Housekeeping, 03 October 2006

Thank David Hall

Upcoming Readings
today: Text Ch.5, Biogeography excerpt

Thurs 05 Oct: Text Ch 6 (Hans-Werner Herrmann)
Tues 10 Oct: Text Ch. 5&6
Thurs 12 Oct: Text Ch. 7

Short oral presentations
03 Oct Leslie Wood & Ben Collins
05 Oct Ami Kidder & Shannon Langdon
10 Oct Viola Sanderlin & Crystal Reicht
12 Oct Robert Dietz
Global Climate Change Lecture Series
All lectures will take place at UA Centennial Hall.

All lectures begin at 7pm and are free to the public. Call 520.621.4090 for more information.

Tuesday, October 17
Global Climate Change: The Evidence
Malcolm Hughes, Professor of Dendrochronology

Tuesday, October 24
Global Climate Change: What's Ahead
Jonathan Overpeck, Director of the Institute for the Study of Planet Earth and Professor of Geosciences

Tuesday, October 31
Global Climate Change: The Role of Living Things
Travis Huxman, Assistant Professor of Ecology and Evolutionary Biology

Tuesday, November 7
Global Climate Change: Ocean Impacts and Feedbacks
Julia Cole, Associate Professor of Geosciences

Tuesday, November 14
Global Climate Change: Disease and Society
Andrew Comrie, Dean of the Graduate College and Professor of Geography and Regional Development

Tuesday, November 21
Global Climate Change: Could Geoengineering Reverse It?
Roger Angel, Regents' Professor of Astronomy

Tuesday, November 28
Global Climate Change: Designing Policy Responses
Paul Portney, Dean of the Eller College of Management and Professor of Economics

http://cos.arizona.edu/climate/

Leslie Wood & Ben Collins

Elephant Conservation
10 October Question 4

Which unit of biology deserves protection? Why?

New Question!...
Habitats and Ecosystems...

1971 Ramsar Wetlands (Iran)
   119 countries
   500 listed wetlands

1972 UN (UNEP)
   United Nations Environmental Program
   -include social issues

1992 Earth Summit (aka Rio Summit)
   -Agenda 21
     (environment, social issues, poverty,
      technology transfer, sustainability,
      water, pollution)

   -178 Governments
   -Developed countries aid developing
   -Sustainable Development
   -Polluter Pays

   -Convention on Global Warming
   -Convention on Biodiversity
Date: August 14, 2006

To: The Honorable Chairman and Members
Pima County Board of Supervisors

From: C.H. Huckelberry
County Administrator

Re: Draft Multi-Species Conservation Plan

Introduction

Attached is the draft Multi-Species Conservation Plan that Pima County will submit to the United States Fish and Wildlife Service for a Section 10 permit. The permit package will also contain the Environmental Impact Statement, which belongs to the Service, and an Implementation Agreement that delineates obligations in a phased approach. Earlier drafts of the Multi-Species Conservation Plan have been published in 2003, 2005, and in January of 2006 as part of the extensive process of developing scientific information and inviting public review and comment.
Biological Basis of the **Sonoran Desert Conservation Plan**

Thanks to Bob Steidl and others…
SDCP Biological Goal

Ensure the long-term survival of the full spectrum of plants and animals that are indigenous to Pima County...

Approach

• Select elements for planning
• Establish quantifiable goals
• Develop explicit rules for reserve design process
• Organize, synthesize, and acquire information
• Evaluate
• Establish, Monitor, Manage
Select Species

- Regionally “vulnerable” species
- Short-list of 55 species

Species chosen should have little influence on ultimate reserve design

Species List

- 9 mammals
- 8 birds
- 7 reptiles
- 2 frogs
- 6 fish
- 16 invertebrates
- 7 plants

- 7 bats
- 6 riparian
- 3 riparian
- all riparian
- mostly snails
- 2 riparian

>60% of plants and vertebrates associated with riparian environments
Species Information

- Natural history accounts
- Species-environment matrix
- Decide best method by which to achieve goals for each species
- Less helpful if:
  - either rare or common
  - on lands that are protected or off-limits
  - limited natural-history information
- Reduced from 55 to 44 species

Land Cover
Species Distributions

- Based on models rather than known locations or published distributions
- Developed to predict species distributions based on potential habitat
- Input and evaluation by experts
  - Habitat associations, known distribution
- Iterate
- Combine to identify areas of high species richness

Species Richness, 1 or more
Species Richness, 2 or more

Species Richness, 3 or more
Species Richness, 4 or more

Summary of High Potential Habitat
4 or More Priority Vulnerable Species

Species Richness, 5 or more

Summary of High Potential Habitat
5 or More Priority Vulnerable Species
Biological Core

Species Richness – Expert Opinion
Biologically Preferred

Riparian as Foundation for Linkages
Chapter 5 (Paradigms...)

- Genetic Diversity (MVP, PVA)
- Island Biogeography
- Metapopulations
- Habitat Heterogeneity
- Disturbance

Chap 6 - Genetics of Conservation Biology
Genetic Diversity

Small Populations
- reduced gene flow
- inbreeding depression
- drift
- stochasticity
- effective population size \( N_e \)

Declining Populations

Effective Population Size

\[ N_e = 4N_m N_f / (N_m + N_f) \]

Eg: a population of seals with 6 males and 150 females?

\[ N_e = (4 \times 6 \times 150) / (6 + 150) = \sim 23 \]

Thanks to Chuck Price