

List of Abstracts 2015

1. A new endemic Yukon lichen

Wayne Strong, Yukon Research Centre, Whitehorse, Yukon

A previously undescribed plant was found ~30 km west of Whitehorse on the forest floor of an open-growing lodgepole pine (*Pinus contorta*) stand in 2013. Subsequent analyses have resulted in its classification as a lichen and has been tentatively named *Pseudoflavocetraria stenothallus*. The taxon appears to contain blue-green algae, which aligns it with the Peltigerales within the Ascomycota. *Pseudoflavocetraria stenothallus* is unlike any other currently recognized taxonomic family within the Peltigerales order based on its pale colored thallus, similar upper and lower cortex, and elongate foliose growth-form. To accommodate this taxon, an entirely new taxonomic family (Strapaceae) is proposed within the Peltigerales, subject to formal publication. Because this taxon is known to occur in only Yukon, it can be considered an endemic until proven otherwise.

2. Occurrence, removal and bio-accumulation of pharmaceuticals and personal care products at the Whitehorse sewage lagoon

Devon Yacura- School of Science, Yukon College and Dept. of Renewable Resources, University of Alberta

The occurrence of pharmaceutical and personal care products (PPCPs) in the environment is an emerging environmental issue. PPCPs encompass a diverse group of organic chemicals and include prescription and non-prescription drugs, natural and synthetic estrogens, antibiotics, surfactants, flame retardants, and many chemicals found in household products. The discharge from municipal wastewater treatment facilities has been identified as the main source of entry for PPCPs into the environment. The City of Whitehorse utilizes a multi-lagoon system, known as the Livingston Trail Environmental Control Facility (LTECF), for treating the municipalities waste. The LTECF has been identified as one of Whitehorse's premier birding locations around the City of Whitehorse. Thousands of birds use the LTECF during the spring, summer and fall as a breeding location and as a stopover site during their migration. Until now, a thorough examination of PPCPs in the LTECF has not been completed. The objectives of this study were: i) to quantify the occurrence of PPCPs in wastewater, sludge, aquatic invertebrates and algae from the primary, secondary and tertiary stages of treatment at the LTECF; ii) to evaluate the removal efficiency and seasonal variation of pharmaceutical compounds in wastewater at the LTECF; and iii) to determine bioaccumulation factors (BAF) for the various pharmaceutical compounds in the aquatic invertebrates and algae at the LTECF.

3. Recent surveys of Yukon plant species at risk: Yukon Draba, Spiked Saxifrage, and Yukon Buckwheat.

Shannon Stotyn- Canadian Wildlife Service, Environment Canada

In 2015, Canadian Wildlife Survey biologists continued their annual work on rare endemic plants, including Yukon Draba (assessed as Endangered), Spiked Saxifrage (assessed as Special Concern), and Yukon Buckwheat (to be assessed in 2016). A number of new populations of Yukon Draba have been located since the species was assessed in 2011; a population at Aishihik is being monitored for extreme fluctuations, but these weren't apparent in two years of counts. Significant new populations of Spiked Saxifrage were found in the upper drainages of the White River and Beaver Creek in 2015; this region now seems to be the centre of abundance of this species for Canada. After considerable searching in 2014 and 2015, Yukon Buckwheat appears to be confined in Canada to the Aishihik area.

4. Why do grizzly bears eat locoweed (*Oxytropis campestris*)?

Scott Gilbert, Renewable Resources Management Program, Yukon College
During the past three field seasons my students and I have been studying the foraging activity of grizzly bears in and around the Congdon Creek campground at Kluane Lake. Between late May and early July, bears graze extensively on the flowers of field locoweed. The plant, a member of the legume family, grows in open meadows and road side clearings in the Kluane area. Our work with Yukon Parks has explored ways to deter bears from feeding on this plant in the campground to reduce human-bear conflicts.

In 2013 we documented there were significant quantities of the flower located in the central portion of the campground. In 2014 and 2015 Yukon Parks mowed the meadow in mid-June and this seemed effective in removing the attractant and there were no reports of bears feeding inside the campground. In 2014 we used a series of vegetation clip plots, staggered at weekly intervals in June, to determine the most effective time to mow the meadow and remove the largest number of flowers. In 2015 we tracked the growth of over 200 individually labelled flowers to estimate the growth and maturation rate of flowers from buds to mature flowers. The range management literature from southern jurisdictions describes *O. campestris* as poisonous so it seems surprising that Yukon grizzly bears eat it so avidly. Future work will investigate whether field locoweed in the Yukon lives up to its name and reputation.

5. Citizen-based Bee House Project

Maria Leung, Whitehorse Biologist

In 2014, I initiated a citizen-based bee house project to gather base line information on wild bees in Yukon. Bee houses were distributed to residents of Whitehorse and nearby communities. Two types of bee houses were built: bumblebee domiciles for bumblebee colonies and bee blocks with nesting straws for hole-dwelling solitary bees. After the growing season, contents of occupied bumblebee houses and nesting straws were placed in an incubator. In spring, several different insect species emerged from the nesting straws.

6. Yukon Invasive Species – Where Are We At and What Are We Doing?

Brett Pagacz- Environmental Dynamics Inc.

The Yukon Invasive Species Council (YISC) is a non-profit organization that promotes education and awareness of invasive species in Yukon. YISC plays a leading role in

encouraging early detection and rapid response (EDRR) of plant, animal and fungi species that are considered invasive in Yukon.

Join us in learning what the current status and trends are of invasive species in Yukon. As part of EDRR, we will look at some new discoveries in the Yukon and where known invasive plant issues are lingering near our border, such as Alaska and British Columbia.

For the past two years, education programs such as the Spotter's Network have provided public workshops to educate interested individuals on the identification of the "The Dirty Dozen" for Yukon to help direct EDRR efforts and to track known populations of species that are considered the greatest threat to our environmental, economic and social realms. If you would like to know more, please join us to find out what data we are collecting, what we are doing with the data and how things are working in regards to tracking invasive species populations in Yukon.

This Is Our Arctic.-VIDEO PRESENTATION

Bringing Youth Towards Equality (B.Y.T.E)

What does climate change look like in Canada's Arctic Circle? Most Canadians, and even most northerners, never get the chance to find out. *This Is Our Arctic* invites you to discover what climate change in the Arctic looks like through the eyes of local youth.

Accompanying this film is an exhibition of photographs, taken by youth from Old Crow and Inuvik. The exhibition has toured around Canada and for the next 3 months, it will be on display at the Museum of Inuit Art in Toronto. Previously, the exhibition has been displayed at the Yukon Arts Centre, ArtStarts Gallery in Vancouver and the Coquitlam Public Library.

This is Our Arctic was a project of BYTE - Empowering Youth Society. It could not have been done without the support we received from the Yukon Government Environmental Awareness Fund, the Small Change Fund and Air North. Editing was by Marty O'Brien of Old Pal Productions.

To see the photographs and learn more about the project, simply go to: <http://www.yukonyouth.com/this-is-our-arctic/>.

** Other link to video clip:

<https://www.youtube.com/watch?v=GVSJjN2lnGo>

7. New Yukon Species and Major Range Extensions

Bruce Bennett- Yukon Conservation Data Centre

The Yukon Conservation Data Centre (CDC) maintains lists of all Yukon species and provides information to help assess their conservation status. In addition, highlights of new species, significant range extensions, and rediscoveries of historical reports will be discussed.

8. eDNA used to detect rare species: a Yukon first

Bruce Bennett-Yukon Conservation Data Centre

Surveys using Environmental DNA (eDna) were used to attempt to determine the distribution of Western Toad and Columbia Spotted Frog in southern Yukon. The project will be discussed.

9. Sufficiency of riparian reserve zones for conserving habitat for boreal forest songbirds in southern Yukon

Hilary A. Cooke* and Lila Tauzer, Wildlife Conservation Society Canada

**presenting author*

Mature spruce forests are limited in the valley bottoms of southern Yukon and usually associated with riparian areas. Unharvested reserve zones, intended to protect riparian values, are 60m for wetlands >1ha and 20-80m for streams and rivers, depending on width. We studied songbirds at unharvested mature white spruce forest sites alongside streams (n=23) and wetlands (n=15) to determine 1) if riparian forest supports unique bird communities compared with non-riparian forest and 2) if reserve zone widths are sufficient to accommodate space use by riparian forest songbirds. Bird communities within the riparian zone (at 50m from riparian-forest edge) are different from those in upland forest (at 250m from riparian-forest edge). Differences vary when riparian forest is associated with streams vs wetlands, and with forest type (stand composition and age). We identified Blackpoll Warbler, Lincoln's Sparrow, Northern Waterthrush, and Wilson's Warbler as significant indicators of riparian-forest edge habitat. Hammond's Flycatcher, Yellow Warbler, Tennessee Warbler, Warbling Vireo, Common Yellowthroat, Rusty Blackbird, and Western Wood-Pewee were all strongly associated with riparian-forest edge habitat. We mapped songbird observations along two 300m transects perpendicular to the riparian-forest edge at each stream and wetland site. The spatial distribution of observations were skewed towards the riparian forest edge for 11 species. Reserve zones < 50m on streams and wetlands may be insufficient to accommodate space requirements for Northern Waterthrush (49 m), Wilson's Warbler (48 m) Blackpoll Warbler (41 m), Hammond's Flycatcher (40 m), Lincoln's Sparrow (24 m), and Common Yellowthroat (17 m).

10. Wings of change: how do boreal birds respond to forest alterations?

Alberto Suárez-Esteban, Fiona Schmiegelow, Steve Cumming

**presenting author*

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In North America, as many as three billion birds or more depend on the boreal forest to breed. In the last decades, forest cover in Canada's boreal has been decreasing due to rapidly expanding industrial activities, such as logging, oil and gas, mining, and

agriculture. These anthropogenic disturbances may negatively impact bird populations through their alteration of forest extent and structure.

We evaluated the effects of anthropogenic disturbances on 17 bird species at local and neighborhood scales across Canada. By combining Global Forest Watch and Boreal Avian Modelling Project databases for 2000-2013, we first identified bird point-count sites that were either disturbed by industrial activities or undisturbed at the time of survey. We then compared bird densities between disturbed and undisturbed sites, while correcting for spatio-temporal heterogeneity, and for differences in detectability among species and in survey settings (e.g. time of day, sampling radius, survey duration).

We found that disturbed points consistently supported fewer birds than undisturbed points across Canada. Obligate forest species such as the Bay-Breasted Warbler showed strong, negative responses to disturbances, particularly to those operating at local scales. On the other hand, a few species such as Pine Siskin that also use more open or shrubby areas showed neutral or positive responses to disturbances at the scales examined.

Industrial activities in the boreal forest can negatively impact forest-dependent bird species. Careful planning of these activities at local and regional scales is therefore needed to ensure the long-term conservation of boreal birds and the ecosystem services they provide.

11. Contaminants in the Arctic Terrestrial Ecosystem

Mary Gamberg, Research Scientist, Whitehorse, Yukon

While the Arctic terrestrial ecosystem is relatively pristine compared to its marine counterpart it still receives input of contaminants through long-range atmospheric transport from other parts of the globe. Anthropogenic contaminants such as fluorinated compounds used in stain repellents and non-stick cookware, and brominated compounds used as flame retardants, have been found in a wide range of Arctic wildlife, including caribou from the Yukon. Mercury is another contaminant of global concern that is found in Arctic wildlife, caribou having the highest levels in the terrestrial ecosystem, due to their reliance on lichens as their main winter forage. Mercury has been studied in the Porcupine caribou since the early 1990s. Concentrations tend to be higher in females as compared to males and higher in the spring as compared to the fall. Although there is annual variation in mercury concentrations, there does not appear to be a consistent trend over time in this herd. There is no evidence of increased radioactivity in the Porcupine caribou as a result of the nuclear accident in Fukushima, Japan in March 2011. Monitoring of the Porcupine caribou continues on an annual basis under the Northern Contaminants Program.

12. Yukon Bird Observatories: A 2015 Update

John Meikle and Jim Hawkings, Society of Yukon Bird Observatories

The Yukon Bird Observatories include three field stations which operate on an annual basis in the southern Yukon to collect monitoring information on migrating birds. During 2015, all field stations were operational and included the Albert Creek Bird

Observatory (Watson Lake), Teslin Lake Bird Observatory (Teslin) and McIntyre Marsh Bird Banding Station (Whitehorse). The field stations at Albert Creek and Teslin Lake are full members to the Canadian Migration Monitoring Network, a nationwide network of similar stations which use standardized monitoring protocols to track changes in bird populations across the country. Activities at the observatories include a combination of standardized mist netting/banding, visual migration counts and collection of incidental bird observations to populate a list of estimated totals for all species on each day of operation. During 2015, the three field stations banded a total of 7,383 birds of 67 species including a number of species rare to the Yukon and one species that was a first for the Yukon (Blackburnian Warbler). At the Teslin Lake Bird Observatory, a total of 42,446 birds were observed on the visual migration counts including 4,211 raptors. Aside from the collection of bird migration monitoring data, the field stations continue to provide an educational opportunity for the Yukon public and a training ground for students and other individuals to learn about birds and the methods used to monitor them.

13. Tracking key bird species: new troubling and mysterious changes

Dave Mossop, Yukon College, Yukon Research Centre

Key species with long data sets: Gyrfalcon, Willow Ptarmigan, Peregrine Falcon, American Kestrel were all tracked using long established protocols. The tundra community complex of the "key stone": (willow ptarmigan) and the top predator: (gyrfalcon), have demonstrated confusing dramatic changes over the last several years. These continued in 2015 but interestingly included an unpredicted large single-year eruption in ptarmigan in 2013 and this seems to have resulted in a slight top predator recovery. Time will tell although the reasons for the troubling disruption to this important tundra community continues to be a key mystery. A new and very interesting development to this story was the discovery this year of an apparent breeding population established many kilometers from tundra habitat in a section of the large "Fox Lake" forest fire burn. 2015 was the year for the full-continent peregrine falcon status survey: in the Yukon over a dozen field workers were able to visit 152 nest sites of the interior sub-species but found only 29% were producing young (possibly too few for long term stability?). The adult population has apparently stopped increasing and perhaps may be adjusting to a long-term new stable level. The tundra sub-species on the North Slope likewise seem to have stopped increasing and are apparently also producing too few young for long term maintenance. The American Kestrel meanwhile seems to be showing signs of being on the 'comeback trail'. Up from zero young being produced in 2007, the study population produced over two dozen young this year. The mystery of what the issue has been for the species is becoming even more obscure as we continue to hear of no recoveries from our banded birds.