BOBTAILS CARE PLAN IN URBAN AREAS

ROADS

-Use fences or walls as a barrier from the road to improve protection and provide guidance to a suitable area in the NatureLink to cross.

-Use “Bobtail crossing” signs where the NatureLink crosses a road, especially during the breeding season.

-Increase Bobtail awareness and educate on actions to take when encountering Bobtails on the road within drivers.

DOGS

-Target pet owners in NatureLink areas and promote training dogs to avoid wildlife.

-Be aware of Bobtails while walking dogs and remove any from danger.

-Use barricades or cover the lower part of yard fences to prevent Bobtails getting inside the property If dogs are allowed outside.

-Ensure dogs are walked with a leash and limit walks to permitted areas. Do not walk dogs in National Parks.

NATURELINKS

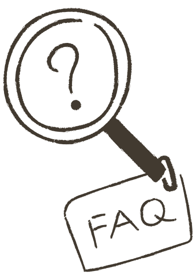
-While designing the NatureLink, favour slow-speed areas and avoid main roads or multilane streets.

-Ensure the NatureLink counts with corridors of dense vegetation to provide shelter and hiding places.

-While tracing the NatureLink, include alternative crossings to roads such as underpasses

-Use signs to inform the local community of the NatureLink and the presence of its Bobtail users.

AWARENESS/EDUCATION



-Inform the community through printed media, local websites, social media, and local venues of any NatureLink around their area. By providing information on their use and intention people would be motivated to be part of it and aware of wildlife.

-Increase Bobtail knowledge using resources such as fact sheets with a focus on movement characteristics, breeding, behaviour, and habitat use to improve the understanding of the species.

-Provide awareness of the main threats Bobtails suffer while living in an urban area, this would put reality into perspective and motivate change in the community. At the same time, educate them on their role as seed dispersers and pest control.

-List and provide sources of Bobtails information such as Rewild.

BOBTAIL FRIENDLY GARDEN

-Plant native grasses, shrubs, and ground cover to provide shelter. Alternatively, nest-boxes and terracotta pots can be used when installed under shrubs and covered with leaves. PVC piping along the fence line provides good hiding places.

-Allow leaf litter on the ground and mulch plants

-Include logs, rocks, barks or brick for basking and aid in rubbing shed skin.

-Be aware of Bobtails prior to mowing lawns

-Provide clean shallow bowls with water filled regularly

-Ensure foraging areas are available planting native fruiting plants and allowing the presence of invertebrates and snails.

-Avoid using pesticides, chemicals, and snail pellets in the garden as they can cause poisoning if consumed by Bobtails.

BOBTAIL *Tiliqua rugosa (Gray, 1825)*

Common names: Bobtail, Boggi, Shingle-Back, Sleepy Lizard, Stumpy-Tail

(ALA, 2022)

·Classification

Kingdom: Animalia
Phylum: Chordata
Class: Reptilia
Subclass: Lepidosauria
Order: Squamata
Suborder: Lacertilia
Family: Scincidae
Genus: Tiliqua
Species: *rugosa*
-*rugosus* (south-western Australia)
-*asper* (eastern Australia)
-*konowi* (Rottnest Island)
-*palarra* (mid-west coast of WA)
(Cogger, 2018)

·Conservation Status: *Tiliqua rugosa* is considered a Least Concern under the IUCN Red list. *Tiliqua rugosa kunowi*, found in Rottnest Island is considered Vulnerable. (ALA, 2022).

Figure 1: Australian distribution of *Tiliqua rugosa*. (IUCN, 2022)

·Distribution and Habitat

Endemic to the southern parts of Australia, except the coast along the east and south-east (Cogger, 2018), Tiliqua rugosa can be found from Queensland right through Western Australia inhabiting a variety of habitats (Figure 1). Preferring areas where shrubs are dominant instead of the tall canopy (Norval et al., 2020), they can be found in eucalypt woodlands, coastal heaths, arid Acacia scrublands, spinifex-dominated deserts, and urban areas (Cogger, 2018).

·Longevity/Mortality

Mortality rates are high among juveniles with 16% reaching their first year (Titmuss, 2007), due to predation, parasitism and environmental conditions (Norval et al., 2020). Adult mortality is low and they are known to reach up to 50 years (Norval et al., 2020).


(ALA, 2022)

·Taxonomic Characteristics/Identification:

Large and robust with an average SVL of 30cm and a mass of 600g (Kerr et al., 2006). Broad triangular head, bright blue tongue, short limbs with short, fat toes. Large, rough scales, and short, blunt tails measuring around 20-25% of the SVL (Cogger, 2018). Colouration varies with their location from dark brown with scattered clear markings to cream (ALA, 2022). Bobtails are ectotherms preferring body temperatures between 33 to 35C (Norval et al., 2020), with conical teeth as a result of their diet (Norval et al., 2020).

·Diet

Bobtails are considered opportunistic feeders eating small invertebrates, insects, snails, and carrion, with a preference for a herbivore diet feeding on herbs, blossoms, seedlings, fruits, and the dominant food available in the area at the time making their diet seasonal and highly variable (Norval et al., 2020). They are known to feed for a short period of time and move around to feed on a different area for an average of <12min per day (Norval et al., 2020) eating up to 30% of their body weight (Titmuss, 2007). Their diet is important to allow growth and reproduction, and its high variety allows them to persist in urban areas.

·Reproduction (Life history/Breeding behaviours)

Tiliqua rugosa is viviparous bearing one to three young per little after a 5-month gestation period (Norval et al., 2020). Juveniles reach maturity within 3 to 5 years which is considered long for skinks, but short considering bobtails long longevity (Norval et al., 2020). Although they do not exhibit parental care, mothers are known to identify their young and allow them to live within the same home range before they disperse after a year (Norval et al., 2020).

The mating season runs from September to December, when the weather warms, and mating occurs between late October and early November (Norval et al., 2020). Sleepy lizards are known to display **monogamy** in which pairs are strongly bonded lasting multiple years. Commonly initiated by males, the partners re-establish during the mating season, mate, and then separate but remain in overlapping core areas within their home ranges (Norval et al., 2020). Prior to mating, males are known to be more active as they look for their pair and fight potential rivals (Cole, 2021), while females are post-mating as they must nourish better to maintain their young (Cole, 2021).

Monogamy is beneficial for males to improve their success genetically in reproduction, and females as they are protected from threats and allow to move and feed more freely.

·Predators/Threats

Sleepy lizards can be preyed upon by dingos, introduced feral foxes and cats, large snakes such as carpet pythons, and predatory birds like kookaburras and falcons (ALA, 2022). As a defence mechanism, bobtails display their blue tongue along with a hissing sound attempting to scare off the predator and can bite if needed (ALA, 2022).

Tiliqua rugosa is commonly parasite by reptile ticks that attach to the ear canal and under the scales (ALA, 2022), such as *Amblyomma albolimbatum* and *Bothriocroton hydrosauri*, they have an important impact on bobtails affecting their activity levels, moving speed and ability to retain or find their pairs (Norval et al., 2020).

Habitat loss due to increased urbanisation, road traffic, lawnmowers and snail baits are caused of mortality in the urban area (Titmuss, 2007).

·Activity/Behaviour

Bobtails are slow-moving with short stamina (Kerr et al., 2006), they are diurnal with activity patterns linked to the season and time of the day. During late winter and spring, they are active during the mid-part of the day when is warmer (Norval et al., 2020). During late spring and summer, when temperatures are higher, their main activity occurs in the morning and cooler afternoon periods Norval et al., 20201). Mainly solitary except for their breeding season with pick activity in spring as mating behaviours commence (Cole, 2021).

As ectotherms, they show a basking behaviour to maintain body temperature and are able to pant when overheating (Titmuss, 2007). During the winter, as the temperatures drop below 12C, they enter a state of brumation (Titmuss, 2007).

·Shelter/Refugee

In the wild, Bobtails select their refugee sites instead of being a random act. Preference for dome-shaped bushes with foliage reaching the ground and those with thorns are seen (Kerr et al., 2003). Refugee use varies with activity periods, in Spring Bobtails make use of several sites, once the temperatures increase and their activity decreases, they change to single-use refuges (Kerr et al., 2003). It is believed that the selection of shape and size of bushes influence the amount of shade and temperature control for Bobtails, additionally, thorns provide a degree of protection from predators (Kerr et al., 2003). Bobtails also use burrows from other animals as shelter when conditions are not favourable (Norval et al., 2020).