


Valuing Ecosystem Goods and Services


Pew Workshop
March 16, 2009



Purpose of Presentation

- ◆ Discuss benefits of maintaining healthy ecosystems
 - ◆ Valuing ecological goods and services
 - ◆ Reduce costs of climate change impacts on ecosystem goods and services
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- A stylized silhouette of a mountain range in shades of teal, located at the bottom right of the slide.

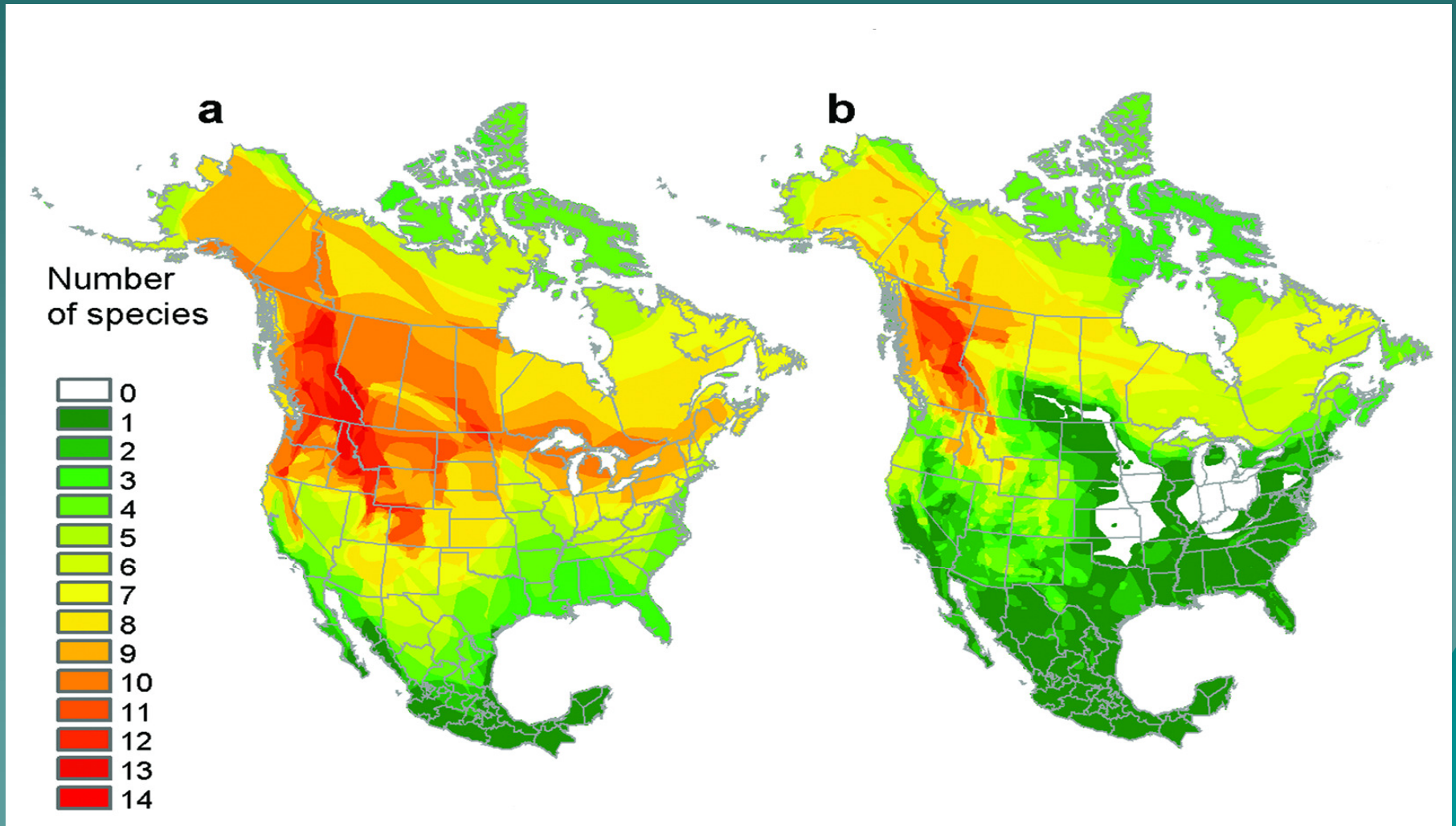
Climate Adaptation

- ◆ ACT – Adaptation to Climate Change Team
 - ◆ SFU Institute of Research into Public Policy
 - ◆ Five year program covering a wide range of policy issues
 - ◆ Mitigation needs to be supplemented by policies in adaptation
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Biodiversity and Climate change in British Columbia

- ◆ British Columbia has the richest biodiversity in Canada:
 - ◆ 76% birds
 - ◆ 70% freshwater species
 - ◆ 66% butterflies
 - ◆ 60% conifers
 - ◆ 56% ferns
- ◆ BC represents last refugia for many large mammals in North America

Biodiversity Refugia



Climate Shifts Southern BC

2020

Temperature

0 to 2C winter
0.5 to 2C summer

2080

Temperature

2 to 7C Winter
2.5 to 7.5 summer

2020

Precipitation %change

-5 to +15 winter
-30 to +5 summer

2080

Precipitation %change

0 to +25 winter
-50 to 0 summer

Biodiversity Shifts


- ◆ 1 degree C = shift of 300 meters elevation
- ◆ 1 degree C = shift of 150 Km north
- ◆ Temperature increase over next 50 years = 2-5 Degrees C
- ◆ Shift rate = 40 km per decade
- ◆ Species adaptation rate = 6 km per decade

Ecological Goods and Services

◆ Provisioning services

- ◆ Food
- ◆ Fibre
- ◆ Fresh water
- ◆ Genetic resources

◆ Regulating services

- ◆ Carbon sequestration
 - ◆ Water cleansing
 - ◆ Flood control
 - ◆ Drought protection
 - ◆ Temperature moderation
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Valuating Goods and Services

◆ Northern boreal forest

◆ Market value of forests	\$15 billion
◆ Non-market value	\$150 billion
◆ Wetlands and peatlands	\$ 80 billion
◆ Water resources-hydro	\$20 billion

◆ Mountain pine beetle impacts


◆ Loss of timber revenue	\$ 580 million
◆ Loss of labour income	\$ 98 million

Avoidance Strategies

- ◆ Maintain ecosystem functionality
 - ◆ Resilience to climate shifts
 - ◆ Sustain ecosystem goods and services
- ◆ Ecosystem based management
 - ◆ Design with nature
 - ◆ Whole systems approach
 - ◆ Business based valuation
 - ◆ Cost sharing –private and government
- ◆ Cost avoidance
 - ◆ Reduce costs of replacing services

Policy Recommendation

Economic

- ◆ Value ecological goods and services
 - ◆ Apply carbon budgets to ecosystem management
 - ◆ Economic assessment of climate change on regional economies
 - ◆ Align budgets across governments, business and conservation foundations to support ecosystem resiliency
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Summary

- ◆ In a healthy society, economy follows ecology and education precedes them both