Cave Bats: Surveys vs. Monitoring
Cave Bat Surveys and Monitoring

What are they?

**Survey** = An investigation of cave bats in the wild

> Usually intended to answer specific questions about the presence, abundance, distribution +/- ecology of species in a given cave or area.

**Monitoring** = A repeated series of surveys over time

> Usually designed to answer questions about whether cave bat species and their abundance are changing, and the reasons for any changes.
Initial Cave Bat Surveys

Common Questions:
• What bat species occur at the site?
• What is their abundance?
• Is this cave important for conservation? (scale dependent)
• What threats are there to bats at the site?

Essential Reporting:
• Site coordinates & description (maps & photo’s v. helpful)
• Survey period, methods, equipment & sampling effort
• Species accounts: Basis for identifications; voucher accession no’s (if any); abundance, morphological and acoustic data; reproductive condition; field observations
• Evidence for disturbance / threats (direct and anecdotal)
• Author contact details!
Cave Bat Monitoring

According to UNEP (1995), monitoring is:

‘usually objective-orientated and designed to reveal changes in a particular parameter or parameters’

-- Deciding Objectives --

A monitoring program can have one or more objectives. Objectives can often be simply defined as the questions that need answers.
Bat Monitoring

-- Purposes of Monitoring --

For conservation, monitoring is used for various purposes, and very often to:

- Understand what changes are happening, and what is causing these changes.
- Provide an early warning of new threats or problems.
- Test whether management actions are effective.
Cave Monitoring Exercise

1. Form three sub-groups & choose one cave each

2. Each group must decide in outline how to monitor bats at their cave to ensure that:
   - Bat diversity & populations remain stable,
   - while,
   - Allowing the current cave uses to continue

   (25 minutes each)

3. Summarize your monitoring design on 1-2 flipchart sheets and present this for wider discussion.

   (5 minutes each)
Cave Monitoring Exercise

1. An easily accessible and simple cave with a very large entrance, >500,000 bats of 1 spp., where guano is harvested every month.

2. An easily accessible and complex cave with a single medium-sized entrance, ≈10 bat spp. (≈5,000 bats), visited by tourists every month.

3. A remote cave with several small entrances, >15 spp. and ≈20,000 bats, which is harvested for bushmeat consumption (levels unknown).
Monitoring Design Decisions

• What is our question? (and why)
• What data do we need to answer the question?
• How can we collect this data?
  – What data collection methods will provide these data?
    • Which methods and why?
  – Duration and frequency
    • How long shall we collect data for?
    • How often shall we collect data (per season, per year)?
  – How will we control and minimize error?
• How will we analyze and manage the data?
• How will we ensure our results are acted upon?
• Is there anything else we need to consider?
Discussion

• Any challenges?
• Common pitfalls?
• Do’s and don’t?