Assessing wildlife populations for the Toronto Region Area of Concern

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Lake Ontario Evenings
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The Living City Foundation

Toronto and Region Conservation for The Living City

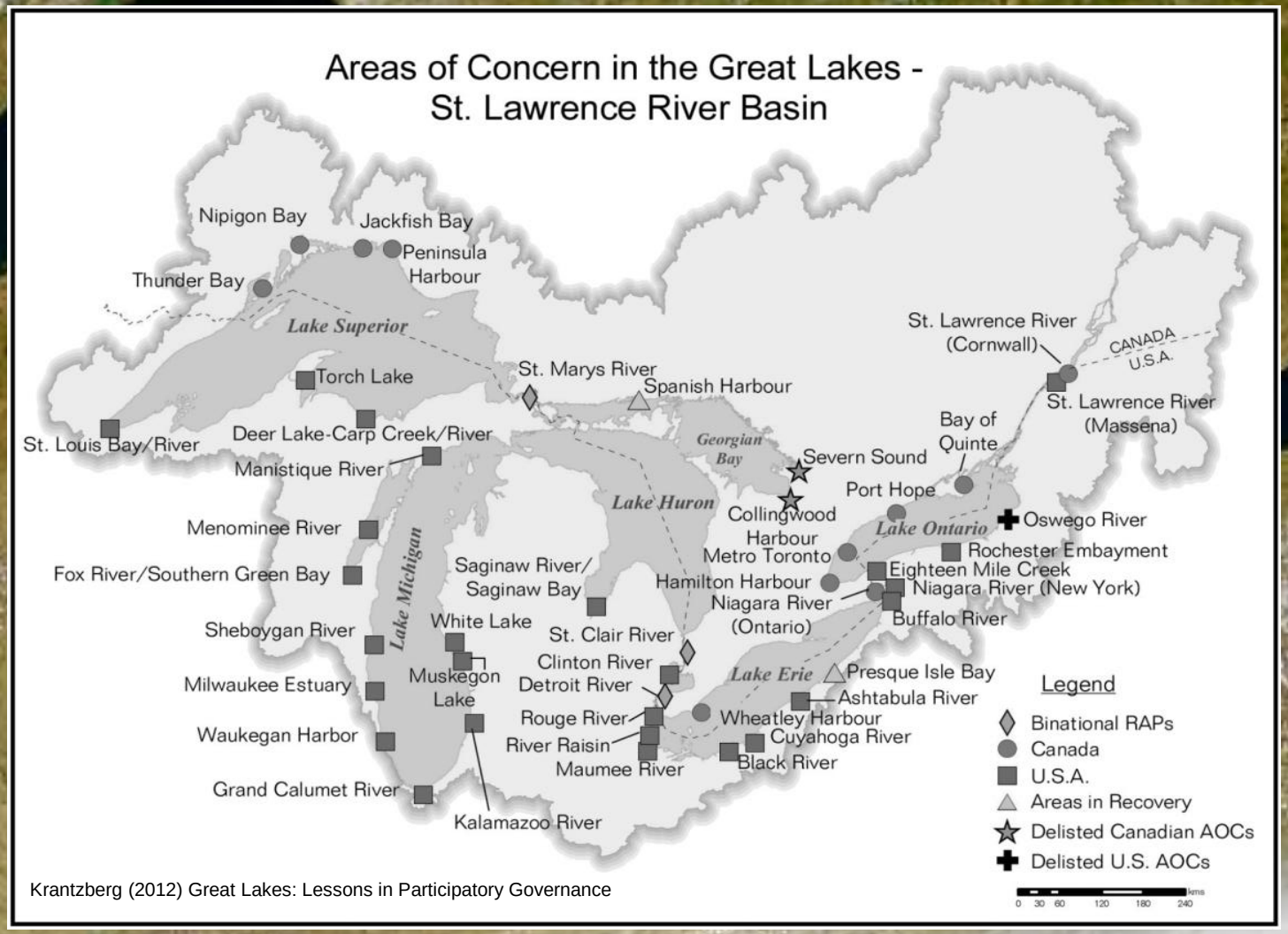
Member of Conservation Ontario

Image: NASA

Image: NASA

Image: NASA

Great Lakes Water Quality Agreement (1972)

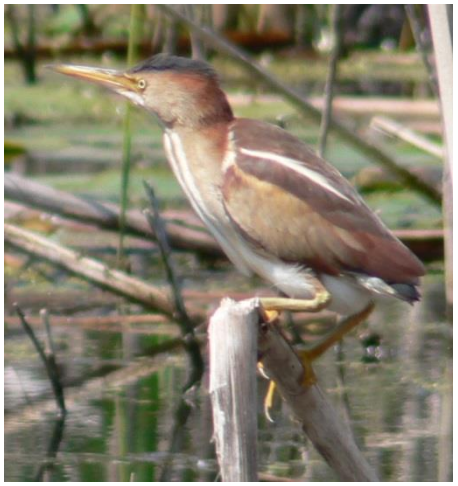


Krantzberg (2012) Great Lakes: Lessons in Participatory Governance

Image: NASA

Wildlife Populations

- Degradation of fish and wildlife populations
- Objective
  - Assess wildlife populations towards a re-designation of the Toronto Region AOC
- Literature search/review methods used by other AOCs



Least bittern

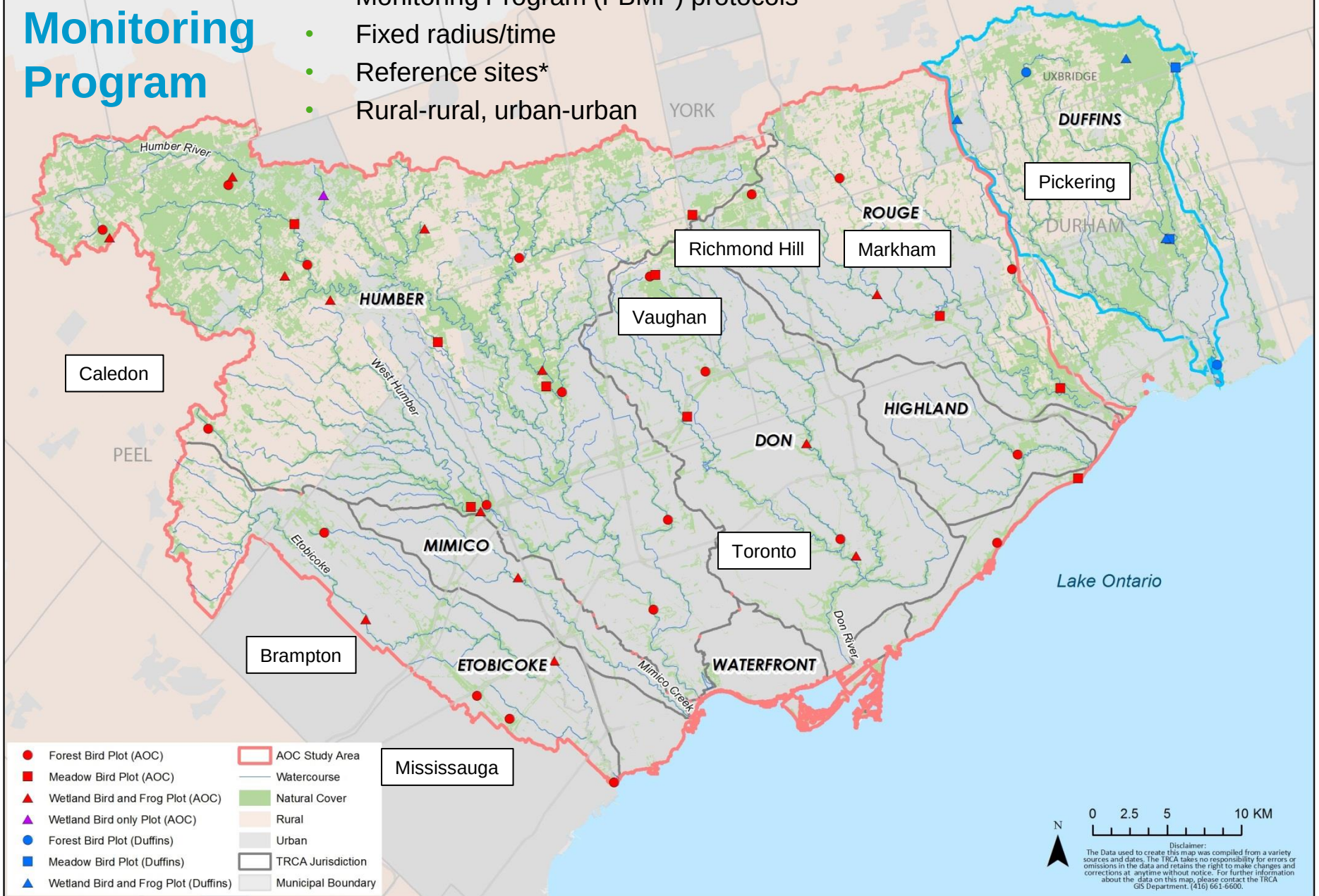
Bobolink

Ovenbird

Spring peeper

Terrestrial Long-term Monitoring Program

- Started in 2008
- Marsh Monitoring Program (MMP) and Forest Bird Monitoring Program (FBMP) protocols
- Fixed radius/time
- Reference sites*
- Rural-rural, urban-urban



What to compare?

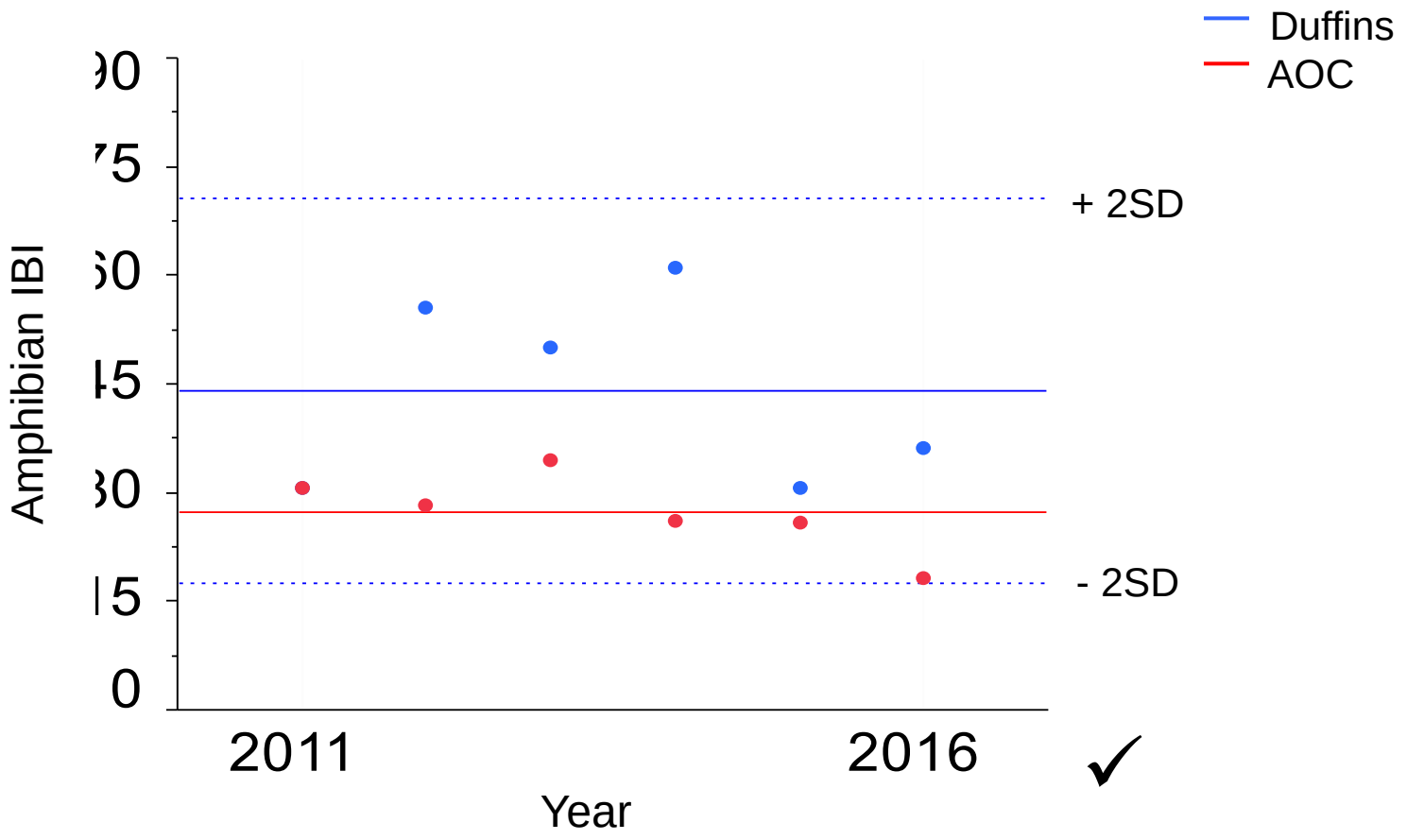
- Species of conservation concern (SOCC)
  - Species found in the Toronto region that are sensitive to disturbance, limited ranges, declining populations locally and/or nationally

- Habitat-dependent species
  - Species dependent on a specific habitat type for nesting (e.g. forest-dependent, meadow-dependent)

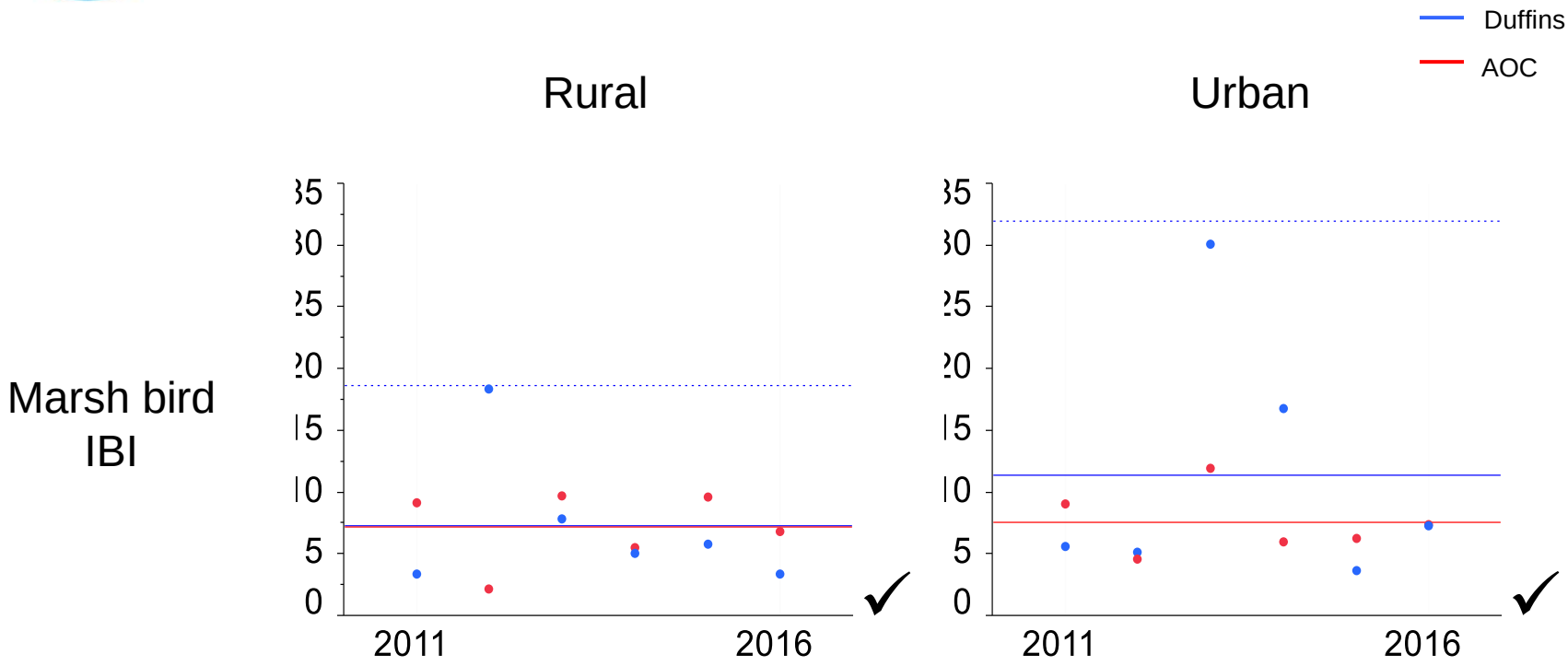
What to compare?

- Index of biotic integrity (IBI)
  - Marsh bird IBI
  - Amphibian IBI
  - Range 0-100
- Developed by the Marsh Monitoring Program
  - Citizen-science
  - Contribute data through the LTMP

How to compare?



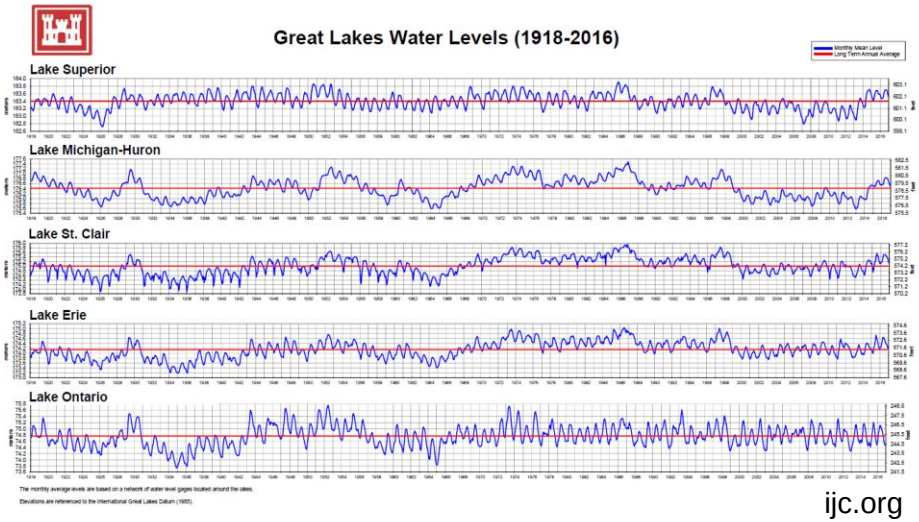
Marsh birds



- Marsh bird communities within normal range of variability of Duffins

Marsh birds

- Within normal range but continue to be affected by numerous stressors
  - Urbanization throughout Great Lakes
  - Infilling, point source and non-point source pollution, water levels (regulation/climate) and invasive species (direct and indirect)

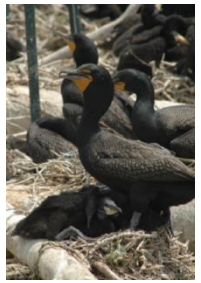


ijc.org

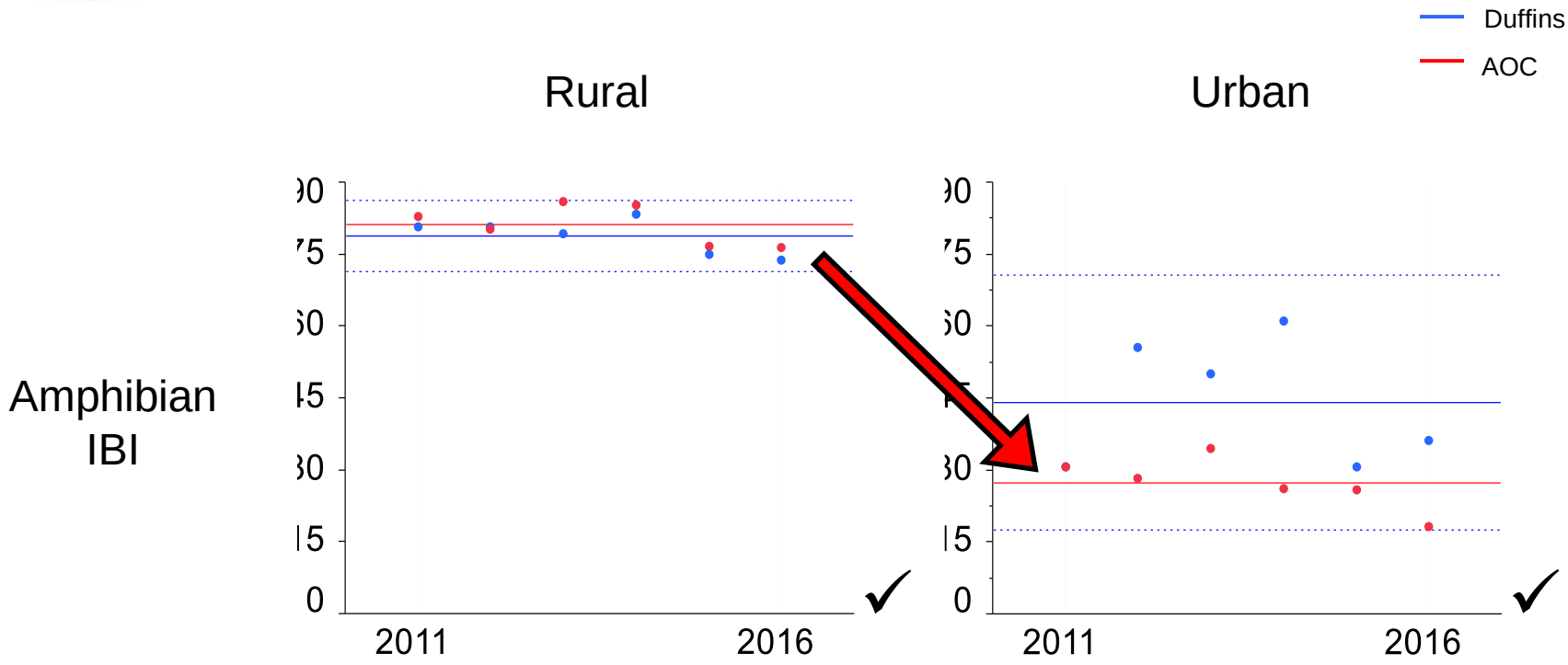
Lougheed et al. (2001) Can J Fish Aquat Sci

Restoration success for colonial waterbirds

- Thommy Thompson Park (IBA)
- Park supports 7 colonial waterbird species
- Management efforts continue but several populations remain affected by mammalian and avian predators



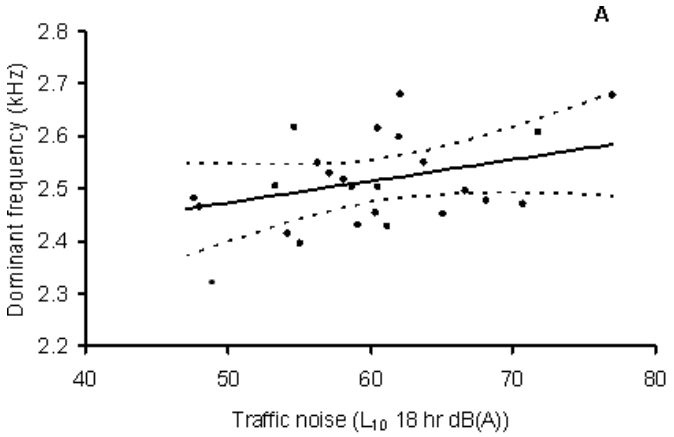
Amphibians



- Amphibian communities within normal range of variability of Duffins
- Strong urban-rural difference for the AOC

Amphibians

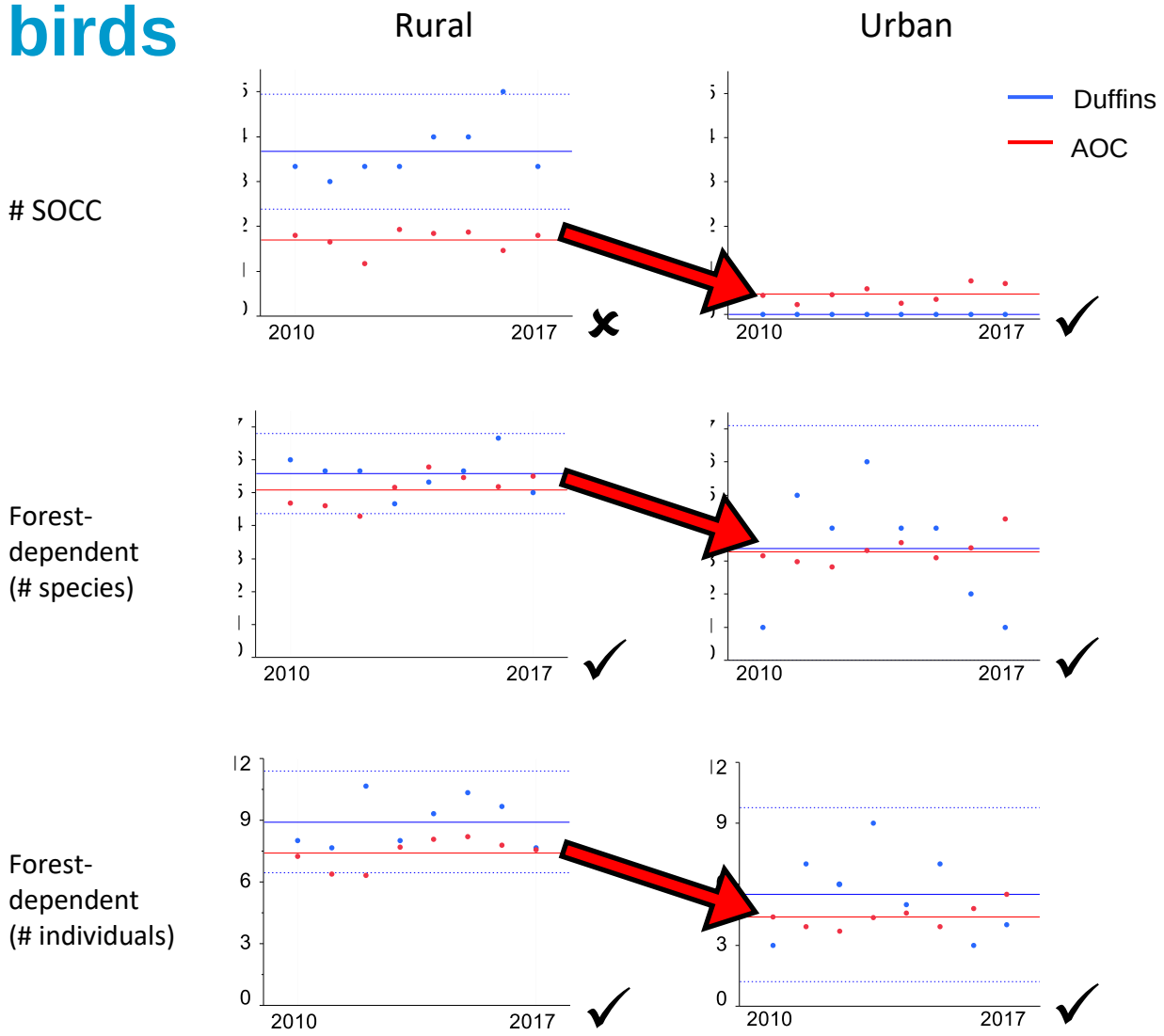
- Within normal range but strongly impacted by urbanization
  - Increased road density (dispersal/mortality), lack of important adjacent habitat, urban noise



Knutson et al. (1999) Cons Bio; Lengagne (2008) Biol Cons; Bouchard et al. (2009) Ecol & Soc; Parris et al. (2009) Ecol & Soc

Forest birds

- Forest bird communities within normal range of variability of Duffins
- Urban-rural difference for the AOC



Forest birds

- Within normal range for all except # SOCC in the rural zone
  - Differences in patch size (species-area relationship)?
- Impacted by urbanization
  - Direct loss of habitat, fragmentation, altered predator communities and urban noise

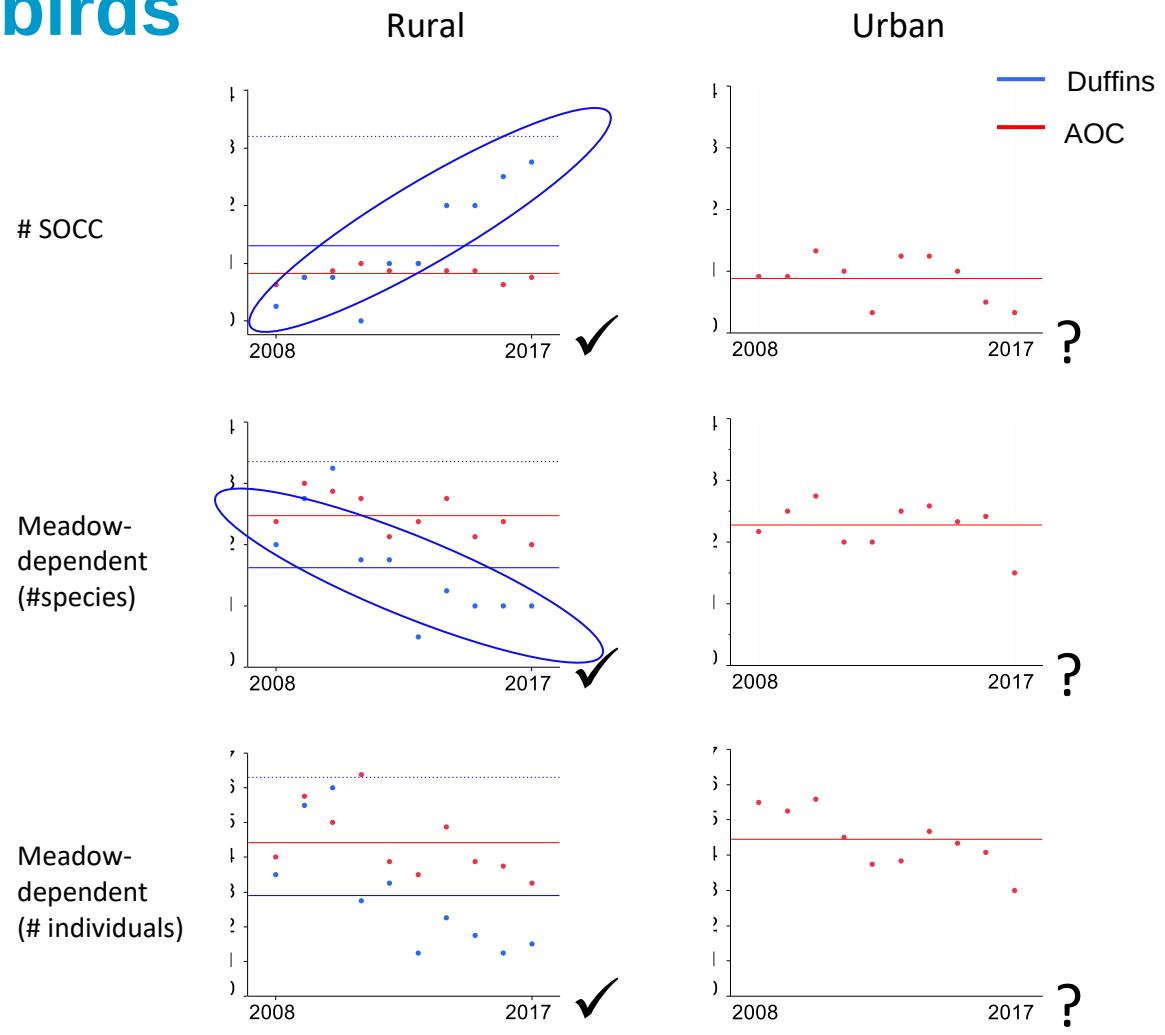
Reijnen et al. (1995) J App Ecol; Haskell et al. (2001) Avian Ecology and Conservation in an Urbanizing World

An example: direct habitat loss

- Potential extirpation of ovenbirds from a forest partially converted to residential development
- Natural cover removed including a portion of forest connecting two larger forests
- Several individuals consistently detected from 2008-2011 and none detected by 2016 and 2017
  - Development occurred between 2010 and 2012
- Large forest tracts integral for area-sensitive species

Meadow birds

- Meadow bird communities in the rural zone within normal range of variability of Duffins
- No meadow bird monitoring sites in the urban zone of Duffins

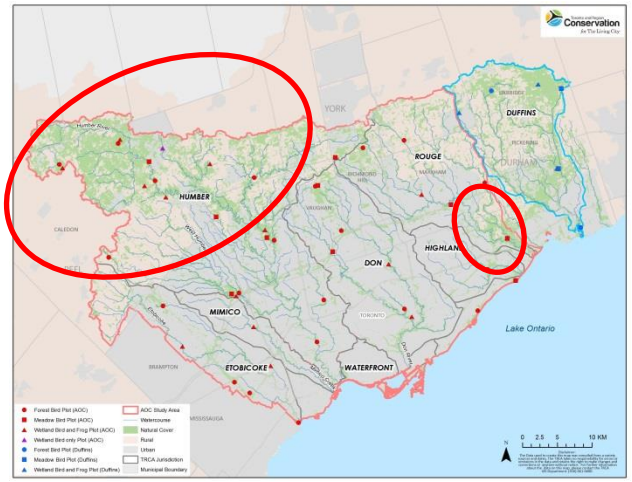


Meadow birds

- Within normal range in the rural zone
- Declines in meadow-dependent # individuals
- Increases in # SOCC showed a transition from meadow SOCC to later successional SOCC
- Meadows changing naturally or through restoration plantings to later successional community types?

Conclusions

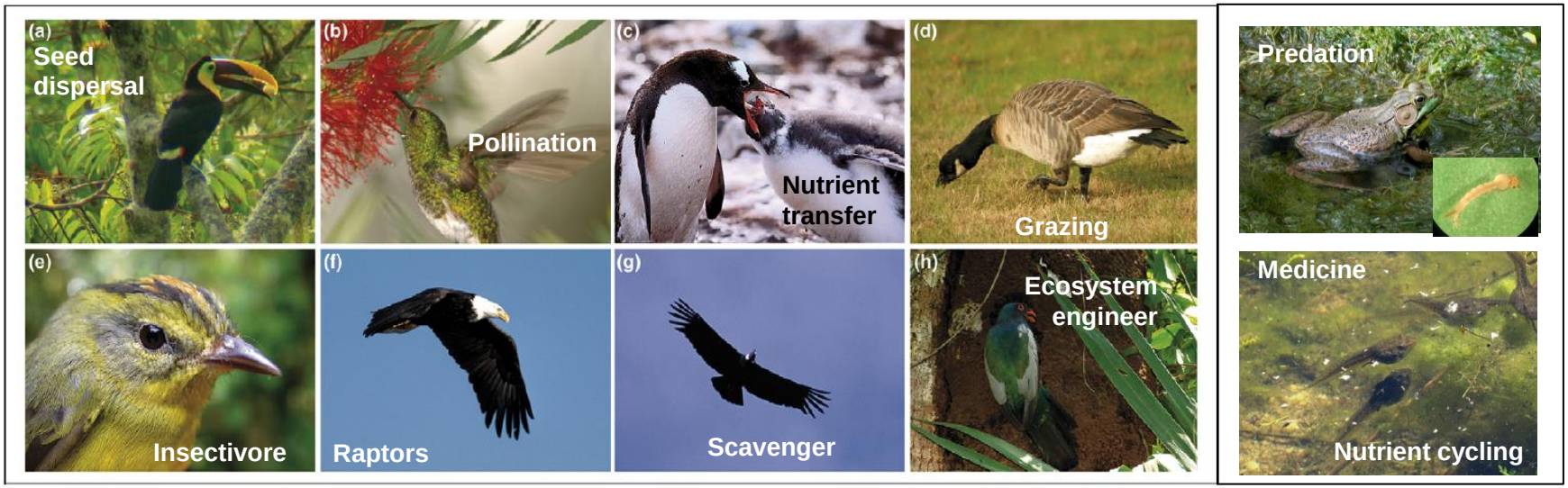
- Wildlife populations within the AOC are generally within the normal range of variability expected from a reference watershed*
  - AOC often lower than Duffins
  - Urban impacts
  - Declines in meadow birds



- Lots to do…
  - Upper reaches of Humber and lower Rouge
  - Improve urban fragment quality
  - Strategy for meadow birds
  - Improve policy and protection of natural heritage and connectivity (especially for rural fragments; development, assisted migration/climate change-related migration)
  - Mitigation measures for landscape changes

Where do we go from here?

- Use this knowledge to inform the RAP, planning, research needs
- Remember the value of species (intrinsic/utilitarian)
  - Spiritual, cultural, recreation, functions not yet discovered



Sekercioglu (2006) TREE

- Decisions as citizens
  - Volunteer, stay on trails, dogs on leash, cats indoors, rally as a community, FLAP, public comments on policy changes, SAR, vote, donate land to NCC

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- Great Lakes Sustainability Fund
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