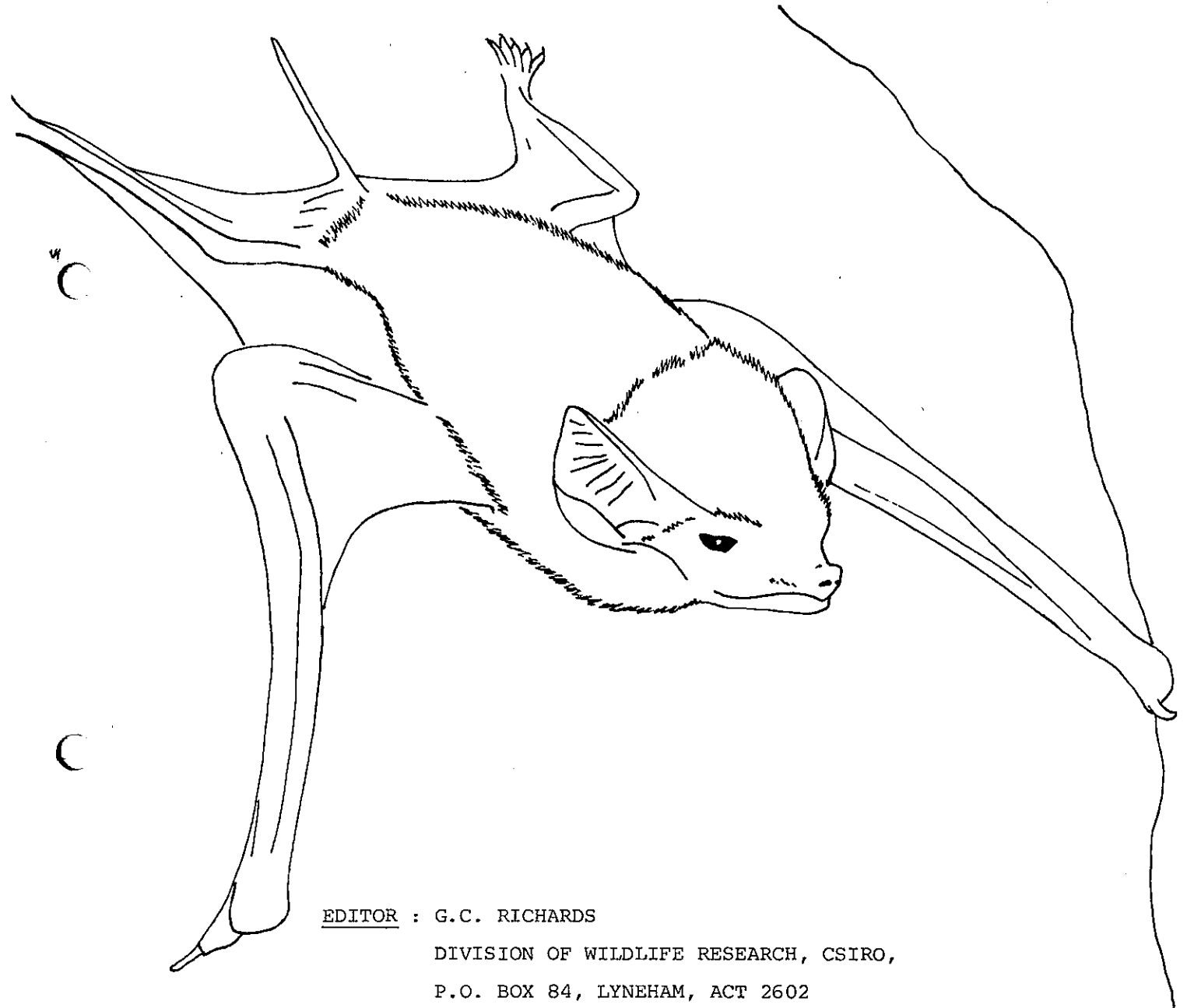


# AUSTRALIAN BAT RESEARCH NEWS

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EDITORIAL

The rapidly increasing number of scientists and naturalists involved in the study of bats in this country has resulted in an increased demand for this type of communication medium. This "revival issue" of Australian Bat Research News (ABRN) was created by the enthusiasm of many of those attending the Australian Mammal Society conference in May of this year, and it should be the first of many interesting newsletters to come. If the excellent standard of previous newsletters is to be maintained, then the future is bright. I would like to thank the previous editor, Elery Hamilton-Smith, for his fine efforts since the inception of ABRN in mid 1964, and I hope that I don't have to experience his frustration by having no support with articles and news, as was the situation five years ago. I am fortunate to have a team of enthusiastic regional correspondents who will assist in obtaining articles and news from their colleagues in each state, and thereby ensure that there will be an abundance of good contributions for each issue.

ABRN also offers a method for solving basic research problems such as obtaining material for study or seeking information, as exemplified by the article for the National Photographic Index of Australian Wildlife in this issue. A 'Letters to the Editor' section will be provided in future issues for this purpose, and can also be used to vent your disagreement with the latest taxonomic revision, or draw attention to erroneous reporting, etc. This newsletter is for you, so don't hesitate to use it.

Finally, thanks are due to the Australian Bat Banding Scheme of the Division of Wildlife Research, CSIRO, for renewed support.

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## REGIONAL NEWS

NORTHERN TERRITORY John McKean (CSIRO, Darwin) reports that he and Gordon Friend are describing a striking new Taphozous from the Top End. It has white flank stripes as does Tadarida australis, and is closely related to a Taphozous from the Lesser Sundas. Tony Hertog located a colony of 15 Hipposideros diadema inornatus in a hot, dry sandstone cave at Mt Tolmer Falls (13°13'S, 130°47'E). This subspecies was previously regarded as an Arnhem Land endemic, but this range extension of 185 km westward greatly increases its distribution.

WESTERN AUSTRALIA Darrell Kitchener (WA Museum) is also describing a new Taphozous; similar to T. georgianus in external appearance, but distinctly separable when skulls and dentition are compared. Reproduction and distribution patterns also differ.

SOUTH AUSTRALIA Trevor Maddock and Alex McLeod report that banding Taphozous georgianus with the normal flanged monel metal bands caused forearm injuries in about 50% of those animals recaptured. Successive recaptures of some individuals showed a progressive worsening of this injury to the forearm. David Purchase, the Secretary of the Australian Bat Banding Scheme, suggested that the form of the propatagium in this species could force the band onto the wrist when the wing is moved, as observed in Rhinolophus megaphyllus by Peter Dwyer (see 3rd & 4th Annual Bat Banding Repts, CSIRO, Canberra).

QUEENSLAND (from "Queensland Country Life" 4.10.79)  
Mount Etna and Limestone Ridge at The Caves (near Rockhampton) have been listed by the National Trust of Queensland. The vice-president of the National Trust, Mr. McDonald, announced that the listing was their expression that these sites were essential elements of Queensland's heritage and worthy of preservation. The area was identified as one of the four major cavern areas in Australia, and the most densely cavernous areas in Queensland. Refer to Glenn Pure's article on threatened bat populations (further in this issue) for background information on the subject.

NEW ZEALAND (from the "Ashburton Guardian" of 28/4/79)  
The first long-tailed bat (Chalinolobus tuberculatus) seen since the 1960's was found wedged between a lime kiln and a rock outcrop in the Timaru area (between Christchurch and Dunedin). This significant find of such a rare

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bat has substantiated several sightings, and the specimen is now in the capable hands of Mike Daniels of the DSIR. It was pleasing to note that the author of this article took the opportunity to refute some of the popular misconceptions about bats and emphasized that they did not foretell of death and disaster, nor did they intentionally fly towards the head to deliberately become entangled in one's hair. The public was also reminded that bats are protected fauna in N.Z.

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#### ARTICLES

##### THREATENED BAT POPULATIONS IN QUEENSLAND AND NEW SOUTH WALES

by Glenn Pure, University of Queensland

#### INTRODUCTION

One of the greatest problems in the conservation of cave bats is their gregarious roosting behaviour in relatively small, confined spaces. Their hibernating habit and their specific requirements for maternity sites render them highly susceptible to disturbance. Their image in the minds of the general public does not help either, and as fauna of 'value' to conserve they are low on the list of priorities. The threatened disturbance and/or destruction of some major maternity colonies is documented in this report.

#### THREATENED POPULATIONS

MT. ETNA: Situated 22 km north of Rockhampton in central Queensland. Limestone mining for cement manufacture began in 1967 and the cavernous limestone on Mt. Etna is completely covered by leases. However, some caves to the east of Mt. Etna have been included in a national park. The mining that is occurring today is the subject of a major battle between conservation interests and the Queensland government.

Bat Cleft cave on Mt. Etna is the sole maternity site in this area for a population of an estimated 250,000 little bent-winged bats (Miniopterus australis). The population is estimated to eat nearly one tonne of insects each evening during the summer months. To my knowledge, this is the largest cave bat population in Australia and certainly the largest for M. australis.

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The annual pattern of behaviour of bent-winged bats has been clearly established (Dwyer, 1966, 1968 a&b, 1970, Dwyer & Harris, 1972, Dwyer & Hamilton-Smith, 1965, and Hamilton-Smith, 1972). Most of their work was carried out on M.schreibersii but it is clear that M.australis behaves in a similar manner. This work shows the dependence of bent-winged bats on a single or small number of maternity caves of special structure necessary for the rearing of new-born bats. The evidence suggests that these maternity sites would be extremely difficult, if not impossible, to replace. This may be particularly true in the case of Bat Cleft because of the exceptional structure of the cleft, the large population dependent upon it, the lack of a cave of similar structure in the region, and the gregariousness of this species in the use of Bat Cleft.

A population of rare ghost bats, Macroderma gigas, is also known to use caves on Mt. Etna, at least as habitat caves. Caves that are known maternity sites for this bat are included in a national park adjacent to Mt. Etna. This bat is currently being studied by Mr J. Toop of the Capricornia Institute of Advanced Education, Rockhampton. Mt. Etna's caves are also inhabited by populations of Rhinolophus megaphyllus, Tapozous georgianus and M.schreibersii, although little is known about the size and behaviour of these populations.

No change in the decision of the State Government to allow the continuation of mining by the cement company is contemplated at the present time, despite agitation by active conservationists.

FANNING RIVER: Situated near Townsville in north Queensland. A mining lease is believed to cover the maternity site for a population of M.australis. I do not have an accurate estimation of the size of this colony, but it is in the order of several tens of thousands. An immediate threat of mining is believed to have been allayed as a result of discussions with the cement company that owns the mining lease.

RIVERTON: Situated south of Stanthorpe, 1 km inside the Queensland border. Riverton cave, the largest of a handful of caves occurring in a limestone outcrop, is the maternity site for a population of 15,000 to 20,000 M.schreibersii. This limestone outcrop is covered by a limestone mining lease and at present the likelihood of mining is small because of economic considerations, due to the distance of this limestone deposit from the present markets.

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KEMPSEY: The caves that are threatened are located several kilometres west of Kempsey, near the NSW coast, 400 km north of Sydney. Exploration licences have either been applied for or granted to a mining exploration company, and they follow the cavernous limestone outcrop. The company concerned has advised that they are interested in geological formations that occur beneath the limestone, and their exploration licence applications state that they are searching for Group 1 metals (these include copper, gold, lead, etc.). The company has given an undertaking that their exploration programme will not cause any damage to the caves, nor do they intend to deny access to the caves during their exploration activities. However, the likelihood, nature, or effects of any mining which may occur is not known at this juncture. Willi Willi cave, which is a maternity site for a population of 25,000 M.schreibersii, is included in an area that is covered by one of the exploration licences.

CONCLUDING REMARKS: Mt. Etna is the issue that is receiving maximum attention, because of the immediate nature of the threat and the large numbers of bats and caves under threat. Little has been done on the other areas although the Kempsey issue will be receiving some attention shortly. The potential threat to the Kempsey caves was only discovered in June this year.

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THE THROAT POUCH OF THE YELLOW-BELLIED BAT, TAPHOZOUS FLAVIVENTRIS

by Leslie S. Hall & Greg Gordon, Uni.of Queensland & Qld.NPWS

The throat area of the yellow-bellied bat, Taphozous flaviventris, was investigated histologically in 4 male and 4 female specimens that were collected in central Queensland. Male bats possessed

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a throat pouch that was lined with a keratinised epithelium and devoid of any glandular secretory material. Slightly posterior to the throat pouch is the surface entrance to a large sebaceous gland that produces neutral fatty substances. There was no indication of a throat pouch in female bats. Located in the dermis of the throat area of females were a number of sudoriferous glands that are connected to the surface by short coiled ducts.

We speculate that both sexes use the throat area during territorial marking, and that the pouch in the male was derived from sudoriferous glands that have undergone atrophy.

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NEW INFORMATION ON THE LITTLE PIED BAT, CHALINOLOBUS PICATUS

by Greg Richards, CSIRO Divn. of Wildlife Research, Canberra

This small vespertilionid bat has previously been regarded by many authors (including myself) as only inhabiting caves and mines in arid regions. These roost sites were always warm and dry, and their preference for this environment was presumed to be a characteristic that was specific and essential for their survival. Colonies of C. picatus were also notable for their small size. All literature and field records previously pointed out that these bats always congregated in small numbers (ten or less), a factor that, when assessed along with their preferred roost sites, led to predictions of their rarity and of problems in ensuring their conservation.

In January this year a colony of C. picatus was discovered on Yathong Nature Reserve, about 130 km south of Cobar, NSW. They were roosting behind an opened sliding door inside a house that had been abandoned at least three years ago. The timber construction of the house, broken windows and missing doors, and maximum day temperatures ranging from 43 to 48°C, resulted in an extremely warm roost site. The thirty-eight (!) members of this colony were packed into an area of about 70 x 15 x 2 cm at the top of the sliding door; this must have greatly increased <sup>the</sup> temperature that they had to endure by a considerable amount. A recent drought in the region caused surface water to be minimal, the nearest being over 5 km away. The environmental physiology of these and other dry country bats must be a fascinating story.

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The sex ratio of this colony was fairly even - 18 males and 20 females. Sexual dimorphism was distinctly apparent, the males being noticeably smaller. Mean forearm lengths and bodyweights of a sample of six females and four males were 35.1 mm & 6.7 g and 33.9 mm & 5.7 g respectively.

The colony remained at this site for another two months but by April had disappeared, presumably (and hopefully) to a safer retreat to undergo hibernation. Nocturnal insects at this time of year were rare, and it is interesting to note that C.picatus, as well as G.gouldii and Tadarida planiceps, are absent elsewhere on the Reserve during the winter months in response to this shortage of food. These three species do not exhibit this behaviour in more arid regions. Regular captures of bats throughout the year at Calindary Station, about 220 km north of Broken Hill, and the presence of insects during the winter, create different seasonal behaviour patterns within the same species of bat.

C.picatus is common in the warmer months of the year at other sites within this Nature Reserve. At a site about 33 km north of the roost previously described, they have been regularly seen at dusk and twelve individuals have been harp-trapped and released. Over half of these animals have been recaptured at least once, usually with C.gouldii, indicating that they share the same foraging area. No caves or mines are in the vicinity, but abandoned buildings are in abundance, two of which contain bat colonies in the wall linings or ceilings. The species occupying these roost sites are unknown - to assess this would mean the destruction of their protection - but trap captures nearby lead to the presumption that C.picatus is probably one of the occupants.

I have written this article to expand our knowledge of this bat, particularly with information that differs from that previously published, but it raises interesting questions about arid zone bats that will hopefully be answered in the future.

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#### NATIONAL PHOTOGRAPHIC INDEX OF AUSTRALIAN WILDLIFE

Mr A.D. Trounson, Executive Officer of the National Mammal Index, recently provided (in their Newsletter no.3) a list of animals that have no photographs in the Index. About two-thirds of Australia's bats are unrepresented and, although some will be impossible to obtain, many are reasonably common and should be included. I have provided the

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list of bats below as a guide to those interested in contributing to this very important work.

Mr Trounson also advised that a comprehensive book on Australian mammals, illustrated with photographs selected from the Mammal Index, will be produced under the editorship of Mr Ronald Strahan. All contributors to the Index will have the opportunity of submitting their photographs for consideration, and appropriate reproduction fees will be paid. While filling in the gaps in the Mammal Index is the main objective, photographs of all species of bats that are more suitable for book illustrations are required.

If you haven't submitted photographs to the Index before and are unfamiliar with the procedure to follow, then please contact Mr A.D. Trounson, at the Australian Museum, College St., Sydney 2000, for details.

WANTED LIST NO. 1 :

<u>Pteropus poliocephalus</u>	<u>Nyctophilus bifax</u>
<u>Pteropus scapulatus</u>	<u>Nyctophilus arnhemensis</u>
<u>Pteropus conspicillatus</u>	<u>Nyctophilus walkeri</u>
<u>Dobsonia moluccensis</u>	<u>Miniopterus schreibersii</u>
<u>Nyctimene albiventer</u>	<u>Miniopterus australis</u>
<u>Macroglossus lagochilus</u>	<u>Chalinolobus morio</u>
<u>Rhinolophus philippinensis</u>	<u>Chalinolobus picatus</u>
<u>Hipposideros ater</u>	<u>Chalinolobus dwyeri</u>
<u>Hipposideros galeritus</u>	<u>Chalinolobus nigrogriseus</u>
<u>Hipposideros semoni</u>	<u>Myotis adversus</u>
<u>Hipposideros stenotis</u>	<u>Nycticeius rueppellii</u>
<u>Hipposideros diadema</u>	<u>Nycticeius greyii</u>
<u>Rhinonycteris aurantius</u>	<u>Nycticeius influatus</u>
<u>Taphozous australis</u>	<u>Phoniscus papuensis</u>
<u>Taphozous nudicluniatu</u>	<u>Pipistrellus tasmaniensis</u>
<u>Taphozous mixtus</u>	<u>Pipistrellus javanicus</u>
<u>Tadarida jobensis</u>	<u>Pipistrellus tenuis</u>
<u>Tadarida planiceps</u>	<u>Eptesicus regulus</u>
<u>Tadarida loriae</u>	<u>Eptesicus vulturinus</u>
<u>Tadarida norfolkensis</u>	<u>Eptesicus douglasi</u>
<u>Nyctophilus gouldi</u>	<u>Eptesicus sagittula</u>

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RECENT AUSTRALASIAN LITERATURE

The following references were published from 1975 onwards, and deal specifically with bats. Many other papers published over the last four years include some information on Australasian bats (e.g. fauna survey reports) but these are not listed below, and will possibly be included in future issues if space permits.

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Have you been forgotten in this list? Please advise editor.

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STOP THE PRESSES!            STOP THE PRESSES!            STOP THE PRESSES!

News from Tasmania: The first record from this state of the Large Forest Eptesicus has come to light. Previously, Eptesicus vulturinus was the only known representative of this genus south of Bass Strait, but the collection of a female E. sagittula from a crack in a fallen eucalypt at Latrobe (south of Devonport) has extended the range by over 500 km southwards, and added a new bat species to their list of fauna. (Ed.)

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