



# **Conservation Biology:**

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**Preserving the Earth's Biodiversity**

# Human Population and Biodiversity

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- Human population growth has caused a state of environmental crisis.
- Every natural ecosystem on the planet has been impacted by humans.
- Major environmental problems include: accelerated extinction rates, loss of genetic diversity, disruption of natural hydrologic and chemical cycles, global warming, habitat destruction, chemical contamination and destruction of the ozone layer.

# What are the primary causes of the loss of biodiversity?

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- Human populations are expanding at an incredible rate: 5.7 billion people, increasing at 95 million each year.
- Expanding populations have caused environmental damage as people are forced to develop land for agriculture and forestry.
- High birth rates in developing countries have driven environmental destruction due to exploitation of land for agriculture and forestry.

# What are the primary causes of the loss of biodiversity?

*(continued)*

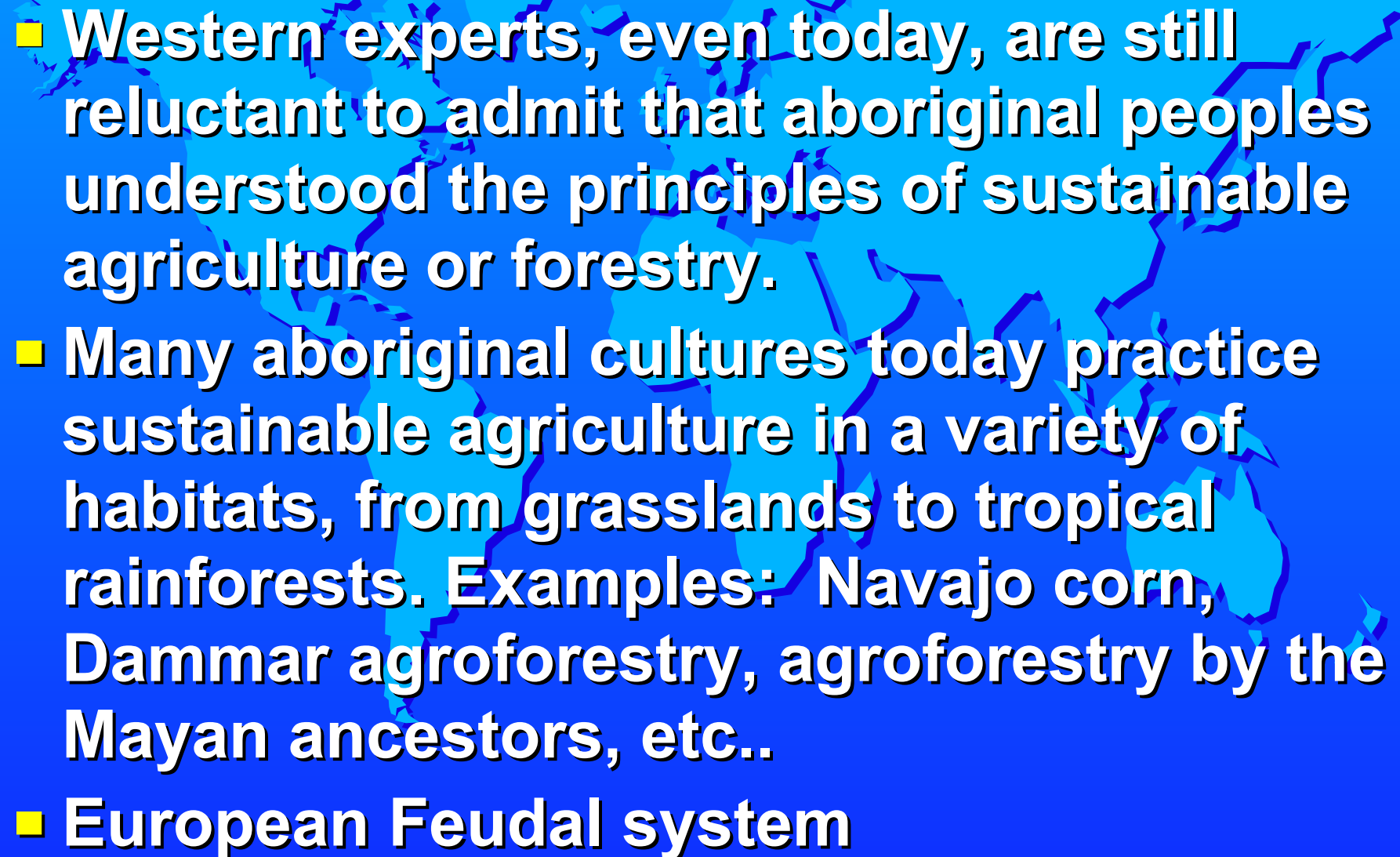
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- **Conspicuous consumption in developed nations have exacerbated the exploitation of natural/human resources on a worldwide scale.**

# A History of Conservation Biology

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- Environmental degradation is not unique to modern societies.
- Humans may have been responsible for the extinction of the megafauna (?), i.e., the "blitzkrieg" hypothesis.
- Extensive deforestation of the "fertile crescent" and the Mediterranean region during the transition from paleolithic to neolithic periods is well documented.

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- **Western experts, even today, are still reluctant to admit that aboriginal peoples understood the principles of sustainable agriculture or forestry.**
  - **Many aboriginal cultures today practice sustainable agriculture in a variety of habitats, from grasslands to tropical rainforests. Examples: Navajo corn, Dammar agroforestry, agroforestry by the Mayan ancestors, etc..**
  - **European Feudal system**

# Conservation in the United States

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- **The Influence of the Eastern Transcendentalists: Ralph Waldo Emerson and Henry Thoreau**
- **John Muir**
- **Gifford Pinchot - utilitarian use, resource conservation, multiple use concept**
- **Aldo Leopold - The Land Ethic**
- **Conservation Biology - 1980 Michael Soule and Bruce Wilcox, *Conservation Biology***

# Principles of Conservation Biology

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- Evolutionary change is the driving force for creating biodiversity.
- Ecological systems are in a state of constant change, i.e., they are dynamic systems; nonequilibrium processes are important in understanding the structure of any biological community.
- Human activities greatly effect ecosystems and must be a part of any conservation planning project.

# Soule's principles of conservation biology:

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- Diversity of organisms is good.
- Ecological complexity is good.
- Evolution is good.
- Biotic diversity has intrinsic value, regardless of its utilitarian value.

# Characteristics of Conservation Biology

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- **CB is a crisis discipline.**
- **CB is a multidisciplinary science.**
- **CB cannot deliver "exact" answers.**
- **CB is not value-free.**
- **CB is a science that focuses on long-term viability of ecosystems and biodiversity.**
- **CB is the science of modern environmental activism!!!!**