

# **Caring For Saskatchewan's Natural Environments: Developing a Saskatchewan Biodiversity Action Plan**





## The Action Plan is a synthesis of the work of the Saskatchewan Biodiversity Interagency Steering Committee:

- Environment
- SaskWater
- Agriculture, Food and Rural Revitalization
- SaskEnergy
- Government Relations
- Industry and Resources
- Aboriginal Affairs
- Saskatchewan Watershed Authority
- Highways and Transportation
- Northern Affairs
- SaskPower

A decorative header strip at the top of the slide. It features a collage of nature-related images: a white star-shaped flower on the left, a green fern in the center, and a blue, rocky or crystalline structure on the right. The background of the header is a mix of green, yellow, and blue tones.

# Agenda

- Introduction
- What is Biodiversity and why is it important?
- Biodiversity conservation in a complex world.
- Introduction to the proposed vision, goals, and objectives.
- Where to from here?



# What is Biodiversity and Why is it Important?



# **Biodiversity: Science and Society**

## **5 commonly-asked questions:**

- what is biodiversity?**
- what is the value of biodiversity?**
- what are the threats to biodiversity?**
- but isn't extinction a natural process?**
- can we conserve biodiversity without economic penalty?**





# What is Biodiversity?

= **biological diversity**

**or**

**‘the variety of life’**



# What is Biodiversity?

**Further defined by scientists as:**

**genetic diversity of species**

**+**

**species diversity**

**+**

**ecosystem diversity**

# Genetic Diversity







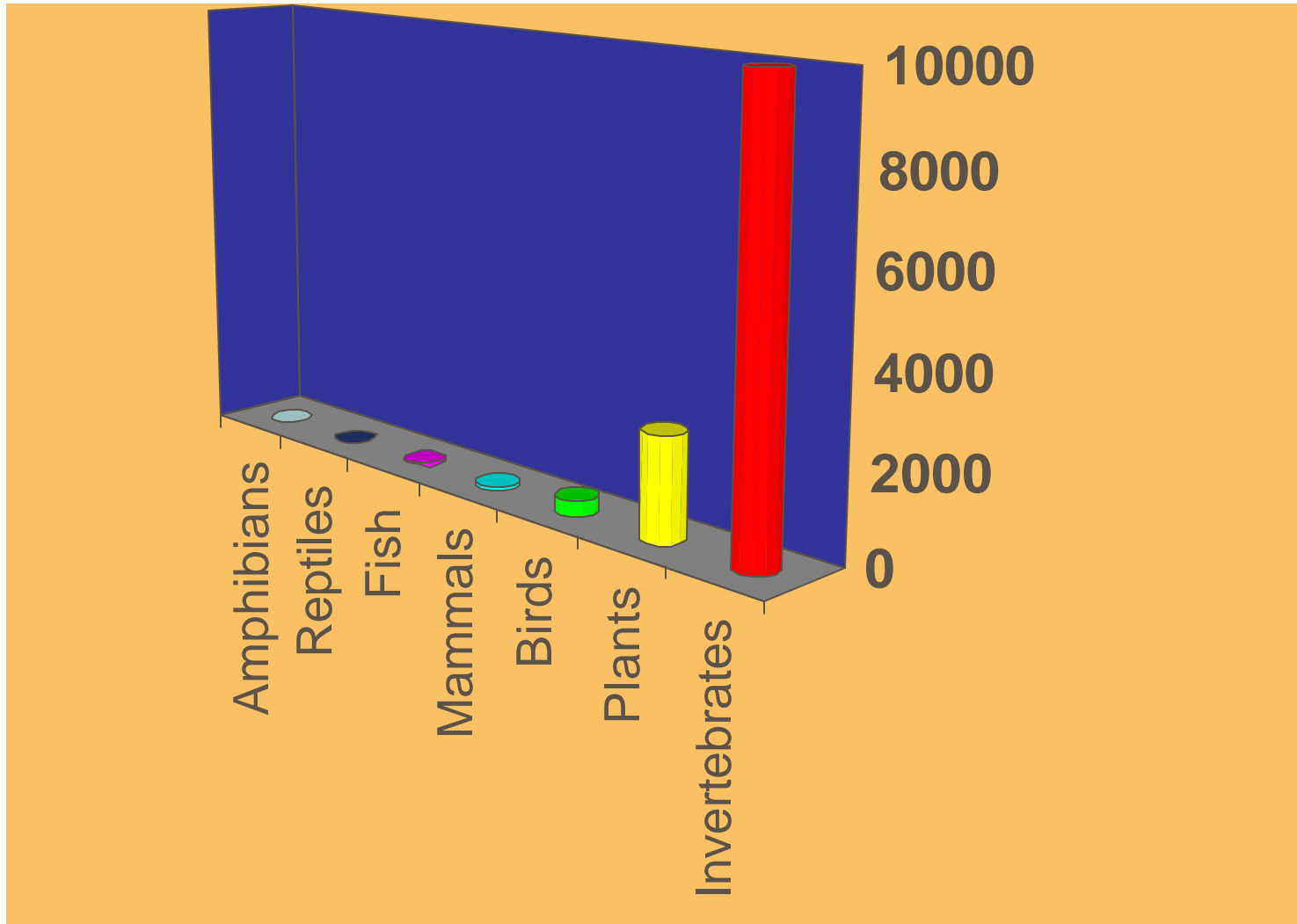


# Species Diversity

**How many species are there?**

- worldwide, scientists estimate over 30 million species exist. Only 2 million classified to date.**
- in Canada, scientists estimate about 190,000 species. About 38% classified to date.**

# Saskatchewan's Species Diversity





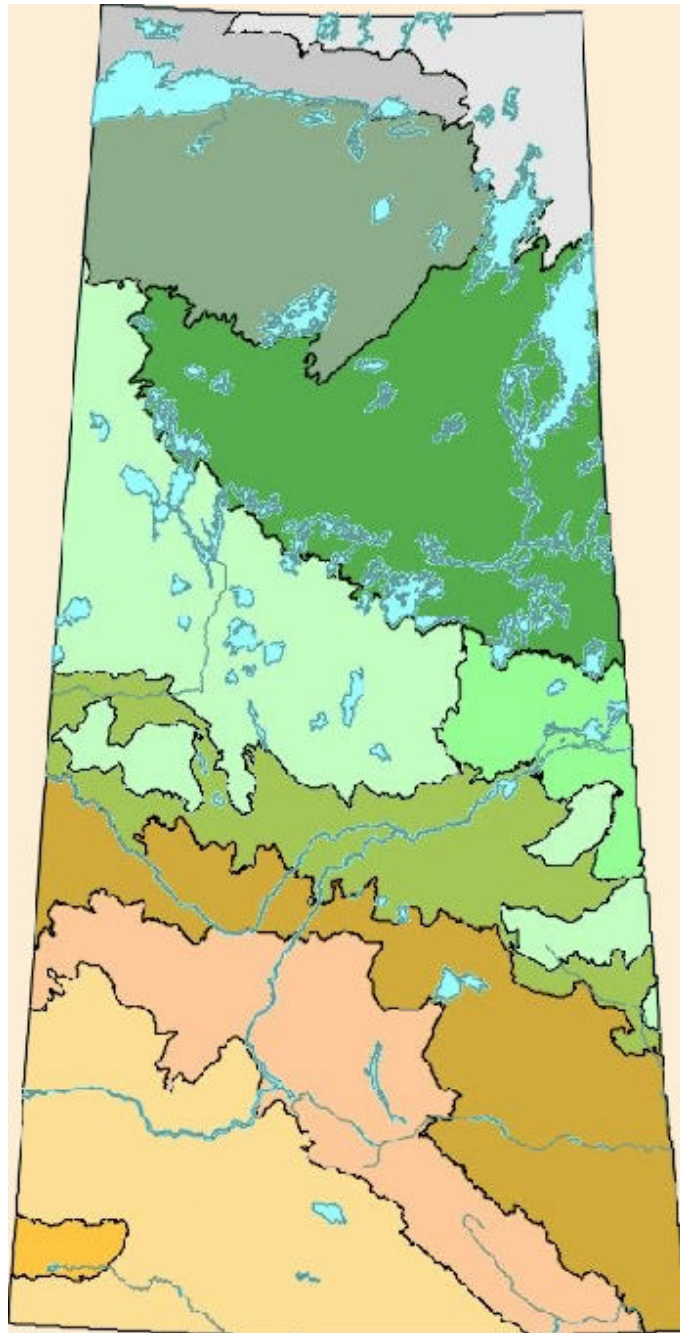
# Ecosystem Diversity

What is an ecosystem? Defined as an area containing various species, including people, and their physical environment. All function together to cycle nutrients and energy.

The area itself is arbitrarily defined and can be as big or small as you like.

Ecosystems are modified to varying degrees by humans (cities – wilderness; south – north in Sask).





*Taiga Shield*

*Boreal Shield*

*Boreal Plain*

*Prairie*



# Ecosystem Health

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**The more an ecosystem is modified by humans, the less able it is to sustain itself.**

**Heavily modified ecosystems are said to have low ecosystem health.**

**Levels of native biodiversity are a good indicator of ecosystem health. When native biodiversity is low, so is the health of the ecosystem.**







# **Value of Biodiversity**

**Possesses intrinsic value**

**Provides 'option value'**

**Provides many ecological 'goods and services', many of which are 'free' and irreplaceable**



# **Economic Goods [& Services] Derived from Biodiversity**

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- **agriculture, seed dispersal, pollination, grazing.**
- **fisheries and fisheries protection.**
- **forest goods [timber, hunting, trapping, gathering].**
- **pharmaceuticals and medical research tools.**
- **nature travel, horticulture and pets.**
- **carbon sequestration.**
- **flood control.**

**(President's Committee of Advisors on Science and Technology, 1998)**

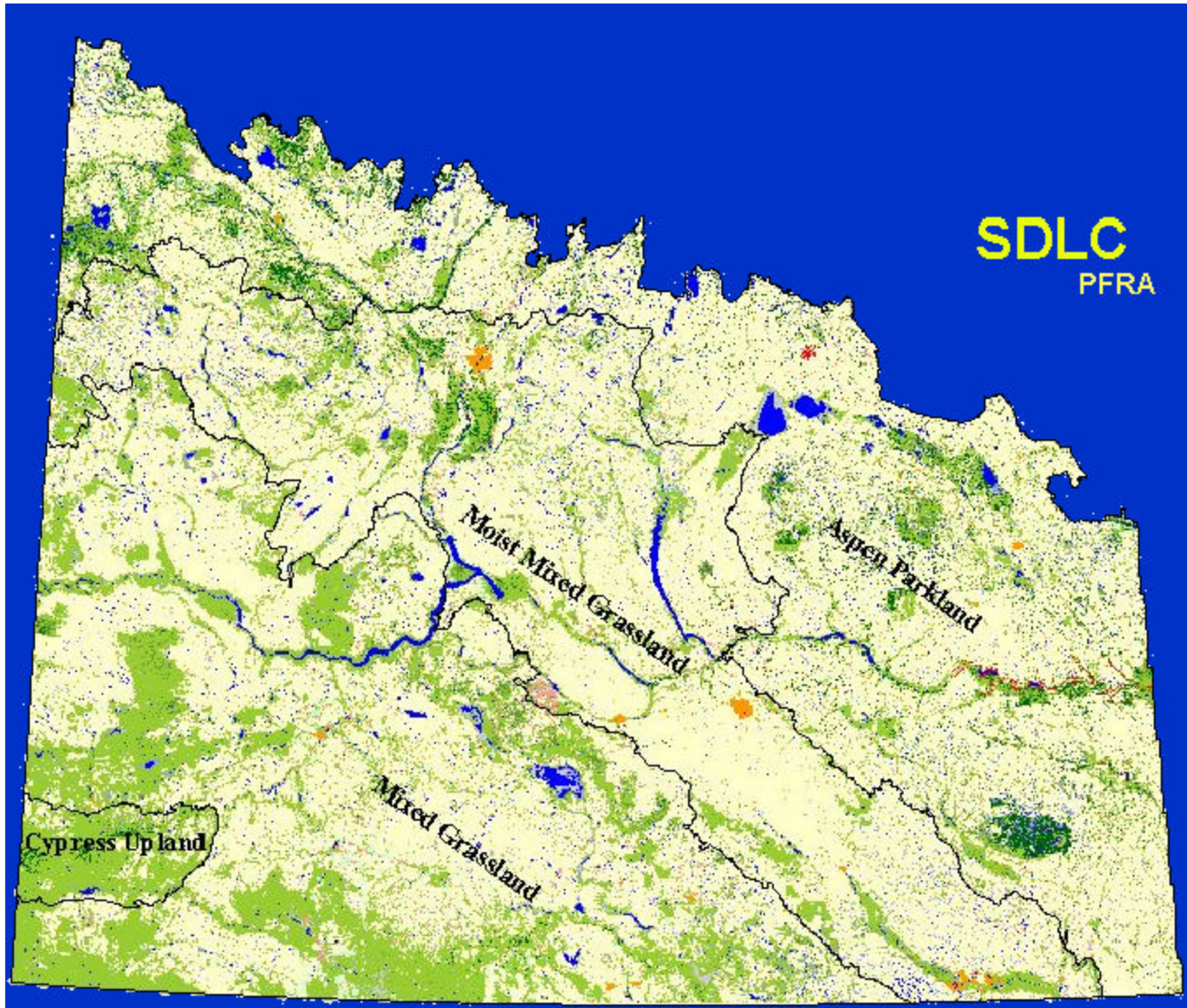


# The Threats to Biodiversity

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- **habitat loss and fragmentation**
- **exotic species' invasion**
- **pesticides and pollution**
- **over-exploitation**
- **climate change**

# Habitat Loss and Fragmentation





# Habitat Loss and Fragmentation



# Exotic Species' Invasion







# Pesticides and Pollution

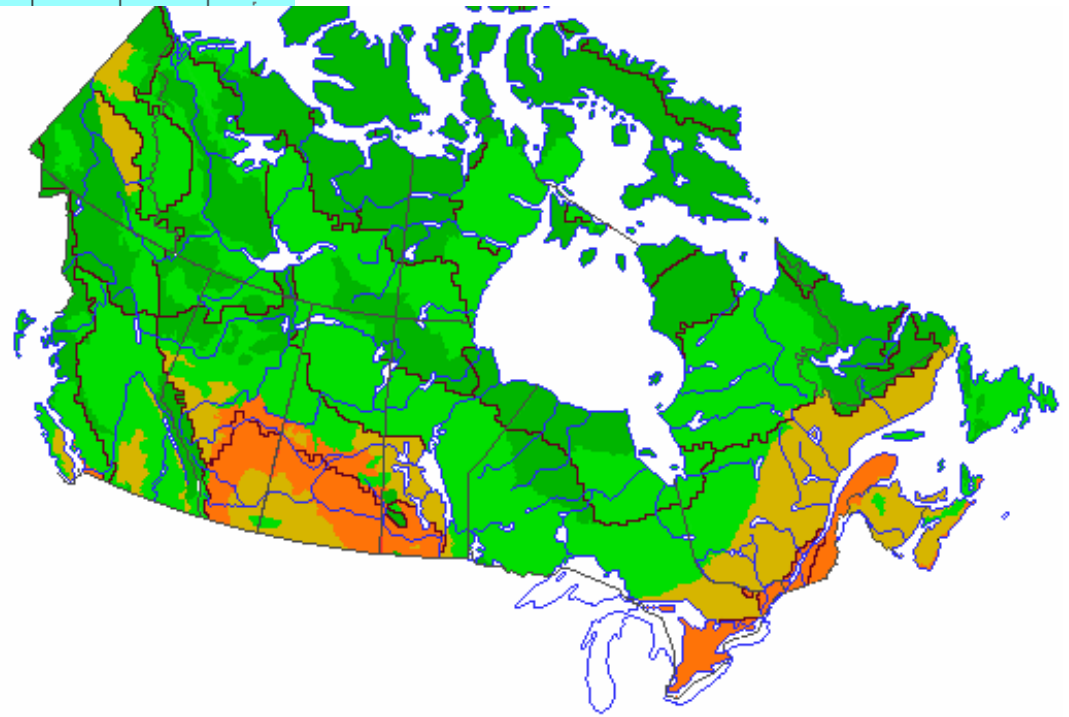
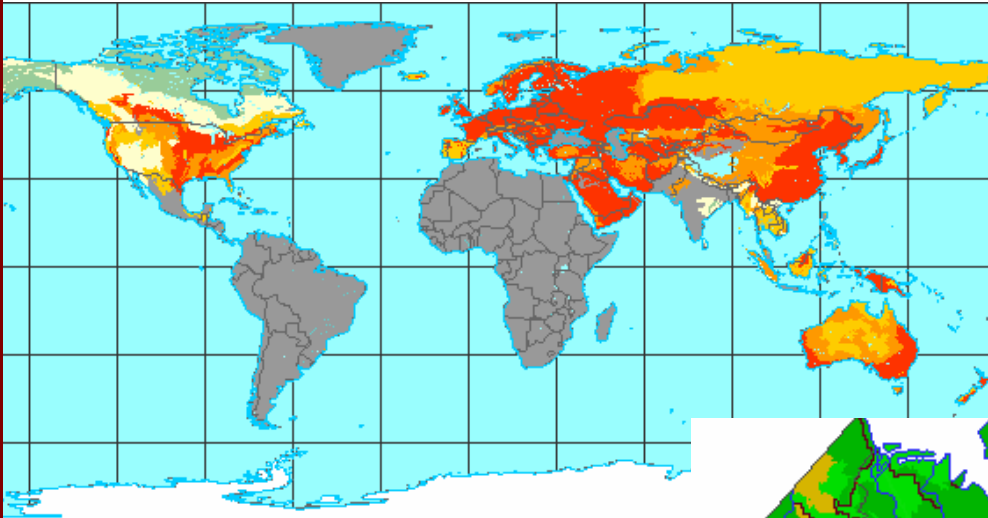
**“ ...we estimated the number of wetlands in Saskatchewan ... during 3 of the 6 years [1991 - 1996] ... subjected to pesticide levels that exceeded guidelines for the protection of aquatic life was significant, ranging from ... 9 - 24%, ... of the total.”**

**(Donald et al. 1999)**

# Over-exploitation



# Threat Ranking: Global and Canadian



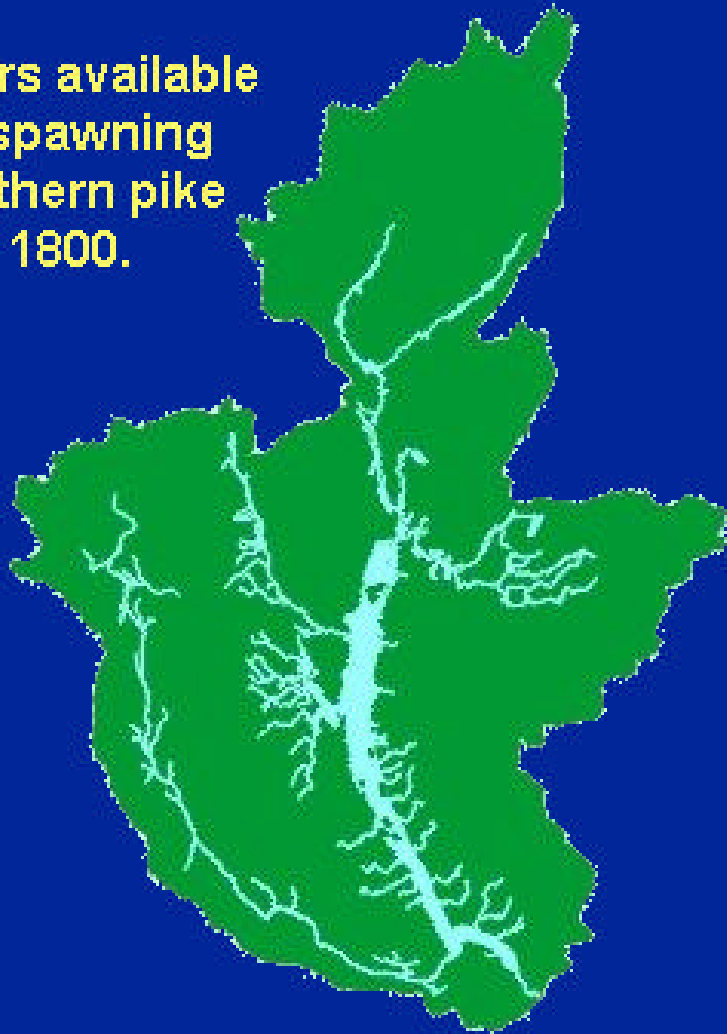


# **Climate Change Will Make Things Worse**

- acts together with the previous threats to further erode native biodiversity.**
- to adapt to climate change, many species will need to move.**
- various ‘barriers’ such as dams, roads and cropland will prevent this.**

# Last Mountain Lake Watershed

Waters available  
to spawning  
northern pike  
1800.



Waters available  
to spawning  
northern pike  
2000.





# Saskatchewan's Concern

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- **5 species extirpated.**
- **10 species endangered.**
- **1 species threatened.**
- **437 species considered rare.**



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# Summary Slide

- But isn't extinction a natural process?



# **But isn't extinction a natural process?**

**Yes, but three important differences from past extinctions:**

- the current rate is 1,000 times faster than the background extinction rate.**
- the ability to evolve replacement species is being lost: 'not the end of life, but the end of birth'.**
- most major extinctions affected animals, now plants are equally threatened.**



# **Can We Conserve Biodiversity Without Economic Penalty?**

**Yes, provided that:**

- the relationship between the ecosystem and the human economic subsystem is recognized.**
- the value of biodiversity is accounted for within economic decision-making (ecosystem services and natural capital).**

**The community economy is a subsystem embedded within, and dependent on, the local ecosystem**





# Conclusions

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- **biodiversity is the greatest natural resource available to human society.**
- **it is being destroyed because its value is not formally recognized.**
- **natural capital value of species diversity and ecosystem services must be established.**

**- if “free” services and natural capital are lost we *will* have to pay!**

**- cost of maintenance is less than the cost of repair, which is less than the cost of reconstruction (if even possible).**

**- establishing clarity around future expectations for ecological health will provide industry with increased certainty in economic decision making and aid in identifying new business opportunities.**





# Why An Action Plan?

- Biodiversity is essential to life.
- Biodiversity loss is irreversible.
- Loss of biodiversity often involves many different sectors and human activity.
- Thresholds of ecosystems are unknown, precautionary principle is prudent.
- Many species have yet to be identified.
- Biodiversity problems need an ecosystem approach (long term view; focus on ecosystem health; knowledge based; involve those affected; learn from experience/adaptive management; big picture)



# Biodiversity Conservation in a Complex World

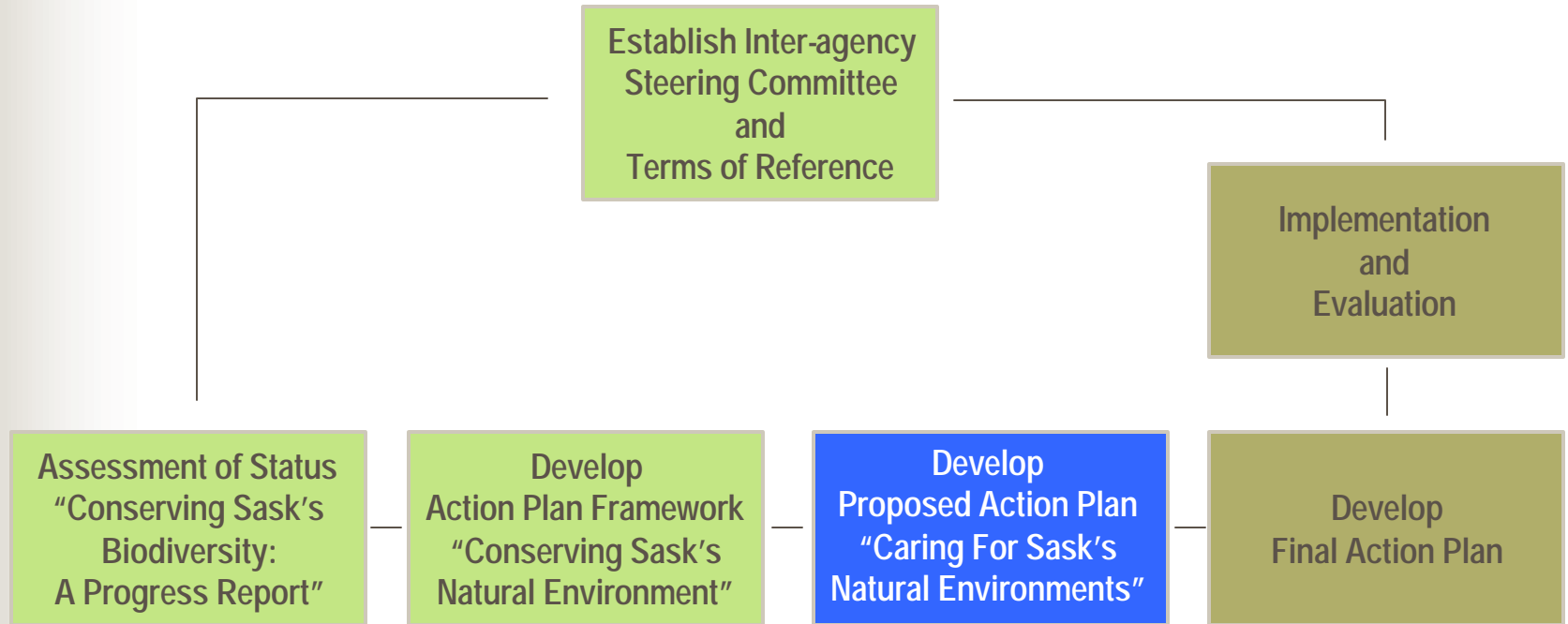
- United Nations Convention on Biodiversity 1992
- Canadian Biodiversity Strategy 1995
- Saskatchewan Biodiversity Action Plan (2002/2003)



# Saskatchewan's Response

- 1992 Saskatchewan's Environmental Agenda
- 1995 Saskatchewan signatory to the Canadian Biodiversity Strategy
- 1998 Saskatchewan Biodiversity Interagency Steering Committee Established

# Planning Process





# Consultation Process

## Phase One: 2000

- Targeted to selected groups
- Web site, news release
- Information meetings
- Release of “*Conserving Saskatchewan’s Natural Environment: Framework for a Saskatchewan Biodiversity Action Plan*”

## Phase Two: 2002

- Targeted to selected groups and general public
- Web site, news release
- Information Meetings
- Release of “*Caring for Saskatchewan’s Natural Environments: A Proposed Biodiversity Action Plan*”





# Caring for Saskatchewan's Natural Environments: A Proposed Biodiversity Action Plan

- Focuses on government actions
- Looks at Underlying Causes of Biodiversity Loss
  - Economic systems and policies that fail to value the environment and its resources
  - High rates of human population growth and natural resource consumption
  - Inadequate knowledge and inefficient use of information



**Vision:**

***“Residents of the province  
must act with wisdom and prudence  
today  
to ensure we leave future generations  
a nurturing and dynamic environment  
rich in its biodiversity”***





# Principles:

- Shared Responsibility
- Effective Public Participation
- Ecosystem Based Management
- Balanced Values
- Knowledge-based Decisions
- Leadership

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# Goal One: Conservation and Sustainable Use

**To conserve biodiversity and use biological resources in a sustainable manner**

## **Objective 1: Sustainable Use**

Manage wild species within sustainable harvest levels

## **Objective 2: Protected Areas**

Complete a system of protected areas that are representative of the province's terrestrial and aquatic ecosystems and ensure that they are managed to conserve biodiversity in the context of their designation mandate.



### **Objective 3: Partnerships for Stewardship**

Continue to work with non-government organizations and agencies on the stewardship of landscapes and aquatic ecosystems across the province.

### **Objective 4: Species and Ecosystems at Risk**

Protect species at risk and prevent new species and ecosystems from becoming threatened through an ecosystem-based approach that is both responsive to the needs of the provincially-listed species, and that is integrated with the proposed federal Species at Risk Act



## **Objective 5: Invasive Exotic Species**

Address the growing threat of invasive exotic species.

## **Objective 6: Ecosystem Management Principles for Crown Lands**

Use an ecosystem based approach to Crown land and resources management.



## **Goal Two: Ecological Management**

**To improve our understanding of ecosystems  
and increase our resource management capacity**

### **Objective 7: Planning and Development**

Develop an ecosystem based management approach to facilitate the integration of conservation and land use management.

### **Objective 8: Ecosystem Information and Management**

Enhance information and information management systems to support ecosystem based management by all sectors.





## **Objective 9: Ecological Monitoring**

Establish a long-term spatially appropriate monitoring program to indicate ecosystem health in the province.

## **Objective 10: Environmental Accountability**

Include biological diversity considerations in government policy, planning and encourage the full spectrum of environmental costs be integrated into decision making.



## Goal Three: Education and Awareness

**To promote an understanding of the need to conserve biodiversity and use biological resources in a sustainable manner**

### **Objective 11: Education and Awareness**

Enhance biodiversity awareness through informal and formal education.

### **Objective 12: Knowledge Sharing and Capacity Development**

Facilitate training, information and technology transfer with land managers in all sectors including government, industry, and landowners.



# Goal Four: Incentives and Legislation

**To develop a suite of incentives and legislation supporting the conservation of biodiversity and sustainable use of biological resources**

## **Objective 13: Economic Instruments**

Develop a suite of economic instruments to support biodiversity conservation and the sustainable use of biological resources.

## **Objective 14: Policy Legislation and Review**

Review policy and legislation with respect to biodiversity and sustainable use of biological resources in light of threats to biodiversity including climate change.





## Goal Five: Inter-Jurisdictional Cooperation

**To cooperate with other jurisdictions (international, federal, provincial, municipal and First Nations) having policy responsibility and/or program interests to conserve biodiversity and use biological resources in a sustainable manner**

### **Objective 15: Shared Responsibility**

Support opportunities to work with other jurisdictions to contribute to biodiversity conservation and the use biological resources in a sustainable manner.

Where to from here?



Comments or Questions?