

BLOOD MITES ARE NO FUN



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INTRODUCTION

Recently I witnessed an infestation of blood mites in my terraria. I first noticed the minute parasites on my *Boa constrictors*. The boas are housed in a terrarium with a floor area of almost three square meters. To rid such an enclosure of mites completely is quite a task. This increased when, after a few weeks, all my terraria proved to be infested. Since attack is the best form of defence, I started to study the life cycle of the blood mite. Below I describe their life cycle, behaviour, my plan to eliminate them and the use of Trichlorfon in their eradication.

THE LIFE CYCLE OF THE BLOOD MITE

The following table gives an overview of the average length of the different stages in the life of the blood mite (*Ophionyssys natricis*) at 20 and 30 degrees Celsius

A gravid mite will leave her host to find a dark, moist crack to lay her eggs. Each egg develops into a larva. The larvae remain at the location where they hatched; here they are protected against dehydration, which is important, because their exoskeleton is still soft. After the larva has entered the protonymph phase it remains in its moist environment until its cuticle has hardened (sclerosis). This sclerosis significantly reduces the dan-

ger of dehydration.

The protonymph will now move to a drier environment and starts to move, at random, through the terrarium. When it has found a suitable host it will climb on, secure itself underneath a scale and start to feed. When it is gorged with blood, it simply drops from its host. Hidden in a dark and moist crack it then enters the deuteronymph stage. The deuteronymph is active but usually remains hidden in the crack until it enters the adult stage. The sex of the mite is determined at the end of the protonymph stage or during the deuteronymph stage. Shortly after they become adult, they will mate. The adult mites will move through the terrarium until they find a host. They will climb the host animal, and gorge themselves with blood after which they will drop from the animal again.

The males will begin to search for females that have not yet mated and once inseminated the females will search for a suitable crack in which to lay their eggs. Females lay between 60 to 80 eggs and will feed 2 – 3 times at intervals of one to two weeks.

BEHAVIOUR

When a mite meets an obstacle it will not walk past it but will always climb upward. Due to this, you can sometimes see mites against the water bowl or on the sides of the terrarium. This also means that mites will crawl outside the terrarium and spread through the whole room until they starve to death or find a host in another terrarium. This behaviour means that mites can quickly infest more than one terrarium.

Development phase	At 30 degrees	At 20 degrees
Egg	28 hours	98 hours
Larvae (non-feeding)	18 hours	47 hours
Protonymph (feeding)	3 days	14 days
Deuteronymph (non-feeding)	13 hours	26 hours
Adult (feeding)	10 days	32 days

Remark: The duration of the protonymph phase depends on the time needed to find a suitable host. Protonymphs who cannot find a host will live for 15 to 19 days before they starve to death.

The behavioural patterns of mites are rather rigid. When they meet an obstacle, they will climb it. They are attracted to dark and moist spots. When it is cold, they are attracted to warmer spots. When it is too warm they will search for colder spots. They are attracted to the odour of their host and are inclined to stop walking when the tactile organ on their back touches something (for instance a scale). Favourite spots to attach themselves on snakes are the groove around the lower jaw and the scales around the eye because these areas are the correct humidity and temperature and are narrow enough to stimulate the tactile organ. A mite could go through its whole life cycle in the groove around the eye.

One of the dangers for the mite is when the snake sloughs its skin. The snake crawls away and leaves the mites behind in the shed skin. Unfortunately, the snake is re-infested almost immediately by other mites. Since they cannot swim, drowning is another danger for mites. When the snake lies in the water bowl, they will try to move to the head of the snake since this normally stays above the water. A large number of the mites will drown but enough will survive.

PLAN FOR EXTERMINATION

- Completely empty all infested terraria. Throw away all climbing branches and substrate
- Check all terraria for cracks and if necessary seal them with silicone cement.
- Disinfect all terraria with Trichlorfon. Instructions are listed below.
- Hang several VAPONA strips in the room (or attic in my case!) for several weeks to kill the blood mites that migrated outside the terraria. Don't skimp on this. Otherwise, you will have a new mite population explosion before you know it.

ADDITIONAL TIPS

You can exploit the inability of mites to swim by placing the legs of the other terraria in bowls of water. That way you can prevent that the terrarium becomes infested.

Hot and dry conditions are fatal for the mites. Eggs will hatch significantly less under dry conditions. Mites will die if the temperature gets above 55 degrees centigrade even only for a few minutes.

A suggestion that came too late to test myself was the use of a so-called insect pen. If you use the pen on the edges of an infested terrarium, you can prevent migration of mites. Mites that leave the terrarium will die.

INSTRUCTION FOR USE OF TRICHLORFON

Trichlorfon (brand name TUGON) is used in concentrations between 2% and 5%. Bath the snake in this solution. If necessary you can put the snake in an old pillowcase and spray it thoroughly. Make absolutely sure that the snake does not drink the solution, which is poisonous if ingested. Clean the terrarium and spray it well with the solution. **DO NOT RINSE!!!!** Trichlorfon works very fast and remains active for several weeks.

SAFETY RECOMMENDATIONS

On the enclosed leaflet, I read the following information:

When used properly Trichlorfon does not pose any danger. Harmful when inhaled or swallowed. Irritating to the eyes and skin. Keep out of reach of children. Keep away from foods and drinks and pet food. Do not eat, drink or smoke during use. On contact with the eyes immediately rinse with plenty of water and seek expert medical advice. Wear appropriate protective clothing, gloves and suitable eye protection. Wear a mask during preparation and application of the solution. If feeling unwell please consult a doctor. Store dry and in a safe place.

Warning: it's pretty poisonous stuff

*Translation: René van der Vlugt,
Corrections: Lawrence Smith.*

