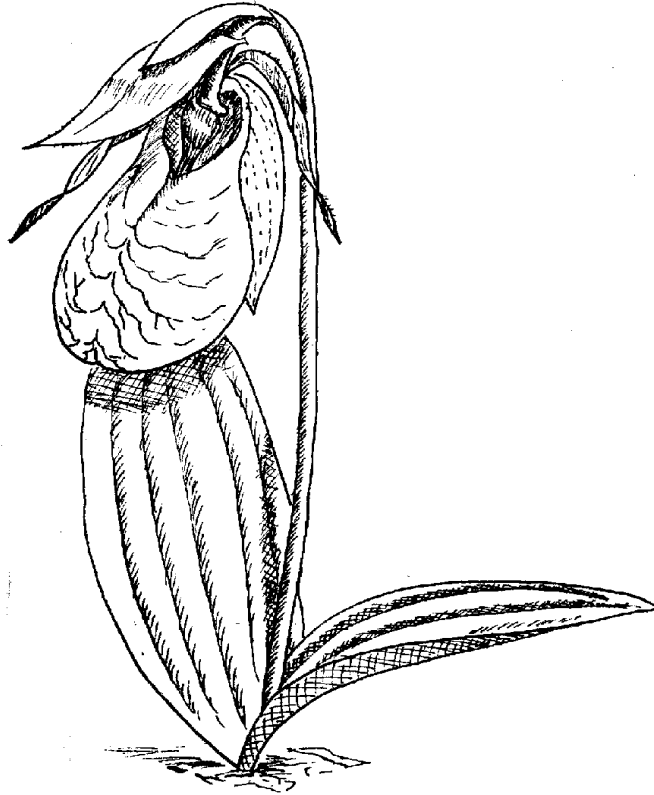


**THE YUKON BIODIVERSITY WORKING GROUP**

**2007 ANNUAL FORUM**



**PROGRAM AND ABSTRACTS**

YUKON COLLEGE  
WHITEHORSE, YUKON  
APRIL 21, 2007

<http://ycweb.yukoncollege.yk.ca/research/biology.php>

## **THE YUKON BIODIVERSITY WORKING GROUP**

### **2007 ANNUAL FORUM**

**April 21, 2006**

### **ORGANIZING COMMITTEE**

Scott Gilbert  
Dave Mossop  
Rosamund Pojar

### **FOOD AND BEVERAGE**

Joanna Plecke

### **OUR VISION AND PURPOSE**

The Biodiversity Working Group is a non-government open-membership group of those involved in ongoing biodiversity assessment and monitoring projects throughout the Yukon. It is hosted through the Northern Research Institute at Yukon College and meets informally during winter months. The vision is in four basic parts: a) To foster partnerships and networking, -- including coordinated contribution to national and local initiatives relative to the Canadian Biodiversity Strategy; b) to deliver public education on biodiversity issues; c) to provide coordination among field researchers promoting long term data bases on key focal species; d) to integrate local traditional knowledge into on-going field data gathering processes.

**THE FOURM** is designed as a single-day annual event, held this year April 21th from approximately 9AM to 4PM. The purpose is to give an opportunity for a broad cross section of exposure to current field projects that relate to biodiversity assessment and monitoring in the Yukon. Posters, coffee and lunch breaks are normally provided in the hallway immediately outside the Lecture Theatre at Yukon College. *A day for community members and researchers to share information and foster partnerships, learn about Yukon plants, animals and special habitats as well as to identify knowledge gaps and species or habitats that need monitoring.*

**REGISTRATION:** The sessions are open to all with an interest in Yukon biodiversity, its assessment, monitoring and conservation. There has been no registration fee to date. We provide name tags and would like to keep a registry of all those attending. Thanks go to the Ducks Unlimited (Can) and Yukon Government, Dept. of Environment for sponsoring the coffee and lunch sessions.

## 2007 FORUM AGENDA

- |                                   |   |   |
|-----------------------------------|---|---|
| 1. Jen Line                       | <i>Nature Serve, Yukon</i>                            | What do plants do when glaciers come and go?  |
| 2. Kawina Robichaud & Dave Mossop | <i>Yukon College</i>                                  | Biodiversity at the Shallow Bay wetland   |
| 3. Scott Green                    | <i>UNBC</i>   | Life on the edge: Examining the unique limitations in tree establishment and growth at high-latitudes |
| 4. Amy Leach                      | <i>Ducks Unlimited (can)</i>                          | Mapping wetlands on the Liard Plain using Yukon Gov. forestry inventory data                          |
| 5. Ramona Maraj                   | <i>F&amp;Wildlife, YTG</i>                            | Grizzly Bears in the Kluane region  |
| 6. Wendy Nixon                    | <i>CWS, Whitehorse</i>                                | Circumarctic Rangifer Monitoring and assessment (CARMA) NETWORK                                       |
| 7. Mike Gill                      | <i>Environment Canada<br/>Whitehorse</i>              | Arctic Biowatch: towards integrated Arctic biodiversity monitoring                                    |
| 8. Sebastian Jones                | <i>Dawson community<br/>steward</i>                   | Big fish, small fish, no fish   |
| 9. Paul Matheus                   | <i>Alaska Quarternary Center,<br/>UofA, Fairbanks</i> | New data from old bones: advances in Beringian paleontology   |
| 10. Sarah Woods                   | <i>McGill University</i>                              | Red squirrels in Kluane   |
| 11. Michael Sheriff               | <i>Univ of Toronto &amp; UBC</i>                      | Can Moms' stress help explain low numbers in population cycles?                                       |
| 12. Toos Omtzigt                  | <i>YTG Hwys &amp; Publ. Works</i>                     | Invasive plants   |
| 13. Barney Smith                  | <i>F&amp;Wildl. YTG</i>                               | Using traditional and local knowledge to find marmots on the Yukon North slope                        |
| 14. Clive Osborne                 | <i>Priv. consultant</i>                               | Canada/US radio telemetry study of Chinook salmon spawning in the Yukon river 2002-2004               |
| 15. Scott Gilbert                 | <i>Yukon College</i>                                  | Herschel Island Lemming study and IPY   |

**Poster Session:**

<b>Poster Title</b>	<b>Author(s)</b>
Bats, beetles, and the boreal: the effect of forest disturbance on little brown bats ( <i>Myotis lucifugus</i> ) in southwestern Yukon.	Lea Randall, Robert Barclay & Thomas Jung <i>Univ. of Calgary</i> and <i>Fish &amp; Wildlife Branch, Yukon Environment</i>
Behavioural reactions of woodland caribou ( <i>Rangifer tarandus caribou</i> ) to snowmobile disturbance in an alpine environment.	Todd Powell, Marco Festa-Bianchet, Thomas Jung, and Robert F. Florkiewicz
Changing Flora of the Yukon North Coast	Bruce Bennett - <i>Fish &amp; Wildlife Branch, Yukon Environment</i>
Circumpolar Monitoring Networks	Ian Church & Karen Edwards - IPY
Circumpolar Biodiversity Monitoring Program	Mike Gill – Environment Canada
Ecology of Water Shrews ( <i>Sorex palustris</i> ) in the Yukon	Maria Leung
Goshawks and Spruce Bark Beetles	Frank Doyle
History of Yukon Sheep populations is written in their DNA	Jean Carey - <i>Fish &amp; Wildlife Branch, Yukon Environment</i>
Impact of logging on forest-floor small mammals in the northern boreal forest of southeastern Yukon.	Thomas Jung, Kieran O'Donovan, Todd Powell, Kyle Russell, Karen Clyde, Val Loewen, & Jan Adamczewski <i>Fish &amp; Wildlife Branch, Yukon Environment</i>
Keeping Track of Yukon Species of Special Concern	NatureServe Yukon
Mayo Community Moose Monitoring Project: A Collaborative Effort	Mark O'Donoghue - <i>Fish &amp; Wildlife Branch, Yukon Environment</i>
Migration Monitoring of Songbirds at Albert Creek	Ted Murphy-Kelly & Ben Schonewille
Migration Monitoring of Songbirds at Teslin	Ted Murphy-Kelly & Ben Schonewille
Monitoring Aquatic Health	<i>Yukon Environment</i>
Monitoring Black Guillemot population and nesting success at Herschel Island, Yukon	Cameron Eckert, Dorothy Cooley & Richard Gordon
Monitoring Lake Trout Relative Abundance	<i>Yukon Environment</i>
PRISM shorebird monitoring on the Yukon North Slope	Pam Sinclair - <i>CWS - Environment Canada</i>
Response of hoary marmots ( <i>Marmota caligata</i> ) to alpine hikers in central Yukon	Becky Cadsand and Thomas Jung <i>Fish &amp; Wildlife Branch, Yukon Environment</i>
Species at Risk Act (SARA)	Wendy A Nixon <i>CWS - Environment Canada</i>
Strange things done under the midnight sun: the life history strategy of a nocturnal mammal in the Yukon summer.	Jen M. Talerico - University of Calgary

	<b>Author(s)</b>
We are being invaded!	Bruce Bennett - <i>Fish &amp; Wildlife Branch, Yukon Environment</i>
Yukon Cooperative Roadside Waterbird Surveys.....since 1991	Jim Hawkings - <i>CWS - Environment Canada</i>
Yukon Elk: Increasing Herd Size and Range Expansion	Matthew Larsen, Kyle Russell, Thomas Jung & Rob Florkiewicz - <i>Fish &amp; Wildlife Branch, Yukon Environment</i>
Yukon North Slope Grizzly Bear Project	Yukon Gov., Parks Canada, WMAC(NS), Aklavik HTC
Yukon Trumpeter Swan Survey, 1985-2005	Jim Hawkings - <i>CWS - Environment Canada</i>
Yukon's Unique Grassland Plants	Bruce Bennett - <i>Fish &amp; Wildlife Branch, Yukon Environment</i>

## **ABSTRACTS (in order of presentation)**

### **1. What do plants do when glaciers come and go?**

**Jen Line** ([jen.line@gov.yk.ca](mailto:jen.line@gov.yk.ca))

Given that much of Canada was covered by over two kilometers of ice during the last glaciation, how and where did arctic and Boreal plants survive? Research about the impacts of glacial history on northern species was pioneered by European biogeographers over a century ago. Some believed that plants and animals survived south of the great ice sheets, while others asserted that ice-free pockets in the ice provided refugia for northern species. Recent population genetic studies have been examining ancestral lineages to piece together life histories of survival during glacial times. This branch of research has become popular in recent years and Yukon's Beringia is a key region of interest. For my Master's dissertation I studied the population genetics (allozyme diversity) of Small False Asphodel (*Tofieldia pusilla*) across Canada's north. Very low genetic variation and poor geographic structuring was recorded. This suggested two things: 1) that Small False Asphodel may have experienced a bottleneck event prior to the Wisconsinan that drastically reduced genetic diversity in the species; and 2) that occasional long-distance seed dispersal by wind occurred across Canada at the end of the Pleistocene.

## **2. Biodiversity at an important Yukon wetland: An analysis of Shallow Bay wetland's essential ecological processes**

**Kawina Robichaud and Dave Mossop** ([kiwienfers@hotmail.com](mailto:kiwienfers@hotmail.com))

The goal of this research was to quantify the ecological processes of an important Yukon wetland: Shallow Bay, to suggest a reasonable management strategy. In the boreal forest wetlands are extremely valuable systems which support, by far, the most local biodiversity. Shallow Bay is in the estuary floodplain where the Yukon River meets Lake Laberge. The tasks were to: a) build on existing information to assemble a more complete inventory, b) work in collaboration with the Tan'an Kwatch'an First Nation and their elders to better understand the traditional utilisation of the land, c) develop a better understanding of the ecological processes through the analysis of old and new data, d) suggest conservation criteria for the future planning of the area based on the critical processes identified. We assembled both: local knowledge from the original people of the area, and a fairly long-term set of science-based data collected since the mid 80's. The research addressed: Human uses (past and present); Waterbird use, populations, molting, migration, brooding, toxin analysis and continental significance (36 species of waterfowl --1 loon, 4 gull, 17 ducks, 3 goose, 2 swan); Fish population (8 species); Songbird population (over 100 species); and eight other avian, mammalian, or amphibian species. We quantified ecological processes including area physiography and water body formation, hydrology, vegetation (at least 40 species of plants), and how these plays a role in the ecosystem. From our analysis it is clear that Shallow Bay should be a protected area if the Shallow Bay wetland ecosystem is to continue to function.

## **3. Life on the edge: examining the unique limitations in tree establishment and growth at high-latitudes**

**Scott Green** ([greens@unbc.ca](mailto:greens@unbc.ca))

Dr. Green has focused on tree/forest responses to environmental conditions across primary landscape gradients (e.g., elevation, latitude, continentality and slope aspect). He has a particular interest in the adaptive responses of Northern trees across their interior ranges up to elevational and latitudinal treelines, and he is developing linked projects from central B.C. to northern Yukon. A second area of research interest for Dr. Green has been in competitive interactions in sub-boreal mixedwood forests in central B.C. The prediction is that tree line will be advancing northward as climate warms; future field work will focus on testing this idea.

#### **4. Mapping wetlands on the Liard Plain using Yukon Government's forest inventory data**

**Erin Spiewak and Amy Leach** (e [spiewak@ducks.ca](mailto:spiewak@ducks.ca))

#### **5. Grizzly ecology in Kluane**

**Ramona Maraj** ([ramona.maraj@gov.yk.ca](mailto:ramona.maraj@gov.yk.ca))

This study investigated the effects of human land-use on grizzly bear (*Ursus arctos* L.) habitat and populations in the Kluane region of southwest Yukon, Canada. Previous studies in the region identify grizzlies as the species most at risk from cumulative impacts of human activity. The goals of this project were to: 1) identify the effects of cumulative human activities on grizzly habitat and populations; and 2) provide recommendations on human-use management with respect to the conservation of grizzlies and their habitat. I examine the influence human activity had on grizzly bear reproduction and survival. Survival and reproductive rates of grizzly bears decreased on the periphery of the protected area adjacent to the highways. While productivity in the areas adjacent to the highways was relatively high, mortality was also high. These areas, therefore, were acting like attractive sinks. Reducing human-caused mortality on the Park periphery and developing a transboundary management strategy will be necessary to conserve grizzly bears in Kluane.

#### **6. Circumarctic rangifer monitoring and assessment (CARMA) network**

**Wendy Nixon** ([wendy.nixon@ec.gc.ca](mailto:wendy.nixon@ec.gc.ca))

The goal of this project is to improve understanding of the relative resilience and vulnerability of regional Human-*Rangifer* Systems to climate change. A Human-*Rangifer* System is defined here at the regional scale as the set of ecological and social processes underlying the human use of wild *Rangifer*. Human-*Rangifer* Systems have historically provided and continue to provide keystone ecosystem services to indigenous residents, with *Rangifer* being the most important terrestrial subsistence resource of the Arctic System.

Our work is motivated by the almost universal projections of significant changes in regional climates across the circumpolar north, at a time when more demands are being placed on the extraction of non-renewable resources in these regions.

Our primary tool will be comparative synthesis and assessment at a circumpolar scale, appreciating the fact that climate changes across the north are extremely heterogeneous. Rather than view this complexity as a challenge, in this proposed project, we view heterogeneity of the Arctic System as an opportunity, providing a set of natural experiments to address research questions through comparative analysis.

## **7. Arctic BioWatch: Towards Integrated Arctic Biodiversity Monitoring**

**Mike Gill** ([mike.gill@ec.gc.ca](mailto:mike.gill@ec.gc.ca))

In response to the global importance of the Arctic's biodiversity, the increasing pressures on Arctic biodiversity and human communities, and our limited capacity to monitor and understand these changes, the Arctic Climate Impact Assessment (ACIA) recommended that long-term Arctic biodiversity monitoring be expanded and enhanced. In response to these recommendations, the Conservation of Arctic Flora and Fauna Working Group (CAFF) began development of Arctic BioWatch (ABW).

ABW is a mechanism for harmonizing and enhancing long-term biodiversity monitoring efforts across the Arctic in order to improve our ability to detect and report on significant trends and pressures. The resulting information will be used to assist policy and decision making at the global, national, regional and local levels.

Considering the size and complexity of the circumpolar Arctic, it is essential that ABW promote and develop an integrated ecosystem-based approach to monitoring. Such an approach involves monitoring that bridges ecosystems, habitat and species and demands information not only on the status and trends in Arctic biodiversity, but also on their underlying causes. It is critical that this information be collected and made available to generate effective strategies for adapting to the changes now taking place in the Arctic—a process that ultimately depends on rigorous, integrated, and efficient monitoring programs that have the power to detect change within a reasonable time frame.

Towards this end, ABW will facilitate the integration and coordination of a multidisciplinary, integrated ecosystem-based approach to research and monitoring through the development of five integrated Expert Monitoring Groups (Marine, Coastal, Freshwater, Terrestrial Vegetation and Terrestrial Fauna). Each group will be comprised of existing place-based and network-based research and monitoring programs, representing a diversity of expertise and monitoring capabilities.



Over the next five years, ABW will focus its efforts on the following key areas:

- Developing a strategy for building and maintaining a comprehensive and cost-effective circumpolar monitoring program that addresses current deficiencies;
- Coordinating and integrating biodiversity monitoring programs and promoting standardized measures and harmonized data protocols;
- Assessing current monitoring capacity and design to identify elemental, geographic, and statistical design deficiencies and inefficiencies;
- Interpreting, integrating, and communicating existing biodiversity information (establishing statistical baselines and retrospective assessments);
- Developing data-management structures and a Web-based data portal for the synthesis, analysis, and dissemination of biodiversity information;
- Identifying and initiating pilot monitoring projects, where clear gaps exist;
  - Reporting on the status of Arctic biodiversity and the issues facing it, using diverse formats for communication, education and outreach at the global, national, regional and local levels.

## **8. Big fish, small fish, no fish**

**Sebastian Jones** (dcsteward@yknet.ca)

Over the years, salmon runs on the Yukon River have suffered several problems including overfishing, ocean changes and diseases. Many of these issues are being addressed. All good news, but as the salmon runs came back, people have noticed something amiss: Yukon River Chinook are famous for their size, although averaging about 16-20 lbs, fish of over 50lbs were caught regularly and fish up 60, 70 even 80 or 90 lbs were known, but fish of this size seem to have almost disappeared in the Dawson area.

Aside from the pure glory of seeing these magnificent creatures, they have very real biological importance too: the amount of roe or milt in a fish increases with size- a fish twice as long can have three times as many eggs. In addition, because of the Beringia, has not been glaciated for a very long time, the beds of the spawning streams consist of relatively large cobbles, which select for the larger salmon needed to dig redds in the coarser substrates.

The reason the large fish are gone seems to be that humans are selectively fishing the larger fish as they migrate up the river each year. There has been little regard to the quality of the fish that get to spawn- a fish that weighs 4lbs counts just as much as a fish that weighs 40lbs. This project intends to help restore the natural balance of age and size to Chinook salmon populations by encouraging the adoption of size selective fishing techniques, specifically live catch fish wheels by Dawson area

fishers while allowing for a continued fishery. To achieve this, local fishers built and operated live-catch fish wheels in an attempt to demonstrate that fish wheels are both a viable replacement for gill nets in the chinook fishery and that through this method selective fishing is achievable.

## 9. New data from old bones: advances in Beringian paleontology

**Paul Matheus** (matheus@northwestel.net)

Paleontological data provide an indispensable context for discussions of modern biodiversity, and the biodiversity of Pleistocene Beringia is the backdrop by which we gauge current diversity in Yukon. I will discuss two recent developments in Beringian research that are changing our concepts of mammalian biodiversity: the generation of large radiocarbon data sets for large mammals and rapid advancements in sequencing ancient DNA from fossil bones. The radiocarbon data sets show that the tempo of late Pleistocene extinctions was a complex step-wise process, and that mammalian community structure in Beringia has fluctuated greatly over the past 40,000 years. Ancient DNA studies are revealing that migration events and population structures of Beringian mammals, past and present, were/are much more complex than previously thought.

To illustrate these points, I will present specific findings from two studies. In the first case, radiocarbon dates indicate that caribou populations plummeted during the last glacial maximum (24,000 – 18,000 years BP). Stable isotope analyses of caribou fossils show that the population decline may have been due to a loss of lichen in caribou diets, which can be attributed to increased environmental aridity. In the second case, I discuss the pattern of brown bear migration into North America, as evidenced by DNA recovered from bear fossils. These genetic data reveal multiple migration and extinction events in Beringian brown bears, and suggest that modern female brown bears in northern and southern populations of North America have been genetically isolated for up to 30,000 years.

## 10. Coping with cold – Red Squirrels in the Kluane Region

**Sarah Woods** MSc Candidate, McGill University (squirrelcamp@yahoo.com)

The Kluane Red Squirrel Project is a collaborative project between the University of Alberta, Michigan State University and McGill University. Our research is focused on ecology, evolution and energetics, using the red squirrel (*Tamiasciurus hudsonicus*) as a model species. My Master's research is done in collaboration with the KRSP, and is focused on the winter energetics of squirrels.

Daily energy expenditure (DEE) is the amount of energy that an animal spends in a given day doing natural behaviour. The DEE of birds and mammals increases with

decreasing temperature, in order for the animal to maintain constant body temperature. Most studies of the DEE of birds and mammals have been done at relatively warm ambient temperatures (most above 0C). More recent studies, however, suggest that the DEE of red squirrels actually decreases with ambient temperature during the winter, when air temperatures are low and food resources are normally limited. My goal is to better quantify the relationship between temperature and the DEE of a mammal, the red squirrel, during the winter, and to better understand the physiological and behavioural adaptations that lead to such low DEE.

#### **11. Can mom's stress help explain low numbers in population cycles?**

**Michael Sheriff** Phd candidate, UBC/U of Toronto

We know that changes in the pre-natal and post-natal maternal environment can greatly affect mammalian development, and that these changes can persist into adult life. Stress and the hypothalamic-pituitary-adrenal (HPA) -axis play a critical role in maternal programming (de Kloet et al., 2005). In the lab it has been shown that stress causes a decrease in digestion, immune response, and reproduction, a suppression of growth, and behavioural alterations (Wingfield and Sapolsky, 2003; Meaney, 2001; Sapolsky et al., 2000). However, there are few (see Boonstra et al., 1998) that have investigated how stress and maternal programming affect natural populations. My research will measure the effects of maternal stress on reproduction, behaviour, survival, and physiology in snowshoe hares (*Lepus americanus*), how these effects are passed through multiple generations, and how this affects population demography in snowshoe hares.

Snowshoe hare populations fluctuate in an 8 to 10-year cycle through out most of the boreal forest (Krebs 1986; and Cary and Keith 1979). This cycle is severely impacted by predation, especially during the 2 to 3 year decline phase at which time reproduction reaches an all time low (Krebs et al. 2001; Krebs 1995). Reproduction starts to decline during the late population increase phase; changes in reproduction precede population changes by approximately 2 to 3 years and intensify until they reach a low during the decline phase in the population cycle (Stefan and Krebs 2001). The stress associated with predator avoidance may act as a potential mechanism for the falling reproductive rates, thus affecting population demography.

#### **12. Yukon Invasive Species Committee (YISC): A new initiative – weeds be warned!**

**Toos Omtzigt**, (Catharina.Omtzigt@gov.yk.ca)

Invasive plant species, also referred to as introduced, alien or noxious, are a growing concern in Yukon. There are 140 introduced plant species found in Yukon. Of these 19 are listed for their potential to displace or replace native vegetation and are considered to be highly invasive. In addition, presence of these highly invasive species can result in economic loss because they directly compete with agronomic crops and high costs to manage their spread. Currently, we consider the biggest threat the spread of sweet clover which has the potential to invade river flood plains and change the ecology of river systems. The sweet clover is spreading rapidly along Yukon highways and is already found at many road crossings with the Yukon River and smaller tributaries.

In response, the Yukon Invasive Species Committee (YISC) has been established with the goal to prevent the introduction and manage the spread of invasive species in Yukon. The committee is open to interested parties, but the active group is currently made of Yukon Government departments (Highways, Energy Mines & Resources, Environment), Parks Canada and two volunteers. Projects this summer involve more invasive plant inventory, organizing a vegetation management course, and more public outreach activities.

**13. Using traditional local knowledge to find marmots on the Yukon North Slope**

**Barney Smith** ([barney.smith@gov.yk.ca](mailto:barney.smith@gov.yk.ca))

**14. Canada / US basin wide radio telemetry study of Chinook salmon spawning migration in the Yukon River 2002-2004.**

**Clive Osborne** ([cosborne@northwestel.net](mailto:cosborne@northwestel.net))

Two US Alaska-based agencies, the National Marine Fisheries (NMFS) and the Alaska Department of Fish and Game (ADF&G) began studies in 2000 to radio telemetry track Chinook salmon during their spawning migration within the Yukon River watershed. This presentation outlines the ground and aerial tracking projects funded by the Yukon River Panel that took place within the Yukon Territory from 2002 to 2004. The US agencies established a network of ground remote tracking stations (RTS) in Alaska and Yukon, refined techniques for the capture and handling of fish required to attach transmitters and developed the receiver equipment during 2000 and 2001. Large-scale studies where a target of 1000 tagged fish would be tracked throughout the drainage were conducted from 2002 to 2004. Nine more RTS were established in the Yukon Territory during this period. Aerial radio tracking surveys began in the upper Yukon River and the Porcupine River drainages in Canada in 2002 with basin-wide coverage taking place in 2003 and 2004. Data retrieved from the RTS were used to determine the proportional distribution, mean migration rates, and run timing characteristics of tagged fish

entering Canada. A strong consistency among years was observed in these migration phenomena. Aerial survey data was used to determine spawning distributions and to map the terminal locations of tagged fish. Archival radio tags that sensed and stored data on water temperature and pressure (depth) were located during aerial surveys and recovery attempts were made subsequently.

**15. Lemming and other population studies at Herschel Island:  
Summer Plans for the *Arctic WOLVES* IPY Field Work at Komakuk and  
Herschel Island**

**Scott Gilbert**([sgilbert@yukoncollege.yk.ca](mailto:sgilbert@yukoncollege.yk.ca))

This brief report describes the plans for the coming field season by a group of researchers involved with an International Polar Year project known as Arctic Wildlife Observatories Linking Vulnerable EcoSystems (*WOLVES*). The main study site will be Qikiqtaruk Territorial Park on Herschel Island with additional work done at Komakuk in Ivvavik National Park.

The data collected at these western Arctic sites will be combined with information coming from Bylot Island and other study sites across northern Canada and Scandinavia to develop a model of food web structure in the Arctic. One of the main goals is to “document direct and indirect impacts of climate change on terrestrial animal biodiversity (insects, mammals, birds), and forecast future impacts on these populations and the Arctic ecosystem in which they occur”.

Work for this summer will include setting up plots to measure primary productivity (“clip plots”) as well as exclosures to determine the impact that herbivores are having on vegetation. Several intensive studies will look at herbivores using live trapping to follow small mammal populations, PRISM plots to monitor shorebird breeding phenology and nesting success, ptarmigan relative abundance using aerial transects and modified Malaise trap to track insects. There is a large suite of predators that prey on lemmings and researchers will follow least weasels, Arctic and red fox (using den surveys) and raptors using nest surveys

We hope to coordinate the field work to complement the existing monitoring work that has been established by Dorothy Cooley and the Qikiqtaruk Territorial Park Rangers. For further information about IPY WOLVES project contact Don Reid, [dreid@wcs.org](mailto:dreid@wcs.org) or Scott Gilbert [sgilbert@yukoncollege.yk.ca](mailto:sgilbert@yukoncollege.yk.ca) or visit the web site at <http://www.cen.ulaval.ca/arcticwolves/index.html>

## **BIODIVERSITY AWARENESS AWARD PRESENTATION:**

**Manfred Hoefs (B.Eng, B.Sc, M.Sc, PhD):** first came to the Yukon in the late '60's to begin PhD thesis research at what was then the Kluane park reserve using the sheep at Sheep Mountain as his study subjects. For 4 decades he has steadfastly kept 'tabs' on those sheep, their fortunes and problems. That tenacity alone speaks volumes about the person this award honors. His contributions to what we now know about Yukon diversity of life will be a legacy that will last literally forever.

His expertise has spanned an amazing species array from plants to the largest herbivores. He was the first biologist the Yukon hired. A combination of 'vision' and an unshakeable, almost wolverine-like perseverance served to produce within that government, one of the best technical wildlife management teams in the country. His passion for synthesis approaches to understanding how habitat and animals interact what way ahead of its time and is now central to biodiversity awareness in the 21<sup>st</sup> century. Hand in hand with this concern was his very early work with endangered species. He was at the very first meeting of the Committee on the Status of Endangered Wildlife in Canada and was integral to the remarkable success of the Wood Bison Recovery Project.

Manfred's early recognition of the value of long-term data sets has become a legacy we now recognize as almost beyond value. The 'crisis' mode we find ourselves in with changing climates and disappearing species makes these data bases so important. Early Manfred began not only monitoring sheep production and survival but started the Yukon's sheep horn increment data base that is the envy of researchers everywhere. Perhaps the most admirable part to Dr. Hoefs life work has been his ability to publish in the scientific literature. Over 60 peer-reviewed papers and countless government reports are to his credit addressing everything from lichens, flowering plants, small birds, muskoxen, bison, elk moose and of course his first love Dall's sheep. Internationally known and respected, he is a sought-after speaker, particularly in his first language. The Biodiversity working group was unanimous in suggesting Manfred for this award; the avalanche of support from colleagues and others, (some of whom have never met him but know his work), was beyond anything we have witnessed during the history of this award.

APPENIDIX 1:

**Particiants (Attendees, registrants and absentee presenters)**

Archibald, Devan	
Badger, Andrea	
Baer, Al	
Bendall, Michael	
Bennett, Bruce	Fish & Wildlife Branch, Yukon Environment
Bowser, Kirsten	
Boyd, Jim	
Bradshaw, Gord	
Cameron, Linda	
Carey, Jean	Fish & Wildlife Branch, Yukon Environment
Church, Ian	IPY
Davidson, Sarah	
deBruyn, Alex	
Dehn, Mike	
Doyle, Doyle	
Dreyer, Doris	
Eckert, Cameron	
Egli, Kathy	
Florkiewicz, Rob	Fish & Wildlife Branch, Yukon Environment
Francis, Shawn	
Freese, Lloyd	
Gilbert, Scott	Yukon College
Gill, Mike	Environment Canada
Gill, Mike	Environment Canada
Green, Scott	UNBC - Ecosystem Science & Mgmt
Grünberg, Helmut	
Hanner, Sara	
Hawkings, Jim	CWS - Environment Canada
Hayhurst, Katie	
Hegel, Troy	
Hill, Shirley	
Hodges, Ryan	
Hoefs, Manfred	
Hope, Dawna	
Huebschwerlen, Bonnie	
Huggard, Moureen	
Jill Pangman	
Jones, Sebastian	Dawson Community Steward
Keaton, Sharon	
Kemmett, Sue	
Kennedy, Catherine	Fish & Wildlife Branch, Yukon Environment
Kenyon, Jamie	
Klassen, Dave	
Knutson, Doug	
Krocker, Nikki	

Kuch, Dennis	YTG Parks
Leach, Amy	Ducks Unlimited
Leung, Maria	
Line, Jen	Nature Serve, Yukon
Loewen, Va;	
Loewen, Val	
Maher, Pat	
Majiski, Joyce	
Maraj, Ramona	Fish & Wildlife Branch, Yukon Environment
Marion, Chris	
Matheus, Paul	Alaska Quaternary Center, University of Alaska Fairbanks
Matthiessen, Darcie	
McArthur, Deanna	
McClure, Rob	
Melton, Ken	
Mennell, Lee	
Merchant, Phil	
Murphy-Kelly, Ted	
Newnham, Shea	
Nixon, Wendy	CWS - Environment Canada
O'Donovan, Kieran	
Obermueller, Peter	
O'Donoghue, Mark	Fish & Wildlife Branch, Yukon Environment
Omtzigt, Toos	YTG Highways & Public Works
Osborne, Clive	Private consultant, Whitehorse
Pardovicova, Milada	
Parks, Parks	
Pelchat, Brian	
Plecke, Joanna	
Plourde, Line	
Pojar, Jim	
Pojar, Rosamund	
Randall,Lea	
Reid, Don	
Robichaud, Kawina	Yukon College
Ross, Adam	
Rostad, Kristen	
Schilder, Louis	
Schonewille, Ben	
Sheriff, Michael	University of Toronto / UBC
Sinclair, Pam	CWS - Environment Canada
Skrutkowski, Adam	
Slough, Brian	
Smith, Barney	Fish & Wildlife Branch, Yukon Environment
Spiewak, Erin	
Stetkiewicz, George	
Svoboda, Michael	
Sydney, Georgina	
Talerico, Jen	



Trudeau, Caroline  
Van Bibber, Wilmonica  
Vincent, Tom  
Weins, Janice  
Welchman, Duane  
Welchman, Lolita  
Whitley, Gerry  
Whitley, Mary  
Woods, Sarah  
Ziegler, Karley

McGill University

## **APPENDIX 2:**

### **PAST YEARS**

This is the fourth Biodiversity Forum held at Yukon College. The initial meet was held in 1998 and was designed to gather consensus among field people about the nature of Yukon needs for tracking the fortunes of wild species. One of the outcomes of that discussion was the development of the “Biodiversity Working Group” and the idea of an annual forum to allow updates of ongoing biodiversity work. The first in the current series was held in 2004. We also hold a less formal ‘roundup’ of current field work each fall.

### **THE INITIAL FORUM: 1998**

### **SPRING MEETINGS: 2004, 2005, 2006, 2007**

### **FALL ROUNDUPS: 2006, 2007**

**Abstracts of the 2006 Forum can be viewed at our web site:**

**[http://www.yukoncollege.yk.ca/research/forum-abstracts\\_06.pdf](http://www.yukoncollege.yk.ca/research/forum-abstracts_06.pdf)**