# Landowner Data Package

# It's our Nature to Know

Alberta Biodiversity
Monitoring Institute

# 2014 at the ABMI

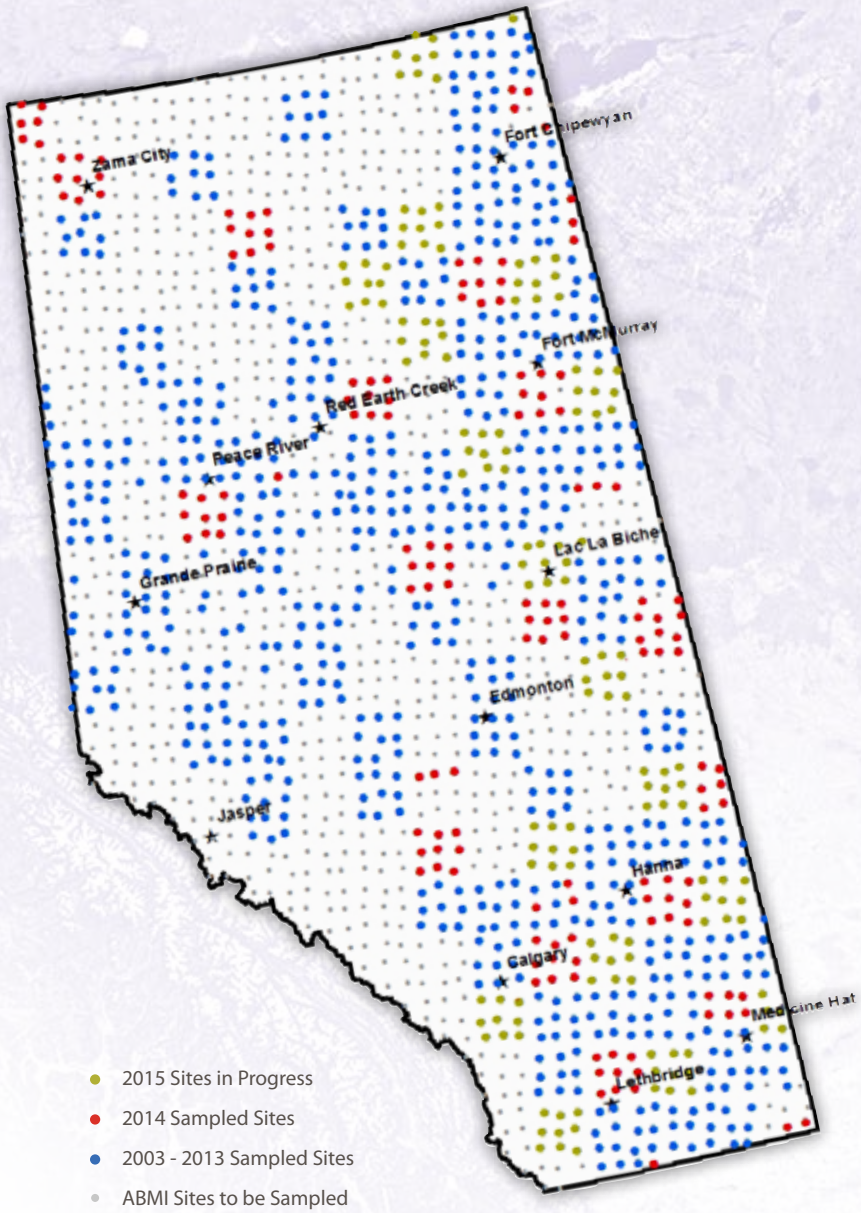
Thank you for allowing the Alberta Biodiversity Monitoring Institute (ABMI) to survey the species and habitat on your land in 2014. We would not be able to monitor our province's wildlife and habitats without the cooperation of Alberta's land stewards, like you. In exchange for granting us access to your land, we are happy to provide you with the following update on the ABMI, plus a list of the species we identified at our survey site on your land.

The 2014 field season was ABMI's biggest yet! Between May and August, field crews collected biodiversity data at approximately 225 survey sites across the province. A total of 51 field technicians were hired and trained to complete this work, 18 of whom had worked as technicians for the ABMI in previous years. Our monitoring team worked out of three home bases across the province: Grande Prairie Regional College, Portage College in Lac la Biche, and Red Deer College.

The ABMI's access team (Brandi and Elyse) worked with approximately 200 landowners and lease holders to gain permission to survey sites on private land in 2014. A new information brochure was created to help landowners better understand the ABMI's program (which can be found on our website's "Land Access" page) that includes a timeline of visits, a list of data we collect, and a description of how the data can be used. The access team also worked to create a more informative data summary package (now in your hands!) to keep our partners informed on what the ABMI accomplished in the past year, and what we are currently working towards. This new information package will serve as an annual report to some of our most important stakeholders: landowners!

Upon completion of the 2014 field season in the fall, the ABMI immediately began preparations for the next year's operations. We plan to survey another 160 sites across Alberta in 2015, from Pincher Creek to Wood Buffalo National Park, with help from 37 field technicians. It will be the first year the ABMI uses game cameras (or camera traps) and Automated Recording Units (or ARUs) at our land survey sites, to take photos and record sounds of local wildlife. The units are left on site from February to July, to help us better monitor mammals and birds across the province. It also means landowners will now have access to hundreds of wildlife photographs collected at our survey site on their land!

# ABMI's Monitoring Site Map




*In 2014, the ABMI identified two new plant species records for the province, including the Dragon's Mouth Orchid! Learn more in our online blog post: A Dragon in Alberta!? ABMI Vascular Plant Taxonomist Records New Orchid Sighting in Alberta.*

**For more information about the ABMI, and to stay up to date with our current activities, we invite you to visit our blog at www.blog.abmi.ca. Here, you will find more stories about the important work being conducted by the ABMI and our partners, thanks to your participation.**

**If you have any questions about the information in this data summary package, please do not hesitate to contact our access team:**

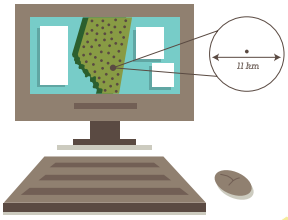
**Brandi Mogge**
**Land Access Manager**
**abmixs@ualberta.ca**
**780-492-4398**

**Elyse Williams**
**Land Access Coordinator**
**ecwillia@ualberta.ca**
**780-248-1454**

**Thank you, once more! 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.




1. A COMPUTER RANDOMLY SELECTS SURVEY SITES FROM THE ABMI'S PROVINCE-WIDE GRID MAP.

2. THE ACCESS TEAM GAINS PERMISSION TO SURVEY EACH SITE, MEETING WITH INTERESTED LANDOWNERS.

3. ABMI LAND TECHNICIANS COLLECT DATA ON MAMMALS, BIRDS, SOILS, MITES AND PLANTS.

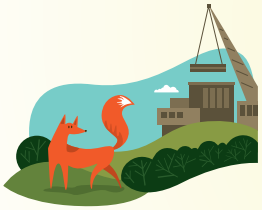
4. ABMI WETLAND TECHNICIANS COLLECT DATA ON WATER DEPTH, CHEMISTRY AND NUTRIENTS, PLANTS AND AQUATIC INSECTS.

5. SAMPLES ARE SORTED AND IDENTIFIED AT THE UNIVERSITY OF ALBERTA AND THE ROYAL ALBERTA MUSEUM.

6. SATELLITE IMAGES ARE USED TO EXAMINE CHANGES IN LAND USE OVER TIME.

7. SCIENTISTS ANALYZE AND INTERPRET BIODIVERSITY AND HUMAN FOOTPRINT DATA.

8. DATA CAN SHOW HOW SPECIES INTERACT WITH HABITATS, AND RESPOND TO LAND USE AND DEVELOPMENT.



9. DATA IS PUBLICLY RELEASED ON THE ABMI WEBSITE (EXCEPT EXACT SITE LOCATION) AND CAN BE USED TO SUPPORT LAND-USE PLANNING, NATURAL RESOURCE MANAGEMENT, AND BIODIVERSITY-RELATED RESEARCH.

**Once selected, each site is surveyed every 5 years.**

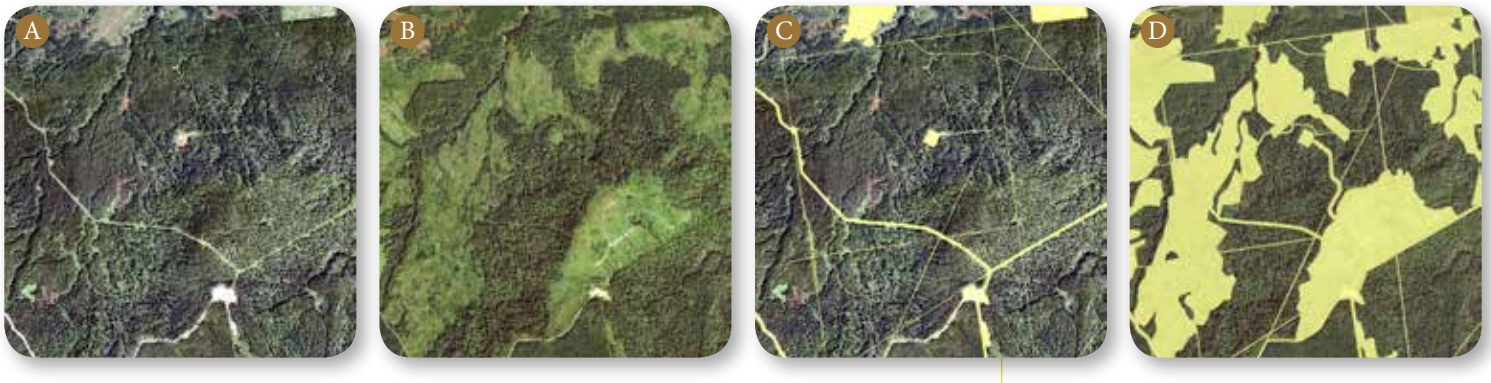
## Behind the Scenes Data Collection:

**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 field data with satellite data on habitat and human footprint is critical for determining 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 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.*



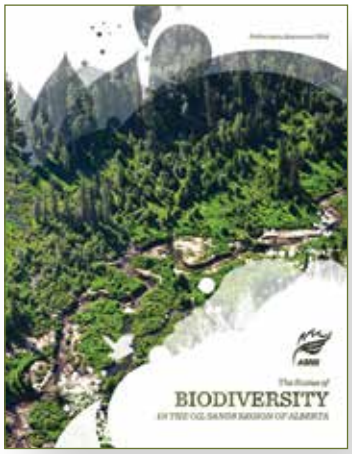

The above images show changes in human footprint (forest removal) in Alberta's boreal forest between 1999 (A) and 2013 (B). Using satellite imagery, the ABMI maps out and measures these changes (images C and D), helping us understand the relationships between human land use and biodiversity.

## Turning Information into Knowledge

**Status Reports**

The ABMI reports on the status of and trends in Alberta's species and human footprint. Over 2013-2014, we released two reports: "The Status of Biodiversity in the Oil Sands Region of Alberta" and "The Status of Biodiversity in the Athabasca Oil Sands Area". These reports presented data on several indicators of biodiversity health for their respective regions. In 2015, the ABMI plans to release reports on the status of biodiversity in the Upper Peace, Lower Peace and North Saskatchewan Regions, three of seven land-use planning regions in Alberta as defined under the Government of Alberta's Land-use Framework.

The ABMI is not a management agency, and does not make management recommendations. We report scientific knowledge derived from our biodiversity and human footprint data in a value-neutral format. All reports produced by the ABMI can be found in our online publication archive on our website: www.abmi.ca.



# Research Project Highlights

In addition to reporting on the status of biodiversity in Alberta, the ABMI also participates in collaborative research that tackles specific questions or management challenges that affect Albertans.

**Biodiversity Management and Climate Change Adaptation (BMCCA)**

Climate change is predicted to result in an overall warmer, drier and more variable climate for Alberta. In fact, Alberta's species and ecosystems have already begun to respond to changes in climate. The BMCCA project's goal is to develop essential knowledge and tools to support the management of Alberta's biodiversity in a changing climate. www.biodiversityandclimate.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 to better understand how planning and management decisions affect the landscape and modify the supply of ecosystem service in Alberta. www.ecosystemservices.abmi.ca

**Ecological Recovery Monitoring Project**

The ERM Project assesses ecological recovery of certified reclaimed oil and gas wellsites and determines how long wellsites in different types of ecosystems take to recover and become functioning ecosystems.

**Rare Plants and Animals Project**

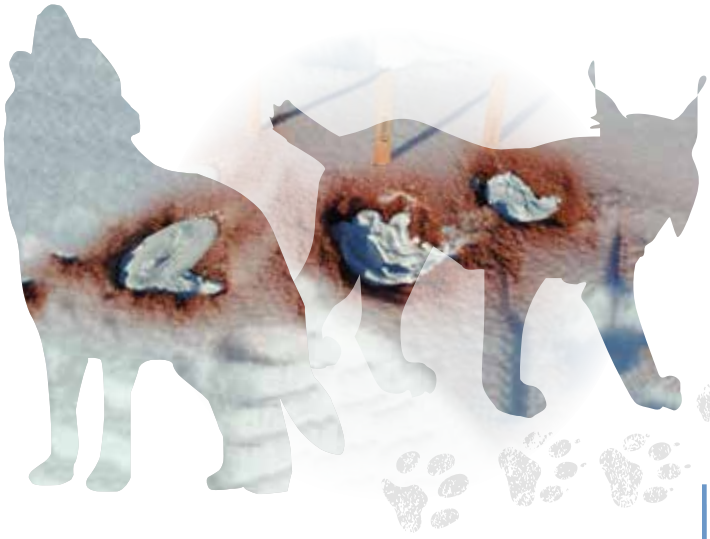
The ABMI's core biodiversity monitoring program is not optimized for tracking changes in rare or elusive species. The Rare Plants and Animals Project is designed to fill this gap, with the goal of designing cost-efficient protocols to monitor rare and hard-to-find vocalizing species (like amphibians, owls, and the Yellow Rail) and plants.

**Caribou Monitoring Unit (CMU)**

Woodland Caribou populations are declining in Alberta primarily due to habitat disturbance and its effects on Caribou predation. The ABMI's CMU is working to support caribou recovery by helping to estimate and monitor the abundance of caribou, and to test and monitor recovery strategies.

**Cumulative Effects Project**

Cumulative effects are changes caused by the combination of past, present and foreseeable future actions, leading to impacts (or changes) that accumulate over time. The Cumulative Effects Projects uses ABMI's long-term biodiversity data to assess cumulative effects on our landscape, for hundreds of species and species groups.



# The ABMI Reaches Out

Part of the ABMI's vision is that our work enriches Albertans' appreciation of our shared natural world. To help people connect with and understand the biodiversity that surrounds them, and inspire new generations of budding naturalists and biologists, the ABMI participates in a variety of outreach and education activities.

**In 2014, ABMI staff:**

- Volunteered with Nature Alberta's Nature Kids club at Family Nature Nights in Edmonton, and also hosted a winter tracking Explorer Day.
- Worked alongside several other not-for-profit groups to educate people about the vast array of biodiversity living in Alberta's grasslands at the Calgary Stampede Cattle Trail.
- Developed and presented a classroom learning kit about wetlands for grade 5 students, with help from the Alberta Science Network.
- Presented information about the ABMI and biodiversity at several naturalist group meetings, including the Red Deer River Naturalists, Lacombe County's Evening of Environmental Champions and the City of Edmonton's Master Naturalists.
- Created a variety of biodiversity-related demonstrations and displays and presented them at the Telus World of Science Edmonton.

Most excitingly, the ABMI jumped into the world of citizen science in 2014 by starting the development of a brand-new citizen science App, called NatureLynx!

## Coming soon:

ABMI naturelynx

**Spot. Snap. Post!** Get ready to bring out your intrepid explorer, your sharp-eyed photographer and your inner scientists... all you need is your mobile phone or camera!

NatureLynx is a citizen science tool currently in production by the ABMI. Available on mobile and desktop, NatureLynx is a database of publicly-generated biodiversity data from Alberta. Users upload biodiversity sightings, have their species identifications verified by experts, and participate in "Missions" to learn about the natural world and participate in biodiversity-related research. The NatureLynx website then takes you one step further, allowing you to visualize sightings on the map, download data, and learn about the amazing species we have living here in Alberta!

NatureLynx is also an outreach platform for existing citizen science initiatives, naturalist groups, and other not-for-profits, supporting increased engagement and collaboration around everything biodiversity.

**Watch for our public release of NatureLynx in fall 2015!**

**www.naturelynx.ca**

# www.abmi.ca

www.naturelynx.ca | www.blog.abmi.ca

*Alberta Biodiversity Monitoring Institute*

*@ABbiodiversity*

Alberta Biodiversity Monitoring Institute

Alberta Biodiversity Monitoring Institute
CW 405 Biological Sciences Building
University of Alberta, Edmonton, Alberta
Canada T6G 2E9

**Photo Credits:** Cover: Says Phoebe by Erni, Terrestrial Field Technician by Daina Anderson, Field Technicians and Helicopter by Emily Chow; Page 1: Field Technician Birding by David Evans; Page 3: Dragon's Mouth Orchid by Chris Meloche; Page 5: Ferruginous Hawk by Tom Reichner, Caribou by Chris Kolaczan; Page 6: Explorer Day Winter Tracks; Back Cover: Water Knotweed by Vladimir Salman; All other photos by the ABMI