Indicators

biodiversity

The following indicators were derived from the Research Roundtable Workshop discussions and previous indicator research undertaken by the Design Centre for Sustainability and its partner research groups.*

The proposed Biodiversity Indicators are:

Habitat Diversity

Habitat Distribution

Green/Blue Matrix

Natural Shoreline & Riparian Connectivity

Habitat Diversity

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INDICATOR

Habitat Diversity reveals the number of different habitat types protected throughout the region. A diversity of habitat types protects biodiversity and ensures resiliency for climate change. When determining what types of habitat to protect, it is important to consider rare, representative, and connecting habitats, indicator ecosystems, climate change implications, and cultural landscapes. It is also important to consider a range of scales, from protecting healthy soils to large habitat reservoirs.

DESIGN METRICS

- % habitat area protected per habitat type
- % habitat area protected over 10 ha per habitat type
- # of native species present in each habitat patch
- % habitat area restored

ASSOCIATED STRATEGIES & ACTIONS

- Promote invasive species removal
- Promote stewardship by property owners
- Promote farming techniques that increase biodiversity
- Limit soil removal
- Limit tree removal, particularly mature trees
- Allow natural disturbance to occur
- Promote planting of locally appropriate and native plant species
- Increase information base about regional biodiversity at more detailed scales
- Conduct inventories of environmentally sensitive areas
- Monitor the status of biodiversity in the region
- Select keystone species to indicate habitat types
- Limit use of fertilizers and pesticides
- Use rooftops for habitat creation
- Recognize the role of cultural landscapes & ethnobotanical diversity
- Recover native flora and fauna
- Encourage plantings that help keystone species
- Promote measures for no net loss of habitat

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Habitat Distribution

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INDICATOR

Habitat Distribution reveals the distribution, proximity, and connectivity of habitat areas throughout the region. The protection of large habitat areas, or reservoirs, is particularly important for biodiversity in the region. Connectivity between these reservoirs results in greater potential genetic diversity and species adaptation. Proximity of residents with natural areas creates opportunities for people to connect to nature, produces measured psychological benefits, and fosters a sense of stewardship.

DESIGN METRICS

- # habitat reservoirs per municipality
- % reservoirs that are protected
- % total area of landscape remaining as habitat reservoirs
- % residents within 1 km of a 10 ha habitat patch supporting keystone species
- % residents within 500m of a green space
- % habitat patches connected to other patches or reservoirs with a viable greenway
- # greenway intersections

ASSOCIATED STRATEGIES & ACTIONS

- Allow natural disturbance to occur
- Limit recreation in sensitive habitats
- Reduce degradation of habitat areas
- Protect threatened and endangered species
- Conduct inventories of environmentally sensitive areas
- Monitor the status of biodiversity in the region
- Increase direct contact with nature
- Increase awareness of the role natural systems perform in the region
- Reduce planting of invasive species in home gardens
- Promote planting of locally appropriate and native plant species
- Connect backyards and habitat areas
- Recognize the role of cultural landscapes and ethnobotanical diversity
- Incorporate biodiversity conservation priorities into plans and policies
- Use tax incentives for private land protection
- Consider biodiversity connectivity when planning mobility and water infrastructure.

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Green / Blue Matrix

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INDICATOR

Green/Blue Matrix [The name is unclear] reveals the potential for the protection, restoration, and integration of natural functions and systems. Protecting, restoring, or creating natural areas, including a diverse tree canopy mosaic, helps to maintain and enhance biodiversity and serves several ecological functions, such as regulating climate, filtering water & air, pollinating plants, and decomposing waste.

DESIGN METRICS

- % protected habitat area in the region
- % of park area protected for conservation purposes
- % impervious surface
- Linear kilometers of road per square kilometer
- % tree canopy coverage in all urban areas

ASSOCIATED STRATEGIES & ACTIONS

- Promote "Naturescape" program within the community
- Promote stewardship of streams and other important habitat areas
- Promote invasive species removal
- Promote stewardship by property owners
- Promote farming techniques that increase biodiversity
- Limit soil removal
- Promote planting of locally appropriate and native plant species
- Protect threatened and endangered species
- Conduct inventories of environmentally sensitive areas
- Incorporate biodiversity conservation priorities into plans and policies
- Use tax incentives for private land protection
- Limit use of fertilizers and pesticides
- Use rooftops for habitat creation
- Recognize the role of cultural landscapes & ethnobotanical diversity
- Recover native flora and fauna

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Natural Shoreline & Riparian Connectivity

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INDICATOR

Natural Shoreline & Riparian Connectivity reveals the potential for shoreline and riparian environments in the region to provide habitat and adapt to climate change. Natural shorelines mitigate the effects of sea level rise by allowing areas to flood during storms or flood events. Shorelines in the region have high biodiversity potential by providing critical habitat for a number of species.

DESIGN METRICS

- % natural shorelines with buffers
- % open stream channels
- % residents within 500m of shorelines or riparian areas

ASSOCIATED STRATEGIES & ACTIONS

- Promote stewardship of streams and other important habitat areas
- Promote invasive species removal
- Reduce degradation of habitat areas
- Protect threatened and endangered species
- Connect biodiversity network with other functions, including mobility and water
- Promote soft edges along waterways to encourage riparian habitat
- Promote shoreline clean-up

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