Inclusion Body Disease (IBD) in Pythons: a Reminder of the Importance of Quarantine

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INTRODUCTION

Inclusion Body Disease (IBD) of boid snakes (pythons and boas) has been recognised since the mid 1970's (Schumacher *et al.*, 1994). Although other families of snakes have contracted IBD (Colubridae), it is primarily a python (subfamily Pythoninae) and boa (subfamily Boinae) specific disease. The first occurrence of IBD was only documented in Australia as recently as 1998 in a carpet python (*Morelia spilota variegata*) and a diamond python (*M. s. spilota*) from Queensland (Carlisle-Nowak *et al*., 1998). Although the Carlisle-Nowak *et al*. paper is the first published record, they mention that unpublished cases of Australian pythons with clinical and histological findings consistent with IBD have been recorded in the New South Wales Taronga Park pathology register. There is also a belief in the herpetological community that IBD has already caused a significant number of deaths in a Victorian reptile collection. Possibly the first record for Western Australia is August 1999 when Dr George Scott of Deepwood Veterinary Clinic and Dr John Jardine from Vetpath Laboratory Services reported IBD Boid Virus in a python they were examining that had died from a mysterious illness.

Pythons are native to Australia and boas are exotic. Both subfamilies are kept in zoos and as pets by private individuals. There is no treatment currently available for IBD and it is invariably fatal in pythons. Although the disease can be diagnosed in sick pythons, it is usually only confirmed at autopsy. One of the principal researchers into IBD, Dr Elliott Jacobson, University of Florida, has isolated three retroviruses in snakes with IBD and expects the development of a serological test to determine exposure to these within about twelve months.

Although the route of transmission of this disease is unknown, infestation with snake mite (*Ophionyssus natricis*) is a common finding in many affected snakes and may play a role in viral transmission (Schumacher, 1996). Dave Barker, well-known North American boid breeder (pers. com., 25 Jan. 2000) states, "IBD really has proven to be almost no problem at all in collections with no mites, but it has decimated boid collections with bad mite problems."

Of considerable concern in Western Australia is three records from near Perth of snake mite infestations in wild caught carpet pythons (*Morelia spilota imbricata*). The first of these was a very dehydrated specimen from Roleystone in September 1994 and documented in the Western Australian Society of Amateur Herpetologists' *WASAH Newsletter* No. 2. This snake died shortly afterwards from what was believed at the time to be a mite-related disease, however no autopsy was done to confirm if this was so. A second infested individual was collected at Martin in late 1995 and a third as recently as October 1999. The occurrence of snake mite in the wild in WA probably explains the sudden outbreaks of infestation in collections reported to me recently. Hoser (1995) refers to the establishment of mite in Melbourne, Victoria.

Both snake mite and diseases such as IBD highlight the need for quarantine procedures to be in place when animals are acquired and the need for close scrutiny of animals before their release. Given that many reptiles are temporarily held prior to relocation during Regulation 4 and 15 removals by volunteers with permanent collections of their own, it is possible that locally exotic pathogens can be introduced to the wild. The relatively recent identification of this disease and the little we know about it call for some caution at this point in time.

One of the aims of this article is to promote safeguards to

- Reduce the transmission of IBD between reptile collections and outbreaks of other diseases.
- Reduce the negative impact an outbreak could have on the new pet-keeping system to be implemented here shortly (Crown Law has completed the first draft of the legislative changes and returned them to CALM).
- Protect the wild population from symptomatic IBD.
- Warn other zoo facilities and keepers of any recorded outbreaks through some formal disease notification process.

It is also expected that further benefits of this article, through its wide readership, will be to

- Encourage minimum standards of competence in husbandry procedures in commercial facilities able to supply reptiles to the pet trade.
- Raise awareness in keepers of the importance of basic hygiene and quarantine procedures.

RECOMMENDATIONS

Quarantine should always be a fundamental protocol when introducing a new animal into a collection to reduce the risk of introducing disease or parasites. Animals brought in directly from the wild may pose a lesser risk but the acquisition of a captive animal, perhaps originating from a questionable source (eg a

confiscated or locally exotic wild caught animal) poses a It may not be possible to totally eradicate symptomatic IBD from Western Australia, but hopefully it can be isolated from other collections and the wild population. Any collection/facility in this state with an outbreak of IBD must be quarantined until a successful treatment of this disease is found. Quarantine and safeguard procedures should include

1. No further reptiles being acquired until the collection/facility is deemed clear of IBD.
2. No reptiles being allowed to leave until it is deemed clear of IBD.
3. CALM personnel undertaking inspections of quarantined facilities being required to shower prior to visiting other collections on the same day.
4. Notification by CALM of known IBD outbreaks to all commercial keepers.

It may also be sensible for CALM to enter into a contractual arrangement with one or more private zoos for them to care for confiscated animals and as a component of this contract provide the funding for the necessary quarantine facility to be installed.

General information on mite control and quarantine: Newly acquired reptiles should be isolated from the collection for no less than three months and kept on a white paper substrate. At the first opportunity a faecal sample should be examined for larger parasites, blood, tissue and excessive mucus - if any of these is found then identification of the parasite or the cause, by a pathologist if necessary, and the relevant treatment commenced.

Snake mites are the scourge of many keepers in the Eastern States and overseas. Their ability to both convey disease and kill reptiles in all but the most vigilant keepers' collections is widely acknowledged. Although small (a large female may be one-third the size of a pin head) they will be obvious on the white paper substrate as miniature black tick-like animals - the larger females have a whitish spot on the belly. A simple method of eradication of these on an infested reptile is the isolation of the host without water and its exposure to Sureguard Ministrips™ in minimum-ventilated (pegboard lid) glass terrariums for three cycles of twenty-four hours separated by forty-eight hours between each exposure. It is paramount for keepers handling infested reptiles to scrub their hands immediately afterwards so that the mites are not transported to uninfested reptiles.

If you already keep and you suddenly find you have a mite infestation, it is important that the transfer of live mite is not compounded by cleaning cages before killing the infestation within. This can be achieved by placing the pesticide strip within the respective cage for at least twenty-four hours before cleaning.

To reinforce quarantine as a minimum husbandry procedure after the implementation of the new keeping system in WA I recommend - real problem from a husbandry point of view.

1. That commercial suppliers of reptiles experiencing infestations of snake mite (*Ophionyssus natricis*) and/or lizard mite (*Hirstiella trombidiiformis*) be required as a condition of their licence to notify prospective clients of this.
2. In commercial suppliers experiencing high numbers of deaths, that CALM temporarily prohibits them from supplying reptiles and investigate, at the supplier's expense, to determine the cause of these deaths through postmortem examination and only lift the prohibition order once the pathogen and effective treatment have been identified.

On a positive note regarding IBD I include the following paragraph from Dave Barker (pers. com., 28 Jan. 2000),

"Python keepers have had a much easier time [than boa keepers] with IBD, basically because it appears to affect only the brain and death comes more quickly. The advantage is that the snake may show symptoms in weeks after exposure, (star-gazing, poor motor control, loss of appetite, coiling or constricting uncontrollably when they are stimulated) and so far as is known, pythons do not live longer than three months after infection. Python keepers are usually able to nip the problem in the bud very quickly."

Further, to reduce the potential for reptile disease epidemics to occur I recommend that CALM, rather than confiscating animals suspected of being illegal from known Western Australian keepers or residents, implement a "*confiscation in situ*" procedure by issuing an order to the keeper prohibiting the respective animals' movement until investigations and court cases are complete. This will benefit CALM by reducing their workload, greatly reduce the risk of transmitting disease between collections and reduce the stress on the animals in question.

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REFERENCES

CARLISLE-NOWAK, M.S., SULLIVAN, N., CARRIGAN, M., KNIGHT, C., RYAN, C. and JACOBSON, E.R. 1998. Inclusion body disease in two captive Australian pythons (*Morelia spilota variegata* and *Morelia spilota spilota*). *Aust. Vet. J.* 76 (2): 98-100.

HOSER, R.T. 1995. Release into hell. *Monitor* 7 (2): 77-88.

SCHUMACHER, J., JACOBSON, E.R., HOMER, B.L. and GASKIN, J.M. 1994. Inclusion body disease in boid snakes. *J. Zoo. Wildlf. Med.* 25: 511-524.

SCHUMACHER, J. 1996. Viral diseases. *In*: Mader, D.R. Editor. *Reptile Medicine and Surgery.* W.P. Saunders, Philadelphia, 230-231.