



Nodular Skin Lesions Affecting Southern Bent-wing Bats (*Miniopterus schreibersii bassani*) in a Breeding Colony at Naracoorte, South Australia

FACT SHEET

Introductory statement

Skin lesions were observed in a population of critically endangered Southern Bent-wing Bats (*Miniopterus schreibersii bassani*) in a breeding colony at Naracoorte, South Australia in September 2009. This was of concern as over half of the population from a major colony was affected. Furthermore, there had also been mass mortality events in pups of this population the preceding two years, with skin lesions noted in the previous year's event.

Aetiology

The cause of the majority of these lesions remains unconfirmed although a poxvirus has been isolated from one affected animal and parasitic worms (suspect *Riouxlgovania beveridgei* (Bain and Chabaud 1979)) have been seen in the centre of dermal pyogranulomas on three animals, including the individual with the pox virus.

Concerns had previously been raised about declining numbers, the finding of organophosphates in these bats and their guano (Allinson, Mispagel *et al.* 2006; Mispagel, Allinson *et al.* 2004) and the impact of clearance of natural habitat, environment changes and human disturbance, hence there may be multiple aetiologies.

In the 10 bats tested to 9 September 2011, Hendra Virus and Australian Bat Lyssavirus were both excluded by the CSIRO Australian Animal Health Laboratory.

Natural hosts

The species affected is the Southern bent-wing bat (*Miniopterus schreibersii bassani*) which is listed as Critically Endangered under the Environment Protection and Biodiversity Conservation Act 1999 because of severe reduction in numbers and a very restricted geographic distribution in south eastern South Australia (SA) and western Victoria (2008). Furthermore, the Victorian and SA populations are probably distinct and even populations in the two SA caves studied may be distinct (Allinson, Mispagel *et al.* 2006). Challenges to population estimates include seasonal variation, access to caves and the ability to count all bats at the same time. Recent population estimates for south-eastern SA were 16,000 in 2000 (Mott and Aslin 2000) and 13,700 in 2009 (Bourne 2010), compared to 125,000 in 1965 (Dwyer and Hamilton-Smith 1966).

Occurrences in Australia

In December 2008, mass mortalities of southern bent-wing bat pups were reported at a colony at Naracoorte, South Australia. About 10% of an estimated population of 5000 animals were affected with many having lesions which looked like wounds with secondary infections, however no definitive diagnosis was made (eWHIS 2165). In September 2009, a site interpreter at Naracoorte Cave, near Naracoorte in South Australia reported approximately 50-60% of adults of an estimated population of 26,000 Southern Bent-wing Bats affected by nodular skin lesions (eWHIS 2451).

No reports of similar occurrences have been identified in other Australian bat populations.

Epidemiology

Unknown, although 10-60% of the population may be affected in each incident.

Clinical signs

Mass mortality with emaciated and weak pups, many with skin lesions which look like either ulcerating wounds or nodules.

Diagnosis

Clinical signs.

Clinical Pathology

None described.

Pathology

There were four descriptions from the animals sampled: a) focal 1 – 2 mm round areas of white discoloration; b) larger (up to 1cm diameter) foci of white discoloration; c) 1 – 2 mm raised white cutaneous nodules; d) 1 mm areas of excoriation/ulceration.

Differential diagnoses

Infectious differentials include: parasitic (*R. beveridgei*), viral (poxvirus), fungal (histoplasma), and bacterial (secondary). Non-infectious differentials include: toxicity related, trauma / wounds. Masking by bacterial or fungal overgrowth should also be considered in older specimens.

Laboratory diagnostic specimens

If dead or affected bats are found, contact Steven Bourne (Department of Environment and Heritage SA, Email: Steven.Bourne@sa.gov.au) or Zoos SA (08 8230 1213).

Submit fresh whole carcass on ice. If facilities allow, perform a systematic necropsy beginning with identification of the bat and collect samples in formalin for histology; in ethanol for EM and parasitology; and chilled and frozen for genetic and other analyses.

Laboratory procedures

Population sampling, necropsies and a variety of samples collected for virological testing, electron microscopy (EM), histology and microscopy were used.

Treatment

Unknown.

Prevention and control

Insufficient information is available for specific prevention and control.

Surveillance and management

Ongoing and improved monitoring and study of population parameters and feeding behaviour is needed.

Statistics

See National Wildlife Health Information System Event IDs: 2451 and 2165 (<http://www.wildlifehealth.org.au/AWHN/home.aspx>). NOTE: access to this dataset is restricted. If you would like access please contact awhn@zoo.nsw.gov.au.

Research

For key research and action plans for Southern Bent-wing Bat see The Action Plan for Australian Bats (1999). Any future disease investigations will need to be coordinated with these plans – e.g., balancing the impact of disturbance or sampling.

Human health implications

None identified.

Conclusions

It is uncertain if this skin disease of Southern Bent-wing Bats is an ongoing and significant disease threat. However, because of the critically endangered nature of the species, vigilance and up to date plans and information are crucial to any response should it become necessary.

References and other information

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To provide feedback on this fact sheet

The Australian Wildlife Health Network would be very grateful for any feedback on this fact sheet. Please provide detailed comments or suggestions to rwoods@zoo.nsw.gov.au. (A Word version is available to make Track Changes if it is easier – contact us at rwoods@zoo.nsw.gov.au). We would also like to hear from you if you have a particular area of expertise and would like to produce a fact sheet (or sheets) for the network (or update current sheets). A small amount of funding is available to facilitate this. We are especially keen to hear from PhD students who might be able to contribute, or are working in the area.

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