THE YUKON BIODIVERSITY WORKING GROUP
2020 ANNUAL FORUM

*White Adder's-mouth (*Malaxis monphyllos*) new to Yukon -Photo Credit: John Reynolds*

PROGRAM AND ABSTRACTS

The 2020 Annual Forum is coordinated by:
Yukon Conservation Data Centre (Government of Yukon)
Yukon Research Centre (Yukon College)

YUKON RESEARCH CENTRE
Yukon College

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 2nd 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

Bruce Bennett
Dave Mossop

ABSTRACTS

2020 YUKON BIODIVERSITY FORUM

Maria Leung[1] and Donald Reid[2]

[1]Wild Tracks Ecological Consulting, Whitehorse, Yukon
[2]Wildlife Conservation Society Canada, Whitehorse

Title: Nesting success of Barn Swallows on farmlands of southern Yukon

Several species listed under the Canadian Species at Risk Act (SARA) have geographical ranges that overlap agricultural landscapes in Yukon. In 2019, with the cooperation of landowners and farm operators, we began gathering data to better understand the presence and use of areas within and in close proximity to farmlands by wildlife species at risk. For the Biodiversity Forum, we will present preliminary findings on one of these species, Barn Swallow. We assess the use of artificial nesting structures, and document nesting phenology and nesting success.

Dennis Zimmermann

Carleton University - Fish Ecology and Conservation Physiology Lab/Big Fish Little Fish Consultants

Title: Respect for Fish: Perceptions of Catch and Release in Yukon. Playing with food or global conservation ethic?

Catch and release recreational fishing in the Yukon has been a long-standing and extremely polarizing issue in the Yukon. In the late 1990s and early 2000s the Yukon Fish and Wildlife Management Board highlighted these concerns and sought to find resolution. We are no further ahead on this issue today, and given the drastically changing physical and political landscape, what was always quiet disagreement has the potential to be another emerging resource conflict between various Governments and interest groups.

There are often two conflicting perspectives, those who don't believe in "playing with food" for ethical, or cultural reasons and those who believe that catch and release is a conservation ethic in the best interest of the fishery. Regardless of what side of the debate you are on, the fact is that the regulatory approach to public or recreational fisheries requires public anglers release fish that are too small, too large or fit within a specific slot size. This is called regulatory catch and release. It differs from voluntary catch and research, which is the result of anglers choosing to release fish, even if not required to do so.

This presentation will explore the issue through a socio-ecological system lens, discussing the physiological stress to fish associated with recreational fishing, share the "Respect for Fish" initiative, and discuss where we can go from here. Dennis Zimmermann is in the early stages of exploring this complex issue through his work with numerous Yukon partners and as part of PhD research through Carleton University.

Petra Szekeres[1], Ben Schonewille[1], Gillian Rourke[2], Erika J. Eliason[3]

[1] EDI Environmental Dynamics Inc., Whitehorse, Yukon
[2] Teslin Tlingit Council, Teslin, Yukon
[3] University of California Santa Barbara, Department of Ecology, Evolution and Marine Biology, California

Title: Chinook salmon parental stress physiology and the effects on offspring survivorship

Canadian Yukon River Chinook salmon populations undertake one of the longest fish migrations in the world, with the number of Chinook reaching spawning grounds trending downwards. Yet, the stress physiology of spawning Chinook salmon has yet to be studied on the Canadian side of the Yukon River.

The Teslin Tlingit Council has been involved in the Deadman Creek Chinook Restoration and In-stream Egg Incubation Project since 2015. This project aims to re-establish a spawning Chinook population in Deadman Creek and study egg survival in Morley River, where broodstock for the project are collected. However, there are relationships between parental stress and offspring survivorship that have yet to be addressed in the context of this work.

The rationale for exploring parental stress and offspring survivorship includes the acknowledgement of Chinook salmon stress in a changing and variable environment. In recent years – particularly 2019 – water levels were low with high water temperatures during migration and in spawning habitats. As a result, spawning was not induced in some females, leading to pre-spawn mortalities. In these instances, the spawning success of the individual is null – but there are still many spawners experiencing the same conditions that do successfully spawn. However, little to no research has occurred on spawning Canadian Yukon River Chinook with respect to their stress physiology and how this affects offspring survivorship. The overall objective of this study is to document stress physiology metrics in Canadian origin Yukon River Chinook and relate parental stress to offspring survivorship.

Piia M. Kukka[1], Julie P. Thomas[1], Justine E. Benjamin[1], Thomas S. Jung[1,2]

[1] Department of Environment, Government of Yukon, Whitehorse, Yukon, Canada
[2] Department of Renewable Resources, University of Alberta, Edmonton, Alberta, Canada

Title: Rapid assessment of site occupancy by Collared Pika (*Ochotona collaris*) at the leading edge of their climatic envelope

Global climate change is a threat to the persistence of many species, particularly those that may experience climate-induced habitat loss, have limited dispersal ability, and a narrow ecological breadth. The Collared Pika (*Ochotona collaris*) is a small, cold-adapted mammal that meets these criteria. For species that are particularly vulnerable to climate warming, conservation efforts may be most effective at the leading edge of their range. Using a rapid assessment protocol, we determined site occupancy rates for Collared Pika at the northernmost (leading) edge of their range. We used repeated, time-based searches to survey 55 sites for pika occupancy. Detection probability was high ($p = 0.917$), and our modeled occupancy rate was moderate ($\Psi = 0.238$). Sites surveyed were categorized with a habitat quality rank (1–4), which was a strong predictor of pika occupancy. Sites within the best habitat quality rank had a probability of pika occupancy of about 76%. Our results suggest that the most suitable habitat is largely already occupied. As pika distribution shifts northward in response to climate change, population growth at the leading edge of their range may be inhibited by a lack of available habitat. Given the limited monitoring of collared pika trends, we recommend establishment of a series of areas throughout the species' range, where occupancy-based surveys are periodically conducted, particularly at the leading and trailing edges to monitor for changes in occupancy rates and distribution. Prioritizing range edges is important because the distribution for cold-adapted species, such as collared pika, is predicted to shift northward. As such, conservation and monitoring efforts for these species may be most effective at the leading, rather than the trailing, edge of their range.

Erika L. Rowland[1], Nancy Fresco[2], Donald G. Reid[3], and **Hilary A. Cooke[3]**

[1]Wildlife Conservation Society, North America Program
[2]Scenarios Network for Alaska & Arctic Planning (SNAP), University of Alaska Fairbanks
[3]Wildlife Conservation Society Canada, Whitehorse, Yukon

Title: Examining Climate-Biome ("Cliome") Shifts for Yukon and its Protected Areas

Climate change is affecting plant growth, plant phenology, and the frequency and severity of natural disturbances that drive the geographical distribution of plant communities. The net effect of these changes is difficult to project, but will be dramatic with respect to future distributions of various wildlife habitats. A first step is to map the changing distributions of climate parameters, because these frequently control the distributions of plant communities. Capitalizing on an existing modeled dataset for Yukon from Scenarios Network for Alaska and Arctic Planning (SNAP), we examine projected shifts in the distribution of 18 clusters of climate parameters, and the vegetation communities historically associated with them (collectively termed "cliomes") across three, 30-year time steps, from the present through the 2090s. By the 2090s, Yukon may lose seven cliomes and gain one. Three regional changes, if accompanied by vegetation redistribution, represent biome shifts: complete loss of climate conditions for arctic tundra in north Yukon; emergence of climate conditions supporting grasslands in southern Yukon valleys; reduction in climates supporting alpine tundra in favour of boreal forests types across mountains of central and northern Yukon. Higher elevations in southern Yukon are projected to change least in climate. This approach lays out potential re-distributions of plant communities (cliomes) through time, but we need to better understand what ecological processes (e.g., drought, fire) will drive, catalyse or perhaps thwart the shifts from one community to another in specific landscapes.

Scott Gilbert[1], Alberto Suárez-Esteban[2], and **Élise Brown-Dussault[3]**

[1]Yukon College
[2]Carleton University
[3]University of Alberta, Environmental and Conservation Sciences

Title: Meeting the Neighbours: Species Richness on Whitehorse Trails

Whitehorse is called the "Wilderness City" but for many animals the area represents a tension zone between urban and wildland where they face increased stress. In general, urbanization affects wildlife through habitat destruction and fragmentation as well as mortality (e.g. road kills, removal of animals in "conflict" with humans). Urban activity can lead to changes in foraging behaviour of some animals. For example, food from human sources can attract wildlife and create ecological traps where animals face higher rates of mortality. Whitehorse residents are familiar with the long list of attractants, from birdfeeders to garbage, which lead to conflict with bears each summer.

We report the preliminary results from a five-year study using a network of 15 camera traps deployed along local trails to estimate the amount of human and animal activity. In this presentation, we summarize the range of species richness of mammals found on different local trails. Our future analyses will compare the timing of the daily activity pattern of the common animals (including humans) appearing in our network and estimate the amount of overlap between them. Several studies have shown that animals sharing habitat with increased human activity may respond by compensating and shifting their activity towards night time to avoid humans. We hope to learn whether our dataset will provide insight to the pattern reported elsewhere.

Caitlin Willier
Fish & Wildlife, Environment Yukon

Title: Evaluating vegetation changes using ground survey data and remote sensing products

Habitat Unit, Fish & Wildlife Branch, Yukon Department of Environment

This presentation will showcase a couple Yukon Government Habitat programs aimed at quantifying vegetation change using both remote sensing and field data. The featured projects include the Nisutlin long-term vegetation monitoring data set from 1983 to 2018, and the land cover change detection project that used optical imagery via remote sensing to evaluate shrub encroachment in important Yukon wildlife areas.

Bruce Bennett*, Randi Mulder

Yukon Conservation Data Centre, Environment Yukon

Title: Watson Lake BioBlitz 2019 Results

A bioblitz is an intense period of biological surveying in an attempt to record all the living species within a designated area. Sixty-five scientists, naturalists, and volunteers conducted an intensive field study in Watson Lake July 12-14. With nearly 1000 species recorded (1 in 8 ever reported from Yukon) over the weekend there have been some fascinating discoveries. Learn about new and exciting finds.

Kirsten Reid and Carissa Brown

Department of Geography, Memorial University of Newfoundland

Title: Biodiversity Gradients and Trophic Interactions in the Western Canadian Subarctic

Climate change is occurring at globally unprecedented rates in the arctic, where annual air temperatures are warming at 2.4x the North American average, resulting in physical changes as well as changes to climatic processes. Furthermore, large-scale disturbances are increasing in frequency, leaving landscapes increasingly vulnerable to biome shifts and further stressors (e.g., insect herbivory). As both biotic and abiotic environmental conditions change, species' assemblages will be dictated by novel constraints in the future, resulting in environments and species assemblages with no present-day equivalents (no-analog communities). Recent analyses have demonstrated that relationships between species richness and latitude within the Canadian arctic are not as definitive as in most areas of the world. An accurate understanding of arctic biodiversity patterns is therefore crucial before we can estimate its response to continued rapid change. The goal of this research is to describe latitudinal biodiversity patterns and interactions across the western Canadian subarctic and to understand how they may be impacted by future warming. We have established a latitudinal network of 12 study sites (60°60'N to 68°97'N) between Whitehorse, YT and Tuktoyaktuk, NT which span the range of regional ecological conditions. Within these sites we are characterizing latitudinal biodiversity gradients of five distinct taxa (soil microbes, invertebrates, understory vegetation, small mammals, large mammals) and determining the abiotic and biotic processes that drive these patterns. I will present initial diversity patterns from across this study region.

Hilary Cooke[1], Julienne Morissette, Tyler Cobb, and Donald Reid[1]

[1]Wildlife Conservation Society Canada, Whitehorse, Yukon

Title: Burned and beetle-killed forests need protection too: managing naturally disturbed forests to conserve ecological values

Wildfire and insect outbreaks are a natural events in Yukon's boreal forests (although climate change is changing frequency and intensity) and the territory's plants, animals, insects, and other biota have evolved alongside natural disturbance regimes and the successional patterns and pathways they create over time and over forested regions. Indeed, some plant and animal species have evolved to be fully dependent upon stands killed by fire or insects or the early-successional growth that follows. Natural processes, such as wood decay, soil formation, and plant regeneration, may also depend directly on disturbance events or on the communities of fungi, lichens, and bryophytes that thrive in the wake of such events. The complex relationship between natural disturbances and ecological processes and species communities means that rather than viewing disturbed areas as "dead zones" or places with "wasted wood" we should see them as an integral part of boreal landscapes that need protection as much as old forests. The concept of "salvage" logging for fuelwood or biomass suggests that we are taking trees that otherwise have no value. But standing dead trees play critical ecosystem roles, and overharvesting burned and beetle-killed forests impacts habitat availability for a range of species both immediately following the disturbance and as the forest regenerates. We will provide an overview of the existing scientific knowledge (and knowledge gaps) about the ecological values of burned and beetle killed forests in Yukon and the potential impacts of harvest. We will present our recommendations for forest management planning and harvest activities that aim to minimize impacts on Yukon's biodiversity.

Katarzyna Nowak[1,2]*, Shane A. Richards[3], Amy Panikowski[4], Donald G. Reid[5], Aerin L. Jacob[6], Greg Newman[7], Nicholas E. Young[7], Jon P. Beckmann[8], Joel Berger[8,9]

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[7] Ecology Laboratory, Colorado State University, Fort Collins, CO 80523 USA
[8] Wildlife Conservation Society, Bozeman, MT 59715 USA
[9] Department of Fish, Wildlife and Conservation Biology, Colorado State University, Fort Collins, CO 80523 USA

Title: Using community photography to investigate phenology: A case study of coat molt in the Mountain Goat (*Oreamnos americanus*)

Participatory approaches such as community photography can engage the public and help understand ecological patterns and processes to address questions of societal and scientific interest. We combined data extracted from community-sourced, spatially-explicit photographs with research findings from 2018 fieldwork in the Yukon, Canada, to evaluate winter coat moult patterns and phenology in Mountain Goats (*Oreamnos americanus*), a cold-adapted, alpine mammal. Leveraging the community science portals iNaturalist and CitSci, in less than a year we amassed a database of several hundred unique photographs spanning some 4500 kms between latitudes 37.6°N and 61.1°N from 0m to 4333m elevation. Using statistical methods accounting for incomplete data, a common issue in community science data sets, we evaluated the effects of intrinsic (sex and presence of offspring) and environmental (latitude and elevation) factors on moult onset and rate and compared our findings with published data. Shedding occurred over a 3-month period between May 29 and September 6. Effects of sex and offspring on the timing of moult were consistent between the community-sourced and our Yukon data and with findings on wild mountain goats at a long-term research site in west-central Alberta, Canada. Males moulted first followed by females without offspring (6.4 days later in the coarse-grained, geographically-wide community science sample; 23.7 days later in our fine-grained Yukon sample) and lastly females with new kids (5.5; 17.9, respectively). Shedding was later at higher than at lower elevations. Northern latitudes had slightly later but shorter shedding periods. We detected a possible shift in moult timing in recent years (2015-2018) that warrants additional investigation. Despite limitations in our data, such as bias towards recent photographs taken mostly between 2007 and 2018, our findings establish a basis for employing community photography to examine broad-scale questions about the timing of ecological events, as well as sex differences in response to possible climate drivers. As such, community photography can help inspire public participation in environmental and outdoor activities specifically with reference to iconic wildlife.

Julie Frisch
Friends of the Dempster Country

Title: Citizen Science in Tombstone Park with Friends of Dempster Country

Friends of Dempster Country aims to cultivate respect for the land through which the Dempster Highway passes. Our early work focused on bridging the gap between the scientific and local community. In recent years, we have shifted our focus to involving locals in the science along the Dempster. When the challenges of involving laypeople in scientific studies are compensated for by careful study design, the benefits can far outweigh the problems. We hope to set this example.

Duck Counts: The Two Moose Lake Duck Survey was established by the Yukon Government in 2006. Tombstone Park Rangers were hard pressed make time for this survey. Local expertise coordinated by FODC has allowed it to continue. The survey sheds light on the changing use of this lake by waterfowl.

Pika Surveys: Collard Pika are recognized as climate sensitive indicator species. The Yukon Government set up an occupancy study in Tombstone Park in 2009 and followed it up in 2013. Because the survey protocol is readily learned, it is ideally suited for citizen science. Since 2015 FODC has worked with the government to conduct these surveys. Projects focused on monitoring the effects of climate change are planned to be launched this summer.

Syd Cannings*[1] and Maria Leung[2]

[1]Canadian Wildlife Service, Environment and Climate Change Canada, Whitehorse, Yukon
[2]Wild Tracks Ecological Consulting, Whitehorse, Yukon

Title: Counting bees like birds

Bumble Bees are facing a number of challenges throughout the world, and two Yukon species—the Western Bumble Bee (*Bombus occidentalis*) and the Yellow-banded Bumble Bee (*B. terricola*) have suffered significant losses in southern Canada. Nest parasites of these particular species—the Gypsy Cuckoo Bumble Bee (*B. bohemicus*) and Suckley's Cuckoo Bumble Bee (*B. suckleyi*)—have declined even more significantly in the south, and may even be extirpated in certain regions. All of these bees have been assessed at some level of endangerment by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) based on their declining populations; these declines were documented primarily through changes in their relative abundance in museum collections, decade by decade. Across most of Canada, however, there are few or no data on trends in bumble bees—we really don't know whether or not their numbers are going up or down, or if they are stable. To address this lack of information, we began a series of repeatable, roadside surveys of bumblebees in the Yukon in 2017; 10 were completed in 2017, 16 in 2018, and xx in 2019. These surveys are modelled after the successful Breeding Bird Surveys (BBS), which began in 1966 and are now carried out by thousands of observers across North America each year. Similar bee surveys have been done in some of the eastern United States in recent years, and 29 were carried out in northern Ontario in 2017. We will present the 2017 and 2018 results of these surveys and discuss potential sources of variability within and between routes. Three of the Yukon species at risk (Western, Gypsy Cuckoo, and Suckley's Cuckoo bumble bees) were encountered in these surveys.

Christina Davy[1,2], Valerie Von Zuben[1], Piia Kukka[3], Brian Gerber[4], Brian Slough[5], and **Thomas Jung**[3,6]

[1] Environmental and Life Sciences Program, Trent University, Peterborough, Ontario, Canada
[2] Ministry of Natural Resources and Forestry, Government of Ontario, Peterborough, Ontario, Canada
[3] Department of Environment, Government of Yukon, Whitehorse, Yukon, Canada
[4] Department of Natural Resources Science, University of Rhode Island, Kingston, Rhode Island, USA
[5] 37-71 Aksala Drive, Whitehorse, Yukon, Canada
[6] Department of Renewable Resources, University of Alberta, Edmonton, Alberta, Canada

Title: Yukon's shrinking bats: how climate change may influence the survival of an aerial insectivore

Aerial insectivores (species that feed on insects while flying) include many birds, bats, and predatory insects. In North America, most avian aerial insectivores are in decline. These declines vary geographically and are likely multi-factorial, with the relative impact of factors varying among species; however, declines have largely been attributed to reduced food availability. Nutritional stress during development can affect body size at maturity. Therefore, changes in skeletal body size can act as proxies for nutritional stress during development. Moreover, food availability may be affected by climate change, which can drive changes in body size. We used a 14-year time series of body size collected from 5312 little brown bats (*Myotis lucifugus*) captured 8875 times in southern Yukon to test the hypothesis of increasing nutritional stress in this endangered aerial insectivore. Additionally, we used a mark-recapture analysis to test whether body size was associated with estimated survival rates. Average size of females at maturity has rapidly decreased over a short time span (14 years), likely due to malnourishment during development in the first year. Our results – while preliminary – suggest that bats in Yukon are experiencing nutritional stress during rainy years, through a reduction in prey abundance or reduced foraging opportunities. We identified a direct association between forearm length and survivorship, suggesting that the observed decline in body size is not adaptive.

Ted Murphy-Kelly

Yukon Bird Observatory

Title: 2020 Update from the Yukon Bird Observatory

The 2020 season represented the nineteenth and fifteenth consecutive year of bird migration monitoring at the Albert Creek and Teslin Lake Bird Observatories, respectively. As full member stations of the Canadian Migration Monitoring Network, both stations operate using standardized monitoring protocols aimed at collecting Boreal bird monitoring data. During 2020, Albert Creek operated during the spring migration period and Teslin Lake during the fall migration period. While the bulk of the monitoring activities are focused on common species, both stations continue to provide information on rare and unusual bird species in the southern Yukon. As of 2019, the stations have banded a cumulative total of 99,002 birds of 112 species, observed 226 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.

YUKON BIODIVERSITY FORUM

Yukon Beringia Interpretive Centre Saturday March 7, 2020

8:30	**COFFEE & TEA HOSTED BY THE YUKON CONSERVATION DATA CENTRE**
9:00	**Bruce Bennett** *Welcome*
9:10	**Maria Leung[1]*** and Donald Reid[2] ***Nesting success of Barn Swallows on farmlands of southern Yukon*** [1]Wild Tracks Ecological Consulting, Whitehorse, Yukon [2]Wildlife Conservation Society Canada, Whitehorse
9:30	**Dennis Zimmermann** ***Respect for Fish: Perceptions of Catch and Release in Yukon. Playing with food or global conservation ethic?*** Carleton University Fish Ecology & Conservation Physiology Lab/Big Fish Little Fish Consultants
9:50	**Petra Szekeres** ***Chinook salmon parental stress physiology and the effects on offspring survivorship*** EDI Environmental Dynamics Inc. .
10:10	**COFFEE & TEA HOSTED BY THE YUKON CONSERVATION DATA CENTRE**
10:40	**Piia Kukka[1]***, Julie P. Thomas[1], Justine E. Benjamin[1], Thomas S. Jung[1,2] ***Rapid assessment of site occupancy by Collared Pika (Ochotona collaris) at the leading edge of their climatic envelope*** [1] Department of Environment, Government of Yukon, Whitehorse, Yukon, Canada [2] Department of Renewable Resources, University of Alberta, Edmonton, Alberta, Canada
11:00	Erika L. Rowland[1], Nancy Fresco[2], Donald G. Reid[3], and **Hilary A. Cooke[3]*** ***Examining Climate-Biome ("Cliome") Shifts for Yukon and its Protected Areas*** [1]Wildlife Conservation Society, North America Program [2]Scenarios Network for Alaska & Arctic Planning (SNAP), University of Alaska Fairbanks [3]Wildlife Conservation Society Canada, Whitehorse, Yukon
11:20	Scott Gilbert[1], Alberto Suárez-Esteban[2], and Élise Brown-Dussault[3] ***Meeting the Neighbours: Species richness on Whitehorse Trails*** [1]Yukon College [2]Carleton University [3]University of Alberta, Environmental and Conservation Sciences

11:40	**Caitlin Willier** ***Evaluating vegetation changes using ground survey data and remote sensing products*** Fish & Wildlife Branch, Environment Yukon
12:00	**LUNCH HOSTED BY YUKON CONSERVATION DATA CENTRE**
1:00	**Bruce Bennett** ***Watson Lake BioBlitz 2019 Results*** Yukon Conservation Data Centre, Environment Yukon
1:20	**Kirsten Reid*** and Carissa Brown ***Biodiversity gradients and trophic interactions in the Western Canadian Subarctic*** Department of Geography, Memorial University of Newfoundland
1:40	**Hilary Cook*,** Julienne Morissette, Tyler Cobb, and Donald Reid ***Burned and beetle-killed forests need protection too: managing naturally disturbed forests to conserve ecological values*** Wildlife Conservation Society, Whitehorse, Yukon
2:00	**Katarzyna Nowak[1]***, Shane A. Richards[2], Amy Panikowski[3], Greg Newman[4], Nicholas E. Young[4], Aerin Jacob[5], Jon P. Beckmann[6], Don Reid[7], Joel Berger[6,8] ***Using community photography to investigate phenology: A case study of coat molt in the Mountain Goat* (Oreamnos americanus)** [1] The Safina Center, Setauket-East Setauket, NY 11733 USA [2] Canadian Parks and Wilderness Society Yukon, Whitehorse, Yukon Y1A 2C9 Canada [3] School of Natural Sciences, University of Tasmania, Hobart, TAS 7001, Australia [4] P.O. Box 360, Eshowe, KwaZulu-Natal 3815, South Africa [5] Wildlife Conservation Society Canada, Whitehorse, Yukon Y1A 0E9 Canada [6] Yellowstone to Yukon Conservation Initiative, Canmore, AB T1W 1P6 Canada Natural Resource [7] Ecology Laboratory, Colorado State University, Fort Collins, CO 80523 USA [8] Wildlife Conservation Society, Bozeman, MT 59715 USA [9] Department of Fish, Wildlife and Conservation Biology, Colorado State University, Fort Collins
2:20	**COFFEE & TEA HOSTED BY THE YUKON CONSERVATION DATA CENTRE**
2:40	**Julie Frisch** ***Citizen Science in Tombstone Park with Friends of Dempster Country*** Friends of the Dempster Country
3:00	**Syd Cannings*[1]** and Maria Leung[2] *Counting bees like birds* [1]Canadian Wildlife Service, Environment and Climate Change Canada, Whitehorse, Yukon [2]Wild Tracks Ecological Consulting, Whitehorse, Yukon
3:20	Christina Davy[1,2], Valerie Von Zuben[1], Piia Kukka[3], Brian Gerber[4], Brian Slough[5], **Thomas Jung[3,6]*** ***Yukon's shrinking bats: how climate change may influence the survival of an aerial insectivore*** [1] Environmental and Life Sciences Program, Trent University, Peterborough, Ontario, Canada [2] Ministry of Natural Resources and Forestry, Government of Ontario, Peterborough, Ontario, Canada [3] Department of Environment, Government of Yukon, Whitehorse, Yukon, Canada [4] Department of Natural Resources Science, University of Rhode Island, Kingston, Rhode Island, USA [5] 37-71 Aksala Drive, Whitehorse, Yukon, Canada [6] Department of Renewable Resources, University of Alberta, Edmonton, Alberta, Canada
3:40	**Ted Murphy-Kelly** *2020 Update from the Yukon Bird Observatories* Yukon Bird Observatories

(* presenter)

POSTERS

Pam Sinclair, Marty Mossop, Dave Mossop, Jim Hawkings, Ted Murphy-Kelly, Ben Schonewille, Jukka Jantunen, Julie Bauer

Canadian Wildlife Service, Yukon College, and the Society of Yukon Bird Observatories

Title: Migratory birds: connecting Yukon with the world

Most Yukon birds don't stay here for long. Where are Yukon's migrant birds during the many months of each year when they are not here? With data from 56 species and over 130 banders and researchers—beginning with banded birds in the 1920s, and through major banding studies of waterfowl and raptors, to the establishment of Yukon Bird Observatories, and recent studies using satellite transmitters—an amazing story unfolds. We illustrate where Yukon birds have traveled: to or from 12 countries on three continents, including eight Canadian provinces and territories and 41 US states. They have traveled as far east as New Hampshire and eastern Brazil, as far west as Siberia, as far north as Barrow Alaska and Devon and Melville islands in the Canadian high Arctic, and as far south as Argentina. A Peregrine Falcon flew almost 13,000 km from Old Crow to Argentina; a tiny Alder Flycatcher traveled 7,300 km from Teslin to Colombia, and a Semipalmated Sandpiper flew over 8,000 km from Ecuador to Judas Creek. Top speeds included a Mallard travelling 229 km/day from Shallow Bay to Oregon, and a Swainson's Thrush which averaged 152 km/day between Fairbanks and Teslin. Lifelong travel is impressive considering birds were encountered up to 17 years after being banded. These amazing feats are inspiring reminders of the myriad challenges faced by migratory birds in a changing world, and the need for cooperative conservation efforts throughout their vast ranges.

Bruce Bennett and Randi Mulder

Yukon Conservation Data Centre – Environment Yukon

Title: A Snapshot of Yukon Biodiversity – what makes up Yukon's biodiversity by group

The Yukon Conservation Data Centre keeps records over 8500 species that are known to call Yukon home. The biodiversity is broken down by groups. Did you known there are nearly as many flea species as fishes?

Patrick Soprovitch* and Michel Duteau

Yukon Invasive Species Council (YISC)

Title: Invasive species in the Dezadeash/Alsek watershed: locations sensitive to sweet clover and invasive mussels

Invasive species are a major threat to biodiversity. Sweet clover (Melilotus albus) changes sedimentation patterns in rivers and infests wetlands. This impacts a variety of species and local cultures and economies, including through changes to salmon habitat and recreational opportunities. Zebra and quagga mussels (Dresseyna polymorpha and D. bugensis) are known to damage man-made infrastructures and to affect whole ecosystems by hogging resources, i.e. food. Acess points to waterbodies (e.g. road-water intersections, ATV crossings, boat launch, fishing spots, recreational boating) are particularly sensitive to introduction.

Light patches of sweet clover have recently been detected in Haines Junction. Invasive mussels are not known to have arrived in Yukon but are known to be able to survive in the local conditions.

The objective of this project was to identify the access points that are sensitive and at high-risk of introduction in the Dezadeash watershed, in view of directing efforts for education and outreach (e.g. signs) and with the possibility of extrapolating the method to the rest of the Alsek watershed.

Julie Thomas[1,2], Mary Reid[2], Robert Barclay[2], Lea Randall[3], Piia Kukka[1], and Thomas Jung[1,4]
[1]Department of Environment, Government of Yukon, Whitehorse, Yukon, Canada
[2]Department of Biological Sciences, University of Calgary, Calgary, Alberta, Canada
[3]Calgary Zoo Conservation Program, Calgary, Alberta, Canada
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Title: Salvage Logging has Diverse Effects on Boreal Forest Mammals
Both the frequency and severity of natural disturbances are increasing in the boreal forest as a result of climate warming. With a rise in bark beetle infestations and wildfires, salvage logging (i.e. post-disturbance logging) is becoming a common practice, yet the ecological consequences of this type of forest harvest are poorly understood. A bark beetle outbreak of unprecedented size and severity occurred in the Kluane region of Southwest Yukon from 1994 to 2005, and salvage logging has been ongoing since the mid 1990's. The University of Calgary and Yukon Department of Environment have collaborated on several studies to investigate the effects of the beetle outbreak and salvage logging on keystone boreal forest mammals (voles and mice,

snowshoe hare, moose), carnivores (lynx and coyote), and species at risk (endangered little brown bats). Here we present the key results from these studies, and summarize the implications for forest management and wildlife conservation in SW Yukon. While results are variable and species-dependent, it is clear that beetle-affected forest has high value for many wildlife species, and it should be preserved in areas where wildlife conservation is a top priority.