

FSM-TIMES

FourStripedMouse



Title:
The Bush Karoo Rat



Reports by field assistants

Mouse portrait: Female 406

Bird portrait: Spotted eagle owl

Plant portrait: BKR-shrub *Lycium cinereum*

New: Insect portrait: The monarch butterfly

**Award of the German Society of Mammalogy to
Dr. C. Schadin**

EDITORIAL

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WELCOME TO THE SEVENTH ISSUE OF THE FSM-TIMES!

This is the seventh issue of our newsletter and many things changed in the last few months. I started a new position at the University of Zurich and thus left Goegap for Switzerland. But I will continue my work in Goegap and at the moment I am very busy preparing my next trip to Goegap in July. In the meantime, Melanie Schubert is managing the research station. Stella and Julian continued collecting data for the striped mouse project and Melanie is

working hard on her PhD. So things are going well in Goegap and with my new position the mouse research there will go on for many years.

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 20th 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 lays 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

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NAMAQUALAND-WEATHER

By Melanie Schubert

The last 3 months	January	February	March
Minimum temperatures			
night	11	18	11
day	29	29	24
Maximum temperatures			
night	27	26	22
day	40	39	34
Rainfall in mm	26.0	5.3	0
Days with rain	5	2	0

THE PEOPLE IN GOEGAP

By Melanie Schubert

The average age of people living at the research station went dramatically down in the last three months: This is because Carsten and Brigitte dispersed to Switzerland. Left behind were Stella, Julian, and I. The two students from Cologne spent their time with the striped mouse project. However, since this will be the last days for both of them, they already show signs of

melancholy when facing their day of departure. I was on my nocturnal excursions as usual; collecting data for the elephant shrew project. In march a new students arrived: Eva Jirka a biologist from the University of Münster. Eva will help me with the sengi project and stays for two months.

MEETING IN GOEGAP

By Melanie Schubert

At the end of March a meeting of all reserve managers from the Northern Cape Province was organized in Goegap. The managers discussed new plans for a better

management of the reserves, better education of the public and enlargements of the nature reserves.

BACK IN THE COLD

By Carsten Schradin

After 4 ½ years in South Africa I came back to Zurich the 2nd of January. It was not as cold as I had feared, but it was soon going to get much colder. However, even when it was -10°C I felt less cold than I sometimes did in Goegap. Central heating is working fine here and one feels very comfortable inside. In contrast, there is no heating in Goegap. This means when we have -2°C during winter nights in Goegap, it is only 8°C in the sleeping room and 12°C during the day in the house. This is when you learn what “cold” means, and we learnt this much easier in Africa than in Europe. I got a position as research assistant at the Department of Animal Behavior, University of Zurich. This is mainly a research position and I got it to continue my striped mouse project in Goegap. Being based in Zurich, I have many more opportunities to raise funding for the project. In future I hope to get

funding for two PhD students working in Goegap. I will also come every year to Goegap for several months in spring, the breeding season of the striped mice. Also, I got equipment for a hormone laboratory in Zurich and in future our projects will focus on the hormonal regulation of social behavior and social flexibility in striped mice. I had done my PhD thesis in Zurich in 2001 and thus coming to Zurich was a little bit like coming home. I still have several good friends here and know the university well. When Brigi arrived in middle of February, I was not missing anything anymore. But of course Brigi and I are sometimes homesick and we miss Namaqualand. Luckily, in July we will be going back there for a few months. I am happy that I had found a good job in Zurich that gives me the best possible working conditions and allows me to come home at least twice a year: In January to Zurich and in July to Goegap!

ANIMALS OF THE WEEK

By Stella Miranda Treffler

Today I would like to tell you which animals you might meet during an ordinary week in Goegap Nature Reserve. We, Julian and I, the two field assistants of the research station at the time, ones more radio-tracked the mice to determine their home ranges. I had just found one mouse and concentrated on my receiver to put in the next frequency. Unfortunately, while doing that I did not watch my step. I realized nearly too late that I was walking towards a black spitting cobra (*Naja nigricollis*). The snake was crossing the dry riverbed with his head raised and an opened shield. Scared I watched this elegant, but very dangerous animal creeping into the next shrub. Julian saw it a few minutes later while it was changing its hiding place. On one of the next rounds, I stumbled on another snake. This one was much smaller, maybe about half a meter. I guess it was a stripe-bellied sand snake (*Psammophis subtaeniatus*) or a short-snouted grass snake (*Psammophis brevirostris*). In contrast

to the cobra they are not dangerous for humans. After we finished our work we met a Namaqua rock mouse (*Aethomys namaquensis*) in the kitchen. It moved cheerfully over our plates and pots and was only disturbed by the flashing light of my camera. This nocturnal animal took the time to inspect the whole kitchen, before it finally decided to go into a mousetrap. Thursday night we saw a bat in the bathroom. We forgot to close the bathroom door the last time we went there. After it had fluttered around a few minutes, it hung from the ceiling and allowed us to take some photographs. After that it remembered where the exit was. But the most spectacular guest that visited us arrived on Friday night. It was a bright yellow Cape cobra (*Naja nivea*), the most poisonous snake of Namaqualand, comparable to a black mamba. The mouse-room is part of the veranda, where eleven striped mice groups live in cages. We were

already in bed, but as our room is next to the mice-room, we could hear some noises in the mouse room, almost like mice running mad in the cages. Julian stood up and went there to have a look. After a short time he shouted, "There is a cape cobra in the mouse-room!" He seemed shocked.

I jumped in my shoes, fetched my torch and ran to him. There we stood, staring at the cobra, which throned on a cage (she could not enter them) and stared back at us. We did nothing, for we did not know what to do. We were fascinated and scared. The snake decided to creep away, but hesitated behind a cage at the opposite wall. We agreed at that time that the dangerous animal should not escape, because otherwise it would visit us again and again.

So we tried to be brave and went in the mouse room. We pushed the cages on both sides of the hidden snake to the wall, so there was no space to escape. Then we put some wooden boards over the cage where the snake was hiding and fixed everything with stones.

Maybe there was no need for that, but we thought we would sleep better.

Of course we both dreamed of the snake. The next morning Johann, the husband of Maxie the reserve manager, his son and Melanie were there. We showed them our unwanted visitor and they promised to help us. They came back later with some equipment to remove the big cobra and released it far, far away from us. Now that was good luck!

In addition I would like to mention the Hartmann's mountain zebra (*Equus zebra hartmannae*) that we saw after our nest observation one morning. Unfortunately, it ran away quickly.

I also spotted two jackals (*Canis mesomelas*) one morning on my way to the

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 write an email to info@stripedmouse.com. Please write a short motivation and attach a CV. You will then obtain more information.



nest observation. The jackals were not too pleased with my presence. I guess they were searching for some mice in the riverbed, During the last weeks we saw several times some chacma baboons (*Papio cynocephalus ursinus*), that live here. You can hear them quite often, especially in the morning hours. Unfortunately you nearly always need binoculars to watch them. Many insects, spiders, reptiles, birds, antelopes and different small mammals are also seen every day, but we already got used to them. Nevertheless, we enjoy the lively nature around us.



The extremely poisonous Cape cobra likes also bush Karoo rats for dinner (see below)

REVIEW

By Julian Brenner & Stella Miranda Treffler

When writing this review, we have been almost five months here in Goegap. It was a nice but also hard time. And for the sixth we don't expect anything different.

In October we took a plane to the South: Frankfurt am Main → Cape Town, then by bus to Springbok. We arrived in Springbok at 2 am, so we spent our first hours at one of Springbok's gas stations. In the morning we finally reached Goegap. It was October the 7th. Carsten and Melanie were waiting for us at the research station. In the first weeks we learnt how to manage our assignments. After we completed the first part of our project – to study the influence of various factors on the home range size of female striped mice – a short vacancy was a nice and adventurous change. We visited Augrabies National Park and Kalahari Gemsbok National Park. It was very hot in

the Kalahari, which was quite in contrast to the previous months in Goegap where we wished we had taken along a wooly hat or some other warm clothes.

The next months we were busy trapping and tagging mice at the field-site, observe their nesting site and enter our project data in the computer and to interpret it. From day to day the work made us sweat – what was more due to the increasing heat than to the work. In spite of the high temperatures and the great distance to our families in Germany we developed Christmas feelings and baked biscuits –some of them were even eatable. When something didn't work out we had to question Carsten, until December that was. Then he left the research station to start his new job at the University of Zurich. Shortly afterwards, Melanie moved out and was only present while working, which

means during the night, when she radio-tracked her elephant shrews.

From end of January to mid-February the research station was renovated. The roof got a new insulation and the kitchen was painted yellow, Carsten's and Brigitte's living and work room baby-blue. After that Brigitte followed her husband and left the research station (though we do not think this was due to the baby blue colour).

For a few weeks we were alone at the research station until Eva and Britta came to help Melanie with her work in the field. The new field-assistants arrived in February and lived in Melanie's previous room. Now we took up again with the every-Saturday-braai, what we had cancelled when we were alone. But Britta couldn't be kept from leaving. For her it was too much work. So we were only three remaining, but we had more place in the fridge.

The weather became a bit colder so that we could use our wooly hats we had got in the meantime.

Although we become more and more impatient to see our family, friends and fresh German rolls again, it is a pity to leave in a short time. But the time went by and it was worthwhile.

Though we devoted ourselves to the striped mice we also met a lot of other animals: African wild cat, gemsbok, springbok, ostrich, steenbok, klipspringer, black-backed jackal, aardwolf, aardvark, Hartmann's mountain zebra, elephant shrews, Namaqua rock mouse, pygmy mouse and bush Karoo rat, owls and buzzards, puffadder, black-spitting cobra and Cape cobra, blind snakes, sand and grass snake, lizards, geckos, agamas and a lot of insects and birds. And in the Kalahari were a lot more of "true" African animals like lions, hyenas, giraffes, vultures and eagles...

The pure nature in front of your house we will miss for sure, but who knows? Perhaps, we'll be back.

Goegap Nature Reserve

Accommodation: Guesthouse, bush hut, camp site.

4x4 routes, tourist route for all cars, two hiking trails.

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By Carsten Schradin

Our homepage was again visited several thousand times the last three months. Our email newsletter was very popular: 1 851 copies of different issues of the SGM-

Spiegel and the FSM-TIMES were downloaded. This shows how extremely successful our newsletter is and makes us very proud.

Homepage Statistics

	January	February	March	Total last quarter
Visits of stripedmouse.com	1336	1467	2139	4 942
Downloads FSM-TIMES, SGM-Spiegel	614	582	655	1 851

TITLE: THE BUSH KAROO RAT

By Julian Brenner

There are a lot of bush Karoo-rats at our field-site, and even one in our "garden" at the research station. We tagged them too, for studies which might be done by diploma-students in the future. Tagging them is a bit more difficult than tagging striped mice as they are bigger and also stronger. This also explains why striped mice are often chased away from bush karoo rats' nests. Striped mice and bush Karoo rats often compete for nesting sites and both appear to prefer the shrubs of the genus *Lycium*. Previously, striped mice only occasionally used bush Karoo rat nests but were often chased away from them by the rats. However, when the rats became locally extinct in 2003 after a severe drought, the mice took over the nests of the rats. This indicates that normally the larger rats monopolize the best nesting

sites. In 2004, when we had more rain, the rats came back, emigrating from a neighboring farm. They did not build new nests but took their nests back from the mice, forcing the mice to nest elsewhere.

Systematics

There are 10 species of *Otomys*, all confined to Africa. Six of them occur in southern Africa. It has been discussed before whether the bush Karoo rats belongs to the genus *Otomys* at all, because its dental characteristics and bull inflation are actually more similar to the whistling rats of the genus *Parotomys*. In any case, bush Karoo rats have nothing to do with the Norwegian rat, but belong to their own sub-family Otomyinae (to whom the whistling rats belong also).



A bush Karoo rat in front of its nest

Description

Although they look like a small teddy with black eyes and hairy round ears there is also an academic description:

O. unisulcatus is a medium-sized rodent. The pelage is long, dense and shaggy. Dorsal it is brown to dark chocolate-brown whereas the hairs are grey at their base and light yellow at their tip. Long pure black hairs interspersed throughout the pelage, especially on the head and back, but not on the flanks. The Peritoneum is white and the hairs are grey at the base and with a buff yellow tip. The head is blunt and has the same color as the back. The eyes do not have an eye-ring. The ears are darkly pigmented, large and rounded, well covered

with hair and partly obscured by hair on cheeks. The fore- and hind feet are white. The tail is moderately long (60% of body size), covered with short bristles and is colored black above and dull white or black below.

The upper incisors have each a single shallow groove towards outer edge; the lower incisors are not grooved. The upper M3 have four laminae and a small circular posterior section; the lower M1 comes with two laminae with a kidney-shaped anterior section.

Bush karoo rats are sexual dimorphic. The males (158mm, 105g) are larger than females (147mm, 87g). The females have four nipples.



Scrubland: the preferred habitat of bush Karoo rats

Habitat & Nesting sites

The bush Karoo rat is found in the bushier regions of the Karoo and Succulent Karoo, particularly along dry watercourses, but excluded from dense riverine thicket. It is particularly associated with thorny shrubs up to about 1.5m in height.

The presence of bush Karoo rats cannot be overlooked because of the extensive, sometimes up to 1.5m high stick lodges, they build inside shrubs. The rats spend a good time of their day carrying little sticks and branches to their nests, making them bigger and bigger. The nests offer protection against harsh climatic conditions and predators. Apart from one main sleeping

nest, each group also has several smaller nests inside their territory to offer protection against predators. When foraging, the way to the next shelter is never far in case the rat has to seek refuge.

High densities of the bush Karoo rat have been recorded, with up to 155 lodges per hectare in suitable habitat. However, each family group may occupy a number of lodges, temporarily abandoning one when the food in the vicinity is exhausted. Lodges are used by successive generations. The bush karoo-rat prefers *Lycium* shrubs as nesting sites, and they feed on the leaves of these shrubs, too.



A dense stick lodge is the nest of a bush Karoo rat



A bush Karoo rat nest in an euphorbia. In the middle a rat runway leads away from the nest to the feeding grounds.



Foraging behavior

The bush Karoo rat is strictly herbivorous, feeding on the leaves and fruits of a wide range of plant species. Over 60 plant species have been recorded in its diet. Succulent plants comprise more than 30% of the diet and provide sufficient water. *Lycium* bushes are heavily utilized due to their leaves and highly hydrated fruits. Few grasses are eaten. The nature of the herbivorous diet is of key importance to survival within semi-arid areas and to the diversity of plants. They may feed more on dominant plant species and so make place for rare plants.

Between lodges and food plants are foraging pathways. On average they do not travel more than 5m from the lodges. Individuals forage alone but sometimes they are foraging in a group of up to eight individuals. They carry back cropped material to a shrub or lodge, which gives them cover while eating.

Social and Reproductive behavior

A lodge may be home for up to eight rats. The exact nature of the relationship between the individuals is not understood. However, inhabitants of one single lodge probably represent a family group comprising of one adult pair with their offspring. The interactions between the individuals of one group appear to be amicable. Males show ritualized aggression. However, direct aggression, often resulting in fatal wounds is only recorded between individuals of different lodges.

The breeding season in Namaqualand occurs in the spring, following the winter rainfalls. In other regions it is also correlated with rainfall, though in the Karoo this occurs in summer and so does the breeding season.

Litters normally comprise of 1-3 pups. The juveniles become reproductively active at an age of 5-6 weeks.

When in distress (e.g., when tagging them) they squeak in a high pitch that is more uncomfortable for human ears than the squeaks of the striped mice. Probably they have ultrasonic vocalization.



A female bush Karoo rat with her offspring.

Adaptations

The bush Karoo rats are diurnal and crepuscular. At our field-site they normally become active earlier than the striped mice. Perhaps they are not that dependent on the sun and high temperatures. In summer they show activity during the colder times of the day, so in the morning and late afternoon,

whereas in winter they are more active during midday when it is warmer. Although the bush Karoo rat lives in a semi-arid to arid region, it is poorly adapted physiologically to these harsh conditions. Protection by their stick lodges and feeding on highly hydrated plant material is clearly critical for its survival.



Threats

Bush Karoo rats are preyed upon by small carnivores, snakes and raptors. At our field-site those are the African wild cat (*Felis lybica*), mongooses, cape fox (*Vulpes chama*), bat-eared fox (*Otocyon megalotis*) black-backed jackals (*Canis mesomelas*), jackal buzzard (*Buteo rufofuscus*), puff adder (*Bitins arietans arietans*), black-spitting cobra (*Naja nigricollis woodi*), cape cobra (*Naja nivea*), and mole snake (*Pseudaspis cana*).

The bush Karoo rat is host to a lot of parasites. They could host 26 species of fleas, 8 species of ticks, as well as sucking lice and tape worms. The bush Karoo rat is an important vector for the veterinary significant tick-plague. The ticks may carry babesias, rickettsias and theileriosis. Another important threat to bush Karoo rats is man. But because of man's suppression of fire, eradication of predators and the provision of additional habitat through overgrazing the bush Karoo rat has even benefited from their presence.

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NEWS AND INFORMATION ABOUT PLANTS AND ANIMALS

MOUSE PORTRAIT: FEMALE 406

By Carsten Schradin

Mother: F117	Father: M28
Date of birth: 15. November 2003	Date of death: Still alive December 2005
Age: >2 years	Cause of death: still alive
Partners 2003: M437; M497	Partners 2004: M1625
Children: unknown	Grandchildren: unknown

Female 406 cautions us not to underestimate the little and inconspicuous ones, regarding them as insignificant and unimportant. Even an obvious loser can become a winner. But I never thought of F406 as a loser. I rather pitied her. As a young adult mouse she had left home, only to settle 50m away in a new nest. And here she was not alone, but joined by her sister F116 and the very kind and extraordinary nice male M437.

Her sister F116 was also a remarkable mouse and F406 seemed to live in her shadow. This was already demonstrated by the fact that F116 was 10g heavier, and this is a lot for a mouse: 45g of F406 compared

to 55g of F116. The group was living in a *Lycium* shrub growing nicely directly next to a large rock. Here the mice were basking on their rock veranda every morning. It seemed that F116 was the star, being greeted and groomed by all other mice. In contrast to F116, F406 was rather shy. Often she left the nest first, disappearing in the surrounding shrubs. She was not avoiding the others because sometimes she sat in body contact with F116. However, she was by far not the social centre of the group and she was clearly subdominant compared to F116. She was somehow the ugly mouseling, the black sheep of the group.



F406 left, right her sister F116.

On the first of September 2004, F116 gave birth for the first time. However, F406 did not seem to get reproductively active. Maybe this was because it was the very start of the breeding season and F406 was not yet in a good enough body condition. Or maybe she was reproductively suppressed by her sister F116, condemned to helping raise her sister's offspring. Or was F406 infertile? Curiously we were watching the situation at this nest, asking ourselves whether F406 would breed as well, forming a real communal group, or not.

F406 gained weight during September and it seemed she was getting ready to mate, although she did not become pregnant. But all over sudden she disappeared. What has happened? The students had removed her empty transmitter, and from this day on I did not see her anymore during nest observations. Was there an accident when the transmitter was removed? But the students for sure would have told me if there was an accident, why should they keep it a secret? Still, it was strange that F406 just disappeared the day the transmitter was removed.

I remembered F406 for a long time and thought about her often. Why did she disappear all over sudden? Did she run around happily and carelessly after the transmitter was removed, running into the mouth of a predator? We trapped everywhere at the field site, but there was no sign of F406.

Five months later, nearly an entire mouse life, something very unexpected happened. The diploma students from 2004 were back in cold Germany, while the February in the Succulent Karoo did not spare us any centigrades. There was nearly no day below 30 degrees. It got quiet in Goegap but we kept monitoring the mouse groups.

However, not much was happening, as the breeding season was long over. Apart from Brigitte and I only the field assistant Berrit Kostka from the University of Munster was at the research station. As there was time, I asked Berrit to trap for 1 km along the dry riverbed going through the field site. I wanted to know whether some of our males

had dispersed into this area, trying to emigrate into a group. I also wanted to know where the strange males come from, that immigrated into our study area.

Berrit was trapping for an entire week, marking plenty of mice, and finding a few dispersed males from us. But when I looked at her data, something different struck me: There was F406! She was living more than 1km away from the nest she had shared with F116 (who in the meantime had died). And she had developed well. Her body weight was over 60g, she had become a real matriarch. Berrit also trapped plenty of other mice in this area. However, as the breeding season was long over, all were young adults, and I cannot say for sure which mice were offsprings of F406. But one thing was evident: F406 had founded her own group, which seemed to be quite large, and she was living together with some of her adult daughters.

In November 2005, Stella and Julian were again trapping the dry riverbed. And again they found F406, exactly at the same place as in February. She was now way over 2 years old, one of the oldest mice ever recorded in the field. And she was still doing exceptionally fine.

The tale of F406 teaches us three lessons: First, even the inconspicuous ones can become highly successful. Second, it is not only the males that emigrate. It is generally thought that in mammals the females stay at or very close to their natal territory, while the males have to disperse to avoid inbreeding. Third, emigration can be a very good strategy, even for females. F406 dispersed more than 1km away from her natal nest, a really huge distance for a mouse. She must have passed at least 10 strange and hostile mouse groups on her way. For her it must have been the end of the world, when she finally got there. But she flourished, found her own large group, and lived an extremely long life. In fact, she is still living! However, the next time we will trap at the dry riverbed will be end of 2006, when F406 would be more than three years old. I very much doubt that we will trap her again, but I am sure we will find many of her descendents.

BIRD PORTRAIT: SPOTTED EAGLE OWL *BUBO AFRICANUS*

By Carsten Schradin

The spotted eagle owl is by far the most common and most conspicuous owl species in Goegap. It is often seen during night drives, sitting in the middle of the road. Here it is hunting for its favourite prey: arthropods. Probably the arthropods can be easily picked up from the road, to which they are attracted by its warmth. However, the eagle owls habit of sitting on the road makes it prone for becoming a road kill. The spotted eagle owl nests most often in rocks, of which there are more than enough in Goegap. It is smaller than the European eagle owl, but still reached an impressive body length of 50cm.



INSECT PORTRAIT: MONARCH BUTTERFLY (*DANAUS CHRYSIPPUS*)

By Stella Miranda Treffler

For those who were not aware, there are some real butterflies in Goegap. For example the African Monarch is a very common sight. It is a medium-sized insect (wingspan 83mm) with orange-brown wings, bordered with black. The apex of the fore wings is black with white spots. You can distinguish males from females by counting the black spots on their hind wings: Males have four and Females have three on each wing.

The pupae are short, fat and smooth, green, yellow or pinkish with gold spots in colour. Larvae feed on *Asclepias* and other milkweeds.

This butterfly lives in almost all habitats in Goegap.



PLANT PORTRAIT: *LYCIUM CINEREUM*

By Carsten Schradin

If I could choose an English name for the shrub *Lycium cinerum*, I would call it BKR-shrub. BKR stands for bush Karoo rat, and this shrub is the preferred nesting site for this rat for two reasons: 1. Its branches offer perfect attachment points to build in their stick lodges. 2. The leaves of this shrub are highly palatable.

The leaves of the BKR-shrub are not only eaten by bush Karoo rats, but also by striped mice. However, the leaves are not available for the entire year, but only in winter and spring. During the dry period in summer it loses its leaves. But like the striped mouse the BKR-shrub is flexible, reacting to its unpredictable Succulent Karoo environment. If unexpected rain falls

in summer, as was the case in 2005, new leaves shoot up quickly.



CONFERENCES, PRESENTATIONS AND PUBLICATIONS

AWARD: FRITZ-FRANK-FÖRDERPREIS OF THE GERMAN SOCIETY OF MAMMALOLOGY FOR CARSTEN SCHRADIN

Dr. Carsten Schradin was awarded with the Fritz-Franke Award of the German Society of Mammalogy in 2005 for his work on paternal care and social organization of the South African striped mouse *Rhabdomys pumilio*. The award is shared with Dr. R. Sommer (different project) from the University of Rostock. The Fritz-Frank Award of 1500 Euro is given to young scientists under the age of 33 for unusual achievements in the field of Mammalogy.

PUBLICATIONS

One popular science and two scientific papers have been published in the last three months:

Schradin, C. 2006. Die Elefantenspitzmaus – die kleine Verwandte der grauen Riesen. (Elephant shrews – the small relatives of the grey giants). *Rodentia* **30**, 50-51. (Popular science article)

Schradin, C. 2006. Whole day follows of the striped mouse. *Journal of Ethology* **24**, 37-43. (The abstract has been published in the FSM-TIMES No. 4, when this article was published online).

Schradin, C. & Pillay, N. 2006. Female striped mice (*Rhabdomys pumilio*) change their home ranges in response to seasonal variation in food availability. *Behavioral Ecology* published online in February: doi: 10.1093/beheco/arj047

Abstract: Animals may respond to seasonally changing environments with physiological and behavioural strategies. Whereas migration is a behavioural strategy used by many taxa, it may not be an option for small mammals. However, small mammals can seasonally vary the area of habitat in which they are active. The striped mouse (*Rhabdomys pumilio*) in the semi-arid Succulent Karoo of South Africa lives in a seasonal environment. It is characterized by hot, dry summers with low food abundance, and cold, wet winters, followed by high food abundance in spring. We radio-tracked a total of 28 females during the 2004 dry season, the following breeding season in spring and the following dry season in 2005, and tested the prediction that females shift their home ranges in relation to food availability. Females shifted their home ranges from an area characterized by evergreen succulent shrubs in the vicinity of a dry riverbed in the dry season to sandy areas that were characterized by new plant growth of annuals in spring. Home ranges during the breeding season in spring had a higher percentage of annuals than dry season home ranges measured in spring. Female home range size increased during the breeding season. We suggest that female striped mice shift their home ranges seasonally to gain access to protein-rich young plant material, which is important for breeding.

Scantlebury, M., Pillay, N., Speakman, J.R., Bennett, N.C., & Schradin, C.. 2006. Huddling in groups leads to daily energy savings in free-living African four-striped grass mice *Rhabdomys pumilio*. *Functional Ecology*. **20**, 166-173.

Abstract:

(1) Free-living animals make complex decisions associated with optimising energy and nutrient intake. In environments where ambient temperatures fall below the thermoneutral zone, homeotherms must choose whether or not to forage, how long and what to forage for, and whether or not to perform activities that conserve energy.

(2) Huddling in groups has long been thought of as a possible means of conserving energy. Laboratory studies have shown that at low ambient temperatures individuals in groups expend less energy than individuals by themselves. However, studies have yet to demonstrate that thermoregulatory savings can have an impact on the overall daily energy expenditure (DEE) of free-living animals.

(3) Here we show that, in the laboratory, African four-striped grass mice (*Rhabdomys pumilio*) expend less energy per individual in large groups than smaller groups. We also show that when free-living groups were experimentally reduced to one half of their original size, DEE and water turnover increase by 19% and 37%, respectively.

(4) The magnitudes of the reduction in free-living DEE were comparable with calculated energy savings from the laboratory. One of the reasons why this species may sometimes occur in groups is that energetic benefits can be gained through huddling in habitats in which food and water are scarce.

FUNDING OF RESEARCH: CALL FOR DONATIONS

From this issue on donators in Switzerland can make their donations directly into an account of the University of Zurich.

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:

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

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Standard Bank
Branch: Braamfontein
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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 (deposits in Switzerland)

Postkonto 80-643-0
Finanzabteilung der Universität Zürich,
8001 Zürich
Reference: Kreditnummer 37202508,
Projekt Striemengrasmaus
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SPONSORS

Sponsors of larger amounts can choose how their money should be spend. There are different options for sponsors:

Sponsor for solar system: To have sufficient energy at the research station to run computers and lights, a stronger solar system would be needed. Costs: R 50 000, Euro 6750 or US dollars 8000.

Research Station Sponsor: To renovate the research station and to build further student accommodation. Costs: R 100 000, Euro 15 000 or US dollars 17 000.

Car Sponsor: A 4x2 car like a Toyota Condor would be of great help. Costs: R 250 000, Euro 33 000 or US dollars 38 000.

If you want to become a sponsor, please write an email to:
info@stripedmouse.com.

Acknowledgements

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

Vontobel-Stiftung Switzerland: The foundation of the Vontobel Bank in Zurich, Switzerland, supports the research project "Endocrine mechanisms of social flexibility in a mammal" from Dr. C. Schradin with a research grant of CHF 19 300 (ca. Rand 88 000, Euro 12 000). In this project, hormones will be measured from striped mice in Goegap that follow different social strategies. The question is whether solitary living mice differ in hormone levels from family living mice, and in how far these differences in hormones can predict differences in social behavior.

THE MOUSE'S TAIL

RENOVATION OF THE RESEARCH STATION

In February the roof of the research station got a new insulation. Since temperatures rise above 40°C in summer and our little "bush hut" has no electrical power supplier for fans or a air conditioner, we are really

thankful for this. In addition, gutters were replaced in March.

JUVENILE SPRINGBOK

One day, I was driving home from Springbok when all over sudden I saw something small staggering next to the road. What's that, I was asking myself. But after a few seconds I

realized it was a newborn Springbok! Fascinated I watched the first steps of this small creature.

ORYX-ANTELOPE VERSUS JACKAL

Six o'clock in the morning, the first sun rays enlighten the hilly landscape of Namaqualand. I walk through the field for checking my traps. Trapping station 8-26: Female 207. Like always! Trapping station E47: a sengi pair. E50: A jackal, which is 10m apart from the traps; and three Oryx – Antelopes standing 10m away from me and the jackal. This is something unique, I thought to myself. In this moment the three

antelopes started moving and they were moving faster and faster. Completely irritated I was wondering, if they chased towards me or the jackal. I had to think quickly! Plan A: Screaming at them! This always helps! Plan B: Running away! Luckily the three graces took aim at the jackal, not at me. They probably had a young one hidden nearby and tried to protect it.

COMING UP IN THE NEXT FSM-TIMES

CREATURES OF THE NIGHT: AARDWOLF & Co

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, please write „SGM-SPIEGEL Abo“ in the subject of your email