snake breeder

The International Newsletter for Snake Enthusiasts

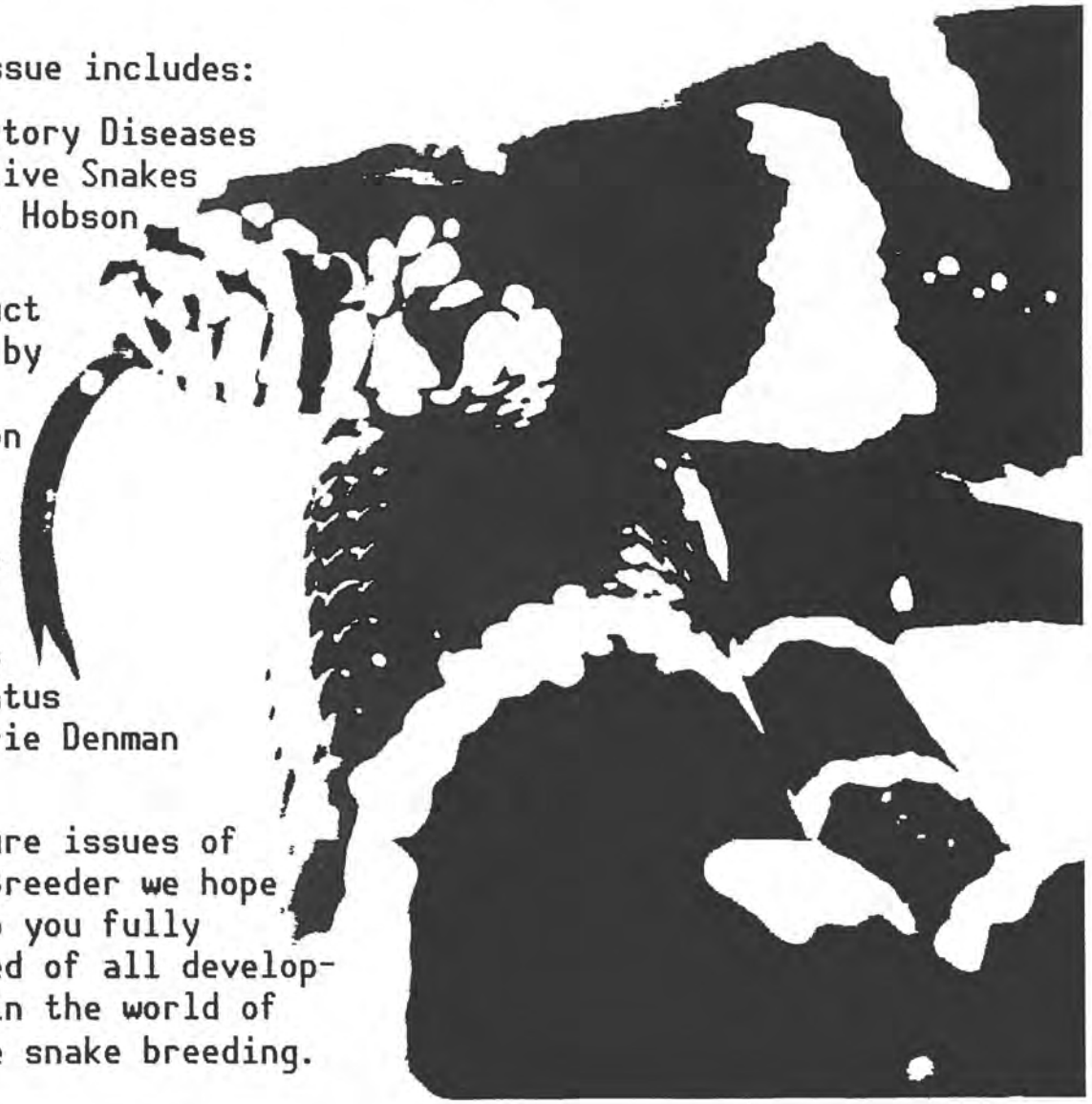
Welcome to Snake Breeder,
the new monthly newsletter for
snake enthusiasts around the world.

This issue includes:

Respiratory Diseases
in Captive Snakes
by Paul Hobson

A Product
Review by
Chris
Mattison

The
Care of
Python
molurus
bivittatus
by Kerrie Denman



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Snake Breeder we hope
to keep you fully
informed of all develop-
ments in the world of
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Editor Michael Connolley
Asst. Editor Lesley M. Close

Canadian Representative:
Scott Allen
77 Baronwood Court
Brampton
Canada L6V 3H7

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CALLING ALL ZOOS

The Universities Federation for Animal Welfare (UFAW) invites applications for the 1990 Zoo Animal Welfare Award for excellence in zoo exhibit design.

Set up in 1987, the award encourages keepers and others closely associated with the care and management of zoos to develop ways of improving conditions for zoo animals. Consideration will be given to the extent to which the exhibit actually improved the animals' opportunities to carry out a wide range of natural behaviours rather than the cost, scale or scope of the display. Credit will also be given for efforts to inform the public of the animals' needs and how these can be met. The award consists of a plaque, certificate and grant of £500 for travel expenses.

A second smaller award is now being offered and a sum of £100 will be awarded to recognise a simple, cheap innovative idea or piece of equipment which improves the welfare of animals and which could be replicated easily in existing housing elsewhere.

The closing dates for both awards is 31st March 1990.

Application forms from:
The Secretary, UFAW
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The 1989 Award was made to the Alloa Brewery Himalayan Black Bear Enclosure at Glasgow Zoo.

Respiratory Diseases in Captive Snakes

by Paul Hobson

Of all the diseases that captive snakes exhibit colds are probably the most common. These colds are often easily treated if diagnosed early but, if left, they can readily develop into pneumonia which can cause the death of the snake.

In contrast to humans where the common cold is caused by a virus most snake colds are caused by a variety of bacteria. Another difference is that the snake usually develops the cold, it does not catch it. It appears that many of the bacteria that cause disease in snakes are present in the snake throughout its life. This is probably more true of wild-caught snakes than captive-bred stock. Why is it then that the snake hasn't 'got the disease' all of the time? This is because the snake's internal defences (its white blood cells and antibodies) are 'in a battle' with the bacteria. When the snake is unstressed its natural defences have the upper hand and the bacteria are kept in low numbers without any problems developing. The key to understanding how the bacteria reach numbers where they cause problems is stress. The same way that humans are more susceptible to diseases when under stress is true for snakes.

The causes of stress in captive snakes can be varied and can include any of the following: Human disturbance, overcrowding, suppressed behaviour, incorrect temperature, too wide a temperature variation, incorrect humidity, malnutrition etc.

Consider the case of a newly imported snake, one from Thailand for example. It is first caught usually by a farmer, handled (often without care) and placed in a receptacle. This may be quite small and is often full of other snakes, some of which may not be the same species. This is incredibly stressful as most snakes are solitary creatures for the majority of their life cycle. The snakes may wait days to weeks until they are transported, again often without care, experiencing large daily temperature changes until they reach a dealer. Here they are usually placed in grossly overcrowded conditions, often without food and clean water, for a period of time which may stretch to months. When the dealer is ready, the snakes are packed and exported to Europe. This may be directly to Britain but is sometimes via another country such as Holland. Eventually they find their way to a large dealer in Britain to await yet another crowded, stressful journey, probably again at too low a temperature, to a pet shop. During this time the snake has probably not been fed or offered clean water for some weeks or months. It has been kept in cramped conditions

with many other snakes, some which probably inhabit a totally different environment. Is it any wonder that they are infected with internal parasites and have reached a situation where their internal condition is running rampant with a variety of bacteria. At this point the snake is bought and transported home by its new eager owner. If luck is on the owner's (and the snake's) side, and the snake's natural history has been carefully researched and the vivarium has been carefully prepared the snake may eventually feed and thrive. Too often though the 'healthy-looking' snake starts to exhibit the results of its last few months of mistreatment and succumbs to one or more diseases which may lead to death. This is really an extreme case where the snake has been under considerable stress for a long time. However, snakes may develop diseases under more subtle forms of stress.

One example I have experienced is of a snake which has been a healthy long-term captive; it has been bought and moved to a new vivarium. In this situation, even though the journey has been carefully prepared and the new vivarium set up correctly, the snake has still been under stress and developed a cold. There are a number of ways that the conscientious owner can minimise stress. Make sure the journey is carefully prepared and the snake is not subjected to changing temperatures. The use of a jar of warm water in a polystyrene box can help here. Make sure that the conditions (ie. temperature, humidity, size and shape of vivarium) you intend to keep the snake in are in accordance with the animals natural environment. Let the new snake find its own way out of the travelling bag and resist peeking and poking at it until it has settled in. After a week or so offer food and (hopefully) all will be well.

Occasionally all is not well and the snake exhibits symptoms of some disease and respiratory diseases are the commonest.

Symptoms of Colds in Snakes

The initial symptoms may only be audible in that the snake starts to make a wheezing sound. This may develop into a noticeable change in the snake's breathing such that it appears to be very laboured.

Visual symptoms are excessive mucus/fluid in the mouth, nasal discharge or bubbling from the nostrils. The snake may open its mouth much more than normal, it may appear to be swallowing more frequently and this could lead to it permanently holding its head up, often with its mouth open.

The initial mucus at the start of a cold is usually watery and clear. If the cold is left untreated the mucus may become much thicker, opaque and even yellowy. The disease at this stage is probably pneumonia and is much harder to treat. If the snake is still left untreated other diseases may manifest themselves, such as necrotic stomatitis (mouth rot). Death

is almost certain if treatment is not started at this point. The majority of colds are caused by a sudden build up of bacteria in some part of the respiratory system but bacteria are not the sole cause of respiratory disease. Other pathogenic organisms of the respiratory tract are nematodes (a type of thin thread-like worm without rings), trematodes (similar to nematodes) and linguatulids (tongue worms). Some of these, especially nematode lung worms, can cause symptoms very similar to those caused by bacteria.

If you are ever in any doubt, consult a veterinary surgeon, particularly one with experience of snakes. In any case, if you do require drugs you should seek veterinary advice both to obtain them and to make sure you get the correct drug!

Bacteria generally fall into two groups called gram positive and gram negative. In human diseases gram positive bacteria predominate, whereas in snake pathology gram negative forms predominate.

To identify bacteria a swab is taken with a sterile object, such as a small cotton bud. This is smeared onto a sterile agar plate which is incubated. The bacteria will grow into colonies which can be seen with the naked eye. They may be readily identified by their colour or by staining them with some dye and noting the resulting colour. (It is this that gives the name to gram positive and gram negative bacteria). This can only be done by a specialised laboratory and should be done if a specific antibiotic is to be used so that the bacteria are successfully killed.

Often if an antibiotic is needed a 'broad spectrum' one will be prescribed that kills a wide range of bacteria species. If this is not successful then a more specific or more powerful one may be needed.

The Bacteria Most Often Involved

The two most common bacteria associated with respiratory disease in snakes are *Pseudomonas* and *Aeromonas*. Other less common forms are *Streptococcus*, *Staphylococcus*, *Pasteurella* and *Citrobacter*. Obviously each species will respond differently to each antibiotic.

Treatment of Bacterial Colds

In the majority of cases in the natural environment the snake is capable of treating itself by helping its own natural defence system to combat the bacterial build up. There is quite a large bank of information to suggest that as the snake succumbs to the ravages of the bacteria it will seek out a warmer part of the environment to raise its body temperature. Because the snake is poikilothermic (cold-blooded) its metabolism responds to the temperature of its environment. Hence a temperature increase means that its metabolism works faster. This probably

helps the snake make more antibodies and more white blood cells faster.

It is the utilisation of this information that dictates the first line of treatment for mild cold cases. The temperature of the vivarium should be raised (for pythons and boas to approximately 30 degrees C, perhaps slightly lower for other snakes). Obviously the natural range of the snake will determine the optimum temperature.

It is worth mentioning that keeping a snake at too high a temperature can also lead to respiratory problems.

If this treatment produces no noticeable improvement after five to seven days antibiotic treatment will probably be needed.

For colds of the watery mucus type, broad acting antibiotics such as Ampicillin, Tylosin or Chloramphenicol have often proved successful.

If the cold has progressed to the more serious, thicker mucus type pneumonia a more powerful drug may be needed. One such is Gentamicin from the aminoglycoside group of drugs. These drugs are more powerful but if the dosage and time is not followed accurately side effects such as renal (kidney) failure and neurotoxicity (nerve poisoning) can result, often months after successful treatment of the initial disease.

Dosages for Ampicillin, Tylosin and Chloramphenicol are not as critical as Gentamicin. Various herpetologists have had success with different dosages of the first three drugs. The following is intended only as a guide.

Chloramphenicol
40mg/kg of body weight, once a day for 5 to 7 days (sometimes used up to 75mg/kg per day).

Tylosin
50-75mg/kg per day for 5 to 7 days (sometimes as low as 25mg/kg if intramuscular).

Ampicillin
50mg/kg per day for 5 to 7 days.

Gentamicin
2.5mg/kg every 72 hours for three treatments.

All the above are administered by injection but Tylosin can be administered orally with a stomach tube.

Most injections are given subcutaneously, which means that the needle is pushed between the scales below the skin along the snake, not into the muscle. This causes less stress than intramuscular injections (into the muscle). Your vet will probably administer the first injection but may, after instruction, allow you to complete the treatment at home.

If the drug has to be administered orally it is done with a stomach tube. As with injections, a second person is of great help during this procedure. A slim tube (lubricated with egg white) is gently pushed into the snake's

open mouth to the back of its throat and gently down into its stomach. This means the tube should go one third of the way down the snake. Do not force the tube, gentle pressure will get it there. It is easier if the snake's mouth is gently held open to stop the snake biting on the tube. A point worth noting when injecting into the tube is to remember that the tube also has a certain volume. It is best to work this out first and add that amount to the amount required in the syringe. If not, allow the drug in the tube to drain into the snake's stomach by removing the syringe from the tube before removing the tube from the snake.

At all times, as with your healthy snakes, keep accurate notes of data, dosages, weight of the snake, type of drug used and its success. Not only will this be of interest to other herpetologists but it may prove valuable in the future. In some situations the drug will prove successful yet not kill 100% of the bacteria. In situations like this the bacteria may develop into a strain that is resistant to that particular antibiotic. This could mean that any subsequent treatment with that particular antibiotic might be unsuccessful. If accurate notes are kept this problem is much easier to spot.

This also illustrates a further point. If antibiotics are used indiscriminately there is a good chance of many resistant strains developing. The situation for future snake keepers can only become worse if this is allowed to happen. Therefore, if possible, antibiotics should be a last resort when other treatments fail!

A Few Notes on Successful Treatments of Colds in Snakes (from my own notes)

1. Indian Python,(*Python moluras bivittatus*)

Male, eight years old, 2.7 metres long, long-term captive, good feeder, no history of any illness. Moved to my collection in large sack.

Developed first symptoms ten days after arrival (11/3/1988). Nostrils blocked with mucus (dried out) audible breathing, mouth not held open, head up.

Temperature raised from 26-27 degrees C to 29-30 degrees C. Slight worsening as the snake entered pre-slough.

Shed skin on 29th March 1989. Cold completely gone. No drugs. Temperature gradually returned to normal.

2. Indian Python (*P. m. bivittatus*)

Long-term captive in my own collection. Cold probably started due to cold snap in winter and not compensated for by vivarium heater. It's interesting to note that the other snake in the same vivarium did not develop a cold.

Cold started on 8/3/86. Bubbles from nostrils and watery mucus in mouth. Isolated and tempera-

ture increased to 30 degrees C. No change by 21/3/86. Snake taken to vet and given Ampicillin injections (three at 48 hour intervals). No change so treatment swapped to Tylosin orally at 0.2ml*/100g of body weight once per day for seven days.

Slow improvement. Complete cure in eight days - resumed feeding and healthy.

(* Dosage of solution containing Tylosin, not of active ingredient.

3. Royal Python *(Python regius)*

Bought from local pet dealer and transported home by car. After two weeks bubbling from nostrils. Head held up and a lot of swallowing noted. Temperature increased to 30 degrees C. Slow improvement to full recovery in eight days. Remained healthy and fed normally thereafter.

4.Red Tail Tree Racers *(Gonyosoma oxycephala)*

Brought over from Thailand in the summer of 1988. All three developed bubbling with head held up for some ten days after arriving. Temperature increased to 30 degrees C. No change for six days. Taken to vet. All three given Ampicillin injections subcutaneously for seven days. All three snakes recovered. One snake subsequently developed necrotic stomatitis which eventually proved fatal. The two remaining snakes started feeding, gained weight and remained healthy.

In this article I have tried to give some information about the causes, treatment and, hopefully, prevention of colds in snakes. I must stress that at all times, if you are in any doubt whatsoever, you must seek veterinary advice and not attempt to procure drugs and treat the snake yourself. The aim of this article is simply to provide information, it is not intended as a guide for the treatment of snakes.

*****

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The author has been keeping snakes for 15 years and is specifically interested in rat snakes and king snakes. Trained as an environmentalist, he taught in a large comprehensive school for a number of years and is now a college lecturer in biology and environmental science. His interests include bird watching and 'green issues'.

The Care and Handling of *Python molurus bivittatus*

by Kerrie Denman

This python has two common names, the Indian Python and the Burmese Python and, although I am assured that 'Burmese' is the more correct one, the name Indian Python is more readily used. As the name Indian Python is also used to describe *Python molurus molurus* they are distinguished by the terms 'light phase' and 'dark phase'. The 'phase' refers to the snake's markings, the dark phase being *Python molurus bivittatus* whose markings are brown to black on a lighter background.

Despite their potentially large size (individuals can grow to over 18') these snakes are immensely popular. They have a wonderful, calm temperament; I speak from experience as I own three of them. My snakes give me no end of pleasure and trouble!

Probably one of their most annoying attributes is their ability to wreck everything in sight when let loose for a wander. They knock over ornaments, push things off shelves, try to climb up everything regardless of whether it will take their weight and poke their head into any hole regardless of size. Once I returned home to find my young male frantically trying to reverse out of a carrier bag handle he had got stuck around his middle!

As far as handling and taming goes these snakes, though stronger than the average human being when adult, are gentle and easy to tame. (However care should be taken when feeding your snake.) Two of my three snakes are 100% tame and can be safely handled by almost anyone. The third, however, is a bit more difficult. I purchased her as an adult of about 9.5' in length and she had not been handled very much previously. She was very wary of people and hissed loudly whenever anyone was near. I left her to settle down for several weeks although I still fed her of course and then put in a smelly t-shirt so that she could learn my scent. Quite soon she stopped hissing at me and then I began to start touching her - a little at first and then more and more. Now she is almost tame but still needs some more time. Taming can take a lot of time, especially with adult snakes.

When handling your snake remember to let him/her register your scent first so that it knows who is grabbing it. Also if it appears nervous avoid sudden movements which it may not be able to see very well.

With regard to feeding it is often difficult to gauge how much food your snake needs and reach the balance between too much and not enough. Personally I watch to see how eagerly they eat their food and feed them again accordingly. If the snake is eager to feed but not

is eager to feed but not frantic then I think that it is about right. Refusing to eat altogether however is often a sign of illness unless the snake is about to slough. By my method my snakes are eating as follows:
Female (10′) 4 large rats/week
Male (7.5′) 3 large rats/week
Male (5.5′) 1 large rat/week

To conclude I will just mention housing. Your snake's cage need not be expensive although they do need large cages. You do not even have to buy a vivarium. One of my cages is a shop display counter (6′ x 2′ x 3′). It has a wooden frame and glass sides with two sliding glass doors at the front. I covered the bottom with vinyl self-adhesive sheet to make the bottom watertight and the whole lot came to £20. (The counter was second-hand.) Making or converting your own cage is something that you should consider especially if money is tight but please make sure it is suitable for your snake before using it. Check that there are no sharp edges or sharp objects such as nails poking through.

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Ultratherm Heat-Strips: A Product Review

by Chris Mattison

In an article for Snake Keeper Magazine (Volume 2, Number 7) I described a method of heating snakes in such a way as to create a thermal gradient so that each animal could choose its own temperature at any time of the day or night. The article recommended the use of thin heat-pads such as the ones manufactured by 'Ultratherm'. The amount of interest following the article was somewhat surprising, but also encouraging - its main object was to make people think about the way in which snakes regulate their body temperatures naturally, and to allow them to pursue this behaviour in captivity, so eliminating some of the stress of living in an unnatural environment.

A recent development by Ultratherm is the production of heat-strips, using the same material as in the heat-pads. This design lends itself even better to the system described: the strips can be laid along a shelf and boxes of snakes can be lined up along them. The strip is 5 inches wide and comes in three lengths: 2 feet (12 watts), 4 feet (24 watts) and 6 feet (38 watts). I understand that it will be possible to obtain intermediate lengths to special order.

The strips which I have been testing performed perfectly, providing a gentle heat to one end of each of the boxes placed on them. Their main advantage, over the heat-cable currently in use on my set-up, is that there is no need to rebate the shelves in order to install them: the wafer-thin strips are easily taped to the back of each shelf and the boxes slid onto them. In addition, because each shelf is heated by its own individual strip, shelves can be switched off and on at will. Thus, if part of the collection is being cooled down in the winter, their cages can be placed on shelves where no heat is applied. Similarly, if a rack is partly empty, eg. as the year's crop of hatchlings are disposed of, there is no need to waste power by heating the empty shelves. In other words, the system is even more flexible than that previously described. Of course, this involves purchasing a separate strip for each shelf, a greater outlay than a single heat-cable which is looped over several shelves but, at about £16 for the longest strip, these are not expensive pieces of equipment, and the saving in electricity should soon recoup the initial extra expense.

The heat-strips were designed and commissioned by a Buckinghamshire company who provided the strips which I have been testing. Heat-strips should be available through retail outlets by the time this review appears. If you have any problems regarding supply contact me on Sheffield (0742) 364433.

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