

Fauna assessment limitations and sources of error



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Overview

Every survey has its limitations!

- All reports should clearly identify the limitations and potential sources of error
- It is not wrong to say the survey couldn't achieve what was planned, but it is important to acknowledge what was not done
- Most reports have a limitations table but only few explain what it means. In some cases a paragraph about each item is required

This presentation is generally not about telling you what to list but rather challenging you to think more broadly

Limitations

- Competency/experience of the consultant carrying out the survey
- Scope
- Completeness or proportion of the task achieved
- Adequate intensity of the survey effort:
 - Proportion of fauna identified, recorded and/or collected
 - What was not recorded, and possibly should have been present
- Availability of contextual information on the region
- Timing/weather/season
- Disturbances which affected results of the survey
- Adequacy of resources
- Remoteness and/or access problems
- Efficacy of sampling methods
- Defining fauna habitats



Staff competency and experience

Do

- List all staff involved in:
 - field work
 - reporting
 - reviewing and QA
- Identify who did what
- For each person, indicate the **relevant:**
 - qualifications
 - experience

Don't

- List how long the company has worked in the area
- Time since getting a degree is not experience
- Don't embellish facts



Scope

- Was the scope determined based on ecological rationale, costs, timing or doing just enough to get an approval?
- Could additional or different surveys have resulted in a better outcome?
- Could more time or resources have improved the outcome?
- Was the survey undertaken at the optimum time(s) of the year (overall or for targeted species)?
- Were you limited by access, availability of staff or equipment?
- Would you approach the project differently if you did it again – is this a scope issue?

Completeness

- Did you **adequately** cover all fauna habitats in the survey area?
- Should you have done more in a particular habitat?
- Was the detection strategy or survey technique(s) appropriate?
- Did you do what you said you would?
 - Sometimes you can't do what you said you would – was this limiting?
- Did you do multiple season surveys? If not, why? Does it make a difference?

Intensity of survey effort

Do

- Indicate the time of an actual activity (e.g. camera traps, bird surveys, etc)
- Discuss the number of trap nights per trap type per habitat
- Was survey effort comparable among each habitat type?

Don't

- List # of hours or days personnel were in the field
- List the # hours camera traps, pit traps, etc have been in the field



Proportion of fauna assemblage recorded

- Use SAC:
 - Indicate the proportion of species recorded in each habitat type
- Can you complete a robust statistical analysis
- What species are likely to be present but not recorded
- Are there seasonal, weather or 'boom-bust' effects
- Have you missed any notable species that would normally be recorded?

Availability of contextual information

- Do you have fauna data for similar habitats?
- What is the quality & comprehensiveness of these data?
- How far away must you go to get relevant fauna assemblage data?



- Don't list surveys from 250km+ away and say they are representative
- Nearby is not always suitable as a comparison
- Is survey intensity adequate to provide useful data?
- List of species is of limited contextual value

Timing/weather/season

- This is almost always a limitation!
- Different times of the year catch different fauna
- Never have perfect weather or conditions for all taxa
 - Frogs
 - Reptiles
 - Mammals (male dasyurid die off)
 - ‘Boom-bust’ species
 - Migratory birds
- Calendar month doesn’t always represent appropriate timing
- Discuss how the selected survey period(s) will influence what has been recorded

Disturbance which affects

- How did you account for edge effects?
- How did you account for digging in effects?
- Did feral fauna or people impact on traps?
- Ants?
- Rainfall or limited access?
- Were all the traps in the same habitat equally affected?



Completeness

- Did you achieve the planned/promised scope?
- Were all fauna assemblages appropriately surveyed?



Resources

- Staff
- Funding
- Timing
- Site assistance
- Equipment
- Aerial photography or GIS



Remoteness and/or access problems

- Could you get everywhere?
 - Flying over in a helicopter is not the same as an on-ground inspection
- Did you require access to ATVs, helicopters, boats, 4WDs, etc
- Restrictions due to heritage?
- Temporal or spatial restrictions due to OHS?



Efficacy of your survey

- Have you collected sufficient field and desktop data to actually provide a comprehensive assessment of the potential impacts that the proposed development will have on the terrestrial vertebrate fauna?

or

- Do you have enough power in your data to adequately and comprehensively assess potential impacts?
- If you were required to collect 'baseline data' for subsequent monitoring purposes, are the data adequate and representative?

Defining fauna habitats

- Fauna habitats:
 - can be defined at various scales
 - not always discrete
- How fauna habitats are defined effects:
 - survey design
 - data analysis
 - fauna assemblage reporting
 - Assessment of impacts

Defining fauna habitats

- An above ground termite mound is an important fauna habitat, but do we want to work at that scale?



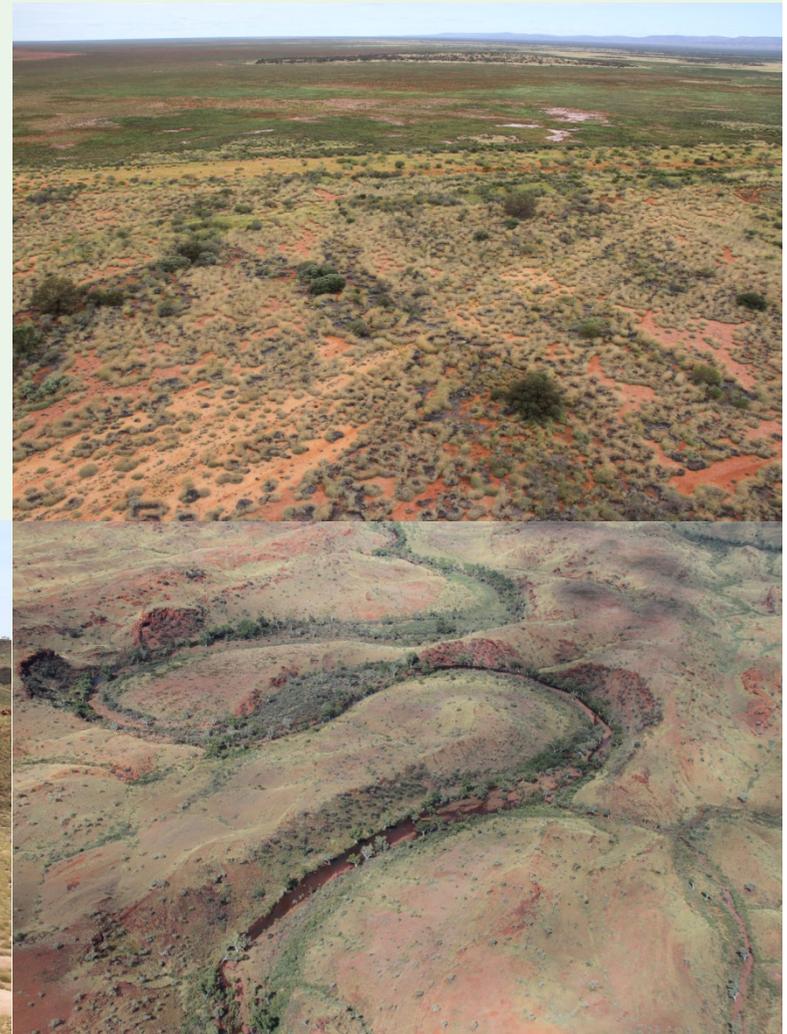
Defining fauna habitats

- Rock piles in a sand plain are a different fauna habitat, but do we want to work at that scale?
- Tops and slopes of dunes, and swales in sandy deserts support different fauna assemblages, but do we want to work at that scale?



Defining fauna habitats

- Landscape scale habitats, do we get enough definition?



Defining fauna habitats

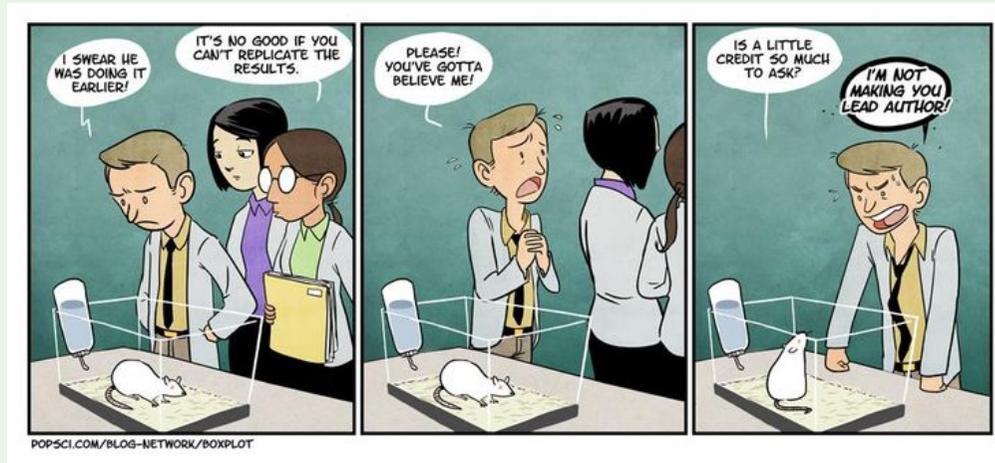
- When you have ecotones, how do you define the fauna habitat?
- Have you sampled in or across habitat types?



Thanks and Questions

Every survey has its limitations!

Are there other limitations that have not been mentioned?
How do clients view limitations in the context of EIA?
How do regulators view limitations in the context of EIA?



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