Lecture 11, 25 Sept 2007
Legislation
Paradigms
Conservation Biology
ECOL 406R/506R
University of Arizona
Fall 2007
Kevin Bonine
Cathy Hulshof

Upcoming Readings
Today: Text Ch. 2; ESA & NEPA links; Text Ch5?
Thurs 27 Sept: Exam 1
Tues 02 Oct: Text 230-248; and see website

Thanks to Brian Powell
Q3 due 09 Oct if you choose

Debate 20 Sept 2007:
Should the flat-tailed horned lizard (Phrynosoma mcali) be ESA listed?

Three groups – one will debate, another will evaluate, third will observe, then we rotate.

<table>
<thead>
<tr>
<th>406</th>
<th>506</th>
<th>506</th>
</tr>
</thead>
<tbody>
<tr>
<td>A debate</td>
<td>A assist</td>
<td>C observe</td>
</tr>
<tr>
<td>B evaluate</td>
<td>B assist</td>
<td>C observe</td>
</tr>
<tr>
<td>C observe</td>
<td>C assist</td>
<td>A observe</td>
</tr>
</tbody>
</table>

Conservation Biology Lab 406L/506L
Friday 1230 -> Sunday sunset
Meet 1230h S or W side BSE (4th and Highland)
Hat, water, sunscreen, close-toed shoes
Lunch, snacks, weather gear, ($?)
Add camping gear and food!
Readings on Course Website:
Las Cienegas, Ranching, San Pedro

The Las Cienegas NCA includes a variety of unique and rare vegetative communities including five of the rarest habitat types in the American Southwest: cienegas (marshlands), cottonwood-willow riparian forests, sacaton grasslands, mesquite bosques, and semi-desert grasslands.

Short paper suggestions:
Choose a thesis to support and state it upfront, then defend it.

A catchy title.

Name, Date, One Page, Double Space
Best papers supported their arguments with one or two other sources. Use citation format of Conservation Biology articles.

Review Essay and Paragraph structural suggestions.

Proofread.

http://www.pima.gov/cmo/sdcp/
SDCP Biological Goal

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

Select Species

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

Species chosen should have little influence on ultimate reserve design

Approach

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

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

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

Species Richness, 5 or more

Biological Core

Species Richness – Expert Opinion

Biologically Preferred

Riparian as Foundation for Linkages
An EIS includes…

- Project goals and objectives
- Resources that might be affected
- Alternative ways to try to achieve the goals
- Environmental impacts that are likely to occur under each alternative
- Potential mitigation

Summary

- The EIS is supposed to help agencies decide how they can achieve their goals, taking all environmental impacts into account, with input from the people who are going to be affected (the public).
The EIS is supposed to help agencies decide how they can achieve their goals, taking all environmental impacts into account, with input from the people who are going to be affected (the public).

Pre-Endangered Species Act of 1973 Legislation

- **Lacey Act - 1900.** Authorized Federal enforcement of state wildlife laws and based on Federal power to regulate interstate commerce.

- **Committee on Rare and Endangered Wildlife Species 1964 - consists of 9 biologist - published the first "Redbook" - first Federal list of fish and wildlife considered threatened with extinction.

Pre-Endangered Species Act of 1973 Legislation

- **Lacey Act - 1900.**
- **Committee on Rare and Endangered Wildlife Species 1964**
- **1966 Endangered Species Preservation Act - Federal agencies must conserve habitats of native vertebrate species found by the Secretary of the Interior to be in danger of Extinction to the extent "Practicable and consistent" with the primary purposes of the Federal agencies.**

Fujicolor Processing Plants Guilty to Environmental Crime

Contact Information: Roxanne Smith, (202) 564-4355 / smith.roxanne@epa.gov

(Washington, D.C. - Sept. 6, 2007) Fujicolor Processing agreed to pay a $200,000 criminal fine for discharging excessive amounts of silver-tainted photo-processing waste to a Texas wastewater treatment plant, the Justice Department and Environmental Protection Agency announced today.

Fujicolor pleaded guilty to one count of negligently violating a requirement of its pretreatment permit at its photo-processing facility in Terrell, Texas.

Based on an internal investigation, Fujicolor discovered that from 1999 through July 2002 employees were selectively reporting to the city only test results that fell within permit limits. Industrial facilities report results to local agencies for permit compliance purposes. Employees would send part of a sample to a laboratory for screening and, if the sample met permit limits, it would be submitted to the city. If a sample did not meet the silver limit, employees would keep collecting samples until they found one that fell within allowable limits. Fujicolor discovered similar problems at its facilities in New Britain, Conn., and Tukwila, Wash.

"By 'cherry-picking' samples, Fuji's employees undermined federal and state permit programs," said Granta Nakayama, assistant administrator for the EPA's enforcement and compliance assurance program.

EPA requires that industry pre-treat toxic pollutants in their wastes in order to protect local sewers and wastewater treatment plants. Local agencies must regulate industrial facilities by issuing permits, conducting inspections, sampling wastewater and reviewing each facility's monitoring data.

In July 2002, the city of Terrell fined the facility $105,725 for exceeding its monthly limit for silver, based on samples submitted by the facility.

Fujicolor disclosed the findings of its investigation to federal and local officials. The company has since taken action to address the environmental problems, including firing employees responsible for violations and putting safeguards in place to prevent additional violations.

This investigation was conducted by the EPA's Criminal Investigations Division, and the Texas Department of Environmental Quality. The case was prosecuted by the U.S. Department of Justice Environmental Crimes Section and the U.S. Attorney's Office for the Northern District of Texas.

**ESA**

http://www.fws.gov/endangered/

"Taking" Shoot, Shovel, Shut Up

Led to Habitat Conservation Planning (HCP) Incidental Take Permits (e.g., SDCP with mitigation)

San Bruno Mtns - negotiate, compromise, all parties involved

"No Surprises" MOAs Safe Harbor Agreements

NEPA: 3 pages  EIS: 175 pages
Pre-Endangered Species Act of 1973 Legislation

- 1969 Endangered Species Conservation Act - extended protection to invertebrates, and extended the Lacey Act's prohibitions to cover interstate commerce in illegally taken reptiles, amphibians, and certain invertebrates. Also took Global View - authorized Secretary to make a list of species threatened with worldwide extinction and with limited exceptions permitted the Secretary to prohibit imports of such species or their products into the U.S.

Endangered Species Act of 1973, as Amended

- Largest controversy involved whether protection should be extended to plants.
- Not seen as a large economic issue. Passed Senate unanimously, passed House overwhelmingly
- Signed into law on December 28, 1973

Endangered Species Act of 1973, as Amended

- Jointly administered by Secretaries of Interior and Commerce (Fish and Wildlife Service and National Marine Fisheries Service)
- Amended many times.

Section 4, ESA

Listing Species Pursuant to the Endangered Species Act of 1973, As Amended

Thanks to Paul Barrett and Sherry Barrett
5 Listing Factors

1. The present or threatened destruction, modification, or curtailment of its habitat or range;
2. Overutilization for commercial, recreational, scientific, or educational purposes;
3. Disease or predation;
4. The inadequacy of existing regulatory mechanisms;
5. Other natural or manmade factors affecting its continued existence.

Section 7, ESA

Interagency cooperation

Section 10, ESA

Exceptions

10(a)(1)(A) – Recovery Permits
10(a)(1)(B) - HCP

(SDCP: Multi-species HCP)

Mount Graham Red Squirrel
Tamiasciurus hudsonicus grahamensis

- Listed as endangered in 1987

Mount Graham Red Squirrel
Tamiasciurus hudsonicus grahamensis
Revised Mount Graham Red Squirrel
(Tamiasciurus hudsonicus grahamensis) Recovery Plan

-Technical Subteam

• Squirrel biologists
• Silviculturist
• Fire Ecologist
• Forest health specialist
• Conservation biologists
• Population biologists
• Entomologists

Revised Mount Graham Red Squirrel
(Tamiasciurus hudsonicus grahamensis) Recovery Plan

-Implementation Subteam

• Forest Service
• AGFD
• Local Governments
• Steward Observatory
• Local Interests (Summerhome Associations)
• Nongovernmental Organizations
• Native American Tribes

Mount Graham Red Squirrel
Tamiasciurus hudsonicus grahamensis

- Restricted to:
  - Spruce-Fir
  - Transition
  - Mixed Conifer

- Above 8000 ft

California Water Supply Cut by up to a Third To Protect Endangered Fish

Public Water Agencies Assess Impacts of Largest Ever Ordered Water Reduction in California History

The State Water Contractors, an association of 27 public water agencies in Northern, Central and Southern California, reacted to the largest court-ordered water supply reduction in California history, citing economic impacts to farms, businesses and people. U.S. District Judge Oliver Wanger ordered the California Department of Water Resources to reduce pumping from the State Water Project (SWP) and the California Aqueduct by up to one-third (1/3) of the combined 2.515 billion acre-feet of water supplies, or 850,000 acre-feet of water. The total reduction - representing the most water ever ordered to be released from the California Aqueduct - is a result of a biological opinion prepared by the U.S. Fish and Wildlife Service that is an exceptional and critical component of a state water supply. Local water agencies are tasked with releasing 100,000 ac-

http://www.delta.dfg.ca.gov/gallery/dsmelt.asp

For more information on the State Water Contractors, please visit http://www.swc.org.

The SWP is a critical source of water for the majority of California, providing water to two out of every three people (approximately 25 million residents), irrigating more than 7.5 million acres of farmland, and providing water to more than 750,000 acres of agricultural lands. The SWP is a component of the California Water Supply Project (CVP), to protect an endangered fish species, the Delta smelt. While state and local water agencies are still analyzing the court ruling, initial assessments indicate the impacts of this ruling, "will undoubtedly harm our state economy and cause loss of jobs. The most immediate impact of the reduction will likely continue until the Delta system is fixed. "Today's decision comes at a time when the Delta is in dire need of a fix, and the cutbacks in water supplies will be experienced in the Bay Area, Central and Southern California. "The cutback considerably increases the chances of severe water use restrictions at the local level - water agencies can only rely on emergency or contingency sources for so long," added Moon. This significant reduction in water supply will be experienced in the Bay Area, Central and Southern California. "The cutback considerably increases the chances of severe water use restrictions at the local level - water agencies can only rely on emergency or contingency sources for so long," added Moon. This significant reduction in water supply will be experienced in the Bay Area, Central and Southern California. "The cutback considerably increases the chances of severe water use restrictions at the local level - water agencies can only rely on emergency or contingency sources for so long," added Moon. This significant reduction in water supply will be experienced in the Bay Area, Central and Southern California. "The cutback considerably increases the chances of severe water use restrictions at the local level - water agencies can only rely on emergency or contingency sources for so long," added Moon. This significant reduction in water supply will be experienced in the Bay Area, Central and Southern California. "The cutback considerably increases the chances of severe water use restrictions at the local level - water agencies can only rely on emergency or contingency sources for so long," added Moon. This significant reduction in water supply will be experienced in the Bay Area, Central and Southern California. "The cutback considere...
The U.S. Fish and Wildlife Service has completed a final rule designating 32 units of critical habitat along the coast of California, Oregon, and Washington for the Pacific coast population of the western snowy plover, a Federally threatened species. The critical habitat units total 12,145 acres, nearly 40 per cent less acreage than an earlier critical habitat plan the Service adopted in 1999.

Of the designated units, 24 are in California (7,472 acres), five are in Oregon (2,147 acres), and three are in Washington (2,526 acres). Of the total acreage, 2,479 acres (20 percent) are on Federal lands; 6,474 acres (53 percent) are owned by states or local agencies; and 3,191 acres (26 percent) are private.

Compared to the 1999 plan, today’s action designates more critical habitat units but generally smaller ones, based on increased knowledge of the species’ needs and better mapping. This new rule designates 32 units covering 12,145 acres, compared to 28 units covering 19,474 acres in the 1999 plan.

The rule will take effect 30 days after publication.

Some 2,859 acres of proposed critical habitat in six units were deleted based on the projected cost of designating critical habitat. An economic analysis prepared by Industrial Economics Inc. projected that critical habitat could cost between $273 million and $645 million, with the biggest costs due to beach recreation losses. More than three-quarters of the loss was found to occur in five proposed California critical habitat units, located on Coronado’s Silver Strand, Morro Bay, Pismo Beach, and two on Monterey Bay.

In addition, 615 acres were deleted because of management plans and commitments -- such as Habitat Conservation Plans -- and 1,621 acres were deleted because they are covered by military land management plans or national security needs.

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

1972 US Marine Mammal Protection Act
   -dolphins
e   -tuna
   -international trade

1989 US Sea Turtle Act
   -shrimp
   -TED's
   -international trade
   -GATT (general agreement on tariffs and free trade)

   -WTO - trade over environment
   -Leadership vs. Imperialism