

FSM-TIMES

FourStripedMouse



TITLE
SUKKULENTEN
SUCCULENTS



Christmas in Goegap
New solar pump installed
Financial report
Reports by students

IMPRESSUM

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HOMEPAGE

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WILLKOMMEN BEI DER FÜNFUNDZWANZIGSTEN AUSGABE DER FSM-TIMES!



Liebe Leser,

Wieder ist ein Jahr zu Ende.

Unsere Freilandstudie in Südafrika dauert nun schon 10 Jahre, das bedeutet, wir haben bereits 10 Generationen von Striemengrasmäusen untersucht; mehr als in den meisten anderen Langzeitstudien an Säugetieren. Und auch die Forschungsstation hat sich in den Jahren sehr viel weiter

entwickelt. Jüngstes Beispiel: Seit Dezember haben wir ein Solarpumpe, welche unsere Wassertanks auffüllt! Ausserdem lesen Sie in dieser Ausgabe über die Sukkulenten, den wasserspeichernden Pflanzen, die der Sukkulentenkaroo ihren Namen gegeben hat. Jetzt wünsche ich Ihnen viel Spass beim Lesen und alles Gute für 2011!

Carsten Schradin

WELCOME TO THE TWENTY-SIXTH ISSUE OF THE FSM-TIMES!

Dear Reader,



Another year is over, the 10th year we study striped mice in the Succulent Karoo. That

means we already have data on 10 generations of striped mice, more than most other long term studies on mammals have. In this issue you will

read about water storing plants, the succulents that gave the Succulent Karoo its name. And of course the research station itself also developed further: We got a solar pump installed, to fill up our water tanks. I hope you enjoy this issue and I wish you all the best for 2011!

Carsten Schradin

NAMAQUALAND-WEATHER

By Ed Yuen

THE LAST THREE MONTHS	October	November	December
MINIMUM TEMPERATURES			
NIGHT	0.1	7.1	9.8
DAY	14.9	18.3	18
MAXIMUM TEMPERATURES			
NIGHT	18.4	21.1	21.0
DAY	35.9	35.9	36.9
NIGHTS WITH FROST	8	0	0
RAINFALL IN MM	0.5	3.3	1.0
DAYS WITH RAIN	4	3	4

THE PEOPLE IN GOEGAP

By Ed Yuen

In September the research station was still quite busy: with the exception of Eloisa Martins, all the field assistants that had arrived to help us for the breeding season were still here, and so were the two PhD students, Julien Reynaud and Ivana Schoepf, Davina Hill the post-doc and Carsten and his family. In addition, Davina's boyfriend, Carl, came to visit for a couple of weeks. But things were about to change. And true to this, in the last few days of September, the great exodus started. First to leave – even though it was only for a short period - was Ivana. She left in the end of September for Australia to attend a conference: the 13th meeting of the International Society of Behavioural Ecology in Perth. Just a few days after she had

left, Carsten and his family were also leaving us and headed back to Europe, where Apollo was starting kindergarten. Just two days after Carsten left, Kalya Miramontes Sequeiros also went back home, to Spain, where she hoped to apply for a postdoc position. And, the following day after Kalya's departure, Carl also went back to his job as a historical philosopher in Johannesburg. Within a period of not even 10 days between the end of September and the beginning of October, the population of the research station had more than halved as we went from 12 people down to 6! And this was not the end. Just a couple of weeks after Kalya's departure, Dany Krönert had to fly back home to Germany for a family emergency. We had a bit of a respite

from all these leavings, when Ivana came back to Goegap in mid-October and was shortly followed by Ulrike Fisher, from Switzerland. Originally a computer developer from Geneva, Ulrike came to Goegap as part of our striped mouse safari programme to experience life here at the research station. During her stay, Ulrike mainly helped with data collection in our main field site. Ulrike was always very enthusiastic and keen to learn more about the mice. And she taught us something too. You see, Ulrike is a bit of an expert on succulent plants and she loved to tell us about them. Ulrike arrived in mid-October, and stayed for a period of one month. She left the same day as Ivana and I departed for our holiday to Botswana.

While we were away on holiday, Davina's boyfriend, Carl, came back to visit. Also while we were absent, Julien completed his experiments – and the steak challenge too! - and left Goegap. We returned from the holidays to find a much quieter station than when we left. And it was about to get even quieter, as just a few days after I returned, I was on the road again. This time with destination Johannesburg, helping Davina to transport the mice she needed to set up her captive colony at the University of the Witwatersrand. With me away, there were only two people left at the research station: Nicola Sewell and Ivana. This is the quietest the research station had been in a while.

are closed by ball valves, the water pressure increases, and the pump will shall switch automatically. But so far this has only been promised to us, and we paid for it, but it has not been

installed. Lets hope the guy will install it early in 2011!



The old diesel pump and the new solar pump

SOLAR PUMP

By Ed Yuen

Its official: the research station is now completely environmentally friendly when it comes to energy. In the end of December, we got rid of the old smelly diesel pump and we got a nice solar powered one. Not only the new pump is a lot greener, but it is also quite silent, so that now we can pump water even when people are working in the field without disturbing them or the animals. All thanks to Neville Pillay, who organized a grant from the University of the Witwatersrand to pay for it.

There is only one problem: We paid for the pump plus an electronic devise regulating it automatically by measuring the water pressure in the pipes: Ones the tanks are full, they

HOW TO BECOME A FIELD ASSISTANT?
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 PEOPLE INTERESTED IN WORKING AS A FIELD ASSISTANT FOR 2-3 MONTHS WRITE AN EMAIL TO CARSTEN.SCHRADIN@IEU.UZH.CH. PLEASE WRITE A SHORT MOTIVATION AND ATTACH A CV. YOU WILL THEN OBTAIN MORE INFORMATION.



CHRISTMAS TIME



For most of you, Christmas means snow and cold weather, but as you know here in Goegap, Christmas is hot and it certainly takes away some of the Christmas feelings. However, this year the Christmas spirit is high at the research station. Don't worry, it's not that the global warming has become so bad that it begins to snow in Goegap in the middle of summer, it's just that for the first time this year, we have a Christmas tree in our research room, thanks to Carsten, who donated his Christmas tree to the Research Station! We even bought Christmas presents for each other and put them under our beautiful tree.

BIRTHDAY FUN AT GOEGAP

By Nicola Sewell

November marked my 23rd birthday, and understandably I was a little sad to be away from home and my twin sister for the first time in 23 years. Everyone here however, (Ed, Ivana, Julien, Ulrike, Davina, Carl, Johan, and Johan's brother) gave me a birthday to remember; and in true royal fashion, I had two birthdays, three cakes, and a princess hat.

My first birthday was at the end of October as Ivana and Ed would be on holiday in November. This round of celebrations consisted of a braai at the research station, a few drinks, and some rather interesting costumes/masks. Ed, Ivana, Julien, Ulrike, Davina and I were dressed as different animals from the reserve. Ed was dressed as a baboon (which I must admit was the best outfit, although he refused to let us take any photos), Ivana dressed as a Gemsbok, Davina an Elephant Shrew, Ulrike a Jackal Buzzard, Julien a Puff Adder, and myself an Aardvark.

Ulrike and Davina kindly made two cakes, a chocolate and Strawberry mouse themed cake and a mouse shaped marble cake, the cut-outs of which made the mountains of Goegap. The night inevitably ended with a few too many shots and a two day hangover for Davina.



The second round of celebrations took place on my actual birthday, at the end of November. The day began with presents from Davina, Julien and Carl. After opening my presents (which included a dog chew in the shape of a shoe to deter Yogi from eating any more of my shoes!) we had a quick breakfast and got ready to head into town. Once in town it was straight to Tit Bits for a light lunch and some cocktails.

Johan joined us at Tit Bits, and after a few more cocktails, we headed to the steak ranch for dinner. After his early retirement at the last celebration, and his complaints at the Puff Adder mask Davina had kindly made him, Julien had some making up to do... enter the kilogram of steak.

After a rather grueling 40 minutes, Julien completed the steak challenge... part one. It was decided that part two and three would consist of a generous helping of cake number three that Davina had made me (a delicious concoction named "The Nicola", of coffee and vanilla sponge with butterscotch icing.... Yum!), and a belly busting Ulster fry made by myself late the next morning to cure a few lingering hangovers.

The celebrations continued after dinner with more cocktails at Johan's, where Davina, having been up working from 5 o'clock that morning, fell asleep. Bless!

On a rather late, and drunken, arrival back at the station, Julien completed part two of the steak challenge, before heading to bed (Julien later completed part three of the steak

challenge, and will soon have his name on the wall of fame at the steak ranch).

All in all, my birthday turned out to be one I'll never forget, and I have definitely stumbled across the a tradition that I shall keep for as long as I can get away with it... two birthday celebrations a year!

December ends my fifth month here at the Striped Mouse Project. I will be leaving on the 17th January, and must say I will be very sad to do so. The past five months have been an incredible adventure, (with both good and bad times) which I will remember for the rest of my life. I would like to take the chance now, to thank everyone that I met here for this amazing experience, and I hope to see them all again in the near future.

TRAVELLING MICE

By Ed Yuen

In the middle of December I had the chance to help Davina to transport 40 young mice from our captive colony in Goegap to the University of the Witwatersrand in Johannesburg for her postdoctoral studies. Although it was a very long road, the mice settled well in the car and arrived to Wits without any problem.

However for me, the highlight of the trip had to be the fact that after working with the mice for 4 years I finally had the chance to meet Professor Neville Pillay and visit Wits. Neville was very kind as he took time off his busy schedule to show me around the university facilities and

talk to me about the research that is going on at Wits. While I was there I also had the opportunity to meet some of Neville's students. Coincidentally, one of Neville's students is working with chimpanzees, which are the animals I worked with while I was an MSc student back in the UK. So, it was nice for me to be able to talk with someone about chimpanzees once again.

Even though my visit was short, it was a great experience as I had seen and learnt so much from talking with Neville and everyone at Wits. As some of you might know, living in

Goegap can be quite isolating sometimes, so it was really nice for me to have the chance to meet other fellow scientists, discuss our researches and exchange ideas. Our research station and Wits have been collaborating since the

beginning but it's been a while since the last time someone from Wits came to visit Goegap. Let's hope that it won't be long before they will make a trip this way again.

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
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HOMEPAGE: STRIPEDMOUSE.COM

By Carsten Schradin

	October	November	December	Total last quarter
Visits of stripedmouse.com	2306	2097	2013	6416
Downloads FSM-TIMES, SGM-Spiegel	135	177	129	441

**TITLE: SUCCULENTS
MESEMBRYANTHEMACEAE**

By Jane Remfert

The Succulent Karoo is home to an amazing variety of plants and animals. As one of the top 25

biodiversity hotspots in the world it represents a region of extreme biodiversity and great interest. Far

and away the majority of biodiversity in this area is found in the flora, of which there are an amazing 6,356 plant species. The distinction of being a biodiversity hotspot comes from not only the number of plant and animal species but also the levels of endemism occurring in a particular area. There are 4,849 vascular plants species in the Succulent Karoo, which include 730 genera. Of those, 1,940 species and 67 genera are endemic to the region. Every year spring floral displays attract thousands of tourists to Namaqualand. A portion of the spectacular floral displays in Namaqualand comes from succulents, which have beautiful flowers and sometimes bizarre looking adaptations geared towards water conservation. Of the succulents, one family in particular stands out in both beauty and sheer species richness--the Mesembryanthemaceae family, which under the APGII system is actually placed under the Aizoaceae family. Especially in South Africa, however, it is often treated as its own family. The Mesembryanthemaceae family is fascinating mostly for its great species variety, intriguing adaptations, and horticultural significance. The members of Mesembryanthemaceae, also called "vygies", "flowering-stones", "fig-marigolds", "ice plants", or "midday

flowers", are vast and varied. Some of the particularly speciose genera include *Ruschia* (136 species), *Conophytum* (116 species), and *Drosanthemum* (55 species). Although the vast majority of species in the Mesembryanthemaceae family are found in southwestern Africa, some species can be found in other areas of the world, such as, areas surrounding the Mediterranean Sea, from Tanzania up to Yemen, and in Australia and New Zealand. With such a speciose family, the ecology of different members covers a wide range of habitats and habits. The habitats utilized by mesembs is broad and ranges from humus to rock cervices. However, most species of mesembs grow in sandy or gravelly, well-drained areas. Most of the distribution areas experience winter rainfall at which point individuals produce leaves and flowers. The flowers may open at any hour from early morning to evening and often mesembs are insect pollinated. Fruits may be developed near the end of the rainy season or in to the summer months. Seeds are developed in, and protected by, a capsule and only released when conditions are again favorable for germination. When capsules are opened some seeds are washed out by raindrops while in other species the capsules break off and the seeds are expelled as the capsules tumble in the wind.



Mesembryanthemum guericchianum: the succulent leaves are able to retain water even in to the summer months.

Even though I visited Namaqualand during the dry season I was mesmerized by the plant life at Goegap. During our plant surveys I was continually impressed by the number of species in the field site and also the amazing adaptations that allow the succulents to survive in such a dry climate. Succulents, by definition, have at least one succulent tissue that allows the plant to store water to be used when soil conditions are such that the roots are no longer able to supply enough water to the plant. Succulent leaf tissues often have reduced a leaf surface area, which, in turn, reduces the number of stomata. A thickened epidermis allows the stomata to lie below the surface and wax, resin or hairs

protect the stomata dry air. Sometimes succulent tissues will have bizarre looking bladder cells which can store water—as seen in *Drosanthemum*. Some mesembs utilize Crassulacean Acid Metabolism (CAM) photosynthesis in which the stomata are opened at night, thus minimizing evapotranspiration and allowing the plants to uptake carbon dioxide when temperatures are cooler. All of these adaptations allow mesembs to survive the long dry periods characteristic of the Succulent Karoo. Not only are these adaptations necessary for the survival of the plant, they are also key for the survival of many animals such as the striped mouse and the gemsbok. At times succulents may be the only

water source available and are therefore crucial to the survival of many animals.



Psilocaulon: a succulent, tasty treat for *Rhodomys pumilio*.

Also important to the survival of the species is seed dispersal. As mentioned above, seeds are protected by capsules. These seed capsules have brilliantly adapted hygroscopic keels within the capsule that expand with increasing moisture. The expansion due to increased moisture causes the capsules to open. This mechanism ensures that seeds are not wasted by being dispersed in to the hot, dry summer climate. Because of these water saving adaptations succulents have extremely unique appearances, which have made them very popular amongst botanists and collectors. Since the 17th century mesembs and

other succulents have become important horticulturally. Many bulbs and plants were collected and then cultivated in European and American gardens. Due, in part, to over collection, many species of mesembs have made it in to the Red Data List of southern African Plants. These days collectors are required to have permits before collecting succulents, however, there are still plenty of illegal collections, which threaten many species. Besides horticultural uses, members of the Mesembryanthemaceae family are utilized in various ways from jams to soap making. The fruits of *Carpobrotus* species can be eaten fresh or used in preserves. Also,

juice from the leaves of *Carpobrotus* can be used to fight fungal infections or as a treatment for sore throats. Certain species of *Psilocalon* can be used in making soap and species of *Sceletium* have stimulant properties when dried and chewed. Apart from

its usefulness to humankind the Mesembryanthemaceae family is one of the great treasures that Namaqualand holds and should be protected and revered for generations to come.



Drosanthemum: bladder cells aid in storing water.

I came to Namaqualand during the dry season but I was still awed by the flora--even though most of it was withered and dry. The ephemerals were completely dry and even some of the succulents had become crispy with the harsh summer sun. There were, however, still plenty of succulents to marvel at. This family has a long history of usefulness to

humans as well as a fascinating set of arid climate adaptations. Like the early Dutch pioneers I too was drawn to the Mesembryanthemaceae family's charm and diversity. Some day I hope to return to the Succulent Karoo and see these amazing plants again--maybe this time during the flower season.

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TITEL: SUKKULENTEN MESEMBRYANTHEMACEAE – ÜBERLEBENSKÜNSTLER IN GOEGAP

Von Ulrike Fischer

Ich hatte als „Maus-Safari“-Besucher in Goegap während 5 Wochen die wunderbare Gelegenheit, die Arbeit der Forschungsstation aus nächster Nähe zu erleben und gleichzeitig einen Einblick in die spezielle Flora dieser Region zu bekommen. Typische Vertreter der Pflanzenwelt in Goegap sind die Mesembryanthemaceae, auch einfach Mesembs genannt.

Sie sehen auf den ersten Blick aus wie kleine Steine, den Farben des

Untergrunds oft verblüffend gut angepasst. Die Bilder 1 und 3 einer Conophytum- und einer Aloinopsis-Art illustrieren das sehr schön. Im Volksmund werden diese Pflanzen oft „Lebende Steine“ genannt. So unscheinbar wie sie sind, so hochinteressant sind diese Vertreter der Mesembs – oft kleinwüchsige sukkulente Pflanzen, die durch raffinierte biologische Mechanismen ariden Bedingungen trotzen können.



Bild 1: *Conophytum* sp.

Goegap ist eine Halbwüstenlandschaft mit langen Trockenperioden, die nur von sporadischen, manchmal auch nur minimalen Regenfällen vor allem während der Monate April bis September unterbrochen werden. Unter diesen klimatischen Bedingungen haben nur Pflanzen eine Überlebenschance, die in der Lage sind, durch eine Optimierung ihres Wasserhaushalts auch lange Trockenphasen zu überstehen. Eine Pflanzengruppe, die sich als wahrer Überlebenskünstler erwiesen hat, sind die Sukkulenten. Sukkulenz in der Pflanzenwelt steht für die Fähigkeit von Pflanzen, Wasservorräte in ihren Blättern, im Stamm oder den Wurzeln anzulegen, um Phasen der saisonalen Trockenheit zu überdauern. Mesembs sind eine sehr facettenreiche Untergruppe der sukkulenten Pflanzen. Taxonomisch repräsentieren sie die sukkulenten Vertreter der Mittagsblumengewächse (Aizoaceae).

In Namaqualand, einschliesslich des Goegap Nature Reserves, findet man

viele, zum Teil auch endemische Arten. Für mich als bekennenden Mesembs-Liebhaber war es eine seltene und eine aufregende Gelegenheit, diese Pflanzen im Habitat zu sehen. Es ist daher nicht verwunderlich, dass ich bei meinen ausgedehnten Hikingtouren im Oktober und November 2010 in Goegap immer nach Vertretern dieser Pflanzengruppe Ausschau gehalten habe. Es ist manchmal eine Herausforderung, sie zu finden, denn oft entdeckt man diese Pflanzen nur in der Blütezeit (ca. Juni bis September), wenn ihre oft grossen und leuchtenden Blüten auf ihre Existenz hinweisen. *Drosanthemum* zum Beispiel blüht in auffälligem Pink. Es gehört zu den Mesembs und ist in Namaqualand weit verbreitet. Diese Pflanze verfügt über ein weit verzweigtes, sehr flaches Wurzelsystem und kann somit auch geringe Regenmengen optimal ausnutzen. Wer im südafrikanischen Winter schon einmal in Namaqualand war, hat sicherlich noch die mit unzähligen pinkfarbigen Blüten übersäten *Drosanthemum*-Büsche in Erinnerung (Bild 2).



Bild 2: *Drosanthemum* sp.

Im November 2010 bot sich ein ganz anderes Bild. Nach einer langen Phase der Trockenheit und intensiven Sonneneinstrahlung schien die Vegetation auf den ersten Blick vertrocknet zu sein. Dieser erste Eindruck täuscht jedoch. Ich bin schon einige Zeit unterwegs in den felsigen und trockenen Landschaft von Goegap.

Nach einigem Suchen treffe ich auf einen interessanten Vertreter der Mesembs – eine *Aloinopsis* Art (die „Experten“ streiten noch, ob es unter Umständen die ähnliche Art *Titanopsis* ist). Diese Zwergsukkulente wächst auf Quarzfeldern oder auch auf felsigem Untergrund, manchmal zum Schutz vor der Sonneneinstrahlung in kleinen Felsspalten versteckt (Bild 3). Die kleinen fleischigen Blätter, die zu



Bild 3: *Aloinopsis* sp.

kleinen Polstern gruppiert sind, dienen als Wasserspeicher. Man nimmt an, dass die raue, warzenartige Oberfläche (Bild 4), die aus einer tanninhaltigen Zellschicht besteht, der Beschattung, dem Verdunstungsschutz und gleichzeitig dem Schutz vor Pflanzenfressern dient.

Die Farbgebung der Blätter deckt sich in verblüffender Weise mit der Farbe des Felsuntergrunds, was die Pflanzen ebenfalls besser vor Tierfrass schützt. Die winzigen Warzen an der Blattoberfläche ermöglichen eine optimale Aufnahme der Feuchtigkeit aus den Nebelschwaden, die hin wieder von der Atlantikküste ins Landesinnere ziehen. Diese Nebelbänke sind eine sehr wichtige Feuchtigkeitsquelle für die Pflanzen.



Bild 4: *Aloinopsis* sp.

Der Durst meldet sich, es ist sehr heiss. Ich muss versuchen, auch meinem „Wasserhaushalt“ zu beleben. Ein Schluck aus der gut gefüllten Wasserflasche und es geht weiter. Die Sonnenintensität ist extrem. Unglaublich, wie diese kleinen Pflanzen hier überleben können.

Mein Herz schlägt höher, als ich vor einem kleinen Plateau stehe, dass mit *Cheiridopsis*-Pflanzen, einem anderen Mesembs-Vertreter, bedeckt ist (Bild 5). Ihre fingerförmigen, paarweise angeordneten „Blätter“ dienen auch hier als Speicherorgane für Wasser und sichern das Überleben während langer Trockenperioden.

Die Samen der *Cheiridopsis* sind, wie auch bei allen anderen Mesembs, in charakteristischen Samen-Kapseln enthalten (Bild 6). Ich setze mich auf

den Boden, um sie genauer zu betrachten. Die Kapseln unterscheiden sich vor allem durch die Anzahl der Kompartimente (locules), in die sie aufgeteilt sind. Die Zahl dieser „locules“ ist ein wichtiges Kriterium zur Unterscheidung der Mesemb-Arten. Bei Regen öffnen sich die „Ventile“ der Kapseln. Die Samen werden von den Regentropfen herausgespült und finden durch die erhöhte Luftfeuchtigkeit günstige Keimbedingungen.

Wenn die Kapseln nach dem Regen abtrocknen, schliessen sich die „Ventile“ wieder in Erwartung der nächsten Feuchtigkeit. Die Natur hat auf diese Weise in Anpassung an die Regenarmut ein ausgeklügeltes System geschaffen, um die geringen Regenmengen auszunutzen. Einfach genial!



Bild 5: *Cheiridopsis* sp.



Bild 6: Samenkapsel von *Cheiridopsis*

Bevor ich mich wieder auf den Weg mache, gönne ich mir noch etwas zu trinken. Es ist noch heisser geworden in den Bergen von Goegap. Schatten ist ein kostbares Gut, weil kaum zu finden, ausser vielleicht im Schutz der wenigen öcherbäume, die der Landschaft ihr charakteristisches Aussehen verleihen (Bild 7). Es handelt sich bei ihnen auch um Vertreter der Sukkulenten. Die Steine und der Sand sind aufgeheizt. Man kann sich schwer vorstellen, wie Pflanzen unter diesen Bedingungen überhaupt überdauern können. Und trotzdem – zwischen Quarzsteinen entdeckte ich noch einen „Überlebenskünstler“, die bereits zu Anfang erwähnten, in der Natur eher seltenen Pflanzen der Gattung *Conophytum* (Bild 1). Es sind

kleine zweiblättrige Pflanzen, die in jeder Wachstumsphase das alte Blattpaar durch ein neues Blattpaar, unter Nutzung der im vorhergehenden Blattpaar enthaltenen Feuchtigkeit, ersetzen. Sie liefern ein Beispiel für die höchst effiziente interne Wasserzirkulation bei Mesembs.

Die trockenen, papierartigen Reste des alten Blattpaares bilden eine schützende Hülle um den neuen Pflanzenkörper. *Conophytes* gehören zu den „Fensterpflanzen“. Das zur Photosynthese nötige Sonnenlicht wird wie durch ein „Fenster“ von der Blattoberfläche eingefangen. Ansonsten sind die Pflanzenkörper weit in den Boden eingesunken, nicht zuletzt, um den Verdunstungsverlust einzuschränken.



Bild 7: Typisches Landschaftsbild in Goegap mit einzeln stehendem Köcherbaum (*Aloe dichotoma*)

Der aktuelle Füllstand meiner Wasserflasche mahnt, den Rückweg anzutreten. Ich bin mir klar darüber, dass meine Widerstandsfähigkeit gegen Trockenheit mit der der Mesembs nicht konkurrieren kann. Weiter oben in den Bergen finde ich *Mesembryanthemum glareicola*. Diese kleinwüchsigen Büsche fallen durch ihre weissen, typischen Mittagsblumenblüten auf (Bild 8). Wie viele andere Mesembs haben sie die Fähigkeit, bei Wassermangel auf eine besondere Form der Photosynthese (CAM-Photosynthese) auszuweichen. Während die meisten Pflanzen die Aufnahme und die Fixierung von Kohlenstoffdioxid am Tag durchführen, sind diese Vorgänge in Pflanzen mit CAM Photosynthese zeitlich voneinander getrennt. Das für die Photosynthese benötigte Kohlenstoffdioxid wird hierbei in der Nacht aufgenommen und chemisch in Form von Äpfelsäure in den Zellen gespeichert. Der Vorteil der CAM-Photosynthese ist, dass die Pflanze

während der heißen Temperaturen am Tag ihre Spaltöffnungen geschlossen lassen kann, wodurch sie bedeutend weniger Wasser durch Verdunstung verliert. Es ist faszinierend, welche cleveren Methoden die Natur gefunden hat, um vorhandene Feuchtigkeit effizient auszunutzen, den Feuchtigkeitsverlust zu minimieren und sparsam mit den vorhandenen Wasserressourcen umzugehen. Meine Wanderung und auch meine Hitzeresistenz gehen jetzt allerdings dem Ende entgegen. Auch ich muss mit meinen Wasservorräten sparsam umgehen, obwohl ich in der Ferne zum Glück schon die Forschungsstation sehen kann. Eine bleierne Hitze hat sich über die Landschaft gelegt und wird wohl bis zum Sonnenuntergang die Natur „in Schach“ halten. Ich öffne meine Flasche und trinke ein letztes Mal. Auf einmal kommt mir dieser Schluck Wasser sehr kostbar vor.



Bild 8: *Mesembryanthemum glareicola*

NEWS AND INFORMATION ABOUT PLANTS AND ANIMALS

INCY WINCY SPIDER CLIMBS THE WALL ...

By Ivana Schoepf

One night, when I went to the small Wendy house bathroom I spotted a rather interesting spider suspended on top of the sink. It looked very much like a black widow, but it had a distinctive feature: a red hourglass marking on its underside. Initially, I did not think much of it, and it wasn't until later when I spoke with Ed, that I realized that we both had the exact same thought: it looked poisonous! As none of us here at the station is much of an expert on spiders, we decided to consult the source of all truth - the internet. It was then that we found out that it was indeed a poisonous species: the brown button spider (*Latrodectus geometricus*). Of course as zoologists we know that all true spiders are poisonous for their prey, but only few are strong enough

to penetrate the skin of humans. And the brown button spider is one of them.

Brown button spiders are among six of the poisonous species in this genus that are common around houses in South Africa. Brown button spiders belong to the same genus as black widows, which are so named because of the female's habit to eat the male after mating. Even though some button spiders can be highly toxic, the brown button spider bite is not life-threatening. Though appearances can be deceitful, the brown button spider is a rather timid species, choosing to retreat or to drop to the ground and play dead when disturbed. Bites are rare and often results from handling or when the spider is trapped and squeezed.



After learning this facts and much discussion with everybody, we decided that the best course of action was to leave it alone where it was. Thought some of us were not so keen in using the small bathroom that often anymore (i.e. Nicola), our lives were not seriously affected by the spider and eventually we learnt to live with it. The most important thing was for us just to know that it was nesting above the basin and every time we used the bathroom and saw it there not moving we were reassured that all was fine.

One day though, Davina went to the bathroom and she could no longer see the spider. This was because it had moved to the rubbish bin! After a while, realizing where it was, Davina got something to cover the bin and set out to release the spider outside. However some of us (again Nicola!) were too scared that the spider would come back into the house and managed to convince Julien to load the spider in the boot of the car and drive 4km down the road and let it go there.

BLACK HARRIER (*CIRCUS MAURUS*)

By Erwan ChereI

Sometimes, it is possible to see a black raptor flying just one meter above the ground at the main field site. This raptor has a black and white tail and white under wings, this is the black harrier. They often hunt around the research station, which is very pleasant to watch when they are spinning above bushes. As the other raptors I have already described, they eat striped mouse but it seems that they don't feed where we are recording data. It happened several times that we could observe them at less than 10 meters around the research station.

The nest is very difficult to find because it is built over dry ground among dense and short ground cover. They lay from August to September and the clutch of 3-4 eggs is only incubated by the female but the male feeds her. This raptor is endemic from southern Africa.



CONFERENCES, PRESENTATIONS AND PUBLICATIONS

There are no news for this section for the last 3 months. But Davina, Ivana, Julien and I are preparing presentations for several meetings in

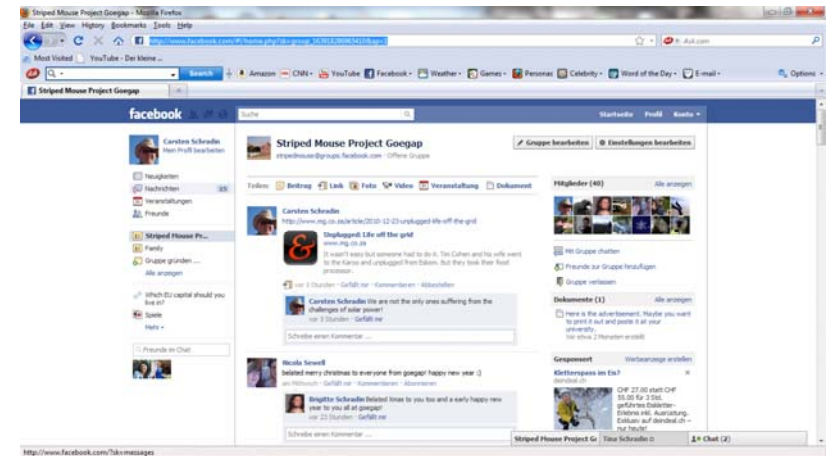
February, so there will be more news in the next issue. Also, four manuscripts are under way, so we will also have more publications soon.

STRIPED MOUSE PROJECT NOW ALSO ON FACEBOOK!

By Carsten Schradin

Since November the facebook group "Striped Mouse Project Gpogap" exists. Its free to become a member of this book, you only have to be registered with facebook. Here we post weekly news about the research

station, Goegap, the striped mice, and all the people. Simply go to http://www.facebook.com/#!/home.php?sk=group_163918286965410&ap=1 and become a member!



FUNDING OF RESEARCH: CALL FOR DONATIONS

Subscribers donation

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

Donations will be used for the following purposes:

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.

Otherwise, please transfer money to one of our bank account.

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Financial report for 2010

BY CARSTEN SCHRADIN

In 2010 we got altogether donations of 992 Euro, which was mainly due to a very generous donation by Ulrike Fischer. Two readers of the FSM-TIMES made a donation, both from Germany. The donation box at the office in Goegap also made a

significant contribution. 32 Euro were obtained by selling some of the German manuals of our telemetry receivers, which we don't need. Money was spent for infrastructure of the research station, investing in especially our new battery bank.

CATEGORY	INCOME IN EURO
AMOUNT CARRIED OVER FROM 2008	-14
DONATIONS SGM-SPIEGEL	909
DONATION BOX GOEGAP	83
OTHER INCOME	32
SUM	1024
	EXPENSES IN EURO
BATTERY BANK SOLAR SYSTEM	677
SUM	
TOTAL	347

ACKNOWLEDGEMENTS

WE ARE VERY GRATEFUL TO ULRIKE FISCHER WHO MADE A SIGNIFICANT DONATION OF CHF 1000!

THE MOUSE'S TAIL

THE LITTLE MOUSE THAT COULD...

There is currently a group of mice and a bush Karoo rat living in our front garden. It's common to see the bush Karoo rat chasing the mice away as he is much larger and so better able to defend his part of the garden. One day, when sitting on the porch, I saw the usual sight of the bush Karoo rat chasing the mice around the garden for almost ten minutes. One of the mice, however, suddenly deciding he had had

enough, ran across the garden, using the other mouse's back as a springboard, and leapt toward the bush Karoo rat. The bush Karoo rat, seeing a striped mouse flying through the air in his direction panicked, and retreated rather quickly into his nest inside the tree stump. The mice looked triumphant, however quickly retreated into their nest also as they were scared at the sound of me laughing rather loudly!

YOGI AND THE CHRISTMAS TREE

Is there a lot that a growing puppy can be scared of? Well, it seems that when it comes to Yogi, there is. Not only is he scared of his own image and of the cooler box, but also of trees too! In the week leading up to Christmas, we put up and decorated the tree, but to have a foreign object around the research room was too

much for poor Yogi, who hid behind the door of the kitchen for the whole morning barking at the tree. It was not until Nicola showed him that trees don't bite, that Yogi summoned the courage needed and went up and smelled the Christmas tree. Now he happily sleeps and even poses for pictures next to it!

THE WAIT FOR CHRISTMAS IS JUST TOO MUCH FOR SOMEBODY!

It looks like dog are just as impatient as children when it comes to open their Christmas presents. So eager was Yogi to find out what we got him for Christmas, that one morning while we were out trapping he decided to get a sneak preview of his – and other people's – presents. So just

four days before Christmas, we came back in the research station to find some of the present had been open. However, Yogi, being a very polite dog, decided to make up for opening the presents, by leaving us one of his own... how thoughtful of him!

GOLDEN MOUSE PRIZE-WINNERS

2010: VOLUNTEER FIELD ASSISTANTS

2009: DR. URS THALMANN

2008: KLEIN GOEGAP

2007: GOEGAP NATURE RESERVE

2006: DR. GUSTL ANZENBERGER

2005: JENS SCHRADIN