

How Much Habitat



is Enough?



Environment
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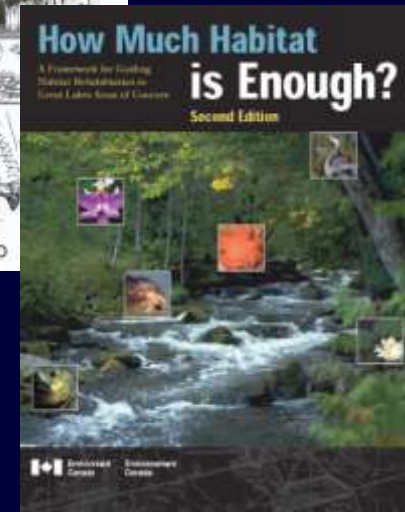
How Much Habitat

is Enough?

Question needs to be answered in well, you can never have practical way for planners and too much habitat. restorationists to best use limited resources

A Framework for Guiding Habitat Rehabilitation in Great Lakes Areas of Concern

- 1st edition 1998, 2nd edition 2004
- 1st ed. Canadian Wildlife Service/Ontario Ministry of the Environment/ Ontario Ministry of Natural Resources
- to help guide restoration in Canadian Great Lakes Areas of Concern (AOCs)



How Much Habitat is Enough?

A Framework for Guiding Habitat Rehabilitation in Great Lakes Areas of Concern - scope

- Effectively and efficiently provide minimum habitat to maintain viable wildlife populations



- 18 general guidelines based on literature review



- 3 major habitat areas – wetland, riparian and forest



How Much Habitat is Enough?

Habitat Framework selected guidelines

Greater than 10% of each major watershed should be in wetland habitat

Greater than 6% of each subwatershed in wetland habitat

Or restore to original percentage

30 m wide naturally vegetation adjacent to streams, greater depending on conditions

75% of stream length should be naturally vegetated

forest patches should be within 2 km of each other or other supporting habitat feature

Less than 10% impervious surfaces in a watershed to maintain stream water quality & quantity, & preserve aquatic species and diversity.

At least 30% of watershed should be in forest cover

Corridor width varies with function, 50-100 m width for species movement

How Much Habitat is Enough?

A Framework for Guiding Habitat Rehabilitation in Great Lakes Areas of Concern - basics

- **Guidelines are non-specific to any landscape or watershed**
- **Guidelines should be adapted for local conditions**
- **Guidelines not carved in stone, just one approach that can be taken**
- **look at landscape context, look beyond your locality**

How Much Habitat is Enough?



Selected Guidelines

How Much Habitat is Enough?

wetlands

% wetlands in watersheds

Greater than 10% of each major watershed should be in wetland habitat

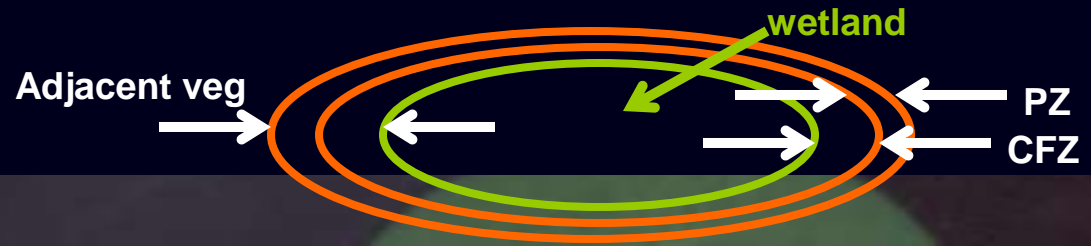
Greater than 6% of each subwatershed in wetland habitat

Or restore to original percentage



How Much Habitat is Enough?

wetlands



Amount of natural vegetation adjacent to a wetland

Critical Function Zone (CFZ) and appropriate Protection Zone (PZ) is primary concern.

Where CFZ and PZ are not derived from site-specific characteristics:

- Bog: total catchment
- Marsh: 100 m
- Fen: 100 m or as def'd by hydrological study, whichever is greater
- Swamp: 100 m

How Much Habitat is Enough?

wetlands

Wetland location

Wetlands are beneficial anywhere in watershed, but key locations are:

- Headwaters for quality of groundwater discharge, cooling and introduction of biomass
- Flood plains for flood attenuation and habitat
- Coastal wetlands for fish production

Special attention to historic locations

How Much Habitat is Enough?

wetlands

A photograph of a pond with large green lily pads and a single white water lily flower in bloom. The background is dark, making the green leaves and white flower stand out.

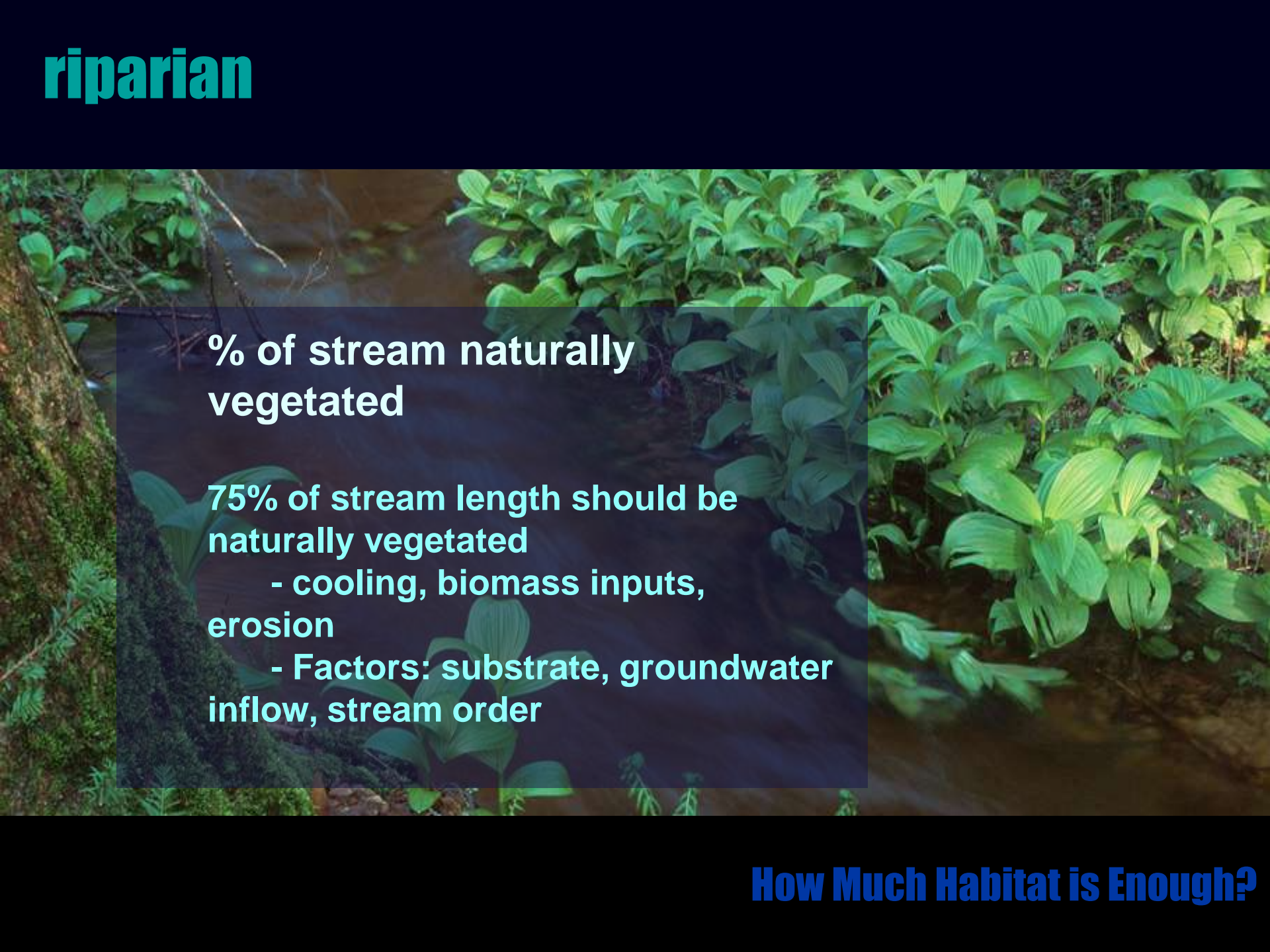
Wetland size

Wetlands of various sizes, types & hydroperiods should be maintained across a landscape

Swamps and marshes of a sufficient size to support habitat heterogeneity

How Much Habitat is Enough?

riparian




% of stream naturally vegetated

75% of stream length should be naturally vegetated

- cooling, biomass inputs, erosion
- Factors: substrate, groundwater inflow, stream order

How Much Habitat is Enough?

riparian

A photograph of a stream with lush green riparian vegetation on the banks. The water is dark and reflects the surrounding greenery. The plants are dense and appear to be a mix of species, including some with large, broad leaves. The stream is bordered by a mossy bank on the left and a dense thicket of plants on the right.

**Amount of natural vegetation
adjacent to streams**

**30 m wide naturally vegetated
adjacent lands, greater depending on
conditions**

How Much Habitat is Enough?

riparian

A photograph of a stream with lush green riparian vegetation on the banks. The water is dark and reflects the surrounding greenery. The plants are dense and vibrant, with large, rounded leaves. The stream flows through a natural, wooded area.

% of urbanizing watershed that is impervious

Less than 10% should maintain stream water quality & quantity, & preserve aquatic species and diversity. Systems are considered degraded above a threshold of 30% impervious surfaces.

How Much Habitat is Enough?

Forest

Forest Cover

At least 30% of watershed should be in forest cover

At 30% forest cover in Southern Ontario at a regional municipality/county scale at least one of all the forest interior bird species that could be expected for that landscape will be represented

This is a MINIMUM threshold

How Much Habitat is Enough?

Forest

Interior Forest

- Greater than 10% forest cover 100 m or further from forest edge
- Greater than 5% forest cover
- 200 m or further from forest edge
- One 200ha patch min. 500 m wide
- Forest patches - circular or square in shape

what's with the birds?

How Much Habitat is Enough?

Forest

landscape context

- Forest patches should be within 2 km of each other or other supporting habitat feature
- 50-100 m corridor width for species movement; width for Breeding habitat species specific
- Watershed forest cover should be representative of full diversity of forest types found at that latitude

- **comprehensive statutory land use planning**
- **watershed planning and management through watershed Conservation Authorities**

How Much Habitat is Enough?

How Much Habitat is Enough?

Area Sensitive Forest Birds in Urban Areas

- science based lit review and use of original data
- 13 main stressors were identified
- Landscape effects considered
- Estimate of surviving forest birds left in large urban centres



GREAT LAKES FACT SHEET

Forest Birds in Urban Areas: Habitat Needs of Area-Sensitive Species

This fact sheet is based on *Area-Sensitive Forest Birds in Urban Areas*, a report of the Canadian Wildlife Service – Ontario (2006).



Song Sparrow
© Peter H. Rebertus

Catching a glimpse of a Screech Tanager or hearing the resonating rap of a Pileated Woodpecker are increasingly rare experiences in urbanising areas of southern Ontario. In the Greater Toronto Area (GTA), there are typically only 14 area-sensitive forest bird species breeding, compared to more than 40 potential breeding species. A continued loss of forest cover and the fragmentation of remaining forests have diminished the amount and quality of breeding habitat for area-sensitive forest bird species. The impact on these birds is most profound in extensive urban areas where urban stresses and a lack of suitable forest habitat greatly limit species diversity and population viability.

Area-Sensitive Forest Birds: species requiring a relatively large forest patch within which to reproduce successfully. Many of Ontario's forest birds, including many migrant, molting and songbirds, are fully or somewhat area-sensitive, being drawn to large forest patches to fulfill breeding needs and seek protection from nest parasites and other disturbances.

Urban environments are generally not suitable for use by area-sensitive forest birds as breeding habitat. The most effective conservation approach would be to address urbanising watersheds before urbanisation occurs, by identifying and protecting existing forest cover well above a minimum 50 percent cover threshold. This approach does not preclude forest restoration in urban areas. Urban forests provide many vital ecological services, including the provision of habitat for other bird and wildlife species, as well as providing services to humans. There are forest restoration actions that can be taken in both the regulatory and resident populations of forest birds that will also greatly enhance other vital ecological services such as improving air and water quality and streamflow based on riparian services.

Irreversible land-use changes due to urbanization may require that users in urbanised areas gain for providing ecological services in urban areas. The delay of loss or diminished services, such as viable breeding habitat for area-sensitive forest birds, genetic, species and community diversity, pollination, and carbon sequestration should be acknowledged by retaining and enhancing those services elsewhere in the non-urbanised parts of a watershed.



American Crows © Walter L. Schirer

How Much Habitat is Enough?

13 major urban stressors

- * •Disruption of ecosystem processes
- * •Urban-sponsored native predators
- * •Noise
- ** •Barriers to connectivity
- * •Direct disturbance
- * •Habitat alteration
- * •Nest parasitism
- ** •Urban sponsored non-native predators
- ? •Psychological and social behaviour
- ? •Food supply changes
- ? •Light
- ? •Removal of top predators
- ? •contaminants



How Much Habitat is Enough?

Restoring and Enhancing Urban Forests

- Increase vegetation layers
- Maintain native vegetation and deadwood
- Provide adequate critical function zones
- Provide adequate protection zones
- Human intrusions may not be compatible with interior conditions
- Make urban matrix more like forest fragments
- Discourage open lawns
- Habitat fragmentation may not support all target species

How Much Habitat is Enough?

- **Total forest cover most important for forest birds**

- **Interior forest gains importance with lower forest cover**

- **Corridors not as critical for area-sensitive forest birds**

- **So how are area-sensitive forest birds doing in large urban areas?**



Only 14 of an estimated potential 43 area-sensitive forest birds still occur in Toronto

How Much Habitat is Enough?



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Graham Bryan
Canadian Wildlife Service - Ontario
416 739-4918
Graham.Bryan@ec.gc.ca
www.on.ec.gc.ca/wildlife



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