Chapter 5 – Population viability

QUESTIONS ASKED

- What is conservation biology?
- Do fish populations get extinct or extirpated?
- Is it bad that related populations rescue each other?

BACKGROUND INFORMATION

- Compendium: Santos (2015a)
- Wikipedia: Conservation Biology, IUCN Red List
- IUCN Red List Categories and Criteria 3.1
- YouTube: DNews, 3 extinct animals make a comeback
- YouTube: RippleAfrica, Fish conservation in Lake Malawi

COVERAGE

- Concepts and categories of vulnerability
- Examples of vulnerable fish populations
- Estimation of the probability of extinction from sporadic sightings

INSPIRATION AND SOFTWARE

Some few species along the coasts, and particularly in estuaries and lakes, have their future threatened somehow. There is, however, a great confusion about what "threatened" means. The vocabulary and definitions used by IUCN are introduced. Interesting examples for calculation of the probability of extirpation of populations found in museums, or sporadically in the fishery by-catch, are worked with. The examples are inspired on the proposition made by Grogan & Boreman (1998). Considerations are made about the socio-economic contexts of fisheries and conservation initiatives.

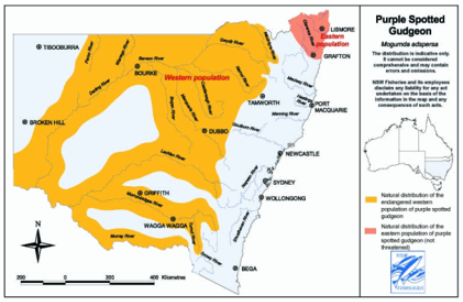
- Ch5 Extirpation JdS.xlsx

Santos, J. 2015. CONΣERV IT 1.0 – Student Manual: A Training System for Aquatic Conservation Managers. Septentrio Educational 2015(2). DOI: http://dx.doi.org/10.7557/se.2015.2

SNAPSHOTS

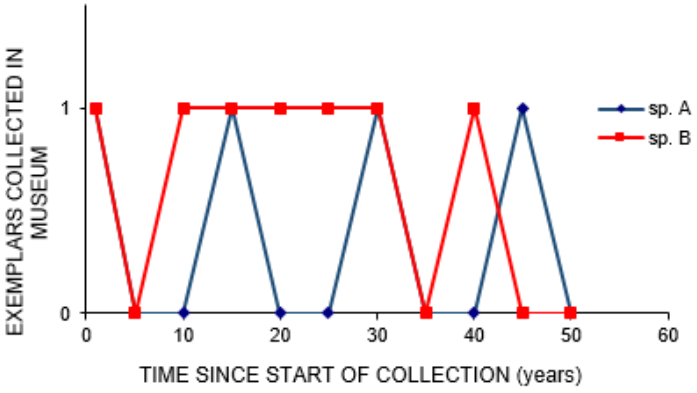
Purple spotted gudgeon - (western population) *Mogurnda adspersa* in New South Wales

visit



Why is the western population of purple spotted gudgeons threatened?

Predation by **introduced** fish such as gambusia and redfin perch.
Disease, such as virus, carried by introduced species?
Habitat degradation, particularly the loss of aquatic plants.
Fluctuations in water levels as a result of **river regulation**, leading to negative impacts on reproduction



$$p = 1 - (tc / T)^{k}$$