

Eastern Long-eared Bat

Nyctophilus bifax
Family Vespertilionidae

Other names:

Northern Long-eared Bat
North Queensland Long-eared Bat

Conservation Status:

The Eastern Long-eared Bat is listed as Vulnerable under the NSW *Threatened Species Conservation Act 1995 (TSC Act)*.



Eastern Long-eared Bat *Nyctophilus bifax*

photo: David Milledge

Distribution, Abundance & Population Trends

Last updated January 2010

National and State

The Eastern Long-eared Bat is found in Northern Australia including the east coast as far south as the mid-north coast of NSW. In NSW the Eastern Long-eared Bat is largely restricted to the far north coast where it is most frequently recorded on the coastal plain and nearby coastal ranges.

Its distribution appears to be continuous from the Queensland border to Iluka and there are patchy records further south to Woolgoolga. The Eastern Long-eared Bat is relatively common within suitable habitat.

Local

Byron Shire is a regional stronghold for the Eastern Long-eared Bat with core habitats associated with the coastal headlands, estuaries and sand plains, and adjacent foothills throughout the shire.

Significant populations are reserved within Billinudgel, Brunswick Heads and Broken Heads Nature Reserves and are known to occur within the Arakwal National Park and the Whian Whian State Conservation Area.

Privately owned land within the shire also supports important habitats. The Suffolk Park - Coopers Shoot, Skinners Shoot - Cumbebin Swamp and lower Brunswick River areas which include important habitats in their own right are also important corridor links for this species.

Other corridors, mapped as part of the Byron Biodiversity Conservation Strategy (2004), including coastal corridors and others that link coastal and hinterland habitats are also considered important for this species.

Clearing for agriculture and urban development has impacted this species' habitat heavily throughout the Byron Shire. The patchy distribution of remaining preferred habitat, particularly near the coast, suggests that some populations could be isolated.

Ecology

Habitat

Prime Eastern Long-eared Bat habitats in NSW include lowland subtropical rainforests, littoral rainforests, wet sclerophyll forests and swamp sclerophyll forests (particularly paperbark forests) (Gilmore and Parnaby 1994, NSW NPWS 2002). The species may extend into adjacent moist eucalypt forests, coastal scrubs (particularly banksia scrubs) and riparian habitats.

Home Range, Shelter and Movements

The Eastern Long-eared Bat has relatively broad requirements for roost sites and is known to roost in tree hollows, in trunk cavities of large fig trees, under loose bark, among epiphytes, in the hanging foliage of palms and even within dense foliage (Churchill 2008).

Selection of roost sites may depend on condition: tree hollows appear to be very important for lactating females (Lunney et al. 1995), while non-breeding individuals use a range of roosts in close proximity and tend to change roost sites nightly. Seasonal changes in roost sites also occur. Summer roosts at Iluka were in taller trees of the rainforest interior, with most in hollows; while in winter more roosts were amongst foliage and in trees closer to the rainforest margins (Lunney et al. 1995).

Little is known of this species' spatial habitat use. Lunney et al. (1995) located roosts up to 500m away from initial trap site. The majority of individuals changed roost sites on a daily basis but tended to remain faithful to a general roost area (Lunney et al. 1995).

This species' dispersal abilities and patterns are also largely unknown. Research conducted on similar species (e.g. Lumsden et al. 2002) indicate that it may be capable of moving over cleared lands, to some degree, but that habitat corridors comprising higher proportions of native vegetation are likely to provide better movement and dispersal. Coastal corridors and those linking coastal and hinterland habitats have been mapped across the Byron Shire as part of the Byron Biodiversity Conservation Strategy (2004).

Diet

This species feeds on insects and other invertebrates, captured in flight or from forest foliage. Moths, ants and click-beetles have been found in the stomach (Van Dyck & Strahan 2008). They regularly make short (<3m) flights from the perch to obtain prey with foraging being undertaken along the edge of the tree canopy as opposed to within the foliage (Churchill, 2008).

Figure 2: Eastern Long-eared Bat habitat, Byron Shire

photo: Unknown



Breeding

Mating occurs in May and females give birth to twins in October with the female lactating in the following months of November and December (Churchill 2008). The twins stay attached to the mother for the initial few days

after which the mother goes foraging while the twins are left at the roost. Females often carry the young to different roosting sites until the young are weaned in December (Van Dyck & Strahan 2008).

Threats

The NSW Scientific Committee's reasons for listing this species as vulnerable were related to their reduced population sizes and distribution.

The presence of severe threatening processes and its very specific habitat requirements make it susceptible to on-going threats. This species' formerly extensive lowland subtropical and wet and swamp forest habitat has been severely reduced and fragmented by land clearing for agriculture and residential development.

Remaining habitat is limited in extent and, despite the occurrence of significant areas within formal reserves, threatening processes continue to impact key habitats. Specific threats include:

Clearing of coastal vegetation

Clearing results in direct habitat loss and the fragmentation of remnant habitats which may reduce the viability of populations. Threats include continuing loss and declines in the abundance and availability of hollow trees for roosting, particularly in its coastal and near-coastal habitats where development pressures are intense.

Logging

Logging of wet hardwood forests that are potentially inhabited by this species continues. Logging can lead to the direct loss, fragmentation and disturbance of habitat and the continuing loss and declines in the abundance and availability of hollow trees for nesting.

Habitat Modification

Modifications to favoured habitat particularly those that alter the microclimate beneath the forest canopy (e.g. removal of under-storey vegetation, stock grazing).

Fire

Regular burning or severe bushfires within the limited coastal habitats occupied by this species has the potential to degrade its habitat and impact its invertebrate food supply from impacted areas. Coastal reserves supporting important foraging and roosting

habitats are prone to fire, often resulting from arsonist or neighbour burns.

Weed infestation

Weed infestation is a threat within remnant coastal habitats such as lowland rainforests, littoral rainforests and coastal scrubs. Weeds suppress the regeneration of native species and degrade habitat for this species and its invertebrate prey. Weeds of concern within favoured Eastern Long-eared Bat habitats include Bitou Bush (*Chrysanthemoides monilifera*), Lantana (*Lantana camara*) and Asparagus Fern (*Asparagus aethiopicus*).

Recreational use of habitat areas

Increased use of recreation / camping areas within coastal reserves and the presence of domestic cats and dogs may enhance the level of disturbance in these areas. Disturbance of roosting sites may also be attributable to introduced species such as the Indian Myna bird and non-native bee species which compete with the Eastern Long-eared Bat for available tree hollows.

Pesticide use

No published studies are available on the impacts of pesticide use on Eastern long-eared bats, however, the use of pesticides is a potential threat to this species as their use may reduce the availability of invertebrates on which the Eastern Long-eared Bat feed. The use of these substances may also result in bio-accumulation of toxic residues in the fat stores of bats.

Management Recommendations for Byron Shire

- o Protect and restore known and predicted habitat including corridor habitats within the framework of the Byron Biodiversity Conservation Strategy (2004). Priority areas include all lowland subtropical rainforests, all littoral rainforests and all native vegetation comprising potential habitat on coastal dunes and flood plains and the Suffolk Park - Coopers Shoot, Belongil - Skinners Shoot - Cumbebin Swamp and lower Brunswick Valley.
- o Encourage private landholders, where known and potential Eastern Long-eared Bat habitat is present, to maximise the protection and enhancement of those habitats.
 - I. Highlight the impacts of habitat loss and fragmentation, stock grazing and frequent fires.
 - II. Ensure that affected land owners are aware of funding sources and mechanisms available to support habitat protection and enhancement.
 - III. Exclude stock from remnant lowland subtropical rainforest, littoral rainforest and coastal woodland habitats.
- o Manage and reduce activities that may disturb Eastern Long-eared Bats within known or potential key foraging and roosting habitats which often coincide with recreation / camping areas within coastal habitats. Manage weed infestations within known and potential Eastern Long-eared Bat habitats.
- o Ensure that Byron Shire Council adopts best practice procedures for activities such as infrastructure development, weed control, control burning and bush regeneration within and adjoining Eastern Long-eared Bat habitat.
- o Identify and map key eastern Long-eared Bat habitats within the Byron Shire to provide a focus for site specific management actions.
 - I. Confirmed sighting records of the Eastern Long-eared Bat should be compiled and used to predict the species' habitat elsewhere.
 - II. Investigate the extent to which known and potential Eastern long-eared Bat habitats are protected by the Byron Biodiversity Conservation Strategy, paying particular attention to the maintenance and enhancement of landscape connectivity across the Shire.
- o Undertake control of Indian Myna birds in known or potential Eastern Long-eared Bat roosting and maternity sites.
- o Developments proposed for areas adjoining these habitats should be required to carefully consider impacts on this species relating particularly to aspects such as landscape connectivity and population viability. Ensure that adequate consideration for the Eastern Long-eared Bat is undertaken wherever development is proposed within or adjacent to known or potential Eastern Long-eared Bat habitat. DECC's survey and assessment guidelines outline adequate survey levels for this species (DECC November 2004).
- o Wherever possible the construction of new public utilities (roads, power lines) within known or potential Eastern Long-eared Bat habitat including lowland subtropical rainforest, littoral rainforest and coastal woodland habitats should be avoided. Public roads within these habitat types, that are no longer required, should be regenerated.
- o Ensure that the Rural Fire Service (RFS) is aware of the locations of known and potential Eastern Long-eared Bat habitat within the Shire and encourage the RFS to adopt a conservative approach to control burning activities in the vicinity of known and potential habitats.
- o Encourage and support Landcare and Dunecare groups, bush regeneration teams and other coastal habitat restoration programs, particularly within lowland rainforests, littoral rainforests, paper bark swamp forests and coastal scrubs.
- o Report all confirmed Eastern Long-eared Bat sightings to the Ecologist at Byron Shire Council. Records should include date, habitat and location (grid reference) and photograph if possible.
- o Encourage local research institutions or government bodies to monitor long-eared bat populations at key sites, promote surveys within potential habitats and research the ecology of Eastern Long-eared Bat.

Locations of Threatened Fauna within Byron Shire *Nyctophilus bifax*

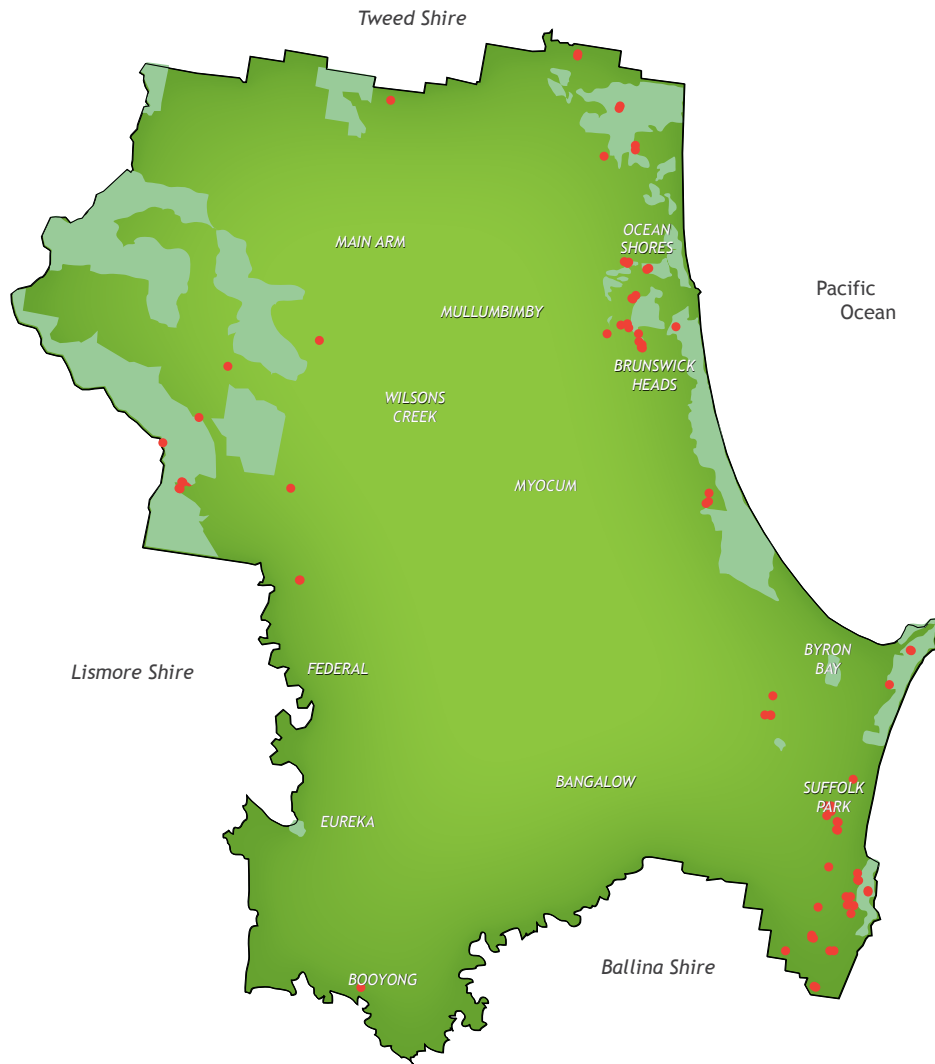


Figure 3: Distribution of Eastern Long-eared Bat *Nyctophilus bifax* in Byron Shire

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