

**INDEPENDENT EXPERTS' STATEMENT ON THE CONSERVATION SIGNIFICANCE OF THE MELODY ROCKS KARST AREA AT KINGS PLAINS AND ALKOOMIE STATIONS IN QUEENSLAND, FOR ENDANGERED AND VULNERABLE BAT SPECIES**

The Melody Rocks karst area is by far the larger of two discrete areas of otherwise very isolated limestone karst on the properties of Kings Plains and Alkoomie situated at the southern end of Cape York Peninsula and about 30km SW of Cooktown. Since the end of 2013, these areas have been re-explored by us, in part, for new caves and to carry out survey work for native fauna, particularly bats. Historically several species of cave dwelling bats with high conservation status have been identified in the smaller western karst area, 9km from Melody Rocks. Surveys of this western area date back almost 30 years. In contrast, and until our recent series of survey visits, there has been no specific information on bats resident at Melody Rocks - only that their presence has been noted by a caving expedition in 1983.

The recent survey work we have conducted at Melody Rocks during four visits so far, has established that there are very significant populations of two nationally endangered<sup>1,2</sup> bat species (Greater Large-eared Horseshoe Bat, *Rhinolophus philippinensis* and Semon's Leaf-nosed Bat *Hipposideros semoni*). There is also a population of one Queensland listed vulnerable<sup>1</sup> species (Ghost Bat, *Macroderma gigas*) inhabiting the Melody Rocks area.

It is important to note that the survival of the local populations of these three bat species depends entirely on the integrity of the limestone karst on the two properties. Bats are nocturnal creatures, and for these species living under natural conditions in this type of environment in Australia, they rely on shelter (day roosts) in caves or sometimes cave-like structures (rocky overhangs, boulder piles) to survive. Crucially, these species require a very specific place to breed. It is based on pregnant females seasonally aggregating at a traditional maternity site, which has a highly specific and stable environment (temperature and humidity). Such natural sites are only found in cave systems which is why isolated sections of suitable limestone karst are so important for the viability of a population of such bat species.

It is known that the western area of karst (on Kings Plains Station) supports a breeding population of the Ghost Bat and the current colony is the largest known maternity site in Queensland.

Bat survey work at Melody Rocks and environs (a group of 6 limestone outcrops) has determined that there are sizeable populations of both the Greater Large-eared Horseshoe Bat and Semon's Leaf-nosed Bat. This opinion is based on inspection of caves during the day (visual observations and capture) together with identification of species by acoustical detection and monitoring of species-specific echolocation calls at night at cave entrances and in foraging areas surrounding the karst. A small number of Ghost bats have been observed as well in this eastern karst area.

---

<sup>1</sup> Nature Conservation Act 1992 (NCA)

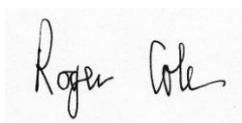
<sup>2</sup> Environment Protection and Biodiversity Conservation Act 1999 (EPBC)

Exploration of the Melody Rocks karst area is continuing but at least 15 caves of varying size containing bats have been discovered and several of the largest caves have sections suitable to support a maternity site. For example, a colony of the Greater Large-eared Horseshoe Bat has been discovered in a deep section of Ripple Cave. In our opinion it is highly likely that part of this cave system is used as a maternity site for the local population of these bats in the karst area. The colony may comprise, perhaps 50-100 individuals, based on a census of the known caves and the encounter rate at night (using bat detectors). If a maternity site can be confirmed for the Greater Large-eared Horseshoe Bat it will be the only one known currently in Australia and therefore highly significant for the conservation of this nationally endangered bat species

In the case of Semon's Leaf-nosed Bat, from our recent survey work this species has been encountered frequently in the known caves of this karst section but in somewhat lower numbers compared to the Greater Large-eared Horseshoe Bat. Nevertheless Semon's Leaf-nosed Bat is often detected at night hunting in the woodland areas immediately surrounding the karst blocks. Moreover males and females of this species can be identified without capture by a difference in their echolocation call frequencies (the only known example in Australian bats) and both sexes have been found roosting in caves frequently (as well as foraging at night). The range of sightings and call detection for this bat species suggest that the population at Melody Rocks may be the largest known so far in Australia. These observations also support the idea that there is very likely to be a breeding colony of Semon's Leaf-nosed Bat at Melody Rocks and that a maternity site or sites will be found eventually. The discovery of a maternity roost at Melody Rocks for the endangered Semon's Leaf-nosed Bat would be very important indeed, as no breeding site for this bat has ever been found.

Based on our observations above, it is our expert opinion that Melody Rocks is an extremely important location for the conservation of both nationally endangered bats, the Greater Large-eared Horseshoe Bat, *Rhinolophus philippinensis* and Semon's Leaf-nosed Bat *Hipposideros semoni*.

Signed



Roger B. Coles



Olivia J. Whybird



Bruce Thomson

## RELEVANT PUBLICATIONS BY THE INDEPENDENT EXPERTS:

**Whybird O**, Clague C and **R. Coles** (2014) The bats of Melody Rocks. *The Australasian Bat Society Newsletter* No.42 April 2014 p28

**Thomson B**, Pavey C and Reardon T. 2001. National recovery plan for cave-dwelling bats, *Rhinolophus philippinensis*, *Hipposideros semoni* and *Taphozous troughtoni* 2001-2005. Department of Environment, Water, Heritage and the Arts, Canberra.  
[<http://www.environment.gov.au/resource/recovery-plan-cave-dwelling-bats-rhinolophus-philippinensis-hipposideros-semoni-and> ]

Hall, L., Clague, C., **Coles, R.**, Shultz, M., and **Whybird, O.** (1999) Semon's Leaf Nosed Bat. In: (Eds.). Duncan, A., G.B Baker, & N. Montgomery. *The Action Plan for Australian Bats*. Page(s) 25-26. Canberra: Environment Australia.  
[ <https://www.environment.gov.au/node/14620> ]

Hall, L., Pavey, C., Clague, C., **Coles, R.**, Reardon, T., and Richards, G. (1999) Greater Long-eared horseshoe bat. In: (Eds.). Duncan, A., G.B Baker, & N. Montgomery. *The Action Plan for Australian Bats*. Page(s) 23-24. Canberra: Environment Australia.  
[ <https://www.environment.gov.au/node/14619> ]

McKenzie, **Coles, R.**, Hall, L., Richards, G., Toop, J., and Vardon, M. (1999) Ghost Bat . In: (Eds.). Duncan, A., G.B Baker, & N. Montgomery. *The Action Plan for Australian Bats*. Page(s) 47-48. Canberra: Environment Australia.  
[ <https://www.environment.gov.au/node/14628> ]

**Whybird OJ**, **Coles RB** & Clague CI (1998) Sexual dimorphism and the echolocation calls of *Hipposideros semoni*. *8th Australasian Bat Conference Abstracts* p8