Australasian Journal of Herpetology 63:17-18.
Published 16 June 2023.

ISSN 1836-5698 (Print)
ISSN 1836-5779 (Online)

A Bluetongue lizard *Tiliqua scincoides* (White, 1790) chased out of hibernation by parasitic mites.

LSIDURN:LSID:ZOOBANK.ORG:PUB:9529B418-E28B-4D87-A92D-1EAB3F3A8AF4

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Received 12 June 2023, Accepted 15 June 2023, Published 16 June 2023.

ABSTRACT

Detailed is an incident on 11 June 2023, in which a large adult Eastern Bluetongue Lizard *Tiliqua scincoides* (White, 1790) was found to have emerged from hibernation.

Circumstantial evidence suggested that it was a severe mite infestation that forced the lizard to flee where it was hibernating at a time of year that such would not normally occur.

Keywords: Biology; Reptilia; ecology; lizard; Australia; Victoria; Melbourne, Cragieburn; *Tiliqua*; *scincoides*; mites; *Ophionyssus*; *natricis*; parasites; hibernation; brumation.

INTRODUCTION

In southern parts of Australia, including Melbourne, Victoria, the majority of reptiles go into a proper "hibernation" in the colder months of winter (June-August).

In this period, most reptiles remain under cover and do not emerge for any reason, including for example to sunbake on a sunny and relatively warm day.

It is only when there is sustained run of warm sunny days in late August (rarely), or more often September/October that the majority of reptiles emerge from their winter hideouts.

This is especially the case for larger reptiles such as snakes over 75 cm long and adult Bluetongued Skinks (genus *Tiliqua* Gray, 1825).

The hibernation process in reptiles is sometimes called "Brumation" and people spend a huge amount of time arguing what is the correct term and when, but this is not an important feature of this paper.

Hibernation implies no activity in winter, whereas brumation implies some movement.

Is shuttling slowly from one side of the underneath of a rock to another defined as brumation or something to be ignored? At what stage does it become treatable as activity?

Is this "activity", if and when the snake or lizard eats?

In terms of the larger reptiles, being snakes over 75 cm long and adult Bluetongued Skinks, these stop feeding over winter in Melbourne and as a rule do not emerge over winter months.

While emergence and activity is not unheard of, it is not the normal situation.

As the Melbourne 24/7 snake catcher I know that call outs for large snakes and large lizards in the winter months invariably have one or other of the following factors at play.

1/ The reptile has been "dug up" or other otherwise disturbed from its winter hiding spot,

2/ The reptile is sick, or has something wrong literally forcing it from a normal winter hiding spot.

Included in this latter group are female Tiger Snakes that may have given birth late in the previous autumn and sometimes do not have enough body fat to survive to the following spring at the time hibernation usually commences.

They may be seen basking and attempting to feed in the cooler months to literally get through.

Sick or otherwise unwell reptiles emerging from hibernation are sufficiently common as to be seen by myself as the Melbourne 24/7 snake catcher every year.

THE BLUETONGUED LIZARD

On Sunday 11 June 2023 at 11.30 AM I received a call to catch a "snake" at at 20 Caspian Drive, Cragieburn, Victoria. Upon arrival, at 12.15 PM, I saw a large adult male Bluetongued Lizard walking along a wall in a front yard of a property.

The lizard was immediately noticed to have numerous raised scales and a severe parasitic mite *Ophionyssus natricis* (Gervais, 1844) infestation.

In captivity, snakes and lizards go to extreme lengths to get rid of their mite infestations. They will pace their cage in the hope the mites fall off and disappear. Alternatively they may jump into a water bowl to try to drown the mites off. The reptiles will also try to "scratch" off the mites.

Wild reptiles generally do not get major mite infestations because a mite that falls off a reptile is unlikely to ever have the chance to jump back onto it. It is not like a cage situation where the reptile simply cannot get away.

Hibernation changes this situation somewhat in that an infested lizard is effectively torpid and cannot easily up and leave when mites are climbing on and off to suck blood.

In the case of the above-mentioned lizard, the morning in question was sunny and while cool (about 15 Deg. C), the lack of wind and mainly blue skies, meant that the lizard was able to emerge and warm up quickly. This enabled it to flee where it had been, including all the mites that were obviously at the same place in the immediately adjacent substrate.

So while it was mid-winter, the lizard was able to flee the mites hanging around it's hibernacula in order to find a new place to see out the remainder of winter.

Because of the percentage of mites remaining on the lizard when it fled, the act of fleeing the previous resting place, did not completely get rid of the debilitating mite infestation.

However it may well have made the difference between not surviving winter had it remained in the one place and probably surviving in a new location and with a lesser mite burden.

In any event, it seems that in this case, the relatively unusual mid-winter activity of the Blutongue lizard was brought about by the parasitic mite infestation.

Parasitic mites are thought to be an exotic pathogen in the Melbourne

herpetofauna.

They are ubiquitous among Bluetongued Lizards as well as a lot of larger snakes, this being the case across most suburbs in and around Melbourne, Victoria, including for example, the western suburbs, north-east and the Mornington Peninsula (Hoser and Valentic 1996).

In the two and a half decades since that publication, mites have become even more ubiquitious on wild reptiles in and around Melbourne, Victoria.

As a Snake Catcher, I know that mites will fall of most adult snakes or lizards caught, that are then sprayed for mites with a commercial mite killing spray (e.g. “Top of descent” or “Mac Mite”).

As already mentioned, most mite infestations of wild reptiles do not appear to be anywhere near as debilitating and devastating as compared to the captive infestations.

In captivity, mite infestations explode exponentially unless aggressively treated and stopped.

Captive mite infestations seem to be only “curable” via chemical means alone and extreme vigilance on the part of the keeper.

Chemical means include, sprays or similar chemical controls (e.g. Dichlorvos-based pest strips), and also the drug Ivermectin (of Covid-19 treatment fame), as a form of inoculation for vulnerable (to mite) reptiles.

Mites appear to be gaining resistance to treatments for captive reptiles over recent decades and it is now often desirable to use multiple means to combat mite infestations or potential infestations, such as both oral administration of Ivermectin in combination with spraying of affected cages.

While it is illegal in most places in Australia to trap Bluetongue Lizards for pets, it is self-evident that a lot of what passes through the pet trade is in fact wild caught.

It goes without saying that any wild-caught lizards should be pre-emptively treated for mites and other internal parasites (cestodes, nematodes, flukes, etc) at time of acquisition.

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CONFLICTS OF INTEREST

None.

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