

# Good practice in invertebrate assessments



**John Irish**  
**18 October 2013**

# Why invertebrates?

Their:

- high diversity,
- small size,
- small distribution ranges,
- narrower niche limits
- and high endemism rates

combine to make them highly vulnerable at a very low environmental resolution but at the same time make them potentially highly useful assessment tools.

- Plus, in some parts of Namibia they are almost all we have to work with.

# Good practice 1: determine need

- Savanna, woodland, non-mountainous, higher rainfall, northern and eastern parts\*: invertebrates will not give more or different information than other biota.
- Desert, semi-desert, mountainous, drier, southern and western parts: invertebrates provide progressively more, finer grained, and occasionally different information compared to other biota.

\* Exceptions in north and east: a) size-limited or isolated specialised habitats – fountains, cave systems, isolated rocky outcrops, etc. b) client preference.

100-300 km<sup>2</sup>

ca. 1000 km<sup>2</sup>

ca. 10000 km<sup>2</sup>

ca. 30000 km<sup>2</sup>

< 25 km<sup>2</sup>



< 100 km<sup>2</sup> = Critically Endangered

# Good practice 2: no desktop studies

- Sometimes there is simply no information.
  - Enough biodiversity information might potentially exist in other cases, but not be accessible or extractable within EIA timescales or budgets. \*
  - Most dependable source of information at scoping level: field visit.
- \* As of now - could be fixed if Nambia Biodiversity Database fully developed

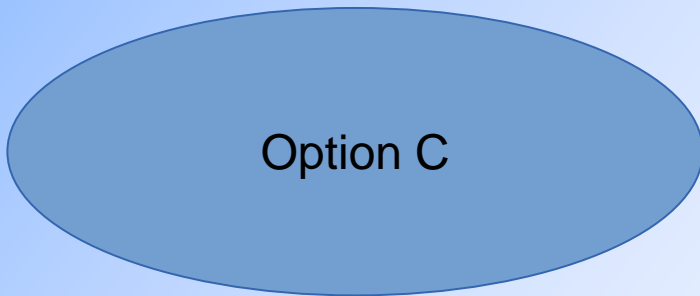
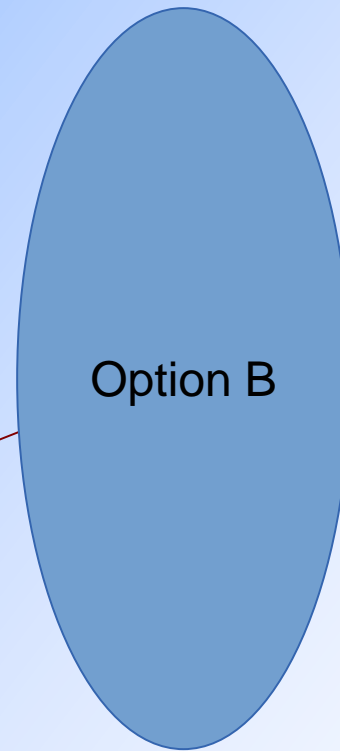
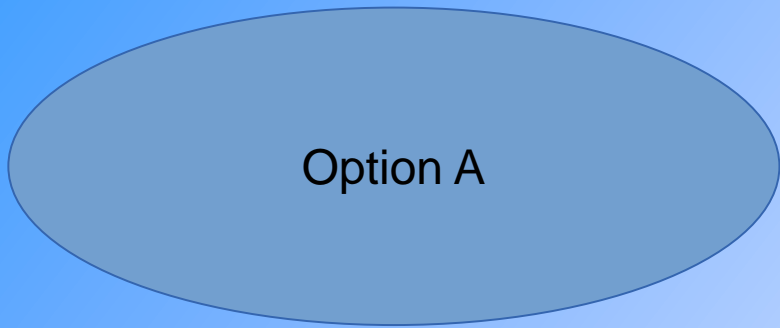
# Good practice 3: seasonally appropriate field visits

- Field visits only useful after rain.
- Most of country: window of opportunity about 3-4 months out of year, but unpredictable which months.
- Succulent Karoo: annual window about 3 weeks, also unpredictable.
- Desert: years may pass without rain.
- Clients have other expectations. How to manage?

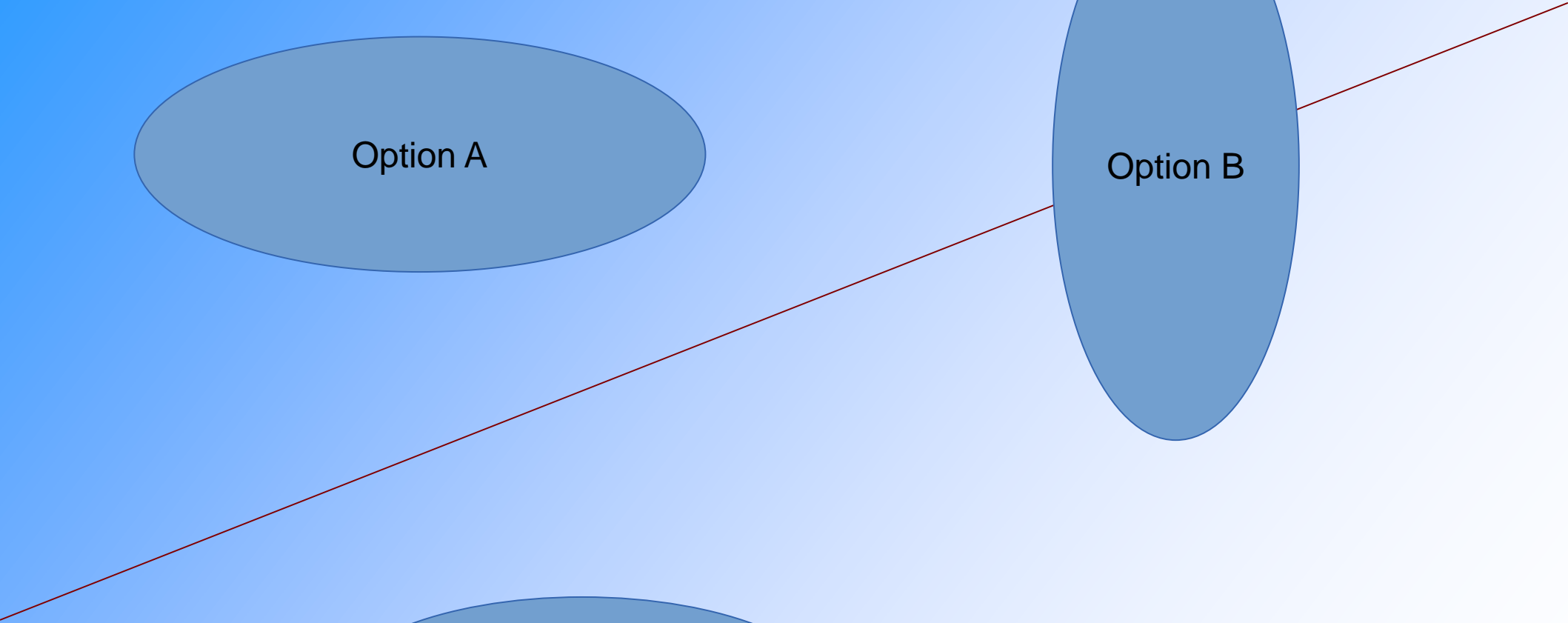
# (General: do habitat sensitivity early)

- Habitat categorisation and sensitivity assessment can be done in absence of rain.
- Doing this at scoping level may guide planners to avoid or minimise impacts. Current practice instead relegates sensitivity assessment to final stages of EIA when it is already too late to make fundamental changes to footprints and we are left trying to 'mitigate' the unmitigatable.

**Ultra hyper mega sensitive area**



**Moderately sensitive area**





# Good practice 4: consider habitats first, taxa subsequently

- Invertebrates difficult to identify due to small size, paucity of specialists and large number of undescribed taxa.
- Strict taxon-based assessment therefore not feasible at scoping level, so rather consider habitats, but support them with the lowest practical level of taxon identification possible for any particular group (varies).
- Rationale: if habitats remain intact, so will their invertebrate taxa, even if we do not or can not know what those taxa are. This is sufficient for scoping purposes.

# Good practice(s) 5: baseline studies

- Purpose: sets the standard against which post-decommissioning restoration can be measured, so needs to be taxon-based.
- Specimen collection is essential – most invertebrates can not be identified with naked eye and many are undescribed.
- Need to disseminate specimens to specialist taxonomists for expert identification and description of new species where needed. Latter to feed into EMP as needed.
- Need to deposit voucher material in a public biological collection for safekeeping till needed at decommissioning. Types of new species need to go there anyway.

# Role of public biological collection

- Source of voucher material to aid in identification of collected specimens
- Repository for overall material, for safekeeping till decommissioning and beyond
- Scientific curation of material: dissemination to experts for further identification or description
- Repository for type specimens of newly described species

# Namibian reality

- Institutional dysfunctionality renders the required biosystematic services unavailable in Namibia
- Initial specimen identification levels suffer as a result
- No material is preserved and no permanent record of pre-development biota therefore exists.
- Subsequent specialist identifications are not possible
- New species can not be described

# Resulting actual (not good) practice

- Try to avoid baselines – but sometimes the area is just too important not to do it
- Do the best identification possible with available literature, ignore what can not be done, even if it means we are missing important things
- (Try to) mention the constraints
- Unsuccessfully tried to interest clients in curating material, end up storing it myself. Inappropriate storage = steady deterioration
- Keep photographic record of identified taxa – again, clients uninterested, end up storing self
- Undescribed species remain so



Good practice 6: Allow for resultant scientific work that extends beyond the EIA timeline.

But how ?

