

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 +/- or 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. ($\approx 5,000$ bats), visited by tourists every month.
3. A remote cave with several small entrances, >15 spp. and $\approx 20,000$ 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'ts?