

THE YUKON BIODIVERSITY WORKING GROUP
2018 ANNUAL FORUM



Photo Credit: Sonny Parker Photography

PROGRAM AND ABSTRACTS

*The 2018 Annual Forum is coordinated by:
Yukon Research Centre (Yukon College)
Yukon Conservation Data Centre (Government of Yukon)*



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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 Yukon Research Centre 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 FORUM

The Forum is designed as a single-day annual event, held this year March 3rd 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. 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 is no registration fee. We provide name tags and would like to keep a registry of all those attending.

ORGANIZING COMMITTEE

Dave Mossop
Bruce Bennett
Jessica Norris
Dennison Bohmer
Tanis Davey

ABSTRACTS
2018 YUKON BIODIVERSITY FORUM

Maria Leung

Title: Farm Bees and Allies: Their Harvest (and Ours)

Abstract: Recently, the Yukon has seen a large growth in agricultural activity. Crops of commercial interest for local consumption and the export market include domestic berries, but information on the pollinators of these crops in our northern climate is poorly understood. To address this knowledge gap, I took a closer look at the food habits of farm bees. I will present some of the findings.

Contact Information: leungreid@northwestel.net

Syd Cannings
Environment and Climate Change Canada
Canadian Wildlife Services

Title: Counting bees like birds: the new BBS in the Yukon

There is considerable concern about the status of bumblebees throughout the world. Monitoring the abundance of bee populations, though, has occurred only in very restricted areas of Canada, and this makes it difficult to assess national trends in a meaningful, scientific way. In the Yukon, all we have are some relative abundance measures from historic insect collecting that seem to indicate most bumblebees probably have not appreciably changed status over the past few decades. But, like most of Canada, there are no data with which we can calculate an index of actual abundance of bumblebee populations. What to do? The roadside Breeding Bird Survey (BBS) has been monitoring bird populations in North America for over 50 years. Recently, Sam Droege of the US Fish and Wildlife Service (who managed the BBS in the US for many years) has adapted the BBS protocol in order to monitor bumblebees. In 2017, we used and refined his protocol to sample bees along 10 complete survey routes. I'll present the results of this first season and talk about the future of this effort.

Contact: syd.cannings@canada.ca

Julie Thomas* and Thomas S. Jung,
Department of Environment
Government of Yukon

Title: Are Yukon communities islands of habitat for the synurbic little brown bat (*Myotis lucifugus*)?

Urban development is detrimental to many bat species; however, little brown bats (*Myotis lucifugus*) are attracted to human settlements and are considered a "synurbic" species. Buildings and man-made bat houses provide high quality roosting habitat, which is a limiting factor at high latitudes. In Yukon there are relatively few developments in a matrix of wilderness and suboptimal roosting habitat, and isolated rural communities may provide islands of summer habitat for little brown bats. To test this hypothesis, we investigated the relationship between bat activity, foraging rates, and proximity to human settlement in central and southern Yukon. We used acoustic detectors to monitor bat activity near three Yukon communities from June to August 2017. Preliminary results suggest that bat activity increases with proximity to communities, and that bats are particularly attracted to water bodies near community centers. Little brown bats are Endangered in Canada, and identifying critical habitat is essential to their recovery, yet little is known about their ecology in the northern boreal forest. Our research will help to guide management in Yukon by identifying key habitats, including communities and urban areas, which require targeted conservation effort.

Contact Information: Julie.Thomas@gov.yk.ca

Alberto Suarez-Esteban*, Stephen Mooney, Fiona Schmiegelow
Department of Renewable Resources
University of Alberta-Yukon College

Title: Keep warm and mitigate climate change

Biodiversity provides multiple services on which humanity depends. For example, natural fuels, such as wood from trees, have been used for heating since time immemorial. Wood has been progressively replaced by fossil fuels such as diesel, particularly in northern communities where trees are scarce. This results in great economic expenses, pollution, and energy security issues, while contributing to climate change.

With the Vuntut Gwitchin First Nation, we are exploring possibilities to use locally abundant large shrubs, particularly willow and alder, as a source of heating fuel in Old Crow, Yukon, an Arctic community only accessible by plane and heavily dependent on diesel. First, we mapped shrubs on the land. We are presently conducting dendrochronological analyses and growth trials to assess how fast shrubs regrow after harvest under different conditions. The ultimate goal is to estimate how much biomass could be harvested sustainably without degrading local ecosystems and permafrost.

The results of this study will inform the potential for the sustainable use of shrub biomass as a source of heating fuel in northern communities, to offset diesel consumption. This would support the recirculation of economic resources within the communities and increase energy security, while mitigating climate change.

Contact Information: suarez@ualberta.ca

Heather Ashthorn
Executive Director
WildWise

Title: Is behavior change a means to bear conservation? WildWise investigates.

Abstract: WildWise Yukon (Centre for Human-Wildlife Conflict Solutions) is a non-profit organization which aims to reduce human-wildlife conflict. We address our mandate through education, outreach and research and attempt to include an aspect of all three in everything we do. The bulk of our work focuses on reducing human-bear conflict throughout the Yukon. While grizzly and black bear habitat becomes more and more fragmented, negative human-bear encounters are on the rise, largely due to encroachment of human settlements on bear habitat and corridors and mismanagement of human attractants. These are preventable things!

In 2017 we focused on learning more about why there are problems with the human-bear system to better inform our next steps. Our projects included research and outreach in partnership with Carcross/Tagish First Nation, Parks Canada and Yukon Government along the Skagway Road to investigate the relationship between tourism and food conditioning of bears in the area. We investigated the role of and appetite for bear education and attractant management in Yukon communities. We compiled six years worth of negative human-wildlife incident reports for Conservation Officer Services Branch to better understand the role the public is playing in reporting human-wildlife conflict and how COSB reporting mechanisms can be improved to reveal changes and trends over time and we began a scan of measures taken in communities that have achieved Bear Smart Community status to reduce human-bear conflict in order to help our municipal government take steps in the same direction. Each of our projects informs the next and we look forward to a safer community for bears and humans in the near future.

Our presentation will dig further into what we are doing to meet our goals.

Contact Information: heather.ashthorn@gmail.com

Hilary A. Cooke* and Lila Tauzer
Wildlife Conservation Society Canada, Whitehorse, Yukon
Co-Authors: William V. DeLuca, Bradley K. Woodworth, Stuart A. Mackenzie, Amy Newman, Philip D. Taylor, Alex Sutton, Nikole Freeman, Laura Phillips, and D. Ryan Norris.

Title: From Amazon to Boreal: The Long-distance Migratory Pathway of Yukon's Blackpoll Warblers.

Blackpoll warblers (*Setophaga striata*) are breed in forested wetlands throughout boreal Yukon, and like most of our breeding birds, engage in annual long-distance migrations between northern breeding grounds and southern

wintering areas. A previous study of blackpoll breeding populations in Nova Scotia and Vermont documented one of the most extraordinary migratory feats on the planet: a 3-day, ~3,000-km nonstop crossing of the Atlantic Ocean to wintering areas in South America. We collaborated in a study to examine the long-distance migratory pathway of western blackpoll populations. In 2016 we deployed 30 geolocators at each of four locations and recovered a total of 27 geolocators in 2017; Churchill, MB (n=12), Southern Lakes, YT (n=5), Denali, AK (n=5), Nome, AK (n=5). We found evidence that blackpolls use a loop migration strategy, generally moving directly east across the continent before heading south, primarily staying along the North American coastline, before traveling to the Amazon Basin to overwinter. During spring migration blackpolls cut across the interior of North America, migrating directly toward their breeding locations. Contrary to previous studies on eastern breeding blackpolls, we found little evidence that western breeding blackpolls embark on a prolonged transoceanic flight during fall migration. As one of the fastest declining songbirds in North America, it is imperative that we gain a better understanding of blackpoll ecology throughout the annual cycle.

Contact Information: hCooke@wcs.org

Stephen Insley
Conservation Scientist
Wildlife Conservation Society Canada, Whitehorse YT

Title: Marine Conservation in the Inuvialuit Settlement Region

The Arctic is currently facing two unprecedented environmental threats: warming that is estimated to be twice the global average and, largely in response to the warming, an increase in human development related pressures. Over the past four years I have been growing two projects in response to these threats. The first is tracking ice-seal diets as an indicator of the marine ecosystem from the perspective of a top predator. The second focuses on avoiding problems associated with the increase of shipping through the Northwest Passage. Here, using passive acoustic monitoring, I have been documenting current noise conditions, marine biota, and predicting impact in order to plan the best way forward. I will give an overview of this work.

Contact Information: sinsley@wcs.org

Bruce Bennett
Coordinator, Yukon Conservation Data Centre
Department of Environment, Government of Yukon

Title: Contributing to Biodiversity Monitoring in Yukon

The Yukon Conservation Data Centre (CDC) gathers data on over 7500 Yukon plant and animals. To celebrate biodiversity, capture trends, monitor the health, and facilitate discovery of new species, Yukon CDC and its partners sponsor an annual Yukon bioblitz. The results of the 2017 Kluane Bioblitz will be discussed as well as how observations submitted to iNaturalist.ca are improving our understanding of Yukon biodiversity whilst providing a fun way for naturalists to contribute. New Yukon species and the rediscovery of those unreported for over 40 years will be presented.

Contact Information: Bruce.bennett@gov.yk.ca

Ben Schonewille
Station Manager
Society of Yukon Bird Observatories

Title: Yukon Bird Observatories – 2018 update

Abstract: The Yukon Bird Observatories began migration monitoring in the Yukon during 2001 with the initiation of the Albert Creek Bird Observatory near Watson Lake. Since then, the Teslin Lake Bird Observatory began operation during 2004 and during 2015, both stations became full members of the Canadian Migration Monitoring Network (CMMN). A third station at McIntyre Marsh (Whitehorse) also operates sporadically to accommodate visiting school groups. Teslin Lake and Albert Creek conduct standardized monitoring of bird migration through the use of

mist netting/banding, visual migration counts and general observations. As of 2017, the stations have banded a cumulative total of 97,348 birds of 115 species, observed 219 species, and hosted hundreds of visitors and volunteers. Data collected at the observatories has contributed considerably the knowledge of migratory bird migration and distribution within the southern Yukon. Aside from data collection, the stations also provide a means for students and volunteers to participate in field monitoring and a wildlife viewing opportunity.

Ben Schonewille
Fish & Wildlife Biologist
EDI Environmental Dynamics Inc.

Title: Teslin Lake Trout Spawning Site Identification and Mixed Stock Genetics Analysis

Abstract: Lake trout (*Salvelinus namaycush*) provide the basis of important recreational and subsistence fisheries throughout the Yukon. Due to the relatively low productivity of most Yukon lakes and the slow growth and maturation rate of lake trout, the conservation of lake trout stocks is of utmost importance for regional fisheries managers. In Teslin Lake, there has been a long standing concern for the status of the lake trout population and the amount of harvest has remained very near or above sustainable limits for many years despite more proactive restrictions on harvest. During 2016, EDI partnered with the Teslin Renewable Resources Council to undertake a multi-year research project on lake trout in Teslin Lake to identify spawning areas and using genetics, understand how the various subpopulations in the lake are represented in the recreational and subsistence fishery. Field studies were undertaken during 2016 and 2017 to identify spawning areas through a combination of beach seining for young-of-the-year during the early summer and targeted small mesh netting for spawners during the fall. All spawning lake trout were tagged with different colored tags corresponding to different areas of the lake and have begun to provide information on lake trout movements in the lake. Genetic samples were collected from lake trout at all spawning sites to develop a genetic baseline throughout the lake and to determine the geographic extent of different subpopulations. A mixed stock analysis was then completed using genetic samples collected from the local recreational/subsistence fishery to determine the extent of harvest on the various subpopulations present in the lake.

Contact Information: bschonewille@edynamics.com

Maxine White
Yukon Invasive Species Council

Title: Bird Vetch in Yukon: Management and Control

Abstract: Bird Vetch (*Vicia cracca*) is an invasive plant species that the Yukon Invasive Species Council has identified it as a priority species for 2018 due to its rapid range expansion. As it is mostly found in and around communities in Yukon, we still have the chance to control Bird Vetch populations early and quickly to limit its spread into other parts of the territory. This presentation will review the current status of Bird Vetch in Yukon and explore management options for Yukon, building off of research and control methods used in other jurisdictions, including Alaska.

Contact Information: maxine.m.j.white@gmail.com

Don Reid
Conservation Zoologist
Wildlife Conservation Society Canada
Co-Authors: DOYLE, F.I., THERRIEN, J.F., GAUTHIER, G., KREBS, C.J.

Title: Seasonal movements of breeding snowy owls in the western north american arctic

Abstract: The snowy owl (*Bubo scandiacus*) is a circumpolar raptor nesting in arctic tundra. Satellite tagging of nesting snowy owls in Alaska and eastern Canada has allowed researchers to document the widely nomadic movements of these owls between summer and winter ranges. This study expands that knowledge for snowy owls in the western Canadian arctic. We predicted that owls (i) would not have strong fidelity to specific winter or summer ranges; (ii) would travel widely in search of breeding and non-breeding areas at which they would settle for

considerable time; (iii) would choose areas to settle based on prey concentration and accessibility. Movement patterns of four female owls captured at nesting sites on Herschel Island, Yukon Territory, Canada, supported the first two predictions. The third prediction was partly supported: Sites of summer settlement did not always have enough prey for successful nesting, but better sites may not have been available. Sites of winter settlement generally overlapped regions with high abundance of snowshoe hares (*Lepus americanus*) or ptarmigan (*Lagopus* spp.). Finally, we predicted a mix of over-wintering strategies in western Canadian owls, with some staying in arctic and boreal regions, and some migrating south. All our owls settled in relatively open alpine, subalpine or wetland habitats in boreal Alaska and north Yukon. This pattern contrasts with eastern North American snowy owls which rarely settled in the boreal biome in winter. This study highlights the need to understand better the habitat choices and food habits of wintering snowy owls in the northern boreal mountains.

Contact Information: dreid@wcs.org

Karen McKenna
CryoGeographic Consulting

Title: "Preliminary wetland ecosites of the Indian River Watershed"

This presentation brings together two projects that I have been working on: Wetland Map of the Indian River Valley (for Energy Mines and Resources Yukon) and Wetland Ecosites of the Klondike Plateau Boreal Low bioclimate subzone (for Environment Yukon).

Field plot data collected over the last 2 summers is being analysed along with other field data from the region to come up with a preliminary ecosite classification for the Klondike Plateau region. Soil, terrain, and vegetation characteristics of key preliminary ecosites will be illustrated with photographs. The ecosite guide will provide a common baseline for discussion, future mapping and management.

Contact Information: kmckenna@northwestel.net

Tyler Khun

Title: Reductions in global biodiversity loss predicted from conservation spending

Halting global biodiversity loss is central to the Convention on Biological Diversity and United Nations Sustainable Development Goals, but success to date has been very limited. A critical determinant of success in achieving these goals is the financing that is committed to maintaining biodiversity; however, financing decisions are hindered by considerable uncertainty over the likely impact of any conservation investment. For greater effectiveness, we need an evidence-based model that shows how conservation spending quantitatively reduces the rate of biodiversity loss. Here we demonstrate such a model, and empirically quantify how conservation investment reduced biodiversity loss in 109 countries (signatories to the Convention on Biological Diversity and Sustainable Development Goals), by a median average of 29% per country between 1996 and 2008. We also show that biodiversity changes in signatory countries can be predicted with high accuracy, using a dual model that balances the effects of conservation investment against those of economic, agricultural and population growth (human development pressures). Decision-makers can use this model to forecast the improvement that any proposed biodiversity budget would achieve under various scenarios of human development pressure, and then compare these forecasts to any chosen policy target. We find that the impact of spending decreases as human development pressures grow, which implies that funding may need to increase over time. The model offers a flexible tool for balancing the Sustainable Development Goals of human development and maintaining biodiversity, by predicting the dynamic changes in conservation finance that will be needed as human development proceeds.

Contact Information: Tyler.Kuhn@gov.yk.ca

Heather Milligan
Fish and Wildlife Branch
Environment Yukon

Title: Spreading the message and not the mussel

This presentation provides an update on efforts to prevent aquatic invasive species in Yukon. Topics include monitoring, public outreach, and future considerations for aquatic invasive species management. Learn what zebras, cherries, rainbows, snot, and gold have in common.

Contact Information: Heather.Milligan@gov.yk.ca

YUKON BIODIVERSITY FORUM

Beringia Centre
Saturday March 3th, 2018



YUKON RESEARCH CENTRE
Yukon College



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| 8:30 | Coffee & tea hosted by the
Yukon Conservation
Data Centre | |
| 9:10 | Dave Mossop
Yukon Research Centre
Yukon College | <i>Introduction</i> |
| 9:20 | Maria Leung | <i>Farm Bees and Allies: Their Harvest (and Ours)</i> |
| 9:40 | Syd Cannings
Environment and Climate Change Canada
Canadian Wildlife Services | <i>Counting bees like birds: the BBS in the Yukon</i> |
| 10:00 | Julie Thomas* and Thomas S. Jung
Biodiversity Unit, Fish and Wildlife Branch
Environment Yukon | <i>Life in a northern town: Little Brown Bats in Yukon communities</i> |
| 10:20 | Coffee & tea hosted by the
Yukon Conservation
Data Centre | |
| 10:40 | Alberto Suarez-Esteban*, Stephen
Mooney, and Fiona Schmiegelow
Department of Renewable Resources
University of Alberta-Yukon College | <i>Keep warm and mitigate climate change</i> |
| 11:00 | Heather Ashthorn
Executive Director
WildWise | <i>Is behavior change a means to bear conservation? WildWise investigates.</i> |
| 11:20 | Hilary A. Cooke* and Lila Tauzer,
Wildlife Conservation Society Canada | <i>From Amazon to Boreal: The Long-distance Migratory Pathway of Yukon's Blackpoll Warblers</i> |

11:40	Stephen Insley, PhD <i>Conservation Scientist, Wildlife Conservation Society Canada</i>	<i>Marine Conservation in the Inuvialuit Settlement Region</i>
12:00	Lunch on site hosted by Yukon Conservation Data Centre	
1:00	Bruce Bennett <i>Yukon Conservation Data Centre Environment Yukon</i>	<i>Contributing to Biodiversity Monitoring in Yukon</i>
1:20	Ben Schonewille <i>Fish and Wildlife Biologist Environmental Dynamic Inc</i>	<i>Teslin Lake Trout Spawning Site Identification and Mixed Stock Genetics Analysis</i>
1:40	Ben Schonewille <i>Station Manager Society of Yukon Bird Observatories</i>	<i>Yukon Bird Observatories - 2018 update</i>
2:00	Maxine White <i>Yukon Invasive Species Council</i>	<i>Bird Vetch in Yukon: Management and Control</i>
2:20	Coffee & tea hosted by the Yukon Conservation Data Centre	
2:40	Don Reid <i>Conservation Zoologist Wildlife Conservation Society Canada</i>	<i>Seasonal movements of breeding snowy owls in the western North American Arctic</i>
3:00	Karen McKenna <i>CryoGeographic Consulting</i>	<i>Preliminary Wetland Ecosites of the Indian River Watershed</i>
3:20	Tyler Kuhn	<i>Reductions in global biodiversity loss predicted from conservation spending</i>
3:40	Heather Milligan <i>Fish and Wildlife Branch Environment Yukon</i>	<i>Spreading the message not the mussel</i>

(* presenter)
