

Speleo volunteers and karst environments: A summary of some useful tools and techniques from USA speleo colleagues

Jay Anderson

Whilst on a recent trip to the USA, the author was able to attend both the NSS Convention and the National Cave and Karst Conservancy forum. It was noted that many cave and karst managers in USA utilise speleological volunteers extensively in aspects of cave and karst management. Some of these techniques may be of interest to Australian cavers. The use of cave exploration and surveying standards in cave management plans is presented (thanks to Pat Seiser of NCKRI). The NSS has a database that records speleo volunteer time on speleological projects and in performing a number of activities - the importance of "Volunteer Value". Many National Parks are utilising cavers and their knowledge of caves to perform comprehensive cave inventory's. A number of these useful tools will be presented. The author was also able to participate in a biological inventory. A useful tool for undertaking records of subterranean fauna will also be presented.

Speleo Volunteers & Karst Environments



A summary – some useful tools & techniques from USA speleo colleagues



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Presentation Summary

- Background – importance of caves & karst systems
- Volunteer Value
- Exploration, surveying & cave management
- Inventory's
- Eg – biological inventory
- Cave Rescue – preplanning for situations

CAVES or the whole KARST SYSTEM?

- So what do you do when you go “caving”??
- Common to focus on “finding caves” or “surveying caves”
- The need to document aspects → components of whole karst system.....
- Aspects to consider in addition to maps/surveys



Not just about Caves & recreation



2: Volunteer Value

- *cavers → willing to donate time/effort → wide range of cave related activities.*
- *Cavers will spend countless hours above & below ground working to:*
 - improve,
 - conserve,
 - better understand karst systems.



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Sometimes this volunteer work is officially recognized & applauded

Cavers usually do the work just for the opportunity to :

- explore,
- understand &
- protect the unknown.



NSS & USDA Forest Service Agreement - 1998

- Background: Federal Government proposed “user fees” to help overcome budget deficits.
- Cavers → TO pay fee to Gov’t to locate, explore & map caves on Gov’t lands.
- agreement → defined value of volunteer work cavers donated → Government.
- The monetary value of the volunteer work negated paying user fees.

Agreement covered:

- “Salaries” –Volunteer labour - hourly rate.
- Volunteer Hours –Travel & work time.
- Supplies & Equipment
- Professional Services
- Mileage
- Preparation and Documentation



Rationale:

- Assign \$\$ values →volunteer work

Add up & keep records.....

- Documentation → Assist in cave management proposals & karst protection battles.
- Volunteer Value Report Sheet #1 NSS

Document Volunteer Value →all cave projects:

- cartography,
- inventory,
- photo documentation,
- science,
- survey,
- administration, preparation and report filing
- restoration, maintenance, clean-up, and in-cave work.



3: Exploration & cave management

- knowledge →exploration is a key component in the conservation & protection of caves
- exploration → can have a significant impact on a cave’s environment.
- Need for cavers and Cave Managers to be aware
- Minimal impact techniques required.

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Things to consider:

- policies & procedures - in-cave & surface activities
- Skills of participants-
- necessary caving skills to
- required skills -- surveying & inventory activities
- the establishment of trails/paths in cave/surface
- Need for photo documentation.
- Survey procedures & standards:
- data management & cartography.



4: Inventory & Karst Assessment

- Aim – to gather environmental data to assist in management decisions
- Knowledge of the environment → vital for decision making.
- Databases → detail landforms, geology, soil, hydrology, flora & fauna

Many approaches to inventory

- Rapid techniques – checklists
- Detailed observations and measurements

Options for Inventory:

- As you SURVEY & explore a cave
- As a special PROJECT – ie cave already surveyed – but need > INFO.



EG – Many National Parks & BLM lands

- Undertaken by 4th person in survey team
- Specific documents to complete
- Data linked to location of survey point
- Comprehensive data → storage considerations

5: Eg – Biological Inventory

- Importance of collecting information

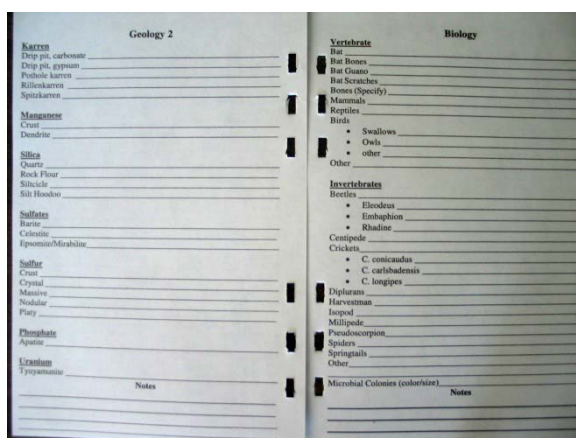
Subterranean

- Fauna
- Habitats

- Important to Not just “collect” specimens....

- Visual observation & recording

- Photomonitoring
- Documenting fauna seen → on a “log”
- Record location → on a cave map
- Collect selected fauna → later identification
- Some cavers have specialist biological knowledge



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Eg → Supporting Environmental data collected

- *Temperature – air, soil, water*
- *Humidity*
- *CO₂*
- *Water Salinity/pH*
- *Also – site description - height of site, location in cave.*

[illegible][illegible]

6: Cave Rescue

- Situation preplanning – Incidents & Accidents
- Cavers → cave rescue training & cave rescue

Develop

- specific cave rescue preplan
- appropriate equipment.



EG – To consider

Search and Rescue Plans



- Overall Action Plan
- Guidelines For Entering Cave
- Pre-plan goals map.
- Rescue Pre-plan
- Communications
- Rescue Operations
- Rigging Plan & Rationales, Anchors
- Patient Packaging & Litter Procedures
- Underground Team Guidelines

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We have many example & comprehensive documents from Carlsbad

Summary

- Karst environments are important systems
- Need → holistic & specialist management
- Gathering of information through exploration → IMP.
- Information on values & threats → assist in management plans & decisions
- Cavers, Speleologists play a key role

Hope you found these examples useful to consider in your activities.....