



# TEST BEDDING THE SINGAPORE CITIES' BIODIVERSITY INDEX

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Grant Pearsell  
Office of Natural Areas, Parks  
City of Edmonton  
Alberta, Canada  
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# 1. Natural/Semi-Natural Areas

- Why semi-natural areas – not part of the indicator
- Why is the threshold for IND1 (14%) set higher than IND10 (5%) for 4 points
- Edmonton's inventory mapped at 1 ha and larger.
  - Smaller than 1 ha is not considered sustainable in urban areas



## 2. Diversity of Ecosystems

- Need some definitions for this indicator.
- Perhaps a master list for all ecoregions?



## 3. Fragmentation

- It would be very difficult to achieve a score above 0 in Edmonton.
- The measure is difficult but the one proposed seems a reasonable first attempt; the thresholds do not seem to be realistic.



## 4. Native Biodiversity in the Built-up Area

- Unsure what this means
- Is this the “concrete” part of the city? Usually, the highest density part?



## 5, 6, 7, 8, 9 Number of Native Species

- What should the goal be for this indicator?
- Should we pick species that can form a sort of early warning system of change in ecosystem health?



## 10. Percentage of Protected Areas

- The definition should allow a differentiation for cities with national or state/provincial parks within their boundaries – a principle of equity.



# 11. Proportion of Native Species

- Is this for all plants?
- We should have an operational definition for all to use.

## 12. Freshwater Services

- Albertan municipalities cannot own land outside of their boundaries.
- Calgary and Edmonton get their water from rivers with glacial sources in the Rocky Mountains in National Parks and the glaciers are melting.
- Should we consider wetlands within the cities watersheds?

# 13. Carbon Storage

- Is this indicator appropriate? In Canada, we wanted to count our forests in the carbon balance but understand that this is not considered appropriate.
- We need some more information to understand this aspect.
- Are we comparing apples to apples? For example, Edmonton has well over 1,000,000 trees but they are small diameter (aspen) and live to about 80 years.

## 14-16. Recreational and Educational Services

- IND14: (# of visits/person/year) is extremely difficult and costly to obtain.
- IND15: (area of accessible area/person) – seems to be an error. Even if all of Edmonton was a park we would score zero.
- IND16: (# of educational visits/year) – It seems that collecting information on this indicator would be unlikely; however, we are designing new neighbourhoods, wherever possible, to include a natural area adjacent to school grounds.



## 17. Budget Allocated to Biodiversity Projects

- Some more definition would benefit this indicator.
- How do we handle integration of services

## 18. Number of Biodiversity Projects & Programs Organized by the City

- Clarifying the scale of project vs program might help to focus this indicator.
- What is the intent of this indicator. Some projects directly enhance or protect biodiversity but may not be considered biodiversity projects (e.g., constructed wetlands designed to clean water before it gets to the river).



# 19. Rules, Regulation, Policy

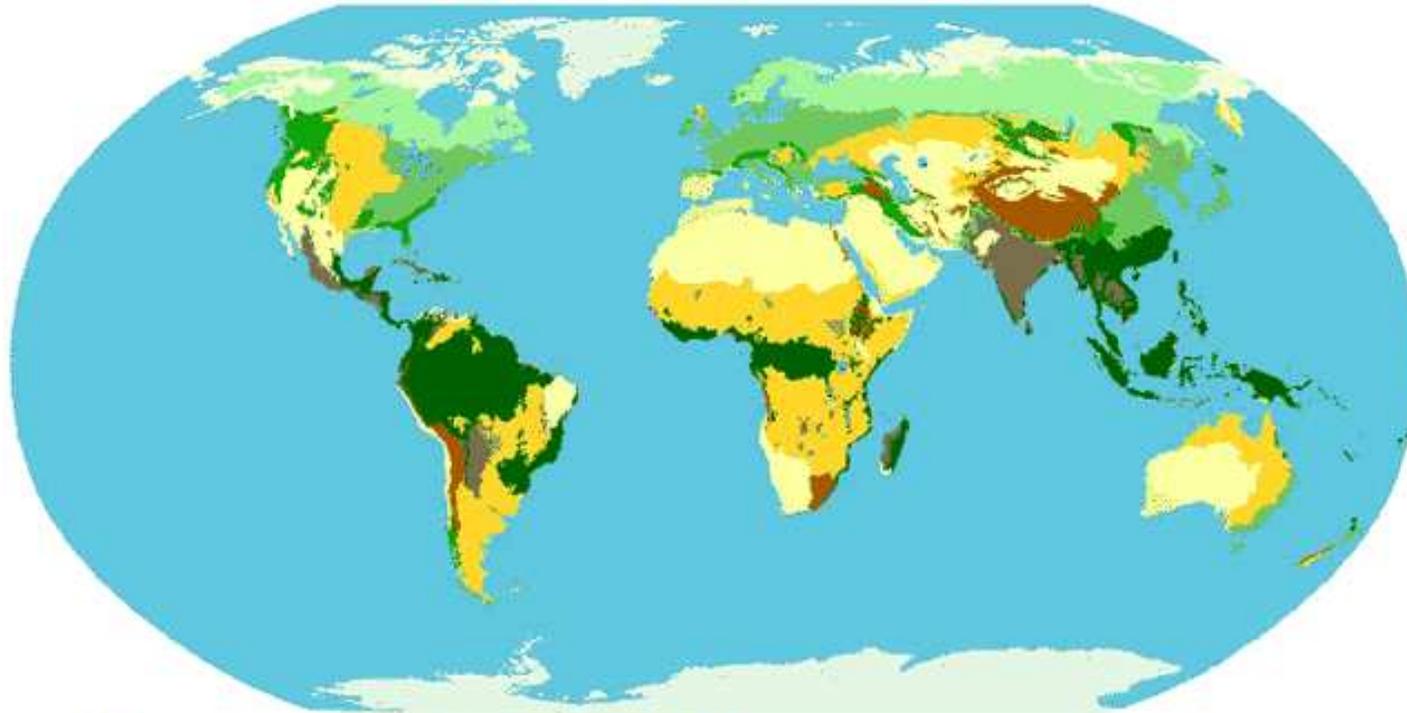
- Canada's constitution does not facilitate this goal.
- Cities are creatures of the Provinces
- Any advice?



## 21. Number of Agencies Involved in Inter-Agency Coordination

- Unsure what this indicator means
- Does it mean institutions cooperate or have formally aligned their goals?
- Is this different that partnerships addressed in IND. 23?

# Ecoregions of the World





# General Thoughts

- Should we use an ecoregion model to refine the index? Different ecoregions have different levels of biodiversity. For example, Edmonton's natural biodiversity is much lower than Singapore's?
- We should state the purpose of the index. Is it to compare cities generally? Is it to monitor change over time? Which cities are missing that should be recruited?
- How are we going to engage the non-technical people – council & citizens?
- What are the next steps?