Biodiversity in BC: Why Should We Care?

October 7, 2008
Who is Biodiversity BC?

- Ducks Unlimited Canada
- Environment Canada (Canadian Wildlife Service)
- Government of British Columbia (Ministry of Environment, Ministry of Agriculture and Lands)
- Habitat Conservation Trust Foundation
- The Land Conservancy of British Columbia
- Nature Conservancy Canada
- The Nature Trust of British Columbia
- Pacific Salmon Foundation
- Public Land ENGOs (represented by Canadian Parks and Wilderness Society)
- Union of British Columbia Municipalities (represented by Metro Vancouver)
What is Biodiversity?

...all living things and the elements and processes that sustain them...
Benefits of Biodiversity

Natural Capital

ECOSYSTEM OUTPUTS & BENEFITS

Goods:
- wood and fibers
- food
- fuel
- genetic resources
- pharmaceuticals
- drinking water
- minerals

Services:
- climate regulation
- water purification
- waste treatment
- erosion control
- pest and disease control
- pollination
- soil formation
- photosynthesis
Vision

British Columbia is a spectacular place with healthy, natural and diverse ecosystems that sustain and enrich the lives of all.
Goals

1. **Conserve the Elements of Biodiversity**

To maintain the diversity of genes, species and ecosystems, prevent elements of biodiversity from becoming at risk and contribute to global efforts for biodiversity conservation.
2. Increase Awareness of the Importance of Biodiversity and Respect for the Natural Environment

To increase awareness and understanding about the importance and value of biodiversity and encourage British Columbians to take action on conserving biodiversity.
3. Provide Tools and Incentives to Enable Biodiversity Conservation

To provide tools and incentives to enable governments (including First Nations), industry, conservation organizations and citizens to improve conservation of British Columbia’s biodiversity.
Status Report

Taking Nature’s Pulse: The Status of Biodiversity in British Columbia

“As a state of biodiversity report it is as good as any I have seen around the world.”
Dr. Hugh Possingham, University of Queensland
B.C.’s biodiversity is globally significant because of its variety and integrity, but without immediate action it is vulnerable to rapid deterioration, especially in light of climate change.
Some Major Findings –
Ecosystem Diversity

- 4 of 16 BEC zones of conservation concern
- 50% plus of 611 ecological communities of conservation concern
- Significant areas of wetlands converted or degraded
- Low elevation grassland communities are the rarest land cover type in B.C.
Some Major Findings – Species Diversity

- 43% of species assessed are of conservation concern
- B.C. has a majority of the global range for 99 species
Some Major Findings – Genetic Diversity

- B.C. has high levels of genetic diversity within species which are critical for adaptation and resilience
Key and Special Elements

Definition of **Key Element**:  
- Pieces of the biodiversity puzzle that are essential and/or have a disproportionate influence on ecosystem function.

Definition of **Special Element**:  
- Elements of biodiversity that are uncommon and often globally significant.
# Key Elements

<table>
<thead>
<tr>
<th>Realm</th>
<th>Key Element</th>
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</thead>
<tbody>
<tr>
<td><strong>Cross-realm</strong></td>
<td>Connectivity (F, S)</td>
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<tr>
<td></td>
<td>Riparian Areas (C)</td>
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<tr>
<td><strong>Terrestrial</strong></td>
<td>Decomposition and nutrient cycling (F)</td>
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<td>Pollination (F)</td>
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<td>Large mammal predator prey dynamics (F)</td>
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<td>Succession/Disturbance (F)</td>
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<td>Southern red-backed voles (C)</td>
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<td>Wildlife trees (S)</td>
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<td>Broadleaf trees (C)</td>
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<td>Soil (S)</td>
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<td>Coarse woody debris (CWD) (S)</td>
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<tr>
<td>Realm</td>
<td>Key Element</td>
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<td>Freshwater</td>
<td>Wetlands (C)</td>
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<td>Sphagnum (C)</td>
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<td>Lake-level patterns (F)</td>
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<td>Headwater streams (F)</td>
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<td>Groundwater (F)</td>
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<td>Anadromous salmonids and nutrient cycling (C)</td>
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<td>Willows (C)</td>
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<td>Beavers (C)</td>
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<td>Waterfowl herbivory of aquatic plants (F)</td>
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<td>Macroalgae (C)</td>
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<td>California Mussels (C)</td>
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<td>Sea otters (C)</td>
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<td>Crustaceans (C)</td>
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<td>Seagrass meadows (S)</td>
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<td>Upland sediments and large woody debris in the intertidal (S)</td>
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<td>Estuaries (C, F)</td>
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</tbody>
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Key Elements

For each of the Key Elements, we asked:

- What is it?
- Why is it important?
- What do we know about the status/threats?
- What are the data gaps?
## Special Elements

<table>
<thead>
<tr>
<th>Realm</th>
<th>Special Element</th>
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<tbody>
<tr>
<td>Seasonal Concentrations of Species</td>
<td>Important bird areas</td>
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<td>Steller sea lion rookeries/haulouts</td>
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<td>Major salmon spawning sites</td>
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<td>Special Communities</td>
<td>Old-growth temperate rainforests</td>
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<td>Intact large mammal predator-prey systems</td>
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<td>Large wetlands (freshwater)</td>
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<td>Special Features</td>
<td>Karst</td>
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<td>Hot springs</td>
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<td>Glacially influenced watersheds</td>
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<td>Serpentine soils</td>
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<td>Saline lakes</td>
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<td>Fishless lakes</td>
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<td>Microbialites</td>
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</tbody>
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Special Elements

For each of the Special Elements, we asked:

- What is it?
- Why is it important?
- What do we know about the status/threats?
- What are the data gaps?
Some Major Findings – Key and Special Elements

- Water flow in lakes, wetlands and groundwater systems is being seriously affected.
- The majority of B.C. has relatively intact predator-prey systems.
- B.C. has significant seasonal concentrations of species vulnerable to human impact.
Threats: IUCN Direct Threats

Human Activities:

- Climate Change
- Agriculture
- Urban & Rural Development
- Forestry
- Transportation & Utility Corridors
- Oil and Gas Development
- Water Development
- Grazing
- Industrial Operations
- Mining
- Aquaculture
- Recreation
Threats: IUCN Stresses

- Ecosystem Conversion
- Ecosystem Degradation
- Alien Species
- Environmental Contamination
- Species Disturbance
- Species Mortality
Threats: Impacts on Biodiversity

- Loss of Genetic Diversity
- Population Decline
- Species Extirpation/Extinction
- Impaired Ecosystem Function
- Habitat Fragmentation
- Loss of Connectivity
Potential shift in BEC Zones by 2085 due to climate change
Some Major Findings – Threats to Biodiversity

- Climate change is the foremost threat to biodiversity
- Ecosystem conversion and degradation have seriously impacted biodiversity
- Alien species are seriously impacting biodiversity
- Ecosystem connectivity is being lost and will limit species distribution
Why should I care?

- Our wellbeing depends on the health of our ecosystems
- Increasing loss of biodiversity
- Climate change will intensify biodiversity loss
- Healthy ecosystems will moderate the impacts of climate change
- Ensure a legacy for our children’s, children’s children
What can I do?

- Stay informed
- Promote scientific research
- Reduce your ecological footprint
- Be a “green” consumer
- Demand political leadership
- Get involved in local stewardship projects
- Plug into social networks (community groups, church groups, conservation organizations, web blogs, etc.)
- Enjoy nature…
Accessing BBC Information

Website www.biodiversitybc.org
  • Science Foundation Reports

BBC Secretariat info@biodiversitybc.org
  • DVD’s available soon

Hectares BC – www.hectaresbc.org