

# Alberta Biodiversity Monitoring Institute: 10-Year Science and Program Review

Stakeholder Advisory Group Report

February 15, 2018

## Executive Summary

A Stakeholder Advisory Group (SAG) was assembled by the Alberta Biodiversity Monitoring Institute (ABMI) as part of its 10-Year Science and Program Review, and tasked with answering a series of questions related to the goals and objectives of the ABMI and whether or not they had been achieved. A consultant was contracted to facilitate a one-day meeting where the SAG answered these questions.

The level of diligence shown by the ABMI in developing its information products and collecting field data from the grid was impressive. SAG members were pleased to have their feedback solicited during the review process but some found the questions they were asked to answer to be unclear.

The ABMI has created data and information products that are relevant and accessible to ABMI stakeholders, but there is room for improvement in the majority of them and recommendations to that effect were provided. Layers of climate data should be developed into a new product or product attribute so that stakeholders can account for spatial shifts in biodiversity due to a changing climate. Although there had been some stakeholder engagement from the ABMI in developing information products to meet stakeholder business needs, it did not meet expectations. The emphasis on stakeholder engagement should move from communication with stakeholders to collaboration with stakeholders. There are additional methods of stakeholder engagement that could help address the issue but are not sufficient for addressing it. Several recommendations were provided for consideration by the Steering Committee of the Science and Program Review.

**Table 1. Topics of discussion and associated recommendations**

Topic	Recommendation
Stakeholders	Develop an explicit list of sectors/organizations that are considered to be stakeholders, differentiating between those whose needs the ABMI will respond to and those who are incidental users of field data and information products.
Funders	Document the structures and processes used to manage against funder bias in data collection.
Methodologies	Make the methodologies employed for developing information products and collecting and managing field data available to stakeholders.
Link to Regulators	Collect field data and develop information products in a manner that helps stakeholders meet regulatory requirements.
Human Footprint Inventory	Add additional attributes: <ul style="list-style-type: none"> <li>• Date stamps</li> <li>• Regrowth of vegetation on human footprint</li> <li>• Names of infrastructure owners</li> <li>• Disaggregation of categories of disturbance</li> <li>• Certified reclamation sites</li> </ul>
Land Cover Inventory	Explore data layers (e.g. understory) that provide vegetation features useful for biodiversity prediction.

Biodiversity Intactness Index	Communicate about this information product in the context of conventional metrics of biodiversity.
Biodiversity Intactness Index	Provide tools for stakeholders to develop their own indices of biodiversity.
Field Data	Explore options for providing the precise locations of field data, especially observations made on public lands.
New Product – Layers of Climate Data	Make layers of climate data available so that stakeholders can show spatial shifts in biodiversity distribution in relation to a changing climate.
Ancillary Activities	Ensure that ancillary activities support core activities and do not detract from them.
Stakeholder Engagement	Expand focus of stakeholder engagement from communication with stakeholders to collaboration with stakeholders.
Stakeholder Engagement	<p>Adopt new methods of stakeholder engagement:</p> <ul style="list-style-type: none"> <li>• Universal user tool</li> <li>• Job shadow program</li> <li>• Customized webinar series</li> <li>• Knowledge exchange forum</li> <li>• Continuous stakeholder advisory group</li> <li>• Lunch and learns</li> <li>• Newsletters</li> </ul>

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## Introduction

The Alberta Biodiversity Monitoring Institute (the ABMI) is currently undergoing a 10-year Science and Program Review after incorporating as a not-for-profit organization in 2007. A Stakeholder Advisory Group (SAG) was assembled to assist the Science and Program Review (see Appendix A for SAG membership). In the Terms of Reference provided by the ABMI, the SAG was tasked with answering the following questions:

*Is the ABMI meeting its stated objectives? What results have been achieved in support of the objective?*

- *Stated Objective 1: Create data and information products that are relevant and accessible to stakeholders.*
- *Stated Objective 2: Continuously engage stakeholders to determine whether ABMI data and information products meet stakeholder business needs, and mobilize stakeholder feedback into the product development process.*

*What additional activities should the ABMI engage in to enhance its current portfolio of products and services?*

These questions were answered in the context of the ABMI's stakeholder engagement goal to:

*Communicate the status and trend of Alberta's species, native landcover, and human footprint to support provincial land-use and natural resource management decision-making.*

In addition to the SAG, the Science and Program Review includes a Science Expert Committee to evaluate the ABMI's scientific framework and its success in achieving its stated scientific objectives. Both the Science Expert Committee and the SAG will make recommendations to the Steering Committee which will make recommendations to the ABMI's Board of Governors who will ultimately determine which changes to the ABMI are advanced.

This report highlights the important points of the SAG's discussions and associated recommendations to the Steering Committee.

## Definitions

**Stakeholders** – Includes sectors represented by organizations in the SAG and other users of the ABMI's field data and information products

**Information Products** – Includes the Human Footprint Inventory, Land Cover Inventory, Biodiversity Intactness Index and Species' Profiles

**Field Data** – The collection of biodiversity observations made at points on the ABMI's grid and supplementary sites

**Core Activities** – Includes development and dissemination of information products and collection and processing of field data

**Ancillary Activities** – Includes activities other than core activities (e.g. NatureLynx, WildTrax, Caribou Monitoring, Ecosystem Services Assessment, Knowledge Translation, Geospatial Innovations), all of which are under development

## Methodology

Once established, the SAG held three meetings to finalize the Terms of Reference and the membership, which resulted in the addition of a representative from the agricultural sector. Concurrent to these meetings, the ABMI undertook a Stakeholder Needs Assessment to inform the SAG of the uses and values of ABMI's core activities and ancillary activities. The ABMI then hired a consultant to facilitate a one-day meeting where the SAG would deliberate over the questions outlined in the Terms of Reference and provide recommendations to the Steering Committee. The consultant prepared an agenda reflective of the Terms of Reference, facilitated the one-day meeting, and prepared this report.

At the one-day meeting, presentations were delivered on the preliminary report from the Science Expert Committee and on the results of the Stakeholder Needs Assessment. These two sources of information, as well as answers to periodic questions posed to the Information Center Director and one of the Science Co-Directors, were accepted by the SAG to inform their deliberations and recommendations.

Although the ABMI Information Centre Director is the chair of the SAG, her role in the meeting was to answer questions posed by the SAG, not to answer the questions posed in the Terms of Reference. It should also be noted that the SAG members from Alberta Environment and Parks, Planning Branch and organizations representing the Indigenous, agricultural and consulting sectors of the SAG missed the one-day facilitated meeting. They were invited to submit their comments before the meeting or during the report drafting process.

## Discussion and Recommendations

### General Discussion

The SAG was impressed by the level of diligence the ABMI showed in developing its information products and collecting field data from the grid. The ABMI was complimented for embarking on the Science and Program Review and inviting stakeholder feedback during the process. The ABMI's willingness to take risks in developing new information products was appreciated and it was suggested that some of the ABMI's ancillary products put it on the cutting edge of environmental monitoring. Some SAG members were frustrated with the review process because they felt the questions they were asked to answer were unclear.

### Stakeholders

The SAG noted the absence from the Stakeholder Needs Assessment of some sectors that could have provided useful perspectives. Among these sectors were transmission companies (e.g. pipelines, powerlines) and consultants that utilize the ABMI's information products and field data.

It was unclear in the Terms of Reference which sectors/organizations are captured in the term 'stakeholders'. The ABMI should develop a list that explicitly states which sectors/organizations are considered to be stakeholders of the ABMI, and therefore whose needs the ABMI will respond to, and which sectors/organizations are considered to be incidental users of field data and information

products. This would acknowledge that the ABMI cannot provide all desired services to all possible stakeholders and that some level of prioritization needs to occur.

**Recommendation: Develop an explicit list of sectors/organizations that are considered to be stakeholders, differentiating between those whose needs the ABMI will respond to and those who are incidental users of field data and information products.**

#### Funders

The interests of the ABMI's primary funders may skew data collection towards certain areas of the grid and this may compromise the integrity of the field data and information products. However, the ABMI has made series of pragmatic choices in accepting funding from various sources whose interests do not perfectly align with the ABMI's goals and it may only be a perception that the ABMI's funders skew data collection. The ABMI should document the structures and processes used to manage potential funder bias.

**Recommendation: Document the structures and processes used to manage against funder bias in data collection.**

#### Methodologies

There is a lack of available information explaining the ABMI's methodologies for collecting and managing field data and developing information products. The details of these methodologies should be made available to stakeholders, with varying levels of methodological details depending on the needs of the stakeholder, so they can understand the limitations of the field data and information products.

**Recommendation: Make the methodologies employed for developing information products and collecting and managing field data available to stakeholders with varying levels of methodological details depending on the needs of the stakeholder.**

#### Link to Regulators

Regulations and regulatory approvals drive the biodiversity data needs of many stakeholders that make land and environmental management decisions so field data should be collected and information products developed in a manner that helps meet regulatory requirements.

**Recommendation: Collect field data and develop information products in a manner that helps stakeholders meet regulatory requirements.**

#### Relevance and Accessibility of Field Data and Information Products

The SAG was asked the question: *Has the ABMI created data and information products that are relevant and accessible to stakeholders?*

The needs of some stakeholders for detailed local data are in tension with the ABMI's goal of providing information on trends in biodiversity monitoring across the province while maintaining anonymity of location data so as not to influence land use decisions at those locations. Each of the ABMI's five core information products are valuable to some or many stakeholders but there are opportunities for each of these products to be improved. General recommendations that affect each of the five information products but there are also specific ways to improve most of them. With room to improve, the SAG determined that the ABMI has met its objective of creating data and information products relevant and accessible to stakeholders.

### Human Footprint Inventory

The Human Footprint Inventory (HFI) is frequently used by stakeholders that make land and environmental management decisions and is a high value information product. Inclusion of a few attributes would add practical value to the HFI including:

- Date stamps
- Regrowth of vegetation on human footprint
- Names of infrastructure owners
- Disaggregation of categories of disturbance by individual stressor and feature
- Certified reclamation sites

The SAG recognizes that ownership of infrastructure changes regularly and that, as result, it may be difficult to maintain an accurate database of infrastructure owners.

**Recommendation: Add additional attributes to the HFI.**

### Land Cover Inventory

The Land Cover Inventory (LCI) is used frequently by some stakeholders, particularly those that make land and environmental management decisions. A limitation to the LCI is that cover classes provided are considered by some stakeholders to be too broad to link to management decisions. Higher resolution classes of vegetation would improve the applicability of the LCI. Another limitation to the LCI is that it does not provide understory vegetation data.

**Recommendation: Explore data layers (e.g. understory) that provide vegetation features useful for biodiversity prediction (see Appendix B for a more detailed suggestion).**

### Biodiversity Intactness Index

The Biodiversity Intactness Index (BII) was a challenging topic to discuss due to asymmetrical knowledge among SAG members of the BII and its role is in land and environmental decision making. The recommendations accompanying discussion of the BII should be considered a starting point for reviewing the BII.

The SAG recognized that the BII is useful for 'state of the environment' reporting but is not necessarily intended to have much applied use from stakeholders that make land and environmental management decisions. These decisions are typically informed by conventional metrics such as trend, abundance and population size. The BII, as a broad scale indicator of changes in biodiversity, is still an essential information product for the ABMI to provide.

A challenge facing greater uptake of the BII is that it not easy to intuitively understand so is often misinterpreted. The BII should be communicated to stakeholders in the context of conventional metrics of biodiversity to improve understanding.

There was discussion about stakeholders developing biodiversity indexes themselves to make a product that suits their own needs better than the BII, which one stakeholder is already doing. The ABMI could provide the constituent elements for creating a biodiversity index that would enable stakeholders to build their own.

**Recommendation: Communicate about the BII in the context of conventional metrics of biodiversity.**

**Recommendation: Provide tools for stakeholders to develop their own indices of biodiversity.**

#### Species' Profiles

The Species' Profiles provide information that is practically useful for informing a multitude of land and environmental management decisions. The website, a product of a multi-year collaboration with stakeholders, was not developed collaboratively or properly credited so does not show the full extent of effort required to develop the Species' Profiles.

#### Field Data

The precise locations of field data observations must be made more accessible. In order for the field data to be useful to many stakeholders, for purposes such as environmental assessment, species assessment, protected areas evaluation, and land-use planning, observations must be tied to a precise location. It was understood that there are significant challenges to doing this on private lands.

**Recommendation: Explore options for providing the precise locations of field data, especially observations made on public lands, through data-use agreements.**

#### Additional Activities

The SAG was asked the question: *What additional activities should the ABMI engage in to enhance its current portfolio of products and services?*

Most discussion of this question focused on the ABMI's ancillary activities but a new product or attribute of existing products was also discussed.

#### Ancillary Activities

The ABMI's ancillary activities or products under development include:

- NatureLynx
- WildTrax
- Caribou Monitoring
- Ecosystem Services Assessment
- Knowledge Translation
- Geospatial Innovations

The SAG was supportive of all ancillary products. There was concern raised about the products that the ABMI has been contracted to develop (i.e. Caribou Monitoring and Ecosystem Services Assessment). Ancillary activities should not detract from the ABMI's core activities and should in fact support core activities as it is the ABMI's core activities that best represent the needs of stakeholders.

**Recommendation: Ensure that ancillary activities support core activities and do not detract from them.**

#### New Product – Layers of Climate Data

There is a need from some stakeholders for layers of climate data climate. This would give stakeholders the ability to show spatial shifts in biodiversity distribution in relation to a changing climate, accounting for changes in biodiversity that are attributable to climate change.

**Recommendation: Make layers of climate data available so that stakeholders can show spatial shifts in biodiversity distribution in relation to a changing climate.**

### Stakeholder Engagement

The SAG was asked the question: *Has the ABMI continuously engaged stakeholders to determine whether ABMI data and information products meet stakeholder business needs, and mobilized stakeholder feedback into the product development process?*

The SAG felt that although there had been some stakeholder engagement from the ABMI in developing products to meet stakeholder business needs, the engagement did not meet expectations.

Expectations of the ABMI were that collaboration with stakeholders rather than communication would be emphasized. The difference being that communication is typically a one-way transfer of information, from the ABMI to stakeholders in this case, whereas collaboration is a reciprocal process whereby both the ABMI and stakeholders generate and receive information from each other.

It is important that the ABMI becomes a better collaborator and there are some additional methods of engagement that could be of assistance. The ABMI staff were first asked to share their plans for improved stakeholder engagement, which included:

- Development of a universal user so that the ABMI can collect useful information, which would allow questions as what field data and information products are being downloaded, who is downloading them, and how often, to be answered
- Creating a job shadow program, where an ABMI staff member works with a staff member of a stakeholder for the day in a bi-directional learning process so that the ABMI can learn how the stakeholder uses the field data and information products and so the ABMI can show the stakeholder how to better use the data and information products
- Delivery of a customized webinar series

The SAG approved of all of these methods of engagement, especially the job shadow program, which has already been used in limited circumstances to great effect. The SAG proposed additional methods of engagement:

- Knowledge exchange forums
- A continuous stakeholder advisory group
- Lunch and learns
- Newsletters

Although these methods of engagement could aid the ABMI in its efforts to collaborate with stakeholders, use of the methods alone are not sufficient for achieving collaboration. There must be an underlying recognition that collaboration is a two-way process.

**Recommendation: Expand focus of stakeholder engagement from communication with stakeholders to collaboration with stakeholders.**

**Recommendation: Adopt additional methods of stakeholder engagement.**

## Conclusion

In general, the SAG found that there were no major flaws in the ABMI's ability to meet its two objectives but found that the ABMI had only met one of its two stated goals and identified several steps the ABMI that could be taken to meet the second goal. The SAG was supportive of the ABMI's ancillary products under development as long as they support core activities.

## Appendices

### Appendix A: Stakeholder Advisory Group Organizational Membership

Alberta Association of Municipal Districts and Counties

Director, Information Centre, Alberta Biodiversity Monitoring Institute (chair)

Retired Employee, Alberta Environment and Parks

Planning Branch, Alberta Environment and Parks

Regional Resource Management, Alberta Environment and Parks

Alberta Innovates

Environmental Sciences, Alberta-Pacific Forest Industries Inc.

Consultant, Broadpath Consulting

Canadian Wildlife Service – Prairie Region, Environment and Climate Change Canada

City Planning, City of Edmonton

Crop Sector Working Group

Land Use and Biodiversity, Imperial Oil Ltd.

Conservation Science and Planning, Nature Conservancy of Canada

Academic, University of Alberta

Woodland Cree First Nation

### Appendix B: Detailed Suggestions for Changes to Land Cover Inventory

- Define coarse vegetation or habitat categories that will be useful for multiple species groups using best available/accessible data products (AVI/FRI or SPOT) e.g. defined by leading species, age, height, structural stage, moisture/wetness, vegetation/canopy cover
- Define fine vegetation or habitat categories using best available remote sensing products (low and high-resolution imagery, LIDAR) to produce additional variables and add another hierarchical layer of detail e.g. vegetation layer height; vegetation layer leading species; NDVI
- Use ecological classification mapping (e.g. ecosite mapping if available) to define vegetation communities and verify coarse and fine vegetation or habitat categories