Name This Pest!

Worked out what this is from the last issue? Find out on the next page!

Stephen L. Doggett

Hint: after reading the ***Name This Pest*** in the last issue, you should be able to guess what this is, but do you know how to distinguish this from the tropical rat mite? Bar = 1mm.

Tropical Fowl Mite

Ornithonyssus bacoti

Text by Merilyn J. Geary

The Tropical Fowl mite, *Ornithonyssus bacoti* from the family Macronyssidae, is principally an ectoparasite of introduced, native and domesticated birds. It is known to inflict bites to humans and a few other mammalian hosts. However, it is one species of bird mite that is often mistakenly cited by the pest control industry and some medical practitioners as the possible source of unexplained skin irritation in the human population even in the absence of avian contact and evidence to support past or present bird activity in a patient's dwelling.

The most common method *O. bursa* can make contact with a human host is through nesting birds in the roof cavity or eaves of domestic dwellings and office buildings. Bites from these mites may also be inflicted whilst handling or working with infested birds, such as the poultry industry, wildlife encounters or simply collecting eggs from backyard chickens.

WHY ARE BIRD MITES A PROBLEM?

While there are other species of bird mite (*Ornithonyssus sylviarum* & *Dermanyssus gallinae*) that bite humans, in Australia *O. bursa* appears to have the greatest health impact on some individuals. Occasionally these infestations are incorrectly referred to "bird lice" which can be confusing to the home owner as this is a different insect pest altogether. In domestic dwellings or office buildings a newly abandoned bird nest can be the source of a huge population of blood seeking mites. In most instances where treatment and control measures are required the mite infestation is quickly eliminated. However there are many householders where the perceived ongoing bird mite infestation has not been controlled effectively and the biting continues. Many individuals are driven to using drastic measures in unsuccessful attempts to eradicate the bird mite problem from their property. The home owner's claims can be further enhanced by spurious web sites that provide inaccurate, unsupported accounts and claims of bird mite activity in relation to the human host. It is not unusual for large quantities of pesticide to be applied by the home owner, household contents, clothing, personal belongings destroyed and medical advice sort. Some individuals sell their cars and move to into alternative accommodation while they wait for the multiple treatments by pest control companies to "fix" their mite problem. All too often the term "bird mites" is frequently used to describe the source of a home owner's on going skin irritation, crawling or biting sensations. The health problems associated with these "bird mite" infestations are complex, stressful and can be very expensive.

MEDICAL IMPORTANCE & CLINICAL PRESENTATION

Ornithonyssus bursa has the capability of probing then piercing a human host's skin with its mouthparts and injecting a minute amount of saliva. The presence of this foreign substance stimulates the host's immune response which can produce prolonged pruritic (itchy) lesions on any part of the human body causing considerable short term discomfort. Female occupants of a household tend to be more sensitive to the bites of *O. bursa*. Multiple bites can lead to severe irritation and if the lesions are scratched secondary bacterial infections may occur. The bites are difficult to discern from other arthropods bites that is why it is essential to correctly identify the presence of bird mites.

In poultry production, mass feeding of this mite has been known to result in exsanguination of newly hatched chickens and egg production can be affected where control measures have not been implemented. This mite has not been associated with the transmission of any infectious disease, the mite does not burrow or live, lay eggs or complete its life cycle under human skin. There is no specific treatment available for the irritation but a doctor or pharmacist can recommend products to alleviate itchiness or allergic reactions.

ADULT & IMMATURE STAGE BODY STRUCTURE

The unfed *O. bursa* mite is a uniform pale cream in colour and averages about 1mm in length. The adult mite is unremarkable with an oval unsegmented body shape that is barely visible to the eye, although post blood feeding the mite is quiet obvious, when it can appear bright red. Taxonomically the mite is determined by the shape of the sclerotized dorsal and sternal plates, in addition to the length, number and arrangement of hairs or setae located on these plates and the rest of the body. *Ornithonyssus bursa* is similar to other

bird mites (*Ornithonyssus sylvarium*, Northern fowl mite) and especially the Tropical Rat mite *Ornithonyssus bacoti*.

DISTRIBUTION

Ornithonyssus bursa is widely distributed and reported throughout the warmer tropical regions of the world.

BIOLOGY

This parasite of birds has 5 stages in its life cycle but it requires blood to complete this. After a blood meal the adult female mite can deposit her eggs either throughout the nesting material or directly on its bird host. Under relatively even levels of humidity and the warmth from an occupied bird nest the mites thrive. The mite's eggs may hatch after just 1 day, although delayed hatching will occur if the prevailing conditions are not suitable or egg development is incomplete. The newly hatched larval mite has six legs, is largely colourless and does not blood feed at this stage. Within a day the larval mites moult to an eight legged protonymph that requires a blood meal to develop to the non-feeding deutonymph stage. Moulting quickly occurs with 24 hours to produce the blood seeking adult, the life cycle can be completed in 6-8 days under optimum conditions but can be extended if environmental parameters are unfavourable. In the absence of a bird host these hardy little mites can survive in excess of a week or even longer but this will be dependent on the prevailing temperature and humidity levels.

Without a bird host the mites will quickly disperse from the nest as they are extremely mobile in seeking a suitable blood source. Mites can gain access to a human host via wall cavities, windows and ventilation ducts, and occupants of rooms closest to the nest site in the roof cavity may experience increased bite rates. This mite is host specific and cannot complete its life cycle without a bird host.

TREATMENT & CONTROL

This bird mite is more active throughout spring and early summer when nesting birds gain access to domestic dwellings and commercial premises to raise their young. Although in poultry industries, backyard egg production and pet caged birds where the mite infestations remain uncontrolled it can be a constant year round problem.

It is essential to undertake a thorough inspection of any building structure to locate all areas where birds have gained access to nest. The source of the biting complaint should be accurately identified and all traces of nesting material and any dead birds removed. The residual nesting material, and in some circumstances there is a significant quantity that has been accumulated in a roof space, pose a potential fire hazard and could be utilised by other pests such as rodents and stored product arthropods. The infested areas must be thoroughly cleaned and treated with an appropriately registered pesticide prior to repair or bird proofing measures utilised. Failure to bird proof the area will see the same birds return to raise their young next breeding season and any remaining nesting material could be utilised by other nesting birds. Roosting sites on window ledges should cleared and rendered unsuitable for future use by resting birds.

Domestic chickens, coops and roosts and caged pet birds should be treated for parasites on a regular basis as part of the general maintenance program. Any contact with wild birds should be avoided as they are constant source of bird mites and other intestinal parasites. Any new addition of chickens or birds should be quarantined for a short period ensure they do not carry any ectoparasites and are in good health. ■

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Hint: this often erroneously name insect is not a lice and often blamed for a variety of health related problems but is quite harmless.