

## HOOD-SPREADING BY THE MAMBAS OF THE AFRICAN GENUS

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By

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Hood-spreading by the Cobras of the Asian and African genus Naja Laurenti is a well-known characteristic, but it is only those accustomed to handling Mambas or familiar with these relatively large snakes in the wild state who realise that all species of Mambas are capable of demonstrating what compared with Cobras can be described as a modified hood. A variety of reasons, such as excitement, alarm, annoyance, anger, intimidation, contemplated aggression or to deter have been suggested and it is unquestionable that at times this behaviour constitutes a threat, but C.J.P. Ionides who has handled more Mambas (mainly Green Mambas) - thousands - than anyone else is of the opinion that this demonstration, which certainly seems often in the nature of a threat, does not necessarily signify impending attack. Much depends on circumstances and on the temperament of the individual.

To be able to spread a hood, a snake is dependent on its ability to make use of the anterior ribs to flatten or expand the neck; but hood-spreading has nothing in common with and is quite distinct from neck inflation or distension - this is not mechanical, but simply air controlled.

From my own considerable experience of African Cobras, with special reference to the Black-lipped or Black-and-White Cobra, Naja melanoleuca Hallowell I am inclined to believe that in some cases curiosity is apt to prompt hood-spreading. This particular Cobra I have always found to be highly intelligent and in captivity soon recognises those who look after it to the extent that on one's approach it would invariably rear up the anterior part of its body with spread hood and flickering tongue. Examples of medium size used to be brought to me in an old kettle suitably closed, but it was not until I slowly raised the lid that I discovered what the receptacle contained. If it happened to be a Black-and-White Cobra up came an inquisitive head with expanded hood and then I gently but firmly replaced the lid without any reaction on the part of the snake except quietly to withdraw below.

I describe this species as exhibiting a definite degree of insolence, possibly exaggerated self-confidence, but it is not aggressive. Can one attribute the habitual hood-spreading of the Indian Cobra, Naja tripudians Merr. to excitement or what?

But, from the evidence available, in the cases of the four species of African Mambas - the Black Mamba, Dendroaspis polylepis Günther; the Green Mamba, Dendroaspis angusticeps (Smith); Jameson's Mamba, Dendroaspis jamesoni (Traill); and the West African Green Mamba, Dendroaspis viridis Hallowell - hood-spreading seems generally to denote annoyance or anger or even threat.

(1) Rose (1955) has an ingenious theory, which merits serious consideration, that hood-spreading is of definite and important survival value as it makes the vulnerable neck less accessible to a predator.

In Ionides' experience, judged from a considerable number of Black Mambas, hood-spreading, either modified or pronounced, is fairly frequent; very rare indeed in the Green Mamba and not observed until he had handled several thousands of these snakes; and evidently not an uncommon trait in the numbers of Jameson's Mambas he has caught.

According to Broadley (in litt.), the Black Mamba frequently demonstrates by spreading a slight hood, which the Green Mamba resorts to very rarely; and whereas the Black Mamba is likely to indulge in a lot of threatening gaping, this the Green Mamba practically never does.

With reference to the West African Green Mamba, a correspondent (D.H. Barry) in Ghana writes that he has never seen D. viridis spread a hood while being captured, but three or four examples, when newly caught and caged have been seen to do this if disturbed and annoyed, but usually stop doing so in a day or two.

The Boomslang, Dispholidus typus (Smith), which in some respects resembles the Green Mamba, has a characteristic and convincing threat display with a conspicuous inflation of the throat and part of the anterior portion of the body, and certain authorities and field observers have claimed that the Black Mamba will on occasion do likewise - a claim which has been arbitrarily refuted by others. The fact that some authorities have not witnessed this does not necessarily mean that it cannot happen; instances will be quoted. Ionides does not recollect ever having seen the Black Mamba or any other Mamba do this, but at least twice I have seen a Jameson's Mamba when lying amongst the scrubby undergrowth in the Botanic Gardens at Entebbe, Uganda, inflate its throat and a few inches of its body, like the Boomslang, when mobbed by small birds.

Another feature of Black Mamba behaviour, which may or may not coincide with hood-spreading, is a fearsome demonstration by opening the mouth very wide and shaking the head from side to side, usually culminating in a strike. As this strike is accompanied by a loud hiss it is reasonable to suggest that at the same time some inflation of the throat is possible.

Myles Turner, a member of the Tanganyika National Parks staff in Western Serengeti (in litt.) emphasises how, when on the alert, a Black Mamba dilates and pulsates its throat, which seems to suggest a certain degree of inflation.

Rose (1955) quotes Noble who asserts that the Mamba distends its throat in a similar manner as the Boomslang, which (2) Broadley (1956) categorically states is incorrect. But (3) Shaw (1956) challenges Broadley and describes how a large Black Mamba which had been disturbed by his dog (which was bitten and died) suddenly reared up about twelve feet distant. "This snake had definitely inflated its throat, and it looked like a dirty tennis ball topped by a very angry head. There was definitely no hood..... The snake moved off up a grade with its throat still inflated and held four feet above the ground." When the snake reached some tall grass it deflated and disappeared. In a locality where there were many Black Mambas this was Shaw's only nasty experience

during a period of 37 years.

Ionides has observed that the male and female Black Mamba alike indulge in hood-spreading. He has on several occasions noticed a slight spread and at least four times has seen a pronounced hood - once when he came across a male Mamba unexpectedly in fairly long grass and it raised its head about a foot off the ground and spread a so pronounced hood that he had to look again to make sure it was not a Cobra. Another time a female on the ground which started to make off on being followed "raised nearly two feet of herself off the ground and spread a hood as large as that of the male just described;" this female having looked intently at Ionides a short time advanced deliberately towards him and entered an intervening small patch of grass. Ionides withdrew a few paces and watched as she raised her head with spread hood and looked at him from the grass. She was definitely ill-tempered and when caught it was seen that she had recently sloughed. The third time, a female Black Mamba in the top of a small mango tree was pelted with sticks until she was forced down. Understandably "she seemed annoyed as she spread a modified hood and kept darting her tongue out". More recently - a fourth time - a female Black Mamba, which had been ejected from its lair in a hole in the ground, immediately spread a hood as she endeavoured to avoid capture. In the collection of the Zoological Society of London, at Regent's Park, the Black Mamba has often been seen to spread a modified hood when disturbed or annoyed but the Green Mamba rarely does so and usually only when first released from a travelling case.

There are a number of published records some doubtless not original, about hood-spreading by Black Mambas. According to (4) Ditmars (1931) "The anterior ribs are slightly elongated and can expand or flatten the neck to a slight extent. I have noticed this when they are intently watching something and are nervously alert, yet stirred to anger" - an interesting combination of reactions; intent, alert and anger. (5) F.W. Fitzsimon's (1932) description is dramatic, "when angered, the throat, and sometimes the anterior portion of the body, is inflated, and at the same time the reptile sways ominously from side to side, gracefully, but with deadly portent." This sounds more like Boomslang behaviour than hood-spreading.

In African Wild Life (1959) there are two illustrations, dorsally and ventrally, taken at the Transvaal Museum by (6) Brain, showing a slight hood. Brain states that to flatten a hood is part of a threat display and that it is both intimidatory and a deterrent. Mouth-opening coincident with hood-spreading he also records "When approached in its glass-fronted cage, the Mamba would repeatedly flatten its neck, often opening its mouth to some extent at the same time. On no occasion were we able to observe inflation of the neck as has been described by Rose (1955) and Shaw (1956)."

(7) Broadley (1959) describes how a 12 foot Mamba when cornered "reared up... spread a broad 'hood' and opened its mouth, displaying the black interior and formidable fangs."

(8) Sweeney (1961) refers to the loose skin around the neck "which can be expanded into a swelling similar to that of the boomslang but considerably smaller, and the ribs are raised to stretch the skin as in the cobra. The swelling is scarcely noticeable from most viewing angles unless the snake is really excited, when quite a distinct cobra-like hood appears for a second or two." This seems to suggest that a

degree of throat inflation may be combined with rudimentary hood-spreading.

(9) Isemonger (1962) adds to our knowledge "always ready to bite if actually molested, at which time they usually expand a very modified hood, open their mouths wide and hiss with a rather deep, hollow-sounding noise." Isemonger has caught and handled large numbers of Black Mambas.

(10) Vivian F.M. FitzSimons (1962), also with much practical experience, records somewhat similarly "when really angered the neck is distended to form quite a noticeable hood - though not so pronounced as in the cobras - and an ominous, hollow-sounding hiss is often emitted before doubling back the neck." The reference of both Isemonger and FitzSimons to "hollow-sounding" does seem to indicate some possible degree of throat inflation.

(11) Villiers (1963), quoting from the observations of others I suspect, and referring generally to Mambas, records that when angry they dilate the neck and the anterior part of the body.

(12) Broadley (1963) further refers to an eight foot D. polylepis which reared up through some foliage with hood spread.

In the Samburu Game Reserve, in Kenya, (13) F. Seed (1964) watched a Harrier Eagle persistently attacking an 8 foot Black Mamba which "inflated" its neck (it is possible this refers to hood-spreading C.R.S.P.) each time it tried to escape.

There is little to add to what I have already mentioned about hood-spreading by the Green Mamba, D. angusticeps except to say that with the exception of Broadley none of the authorities just quoted seem to have observed this. John Tigwell has provided a unique photograph, reproduced with his kind permission, showing well the exceedingly rare hood display of the Green Mamba, which Ionides in his vast experience has but rarely observed. Ionides, on at least seven occasions, has seen examples of Jameson's Mamba, out of the 77 he has handled, spread a hood.

There is nothing to add to what I have already recorded about D. viridis. An attempt to take a picture of the hood of a large male Jameson's Mamba was a failure, as the photographer - not a snake man - was reluctant to approach his subject close enough to ensure success, thereby a splendid opportunity being lost. Some good photographs of hood-spreading by D. polylepis in captivity have been taken by N.P. Mitton and thanks to his kindness it is possible to reproduce views of this display from above and below (a large male); from this latter aspect there does not appear to be any throat distension as in the Boomslang, D. typus.

I am greatly indebted to C.J.P. Ionides for a wealth of information about the behaviour of East African Mambas in the wild state, and also to Mr. R. Lamworn, the Senior Overseer of the Reptile House at Regent's Park, for observations on Mamba behaviour in captivity.

## Summary

1. All four species of African Mambas have been known to spread a modified hood, which sometimes may be pronounced.
2. Two species, D. polylepis and D. jamesoni, have also been observed to distend the neck like Dispholidus typus.
3. Hood-spreading behaviour is discussed.

## References.

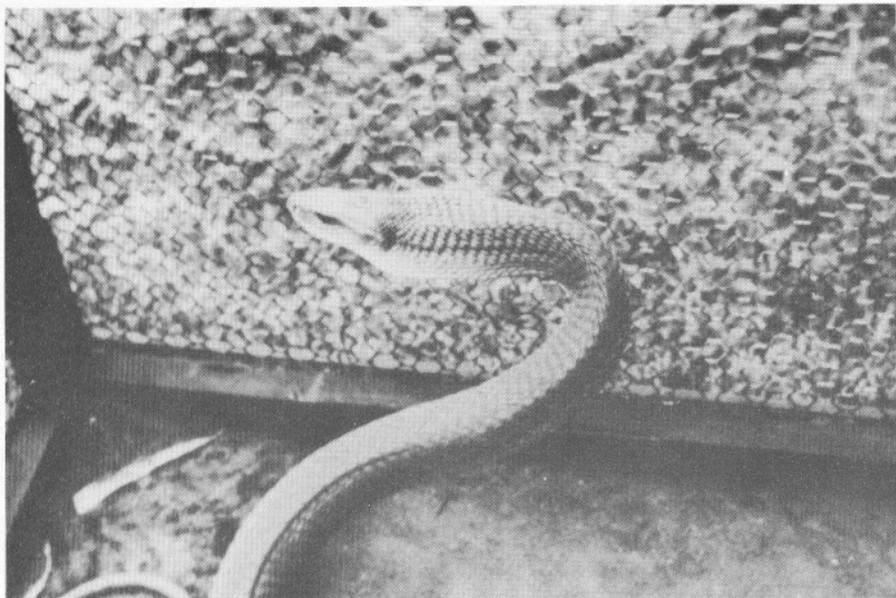
- (1) ROSE, W. Snakes - mainly South African, 1955.
- (2) D.C.B. (D.G. Boadley). Review, in African Wild Life 10 (1) 1956.
- (3) SHAW, R.D. 'Mamba encounter'. African Wild Life 10 (2) 1956.
- (4) DITMARS, R.L. Snakes of the World, 1931.
- (5) FITZSIMONS, F.W. Snakes, 1932.
- (6) BRAIN, C.K. 'The Hood of the Mamba'. African Wild Life 13 (1) 1959.
- (7) BROADLEY, D.G. The Herpetology of Southern Rhodesia, Part I, Snakes, 1959.
- (8) SWEENEY, R.C.H. Snakes of Nyasaland, 1961.
- (9) ISEMONGER, R.M. Snakes of Africa, 1962.
- (10) FITZSIMONS, V.F.M. Snakes of Southern Africa, 1962.
- (11) VILLIERS, A. Les Serpents de l'Ouest Africain, 1963.
- (12) BROADLEY, D.G. Journal, Herpetological Association of Rhodesia, March 1963.
- (13) IRWIN, Tony. "The New Look Safari!" Africana 1 (9), March 1964.



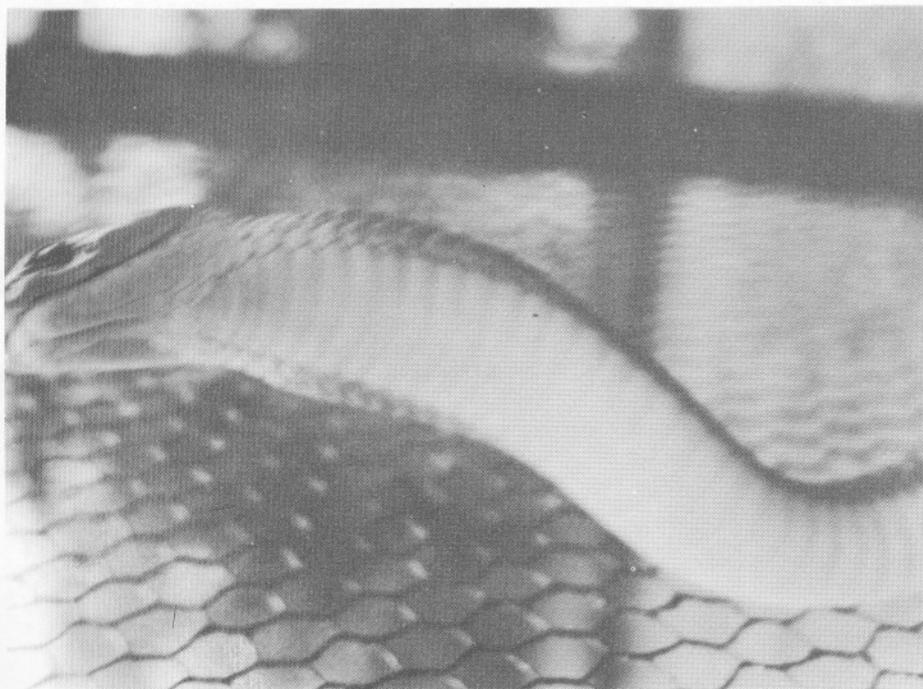
D.angusticeps spreading hood  
Photographed at Newala by J.TIGWELL

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D.P.polylepis spreading hood  
Photo by N.P.MITTON



D.P.polylepis spreading hood  
Photographed near Loitokitok by N. P.MITTON  
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