

Landowner Data Package (2016)

It's our Nature to Know



2016 at the ABMI

Thank you for allowing the Alberta Biodiversity Monitoring Institute (ABMI) to survey biodiversity on your land in 2016. We would not be able to monitor our province's wildlife and habitats without the help of Alberta's land stewards, like you. As thanks for granting us access to your land, we would like to provide you a list of the species we identified on your land as well as an update on some of the ABMI's activities in the past year.

In 2016, the ABMI's access team (Brandi and Elyse) worked with over 210 landowners and leaseholders across the province to access and survey 198 sites. While some of these sites were new to the ABMI, many had been previously surveyed between 2007 and 2014. In fact, the 2016 field season marks the ABMI's second year of revisiting sites. By revisiting sites periodically, we can track changes in species and their habitats over time, a main goal of the ABMI program. To ensure site revisits are successful, ABMI field technicians are trained to identify the exact same geographic location previously surveyed and implement identical field methods.

The ABMI hired and trained 32 summer field technicians in 2016. Training and fieldwork was conducted out of two base camps: Portage College in Lac La Biche, and Medicine Hat College in Brooks. The crews worked tirelessly, taking multiple 10-day shifts in all kinds of weather conditions and remote locations.

At each of the land sites the ABMI surveyed in 2016, we deployed motion sensitive trail cameras and automated recording units (ARUs). The cameras and ARUs record images of wildlife and birdsongs to better monitor Alberta's mammals and birds. Our full-time technicians (and some contractors) deployed 671 pairs of

trail cameras and ARUs throughout the winter. Over the year, the cameras captured 3,112,687 photos. Of these, 141,276 contained one or more of at least 34 different species. The remaining photos were either blank, or captured humans, vehicles, or other potentially identifying features. These were removed from our database to ensure your privacy. Landowners who had trail cameras on their land have received samples of the photographs and a link to a secure website where they can view the photographs taken on their property. This has been a resounding success so far! Users have told us how much they like to view, save, and print photos from the trail cameras on their land.

The ARUs collected hundreds of hours of audio recordings during the 2016 field season. A team of experts analyzed samples of these recordings to identify the birds that were present. On top of collecting photos and audio recordings, ABMI field staff also identified and sampled mosses, lichens, plants, soil mites, water, and aquatic bugs, and made many different maps and habitat measurements during their spring and summer site visits.

The Fort McMurray fire, which began on May 1, 2016, had a devastating effect on the region. National and international news covered the full evacuation of Fort McMurray, a city of nearly 70,000. As you know, many communities were destroyed by the month-long wildfire. Thankfully, the tireless efforts of the Fort McMurray Fire Department and regional partners saved much of the city's infrastructure. The ripple effects of this catastrophic event were far-reaching, and also affected ABMI operations in northern Alberta. As Fort McMurray had been set as an ABMI base camp for the 2016 field season, a last-minute contingency plan had to be implemented. To keep the program going, ABMI crews visited remote sites from Fort Chipewyan instead.

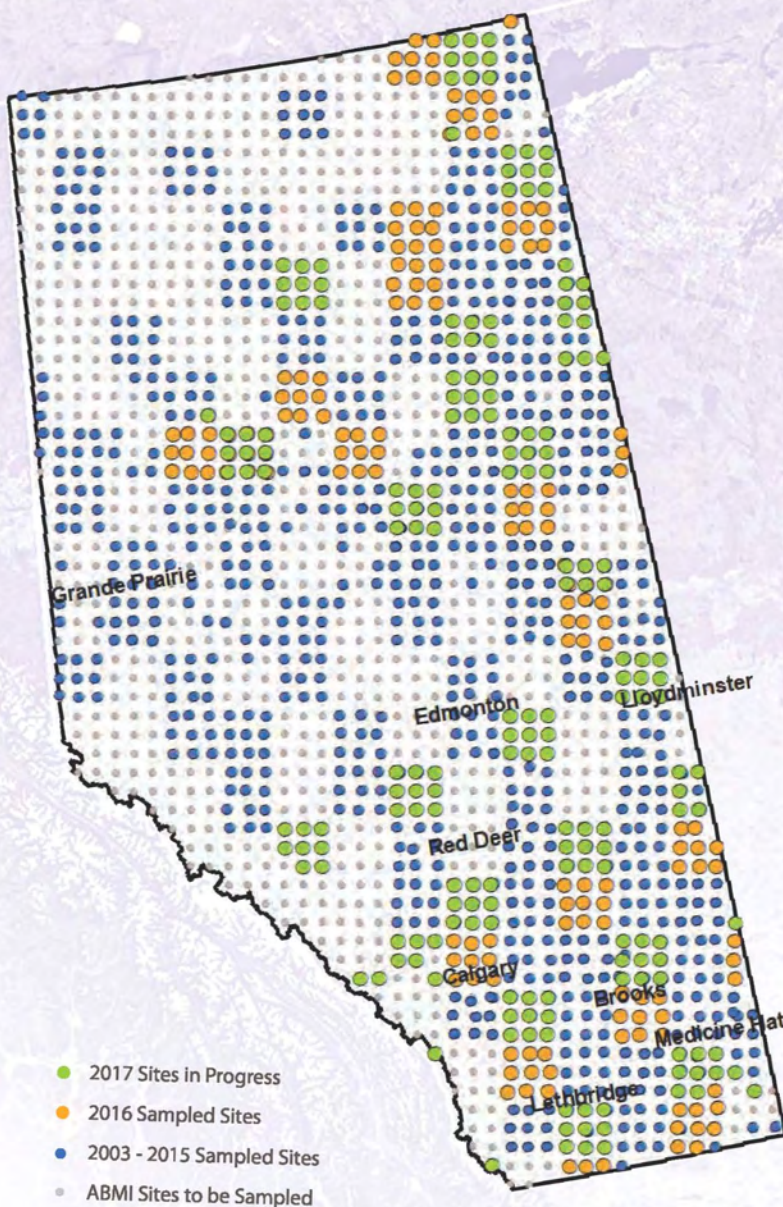
In September, just as the 2016 field season concluded, the ABMI began preparations for the 2017 field season. We visited 180 sites throughout the 2017 field season. This upcoming year, 2018, we plan to re-visit and collect data at approximately 250 sites, from the Montana border to Wood Buffalo National Park. We are also implementing some new protocols that include wildlife cameras and ARUs at our wetland sites! We look forward to diving into the data and sharing more information on Alberta's species and habitats with you in the future.



ABMI's Monitoring Site Map



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cameras captured 3,112,687 photos!
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For more information about the ABMI, and to stay up-to-date with our current activities, we invite you to visit our social media pages on Facebook, Instagram, and Twitter. You will find interesting things like #CameraTrapTuesday, #ABMIatWork, #FabPhotoFriday, news about events, and more stories about the important work being conducted by the ABMI and our partners.

If you have any questions about the information in this data summary package or the ABMI in general, please do not hesitate to contact us:

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Once more, thank you! We look forward to working with you again in the future when we hope to re-visit your land.

The Biodiversity Monitoring Cycle

Collecting biodiversity data from land and wetland sites is only one part of the annual monitoring cycle at the ABMI. Months of work go in to planning for the field season, and once it's all over, months of work go into processing and using the data! The illustration below provides a peek at a monitoring year at the ABMI.



Behind the Scenes Data Collection:

Human Footprint Mapping

In addition to collecting biodiversity information at our land and wetland survey sites, the ABMI also captures important information on the state of Alberta's human footprint (human land use) and habitat using images taken from airplanes and satellites.

Combining our field data with satellite data on habitat and human footprint lets us understand the relationship between species, their habitats, and human footprint, and allows us to measure how these relationships change over time. This analysis is an important tool for land use planners, as it helps them understand how human development or changes in land use may impact biodiversity. The ABMI expects to release a report on Human Footprint across Alberta in late 2017.

The ABMI defines human footprint as the visible conversion of native ecosystems to temporary or permanent man-made landscapes such as residential, recreational, agricultural, or industrial areas.



Turning Information into Knowledge

ABMI Data & Analytics Portal

The ABMI recently launched its Data & Analytics Portal, where Albertans can access and explore all our biodiversity data. This portal includes several components. Information on over 2,500 species can be found by searching the Biodiversity Browser, while the Mapping Portal lets users view the distributions of species, human footprint, and much more across Alberta. You can also download raw species and habitat data, human footprint and land cover data, as well as satellite and aerial data. This information can be used by anyone for endless applications such as research projects, teaching in classrooms, making well-informed land management decisions, and more!

You will also find information on the ABMI's sample site locations, survey methods, sites completed to date, and our quality management system. abmi.ca/home/data-analytics

The above images show changes in human footprint (forest removal) in Alberta's boreal forest between 1999 (A) and 2013 (B). Using satellite imagery, the ABMI maps out and measures these changes (images C and D), helping us understand the relationships between human land use and biodiversity.



Research Project Highlights

The ABMI participates in collaborative research that tackles specific questions or management challenges that affect Albertans. For a complete list of projects, please visit abmi.ca/home/projects

Caribou Monitoring Unit

The ABMI's Caribou Monitoring Unit (CMU) was developed to support Woodland Caribou recovery in western Canada. The CMU works with academics, industry, and government to facilitate research and provide expertise in monitoring at-risk Woodland Caribou populations in Alberta. In 2016, the CMU focused on research to evaluate current Woodland Caribou recovery options and to prioritize certain areas for habitat restoration. This required the CMU to examine regional management strategies, develop criteria for Woodland Caribou habitat restoration, and improve the understanding of relationships between habitat, human disturbance, and predators, and the resulting impact on Woodland Caribou species. The CMU plans to continue working with a variety of different groups to increase our knowledge of the issues facing Woodland Caribou in western Canada. cmu.abmi.ca

Ecosystem Services Assessment (ESA)

Ecosystem Services are the benefits we receive from nature that support our health and well-being, like clean water, food, fuel, flood mitigation, and recreational opportunities. The ESA project is developing a system to assess and map ecosystem services across Alberta. Its goal is to better understand how planning and management decisions affect the landscape and modify the supply of ecosystem services in Alberta. ecosystemservices.abmi.ca

Beef and Biodiversity Project

The ABMI has partnered with researchers at the University of Alberta, Agriculture and Agri-Food Canada, and the Government of Alberta to better understand the relationship between beef and biodiversity. Cattle production affects biodiversity both positively and negatively. For example, cattle may trample riparian areas, resulting in reduced water quality, but grazing can also benefit a wide range of species, including some species at risk. Sponsored by the Alberta Livestock and Meat Agency, this three-year project will assess both the positive and negative effects of cattle production on biodiversity. It aligns with the efforts of the Canadian Roundtable for Sustainable Beef (CRSB) to better position Alberta beef in a global market increasingly focused on sustainability, while balancing economic viability and the increasing demand for food.

Bioacoustic Unit

The Bioacoustic Unit (BU) supports the research and development needed to monitor wildlife populations using ARUs. The BU is a collaboration between the University of Alberta and the ABMI, and develops protocols for the deployment and data processing of the ABMI's ARUs. In 2016–17, the BU developed the Bioacoustic Information System, a web site for storing and analyzing bioacoustic data. The BU processed over 12,000 recordings for the ABMI and other ARU users in government, industry, and non-governmental organizations. Going forward, the BU would like to automate species identification through machine learning. bioacoustic.abmi.ca



The ABMI Reaches Out

Part of the ABMI's vision is that our work will help enrich Albertans' appreciation of our shared natural world. The ABMI participates in a variety of outreach and education activities to help people connect with and understand the biodiversity that surrounds them. Through these activities, we hope to inspire new generations of naturalists, budding biologists, and responsible land stewards!

In 2016, the ABMI:

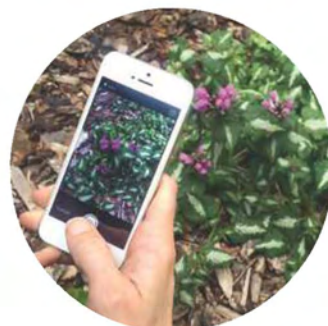
- continued to deliver programs as part of Family Nature Nights in Edmonton, alongside Nature Alberta, the Alberta Science Network, and the City of Edmonton. ABMI staff volunteered year-round at these family-focused events;
- delivered interactive wetland presentations in grade 5 classrooms in the greater Edmonton region, with support from the Alberta Science Network;
- attended and presented at many conferences, events, and naturalist group meetings, including the Alberta Chapter of the Wildlife Society, the Camrose Purple Martin festival, the Manning Innovation Symposium, and the Boreal Ecological Recovery and Assessment Workshop; and
- hosted our third annual public photo contest on our blog.



Capture your Curiosity!

Get ready to bring out your intrepid explorer, your sharp-eyed photographer, and your inner scientist... all you need is your mobile phone or camera! NatureLynx is a citizen science tool currently in development by the ABMI. Available on mobile and desktop, NatureLynx is a database of publicly generated biodiversity data from Albertans. Users upload biodiversity sightings, have their species identifications verified by experts, and participate in "Groups" and "Missions" to connect with other citizen scientists, learn about the natural world, and participate in biodiversity-related research. The NatureLynx website then takes you one step further, letting you visualize sightings on a map, download data, and learn all about Alberta's amazing species!

NatureLynx is also an outreach platform for existing citizen science initiatives, naturalist groups, and other not-for-profit groups, supporting increased engagement and collaboration around everything biodiversity. NatureLynx was released to a limited group of testers in 2017, and will be formally launched in spring of 2018. For more information about the app and exciting new updates, visit naturelynx.ca



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 Alberta Biodiversity Monitoring Institute

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