Threatened Reptiles of the Brigalow Belt

Management Needs Knowledge

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EIANZ Threatened Species
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Why Reptiles?

▶ **Often a focus on charismatic megafauna – "iconic" (usually meaning furred or feathered)**

▶ **Many reptiles are also iconic**

▶ **Many are very poorly known**

▶ **Many species are cryptic and difficult to survey**

▶ **Present some special difficulties**

Threatened Brigalow Belt Reptiles#

 # Terrestrial reptiles (i.e. not freshwater turtles or saltwater crocodile)

Common Name	EPBC Act	NC Act
LIZARDS		
Retro slider	E	E
five-clawed worm-skink	V	E
collared delma	V	V
yakka skink	V	V
Darling Downs earless dragon		E
striped-tailed delma*		V
brigalow scaly-foot*		V
golden-tailed gecko		NT
SNAKES		
ornamental snake	V	V
Dunmall's snake	V	V
grey snake		E
woma		NT
common death adder		NT
yellow-naped snake		NT

*De-listed from the EPBC Act in May 2013
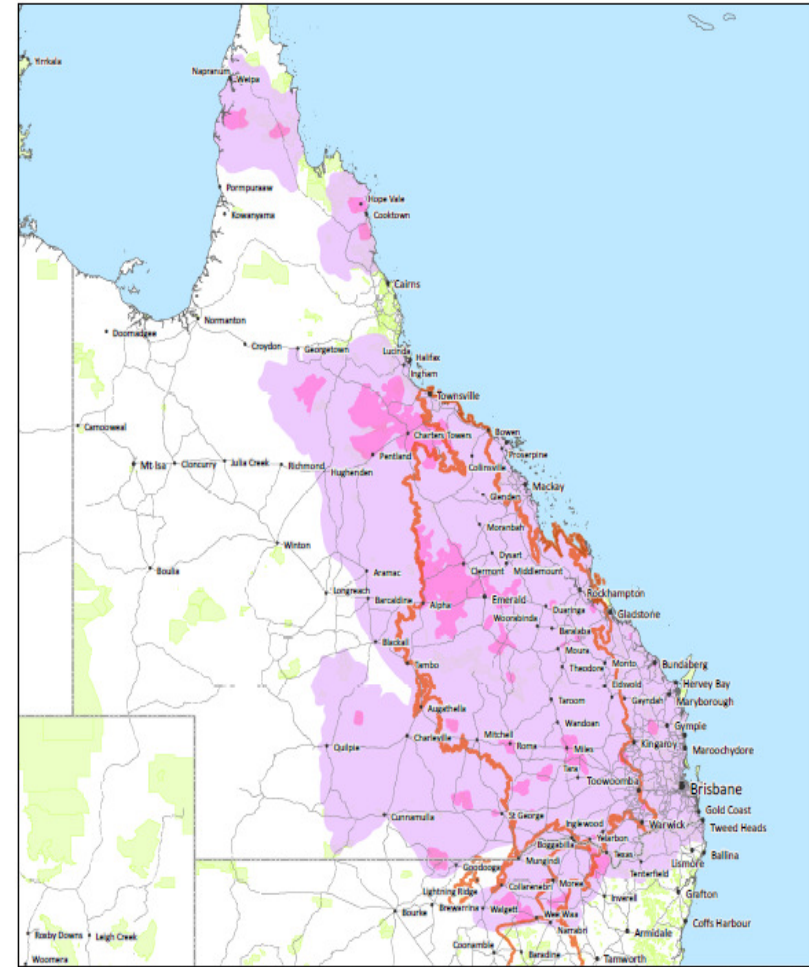
The Brigalow Belt and the modelled distribution of the EPBC-listed Brigalow Belt reptiles. Source: SEWPAC 2011

Threatened Brigalow Belt Reptiles

yakka skink, *Egernia rugosa*

Dunmall's snake, *Furina dumalli*

brigalow scaly-foot, *Paradelma orientalis*

ornamental snake, *Denisonia maculata*

SEWPAC conditions

▶ **Examples from recent EPBC approval conditions for large Qld projects**

▶ **Disturbance limits (ha) imposed on potential habitat for EPBC-listed threatened reptiles**

| Common Name	APLNG	QCLNG	GLNG	Alpha Mine	Alpha Rail
brigalow scaly-foot	774.22#	235	205.3	TBD*	189
yakka skink	73.44	343	119.9	8,152	812
Dunmall's snake	262.49	-	205.3		
ornamental snake	-	-	44.0	1,543	251*
Retro slider				TBD*	TBD*
collared delma	-	-	41.6		
TOTAL PROJECT AREA	572,700	450,000	688,700	20,603	3,450

Values taken from EPBC approvals 2009/4974 (APLNG), 2008/4398 (QCLNG, including referral) and 2008/4059 (GLNG) and 2008/4648 (Alpha mine & rail). Values for APLNG and QGC are for "potential habitat"; values for GLNG are for "habitat type".

 # Brigalow scaly-foot de-listed May 2013. Disturbance limit no longer applies: EPBC approval conditions variation, July 2013

 * Values for Alpha Mine and Alpha Rail are to be confirmed during pre-clearance surveys. Values for ornamental snake are for "confirmed habitat".

Desktop Studies: Database Use in EIA

▶ **Desktop studies: typically search on a project area plus a buffer**

▶ **Four databases commonly used in Qld**
- EPBC Protected Matters search
- Wildlife Online (DEHP)
- Birdlife Australia (Bird Atlas)
- Queensland Museum

▶ **Limitations with each database**
- Records (observations)
- Specimens
- Modeled distributions

▶ **Databases are <u>not</u> an inventory**
- Examined 100 random sites across Qld
- Wildlife Online, 20 km radius, >1,250 km^2
- 25 sites had <u>no</u> reptile records
- 3 sites had <u>no</u> records at all (no fauna?)
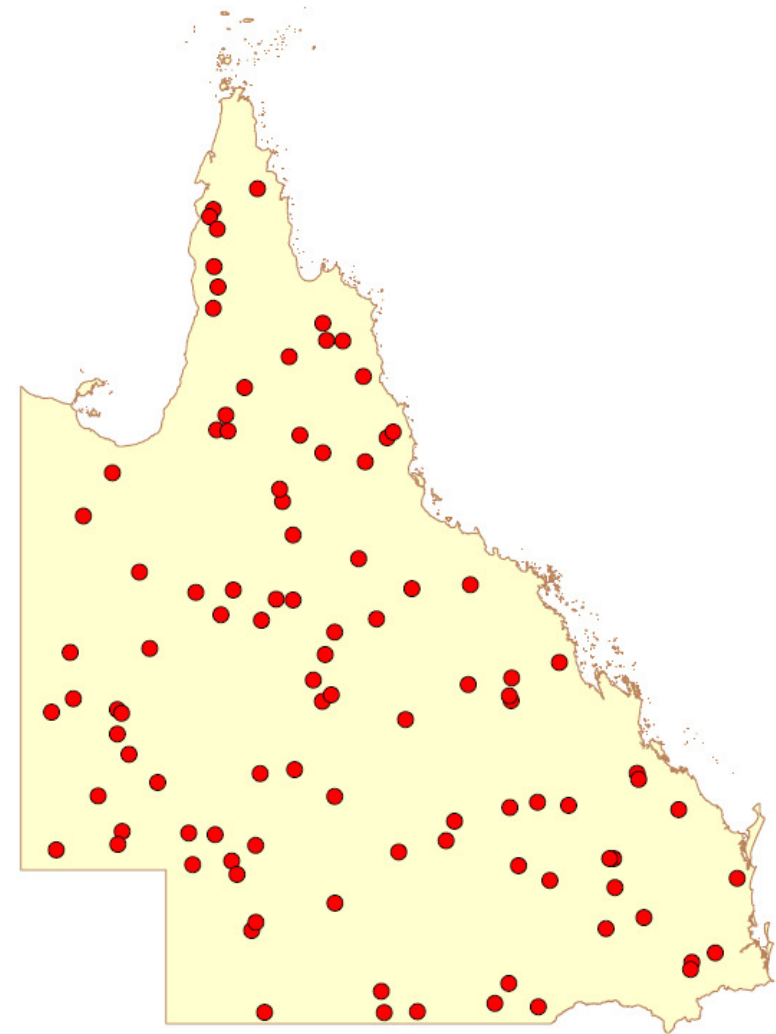
Desktop Studies: Habitat Mapping

▶ **Habitat "modelling": REs as habitat surrogates**

- **Based on Regional Ecosystem mapping**
- **Compile a list of REs that are "suitable habitat"**
- **Map those polygons as suitable habitat**

▶ **RE (remnant) vegetation meets certain criteria:**

- **50% cover**
- **70% height**
- **Characteristic species (above-ground biomass)**

▶ **Simplistic, typically just remnant canopy**

- **Doesn't address understorey, ground layer, condition**
- **Microhabitat (logs, litter, soil cracks)**
- **Regrowth**
- **"Cleared" – neither remnant nor regrowth**
  - **Roadsides**
  - **Paddocks with gilgai**
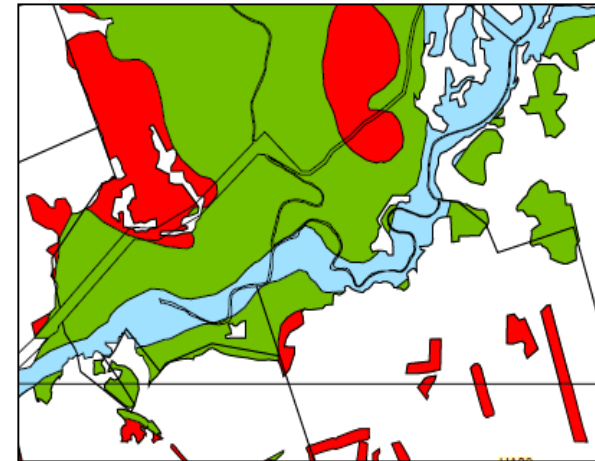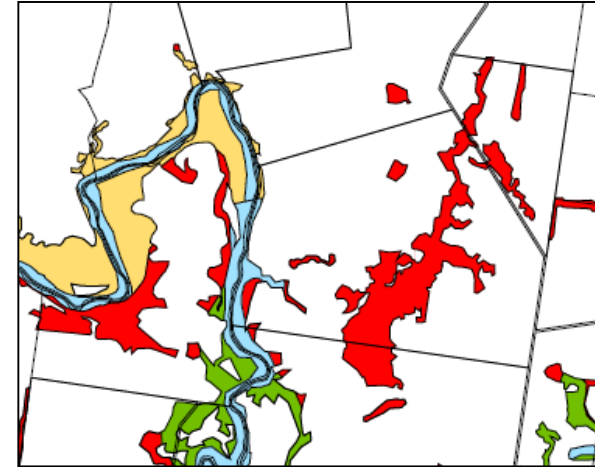
Problem: Lack of Knowledge

▶ **Geographic Range**

- **Large range extensions are not uncommon**

- **Example: yellow-naped snake: 200 km range extension**

▶ **Habitat and microhabitat utilisation**

- **Poorly known for many species**

- **Predictive ability is low**

▶ **Detection**

- **Probability of detection is poorly-understood**

- **Cryptic species may require a lot of effort before we can be confident they are <u>not</u> present**

- **EPBC Threatened Reptile Survey Guidelines**

▶ **Draft Qld BB Reptile Recovery Plan** (2006)

- **<u>Objective 5</u>: "Increase knowledge and understanding of the species and their ecology to effect their conservation and management"**
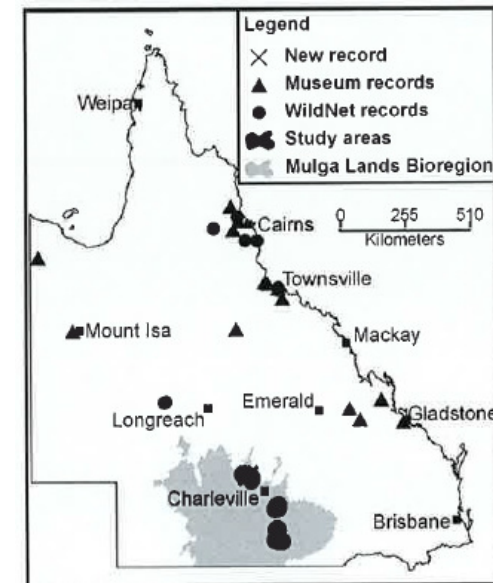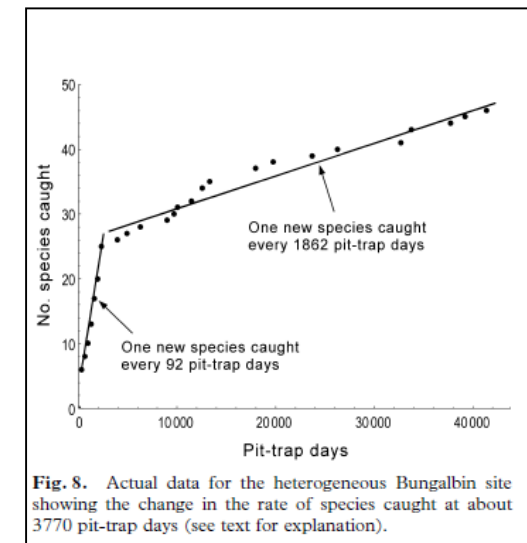

(Source: Ferguson *et al*. 2012)

Fig. 8. Actual data for the heterogeneous Bungalbin site showing the change in the rate of species caught at about 3770 pit-trap days (see text for explanation).

(Source: Thompson *et al*. 2003)

Why? Constraints in EIA Practice

▶ **Clients want <u>certainty</u>**

- **Where are the animals? How many?**
- **Where are they <u>not</u>?**
- **Where & when can I conduct the activity?**

▶ **Project and Scope Constraints**

- **Schedule – e.g. no time for seasonal surveys**
- **Cost – fieldwork is expensive & time-consuming**
- **Land Access**

▶ **Health and Safety Constraints (increasing)**

- **Nocturnal surveys**
- **Remote areas**
- **Venomous snakes**

▶ **Competency and Capability**

- **Availability of competent specialists**
- **Ecological understanding**
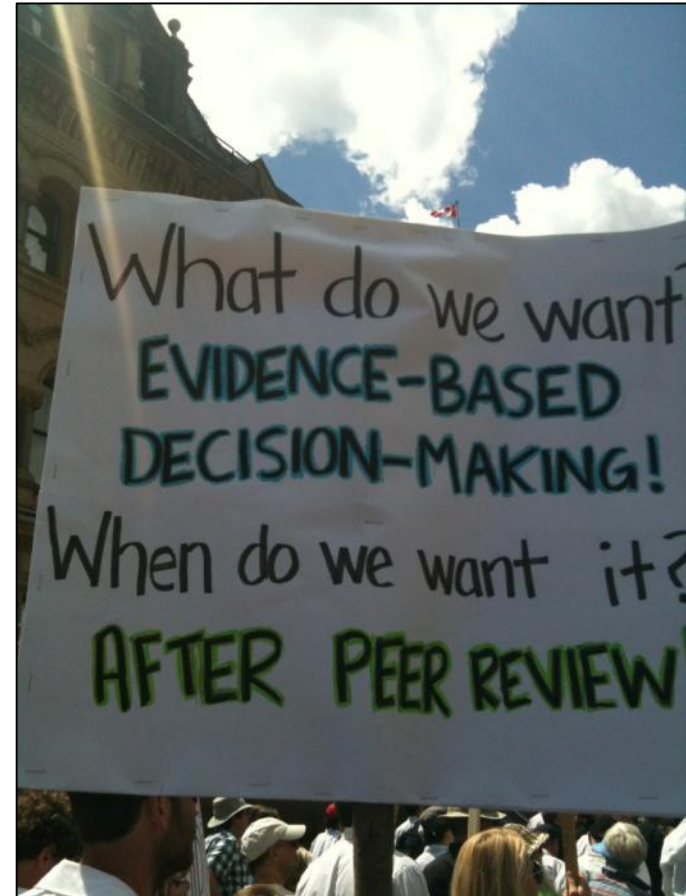- **Critical analysis and review**

Google "Research"
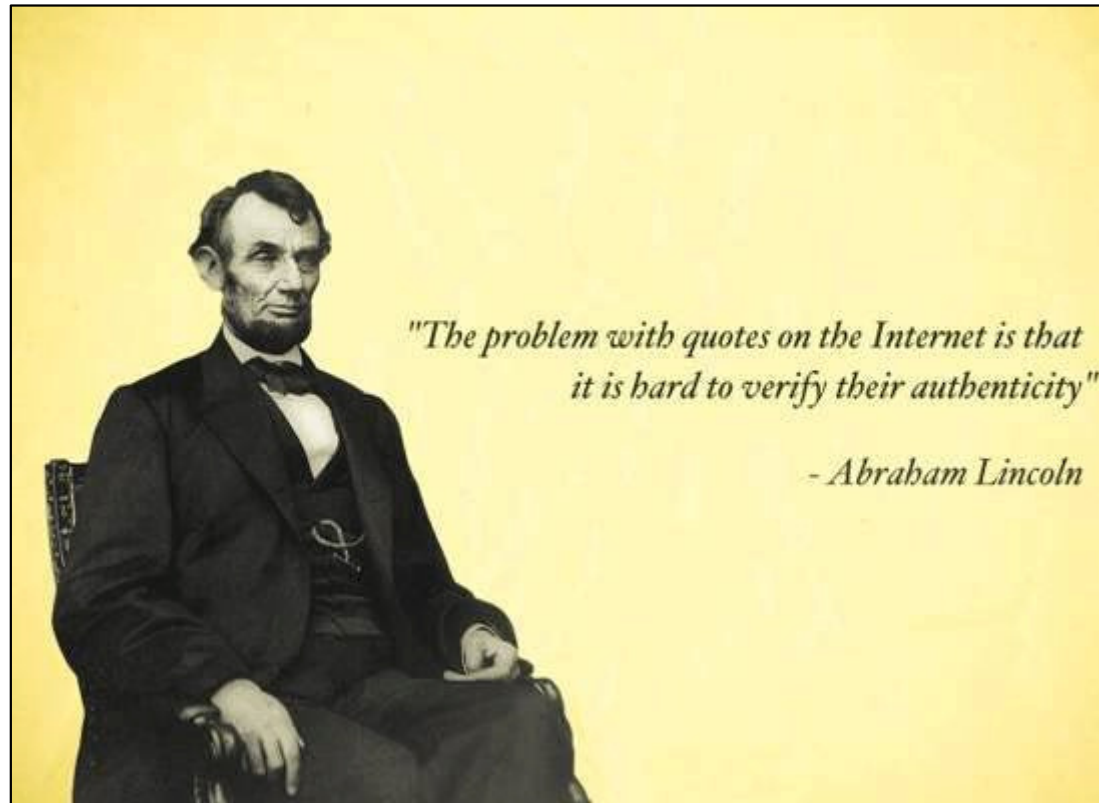
Solutions?

▶ **Risk Management Approach – Risk of:**

- **Unanticipated impacts**

- **Non-compliance**

- **Stand-downs**

▶ **Competency-based**

- **Ecology is a specialised field**

- **Decisions must be informed by an ecological (and herpetological) knowledge base and understanding**

- **Accreditation? Certification ? "Suitably qualified and experienced".**

- **EIANZ Code of Ethics: "Only practice and offer services in functional areas and specialisations in which one is appropriately qualified, experienced and competent"**

▶ **There is no substitute for actually going out and surveying**