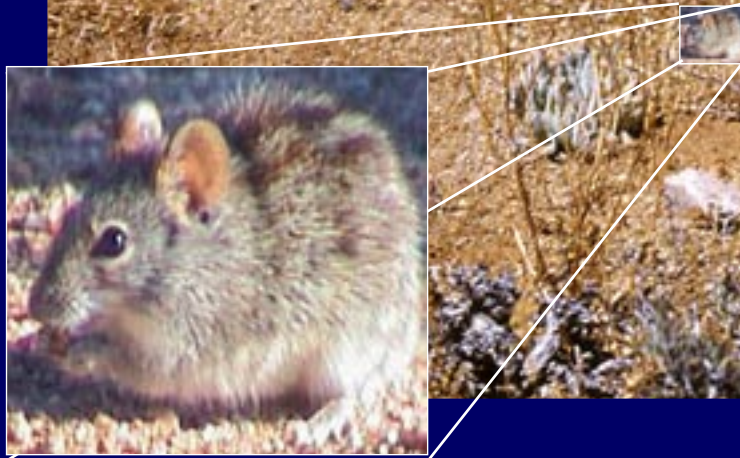


Striped Mouse.



The Succulent Karoo RESEARCH STATION



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EDITORIAL

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BANK INFORMATION

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A homepage is under construction.

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SUBSCRIPTION AND FEES

To subscribe to the FSM-TIMES, write an email to: stripedmouse@mweb.co.za. 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 dollars) a year to contribute to our research project here at the Succulent Karoo Research Station in South Africa. Larger donations are welcome too.

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COVER PICTURE AND LAYOUT

Jens Schradin

Welcome: The first issue of the FSM-TIMES!



Carsten Schradin

It is February 2001: I am flying for the first time to South Africa to visit the University of the Witwatersrand and later my field site in the Goegap Nature Reserve. While I am waiting to board the plane, bad feeling developed in my gut. I have just finished my PhD thesis and wanted to start my own research project in South Africa on paternal care in the striped mouse (*Rhabdomys pumilio*). While sitting in the plane from Zurich to Johannesburg, I read once again through the scientific publication that was the basis for my future project. The publication dated back to 1972, the year that I was born. While reading it again, I realised how little information it offered on paternal care in the striped mouse. A little bit of anecdotic information, but what about the reality? Maybe I made a mistake, to ground my scientific future on this little piece of information?

Now, nearly four years later, I can say that my project was a real success. The working conditions in Johannesburg were perfect and I received (and still do) the full support of my supervisor, Prof. Neville Pillay. In addition, I still received significant support from Switzerland, especially from Dr. Gustl Anzenberger. But most importantly, I probably found the best field site in the world to study a free living mouse species. My study species is not only diurnal, but inhabits also a very open area. Here in Goegap it is possible to observe the mice directly in the field and to record their natural behavior. Normally this is only possible with large mammals.

Another result of my scientific work is the establishment of the Succulent Karoo Research station in the Goegap Nature Reserve. This was only possible because the nature reserve and its department agreed to provide me with an old farmhouse that I could use free of charge (see title in this FSM-TIMES). Over the last 4 years, 14 undergraduate student from South Africa, Switzerland and Germany worked here as field assistants. Three of

them came back to Goegap to do their diploma thesis, and five researchers visited the research station in the meantime. The work at the research station resulted into more than 10 scientific manuscripts and twelve presentations at national and international conferences and universities. An amateur movie about the striped mouse in Namaqualand has been seen by numerous people in Africa, the USA and Europe. In a nutshell: In the meantime hundreds of people know about the striped mouse of Namaqualand!

Soon these hundreds will be joined by thousands. Next year, articles about the work at the research station in Namaqualand will be published in four issues of the RO-DENTIA (www.ms-verlag.de), a popular German magazine about small mammals. That is the reason why we have decided that it is now a good time to come up with our own magazine about the Succulent Karoo Research Station, and that is how the FSM-TIMES was born! The SM stands for the initials of our most important study species, the four striped mouse. The FSM-TIMES has two aims:

1. To provide information about our work at the Succulent Karoo Research Station and the research on small mammals. We aim to provide you with entertaining scientific information, that would be enjoyed by everyone interested in nature, and not only (but also) by scientists.
2. To obtain funding for smaller scientific projects from donations of the FSM-TIMES subscribers.

The FSM-TIMES will be sent four times a year as an email-attachment (pdf), in January, April, July and October. If you are interested in subscribing to the FSM-TIMES, please send an email to: stripedmouse@mweb.co.za. Please note that even when you received this issue, YOU ARE NOT subscribed before you sent this email. Please write into the subject "FSM-TIMES subscription". No more text is needed. Furthermore, please forward the FSM-TIMES to anyone who might be interested, e.g. to the mailing list of your department, mailing list of zoological associations or any friend that might be interested.

The FSM-TIMES is free of charge. However, we would welcome and appreciate a small donation of R 80 (10 Euro, 15 US dollars) a year to the research station. In the next issue of the FSM-TIMES, you will obtain more

information about how to do this (see also page 18). However, the main aim of the FSM-TIMES is to present interesting and fascinating research news from Namaqualand. I hope that we managed to achieve this in this issue.

It is hard to try to be a good scientist. It would be even harder to try at the same time to be a perfect journalist. It is especially hard for a German to write a newsletter in English. I want to apologize for all the mistakes, typing and grammatical errors you will find in this newsletter. But I still hope you'll enjoy every word of it!

Kind regards, *Carsten Schradin*

LETTERS

In future, letters to the FSM-TIMES will be posted here. So please write to us and give your opinion(s) about the FSM-TIMES and its articles.

Your newsletter is a good idea, but I see lot's of work for you - mainly administration. I never new that there were so many people in Germany that kept small mammals as pets, and they even have a newsletter called Rodentia!

Prof. N. Pillay, Johannesburg

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% colored, 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 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	Juli	August	September
Minimum temperatures			
night	2	2	7
day	9	11	11
Maximum temperatures			
night	15	21	17
day	26	25	29
Rainfall in mm	6.5	3.5	16.0
Days with rain	5	4	2

The weather the last 3 months was nice for working in the field, but unfortunately not so nice for the environment. In July and August we had several frosty mornings, but otherwise the winter was surprisingly warm. Unfortunately, we had too little rain. Normally we receive around 40mm of rain in July and August. However, this year we only got 10mm. This resulted in relatively little plant growth in spring (September on the southern hemisphere). One weekend with relatively strong rain in September brought some relieve, especially for the shrubs and other long living plants. But it was too late for a mass display of wildflowers.

Nevertheless, compared to the dry year in 2003, the spring this year was much better and some wildflowers emerged. However, compared to the colorful displays of 2001 and 2002, the wildflower display this year was rather poor. The plant cover was even thinner than after the drought of 2003.

The consequences for the small mammals were that they had less plant cover for protection against predators, especially raptors. There might be plenty of food around, but the question is how long the plant growth will continue. Only the protein rich new plant material enables the small mammals to breed, so the breeding season might be even shorter this year than in previous years



At some places the wildflower display was amazing this year. (Picture M. Scriba).

THE PEOPLE IN GOEGAP

THE TEAM FROM JULY TO DECEMBER 2004

by Carsten Schradin

Left: The team in July 2004. From back to front, left to right: Dr. Carsten Schradin, head of the research station; Christina Keller, diploma student; Philipp Widmann, field assistant Brigitte Britz, field assistant; Carola Schneider, diploma student; Melanie Schubert, diploma student

The research station had been very busy this year. Three diploma students and two field assistants are collecting scientific data. Additional help is received from my girlfriend Brigitte, who helps observing the mice and who spent four weeks radio-tracking them in June, before the students arrived.

The three diploma students collect data for their thesis about different topics of the ecology and behavior of small mammals. Melanie Schubert from the University of Bayreuth (Germany) had been a field assistant in Goegap for three months in 2002. Now she came back to study the female reproductive strategies of striped mice. Communal nesting is common in the striped mouse and Melanie wants to know which factors are responsible for this. She already obtained interesting and surprising results (see page 11)

Carola Schneider from the University of Münster (Germany) is also a previous field assistant. She worked as field assistant for 3 months in last year. Now she has her own project and studies the male reproductive strategies of striped mice, asking many questions: Does male aggression increase during the breeding season? Do males patrol their territory boundaries? When are males group living, when are they roaming, i.e. they visit several females during different nights? Below Carola tells us more about her daily life in Goegap and how she manages to obtain data to answer all these questions.

Christina Keller is also a former field assistant and like Carola from the University of Münster (Germany). Her project is more ecologically oriented. She studies the relationship between plant and small mammal biodiversity in Goegap. As small mammals are the main predators of plants in Goegap, one could imagine that they have a significant impact on them and the composition of the



Picture by Carsten Schradin

plant community. Christina traps and marks small mammals at ten different sites in Goegap and determines the number of plant species growing there. During her work she already found two species of small mammals that have not been recorded before in Goegap (see page 13).

ONE DAY IN THE LIFE OF A DIPLOMA STUDENT

by Carola Schneider

5:45: The alarm goes off. The sun is already rising. My working clothes are lying directly next to the bed.

6:00: I leave the research station with a bag of bait in my hands to set the traps at the field site.

6:30: Short breakfast, a cup of coffee, followed by a short discussion with another diploma student.

7:00: I feed the captive mice. The arena for the presentation experiments gets prepared.

7:45: Another diploma student and I go out into the field to mark, weight and determine the reproductive status of the mice we trapped this morning.

8:00: I leave the research station with a couple of small cages to collect the adult males that entered the traps. I need them for my experiments and will bring them back to the research station.

10:00: After closing the traps I go back to the research station to start my experiments. I put two males into my arena and monitor their interactions. I want to know whether they are now – during the breeding season – more aggressive than they were two months earlier before during the non-breeding season. When one male tries to bite another one, I have to terminate the experiment and separate them. However, most pairs are relatively peaceful during the presentation of 15 minutes.

12:00: I finished the experiments and bring the males back into the field to their territories. Afterwards it's time for a short lunch break.

13:00: Control tracking: We radio-track all mice that carry radio-collars and record their positions with a GPS.

15:00: I need more males for my experiments. Thus, I take a rucksack full of traps and walk one kilometer to a dry riverbed nearby. I will have to do this walk several times, to bring all the traps that I will need there.

17:00: Short break. Now I have to clean the presentation arena and arrange everything for the next experiments tomorrow.

17:45: Nest observations. I sit in front of a mouse nest for 45 minutes. The mice spend the day in the field foraging, but now they are coming home. I record which individuals are present, whether I see pups and juveniles, and what time the mice enter their nest.

18:30: The nest observation is finished. I meet another student at another nest in the field, where we set some

traps earlier. We weight and mark the trapped mice.

18:45: Back at the research station, but only for a minute. We take the radio-tracking equipment and go back into the field. We radio-track all mice to see where they are sleeping and which individuals share a nest.

19:30: For today the field work is finished. Two other students did the cooking in the meantime. While we are having dinner we discuss the events of the day.

20:30: Finally time to have a shower.

21:00: Time to sleep. Good night!

FIELD ASSISTANTS

by Carsten Schradin

Field assistants are lucky people that spend 2-3 months in the fascinating nature of Namaqualand. However, this experience comes at great costs: A tiring flight to Cape Town followed by a 8 hours drive in a minibus-taxi to Springbok. They have to say good bye to any luxuries such as telephone, TV, Disco or the freedom to go and visit a Café. Springbok, the next little town, is 20kms away, with no way of transport from Goegap. Only once a week can they visit the town for a short period, mainly to do the shopping. Instead of luxuries the field assistants experience water shortage, heat and cold, snakes and scorpions. Even



Madeleine Scriba helped as field assistant from August to September (Picture C. Schradin).

so, they have to cover all their expenses themselves. As a reward they have to work 6 days a week, from 6 in the morning until 8 at night.

Luckily and nevertheless, every year several students are willing to work as field assistants, to gain important and lasting personal experiences, and to help collecting scientific data. Their work is very important and it is only because of their help that so many scientific projects could have been done in Goegap. And although the work is hard and challenging, none of them regretted coming here.

In the last three months we had two field assistants at the research station, Philipp Widmann and Madeleine Scriba, both from the University of Münster (Germany). Philipp assisted Christina with trapping for her diploma thesis. This means he often had to get up before 4 o'clock in the morning to set the traps together with Christina. Later he had his own project and trapped round-eared elephant shrews (*Macroscelides proboscideus*) in an area of 15ha. His results showed that the population density of this species was smaller than expected, with only 0.6 elephant shrews (or sengis, as they are also called) per hectare.

Madeleine was also of important help. She radio-tracked fifteen mice to determine their home ranges in spring. She helped Carola and Melanie with trapping and radio tracked the mice for their projects.

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, behavioral 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 stripedmouse@mweb.co.za. Please write a short motivation and attach a CV. You will then obtain more information.



Daniela Fischer 2003

Picture: C. Schradin.

JUST ARRIVED ...

First impressions by a new field assistant

by Annette Wiedon

After a few days in Cape Town I found myself on the way to the Goegap Nature Reserve. The friendly driver of the minibus-taxi brought me to the office of the reserve, a nice thatched roof building that fits perfectly into the environment. Here I meet David, one of the two reserve managers. He offered to bring me to the research station. The short drive in his 4x4 immediately gave me a feeling that I was on Safari. For the first time I saw springbok and gemsbok. The scenery is quite amazing: I would never have thought that a mixture of stones and sand can be so impressive. They pile up to ochre hills without much vegetation, a fascinating landscape.

My arrival at the research station was rather unimpressive: Instead of a nice welcome I found the research station deserted. In addition, the house is by far is not as nice as the office. David leaves, and after a few minutes I see some figures coming from the field. A diploma student and a field assistant introduced themselves and shortly afterwards Carsten and his girlfriend Brigitte arrived as well. I got a cup of tea and a tour through the research station. There were so many new impressions I had to process when I finally fell into my bed.

Work starts early at the research station. Thus I was happy that I could sleep in the first day. I got out of my sleeping bag around 8 in the morning, when the other students were already coming back from the field. Still hanging over my coffee, I got a bad conscience while still feeling tired, listening to the other students that already did their first work of the day. They all seem to be very busy, talking about things like S 136 and the nest of F414, things I did not understand. However, soon afterwards I left for the field site and had my own first experiences. My work for that day was to perform some plant surveys, so with some measuring tape and a writing board in my hands, I inspected the field. It was already noon time and very hot. That didn't make things easier for an office student like me. And there was something else I had to do: I had to watch every step of mine and every shrub very carefully, listening to every movement and noise: I had been told that here are many snakes in Goegap, some of them being poisonous.... After this

first day in the field I fell tired into my bed and slept like a log.

The next morning I already felt fitter than the previous day, both physically and psychologically. At least I knew in the meantime the meaning of S 136 and F 414*, making me feel like a real member of the research station. I took my working equipment and – without hesitation – went into the field. Again, it was very hot and hard work, but I was proud of all the plant species I already knew. Opposite in the hills I saw and heard a group of baboons chasing each other – I had to realize that I was not in a zoo but in the field and for a short period I felt like Diane Fossey. An atmosphere of adventures developed around me. I was also surprised that I was still not bitten by a poisonous snake and slowly but surely relaxed while working in the field. While having dinner with the other students I heard funny stories about puff adders, scorpions and cockroaches, making me happy to be in the house – in our house in Goegap.

* F414 is the female striped mouse with the number 414. The F stands for female. S 136 is the nest of the pair consisting of F478 and M429 (M for male). S stands for sleeping site.

TITEL THE SUCCULENT KAROO RESEARCH STATION

by Carsten Schradin



The old research station from 2001.

It is the 15th of September 2001 when I arrive in Goe-gap Nature Reserve, Namaqualand. I want to spend five months here to study the social organization of the striped mouse. In captivity I observed that males intensively participate in parental care, i.e. they take care of their offspring. Now I want to see if paternal care also occurs under natural conditions.

Enrico, the second reserve managers, welcomes me. He gives me the key for my home for the next five months: A little hut like building next to the rubbish dump of an old mine. The way to the bathroom is 20 meters away

from the house. Theoretically, warm water is provided by a boiler that runs on gas. Practically, the wind always blows the gas flame out before I can get to the shower. The boiler is situated inside the toilet through which the wind blows, making it easier for the slightest breeze to extinguish the flame. However, I had a plan: I decided to put some toilet paper into the boiler, light it with a match and quickly run to the shower to open the hot water tap. The result was that the gas flow in the boiler increased dramatically, which, together with the burning toilet paper, resulted into a little explosion. When I was lucky, the boiler was working and I had my hot water. When I was unlucky the explosion was too strong and blew out the gas flame.

The equipment at my new home is sparing: a desk, shelves and a gas stove. I brought my own camping bed and bought a second hand kitchen table: Finally a place to have dinner at! Even more important is a fridge, because summer in Namaqualand is very hot: up to 49°C. I was somewhat shocked to discover that a gas fridge is twice the price of a normal fridge, but I have no choice. At least now I have a new home and I can start to work at my field site.

Twice a day I drove with my VW Golf to the field site, in the morning and in the afternoon. This means 30kms a day on a very bad road. In the field I set traps, mark the mice I and determine their weight, reproductive status and whether they are adult or juveniles. After three weeks, all the mice at my field site had color markings that enabled me to recognize them individually. Now, I



The research station (picture C. Keller)



The backside of the research station: Place to do the washing and to have a BBQ (picture C. Keller).

can start to observe their natural behavior in the field. The mice are active during the day, the habitat is open and they soon got used to my presence. So I can study them in a way that is normally only possible in large mammals.

In the beginning of January I left Goegap and drove back to the university in Johannesburg. In the car were lots of scientific data which showed that the striped mouse is group-living in Namaqualand. I also had good evidence that even the wild living males participate in parental care. But I realized something else, maybe an even more important thing: Goegap is worldwide one of the best places to study behavior in wild living small mammals. Whereas other scientists studying small mammals see them normally only in the trap, I can observe them in the way Jane Goodall studied her chimpanzees. A new world is emerging, the social life of the striped mice (see title in the next FSM-TIMES).

Thus, it was no surprise that I was back in Goegap the next September. On my arrival, I was told that I won't be able to use the house I made my home last year. First, I was shocked, but then happily surprised, as Enrico told me that I can use the old farmhouse directly at the field site. Formerly this house was used as a guesthouse, but it was not often booked. The house was in a rather bad state and it was not worth it to renovate the house. Thus, the department in Kimberly decided to close this guesthouse. To avoid further costs, they wanted to break it down. Luckily, the management of Goegap had a better idea: Why not use it as a research station? Researchers

can use the house free of charge. However, the reserve will not contribute anything to its maintenance. This had to be done by the researchers themselves.

I happily agreed. The new research station had several advantages. Most importantly, it was directly at the field site. This saved a lot of time and money, as I did not have to drive 30km a day. Of course it was also much more convenient. After setting the traps I could go into the house and have a coffee before checking them. Nowadays we start working in the field at 6 in the morning and stop at 8 at night. This is only possible because in the meantime we can quickly go to the research station and have a break. With the old house I used in the first years, most studies of the years to come would not have been possible.

Another great benefit was that I had much more space available: Three sleeping rooms, two offices and a big kitchen. Enough space for 8 people staying permanently here, which enabled me to establish a small research group over the years.

Apart from benefits there were of course also costs.



Inside the research station. (picture C. Keller).

The house was really in a bad state. Melanie Schubert, my field assistant in 2002, and I started renovating the bathroom. But the entire house needed some paint, inside and out. Furthermore, the ceiling in the bathroom was coming down, and some walls had frightening big holes. However, with several buckets of paint, new ceiling boards, cement and the help of the workers from Goegap, the state of the house was restored into an acceptable condition.

Another problem was furniture: Except for a few desks, my kitchen table and gas fridge from the year before, there was not much. First we bought a kitchen shelf second hand. And over the last few years, we bought more and more furniture, mainly cupboards and shelves. But there is still a lot missing. Especially good beds. The beds here are bunk beds welded by the workers from Goegap, with some very soft mattresses. It was not good enough for my back and from the beginning on I preferred to sleep on the floor.

We have no connection to a power line. Instead, we use solar power. This is good enough for the light in the house. However, a scientist is only as good as his computer, and at the moment we are using 6 computers in the research station. The solar panel we have cannot provide enough energy for all of them. So we have to use big car batteries and inverters that invert the power from 12 to 220V. Several times a week we have to drive to the office to charge the batteries.

Batteries and computers are also important for one of the few ways of relaxing at the research station without thinking about mice. The computers cannot be used only for work, but also be abused as a TV. In the meantime we have a small collection of DVDs at the research station and watching movies is an important social activity. Our first DVD was "Walking with Dinosaurs" and many more documentaries and movies came later.

The water supply for the research station is from a spring next to the house. Using an old diesel water pump, we fill up the tanks once or twice a week. We have two big tanks at the house, each for several thousand liters. Another tank solely for the bathroom is on top of the hill behind the research station.

Living at the research station means that you have to do without several luxuries that are part of normal life in a city. There is no TV, no phone, and no dishwasher. You also have to wash your clothes by hand. But we have some luxuries you will never find in a city: The silence



The water pump (picture Jens Schradin).

and peace of the nature around us, observing the exciting social life of free ranging animals, living in an area surrounded by astonishing scenery, with a clear night sky sparkling with stars like nowhere else in the world. I am working here in my office, but I have only to go a few steps to get into the natural environment of my study species. Actually, I do not even have to do this. Just in front of my window, in a little shack for the solar energy system, is a striped mouse group living, and I can observe their social life from my desk. The Acacia trees behind are used as nesting sites by mouse birds. And the bird bath in front of my window is visited by several species each day. We might live in the wilderness – but we enjoy it!

The Succulent Research Station was established over the last 3 _ years. Its equipment improves from year to year, and more and more students are coming. This year, 4 undergraduate students gain experience as field assistant and three graduate students are doing their thesis here. The scientific value of the research station is also demonstrated by several researchers that visited us this year, from South Africa, Europe and the USA. Let us hope that this research station will continue to develop and provide us with much more fascinating information about the wonderful nature of Namaqualand.

NEWS AND INFORMATION ABOUT PLANTS AND ANIMALS

MOUSE-NEWS

FATHER “NURSES” JUVENILES WITH SALIVA?

by Carsten Schradin

During the last weeks we observed an interesting phenomenon in our colony of captive kept mice: Juveniles only being 2-3 weeks old were hanging on to the mouth of an adult. This behavior was mainly shown towards the father, not the mother. What were the juveniles doing there? Were they getting food from the father, maybe learning what was palatable? We did not see any food in the mouth of the father. However, we mainly observed this behavior on very warm days. Thus, here our hypothesis: The juveniles were drinking saliva from the mouth of the father. Now that would be an interesting topic for future research!



A juvenile hangs on to the mouth of his father.
(Picture C. Schrain).

CONFUSION AND ILLUSION: WHAT ARE THE FEMALES DOING?

by Melanie Schubert

Another day goes by in Goegap Nature Reserve. The last sun rays together with the clouds build surreal patterns, an invitation for never-ending dreaming. Now is the time of the day that the striped mice come back from foraging in the field to spend the night together with their group in their nest.

Equipped with a receiver and aerial, I am on my way to radio-track the mice and see where they are sleeping. The first stop is at group 9: All mice are in their nest. I pass bizarre rock formations and meter high quiver trees on my way to the other nests. Finally, there is only one more group to be checked. I am already thinking about the dinner that waits for me at the research station, cooked by the other students. This makes my stomach rumbling. Arriving at the last nest, I type the frequencies into the receiver: Female 426: 148.279. She is in the nest. Male 427: 150.537. Also in the nest. Fe-

male 102: 148.187. No signal! Shocked and full of bad imaginations I hold the aerial into all different directions, stumble through the dark night in search of a signal of female 102. After some time I hear the promising tock... rock...tock, I have her signal! Finally I find the shrub from which the signal is coming. I wonder why it comes from here, and not from the nest. Maybe female 102 lost her transmitter? Has she been eaten by a predator? Did she leave her group? I looked at my watch, it was past 8, and several things were clear: Cold spaghetti with tomato sauce and lots of unanswered questions.

The next morning I came back to the suspicious shrub. This time I did not get any signal. This provided me at least with two answers: Female 102 was neither eaten nor had she lost her transmitter.

The days went by but female 102 did not return to her group. And female 102 was not an isolated case. Many



Mouse with transmitter and individual markings with hair dye. (Picture C. Schradin).

other females left their group during this period and slept alone elsewhere. I was getting more and more depressed as I saw my project “communal nesting in striped mice” falling in pieces. At the same time nicotine consumption increased by 20% and I was brooding over an explanation for this disaster. What I knew from trapping data was that all females that left their group were pregnant. But why did they leave now? What caused this unexpected behavior? Lost in thoughts I was again on my way to radio-track the sleeping sites. But what was going on now? Female 102 was back at her group! Within days all runaways came back to their groups. And they did not come back alone, but brought their

little ones with them. One female was seen carrying her twelve day old young to the communal nest. Based on these observations, I had the following theory: Females leave the communal nest before they give birth to avoid infanticide. Other females in the communal nest that did not give birth themselves might otherwise kill their young. This behavior has been observed in other rodent species.

Another day goes by in Goegap Nature Reserve. Equipped with a receiver and aerial, I am on my way to radio rack the mice and see where they are sleeping. But where is Female 122? She is not in her nest, but I get a signal from further north. Full of optimism I go back to the research station: Female 122 will give birth in a few days!

THE BUSH KAROO RAT IS BACK

by Carsten Schradin

Apart from the striped mouse it is the bush karoo rat (*Otomys unilucatus*) which is most conspicuous at my field site. For the first two years I saw them building their big stick-lodges as nests inside so many shrubs. They were sitting in front of their nests grooming each other, and I saw several fights between neighbors. The bush karoo rat seemed to be a social species, but not much was known about her. Thus, I planned a small study on them for 2003. However, 2003 had the driest winter in the last 40 years. Nearly no food was left for the bush karoo rats and they became extinct at my field site. Was I too late to study them, were they gone for ever? Fortunately, the bush karoo rat came back this year. Some rats must have made it through the drought, pro-



whistling rat
(Picture C. Schradin).



A bush karoo rat and her young. (Picture C. Schradin).

bably on a neighboring farm. More and more deserted bush karoo rat nests found a new occupant. It seems the juveniles leave home only 1-2 months old to find their own nest.

Things are not so good for the closely related whistling rate (*Parotomys spec.*). Also this species disappeared last year. So far we saw only two whistling rats in Goegap this year and the population did not recover. However, we still hope that there are more survivors, making a return of the whistling rat only a question of time.

NEW RODENT SPECIES IN GOEGAP

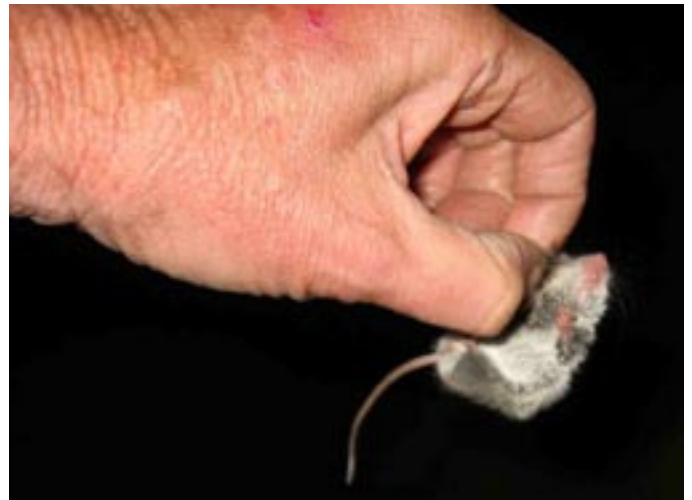
by Christina Keller

“What are you doing here” was the question I had for a mini mouse that was looking anxiously at me out of a trap. She did not answer so I had to find the answer myself. I have never seen such a small mammal before and definitely did not expect to find it in the rocky hills of Namaqualand. In fact, the pygmy mouse (*Mus minutoides*) is only 60mm long and one of the smallest mammals. This might be the reason why she has not been reported for Goegap previously. Uncertain as I was, I was holding my torch into my field guide. Was it really a pygmy mouse? That was exactly the question my critical supervisor would ask me the next morning. I was standing doubtful in the cold desert night, but then I was certain. We marked the pygmy mouse before it disappeared relieved in some rock crevices. I was also happy

about the positive ending of that night. I did not really trap many animals during the last days. My project had just started and during the first days I was excited about every trapping success. In contrast, the response of my supervisor was rather an unemotional “oh, really” when I told him what I had caught. However, this did not stop my enthusiasm. This was only stopped by the next days and nights. I was stumbling through the frosty desert nights along my trapping transects. My fingers were stiff from the cold as I was holding to the torch, which gave light only to empty traps. “It’s anyway empty” was my thought also in this night, as I was walking along a dry riverbed. Like every night, the (of course empty) traps seemed to hide in the shade of shrubs and rocks. At least this is what my tired mind made me think. In

the meantime it didn't matter anymore to me whether I would trap anything or not. At least this meant that I would go home sooner to my warm bed. So I did not know whether I should be happy or sad when there was a closed trap. First I thought the trapped rodent was a hairy footed gerbil (*Gerbillurus paeba*), the dominant species here. "Hey, what is that", said my field assistant Philipp, pointing to the unusually long hairs at the tip of the gerbil's tail. We had a look into the field guide and it became soon clear that we had trapped a brush-tailed gerbil (*Gerbillurus valinus*). This was another species never before recorded for Goegap. It seemed like a nice reward for our hard work of the last days. Happily we walked back over the mountain pass to the warm research station.

The next days we trapped several more pygmy mice, but no other brush-tailed gerbil. This is surprising, as the brush-tailed gerbil is reported to live in colonies. However, my project is not finished, and nobody knows what else I will find in my traps. At least I am very curious about what I am still going to find.



An adult pygmy mouse. (Picture G. Rathbun).

BIRD PORTRAIT

by Carsten Schradin

It is spring in Namaqualand, which is September in the southern hemisphere. That it is autumn in Europe becomes clear by some visitors that are arriving from this continent in Goegap: The European bee eaters (*Merops apiaster*) arrived a few days ago. They are sitting iridescent on the phone line that goes pass the research station.

Of course spring means a lot more for the permanent resident birds of Goegap. Spring is their breeding season. At our field site this is made clear by the capped wheatear (*Oenanthe pileata*), a small inconspicuous bird. The wings of the capped wheatear are brown; its belly is white and its chest and head black. He has a white band over his eyes. The capped wheatear nests on the ground, in Goegap often in unoccupied whistling rat burrows.

The show of the male capped wheatear in spring is absolutely spectacular! They fly 30-50 meters above the field site, beating their wings clumsily to stay at one spot without moving. At the same time the male makes



Der Erdschmätzer. Foto: D. Matthes

some awkward calls that cannot really be called a bird song. Thus standing high in the sky and making a lot of noise the male tries to get attention from the females. Then he changes into an artist, flashing in an elegant

halve-circle down to the field site, landing in the middle of his territory on top of a shrub. If this did not help to attract a female, the performance will be repeated again and again.

REPTILE PORTRAIT

by Carsten Schradin

Namaqualand is not only a home for many species of small mammals, but also a heaven for reptiles. One of them is the coral snake (*Aspidelaps lubricus*), a close relative of the cobras. This snake got its name from its colorful appearance. The red-black bands are a clear signal not to touch this snake, as it is poisonous. Its bite is very painful but not deadly. This little clown - the snake gets only about 60cm long - is highly aggressive, which imposes problems when keeping them in captivity. They do not learn to calm down and thus hit their head again and again against the walls of their terrarium, when they see some movements outside, e.g. their keeper. The coral snake is strictly nocturnal and feeds on small mammals and other reptiles.



Coral snake. (Picture C. Schradin).

PLANT PORTRAIT

by Carsten Schradin

Namaqualand is part of the succulent karoo, the „tropical rainforest” of southern Africa. Although it is a desert, its biodiversity is as high as in the Amazonas. The succulent karoo is one of 25 globally recognised biodiversity hotspots. Thousands of plant species grow here and nowhere else.

The plant *Massonia depressa* does not look very spectacular. Its two simple leaves grow directly on the ground and the flower is not colorful at all. One might wonder what insect is attracted by this unattractive flower to pollinate it. In fact none! Instead, this plant is visited during the night by small mammals, especially gerbils. And they do not fancy high growing colorful flowers but a nice smell on the ground.



Massonia depressa wird von Nagern bestäubt.
Foto: P. Widmann

VISITORS

by Carsten Schradin

Several scientists visited the Succulent Karoo Research Station during the last three months. First it was Mike Scantlebury, a postdoc from the University of Pretoria. Mike is an eco-physiologist. Whereas physiologists traditionally studied animals in an artificial laboratory, scientists like Mike are interested in how their physiology works in their natural habitat and how it helps the animal to cope with environmental challenges. Mike spent ten days in Goegap, studying the energetics of huddling in striped mice.

Shortly after Mike left Lynn and Galen Rathbun from Californian visited for a few days. Galen is the world leading authority in the research on elephant-shrews, or sengis, as he prefers to call them (as they are no shrews and only very distantly related to elephants). Galen was one of the first scientists studying the natural behavior of small mammals by observing them in their natural habitat. Of course he was also very interested in the sengis in Goegap. He was surprised when he saw our version of the round-eared elephant shrew (*Macroscelides proboscideus*). They are much larger and differ in color from the round-eared elephant shrews Galen saw in Namibia. He assumes that these are two different subspecies, maybe even species.

Prof. von Willert from the University of Münster (Germany) visited us beginning of September. He is supervising the botanical part of the diploma thesis of Christina Keller. Two weeks later we got a visit by Andrew McKechnie, lecturer at the University of the Witwatersrand in Johannesburg. Andrew is studying ecological physiology, like Mike. He was very excited hearing the nightjars calling while we had a braai (BBQ) at the research station. Andrew studies torpor in birds. Torpor means that some species can drop their body temperature dramatically and by this save energy during periods of inactivity, e.g. the night. Andrew suggests that nightjars do the same and maybe even not only for one night, but for several days during winter, when it is cold and no food (insects) is available. He might come back to Goegap to study whether nightjars really show such a kind of hibernation, which would be extremely unusual for birds.

Namaqualand of course also needs people doing studies on reptiles. As every year, Victor Loehr, a PhD stu-

dent from the University of the Western Cape, and his two field assistants visited us end of September. Victor studies the smallest tortoise of the world (*Homopus signatus*), which occurs in Namaqualand.



Lynn und Galen Rathbun visited us in July.
(Picture C. Schradin).

CONFERENCES, PRESENTATIONS AND PUBLICATIONS

by Carsten Schradin

In September I visited the 2nd European Conference on Behavioral Biology (ECBB) in Groningen (Netherlands). The talk I presented there (abstract below) was appreciated by most of the 100 listeners; at least that's

the impression I got. After the conference I went to the University of Zurich and visited the departments of psychology, animal behavior and anthropology.

Ecological changes over years lead to social changes: from groups to solitariness to groups (abstract from the talk presented at the 2nd ECBB)

Carsten Schradin & Neville Pillay

Causes of group living can be studied by comparing group living with solitary species or by studying species showing intraspecific variability in social organisation. One such species is the striped mouse (*Rhabdomys pumilio*) from southern Africa, which is solitary in moist grasslands but group living in the arid Succulent Karoo. Here we present data from radio-tracking and direct observations in the Succulent Karoo during a natural experiment. The winter of 2003 was the driest for over 40 years, leading to low survival probability and low population density, mimicking the natural situation in grasslands. Accordingly, the social system changed from group living to the solitary lifestyle typical of grasslands. The reproductive strategy of females changed from communal breeding to breeding alone, and males changed from being permanent members of groups with females to adopting a roaming strategy. Home range sizes became much larger than in previous years and were similar to the pattern reported for grassland populations. With increasing population density at the end of the breeding season, communal groups became established and communal breeding involving related females occurred. We conclude that high food availability, high population density and the availability of close female kin are major factors for group living in the striped mouse.

FUNDING OF RESEARCH: DONATIONS FOR THE SUCCULENT KAROO RESEARCH STATION

How does a scientist obtain funding for his research? In principle there are three possibilities: 1. from the university, 2. from national science foundations and 3. from other (private) foundations. At this stage, the research at the Succulent Karoo Research Station gets financial support from the University of the Witwatersrand. For a German in South Africa it is difficult to obtain funding from a national science foundation, as the South Africans do not support Germans and the Germans do not support researchers in South Africa. Private foundations most often support research about AIDS, cancer, or supporting nature conservation, but few support students of animal behavior.

The study of animal behavior is very popular, as documented by its presence in TV, popular science magazines and books. Thus it is surprising that nearly no private foundations exist that support research in this area, although so many people are fascinated by the results the study of animal behavior produces. Out of this developed the idea to establish our own private founda-

tion for research at the Succulent Karoo Research Station. We are in the process of enquiring into the legal requirements and to find the best way how to collect donations. An unproblematic solution for both people making a donation and for the research station receiving donations would be desirable. This means that administrative work needs to be minimized as well as resulting costs (of managing the money, transfers etc.).

We will inform you about our progress in future issues. The aim is to give YOU the opportunity to support the research in Namaqualand. At a later stage we would welcome a small donation (R80, 10 euro, 15 dollars) from all subscribers to the FSM-TIMES per year. We will even give you the opportunity to contribute more and sponsor specific scientific projects (mainly of graduate students doing their thesis) or important infrastructure of the research station. However, you will have to be patient before you can make a donation, but we hope to have more news in the next issue of the FSM-TIMES.

THE PROJECT ON THE SOCIO-ECOLOGY OF THE STRIPED MOUSE IN NAMAQUALAND HAS SO FAR BEEN SUPPORTED BY:

Grants for salary

June 2001 to May 2003: Swiss National Science Foundation

June 2003 to May 2004: German Science Foundation

Since June 2004: Fellowship of the Claude Harris Leon Foundation, Cape Town, South Africa

Grants for research expenses

Foundation for the promotion of young scientists (University of Zurich)

Swiss Academy of Natural Sciences

Swiss National Science Foundation

University of the Witwatersrand

National Research Foundation South Africa (grant holder: Prof. N. Pillay)

THE MOUSE'S TAIL

PROBLEMS WITH WATER

by Carsten Schradin

August: First the water pump broke. After it was repaired, the pipes to the bathroom were blocked. One more day without showers but with carrying water buckets to the toilets. After this was fixed, one pipe broke, the water tank of the bathroom run empty. Again no showers. Fortunately the friendly staff of Goegap helped us quickly and finally everything was in order. Since then, no problems anymore. We hope it will stay like this!

PUFF ADDER

by Carsten Schradin

Some excitement was caused by a 1m long puff adder. As the bite of this snake can be deadly, her presence was not appreciated. She first turned up after a very cold day, lying next to the bathroom door. Carsten took a walking stick and the cold stiff snake was carried over the fence. A few days later she was back, lying next to the rubbish bag with the old mouse bedding from our colony of captive kept mice: Surely a seductive smell for the snake. She was taken away again using the walking stick. Two days later she was having a rest in the shade of the research station. Luckily she did not come back from her last transport into her natural habitat.

COMING UP IN THE NEXT FSM-TIMES

The title in the next FSM-TIMES will be about our main study object, the striped mouse. We will also report from the yearly big BBQ with the workers from Goegap and about the last months of the diploma students.

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: stripedmouse@mweb.co.za. Please write „SGM-SPIEGEL Abo“ into the subject of your email.