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# Surveying Alberta's Biodiversity on Your Land

Information for landowners



# Mission

*We track changes in Alberta's wildlife and their habitats from border to border, and provide ongoing, relevant, scientifically credible information on Alberta's living resources. For Alberta's land-use decision makers. For Albertans.*

## It's Our Nature *to Know*

### About the ABMI

The Alberta Biodiversity Monitoring Institute (ABMI) is an arm's-length, not-for-profit, scientific organization. Our mandate is to monitor and report on the status (current condition) of, and trends in, Alberta's species and human footprint (land that has been visibly transformed by humans).

To monitor biodiversity across Alberta, we survey 1656 sites across the province (Illustration 1). At each site, we collect data and samples from both terrestrial (land) and wetland (water) habitats. In addition, we capture satellite images and aerial photography to assess the extent of human footprint. To track changes in Alberta's biodiversity and human footprint over time, we return to the same site every five to seven years.

Because many of the sites the ABMI visits each year are found on private land, private landowners, such as you, are our essential partners in biodiversity monitoring. **You help us to create a legacy of biodiversity information that will benefit future generations in our province.** Because we cannot do our work without your cooperation, your privacy and concerns are our priority. We never publicly disclose the exact locations of ABMI surveys.

*(Please see page 4 for more information on site locations.)*



*Working together with Albertans, the ABMI aims to provide the reliable, objective information necessary to make informed decisions to manage the province's land and natural resources.*

## **Why monitor biodiversity?**

Biodiversity is the variety of life on Earth, from the multitude of species that live in a drop of water to the wildlife that depends on the world's largest ecosystems. **It is critical to human health and wellbeing.** For example, ensuring healthy aquatic ecosystems in our environment is the most cost-effective way of providing a clean and reliable source of drinking water. Productive forest ecosystems grow trees that not only supply our sawmills and pulp mills, but also act as an important storehouse of carbon, which helps to lessen climate change. Approximately one third of the fruit and vegetables we buy at the grocery store require pollination by the many insect species that are an important part of biodiversity.



# 1656 Sites 20 km APART



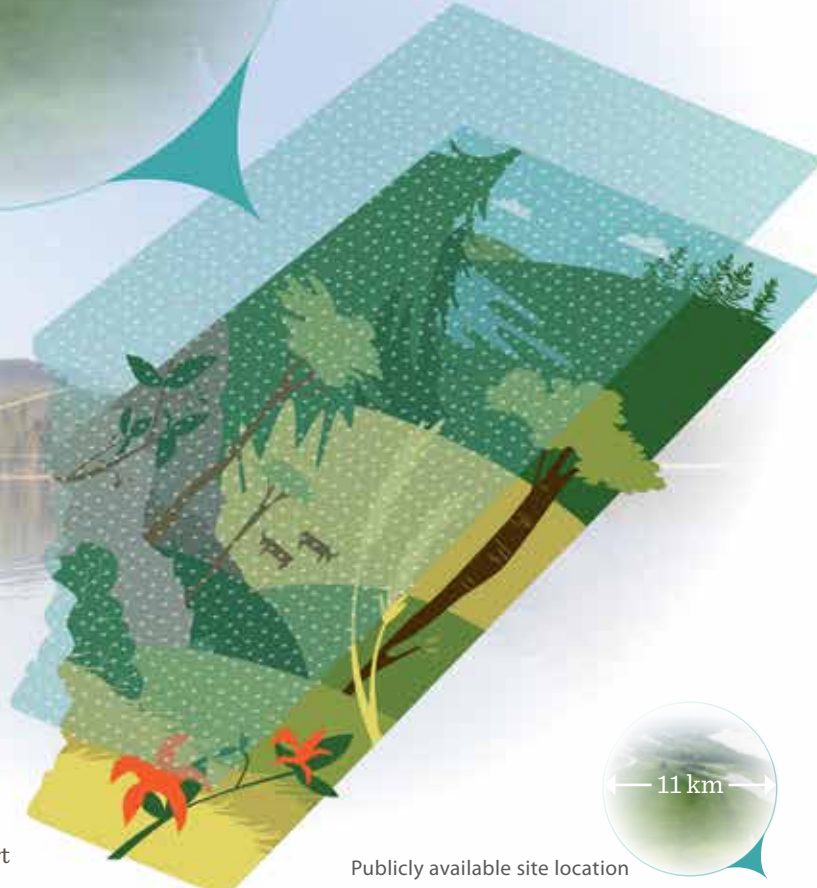
← 11 km buffer  
AROUND EACH SITE



## ILLUSTRATION 1

ABMI's 1656 randomly selected sites are located approximately 20 km apart across the entire province

When the ABMI data is released, the site location is described as a large circle, 11 km in diameter (approximately one township). The exact locations of terrestrial and wetland sites within the circle are kept confidential, and are not released with the data.



## What data is collected?

The ABMI's 1656 survey sites are approximately 20 km apart from each other across the entire province (Illustration 1). In the ABMI's dataset, publicly released survey site locations are presented as large circles that are 11 km in diameter, or about the size of a township. The ABMI's actual terrestrial and wetland sites are situated randomly within these circles.

**The locations of actual terrestrial and wetland sites are kept strictly confidential.**

The ABMI uses specific criteria to select wetlands suitable for long-term monitoring. Wetlands could be ponds, small lakes, or even dugouts, and can include human-created or modified wetlands. This approach ensures we get an accurate representation of all possible aquatic habitats in the province.

Publicly available site location

Confidential terrestrial site location within the publicly available site

Confidential wetland site location within the publicly available site

*Because the locations of the ABMI's survey sites are random, the ABMI surveys different habitats and land use types (such as agricultural fields, forestry cut blocks and protected areas) in proportion to their occurrence in the province. By collecting data this way, the ABMI is able to identify relationships between different types of human land use and biodiversity.*

# Terrestrial site protocols *(methods used to collect data):*

To complete terrestrial survey protocols, three to five visits are required over the year.

In February or March, a team of ABMI field technicians visits the site to set-up four trail cameras to capture photos of mammals. The cameras are held on rebar posts in a rough square surrounding the survey site. The camera locations are selected randomly, but may be moved to ensure they do not interfere with activities on the land (such as traffic or farming). **The ABMI ensures site locations remain confidential.** Cameras are pointed away from any structures on the land. The ABMI will also remove the horizon from images, as well as any photos of people (except for our staff) in our database.

At forested sites, a visit in the spring (May) is made to mark out the data collection area. Later in the spring (May or June), ABMI field technicians visit all sites for their first biodiversity survey. To conduct the breeding bird survey, this visit takes place near sunrise when birds are singing most frequently. Data on physical site characteristics (e.g. elevation and slope), habitat structure and small soil samples is collected at this time. The third visit (or fourth, at forested sites) takes place in the summer (June or July). The field team collects plant data, including species identifications, measures soil depth, and ages trees. Trail cameras are also removed from the site during this visit.

The ABMI is interested in rangeland grass diversity. For some sites, we may request to return for a half-hour visit in August or September.

## ILLUSTRATION 2

List of protocols performed at each terrestrial site. Each protocol is repeated in every quadrant of the 100 x 100 m (1 ha) terrestrial site. Sightings or evidence of birds, mammals and amphibians are also noted during each site visit.

### Spring protocols: May-June

- Breeding bird survey
- Physical site characteristics (elevation, slope)
- Vegetation age and structure
- Soil samples (soil mites)
- Ecosite identification
- Tree and woody material measurements
- Moss and lichen collection

### Summer Protocols: June-July

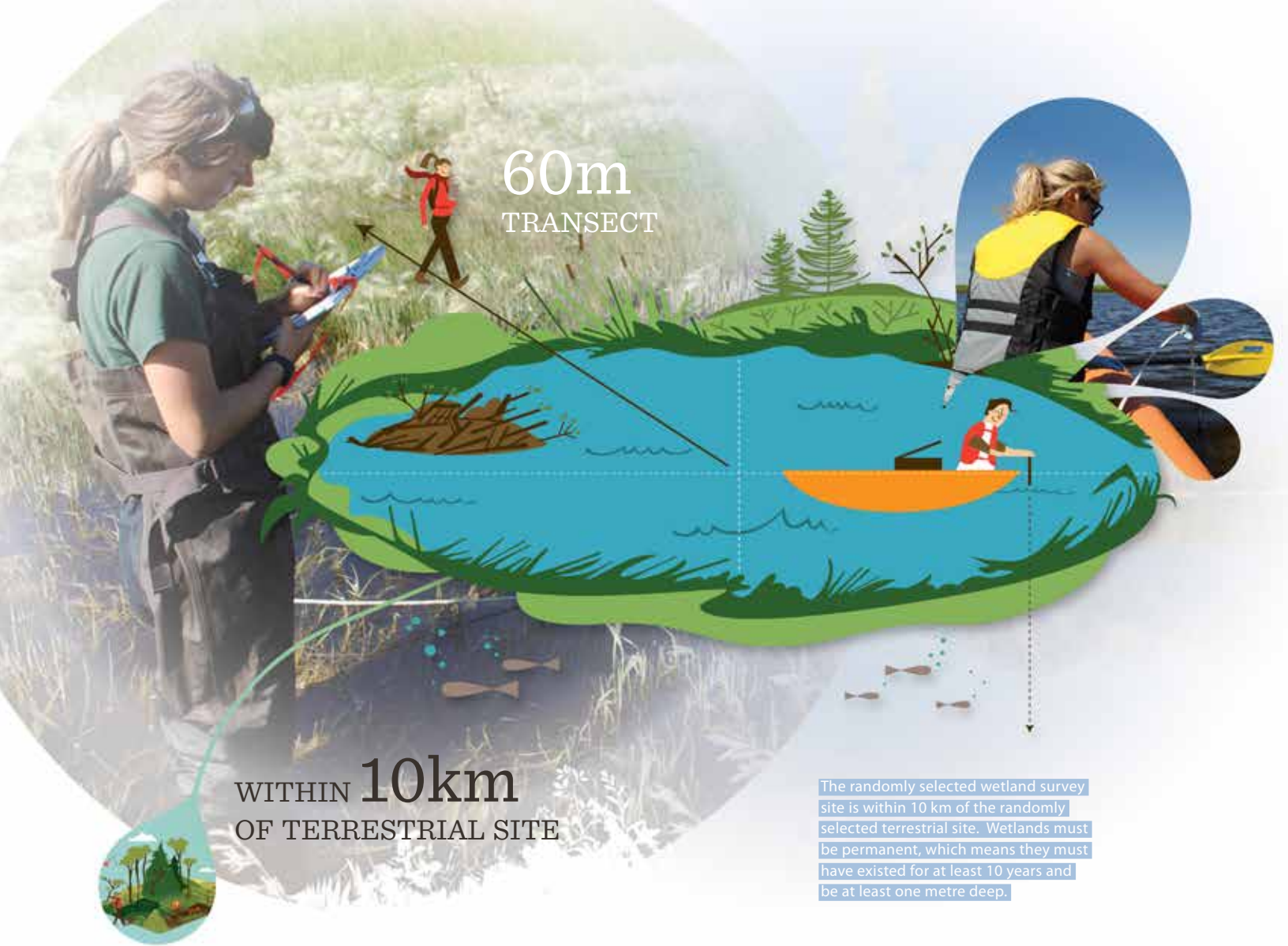
- Soil depth measurements
- Shrub cover
- Tree ages
- Forestry canopy cover estimates
- Plant identification

### Winter Protocols: February-March

- Set-up trail cameras for mammal photos

In the spring visit, nine ten-minute recordings of bird songs are taken in a 600 x 600 m grid around the terrestrial site.





60m  
TRANSECT

WITHIN 10km  
OF TERRESTRIAL SITE

The randomly selected wetland survey site is within 10 km of the randomly selected terrestrial site. Wetlands must be permanent, which means they must have existed for at least 10 years and be at least one metre deep.

## Wetland site protocols:

For wetland surveys, one or two visits over the spring and summer are required. First, a team of two field technicians visits a site in spring to determine if the wetland is suitable for an ABMI survey. This quick visit involves taking water depth and area measurements.

In the summer, the team returns to conduct the survey. One field technician carries an inflatable kayak to the wetland and enters the water. This technician collects water samples for chemical and nutrient analysis, and aquatic insects. They also take depth measurements and identify aquatic plant species. The second technician stays on land to identify shoreline characteristics and plant species surrounding the wetland.

### ILLUSTRATION 2

List of protocols performed at each wetland site during the spring and summer visits. Each protocol is repeated in every quadrant. Sighting or evidence of birds, mammals and amphibians are also noted during each site visit.

#### Spring Protocols: May-June

- Depth measurements (from shore)
- Wetland zone maps (from shore)

#### Summer Protocols: June-July

- Depth measurements (from boat)
- Shoreline characteristics
- Water chemistry and nutrients
- Plant identification (60 m plant transects)
- Ecosite identification
- Aquatic insect collection

# Using the Data and Confidentiality

## What happens to the data?

After the ABMI's data is organized and processed, we send landowners, whose land we surveyed, an information package describing the species we found on their land. The data are also made publicly available, though **exact site locations remain strictly confidential**. Data may be downloaded by scientists and researchers, teachers, land managers, or provincial planners, and used in a variety of ways. The ABMI also runs a series of application projects, which use the data we collect to investigate important subjects such as the effect of climate change on biodiversity and how we might better value ecosystem services (the benefits we get from nature that support our wellbeing), such as water purification and pollination.

## Protecting your privacy

The ABMI has been releasing biodiversity data since 2007 while protecting the privacy of landowners and site locations. **The ABMI is an independent institute and is not part of any government, industry or environmental entity**. We do not disclose any personal information about the landowner or any actual site locations to any person or group. We do not advocate for any group, nor do we interfere with land management practices.

When we monitor biodiversity, we are not looking for any specific species at any site, which is why our site selection is random. Our goal is to collect scientific data on the province's overall biodiversity and to monitor trends on Alberta's landscape.

*Thank you in advance for your cooperation.  
We look forward to working with you as  
stewards of Alberta's land and biodiversity.*

## Working together: thank you!

The ABMI follows strict land access rules. **Land access coordinators always seek permission before allowing technicians to access sites**. All landowners are contacted prior to site visits and may set specific site access guidelines if they wish.

As one of the world's most comprehensive biodiversity monitoring programs, the ABMI recognizes the importance of building strong relationships with the people on the land. Without the support and cooperation of Alberta's landowners, the immense undertaking of monitoring Alberta's biodiversity would not be possible. **We recognize your connection to your land and appreciate the opportunity Alberta's landowners grant us.**

Thank you

