Honigdachs und Madenhacker: Märchen über zwischenartliche Kooperation – und was dahinter steckt

Indicator indicator

Buphagus africanus

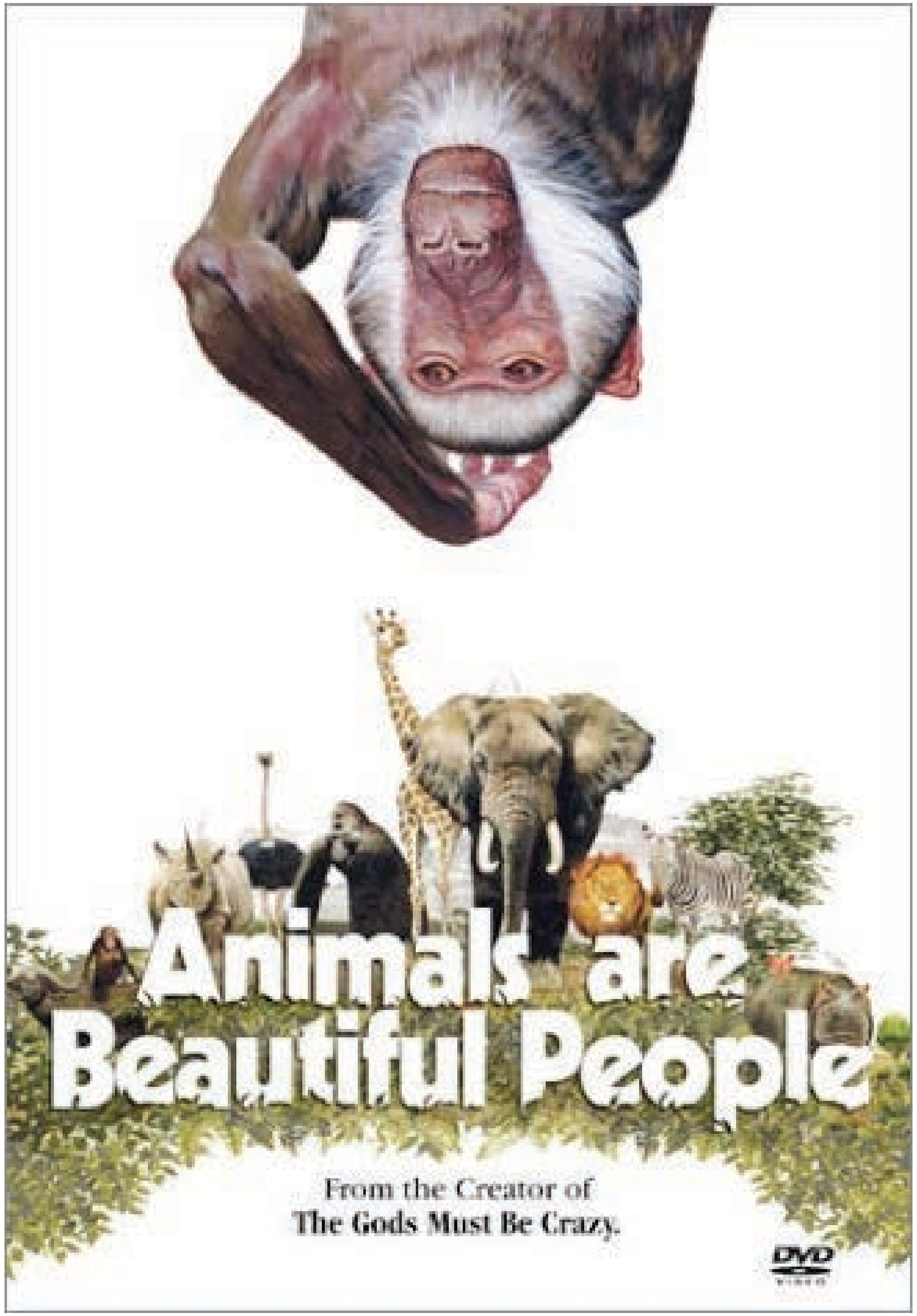
Marcus Clauss

Klinik für Zoo-, Heim- und Wilditere, Vetsuisse-Fakultät, Universität Zurich

Vortragsreihe Biologie und Erkrankungen der Wilditiere, Zürich 2013

University of Zurich[UZH]

Clinic of Zoo Animals, Exotic Pets and Wildlife


Animals are Beautiful People
From the Creator of
The Gods Must Be Crazy.
DVD

Warner Bros. zeigt einen der schönsten Filme des Jahres
DIE lustige WELT
DER TIERE
Beautiful People
Drehbuch, Produktion und Regie: JAMIE UYS · Produktionsleitung: BOET TROSKIE · Technicolor


Warner Bros. zeigt einen der schönsten Filme des Jahres
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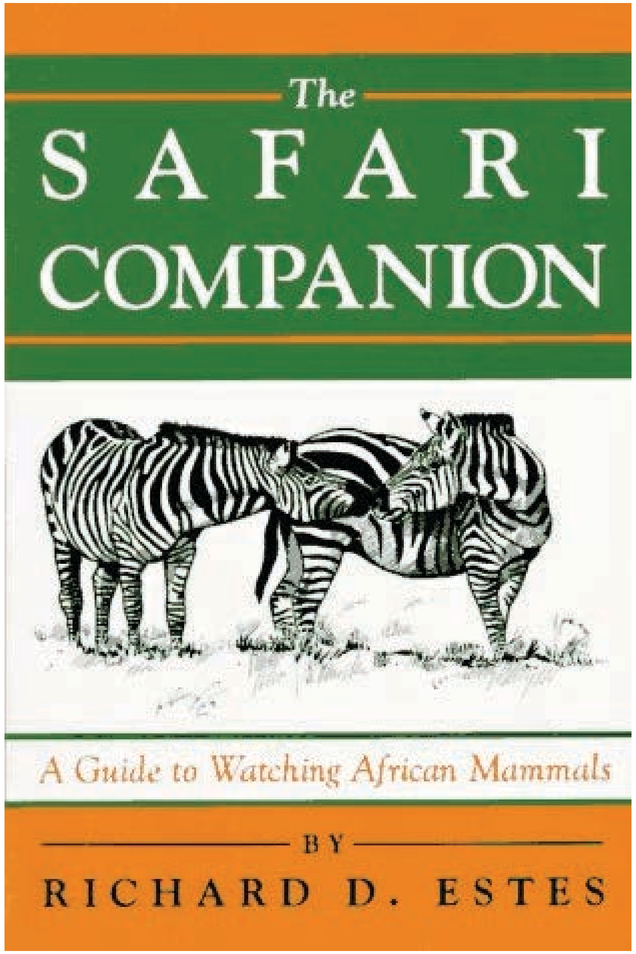
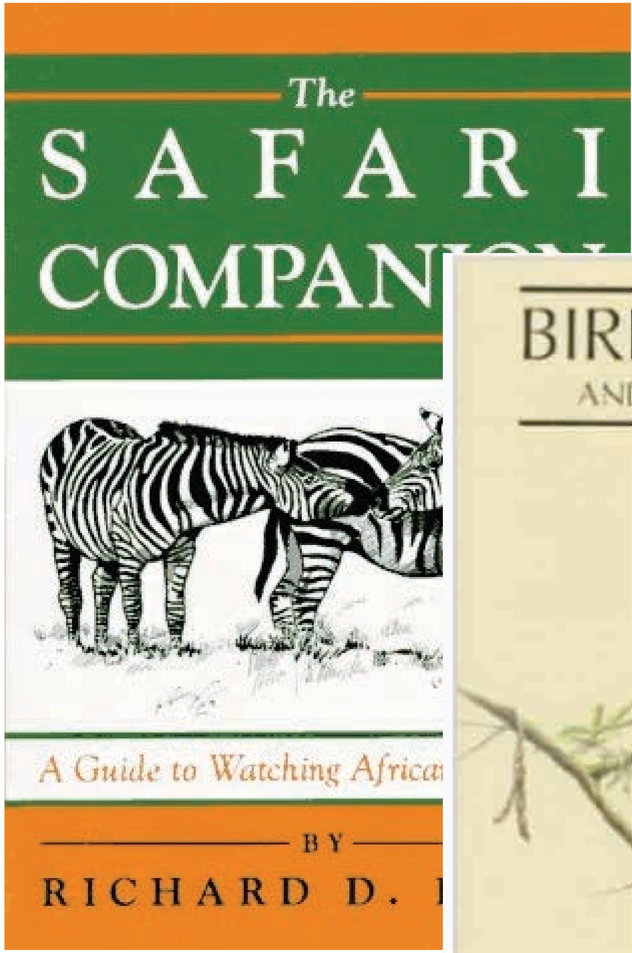
The Fallacy, Fact, and Fate of Guiding Behavior in the Greater Honeyguide

Conservation Biology
Volume 4, No. 1, March 1990

W. R. J. DEAN W. ROY SIEGFRIED I. A. W. MACDONALD

One of the most frequently cited examples of so-called coevolved mutualistic behavior between birds and mammals is the association between the Greater Honeyguide, *Indicator indicator,* and the Honey Badger or Ratel, *Mellivora capensis.* In this mutualistic association, the Honeyguide is reputed to guide or lead the Honey Badger to a honey bee nest, where the bird shares the spoils after the mammal has broken open the hive. The description of this association has become firmly entrenched in standard texts on animal behavior, in popular articles, and in many scientific works on birds and mammals, such as the most recent authoritative work on African birds (Fry et al. 1988:502).


The
SAFARI
COMPANION
A Guide to Watching African Mammals
BY
RICHARD D. ESTES


The
SAFARI
A Guide to Watching
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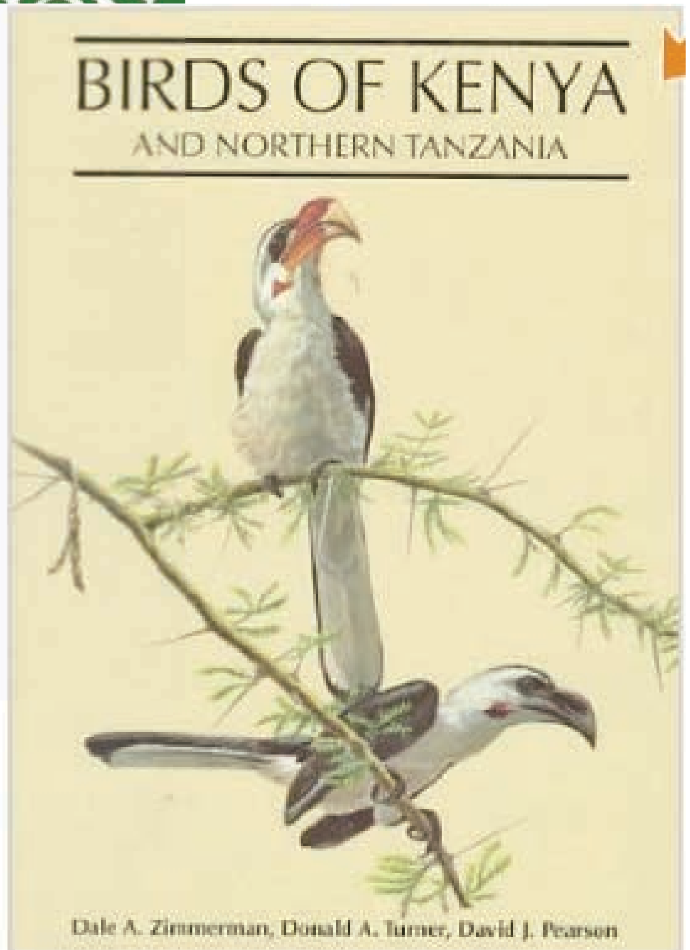
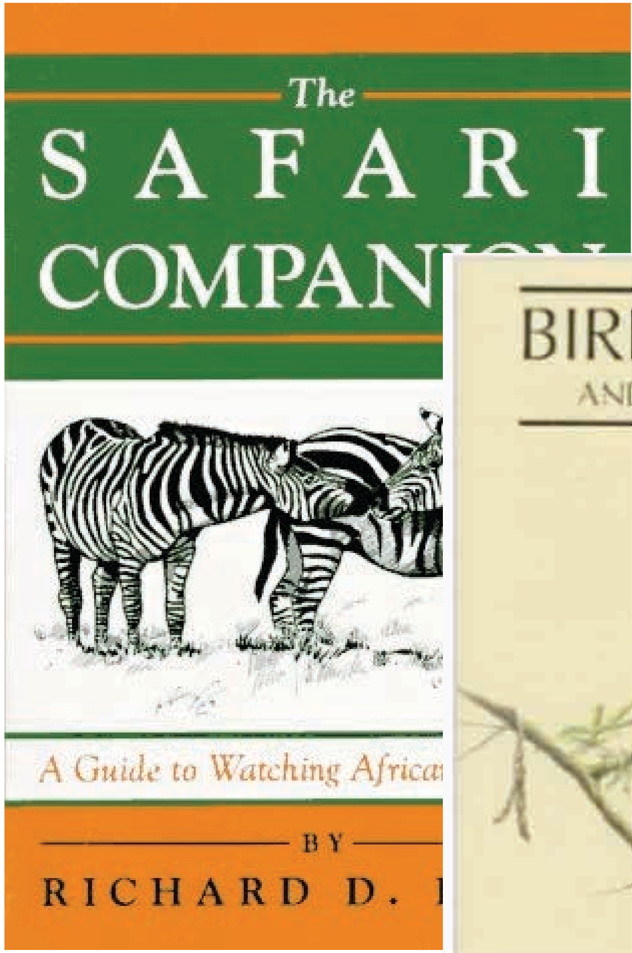

BIRDS OF KENYA
AND NORTHERN TANZANIA
Dale A. Zimmerman, Donald A. Turner, David J. Pearson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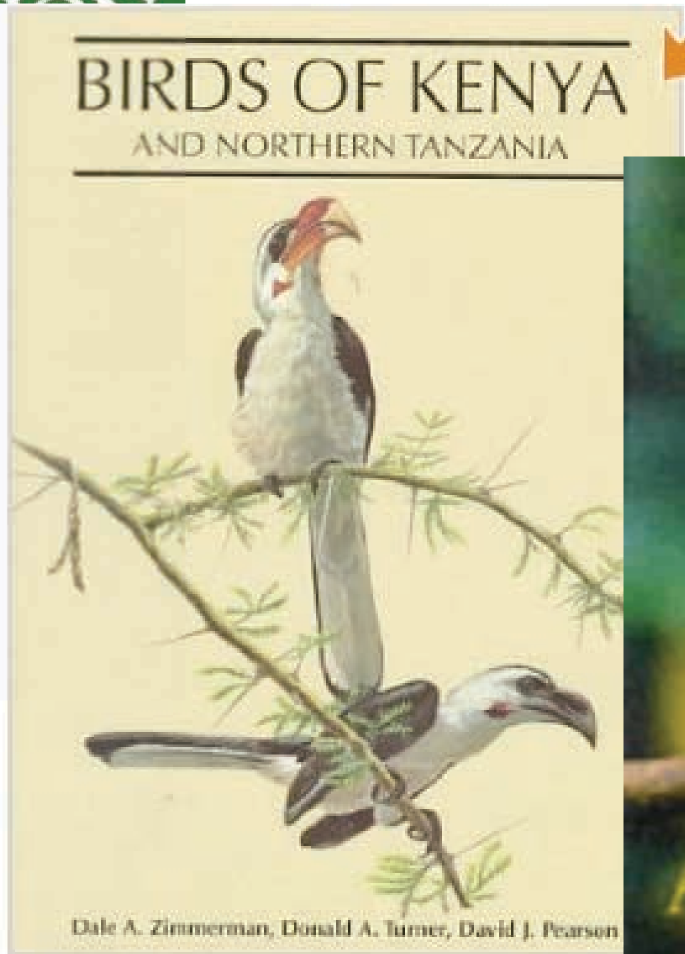
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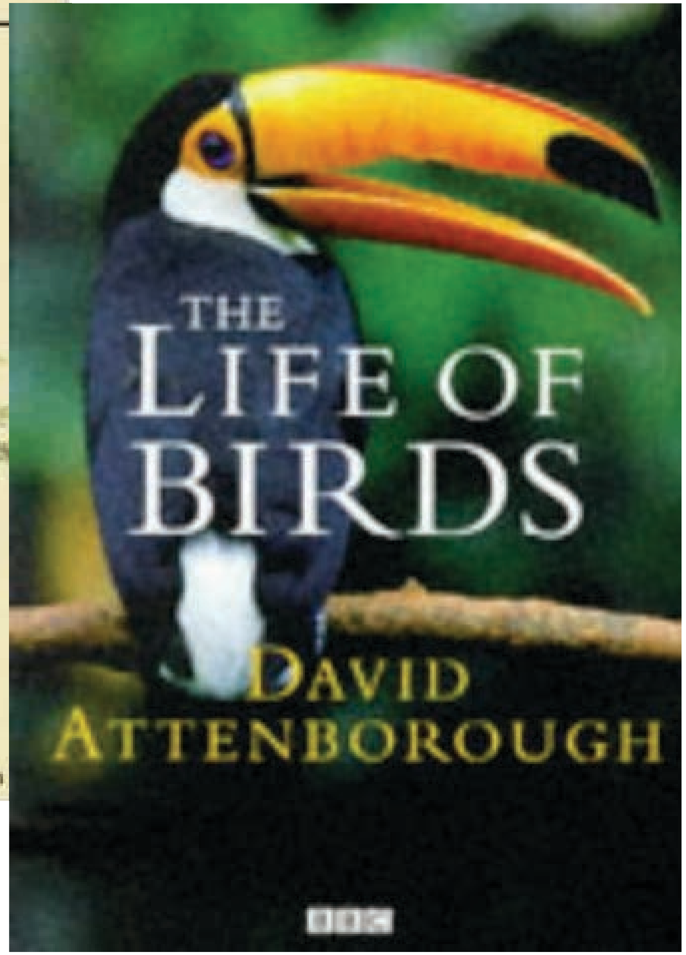
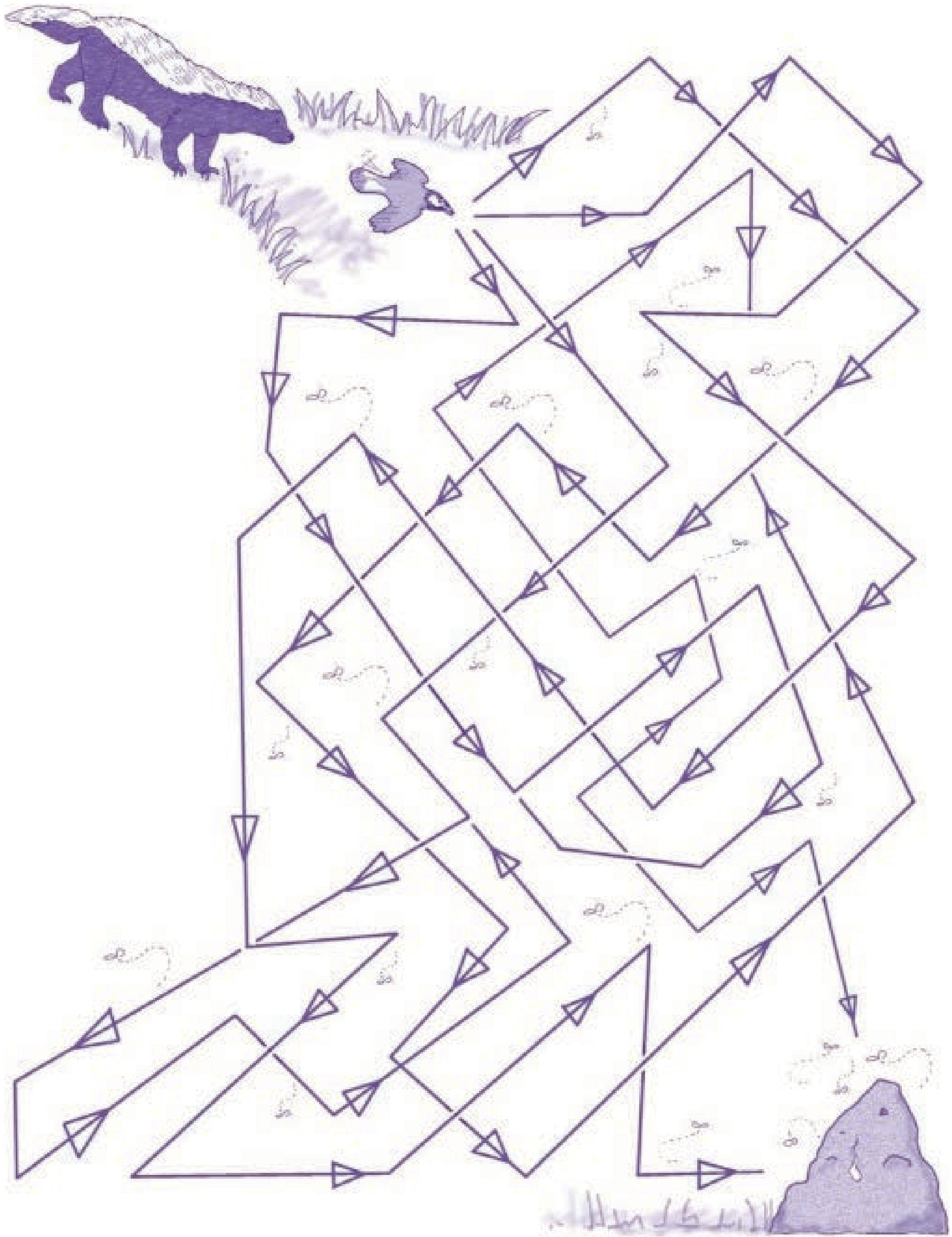
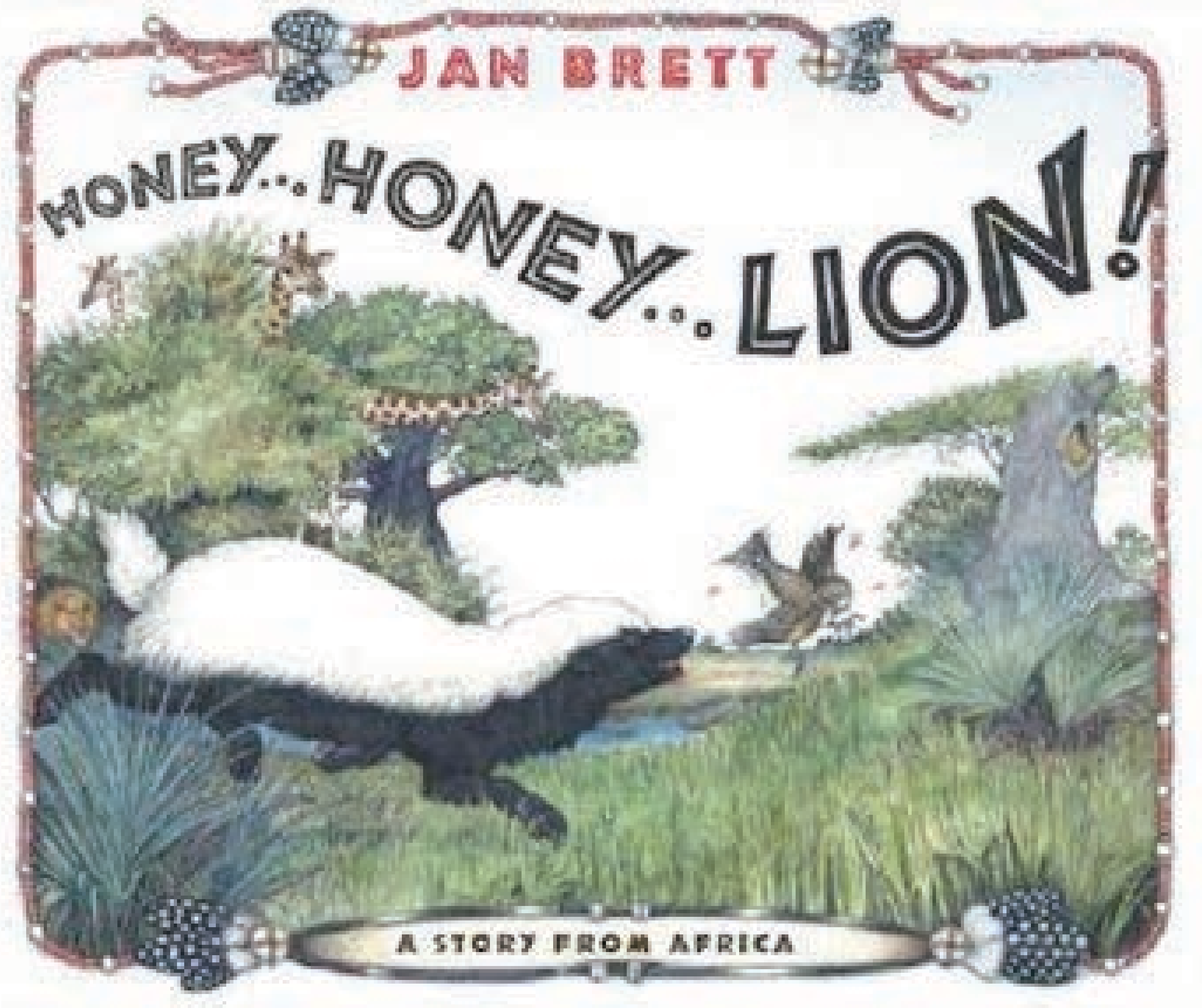

THE
LIFE OF
BIRDS
DAVID
ATTENBOROUGH
BBC

painting by Walter A. Weber

NATURAL
HISTORY
MUSEUM
LOS ANGELES COUNTY

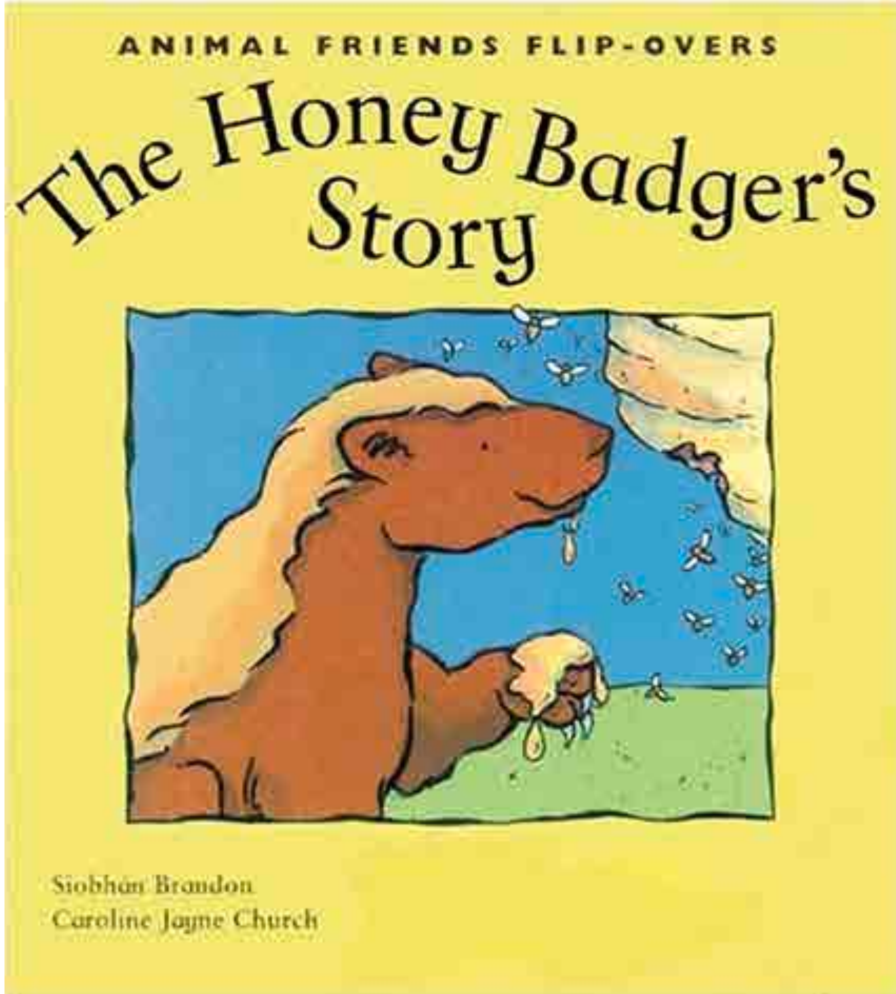


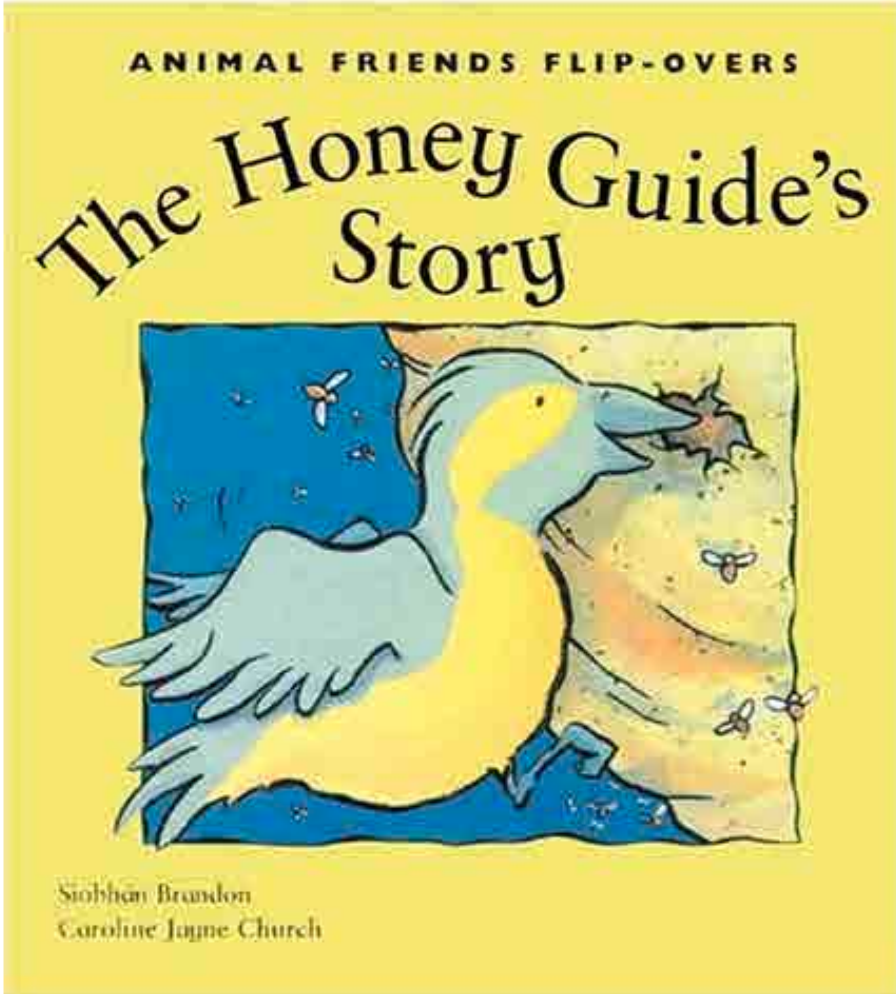

JAN BRETT
HONEY... HONEY... LION!
A STORY FROM AFRICA

IN AFRICA the honeyguide and the honey badger are partners: The honeyguide finds the honeycomb and the honey badger cracks it open with its strong claws. They share the sweetness, and that is the way it has always been.

But this day, greedy Badger gulps down all the honey! Honeyguide is not happy.

As the news spreads from animal to animal, Honeyguide hatches a plan. The next day she leads Badger off on a rollicking chase, but this time Badger is in for a not-so-sweet surprise!


ANIMAL FRIENDS FLIP-OVERS
The Honey Badger's Story
Siobhán Brandon
Caroline Jayne Church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Conservation Biology
Volume 4, No. 1, March 1990

W. R. J. DEAN W. ROY SIEGFRIED I. A. W. MACDONALD

no biologist or naturalist, amateur or professional, has observed a Greater Honeyguide leading a Honey Badger to a beehive. The primary source of the many published accounts of the association between Greater Honeyguides and Honey Badgers is Sparrman (1785–1786:141–152), who did not personally observe the behavior, but received information on it from local people.

Three eyewitness accounts of Greater Honeyguides seen together with Honey Badgers are quoted by Friedmann (1955). All were communicated by the observers to Friedmann, and took place some years before Friedmann's visit to Africa in 1950. None of these accounts is of a complete guiding sequence, and none presents clear evidence that there is an evolved, mutualistic association between the Honeyguide and the Honey Badger. Despite some of the detailed descriptions of the behavior of both the Honeyguide and the Honey Badger, it appears that the accounts have an anecdotal rather than a factual basis.

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one juvenile and two adult Honey Badgers exposed to recordings of the Honeyguide's chatter vocalizations showed no recognition or response to the call (Dean 1985).

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No additional records of Greater Honeyguides guiding honey badgers have been reported since Friedmann's review, despite the great increase in the number of scientists studying the biota in southern and eastern Africa during the past 30 years. If it is a coevolved, mutualistic association, the association would have been incidentally observed.


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=
LIES

Was stimmt denn?

- *Fressen Honigdachse Honig?*
- *Kooperieren sie mit Vögeln?*
- *Frisst der Honigkuckuck Honig?*
- *Führt der Honigkuckuck zum Honig?*

Sexual and seasonal variation in the diet and foraging behaviour of a sexually dimorphic carnivore, the honey badger (*Mellivora capensis*)

J. Zool., Lond. (2003) **260**, 301–316

C. M. Begg[1,2*], K. S. Begg[2], J. T. Du Toit[1] and M. G. L. Mills[1,2,3]

Prey category	Prey consumed, % Frequency: Cold-dry ($n = 1052$)	Hot-dry ($n = 1364$)	Hot-wet ($n = 551$)
Insects	0	0.8	1.8
Solitary bee larvae[a]	6.7	0.8	0.7
Scorpions	12.4	3.7	6.7
Small reptiles (<100g)	41.0	49.6	32.7
Large reptiles (>100 g)	1.4	5.4	13.8
Small mammals (<100 g)	37.6	36.2	39.3
Large mammals (>100 g)	0.3	2.0	3.8
Birds	0.7	1.5	1

RESEARCH

THE CONFLICT BETWEEN BEEKEEPERS AND HONEY BADGERS IN SOUTH AFRICA: A WESTERN CAPE PERSPECTIVE

Keith and Colleen Begg

Honey badgers have also been reported to locate beehives by monitoring the flight paths of bees and following them to the hive (Sparrman 1786; Hodgson et al. 1791; Wood 1876). However, our observations in both the southern Kalahari and Mana Pools National Park have provided no evidence in support of this suggestion.

RESEARCH

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TABLE: Results of ranking five potential threats to productivity by beekeepers in the Western Cape Province

Threat	Rank 1 (% of respondents) N=41	Rank 2 (% of respondents) N=37
Honey badger	64	14
Theft and vandalism	29	32
Ants	5	35
Baboon	0	14
Varroa mite	2	5

Report on the conflict between beekeepers and honey badgers *Mellivora capensis*, with reference to their conservation status and distribution in South Africa

Keith Begg
March 2001

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March 2001

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W. R. J. DEAN W. ROY SIEGFRIED I. A. W. MACDONALD

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Gemeinsames Jagen

Interspecific Communicative and Coordinated Hunting between Groupers and Giant Moray Eels in the Red Sea

PLoS BIOLOGY
December 2006 | Volume 4 | Issue 12 | e431

Redouan Bshary[1*], Andrea Hohner[1,2], Karim Ait-el-Djoudi[1], Hans Fricke[3,4]

Gemeinsames Jagen

Feeding behavior and follower fishes of *Myrichthys ocellatus* (Anguilliformes: Ophichthidae) in the western Atlantic

Maria E. Araújo[1], Pedro H. C. Pereira[1], João L. L. Feitosa[1], Guilherme Gondolo[2], Daniel Pimenta[1] and Mara C. Nottingham[3]

Neotropical Ichthyology, 7(3):503-507, 2009

Fig. 3. Interspecific foraging association between *Myrichthys ocellatus* and *Epinephelus adscensionis*. The head of the follower fish is close to the Goldspotted eel, which is in a hole seeking for prey. Photo by M. E. Araújo.

Gemeinsames Jagen

Foraging association of lionfish and moray eels in a Red Sea seagrass meadow M. S. Naumann (✉) · C. Wild Coral Reefs (2013) 32: 1111

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Gemeinsames Jagen

INTERSPECIFIC INTERACTIONS BETWEEN BADGERS AND RED-TAILED HAWKS IN THE SONORAN DESERT, SOUTHWESTERN ARIZONA

PATRICK K. DEVERS,* KIANA KOENEN, AND PAUL R. KRAUSMAN

The Southwestern Naturalist vol. 49, no. 1

Gemeinsames Jagen

HUNTING ASSOCIATIONS BETWEEN BADGERS (*TAXIDEA TAXUS*) AND COYOTES (*CANIS LATRANS*)

Steven C. Minta, Kathryn A. Minta, and Dale F. Lott

J. Mamm., 73(4):814–820, 1992

Coyotes (*Canis latrans*) associating with badgers (*Taxidea taxus*) appeared to hunt Uinta ground squirrels (*Spermophilus armatus*) more effectively than lone coyotes. Coyotes with badgers consumed prey at higher rates ($P = 0.09$) and had an expanded habitat base and lower locomotion costs. Badgers with coyotes spent more time below ground and active ($P = 0.02$), and probably had decreased locomotion and excavation costs. Overall, prey vulnerability appeared to increase when both carnivores hunted in partnership. Complementary

Gemeinsames Jagen

HUNTING ASSOCIATIONS BETWEEN BADGERS (*TAXIDEA TAXUS*) AND COYOTES (*CANIS LATRANS*)

STEVEN C. MINTA, KATHRYN A. MINTA, AND DALE F. LOTT

J. Mamm., 73(4):814–820, 1992

Coyotes encouraged badgers to move and search by mock pursuit and by scrambling around a specific site; by leading or by soliciting play

Gemeinsames Jagen

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J. Mamm., 73(4):814–820, 1992

Badgers usually ended the association by not re-emerging from a burrow; they rarely did so by agonistic behavior.

Gemeinsames Jagen

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J. Mamm., 73(4):814–820, 1992

The badgers' behavior indicated the association with coyotes was either neutral or positive for them. Associated badgers often tolerated coyotes within 1 m and physical contact was seen about once every 2 h of observation. Most contact was inadvertent or brief, but there were at least 36 episodes of sustained nasal-nasal contact, or body contact while resting near each other

Gemeinsames Jagen

Dwarf Mongoose and Hornbill Mutualism in the Taru Desert, Kenya Behav Ecol Sociobiol (1983) 12:181–190

O. Anne E. Rasa

Gemeinsames Jagen

Dwarf Mongoose and Hornbill Mutualism in the Taru Desert, Kenya Behav Ecol Sociobiol (1983) 12:181–190

O. Anne E. Rasa

The association between the birds and mongooses is actively sought by both parties. The birds wait in trees around the termite mound where the monogooses are sleeping for them to emerge and the mongooses delay their foraging departure if no birds are present.

Gemeinsames Jagen

Dwarf Mongoose and Hornbill Mutualism in the Taru Desert, Kenya

Behav Ecol Sociobiol (1983) 12:181–190

O. Anne E. Rasa

A true mutualism only exists between the mongooses and the two hornbill species *Tockus deckeni* and *T. flavirostris* since their presence or arrival affects the subsequent start of foraging. These two hornbill species have also been observed to influence the start of foraging actively by means of two behaviour patterns termed 'chivvying' and 'waking'.

Gemeinsames Jagen

Dwarf Mongoose and Hornbill Mutualism in the Taru Desert, Kenya

Behav Ecol Sociobiol (1983) 12:181–190

O. Anne E. Rasa

Table 1. The relationships between bird arrival, appearance of the first guard and foraging start when birds are present or not present before the first mongoose emerges

Average time (min) from	Birds present before mongoose emergence ($n=47$ days)			Birds arrive after mongoose emergence ($n=27$ days)		
	First guard to foraging	Bird arrival to first guard	Bird arrival to foraging	First guard to foraging	First guard to bird arrival	Bird arrival to foraging
1980	32.5	36.3	68.8	56.8	41.7	15.1
1981	40.8	48.4	89.2	68.6	44.3	24.3
1982	30.75	20.5	51.3	42.7	30.5	12.2
Total average	34.6[a]	35.1	69.8	56.0[a]	38.8	17.2

[a] Values significantly different. $P=0.0029$, Mann-Whitney U-test

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Wax digestion by the lesser honeyguide *Indicator minor*

Colleen T. Downs*, Robyn J. van Dyk, Paul Iji

Comparative Biochemistry and Physiology Part A 133 (2002) 125–134

Examination of the digestive tract showed no specialisation and no crop. The presence of digestive enzymes, including lipase, in the pancreas and small intestine and very few microbes in the digestive tract of the lesser honeyguide suggests that wax digestion occurs through a biochemical pathway with endogenous avian enzymes.

THE PROBLEM OF CEROPHAGY OR WAX-EATING IN THE HONEY-GUIDES

By HERBERT FRIEDMANN AND JEROME KERN

The Quarterly Review of Biology, Vol. 31, No. 1 (Mar., 1956), pp. 19-30

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A REVIEW OF AFRICAN BIRDS FEEDING IN ASSOCIATION WITH MAMMALS

W. R. J. Dean & I. A. W. MacDonald

Ostrich 52:135–155 1981

The Greater Honeyguide *Indicator indicator* is widely reputed to guide Ratels and baboons to beehives and to feed on the beeswax exposed by the mammal (Friedmann 1955; Thomson 1964a:288, 377; Brown 1972).

the only recent record is of a Greater Honeyguide giving its guiding call to baboons at Wankie Game Reserve, Zimbabwe (C. J. Vernon, pers. comm.). However, Vernon did not see a positive response by the baboons to the honeyguide. No additional records of honeyguides and Ratels have been reported since Friedmann (1955) and the first-hand accounts given in his review in support of this association are all of incomplete guiding sequences. No biologist has ever reported this association. In view of the above and the fact that the honeyguide gives its guiding call to other obviously non-symbiont mammals (*cf.* Friedmann 1955:46–47), the existence of a relationship between the honeyguide and any mammal must still be considered uncertain.

A REVIEW OF AFRICAN BIRDS FEEDING IN ASSOCIATION WITH MAMMALS

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The Greater Honeyguide *Indicator indicator* is widely reputed to guide man, Ratels and baboons to beehives and to feed on the beeswax exposed by the mammal (Friedmann 1955; Thomson 1964a:288, 377; Brown 1972). We have seen man being guided by this species in many localities in central and southern Africa, and there are many published accounts of the behaviour (*e.g.* Macpherson 1975).

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Honeyguides and Honey Gatherers: Interspecific Communication in a Symbiotic Relationship

H. A. Isack and H.-U. Reyer* SCIENCE, VOL. 243 10 MARCH 1989

In many parts of Africa, people searching for honey are led to bees' nests by the greater honeyguide (*Indicator indicator* Sparrman). The Boran people of Kenya claim that they can deduce the direction and the distance to the nest as well as their own arrival at the nest from the bird's flight pattern, perching height, and calls. Analyses of the behavior of guiding birds confirmed these claims.

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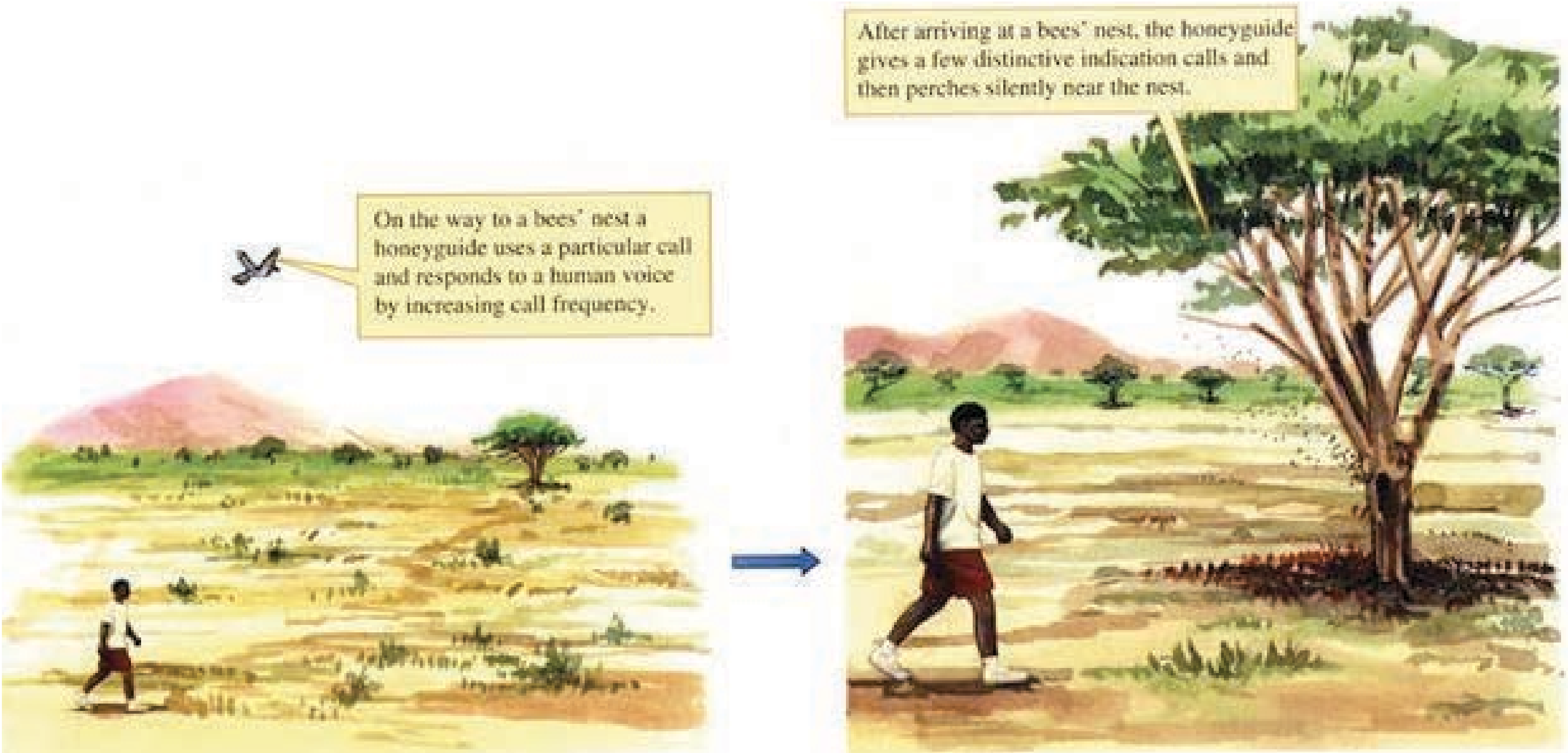
SCIENCE, VOL. 243 10 MARCH 1989



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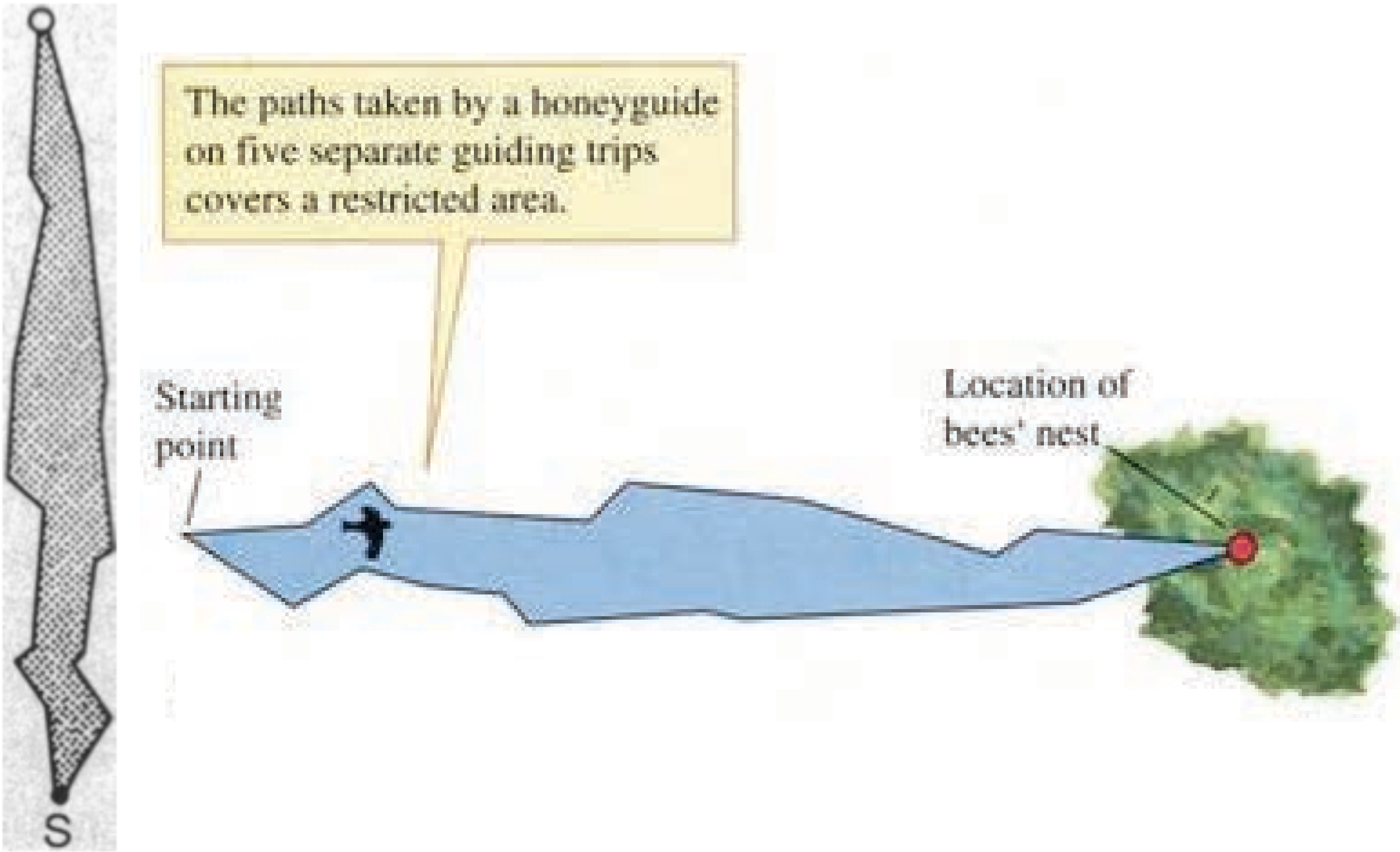

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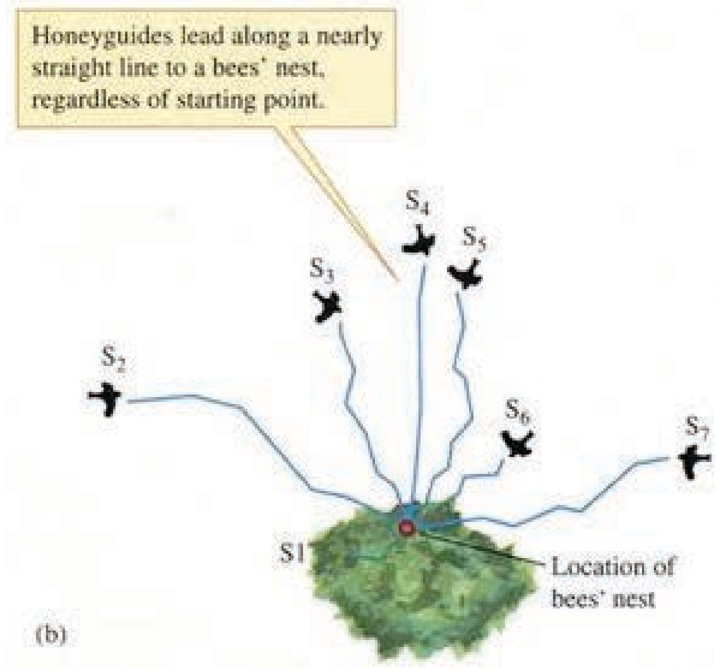

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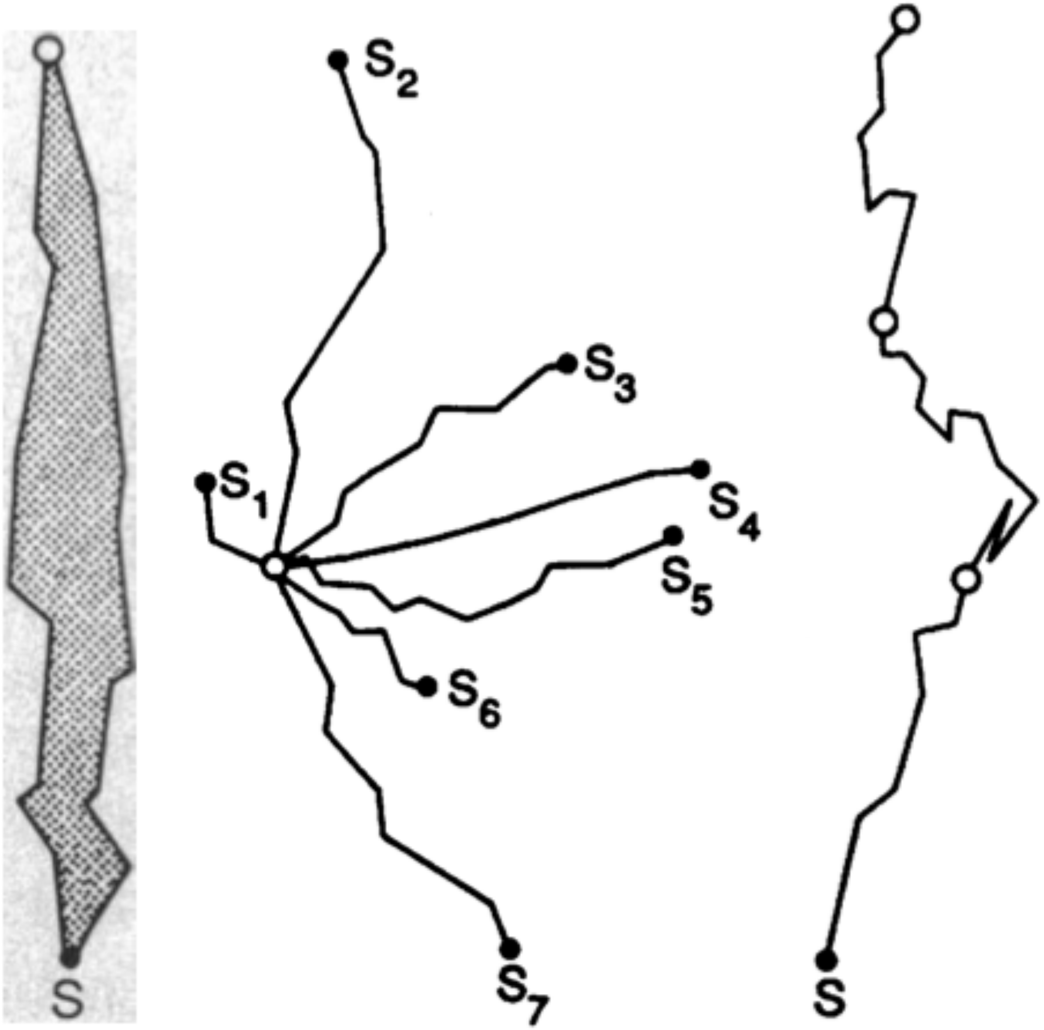

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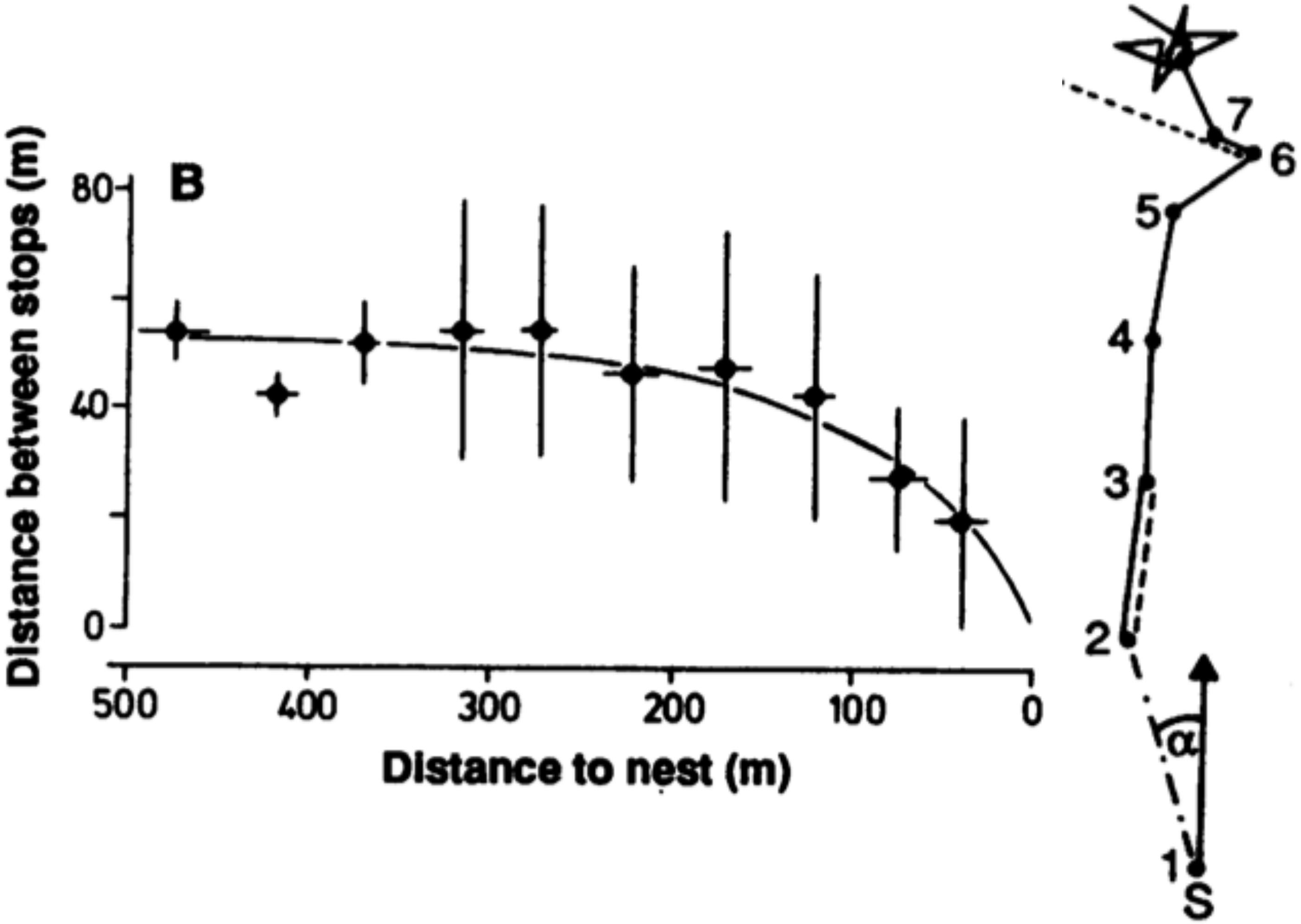

Honeyguides and Honey Gatherers: Interspecific Communication in a Symbiotic Relationship

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SCIENCE, VOL. 243 10 MARCH 1989

A 3-year field study of the greater honeyguide was carried out near Sololo and Marsabit in northern Kenya (*5*). The area, dry bush country, is the home of the nomadic Boran people who still follow the honeyguide regularly. In unfamiliar areas, their search time per bees' nest was, on average, 8.9 hours when not guided and 3.2 hours when guided (n = 329 hours and 238 hours, respectively).

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SCIENCE, VOL. 243 10 MARCH 1989

In view of this mutual benefit, it is not surprising that humans and the honeyguide have developed an elaborate interspecific communication system. To draw the attention of the bird, the Borans use a penetrating whistle that can be heard from a distance of over 1 km on our study sites. This whistle, known in Boran language as "*Fuulido*," is produced by blowing air into clasped fists, modified snail shells, or hollowed-out doum palm nuts (*Hyphaene coria-* wood are also used to draw the bird's attention. Such noise doubles the encounter rate with the bird ($P < 0.02$, Mann-Whitney U test).

The Fallacy, Fact, and Fate of Guiding Behavior in the Greater Honeyguide

Conservation Biology
Volume 4, No. 1, March 1990

W. R. J. DEAN W. ROY SIEGFRIED I. A. W. MACDONALD

Notwithstanding its unique attributes, the symbiosis — possibly the most advanced bird-mammal relationship in the world — needs additional scientific study. How is the bird's behavior transmitted from one generation to the next? What frequency of reward is necessary to maintain the behavior?

Was stimmt denn?

- *Fressen Honigdachse Honig?* ✔
- *Kooperieren sie mit Vögeln?* ✔

- *Frisst der Honigkuckuck Honig?* ✔
- *Führt der Honigkuckuck zum Honig?*

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- *Fressen Honigdachse Honig?* ✔
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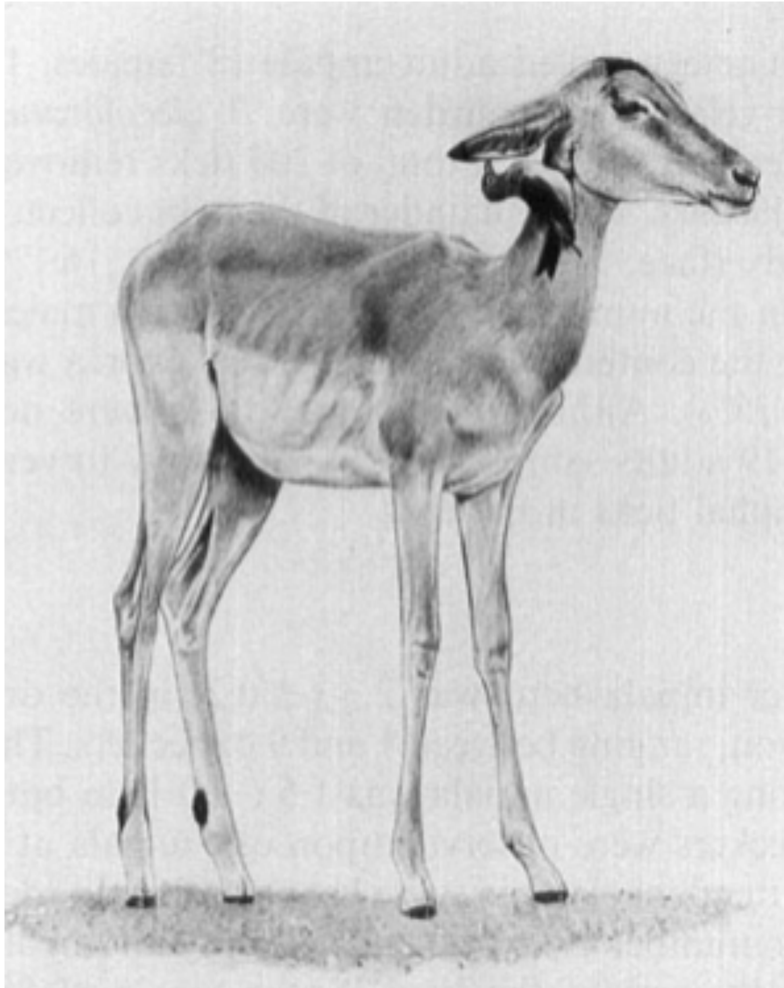
Interactions between impala and oxpeckers at Matobo National Park, Zimbabwe

Afr. J. Ecol. 1996, Volume 34, pages 54–65

MICHAEL S. MOORING and PETER J. MUNDY



Interactions between impala and oxpeckers at Matobo National Park, Zimbabwe

Afr. J. Ecol. 1996, Volume 34, pages 54–65

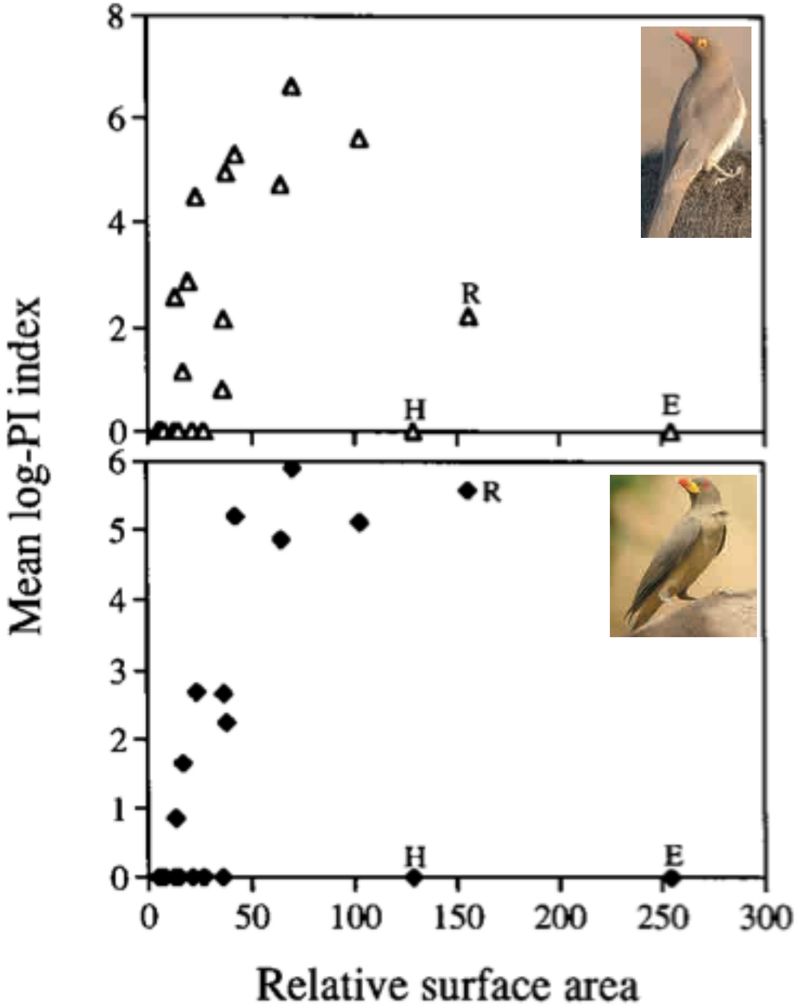
MICHAEL S. MOORING and PETER J. MUNDY

Grooming per h	Oxpeckers present	Oxpeckers absent	*Z*	*P*
Dry season				
Self-oral bouts	2·68 (±0·70)	7·48 (±1·20)	3·4	0·0006
Self-oral episodes	36 (±12)	99 (±18)	3·2	0·001
Scratch bouts	0·39 (±0·17)	2·03 (±0·32)	4·1	0·0001
Scratch episodes	12 (±5)	51 (±9)	3·8	0·0002
Wet season				
Self-oral bouts	3·89 (±0·91)	17·82 (±1·88)	5·8	0·0001
Self-oral episodes	45 (±12)	282 (±48)	5·6	0·0001
Scratch bouts	0·62 (±0·32)	3·39 (±0·52)	4·1	0·0001
Scratch episodes	6 (±3)	70 (±13)	4·2	0·0001

Host preferences and behaviour of oxpeckers: co-existence of similar species in a fragmented landscape

Evolutionary Ecology, 1997, **11**, 91–104

WALTER D. KOENIG*



Testing the interspecific body size principle in ungulates: the smaller they come, the harder they groom

MICHAEL S. MOORING, JILL E. BENJAMIN, CYNTHIA R. HARTE & NATHAN B. HERZOG

ANIMAL BEHAVIOUR, 2000, 60, 35–45

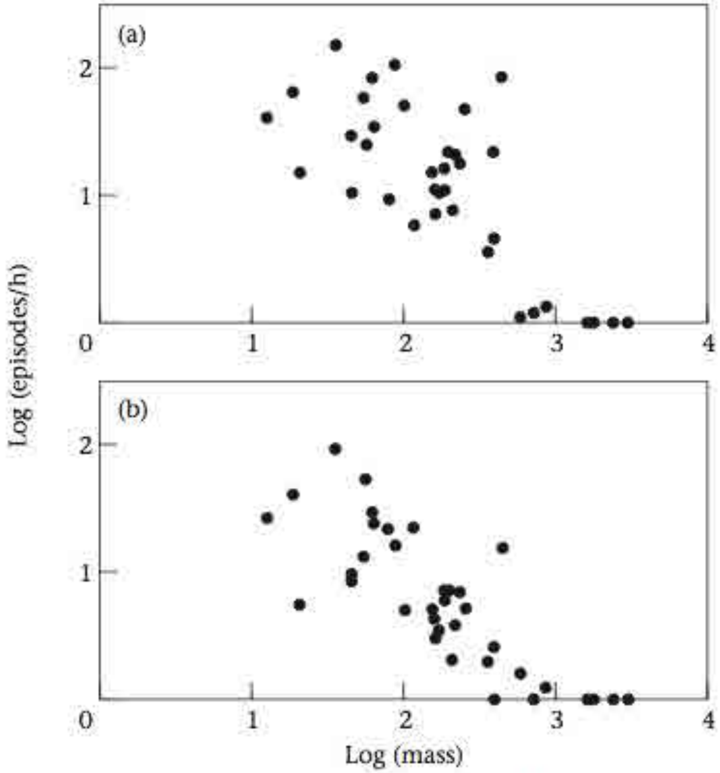


Figure 2. Log–log scatter plots of species-typical female mass and mean species grooming rate for (a) oral grooming and (b) scratch grooming for the 36 species/subspecies of mammals observed at SDWAP. Bivariate Spearman correlations were negative and highly significant (oral episodes/h: $r_S=-0.65$, $P<0.0001$; scratch episodes/h: $r_S=-0.82$, $P<0.0001$), as predicted by the body size principle.

Was stimmt denn?

- *Fressen Madenhacker Zecken?*
- *Erzeugen Madenhacker Wunden?*
- *Nützen Madenhacker ihren Wirten?*

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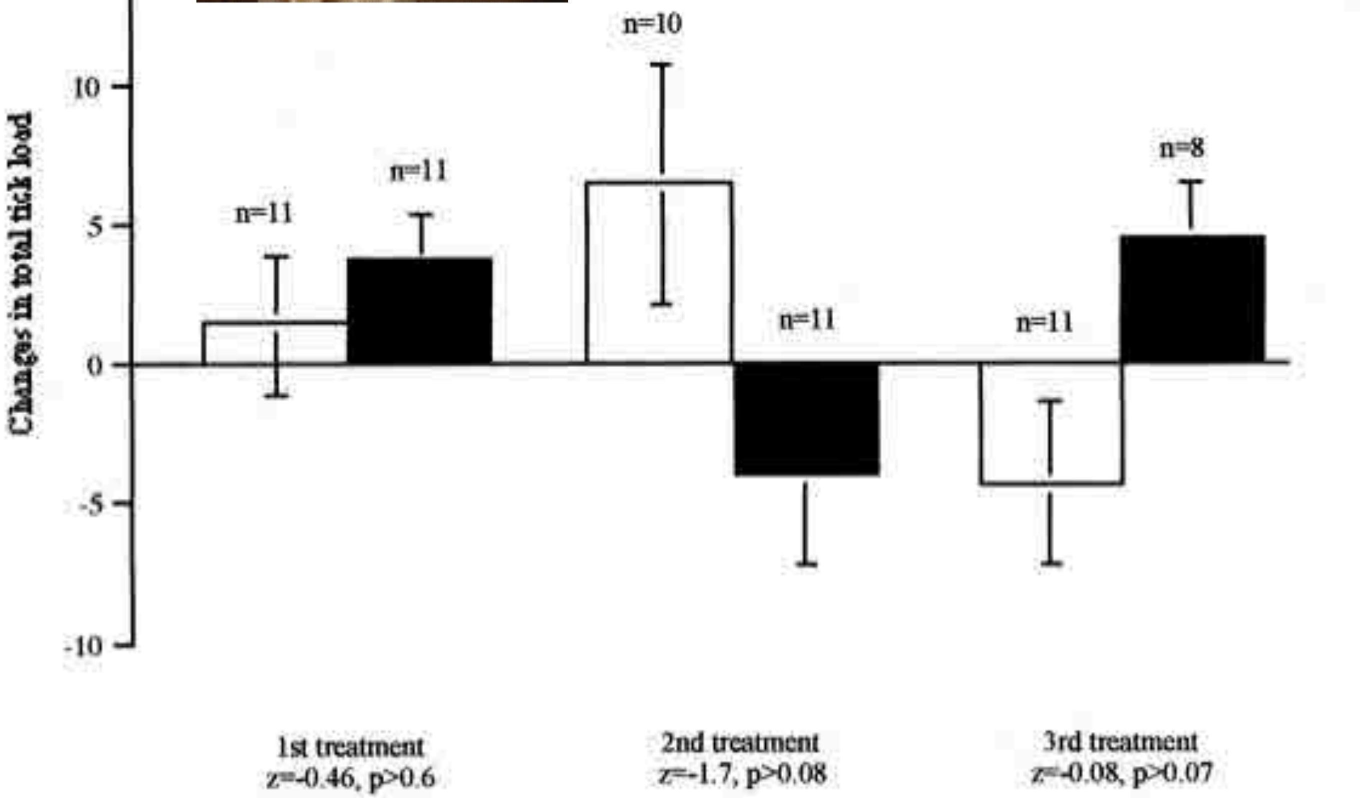
Behavioral Ecology Vol. 11 No. 2: 154–160

Red-billed oxpeckers: vampires or tickbirds?

Paul Weeks



Behavioral Ecology Vol. 11 No. 2: 154–160

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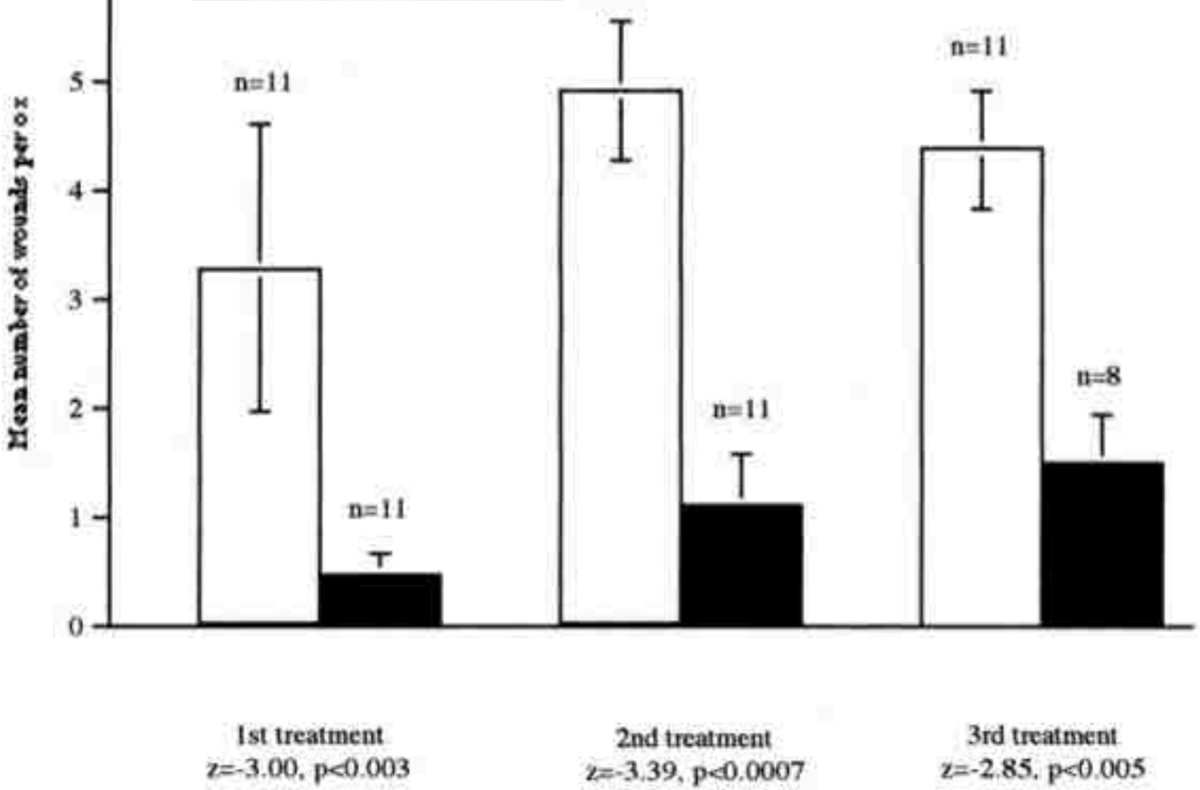


Behavioral Ecology Vol. 11 No. 2: 154–160

Red-billed oxpeckers: vampires or tickbirds?

Paul Weeks

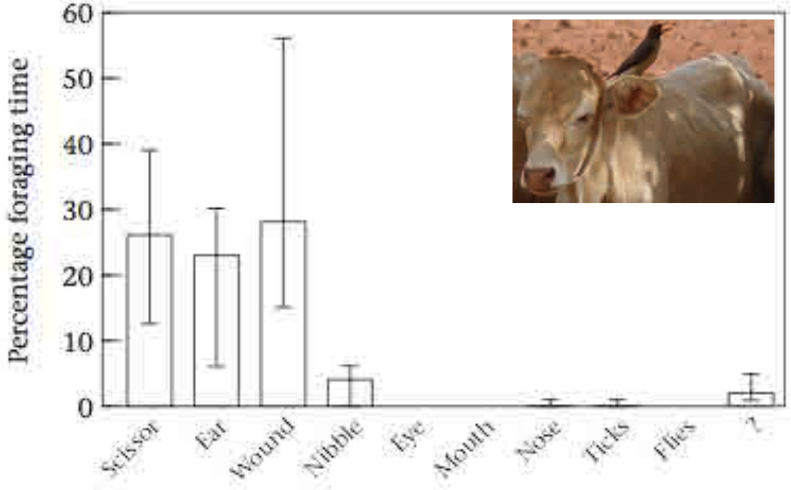
Summary of the different wounds on control and experimental cows during the three treatments

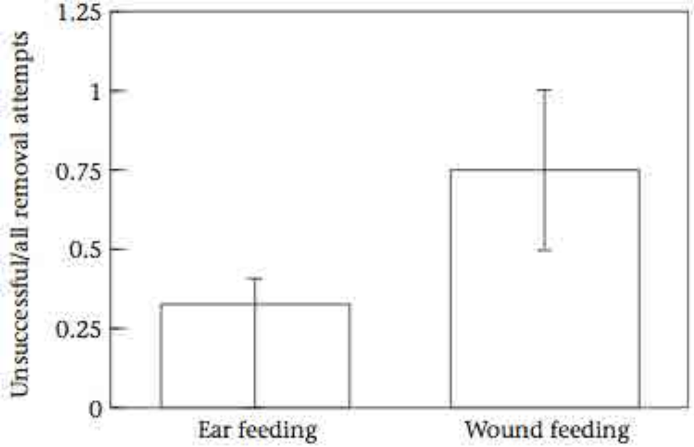
	Persist/ recur	Heal	Totals	Fisher's Exact	
				φ	*p*
First treatment					
Controls	15	21	36		
Experimentals	1	4	5		
Totals	16	31	41	0.145	.6
Second treatment					
Controls	15	13	28		
Experimentals	0	12	12		
Totals	15	25	40	0.507	.001
Third treatment					
Controls	19	22	41		
Experimentals	0	10	10		
Totals	19	32	51	0.381	.008

Interactions between red-billed oxpeckers, *Buphagus erythrorhynchus*, and domestic cattle, *Bos taurus*, in Zimbabwe

PAUL WEEKS

ANIMAL BEHAVIOUR, 1999, 58, 1253–1259





Observable tick feeding represented a very small percentage of their foraging time. Based on oxpecker behaviour at feeding sites, blood from open wounds appeared to be the favoured food: oxpeckers displaced each other significantly more, and were significantly less likely to be deterred by the cows' attempts to remove them, when feeding on a wound than at other feeding sites. The preference for blood, the inability of cows to prevent oxpeckers feeding on blood and the relatively small amount of visible tick feeding suggest that, certainly for cattle, oxpeckers may not be beneficial.

Feeding preferences of the red-billed oxpecker, *Buphagus erythrorhynchus*: a parasitic mutualist?

Afr. J. Ecol., 51, 325–336

Tiffany Plantan[1]*, Mark Howitt[2], Antoinette Kotzé[2,3] and Michael Gaines[1]

Cafeteria experiment	z	P	N	Preference
Ticks vs. Liquid Blood	−3.06	0.002	12	Ticks
Ticks vs. Liquid Blood (repeated)	−1.47	0.142	12	No preference
Ticks vs. Coagulated Blood	−0.55	0.582	12	No preference
Ticks vs. Maintenance Food	−3.07	0.002	12	Ticks
Liquid Blood vs. Maintenance Food	−3.06	0.002	12	Blood

Feeding preferences of the red-billed oxpecker, *Buphagus erythrorhynchus*: a parasitic mutualist?

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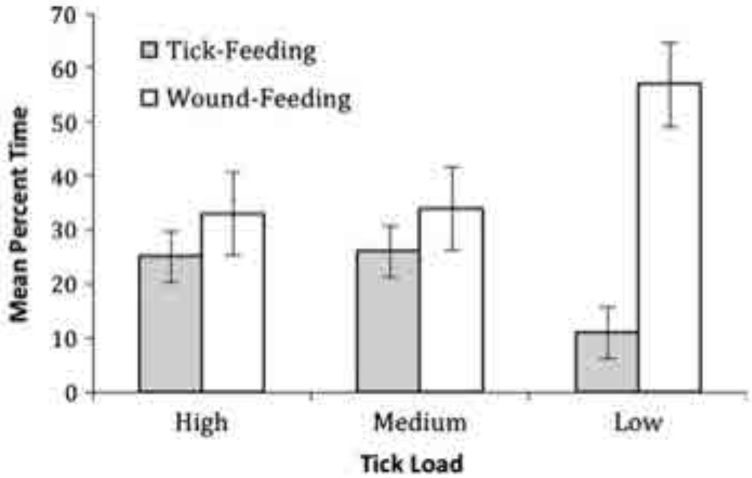
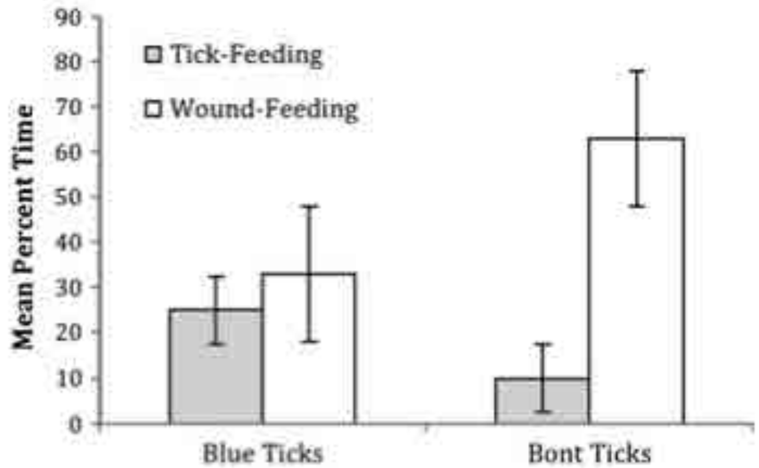
Tiffany Plantan[1]*, Mark Howitt[2], Antoinette Kotzé[2,3] and Michael Gaines[1]





Interactions Between Red-Billed Oxpeckers and Black Rhinos in Captivity

Zoo Biology 23:347–354 (2004)

Alan G. McElligott,* Ivan Maggini, Lorenz Hunziker, and Barbara König

We observed nine of those wounds being created during our study period. The oxpeckers created the wounds by pecking at the skin. All the wounds created were small and only slightly larger than the tips of the beaks. We could measure the time taken for two of the wounds to be created. In one case, the oxpecker took 30 seconds and in the second case, it took 60 seconds.

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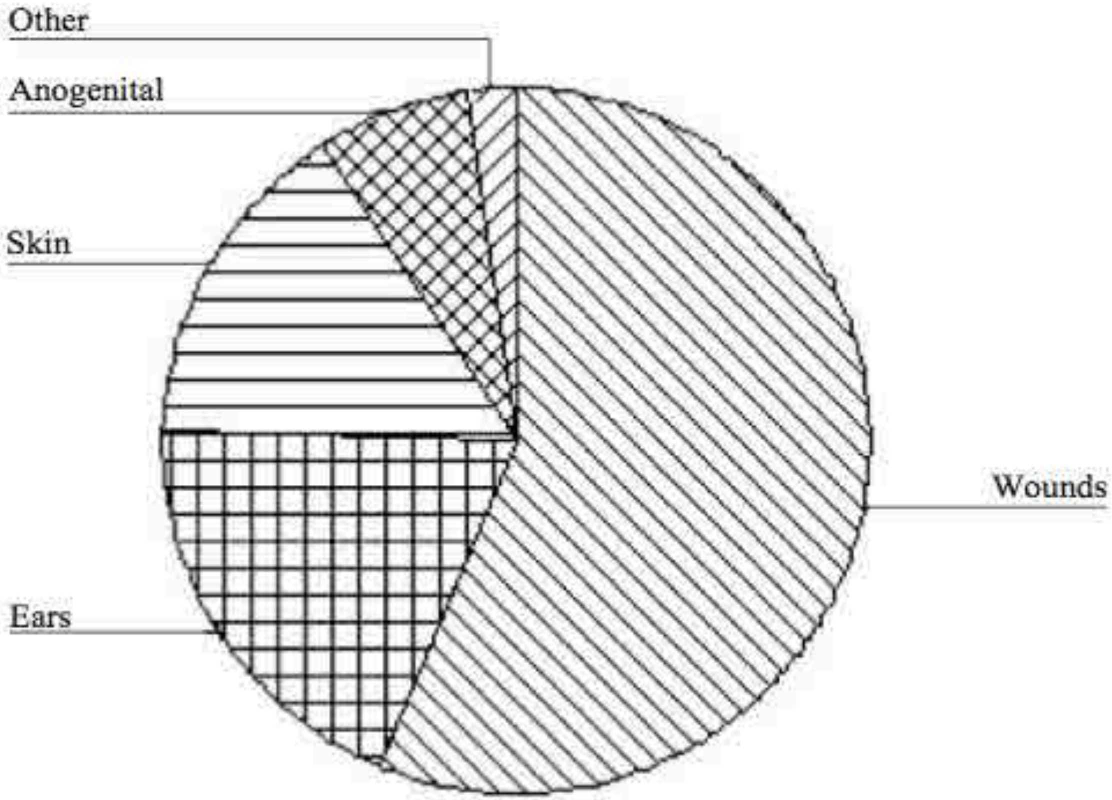

Fig. 2. Foraging time of the oxpeckers divided according to their feeding locations on the rhinos; wounds = 56.3%, ears = 19.3%, skin = 15.3%, anogenital = 6.8%, and other = 2.3%.

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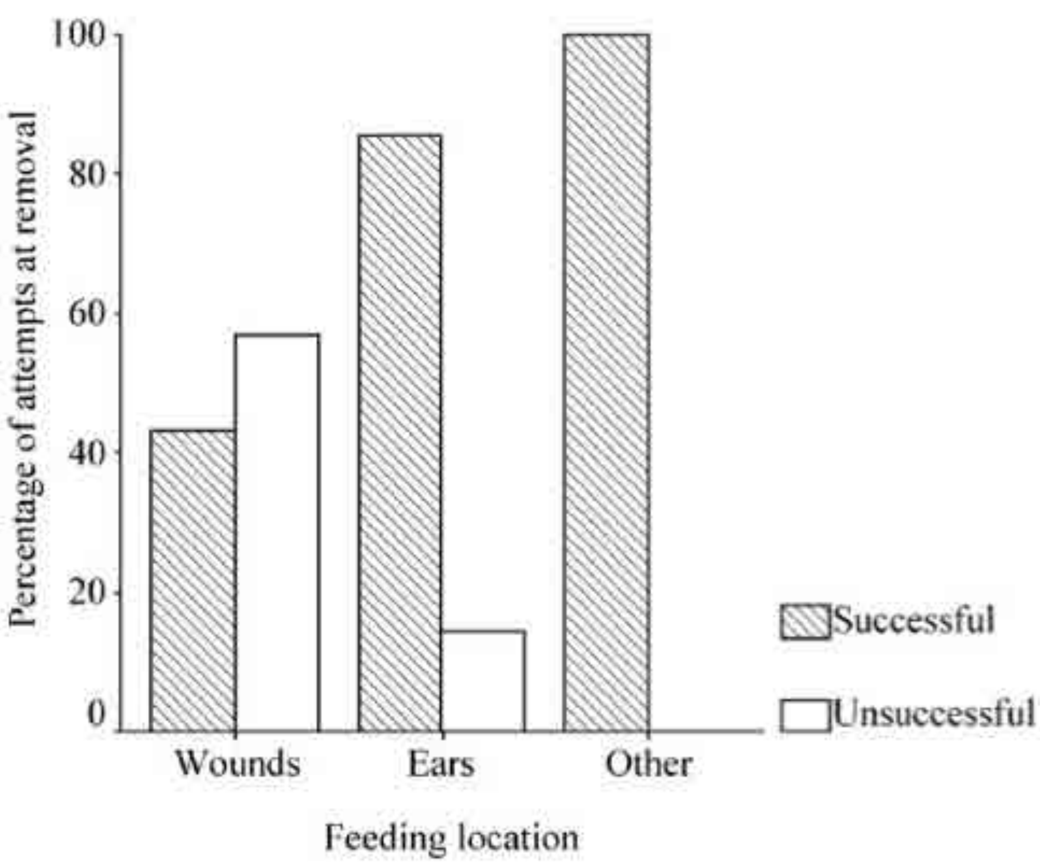

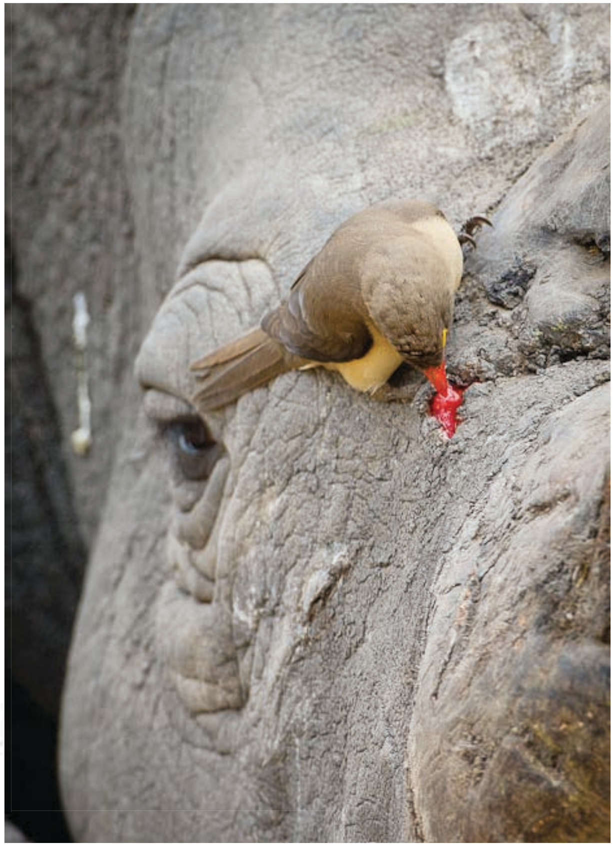

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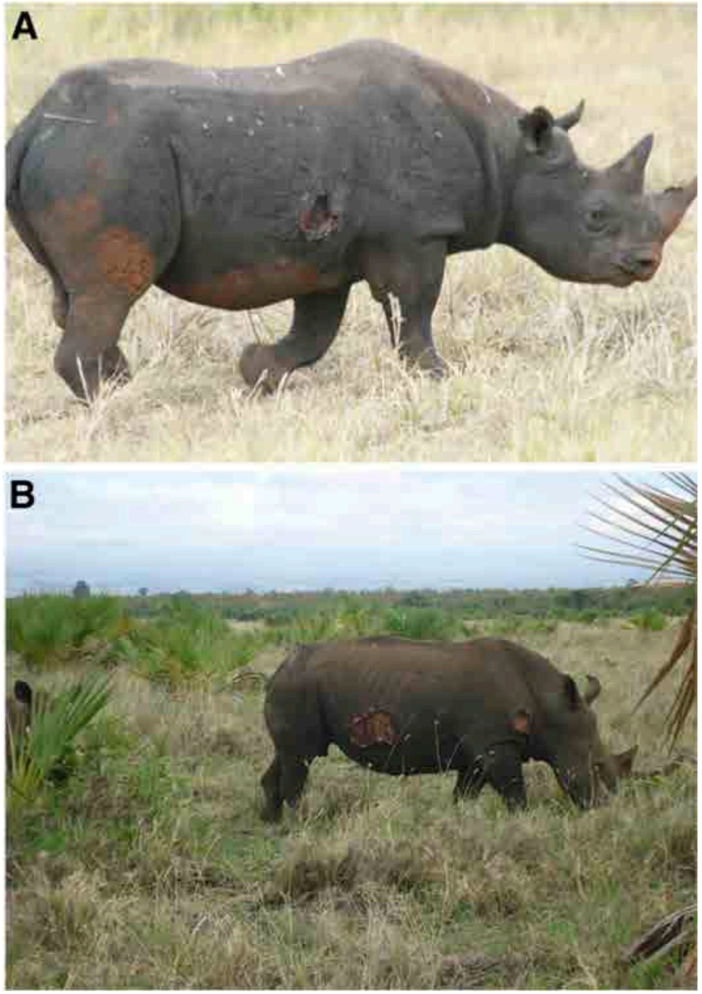
Putative filariosis outbreak in white and black rhinoceros at Meru National Park in Kenya

Matthew Mutinda[1*], Moses Otiende[1], Francis Gakuya[1], Linus Kariuki[1], Vincent Obanda[1], David Ndeere[1], Ephantus Ndambiri[1], Edward Kariuki[1], Isaac Lekolool[1], Ramón C Soriguer[2], Luca Rossi[3] and Samer Alasaad[3,4*]

Parasites & Vectors 2012, **5**:206

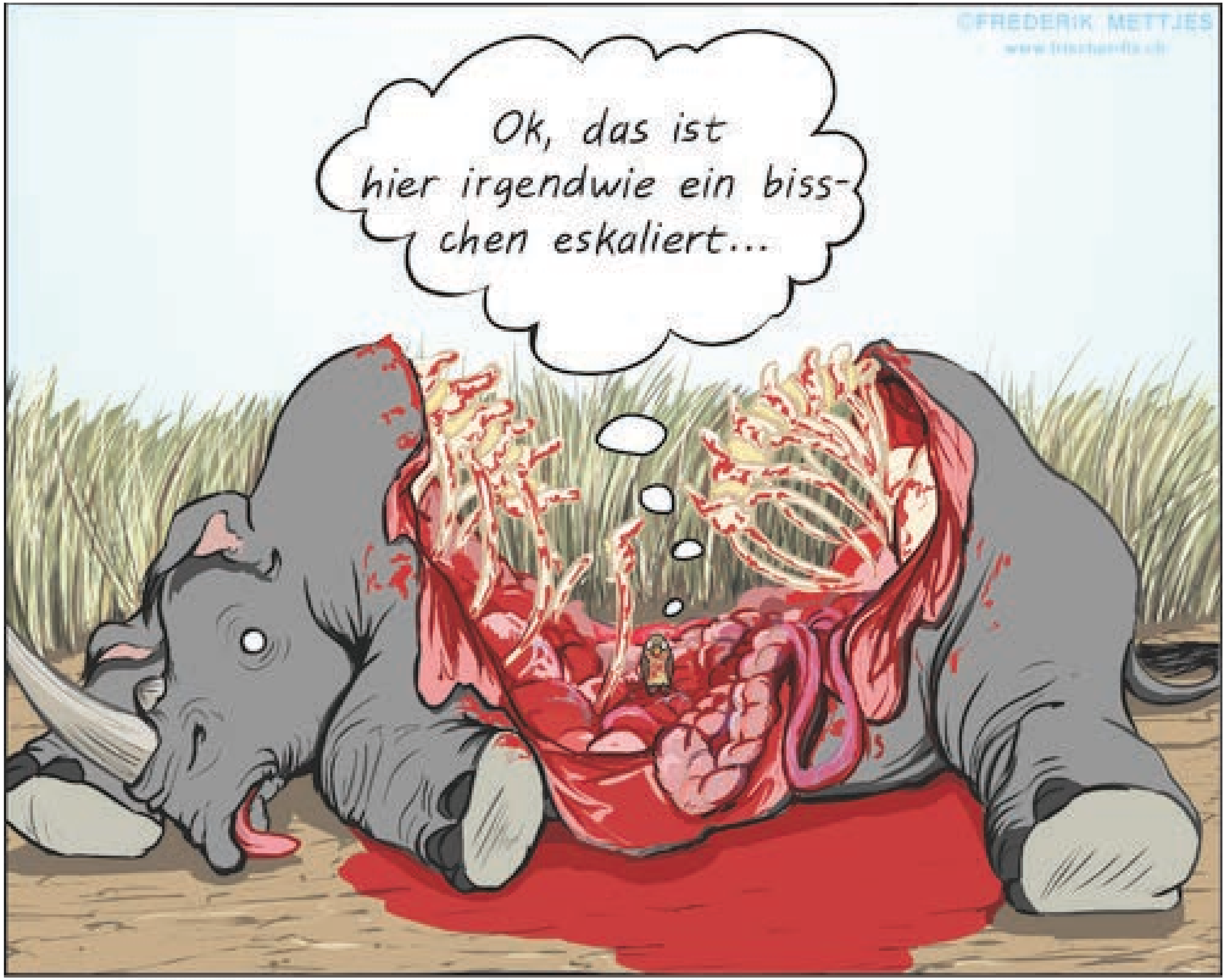


Parafilariosis in African buffaloes (*Syncerus caffer*)

Onderstepoort Journal of Veterinary Research, 64:217–225 (1997)

D.F. KEET[1], J. BOOMKER[2], N.P.J. KRIEK[3], G. ZAKRISSON[4] and D.G.A. MELTZER[5]

Oxpeckers were attracted to bleeding points and ulcers. Wet streaks and dry crusts were rapidly ingested with scissor-like movements of their beaks. Occasionally, they inserted the full length of their beaks into a perforation to feed on the contents. Up to 12 oxpeckers were seen feeding simultaneously on one large ulcer. They also fed off biopsy wounds within minutes of the buffalo being revived after having been immobilized. The attacks were so vigorous that wound dehiscence occurred within 12 h.



Madenhacker

Journal of Zoo and Wildlife Medicine 21(2): 155–165, 1990

CHEMICAL IMMOBILIZATION OF FREE-RANGING BLACK RHINOCEROS (*DICEROS BICORNIS*) USING COMBINATIONS OF ETORPHINE (M99), FENTANYL, AND XYLAZINE

Michael D. Kock, B.Vet.Med., M.P.V.M., Michael la Grange, and Raoul du Toit, M.Sc.

Darting of individual rhinoceroses on foot was considered difficult and time-consuming;[21] those animals darted on foot in our study also presented difficulties because of thick vegetation, variable wind conditions, and the presence of red-billed oxpeckers (*Buphagus erythrorhynchus*) who provided early warning to the rhinoceros.

RED-BILLED OXPECKERS REALLY DO INCREASE PREDATOR AWARENESS IN BLACK RHINOCEROS

Roan David PLOTZ[1], Wayne Leslie LINKLATER[1,2]

The Swahili name for the red-billed oxpecker, *Buphagus erythrorhynchus*, is "Askari wa kifaru" and means the rhino's guard. We tested the wildly held, but untested, belief that oxpeckers warn rhinoceros of approaching predators. Sixty-one unconcealed approaches by a person to seven marked adult female black rhinoceros, *Diceros bicornis*, were monitored. We recorded detection and detection distances that could be related to the presence-absence and number of oxpeckers resident on the rhinoceros and corresponded to their alarm calling. When oxpeckers were absent black rhinos were able to detect the person on 23% (7/31) of occasions at a detection distance of ± 27.74m ± 4 SE. However, oxpecker presence increased the rhino's detection rate to 97% (29/30) and improved detection distance by more than two fold (± 66.07m ± 6 SE). The 29 detections were an immediate response to an oxpecker alarm call. There was also a significant positive relationship between number of oxpecker on a rhino's back and detection distance. We confirm that red-billed oxpeckers really do act as an anti-predator warning to black rhinoceros. We discuss

Was stimmt denn?

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- *Erzeugen Madenhacker Wunden?* ✔
- *Nützen Madenhacker ihren Wirten?*

Wach-Gemeinschaften

Red Squirrels (*Sciurus vulgaris*) Respond to Alarm Calls of Eurasian Jays (*Garrulus glandarius*)

Ethology **112** (2006) 411–416

Christoph Randler

Stimulus	Comparison of jay alarm calls with songbird stimuli			
	Jay alarm calls	Control (songbirds)	Sign test Wilcoxon Z	p-value
Flight response (no. of individuals)	7	0		0.016
Other activities ($\bar{x} \pm$ SE)				
Time in patch (s)	9.6 ± 1.7	15.0 ± 0	2.366	0.018
Rapid head turnings (n)	1.0 ± 0.3	0.1 ± 0.1	2.019	0.043
Rapid body turnings (n)	0.5 ± 0.2	0.0 ± 0.0	2.214	0.027
Interrupt feeding (s)	1.0 ± 0.3	0.2 ± 0.2	1.823	0.068
Total time vigilant (s)	4.0 ± 0.9	1.2 ± 0.4	2.132	0.033

Wach-Gemeinschaften

Comparing responses of four ungulate species to playbacks of baboon alarm calls

Dawn M. Kitchen · Thore J. Bergman · Dorothy L. Cheney · James R. Nicholson · Robert M. Seyfarth

Anim Cogn
DOI 10.1007/s10071-010-03

	Impala (n = 23)	Tsessebe (n = 20)	Wildebeest (n = 26)	Zebra (n = 28)
Alarm sequences				
Look latency (s)[a]	0.27 ± 0.20	1.10 ± 0.31	7.00 ± 2.99	4.21 ± 2.39
Look duration (s)	15.55 ± 3.06	18.10 ± 1.67	11.00 ± 2.41	11.07 ± 1.83
Move latency (s)[a]	6.46 ± 2.03	16.90 ± 2.73	24.00 ± 1.00	16.64 ± 2.64
Move rate (m/s)	2.46 ± 0.53	0.75 ± 0.29	0.04 ± 0.04	0.64 ± 0.25
PC1b[b]	1.49 ± 0.24	0.45 ± 0.25	−0.60 ± 0.21	0.08 ± 0.26
Contest sequences				
Look latency (s)	0.17 ± 0.17	3.80 ± 2.40	9.08 ± 2.96	7.07 ± 2.12
Look duration (s)	14.33 ± 2.60	15.80 ± 2.98	10.15 ± 2.39	8.71 ± 1.51
Move latency (s)	18.08 ± 1.13	22.90 ± 2.10	24.00 ± 1.00	23.43 ± 0.89
Move rate (m/s)	1.18 ± 0.32	0.10 ± 0.10	0.08 ± 0.08	0.26 ± 0.12
PC1b	0.46 ± 0.15	−0.25 ± 0.23	−0.70 ± 0.22	−0.57 ± 0.16
Average difference between alarm and contest PC1b scores				
	1.03	0.70	0.10	0.65

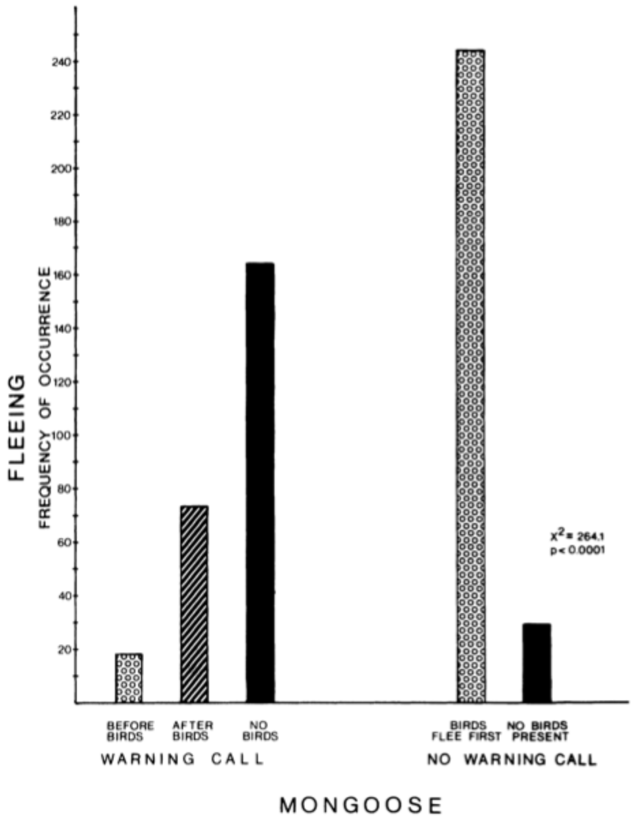
Wach-Gemeinschaften

Dwarf Mongoose and Hornbill Mutualism in the Taru Desert, Kenya

Behav Ecol Sociobiol (1983) 12:181–190

O. Anne E. Rasa

Both mongooses and birds warn vocally and flee when a raptor is sighted. The mongooses modify their guarding behaviour to compensate for the warning behaviour of the birds in two ways: (a) fewer mongooses guard when large numbers of birds are present and vice versa, (b) the frequency of the mongooses' intraspecific warning calls is significantly reduced in cases where birds are present in comparison with those where they are absent.

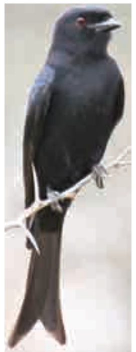


Wach-Gemeinschaften

The presence of an avian co-forager reduces vigilance in a cooperative mammal

Lynda L. Sharpe[1,2,*], Abigail S. Joustra[1] and Michael I. Cherry[1]

Biol. Lett. (2010) **6**, 475–477



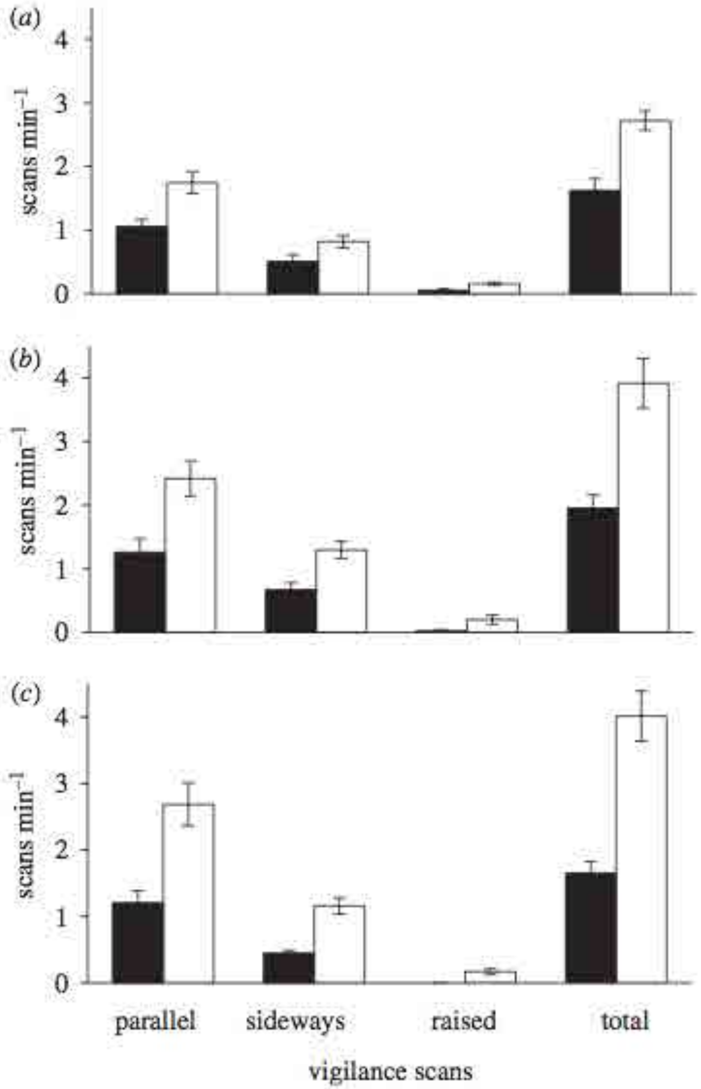


Figure 1. Frequency of vigilance scanning by foraging dwarf mongooses: (*a*) in the presence (black bars) and absence (white bars) of fork-tailed drongos; (*b*) during the playback of fork-tailed drongo non-alarm calls (black) and mongoose 'contact calls' (white); and (*c*) during the playback of fork-tailed drongo (black) and white-bellied sunbird (white) non-alarm calls. Error bars show s.e. (*a*) Parallel scans: $t_7 =$

Wach-Gemeinschaften

Dwarf Mongoose and Hornbill Mutualism in the Taru Desert, Kenya

Behav Ecol Sociobiol (1983) 12:181–190

O. Anne E. Rasa

In addition, the birds also warn for raptor species which do not predate them but which are mongoose predators, not, however, for raptors which are not mongoose predators.

Wach-Gemeinschaften

The presence of an avian co-forager reduces vigilance in a cooperative mammal

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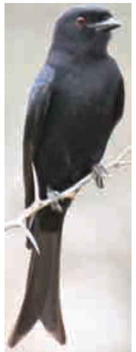
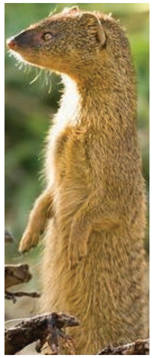




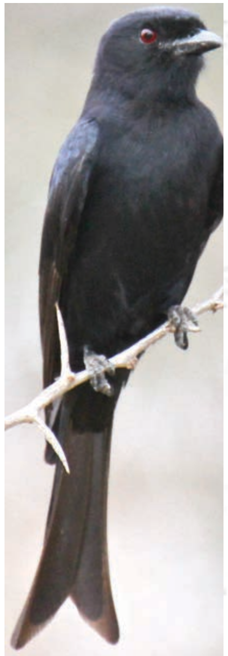
we observed drongos assisting the mongooses to mob puff adders (*Bitis arietans*) and an African civet (*Civettictis civetta*), neither of which poses a threat to drongos.

Wach-Gemeinschaften

Interspecific audience effects on the alarm-calling behaviour of a kleptoparasitic bird

Amanda R. Ridley[1,*], Matthew F. Child[1] and Matthew B. V. Bell[2]

Biol. Lett. (2007) 3, 589–591



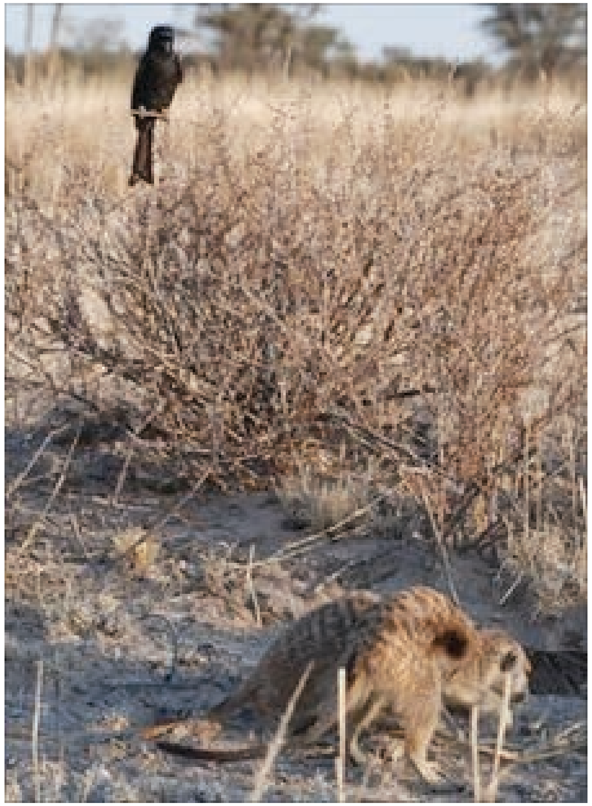
	foraging mode	
	solitary	kleptoparasitic
proportion of observation time spent foraging		
aerial and terrestrial foraging combined	0.83 (0.03)	0.49 (0.07)
terrestrial foraging only	0.05 (0.01)	0.04 (0.02)
average perch height (m)	4.28 (0.56)	3.70 (0.32)
proportion of observation time spent vigilant	0.06 (0.02)	0.38 (0.07)
alarm calls given/total predator sightings		
aerial predators	0.92 (0.14)	0.95 (0.15)
terrestrial predators	0.06 (0.19)	0.87 (0.15)
average mass of items caught (g)	0.28 (0.04)	0.72 (0.39)
biomass captured (g) per hour	1.61 (1.40)	3.49 (5.20)

Wach-Gemeinschaften

Fork-tailed drongos use deceptive mimicked alarm calls to steal food

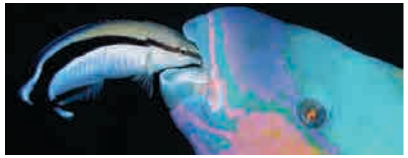
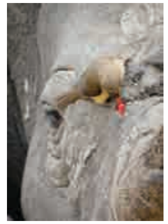
Tom Flower[1,2,*]

Proc. R. Soc. B (2011) 278, 1548–1555

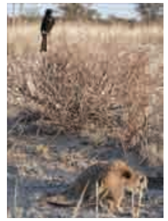


Zusammenfassung

- *Putzsymbiosen vs. Parasitieren*

- *Vigilanzgemeinschaften (z.T. ‘Schutzgeld’)*




- *Jagdgemeinschaften (einseitiges Nutzniessen oder komplementäre Strategien)*



- *Hinweise auf Futter*

Schlussgedanken

Verschiedene Formen der Kooperation bei Tieren

- *erfreuen das Herz (und darum glaubt man sie schnell)*
- *sind selten selbstlos*
- *werfen die immer aktuelle Frage auf, was Menschen von Tieren unterscheidet*

Wenn Tiere Tieren helfen HS 2013

BIOLOGIE UND ERKRANKUNGEN VON WILDTIEREN