PHOTO TAGGING

The Process and its Application

by
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The process involves photographing cave entrances. Appropriate information is recorded on the negative by the use of a placard. It is designed to supplement and in some cases supplant the tagging system.

INTRODUCTION

The first time caves were tagged for speleological purposes in N.S.W. was at Yarrangobilly, during Easter 1957 (Lane and Nurse 1961, Ellis and Middleton 1970 and Bonwick 1979a). The numbers Y1 and Y2 were chiselled into rock adjacent to the entrances of East and West Eagles Nest Caves. At the time some people felt that any permanent marking of a cave entrance was an act of gross vandalism.

Later, the now familiar aluminium tag was developed (Halbert 1968) and metal tagging has now spread to most of the frequented cave areas. Societies that once regarded it as the act of Phillistines, now demand it as the right of every red blooded caver to tag a cave whenever he or she feels like it. The latest development in cave identification, developed by S.S.S. over the last three years, is photo-tagging.

Tagging put an end to much confusion and duplication in speleological work. Now, when someone enters a cave with a map bearing the corresponding number, they can be reasonably certain that they are in the cave which was surveyed, despite what the map might suggest. However, experience over the years has shown us that various problems can still arise. Those which come to mind are as follows:-

PROBLEMS WITH TAGGING

1. The tag may be "lost" - it may fall out because it was badly installed, it maybe deliberately removed, the rock to which it was attached may fall away, vegetation could cover it or it may simply not be seen because it is not where the casual cave tagger expects it to be. So, the one entrance may end up with two numbers.

2. What do we do about arches, or entrances which are 30 or more metres across, or caves that have a multitude of entrances through a large rock pile? Finding the normal sized tag would be a needle-in-the-haystack job. And a tag big enough to be seen in such a place would attract cries of vandalism, as well as vandals.

3. Some people believe that sea caves should be tagged. However, in this case the forces of nature are much more severe, and public access more frequent, so that any tags would be very temporary, and in many cases we would be faced with the same problem as in (2) above.

4. Dolines in which there are no entrances are still significant and may need to be referred to in speleological notes. But where would the tag be put? Worse still, some dolines have no exposed rock for attaching the tag to.

5. Experience has taught us the desirability of having the tagging in each area handled by one society and, ideally, by one person. This means that tagging may not proceed as fast as some people think it should, but it does minimise the change of mixups. However, it is inevitable that over a period of time the tagging job will change hands and the risk of mixups during the change over is quite high. For example, a question still hangs over Y11 at Yarrangobilly (Middleton 1974, Wellings 1974 and Pavey 1974). Does it still exist or was it buried by the new road? The original tagger for this area has been overseas for about twenty years and he is the only person who could clear the matter up. The problem stems from the fact that the descriptions, and even maps of the same cave, can vary considerably and therefore may not be adequate proof of identity.

   An accurate surface survey helps a lot, but even here identification at a later date still depends on the original accuracy being repeated.

6. A certain area in N.S.W. is an important tourist area containing many caves. S.S.S. has prepared a book on the area. But, for reasons unknown to us, we have been told that we cannot tag caves in the area, and some tags have actually been removed from caves already numbered. Many people have been working in this area in hydrology, geomorphology et cetera. How are they to refer to the places at which measurements or observations have been made? How could someone in 10 or 20 years time check or compare their figures? If tagging resumes several years hence, the probability that some caves will end up with a different number to that which they had before is very high.

7. Some people feel that certain areas that are accessible to the Public at large and not under any supervision should not be tagged. They reason that tagging makes it easy for vandals to pick out the best decorated caves.

It is suggested that these problems can be removed or at least mitigated by the following technique

THE PHOTO-TAGGING PROCESS

A brief description of the equipment required is given below:-

1. A placard with provision for mounting numerals corresponding to existing cave number systems, e.g. B124.
2. A set of numerals and letters large and clear enough to be read on a photographic print taken some 30 to 40m away.
3. A camera.
4. Ancillary equipment : a) Pointing stick
   b) Magnetic compass
   c) Survey tape
   d) Notebook and pen.

The process simply involves taking photographs of the cave entrance with its number on the placard held nearby.

TENTATIVE GUIDELINES

Two photographs should be taken of each entrance. One should be taken close enough to show the entrance and its immediate surroundings in detail. The person holding the placard should also use a pointing stick to show the position of the tag if any. The second should be taken far enough away to show its position in relation to the surrounding countryside.

The cave number placard should be held at the entrance and facing the camera in each case.

The placard should also have provision for recording the date.

The position from which each photograph is taken should be recorded by noting the distance and bearing of the entrance.

The initials of the society responsible for production of the photograph should appear on the placard.

A notebook which stays with the photo-tagging equipment would be used to record the following data:

1. The distance and bearing of the entrance from the camera in both close and distant photographs
2. Focal length of camera used and owner's name.
3. Condition of tag if any.
4. The time of day (within 15 minutes)
5. Names of those present.
6. Anything unusual about the entrance.

When making up a set of photographs for a particular area the prints should all be the same size- 90 x 130mm seems to be quite adequate.

ADVANTAGES OF PHOTO-TAGGING

The process deals fairly effectively with the problems of tagging.

1. A suspected "Lost Tag" entrance can be checked out in the field by reference to a set of photo-tag prints. Using the distance and bearing figures with each print, it should be possible to achieve positive identification in most cases by standing on the spot from which which the photograph was taken. Knowledge of the surrounding entrances should limit the possibilities to 2 or 3 at the most. Of course another photograph could be taken for a more

exact check and filed with the original print. In extreme cases this should be taken under the same lighting conditions, sunny or overcast, same time of day and year. However, it seems very unlikely that entrances will be sufficiently similar to make this last step necessary. An examination of the pointing stick in the close-up print should pinpoint the position of the "Lost Tag" or the hole where it was originally placed.

2. Large entrances nearly always show a high proportion of distinctive rock areas and are therefore ideal for photographic identification over a long period of time. There would be no need to fit large tags as the tag position is readily pinpointed in the photo-tag print.

3. The problem of fitting a permanent marker to the harsh environment of a sea cave is completely removed. The very nature of the coastal strip makes describing the position of a sea cave much easier than caves elsewhere. Therefore only one photograph of the entrance should be adequate.

4. Earth filled dolines can be photographed with the number placard in a suitable position. It should be noted somewhere (ideally in the photograph), that neither entrance nor tag exists.

5. In some areas just finding an entrance, any entrance, even when armed with a description and a map can be a frustrating experience. Providing some extra care and equipment is used when photo-tagging a difficult area, the resultant prints could be far more useful than any map or description for pinpointing and identifying a particular entrance.

6. Provided photo-tagging has been done correctly, the absence of a tag does not reduce the certainty of identification. All it does is make it inconvenient and more expensive in that anyone visiting an unfamiliar area would need a set of prints if he wished to identify and refer to any of the caves.

OTHER ADVANTAGES

Anyone wishing to get an idea of the topography and vegetation of an area they have not yet visited, could quickly acquire this by looking through the photo-tag prints.

The dated prints could serve as a baseline from which any significant changes in vegetation or landform could be noted.

In the U.S.A., for conservation purposes, entrance photographs have been used as an indication of the speleo "traffic" (Larson 1978). I am not aware of any entension of this to photo-tagging.

GENERAL COMMENTS

BLACK AND WHITE OR COLOUR?

Not so long ago the cost of colour prints would have ruled them out altogether. Now the price gap has narrowed they can be considered and they do make a very attractive record. Permanence is of course not as good as black and white, but it may be good enough for the purpose. Advice from one of the larger film manufacturers is that colour transparency film stored in normal circumstances will still be good after fifty years. Some colour change would be evident, but image sharpness would not be affected and may remain good for two or three times this period. Colour print film is not as good and any move towards colour should be looked at carefully.

Nevertheless, black and white is quite adequate for the main purpose and the photo-tagging programs begun by S.S.S. are continuing in this medium, although some colour (both prints and slides) has been used.

DIFFICULT ENTRANCES

There are at least two types of cave entrances difficult to photograph. On the side of a gorge and on a hillside of dense low scrub.

In most cases the close shot can be managed. The distant shot is the problem. We need to be on an opposite hillside perhaps 0.5km away and of course even if the entrance is visable the placard would not be legible. The low scrub areas are just the sort of places where caves and those

searching for them do get "lost", so it is worthwhile taking some trouble to overcome the problem. A suggested solution is as follows:

Use two groups of people in radio contact with each other. At the cave entrance a "Target", say a 2m high triangle, could be erected on a lightweight pole so that it could be seen by the camera party on the other side of the valley. A photograph would then be taken showing the position of the target in relation to whatever landmarks are available. In the foreground of the photograph would appear the cave number on the normal size placard held at a convenient distance from the camera.

The easiest way to locate such an entrance at a later date is to have a good scrub navigator in the party. Failing this, the photo-tagging situation could be repeated. The searching party might need to make several trial erections of the target whilst someone on the opposite hill checks their progress with the photo-tag print.

This 'target technique" has yet to be tried out.

FURTHER EQUIPMENT DETAILS

The cave photo-tagging placard should have two white triangles. Using these in conjunction with the known print enlargement size and the focal length of the camera used, the distance measurement (how far away the camera was from the placard) can be calculated without having to use a tape measure in the field.

The numerals on the placard are 180mm high and on a 90 x 130mm print can be read fairly easily with the aid of a magnifying glass, in prints taken at distances of up to 100m away. The size of the numerals on our placard seem to be the optimum size - a larger placard would hide the entrance details. The existing placard measures 840mm x 430mm.

PRINT PRESENTATION

Early thoughts were that it would be nice to have an album with one page devoted to each cave - two photo-tag prints and the remaining space taken up by as much information about the cave as would fit in. However, in areas containing 200-300 entrances this format would result in an expensive and bulky album.

The arrangement the Sydney Speleological Society is using at present is a four pocket transparent print protector. With two prints back to back in each pocket, one page will do four caves. This not only keeps the cost down but should enable most cave areas to be contained in one album. The bearing and distance figures have been written along the margin of each of the prints.

Ideally there should be two complete sets of photo-tags - one for library reference and one for use in the field. The need for this will of course depend on the usage. Some thought needs to be given to the safe storage of the negatives.

HISTORY

The first experimental photo-tagging took place at Yarrangobilly, on the Easter weekend, April, 1977. A cardboard placard was held in front of Y40 and photo-tagged with a polaroid camera. This quickly revealed that black figures on a white background was most unsuitable. A hasty reversal was made using felt tip pens and several other entrances were photographed to get an idea of legibility at various distances.

Photo-tagging has continued since then, on trips run for other purposes, and has, therefore, not been reported on in detail (Bonwick 1979b, Bonwick 1979c and Bonwick 1979d). The total number of entrances recorded so far is 281.

This is made up of: Bungonia 64; Yarrangobilly 136; Wombeyan 46 and Jenolan 35.

CONCLUSION

Cave identification has often been a problem, especially in remote areas. It is suggested that photo-tagging of entrances is akin to finger printing of people and should be used to protect the tagging system against error and decay.

This article does not cover all aspects of the photo-tagging scheme, but it should be sufficient to provoke discussion. If other Societies see some value in the process S.S.S. would be happy to discuss it in greater detail. If it becomes a going thing throughout Australia, then it would, of course, be necessary for those interested to get together and formulate some ground rules.

REFERENCES

BONWICK, J., 1979a Easter at Yarrangobilly, 1957. J. Syd. Speleol. Soc. 23 (6) : 156-157.

BONWICK, J., 1979b Photo-Tagging at Yagby. J. Syd. Speleol. Soc. 23 (6) : 157.

BONWICK, J., 1979c Photo-Tagging at Wombeyan. J. Syd. Speleol. Soc. 23 (7) : 175-176.

BONWICK, J., 1979d More Photo-Tagging at Yagby. J. Syd. Speleol. Soc. 23 (7) : 176-177.

ELLIS, R., and MIDDLETON, G., 1970.

A Cave Numbering System for N.S.W. Some observations and proposals. J. Syd. Speleol. Soc., 14 (6) : 141-146.

HALBERT, E., 1968 Wombeyan; Appendix - Technical details on numbering. Stop Press, 12 (12) : 190.

LANE, E.A. and NURSE, B.S., 1961

Cave numbering. Communications, 5 (8) : 45.

LARSON, C.V., 1978 Photography as a cave management tool. IN : Zuber, R. and others (eds). Proceedings of the National Cave Management Symposium, Big Sky, Montana, October 3-7, 1977. Albuquerque, Adobe. Pp. 96-103.

MIDDLETON, G. 1974 A note on Y11, Jounama Cave, Yarrangobilly. J. Syd. Speleol. Soc., 18 (7) : 199-202.

PAVEY, A., 1974 Pavey's Nobel Prize or Why eleven anyway? J. Syd. Speleol. Soc., 18 (80 : 231-232.

WELLINGS, P., 1974 Another opinion on Y11, and some further information. J. Syd. Speleol. Soc., 18 (7) : 202-205.

DISCUSSION

Photo-tagging was tried in Western Australia 7 years previously and we got pictures of nice bush, and very little else. Cave entrances are covered in very thick scrub.

Basically you're saying the method is area dependant and not universally applicable.

I have however got good photographs of vegetation which can be located after finding the cave after a fire or some change has occurred. It is extremely useful for getting background ecological information around caves.

You need to put your tag on the cave as well as photograph it.

We've been doing something similar in South Australia and the Nullarbor for quite a while. Using a stick 1 metre or 2 metres long and recording the information as listed in this paper on the back of the photograph later. Especially on the Nullarbor, people going out there don't always know the number of the feature immediately.

Those numbers are actually made up of the traditional 3 series, 1 to 9 plus the letter. On the placard itself you build the numbers up in the field.

Sometimes you find a new feature. One problem out on the Nullarbor is especially large dolines.

CEGSA has been photographing from one end and having the metre stick at the other end. Some of those dolines are so large you need a very large sighting board, bigger than S.S.S. used to be able to read them.

This problem can be circumvented by having the placard close up as suggested in the paper.

Just a couple of points on the historical use in the location of Bushrangers cave at Jenolan on an internal feature defined in the cave. This is something that may solve Western Australia's problem. It might be better to take a photograph inside the cave of something specific to the cave of an identifiable feature.

I'd like to make a comment on John's reference to 50 year life for colour film. There is considerable difference between substantial and no substantial reversal films exemplified by Koda-chrome and Ecta-chrome. When Kodak were quoting 30 years for Koda-chrome they were only quoting 5 or 6 years for Ecta-chrome, the difference is now slightly less viz. 50 years for Koda-chrome and I think still at 10 to 15 years for Ecta-chrome. The Kodak lifetimes given are for storage, and does not include projection for 3 hours during that time for people to look at them. 50 years is possible with Koda-chrome but don't rely on getting more than 10 years with the Ecta-chrome - it may be up to 20 years out. There is a difference.

At this point S.S.S. are looking at prints and are currently happy with black and white.

I can see the utility to a scientist which wants to monitor the vegetation, but I really don't see photo-tagging as representing the interest of most people because you can't have that many sets of things. It doesn't have the immediacy and so fourth to satisfactorily do the job of tagging.

I specifically asked John and Mark about that aspect and they said they accepted that if a club expressed an interest in an area (which would have a high probability of having aluminium tags) the club would be supplied with the correct folio which contained a set of photo-tagging prints for $50 and whatever costs happen to be for that number of black and white prints for whatever the size was. That was the intention. It was not meant for a speleo handbook or Bungonia Book.

CEGSA has found it much more useful for record keeping. When people find something "new" and they can show you a photograph there is something to compare and make some sort of reasonable judgement as to whether the feature has already been numbered.

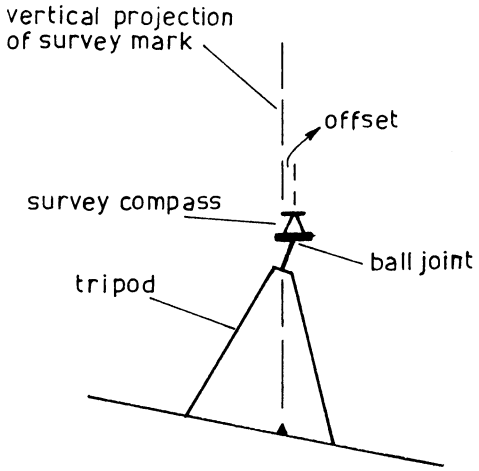
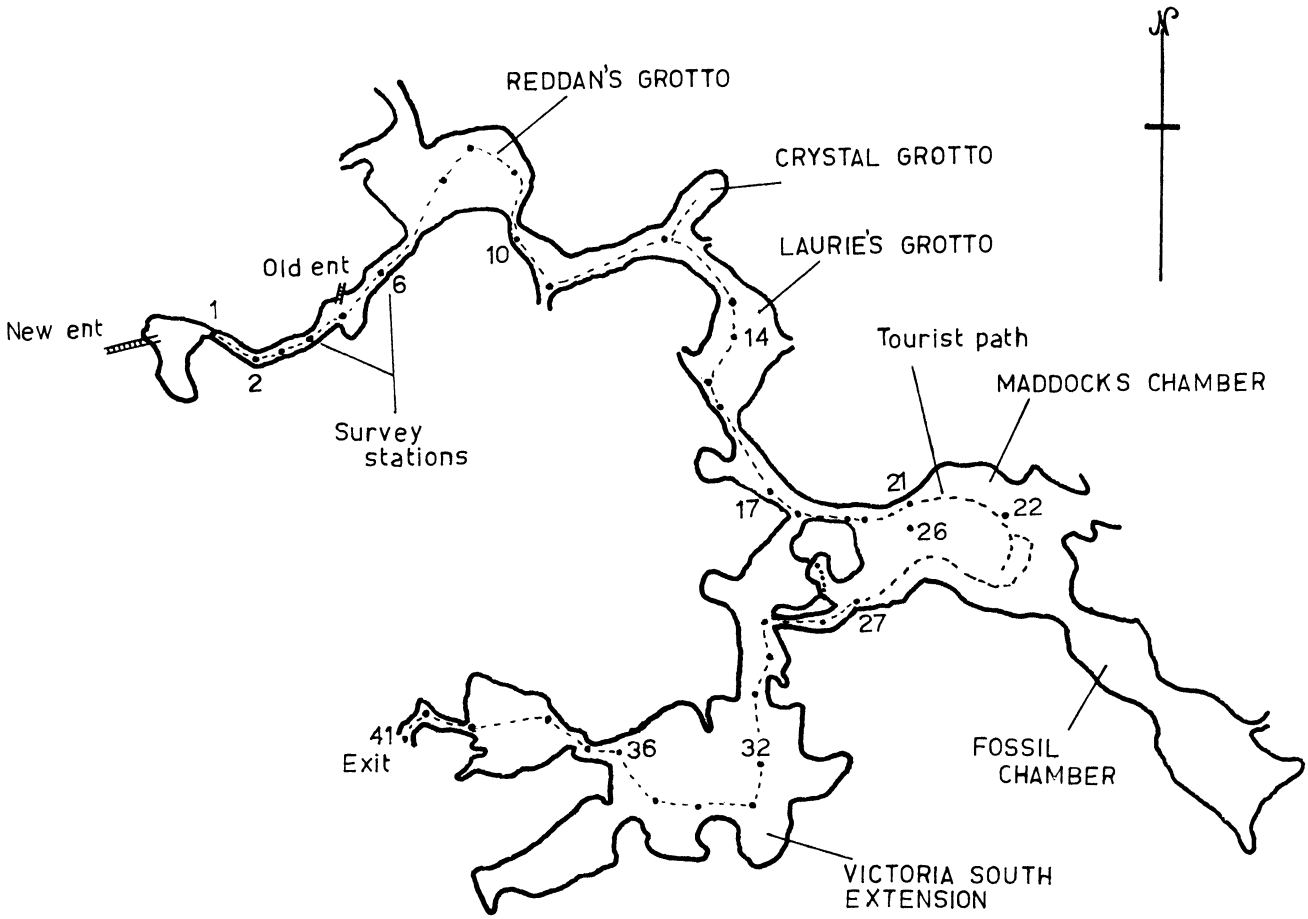


FIG. 3



VICTORIA FOSSIL TOURIST CAVE
5U1

0 10 20 30 40 50m

FIG. 2