NOTES ON THE BIRD SPECIES OBSERVED FEEDING ON MOPANE WORMS

Chris Styles

Introduction

"Mopane worms" is the colloquial name given to caterpillars of the Mopane Emperor Moth *Imbrasia belina* (Saturniidae). These multi-coloured caterpillars are encountered in their millions within the confines of the mopane veld. Usually there are two generations of mopane worms per annum, the first generation being those maturing around Christmas, while the second generation is defined as those maturing towards the end of March. These caterpillars are highly visible, especially when in their later stages of development. A mopane worm undergoes five developmental stages, termed "instars", the end of an instar and the beginning of the next being heralded by a shedding of its old skin, so that the new skin will allow for growth. My records reveal that a good correlation appears to exist between the degree of utilization of mopane worms by birds, and the specific size, habits and movements of the birds. All observations were made during the day over two six-week periods during which mopane worms were present on mopane trees. Two study sites were used, one being the farm Hagnewood owned by Mr Michiel Nel, the farm being located about 15 kilometres west of De Beers' Venetia Mine, and the other being a stand of mopane trees around the town of Alldays, into which I introduced a population of mopane worms.

Table showing the average live mass (mg), length range (mm) and duration (days) of the five instars of the mopane worm

Instar	Ave mass	Length	Duration
1	8,5	5–10	6
2	93,0	11–19	5
3	642,5	19–35	6
4	2 606,9	34–63	7
5	9 399,0	60–111	10

Discussion

The utilization of mopane worms as a food source by birds is undoubtedly influenced by the size of the caterpillar relative to the avian predator, their availability and their visibility. Newly hatched caterpillars are mostly preyed upon by smaller bird species, such as the Longbilled Crombec, Greyheaded Sparrow and Grey Penduline Tit. This is largely attributable to these birds' feeding ecology being such that they exhibit definite movements within a mopane tree's canopy, gleaning leaves, and moving with great ease amongst the smaller twigs where the young caterpillars are most likely to be encountered. During both the first and second instar the caterpillars are not very visible and have a rather neutral coloration (light brown), allowing them to blend in well with the dappled shade environment inside the tree's canopy. As their size becomes more appreciable and they develop "body armour" in the form of small prickles and spines, so they also become more visible and hence more susceptible to

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Young second instar mopane worms.

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A mature mopane worm weighing around 13 g and measuring around 11 cm. Note the change in colouration from Instar 2.

List of bird species observed feeding on the various instars of the mopane worm

Instar 1	Instar 2	Instar 3	Instar 4	Instar 5
Longbilled Crombec	Longbilled Crombec	Forktailed Drongo	Greyheaded Bush Shrike	Yellowbilled Hornbill
Greyheaded Sparrow	Greyheaded Sparrow	Orangebreasted Bush Shrike	Orangebreasted Bush Shrike	Glossy Starling
Grey Penduline Tit	Arrowmarked Babbler	Greyheaded Bush Shrike	Blackheaded Oriole	Grey Lourie
Tawnyflanked Prinia	Black-eyed Bulbul	Blackheaded Oriole	Yellowbilled Hornbill	Lilacbreasted Roller
Yellowthroated Sparrow	Diederik Cuckoo	Grey Hornbill	Grey Hornbill	Crested Barbet
Spotted Flycatcher	Goldentailed Woodpecker	Blackcollared Barbet	Crested Barbet	Purple Roller
Greater Honeyguide	Redbacked Shrike	Crested Barbet	Purple Roller	Wattled Starling
Cardinal Woodpecker	Whitecrowned Shrike	Kurrichane Thrush	Wattled Starling	Ground Hornbill*
	Yellowthroated Sparrow	Wattled Starling		Secretary Bird
	Forktailed Drongo	Striped Cuckoo		Spotted Dikkop
	Greater Honeyguide	Bearded Woodpecker		
		Whitecrowned Shrike		
		Redbilled Buffalo Weaver		

*An observation record which was conveyed to me.

predation. However, associated with this is an increase in aggression, lashing wildly when disturbed, and exuding a green slime from the mouthparts in a further attempt to deter predators. From instar 3 onwards, the avian predators which feed on mopane worms are larger and more aggressive than those which fed on instars 1 and 2. With each successive instar the trends remains the same. Yellowbilled Hornbills find mopane worms irresistible, and are undoubtedly one of the major predators affecting the numbers of mopane worms which eventually survive into the pupation phase of their life cycle. Interestingly enough, reports indicate that mopane worms can play such an important role in the breeding biology of birds, that certain species such as the Wattled Starling actually formed a breeding ground in Etosha which centred around an area where mopane worms were most abundant. In the final instar (instar 5), the caterpillars are brightly coloured, the dominant colours being black, yellow and red. All three colours are aposematic or warning colours, their function being to indicate likely distastefulness. This is an attempt on the mopane worm's part to fool certain predators into thinking that they are indeed distasteful, so detering predation.

The above article is an extract from data which I have collected on the ecology around mopane worms, this being central to my doctoral thesis on the mopane worm through the Entomology Department of the University of Pretoria. Many amateur ornithologists, especially those who have done a lot of birding in mopane veld, might have a wealth of knowledge on the above subject, and as such I am encouraging interaction with all persons who might have observed other bird species feeding on mopane worms, or who might have general snippets of information on the ecology around mopane worms.

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SA NASIONALE VOËL IN GEVAAR OM UIT TE STERF

Manie van der Schijff
(Beeld, 10/2/95)

Dit is moeilik om te glo dat ons nasionale voël, die bloukraanvoël, op die grens van uitsterwing is. Vir my is hierdie pragtige voël van ons grasvelde alreeds 'n voël wat ernstig bedreig word, tot so 'n mate dat dit vir talle van ons mense in werklikheid 'n onbekende voël geword het.

Die wat hom nog ken, het hom nie in die veld leer ken nie, maar op die 50c-seël van 1974 en die vorige en huidige 5c-muntstukke. Die van ons wat egter die geleentheid gehad het om die paringsdans van hierdie voël te sien, sal hom nooit vergeet nie.

Gelukkig wil dit vir my voorkom of dit eintlik nog net by ons boere is waar hierdie voël voorkom wat hom ken en leer liefkry het. Dit is belangrik want dit gaan uiteindelik die boeregemeenskap wees wat die voortbestaan van hierdie pragtige voël in ons land gaan verseker. In my kinderdae het hierdie "bekende" voël nog volop oor groot dele van ons land voorgekom. Hulle was 'n kenmerk van die grasveldstreke van ons land. Maar dit was ook in daardie grasveldstreke waar groot gedeeltes moes plek maak vir landerye en plantasies.

Hierdie boerderypraktyke het tot gevolg gehad dat ons kraanvoël onder groot omgewingsdruk gekom het. Hul natuurlike habitat is vernietig.

Die boeregemeenskap was aanvanklik nie baie goedgesind teenoor bloukraanvoëls nie omdat hulle in die tyd buite broeiseisoen in groot getalle (swerms, ook "swerwers" genoem) van 50 tot 300 versamel het. Die "swerwers" het letterlik die landerye met jong graan of jong plantasies ingeneem en nogal heelwat skade aangerig.

Nadat plantasies gevestig is, het die voëls verdwyn omdat hulle hoegenaamd nie aangepas is om in 'n digte boomhabitat te oorleef nie.

Daar word beweer dat die tussen 10 000 en 14 000 voëls wat vandag nog in ons land voorkom, waarskynlik minder as twee-derdes van die getal is wat tien jaar gelede ons grasveldstreke versier het. In Natal en Oos-Kaapland het hul getalle moontlik met soveel as 75 tot 95 persent afgeneem. Voorwaar 'n skrikwekkende toestand.

BIRDING in Southern Africa

SOUTHERN AFRICAN ORNITHOLOGICAL SOCIETY

Fund Raising No 01 100428 0004 ISSN 0006 - 5838

Winter 1995 Volume 47 No 2

FRONT COVER:
Redcrested Korhaan
Philip v.d. Berg

BACK COVER:
Cut-throat Finch
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PUBLISHED BY:
Southern African
Ornithological Society
P.O . Box 84394
Greenside
Johannesburg 2034
Tel. (011) 888-4147

Contents

BirdLife® INTERNATIONAL
The SAOS is the Birdlife International partner in South Africa

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PRINTED BY: The Natal Witness Printing and Publishing Company (Pty) Ltd, Pietermaritzburg, Natal