

Odds & Ends II, also the last lecture

Note: I will try to post more details on the exam by next Thursday (4/29)

Also, I would prefer to get everyone's paper by April 29th, as originally scheduled. But if you need a few more days, you may hand it in anytime up until 12:00 noon (no later!), Tuesday, May 4th (in my mailbox, right next to the MMB office).

I. Social factors:

One of the obvious issues we haven't discussed yet is that social values are different in different societies.

What we value in the U.S. may not be what is valued elsewhere (it's gotten us into quite a bit of trouble in the past, and even today).

For instance, John Muir's approach to conservation may totally alienate someone from a different culture.

A simple example is that values of wildlife might change quite a bit depending on whether one is hungry or well fed (particularly if one's family is hungry as well).

Some simple examples:

In the U.S. snakes are often despised. Rattlesnake roundups are a popular event. In India, cobras are often held in very high regard (almost sacred).

Dogs are favorite pets in the U.S. In many parts of south-east Asia, they're food.

McDonald's has had a difficult time breaking into India since cows are considered sacred (they sell burgers made with something else in India).

Even in the U.S. our attitudes towards nature can be shaped by such things as:

- living in rural areas, where there is more contact with nature (this could be good, or bad from a conservation perspective).

- we've already mentioned tigers and grizzlies and things like this (if you live here, you're all in favor of protecting tigers and grizzlies. If you live in the Sunderbans or Yellowstone, you may

think otherwise!)

- people in rural areas also may exploit nature more. This is all right so long as it is sustainable. But the same folks may resent “city-dwellers” telling them what to do.

Values can often change, hopefully for the better.

- A good part of the environmental movement’s success has been due to the changing of people’s values.

- Education is at the heart of this!

- Again, a simple examples:

- Wolves used to be despised. Remember your fairy tales? It’s not the “good wolf” that features in most of these.

- Recently our attitudes towards wolves has “improved” considerably (except maybe for those folks still living near wolves).

- This is one of the biggest sources of hope for the future - that we can educate and hopefully change people’s values towards their environment.

- a lot of work remains to be done (what does a starving African care about dessertification? All he wants to do is get wood so he can cook a meal for his family).

- still, without hope we should stop right now!

II. The problem of subspecies and hybrids:

So what do we do with subspecies? Should these get the same consideration as full species?

- in an ideal world, the answer would be yes.

- the problem is that there are limited resources.

- we should try to keep subspecies in mind when we set about conservation, but if there is a choice between saving a species or saving a sub-species, the species takes priority.

- An example of a sub-species that went extinct is the Dusky sea-side sparrow (A subspecies of the sea-side sparrow).
 - On the other hand, as one web site points out, this even was a bit of a disaster.
 - The Dusky-sea-side sparrow was considered a separate species, but upon further research, it was merged with the sea-side sparrow.
 - Once this merger took place, birders lost interest in the bird, and any concern disappeared until it was too late. If biologists (taxonomists) hadn't merged it, it's quite possible that pressure from birders and ornithologists would have helped save this subspecies.
 - the whole thing is a little silly, depending entirely on whether or not the dusky was a subspecies or species. Not a good conservation ethic.
 - in fairness, attempts were made to set up a captive breeding program and/or to restore marshes (flooded or drained), but they were too late (5 males were all that could be recovered by the time an attempt was made).
 - Nevertheless, as a subspecies, it was probably not a tragic a loss as otherwise (the taxonomists were probably right). Still, it seems pointless since the funds were there, just applied too late.

The authors of your text argue strongly for saving subspecies. A very powerful argument for doing this is to help preserve genetic diversity.

- And if at all possible, an attempt to save sub-species should be made.
- Yet, if one has enough resources to save either a species or sub-species, it seems evident that there really isn't a choice.
 - (of course we're assuming all else being equal, and that, for example, we'll be equally successful with either one).

What about hybrids?

The answer here is a little more difficult. Is it possible to reproduce the hybrid easily?

- for example, if the "parents" of the hybrid are not endangered and

can yield offspring anytime one wants, then a concerted effort to save the hybrid is probably not that important, particularly if this turns out to be expensive.

- We already talked about the Red Wolf a little. It is thought to be the result of a cross between coyotes and wolves.

- Genetic information shows fairly clearly that the Red Wolf is a hybrid.

- Nevertheless, there is still cause for controversy:

- Some morphological evidence and analysis of fossils shows the Red Wolf having been around for about 700,000 years.

- Increased hybridization between the Red Wolf and existing Coyote populations have blurred the genetic picture a little, though the analysis has taken this into account and still found no evidence for the Wolf being a separate species.

- Recovery efforts are also further confused by the fact that Red Wolf populations that are released are diluted by further hybridization with Coyotes.

- A lot of money has been spent on Red Wolves so far, and many folks are saying it could be better spent elsewhere if it's just a hybrid:

- The idea is that we can "reproduce" them anytime by crossing Coyotes and Gray wolves, though that doesn't seem to have worked that well (this should give us pause!).

One of you also wrote your paper on a species of Agave that is might very well be a hybrid - I'll save the details for the presentation since this is a paper to be presented.

Result: the issue is not clear. One could make an argument either way, but:

- if it is obviously a hybrid, and can "re-created" any time by allowing the "parent" species to breed, it probably doesn't warrant full protection/consideration (*if* the parent species are fairly

common).

III. Silliness with political boundaries

Does it make sense for a country (or state) to list an animal as endangered or threatened if this animal is quite common elsewhere?

- suppose that the range of an animal barely makes it into (say) Virginia. Is it justifiable to list this as endangered? If it is common (even a pest) elsewhere?

- Virginia seems to break things down into two categories, giving the global state of the organisms, followed by the state (sorry) of the animal.

- For example, the Purple finch is fairly common elsewhere, but is listed as extremely rare (and of concern) in Virginia.

- It is not clear (from perusing Virginia's web sites) what this means - is Virginia actively trying to protect the Purple finch?

- Remember the Virginia whitetail deer population that we discussed as being listed in CITES by Guatemala? Should it be listed?

- the answer is not clear. For example, Guatemala is clearly interested in preserving its population.

- However, probably no one else is!!

- Another example from Virginia is the Wood turtle (several folks at GMU have been working on this one).

- Listed as threatened in Virginia, but not at the Federal level.

- Does this make sense? We're kind of at the extreme southern end of its natural range. Does it still make sense?

- The best answer: Maybe!

- The problem is that we probably want to keep it in Virginia, yet the population as a whole is doing okay (sort of). Do we want to expend lots of money on this?

III. Conclusions

Hopefully, we've learned a little about:

- the problems

- there are many. We discussed lots of examples of species that went extinct, are going extinct, are threatened, endangered, etc.

- let's also not forget that the problems are often caused simply by people trying to survive.

- (Incidentally, I have a LOT less sympathy for folks who are causing problems in an effort to make lots of money!)

- a way to look at the problems

- we've discussed ways of looking at populations, analysis of the problems including:

- life tables to try and figure out which way a population is headed.

- the causes of lack of genetic diversity

- how to apply the above to try and figure out what to do

- hopefully, a way to deal with some of the problems:

- ways of setting up reserves (incl. size)

- reasons to conserve (after all, you can't do anything unless you can convince people of the reasons to conserve).

- other ways of dealing with problems (captive breeding, raising, etc.)

- throughout we've emphasized that to do anything, we need to know the biology of what we want to do. Don't forget that!

- Finally, two comments:

- 1) Consider the cost of doing nothing. What will the world be like 100 years from now? Remember, too, that the problem isn't just dealing with the conservation of organisms. This may mean some sacrifices, particularly in developed nations (should we be driving quite so many SUV's? consuming quite so much paper? steel?)

plastic? etc.), but again, what are the alternatives? Is it right that we squander the world's resources?

2) A religious perspective - see the handout. I find it heartening that our different faiths can agree on some things!