

Coming back up! The first ever documented cases of fur ball regurgitation by a Black-headed Python (Serpentes: Pythonidae: *Aspidites*).

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RAYMOND T. HOSER

488 Park Road, Park Orchards, Victoria, 3134, Australia.

Phone: +61 3 9812 3322 Fax: 9812 3355 E-mail: snakeman@snakeman.com.au

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ABSTRACT

On two occasions in 2018 and 2019 a perfectly healthy, captive raised, adult Black-headed Python *Aspidites melanocephalus* (Krefft, 1864) was seen regurgitating fur balls that had been regurgitated up from the lower digestive tract. The consistency was similar to that of normal faeces and would have easily been confused as such were it not for the fact that the regurgitation was directly observed.

Keywords: Snake; python; black-headed python; *Aspidites*; *Aspidites melanocephalus*; White-lipped Python; *Leiopython*; *hoserae*; *albertisi*; *meridionalis*; faeces; fur ball; Australia.

INTRODUCTION

On 23 March 2009, I obtained a pair of captive-born hatchling Black Headed Pythons (Krefft, 1864) of the nominate Queensland form from well-known snake breeder Neil Sonnemann of Murrumbidgee, near Beechworth in north-east Victoria, Australia. The female died several years later of natural causes and as of 2019 the male remained alive and well. It appears on the cover of this journal in a photo taken on 30 May 2019.

At end 2018 and again in early 2019 the male Black-headed Python (acronym BHP) was seen regurgitating what are best described as fur balls, which is the subject of this paper and the detail follows:

MATERIALS METHODS AND RESULTS

Over the previous 10 years the male Black-headed Python had been fed a diet of mainly rodents (mainly mice as opposed to rats), with occasional meals including chicken necks or drumsticks, as purchased from the supermarket.

In its first year of life and when small, the snake was problematic in that while it ate, it did at times (3 times over 6 months) and without reasonable explanation regurgitate meals (mice) shortly after eating them. The regurgitated mice were in an effectively undigested state.

The female Black-headed Python and other snakes of similar size class and/or age in the collection, did not regurgitate when fed in similar situations and in same cage conditions such as cage size, layout, furnishings or temperature.

The relevant snake and others were fed mice from bags and many snakes fed at the same time and so it was easily determined that the regurgitation issue was due to this snake and not the mice being of a "bad" batch, or other potential factor, such as caging. It should be noted that all snakes in the facility were kept in an identical manner and only this snake had the (minor) regurgitation issue at times when young.

At the time the regurgitations happened the relevant male black-headed python was assumed to be a "problem" snake and this issue was dealt by way of ensuring in particular temperature in

the cage was slightly warmer to aid digestion and that smaller food items were given so as to reduce risk of regurgitation.

The strategy worked well and was only employed for the first two feeds beyond each regurgitation and certainly beyond a year of age the snake was a perfectly normal and trouble free captive. That is, it ate and defecated as normal, eating normal sized food beyond that point.

This remained the case (and remains so) as of 2019, at which time the snake is just over 10 years of age.

The snake as an adult is exactly 7 foot (=210 cm) long (in total length including the tail) and of normal build and weight for the species and length. It has successfully bred at least once (eggs laid in 2017 of which 12 of 13 good eggs hatched, the non-hatching egg being centre of a mass that was incubated in an incubator as a whole mass).

As of 2019 this snake was still producing healthy sperm and semen, being a ten year old snake.

The relevant Black-headed Python is also one of many pythons used on a near daily basis for Snakebusters Hands on Reptiles Shows in Melbourne, as detailed on the website at: <http://www.reptileshows.com.au>

The snake has been doing such shows and being handled almost daily since before its first birthday in 2010.

The shows run by my company are the only ones in Australia that let people hold the animals and so every day our business does reptile shows and this snake is used (most days) the snake leaves our facility. At shows, it is handled by members of the public.

Any given snake, including this one may be handled for anything from a few minutes, to many hours at a time and without break.

Experience has shown that contrary to perceptions of inexperienced people, a healthy well adjusted snake used to being handled by members of the public, can be handled for many hours at a time, without break in many situations and the snake will exhibit zero signs of agitation, stress or other ill effect from the handling.

There are factors that may mitigate against this such as recent feeding history of the snake, whether or not the snake is about to shed its skin and a range of other factors, most of which would tend to reduce the likelihood a snake could be handled at length, without getting tired or otherwise agitated.

In other words, an optimal python snake for handling at our displays would be a healthy, captive-raised snake aged 4 years old and over and that has not eaten for some days and is not approaching a slough.

Most of our python snakes are managed to be in that state (not recently fed with food still in stomach) as required for our Reptile Shows and this is possible in part due to the fact we hold several dozen relevant pythons at any given time, which is more than enough than is needed to satisfy our reptile show commitments.

The relevant male Black-headed Python, subject of this paper is in effect treated no differently to all other pythons we use in our reptile shows, including (as of 2019), two other adult Black-headed Pythons, one Woma Sand Python *Aspidites ramsayi* (Macleay, 1882), two Rough-scaled Pythons *Jackypython carinata* (Smith, 1981), 4 Olive Pythons *Liasis olivaceus* Gray, 1842, 3 Green Pythons *Chondropython spp.* and a large number of Carpet Pythons *Morelia spp.* as well as various other pythons.

All snakes are kept in identical tub and rack style cages and managed the same way.

In summary management at reptile shows and displays and even at our facility in terms of husbandry is based on size, not species and pythons of similar size are often shipped together to displays in single boxes (sometimes several per box) and when handled are often handled more than one at a time in groups of same size class.

As an important part of the management protocol, no snake is taken out of our facility and used for reptile shows when there is food in the stomach and a potential risk of regurgitation. This may occur when the snake is handled, agitated and has the ability to regurgitate food, so we avoid the risk entirely by not using such snakes.

Beyond that, once a snake has digested food so that it is no longer in the stomach, this being at a well defined point slightly more than half-way down the body, the part digested meal is largely broken down where it then moves to the lower intestinal tract and is generally regarded as not at risk of being regurgitated.

In terms of the two incidents subject of this paper, on both relevant occasions the male Black-headed Python had been fed some days prior (5 days in both cases, being Monday feedings and then use in reptile shows the following Saturday).

Both feeds were 4 adult-sized mice, (thawed from a freezer).

Both incidents (in December 2018 and in March 2019) had a similar trajectory, so the first is detailed as being same for both.

At a reptile show, the snake was handed to me by a member of the public who had been holding the snake around their neck.

The snake appeared to be having tight muscle spasms and convulsions and was waving its head from side to side.

The snake was then seen to have an elongated lump moving from the lower body to the head and then regurgitated.

The material regurgitated was similar in smell and appearance to a normal faeces, the only obvious difference being the lack of a whitish-yellow lump of urates which usually precedes a faeces.

Were it not for the fact I had seen the material regurgitated myself, I would have immediately assumed that the material was faecal and regarded it as perfectly normal, routine and not worthy of a short paper.

The regurgitated material had the appearance of faeces and consisted in its entirety of tight blobs of rodent (mouse) fur, in turn covered and saturated with dark brown matter which essentially seemed faecal. It appeared to include all or most of the fur from the previously eaten mice, which begs the question, why didn't the snake simply pass this all out as faeces in the usual way?

CONCLUSIONS

The observation of the passing of the fur balls in both cases was by chance and fortuitous. That I was the first person known to observe and record this in this species is not altogether surprising.

Factors at play include the time duration that snakes were being handled, a situation a normal hobbyist keeper with a snake in a cage would never experience. After all, they would not be observing their snakes individually for several hours at a time on a regular basis.

The snake subject of this paper may have been pre-disposed to pass fur balls as a 10 year old adult due to its higher than usual propensity to regurgitate normal large meals as a hatchling and in its first year of life.

The timing of feeding and then handling (5 days apart in both cases) was also probably favourable for the fur ball regurgitation incidents observed.

It is possible that the extended handling of the snake could have contributed to the fur ball regurgitation as opposed to a normal passing of faeces. However this concept is rejected.

Rather I think that the regurgitation may have been brought forward by the handling as opposed to being caused by it.

Snakes handled and moved around that are due to pass faeces, will do this sooner than would otherwise be the case when the snakes are left in a cage and not handled. Every snake handler knows this and after doing hands on reptile shows for some decades, this is a statement of the obvious.

In the normal course of events and all cases I am aware of, save for the two documented herein, a snake about to pass faeces, when handled or even mishandled by someone as sometimes occurs with inexperienced members of the public will still pass the faeces. It does not regurgitate from the lower digestive tract instead.

Finally, in the period from end 2018 to mid 2019, faeces or what appears to be faeces passed by the relevant male Black-headed Python has been closely inspected when removed from its cage (where it usually lives on its own).

On at least two occasions (separate to the incidents referred to above) what appears to be faeces has been taken from the case in the absence of any urates, indicating it too may have been derived from a regurgitation rather than passed as faeces.

Because I did not observe either a bowel motion or regurgitation, I cannot determine what happened in these cases, noting that sometimes urates are passed separate to a main faeces.

White-lipped Pythons *Leiopython albertisi* (Peters and Doria, 1878) and *Leiopython hoseae* Hoser, 2000 have been alleged to regurgitate fur balls (Chris Williams, Taronga Zoo, personal communication), but whether the source of these is from the stomach or lower intestine (as happened with the snake subject of this paper) is unknown.

Other alleged species of *Leiopython* named by law-breaking German amateur snake hobbyist Wulf Schleip (e.g. *L. meridionalis* Schleip, 2014) are either fictitious (non-existent) taxon or unlawful junior synonyms, meaning all two snake species in the entirety of that genus pass furballs.

Relying on the preamble of Kaiser *et al.* (2013) which is hard to disagree with (it states taxa should only be named when there is a body of evidence to do so and proper peer review), I note that because Schleip's names are coined without a shred of scientific evidence and in journals that lack any credible form of peer review, the names must be rejected and not used.

Because all the several alleged species of *Leiopython* named by Schleip are in breach of Kaiser *et al.* (2013), including other versions as published by Kaiser (2012a, 2012b, 2013, 2014a and 2014b) and the rules of the *International Code of Zoological Nomenclature* (Ride *et al.* 1999), they are either unavailable according to these rules or alternatively illegally coined junior synonyms. A detailed appraisal of Schleip's taxonomic vandalism and of Kaiser *et al.* (2013) as amended since is detailed in Hoser

(2009, 2013 and 2015a-f) and the sources cited therein.

In summary the preceding indicates that while regurgitation of fur balls by rodent eating pythons is almost certainly not a ubiquitous trait among pythons, it may well be far more common than indicated by the paucity of documented cases so far.

It is important that fortuitous observations of such actions in snakes by hobbyists and other keepers, as well as other potentially unrecorded behavioural traits, be properly reported in the peer reviewed scientific literature.

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