

Cave Rights Revisited

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During a SRGWA fauna survey to the Nullarbor Plain in 1987 with Dr Mike Gray (arachnologist) of the Australian Museum, he made the suggestion that entry to the Dome chamber of Mulla-mullang Cave (6N-37) should be limited or banned in order to give the resident troglobitic fauna populations of the spider *Tartarus mullamullangensis* and cockroach *Trogloblattella nullarborensis* a chance to recover their numbers - if that was possible. He was of the opinion that their evident population decline in the Dome chamber could be due to habitat disturbance by cavers, given that this chamber was a major goal for most visiting caving groups. The spider had not been seen in the Dome since the early 1970's and its presumed food source, the cockroach, since the mid-1980's. It should be remembered that the Dome chamber was first entered during 1965 so that the decline in the Dome spider population since its discovery in 1969 could be reasonably correlated with the increasing visitation and disturbance over the subsequent decade. At that time *T. mullamullangensis* was the sole member of its genus and the Dome was its only known habitat - reason enough to be concerned about the future of this spider.

The reasons for such concern are many. Such relictual cave species are important biodiversity icons because of their unique morphology and behaviour, their role in fragile cave ecosystems, their limited distributions, and for the invaluable insights they give about evolution and biogeography in areas like the Nullarbor Plain. For example, research has shown that *T. mullamullangensis* has surface dwelling relatives in forest habitats in south western and south eastern Australia, indicating that similar ancestral surface species once lived in the Nullarbor region. It can be inferred that this occurred under milder, moister climatic conditions with more widespread eucalypt woodland than are seen today and that the surface populations probably contracted into cave doline or karst crevice refuges as the climate subsequently dried (Gray 1981, 1993).

Dr Gray's suggestion ultimately led to my paper entitled "Cave Rights for Troglobites" delivered at the 18th ASF Conference (Cave Leeuwin 1991) and resulted in a successful voluntary non-entry ban (to the Dome of Mulla-mullang) resolution from the ASF council meeting a day later (Poulter 1991a). Rather than centre solely on the plight of the fauna of Mulla-mullang, the paper was meant to draw attention to the broad spectrum of troglobitic fauna, their supporting food chains and speleologists' obligation to protect them and their habitats. This revision paper is no different.

Within a week of the Dome resolution being accepted as ASF policy, that determination was callously disregarded during the course of a post-conference recreational field trip, on the grounds that the resolution was "...absurd", based on "...bogus logic" and "...should be flaunted out of hand" (Bunton 1990). I believe that the quoted author, who attended neither the paper's presentation or the subsequent council discussions completely missed the point of the whole exercise. Given that we know next to nothing about the biology of any of these Nullarbor troglobites, the point was to raise awareness of the often fragile existence of troglobitic fauna in ALL caves, but using the plight of the Dome's fauna (and others) as a prime example, to emphasize the possible effect visitors have upon them, thus making them think before entering fauna regions, that their actions may degrade the habitat and put the fauna's continued survival at risk. To make them think that perhaps they should respect the rights of the fauna to exist and therefore conduct their activities elsewhere in any given cave.

Now, twelve years since the publication of the "Cave Rights for Troglobites" paper and adoption of the Dome resolution - what, if anything has changed? Has visitation to the Dome of Mulla-mullang been curtailed? Have the Dome's spider and cockroach populations recovered? Have the caving community's attitudes towards all cave fauna and habitats changed - for the better, worse, or remained much the same?

Overall, I believe that as a combined result of the "Cave Rights" paper, subsequent ASF resolution and signage within the cave, visitation to the Dome has declined but while there has been a recovery of the cockroach population with the last reported sighting in January 2002, there is no

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evidence to suggest that the spider has made a similar recovery (Poulter 2002), leading to renewed speculation that the spider is indeed, at least locally, extinct. Should the voluntary non-entry resolution be therefore lifted and signage removed? I don't believe so. While it was long expected that the spider would be found in other parts of Mullamullang, and may yet be, the fact remains the Dome chamber population is the only one discovered in the cave. *Tartarus mullamullangensis* is now listed on the ANZECC list of threatened species and in Schedule 1: Protected Fish and Invertebrates under the Nature Conservation Act 1980. Despite the discovery of other species of the *Tartarus* genus in other caves from 1985 onwards, the Dome chamber in Mullamullang Cave remains the only known location for *T. mullamullangensis*. The hope is that this population will yet recover or that others will be found in Mullamullang. But the spider's endangered status and, more worryingly, continued absence in the cave give us an obligation to maintain protection of its Dome habitat by restricting visitation and/or by educating and trusting cavers to confine their visit to a well marked out path. If indeed the spider is extinct from its birthplace due to our intervention, it will be a sad indictment of a lack of caring, and one that should reinforce our resolve to better protect other cave species and habitats in future.

Has the general caver's attitude towards caves, cave fauna and habitats changed? Cavers once looked upon caves as their own personal playground where they could go anywhere and do anything they pleased without any consideration for the cave, let alone resident fauna. In some sectors of the caving community, this perception probably still exists today, although hopefully not nearly as much as it did say twenty or thirty years ago. It is the obligation - if not the duty - of the older generation of cavers to educate the middle order of caving club members (in addition to society at large) that caves are not playgrounds. It is not enough to merely say "don't touch or walk on decoration". Few caves are dead and even those that are may have special faunal or other significance that needs protection. For the most part, caves are dynamic living entities that can be quickly and easily disrupted or destroyed by ill-informed visitation.

Open areas of cave floors are especially vulnerable to indiscriminate, repetitive trampling which can degrade or destroy animal habitations such as webs or burrows and the open structure of moonmilk, guano (whether active or decaying) and litter or soil/clay sediments to form hard compact substrates in which nothing can live. It is in areas such as these where narrow trails (marked or otherwise) need to be carefully established so as to cause minimal disturbance within the region, even to the point of walking in previous visitors' footsteps.

Another point to consider is the case of modified caves. Caves that have had their entrances or passages enlarged to permit human access will, as a result, suddenly have their meteorological and habitat dynamics changed, which may be detrimental to any resident fauna. Where this has occurred in tourist areas, some managers have attempted restoration of the original environmental conditions by the installation of sealable doors - do speleological societies attempt comparable measures following their similar activities?

Of even greater concern however, is where an entire cave has been opened by digging, possibly exposing a previously sealed ecosystem to the whole range of surface intrusion (predators, competitors and displacing animals) as well as total disruption of the cave's meteorological parameters. While it can be argued that during a cave's geological lifespan, an entrance may open or close many times, and - over a surprisingly short period, when opened by caving activities, the diggers should have an obligation to protect the cave's fauna, habitats and atmospheric environment (all inter-related), even to the extent of re-sealing the cave between visits or, by the fitment of an environmental gate.

Land managers, both public and private, are today taking a more active role in their speleological responsibilities. This is to be encouraged, but there is also need for vigilance from the speleological community and improvement on both sides. Where once, citing ignorance or lack of expertise, land managers happily absolved themselves from karst management in favour of speleological societies, which encouraged the elitist and playground mentality amongst some clubs - today, those same land managers are appointing their own specialists/consultants or drawing up their own regulations and management plans for regions or specific caves. This is where the speleological community can be of assistance, to help prevent or minimise bureaucratic or ill-informed policies being enacted, especially in relation to fauna and habitat protection.

Another aspect of concern is where a cave has no apparent land manager protection whatsoever. Numerous faunal caves on the Western Australian side of the Nullarbor Plain occur on Vacant Crown Land (VCL) under the jurisdiction of the Department of Land Administration (DOLA) who openly admit that they are administrators, not managers. One such cave is 6N-46, with seven confirmed troglobite species ranging from aquatic amphipods to *Tartarus* spiders, and is arguably one of the most important and diverse faunal caves on the Nullarbor with probably the highest human (public and speleological) visitation due to its proximity to the Eyre Highway and nearby roadhouse, despite the fact that private leasehold property must be crossed in order to access the area containing the cave. Apart from the scenic attributes of its confining phreatic passages, the cave has numerous inter-connecting shallow lakes with a clarity similar to that of 6N-2 (another DOLA responsibility). It was with a certain amount of dismay in recent times to learn that the Cave Diving Association of Australia has been periodically promoting the idea of 6N-46 becoming a sporting dive site, such a promotion should be discouraged in the interests of both the cave and troglobitic (both terrestrial and aquatic) fauna protection. But with no active land manager, how can such activities be stopped? In addition and as has been reported elsewhere, diving equipment easily transports contaminating organisms from one water body to another. "We can only hope that cave divers develop a sufficient sense of environmental ethics that they will only dive such sites under very tightly controlled conditions equivalent to entering a sterile laboratory area" (Hamilton-Smith 2002). Dry cavers too, need to be mindful that their clothing can easily transport detrimental contaminants (particulates and organic) from one cave, or section of cave, to another.

As Australia's population steadily increases, spurred on by economic and political boosters in addition to various sectors of the general community, so too, has the upsurge in recreational or eco-tourism and in some regions, urban development encroaching on karst or karst watersheds. This has placed an additional burden on caves and troglobitic and associated fauna habitats, even in quite remote areas and sometimes outside the control or influence of some land managers, let alone speleological societies or the ASF. These pressures from increasing tourism and urban development need to be addressed by the speleological community via position statements to government at all levels and sympathetic politicians (Greens and Democrats for example).

This is why I maintain that it is important for the speleological community to embrace this issue as a matter of urgency and formulate and actively promote a population policy (Poulter 1999). Irrespective of medium to long-term economic hardships associated with such a policy, the Australian and world environment depends on lowering global population. Concentrating on local or specific environmental issues, although periodically successful in achieving short-term gains, is merely fiddling around the edges and ultimately doomed to failure unless the underlying cause, over-population, is tackled head-on and humanely solved.

As part of a submission in 1987, I formulated a quote, taken from several sources, that said "what we have now is less than we had yesterday". With the perceived extinction of the Dome's *Tartarus* spider - that is a creature we certainly HAD yesterday and we should work hard to prevent future extinctions.

To finish I shall repeat with a slight variation, the final paragraph from my original "Cave Rights for Troglobites" paper. Wherever there is a food source in a cave - it is possible there is also a faunal ecosystem. In times past we have argued the right of a cave to exist. It is about time we acknowledged that the fauna within a cave (no matter how much fear or contempt we may harbour for that fauna or its habitat), also has a right to exist - and that existence must be respected and protected.

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