

# FSM-TIMES

FourStripedMouse

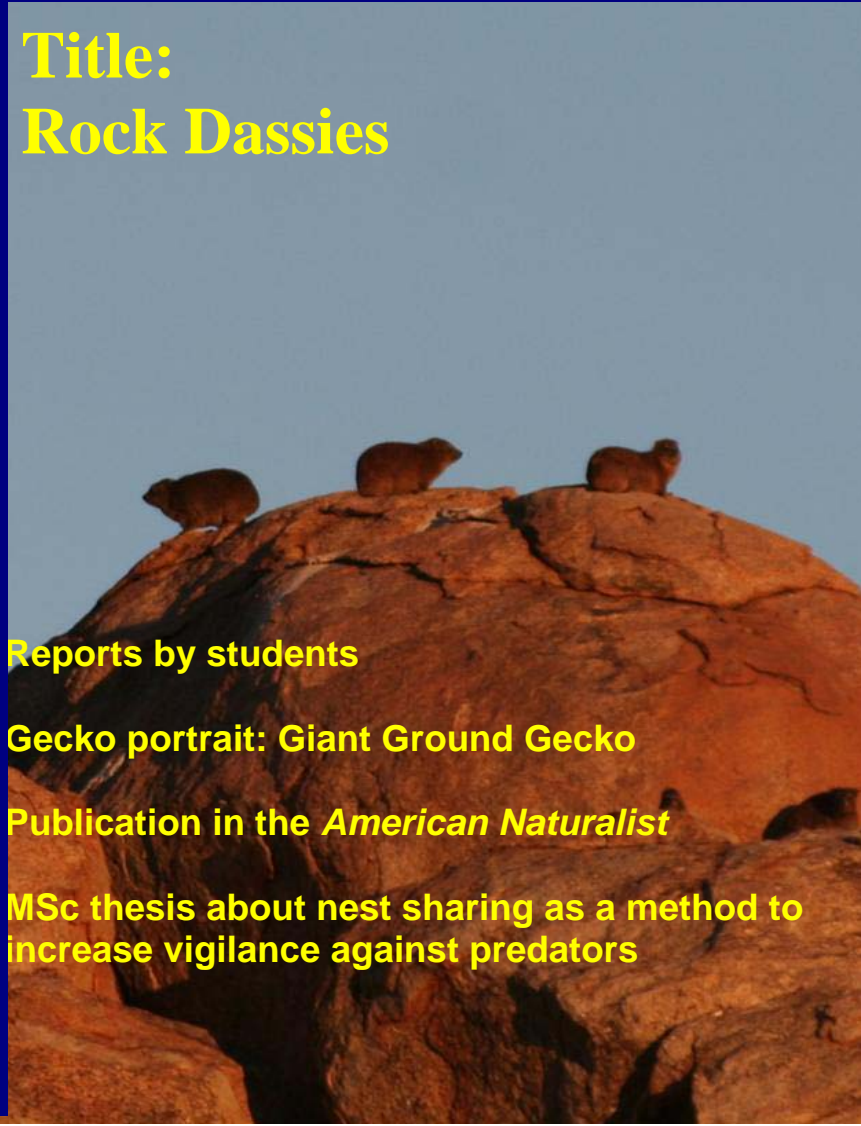
**Title:**  
**Rock Dassies**

**Reports by students**

**Gecko portrait: Giant Ground Gecko**

**Publication in the *American Naturalist***

**MSc thesis about nest sharing as a method to increase vigilance against predators**



## EDITORIAL

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**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 descendants 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 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.

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## WELCOME TO THE NINETEENTH ISSUE OF THE FSM-TIMES!



Dear Reader,

Everything is going very well at the research station. In fact, it is going so well that I do not have to go there this year in March, like the years before. Ed and Ivana have everything under control and lots of help from very motivated field assistants from France and the UK. Ok, some of them eat a lot, as you will read, while others walk a lot, but they also work a lot. And this, under very hot weather conditions, maybe

one of the hottest summers for a long time. But now it is getting autumn in South Africa, temperatures will drop, days will get shorter, the research station will be less full, and hopefully work for the students there will be more relaxed. I hope you will find a relaxed hour to read this FSM-Times and enjoy hearing about these moments in South Africa.

Kind regards,

*Carsten Schradin*

## NAMAQUALAND-WEATHER

*By Ivana Schoepf*

The year 2009 started off with a pretty normal dry season. January was hot and dry as we would expect from this time of the year in Namaqualand. However things looked decisively different in February when clouds started to appear on the horizon. After several days of threatening to rain, we finally had a downpour on the 06th of February. However this was no ordinary summer storm: once the rain fell, it continued to do so for several days. It looked very much like somebody had opened the water tap and forgotten about it. Woken up by the sudden arrival of the water, plants started to bloom again. In the space of just few days the reserve transformed from a dry and barren wasteland to a flower paradise. Suddenly thousands of *Tribulus pterophorus* appeared

seemly out of nowhere. And, for a second year in a row, March lily blossomed too. Taking advantage of this moment of plenty, our mice started to pile on weight and females fell pregnant. Scattered showers continued also in March, but these were of a much less magnitude than the ones we had witnessed in February. Then, suddenly as quickly as it had appeared the rain stopped. But the weather still had a surprise up its sleeve, and in March suddenly, in the space of just two days, the temperatures dropped from almost 40 degrees to just 10! It has been now consistently cold for the past two weeks. Even though the rain stopped for now and the weather has gone cold, the mice are still breeding and the first pup of the season emerge just few days ago.

The last three months	January	February	March
Minimum temperatures			
night	10.1	9.9	10.7
day	26.1	24.3	25.0
Maximum temperatures			
night	20.1	26.1	24.8
day	38.2	38.6	36.0
Nights with frost	0	0	0
Rainfall in mm	0.4	54.4	8.1
Days with rain	11	9	8



The March flowers are out, autumn is coming!

## THE PEOPLE IN GOEGAP

*By Ed Yuen*

In the middle of January two master students from St-Etienne, France arrived to provide much needed help both on the farm and main field site. While Laureen Keller would work on the farm and collect home range data for her master thesis, Lauriane Giroudot would work at the main site and observe individuals by following them continuously for three hours a day to compare daily activity and

home range use between different male's reproductive tactics. Then, just a few days later, William Brown from UK also arrived. While Will had little experience working with rodents before, within just two weeks he had already managed to work independently and began to collect data for the individual recognition experiment. Then, in the beginning of February, Ian Paynter from Wales

arrived. Will and Ian both share the love of nature and red meat, hence, they often when out hiking together even ate their way onto the "Wall of Warriors" by eating a whole kilogram of rump steak in a steak ranch in Springbok (when I almost couldn't even finish my 250g steak)!!! Also in the beginning of February, it was time for Eve Davidian to leave us. During her two months stay in Goegap, Eve demonstrated willingness to carry out extra duties and proved to be a hard field worker. For some mornings in January, when she was the only field assistant in the

farm, while Ivana was processing blood samples as well as conducting behavioural phenotype experiments back at the research station, she was radio tracking around 50 mice all by herself! As mentioned before, Will wasn't only a quick learner, it turned out that he was also a very motivated field assistant. He worked on many of his off days in order to collect enough data for the individual recognition experiment for his group! It was too bad that in the beginning of March, he also had to leave us and returned to the UK for his new job.



The group end of January, from left to right, from front to back: Laureen, Eve, Lauriane, Ivy, Ed, Ian and Will.



## THE COMMUNITY LIFE

By Laureen Keller

As everyone who comes here already knows, the Goegap experience is not only a work experience but it is also a great occasion to experience the community life and to take advantage of it.

On average, there are six people living at the research station so, to make cohabitation easier, we all have to respect some basic rules. That being said, it can sound a bit scary, but it simply means that you have to be as normal and respectful as you would be back home. In practice, it consist of cleaning your kitchen utensils and the stove after using them, not spending two hours in the bathroom every morning, and respecting the private life of the others. Because of the location of the station, in the semi-arid Succulent Karoo, one of the most important things you have to care about is to save water and energy. You are probably thinking that it is obvious and you already do that in your home country to protect the environment. But when you have to stop using all the computers or keep the light off after three days of rain because the remaining energy is saved for the fridge, you will realize that it is a real necessity and not only a "good action"!

As I said before, living here is also an amazing opportunity to learn about other people and to experiment new things. Several moments are particularly favourable for that, like watching a movie all together, working or going out on Saturdays. Indeed, even if Springbok is a small

town it offers a lot of different places to relax and have fun with your "co-tenants" and South African people playing pool, having a drink in a pub or in a club...

The time spent in the kitchen for dinner is also one of these precious occasions. We discover the personality traits of the others, their experiences, their country, their traditional recipes ('ratatouille' from France, pizza dough from Italy...), and of course for the non English speakers: improve it. Everyone can learn something about the others and their passions.

The braai (=BBQ), usually on Saturday nights, is the most South African part of our week. It is a great and relaxing moment. It is the occasion to take some time to have a chat and test all the traditional ways to eat grilled meat: with honey, BBQ sauce, sweet potatoes or grilled corn... The geckos provide a show hunting the poor beetles attracted by the smell and the light. And at the end of the meal, if you are not tired by the working week you can raise your head and contemplate the most amazing sky you will ever see and try to recognize (with a little bit of help from Ed) the Orion belt or the Southern cross ... a real moment of sharing!

Saturday night can also be the occasion for a night drive. It consists in, as it name said, a drive in the late evening with spots lights to look for some nocturnal animals. If you are lucky maybe you will see some Aardvark, a large mammal with a long

pig-like snout, Aardwolf, a hyena-like carnivore with dark stripes across the back or some amazing birds as ostrich or nocturnal ones as owls. If you see a porcupine take a picture, you will become a legend in the research station as the first people which not only find some quills!

As we don't work on Wednesday, the Tuesday evening is also nice. Generally we all meet in the kitchen ... again, to watch a movie. The research station provides a really

interesting collection of totally different movies in order for everyone to find what they like. Like for all the shared decisions, it can take a little bit of time for everybody to agree but it is the occasion to discover different movies and to enjoy them.

To conclude, I would like to say that even if the permanent cohabitation with other people could seem "frightening", you soon realize how enriching it can be and how trivial the drawbacks are.

## FRENCH-ENGLISH LESSONS

By Will Brown

Picture the scene. It is shortly after sunset when a dusty posse of tired fieldworkers comes crashing through the door, drop their backpacks and stumbles into the kitchen like a procession of flesh-eating zombies. Six exhausted bodies in the small room; six mouths each wanting six meals...and all at the same time! It is at such a time that you exercise patience; the most important virtue for success and tranquility at Goegap. Before you come to Goegap there are some things you should know. Firstly, you are going to learn new things and have a wonderful experience. Secondly, you will be in continuous close contact with people who will initially be strangers and most likely from a different sex and nationality to yourself.

Being English I was initially dubious at the thought of spending a couple of months with three French people! However, the news improved when I found out that it would be three young

### 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 [carsten.schradin@zoo.luzh.ch](mailto:carsten.schradin@zoo.luzh.ch). Please write a short motivation and attach a CV. You will then obtain more information.



French girls. Naughty thoughts of frilly underwear, perfume parties and bedtime whispers of 'mon chérie' titillated my racing imagination. Of course, it wasn't like that. The French

girls did float about the kitchen wearing provocative lingerie and having epic two hour lunches - much as the French do - but the talk was more about the sex lives of striped mice than...urr... you know.

The overwhelming majority of your time you will have a laugh with your fellow fieldworkers and share good conversation. However, as any of you who have seen Big Brother know the potential for lively 'intra-housemate dynamics' can lurk below the surface and threaten to break its calm waters. Particularly dangerous in Goegap where there is no production crew to rescue you and where... *no one can hear you scream*.

So, how to maintain a friendly, tolerant and peaceful atmosphere? Goegap is basically a very relaxed place. Allow the chilled vibes to wash away your worldly cares, sit right back and light up another joint of the finest local *dagga*. Actually, scrap that final bit! Just come with a relaxed sense of adventure and be prepared to accept and adapt to anything that comes your way. Also, respect other people's differences and privacy. If you come, bring some games that to play or a few DVDs that everyone can watch together. My complete series

of '*Blackadder*' passed many an amusing hour. Make sure that you go partying in Springbok at least once or twice. Trust me, the Springbok nightlife is like nothing you've seen before (and I mean that in both a good and bad sense!).

Another sparkling gem of advice: food can really bring people together. Much gratitude to everyone whose cakes and chocolate brownies I scoffed! So, cook something delicious and share the love. Just make sure it is delicious. When the French girls cooked me crepes, whole centuries of conflict between our nations evaporated and a blissful *Entente Cordial* descended over Goegap. To reciprocate and boost the spirit of international peace I cooked them a traditional English meal. Alas, conflict returned.

However, after repeated exposure to frozen pizza topped with tinned baked beans I am sure they left with a new found love of processed food and the English way. And that, dear friends, is the key to peace at Goegap. Bags of patience, smiles and the ability to lie through your teeth when someone cooks you their special meal!

Bon chance!

#### TO GET TO THE OFFICE, BY FOOT OR BY BIKE?

By Lauriane Giroudot

At the research station there is no phone, so if you want to call your family or friends you have to go to the office, which is situated 5 km away. Usually we choose the Sunday to go to the office because it's our entire

day off so you can take your time if you find something interesting to see, like a special animal you really want to identify, or just to admire a group of springboks.

The first time we (Laureen, the other French girl, and me) went to the office was also our first real walk in the reserve. I remember that we were walking at a normal speed and frequently stopped to take pictures of wild animals. I supposed that it's the same for everybody who came here: as all is new and you really want to see as much as you can!

It took us one hour to arrive without being too tired.

After that I tried to do the travel by myself because my roommate had to work and I absolutely needed to make a phone call. It was during the week so I had just few hours to go and come back to the research station. I walked as quickly as possible in order to finish this journey in the shortest time. The main reason for me wishing to do this quickly was that the sun was very hot (it was 2 O'clock in the afternoon) so it was not

pleasant to feel my skin become more and more hot in spite of my clothes and sun cream.

Because you probably don't know how it looks on the way to the office, I will describe it to you: it is a sandy road (girls you will have calves made of metal after that!) running in the semi desert...meaning that you don't have a piece of shadow!

In other words you have to take a lot of protection (cream, sun glasses, hat) and water.

Fortunately it was a windy day so it helped me to stay cool during the most important part of my walk.

The second time I had to go to the office alone was 2 days after that. As I was more in a hurry, I choose to borrow the bike of the research station. I thought "Ok, maybe it will be difficult in the slopes but it should be alright!"

Ha ha ha.



I forgot that I was a city girl with non-existent thigh muscles!

To be honest it was not a complete travel by bike... just half. I pushed the bike when the slope I need to climb was too hard, and used it when the road goes downhill. When I finally arrived at the office, after 40 minutes, I was exhausted.

In spite of this, the impression of speed when you are on the bike, feeling the strong wind on your face, and see the landscape fly, it's amazing! For me it was like feeling completely free, and I think everybody has to try at least once.

To summarize what to do when you have to go to the office for a phone call:

- 1) You are not in a hurry => walk and take your time to admire the wild nature. If you have somebody to come with you it's even better, you can talk and share your opinion on what you observe.
- 2) You have not a lot of time => try to do the travel using the bike but you have to know that if you are not sporty, you will probably have difficulties to climb the slope, you will not see everything (as I was not

confident with the sandy road I spent the most of the time looking at the ground, in order not to fall because of a stone), and also you will be on your own because there is just one bike.

In all cases, if you come at the research station, I am sure you will try these two options... and also the third, last but not least: the car!

Be careful, there is speed limitation so don't walk too fast!

### THE SOFA SAFARI AT GOEGAP NATURE RESERVE

By Ian Paynter

The modern wildlife documentary has created a new breed amongst enthusiasts of the natural world: the armchair biologist. It is entirely possible in this day and age to swim with Great White Sharks, swing with Ring-Tailed Lemurs and slither with Puff Adders without ever so much as getting to your feet, let alone getting them wet, muddy, burned, frostbitten or blistered for countless hours to get a fleeting glimpse that definitely might have been the animal you were seeking. Can being in your slippers in the living room really replace being in the shoes of Livingstone? As it turns out, there's a huge but attached (and not just because all you've done is sit on it in front of the TV).

Education, information, inspiration – all of these are provided in ample spades by the television output of the Attenboroughs and Carwadines of this world, but true experience and beauty is something that can only be in the eye of the beholder. It's not

merely a case of 'seeing' a creature, it's about experiencing first hand the way it moves, sounds and smells as well as getting a genuine feel for the habitats they live in. Considering this, is all hope lost for those who dream of being on safari on the sofa? I'm here to tell you that it isn't. You just need to find a very special sofa.

As it happens there is such a sofa here in Goegap Nature Reserve at the Four-Striped Mouse Research Station. Admittedly it's out on the veranda, but the climate here makes that a very pleasant place to spend an evening. The Goegap Sofa Safari offers the highest-definition picture in the world, fully widescreen, with hyper-realistic surround sound and smells built in as standard. The sofa itself is also pretty comfortable. Although it lacks a traditional channel-changing method, switching the light on during night-time broadcasts will get you extra bugs, if that's your thing.

Day-time viewers will be treated to regular footage of Four-Striped Mice and Bush Karoo Rats, Mouse-Birds and Cape Sparrows (probably pecking at their reflections in the car's wing-mirrors). Perhaps you'll see our resident pair of grey herons or the rock kestrel that frequents the disused telephone poles. Committed watchers might see Jackals, a Jackal Buzzard, some of the famous and distinctive Springbok or even some booming Baboons (volume control not supplied).

Those night-owls among you might see some of your avian namesakes in the form of the Cape Owl, and in the meantime will have an endless supply of Cape Serotine Bats flitting past, Geckos scuttling across the walls and the marauding black shapes of Tyrant

Beetles scurrying across the ground. Fans of close-up shots should be warned that the stings of scorpions and the bites of snakes are incredibly realistic.

All the above and more is available practically every day on the Goegap Sofa Safari. All you have to do is get to Cape Town, South Africa, persuade someone to drive you the seven hours out to the little town of Springbok, persuade someone else to drive you 20km out into the semi-desert then throw yourself down on the sofa and tune in. It's just that simple. With such easy access available I know that it won't be long before dozens of you will be getting off your sofas the world over and getting onto our Sofari.

### MORE STEAK, ANYONE?

By Ivana Schoepf



Ian before he was weighting 1kg more!

After a fateful night out at the Tauren Steak Ranch, we discovered that the restaurant was running a competition: if you were able to eat a kilogram of

steak, your name would be immortalised on the very aptly named "Hall of Warriors". Of course, upon discovering this, Ian and Will immediately decided that they had to get their name up on the board. The decision to eat a kilogram worth of steak was an easy one, but as the days progressed and the challenge drew closer doubts started to emerge. While Ian seems to be confident in his ability to do it, Will started having second thoughts. It took some encouragement from all of us, but eventually we managed to persuade him that he was going to make it. Hence, after a week of "strenuous" mental preparation, Saturday came and by then it was too late to withdraw from the competition. As we

arrived at the restaurant and ordered the food, even the waiter seemed to be incredulous by the orders, and he even did a double take by asking to clarify the food that he was asked to serve. As we waited for the food, Ian seemed to be completely cool and in control, while Will started to grow dubious again. Will's worries were probably very much fuelled by all the speculations and discussions that all of us were having about the potential size of the steak that he would have to eat in just a few moments. Of course it did not help the fact that he had already downed a beer and two glasses of wine and he was probably already feeling full by then. After a

long, long wait that seem almost interminable, the steaks finally arrived. And yes, they were huge. Ian ate his steak as quickly as possible, as, by his own admission, if he had done it slowly, he would probably never had been able to finish it. On the other hand, Will decided to take the slow approach and, even though he struggled with the last few bites, he also managed to finish his share. All of us were really stunned: how can anyone possibly eat a kilogram of steak? I couldn't even finish a 200g one! It was truly incredible! And that was not the end of it: they both decided to top it all off by ordering cheesecake! Amazing!



Will was happy that the steak didn't come with English peppermint-sauce!

**Goegap Nature Reserve**

**Accommodation: Guesthouse, bush hut, camp site.**

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

**Tel: +27 27 718 99 06**  
**Fax: +27 277181286**

**HOMEPAGE: STRIPEDMOUSE.COM**

*By Carsten Schradin*

I do not really know why, but our homepage is becoming more and more popular. In the last quarter, we had the two months with the most visits at all. Amazing was March with more than 6000 visits, February with 4623 visits being the month with the second most visits ever, though being more than 1000 less than in March. I am curious whether we will still have so many visit in the months to come or not.

At the same time, downloads of our email newsletters SGM-Spiegel and

FSM-Times decline. This is also possibly a statistical artifact. The statistics I get show only the 30 most often downloaded pages, and as many of them are publications and many about reptiles, most downloads of the newsletter might not appear in the statistics.

In any case, it is great that thousands of people visit our homepage and read the newsletter, and we hope that our research will get their support.

	January	February	March	Total last quarter
Visits of stripedmouse.com	3924	4623	6006	<b>14 553</b>
Downloads FSM-TIMES, SGM-Spiegel	346	481	100	<b>927</b>

**TITLE: ROCK DASSIES (*PROCAVIA CAPENSIS*)**

*By Claudia Sobe and Elena Zwirner*

Once in a new place, the first thing to do after settling down, is –of course– making a list of species you want to see, and as two/too good biology students, we did it.

Here in Goegap there is much to see also when it's not flowering season! From the world's smallest tortoise to the most shy leopard ever, an

uncountable number of birds, many reptiles, game, insects, lots of cute mice and more!

As for the tortoise and the leopard their too shy or little and we're waiting for them to knock at our door, but so far we had nice encounters with a lot of species and we're still looking for others.



On our list we had two species we really wanted to see and that were supposed to be easy-to-spot: mountain zebras for Claudia and rock dassies for me. And after two months here, almost losing hope, we both got to see them unexpectedly on our way back from the hill after phone calls. It was great!

Reading a bit about both species, we decided to do our essay on rock dassies because they seem to be characteristically close to one of our room mates: "grumpy looking early in the morning"! And getting deeper into the reading, we realized that dassies are actually very interesting.

They have been for a long time a puzzle for zoologists to classify, and (only recently) have been recognized as very close relatives of elephants and manatees, even if their aspect is more the one of a marmot. They are the smallest (and angriest!) ungulate mammal, with an exceptional group-living style: never look into your relative's eyes.

### Hyraxes

There are three genera of *Hyraxes*: *Procavia* (Rock Dassies), *Heterohyrax* (Bush Dassies) and *Dendrohyrax* (Tree Dassies); with a total of 11 species. Differences between them are not so evident, and also genera do not differ largely. Especially, Rock and Bush Dassies are very similar and share the same repertory of calls and behaviors, as well as the same habitat.

Tree Hyraxes, instead, are adapted to an arboreal life and have become nocturnal.

Their longevity is up to 12 years.

### Description

Rock Dassies (*Procavia Capensis*) are characterized by a stocky structure and short legs, lack of tail, brown harsh coat and –looking closer- you can not miss the tusks. Like elephants, they have padded hoofs, but, unlike elephants, they on average reach the weight of 3-5 kg.

They are not very fast, but despite their heavy structure are very agile, especially in climbing and jumping between rocks.

In the middle of their back, Dassies have a scent gland which plays an important role in the communication between members of the same species; the orientation in dark crevices instead is helped by tactile hairs distributed over most of the body.

Females have four inguinal mammae and two pectoral, making it easier to feed pups when sitting on rocks.

Surprisingly we found out that Dassies don't have a constant body temperature, which influences their life style: low activity during the day, foraging in early morning and late evening and huddling together for warmth... Not for pleasure!



Young feeding from pectoral mammae.

### Habitat and distribution

Also their distribution is influenced by the non-constant body temperature: as they're not diggers but they need

shelter at night and to evade the heat during the hottest part of the day, they are dependant on natural cavities.

Rock Dassies though are adaptable, and are commonly distributed anywhere nice rock cliffs in good position for the early morning basking are; over the whole continent and the Arabic peninsula. No matter what the vegetation is, as their diet is open to any kind of plants – and, anyway, they eat so fast that they probably wouldn't notice the difference between grass and sand! It is estimated, in fact, that Dassies can get the same amount of grass per bite as a big sheep, and they fill the upper stomach in 1-2 hours.

All this is done to prevent predation during grazing time, when they are far from the rocks where they can hide. They forage in group, usually the territorial male is in charge for guarding, and if an alarm is given (by him, a group member, a bird or another genera) they quickly run to shelter in cavities.

As being in an open spot is dangerous, it's also preferred to have another cliff near the occupied one (few kilometers) in order to be able to move without risking too much crossing the way.

When a cliff is occupied by a colony, it is easy to spot. Dassies, in fact, use communal latrines near the sleeping sites and urinate on vertical rock faces. This leaves a typical white stain.



Dassies have to leave rock cliffs to forage. To prevent predation, an individual is in charge for guarding, usually the dominant male.

### Social organization

Not anymore a surprise to say that Dassies are colonial. Groups are formed of a breeding male and several related-females, but immigrant females might be accepted. There is not a real hierarchy between females, but the oldest usually is the dominant. Anyhow, the male is dominant over every group member, and provides defense from rivals and predators.

Group size depends on size and resources of home range, but usually a 4 km<sup>2</sup> is occupied by a male with 3-7 females and their young (groups with up to 17 females for one male are found in savannahs).

Male offspring don't have an easy life: they're forced to disperse between 17 and 24 months, and after being pushed out from their group from their father, they have to face all the other angry dominant males on their way to adult life.

The opportunities are two: find an unattended cliff where to settle or stop at one colony's periphery waiting to replace the breeding position as soon as it gets available.



But not even waiting is an easy job! Other young males can be looking for the same position and – as Dassies like – they solve the problem with fights: they are aggressive with each other in order to determine a hierarchy; as the breeding male from the near-by group dies or loses fitness, the dominant male between the peripheral males takes its place. It's impressive how Rock Dassies can fight each other without letting it go (they might fall down a cliff while fighting, and start again as they reach the ground), and how they avoid eye contact in order not to have an aggressive response. But more impressive is to know that they can share peacefully their home range with Bush Dassies!

Is not an exception, in fact, to find both species living in the same cliff where their distribution overlaps. And they associate very closely: the forage together, huddle together and they also have a communal nursery, where young play together. All this virtually with no aggressive behavior shown!

Probably the explanation is that differences in size between the two species (Rock Dassies being bigger) make it useless to start a fight, but it's nice to think that sometimes also Dassies need to stop their war.

### **Reproduction and parent-offspring behavior**

Reproduction is seasonal (early or late summer), and occurs once a year per colony. Sexual maturity is reached at one year. Males get aggressive, and testis size increases up to twenty times.

When it's time to mate, the male calls the female and approaches her with

its dorsal spots and penis erected. He mounts and embraces her, and all is done in a few seconds.

Sometimes, peripheral males can succeed to mate with a young adult or a sub-adult female of the group, not adults.

The gestation takes seven months and two to three young are born. They start to move almost immediately after birth; they climb their mother's back (where they can go to rest until they reach five months), they have open eyes and are fully haired.

For a meal, young call the female (contact call) and while suckling they twitter, may be to keep their mother in place. Females only feed their own offspring.

### **Communication and behavior**

Rock Dassies show a wide repertory of calls: territorial advertising, growling, begging calls, contact calls. But what makes them popular are their alarm calls, a funny loud grunt ...that I can not better describe as I so far only heard it from people trying to reproduce it!

Another way of communication is given by the dorsal gland and the erectile hairs on the back, used mainly in dominance/submission displays.

### *Dominance/Threat Display*

When Dassies feel somebody forgot who's the boss, they let it well understood opening their glands, raising head and shoulders, staring and approaching the opponent with tusks in good view, growling and grinding molars and at last chasing away the intruder.

### *Fighting*

If the dominance is not clear yet or if the opponent is willing to get it, the display will end in a fight. And, again, Dassies are hard fighters.

They bite each others neck, shoulders and head and can injure fatally with their tusks.

Mainly aggression is directed to males, adults or sub-adults, trespassing.

### *Defensive/Submissive Display*

To avoid any confrontation, Dassies have to be careful in any moment of the day. They face away while eating and huddling, they never look each other in the eyes, and, to be sure of that, they also enter in holes and in huddling groups in reverse!

But if it's not enough and the dominant male misunderstands, peaceful Dassies can try to calm him down closing their glands, making their ears flat, presenting their ramps and backing down.

### *Anti-predatory behavior*

The many predators Dassies have, contribute to make their life a constant look-out for danger. Owls, eagles, snakes, jackals, cats and mongooses are the main threat.

Dassies have to keep alert, they prefer to stay near cover, and they promptly give alarm calls. They can also show cooperative defense against predators, and adults can aggregate in mobbing small predators.

If caught, Dassies can have a last chance of escaping by playing dead.

### **Dassies and human beings**

I think Dassies used to like human beings, especially when they lowered

the predation risk by reducing their predators' population.

Unfortunately for them, humans didn't love them back. As, in the draught of '40s, they began to have losses in agriculture due to a surplus of Dassies, they learned to value their natural predators and never forgot it.

More over, humans soon learned that Dassies were a good source of delicious meat and very resistant leather. Nowadays they are still sought after by various tribal Africans. From excrements are also made medicines and ...perfumes!



Dassies' urine leaves a typical white stain on rocks, that indicate the presence of a colony.

### **Dassies in Goegap**

Here in the Nature Reserve, Dassies have most of their natural predators but they don't have to bother about humans.

At the workers houses they get really close, to feed on leaves and the nice grass.

As for us at the research station, we don't see them that often and neither that close (only on our way to town, when they cross the road and run on the next cliff), but we always enjoy spotting wildlife and there is no doubt that Rock Dassies can make our day when they look angrily at us from the top of a rock.

And if we are lucky and patient, they can also get surprisingly close, feeding just a couple of meters from us.

They're not nice looking, they're not cute as our mice, but, still, they can be so funny!



Dassie „flying“ to the other side of the road after a short fight.

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## NEWS AND INFORMATION ABOUT PLANTS AND ANIMALS

### TONIGHT IS THE NIGHT!

By Ivana Schoepf

We were again approaching the end of the week and the topic of discussion, as always around this time, was how we were going to spend our Saturday night – Sunday weekend. I knew some people (e.g. Will) really wanted to go and pay a visit to Beavers, one of the fabled clubs in Springbok. He had been really pushing for a night out to the place ever since speaking with Johan about the „entertainment“ options there. However most of us really didn't have the energy to go out clubbing, especially ever since we had started the home ranges back at the farm. Hence we all agreed that it would be a much better option for all if we went for a night drive instead – ok, the decision was not exactly unanimous: Will still was more inclined to go to Beavers, but in any case, he still would have one weekend left to do it. For my part, I thought it would be a great idea; after all it was such a long time since we had a night drive here in Goegap. Looking back, I think the last one I went on was when Carsten was still here with us in October; hence it was really about time to go back on the road and see some nocturnal creatures. Hence on a cold and moonless Saturday night in February after having stuffed our faces with the

always delicious braai food, we all got ready, climbed into the Mahindra, and, armed with spotlights, we went out into the night. And we weren't far from the research station when we spotted our first animal: a cape-eagle owl! Everybody was really amazed by the largeness of the bird, but we did not have much time to take it all in, as, just around the corner, on the tourist route, we spotted two red eyes shining in the dark. The animal was quite far, but after much discussion and juggling with the spotlights we managed to identify it: it was an aardwolf. Fantastic! However this particular individual didn't seem to like being the centre of so much attention, and, just after giving us a quick glimpse, it disappeared into the night. We were still discussing how lucky we had been to run into an aardwolf, when we spotted another creature. It was an antelope, a small one and it wasn't a steenbok. It was much more relaxed and much closer than the aardwolf had been and it hanged around long enough for us to properly identify it: it was a duiker. This was also a very lucky sight: I have been on many night drives in the reserve, but I have seen duikers only on two occasions, one of the two being this one! We stuck around with the duiker for quite sometime, but it

seemed that the length of time we spend with it had been just perfect: a little longer or a little shorter and we would have completely missed our next animal, and we surely would have greatly regretted it as it was an aardvark! As it was lumbering away into the field, everybody could hardly contain their excitement. This was after all one of the few animals that was on everybody's list of must see before leaving Goegap! From that point on the topic of conversation became the aardvark. However, our conversation did not go very far, as, almost immediately, we spotted another aardwolf. It was much closer this time and it was just emerging from its den. It was an amazing sight: seeing the ears appear from the edge of the burrow, and then the inquisitive eyes and the pink nose: it was just wonderful! It peaked out of the burrow

a few times, almost unsure about what to do next, but eventually it stood up, stretched, gave us a glance and, just like that, it was gone. After that we still drove around for quite sometime, and we saw a lot of other animals (springbok, gemsbok, jackals, steenboks ...), but for me that night was and will always be about that aardwolf emerging from the den: nothing before or after came even close to be as exciting. The whole experience had been truly unbelievable. The whole night drive had been unbelievable! In the space of just over an hour we had seen two aardwolves, an aardvark, a duiker, a spotted eagle owl and many more creatures great and small. I don't think anybody regretted coming on the night drive and not having gone to Beavers. Not even Will.

#### GECKOPORTRAIT: WEBER'S THICK-TOED GECKO (*PACHYDACTYLUS WEBERI*)

By Ramona Pötzing

This species occurs in Central Namibia through Namaqualand to Western Namibia in the succulent karoooid veld.

Identification: This is a small, slender, flattened gecko with 22 irregular rows of small tubercles that are separated by granular scales on the back. The tail, which is slightly longer than the body, is segmented, with regular,

transverse rows of 6-8 enlarged keeled tubercles.

Biology and breeding: These very agile geckos live in cracks in hard rock and are active at night. They eat mainly moths and spiders. Two hard-shelled eggs are laid in a rock crack, and take 80-90 days to hatch. Communal egg sites may contain up to 60 eggs.

## CONFERENCES, PRESENTATIONS AND PUBLICATIONS

### CONFERENCES

**Schradin, C. Evolved endocrine mechanisms of social flexibility: How individuals adapt to a changing environment. Talk at the meeting of the Ethologische Gesellschaft in Göttingen from the 12<sup>th</sup> to the 14th February.**

Behavior is a product of evolution, but the optimal behavior often differs from individual to individual, and behavioral flexibility has evolved in many species. To understand the evolution of behavior one must also understand its evolved physiological mechanisms. The relative plasticity hypothesis predicts that alternative tactics are associated with changes in hormone levels. In species with alternative male reproductive tactics, the highest androgen levels have usually been reported in dominant males. However, in sociable species, dominant males show amicable behaviors to gain access to females, which might conflict with high testosterone levels. I compared testosterone, corticosterone and prolactin levels in male striped mice (*Rhabdomys pumilio*) following a conditional strategy with three different reproductive tactics: (i) philopatric group-living males, (ii) solitary living roamers, (iii) dominant but sociable group-living territorial breeders. Philopatrics had the lowest testosterone but highest corticosterone levels, suggesting that they make the best of a bad job. Dominant territorial breeders had lower testosterone levels than roamers. Roamers had the highest testosterone levels, which might promote risky behavior, such as invading territories defended by territorial males. This result suggests that dominant males' testosterone levels reflect a trade-off between low testosterone amicable behavior and high testosterone dominance behavior. Prolactin, a hormone correlated with parental care, was highest in paternal territorial breeders. These differences in hormones levels disappeared during the non-breeding season, indicating that they were correlated with differences in reproductive behavior during the breeding season. I concluded that evolved endocrine mechanisms are likely to underlie social flexibility in the striped mouse.



## SCIENTIFIC PUBLICATIONS

Schradin C, Scantlebury M, Pillay N, König B, 2009. Testosterone levels in dominant sociable males are lower than in solitary roamers: Physiological differences between three male reproductive tactics in a sociably flexible mammal. *Am Nat* 173:376-388.

The relative plasticity hypothesis predicts that alternative tactics are associated with changes in steroid hormone levels. In species with alternative male reproductive tactics, the highest androgen levels have usually been reported in dominant males. However, in sociable species, dominant males show amicable behaviors to gain access to females, which might conflict with high testosterone levels. We compared testosterone, corticosterone and resting metabolic rate in male striped mice (*Rhabdomys pumilio*) following a conditional strategy with three different reproductive tactics: (i) philopatric group-living males, (ii) solitary living roamers, (iii) dominant but sociable group-living territorial breeders. Philopatrics had the lowest testosterone but highest corticosterone levels, suggesting that they make the best of a bad job. Dominant territorial breeders had lower testosterone levels than roamers, which have a lower competitive status. Roamers had the highest testosterone levels, which might promote risky behavior, such as invading territories defended by territorial males. Roamers also had lower resting metabolic rates than either type of group-living males. Our results suggest that dominant males' testosterone levels reflect a trade-off between low testosterone amicable behavior and high testosterone dominance behavior.

## POPULAR SCIENCE PUBLICATIONS

The scientific article above was highlighted for the press by the journal *American Naturalist*. The University of Zurich reported about it on its homepage (in German):

<http://www.uzh.ch/news/articles/2009/hohes-testosteron-fuehrt-zu-risikofreudigkeit.html>

In the UK, the *Telegraph* reported about our study:

<http://www.telegraph.co.uk/scienceandtechnology/4785439/Nice-guys-get-the-girls.html>

### Nice guys get the girls

***Nice guys can get the girl of their dreams, according to scientists who studied testosterone levels in mice.***

By Telegraph Reporter

Last Updated: 9:55AM GMT 23 Feb 2009

Nice guys can get the girl of their dreams Photo: GETTY

They came to their conclusion after studying the breeding strategies of striped mice in South Africa.

They found that dominant males who controlled breeding groups had lower testosterone levels than subdominant males.

Research team leader Carsten Schradin said: "What is unusual about this society is that the dominant males are in fact the most sociable, often grooming other group members.

"It is the smaller and solitary living males, which roam from one group to another, that have the highest testosterone levels.

"The roaming males try to coerce females to mate, which, as one might imagine, is less successful than establishing a breeding group."

The study was reported in the *American Naturalist* and could explain why men who say it with flowers are more likely to succeed with women than those who behave like cavemen, according to the *Express* newspaper.

Striped mice are abundant in southern Africa.

Meanwhile, the mystery of how one bird emerges to lead a flock was revealed - they are either very hungry or very anti-social.

Researchers from Brighton and Leeds universities said leaders of big groups of birds, mammals or insects emerge naturally because they have strong views about where to go or because they do not care if the flock breaks up.

**Does nest sharing in striped mice (*Rhabdomys pumilio*) increase vigilance towards nocturnal predators?**

**David Lehmann**  
[ji-kano@hotmail.com](mailto:ji-kano@hotmail.com)

Master's Thesis, supervised by Dr. Carsten Schradin, University of Zurich,  
 Institute of Zoology (Department of Animal Behaviour)

Individuals living in social groups have developed several antipredator strategies to reduce their risk of predation. These antipredator strategies have been reliably described through the "dilution effect", the "confusion effect", the "group defence" and the "increased vigilance" hypotheses. So far, these hypotheses were mainly investigated in social species that forage in groups during the day. In this study, I used infra-red video recording to determine whether sharing a nest in the four-striped mouse (*Rhabdomys pumilio*) could increase vigilance towards nocturnal predators. This diurnal mouse species, from the Succulent Karoo in South Africa, forages alone during the day but sleeps in communal nest during the night. Since groups of striped mice were often sleeping under bedding materials, I could not observe individual vigilant behaviours directly in most cases. Instead, I estimated the nocturnal activity, based on the movement of the cover of the nests, of twelve wild groups in the field and seventeen captive groups of different group sizes. For six captive groups, I could determine individual activity during the night. I included abundance of food resources, ambient temperatures and dominance status as co parameters. The main results showed that as group size increased, group activity increased while individual activity decreased. After reducing experimentally the sizes of nine captive groups, I observed a reduction of group activity in the nest at night. I assumed that active mice are more able to collect information about their distant environment than sleeping ones. Thus, an increase in group size may result in an increase of group vigilance, as a direct result of the increase of group activity. I conclude that mice of bigger group benefit by having more time to sleep and by this save energy, while at the same time being saver due to increased total vigilance in the group. The individual analyses of activity revealed that breeding males were less active during the night than philopatric individuals, that they changed less often their position in the nest and that they slept preferentially at the edge of the nest. In this study, the benefits of nest sharing are skewed in favour of breeding males. I presented wildcat faeces up to the captive nests and used playbacks at night to test whether bigger groups react faster and detect sooner to simulated predation events. As these experiments did not work, further studies are needed to test whether increased activity is really indicative of increased vigilance.

## FUNDING OF RESEARCH: CALL FOR DONATIONS

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### Account details

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.

You can easily donate money online if you have a PayPal account.



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## ACKNOWLEDGEMENTS

We are most grateful for every donation made to support our research !

### New way to donate money !

Since November last year you can donate money easily online via PayPal! Just log onto our web site [www.stripedmouse.com](http://www.stripedmouse.com) and click onto the PayPal button. We are very grateful for any contribution!



## THE MOUSE'S TAIL

### THE SKINNIEST GUY AT THE BRAAI



At nearly 20 centimeters long but only millimeters wide the stick insect that visited our last Braai could easily have been mistaken for a kebab skewer. That is, until it opened its impressive, membranous wings and flew around to crawl on each of us in turn.

### A MOTH OF SUNDAYS



Our Sunday off was shared by the humungous black and red insect that occupied the kitchen. Half-way between giant moth and dragon-fly, with exquisitely detailed antennae and wings, this 10 centimeter behe-moth sat calmly on the packet of communal sugar for more than 12 hours.

### GECKO GLUTTONY



Every time we illuminate the night with our Braai the geckos gather for a feast. Unsuspecting moths and beetles flock to the lights and are promptly devoured by the dozen. The geckos gorge themselves so thoroughly it is a wonder they can still cling to the wall.



## **GOLDEN MOUSE PRIZE-WINNERS**

**2008: KLEIN GOEGAP**

**2007: GOEGAP NATURE RESERVE**

**2006: DR. GUSTL ANZENBERGER**

**2005: JENS SCHRADIN**