

Newsletter of Echidna Care Puggles Post



THIRD ISSUE FOR 2002

Echidnas in their habitats Part 2 - Courtship and Breeding

by Peggy Rismiller

Winter and early spring are periods of high activity in echidnas. It is

the time when people spot the most echidnas both in the bush and on the road-sides.

The reason for all this bustling is the echidnas once a year get together for courtship and breeding.

Male echidnas travel far and wide in search of a

mate. A number of males may converge on one female for courtship and form what we call an "echidna train". There is a



Above: Spot the echidnas! There are 5 animals in this train, 1 female and 4 males. Right: Echidna courtship train around a parked car.



good reason for this male congregation. In any echidna population there are often 2 male echidnas for every female. A female does

not usually have young every year, so those who are going to breed attract many suitors.

The courtship activity, that is males following a female around and nudging her, lasts between 1 and 6 weeks. Because echidna home ranges can also include urban environments,

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Echidnas conserve energy, don't overpopulate or exhaust an entire food source at once and don't attack each other or other animals. We humans sure can learn a lot from an animal like that.

Peggy Rismiller

some courtship trains have been spotted in unusual places like in a barn or garden and even around the tyre of a car! This is a vulnerable time for echidnas. Their courtship travels may lead them across busy motorways or unfamiliar properties with electric fences. The drive to reproduce is stronger than impending dangers.

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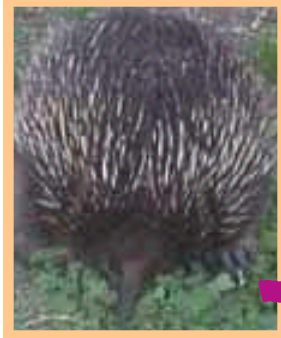
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Courtship ends with only one male breeding with the female. This is seldom seen as mating usually takes place in the bush or underground in the shelter of a cave or tree root burrow. The female needs a place to lay on her belly so the male can dig beside her. He must lay on his side and put his tail under hers without rolling over. Mating takes place through the common opening called the cloaca and lasts for a minimum of 30 minutes, but can last as long as 2 hours.

After breeding males and females go back to a solitary life style. Males face the perils of returning to their normal home ranges. Females forage and prepare to lay an egg some 22 days later.

We can help echidnas during the breeding season by being aware that roads and suburban environments may be in the habitats they use. If you see an echidna on the road, help it to safety, but do not translocate it any distance. Similarly, if you have an echidna in your garden, take in any pets and let the echidna do its own thing. Adult echidnas have a good sense of orientation and will travel back to their own home ranges. The furthest recorded 'homing' in an echidna was 35km.

If you have been lucky enough to see an echidna train this winter, we would love to hear about it. ●



Here is a letter from a former volunteer and avid echidna watcher

Hi Peggy & Mike,

Took my dog for a run around Ivanhoe [A Melbourne suburb] this morning and found a dead echidna by the side of Lower Heidelberg Rd, outside a block of units, within 80 metres of a shopping strip.

Tongue hanging out, a bit squashed, almost certainly killed by a car. Took it home and it weighed 4 kg. I'll take it to the taxidermist and have it mounted for display at Organ Pipes NP.

Echidnas have been found in other northern Melbourne suburbs - the species is on the city fauna list - but not I think in a shopping strip/main road! Regards RB

Echidna Care Membership

Has your membership lapsed? Or would you like to make a research donation?

Know someone who wants to join Echidna Care Inc?

Membership fees for Echidna Care are for a 12 month period.

There are several membership categories

- **Standard-Individual** \$15
- **Student/pensioner** \$10
- **Group Membership** \$25
- **Overseas** \$A25

Please send your fees or donations to: **Echidna Care Inc. Post Office
Penneshaw Kangaroo Island 5222 Australia**

All Echidna Care membership fees and donations are used to purchase field research equipment for Dr Peggy Rismiller's echidna research on Kangaroo Island and for community education programmes.

The Three 'Mamas'

Even the oldest and the biggest of us can still find love.

Big Mama, the echidna matriarch in residence at Pelican Lagoon Research Centre, has won the hearts of two New South Wales business women Carrol Cummings and Louise Maggs. The busy pair have joined our adoption programme and are the proud 'parents' of Big Mama.

Carrol and Louise are directors of Cartoscope a company that publishes over two million free maps and guides each year. And according to Carrol the number continues to grow with the coverage expanding along the eastern coast of Australia and to selected inland regions of New South Wales.

Cartoscope maps differ from most other maps in that they carry more information that is of value to the tourist, such as location of picnic spots, museums, national parks, lookouts, boat



Top: Louise Maggs Above: Carrol Cummings

ramps, golf courses, petrol & gas stations and caravan parks. In the past 7 years the company has won 6 Awards for Excellence in Tourism.

But how they caught our eye was their logo -it was an echidna. We contacted Cartoscope to

find out why they had chosen an echidna.

"When we started our tourism business 14 years ago we were diversifying from being a cartography services company to using our map skills to produce tourist oriented maps", said Carrol. "We

wanted a new logo to represent us and this business. The logo had to represent us as Australians, so all sorts of Aussie fauna was considered. We came to the conclusion at the time that they had all been used by various others businesses; we wanted a point of difference. That's when we decided on the echidna. It is Australian. It is unique, as we believe we are. It has quills, which gives it a connection to early cartographers. And it is harmless which we are also! Some jokers reckon there is another connection in that we are a "bunch of pricks" but there is no association there".

When Carrol and Louise heard that Pelican Lagoon ran an 'Adopt an Echidna Programme' -they jumped at the chance to join up choosing Big Mama as their protégé.

"We love all animals. We travel thousands of kilometres each

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year and we are always removing uninjured tortoises, echidnas, possums and lizards from the road. I have even been known to chase a snake off the road", laughed Carrol. "Unfortunately we sometimes have to call WIRES or equivalent wildlife rescue teams to save some unfortunate native animal or bird.

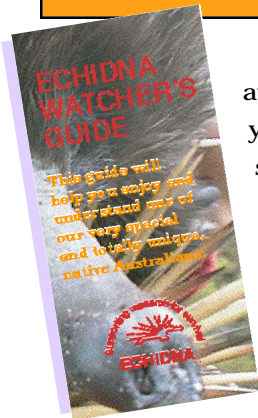
"We do feel somewhat uncomfortable in that by providing maps we are encouraging more people to drive into natural areas. To allay our guilt we sponsor all wildlife rescue institutions in the areas our publications cover by placing free ads for them. We also sponsor an echidna at Taronga Park Zoo". If you are interested in looking at the Cartoscope web site it is www.info2go.com.au

Warning! Echidnas Crossing

Echidna Care Inc have **Echidna Road Sign Kits** available which have been designed to help protect your local echidnas from becoming another road kill statistic. Put up warning signs on any roads your echidnas may have to cross so you can warn motorists of the danger (to the echidnas!). The Echidna Road Sign Kits cost \$A5 each which includes postage in Australia (please add an extra \$A5 for overseas orders) The kits consist of two yellow plastic signs,

19x19cms, with the wording "Echidnas Next 4Kms" and also what all good echidna watchers should have-"The Echidna Watcher's Guide".

Echidna Road Sign Kits are available from: Echidna Care Inc. Post Office Penneshaw Kangaroo Island South Australia 5222 Email: echidna@kin.net.au



We're Looking for Caring People to Adopt us..

For many years Earthwatch and Echidna Care have provided a major avenue for community support of Dr. Peggy Rismiller's field work on Kangaroo Island. Many of the people who have become directly involved with this work have shown a strong interest to continue their support by sponsoring individual echidnas. Last year Echidna Care helped set up Adopt an Echidna. The response to this program is helping directly with field work, continual monitoring of individuals and community outreach programs. Later this year some of the sponsors will visit Pelican Lagoon for a special field workshop. We hope to have more people joining the program.

For \$100 you can become an 'echidna parent'

Adopt an Echidna Programme was launched last year We are looking for schools, organisations, companies or individuals to adopt us. "Official" Echidna Adoption papers will be sent to our new 'parents' and you receive a regular update about what we get up to. All adoption fees will be used for further research by Dr. Peggy to find out what makes us tick!

Echidna Care Inc. Adoption Agency

P.O. Penneshaw, Kangaroo Island

South Australia 5222

Email: echidna@kin.net.au

...please don't eat the orchids!

The echidna may play an important role in the long-term survival of a species of native orchid in South Australia. The Pink Lip Spider orchid is on the endangered list and plants are now only found in small isolated populations, some of which consist of just a few individuals!

Dr. Topa Petit has taken up the challenge to find out why this orchid is disappearing. Petit is a lecturer in conservation, ecology and wildlife ecology at the University of South Australia. During work she has observed a lot of echidna diggings among the orchid sites. "These orchids are dependent on mycorrhizae - plant fungus associations", said Petit, "You can plant orchids as much as you like but if you don't have the right fungi to go with them they won't grow. The orchids I saw in these study sites didn't seem to be affected by the echidna diggings and the echid-

nas were obviously not interested in the orchids they were just both using the same sites. It occurred to me that because they move a lot of soil within the orchid sites, echidnas may be dispersing fungi that are essential to the growth of this species of orchid and maybe others as well".

Unlike the fungi associated with eucalypts or other native plant species the orchid fungus does not appear to have fruiting bodies or truffles; therefore, it must spread its hyphae -thread like filaments-through the ground using organic matter. "I don't know how far away from the orchid it can go because it may derive something crucial from the orchid", said Petit. "My



hypothesis is that echidnas disperse the fungal hyphae and maybe also disperses the orchid seeds which are as fine as flecks of dust.

"The echidna is not as common as it once was and this could be one of several possible reasons

for the disappearance of the orchid. Here we have the symbol of Australia, the echidna, possibly doing something that nobody even thought about", said Petit. "Gardening and plant maintenance. Our research may show that echidnas and small mammals are really active at the very base of the ecosystems".

Two of Topa's Honors students, Jane Kara-Ali and Leah Feuerherdt, are working on this project. Feuerherdt's role is to

quantify echidna activity at orchid sites by looking at diggings; she is also examining the role of echidnas in dispersing orchid fungi and seeds, and determining the natural occurrence of the fungus in the field. She hopes to find some live echidnas near the orchid populations and get fur samples. Kara-Ali's is trapping and looking at the scats of other small mammals that may ingest truffle-like mycorrhizae and disperse the spores.

"We have been trapping for mammals and are finding almost nothing in these orchid areas. The wildlife that is important for dispersing the fruiting fungi associated with the native vegetation has disappeared from many parts of South Australia. There are essential elements missing from these ecosystems and we are talking here about fairly well known national parks.

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They are probably not as healthy as we believed".

Lack of pollination of course is another thing that will affect the orchid. The Pink Lip Spider orchid is one of the species of sexually deceptive orchids and is pollinated by a wasp. The female of this wasp is wingless. During mating season she will come out of the ground and wait on a piece of vegetation, emitting a pheromone to attract the winged male. Like Superman in flies the male, swooping the female off her feet, to carry her off to romantic places to feed on nectar! So these tricky orchids reproduce the female wasp's pheromone. The male wasp is attracted to the orchid, thinking it a female, tries to mate with it and in the process pollinia or pollen bags get stuck to him. Each species of these orchids has a specific species of wasp pollinating it. "We think the particular wasp involved in the pollination of the Pink Lip may also be endangered and the frustrat-



Leah Feuerherdt- left and Jane Kara-Ali-right 'on the job'.

ing part of it is we don't even know what the species is! It's very hard indeed to identify them because you first need to catch a male and dissect his genitalia!", said Petit.

It is unfortunate for researchers that there are relatively few ecologists left in Australia who are actually doing field work. It's too expensive, too time consuming and they have to teach too many hours a week. Luckily Petit had a couple of semesters where her teaching

schedules were reasonably light and so was able to get out in the field and find out all these things.

"We know so little about mycorrhiza biology", said Petit. "There are a lot of mycorrhiza people around the world but most of them are working in agriculture -where the money is. There has been some work done in wild systems, but not enough. Taxonomy is another field that has been hit very hard by funding cuts - people who used to

work in museums on either fungi or invertebrates have been recycled into the Agricultural departments. We need taxonomists to help us sort out what things are and what goes with what.

"When you are involved in the restoration of an ecosystem, regenerating large areas of vegetation, it is vital to know if there is an element like a disperser missing. If you don't have the 'gardeners' you are going to fail, if you don't consider the mycorrhizae you may fail as well. And if you don't think of the maintenance of those mycorrhizae you may also fail".

Petit, Feuerherdt and Kara-Ali stayed with Peggy and Mike at Pelican Lagoon Research centre earlier this year to learn field techniques relevant to their echidna work.

We will follow their progress with great interest.

Pelican Lagoon 2002/3 Calender

EW	October 4-6 02 Discovery Weekend
EW	October 12-25 02 Echidna & Goanna Fieldwork
CVA	November 4-8 02 Fieldwork
EC	November 9-10 02 Echidnas
EW	December 14-20 02 Students in Science
EW	January 11-17 Student Challenge Program for year 11
EW	February 8-21 Echidna & Goanna Fieldwork
EW	February 28-March 3 Earthwatch Discovery Weekend
EC	March 22-23 Sustainability Workshop
CVA	March 31-April 4 Fieldwork
EC	April 5-6 Echidnas
EC	April 19-20 Sustainability Workshop
EC	April 26-27 Native Food & Resources Workshop
EW	May 10-23 Echidna & Goanna Fieldwork
EW	June 27-28 Penguin Study Group
CVA	July 14-18 Fieldwork
EC	July 19-20 Echidnas
EW	August 2-15 Echidna & Goanna Fieldwork
EW	August 30-September 12 Echidna & Goanna Fieldwork
EC	September 20-21 Native Food & Resources Workshop
CVA	September 22-26 Fieldwork
EW	October 4-17 Echidna & Goanna Fieldwork
EC	October 22-23 Echidnas
CVA	October 27-31 Fieldwork
CVA	November 24-28 Fieldwork
EC	November 19-22 Penguin Study Group
EW	December 13-19 Student Challenge Program for year 11

Australian contact phone numbers and addresses:

EW-Earthwatch Email earth@earthwatch.org.au

Phone 03 9682 6828 126 Bank Street South Melbourne Vic 3205

EC-Echidna Care Inc. Email echidna@kin.net.au

A/hours 08 8553 7174 P.O Penneshaw Kangaroo Island SA 5222

CVA -Conservation Volunteers Australia (formerly ATCV)

Ph 08 8212 0777 130 Franklin Street Adelaide 5000

Workshop Details

Echidnas

Echidna Discovery workshop with Dr. Peggy at Pelican Lagoon, Kangaroo Island. Exploring a variety of echidna habitats and learning how the echidna fits into the living circle of these dynamic systems. Two days of experiencing the bush from the viewpoint of one of the planets longest surviving mammals.

Native Foods and Sustainable Resource

These workshops are a hands on experience with the economics of nature. Learn to identify valuable natural assets, to establish resource bases and realise native economic potentials. Exchange ideas with people who have been in the business for more than twenty years.

Penguin Study Group

This field survey on life history/population of penguins is

conducted by a Penguin Biologist

Studies begun on Kangaroo Island in 1990.

Additional Workshop and Participant Programs throughout the year:

There are a number of weekday workshop and participant programs with the Penguin Study Group. Birdwatching and bird survey programs with resident biologist are available upon request. Applications for the Pelican Lagoon Wildlife Artist in Residence program close 1 December of each year. The one week Work Experience in Field Biology Monitoring and Survey program takes applications for selected projects with current biologist; contact Dr. Peggy Rismiller for details at - echidna@kin.net.au.

from your editor...

Field assistant -what a great job that would be I thought; So I decided to take my self off to one of the national parks where Dr Topa Petit and her team were studying a particular native orchid and give some assistance with finding echidnas. (see article page 5) It was an absolutely glorious day. I had persuaded a friend that this was the perfect way to spend a sunny Sunday. We had a pack of special cotton buds to take swabs from echidna fur, sterilised water, bags for scats, pencils to mark locations. We were ready and on the ball-eyes peeled. Tell tale signs of diggings and nose pokes led us up hills, down creeks, through valleys, over rocks, through forests. We travelled hundreds of miles -well that's what our bodies suggested the next day. Were we successful? - hah! We didn't see one single echidna spine nor even a crumb of a

scat -(in fact there were very few scats of any kind around - a bit of a worry) I should have known better. I can't even find an echidna with a transmitter! According to our Dr Peggy it takes, on average, 300 hours to find one untagged echidna in the scrub. Good-that means only 293 to go!

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You may have noticed in this issue that we have changed the way we have identified it. No more references to seasons - we have reverted to a dull ordinary numbering system. This is as a result of scientists' recent observations that the speed of light may be slowing down. I believe this has also effected magazine production time so the Winter and Summer issues have slowly been leaking into the Equinox time zones so it's back to numericals until it all gets sorted out.

Cheers JW

So what's new!

Science has now proven what us echidna fans knew all along- the echidna is a highly intelligent creature. It has a large brain which is richly convoluted with relatively more frontal cortex - the part of the brain associated with reasoning - than any other mammal -and that includes man. American biologist Stephen Jay Gould noted in his book *Bully for Brontosaurus*: "The most obtrusive feature of the echidna's brain is the relatively enormous development of the cerebral hemispheres."

In a three-month, experiment conducted at the University of Tasmania in Hobart by senior lecturer Othmar Buchmann and a colleague, Julie Rhodes, six echidnas were tested to see how quickly they could learn which levers to press to get food. All the echidnas performed better than cats, and one was so clever it got the levers right after only one trial. "This is the same level of learning behaviour you see in primates," says Buchmann.

Dr Peggy has a favourite story to tell about a film crew that had temporarily restrained an echidna in a film drum. The echidna soon learned to unscrew the lid off using its paws and nose. When the crew put a reverse thread on the lid, presuming to outwit the animal, the echidna had the lid off again within ten minutes.

It is interesting to ponder upon why a little animal that leads an apparently simple life should need such a big brain.

Please pass this E-newsletter on to any person or group you think may be interested. And if you are reading this as a 'pass-on' and would like to be included on our regular E-mailing list contact us direct at echidna@kin.net.au