

IMPORTANCE OF IDENTIFICATION OF MICROCHIROPTERAN FAUNA IN THE VOLUNTARY WILDLIFE REHABILITATION NETWORK

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Over nine hundred (900) bat species occur worldwide. In Australia twelve (12) species of Megachiroptera (megabats) and approximately fifty-eight (58) species of Microchiroptera (insectivorous or microbats) are listed.

Wildlife carers are dedicated volunteers in a specialized animal network. The majority of carers work fulltime and have a family. Every carer has a limit as to how many animals he or she is capable to accept and care for adequately. We are all aware that fostering native animals can be time consuming, frustrating and emotional. We all want to do our best for each and every animal we accept into our care. Microbats are no exception. However, the small size, very sharp teeth, aggressive disposition of some of the species and the human health risk of Australian Bat *Lyssavirus* can be daunting to a new carer. (Remember, you must be vaccinated against *Lyssavirus* and have your titre level checked annually!).

A general understanding of microbat biology, torpor and hibernation, navigating and hunting techniques using echolocation, foraging behaviour, natural diet, roost selection and habitat are a pre requisite to caring for microbats.

Your first consideration for the bat is to check for injuries and assess its condition. Following your assessment, veterinary examination and treatment if required, your next step is to identify the bat. The correct identification is of the utmost importance so you apply the correct captive management technique.

Based on my personal experience microbat identification is quite difficult for the wildlife rehabilitator, as many species are similar. Microbat identification is difficult and this is recognized by bat biologists. Taxonomy of microbats is under continual review as many species are complicated and therefore difficult to positively classify to an individual species. Take time with your identification as it is a learning process. It is not complicated if you follow a logical procedure.

Microbats are relatively easy to identify to a FAMILY, a little more difficult to identify to a GENUS and in some species extremely difficult to identify to a SPECIES. Remember that many groups are incomplete and some forms are currently undescribed.

It is not recommended that a positive identification be based on a photograph only. While many reference books and identification guides contain fine quality photography of microchiropteran species, many species do appear to be similar. Therefore, it is imperative to examine the physical characteristics, consider the weight, measurements and a check of the species distribution map of the individual you are attempting to identify. In my early days I laboured over identification and was sure my identification was correct only to discover that what I had identified was only found in Western

Australia and the Northern Territory!! Frustrated and confused I returned to the drawing board and logically attempted to follow the process again. When you have completed your identification, compare it to the species measurements and photograph contained in a recently published Identification Guidebook. (Remember to check that map!)

To identify your individual you will need to record a weight using digital scales or a spring balance reading in 1 gram increments. Measurements are then taken of: the right forearm (ensuring it is folded in the resting position alongside the body); the fully extended tail; the tibia (hind leg) which must rest naturally and the ear, which must be fully extended. The measurements are recorded in millimetres using vernier or dial calipers and recording the reading to one decimal place, for example 42.4mm.

Microbat species are initially classified into four (4) Family types and are distinguishable by the tail type:



(a) Enclosed tail

Family Vespertilionidae
Family Rhinolophidae



(b) Freetail

Family Molossidae



(c) Sheath tail

Family Emballonuridae

This characteristic is one important feature, which will assist with the correct identification to a FAMILY.

To classify the bat to a particular GENUS and SPECIES, a selection of physical features are investigated. Similarities are often quite close, so if in doubt state this when recording your identification.

Distinctive physical characteristics of the bat includes: head shape; facial features; nose type; ear and tragus position shape and size; dentition; wing digits; penis shape and size. These characteristics together with forearm measurements, weight, fur texture and colour are basic features used to assist with identification.

Recording the description as FAMILY and GENUS for those species, where taxonomy of the group is incomplete or undescribed, is acceptable. A number of the Molossid Family (freetail bats) *Mormopterus* species are currently confused and are yet to be formerly described. Therefore if in doubt record as "*Mormopterus* sp. undescribed" to err on the side of caution.

It is recommended that you become familiar with the scientific names as well as the common names of the species frequently occurring in your area. Some identification guides include the phonetic spelling of the Latin name, which will make the pronunciation easier.

Your microbat has been assessed and identified and with your knowledge of each species you will now know how to manage and care for the animal, for example, if it is a *Mormopterus* species it is unlikely to free fly around your lounge room as this species is a fast flyer, requires height and a very large area in which to exercise. Perhaps it is a *Chalinolobus gouldii*, a slow flyer that is very capable of flying in smaller areas. You will also know if you have a vulnerable species as listed under the Threatened Species Conservation Act, 1995 and you will follow your respective organisations' criteria for the reporting of a vulnerable species.

The correct identification and reporting of microbats will also gain credibility for your organization. An analysis of WIRES microbat records from the Sydney area in 1992-1993 was presented as a spoken paper at the 6th Australasian Bat Conference. "Identity, Distribution and Fate of Microchiropteran Bats Encountered Through Misadventure in the Sydney Region". One hundred and ninety (190) individual microbats were received. Species identified and numbers were: *Chalinolobus gouldii* (94), *C. dwyeri* (1), *C. morio* (2) *Nyctophilus geoffroyi* (20), *Myotis adversus* (1), *Scotorepens orion* (13), *Miniopterus schreibersii* (15), *Mormopterus* spp. (12), *Vespadelus* spp (14) and unidentified (18). The majority of animals encountered were adults and the major cause of misadventure was the disturbance of roost sites. A significant number of animals were trapped inside buildings and some were destroyed by domestic cats and dogs. The success of rehabilitation efforts varied between species: *Chalinolobus gouldii* (63%), *Nyctophilus geoffroyi* (35%), *Mormopterus* spp. (55%), *Miniopterus schreibersii* (1%), *Vespadelus* spp. (1%).

During my years with WIRES and subsequent years as a 'source of information' to assist carers, a number of significant microbat roosts and colonies are now documented and recorded with the relevant agencies.

A general inquiry in January 1996 regarding unusual 'droppings' in a community hall at Badgerys Creek on the outskirts of Sydney, led to the discovery of a maternity colony. Approximately one hundred (100) *Chalinolobus gouldii* (many carrying young) and *Mormopterus* sp co habitated in this roost. During the following four (4) months regular checks and counts were carried out. By the end of May 1996 all residents had vacated - likely to have moved to their selected winter roost.

The rescue of microbats taken from a drain by school children at Castle Hill in Sydney's north-west, revealed a significant colony of *Miniopterus schreibersii*.

The report of 'bats flying around a car dealer's panel beating shop in daylight hours during a heavy rain storm' led to the discovery of a *Miniopterus schreibersii* roost in a drain at Kingswood, west of Sydney.

The request by Sharon Hales of WIRES North-west Branch in to identify eight (8) bats collected from a felled tree during land clearing at Nelson's Ridge, a new housing development at Greystanes, Sydney in March 2002 revealed the presence of

Mormopterus norfolkensis which is listed as a vulnerable species. Glenn Hoye, Bat Biologist, was immediately notified and organized transmitters for each individual. The bats were radio-tracked for the following ten (10) days to establish roost preferences. The trees were then identified and not removed.

The positive identification of the bat species mentioned above has contributed to the valuable bank of information for the species. A recently published paper, "The Large Bent-wing Bat (*Miniopterus schreibersii*) in Urban Environments: a survivor?" by Glenn Hoye and myself, pp 138-147 in *Urban Wildlife: more than meets the eye*, edited by Daniel Lunney & Shelley Burgin, 2004. Royal Zoological Society of New South Wales, Mosman NSW, March, 2004 is a prime example of the valuable contribution our rehabilitation network can offer.

Wildlife care groups may also be called upon to supply information on bat species found in designated locations. An example of this is WIRES submission prepared in October 1995 for Bat Species likely to inhabit or forage within the Hoxton Park Corridor, prepared for the Land and Vegetation Management of the Hoxton Park Corridor, Department of Planning, Sydney.

It is obvious that the correct identification of microbats in the wildlife care networks and the valuable information collected and recorded in relation to the encounter site, surrounding habitat and season of encounter is extremely important.

Our data may in the long-term assist with protection of the species and their habitat.