

Fauna Conservation Research in DEC: Issues and Challenges



by

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Our environment, our future



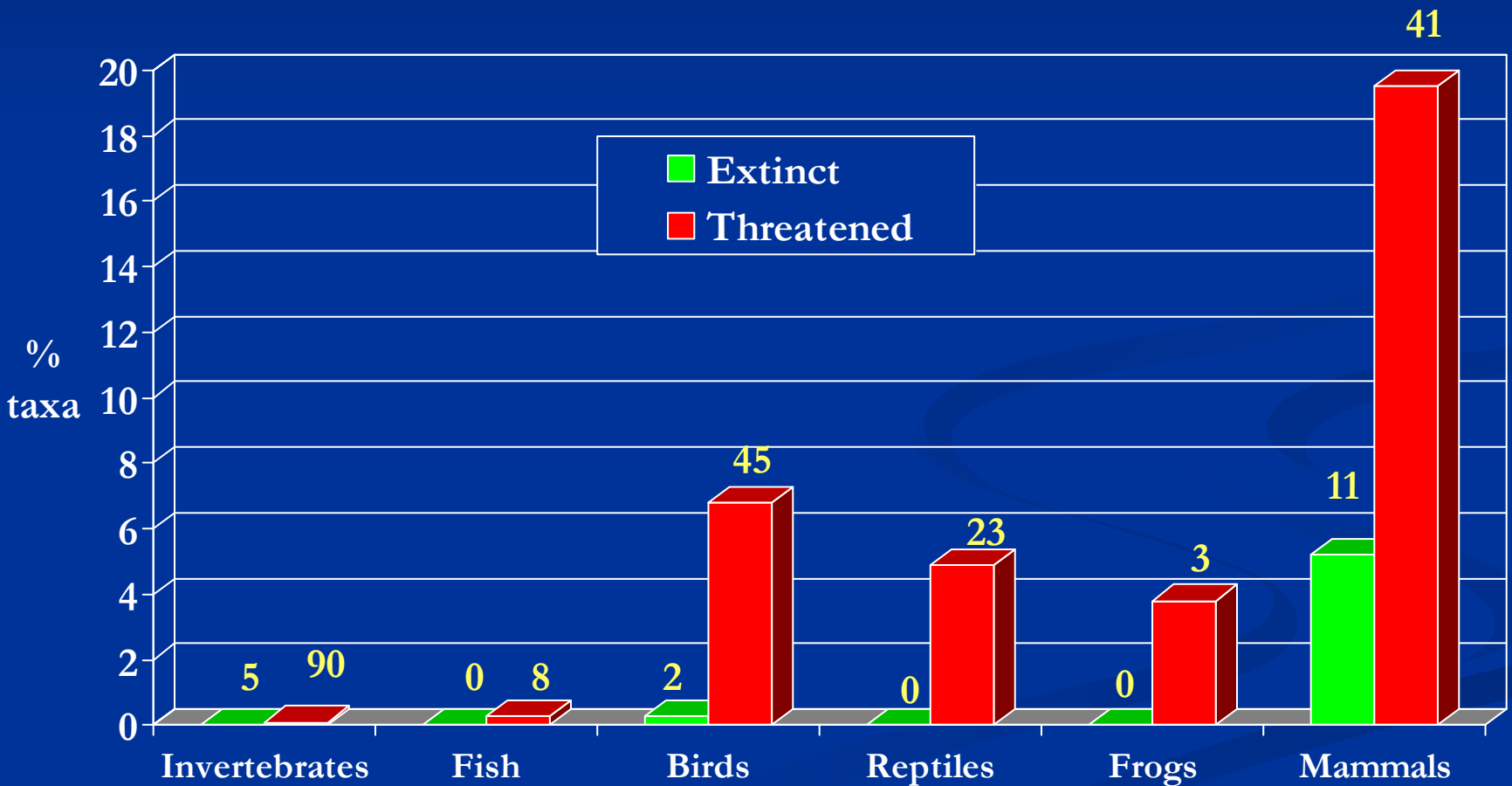
WAs Native Fauna

- >100,000 species of invertebrate.
- >2,900 species of fish.
- 710 species of bird.
- 550 species of reptile (ca 830 total).
- 210 species of mammal (ca 366 total).
- 78 species of frog (ca 175 total).

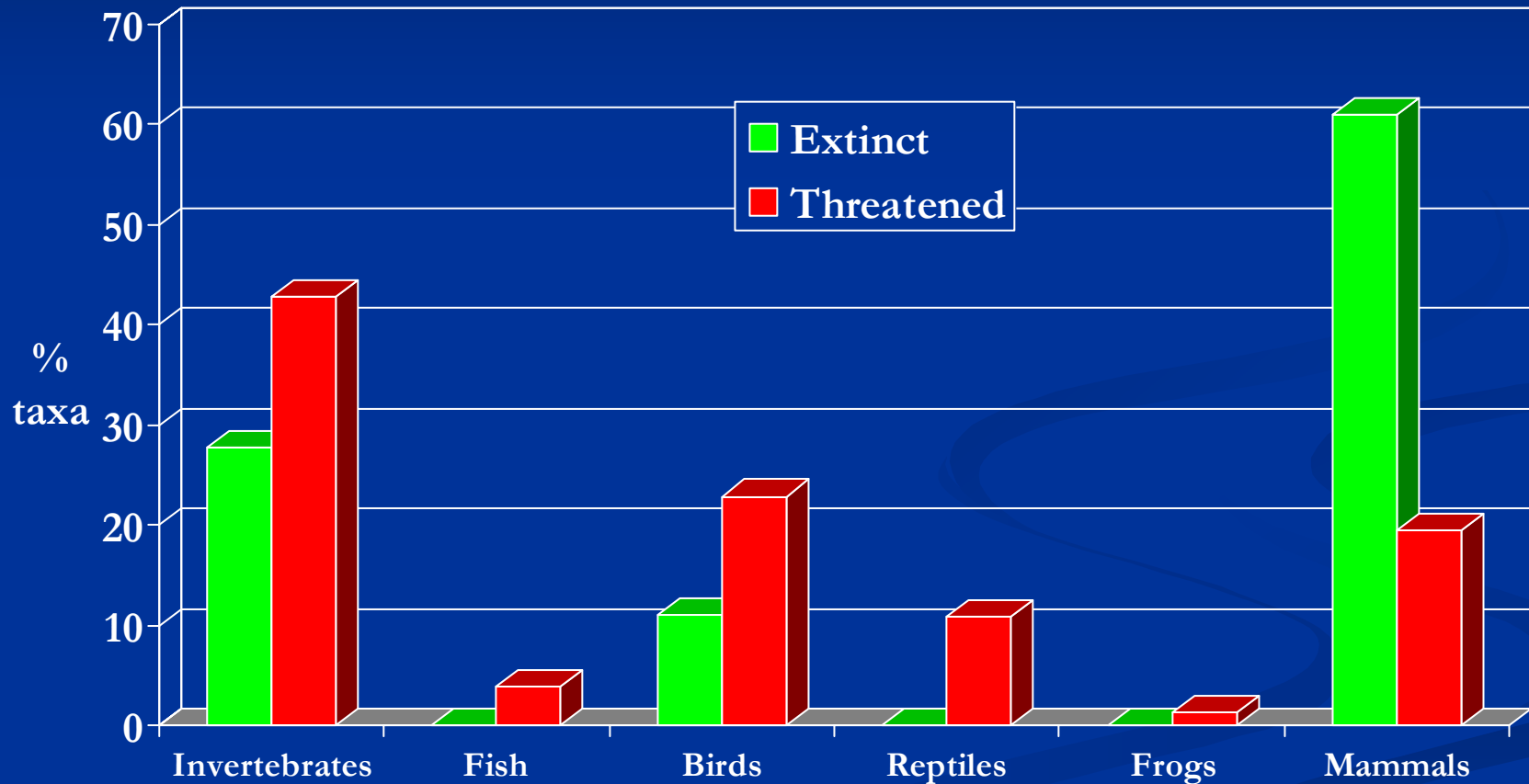
But... 210 species are threatened, 18 extinct and 11 Specially Protected.



Proportion of total fauna that are Extinct or Threatened



Proportion of total Extinct and Threatened taxa (n = 228)



Waves of extinction

- 1880 – 1920s: early collectors reported declines in arid and semi-arid areas, feral cats and disease mentioned.
- 1930 – 1970s: arrival and spread of rabbit and fox, clearing of wheatbelt, declines in the south-west.
- 2000 – present: following successful fox control, spread of feral cats?

Threatening processes

- Lack of knowledge:
 - Invertebrates, interactions of predators.
- Persecution / over harvesting:
 - Sharks, crocodiles.
- Inappropriate / changed fire regimes:
 - Kimberley and desert fauna.
- Natural rarity / restricted distributions:
 - SREs, island fauna, land snails.
- Habitat loss – changed hydrology, salinisation, clearing, feral pigs:
 - Wheatbelt fauna, quokka, frogs.



Threatening Processes (cont).

- Disease
 - Woylie declines ?
- Climate change:
 - Hilltop invertebrates, quokka, ringtail possum, frogs, indirect effects.
- Introduced competitors – rabbits, domestic stock, cane toads:
 - CWR mammals.
- Introduced predators – fox, feral cats, cane toads:
 - CWR mammals, ground birds.



DEC Fauna Research

- What do we do ?
 - Ecology and biology of threatened species.
 - Understanding and controlling threatening processes.
 - Reconstruction of native faunas, ecosystem function.
 - Development and implementation of *Western Shield*.
- How do we do it ?
 - 11 scientists
 - 18 technical officers
 - Collaborations with
 - Other State agencies - Perth Zoo, WA Museum, Agriculture and Food, Fisheries.
 - Interstate agencies – QLD EPA, DSE, SA DEHWA.
 - Universities – stipend support, ARC Linkage grants.
 - Commonwealth – DEWHA, Defence.
 - NGO s – WWF, Australian Wildlife Conservancy
 - Industry – several.



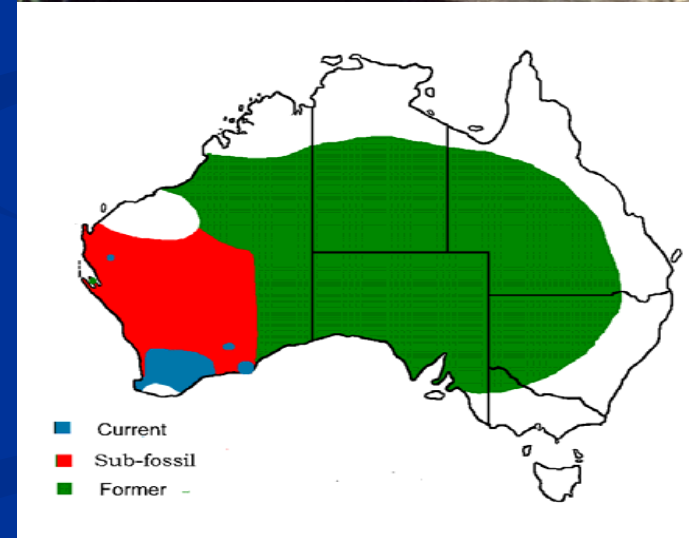
Current Projects

- Writing and implementing recovery plans:
 - Gilbert's potoroo, numbat, chuditch, rock-wallabies etc.
 - Translocations.
- Ecology and biology studies:
 - Butterflies, water rats, ringtail possum, quokka, south coast birds etc.
- Managing introduced predators:
 - Fox and cat control methods.
 - Mesopredator release.
 - Dingo purity and movements.
- Impacts of feral goats, camels and pigs.
- Management of cane toads.
- Fauna reconstruction.



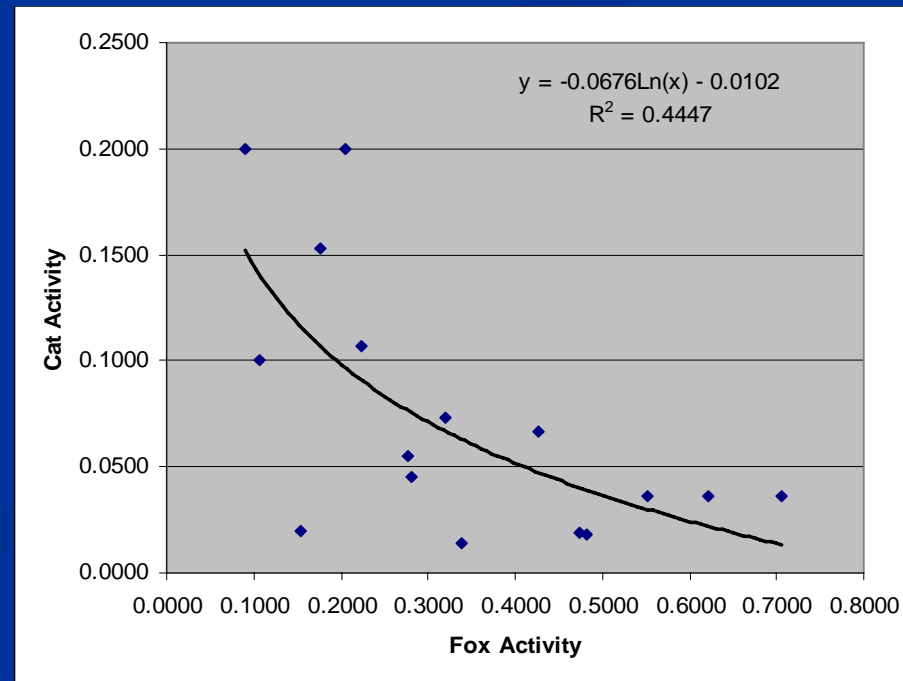
Chuditch recovery

- Listed as Vulnerable in 1983:
 - 90% decline in range, ongoing.
- Recovery Plan prepared in 1994:
 - Impact of timber harvesting and burning.
 - Impact of fox control.
 - Captive breeding and translocation.
 - Wheatbelt survey.
- Status review in 2007:
 - Retain as Vulnerable.
- Recovery Plan being revised:
 - Impact of feral cat control.
 - Impact of chuditch on other threatened fauna.
 - Survey in Goldfields / western woodlands.
 - Strategic monitoring and improved monitoring methods.
 - Translocation as part of fauna reconstruction projects.



Mesopredator release

- Good initial recovery of fauna after Western Shield commenced:
 - Quenda, woylie, tammar wallaby removed from threatened species lists.
 - But, recent unexplained declines.
- Examining the interactions of foxes, feral cats and native predators:
 - Do feral cats and native predators increase in the presence of effective fox control?
- Effectiveness of fox control:
 - Baiting operations.
 - Bait avoidance
 - Bait uptake by non targets eg possums.
- Revised, improved fox and cat control protocols.



Cane toad management

- Kimberley Island survey.
- Pre-invasion monitoring – frogs and other small vertebrates.
- Radiotracking large predators – quolls, goannas, pythons.
- Susceptibility of mammals, reptiles and land snails.
 - Avoidance
 - Coping with toxin
 - Learned responses



Fauna Reconstruction

- Rangelands Restoration project at Lorna Glen:
 - 17/85 arid zone mammals now extinct / only found on islands.
 - Lorna Glen (250,000 ha) purchased in 2000 - feral cat control, de-stocking, turn off waters, fire management.
 - Reintroduce 11 mammal species over 10 years
 - Commenced in 2007 – bilbies and brushtail possums.
 - 2008 – mala, but cat predation still an issue.
 - Revised translocation strategy – adaptive management framework.
 - Boodie and bandicoot in 2009 ?
- Dirk Hartog Island:
 - Pastoral lease since 1860s - proposed conservation estate (68,000 ha.)
 - Destock goats and sheep, feral cat eradication.
 - 12 mammal species to be reintroduced over 12 years.



Future Directions

- Continue with focus on conservation of highly threatened taxa.
- Improve our understanding of invertebrates and their conservation.
- Implement feral cat control in the SW of WA.
- Fauna reconstruction projects.
- Management of cane toad impacts.
- Examine impacts of climate change
 - Modeling impacts
 - Spread of introduced and native species.
 - Fire interactions.
 - Island management.



THANK YOU

