



FISH & WILDLIFE BRANCH
PROJECT SUMMARIES
2013-2014
UPDATES



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Chisana Caribou Herd Fall Composition Survey

The Chisana caribou herd was subject to an intensive international recovery effort in the early 2000s. Regular monitoring through annual fall composition counts and periodic censuses is required to provide the knowledge that guides conservation and management actions.

Project Description: What we did

Annual fall composition counts of select caribou herds throughout Yukon provide an overall assessment of the status of Northern Mountain caribou in the territory and contribute to long term monitoring.

This year, Alaska Department of Fish and Game (ADF&G) and Wrangell St. Elias National Park will do a census of the Chisana herd in conjunction with our fall composition survey.

A census and regular rut counts have been identified in the management plan to monitor this herd.

Management Implications: Why we did it

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. For hunting of this herd to be reinstated and maintained, identified thresholds of population trend, bull: cow ratios and recruitment of young into the population must be met.

Annual caribou rut counts done on select herds throughout Yukon provide an assessment or baseline condition for the status of Northern Mountain caribou in the territory. This information also contributes to long term ecological monitoring which helps identify changes mediated by annual weather patterns or longer term climate shift.

Project Activities: What we learned

Surveys were conducted using helicopters flying along high alpine plateaus where caribou breeding occurs. When groups of animals were encountered we classified the animals into one of four categories: calves, cows, immature males, or mature males. This year, we observed average recruitment (proportion of cows with calves) and a higher than average sex ratio (number of males compared to the number of females).

A “mark resight” census survey using radio collared animals as “marked” was done in conjunction with ADF&G. Survey results are currently being analyzed.

Troy Hegel, Ungulate Biologist (Caribou, Sheep & Goat)

Dall's Sheep Landscape Genetics

This project aims to incorporate genetic information, demographic information, and landscape features to identify biologically meaningful units (i.e., populations) for Dall's sheep, which can then be used to support management decisions.

Project Description: What we did

This 2-year project is a collaboration among biologists from the BC Ministry of Forests, Lands and Natural Resources Operations and the University of Alberta. During this first year we contributed horn core shavings (roughly 700 samples) and tissue samples (roughly 125 samples) collected as part of the compulsory submission of all hunter-killed sheep in Yukon from which DNA can be extracted; we are collaborating with the geneticists on the data analysis. We are first focussing on sheep in the Southern Lakes region (roughly the area south of the Alaska Highway to the BC border, and between Kusawa Lake and the South Klondike Highway) and, if deemed successful, the analysis may be applied across Yukon to delineate sheep management units.

Management Implications: Why we did it

Game management subzones are the basic unit for Yukon sheep management but there is an outstanding question of whether subzones or groups of subzones represent biologically meaningful sheep management units. The DNA analysis methods in conjunction with landscape feature assessments and existing survey information can be combined to evaluate biological sheep populations. These will provide a more meaningful basic unit by which management (e.g., harvest) and environmental assessment decisions can be made. This work will likely influence many aspects of thinhorn sheep management in Yukon.

Project Activities: What we learned

125 tissue samples were delivered to the University of Alberta for preliminary genetic analyses to refine the overall analytical approach. Roughly 700 horn core shavings were also delivered which were stored and processed. DNA will be extracted from these samples and used for the broader analysis.

Three components will be used to identify the management units. Genetic analyses will be carried out to group game management subzones that are genetically similar. Second, landscape features will be assessed in conjunction with the genetic groupings, looking for large valleys or other major movement barriers that could be used to delineate population boundaries. Finally, using the demographic data from the 2009 Southern Lakes sheep survey, these groupings will be assessed to determine if they match accordingly with the demographic data. That is, do the demographic data, reanalyzed based on these groupings, appear biologically realistic?

Troy Hegel, Ungulate Biologist (Caribou, Sheep & Goat)

Dall's Sheep Survey in the Dawson Range

The Dawson Range has been extensively staked for mineral exploration in recent years and there is a proposed all-season road to provide access to these claims. We lack information about important wildlife habitats in this area for assessing potential effects of development. Sheep are especially sensitive to disturbance from industrial activity.

Project Description: What we did

We used a helicopter to survey sheep in the Dawson Range and adjacent ridges in July, covering all suitable habitat and areas identified from previous surveys and local knowledge.

Management Implications: Why we did it

There is a widespread, low-density sheep population through the Dawson Range, but the population information is outdated and we know little about how they use their habitat in the summer, when mineral exploration activity is highest. This survey will address this information need and establish a baseline for subsequent monitoring.

Knowledge of important seasonal habitats used by wildlife in the Dawson Range will provide the basis for recommendations on avoiding impacts or mitigating mining activities in the region.

The results of the survey will be used to identify areas where sheep are potentially vulnerable to disturbance by mining activity and design a monitoring program to examine effects of industrial activity.

Project Activities: What we learned

We located 136 sheep in 17 groups in the Dawson Range and on adjacent ridges, mapped their locations, and classified them by age and sex. These numbers are similar to those found in the last comprehensive surveys of sheep in this area in the mid-1970s. Sheep were widely dispersed in small groups over these mountain blocks.

Mark O'Donoghue, Northern Tutchone Regional 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 (19 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 did

We conducted a composition survey by helicopter in late September during the fall breeding season when males and females are grouped together and are found on high alpine breeding grounds where they are more visible. The caribou were counted and classified into one of four categories: calves, cows, immature males, or mature males.

We searched the areas where most caribou have been seen in previous years: the alpine and subalpine areas north and northwest of Big Kalzas Lake, the McArthur Range, and the mountain blocks to the north, northeast and east of the McArthurs.

Management Implications: Why we did 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: What we learned

We located 202 caribou this year in 24 groups (34 calves, 103 cows, 31 immature males, and 34 mature males). The adult sex ratio (the number of adult males relative to the number of adult females) was 63 bulls per 100 cows. This sex ratio is higher than the sex ratio estimated for this herd during most of the past twenty years, and well above the management guideline of a minimum of 30 bulls per 100 cows.

The recruitment rate of 33 calves for every 100 cows is slightly above the range of 25-30 calves per 100 cows considered necessary for maintaining stable numbers. Recruitment in this herd has only exceeded 25 calves per 100 cows four times in the last decade.

Mark O'Donoghue, Northern Tutchone Regional Biologist

Elk Census

Elk have been the subject of intensive studies since a management plan was completed in 2007. When winter ticks were discovered on elk, an ambitious project to limit their spread to other wildlife by holding elk captive resulted in the unintended consequence of increased elk calf survival and population growth. An objective of the 2009 Yukon Elk Harvest Strategy was to use hunting to limit the size of the herds and their distribution to minimise range overlap and risk of exchange of ticks between elk herds, between elk and moose, and between wild game and farmed elk and to return the herds to their typical size.

The first permit hunt for elk was formally initiated in September 2009 after more than a year of development and consultations on a harvest strategy that ultimately was endorsed by senior officials in the Yukon and area First Nation Governments. There was also the adoption of an elk management planning model that includes an Elk Technical Team and an Elk Management Committee to ensure that the appropriate technical staff and stakeholders were involved in establishing a successful harvest management strategy.

Established harvest management areas (Appendix 4) to meet a range of objectives. Core Areas were based on traditional elk high-use areas where land use conflicts would be minimal but where elk appear to have sufficient forage for a modest elk herd. The distribution of permits in 2009 through 2011 (Appendices 1a, 1b and 1c) was such that the relatively small number of Core harvest opportunities for a short period would not deter elk from concentrating within the Core area for much of the year. The adjacent Buffer Areas (Appendix 4) were managed with relatively liberal elk hunting opportunities to; 1) discourage elk (and their ticks) from using these areas (and to remain within the Core areas), 2) reduce elk numbers, 3) reduce elk agriculture conflicts, and 4) allow for hunters to assist in addressing elk-agriculture conflicts within the Buffer areas. Finally, elk exclusion areas (Appendix 4) were established outside the core and buffer areas with the objective of preventing elk (and tick) dispersal into other ranges. Elk hunting opportunities in exclusion areas are extremely liberal.

A total of 101 elk were harvested in the first three years of the hunt: 26 in 2009-10, 39 in 2010-11, and 36 in 2011-12 (Appendix 1). In all years, most of the elk harvest occurred in the first two months of the hunting season (Appendix 7).

In 2009 and 2010 PHA permits were issued to harvest both cow and bull elk. A greater percentage of bulls (58%) than cows were harvested during the first two years, despite the prevalence of cow permits (Appendix 1). This resulted in sex ratio becoming skewed towards cows, especially in the Takhini herd. Consequently PHA permits were only issued to harvest cows in 2011.

The success rate of PHA permit holders remained high but showed a downward trend over the three years of the hunt. In 2009/10 46% of elk PHA holders were successful. In 2010/11 overall numbers of elk harvested were higher because of an increase in the number of permits were issued but the success rate dropped slightly to 44%. In 2011/12 the success rate dropped again to 40% of PHA holders.

Only 3 elk have been harvested to date in Exclusion areas (all three in 2009-10), despite the fact that hundreds of Yukon residents held Wildlife Act Permits in each year, enabling them to harvest elk in the Exclusion area. This indicates that large numbers of elk have not dispersed into areas beyond the Buffer Zones. We have, however, received occasional sighting reports in recent years of elk in places including Klukshu, Dezadeash Lake, Pelly Farm Rd, the Minto Burn and Moose Creek, west of Stewart Crossing.

A mark-resight aerial census of the Takhini Elk herd in March 2011 estimated the overall Takhini herd at approximately 275 elk. A low proportion of bulls (approximately 24 per 100 cows) were also observed during the survey. At their regular meetings in November 2010 and February 2011, the Elk Technical Team expressed a preference for reducing the overall harvest numbers in future years in order to create a sustainable elk harvest in the longer-term. That goal needs to be balanced with the objectives of managing elk population size, limiting tick dispersal, and reducing elk-human conflicts.

Overall, the outcome of the harvest activity can be considered a mixed success. The elk hunt has been very popular with over 2500 applicants in the first three years of the hunt. Hunters have appreciated the opportunity to harvest elk, trophy elk were harvested, and people were very happy with the quality of the meat and the health of the elk. But there were also concerns over access to elk, particularly in the Takhini Valley, where there are many hunters afield and where it is often difficult to comply with the requirement for a distance of 1 km or more from an occupied dwelling prior to discharge of a firearm.

This project is important because the elk herd has been substantially reduced in the last few years as per the technical team and management committee recommendations. Continuing a sustainable harvest on such a small population (approximately 200 animals) requires monitoring of population parameters. In addition, engaging the local community and agricultural land owners could build new bridges of communication and address concerns regarding elk (Goal 5 of the *Management Plan for Elk in the Yukon*).

Project Description: What we did

Confidence intervals on the 2 last aerial mark-resight surveys were wide and estimates are believed to overestimate the actual population. In addition, Bull elk are more solitary and dispersed than cows during winter making them more difficult to census. Accurate estimates of population size and composition are required to sustainably manage this small hunted population. This information will be used to parametrize population models to better predict outcomes of short and long-term management decisions.

This project is about combining traditional aerial census methodology with ground-based observations of engaged community members.

Management Implications: Why we did it

Elk population surveys, in combination with productivity estimates, are used to establish sustainable harvest rates and ensure healthy and viable populations of free-ranging elk in Yukon (Management Plan for Elk in the Yukon 2008). Regular monitoring will guide allocation and regulation decision making processes.

Project Activities: What we learned

This project had 2 components:

- A pilot stakeholder observation database
- A census/recruitment survey of the Takhini and Braeburn herds

We used a contractor to contact residents in the Takhini elk range area and ask if they would be willing to participate and be part of an elk monitoring group. Currently we have over 40 participants that are providing observation data. In addition, we created a smartphone APP that allows participants to directly transfer information from their phones to the elk database.

Unfortunately, weather conditions in late-winter were not appropriate to conduct a census of the elk herds. However, we were able to conduct recruitment surveys in each of the herds. In Takhini, we observed 67 elk which included 6 mature bulls, 6 immature bulls, 43 cows, and 12 calves. In Braeburn, we observed 40 elk which included 1 mature bull, 9 immature bulls, 25 cows, and 5 calves. These surveys were biased towards females because we focused on locating collared cows to estimate the recruitment rate.

The estimated 2013-14 recruitment rates for the Takhini and Braeburn herds were 28 and 20 calves per 100 cows respectively. These values are currently being used in elk population models to simulate current management scenarios. An accurate population estimate is still required to make sure that harvest is within sustainable limits.

Sophie Czetwertynski, Ungulate Biologist (Moose, Elk & Deer)

Finlayson Caribou Herd Fall Composition Survey

The Finlayson caribou herd was the focus of an intense recovery program that was implemented in 1983. A late-winter census in 2007 verified what fall composition surveys had indicated – a declining herd. There were an estimated 3,000 animals in the herd; almost half the numbers observed in 1990 at the end of six years of wolf control.

Project Description: What we did

This is an ongoing monitoring project. We will conduct a composition survey of the Finlayson caribou herd during the fall breeding season when males and females are grouped together on high-alpine breeding grounds where they are more visible.

Management Implications: Why we did it

A recent increase in applications to develop natural resources within the herd's range has highlighted the need to have current population information to inform management decisions and recommendations to mitigate developmental impacts. Furthermore, conservation and effective management of this herd is a key concern given its value as a subsistence harvest resource for the Ross River Dena Council and Liard First Nation as well as harvest interest from licensed hunters.

Composition surveys of this herd have been conducted annually since 1997. As part of a selected cross section of herds, this survey contributes to an overall indicator of demographic changes in Northern Mountain caribou across the territory.

Project Activities: What we learned

The survey was carried out on the 5-6 October, 2013 by Environment Yukon staff. The survey was conducted using a helicopter flying along high alpine plateaus where caribou breeding occurs. When groups of animals were encountered these were 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.

A total of 484 caribou were observed in 44 groups and were classified as follows: 297 cows, 77 calves, 66 mature bulls, and 44 immature bulls. The calf to cow ratio was 26 calves per 100 cows and the bull ratio was 37 bulls per 100 cows. The survey was carried out without incident and within budget.

Troy Hegel, Ungulate Biologist (Caribou, Sheep & Goat)

Fortymile Caribou Herd Distribution 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 (ADF&G) 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.

Project Description: What we did

This monitoring program annually assesses the winter distribution of the herd within Yukon and will be used in combination with population goals to determine future harvest potential for the herd.

Management Implications: Why we did it

Caribou abandoned much of their historical range in Yukon as the herd size shrank in the 1930s. As the herd size slowly increases, and the herd reaches population and range distribution goals, harvest restrictions will be revisited, which may provide for greater harvest opportunities in Yukon.

Project Activities: What we learned

We located radio collared caribou multiple times in October, November, February and March by using fixed wing aircraft to document the distribution and movements of the herd in Yukon, often in collaboration with our partners, Alaska Department of Fish and Game. Almost the entire herd was found distributed in Yukon from Chapman Lake on the Dempster Highway to the proposed Casino Mine in the Dawson range, and from the McQueston River to the border with Alaska. Many of these habitats had not been used since the 1950's or 1920's.

Mike Suitor, North Yukon Regional Biologist

Fortymile Caribou Herd Satellite Collar Program

Alaska Department of Fish & Game (ADF&G) has identified a concern that the Fortymile caribou herd (FMCH) is reaching carrying capacity on its summer range. Real-time information obtained from satellite collars is needed to inform management decisions that could directly affect the seasonal distribution of the FMCH and Yukon's harvest allocation.

Project Description: What we did

Working together with agencies in Alaska we will ensure sufficient numbers of satellite collars are on caribou in the FMCH to describe distribution of the herd and to assess range use. Location information will be used to direct Alaska-based programs that are being formulated to assess and monitor summer habitats. Detailed winter use data and migratory movement ecology (e.g., timing of movements, pathways) has not been available but are needed to mitigate environmental impacts from proposed resource development projects, particularly as the FMCH makes greater use of habitat in the Yukon during most seasons. YG biologists will continue to work with Alaska-based agencies in developing a full suite of research and monitoring methods to assess the status of the herd and its habitat during 2014.

Management Implications: Why we did it

The FMCH has increased in population and distribution following major declines in the 1970's that resulted in both First Nation and licensed hunters suspending harvest in the Yukon. The *Fortymile Caribou Herd Harvest Plan 2012-2018* was developed by the Alaska Harvest Management Coalition in consultation with Yukon stakeholders. To date management has set a very conservative harvest target for Alaska while Yukon stakeholders have agreed to put their allocation into the continued growth of the herd. ADF&G has recently identified concerns that the herd may be reaching carrying capacity on summer range and is considering whether management actions to maintain the current population size or reduce it would avert a potential population crash. Based on historical movements, reducing the overall size of the herd will result in fewer caribou entering Yukon. Understanding if the herd is reaching carrying capacity is a key management consideration that directly relates to harvest management in all FMCH jurisdictions.

Satellite collars will provide real time information for population monitoring and harvest management, and is a first step in assessing habitat use, seasonal range distribution, and the overall fitness of caribou as related to habitat.

Available habitat in Yukon is an area highly developed by the mineral extraction sector, although these activities are currently limited to summer and fall, only overlapping with the herd from August through the end of October. Location data gathered during monitoring will be available to assist in assessing potential impacts and appropriate mitigation of land uses in the herd's range.

Project Activities: What we learned

We deployed 22 satellite GPS collars in Yukon this winter which will provide valuable information on habitat use and herd movements as caribou begin to return to calving grounds in Alaska. Many of these collars should operate for multiple years and will hopefully document the routes and habitats used by the herd in Yukon during that period.

Mike Suitor, North Yukon Regional Biologist

Fuel drum retrieval: Rackla and Lower Stewart River

Winter wildlife surveys in the Rackla watershed and in the Lower Stewart River area in 2012-2013 relied on remote fuel caches placed on airstrips during the previous summer. Fourteen empty or partially filled drums from these surveys remain at the Rau airstrip and six drums are at the Rackla airstrip from the Rackla surveys. Eighteen drums remain at the Thistle Creek airstrip from the Lower Stewart River West-White Gold moose survey. These drums need to be removed before they rust out and spill residual fuel.

Project Description: What we did

We contracted fixed-wing aircraft to remove the empty drums from the Rackla and Rau airstrips and transported them to Mayo, and a barge to retrieve the drums from the Thistle Creek airstrip and took them to Dawson. We returned the drums to fuel distributors in Whitehorse and Dawson.

Management Implications: Why we did it

We will continue to demonstrate our commitment to environmental stewardship by removing these empty fuel drums.

Project Activities: What we learned

We successfully removed all of our empty fuel drums from the Rackla, Rau, and Thistle Creek airstrips.

Mark O'Donoghue, Northern Tutchone Regional Biologist

Ground-Based Moose Monitoring

Aerial surveys of moose are costly and can only be conducted about every 5 years in priority areas. In areas with significant harvest, more regular monitoring of moose populations is desirable. Ground-based monitoring is a cost-effective way of monitoring calf survival and it actively involves the local community in keeping track of the health of the local moose population. We have done ground-based monitoring of moose in the Mayo area since 2001, and in Pelly and Carmacks since 2007.

Project Description: What we did

We distributed moose monitoring booklets with maps to active hunters in the Mayo, Pelly Crossing, and Carmacks areas in July and August. We asked hunters to keep track of all moose they saw between August and October. We wrote a draft summary report of the ground-based moose monitoring program in the Mayo area from 2001 through 2013.

Management Implications: Why we did it

We will use information about moose calf survival as a part of our assessment of moose population health in the moose management units near the three Northern Tutchone communities.

Project Activities: What we learned

Nineteen hunters participated in the community moose monitoring in the Mayo area. They reported seeing 266 moose which is considerably lower than the average of about 400 moose seen per year during the past 12 years of ground-based monitoring. Warm September temperatures resulted in a later rutting season than usual and many local hunters did not harvest moose in 2013. Observations of hunters indicate that calf survival was good in the Mayo area in 2013.

In the Carmacks area, 12 hunters participated in the ground-based monitoring and reported observations of 78 moose. Hunters saw 30 calves per 100 adult cows, which indicates an average survival rate. Few moose monitoring booklets were distributed in Pelly Crossing in 2013 due to illness.

Mark O'Donoghue, Northern Tutchone Regional Biologist

Greater Nahanni Caribou Project

This is the final field activity of a multi-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 did

We recovered the remaining dropped collars in the study area which has now completed all field-based activities of this project. A report describing the demography and status of the caribou herds studied in this project was prepared and is currently in review.

Management Implications: Why we did 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 previously deferred proposed regulation changes for caribou in this area pending the outcome of this status assessment.

Adult female survival is a key information need for this and other caribou assessments. Retrieving these collars will provide an estimate of adult female survival based upon the known fates of radio-collared females. In addition, location information from radio-collared females will be used to refine our understanding of herd distribution in the area. This becomes particularly important as there may be overlap with the Finlayson caribou herd which is currently managed under a Permit Hunt Authorization for licensed hunters. Any information that enhances our understanding of caribou herd distribution and delineation will be valuable for any future regulation changes.

Project Activities: What we learned

Two reports from this project will be prepared: one dealing with the population and demography component of the project and the other dealing with habitat use and animal movements. The population status report is currently under review. A supplement to this report describing the survival analysis will be completed in 2014-15. The habitat use and animal movement report will also be completed in 2014-15.

Troy Hegel, Ungulate Biologist (Caribou, Sheep & Goat)

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 did

We 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 concentrate our flights in the overlap area with the most access for hunters. Once the locations have been established we use this information for in-season regulation adjustments such as the emergency closures when necessary.

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

Management Implications: Why we did it

Effective harvest regulation is critical to ensuring the much smaller Hart River herd is not over-harvested while not impacting the ability of licensed harvesters to hunt when the Porcupine caribou herd is available.

Location information is also used to map key rutting and wintering habitats for Hart River caribou, which is used in environmental assessments and land use planning processes.

Project Activities: What we learned

We located radio-collared Hart River and Porcupine caribou from fixed-wing aircraft multiple times in fall 2013. In added twist this year was the presence of a large number of Fortymile caribou in the Blackstone Uplands. Based on the presence of Fortymile and Hart River caribou but lack of Porcupine caribou in the overlap GMS, we enacted an emergency closure to protect the smaller Hart River herd and recovering Fortymile Caribou herd. Almost weekly flights in October through to mid-November ensured if large numbers of Porcupine caribou entered the area that managers had sufficient information to open the overlap GMS, however this did not occur and the GMS remained closed.

Mike Suitor, North Yukon Regional Biologist

Klaza Caribou Herd Population and Habitat Ecology

Mineral exploration is proceeding at a rapid pace within the Klaza caribou herd's range. One very large-scale project (Casino) is at advanced stages and other proponents (e.g., Northern Freegold) are actively working in the area, in addition to a number of placer mining operations. Additionally, the abandoned mine at Mt. Nansen will soon be experiencing significant activities during the clean-up and remediation activities.

This project will provide necessary information regarding the population and habitat ecology of the herd prior to more advanced development. This information will serve as a baseline and will be support inputs to YESAB review processes.

Project Description: What we did

The project is taking place within the range of the Klaza caribou herd, west of Carmacks. This year a number of population monitoring activities (composition surveys, calf survival monitoring, adult female mortality assessments) will occur during key life cycle stages. Movement and distribution information will be acquired by downloading data from GPS radio-collars placed on female caribou in the herd.

To advance the project and our understanding of the landscape and implications of current and possible future development on caribou habitat, satellite imagery that is currently available will be classified, tested for accuracy and then validated in the field.

Human activities and natural disturbances (e.g. fire) on the land have been shown to influence the distribution of caribou. To support our assessment of range and habitat use, current high resolution satellite imagery will be used to develop a detailed assessment of surface disturbance.

Management Implications: Why we did it

Information from this project will inform environmental assessment reviews for industrial activity in the Klaza herd's range. The results of the population assessment will also inform harvest management decisions, as the Klaza herd is currently under a Permit Hunt Authorization regime.

The presence of GPS radio collars in this herd provides the opportunity to validate our calf: cow recruitment rates for their accuracy, based on a comparison of calf survival monitoring of known animals. This is valuable as calf: cow ratios are one of Environment's key monitoring metrics for northern mountain caribou and we rarely have the opportunity to evaluate them. Having collared caribou also allows us to measure our ability to detect animals on the landscape. This is important information for the development of a long-term monitoring plan for assessing the herd's abundance once collars are no longer present on the herd.

Project Activities: What we learned

This is year 2 of a 5-year project. Project activities for 2013-14 include:

- Ongoing delivery of GPS locations from radio-collared caribou;
- Calf survival monitoring in late-May, October, and late-March;
- Retrieval of GPS radio-collars emitting a "mortality" signal. One collar has been retrieved thus far;
- Fall composition survey conducted via helicopter in early October;
- Caribou sightability correction assessment based on fall composition and radio-collar distribution;
- Deployment of 5 additional GPS radio-collars on the herd in December;
- Sampling of late-winter snow conditions in late-March;

Troy Hegel, Ungulate Biologist (Caribou, Sheep & Goat)

Heather Clarke, Habitat Biologist

Kluane Caribou Herd Radio-collaring

Radio-collars provide a wealth of information used to understand how caribou use the landscape. Collars are also used to gather information on the size of a herd and its demographic characteristics. Purchase and deployment of radio-collars on Kluane caribou will provide information that will be useful for environmental assessment purposes and other management decisions related to the herd.

Project Description: What we did

The Kluane northern mountain caribou herd is one of the smallest herds in Yukon. Due to its small size it is afforded a higher degree of monitoring in the National Northern Mountain Caribou Management Plan. Mineral exploration in the herd's spring and summer range is increasing and there is concern that the current spatial data on the herd's distribution is outdated (the most recent telemetry data for the herd is 10 years old) and may not adequately, or accurately, inform the environmental assessment process for any YESAA reviewed projects. This project will provide accurate spatial data on the seasonal distribution of the Kluane caribou herd. The project will also provide updated information on the population size and demographic data related to calf survival.

Management Implications: Why we did it

Data from the radio-collars will directly inform the environmental assessment process by providing more accurate and up-to-date information on the distribution of the herd, including critical areas and/or movement corridors. This may be particularly relevant for the Kluane herd because it crosses the Alaska Highway as it moves between winter and summer ranges.

Given the small size of this herd, the level of acceptable risk associated with any development may be reduced. Having more reliable distribution data for the herd will allow Environment Yukon staff to provide more meaningful recommendations and comments on YESAB submissions. Updated information on the size of the herd will also contribute to the level of acceptable risk related to industrial development and/or harvest.

Project Activities: What we learned

5 GPS radio-collars were deployed in March 2014. Due to poor capture conditions we were unable to deploy the remaining 10 collars. Location data from these collars will be transmitted for three and half years. Collars are programmed to drop-off in fall 2017, when they can be recovered during an annual rut count. We propose to use the collars in the 2014-15 fiscal year to estimate the herd's size during late-winter (March 2015) when we could do a mark-resight population estimate. Pending funding availability, the remaining collars will be deployed prior to the proposed population estimate.

Troy Hegel, Ungulate Biologist (Caribou, Sheep & Goat)

Moose Census: Paint Mountain/Jarvis/Cultus Bay Early Winter

Concerns have been raised about high harvest rates, increasing hunter access and the lack of current moose population and trend information for the Paint Mountain/Jarvis/Cultus Bay areas in the Kluane region. This has created uncertainty about the status of the local moose populations. Local observations and information have identified that access has been increasing into post-rut habitats that support large aggregations of moose, which increases the risk that harvest may exceed the ability of the population to support it. These areas were last monitored in 2004.

Project Description: What we did

This project will follow standard early winter moose inventory techniques. The Paint Mountain unit (Game Management Subzone (GMS) 5-41 lies directly north of Haines Junction, between the Alaska Highway and the Aishihik Road; the Jarvis unit (GMS 6-10 and 6-11) is within the Kluane Wildlife Sanctuary south of the Alaska Highway, between the Alsek and Jarvis rivers; and Cultus Bay (5-38) is north of the Alaska Highway between Kluane and Kloo lakes.

Management Implications: Why we did it

A current population estimate will allow us to determine if present harvest levels are sustainable. This assessment will inform whether any further management recommendations are needed.

Project Activities: What we learned

We conducted this survey from November 30th to December 3rd and pilot tested a new survey methodology that allows us to integrate habitat data and expert opinion. Incorporating all available information, as opposed to randomly sampling the landscape, will allow us to be more efficient and also encourages stakeholder participation in the process.

Analysis of the data is currently underway and preliminary results suggest that this new approach was a success. Results also will allow us to more accurately estimate moose populations at the subzone level.

Sophie Czetwertynski, Ungulate Biologist (Moose, Elk, & Deer)

Moose Census: South Canol North, Early Winter

Moose hunting pressure along the South Canol Road is among the highest in Yukon. This will be the first ever moose survey of the South Canol Moose Management Unit (MMU) and is part of our ongoing efforts to monitor and effectively manage priority moose populations throughout Yukon.

Project Description: What we did

This project will follow standard early winter moose inventory techniques. The South Canol Moose Management Unit encompasses the game management subzones adjacent to the South Canol Road between Quiet Lake in the south and the Robert Campbell Highway to the north.

We will evaluate estimated density, population composition and distribution in this area relative to known harvest levels and composition thresholds in the moose management guidelines, and map the early-winter distribution of moose.

Management Implications: Why we did it

This survey will provide us with our first baseline information on moose densities, population composition, and distribution in the South Canol Moose Management Unit. Knowledge of heavily hunted and important early winter areas for moose provide the basis for recommendations for harvest management and how to avoid or mitigate the impacts of mining activities in the region.

Project Activities: What we learned

We conducted the survey from November 15th to November 29th and estimated a population density of 107 moose/1000 km² in the 4807 km² survey area. We found a ratio of 57 bulls per 100 cows which is within management recommendations for all cows to be bred. Estimated recruitment was relatively low for calves (26 calves/100 cows) and yearlings (11 yearlings/100 cows). Harvest rate in certain subzones is near and above recommended maximum rates. The report is currently in preparation.

Sophie Czetwertynski, Ungulate Biologist (Moose, Elk, & Deer)

Moose Census: Teslin Burn, Early Winter

The Teslin Burn had not been censused since 1984. During the 1970s and early 1980s Teslin Burn had the highest moose density and among the highest moose harvest rates in Yukon. Since then, harvest rates have dropped by more than 90% and it is widely believed that moose abundance in the area has declined dramatically but reliable population estimates are not currently available. A current and reliable moose population estimate is needed to assess the sustainability of the current harvest rate.

Project Description: What we did

This project followed standard early winter moose inventory techniques. The Teslin Burn Moose Management Unit encompasses the game management subzones bordered by the Atlin Road to the west, the Alaska Highway to the north, Teslin Lake to the east, and the Yukon-BC border to the south (Game Management Subzones 9-08 to 9-11).

We will evaluate estimated density, population composition and distribution in this area relative to known harvest levels and composition thresholds in the moose management guidelines, and map the early-winter distribution of moose.

Management Implications: Why we did it

This survey will provide us with updated information on moose densities, population composition, and distribution in the Teslin Burn Moose Management Unit. The survey will determine if the moose population has recovered from the decline precipitated by high harvest and predation pressure in the '70's and early '80's.

Project Activities: What we learned

The survey was carried out between 19 and 28 November using both fixed-wing aircraft and helicopters. We estimated that there were $791 \pm 19\%$ moose in the Teslin Burn survey area, equaling a density of 290 moose per 1,000 km². The estimated adult sex ratio was 71 mature bulls per 100 adult cows. The estimated recruitment rates showed very good calf survival in 2012 and 2013. We estimated there were 48 calves and 47 yearlings per 100 cows, well above average for Yukon. The twinning rate was high, with 11% of cows observed with calves having twins. The survey results indicate a healthy, growing moose population.

Matt Clarke, Southern Lakes Regional Biologist

Novel Survey Techniques Dall's sheep

This project will investigate a new survey technique that could greatly reduce the cost and lead time needed to obtain abundance estimates for certain populations of sheep, and allow us to contribute timely, meaningful input into Yukon Environmental and Socio-economic Assessment Act (YESAA) project reviews.

Project Description: What we did

We will conduct trials of a new population estimator recently developed by biostatisticians with the US Geological Survey. This year we will survey the Caribou/Nares Dall's sheep population. Next year, we intend to use this technique to survey the Clear Creek mountain caribou herd. Most significantly, these methods do not require any form of animal marking (e.g., radio-collars) prior to survey work.

Management Implications: Why we did it

Where proposed projects occur within their ranges, Dall's sheep and northern mountain caribou are always identified as highly valued ecosystem components during YESAA project reviews. For the majority of project reviews under the YESAA, baseline data on the status (e.g., size, trend) of sheep and caribou populations are often unavailable or out dated. The lack of information can also reduce or completely limit the ability of project reviewers to contribute meaningful comments and mitigation measures through the assessment and licensing process.

If deemed successful, this approach will allow Fish and Wildlife staff, as well as industry contractors, the ability to rapidly estimate the size of both thinhorn sheep and mountain caribou populations without the need for any form of marking.

Project Activities: What we learned

We conducted aerial surveys of the Caribou/Nares Mt. and Gray Ridge sheep populations using the novel methodology in July. Data are currently being processed in preparation for analysis.

Troy Hegel, Ungulate Biologist (Caribou, Sheep & Goat)

Porcupine Caribou Herd Monitoring

The Porcupine Caribou herd is the largest caribou herd in Yukon. Threats to the herd have attracted considerable international attention as the herd is highly valued by aboriginal and non-aboriginal peoples from Yukon and elsewhere. To ensure conservation of the herd, multiple partners participate in monitoring aspects of the herd's biology.

Project Description: What we did

This project focuses on understanding herd size, composition, and the health of animals as well as assessing the health of the herd as a country food for residents. We also examine the interactions between caribou, grizzly bears, and harvesters along the Dempster Highway near the NWT border.

Management Implications: Why we did it

Collared caribou increase the rigour of all surveys, including efforts to estimate the size of the population. Collars decrease the cost and reduce bias in surveys, and allow managers to understand where large segments of the population are at any given time. This is important because the herd's seasonal use of its range varies from year to year.

Results from composition surveys feed into population assessments and are needed to fine tune the results of population estimates. Estimates and information derived from composition surveys are used during the Annual Harvest Meeting hosted by the Porcupine Caribou Management Board to determine herd status and therefore harvest allocation.

Monitoring of health indices and metal loads also allows wildlife managers to provide recommendations with regard to human consumption such as the current advisory on consumption of kidneys and livers currently in place. In addition, sampling has the potential to detect global events that may impact country foods, such as the nuclear accident at Fukushima.

Our pilot project to work with Chief Zzeh Gittlitt School in Old Crow will assist in engaging local community members (i.e., students and school helpers) while providing a forum to increase the rigour in sample collection and scientific method in the community. Such interactions can help develop positive long term relationships with the community and provide for opportunity to bridge traditional and scientific approaches to data collection.

Increased interactions between land users and grizzly bears along portions of the Dempster Highway have increased community concerns for people's safety on the land. Through partnership with regional groups we hope to assist user groups increase their knowledge of grizzly bears and bear safety in the region, reducing riskier human activities and behaviours through the development of educational programs and management of attractants.

Project Activities: What we learned

During the late winter field work, we deployed 21 VHF collars and 16 satellite GPS collars. We collected blood samples from captured caribou that will be tested as part of ongoing monitoring of disease prevalence.

In fall 2013 and winter 2014 we were unable to complete composition counts on the herd as it mixed with multiple other herds making it impossible to differentiate between various caribou herds. Fortunately in July 2013 we were able to assist our partners in collecting information that has led to a new population estimate for the herd: 197,000.

In September 2013 we travelled to Old Crow and worked with Chief Zzeh Gittlitt School in collecting data to assess the body condition and health of harvested caribou. We had another extremely successful year and were able to collect our sample goal of 20 and many more working with local harvesters. Students from the high school were able to participate in collecting samples alongside learning traditional means of harvesting caribou. To date samples from the Porcupine Caribou herd have been found to be healthy and have not shown any increase in radioactive material following the fall out at Fukushima.

In conjunction with GRRB biologists, a number of surveys took place to document distribution of caribou harvesters and grizzly bears adjacent to the Dempster Highway between the Eagle River bridge and NWT boundary to assess conflicts during harvesting activities. The GRRB also hired a monitor to patrol the highway and collect gutpiles that were close to the highway and move them to a more suitable location. Highway travelers and hunters that observed Grizzly bears on the north section of the highway were asked to fill out a survey form to document observations of bear location and behaviour, and to record interactions with hunters, if any. We have also been working to increase education with regards to harvest and grizzly bears.

Mike Suitor, North Yukon Regional Biologist

Southern Lakes Caribou Herds Composition Surveys

The recovery of the Southern Lakes caribou has been the focus of a long-term program designed to reverse the observed decline in the Carcross, Ibex, and Laberge herds. These herds of caribou are highly valued by consumptive and non-consumptive users alike and are a key species in the co-management of wildlife in this region.

Project Description: What we did

We conducted fall rut composition counts to assess the status of the herds and to measure recruitment, through indicators of population health including bull: cow and cow: calf ratios, to track recovery and measure the effectiveness of management actions.

Management Implications: Why we did it

Data collected from these surveys allows us to track and model the recovery of the Southern Lakes caribou herds. Information from this monitoring and modeling will allow us to inform management actions as well as discussions with our First Nation partners and the public concerning potential caribou harvest. As part of a selected cross-section of herds the data may contribute to an overall indicator of demographic changes in Mountain caribou across the territory including responses of caribou to phenomena such as a changing climate.

Project Activities: What we learned

Carcross/Laberge Herds: We located 490 animals in 42 groups (312 cows, 72 calves, 41 immature bulls, 64 mature bulls, and 1 unclassified animal). The adult bull: cow sex ratio was 34 bulls per 100 cows. This is considered low for an unhunted herd, but is still above the management guideline of 30 bulls per 100 cows.

The recruitment rate was 23 calves per 100 adult cows, which is considered to be in the range of 20-25 calves required to maintain a stable population.

Ibex Herd: We located 530 animals in 20 groups (326 cows, 63 calves, 70 immature bulls, and 71 mature bulls). The adult bull: cow sex ratio was 43 bulls per 100 cows. This is considered low for an unhunted herd, but is still above the management guideline of 30 bulls per 100 cows.

The recruitment rate was 19 calves per 100 adult cows, which is below the range of 20-25 calves per 100 cows required to maintain a stable population. This was the first time since 2007 that the recruitment rate fell below the management guideline.

Matt Clarke, Southern Lakes Regional Biologist

Tatchun Caribou Herd Fall Composition Survey

Harvest of caribou in the Tatchun herd is at or above sustainable levels, and the population estimate of this herd is 13 years old. The Fish and Wildlife Branch has closely monitored this fairly small herd (about 600 animals) with almost yearly fall composition surveys (19 since 1993). It is one of several herds in 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 did

We conducted a composition survey by helicopter in late September during the fall breeding season when males and females are grouped together on their high alpine breeding grounds. The caribou were counted and classified into one of four categories: calves, cows, immature males, or mature males.

We searched the areas where most caribou have been seen in previous years: on Tatchun Hill, in the Tummel Hills, and in the Little Salmon Range (south of Drury Lake), and along the western flanks of the Glenlyon Range.

Management Implications: Why we did 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: What we learned

We located 170 caribou this year in 8 groups (23 calves, 108 cows, 20 immature males, and 19 mature males). The adult sex ratio (the number of adult males relative to the number of adult females) was 36 bulls per 100 cows. This sex ratio is low compared to most woodland caribou herds in Yukon.

The recruitment rate of 21 calves for every 100 cows is slightly lower than the 25 to 30 calves per 100 cows considered necessary for maintaining stable numbers. Recruitment in this herd has been generally good in most years.

Mark O'Donoghue, Northern Tutchone Regional Biologist

Wood Bison Inventory and Monitoring

The 2012 Yukon bison plan tasks bison managers to reduce and stabilize the size of the herd. As a relatively small, isolated population it is important to ensure that herd numbers do not decrease to below the target. Because of the high harvest rate, inherent small population size, and conservation status of the herd, managers need good information about bison numbers and population trends to balance recovery, address community concerns and allow local people to benefit from the resource. The opportunity to hunt bison is a valued and beneficial resource, and requires careful management using the best available information.

Project Description: What we did

Activities planned for this fiscal year come from recommendations in both the management plan for this herd, and the draft national recovery strategy for wood bison in Canada. The bison program will focus on:

- Developing and sharing the successful recovery story of this Threatened species following the relocation through reporting in the form of summary reports, journal articles and other communication pieces;
- Continuing to monitor the population status and distribution of bison to provide data to regional planning processes and meet legal requirements for identifying critical habitat under the federal *Species at Risk Act*; and
- Improving the bison health monitoring program to ensure that our populations maintain their current genetically pure and disease free status.

Management Implications: Why we did it

This information will be used in the following ways, all of which are contained in the Yukon Wood Bison Management Plan and the DRAFT National Wood Bison Recovery Strategy:

- Provide data to calculate an Annual Allowable Harvest that meets the goals of the territorial and national management plans for wood bison;
- Provide data to better understand the spatial distribution, movements, and other aspects of basic bison biology, and monitor range expansion and shifts in range use;
- Provide data to delineate key habitat of wood bison, as set out under the federal *Species at Risk Act*;
- Describe to various audiences the success and learning outcomes from this complex reintroduction and management of a large, Threatened species in the Yukon; and

- Contribute data to national initiatives to assess the health and genetic status of these small, reintroduced populations that are isolated from other populations.

Project Activities: What we learned

We conducted an aerial composition count in July 2013. This will provide data on recruitment (calves per 100 cows) and adult sex ratios (large bulls per 100 cows) in the population.

In March 2014, we radio-collared 13 cows to replace and replenish a sub-sample of radio-collared bison in the population.

We used the radio-collared animals to monitor survival and to obtain better information on the distribution (including range expansion and shifts in range use) and demographic parameters (e.g. recruitment and survival). This will require periodically relocating collared bison through radio-telemetry fixed-wing flights. Fixed-wing telemetry flights were conducted in April 2013, and again in July 2013, prior to the composition count. Further radio-telemetry flights were flown in October 2013 and February and March 2014. Maps showing areas more likely to have bison, based on the latter 3 telemetry flights, were made available to hunters as a trip planning aid.

We will continue to collect samples to monitor the health and genetic status of wood bison and contribute these to national initiatives to assess the health and genetic status of these small, reintroduced populations that are isolated from other populations. We will do this by collecting genetic samples from hunters and during our capture operations. We will explore approaches to obtain samples to test for diseases from hunters in this pilot project.

Thomas Jung, Senior Wildlife Biologist (Biodiversity)

Yukon Deer Observation Database

Deer have been harvested on in Yukon since 2006 with 400 to 500 people applying for the 10 PHAs issued each year.

To date, there have been no surveys to estimate population parameters. The only information available is incidental ground-based observations and locations recorded during aerial surveys for other species.

A camera-based Deer Inventory and Monitoring project is scheduled to begin in the summer of 2014. This database of historical records will provide invaluable information to guide project design.

Project Description: What we did

A Microsoft Access Database of incidental deer locations has been created and is located in G:\fw\Programs\Deer\Technical\Deer_Database
This project would provide the funds to have a contractor enter all historical information into this database.

Management Implications: Why we did it

We need to create and maintain a searchable database of these deer observations that are presently in various formats in multiple folders.

At present, there is no way to query or map any of the deer information on our server.

Once the database is updated, new observations will be entered as they are obtained. Regional Biologists will have access to the database and will no longer fill out the "Protected Wildlife Sighting" forms.

Project Activities: What we learned

A contractor was hired and all historical data has been entered into the database. This information will now be used to guide summer fieldwork where cameras will be used to study deer distribution.

Sophie Czetwertynski, Ungulate Biologist (Moose, Elk, & Deer)

Assessing Habitat Suitability for Caribou & Moose in Southern Lakes

The management of wildlife and their habitat relies on a good understanding of species-habitat interactions and identifying the abundance, distribution, and availability of important habitats.

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

Project Description: What we did

This is Year 2 of a 2-year project (2012-13: Southern Lakes Habitat Assessment).

This project involves identifying important winter habitat for Ibex caribou and early-winter habitat for moose in a portion of the Southern Lakes region. The results of this work can be used for local area planning, regional land use planning, development of harvest guidelines, management of harvest, and environmental assessment.

Management Implications: Why we did it

Cumulatively, this information will be used to assess the overall distribution and availability of early-winter moose and late-winter caribou habitat across a large portion of the Southern Lakes region. This information will help prioritize areas of conservation and management concern and will provide input to environmental assessment and habitat, wildlife, and land-use planning in the Southern Lakes region. When developments are proposed in the area, our data on moose and caribou habitat suitability can be used to determine potential habitat loss and fragmentation. Habitat suitability information can also be used to identify key movement corridors (i.e. the areas between habitats of high value) and movement barriers (i.e. areas impeding or preventing movement) to characterize landscape connectivity. This information is valuable for local and regional land use planning, environmental assessment and wildlife habitat management. Data can also be combined with information on other species' habitat use and suitability to assess the combined habitat value for multiple species across the Southern Lakes region.

Project Activities: What we learned

This year we will: 1) map lichen abundance and distribution across the Ibex caribou winter range and 2) develop a statistical model of late-winter habitat suitability for the Ibex caribou herd and early-winter habitat suitability for moose.

Lichen data was collected during aerial flights over the Ibex herd range in late July, 2013. A contract to develop a map of lichen across the herd range using these data along with recent satellite imagery was completed in early 2014.

Both the caribou and the moose habitat suitability models are currently being developed and nearing completion.

Heather Clarke, Habitat Biologist

Dempster Snowmobile Vegetation Damage

In 1999, the Government of Yukon implemented a series of recommendations put forward by the Porcupine Caribou Management Board to address issues around caribou harvest along the Dempster Highway. One of the management actions was to prohibit the use of snowmobiles by all users in the immediate area of the highway until the ground is frozen and there is sufficient snow on the ground to protect vegetation. This project will determine if this regulation is effective at preventing damage to the vegetation and will help inform future management and regulatory decisions.

Project Description: What we did

A controlled snowmobile traffic study to investigate the effect of snowmobiles in three subarctic vegetation communities was done near Chapman Lake in 2005 and 2006. We will revisit the study area established to assess the recovery or changes in vegetation four years after the experimental treatments ceased. Based on the documented recovery, further monitoring may be needed in the future.

Management Implications: Why we did it

This project will determine appropriate snow depths for low impact snowmobile use in autumn and should identify impacts that can be anticipated from their use so that informed decisions may be made.

Project Activities: What we learned

At each of the sites during the peak growing season (mid-July) we will measure species composition and occurrence, biomass, compression, damage to shrubs, and soil moisture. We will also assess the depth to permafrost in late August at sites with and without experimental snowmobile traffic to identify changes in the active layer due to the activity. Finally, we will collect repeat photographs of plots and experimental snowmobile traffic lanes for visual assessment and documentation.

The data entry from the July fieldwork is complete and data analysis is planned for late spring 2014. It is hoped that this project will be concluded by July 2014.

Mike Suitor, North Yukon Regional Biologist

Habitat Protection Areas Inventory, Assessment, and Monitoring

This project assesses or monitors the status of values in Habitat Protection Areas (HPAs) across Yukon. HPAs are identified primarily through land claim agreements as areas where disturbance to wildlife, or to the habitat on which it depends, could lead to the decline of a species or population.

Project Description: What we did

Each year, we assess the status, develop inventories for, or monitor significant fish, wildlife, and habitat values in HPAs around Yukon. These values differ amongst HPAs but the work typically involves habitat assessments, surveys of semi-aquatic mammals, inventories of biodiversity, and long-term monitoring to determine ecological change. The information provides baseline data needed for the development of HPA plans or arises from a recommendation in a plan (i.e., plan implementation).

Management Implications: Why we did it

HPAs may be areas where a wildlife species is concentrated at certain times of year, where a habitat type is rare, or where a site is particularly fragile or susceptible to disturbance. We conduct inventory, assessment and monitoring of the values of HPAs to ensure that they are being maintained. The information gathered is used to support and inform the implementation or the development of HPA management plans.

Project Activities: What we learned

This is an on-going, multi-year project for assessment, inventory, and monitoring of significant fish, wildlife, and habitat values in HPAs. In the case of HPAs that are not yet developed or are in the process of being developed, projects focus on establishing baseline data or assessing the unique values of the HPA. In the case of HPAs for which management planning has been completed, projects are identified in the management plan, or implementation plan, or through advice from technical staff of the Fish and Wildlife Branch and/or First Nations. The timelines and deliverables for these projects are developed by or in conjunction with the HPA steering committees.

This project was not conducted during this year; further consideration will be given to conducting a fisheries assessment in 2014 -15.

Bruce McLean, Habitat Protection Biologist

Klaza Caribou Herd Population and Habitat Ecology

Mineral exploration is proceeding at a rapid pace within the Klaza caribou herd's range. One very large-scale project (Casino) is at advanced stages and other proponents (e.g., Northern Freegold) are actively working in the area, in addition to a number of placer mining operations. Additionally, the abandoned mine at Mt. Nansen will soon be experiencing significant activities during the clean-up and remediation activities.

This project will provide necessary information regarding the population and habitat ecology of the herd prior to more advanced development. This information will serve as a baseline and will be support inputs to YESAB review processes.

Project Description: What we did

The project is taking place within the range of the Klaza caribou herd, west of Carmacks. This year a number of population monitoring activities (composition surveys, calf survival monitoring, adult female mortality assessments) will occur during key life cycle stages. Movement and distribution information will be acquired by downloading data from GPS radio-collars placed on female caribou in the herd.

To advance the project and our understanding of the landscape and implications of current and possible future development on caribou habitat, satellite imagery that is currently available will be classified, tested for accuracy and then validated in the field.

Human activities and natural disturbances (e.g. fire) on the land have been shown to influence the distribution of caribou. To support our assessment of range and habitat use, current high resolution satellite imagery will be used to develop a detailed assessment of surface disturbance.

Management Implications: Why we did it

Information from this project will inform environmental assessment reviews for industrial activity in the Klaza herd's range. The results of the population assessment will also inform harvest management decisions, as the Klaza herd is currently under a Permit Hunt Authorization regime.

The presence of GPS radio collars in this herd provides the opportunity to validate our calf: cow recruitment rates for their accuracy, based on a comparison of calf survival monitoring of known animals. This is valuable as calf: cow ratios are one of Environment's key monitoring metrics for northern mountain caribou and we rarely have the opportunity to evaluate them. Having collared caribou also allows us to measure our ability to detect animals on the landscape. This is important information for the development of a long-term monitoring plan for assessing the herd's abundance once collars are no longer present on the herd.

Project Activities: What we learned

This is year 2 of a 5-year project. Project activities for 2013-14 include:

- Ongoing delivery of GPS radio-collar locations from collared caribou;
- Periodic monitoring of calf survival via aerial monitoring of GPS collared caribou. These monitoring flights will take place in early June, October, and late March;
- Retrieval of GPS radio-collars emitting a "mortality" signal;
- Caribou sightability correction assessment based on fall composition and radio-collar distribution;
- High resolution satellite imagery has been acquired and is being used to map human disturbance features across the herd range.
- The first approximation of a landcover classification using satellite imagery has been completed. Field data was collected during aerial surveys in early August, 2013 and was used, along with high resolution imagery, to perform an accuracy assessment of the classification. The final land cover classification will be modeled based on accuracy assessment results and other related data.

Troy Hegel, Ungulate Biologist (Caribou, Sheep & Goat)

Heather Clarke, Habitat Biologist

Local Knowledge Habitat Interviews: Dawson Range

The Dawson Range has been extensively staked for mineral exploration in recent years and there is a proposed all-season road to provide access to these claims. We lack information about important wildlife habitats in this area for assessing potential effects of development. Local knowledge interviews have been conducted in Dawson as a part of the regional land use planning process, but none have been conducted for areas further east in the Dawson Range. This project will address this information need.

Project Description: What we did

We conducted local knowledge interviews individually and in a workshop format with knowledgeable local residents in the Pelly Crossing area in March 2014, in collaboration with the Selkirk First Nation and Selkirk Renewable Resources Council. We mapped seasonally important wildlife habitats based on the observations of participants.

We will map Wildlife Key Areas (WKAs) based on these interviews for species and seasons that fit into the WKA database.

Management Implications: Why we did it

Knowledge of key areas and other seasonal habitats used by wildlife in the Dawson Range will provide the basis for recommendations on avoiding impacts or mitigating mining activities in the region.

Key areas are used by wildlife for critical, seasonal life functions and are defined for each species or species group. The WKA Inventory identifies those areas that are most restricted in availability, most valuable, or where wildlife is most vulnerable, so that these areas can receive a higher level of protection.

Data collected during these interviews in combination with other distribution data contribute to habitat suitability modeling.

Local knowledge interviews to map important wildlife habitats are proposed as part of the draft *Proposed Fish and Wildlife Baseline Data and Monitoring Plan: Klondike Plateau-Dawson Range*.

Project Activities: What we learned

We mapped seasonally important habitats for moose, caribou, sheep, grizzly bears, alpine raptors, waterfowl, and fish in the Dawson Range and surrounding areas, based on the knowledge of local hunters, trappers, miners, outfitters, pilots, and other community members. This information fills gaps in our WKA database and also adds data for other seasons that we will use in environmental assessments.

Mark O'Donoghue, Northern Tutchone Regional Biologist

Wildlife Key Area Surveys

Wildlife Key Areas (WKAs) are areas that are most restricted in availability, most valuable, or where wildlife is most vulnerable. It is important to identify WKAs so that they can receive a higher level of consideration or protection in development assessment reviews and land use planning. Wildlife key area surveys are central to ensuring that the information in the Wildlife Key Area Inventory is up-to-date and comprehensive.

Project Description: What we did

Key areas are used by wildlife for critical, seasonal life functions and are defined for each species or species group. Surveys are done at key times of year to document animal locations. These identified key wildlife areas are recorded in an extensive GIS database from which digital maps can be made for viewing or printing.

Yukon has seen unprecedented mineral exploration activity over the past two years. Some of the most intense activity is occurring in the central Yukon. We are intending to do wildlife key area surveys in some of these focal areas.

Management Implications: Why we did it

Knowledge of wildlife key areas provides the basis for recommendations on avoiding impacts or mitigating mining and other resource development activities. Data collected during these surveys, in combination with other distribution data, can contribute to habitat suitability modeling and can assist with developing population and habitat goals.

Project Results: What we learned

A number of helicopter-based surveys were conducted in the central and southern Yukon to identify potential WKA areas and to learn more about wildlife distribution:

- Klondike Plateau Dawson Range: sheep in the spring (lambing) and fall (rutting) and alpine raptors in the spring (nesting).

During the June survey, we found a total of 82 sheep in 7 groups. We located one new gyrfalcon nest and a golden eagle nest in a previously mapped nesting area. We also located 3 areas with abundant sign of alpine raptor activity: one a new site and 2 sites in a previously mapped nesting area.

During the fall survey, we found a total of 71 sheep in 14 groups. Three sheep were near the rutting range mapped previously on Apex Mountain and 9 were on Mount Langham to the west of the mapped rutting range. We also located new rutting areas on Britton Ridge, ridges southeast of Klaza Mountain, and mountains north of the Nisling River.

From this survey data, a total of 9 sheep WKA polygons (1 Spring Lambing, 2 Winter Range, 5 Multi-Season/Function, and 1 Year-round/All function) were newly created.

- Rackla area: sheep in the fall (rutting) and in the late winter. During the rutting survey, we found a total of 10 sheep in 3 groups plus an additional site with abundant sheep tracks. Sheep were on south-facing slopes with rock outcrops overlooking Elliott, Carpenter, and Braine creeks.

The late winter survey was conducted in March in the Rackla and Beaver River watersheds northeast of Mayo. Key winter range for sheep had not been previously mapped in this area. We found a total of 11 sheep in 3 groups and also found another 3 areas with fresh sheep tracks, mostly on south-facing slopes overlooking tributaries of the Beaver River.

From these data, a total 7 new sheep WKA polygons (4 Spring Lambing, 1 Winter Range, and 2 Multi-Season/Function) were created.

- Magundy River area and north of Little Salmon Lake: sheep in the late winter.

We surveyed the Glenlyon and Wood Cutters ranges, including ridges along the Magundy River. Key winter range for sheep had been previously mapped in the Glenlyon Range based on local knowledge and a survey in 1987. We found a total of 73 sheep in 18 groups in the Glenlyon Range and 37 sheep in 5 groups in the Wood Cutters Range; we did not see any sheep on previously mapped winter range on ridges overlooking the Magundy River. However, partial melting of snow on south and west-facing slopes made visibility of sheep very difficult.

- MacMillan Pass area: sheep and moose in the late winter.

In the early March survey in the Macmillan Pass area, we found a total of 3 moose in 2 groups and no sheep. The moose were observed in 2 separate valleys that showed signs of moderate-to-high use. Within one of these valleys, but 4 km outside of the survey boundary, a group of 3 moose was located. The same 2 valleys also showed sign of caribou use and a group of 4 caribou was observed. Other wildlife encountered included a gyrfalcon and 3 wolverine.

We will complete the WKA polygon delineation for the outstanding survey results in the upcoming year.

Val Loewen, Habitat Inventory Co-ordinator

Yukon Vegetation Classification

Yukon is one of the few North American jurisdictions that do not have a vegetation classification. This project addresses this gap. The Yukon Vegetation Classification (YVC) is about developing a common framework - a tool - to understand and describe the variation in plant communities across the territory. The YVC can be used in a myriad of applications; it is the basis for sound ecological science and robust assessments of land, and ecologically-based management and planning.

Project Description: What we did

This project provides a comprehensive ecological vegetation classification for Yukon's forests, woodlands, grasslands, wetlands, alpine, and tundra.

A robust vegetation classification is a key component of the Yukon Ecological and Landscape Classification (ELC) – the Yukon government's chosen approach to ecological land cover classification and mapping. This project is one of the ways in which the Fish and Wildlife Branch contributes to developing the ELC program.

Management Implications: Why we did it

A Yukon vegetation classification will be used manage wildlife habitat, and inform wildlife management decisions. It can be used as an input to environmental assessment and land use planning and for ecological monitoring (e.g. changes to biodiversity due to climate change). The Yukon Vegetation Classification is one of three essential components comprising the Yukon ELC and the Yukon ELC Five-Year Strategic Plan (2012-2017), jointly signed by the Deputy Ministers of the Departments of Environment and Energy, Mines and Resources.

Project Activities: What we learned

The work is carried out by a team of ecologists and biologists, led by the Vegetation Ecologist. This team includes individuals from government agencies (territorial and national) and the private sector that have expert knowledge of Yukon vegetation, soils and current national standards and methodologies of vegetation classification.

One hundred and thirty new Yukon Treed Vegetation Associations were drafted, reviewed, and field-tested. Yukon Arctic Vegetation Associations were also finalized. Summary fact sheets are available for the completed classifications.

Catherine Kennedy, Vegetation Ecologist

Aquatic Invasive Species

The introduction and colonization of aquatic invasive species (AIS) pose potentially serious threats to Yukon waterways. This project will help to mitigate the risk by raising awareness and understanding amongst the public whose activities are most likely to result in an accidental introduction of AIS.

Project Description: What we did

This project promoted public awareness and prevention of the unintentional introduction or spread of aquatic invasive species. We focused on developing and delivering communications material to support greater understanding of the issues of a greater suite of AIS and how to prevent their introduction. We focused on identifying high-risk behaviours surrounding fishing or boating practices and delivering messaging in locations specific to these activities. These materials will also promote public engagement through reporting of suspected AIS detections.

Management Implications: Why we did 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, and what steps can be taken to avoid AIS introduction and spread.

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: What we learned

We first developed a communication strategy for AIS and from this we worked with stakeholders and focus groups to develop effective signage that we intend on placing at boat launches and other key areas (see over). We refined our messaging on Aquatic Invasive Species to include in the Fishing Regulations Summary (see over). We developed a survey to carry out at campgrounds and other locations next year that will gauge the public's understanding of their role in preventing the introduction and spread of AIS. Finally, we contributed to the ongoing work of the Invasive Species Interdepartmental Working Group and the Yukon Invasive Species Committee.

STOP AQUATIC INVASIVE SPECIES

HELP PROTECT OUR WATERS



CHECK

and remove mud, weeds and aquatic life



DRAIN

water from bilges, pumps, coolers and buckets



CLEAN

boat and gear by freezing, drying, or power washing

Don't move water, fish, plants or aquatic life from one waterbody to another

Report possible invaders to
1-800-661-0408 ext 5721 or fisheries@gov.yk.ca



Stop Aquatic Invasive Species

Help protect our waters

Invasive plants and animals are a major threat to aquatic ecosystems. Follow these simple steps to do your part and prevent their introduction and spread:



CHECK and remove mud, weeds, and aquatic life from motors, boats, trailers, and gear before leaving the area.



DRAIN and remove mud, weeds, and aquatic life from motors, boats, trailers, and gear before leaving the area.



CLEAN your boat, trailer, and gear by freezing solid overnight, fully drying in the sun, or power washing.

Choose gear wisely. Felt and other porous soles of wading boots can keep moist for long periods of time and transfer aquatic organisms from one body of water to another.

Pay special attention when you are moving between lakes and rivers. Report all sightings of possible invaders to the Department of Environment.

Visit the Yukon Invasive Species Council website:
www.yukoninvasives.com.

Heather Milligan, Project Biologist

Coordinated Harvest Strategy Support: Kluane Duke River

Kluane First Nation, Dan Keyi Renewable Resource Council, Kluane National Park, and Environment Yukon have identified the need to address harvest management challenges to ensure sustainable moose populations.

Project Description: What we did

A steering committee of the collaborating partners has drafted a moose management strategy for the Kluane/Duke River Moose Management Unit, based on extensive local public engagement over the past year. There does not appear to be strong community and First Nation support for harvest restriction at this time. Finalization of the strategy is not anticipated before early winter 2014/2015. Partners have agreed to send confirmation of financial support to conduct a new survey (ideally with tighter confidence intervals than the 2011 survey) which will likely be conducted early winter 2014/2015. Continued support is needed in the form of technical expertise, meeting facilitation, communication and education. One such opportunity will be afforded during a Kluane Spring Gathering being planned for May 10, 2014.

Management Implications: Why we did it

Annual surveys conducted by Parks Canada in the Upper Duke River area show strong declines in moose numbers over roughly 30 years. A moose census done by Environment Yukon in the Burwash area in 2011 found low moose density, and a low bull: cow ratio in the Kluane/Duke River Moose Management Unit.

Recent summaries of total reported harvest (including Kluane First Nation harvest data) show annual harvest rates in the study area greater than 9% over the last 10 years, much higher than recommended in the Yukon Moose Management Guidelines.

The strategy will increase awareness of moose population concerns in the area and focuses efforts to improve the long term sustainability of the population.

Project Activities: What we learned

A new moose survey planned for early winter will offer a new opportunity to garner local community and First Nation support for a finalized strategy with strong recommendations to achieve a sustainably-managed moose population. Actions this fiscal year will likely include communication activities by all parties to voluntarily reduce overall moose harvest (particularly cow harvest), continue harvest data collection by KFN, and provide educational opportunities to local wolf trappers.

Shawn Taylor, Kluane Regional Biologist

Coordinated Harvest Strategy - Southern Lakes

This project aimed to develop a co-operative harvest management framework that will assist managing the long-term sustainability of moose populations in the Southern Lakes. Current harvest management practices in the Southern Lakes are focused on licensed hunters. Harvest reporting is mandatory for licensed hunters, but not so for subsistence harvesters. A framework will begin to address harvest management by all users.

Project Description: What we did

This project focused on developing co-operative relationships with interested First Nation governments in the Southern Lakes region in order to define management goals for local moose populations and identify harvest management actions required by all parties in order to achieve those goals.

Management Implications: Why we did it

This project will help us support our First Nation partners in collecting rigorous and verifiable harvest data from their members and will lead to shared data from all management partners. With complete harvest data, harvest regulation will be more informed, and the management of wildlife populations will be improved.

Project Activities: What we learned

For this project, there were two main areas of focus:

- Nisutlin River Valley: An assessment of moose population status and total harvest (First Nation and licenced) was drafted and shared with Teslin Tlingit Council and the Teslin RRC.
- Southern Lakes: Technical assistance was provided to Carcross/Tagish First Nation regarding harvest information collection. A database for CTFN harvest data was installed in March. Initial discussions regarding co-operative harvest management with Carcross/Tagish First Nation, Ta'an Kwächän First Nation and Kwanlin Dun First Nation have been delayed and are anticipated in spring of 2014.

Matt Clarke, Southern Lakes Regional Biologist

Cumulative Effects Management – Range Assessment

Yukon is undergoing unprecedented mineral exploration and development. Through the environmental assessment process, effects of industrial activity are considered on a project by project basis. Given the concentration of multiple exploration activities and projects in some regions of Yukon, there is a need for the Fish and Wildlife Branch to find effective approaches to support the assessment and management of cumulative effects on fish and wildlife values.

Project Description: What we did

This project builds on a recent report: *Range Assessment as a Cumulative Effects Management Tool: A Recommended Approach for Yukon Environment*. It is aimed specifically at evaluating the use of range assessments as a tool that the Branch can use to organise its technical input into environmental assessments in a way that explicitly considers landscape-scale cumulative effects of multiple developments on wildlife values. Range assessments summarise known information, evaluate risks, define management objectives, and define mitigations and management actions related to specific wildlife values. Range assessments will contribute directly to the larger Yukon Government corporate framework being developed by the Development Assessment Branch for management of cumulative effects. Initial framework documents recommend that the framework be tested via a pilot project in the Casino area, a region experiencing very high levels of mineral exploration and development. This project focuses on developing range assessments for caribou herds in the Casino and Southern Lakes areas.

Management Implications: Why we did it

This program will enable the Fish and Wildlife Branch to develop a coordinated and well planned approach to data gathering and analysis using sound and science-based methods, leading to effective and consistent management recommendations. It will allow the Branch to identify and assess probable responses of wildlife to multiple proposed developments at a regional scale. The information we collect is provided to the Yukon Environmental and Socio-economic Assessment Board (YESAB) to help them in their analysis of project-specific and cumulative effects.

Project Activities: What we learned

This program is structured as two pilot projects.

The principle focus will be to develop a range assessment for the Klaza caribou herd in the Casino area. There was relatively little information about this caribou herd and its range: the project has focused on identifying data and filling data gaps, evaluating risks of present and proposed human developments, and recommending mitigations, monitoring, and adaptive management responses. This is Year 2 of a 5-year project, with a focus on collecting data from GPS radio-collared caribou (details provided in the *Klaza Caribou Herd Population and Habitat Ecology* summary). This assessment will contribute to the Branch's input into testing the proposed corporate cumulative effects management framework.

The range assessment for the Southern Lakes caribou herd was able to take advantage of existing information for a well-studied herd in an area with multiple residential, transportation, and forestry developments. A draft document is currently under review.

Jamie McLelland, Manager Regional Programs

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 did

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

Management Implications: Why we did 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. Education programs will also help engage young anglers, ensuring that angling remains a relevant activity for Yukoners into the future.

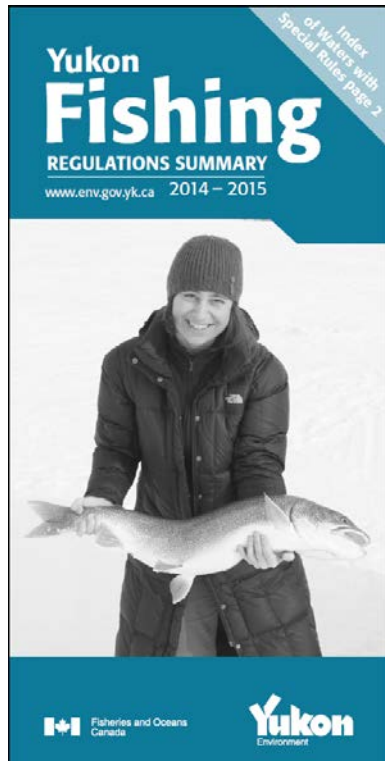
Project Activities: What we learned

This year we carried out one main public activity: Family Fishing Weekend. This program is free to all and is designed to promote fishing and engage young anglers. 2013 was very successful.

We also developed and put up signs at lakes and streams informing anglers about the regulations on those waters. See example below.

We updated and printed the 2014 Fishing Regulations summary and included information on best practices. See new cover below.

We also updated and printed Fishing on Yukon Time, which is a very popular guide on the culture of fishing in Yukon, the species, and some hints on where to fish. See new cover below.






Fishing on Yukon time

A Guide to Fishing in Yukon



ATTENTION ANGLERS

LITTLE ATLIN LAKE IS A SPECIAL MANAGEMENT WATER

	DAILY CATCH LIMIT	POSSESSION LIMIT	SIZE LIMIT
Lake Trout 	1	1	All lake trout longer than 65 cm (26 in) must be released.
Grayling 	2	2	All grayling longer than 40 cm (16 in) must be released.
Pike 	4	4	All pike longer than 75 cm (30 in) must be released.

BARBLESS HOOKS ONLY

See the Fishing Regulations Summary for more information.



Nathan Millar, Senior Fisheries Biologist



Hunter Effort Survey

Harvest statistics alone do not provide a full picture of hunting activity. Knowing the hunting efforts and methods of Yukon hunters, including the number of active hunters, where and when they hunt, their success rates, and other characteristics will lead to a better understanding of hunted wildlife populations and allow us to make more informed management and harvest decisions.

Project Description: What we did

We will work with the Yukon Bureau of Statistics to deliver a survey that is statistically rigorous and will provide sound and useful information. To simplify the questionnaire and analyses, we focus on hunters of different species on a rotational basis. This year, our efforts are focused on grizzly bear and black bear hunters. This survey will also include hunter satisfaction questions that will become part of ongoing monitoring.

Management Implications: Why we did it

Survey information will be used to inform future management and harvest discussions and decisions. We can respond more quickly and effectively to management issues, either through regulation, education, or information if we have current information about hunting practices.

Project Activities: What we learned

Surveys were mailed out in February 2014 to all licensed Yukon resident hunters who acquired either a black and/or grizzly bear seal in 2013 (1837 surveys). A follow-up telephone survey ensued in early March for those who had not responded to the mail-out. As of March 26, there has been a response rate of over 65%. The survey will be completed March 31, 2014, with a draft report due in April, and final report in summer of 2014.

Carol Foster, Wildlife Harvest Specialist

North American Caribou Workshop 2014

The North American Caribou Workshop is the pre-eminent gathering of biologists, managers, resource users, and other stakeholders interested in caribou research, management, and conservation. The last time Yukon held the Workshop was 1998.

Project Description: What we did

Yukon will host the 15th North American Caribou Workshop in Whitehorse May 12-16, 2014. We anticipate about 300 biologists, managers, resource users, and other stakeholders interested in caribou research, management and conservation to attend.

Management Implications: Why we did it

Hosting the Workshop allows Yukon to not only learn and exchange information, but also presents an important opportunity to highlight Yukon's expertise and experience in the area of caribou management and conservation.

Project Activities: What we learned

This was the second year of a 3-year project. An organizing committee for the Workshop has been created and an event planner contracted. The theme of the Workshop is: "Caribou Conservation and Management: What's Working". A website for the Workshop is on-line (www.2014nacw.ca) and registration and on-going. A sponsorship package is also available on the website. A final schedule for the technical program has also been developed.

Troy Hegel, Ungulate Biologist (Caribou, Sheep & Goat)

Porcupine Caribou Herd: 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. Monitoring of the Porcupine Caribou hunt in Yukon is critical to assessing the status and effectiveness of harvest management actions implemented under the Porcupine Caribou Harvest Management Plan.

Project Description: What we did

In the *Harvest Management Plan for the Porcupine Caribou Herd in Canada* (HMP), all parties committed to collecting rigorous and verifiable harvest data from their respective hunters on an annual basis. This project implemented a check station on the southern portion of the Dempster Highway to document harvest and to distribute educational materials to hunters. We continued work in collaboration with the Conservation Officer Service Branch on the hunter education package and in delivering hunter education programs and communication.

Management Implications: Why we did it

Data collected by this program, when combined with knowledge of caribou abundance and age/sex ratio data collected by the PCH Monitoring Project, will be evaluated at the Annual Harvest Meeting to determine if harvest is negatively affecting the herd. Pending results, specific actions may be taken as outlined in the Harvest Management Plan and the associated Implementation Plan.

Project Activities: What we learned

The Porcupine caribou herd was available for harvest during this past winter and Yukon residents and First Nations were able to harvest. The check station operated from October into November. The check station was able to collect information on the number of caribou harvested and provided educational materials to hunters. In addition, the check station played a key role in informing hunters of closures in the Hart/Porcupine caribou overlap area. We continued to work with COSB in finalizing the hunter education package which is nearing completion.

Mike Suitor, North Yukon Regional Biologist

Technical Reporting Program

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

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) and establish and maintain publication review protocols and authorizations to ensure consistency and effective information transfer to the public.

We will produce, as needed, 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 did it

This program supports the departmental objective to improve the sharing and communication of data and information. 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 also 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: What we learned

In addition to the annual "Fish and Wildlife Branch Highlights report, 30 technical reports were published and posted to the Internet. Historic technical reports were also catalogued and made available electronically and through the Environment Yukon library.

Jean Carey, Coordinator Technical Reporting Program

Wildlife Collision Reduction Strategy

Vehicle collisions with wildlife on Yukon highways are a serious public safety, property damage, and wildlife conservation concern. Highway mortality of mountain caribou is a conservation concern for local communities and First Nations as many of these herds are small and thought to be declining. Collisions with moose are also of considerable importance as they often result in serious human injuries or death.

Project Description: What we did

The *Preventing Yukon Wildlife Collisions Interdepartmental Working Group* has developed a collaborative workplan which outlines priority activities to help reduce wildlife collisions. The Working Group includes staff from the Fish and Wildlife Branch, Conservation Officer Services Branch, as well as the Transportation Engineering Branch of the Department of Highways and Public Works. Activities identified for 2013-14 will focus on the Alaska Highway from the B.C./Yukon border to Whitehorse, and the South Klondike Highway.

Management Implications: Why we did it

Given that changing driver behaviour is easier than changing animal behaviour, we predict that targeting drivers has the highest chance of decreasing highway collisions and making roads safer for winter travellers. Reduced highway mortality will support departmental efforts to maintain healthy mountain caribou and other wildlife populations in the territory. When completed, the results of this project will provide wildlife and highway managers with effective mitigation tools to reduce environmental impacts associated with roadway traffic. Unmanaged, these impacts will likely increase due to our growing population and increasing development.

Project Activities: What we learned

Project activities include the identification and monitoring of areas of high collision, acquiring and locating alternative signage in areas of high wildlife activity throughout the winter months, developing a public messaging campaign to increase driver awareness to the presence of caribou on selected highways.

The effectiveness of this integrated strategy will be monitored over the winters of 2013-14 and 2014-15 to assess whether a change in highways collisions can be detected.

The working group met in May and November. Our partner on the working group, Highways and Public Works, secured matching funds to the funds that Environment had allocated to issue a contract to develop a database of large mammal-vehicle collisions on Yukon numbered highways and public roads for the period 2000 to present; to provide a GIS-based analysis of high collision areas and to prepare a literature-review driven report of wildlife-vehicle collision mitigation measures that are relevant to Yukon's environment, society, and economy which also includes recommendations for implementation

The public messaging campaign is underway. Variable message boards were deployed at Lucky Lake (Watson Lake region); media interviews (radio and television) were conducted by working group members; information posters were posted at strategic locations; and new highways signs are being developed.

Alain Fontaine, Liard Regional Biologist

Matt Clarke, Southern Lakes Regional Biologist

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.

Project Description: What we did

The Harvest Management program delivers quota administration, reviews and recommends harvest regulations, conducts harvester and stakeholder surveys, and shares information with First Nations, boards and councils, the public and stakeholders on harvest practices and regulations.

This program 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). This program also leads the Fish and Wildlife Branch implementation of the Wildlife Act regulation change process developed with the Yukon Fish and Wildlife Management Board.

Management Implications: Why we did it

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

Ongoing advertising promotes and communicates new harvest management rules and provides reminders about regulations and harvest reporting requirements.

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

Project Activities: What we learned

We will update quotas for outfitters and, if necessary, provide support for any appeal processes brought forward by outfitters or trappers. We will continue to inform the public about harvest-related issues through advertising and other effective means.

In conjunction with the Yukon Fish and Wildlife Management Board we will facilitate the regulation review process.

Carol Foster, Wildlife Harvest Specialist

Wildlife Harvest Planning Coordination

This program supports the development, implementation and administration of collaborative strategies with First Nations to coordinate and harmonize harvest management priorities and actions of First Nations, Government of Yukon, and adjacent jurisdictions. This collaborative approach will help to address current conservation issues in specific areas and help ensure the long-term sustainability of wildlife populations.

Project Description: What we did

This program administers the continued implementation of the Porcupine Caribou harvest management plan, and will assist with three new projects for moose including: Southern Lakes, Nisutlin River valley and Duke River / Kluane region.

Management Implications: Why we did it

Technical support and statistical advice to First Nations on their harvest data collection programs should result in reliable and accurate information about First Nation harvest levels.

Project Activities: What we learned

Two 'foundation' pieces of work have been identified. First, a recommended structure of First Nation harvest data collection programs including a generic, customizable database for First Nations has been developed. Second, we have been assisting in the development of a policy regarding public release / protection of First Nation harvest data that is shared with the Department.

The Porcupine Caribou harvest database is now complete and is installed in all offices which will use the database (the Gwich'in Renewable Resources Board, the Joint Secretariat (Inuvialuit) and the Vuntut Gwitchin Government. The Porcupine Caribou harvest data collection program has been "branded", making it easily recognizable when the data collection is done and reported.

Several generic communication products related to the importance of cows to ungulate populations and encouraging a bull dominated harvest have been drafted and will be produced in the new fiscal year. Most products will be adaptable to specific situations, and will help support the cooperative harvest management strategies underway in the territory.

There has been no progress on 2 projects (Southern Lakes wildlife and Nisutlin moose) however planning for Duke River / Kluane moose is underway.

There were 3 new initiatives: Hunter Satisfaction Survey, Fortymile Caribou harvest planning, Trapper harvest logbook pilot, and a phone survey of bear hunters.

Dorothy Cooley, Harvest Coordinator

Wildlife Viewing: Celebration of Swans & Swan Haven

The Wildlife Viewing Program (WVP) organizes and delivers the annual *Celebration of Swans*, and operates the Swan Haven Interpretation Centre. This premier birding festival is entering its 20th year and continues to work to raise awareness about the importance of key wildlife habitats, and provides an opportunity for alternative wildlife management practices through education and appreciation.

Project Description: What we did

A Celebration of Swans takes place annually during the 3rd week of April when swan migrations peaks at Marsh Lake and other open water areas. The festival reaches more than 2,000 Yukoners annually and provides curriculum-specific programming to more than 600 students. Activities are designed to reach a diverse audience of Yukoners and educate about the importance providing a safe place for swans to rest and feed on their migration.

Management Implications: Why we did it

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. The WVP directly supports the goals of the Environment Yukon Strategic Plan to promote environmental stewardship and share environmental information with citizens. Environment Yukon receives year-round requests for information on Yukon's wildlife and wildlife viewing opportunities.

Project Activities: What we learned

A Celebration of Swans hosted 14 separate events attended by 1,191 people. Events took place in Whitehorse, Marsh Lake, Burwash Landing, Tagish, Carcross, and Johnson's Crossing. Programs were organised and delivered by the Wildlife Viewing Program with assistance from 17 different community groups. This year the *Following the Swans* multi-media presentation was moved from Tagish to Carcross, in an effort to reach out to new audiences and communities. Though all of our programs were similar to those offered in years past, we changed the timing to make it available to new audiences. This was very successful as attendance at planned programs nearly doubled from the 2012 numbers.

Swan Haven Interpretive Centre had nearly 2500 visitors during the operating hours of April 2013. It is known that many more visited the site at times when it is not staffed. Plans are in place for the 2014 season to have sufficient information outdoors so that 'off-hour' visitors can read about the centre when it is not staffed.

Two Swan Haven interpreters returned, and 1 new interpreter was hired to deliver school programs to more than 400 students and teachers. School numbers were down this year due to a variety of reasons such as teachers wanting to take a break and scheduling conflicts. Wildlife Viewing is currently working on a refreshed promotional strategy to reach teachers for the 2014 season.

This year we undertook a major face-lift and rejuvenation of the interpretive centre in anticipation of its 20th anniversary. Site maintenance was conducted by Y2C2 including staining the deck, installing signs, and moving structures, and repairing the boardwalk. The interior of the building was painted and new interpretive panels and displays are being installed by April 1, 2014. A rustic fence will be completed by end of March 2014 to ensure that visitors do not trample the re-vegetation efforts on the protected bank.

Looking to the future:

The 2013 *Celebration of Swans* continued the tradition of successfully engaging the public in learning and stewardship opportunities. The incidence of swan disturbance remains low, and local residents are vigilant about informing visitors about proper swan viewing etiquette. The Wildlife Viewing Program is looking forward to a larger celebration next year to mark the 20th anniversary of Swan Haven Interpretive Centre. Interpretation updates are underway in an effort to better reach our audiences and create a greater understanding of the importance of early spring open water.

Carrie McClelland, Wildlife Viewing Biologist

Wildlife Viewing: Community Projects and Products

Opportunities to view and appreciate wildlife are an important component in fostering stewardship and respect for the natural world. Each year the Wildlife Viewing Program (WVP) reaches directly an average of 4,000 Yukoners through interpretive walks and talks in Yukon communities. Many more Yukoners and visitors gain information about wildlife viewing and natural history through the suite of products available in print and electronically. The WVP focuses on working with community organisations to develop products and projects that highlight local assets and expand wildlife viewing opportunities. Working cooperatively with communities promotes local knowledge sharing and provides communities with the tools to enable environmental stewardship.

Project Description: What we did

The WVP works with community groups across the territory in order to highlight a variety of ecosystems and wildlife viewing opportunities while utilising local knowledge and experiences. Community-directed projects allow communities to share their knowledge of local wildlife and wildlife issues with visitors and other Yukoners. Projects include trail development and maintenance, interpretive panel or brochure development, viewing platforms, information kiosks, and support for locally provided walks and talks. This year, WVP will provide assistance and guidance to the communities of Whitehorse, Dawson, Mayo, Faro, and Destruction Bay.

Management Implications: Why we did it

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. The WVP directly supports the goals of the Environment Yukon Strategic Plan to promote environmental stewardship and share environmental information with citizens.

Project Activities: What we learned

To encourage stewardship, raise awareness of biodiversity issues, and develop local viewing opportunities, publications and sites are developed with partners. In 2013-14 the following products were developed:

- Whitehorse – Maintain existing signage in the city’s Significant Wildlife Areas as well as:
 - 3 panels were installed at the Yukon Energy Corporation’s Robert Service Way eagles’ nest. The panels provide information about that particular nest and urban wildlife. In the summer, we co-hosted an interpreted event that reached out to more than 90 people who came by to ask questions and learn more about Bald Eagles.

- 8 panels were installed along the Boreal Worlds trail behind Yukon College in June 2013. The panels replaced the dated wooden markers and handout that had been out of print for many years. Currently, YCS is developing additional interpretation for more trails in that area and will be using a similar format.
- 5 panels for the Significant Wildlife Areas were reviewed and updated to be printed and installed in spring 2014.
- Dawson City – A community group and Tr’ondëk Hwëch'in First Nationworking group has decided develop a trail and viewing spots on the bank above the Yukon River between West Dawson and Sunnydale. They have begun to clear trails so that foot traffic is directed around the orchards. WVP and Heritage Branch will work with community members to research and develop appropriate interpretation for this site next fiscal year.
- Mayo – First Nation of Na-Cho Nyäk Dun and the Mayo Renewable Resources Council (RRC) are currently working to update their wildlife plan for the region. The WVP has been engaged with this process and will work with community members to develop interpretive resources as needed.
 - Tourism had plans to remove redundant signage from the main dike downtown. WVP will use existing infrastructure and stands for wildlife-related interpretive panels. While this specific project has been deferred from this year, WVP will continue to work with Tourism and the community of Mayo to develop appropriate interpretation for this area.
 - Tourism & Culture has been working with a local contractor and work group to clear the trail along the Minto River and install the panels. Panels were developed and produced in spring 2013 and are currently awaiting installation.
- Faro/Ross River – WVP participated in a very successful Faro Crane and Sheep Festival. We hosted activities at the Sheep Cabin, guided walks to the sheep mineral lick, and assisted with bird walks and provided information to festival attendees. Plans are already underway for the 2014 festival in which WVP will continue to take part.
- Destruction Bay – Community members had expressed an interest in updating their wildlife information kiosk and providing opportunities for travellers passing through to learn about the area. However, the Dan Keyi RRC would like to spend more time discussing what is desired so that there are no conflicts with local residents. This project was placed on hold until the RRC has met and discussed a plan to move forward.

- The Wildlife Viewing Technical Committee hosted a workshop to officially launch the updated *Strategy for developing and promotion viewing opportunities*. The full-day event was attended by 50 people from private operators, to RRC members, First Nation representatives, governments, and NGOs. The Wildlife Viewing Technical Committee continues to meet on a quarterly basis to promote the strategy, develop partnerships, and evaluate its successes.

Carrie McClelland, Wildlife Viewing Biologist

Wildlife Viewing: Events and Information

The Wildlife Viewing Program (WVP) provides opportunities for the public to learn about Yukon's environment and foster a better understanding of the natural world. Through public engagement, WVP projects directly support Environment Yukon's strategic goals of promoting environmental stewardship and sharing information with Yukoners to inspire appreciation of Yukon's environment. The WVP hosts wildlife viewing events and provides Yukoners with access to wildlife information. Brochures, webpages, and presentations are effective methods of communication to reach a diverse Yukon population. The non-consumptive use of wildlife engages and inspires Yukoners to appreciate wildlife.

Project Description: What we did

Wildlife Viewing events are delivered through interpretive walks and talks and public presentations that focus on a specific wildlife topic. Events are organised within the annual *Wild Discoveries* series, and focus on a variety of issues related to wildlife management and appreciation. The *Wild Discoveries* series is an ideal venue in which Environment Yukon biologists and other researchers can communicate their findings and knowledge of Yukon's wildlife to the public. The public is directly engaged with experts in the field who are able to answer questions and better inform Yukoners. The WVP also develops wildlife interpretive products such as brochures, booklets, webpages, and posters. WVP currently maintains and regularly updates more than 40 different publications on Yukon wildlife and viewing opportunities.

Management Implications: Why we did 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: What we learned

Throughout the territory, throughout the year, special events and programs, such as the *Wild Discoveries* series (since 1998), create opportunities for residents and visitors of all ages and interests to engage in watching and learning about wildlife. The major projects regarding events and information communication are:

- *Wild Discoveries* – These events include all public walks and talks hosted by the Wildlife Viewing Program from April (excluding the *Celebration of Swans*) to March. This year 31 events were hosted with a total attendance of 728 people. Events were held in Carcross, Dawson, Haines Junction, Keno, Mayo, Watson Lake, and Whitehorse. Attendance was twice as high compared to 2012, likely due to increased advertising and more favourable weather. We also moved some programs to new timeslots, perhaps making them more accessible for people.
- Fox Lake Fire – The panels at this interpretive site were reprinted and reinstalled in spring 2013. It is hoped that the increased tree cover will protect these panels from intense sunlight, giving them a longer lifespan.
- Environment Fair – Wildlife Viewing hosted a large booth at the 2013 Environment Fair, focused on introducing people to our many interpretive trails and rest stops. The Fair was attended by 871 people.
- Top of the World Highway – Fortymile Caribou rest stop viewing platform and panel were damaged and in need repair. The deck has been repaired but replacing this panel has been delayed in favour of working closely with the regional biologist to develop a comprehensive interpretive plan for the Fortymile Caribou. Research for this interpretive strategy is scheduled to occur in summer 2014.
- Finlayson Caribou – This project was delayed due to staffing shortages and shifting priorities. Preliminary research and rough notes have been started. Work will continue on this project in the next fiscal year.
- Publications and print – No new publications were produced in this fiscal year. Copies of the Wildlife Viewing Strategy were professionally laid out and printed, along with calendars of events for both Yukon Biodiversity Awareness Month and Wild Discoveries. The publications tracking sheet indicates that several brochures will need to be reprinted next fiscal year.

Carrie McClelland, Wildlife Viewing Biologist

Wood Bison Co-operative Management

The Yukon Wood Bison Technical Team (YWBTT) develops recommendations for the management of Yukon wood bison through their meetings and provides those recommendations to the Yukon Wood Bison Management Team. This project supports the activities of the YWBTT in fulfilling their mandate.

Project Description: What we did

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.

Management Implications: Why we did it

This project enables the ongoing work of the 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 team is the primary forum for information exchange on bison matters among effected governments and RRCs, the Board, and relevant organizations.

Project Activities: What we learned

A technical team meeting was held in November 2014. The focus of the meeting was a series of updates on recently completed and ongoing work on the Aishihik population, as well as updates on management issues and concerns facing bison populations elsewhere in Canada.

Of note, the study on bison competition with other ungulates was completed in August 2013, and presented to the Yukon Fish and Wildlife Management Board in October 2013, and the YWBTT in November 2013.

Thomas Jung, Senior Wildlife Biologist (Biodiversity)

Southern Lakes Grizzly Bear Diet

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 multi-year study will provide a solid estimate of population and genetic make up and information on grizzly bear habitat use (including important den use and foraging areas in the region). Nutritional status, seasonal movement patterns and an index of annual cub production and survival will also be outcomes of this work. As a primary harvest species, and potentially in decline in the Southern Lakes area, it is important to gather information specific to this population and complete an assessment of population abundance and status.

This project is important at an international scale because it helps Yukon meet obligations under CITES (Committee on the Trade of Endangered Species) to manage this species using the best available scientific techniques and information. Yukon's bear management program impacts Canada's "non-detrimental finding" by CITES, which means that export of grizzly bears will not adversely affect the wild population.

Project Description: What we did

We will provide data to monitor grizzly population trend through habitat use (including dens), movement, survival, reproduction, and body condition metrics. We capture, collar and track bears to obtain much of this information. We will also assess grizzly bear diet, and how these relate to caribou (information obtained from collared Southern Lakes caribou) and moose (information obtained from current and historical moose survey information) distribution.

To increase the sample of collared bears in the study, we have been using the existing sample of radio-collared male bears to locate and collar additional female bears during mating season. We have also dove-tailed capture work onto aerial-based species projects (e.g., rut counts). We also have conducted ground captures using culvert and box traps and leg snaring.

Radio-collars enable us to obtain information on movement/habitat use, survival, and reproduction of bears. Scats will be collected during capture and opportunistically from dens, trails and trap sites to augment tissue sample analyses. Information on bear, caribou and moose distribution will used to assess the degree of seasonal overlap among these key species.

DNA hair-snagging stations were distributed across the range to gather information on individual bears, develop a population estimate, establish relatedness among bears, and estimate role of immigration and emigration for this population.

Management Implications: Why we did it

The Southern Lakes grizzly bear population is suspected to be declining due to human-caused mortality. Further, suspected decreases in ungulate densities in the region may have influenced their food availability. While bear predation rates on moose have been examined, the extent to which bears rely on ungulates has never been identified. Regional boards and councils have requested information on the trophic relationship between bears and the ungulate species, specifically focusing on bear diet.

Information will be used to manage bear mortality. This includes calculating quotas, identifying means to reduce management kills (by reducing human-bear conflicts), identifying critical habitat components and other habitat management activities through land-use planning and environmental assessment (so as to reduce human-influences on bear mortality), and consider any management implications associated with ungulate/bear interactions.

Project Activities: What we learned

We collared 11 bears this year. We currently have 13 bears collared in the study area. Monitoring collared bears is proposed to continue until at least 2015. We will augment our collar sample with opportunistic captures.

Samples of hair and fat were gathered from captured bears and will be used in diet analysis and to measure their body condition. Collars are used to monitor movement/habitat use, survival, and reproduction. The DNA grid was completed in June-July to collect hair samples that form the basis for the population estimate. The hair samples were sent to lab for analysis and a portion of the genotyping work has been completed. Scats were collected during capture and opportunistically from dens, trails and trap sites to augment tissue sample analyses. While out on the land, local First Nation staff also collected grizzly bear scats.

Ramona Maraj, Carnivore Biologist

Wolf Humane Trapping Training

With the approval of the WCMP there is an expectation that trappers will be more directly involved in the management of wolves and ungulates near communities and key areas of management concern. This requires more direct support for the trapping industry including wolf harvesting and is achieved through our training programs and by working directly with trappers on their traplines. Additionally, it is important to promote an industry whereby trapping is done in a respectful and humane manner.

Project Description: What we did

We conducted Twenty one days of trapline consultations, with 8 trappers, focused in 2 communities where wolf management interest is likely to occur. Trapline consultations provided wolf trapper training to local, new, or less experienced wolf trappers on their traplines, whilst developing relationships in the trapping community. Additionally a snare making workshop and a four day wolf trapper training course was delivered in Burwash and Telsin.

Management Implications: Why we did it

This work provides the trapping community with sufficient skills and training to maintain the sustainability of the activity.

Additionally 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. As a public government agency working in this area, it is essential that we demonstrate resource stewardship.

Project Activities: What we learned

Small focused workshops and trapline consultations were conducted with trappers from November 2013 to March 2014.

Information on, and practical experience with humane attributes of newer snares was delivered. Wolf behavior and strategies of harvest were presented and discussed, with practical application including, optimal site location, set design and snare setting.

Information will continue to be gathered and assessed as wolves are taken over the winter ending in March 2014. Information learnt from this season will also be used to advice the wolf trapper training course which is under development and will be completed for delivery by November 2014.

Peter Knamiller, Wolf Management Coordinator

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 did

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. 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. Priority areas for 2013 were Dezadeash Lake, Twin Lakes, and Fox Lake.

Management Implications: Why we did 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. This information will guide allocation and regulation decision making processes.

Dezadeash Lake has been identified by Champagne and Aishihik First Nation and Alsek Renewable Resources Council as a lake where harvest concerns exist. The nature of the fishery in Dezadeash Lake (large concentrations of fish gathered at coldwater inflows through the summer) makes it one particularly vulnerable to excessive harvest. Dezadeash Lake has not been surveyed since 2006. Findings from an angler harvest survey will be analyzed with data from a concurrent lake trout assessment.

Twin Lakes have been identified in the Little Salmon Carmacks Community Based Fish and Wildlife Plan as lakes with fish resource concerns as well as potential harvest concerns. Angler harvest surveys have not previously been conducted on Twin Lakes. Findings from this survey will be analyzed with data from the concurrent lake trout assessment to determine if current harvest is sustainable

Fox Lake has not been surveyed since 2001. Angling pressure is known to be high and approaching sustainable limits, and the general angling regulations currently in place may not be adequate to maintain lake trout stocks. The angler harvest survey results will be analyzed with data from the concurrent lake trout assessment to address this concern.

Project Activities: What we learned

A contracted field worker conducted face-to-face interviews with anglers on selected sample days throughout the summer. The worker asked 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.

Contractors carried out surveys on Dezadeash Lake, Twin Lakes, and Fox Lake. All of the effort, catch, harvest, and angler profile data have been analyzed. We analyzed otoliths (ear bone) and stomachs to estimate age and diet of harvested fish. Draft reports are complete and will be finalized in the near future.

Nathan Millar, Senior Fisheries Biologist

Aquatic Health Monitoring for Placer Mining

This project, when combined with Yukon Energy, Mines and Resources' (EMR) Water Quality Objectives monitoring and Economic Health monitoring, informs the Yukon Placer Secretariat's adaptive management process. Through this process, decisions are made to change or modify effluent discharge standards for placer mining to maintain and protect the health of Yukon aquatic environments. The system is of great importance in affording sufficient protection to freshwater fish (and salmon) and their habitats.

Project Description: What we did

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 placer 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 did 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. Yukon government and DFO are jointly responsible for carrying out Aquatic Health Monitoring, and Environment Yukon has been requested by EMR – Placer Secretariat to assist with this task.

Project Activities: What we learned

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 5 sites will be sampled by boat / road access. This year, 17 sites were accessed by air and the remaining 3 were by road.

Field work was done between July 15 and August 7, so sampling of aquatic benthic macroinvertebrates was done consistently with other years.

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

Aaron Foos, Fisheries Technician

Fish Health Monitoring & 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 program 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 did

This is an ongoing project that includes several activities, including conducting laboratory analyses of fish and other fish-related biological specimens and participating in sampling of fish for contaminant levels. As part of this project we co-ordinated aquatic animal health activities (including disease screening for introduced and transferred fish) and identified fish diseases and parasites.

Management Implications: Why we did it

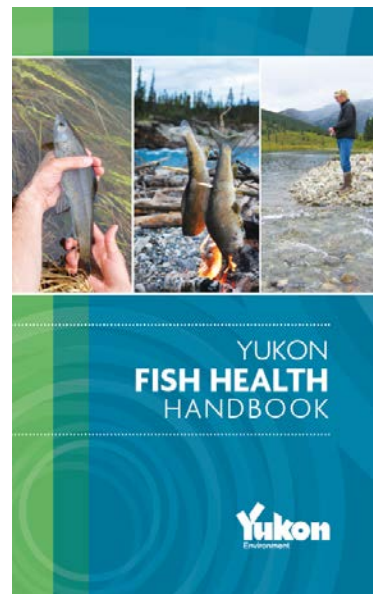
The Yukon public expects us to maintain a system to monitor fish populations in order to detect any problems as they arise. This project also supports our ability to provide quick feedback to the public if concerns about fish disease or parasite issues arise. Ongoing monitoring contributes to the safety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

Project Activities: What we learned

We monitored the health of fish populations throughout Yukon by examining diseased fish turned in by the public or caught in netting studies (3 full necropsies were conducted on diseased or potentially diseased fish). We also monitored 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.

In collaboration with the Department's Animal Health Unit, we have produced a new publically available guide on eating healthy fish:

the *Yukon Fish Health Handbook*. We will print and soon make this handbook available.



Nathan Millar, Senior Fisheries Biologist

Fish Stocking Program

This program creates and maintains fishing opportunities for Yukoners and visitors alike at stocked lakes throughout the territory. This program promotes angling, and provides ideal opportunities for first-time and occasional anglers to begin or return to angling. Anglers appreciate the diversity of fishing opportunities available through the stocked lakes program; rainbow trout and Arctic char (only found in stocked lakes) are among the most preferred species.

Project Description: What we did

Suitable pothole lakes were stocked on a rotating basis, providing easily-accessible fisheries that are particularly attractive to families and first-time anglers. This program also involved an educational component, including interactive programs on lake stocking, angling pressure and responsible angling practices.

Management Implications: Why we did it

Wild stocks of fish in Yukon are slow-growing and susceptible to over harvest if subject to un-regulated fishing pressure. Possession and catch limits are more liberal on stocked lakes. Providing alternative angling opportunities close to population centers alleviates some of the fishing pressure from wild stocks, without requiring more restrictive angling regulations.

The maintenance of the stocking program (currently 20 lakes across Yukon) provides a tremendously important set of opportunities for Yukon anglers: over 20% of resident anglers fish the stocked lakes and Yukoners spend over 6700 days angling in stocked lakes each year (Survey of Recreational Fishing in Canada 2005). Over 90% of Yukon anglers surveyed said that the Stocked Lake Program was 'very important' or 'important' to them (Survey of Recreational Fishing in Canada 2005).

Project Activities: What we learned

We received fish from a certified disease-free BC hatchery, and fry produced from Whitehorse Rapids Fish Hatchery.

We stocked fish in Whiskers, Scout, Hidden 1, Long, Chadden, Veronica, Rantin, Hour, and Lucky lakes.

We also delivered an interactive Hidden Lakes Fry Release public event in Whitehorse in late May. This has become a very popular event, particularly among families with young children. This program has a good deal of community support, and Yukon Fish and Game Association (YFGA) and other volunteers are involved in the stocking program.

Nathan Millar, Senior Fisheries Biologist

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 did

This is an 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 did 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: What we learned

We used 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. We carried out SPIN surveys on Dezadeash, Kluane, Mandanna, Twin, and Fox lakes.

We continued to develop our underwater assessment methods for Arctic grayling. Surveyors wearing dry suits and snorkel gear swam streams and counted the number of grayling they see. The proportion of the number of known tagged fish seen by snorkellers is measured. Surveys produce estimates of grayling density and provide basic habitat assessments. This year we assessed the Lubbock River.

Building on our successful development of a mark-recapture survey method for burbot (in Little Fox and Pine lakes) we will assess burbot abundance, condition, growth, and health in Squanga Lake, a popular Southern Lakes winter burbot fishery.

We also updated lake productivity assessments, through two days of lake sampling supported by fixed-wing aircraft.

All of the surveys went smoothly and reports are being finalized.

Nathan Millar, Senior Fisheries Biologist

Southern Lakes – Lake Trout Movement and Population Structure

Bennett, Nares, Windy Arm, Tagish, Marsh and Atlin lakes are all closely connected by large rivers that allow fish to readily migrate between water bodies. We know, through both local and traditional knowledge and past tagging studies that lake trout move among these lakes. This project will give us an understanding of the contribution of each lake to the system-wide lake trout population, as well as multi-annual patterns of fish migration between feeding and spawning areas.

Project Description: What we did

We implanted radio telemetry transmitters in lake trout and began to track their movements within the interconnected Southern Lakes (Marsh, Tagish, Nares, Bennett, and Atlin). We set up telemetry receiver stations between the lakes to record the signals as fish move between the lakes.

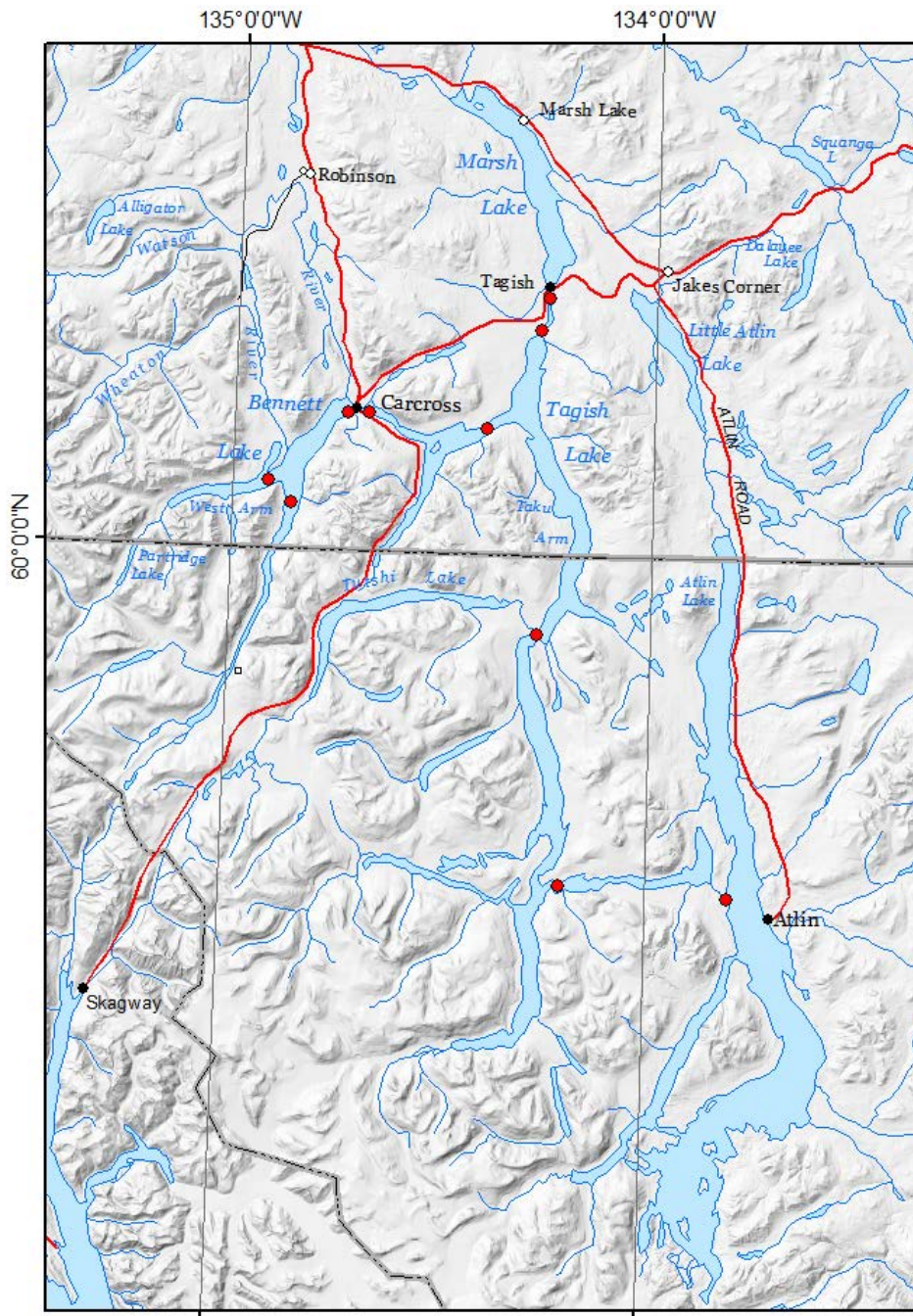
We collected genetic material from tagged trout and will be asking anglers, subsistence harvesters, and the commercial operators on the Southern Lakes to contribute samples. We will then be able to assign multi-annual, inter-lake migration behaviour to specific sub-populations.

Management Implications: Why we did it

By determining the origin, destination, and seasonality of lake trout movements within the interconnected Southern Lakes, and linking this to genetic identity, harvest location and pressure, we can understand the effects of harvest on lake trout subpopulations within this system. This understanding will provide a basis for effective management of lake trout harvest within the Southern Lakes.

Project Activities: What we learned

This was the first year of an anticipated 4-year project. This year we placed 10 telemetry receivers in strategic locations throughout the Southern Lakes (see Figure). We conducted range testing to determine appropriate tag parameters. We captured lake trout in October (during spawning) in Bennett and Tagish Lakes). Lake trout of a suitable size were anaesthetized and we implanted them with a small telemetry transmitter. We also marked them with an external tag. The unique transmitter signals will be monitored by the telemetry receiver stations. We deployed 23 transmitters this fall. We will next focus on putting transmitters in migrating trout and extending the network of autonomous receivers to increase the resolution on lake trout movements.



Nathan Millar, Senior Fisheries Biologist

Bat Monitoring and Conservation

Little Brown Bats and Northern Long-eared Bats are Yukon's 2 bat species. They are now deemed *Endangered* in Canada because of the threat posed by an emerging disease: White-Nose Syndrome (WNS). WNS is spreading westward and has already devastated populations in north-eastern North America. This project will help us establish baseline information from which to assess the pending impact of this disease, and other factors such as climate change.

Project Description: What we did

This project monitors changes in the diversity and abundance of Yukon bats. We are developing innovative methods for monitoring Little Brown Bats that have the potential to be used for similar bat monitoring programs elsewhere in Canada and Alaska.

By focusing our efforts in YG campgrounds, the project also has the potential to highlight natural pest (mosquito) control in campgrounds, alleviate problems with bats in picnic shelters, and provide wildlife viewing opportunities.

One or more wildlife viewing events will be scheduled in relation to our project activities, and local media will be engaged as opportunities arise.

Management Implications: Why we did it

It is predicted that WNS has the potential to cause the virtual extinction of the Little Brown Bat within 10-15 years. This bat was by far the most numerous bat species in Canada, and plays a key role in regulating nocturnal insects, including pests, in the boreal forest.

This project is being conducted to monitor the status of species at risk in Yukon, with a focus on documenting population change and providing that information to the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and other assessment bodies (e.g. general status, NatureServe). It has been designed to link to similar projects being conducted elsewhere, making our data comparable on a continental scale. The information will also be useful for developing national (or territorial) recovery strategies for these species, as required under the federal *Species at Risk Act*.

This project also contributes to our efforts to monitor non-game species and those that may be affected by climate change. By focusing our work in territorial parks, we help Parks Branch with their mandate for ecological monitoring, while building capacity in Parks staff to conduct wildlife monitoring projects that are a priority for our branch.

Project Activities: What we learned

Field work was carried out at 6 maternity colonies, over 15 nighttime capture sessions during June – August. We captured 1,111 bats as they exited from their roosts, and then measured, banded, and assessed them for reproductive state before releasing them. All told, we took various biological samples from about 20% of the bats we captured, including blood, hair, DNA, and feces. These samples have been shipped to various university-based labs for analyses by our project partners.

We will use mark-recapture techniques to derive a population count of 3 of the colonies where the number of visits was sufficient. As well, we will use these data for future analyses on other key demographic parameters, such as reproduction and survival.

This information will provide a reasonable assessment of change in these populations and establish baseline information from which to assess the pending impact of White-Nose Syndrome and climate change.

Thomas Jung, Senior Wildlife Biologist (Biodiversity)

Collared Pika Monitoring

This project monitors Pika populations in Tombstone Territorial Parks using Fish and Wildlife Branch and Parks Branch staff and volunteers. Pika are highly susceptible to changing climatic conditions, and will likely be the first species listed on the federal *Species at Risk Act* due to the threat posed by climate change. They were recently assessed as a species of Special Concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

Project Description: What we did

We will use basic and non-invasive survey methods, largely relying on park rangers to determine the presence or absence of pika in our study areas. We will compare data from year-to-year to assess trends in the occupancy of suitable habitat.

The project is the first in the Yukon to adopt an occupancy modeling approach, giving us the ability to “test drive” how these new, innovative methods work. The project design allows the data to be comparable to similar projects being conducted in the western United States, making our data comparable on a continental scale.

Management Implications: Why we did it

This project monitors the status of species at risk in Yukon, with a focus on documenting population change. The information may also be useful for developing national (or territorial) management plans for this species, as required under the federal *Species at Risk Act*.

The occupancy modeling approach may be useful for future monitoring of other species of management interest (e.g. caribou, moose, etc.). The project creates the opportunity to involve Parks Branch and, in subsequent years, the community (for example, Friends of Dempster Country) in monitoring species at risk.

Project Activities: What we learned

Between 30 July and 28 August, survey crews assessed 82 patches of talus in Tombstone Territorial Park for occupancy by collared pika. These data were used to compare with a similar project done in 2009 at 59 talus sites to note if there was a change in occupancy rates (which would signal a change in population status).

Thomas Jung, Senior Wildlife Biologist (Biodiversity)

Gyrfalcon Inventory and Monitoring

This project tracks the occupancy and productivity of gyrfalcons in the Coast Mountains in order to assess if a harvest should be permitted in the survey year. Gyrfalcons are a highly valued bird for falconers. They are rare in the Coast Mountains of Yukon and British Columbia, and they demonstrate marked annual variation in their reproductive output. It is questionable if this isolated, trans-boundary population can sustain an annual harvest in years with particularly low productivity.

Project Description: What we did

This monitoring project will examine the productivity of selected nest sites in the Southern Lakes region. This is year 12 of a long-term monitoring initiative for this species in the region.

Information on gyrfalcon populations and productivity is shared with British Columbia which contributes to the joint management of this trans-boundary population.

Management Implications: Why we did it

The gyrfalcon monitoring program ensures Yukon meets national and international obligations for this *Convention on International Trade in Endangered Species* (CITES) of Wild Fauna and Flora species, and partially fulfills a commitment to the Yukon/BC MOU.

This population has reached a previously unrecorded low, likely due to ptarmigan population cycle failure. As an indicator of broader ptarmigan population change, gyrfalcon monitoring represents a cost efficient method to describe the state of each of these harvested populations in this region.

Project Activities: What we learned

This is a cooperative monitoring project with Yukon Parks Branch and Yukon College. On 25 June and 2 July 2013 we conducted an aerial survey of known gyrfalcon nesting territories in the Coast Mountains, including portions of Kusawa Territorial Park. We checked for occupancy of territories by nesting pairs, and for their reproductive output (the number of chicks in the nests). This year was the lowest year for nesting gyrfalcons since surveys began in 1982.

Todd Powell, Biodiversity Section Manager

Impact of Climate Change on Snowshoe Hare Survival

In this cooperative study, we are examining the ability of snowshoe hare to adapt to rapid changes in the timing and duration of snow cover. Snowshoe hare are a keystone species in Yukon's boreal forest. Climate changes that impact snowshoe hare may greatly affect how animal communities in the area function, with possible impacts on key furbearers such as lynx and wolverine.

Project Description: What we did

We will monitor a small sample of snowshoe hares to note the variation in changes in coat colour in relation to snow conditions, and their survival.

Management Implications: Why we did it

Hares' ability to adapt coat colour changes to changing snow seasons can have population implications if adaptation lags, with possible effects on furbearer populations and ecosystem dynamics.

Understanding the ability or limitation in adaptation to climate change by snowshoe hares allows communities and wildlife managers to better understand the potential impact on the boreal forest ecosystem, as well as trapper's livelihood and lifestyle.

Project Activities: What we learned

This is the second of a 4-year cooperative study with the University of British Columbia and the University of Toronto. The field work is being carried out by our university-based partners.

We began this study in 2013 in a small way because hares were scarce. We radio-collared 36 adult snowshoe hares (9 males + 27 females) between February 2013 and March 2014 and followed their survival on a bi-weekly basis. Over that time period 25 hares were killed by predators, one radio signal was lost (and therefore the fate of the hare unknown), and 10 radios were still active on live hares. Six of the hares were killed by raptors, 4 killed by lynx, and the rest of the 25 mortalities were caused by unknown predators. We are scheduled to revisit these hares in early April 2014 to determine survival, and to put out additional radios on hares that survived the winter. The plan is to monitor these hares on a 2-day basis this spring (2014) to determine their coat colour match/mismatch.

In the coming summer we hope to have a Ph.D. student from UBC working on this project full time. It is anticipated that another 30 snowshoe hare will be monitored each in Years 3 and 4. This will allow us to look at within-year and between-year variation in snow conditions, coat colour changes, and hare survival.

Thomas Jung, Senior Wildlife Biologist (Biodiversity)

Keystone Boreal Species Trend Monitoring

Tracking population trends in small mammals and snowshoe hares 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. Understanding the natural year-to-year variations is a foundation from which we can discuss and describe trends and monitor any emerging issues in these populations that could in turn possibly affect harvested species.

Project Description: What we did

The project is an annual monitoring program based on the established long term studies in the Kluane region and is anticipated to include Mayo, Watson Lake, Faro, Whitehorse, and Burwash. Monitoring involves the collection of traditional and local ecological knowledge as well as scientific measures.

Standardized methods are used across a network of sites in Yukon. The data we collect is analyzed for trends in annual productivity, keystone species population trends, and changes in furbearer species density. The central database is continually updated and includes local knowledge on environmental conditions.

Management Implications: Why we did 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 and other, direct land use effects. These effects can have management implications (for example, trapper success, human-bear conflicts). The results of monitoring programs help explain variation in cycles of hare, small mammals, and furbearers. An exploration of the data will take place to assess if it is useful in predicting berry crop variation and that relationship to human-bear conflicts.

Project Activities: What we learned

Collecting information about ecological baselines and variation is most informative if done annually. Over the summer (May to September), we collected information, using standardized protocols, about the boreal food web components— mice, vole, and snowshoe hare populations as well as annual productivity of ground berries, spruce cones and mushrooms. This past year was particularly high for voles in most of our sites.

The winter track counts were restricted by the snow conditions found in most areas of Yukon. The continuing snow in December, followed by the lack of snow in January through March compromised our ability to successfully complete predator track counting, which is reliant on fresh snowfall, followed by a 48 hour period without snow. As such, little information will be useable from this winter regarding predator track density. We will incorporate these results into next year's annual report.

Todd Powell, Manager, Biodiversity Section

Species at Risk Management

This project delivers Species at Risk programs that meet Yukon government objectives and requirements in National/Provincial/Territorial Agreements, such as the National Accord for the Protection of Species at Risk, Committee on the Status of Endangered Wildlife in Canada (COSEWIC), Recovery of Nationally Endangered Wildlife (RENEW), and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Emphasis is on species of particular importance to Yukoners, such as grizzly bears, polar bears, caribou, and bison.

Project Description: What we did

This program involves the coordination and delivery of species at risk investigations and reporting. It also supports Yukon's representation on 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 management interest as they arise.

Management Implications: Why we did 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: What we learned

This is an ongoing project, activities for this fiscal year included:

- Participated in national species at risk forums, including 2 meetings of COSEWIC in April and November 2013, a national RENEW meeting in June 2013, and participating in teleconferences of the National General Status Working Group, and the Canadian CITES Scientific Authority network.
- Coordinated territorial interests and representation on national management planning initiatives for key Yukon species (e.g. bison, polar bears, boreal caribou).
- Developed territorial general status ranks for freshwater fish, mammals, amphibians and birds in Yukon, via a workshop setting that includes resident Yukon experts for these species groups.
- Provided technical input from Yukon into national species status assessments (e.g., bats, bison, northern mountain caribou, and wolverine).

Thomas Jung, Senior Wildlife Biologist (Biodiversity)

Yukon Conservation Data Centre (CDC)

The Yukon Conservation Data Centre (CDC) is part of an international network and is the primary body responsible for supporting status rankings for all species in Yukon. Collected information is critical for land-use planning, environmental assessments, and to meet the obligations of agreements including the *Umbrella Final Agreement*, *Canadian Biodiversity Strategy* and the *National Accord for the Protection of Species at Risk*.

Project Description: What we did

Yukon CDC's role is to gather, maintain, and distribute information on wildlife and ecological communities of conservation concern in the territory, and coordinate assessments to determine conservation status for all Yukon species. The CDC's database currently lists and tracks information on the locations and conditions of 258 species of conservation concern in Yukon. The Yukon CDC also produces materials and hosts workshops designed to help people learn about species of conservation concern.

Management Implications: Why we did it

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

The Yukon CDC contributes to 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*.

Project Activities: What we learned

This on-going project is the central source for Yukon's 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 information related to rare or at-risk species in Yukon.

We received 683 requests for information from 254 individuals representing 158 organizations (government departments and branches, universities, business, non-governmental organizations, or public).

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

This year we added 71 new taxa (species and subspecies) and removed 19 species due to taxonomic changes or updated information. There are now 4,833 taxa in the database.

We added 93 mapped localities of species of conservation concern including 151 observations and added information to 360 existing mapped localities. There are now 4,482 observations captured in the database mapped as 2000 localities.

We assigned 104 new conservation ranks for species not previously assessed. Seventy-four ranks were reviewed and revised, 56 ranks were reviewed but not changed.

The Yukon Species at Risk booklet, species information sheets for field identification, and Watch and Track lists in collaboration with other departments (e.g., vegetation components) were updated.

We also provided ongoing support the national General Status ranking process.

Bruce Bennett, Coordinator Yukon CDC