

# What goes in the plan?

## Monitoring Plan

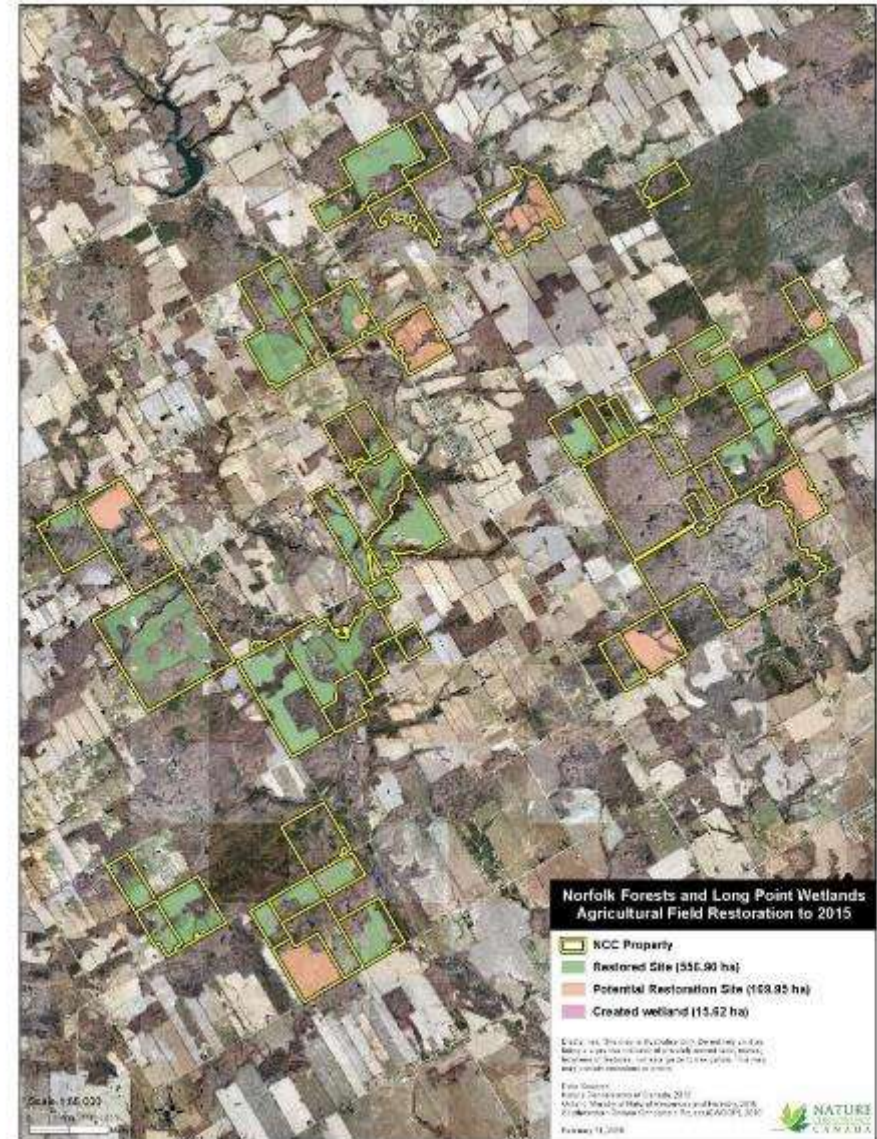
- Monitoring is important but can take a lot of resources.
  - What will help you deliver better conservation?
  - Keep it simple: How many ha of Forest/ Wetland/ Grassland? How many patches/ flowering stems of American Ginseng?
  - Adjust frequency depending on rate of change – no need to measure ha of Forest annually.
- Important to measure effectiveness of your actions.
  - Did it work? (Is the invasive species dead?)
  - Are you meeting your goals? (Is the Forest bigger?)
- Often no need for complex, scientifically rigorous data collection.
  - Sometimes this is important, but a basic count of native vs non-native plants in a restored area could suffice;
- Keep the monitoring tied to the Goals and the Target
  - Did it work? No? Fix it!

# How long should my plan last?

- Plans need to be useful – writing a plan should not “get in the way of” conservation, but should drive it.
- Update every 5 years.
- Set long term goals
  - Set milestones achievable within 5 year increments.
- Include everything you can think of so there are no surprises:
  - Updating the plan, paying property taxes, removing garbage, managing leases, restoring the field, monitoring.

# Making more forest

- Norfolk Forests and Wetlands.
- Forest connectivity project.
- Acquisition and stewardship driven by careful planning.



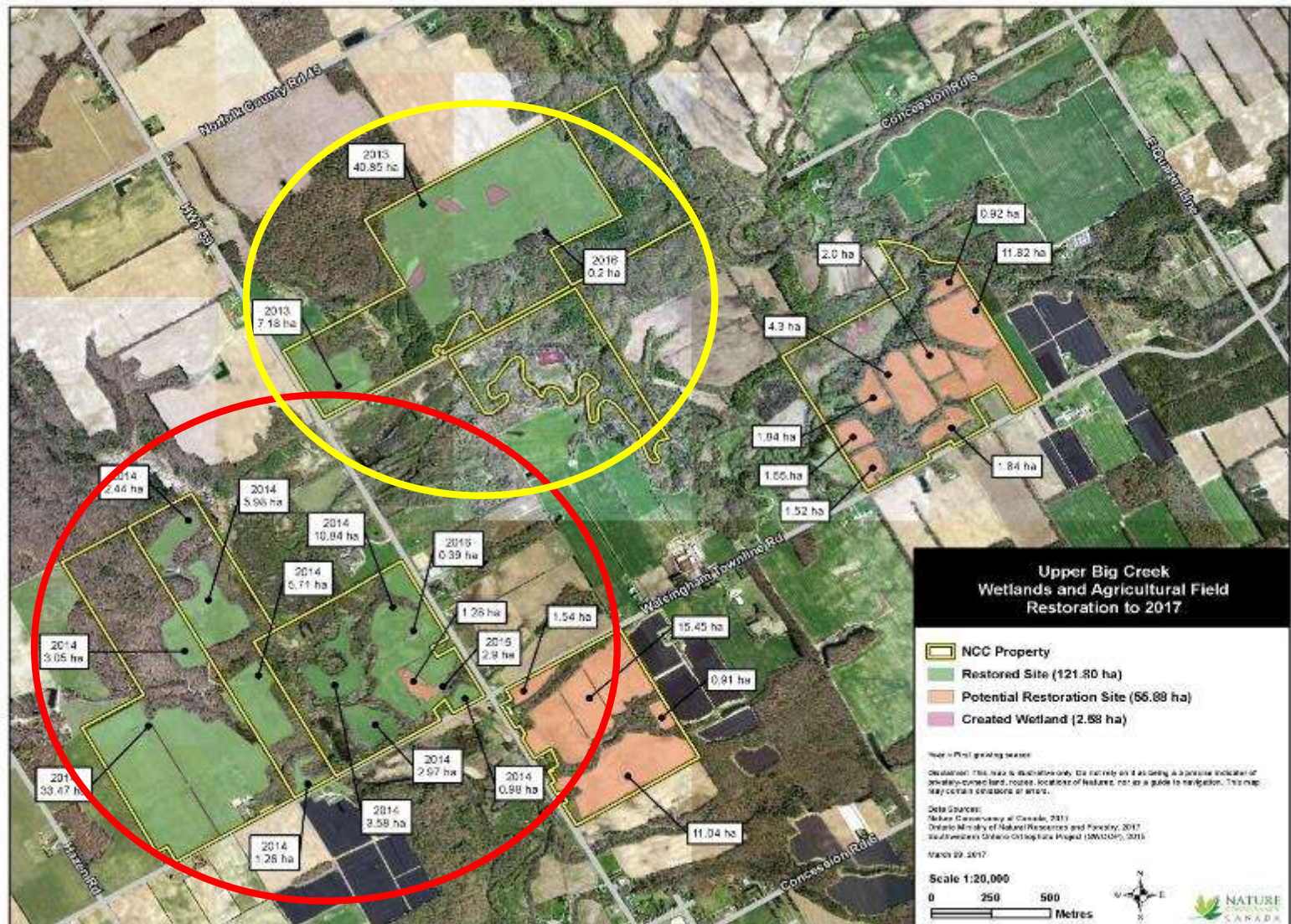


- Property-by-property, field-by-field planning.
- Detailed timelines, budgets.
- Plan focussed all resources, including fundraising efforts.
- Flexible: find a new threat – add a new action and budget line – implement.





# Restoration: for the birds!





# Restoration: for the birds!

100 ha of interior  
forest habitat



4 pairs  
Prothonotary  
Warblers

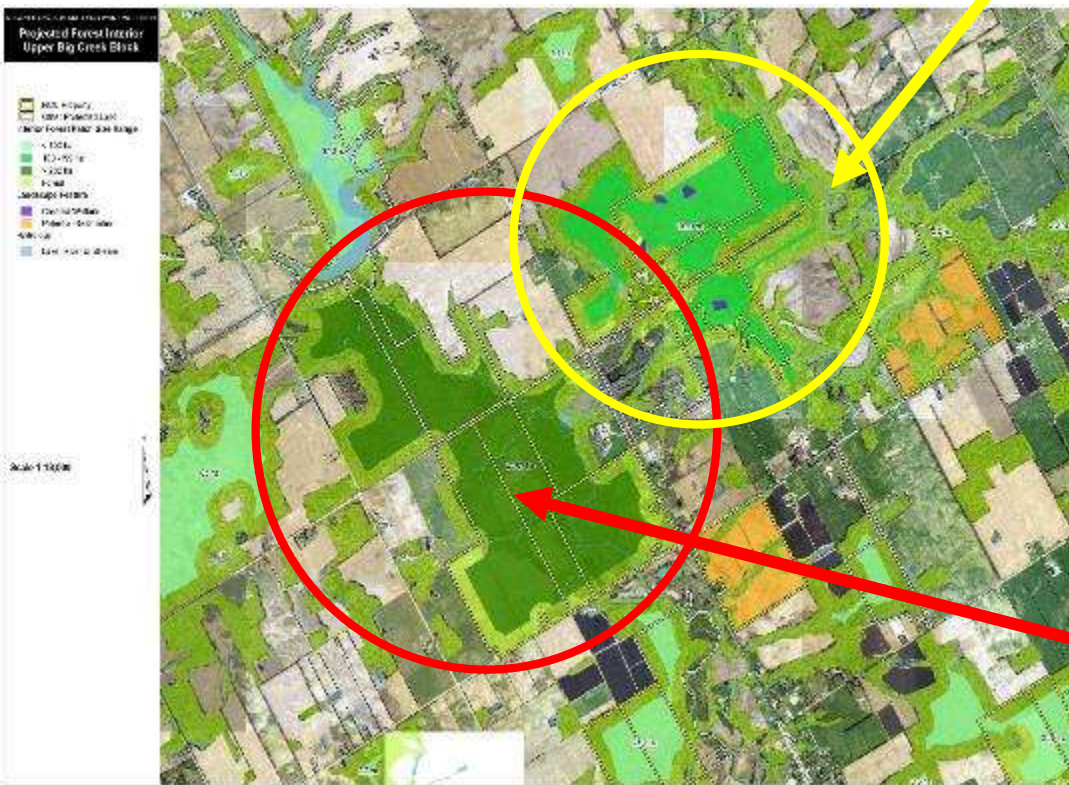


4 pairs Acadian Flycatchers



Viable  
population of  
Louisiana  
Waterthrush

200 ha of interior  
forest habitat





Or:

40 ha of grassland habitat



Bobolink

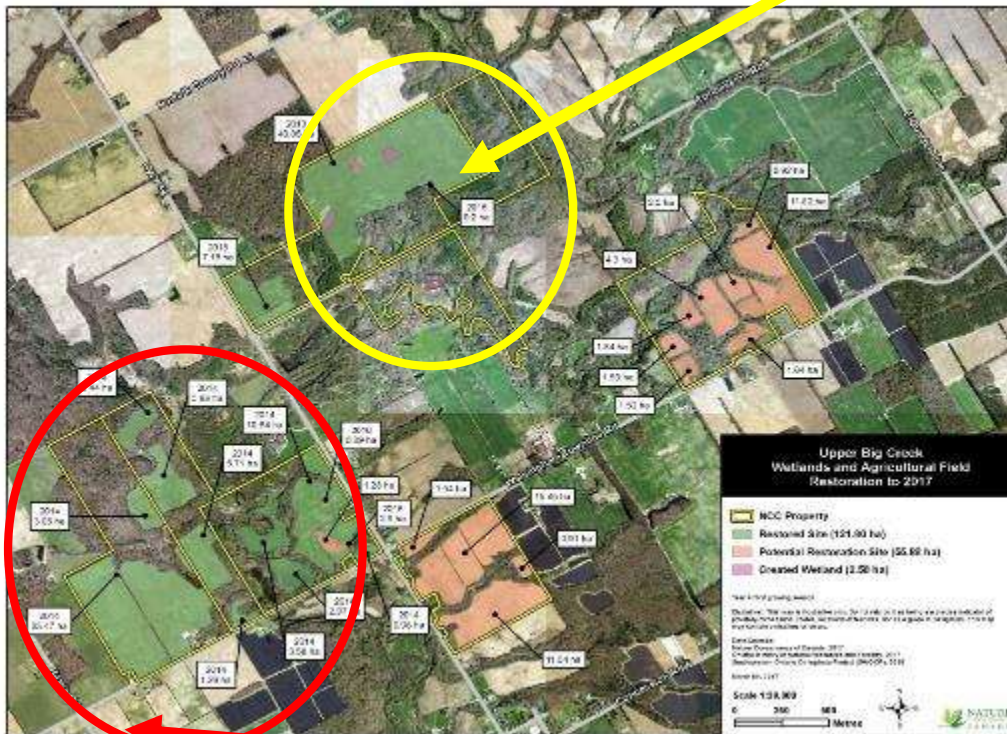


Eastern Meadowlark



Savanna Sparrow

33 ha of grassland habitat



# That miradi thing





# Miradi

- Software designed to support conservation planning
- “adaptive management software for conservation projects”
- Desktop software required to develop and edit your plan
- Web-based interface for backing up and sharing
- Download a free trial, but paid subscription provides access to support etc

<https://www.miradishare.org/>



# Miradi Share - web

The screenshot shows a web browser window with the address bar displaying [miradishare.org](http://miradishare.org). The page features a green header with the Miradi Share logo and navigation links. The main content area is titled "Welcome to Miradi Share™" and includes a "My Projects" section with four project cards. Each card displays a green circular icon with a checkmark and the text "Checked-in".

**Welcome to Miradi Share™**

[Create a shared project](#)  
[Explore shared projects](#)

**My Programs**  
[Community Library](#)  
[Nature Conservancy of Canada](#)

**Public Programs**  
[Bush Heritage Australia](#)  
[CAML - The Conservation Actions & Measures Archetypes Library](#)  
[NOAA Fisheries Recovery](#)  
[Puget Sound Recovery](#)  
[The Nature Conservancy](#)

**My Projects**

- Garden Alvar**  
(NCC, Draft, Organization)  
Last Updated: Aug. 30, 2018, 10:29 a.m.  
Garden Alvar is one of the largest and most significant alvars in the world (Reschke et al. 1999, Brownell and Riley 2000). The majority of occurrences of this globally rare ecosystem are located in Ontario with some of the best examples in the Garden Alvar NA. The Garden Alvar NA is located in the central portion of Eastern Ontario along the southern shore of Lake Ontario, which extends from the north shore of Lake Ontario to the south shore of Lake Ontario.
- Essex Forests and Wetlands NACP II**  
(NCC, Draft, Team)  
Last Updated: Aug. 28, 2019, 10:30 a.m.  
This project is a template for all Ontario NACPs. It contains all IUCN Threats, Targets used in Ontario NACPs, with viability thresholds from the literature. Goals based on these thresholds have been developed, along with Strategies and Activities common to most NACPs. The Ontario Science Team will keep these up to date as more data becomes available. (This content is for informational purposes only.)
- Frontenac Arch**  
(NCC, Draft, Team)  
Last Updated: July 22, 2019, 2:09 p.m.  
The Frontenac Arch is the southern-most example of the Canadian Shield in Ontario. It is comprised of igneous and metamorphic bedrock (Henson and Brodribb 2005). The Frontenac Arch is a 50 kilometre extension of exposed Precambrian rock that runs through southeastern Ontario and upstate New York from the north shore of Lake Ontario to the south shore of Lake Ontario.
- Happy Valley Forest - Pottageville Swamp**  
(NCC, Draft, Organization)  
Last Updated: Aug. 24, 2018, 3:38 p.m.  
The Happy Valley Forest-Pottageville Swamp Natural Area includes two Focal Areas in which natural features are concentrated: Happy Valley Forest in the south, and Pottageville Swamp in the north. Happy Valley Forest is the largest intact block of deciduous forest on the Oak Ridges Moraine.

# Miradi Share - web

Miradi Share - Project Details

miradi-share.org/projectDetails/ncc-natureconservancy-2019-00113/

MIRADI SHARE™ All Projects

Welcome back, Michael McFarlane | Log Out | Download Miradi Desktop | Support | Help | About

Projects | Explore Program | Manage Program

## Napanee NACP III - Project Details

Explore | Edit | Manage | Checked-in

Getting Started

Napanee NACP III

Project Description:

This project is a template for all Ontario NACPs. It contains all IUCN Threats, Targets used in Ontario NACPs, with viability thresholds from the literature. Goals based on these thresholds have been developed, along with Strategies and Actions common to most NACPs. The Ontario Science Team will keep these up to date as new ideas develop. "Copy project" then "Rename project" IN MIRADI SHARE to create each new NACP, deleting any unnecessary content.

Project Status:

Contact Team

Project Metrics

Target Viability

Target Viability Status for 9 targets

Project Team

Miradi Share Project Team

	Project Viewer	Project Partner	Project Editor	Project Manager
Stefie Hecken	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Colin Elliott	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Wesley McFarlane	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Laura Robson	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Nick Stubb	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Tessa Strickland	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Amanda Tracey	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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Miradi Share is a product of the Natural Sciences and Museum

Developed, built, and maintained by Sequax Technology Group  
Version 1.0.0.0.6 | Compiled 2019-08-27 07:00:19



# Miradi – the benefits

- Plans backed up online every time you check it in
- Create a template to reuse for each property or area or project
  - Save time
  - Improve consistency
- Good reporting opportunities
- With a miradi share subscription, create customized reports which are autogenerated from miradi share

# Miradi - desktop

Miradi - Ontario NACP skeleton (v0.39)

File Edit View Actions Step-by-Step Help

Diagram

Welcome to the Diagram View

This view enables you to develop a **conceptual model** of your project. A good conceptual model graphically depicts your project's **assets**, **direct threats**, **contributing factors**, and **strategies** - and more importantly, the relationships between them. As in any modeling exercise, you should not try to show all factors and relationships, but only the most important ones.

This view also helps you to transform strategies and to develop **results chains** that show the **intermediate results** that you assume will be achieved based on the implementation of each strategy. These results chains become the basis for setting **objectives** and **indicators** for your project.

Click next to begin developing a model of your project.

Navigation Hints for the Diagram View

To add a new target or other factor, click the appropriate button on the control bar, use the drop down menu, or the right (Mac Ctrl-click) mouse button. The new factor will appear on the page. To select a factor, single click on it. To reposition a factor, first select it and then use the mouse or arrow keys to move it wherever you like (if you are moving a big group of factors, use the mouse). The (Move, Windows, Down, and Right) button in the toolbar can be used to or free up space in the upper left quadrant of the diagram.

Double clicking on a factor will bring up a dialog box in which you can name the factor, add details, which...

To link factors click on the first, hold the shift key, and then click on the second. Then click the arrow button...

To switch between conceptual models and results chains use the tabs in the upper left and the page li...

Control Bar can be used to hide or show different types of factors and to manage page names. The File/Export/PWD or JPEX image menu commands can be used to save a picture of your diagram for use in oth...

used to display a subset of the factors in a diagram. Other more advanced tasks are described in subsequent wizard pages.

Threats

Strategies

Targets

Goals



# Miradi - desktop

Miradi - Ontario NACP extension (v0.35)

File Edit View Actions Step-by-Step Help

Diagram

Welcome to the Diagram View

This view enables you to develop a [conceptual model](#) of your project. A good conceptual model gives your project [purpose](#), [objectives](#), [conceptual factors](#), and [strategies](#) - and more importantly, the [relationships](#) between them. As in any modeling exercise, you should not try to show all factors and relationships; instead, focus on the most important ones.

This view also helps you to transform strategies and to develop [viability chains](#) that show the [viability chains](#) that you envision will be achieved based on the implementation of each strategy. These viability chains become the basis for adding [viability](#) and [viability](#) for your project.

Click next to begin developing a model of your project.

the Diagram View

When clicking on a factor will bring up a dialog box in which you can name the factor, add details, attach an indicator or objective to it, and type a comment.

To link factors click on the first, hold the shift key, and then click on the second. Then click the arrow button to create the link. Or if you select a factor and then add a new factor, they will be automatically linked.

To switch between conceptual models and viability chains use the tabs in the upper left and the page belongs at the top of the control bar. The Zoom In, Zoom Out, and Zoom to Fit buttons can be used to decrease or increase the size of the view. The Control Bar can be used to hide or show different types of factors and to manage page names. The TakeScreenshot or PrintImage menu commands can be used to save a picture of your diagram for use in other applications. The Tag feature can be used to display a subset of the factors in a diagram. Other more advanced tasks are described in subsequent wizard pages.

Factor Properties

Target: Forest Interior

Viability Analysis Mode: KAP

Summary Goals Viability Subspace Risked Targets

Create KAP Create Indicator Create Measurement Create Future Status Export To... Create KAP

Item

Viability Mode	Status	Future Status	Type	Poor	Fair	Good	Very Good
Forest Condition	Not Specified	Not Specified	Condition	0	1	>1	>1
Forest Interior 200 ha blocks	Not Specified	Not Specified		0	>0	<10%	>10%
Forest Interior 200 ha blocks of 100 m or more Forest in NA	Not Specified	Not Specified		0	>0	<10%	>10%
Native Biodiversity in Forest Communities	Not Specified	Not Specified		0	>0	<10%	>10%
Forest Landscape Connectivity	Not Specified	Not Specified		0	>0	<10%	>10%
Average Forest Patch Distance	Not Specified	Not Specified		0	>0	<10%	>10%
Forest Size	Not Specified	Not Specified		0	>0	<10%	>10%
Forest Size	Not Specified	Not Specified		0	>0	<10%	>10%

Measurement: P of 200 ha blocks of 100 m or more Forest in NA

Summary

Indicator: Forest Interior 200 ha blocks

Viability Strategy: Monitoring Plan

Progress Report:

NAC Classifications

Comments:

Close

Conceptual Model

Control Bar

1.1 Housing & urban areas

1.2 G

2.1 Forest

2.2 Wood &

2.3 Non-forest

2.4 Marine & freshwater

2.5 Land use, land-use change, and forestry

2.6 Climate

2.7 Ecosystems

2.8 Biodiversity

2.9 Cultural Heritage

2.10 Socio-economic

2.11 Infrastructure

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8.60 Soil

8.61 Ocean and coastal resources

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9.00 Soil

9.01 Ocean and coastal resources

9.02 Land

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9.05 Soil

9.06 Ocean and coastal resources

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9.15 Soil

9.16 Ocean and coastal resources

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9.20 Soil

9.21 Ocean and coastal resources

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9.30 Soil

9.31 Ocean and coastal resources

9.32 Land

9.33 Air

9.34 Water

9.35 Soil

9.36 Ocean and coastal resources

9.37 Land

9.38 Air

9.39 Water

9.40 Soil

9.41 Ocean and coastal resources

9.42 Land

9.43 Air

9.44 Water

9.45 Soil

9.46 Ocean and coastal resources

9.47 Land

9.48 Air

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9.50 Soil

9.51 Ocean and coastal resources

9.52 Land

9.53 Air

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9.56 Ocean and coastal resources

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10.01 Ocean and coastal resources

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11.42 Land

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12.06 Ocean and coastal resources

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12.14 Water

12.15 Soil

12.16 Ocean and coastal resources

12.17 Land

12.18 Air

12.19 Water

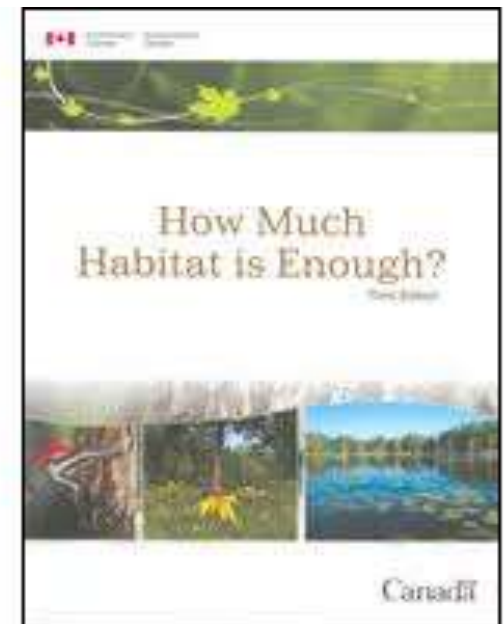
12.20 Soil

12.21 Ocean

# How much habitat is enough?



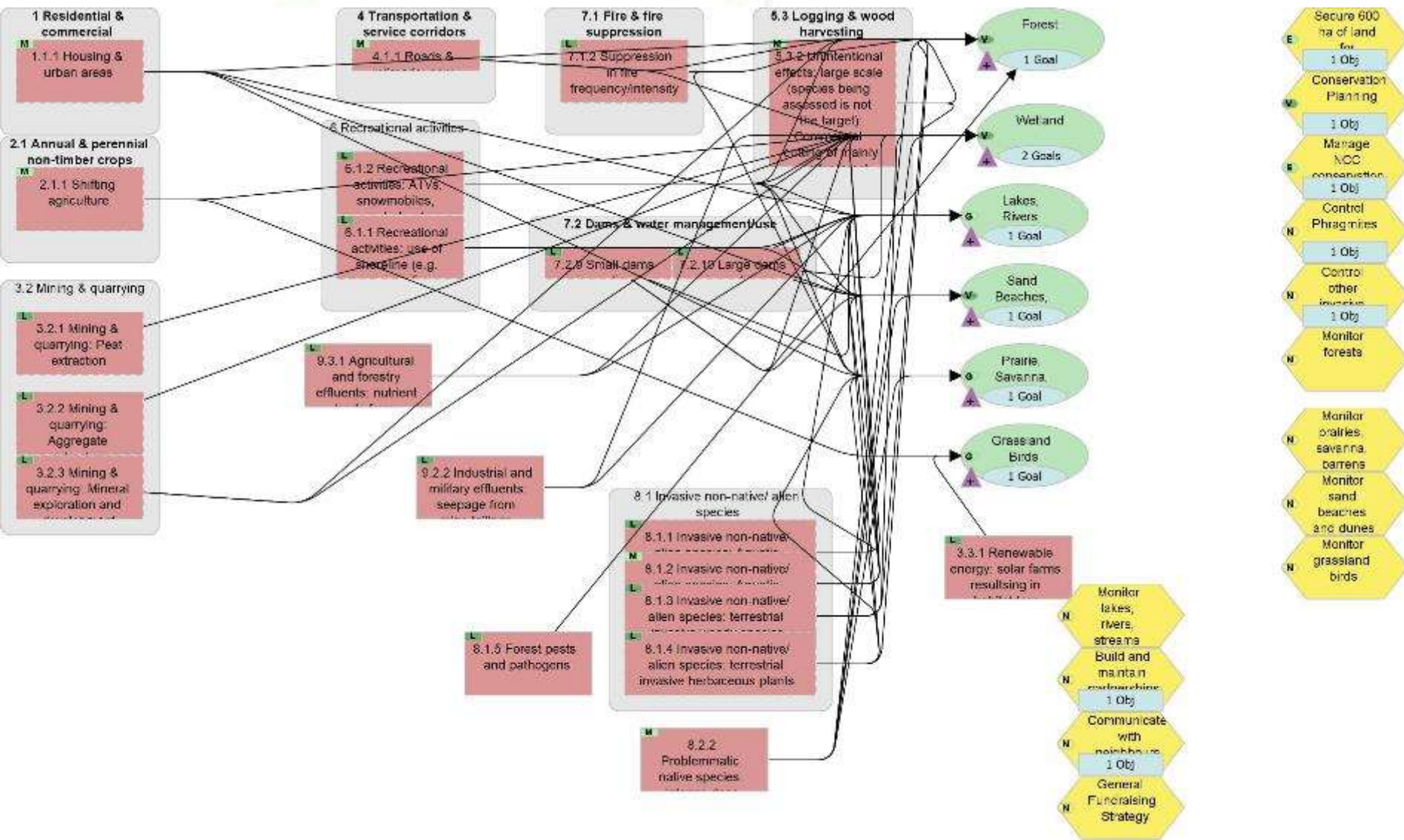
The screenshot shows the official website of Environment and Climate Change Canada. The page is titled "How Much Habitat is Enough?" and is the third edition of the report. It features a sidebar with navigation links such as "About Environment and Climate Change Canada", "Vision of Environment and Climate Change", "Media Room", "Newsroom", "Acts & Regulations", "Twenty-ninth Initiative", "About the", "Topic", "Act", "Climate Change", "Indigenous", "Environment & Emergencies", and "News". The main content area includes a "Table of Contents" with links to the introduction and various sections, including "1.1 Introduction", "2.1.1 Percent of Land in the Watershed and Subwatershed", "2.1.2 Wetland Location", "2.1.3 Species at Risk, Sensitive Species and the Wildlife", "2.1.4 Wetland Area, Shape and Quality", "2.1.5 Wetland Ecosystem", "2.1.6 Wetland Management", "2.2 Assessment of Potential Habitat Quality", "2.3.1 Value of Natural Watershed Habitat to Species", and "2.3.2 Potential Species at Risk and Sensitive Species".





# How much habitat is enough?













- Use publications such as this to drive your work
  - Acquisition – which bits are the most important to protect?
  - Subsequent stewardship and restoration – what do we do with it now?
  - What do we need to measure to get a sense of where we are most needed?





Threats \ Targets	Prairie, Savanna, Barrens	Lakes, Rivers, Streams, Creeks	Grassland Birds	Sand Beaches, Dunes	Forest	Wetland	Summary Threat Rating
1.1.1 Housing & urban areas	Low	Medium		Medium	Low		Medium
2.1.1 Shifting agriculture			High			Low	Medium
3.2.1 Mining & quarrying: Peat extraction						Medium	Low
4.1.1 Roads & railroads: new roads and increased usage					Medium	Medium	Medium
5.3.2 Unintentional effects: large scale (species being assessed is not the target): Commercial cutting of					Medium	Medium	Medium
6.1.1 Recreational activities: use of shoreline (e.g. camping, fires, trampling, garbage)		Low		Low			Low
7.1.2 Suppression in fire frequency/intensity	Low				Medium		Low
7.2.9 Small dams impacting movement of aquatic organisms		Medium		Low		Low	Low
7.2.10 Large dams impacting movement of aquatic organisms		Medium		Low		Low	Low
8.1.1 Invasive non-native/ alien species: Aquatic invasive animal species		Medium				Low	Low
9.3.1 Agricultural and forestry effluents: nutrient loads from agricultural runoff contributing to algal blooms		Medium				Low	Low
9.2.2 Industrial and military effluents: seepage from mine tailings ponds etc		Low				Low	Low
3.2.3 Mining & quarrying: Mineral exploration and development					Medium	Low	Low
3.2.2 Mining & quarrying: Aggregate extraction						Low	Low
3.3.1 Renewable energy: solar farms resulting in habitat loss			Medium				Low
6.1.2 Recreational activities: ATVs, snowmobiles, motorboats	Low	Low		Low	Low	Low	Low
8.1.2 Invasive non-native/ alien species: Aquatic invasive plants		Low		Medium		High	Medium
8.1.3 Invasive non-native/ alien species: terrestrial invasive woody species	Low				Low	Low	Low
8.1.4 Invasive non-native/ alien species: terrestrial invasive herbaceous plants	Low			Low	Low		Low
8.2.2 Problematic native species: Intense deer herbivory	Low			Low	Medium	Medium	Medium
<b>Summary Target Ratings:</b>	Low	Medium	Medium	Medium	Medium	High	Overall Project Rating
							High

# Miradi – diagram output target viability

Item	Type	Poor	Fair	Good	Very Good	Source
 <b>Forest</b>						
 Forest Condition	Condition					
 Forest interior 200 ha blocks		0	1	>1 - <5	>=5	External Research
 : # of 200 ha blocks of 100 m interior Forest in NA						Not Specified
 Forest interior size		0 %	>0 - <10 %	>10 %		External Research
 : ha of 100 m interior Forest in NA/ % of forest which is 100 m interior						Not Specified
 Native Biodiversity in Forest Communities		Few native species; Mostly invasive or non-native species	Mix of native and invasive or non-native species	Primarily native species; some invasive or non-native species	Mostly native species; few invasive or non-native species	Expert Knowledge
 :						Not Specified
 Forest Connectivity	Landscape Context					
 Average Forest Patch Distance		>5 km	>2 - < 5 km	<2 km		External Research
 : average distance between Forest patches in NA km						Not Specified
 Forest size	Size					



Item	Measurand	Unit	Value	Score	Target	Score	Score	Score	Score	Score	Score
Forest, Forest											
Forest Condition											
Forest interior 200 ha blocks											
2019-03-22: 440											
Forest interior size											
2019-03-22: 44.8											
Native Biodiversity in Forest Communities											
mostly native species											
Forest Landscape Connectivity											
Average Forest Patch Distance											
2019-03-22: <5 m											
Forest size											
Forest total area in watershed (or NA)											
2019-03-22: 30											
Grassland Birds, Grassland Birds											
Grassland Condition											
area of hayfields which have a bird-friendly cut-after-dry											
2019-03-22											
Grassland landscape context											
Grassland size											
Average Grassland patch size (by watershed, or NA)											
2019-03-22: 5.8											
Number of Grassland patches > 100 ha											
2019-03-22											
Lakes, Rivers, Streams, Creeks, Lakes, Rivers, Streams, Creeks											
Stream Condition											
Phosphorous concentrations at Lake of the Woods our											
2019-03-22											
Stream Landscape Context											
# of dams in NA (barriers to fish passage)											
2019-03-22: 26											
Stream Size											
Prairie, Savanna, Barrens, Prairie, Savanna, Barrens											
Prairie, Savanna, Barrens landscape context											
Prairie, Savanna, Barrens buffer											
2019-03-22											
Prairie, Savanna, Barrens size											
Prairie, Savanna, Barrens total area in NA											
2019-03-22											
Prairie, Savanna, Barrens condition											
Prairie, Savanna, Barrens species composition											
Sand Beaches, Dunes, Sand Beaches, Dunes											
Beaches and Dunes Condition											
Abundance of non-native invasive species											
2019-03-22											
Beaches and Dunes Landscape Context											
Beaches and Dunes Buffer											
2019-03-22											
Wetland, Wetland											
Wetland Condition											
Average width of Wetland Buffer											
Presence of Wetland Invasives											
2019-03-22: Occasional											
Wetland Landscape Context											
Average distance between Wetland Patches											
Wetland Size											
Wetland total area in NA											
2019-03-22: 19.8											

Item	Rating	Standard Classification
Build and maintain partnerships	Need More Info	7.2 Alliance & Partnership Development
Communicate with neighbours	Need More Info	4.3 Awareness & Communications
Conservation Planning	Very Effective	2.1 Site/Area Management
Control other invasive species	Need More Info	2.2 Invasive/Problematic Species Control
Control Phragmites	Need More Info	2.2 Invasive/Problematic Species Control
General Fundraising Strategy	Need More Info	7.3 Conservation Finance
Manage NCC conservation land	Effective	2.1 Site/Area Management
Monitor forests	Need More Info	2.1 Site/Area Management
Monitor grassland birds	Need More Info	2.1 Site/Area Management
Monitor lakes, rivers, streams and creeks	Need More Info	2.1 Site/Area Management
Monitor prairies, savanna, barrens	Need More Info	2.1 Site/Area Management
Monitor sand beaches and dunes	Need More Info	2.1 Site/Area Management
Secure 600 ha of land for conservation in the Natural Area	Effective	1.1 Site/Area Protection



# Miradi - costs

- 60 day trial: free
- Low income individual: \$30
- Standard individual: \$300
- Miradi share subscription (for customizable reports, support, plus 10 individual licences, for a small organization): \$8,800

# Benefits of Conservation Planning

- Focused
  - We can't do everything: triage is necessary.
  - Resources are limited: invest in the most effective interventions.
- Informed
  - By the best-available science.
- Useful
  - Drive our work.
  - Improves efficiency and effectiveness of our conservation work
  - Help us learn and improve.



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A male lion with a large, golden-brown mane stands in a dry, brushy savanna environment. The lion is facing slightly to the right, looking towards the camera. The background is filled with dry, brownish vegetation and trees. The ground is dry and dusty.

Thanks!

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