

Lecture 03, 31 Aug 2004
 Van Dyke Ch3, Noss 1999
 Meffe and Carroll Ch2 (=Callicott)

Conservation Biology
 ECOL 406R/506R
 University of Arizona
 Fall 2004

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Conservation Biology 406R/506R

1. Conservation Biology as a Discipline

-Van Dyke Ch 1
 -Noss 1999



2. Ethics and Philosophy

-Van Dyke Ch 3
 -Callicott (Ch2 Meffe and Carroll)

-Who is in Schwalbe's class?

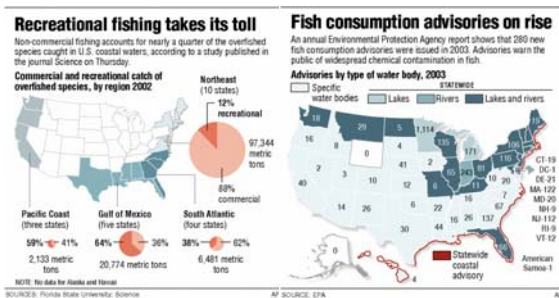
-Leopold readings for Thursday

-Conservation Biology Website:

http://ehweb.arizona.edu/courses/Ecol437/437_2004_Vert_Physiol_Page.html

-Seminars

Regarding Fishes...



August 2004

Problems Addressed by Conservation Biologists:

1 Genetic Diversity

variation, inbreeding, drift, hybridization

2 Species

MVP, PVA
 small populations
 declining populations
 metapopulations

3 Habitat

loss, fragmentation, isolation, heterogeneity

4 Ecosystem Processes

scale

5 Human sustainability

the crux

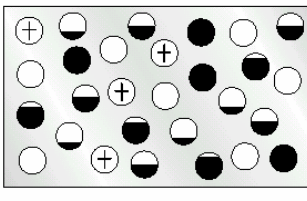


Figure 1.8
 Diagrammatic representation of an arrangement of local populations ("metapopulation") based on Andrewartha and Birch (1954). Empty circles represent favorable habitats that individuals do not occupy. Partially or completely filled circles represent favorable habitats and relative densities of individuals in them as a proportion of the habitat's maximum capacity. Crosses indicate habitats in which local populations recently became extinct.

-Metapopulations

-Island Biogeography
 MacArthur and Wilson 1963

-Testable Hypotheses

-Thresholds

Van Dyke 2003

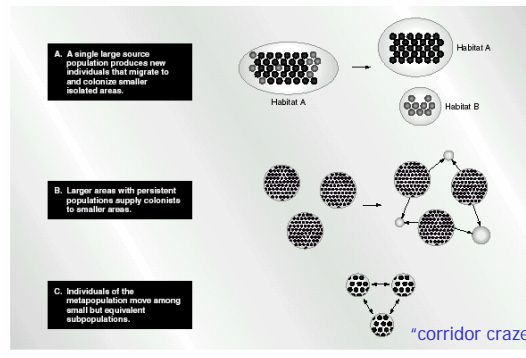


Figure 1.9
 Three variations of the metapopulation concept. Although different in detail, all represent metapopulations as spatially distinct groups (subpopulations) that disperse to or among physically separated habitats.

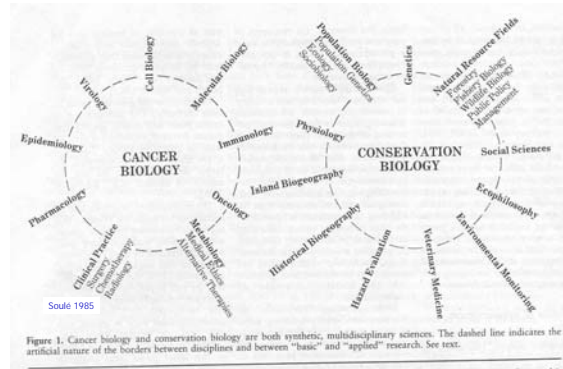
Is conservation biology a distinct discipline?

- Biodiversity (levels and scales)
- Prevent degradation and loss



1. Scarcity and Abundance
2. Value laden and mission driven
3. Diversity and complexity good
Untimely extinction bad
4. Evolution is good (genotypic variation)
-process
5. Biotic diversity has intrinsic value

(-Soulé's normative postulates)



6. Crisis Discipline?

Objectivity vs. Neutrality (Van Dyke p. 57)



Journal of Wildlife Management (1937)
Wildlife Society Bulletin

vs.

Conservation Biology
Biological Conservation



Figure 1.8. The first issue of the journal Conservation Biology, published in May 1987. (Photograph courtesy of E. P. Farnes)

Noss 1999

Is there a special conservation biology?

Origins

- Soulé et al. 1978+
- SCB 1986
- Conservation Biology 1987



Ideas

- Precautionary Principle
- Value Laden
- Species differences...
- Umbrella species
- Advocacy

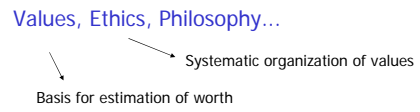
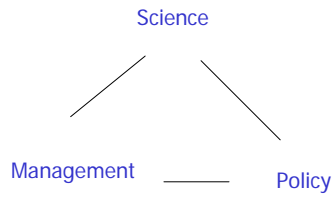


Responsible Advocacy?

Ethical Advocacy?

p.117, Noss 1999:
tropical rainforest
vs.
economic development program

Is ConBio distinct discipline?



VALUE OF BIODIVERSITY

- Instrumental/utilitarian
- Intrinsic/inherent



Table 2.1
Four Categories of the Instrumental Value of Biodiversity

Category	Examples
Goods	Food, fuel, fiber, medicine
Services	Pollination, recycling, nitrogen fixation, homeostatic regulation
Information	Genetic engineering, applied biology, pure science
Psycho-spiritual	Aesthetic beauty, religious awe, scientific knowledge

Callcott 1997

Values, Ethics, Philosophy...

Monetizing

- discount rate
- rates of growth and reproduction

Economic development short sighted?

BCA

Valuation methods

- willingness to pay/ accept
- travel cost
- existence value
- contingent valuation
- bequest value



END

Madagascar Periwinkle Argument
(Callcott p. 30)

