**What are the three sorts of biodiversity?**

Why do quantitative measures of biodiversity fall short? Give the two main ways with examples

Explain noss’s hierarchical approach to measuring biodiversity

How are human activities altering Noss’s three attributes?

**What were the two main conservation practices previously, and the problems with them?**

Problems – based on conservationist’s priorities and values, not science. Made assumptions about landscapes – that always in balance, fragile etc. Human landscape relationship. Social justice. Goals don’t reflect landscape history eg what is a wilderness problematic concept because humans tied to eco landscapes + humans often generate higher biodiversity

Peter Ryan

**What are the causes of extinctions?**

Natural = habitat loss due to volcanism, planetary obit changes etc, meteor strikes, climate change, tectonic movement, competition, predation, disease, hybridization.

Human = habitat destruction(mining, agriculture), fragmentation (roads etc = barriers to dispersal, edge effect), overexploitation, pollution, invasive sp, climate change

**What is the extinction vortex?**

An extinct vortex occurs when biotic and abiotic factors work together to reduce a pop size into extinction. Gnereally starts with a small pop, which experiences loss of genetic diversity and inbreeding. This results in less adaptability, survival and reproduction in the population. Demographic stochasticity, environmental variation and catastrophes (abiotic factors) lead to reduce pop size and cycle starts again. Eg heath hen hunted to small pop, bad luck with enviro fluctuations took it out.

**Explain the two stages of extinction.**

Stage 1 deterministic extinction – a large population is impacted by a factor/s that successively reduce pop size. Eg hunting of passenger pigeons or diclofenac of indian vultures.

Stage 2 stochastic extinction. Pop is driven to extinction due to bad luck. It’s at risk just because it is small. Three types of stochasticity: demographic stochasticity where fluctuations in birth/death/sex ratio leads to death of pop; environmental catastrophe eg extreme weather/fire/sucession of unfavourable years; genetic stochasticity loss of alleles, through drift or inbreeding. What finally kills it probably isn’t what drove it to a small pop in the first place.

**What is min viable pop size, and why is it an old idea?**

**What characters increase extinction risk?**

Pop size

Habitat – flat and productive areas more likely to be used by humans

Mobility – Too much = dependence on many habitats and harder to conserve. Too little cant respond to changes, but easy to protect. Some useful for getting around fragmented habitats, but also increases chances of maortality at powerlines etc.

Use to humans – cn lead to overexploitation or conservation

K selected prone to deterministic extinction as takes while to recover. R selected prone to small pop syndrome as fluctuations could take it over brink.

Lifestyle – specialists more at risk bse dependent on single habitat or interaction

Species with complex or multiple habitat requirements

Close mutualisms = extinction cascades

Allee effects = need dense pops to breed/fend off predators.

Species susceptible to human diseases

Rapidly diversified sp ofen small ranges

Old sp at end of taxon life cycle

Habitat – islands and fresh water have highest risk

**What should we be conserving?**

Phylogenetic diversity = sp with longest branch length.

Keystone

Flag ship

Umbrella

Ecosystem engineers

Ecosystems

Functional types

Hotspots = little land for less cost. But not getting phylo diversity

**Which species are most at risk?**

Those that are exposed to cc, sensitive to it, and have little adaptability

Arjun

**How would you work out if a population is declining?**

Study life history, habits, food and habitat preferences, ecology, status

Make list of potential causes of decline

See whether abundance correlates with potential causes

Experimentally work out if potential cause isn’t just a correlate

**What’s the difference between habitat selection and habitat use?**

Habitat is any area offering resources and conditions that promote occupancy. Use is what you observe the sp to be using. Selection is what they’d prefer to use. Can’t just look a raw count, got to account for habitat abundance, and constraints due to competition, predation. Ie it’s all to do with availability. 1st order = geographic range, 2nd order = habitat type, 3rd order = particular tree (patch scale) etc.

How is habitat selection used in working out causes of pop decline?

What is the aims, benefits and downsides to establishing new pops?

What types of monitoring are there, and which should be used?