

The role of the BHI in promoting citizen science and stewardship in the Beaver Hills

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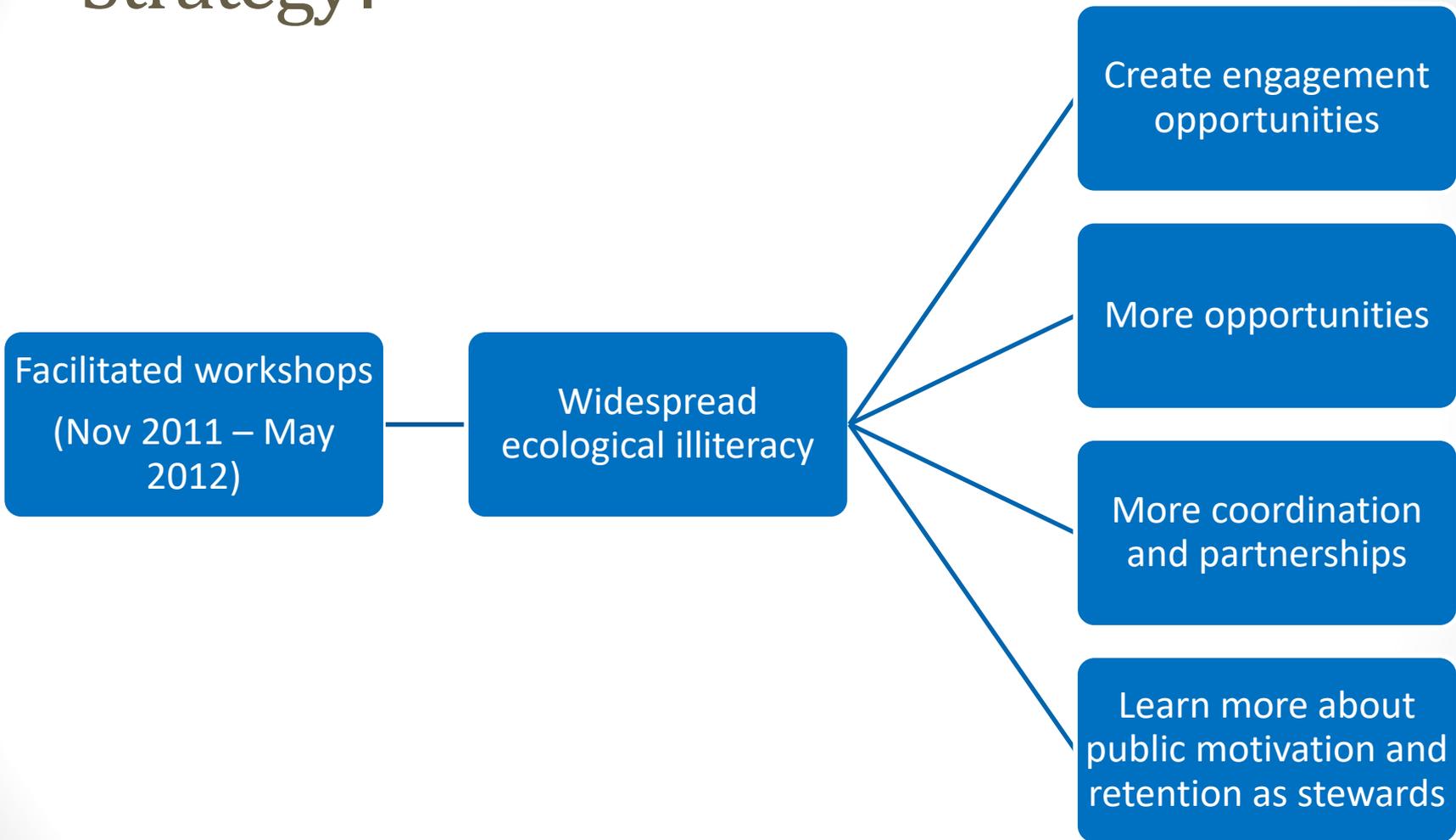
Part 1

The Stewardship Engagement Strategy

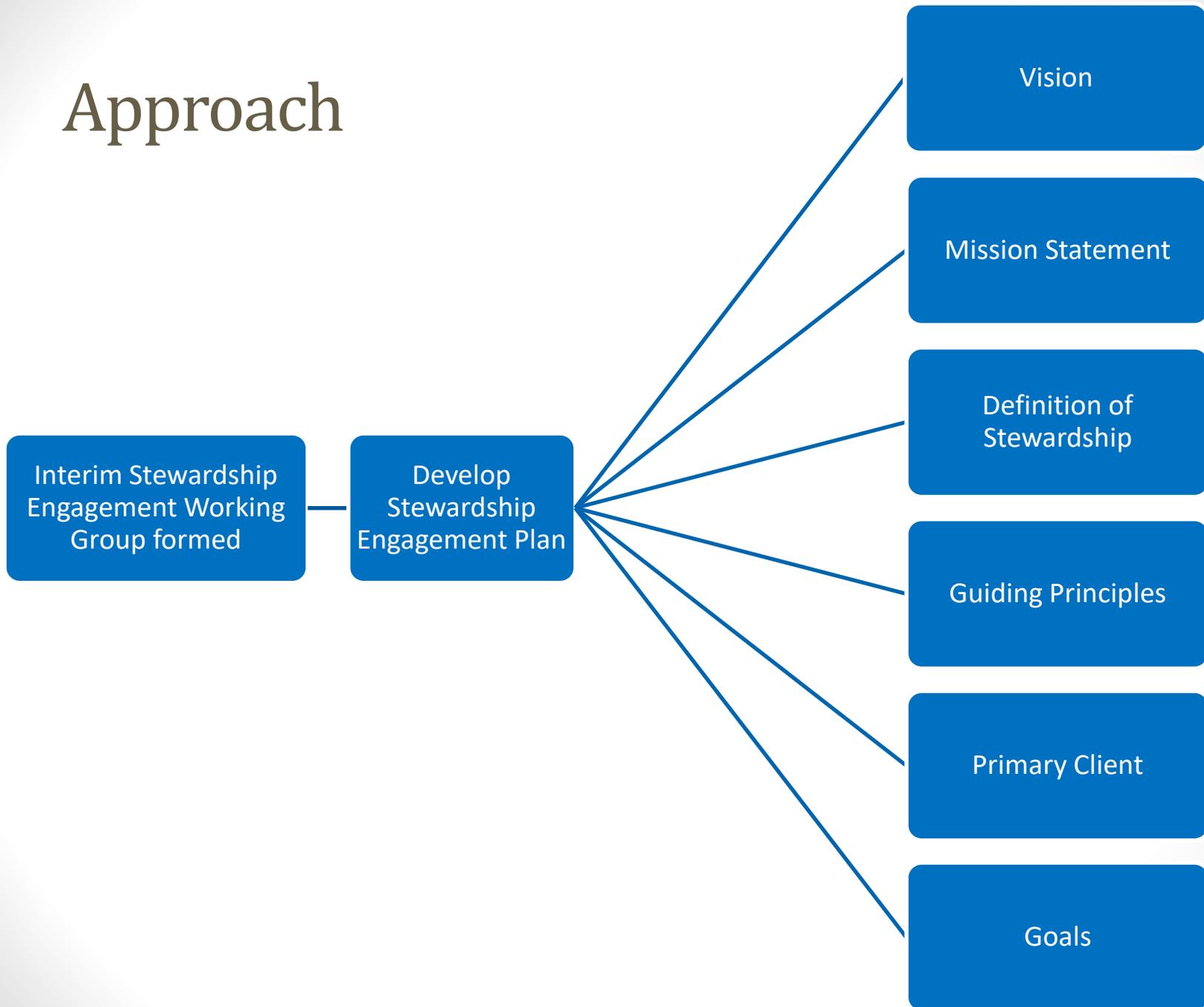
Document Prepared by the Interim Stewardship Engagement
Working Group (SEWG)

Presentation developed by Katrina Jansen and Brian Eaton

Why a Stewardship Engagement Strategy?



Approach



Vision and Mission

Vision

Proudly fostering a vibrant Beaver Hills landscape where we work and play in harmony with nature

Mission Statement

To actively encourage, promote, and facilitate stewardship in the Beaver Hills

Definition of Stewardship

“the recognition of our collective responsibility to retain the quality and abundance of our land, air, water and biodiversity, and to manage this natural capital in a way that conserves all of its values, be they environmental, economic, social or cultural”

- Adapted from *“A Stewardship Roadmap for Canada”*

Guiding Principles

- actively encourage, promote and facilitate people and organizations to provide a variety of stewardship opportunities that span **all abilities, capacities, and interests**
- support development of stewards that exhibit a strong connection to the landscape, are responsible towards the environment, and serve as role models to others.

Goal 1:

Establish a Stewardship Engagement Working Group

- Objectives Include:
 - Determine membership of the working group
 - Implement the 2012-2015 Stewardship Engagement Strategy

Goal 2:

Strengthen the network of stewards in the Beaver Hills Initiative Area by enhancing coordination, cooperation and among new and existing partner organizations

- Objectives include:
 - Develop a mechanism to share stewardship engagement opportunities among organizations and individuals
 - Develop a communication strategy and plan
 - Enhance network of collaborating organizations working towards stewardship and engagement opportunities

Goal 3:

To increase engagement in stewardship activities within the Beaver Hills Initiative Area

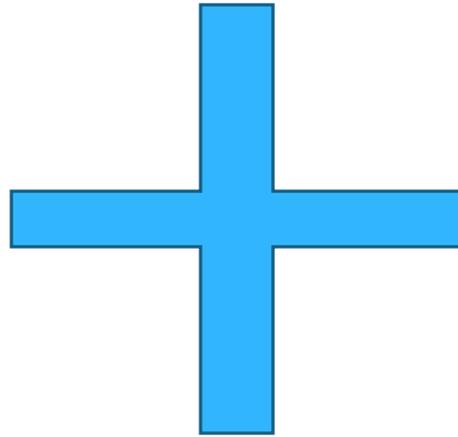
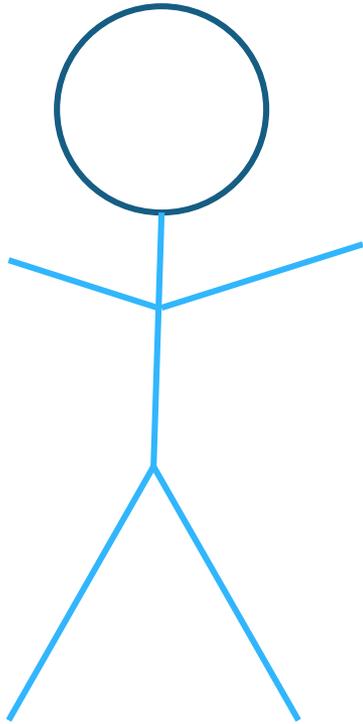
- Objectives include:
 - Understand the motivations and expectations of those who become engaged in stewardship activities
 - Understand the characteristics of successful stewardship programs
 - Create opportunities to celebrate the success and involvement of volunteers in stewardship activities

Part 2

Citizen-Science Program Pilot in the Beaver Hills



What is Citizen Science?

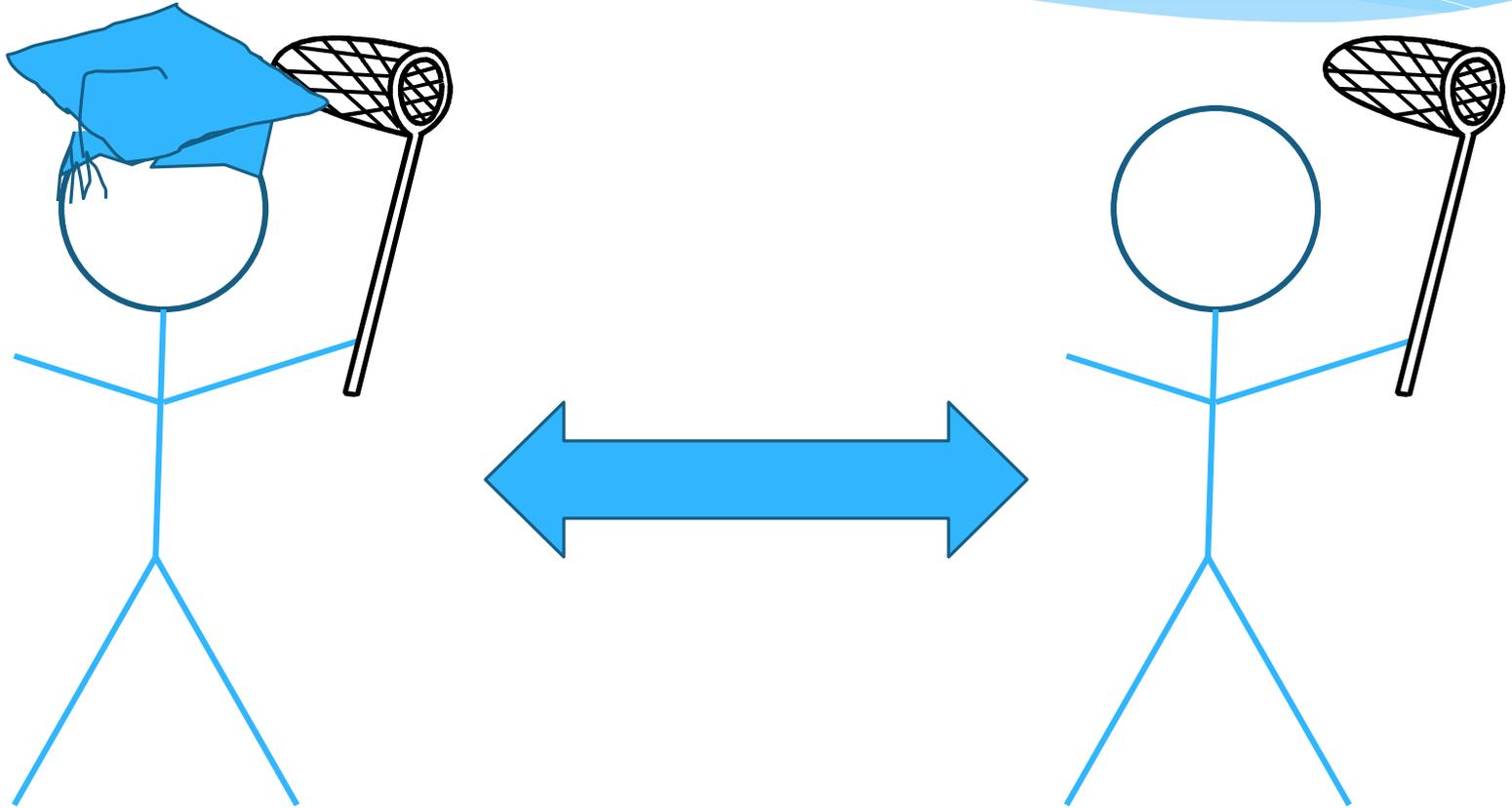


What is Citizen Science?

- data-gathering that allows *anyone* to volunteer in support of scientific research
- researchers often depend on volunteer labor
- Internet age - global network of assistants via home computers and smart phones

Scientist vs. Citizen Scientist

(Citizen Data-gatherer)



What is Citizen Science?



What is Stewardship?

- shared responsibility between organizations, communities and individuals to manage and protect our environment and ecosystems
- both an action and an ethic by which Canadians care for land, water and air today, and for generations to come.
- Source:
http://www.stewardshipcanada.ca/index.php/what_is_stewardship

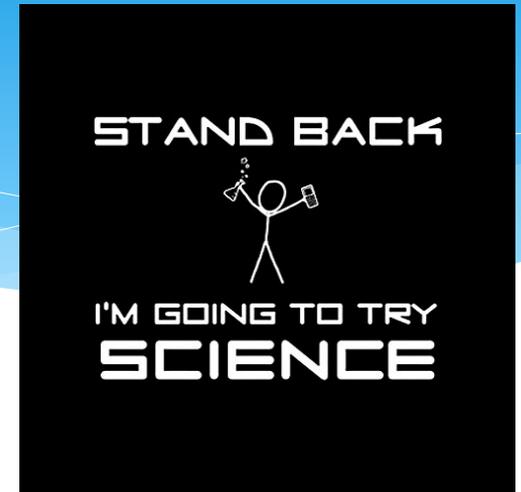
What is Stewardship?



Stewardship - Citizen Science

- stewardship requires understanding the conservation values that we manage
- studies and surveys help us learn about the wildlife and plants that occupy our lands
- gather scientifically sound information
- improve stewardship
- involve the community in collecting data and learning about our natural resources
- foster collaboration with partner organizations
- Source: Chelan-Douglas Land Trust; <http://www.cdlandtrust.org/>

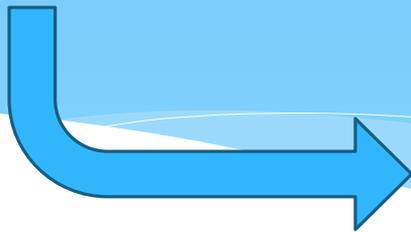
Citizen Science and Stewardship



Citizen Science and Stewardship



Tracking change in
response to
management



Collaboration is key

- The very essence of citizen science/stewardship is cooperation
- Both parties benefit from interaction
- Citizen
 - Connect with nature
 - Sense of place
 - Social network
 - Contribute to society
 - Learn



Collaboration is key

- Scientist / organization
 - Larger dataset
 - Larger labour force / network
 - Reduce costs / more funding
 - More minds
 - Fresh perspective
 - Local knowledge
 - Learn



Citizen Science – Stewardship



Provide direction



Train



Collect data

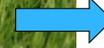
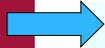


Analyse



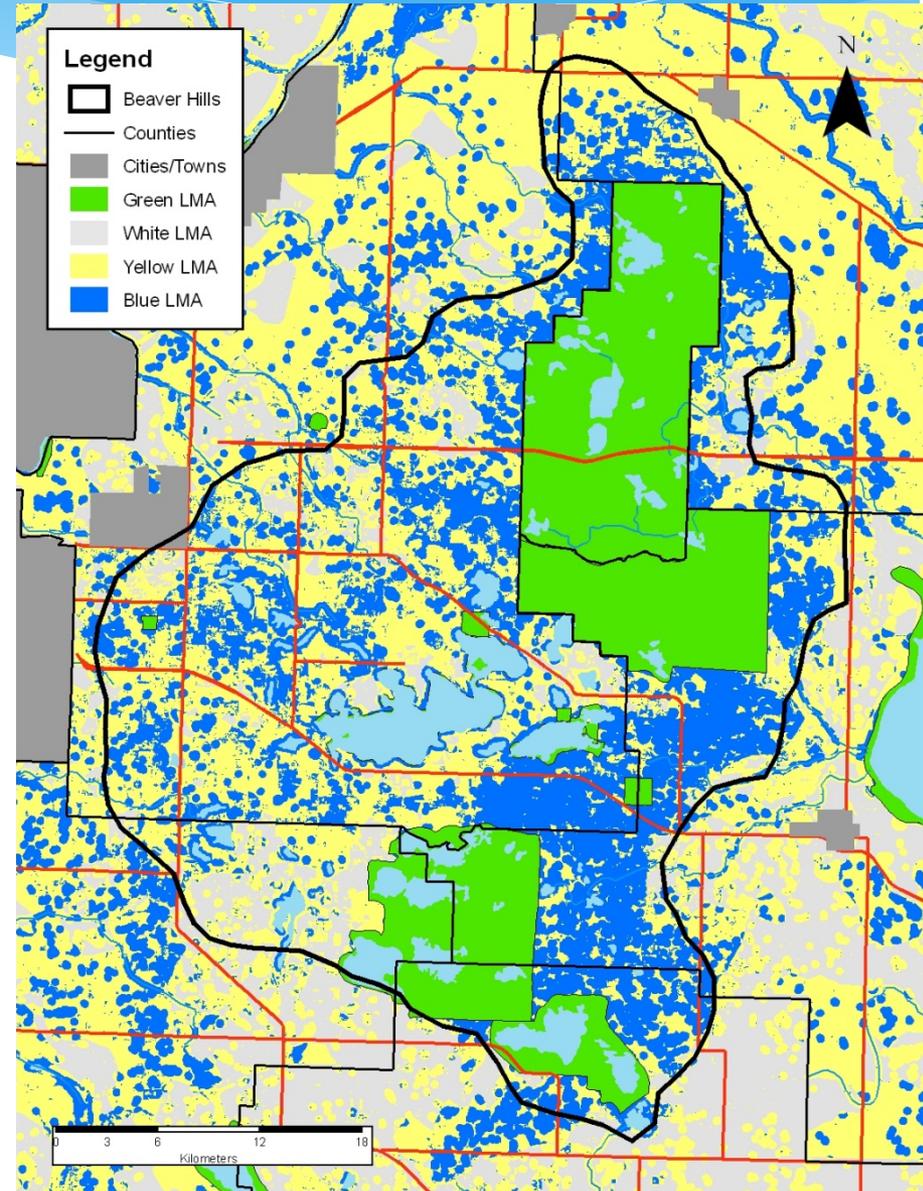
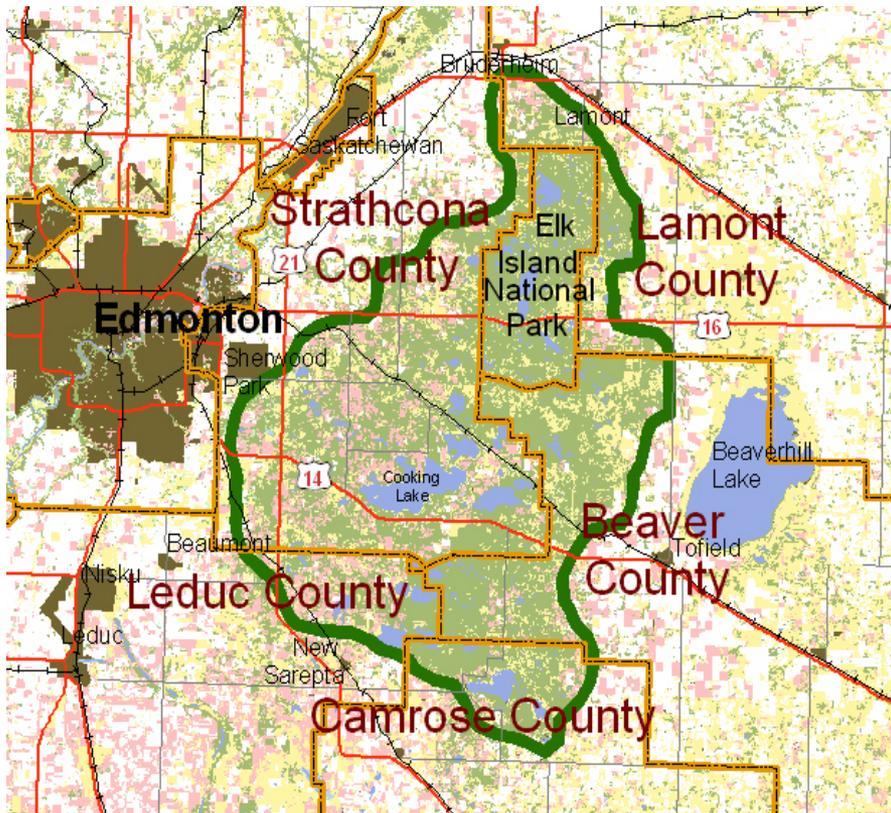
Manage

Adapt and improve



Citizen Science/Stewardship in the Beaver Hills

Many research questions and management programs in the region could involve citizens



Citizen Science Modules - Project Objectives

Objectives

- Develop modules for winter tracking, owl monitoring and woodpecker monitoring
- Test modules using volunteers and revise as needed
- Engage citizens in stewardship activities
- Start to develop a volunteer base for future stewardship opportunities
- Collect information on wildlife in protected areas
- Make the modules available to all organizations working in the Beaver Hills

Project Locations

- Winter tracking at the Golden Ranches property and the Strathcona Wilderness Centre
- Owl/woodpecker surveys at Elk Island National Park, Golden Ranches, and Strathcona Wilderness Centre
- Equipment storage in the Waskahegan staging area of Blackfoot/Cooking Lake



Winter Mammal Tracking

Objectives

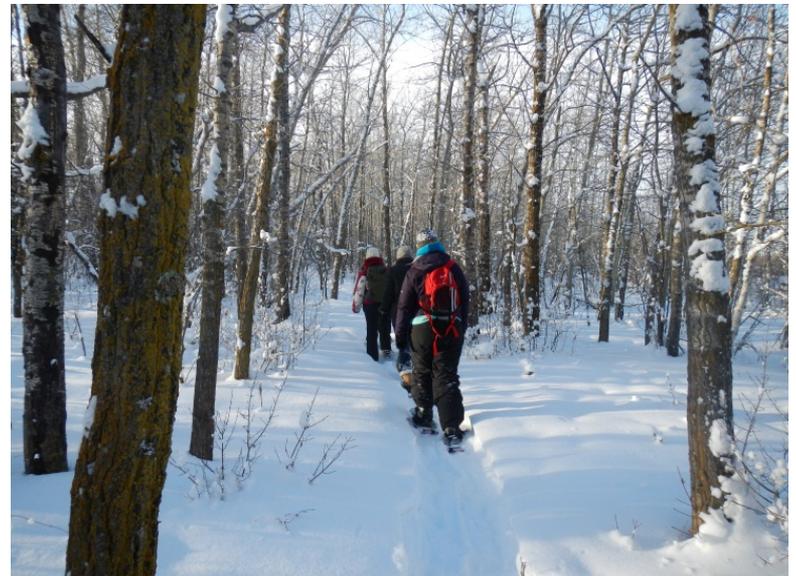
- Teach volunteers mammal track identification
- Encourage outdoor winter activity
- Encourage active stewardship of the local environment
- Collect data on mammal species within the Beaver Hills
- Refine the program with help from volunteer feedback



Winter Mammal Tracking

Survey Procedure

- Determine the species and number of animals by their tracks along a 3 km transect
- Record human disturbance, habitat data and environmental data



Winter Mammal Tracking

Volunteer Training

- 1 classroom session and 1 field session
- Classroom session - survey procedure, safety, basic mammal track identification
- Field session - supervised survey; volunteers collect real data with assistance if they need it



Tracking results

Species	No. tracks
Coyote	80
Red fox	2
Gray wolf	3
Skunk	3
Weasel	9
Mustelid	2
Squirrel	41
Snowshoe hare	162
Deer	80
Elk	22
Moose	20



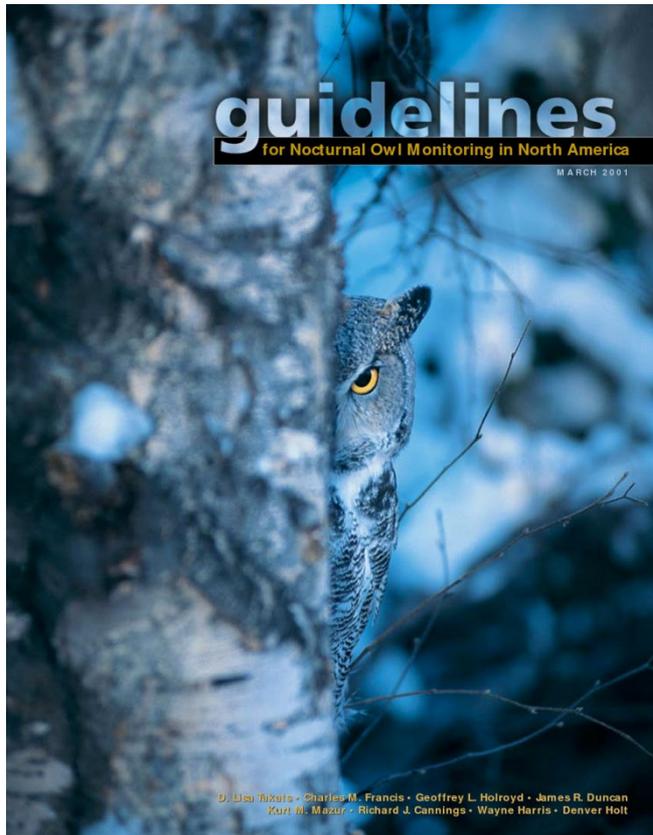
Owl/Woodpecker Monitoring

Objectives

- Provide opportunities for volunteers to experience wildlife they haven't before
- Teach volunteers owl and woodpecker identification
- Promote local conservation and stewardship
- Refine the program with help from volunteer feedback



Owl/Woodpecker Monitoring



Survey Procedure from “Guidelines for Nocturnal Owl Monitoring in North America” (Takats et al. 2001)

- Use playback calls on a pre-determined route
- Stop every 1.6 km. Listen, play calls, and listen again for species to call back.
- Record environmental factors, habitat, and human disturbance levels at each stop.

Owl/Woodpecker Monitoring

Volunteer Training

- 1 training session, combining classroom and field components
- Training session - survey procedure, safety, and owl/woodpecker identification
- A PowerPoint provided with audio of calls and pictures of the birds to aid volunteers



Owl/Woodpecker Monitoring

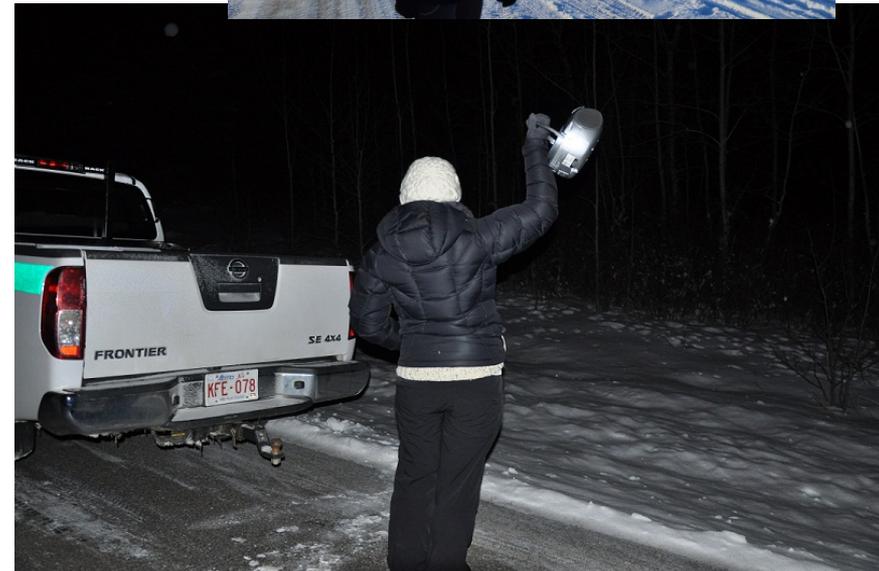
- 5 Northern Saw-whets and 1 Great Horned Owl heard



Overall results

Program results to date

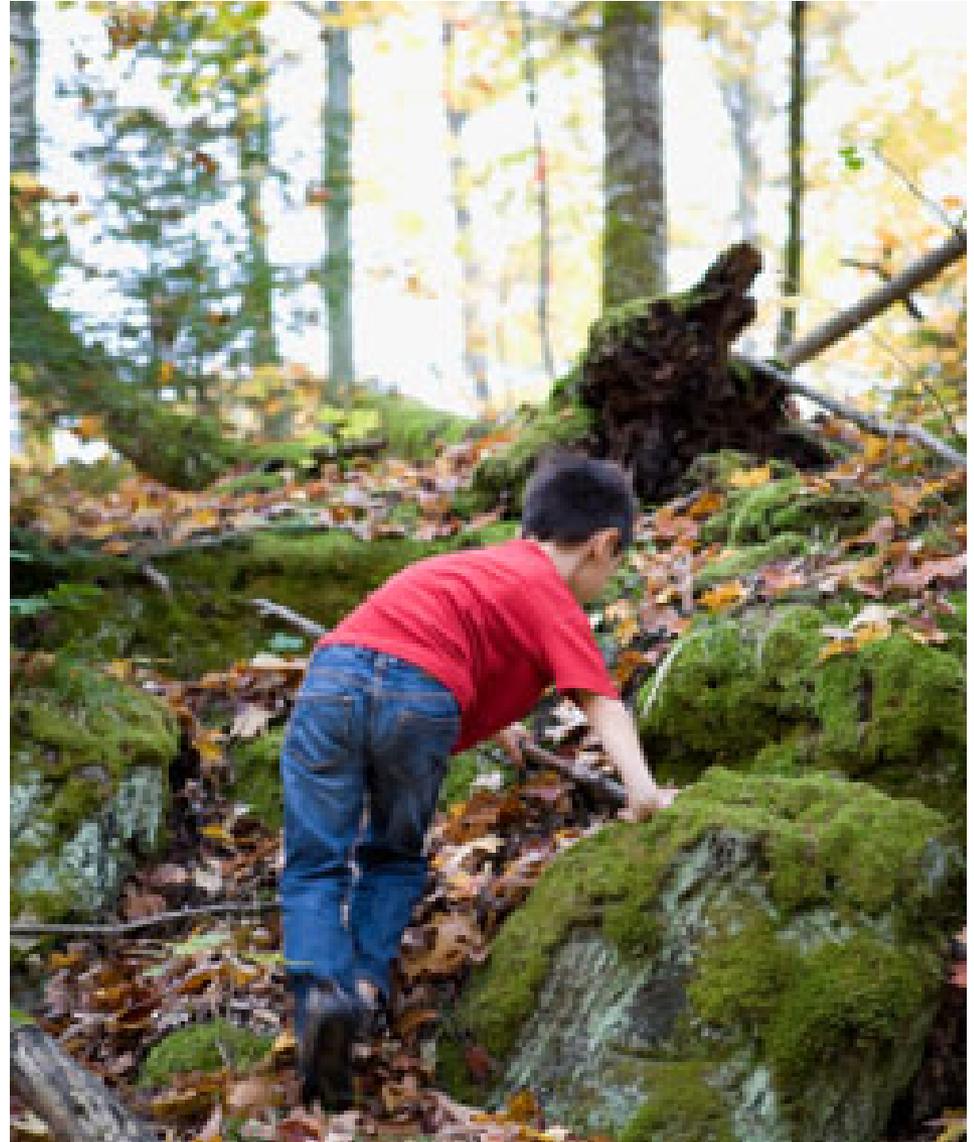
- 50 volunteers attended training sessions
- 400+ hours volunteered
- 37 surveys completed



The Future

- Release current modules for public implementation
- Develop new modules – e.g. invasive plant sampling and control; stream sampling
- Build stewardship network and promote stewardship opportunities
- Promote cooperation between organizations in the Beaver Hills related to science, stewardship, and engagement





The End



Dr. Eaton



Common Tansy (*Tanacetum vulgare*)



Identification:

- Flowers
 - Small yellow buttons grouped in clusters at top of stems
- Seeds
 - Yellowish-brown, short five-toothed crowns
- Leaves
 - Toothed divided narrow segments that alternate
- Stems
 - Multiple purplish-red, woody, branched, erect
- Roots
 - Woody and rhizomatous



- Distribution:
 - Non-crop areas
 - Roadsides
 - Low areas
 - Stream banks



Management:

- Mowing
- Herbicide (Picloram, dicamba and glyphosate)
- Cultivation not very effective because of rhizomatous roots

Interesting Facts

- Seeds viable in soil for up to 25 years
- Can be used for insect repellent and embalming
- Toxic, especially in large quantities



WANTED!

DEAD OR ALIVE! FOR POISONING



<http://www.adru.edu/pubsweb/chawonlee/plsc211/student%20papers/articles06/kalevandruggen/leafy%20spurge.jpg>

LEAFY SPURGE WARNING

TOXIC TO HUMANS, HORSES, & CATTLE

studentposters.co.uk

CAN YOU SPOT THE DIFFERENCE?

SCENTLESS CHAMOMILE



<http://www.invasiveplants.ab.ca/PhotoContest/Scntless%20Chamomile%20Micha%20Brown>
Photograph by Kelly Brown

OX-EYE DAISY



http://2.bp.blogspot.com/_Bm3BqFDbA/SGRFDh3OQI/AAAAAAAAETO/BWYMQ13K/s400/Daisies.jpg

HINT: LOOK AT THE LEAVES.

SCENTLESS CHAMOMILE HAVE SIMILAR LEAVES THROUGHOUT THE HEIGHT OF THE PLANT. THEY ARE FERN-LIKE AS THEY ARE FINELY DIVIDED, GLOSSY, AND ALTERNATE.

OX-EYE DAISY LEAVES ARE DIFFERENT DEPENDING WHERE ON THE PLANT THEY ARE LOCATED. THE LOWER AND BASE LEAVES ARE LANCE SHAPED, WAVY AND LOBED. UPPER LEAVES ARE NARROW, STALK-LESS AND ALTERNATE.

HINT: SMELL THEM. THE SCENTLESS CHAMOMILE HAS NO DISTINCT SMELL; THE OX-EYE DAISY HAS A STRONG, UNPLEASANT SMELL.

Introduction to the Strategy

- 4 facilitated workshops held between November 2011 – May 2012; group identified obstacles to becoming a biosphere reserve and proposed positive actions that could be taken. The result was the Stewardship Engagement Strategy.
- One of the biggest obstacles identified was widespread ecological illiteracy
- Create a broad spectrum of engagement opportunities
- Need for an increased number of opportunities
- Current stewardship opportunities need stronger coordination and partnerships
- Need to learn more about the public, their motivations for stewardship, and how to retain stewards

Goal 1:

Establish a Stewardship Engagement Working Group

- Objectives Include:
 - Develop a complete Working Group Board Policy for the SEWG
 - Determine membership of the working group
 - Implement the 2012-2015 Stewardship Engagement Strategy
- Short Term Activities (2012-2013)
 - Select members, elect co-chairs and secretary
 - Develop an inventory of existing stewardship activities
 - Develop first year budget
- Long Term Activities (2013-2015)
 - Secure ongoing funding to ensure implementation of SEWG activities is sustainable
 - Develop and administer a framework that facilitates these activities

Goal 2:

Strengthen the network of stewards in the Beaver Hills Initiative Area by enhancing coordination, cooperation and among new and existing partner organizations

- Objectives include:
 - Develop a mechanism to link stewardship activities with the activities of the SEWG, and share stewardship engagement opportunities among organizations and individuals
 - Develop a communication strategy and plan targeted at various audiences
 - Enhance network of collaborating organizations working towards stewardship and engagement opportunities

Goal 2:

Strengthen the network of stewards in the Beaver Hills Initiative Area by enhancing coordination, cooperation and among new and existing partner organizations

- Short Term Activities (2012-2013)
 - Create a web-based central clearing-house for volunteer projects with a central access point for all existing opportunities
 - Within the clearinghouse, set up a calendar of events where each organization can advertise opportunities to volunteer
 - Develop reciprocal links with the other agencies hosting webpages
- Long Term Activities (2013-2015)
 - Refresh list of activities and organizations annually
 - Produce stewardship engagement/citizen-science tools that can be provided to the BHI partners

Goal 3:

To increase engagement in stewardship activities within the Beaver Hills Initiative Area

- Objectives include:
 - Understand the motivations and expectations of those who become engaged in stewardship activities
 - Understand the characteristics of successful stewardship programs
 - Create opportunities to celebrate the success and involvement of volunteers in stewardship engagement activities
- Short Term Activities (2012-2013)
 - Engage in a small demonstration project targeted at existing participants in stewardship engagement activities to explore motivations and expectations
 - The RMWG will identify data from stewardship and citizen-science activities that could potentially be included in the State of the Moraine Report

Goal 3:

To increase engagement in stewardship activities within the Beaver Hills Initiative Area

- Long Term Activities (2013-2015)
 - Develop a quantitative understanding of participants involved in stewardship engagement in terms of motivation, expectations, needs, and satisfaction levels
 - Identify gaps in stewardship opportunities and gaps on social research related to stewardship, and opportunities to enhance engagement
 - Share results of research with collaborating organizations and other interested parties

The SEWG's Board Policies

Mandate

The SEWG will develop and actively implement the Stewardship Engagement Strategy

Composition

- Made up of representatives from key stewardship stakeholders
- Positions will include 2 Co-Chairs (serving offset terms) and a secretary

Terms of Office

- Co-chairs will serve two-year terms, offset. Chair positions may be renewed once, and a person may act as Chair again after being absent from the position for 2 years
- Secretary serves a two-year term, with voluntary renewal

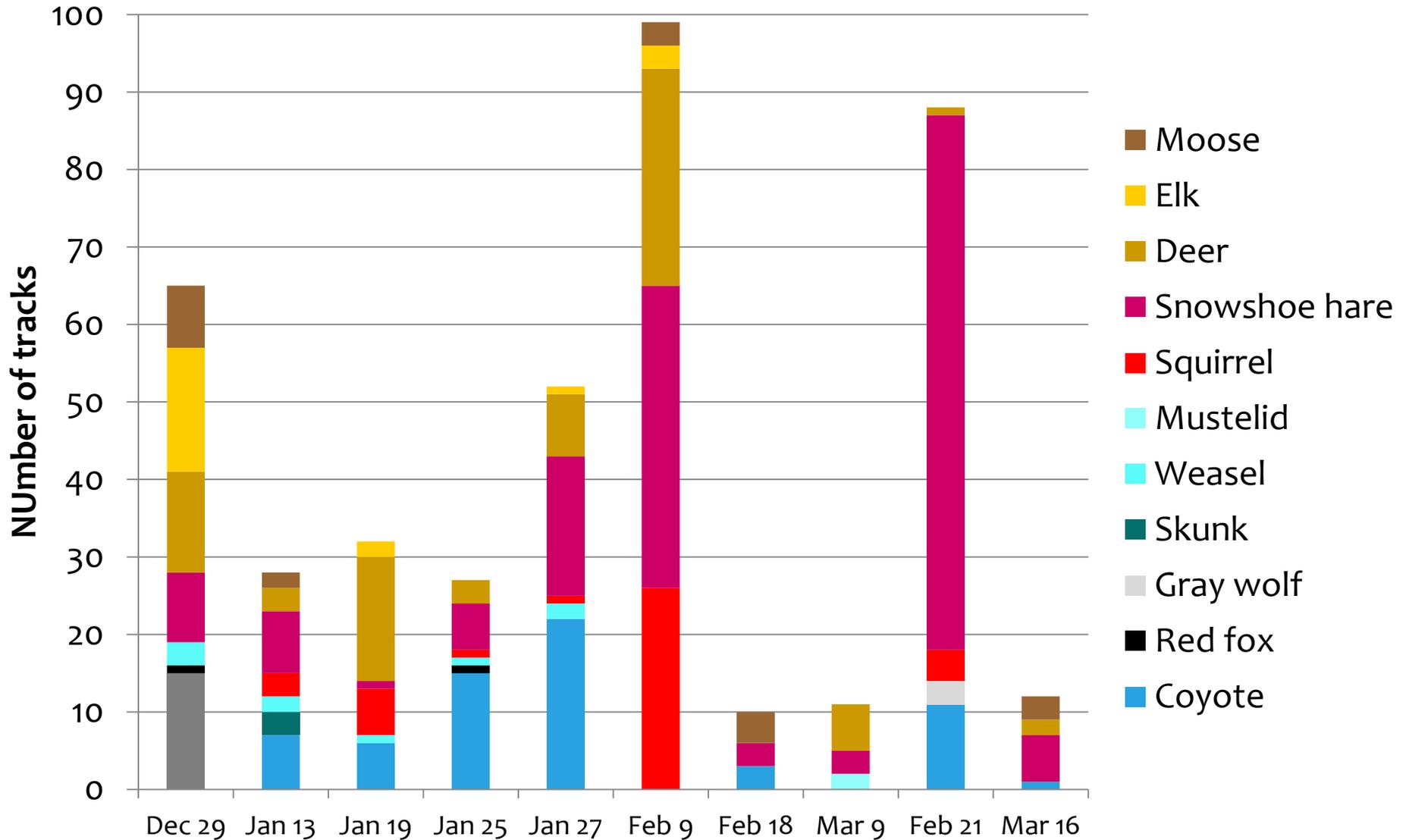
Governance

- Quorum = 50% + 1 members of the SEWG
- Decisions require the consensus of all members present at a particular meeting.

Citizen-Science Program Pilot in the Beaver Hills



Track counts by session



Guiding Principles

For participating individuals, stewardship should:

1. Be an opportunity to learn and develop
2. Provide social interaction
3. Develop a sense of community
4. Range from a single event to ongoing involvement
5. Be positive
6. Be celebratory
7. Be enabling
8. Provide an opportunity to connect with the Beaver Hills Initiative Area, and develop a sense of place

What is Citizen Science?

Levels of Citizen Science

Level 4 'Extreme'

- Collaborative Science – problem definition, data collection and analysis

Level 3 'Participatory science'

- Participation in problem definition and data collection

Level 2 'Distributed Intelligence'

- Citizens as basic interpreters

Level 1 'Crowdsourcing'

- Citizens as sensors

**Community
Monitoring
Program**



**Freshwater Sampling
Station #7**

(for info call ELSI Coordinator at 360-3065)