

B) Controlling predators

First, let's discuss what we don't mean with this:

Controlling predators simply to get rid of them (e.g., mountain lions preying on sheep, getting rid of grizzlies to protect people, etc.

This has a long controversial history:

In the past, for instance, the policy was shoot every predator in sight (e.g., wolves). Now, hopefully, we're a bit more enlightened and that policy is no longer considered. But wolves (as mentioned) are still quite controversial.

Do we want to re-introduce grizzlies into California? If you're living in California and raising kids there? If you're living a little further out of town where you might encounter a grizzly?

Hopefully we'll have time to get back to this topic.

But really, this is not the main thrust here. We're more interested in controlling predators in order to save an endangered species (incidentally, what if the predator is also endangered?)

Often this is fairly easy to diagnose as a cause (e.g., the predator is introduced, and the population of whatever plummets).

As such, eradication is often tried.

It can be quite successful, e.g., the great winged petrel recovered nicely once cats were removed.

- page 288 shows how cats were determined to be the problem (48,000 petrels were killed by cats in 1975!) and how petrel populations recovered after the elimination of cats (and a cryptic little comments about house mice increasing after cats were eradicated - you just can't win!)

The authors mention that if this is done, efforts should be made to do it humanly (leg-hold traps are out).

There are numerous methods, some are more difficult to implement than others. A few examples:

Poisoning - fairly easy, but then one needs to make sure that only target species are affected (a very obvious example is the rat poison that went wrong at the National Zoo).

Trapping - probably also easier shooting, but the same precautions apply (non-target species may be affected, especially if kill traps are used).

Shooting - Difficult, particularly with a large predator population (try shooting rats - it's not going to work), but on the other hand, there's less likelihood of killing the wrong animals.

All of these methods may be problematical in heavily populated areas (we can't shoot rats in Fairfax!).

Eliminating the predator can have unexpected consequences:

- When foxes were eliminated as a threat to the numbat, cats took over (possibly coincidence, since cat numbers increased due to an increase in rats (not a nasty type or rat)). Dingoes had also just been controlled, possibly contributing to the cat increase.

Complete eradication can be difficult.

- It goes without saying that we've been trying to eradicate rats for centuries.

- This requires a large sustained effort, though sometimes it does work:

- Muskrats in England and Scotland were eliminated after a sustained effort (they had help from the public and scientific studies on the ecology of the muskrat).

- rat removal from island in New Zealand has been quite successful, but requires constant vigilance to make sure the rats don't return.

Sometimes reducing predator numbers is sufficient:

- fences, barriers, and such can slow predator access to prey

sufficiently to help a species recover.

- concentrating trapping or killing at a vulnerable time for the predator (if the predator is stressed due to a fluctuation in food supply, that's the time to make a concerted effort).

Training predators can be tried:

- sometimes it is very difficult to reduce or eliminate a predator.

- planting bait with some type of substance in it that makes the predator sick has been shown effective:

- turtle eggs laced with a mild poison (making the mongooses throw up), is effective in getting the mongooses to avoid turtle eggs.

- this effect wears off fairly quickly, but it should be possible to re-apply it (and perhaps it's only really necessary during the nesting season).

C) Controlling parasites

Again, a little clarification is needed here - we're not talking about such things as tapeworms (though that could quite possibly help).

Instead, we're looking at such things as brood parasitism (cow birds and company).

- controlling cowbirds has helped many species to recover. We've already discussed Kirtland's warbler.

- numerous species in the Caribbean are recovering after a different species of cow bird started to be controlled.

- a nice example is on page 292. It shows an experimental design and testing to indicate that cowbirds really were the problem in some areas.

D) Controlling competitors

This is more difficult, often because we don't know for sure just what the

competitive relationship is.

- Sometimes it's a little more obvious - as something is introduced, the native species starts to decline.

- Rabbits and goats apparently outcompeted the endemic Mauritian tortoise.

After removing rabbits (difficult but it was done), native vegetation recovered, and while the native tortoise was extinct, other reptiles started to recover (primarily due to increase cover and insect prey, not because they were "competing" with the rabbits).

- Talking of rabbits - something bizarre:

Introducing hares has led to rabbit reductions (hares and rabbits are not the same!).

- Possibly the hares outcompete rabbits, but the whole thing may be silly since now one is quite possibly stuck with hares instead of rabbits (no one has looked at the long term effects of this).

No clear picture emerges here. Controlling competitors is something that can be tried, though one should have a pretty good idea of the ecology of all the species involved before making the attempt.

Next: supplementing populations and zoos.