize Data Sensitivity Policy in preparation for making data available online.

We will develop a strategy to house data on wide-ranging species so that these data can be disseminated along with more easily mapped elements.

We will continue to publish outreach materials including a Yukon Species at Risk booklet, rare plant information sheets for field identification, and Watch and Track lists. We will hold public species at risk identification workshops and produce the quarterly project updates.

We will also continue to support the national General Status Ranking process.

Christina Sobol, Coordinator, Conservation Data Centre

Aishihik and Kluane Caribou Herd Fall Composition Survey

The Aishihik and Kluane herds are part of the Northern Mountain population of woodland caribou. The Northern Mountain population has been given a Special Concern designation under national Species at Risk legislation.

The Kluane herd is a very small (less than 200 animals) and sensitive to extirpation (local extinction). This herd has experienced significant declines from historic highs and could be further impacted by pipeline development.

The Aishihik herd is one of two Yukon caribou populations that we have been monitoring long-term and is used as an indicator of productivity in other herds Yukon-wide. This herd has a history of intensive management and is currently managed by permit hunting.

Project Description: What we're going to do

We will conduct a composition survey during the fall breeding season (late-September to early-October) when males and females are grouped together and are found on high alpine breeding grounds where they are more visible.

Management Implications: Why we're doing it

The Aishihik is permit-only harvest and Kluane is currently closed to licensed harvest. The productivity of these herds will affect the recommended harvest regime.

Successive years of poor productivity in the Kluane herd signals a decline that may require a need for emergency measures to protect this small herd from extirpation.

The trajectory of any trend in the long-term productivity of caribou herds could signal larger ecosystem level changes which would require changes in the harvest regime.

Annual caribou rut counts done on select herds throughout Yukon provide an overall assessment of the status of Northern Mountain caribou in the territory and contribute to long- term ecological monitoring which will let us track changes mediated by climate shifts.

Project Activities: How we'll get it done

We will conduct the surveys using helicopters flying along high alpine plateaus where caribou breeding occurs. When groups of animals are encountered they are classified into one of four categories: calves, cows, immature males, or mature males.

The tallies in each category are used to calculate the adult sex ratio (i.e., bull: cow ratio), which is the number of adult males relative to the number of adult females. The number of calves relative to the number of adult females

(i.e., calf: cow ratio) is the recruitment rate. These ratios are standard indicators of caribou population health, which allow us to highlight potential concerns and make inferences about potential future trends.

Troy Hegel, Caribou, Sheep, and Goat Biologist

Fish and Wildlife Branch Projects 2011-2012
April 2011

Yukon
Environment

Alaska Highway Road Salt Study

The type of salt (calcium chloride - CaCl) Yukon Highways & Public Works currently uses during the winter likely contributes to the number of road-killed animals. In addition, the presence of these animals on Yukon highways is a hazard to motorists. Caribou and other ungulates are attracted to the roads as a source dietary salt making them vulnerable to collisions with passing vehicles.

The proposed Alaska Highway Pipeline will increase heavy truck traffic and the use of road salt which in turn will increase the potential for accidents due to the presence of animals on the road.

This project supports the establishment of a collaborative project to develop and implement an experimental approach to evaluate the use of lithium chloride (LiCl, an alternative type of road salt) on Yukon highways. Lithium chloride will be tested because in experimental feeding trials in Alberta, caribou rejected food that had been treated with the salt.

Project Description: What we're going to do

This is a one-year trial project to evaluate the response of ungulates to this alternative type of salt. Analysis of the data will provide an assessment of the effectiveness using lithium chloride to deter caribou from using the highway. If effective, we will develop an implementation plan that engages Yukon Highways, the Oil and Gas Branch of Energy, Mines and Resources, and possibly private companies interested in this approach to mitigating road kills on Yukon highways.

Management Implications: Why we're doing it

Roadkills on Yukon highways are a conservation concern for small woodland caribou herds that are declining or we are uncertain of their status.

Reduced ungulate numbers on highways will make the roads safer for winter travellers.

When completed, the results of this project will be used to mitigate one of the largest potentially adverse environmental impacts of the Alaska Highway Pipeline construction.

Project Activities: How we'll get it done

We will establish a working group with the Yukon Transportation Maintenance Branch to oversee this project. We will develop an experimental study design to compare caribou use of portions of the Alaska Highway treated with lithium chloride. This winter we will use existing stocks of lithium chloride instead of calcium chloride at specific study sites and monitor caribou use and road-kill locations.

Matt Clarke, Liard Regional Biologist

Burwash Moose Early Winter Census

This survey is being done in response to concerns about overharvest of moose in the Burwash area. The area was stratified into high and low moose densities as a preliminary step towards a survey in 2006 but the remainder of the survey was cancelled due to weather. The Dan Keyi Renewable Resources Council and Kluane First Nation are concerned that in recent years fewer moose are seen in the in area.

Project Description: What we're going to do

This is a one-year project. We will conduct an aerial census survey of the area using standard Yukon moose survey methods. Biologists will use the survey results to assess moose distribution, abundance, and population composition.

Management Implications: Why we're doing it

A population estimate for the survey area will be used to determine if present harvest levels are sustainable. All parties have agreed to explore management implications (next steps) based on the results of the survey.

Project Activities: How we'll get it done

We will conduct the survey in November. The survey area extends north from Congdon Creek to the White River along the Alaska Highway and includes the Duke River, portions of the Kluane Wildlife Sanctuary and Pickhandle Lakes Habitat Protection Area. The survey team will record the sex of the adults, the age class (mature, immature, or calves) and locations of all the moose they see.

Troy Pretzlaw, Kluane Regional Biologist

Fish and Wildlife Branch Projects 2011-2012
April 2011

Yukon
Environment

Chisana Caribou Herd Fall Composition Survey

The Chisana caribou herd is a relatively small herd (about 700 animals) which has experienced significant declines from historic highs. We have made substantial efforts to recover the population. This herd will be impacted by any pipeline development along the Alaska Highway corridor.

Project Description: What we're going to do

This is an ongoing monitoring project. We will conduct a composition survey during the fall breeding season (late September to early October) when males and females are grouped together and are found on high alpine breeding grounds, making animals more visible.

Management Implications: Why we're doing it

We will use the observed productivity of this herd to make recommendations about the harvest regime. The harvest regime for Chisana requires annual fall composition survey information.

Successive years of poor productivity in a caribou herd may indicate a decline requiring careful harvest management and further population investigation. The annual herd composition indicates likely population trends.

As part of a selected cross-section of herds this survey may contribute to an overall indicator of demographic changes in Northern Mountain caribou across the territory including responses of caribou to phenomena such as a changing climate.

Project Activities: How we'll get it done

Surveys are conducted using helicopters flying along high alpine plateaus where caribou breeding occurs. When groups of animals are encountered we will classify the animals into one of four categories: calves, cows, immature males, or mature males.

The tallies in each category are used to calculate the adult sex ratio (i.e., bull: cow ratio), which is the number of adult males relative to the number of adult females. The number of calves relative to the number of adult females (i.e., calf: cow ratio) is the recruitment rate. These ratios are standard indicators of caribou population health, which allow us to highlight potential concerns and make inferences about potential future trends.

Work will be done at the end of September/beginning of October depending on weather.

Troy Hegel, Caribou, Sheep, and Goat Biologist

Cooperative Management of Wood Bison in Yukon

This program supports the ongoing work of the Yukon Wood Bison Technical Team (YWBTT). The YWBTT facilitates an inclusive process among relevant management agencies and councils to make recommendations toward the adaptive management of wood bison – a species that causes concerns to communities and is the focus of a popular resident hunt.

The primary responsibility of the YWBTT is to implement the Yukon Bison Management Plan and support Environment Yukon's adaptive management framework for wood bison. Specifically, the team recommends an Annual Allowable Harvest (AAH) of wood bison and strategies for meeting the harvest. The team also develops management plans for all Yukon populations of wood bison. Sharing information and developing communication materials are an important part of the YWBTT activities.

Project Description: What we're going to do

We will continue to support the activities of the YWBTT in fulfilling their mandate. The YWBTT develops recommendations through the technical team meetings and provides those recommendations to the Yukon Wood Bison Management Team.

Management Implications: Why we're doing it

Wood bison are ranked as Threatened under Species at Risk legislation. The work of the YWBTT will serve to provide an inclusive process among relevant management agencies and councils to make recommendations toward the adaptive management of this Threatened species that causes concerns to communities.

Project Activities: How we'll get it done

We will support the participation of representatives from the Fish and Wildlife Branch on the YWBTT. The team will be developing an AAH for the 2011/2012 hunting season and developing recommendations for the harvest regime for the 2011/2012 hunting season.

The team will also oversee and review socio-economic and ecological impacts studies as results become available, complete reviews and revisions of territorial and national management plans for wood bison and develop an implementation plan, where appropriate. The team will be developing information materials such as a DVD of information for bison hunters.

Tom Jung, Senior Wildlife Biologist (Biodiversity)

Dall's Sheep Survey in the Anvil Range

This project supports aerial surveys to map sheep lambing areas and to update population information in the Anvil Range (GMS 4-41, 4-45). Sheep in the Anvil Range were last surveyed in 2002.

Mineral claims in the Anvil Range increased from 50 to 3000 in 2010, with mineral exploration slated to start on the Keg Property in 2011 and continue through to 2015. Exploration activities will focus on identified mineral deposits, several of which directly overlap areas identified in the Wildlife Key Area database as important for sheep life functions.

Project Description: What we're going to do

This is a one-year project. We will do two separate surveys to identify sheep distribution during the non-winter months, when exploration activities typically take place.

Population information will be used to evaluate if the harvest in these subzones is sustainable and falls within management guidelines and to determine if any regulatory changes are required to ensure harvest of this population is sustainable.

Management Implications: Why we're doing it

We are concerned about the impacts of the proposed exploration activities on local wildlife populations. Results of this survey will support environmental assessments of mineral exploration and future developments in these areas.

We need the information from this survey to assess the current distribution of sheep in the Anvil Range in relation to the significant exploration activity. It is also needed to identify sensitive areas used by sheep for lambing and post-lambing and to establish baseline information with which to monitor any potential displacement from traditional ranges.

Project Activities: How we'll get it done

We will use helicopters to conduct standard post-lambing aerial surveys in early June and late June – early July 2011.

Information gathered will include minimum total number observed, sheep distribution patterns, and population composition.

Birth rates may be obtained from the lambing survey, which can then be compared to lamb: nursery sheep ratios obtained during the post-lambing survey to assess lamb losses.

Matt Clarke, Liard Regional Biologist

Elk Monitoring and Tick Management

Elk were introduced to Yukon in the 1950s and occur in two herds: the Braeburn herd and the Takhini Valley herd. After maintaining relatively low and stable populations for many years, elk are now increasing in numbers. The Management Plan for Elk in the Yukon was completed in June 2008. The first goal of the plan is to maintain healthy and viable populations of free-ranging elk in Yukon. Actions under this goal include the ongoing monitoring of elk to determine population size, composition and survival, as well as the occurrence of disease and parasites, such as winter ticks (*Dermacentor albipictus*).

Project Description: What we're going to do

This project has two components. The first is to obtain elk, moose and deer hides in order to evaluate the distribution and prevalence of winter ticks within the key elk ranges and elsewhere in Yukon. This evaluation can be used to assess the relative threat to moose and caribou from ticks carried by elk, deer, and other species. The second is to conduct regular monitoring of the herds to determine their size, location, movement, and distribution.

Management Implications: Why we're doing it

The distribution of ticks within core elk range and over the territory is an important consideration for the intensity of future elk management actions.

Establishing elk numbers and distribution will support planning and recommendations of the Elk Management Plan and elk management bodies. Managing for a stable population and a small harvestable surplus is supported by the plan and desirable both for residents as a hunting opportunity and for land holders looking to dissuade elk from their properties.

Project Activities: How we'll get it done

We will be gathering hides through the fall and late winter in collaboration with hunters and the Conservation Officer Services Branch. The Animal Health program will process the hides to determine tick numbers.

We will conduct a census survey of the Braeburn herd, using existing radio-collared animals, during the rut to establish the minimum number of animals in the herd. This survey will complement the winter census of the Takhini elk herd done in March 2011.

Survey data will be compiled and presented to the relevant management committees for their consideration.

Rick Ward, Moose, Elk, and Deer Biologist

Ethel Lake Caribou Herd Fall Composition Survey

Recruitment into the Ethel Lake caribou herd has been chronically low since the late 1990s. Concerns about this herd led to a voluntary hunting closure that has been in place since 2002. We have closely monitored this small herd (about 300 animals) with almost yearly rut counts (16 since 1993), giving us long-term trend data. Before harvest of this herd can resume, the communities of Mayo and Pelly Crossing require evidence of several years of good recruitment.

Project Description: What we're going to do

We will conduct a composition survey during the fall breeding season (late-September to early-October) when males and females are grouped together and are found on high alpine breeding grounds where they are more visible.

The data will be added to the database of caribou locations and will be used to map key rutting areas for the Ethel Lake herd.

Management Implications: Why we're doing it

We will use information about recruitment into this herd to guide our decisions about when to end the voluntary hunting closure.

As part of a selected cross-section of herds this survey may contribute to an overall indicator of demographic changes in Northern Mountain caribou across the territory including responses of caribou to phenomena such as a changing climate.

Project Activities: How we'll get it done

This survey will take one day and will be completed in late September or early October. We will use a helicopter to survey the McArthur Range, Kalzas Twins, and ridges in between those mountain blocks, where caribou are known to congregate during rutting season. When groups of animals are encountered we will classify the animals into one of four categories: calves, cows, immature males or mature males.

The tallies in each category are used to calculate the adult sex ratio (i.e., bull: cow ratio), which is the number of adult males relative to the number of adult females. The number of calves relative to the number of adult females (i.e., calf: cow ratio) is the recruitment rate. These ratios are standard indicators of caribou population health, which allow us to highlight potential concerns and make inferences about potential future trends.

Troy Hegel, Caribou, Sheep, and Goat Biologist

Yukon Environment

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Faro Moose Early Winter Census

This survey is being done in response to concerns about overharvest of moose in the Faro area. Although there is some indication of abundant moose in specific subzones, the overall population status is unclear.

Moose numbers and harvest rates have been an issue of concern in the Faro area for a number of years, with localized overharvest identified for some subzones. Voluntary harvest closures initially showed promise as a non-legislated means of maintaining harvest within allowable limits but in recent year compliance with requests for resident hunters to hunt elsewhere has been poor and the harvest has regularly exceeded the allowable limit.

Project Description: What we're going to do

This is a one-year project. We will conduct an aerial census survey of the area using standard Yukon moose survey methods. Biologists will use the survey results to assess moose distribution, abundance, and population composition.

Management Implications: Why we're doing it

The Faro community has been strongly in favour of management options that include legislated regulation of moose harvest in the Faro area. Improved population information and considerations of local harvest pressure are essential elements needed to initiate any form of harvest management planning or action. Ongoing monitoring of the harvest rates and health of this population will provide insight into hunter access issues that could support mitigations for new development projects.

Project Activities: How we'll get it done

We will conduct the survey in November. The survey area extends from the South Macmillan and Riddell rivers south to the Robert Campbell Highway; and from Drury Lake eastward to Blind and Dragon lakes. It covers a total area of about 6470 km2. The survey team will record the sex of the adults, the age class (mature, immature, or calves) and locations of all the moose they see.

Matt Clarke, Liard Regional Biologist

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Environment

Finlayson Caribou Herd Fall Composition Count

The Finlayson caribou herd was the focus of an intense recovery program from 1983 to1989. A population survey in 2007 estimated that there were 3,077 +/- 5.6% animals in the herd, almost half the number there were in 1990 at the end of six years of wolf control.

Project Description: What we're going to do

This is an ongoing monitoring project. We will conduct a composition survey during the fall breeding season (late-September to early-October) when males and females are grouped together and are found on high alpine breeding grounds where they are more visible.

Management Implications: Why we're doing it

Recent applications to develop natural resources (i.e. mineral development) within the herd's range has highlighted the need to have current population information to inform management decisions and recommendations to mitigate development impacts .

As part of a selected cross-section of herds this survey may contribute to an overall indicator of demographic changes in Northern Mountain caribou across the territory including responses of caribou to phenomena such as a changing climate.

Project Activities: How we'll get it done

The survey will be carried out over 2 days in late September or early October. Surveys are conducted using helicopters flying along high alpine plateaus where caribou breeding occurs. When groups of animals are encountered we will classify the animals into one of four categories: calves, cows, immature males, or mature males.

The tallies in each category are used to calculate the adult sex ratio (i.e., bull: cow ratio), which is the number of adult males relative to the number of adult females. The number of calves relative to the number of adult females (i.e., calf: cow ratio) is the recruitment rate. These ratios are standard indicators of caribou population health, which allow us to highlight potential concerns and make inferences about potential future trends.

Troy Hegel, Caribou, Sheep, and Goat Biologist

Yukon Environment

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Fortymile Caribou Herd Monitoring

Since the mid-1990s, the Fortymile caribou herd has been the focus of a population recovery program. A number of Alaskan and Yukon agencies have been working together to plan and implement strategies that support the herd's ability to grow and reoccupy ranges they abandoned years ago. This herd is primarily managed by the Alaska Department of Fish and Game (ADFG) in Tok, Alaska. The 1995 Fortymile Caribou Herd Management Plan identified range expansion as one important indicator of herd recovery.

This project documents the Fortymile caribou herd's current winter range use in Yukon. Caribou abandoned much of their historical range in Yukon as the herd size shrank in the 1930s. As the herd size slowly increases, we need to document reoccupation of their historic Yukon range.

Project Description: What we're going to do

This is an ongoing project, begun in 2003. We will continue to monitor the herd to document movements and range use if, and when, the caribou cross into the Yukon in the fall.

Management Implications: Why we're doing it

Because there are so few Fortymile caribou in Yukon, we closed the hunting season in 1995 in support of the management plan. Monitoring will determine if changes in herd size and Yukon range use may suggest we consider re-opening hunting of this herd.

We share the responsibility of managing this herd with Alaskan government agencies.

Project Activities: How we'll get it done

We will conduct two flights using radio telemetry to locate caribou that have been radio collared by Alaskan biologists, once in early fall when caribou typically cross the Alaska-Yukon border into Yukon and once in late winter before the caribou move back into Alaska.

Dorothy Cooley, North Yukon Regional Biologist

Greater Nahanni Caribou Project

This is Year 4 of a 5-year program looking at the seasonal distribution, number, and status of caribou in the Greater Nahanni area. Increasing industrial development, the relative accessibility of these herds, and indications of declining populations were factors in establishing this project. Other managing jurisdictions share these concerns and have provided annual funding contributions to this project.

Project Description: What we're going to do

The objective of the multi-year study is to estimate the size of the herds, their sex and age structure and to assess herd movements and seasonal distribution. We are assessing these caribou using satellite collar telemetry monitoring, population censuses and composition surveys.

Management Implications: Why we're doing it

We will use population information to evaluate herd status and support harvest management planning and assessment. Distribution information will be used to evaluate potential effects of development on caribou in the region. Information will also be used to inform industry and regulators about caribou population dynamics and distribution. The Yukon Fish and Wildlife Management Board has deferred any regulation changes for caribou in this area pending the outcome of this status assessment.

Project Activities: How we'll get it done

We will continue to gather information on location, distribution, and movement from the satellite radio-collared caribou throughout the year. Fall composition surveys of both the South Nahanni and Coal River caribou herds will be completed during the fall breeding season (late-September to early-October). The survey team will locate the caribou from the air, count the numbers of bulls, cows, and calves, and determine age classes (mature or immature). The annual fall composition survey will provide an assessment of productivity and recruitment for these herds. Local information suggests a broader fall distribution of caribou than we currently identify, consequently additional effort will be place on a comprehensive distribution/composition survey of Coal River herd.

Troy Hegel, Caribou, Sheep and Goat Biologist

Hart River Caribou Location Monitoring

The Fish and Wildlife Branch monitors radio-collared Hart River caribou during the hunting season. Depending on their locations in relation to caribou from the Porcupine herd, we adjust harvest regulations to make sure that Hart River animals are not over-harvested.

The Hart River caribou herd is very accessible to hunting near the Dempster Highway. This accessibility means that high numbers could be harvested, especially in years when the Porcupine caribou do not winter near the Dempster.

Project Description: What we're going to do

This is an ongoing project. We will locate animals in the Hart River herd using radio telemetry and compare these locations with those of Porcupine caribou to determine the most appropriate harvest regulations. We will concentrate our flights in the overlap area with the most access for hunters. Once the locations have been established we will use this information for in-season regulation adjustments such as the emergency closures when necessary.

The data will be added to the database of caribou locations and will be used to map key rutting and wintering areas for the Hart River herd.

Management Implications: Why we're doing it

Harvest regulations for the Porcupine caribou herd are adjusted if necessary by implementing emergency closures if mostly Hart River caribou are along the Dempster Highway.

We will be able to use location information to map key rutting and wintering habitats for Hart River caribou and are used in environmental assessments and land use planning processes.

Project Activities: How we'll get it done

We will locate radio-collared Hart River caribou from fixed-wing aircraft twice in the fall and early winter as Porcupine caribou migrate into their winter range. Each flight takes one day. The flights may be supplemented by ground-based telemetry.

Survival of Hart River caribou will be estimated from survival rates of collared animals using standard survival analyses.

Dorothy Cooley, North Yukon Regional Biologist

Mayo Moose Survey

The *2008-2013 Community-based Fish & Wildlife Work Plan for the First Nation of Na-Cho Nyäk Dun Traditional Territory* recommends a census of moose in the Mayo moose census survey area in 2011. This census will address concerns about high harvest pressure expressed in the community wildlife plan and at Northern Tutchone May Gatherings.

High mineral development interests and proposed road developments to new project sites throughout the district are creating access to an area that is already close to exceeding identified harvest thresholds.

Project Description: What we're going to do

We will estimate density and population composition and trends in this area relative to known harvest levels and composition thresholds in the moose management guidelines.

Management Implications: Why we're doing it

A population estimate for the survey area will be used to determine if present harvest levels are sustainable. If necessary, changes in regulations for resident licensed hunters, changes in quotas for outfitters, and working with First Nations to limit First Nation harvest would be implemented through a coordinated harvest management approach harvest.

We will use estimates of population composition to detect the main factors (e.g., predation, human harvest) affecting moose numbers in the survey area.

Project Activities: How we'll get it done

The survey area (Mayo Moose Management Unit) extends north and east of Mayo, including the area surrounding Keno City.

We will use the data from the 2006 census to divide the survey area into survey blocks of expected low and high density. The survey team will record the sex of the adults, the age class (mature, immature, or calves) and locations of all the moose they see in randomly selected subsets of low- and high-density blocks.

Mark O'Donoghue, Northern Tutchone Regional Biologist

Yukon Environment

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M'Clintock Moose Census Survey

Moose numbers in the greater Whitehorse area are known to have declined over the last 30 years. Reported moose harvest is at or near management thresholds. The proximity to Whitehorse and general accessibility suggest that without regulation harvest levels will continue to rise. Moose south of this survey area have been managed through permit since 1989.

The M'Clintock area was last surveyed in 1999. Updated information will support a strong regional analysis to aid management. Surveys were done in the adjacent Whitehorse South and Whitehorse North areas in 2010.

Project Description: What we're going to do

This is a one-year project. We will conduct an aerial census survey of the area using standard Yukon moose survey methods. Biologists will use the survey results to assess moose distribution, abundance, and population composition.

Management Implications: Why we're doing it

Current moose population information is needed to support the development of a comprehensive harvest management plan, as recommended by the Southern Lakes Wildlife Coordinating Committee. The results of this survey will determine the level of urgency to plan and establish a managed harvest for this area. The intent is to ensure that populations are carefully managed in the long term.

Project Activities: How we'll get it done

We will conduct the survey in November. The survey area extends from the Teslin River to the Alaska Highway between Jake's Corner north to Teslin Crossing and covers about 3,300 km2. The survey team will record the sex of the adults, the age class (mature, immature, or calves) and locations of all the moose they see.

Rick Ward, Moose, Elk, and Deer Biologist

Fish and Wildlife Branch Projects 2011-2012
April 2011

Yukon
Environment

Population Monitoring, Movements, Habitat Use, and Impacts of the Aishihik Wood Bison Herd

In Yukon it is a challenge to manage wood bison populations in a way that provides for their recovery (as required by the federal Species at Risk Act) while addressing community concerns and allowing local people to benefit from the resource, primarily through hunting opportunities.

Project Description: What we're going to do

This is an ongoing project that will probably continue indefinitely, or until we stop harvesting wood bison at high harvest rates. Some aspects, such as the study of competition between bison, moose, and caribou, however, are short-term.

The Aishihik wood bison project has 5 components. We will monitor population trends by continuing our census program. Because of the high harvest rate, inherent small population size, and conservation status of the herd, we need to repeat mark-resight population censuses in short intervals (bi-annually in the near term) to gauge the status of the herd. To prepare for that survey, we need to replace some of the radio-collars as many were deployed in 2003 and 2004 and have reached the end of their battery life. In addition, we will collect productivity, recruitment, and adult survival data this year through telemetry flights and composition counts.

We will assess the impact of reintroduced wood bison on caribou and moose by examining potential competition between these species on their shared range.

We will monitor the movements and spatial distribution of wood bison to obtain better information on the distribution (including range expansion and shifts in range use) and habitat use of populations.

We will monitor the health and genetic status of wood bison and contribute data to national initiatives to assess the health and genetic status of these small, reintroduced populations that are isolated from other populations.

We will turn existing wood bison data into knowledge. Considerable data has already been collected on Yukon wood bison over the past 20+ years. Unfortunately, little of this data has effectively been turned into knowledge. These data can be useful for exploring management options for wood bison and their analyses should be a top priority.

Management Implications: Why we're doing it

Monitor population trends is crucial for setting Annual Allowable Harvests and deciding upon annual harvest regimes under an adaptive framework. Monitoring is also important to ensure populations meet recovery

objectives. Better information is needed on the distribution (including range expansion) and habitat use in order to provide data to regional planning processes and meet legal requirements for identifying potential critical habitat under the federal Species at Risk Act and the anticipated Yukon Species at Risk Act. These data are also useful for keeping track of the distribution of the herd, and providing general information to hunters on where bison can be found. The need for this information is identified in the draft Yukon Wood Bison Management Plan and the draft National Wood Bison Recovery Strategy.

If the Yukon recovery project is to be successful in the long-term, we need to ensure that our populations remain genetically pure and disease free.

Because wood bison have been long absent from the Yukon, there are significant concerns from the communities on the potential impact of wood bison on other valued wildlife, specifically woodland caribou, moose, and sheep. We need to investigate these impacts to address community concerns.

Project Activities: How we'll get it done

We will conduct a mark-resight population census of the herd to obtain information on size, distribution, and composition.

We will capture bison to replace radio-collars that are near the end of their battery life. Collared animals will provide information on seasonal range use and habitat preferences of wood bison.

We will collect and process biological samples for genetic analysis and disease testing.

We will use location data from GPS collars to examine seasonal movements and habitat use, and to identify potential critical habitat areas. Population data from various surveys, and harvest data will be used to develop population models aimed at examining options for sustainable use and adjustments to herd size and structure.

Tom Jung, Senior Wildlife Biologist (Biodiversity)

Porcupine Caribou Harvest Monitoring and Hunter Education

This project supports the operation of a Dempster Highway hunter check station and the delivery of Porcupine caribou herd hunter education programs.

Project Description: What we're going to do

We will operate the check station on the south Dempster Highway for approximately 2 ½ months during peak fall hunting activity to record harvest and provide a contact point between the Department and active hunters.

Hunter education efforts will be coordinated with First Nations and Inuvialuit organizations as well as Government of Northwest Territories Renewable Resource Officers. Significant input into the hunter education package will be provided by Conservation Officers and the Hunter Education Coordinator.

Management Implications: Why we're doing it

We are obligated to undertake many activities in support of the Porcupine Caribou Harvest Management Plan (HMP) and the accompanying Implementation Plan, such as educational efforts on the HMP and Porcupine caribou management.

Monitoring of the Porcupine caribou hunt in Yukon is critical to assess the status and effectiveness of harvest management actions implemented under the HMP. We are committed to harvest planning and monitoring.

Project Activities: How we'll get it done

We will finalise a Porcupine caribou hunter education program and deliver it in the communities.

We will summarize the number of caribou harvested in Yukon, along with harvest data from co-management partners to provide an overall harvest number for the herd and to determine if harvest is negatively affecting the herd.

The HMP will be implemented as per the Implementation Plan.

Dorothy Cooley, North Yukon Regional Biologist

Sheep Survey in the Ruby, Aishihik, and Sifton Ranges

Sheep hunting is an important recreational hunting opportunity for many resident and non-resident hunters. Many of the ranges in southern Yukon are under a permit system to ensure populations are managed sustainably.

Sheep populations in the Aishihik and Sifton ranges are relatively accessible but have not been recently surveyed. Updated population information is needed to assess the status of these populations.

Ruby Range sheep have been monitored periodically since 1984 and these data have been used to develop the Yukon sheep population model. Periodic surveys are necessary to update, calibrate, and assess the model for use in predicting trends and changes in sheep populations elsewhere in Yukon.

Project Description: What we're going to do

This is a one-year project within an ongoing monitoring program. Information gathered will include minimum total number observed, sheep distribution patterns and population composition. Population composition information and total numbers will be compared with previous survey information. We will assess the sheep populations in these areas to determine if any regulatory changes may be required to ensure harvest is sustainable. It may be necessary to follow up through a survey of sheep hunters on their views of these areas.

New information from the Ruby Range population will be used to update and evaluate the Yukon sheep population model. Based on this update, managers will consider population trends and status of sheep populations in other areas of Yukon, as the Ruby Range population is considered the "bellwether" population for the territory.

Management Implications: Why we're doing it

Survey information will be used to assess the status of sheep in these areas, particularly due to the potential for shifting harvest pressure from the Coast Mountains and Miners Range. We need the information from these surveys to evaluate whether the harvest of sheep in these subzones is sustainable and falls within management guidelines.

Current sheep distribution information gathered on this survey will also support environmental assessments of mineral exploration and other developments in these areas.

Project Activities: How we'll get it done

We will use helicopters to conduct standard post-lambing aerial surveys on sheep populations in the Ruby Range, Aishihik, and Sifton ranges in late June to early July 2011.

If we determine it is necessary, we will conduct a survey of sheep hunters to get their views of these areas regarding sheep numbers, harvest success, and quality of experience.

Troy Hegel, Caribou, Sheep, and Goat Biologist

Fish and Wildlife Branch Projects 2011-2012
April 2011

Yukon
Environment

Southern Lakes Caribou Herds Fall Composition Surveys

Southern Lakes caribou have been the focus of a long-term recovery program designed to reverse the observed decline in the Carcross, Ibex, and Laberge herds. As such, caribou and the recovery of these herds are high on the co-management agenda in the Southern Lakes Region.

The Southern Lakes Caribou Recovery Program started in 1993 and is an ongoing multi-year program. These annual fall composition counts are an important management initiative within that program. Our partners in the recovery program include the Kwanlin Dun First Nation, the Ta'an Kwach'an First Nation, the Lake Laberge Renewable Resource Council, Carcross-Tagish First Nation, the Carcross-Tagish Renewable Resource Council, the Teslin Tlingit First Nation, Teslin Renewable Resource Council, the Taku River Tlingit First Nation, and the Southern Lakes Wildlife Coordinating Committee.

Project Description: What we're going to do

We will conduct a composition survey during the fall breeding season (late-September to early-October) when males and females are grouped together and are found on high alpine breeding grounds where they are more visible.

Management Implications: Why we're doing it

Data collected from these surveys will allow us to track and model the recovery of the Southern Lakes caribou herds. Information will be used to decide on appropriate management actions as well inform our First Nation partners, affected Renewable Resource Councils and the public, concerning potential caribou harvest.

As part of a selected cross-section of herds this survey may contribute to an overall indicator of demographic changes in Northern Mountain caribou across the territory including responses of caribou to phenomena such as a changing climate.

This program maintains our commitment to caribou population monitoring through the Southern Lakes Coordinating Committee, and assists with the committee's caribou recommendations.

Project Activities: How we'll get it done

Surveys will be conducted in Ibex, Carcross, and Laberge caribou herd ranges using helicopters flying along high alpine plateaus where caribou breeding occurs. When groups of animals are encountered we will classify the animals into one of four categories: calves, cows, immature males, or mature males.

The tallies in each category are used to calculate the adult sex ratio (i.e., bull: cow ratio), which is the number of adult males relative to the number of

adult females. The number of calves relative to the number of adult females (i.e., calf: cow ratio) is the recruitment rate. These ratios are standard indicators of caribou population health, which allow us to highlight potential concerns and make inferences about potential future trends.

Troy Hegel, Caribou, Sheep, and Goat Biologist

Fish and Wildlife Branch Projects 2011-2012
April 2011

Yukon
Environment

Tatchun Caribou Herd Fall Composition Survey

Harvest of caribou in the Tatchun herd is at or above maximum sustainable levels, and the population estimate of this herd is ten years old. The Fish and Wildlife Branch has closely monitored this fairly small herd (about 600 animals) with almost yearly fall composition surveys (15 since 1993). It is one of two herds in the Yukon that gives us long-term trend data.

The Tatchun caribou herd is part of the Northern Mountain population of woodland caribou. The Northern Mountain population has been given a *Special Concern* designation under national Species at Risk legislation.

Project Description: What we're going to do

This survey will take one day and will be completed in late September or early October. The data will be added to the database of caribou locations and will be used to map key rutting areas for the Tatchun herd.

Management Implications: Why we're doing it

We use information about recruitment into this herd to guide our decisions about herd health and setting outfitter quotas, in the absence of a recent population estimate.

As part of a selected cross-section of herds this survey may contribute to an overall indicator of demographic changes in Northern Mountain caribou across the territory including responses of caribou to phenomena such as a changing climate.

Project Activities: How we'll get it done

We will use a helicopter to survey the Glenlyon Range, Little Salmon Range, Tummel Hills, and Tatchun Hill where caribou are known to congregate during rutting season. When groups of animals are encountered we will classify the animals into one of four categories: calves, cows, immature males, or mature males.

The tallies in each category are used to calculate the adult sex ratio (i.e., bull: cow ratio), which is the number of adult males relative to the number of adult females. The number of calves relative to the number of adult females (i.e., calf: cow ratio) is the recruitment rate. These ratios are standard indicators of caribou population health, which allow us to highlight potential concerns and make inferences about potential future trends.

Troy Hegel, Caribou, Sheep, and Goat Biologist

Yukon
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Aishihik Area Wolf Population Survey

Aishihik area wolf populations were surveyed before wolf control began in 1992 and again in 1999 while a fertility control experiment was underway. The 1992 Yukon Wolf Conservation and Management Plan identified the need to monitor wolf populations following any control programs. This is the first wolf survey in the Aishihik area since the conclusion of Aishihik caribou recovery program

Project Description: What we're going to do

This is a one-year project. We will conduct mid-winter surveys using fixed-wing aircraft to estimate wolf pack distribution and wolf pack numbers. The surveys will be conducted over an area large enough for us to be able to estimate the number of packs and the average pack size.

Management Implications: Why we're doing it

Current status of this key predator in relation to ungulate populations will support harvest management decision-making. Because wolf numbers were manipulated during the Aishihik caribou recovery program, it is important to periodically evaluate whether there were any long-term consequences to the wolf population. This assessment has particular relevance for evaluating suggested options arising from the public review of the 1992 Yukon Wolf Conservation and Management Plan.

This survey complements ungulate surveys recently completed or planned in the Aishihik area and the joint (draft) Fish and Wildlife Management work plan for the Champagne and Aishihik Traditional Territory. The work plan identifies a desire for increased wolf harvest because of concerns about predation and impacts on moose and caribou. A revised wolf population estimate will provide the community with information about likely predation rates and possible changes in wolf populations that could be expected if wolf harvest was increased through trapping.

Project Activities: How we'll get it done

We will conduct the survey between late January and the end of February 2012, using one of two methods: a sample unit probability estimation using a form of distance sampling or by establishing a minimum count of known wolves through snow tracking. Successful completion of the project relies on good snow conditions. Low snow accumulations will create poor tracking conditions and will severely compromise our ability to estimate the wolf population.

Ramona Maraj, Carnivore Biologist

Carnivore Conflict Occurrence Data Entry

Conflicts between bears and humans are a primary concern for both human safety and for carnivore conservation. Conservation Officer Services Branch (Environment Yukon) handles many public complaints over bears and logs the information in occurrence reports. This information can help direct mitigations to reduce conflicts, and provide a mechanism for understanding how well the mitigations work. In addition, the data on occurrences may be used to augment information on carnivore population trends.

Project Description: What we're going to do

This project will expand, update, and maintain a database of recorded carnivore conflicts for Yukon. The database has been established but currently holds information for Haines Junction and Whitehorse up to 2005 only. Occurrence reports for most areas are still largely in hard copy format and some require additional information from the inspecting officers to be useful for management purposes.

Management Implications: Why we're doing it

A completed database can be used to inform land-use planning activities and environmental assessments, develop mitigation strategies for conflicts (to promote human safety and bear conservation concerns), and be used to respond to requests received on numbers of attacks and conflicts. Data from Haines Junction will link to the proposed hazard assessment, aimed at reducing the high number of bear-human conflicts in that area.

Completion of the Haines Junction portion of the database is the priority so that the information is available for the proposed hazard assessment. Once the database is caught up and current, a system will be developed for ongoing entry of data.

Project Activities: How we'll get it done

We will obtain all archived and available occurrence reports from the Conservation Officer Services Branch and Parks Branch. The reports will be read and the information interpreted, coded, and entered into the database. Where gaps exist, the Conservation Officer that filed the report will be interviewed to see if further information can be obtained. The occurrences will be mapped with a Conservation Officer to obtain location coordinates with sufficient detail to be useful for management.

Ramona Maraj, Carnivore Biologist

Grizzly Bear Diet-based Trophic Relationship and Population Study (Southern Lakes)

The population study of grizzly bears in the Southern Lakes region began in 2009, in collaboration with the area's First Nations. The study area covers the important grizzly bear ranges between Tagish Lake and Kusawa Lake, from the Alaska Highway south to the British Columbia border. This study will take five to seven years to complete. Current estimates of grizzly bear numbers and density are based on local knowledge, outfitter experience, harvest history, and expert opinion. This multi-year study will give us more information about the grizzly bear population in the region, including their nutritional status, habitat use, ages, how much they move around, and how many cubs survive each year.

Project Description: What we're going to do

We will continue to monitor grizzly bear population trends by studying habitat use (including dens), movement, survival, reproduction, and body condition. We will also assess grizzly bear diet to learn how it relates to caribou and moose distribution. Capturing and collaring will continue as the more bears that can be monitored as part of the study, the more we will be able to learn about the population. The information we gather on grizzly bears will be compared to caribou and moose movements and distribution to assess the degree of seasonal overlap.

Management Implications: Why we're doing it

We suspect that the combination of human-caused mortality and decreases in ungulate densities are causing a decline in the grizzly bear population in the Southern Lakes region. We need the information from this study in order to sustainably manage this population. In addition, regional boards and councils have requested information on the relationship between bears and the ungulate species, specifically focusing on the role ungulates play in the diet of bears.

We need this information to make decisions about the management options in order to reduce mortality. Management options can include quotas, programs to reduce human-bear conflicts, and the management of habitat through land-use planning and environmental assessment.

Project Activities: How we'll get it done

We will use both aerial and ground-based techniques to capture and collar 25 to 30 bears. Radio collars are used to record bear movements. We will also obtain samples of hair and fat from captured bears to measure their body condition and to obtain information on their diet. The collared bears will be checked regularly to monitor their survival and the survival of any cubs.

This will be the second and final year of the denning study. This study is assessing den habitat availability throughout the region and how this is affected by human activity. Scats will be collected during capture and opportunistically from dens, trails, and trap sites to augment tissue sample analyses.

Ramona Maraj, Carnivore Biologist

Yukon
Environment

Grizzly Bear Program Review and Communication

There is substantial national and international scrutiny on Yukon's management of grizzly bear populations. A rigorous program review is needed to identify conservation concerns, deficiencies in methods, data gaps and needs, and required management actions if Yukon is to meet international conservation standards and to ensure that grizzly bears are managed sustainably. This project will influence the future direction of grizzly bear management, which is of considerable importance not only to Yukon's national and international reputation for managing wildlife resources but also to the population trajectory of this species.

Project Description: What we're going to do

This project has three aspects. First, we will review our current methods of management and information gathering, determine the data we have available, identify any conservation concerns, and document current international management standards.

We will develop and produce communication (outreach) materials related to program needs and activities, and current management guidelines.

We will also undertake a comprehensive consultation program based on the review to get input into the direction of future grizzly bear programs. Given the focus and attention on grizzly bears in recent years and the importance of public awareness in acceptance of management approaches for this species, it is essential that the public has the opportunity to review and provide input into the Yukon grizzly bear management program.

Management Implications: Why we're doing it

A program review is necessary to establish and articulate Yukon's management objectives and approaches for grizzly bears and to determine the priority areas for focusing program resources. This in turn will help communicate the program status, needs, and objectives to management partners, boards and councils and clients in order to facilitate a broader basis of understanding and support for this program. Results will contribute to management changes that will reduce human-bear conflicts and improve human safety relating to these conflicts. The communication of program objectives is essential given requests to increase harvest of this species.

Project Activities: How we'll get it done

We will conduct a detailed program review by doing a thorough literature review and critically examining all available Yukon information. Communication products may include plain language summary sheets, internet postings, and a stock presentation. These products will be developed for public audiences and Yukon Fish and Wildlife Management Board, Renewable Resource Councils, First Nations, and other clients as identified.

Ramona Maraj, Carnivore Biologist

Haines Junction Bear Hazard Assessment

This is one component of a multi-year initiative to reduce bear-human conflicts in the Haines Junction area, an area with a particularly high number of conflicts and number of destroyed bears.

This project is building on the momentum of recently completed conflict reduction initiatives. We have been working with the Alsek Renewable Resource Council (ARRC) and Champagne and Aishihik First Nations (CAFN) to raise local awareness of bears and to reduce bear habitat and bear attractants in and around communities in the traditional territory.

We have identified the need for a formal hazard assessment to focus our efforts and ensure that time and budgets are used most efficiently. A hazard assessment is a tool that helps managers identify key areas for reduction in conflicts, and actions to mitigate bear-human conflicts.

Project Description: What we're going to do

This project is a hazard assessment that will bring together all available information on bear ecology and natural history, bear-human conflict issues and hotspots, habitat, and human use predictions for the Haines Junction area.

The outcome of this hazard assessment will be a series of recommended management actions or strategies to minimize bear-human conflict in the Haines Junction area.

Management Implications: Why we're doing it

We need to be able to recommend and develop approaches or strategies to best reduce the incidence of bear-human conflict and to reduce the number of problem bears killed in the area.

The current Champagne and Aishihik First Nations Traditional Territory Fish and Wildlife work plan has identified mitigation of human bear conflict as one of the key deliverable activities over the term of the plan.

Reducing the number of bear-human conflicts in the Haines Junction area will also lead to less time being spent by Yukon government staff dealing with problem bears.

Project Activities: How we'll get it done

The assessment will be done by contractors with a planned completion before September 2011. The draft assessment will be reviewed within the Fish and Wildlife Branch prior to furthering any proposed actions. Subsequently, approved strategies will be reviewed by the ARRC, CAFN, Parks Canada, and Haines Junction Village Council and implemented through education and outreach.

The success of this project will ultimately be measured through a reduction in the number of bear/human conflicts and bear mortalities in the vicinity of the community.

Troy Pretzlaw, Kluane Regional Biologist

Wolverine Monitoring Program

Information from this program will be used to assess the need to limit the number of wolverine harvested in areas of high harvest pressure or to adjust the trapping season dates to protect females about to give birth. This information can be used for a Non-Detrimental Finding for CITES, indicating that our harvest management practices do not threaten our wolverine populations.

Project Description: What we're going to do

This is the final year of a pilot project. This year we will focus on: processing carcasses, developing scientific papers and presentations (fat levels, diet, reproduction, landscape genetics, and harvest statistics), and public information papers. We will also analyze available harvest information.

Management Implications: Why we're doing it

This information will be important in determining management actions. For example, we may find that the population status indicates a need to propose regulation changes in the number of wolverine harvested in areas of high harvest pressure and in the dates of permitted harvest so as not to impact females about to give birth.

The information we collect will also inform national and international status assessments about the population trends of wolverine in the Yukon.

Project Activities: How we'll get it done

We will continue to examine trapper-collected wolverine carcasses to determine the sex, age, health status and body condition of each animal. We will also take biological samples and sent them to various laboratories for analyses (e.g. DNA, stomach contents, reproductive tracts, skeletal material).

We will use harvest statistics to determine patterns in the time and location of trapped wolverine and conduct a preliminary analyses to examine the sustainability of the harvest. We will also assess the genetic relationships between of populations to determine the likely effects of current harvest practices.

Considerable effort will be expended on reporting the results to appropriate audiences through community presentations and a summary report.

Tom Jung, Senior Wildlife Biologist (Biodiversity)

Yukon
Environment

Fish and Wildlife Branch Projects 2011-2012
April 2011

Alaska Highway Pipeline Assessment – Fish and Wildlife Branch Input

Development of the Alaska Highway Pipeline could have major implications for wildlife and fish resources along its route.

We need to be able to provide broad, strategic advice on fish, wildlife, and habitat management to guide planning and implementation of this project by the proponent and other departments.

Project Description: What we're going to do

This project will coordinate our input and data gathering pursuant to the strategic report prepared in 2010-11.

Activities will address data gaps and recommendations to coordinate technical input on fish, wildlife, and habitat management in relation to the Alaska Highway pipeline project. Incorporating the outcomes of the 2010-11 work, recommended research and monitoring projects will be described.

Management Implications: Why we're doing it

We need to be able to provide recommendations to address research and monitoring needs in anticipation of any pipeline development. The pipeline project may require further information, proposed mitigations, and monitoring. These demands need to be coordinated to ensure the necessary studies and resulting data are available to lessen potential impacts from the pipeline development.

Environment Yukon has a mandate to ensure fish and wildlife values and cumulative impacts are considered in environmental assessment.

Project Activities: How we'll get it done

A review of existing information, potential data gaps, and a review of the Mackenzie Gas Project was started in 2010-11. We will consider the suggestions from that review, develop priorities for future possible studies, and continue to work with TransCanada Pipelines, their consultants, and the interdepartmental working group.

We will participate in interdepartmental working groups to determine approaches to mitigation such as access, camp, vehicle/wildlife, water crossings, and fisheries management.

The assessment of the Alaska Highway pipeline may continue beyond 2011/12, subject to project timing (Potential construction in 2015)

Bruce McLean, Senior Habitat Protection Biologist

Yukon
Environment

Caribou, Moose and Sheep Habitat Availability Assessment – Southern Lakes Region

The management of wildlife and wildlife habitat throughout the Southern Lakes region is dependent upon understanding species-habitat interactions and identifying the abundance, distribution, and availability of important habitat resources.

The Southern Lakes Wildlife Coordinating Committee (Habitat Working Group) has identified the need for spatial habitat analyses to determine habitat suitability and availability for key wildlife species in the region.

Project Description: What we're going to do

This is a two-year project. We will begin by identifying and mapping important habitat areas and key movement corridors and barriers for caribou, moose, and sheep in the Southern Lakes region.

This type of analysis requires the description and mapping of land cover distribution, human surface disturbance, habitat fragmentation, and habitat connectivity in the region. Analyses will rely primarily on existing wildlife and habitat data, however, we will need to identify and map linear and area disturbance, as well as lichen abundance and distribution within the Southern Lakes.

Management Implications: Why we're doing it

We need this information to inform both habitat and species management. We can use it in a variety of ways including local area planning, regional land use planning, harvest guidelines and regulations, and industrial development planning.

Project Activities: How we'll get it done

In the first year our work will include acquiring all relevant existing species and habitat data.

We will sample lichen cover within caribou ranges across the Southern Lakes region using aerial surveys.

We will digitize new (and updating existing) linear and areal surface disturbances visible at a minimum scale of 1:12,000.

In the second year, we will identify and map lichen presence and abundance (using data from the first year) in caribou ranges across the Southern Lakes region. We will also conduct all relevant spatial analyses (i.e. habitat suitability analysis, corridor analysis, etc.)

Heather Clarke, Habitat Biologist

Fish and Wildlife Branch Projects 2011-2012
April 2011

Yukon
Environment

Dawson Regional Land Use Planning Preparation

We have been working on compiling existing data and reports to submit to the Dawson Regional Land Use Planning Commission for use in the regional land use planning process. An important part of land use planning is to understand where ecologically sensitive habitats exist to enable consideration of these habitats when prescribing land management scenarios.

Project Description: What we're going to do

This is a one-year project. We will produce a map of the Dawson planning region indicating the location of ecologically sensitive habitats. We will also create habitat suitability maps that indicate the quality of different habitat types for many of the species that are considered valuable to the planning process. These maps will incorporate community and traditional knowledge and will be completed throughout the duration of the planning process.

Management Implications: Why we're doing it

We need to develop and provide maps to the Dawson Regional Land Use Planning Commission that identify landscape management units where conservation values are a priority. In one of the most industrialized regions in Yukon, these mapping products will also assist us in prioritizing areas for future wildlife management.

Project Activities: How we'll get it done

To create the sensitive habitat maps, we will begin by compiling a list of potential sensitive habitats or features, including uncommon landform features, uncommon vegetation communities, such as grasslands, old forests, or specific wetland types, glacial refugia, or areas occupied by rare or threatened wildlife species.

These features and others from existing datasets (Wildlife Key Areas, glacial extent, digital elevation model, completed ELC components (e.g. ecosystem map, wetlands mapping), rare plant occurrences, etc.) will be used to create a map showing sensitive habitats.

Maps showing existing surface disturbance will be used to identify sensitive habitats that are impacted by existing disturbances.

Community engagement will be undertaken in Dawson for validation of various habitat modelling products that will be provided to the planning Commission.

Heather Clarke, Habitat Biologist

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Environment

Forestry and Caribou Habitat in the Southern Lakes Region

This is a cooperative project with the Forest Management Branch to ensure that forestry activities do not negatively affect the Carcross caribou herd. Winter habitat use by caribou is focused on pine stands with abundant ground cover of lichen, the primary caribou winter food. These stands are also sought after for logging.

In Phase 1 of this project we assessed lichen abundance in areas logged from 5 to 20 years ago to better understand the effects of logging on lichen. This project is based on the principles of adaptive management.

Project Description: What we're going to do

Phase 2 is a multi-year project with an uncertain time frame since lichen is slow-growing. Short-term aspect of the project is 5 years, but monitoring may occur periodically over the next 20 years or more.

We will use the results obtained in Phase 1 to design an experimental treatment/control harvesting project that will test the relationships between variable forest retention and lichen persistence/abundance.

Important components of this phase are the development of the study design, field identification of appropriate treatment and control plots, and baseline inventory of forest and habitat attributes within plots.

Management Implications: Why we're doing it

The goal is to identify forest harvesting practices that do not adversely affect the abundance, distribution, and growth of caribou food lichens. We need this information to provide recommendations in the Southern Lakes region that will reduce any negative effects of logging activities on caribou lichen food.

The results of this project will help us to predict the size of forest stands and the density of trees within those stands that must remain after logging for lichen to survive.

Project Activities: How we'll get it done

We will develop the project study design based on the results of the study on the effects of historical logging practices (Phase 1).

We will chose the study area(s) and begin sampling in summer (July – September) to document current lichen abundance and distribution. We will begin experimental harvesting in this winter or next. Periodic sampling to monitor the effects of the logging treatments will be done according to the study design schedule.

Val Loewen, Habitat Inventory Coordinator

Yukon
Environment

Habitat Protection Areas Inventory and Assessment

This project funds inventory and assessment needs for the Pickhandle Lakes, Tagish Narrows, and Lewes Marsh Habitat Protection Areas (HPAs). All information and data gathered from these assessments is used to support and inform the management planning as required by Final Agreement implementation obligations.

Much of the background information for these areas is lacking or outdated. Most of the available information was collected in the 1970s for the Foothills Pipeline Project. Current information is required for upcoming management planning processes.

Project Description: What we're going to do

This is a multi-year project. All assessment and inventory projects within these HPAs will be directed by the respective Steering Committee and the advice of technical staff of the Fish and Wildlife Branch and/or First Nations.

Our objective is to get more up-to-date information about habitat use, semi-aquatic mammals, biodiversity, and long-term ecological monitoring needs for Pickhandle Lakes, Tagish Narrows, and Lewes Marsh Habitat Protection Areas.

Management Implications: Why we're doing it

This information will inform management planning for these areas by supporting each steering committee in identifying priorities for management, data gaps, and by engaging First Nations in these assessments.

Project Activities: How we'll get it done

We will conduct traditional/local knowledge interviews with elders from Kluane First Nation and White River First Nation. Information gathered here will feed directly into the Pickhandle Lakes management plan.

We will complete fish, plant, and small mammal inventories at Pickhandle Lakes HPA. These inventories will all involve boating up the Koidern River and around Pickhandle Lake. These projects were identified by the Pickhandle Lakes HPA management plan steering committee as areas where there are data gaps. Information will be used to develop the management plan.

Timelines and deliverables for Lewes Marsh and Tagish Narrows will be developed in conjunction with the steering committees.

Heather Clarke, Habitat Biologist

Habitat Suitability Modelling Standards and Guidelines

The goal of this project is to develop a set of standards and guidelines to facilitate the use and applicability of knowledge-based habitat suitability models and maps among Government of Yukon and external organizations and governments (e.g. Wildlife Conservation Society, Ducks Unlimited, First Nations, and Canadian Wildlife Service).

Knowledge-based habitat suitability modelling is a qualitative approach used to determine the suitability of different habitat types for a given species. Models are generally based on local, expert, or traditional knowledge and are most often communicated using maps.

A working group consisting of all interested and relevant parties held a preliminary meeting in January, 2011. The working group includes members of the Yukon government, the Wildlife Conservation Society (Yukon), Kwanlin Dun First Nation, Ta'an Kwach'an First Nation, and the Yukon Land Use Planning Commission. Feedback during the meeting indicated strong support for a consistent knowledge-based habitat suitability mapping approach across the Yukon.

Project Description: What we're going to do

This is a one-year project. We will develop a draft mapping Standards and Guidelines document to be reviewed at a second working group meeting. We will also determine and implement an ongoing method of communicating modelling projects and sharing products among parties. A final Knowledge-based Habitat Suitability Modelling Standards and Guidelines document will be completed and made publicly available.

Management Implications: Why we're doing it

Habitat suitability modelling is useful for incorporating the knowledge of First Nation and other local people with extensive experience on the land, when empirical data on species distribution are unavailable or when the goal is to integrate observational data with empirical data.

A standardized approach to knowledge-based habitat suitability modelling will lead to consistency in mapped products and greater availability and applicability of maps to habitat and wildlife management planning (e.g. Habitat Protection Areas and Special Management Areas planning, land-use planning, development of parks and protected areas) and environmental assessment.

Project Activities: How we'll get it done

The working group will meet once or twice more prior to December 2011 to discuss and finalize standardized methods of developing, validating, and applying knowledge-based habitat suitability models.

Heather Clarke, Habitat Biologist

Yukon
Environment

Lichen Habitat Assessment – Chisana Caribou Herd

The goal of this project is to assess the abundance and spatial distribution of lichen within the Chisana caribou herd range.

The management plan for this herd identifies the need to assess caribou forage habitat across the herd's range to better understand whether it is a contributing factor limiting the population size.

The abundance and distribution of lichen forage and the extent of burns (which can reduce lichen availability) are important determinants of caribou winter habitat quality.

Project Description: What we're going to do

This is a two-year project. The Chisana caribou herd range straddles the Yukon-Alaska border. This assessment will be conducted collaboratively with the Wrangell-St. Elias National Park and Preserve over two years. Data for the Alaskan portion of the range will be collected by the partners in 2012/2013.

We will use a computer-based satellite image analysis technique to identify areas with high lichen abundance and do site visits to more fully describe lichen forage habitats.

Management Implications: Why we're doing it

We will be able to use the results to assess the overall abundance, distribution, and availability of caribou foraging habitat in the herd's range and to identify and prioritize areas of conservation and management concern.

Project Activities: How we'll get it done

We will measure vegetation and lichen cover in 75 to100 aerial sites, most of which are considered lichen-rich (i.e.>10% lichen cover).

Using the aerial data collected and lichen cover information from recent satellite image coverage of the CHCH range, we will conduct a "spectral mixture" image analysis to determine the abundance and spatial distribution of lichen forage across the Chisana caribou herd range.

We will complete the final lichen assessment once data is available from the Alaskan portion of the range.

The final product will be a map showing areas with high lichen abundance in the Chisana caribou herd range.

Heather Clarke, Habitat Biologist

Fish and Wildlife Branch Projects 2011-2012
April 2011

Yukon
Environment

Wildlife Key Area Inventory Surveys

The Wildlife Key Areas (WKA) are areas used by wildlife for critical, seasonal life functions. We record the identified key wildlife areas in an extensive GIS database and present this the information as digital maps that are available to view or print. The maps are used to support environmental assessment reviews and by managers and planners who need current accurate information about wildlife location and important habitats. The maps and database are regularly updated with information supplied by regional and species biologists and community experts, such as trappers, hunters, guides, pilots and others that travel extensively on the land.

Project Description: What we're going to do

The focus of the WKA inventory this year is to document late-winter moose concentration areas in the Northern Tutchone region. The central Yukon has been extensively staked for mineral exploration in recent years and there is a proposed all-season road to provide access to these claims.

The proposed survey area will provide complete coverage for the area south of Dawson and west of Carmacks where intensive mineral exploration is occurring. Recent surveys have covered the area north of these subzones and south of Dawson.

Management Implications: Why we're doing it

We need to identify late winter moose range to be able to develop and provide recommendations on avoiding impacts or mitigating mining activities. Data collected during these surveys can contribute to moose habitat suitability modelling, which is useful for land use planning

Mapping important wildlife habitats in areas with high levels of industrial activity is recommended in the 2008-2013 Community-based Fish and Wildlife Work Plan for the Na-Cho Nyäk Dun Traditional Territory.

Knowledge of regional wildlife abundance and the distribution of important and high quality habitats will provide the foundation for developing population and habitat goals.

Project Activities: How we'll get it done

We will use a late winter intensive stratification approach, with fixed-wing aircraft to map moose distribution during the critical late winter period. This approach allows us to identify potentially important late winter habitats but does not provide population estimate or composition information.

New information will be added to the WKA database.

Val Loewen, Habitat Inventory Coordinator