

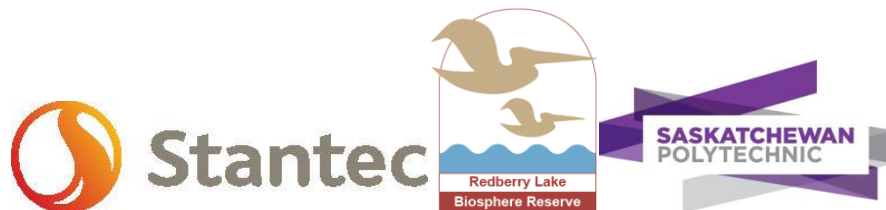
UAVs in the 21st Century

February 10, 2016 at Saskatoon

PROGRAM

- 0800 - 0830: Registration**
- 0830 - 0845: Welcoming Remarks**
- 0845 - 1015: CAN DRONES HELP OUR WILDLIFE?**
Dr. David M. Bird:
- 1015 - 1100: Refreshment break**
- 1100 - 1200: THE REGULATOR**
Jack Kearley (Transport Canada, Prairie and Northern Region, Civil Aviation Safety Inspector, Flight Operations)
- 1200 - 1300: Luncheon (buffet style)**
- 1300 - 1400: OVERCOMING THE HYPE WITH UAS**
Kevin Grover, ALS, P.Eng
- 1400 - 1515: REMOTE SENSING WITH DRONES**
Jeff Lettvenuk (Saskatchewan Research Council)
- 1515 - 1545: Refreshment break**
- 1545 - 1630: APPLIED RESEARCH AT SASK. POLYTECHNIC**
Dave Halstead, MSc, P. Biol., Instructor, Senior Researcher

DRIVE SAFELY AND THANK YOU



UAVs in the 21st Century

ABSTRACTS AND BIOGRAPHIES

CAN DRONES HELP OUR WILDLIFE?

Dr. David M. Bird

Small unmanned vehicle systems (UVS), formerly exclusive to militaries, are rapidly advancing in sophistication and availability to civilians. Ranging from hand-launched autonomous airplanes to terrestrial robots to underwater machines, they are increasingly being employed in such areas as agriculture, emergency services, meteorology, oceanography, geophysics and film-making. Another area that shows great potential for the applications of UVS and associated markets is wildlife research and management. Applications being carried out in various regions of the world today include monitoring breeding, wintering and migrating populations of colonially nesting birds, spawning salmon and orangutans, mapping breeding habitat of endangered species, tracking threatened caribou and polar bears in the far north, examining nest contents of raptorial birds breeding in inaccessible locations, and deterring poachers in Africa. As technology and industry continue to develop and the regulatory procedures begin to loosen, we anticipate an ever-widening range of applications to surface in this field. Some examples include underwater tracking of foraging aquatic birds, detecting signals from songbirds bearing radio-transmitters, surveying nest contents of underground burrows of birds and mammals, and dispersing nuisance birds. This presentation will attempt to explore possible applications of UVS of all types and sizes to help meet the needs of today's wildlife biologists and managers and to delve into the limitations faced by those wishing to utilize UVS in terms of costs, size, practicality in the field, regulations, etc.

Speaker Bio

As an Emeritus Professor of Wildlife Biology of McGill University in Montreal, Quebec, Dr. David Bird has published 200 peer-reviewed papers on birds of prey and other wildlife and supervised 50 graduate students. His name graces the covers of no less than ten books. Dr. Bird is an elected Fellow of the American Ornithologists' Union and an elected member representing Canada on the prestigious International Ornithological Committee, a past-president of two major ornithological societies, and currently a member of the boards of directors of Unmanned Systems Canada and Bird Studies Canada. Along with his students and collaborators, he has been working with Unmanned Aerial Vehicles (UAVs) for about eight years, counting water birds and mapping their habitat use, censusing raptor nests, and conducting detectability studies for woodland caribou in Labrador. Dr. Bird is the founding editor of a new electronic peer-reviewed publication, the Journal of Unmanned Vehicle Systems, which is the official journal for Unmanned Systems Canada. In the last two years, he has given several keynote or plenary talks on UAVs and wildlife studies at conferences world-wide. Dr. Bird has also organized symposia and workshops on the applications of UAVs for wildlife studies. He can be reached at: Avian Science and Conservation Centre, McGill University, 21,111 Lakeshore Road, Ste. Anne de Bellevue, Quebec H9X 3V9 david.bird@mcgill.ca

THE REGULATOR

Jack Kearley

*Transport Canada, Prairie and Northern Region,
Civil Aviation Safety Inspector, Flight Operations*

OVERCOMING THE HYPE WITH UAS

by Kevin Grover, ALS, P.Eng

Drones seem to be everywhere these days. On the news, hobby shops, big box stores, you can't escape them. Unmanned aerial technology is changing at a never ending pace with costs all over the map, so how does one actually decide on a solution before something changes again? This session will focus on best practices for choosing a platform and sensor combination to meet the needs of a project.

Speaker Bio

Kevin Grover is the UAS Operations Manager for all commercial unmanned aerial service offerings at Stantec. He has been involved with UAS for the past three years at Stantec with both fixed wing and multirotor UAS, as well as an avid hobbyist. Stantec currently holds Standing Complex SFOCs for all of Canada (except Quebec), that allow them to operate UAS to a higher elevation as well as at airports in Canada.

REMOTE SENSING WITH DRONES

Jeff Lettvenuk (Saskatchewan Research Council)

Recent developments in Unoccupied Aerial Vehicle (UAV) technologies have spawned opportunities for small scale aerial image capture that were not considered cost effective in the past.

The Saskatchewan Research Council has been involved with UAVs for two years and offers some insight into operating these aircraft and how the data products are being used. An overview of UAV technology today will cover topics such as:

- Where do UAVs fit compared with traditional tools?
- What opportunities/advantages or challenges are associated with leveraging UAVs?
- Potential cost implications of UAVs over conventional aircraft/satellite imagery?

Speaker Bio

Jeff Lettvenuk is the GIS Lead, Environment Division, with Saskatchewan Research Council (SRC) and is a GIS and application development specialist with thirty years of professional design and programming experience in the natural resource sector. Along with technical leadership, his primary responsibilities at SRC include UAV image acquisition, GIS and data management services for research initiatives that include forestry, landscape ecology, water sciences and mining.

APPLIED RESEARCH AT SASK. POLYTECHNIC

Dave Halstead, MSc, P. Biol., Instructor, Senior Researcher

Saskatchewan Polytechnic is now a member of an exclusive group of academic institutions emphasizing skills intensive, technology-based learning, and a mandate for applied research. For Natural Resource Technology (NRT) students, this transformation is realized by a willingness to conduct practical-based research on behalf of industry and environmental management agency partners. Student interests and accompanying skill sets span the entire range of natural resource management specialties including: forestry, fish, and wildlife management; habitat assessment; conservation law; environmental protection; mapping, and; remote sensing. These skill sets are amplified by a disciplined approach to field sampling and by new insights and efficiencies gained from leading edge technologies. Aerial assessment involving UAV's and RGB, NIR, thermal and LiDAR sensors promise to revolutionize forestry and wildlife research while securing the future of our natural resources through better surveillance and investigative techniques. Hydroacoustics offers similar potential for fisheries and underwater habitat mapping. Through various types of collaborations, industry is now afforded an opportunity to engage student researchers, equipped with fresh insights and a familiarity with advanced technology, to push the boundaries of possibility when it comes to conservation and environmental sustainability.

Speaker Bio:

David Halstead is an Instructor, specializing in aquatic ecology, for the Natural Resource Technology Program area at Saskatchewan Polytechnic. David is also a sessional lecturer for the Department of Biology at the University of Saskatchewan. Prior to joining academia, David worked extensively in the environmental consulting industry in Alberta and was involved in numerous biomonitoring and bioinventory projects related to oilsands and pipeline development, hydroelectric facilities, and forestry.

DATE and TIME:

February 10, 2016, 0830 - 1630

LOCATION:

Smiley's Buffet Banquet Rooms, 702 Circle Dr E, Saskatoon

REGISTRATION FEE:

\$100 includes buffet lunch.

Contact:

UAV@prairiewaters.ca

Website:

<http://www.prairiewaters.ca/winter-workshop-series/uavs-in-21st-century/>

Hosted by:

The Prairie Waters Working Group

(Redberry Lake (UNESCO) Biosphere Reserve)