

# FSM-TIMES

## Four Striped Mouse



**Title**

**Monogamy in the  
round-eared elephant shrew**



*First Golden Mouse  
award*

**Mouse portrait:  
Female 48**

**Bird portrait: The  
house sparrow**

**Plant portrait:  
Succulent**

*Drosanthemum*

## EDITORIAL

### EDITOR

Dr. Carsten Schradin, Visiting Researcher, School of Animal, Plant and Environmental Sciences, University of the Witwatersrand, Johannesburg, South Africa. Brigitte Britz, Research Station, Goegap.

### ADDRESS

Goegap Nature Reserve, Succulent Karoo Research Station, Private Bag X1, Springbok 8240, South Africa.  
[info@stripedmouse.com](mailto:info@stripedmouse.com)

### HOME PAGE

<http://www.stripedmouse.com>.

### PUBLICATION DATES

The FSM-TIMES is published quarterly, in January, April, July and October. The FSM-TIMES is sent as email-attachment in pdf.

### SUBSCRIPTION AND FEES

To subscribe to the FSM-TIMES, write an email to: [info@stripedmouse.com](mailto:info@stripedmouse.com). In the subject field write "FSM-TIMES subscription". No more text is needed. You will then get the FSM-TIMES four times a year as an email attachment. Subscription to the FSM-TIMES is free of charge. However, we would welcome donations of R 80 (10 Euro, 15 US Dollar) a year to contribute to our research projects at the Succulent Karoo Research Station in South Africa. Larger donations are welcome too. To unsubscribe, write an email to [info@stripedmouse.com](mailto:info@stripedmouse.com), and write in the subject field "CANCEL FSM-TIMES".

### COPYRIGHT AND EXCLUSION OF LIABILITY

All rights reserved. Reproduction in whole or in part without written permission of editor is prohibited. The FSM-TIMES and editor are excluded from any form of liability.

### Advertisement in the FSM-TIMES costs:

**1/8 page: 50 Rand/issue, or 150 Rand for the next 4 issues.**

**1/4 page: 100 Rand/issue, or 300 Rand for the next 4 issues.**

**1/2 page: 200 Rand/issue, or 600 Rand for the next 4 issues.**

**1 page: 300 Rand/issue, or 900 Rand for the next 4 issues.**

### Your advertisement will be:

- 1. Published in the next issue of the FSM-TIMES**
- 2. Translated into German and published in the German version of the FSM-TIMES, the SGM-Spiegel (many of our subscribers are from Germany and Switzerland).**

Your advertisement can be included into our article about holiday in Namaqualand (in English and German) that was published in the 3rd issue of the FSM-TIMES and which is additionally available as html document on our homepage. For an extra payment of R200 (independent on the size of your advertisement) we can include your advertisement into this online article. This extra costs result from extra work to change and reformat this article and necessary changes on the homepage.

CONTENTS OF THIS ISSUE	
3	WELCOME: THE FIFTH ISSUE OF THE FSM-TIMES!
5	NAMAQUALAND-WEATHER
5	THE PEOPLE IN GOEGAP
6	AWARD: THE <i>GOLDEN MOUSE</i>
8	TITLE: Monogamy in the round-eared elephant shrew
14	News and information about plants and animals
14	Mouse Portrait: Female 48
15	Bird Portrait:
16	Plant Portrait:
16	VISITORS
17	CONFERENCES, PRESENTATIONS AND PUBLICATIONS
19	FUNDING OF RESEARCH: CALL FOR DONATIONS
21	THE MOUSE'S TAIL

### Subscribe to the FSM-TIMES

Only 20% of the readers of the FSM-TIMES are also subscribers, although **subscription is free.**

To get the next issue of the FSM-TIMES automatically and free by email, write an email to

[info@stripedmouse.com](mailto:info@stripedmouse.com).

Simply write "FSM-TIMES subscription" into the subject field, no more text is necessary.

## WELCOME: THE FIFTH ISSUE OF THE FSM-TIMES!



Winter in Namaqualand this year was too warm and too dry. Normally we have frost which is quite common in July and August, but somehow this was not the case this

year. There was also very little rain. However, thanks to the intensive rainfall in

autumn, we nevertheless got a good plant cover. That was enough for the mice to multiply. Population density is nearly as high as it was before the severe drought of 2003. The mouse project is going into its fifth year and we get important data regarding social behaviour and organisation under very different ecological conditions. Another focus has been opened by a study on round-eared elephant shrews. We trap and mark them already since 2003, but so far no detailed study has been done on them.

Interestingly, they are monogamous, though no pair-bond exists. The male and female pair rather avoid one another. Also, males do not participate in infant care. So why are they monogamous? Melanie Schubert describes in the title how she will study the possible evolutionary reasons of monogamy in elephant shrews.

In the last 2 months there were two important developments regarding our research in Goegap:

1. An agreement has been signed between the Department of Tourism, Environment and Conservation of the Northern Cape and myself regarding the use of the research station. I can use and develop the research

station for the next 3 years. Afterwards, the agreement has to be extended.

2. I accepted a job offer as researcher at the Department for Animal Behavior at the University of Zurich for the next 6 years.

This means I will spend less time in Goegap, but the projects here will continue for the next 6 years. Thus, there will be many more editions of the FSM-TIMES which I hope you will enjoy.

Kind regards,

*Carsten Schradin*

## THE DIFFERENT PLACES AND LOCATIONS

### **South Africa**

As the name says, it is the most southern country in Africa. South Africa lies at the Cape of Good Hope. The population of South Africa (40 million) consists of black South Africans (e.g. the Zulu) which represent 75% of the population. 12% are white, 8% coloured, and some are Indian, Malaysian or descendents of the San (bushman). South Africa is the only industrialized country in Africa with a very good infrastructure.

### **Succulent karoo**

It describes a special vegetation type. It receives low rainfall in winter and is characterized by dwarf succulent shrubs and an amazing wildflower display in spring. It is a desert to semi-desert environment. Succulent karoo is found in Namaqualand and southern Namibia. In the FSM-TIMES, the words succulent karoo and Namaqualand are often used as synonyms.

### **Namaqualand**

It is situated in the northwest of South Africa, between Cape Town and Namibia. Famous for its wildflower display in spring, Namaqualand was one of the world's most important copper mining areas at the beginning of the 20<sup>th</sup> century. Nowadays the diamond mines are more important. Because of its dry desert like climate, agriculture is mainly absent and population density low. Namaqualand is part of the Northern Cape Province.

### **Springbok**

It is the capital of Namaqualand. Although Springbok has only around 20 000 inhabitants, it has shops for nearly everything, including two well stocked supermarkets. At weekends Springbok is very busy, when all Namaqualanders come here to do their shopping.

### **Goegap Nature Reserve**

Pronounced as "Guchap", this nature reserve lies only 20kms outside of Springbok. In spring it is visited by thousands of tourists that are attracted by its wildflower display. During other times of the year it is very quite and mountain zebra, gemsbok, springbok, aardwolf, mice and mice researchers live in peace.

### **Field Site**

This is the place in nature where the scientist collects his data. So our field site is where we observe the mice

# NAMAQUALAND-WEATHER

by Carsten Schradin

The last three months	July	August	September
Minimum temperatures			
night	4	2	5
day	15	15	16
Maximum temperatures			
night	17	10	18
day	24	25	29
Rainfall in mm	0	4	6.8
Days with rain	0	4	4

*The river in flood*

# THE PEOPLE IN GOEGAP

By Carsten Schradin

Melanie Schubert returned to Goegap in August. She will do a study on the social organisation of round-eared elephant shrews (see title). Otherwise we had several

visitors, from the University of Cape Town and from Germany (see below). Otherwise it was rather quiet in Goegap. The next field assistants are expected in October.

## A WORKING DAY IN GOEGAP IN JULY

By Carsten Schradin

6.00: Get up. It is still dark and the stars are sparkling. A hot cup of coffee, some yoghurt and bacon make a perfect breakfast.

6.30: Start working on a scientific manuscript.

7.15: It is getting light and thus time to set the traps. Luckily the field site is just in front of the door.

7.45: Back at the research station. The captive colony of mice gets their main meal of the day: 4g seed mix for each mouse. The water bottles are filled up and the cages checked. I write down the minimum- and maximum temperature on the veranda, where the mice are kept. Again no rain.

8.00: Work on manuscript.

8.30-10.30: Checking traps. Mice are marked and weighed, their reproductive status is determined. Some mice get radio-collars. Then the traps are turned around-  
10.30: Time for a break.

11.00-12.00: Work on the computer: Manuscripts, data analyses, writing of proposals and reports etc.

12.00: Lunch break: The mice and I get some salad.

12.30-15.00: Work on the computer.

15.00: The traps are set again.

15.30-18.00: Trapping.

18.00: The sleeping sites of the mice are radio-tracked: Who is sleeping where and with whom?

### How to become a field assistant?

Only people with a biological background can become field assistants. These are students of biology, veterinary medicine or related areas. The work of field assistants includes: radio-tracking, trapping and marking of small mammals, behavioural observations, work at the research station, including maintenance, and much more.

People interested in working as a field assistant for 2-3 months find further information under

[www.strippedmouse.com](http://www.strippedmouse.com). For specific questions, write an email to [info@strippedmouse.com](mailto:info@strippedmouse.com)



19.00: Dinner. Afterwards I work on the computer (when I am alone) or we watch a DVD (when Brigi is here).

21.30: Late for the Succulent Karoo, time to go to bed.

## GOLDEN MOUSE AWARDED TO JENS SCHRADIN

By Carsten Schradin

Many people supported our research in Goegap during the last years. The express our gratitude to our main supporters, we decided to award a certificate, the *Golden Mouse* once a year. The choice of the first *Golden Mouse* prize-winner was especially tough, as several persons supported the work in Goegap immensely during the last years. The decision was then made by a

current event: Since May this year thousands of people learned about the striped mouse project via our new homepage.

The *Golden Mouse* was awarded to Jens Schradin on the 15<sup>th</sup> of August in Berlin in recognition of valuable contribution to the striped mouse research in Goegap. Jens designed and materialised our homepage

[www.stripedmouse.com](http://www.stripedmouse.com) and with this promoted our work. Since the homepage went online in May it has been downloaded

more than 10 000 times and the FSM-TIMES has been downloaded more than 1 000 times from the homepage.



*Jens Baron-Schradin (left) receives the Golden Mouse from Dr. C. Schradin*

## HOMEPAGE: STRIPEDMOUSE.COM

### Homepage Statistics

	July	August	September	Total last quarter
Visits to stripedmouse.com	2362	2401	1394	6157
Downloads FSM-TIMES, SGM-Spiegel	394	323	122	839

## MEMORANDUM OF AGREEMENT REGARDING THE USE OF THE RESEARCH STATION SIGNED

By Carsten Schradin

In August a Memorandum of Agreement was signed between the Department of Tourism, Environment and Conservation of the Northern Cape and me regarding the use of the research station in Goegap. A Memorandum of Agreement is similar to a legal contract, only that it is not signed by the Minister, but by the Head of Department. In this Memorandum both parties agreed to keep to the status quo: I can use the research station and develop it, but also have to cover all costs. Other researchers shall be able to use the research station

when possible (i.e. it is not already full with mouse researchers), which will be decided by myself. The Memorandum is valid for three years and will then be extended, if there are no reasons to terminate it. And why should there be? Both parties benefit enormously: We have a nice research station next to our field site and the nature reserve gets a research station for free, with motivated scientists from all over the world using it. At the same time we promote Goegap and Namaqualand, e.g. by the FSM-TIMES!

## TITLE: MONOGAMY IN THE ROUND-EARED ELEPHANT SHREW

*In August Melanie Schubert started to collect data for her PhD thesis in Goegap. Melanie is 25 years old and was born in Saxony – Anhalt, Germany. She studied biology at the University of Bayreuth and received her diploma certificate in March this year. Prof. D. von Holst (Chair of Animal Physiology, Bayreuth) supervised her diploma thesis and will also be her supervisor for her PhD thesis. Furthermore Dr. C. Schradin will supervise her while she is collecting data in the field. In 2002, Miss Schubert assisted Dr. C. Schradin in a project on social flexibility in the striped mouse. Moreover, she returned to conduct her diploma thesis on female reproductive strategies in 2004. Now Melanie will investigate the life history in the round – eared elephant shrew with special reference to monogamy. Here she presents the main aims of her PhD thesis.*

What are you associating with the word monogamy? Never ending love? A bond of faithfulness, which can only be separated by death? Two kindred souls laying their lives in each others hands with God as witness? Or just a “simple” means to an end for producing infants? Clearly this word allows numerous possibilities for interpretation going along with our imaginations and

ideals. In the “dry” biological point of view monogamy is defined as a pair containing only one reproductive male and female at a time. Furthermore monogamous relationships might last only shortly (for example one breeding season) or they can be distinguished by a long term component (for example individuals stay together a lifelong). However the situation gets even



more “explosive” by scrutinizing the causes and consequences of monogamous relationships closely. Why are animals and human beings monogamous? In the *Homo sapiens* the kind of marriage, mono – or polygamous, is certainly influenced by cultural, economical, political and last but not least religious pressures. So it appears that monogamy is only found in the minority of human societies, whereas polygamy is quite popular. This phenomenon is explained by the power and wealth of males by many scientists. Indeed, rich and powerful men often have more than one wife. These women might ensure a better economical situation for themselves and their offspring in a polygamous marriage,

compared to being the first and only wife of a pauper. Thus monogamy is denounced as the marriage for the poor, the bad and the ugly in most cultures. In the course of democratisation in the Western Nations, men obtained equal rights, meaning that everybody had the right to marry a woman. And the marriage was embroidered with romance following the motto: I can't give you anything but love... .

### Monogamous Animals



*Humans at a civil wedding*



*Titi-monkey from South America.*



*Ring dove..*



*Discus fish.*

Since the early eighteenth century humans are fascinated by “monogamous animal marriages”. Unfortunately human ideals were interpreted in these relationships frequently leading to misunderstandings. Nowadays researchers try to find the true reasons for the evolution of monogamy. Above all special emphasis is given to three hypotheses: 1) parental care, 2) distribution of females and 3) mate choice. Parental care is found in fishes, birds as well as in mammals and its occurrence appeared to be essential for the survival probabilities of the offspring. However this form of care giving behaviour is not present in many monogamous living mammals. Here females have to cope with the rearing of the pups alone, without any help from the father. The second idea explaining the evolution of monogamy is the female dispersion hypothesis. Females might live scattered distributed, because of unprofitable resource qualities. Therefore males might not be able to claim more than one female for themselves. This thought is based on the males’ inability to monopolize several females, which live solitary and range independently from each other. In this connection males might pursue a mate guarding strategy: To reproductively dominate a female, males guard their partners during the susceptible time and thus ensure their mating success.

### **Monogamy in the round – eared elephant shrew**

The elephant shrews (also called sengis) are the only family within the Mammalia



*The habitat of the round-eared elephant shrew in Goegap..*

group, where all species are known to be monogamous. However, the reasons for this reproductive behavior are unknown so far. Males do not provide paternal care. Thus, in my thesis, special emphasis will be given to the second hypothesis. I will study whether mate guarding can explain monogamy in the round – eared elephant shrew, *Macroscelides proboscideus*. This species has a body mass of 40g and is one of the smallest sengis and endemic to southern Africa. Here it is found in arid areas such as deserts and semi – deserts, savannas, steppe and bush land. These territorial and monogamous living mammals are active during day and night time. A female sengi can have up to three litters during one breeding season. The pups, normally twins, are born after a gestation period of approximately eight weeks. The young are weaned at the age of four weeks and leave their natal territory thereafter. In the seventies *M. proboscideus* had already been studied by the German zoologist Sauer in Namibia. But in those days modern techniques, like radio tracking were not available. Furthermore the sengis were not individually marked in the former study. Whereas the research in Namibia was conducted in a desert with sporadic summer rain, this study will be realized in a semi – desert with rain during winter time. Thus a significant geographic difference regarding the ecology is obvious.



*A round-eared elephant shrew in its natural habitat.*



*The furry sengis lie nicely in the hand. One can recognize the long nose where it got its other name "elephant shrew" from.*



*The rock elephant shrew is another sengi species that occurs in Goegap.*

Since only spatial data on the life history of free – ranging round – eared elephant shrews exists, one aim of this research will be a detailed documentation regarding the social structure and the reproductive behavior as well as ecological factors such as habitat preference, population structure and density. This will be performed during the first year. In the second and third year it will be tested whether monogamy can be regarded as a mate guarding strategy of male round – eared elephant shrews. The following approaches will be used: (1.) The spatial distance of males to their females and the distances of both partners to neighboring sengis will be investigated when a) females elephant shrews are susceptible and b) non – susceptible. (2.) A series of

individual manipulation experiments will be carried out. These experiments will include the confrontation of strange males within the territories of other males, which will lead to high intra – sexual aggression. Furthermore males will be temporarily removed from their home ranges to see whether other neighboring male sengis will take over the area including the female. Therefore the mating system will change from mono – to polygamy. (3) Paternity will be determined by using DNA analyses. This will clarify, if sengis are cheaters or if they remain faithful to each other. (4.) Comparison of data from an area, which is distinguished by a low population density with a field site characteristic for a high sengi density.



*A basking sengi.*



*A cooperating sengi that weighs itself.*

Why do round – eared elephant shrews live in monogamous pairs? We already know that male elephant shrews do not exhibit direct paternal care. Furthermore the male and the female of one pair mostly keep a social distance to each other resulting in a very weak pair bond. They do not participate in allo – grooming and prefer to rest alone in a shelter. At the end of this study we will hopefully know, if the mate guarding strategy of males is the major reason regarding the evolution of monogamy in

sengis. But then the next question already turns up: Why do females accept this manly jealousy instead of waiting for the man of their dreams? Maybe it is similar like in humans: The man of dreams is only an illusion.... .



**Call for sponsors for Transmitters:** Melanie will equip a total of 16 sengi pairs with transmitters at two field sites in Goegap. Using radio-telemetry she will be able to study the spatial organization, home range sizes and overlap and male-female associations of pairs. For this she needs at least 8 pairs of transmitter- One pair transmitter costs Euro 275 (370 dollar; R2000). We are thus searching for 8 sponsors, one for each pair. Each sponsor will cover the cost of one pair of transmitters. Every study pair will get the name of the sponsor or a name chosen by the sponsor.

If you would like to sponsor a pair, please write an email to: [info@stripedmouse.com](mailto:info@stripedmouse.com)!

## Namaqua Game Lodge



Namaqua Game Lodge is situated next to the N7 25kms south of Springbok. The Game Lodge offers peaceful and secure accommodation as well as camping facilities, 4x4 trails and safe hiking for the tourist. Seven luxury en-suite rooms are available with morning coffee/ tea facilities as well a fridge and private entrance from the courtyard. Breakfast is served in the main dining room and well prepared home cooked traditional food is available on request. Game includes gemsbok, springbok, eland, and ostrich on 5000ha. For the explorer we also have to offer a day in the life of a shepherd; if anyone is interested in walking the trails of the Damara, the oldest herders in Africa. We have cut Namaqualand diamonds for sale at a price you can afford. Every stone comes with an international certificate. A diamond is a gift from South Africa.

Namaqua Game Lodge, Lynnette & Dirk.

Tel: + 27 27 718 1268

Fax: + 27 27 718 2873

Cell: +27 82 552 3354

Email: namgam@isat.co.za

PO Box 880, Springbok, 8240, RSA.

## Goegap Nature Reserve

Accommodation: Guesthouse, bush hut, camp site.

Tel: +27 27 7121880

Fax: +27 277181286

### Subscribe to the FSM-TIMES

Only 20% of the readers of the FSM-TIMES are also subscribers, although **subscription is free.**

To get the next issue of the FSM-TIMES automatically and free by email, write an email to

[info@stripedmouse.com](mailto:info@stripedmouse.com).

Simply write "FSM-TIMES subscription" into the subject field, no more text is necessary.

## NEWS AND INFORMATION ABOUT PLANTS AND ANIMALS

### MOUSE PORTRAIT FEMALE 48

*By Carsten Schradin*

<b>Mother:</b> ?	<b>Father:</b> ?
<b>Date of birth:</b> 2002, first trapped in 2003	<b>Date of death:</b> End December 2004
<b>Age:</b> 2 years	<b>Cause of death:</b> unknown, disappeared
<b>Partners 2003:</b> Sept/Oct: M27; Nov/Dec: M171	<b>Partners 2004:</b> M415, M115, M421, M413, M423, M437
<b>Children 2003:</b> 7 daughters, 10 sons. <b>Children 2004:</b> 4 daughters, 11 sons.	<b>Grand-children:</b> At least 12

**F: Female, M: Male**

Two things characterized F48: She was fat and she nested at a place very convenient for mice, but very inconvenient for researchers. But I do not want to put her down: When I trapped her for the first time in August 2003, she was anything but fat. Her body weight was skinny 31g. Not much for an adult striped mouse which normally weighs way over 40g. F48 was starving. She was one of the very few mice that survived the devastating winter drought of the year 2003. That she was a tough one was demonstrated in spring 2003, when she got more pups than nearly any other female. And she was the only one that survived until the next spring, when she had more offspring in 2004. She was the fattest and oldest matriarch ever at our field site in Goegap. After the drought she had doubled her body weight to 70g in the late spring of

2003, but lost weight to 50g during the following dry season in May. But still she was the fattest mouse around and still in very good body condition for the season. Next spring, in November 2004, she reached her top weight with 76g. Her high body weight might explain why she had such a large territory: As the biggest female around, she probably could bully all females of neighboring groups.

The nesting site of F48 was also special. Normally mice nest in shrubs that can be easily observed by us, such that we know who is in the group by simply observing who enters and leaves the shrub. However, F48 nested in a large reed field in Goegap, half the size of a soccer field. Difficult to observe and to be sure who is in the same group and who is not. Luckily, most group members basked in the morning together at one spot,

and as mice from different groups react highly aggressive towards one another we can be sure they all belonged to the same group.

F48 was reliable when we were trapping. For sure she was in one of the traps. She rather seemed to be annoyed to be chased out of a trap than to be trapped. Actually, I did not really like her: She was fat and

observing her nest was not much fun. Still, when she disappeared in December 2004, something was missing. Where was the fatty that had accompanied me for two years in Goegap, longer than any other mouse? I do not know what happened to her, but her numerous descendents still live in the reed field.

## BIRD PORTRAIT: HOUSE SPARROW (*PASSER DOMESTICUS*)

*By Carsten Schradin*

The house sparrow is found worldwide and thus also in Goegap. However, in the tree-less Namaqualand it is mainly found around houses, as it does not build nests on the ground. Instead, every hole in and gap at a building is used as nesting site. Often to our annoyance, as sparrow shit on our equipment stored on the veranda is not

appreciated. In earlier years this was also a problem for the captive striped mice kept under natural weather conditions on the veranda: The sparrows were sitting on their cages to get some mouse food, and the mice did not like this. Nowadays an expensive canopy keeps the sparrows away from the mice.



*A pair of house sparrows sitting on the fence of the research station (picture: D. Mathee).*

## PLANT PORTRAIT: *DROSANTHEMUM HISPIDUM*

By Carsten Schradin

This spring, Goegap is covered in violet. It is the colour of the flowers of the Mesembryanthemum *Drosanthemum hispidum*. This succulent plant is very common in Goegap. It grows all year round and readily flowers as soon as rain fall. Thus, its flowers cannot only be seen in

spring, but also during other times of the year, taken that it did rain. This succulent stores water in its leaves, which are round to cylindrical and covered by a thick cuticle. It is also eaten by the striped mice and serves as an important food source during the dry season, when other plants are not available.



## VISITORS

By Carsten Schradin

In July, beginning and middle of September, Ndafuda Shiponeni from the University of Cape Town visited the research station. Ndafuda studies the distribution of grasses

in Namaqualand. Middle of September a group of 5 biologists and geologists from southern Germany visited the research station to learn more about our projects.



# CONFERENCES, PRESENTATIONS AND PUBLICATIONS

By Carsten Schradin

## CONFERENCES: INTERNATIONAL ETHOLOGICAL CONFERENCE IN BUDAPEST

By Carsten Schradin

In August I visited the International conference of scientists working in the field of animal behavior in Budapest. I presented a talk about paternal care in the striped mouse which – I think – went quite well. Most important was of course to meet colleagues during coffee breaks, lunch, or in

the evening in the pub. Altogether it was a successful event and I got some good ideas on how to analyze demographic data of our study populations by discussions with Cornelia Kraus (Max Planck Institute Rostock) and Heiko Rödel (University of Bayreuth).

Abstract: Paternal care in the African striped mouse: a flexible and adaptive strategy  
Schradin, C. & Pillay, N. Presented at the International Ethological Conference in Budapest

Male parental care is rare in mammals, but occurs in several rodent species. We observed high levels of paternal care in captive striped mice (*Rhabdomys pumilio*) from two populations - moist grasslands and arid succulent karoo in South Africa. However, previous field studies by other researchers in grasslands had revealed no indication for paternal care, but a solitary lifestyle. Our results from captivity might thus be either artifacts observed under artificial conditions in captivity or male parental care might be a flexible strategy shown only under specific environmental conditions. Our field studies using telemetry and direct behavioral observations revealed that males in the succulent karoo show paternal care, while males in the grasslands do not. Experiments under semi-natural conditions revealed that paternal care leads to better offspring development in the succulent karoo, but not in grasslands. The reasons for these differences are differences in nocturnal temperatures, with nights being colder in the succulent karoo, such that the presence of the father as second care-taker helps warm the pups. Apart from environmental differences, demographic differences also influence the occurrence of paternal care. Population density in grasslands is low, females live alone and males follow a roaming strategy, visiting several females, without showing paternal care. Population density in the succulent karoo is high and females live in communal groups which are defended by single males which participate in parental care. After a severe drought, the population density in the succulent karoo decreased dramatically. As a result, the social system changed from group living to solitary living as in grasslands, with males following a roaming strategy without showing paternal care. In conclusion, male striped mice can either follow a roaming or a group living/ paternal care strategy. The strategy followed is determined by environmental, demographic and social factors.

## PUBLICATIONS

A new paper has been published in September (available under [www.strippedmouse.com](http://www.strippedmouse.com)):

Schradin, C. 2005. Nest-site competition in two diurnal rodents from the Succulent Karoo of South Africa. *Journal of Mammalogy* 86: 757-762.

Species that occupy the same area and use the same resources either have to compete with each other or find ways how to minimize competition. For rodents, one important resource is nesting sites. In this study I present data from direct behavioral observations in the succulent karoo of South Africa that show aggressive interactions between bush karoo rats (*Otomys unisulcatus*) and striped mice (*Rhabdomys pumilio*). As both species nests in shrubs, it creates the potential for interspecific competition for nesting sites. Because of a severe drought in 2003, the bush karoo rat became locally extirpated. As a result, striped mice nested significantly more often in shrubs that contained bush karoo rat nests, than in 2001 and 2002 when the population density of bush karoo rats was high. Furthermore, I observed that mice never nested in shrubs of the species *Lycium cinerum*, the favorite nesting site of bush karoo rats, when bush karoo rats were present, but regularly used these nesting sites after bush karoo rats became extirpated. I conclude that striped mice and bush karoo rats compete actively for access to preferred nesting sites in the succulent karoo.

## DIPLOMA THESES

Available under [www.strippedmouse.com](http://www.strippedmouse.com):

Schubert, M. 2005. Female Reproductive Strategies in the Striped Mouse (*Rhabdomys pumilio*): Communal versus singular breeders. Diploma thesis, University of Bayreuth, Germany.

Communal breeding in rodents has been intensely studied in the past. Most studies suggested benefits of communal breeding, which result in a greater lifetime reproductive success and a decline of costs in regard to female's bodily condition. However most of these studies had one problem in common: Individuals were paired compulsory, which does not reflect the natural situation. For this reason in the present study an experimental design was created which allowed females of the striped mouse (*Rhabdomys pumilio*) to choose between nesting communally in one of two connected tanks or to nest solitary, each female in one of the two tanks. Furthermore, communal breeding was investigated in free living female *Rhabdomys pumilio* at a field site in South Africa. The thesis gave special emphasis to the individual reproductive success of females sharing a nest communally and those which nested alone. Furthermore paternal and allo-paternal behaviour of different adult individuals was investigated in the captive study. Data were collected by observations, radio-tracking and measurements of pup development.

Results of the field and captive study indicate that communal nesting females do not have benefits in regard to higher reproductive success in comparison to singular breeding females. However an asymmetrical distribution of individual reproductive success within communal nests appeared. Free living females giving birth first during the breeding season had significantly more litters and mortality rates of pups were reduced in comparison to their nest-mates. In captivity, all adult members of a communal nest participated in the rearing of offspring. In the field, females of a communal nest gave birth synchronized. However, most communally nesting females in the field left their original nest to deliver their offspring in temporary nesting sites and then returned with their pups several days later before weaning. Only a few female mice founded new groups. In comparison with data of the same wild population from the years 2003 and 2002 it seems that population density and reproductive competition between individuals sharing one nest are the major determinants of breeding strategies of female *Rhabdomys pumilio*.

# FUNDING OF RESEARCH: CALL FOR DONATIONS

## SUBSCRIBERS DONATION

We appeal to all subscribers of the FSM-TIMES to donate 80 Rand (10 Euro, 15 dollars) a year for research on the socio-ecology of small mammals in Goegap. Donations of more than 80 Rand are welcome and donors of 400 Rand (50 Euro, 75 dollars) will be mentioned in the next FSM-TIMES.

Donations will be used for the following purposes:

Scientific research on small mammals in Goegap, especially smaller research projects such as Diploma and PhD theses, which have difficulties in raising funds elsewhere. Improving the infrastructure of the research Station.

Running costs of the research station. In the last issue of the FSM-TIMES of every year we will publish how much we received in donations and how the money was used.

Account details for donations  
Please state "L.2112" as reference on all deposits and cheques.

### South Africa

Standard Bank  
Branch: Braamfontein  
Account name: Wits University  
Foundation  
Account No.: 002900076  
Branch code: 004805  
Swift code: SB ZAZ AJJ 00480502

**Please state L.2112 as reference.**

### Germany

Carsten Schradin, KSK Esslingen,  
BLZ 611 500 20, Konto Nr. 7434686

### Switzerland

Carsten Schradin, ZKB, Konto Nr.  
117-0028.726.

## Acknowledgements

We are very grateful to the following people who donated and whose assistance contributed to the continuation of our research project.

### Donations of Euro 50 - 100 (Rand 400 - 800):

Group Herdtfelder, Baden-Württemberg, Germany.

## SPONSORS

Sponsors for larger amounts of money are wanted for several projects:

### **1. PhD thesis: Monogamy of round-eared elephant shrews:**

8 pairs shall be equipped with radio transmitters. For each pair a sponsor for transmitters is wanted. Costs: Euro 275 (370 dollar; R2000)

### **2. Sponsor for solar system:**

A solar system is needed to provide reliable energy to the research station.  
Costs: Euro 5 000 (R38 000, Dollar 6 250)

### **3. Sponsor for the development of the research station:**

Funding is needed to renovate the research station and to build additional student accommodation.  
Costs: Euro 12 000 (R90 000, Dollar 15 000).

### **4. Car sponsor**

A spacious car that can deal with rough roads, but without four-wheel drive, would be of great advantage for the research station. A Toyota Condor would be a good solution.  
Costs: Euro 33 000 (R250 000, Dollar 42 000).

For further information or if you would like to become a sponsor, please write an email to: [info@stripedmouse.com](mailto:info@stripedmouse.com)

# THE MOUSE'S TAIL

## JACKAL

I was sitting at B18, my favorite mouse group, to observe them in the afternoon, when an unexpected guest arrived: A jackal was walking around the mouse nest, not more than 10m away from me, obviously not realizing that I was there. At least some

proof how quiet I did my behavioral observations. However, I did not appreciate that guy who had an appetite for my study subjects, and a little movement by myself made the jackal run away like a little flash!

## COMPOST HEAP

Since beginning of this year we have a compost heap at the research station. All organic waste of the station ends here, especially the bedding of the captive striped mouse colony. By this we were able to reduce the number of full rubbish bags per week dramatically. In July, a wonderful

sunflower was growing on the compost, obviously emerging from a seed forgotten by the mice. Of course the flower was "recycled" and the mice got it as dinner. Two old tires filled with compost and several sunflower seeds are an attempt to repeat this in the future.

## SHREWS

When I came the first time to Goegap in March 2001, we also trapped a shrew. However, since then no other shrew went into the traps. Maybe the drought of 2003 made this species locally extinct. This

September Melanie found a shrew in one of her traps. We have no idea where it came from, but the traps were close to the dry riverbed. Maybe this works as an immigration strip for locally extinct species.

## COMING UP IN THE NEXT FSM-TIMES

We will publish the statement of the FSM-TIMES: How many donations did we get, what happened to the money?

## SGM-SPIEGEL

The FSM-TIMES is also published in German, as the SGM-SPIEGEL. If you want to receive the German version, write an email to: [info@stripedmouse.com](mailto:info@stripedmouse.com), please write „SGM-SPIEGEL Abo“ in the subject of your email