HAUTURU

LITTLE BARRIER ISLAND SUPPORTERS TRUST

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NEWSLETTER
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FROM THE CHAIR

The Little Barrier Island Supporters Trust wishes to acknowledge the generous support of recent sponsors, and indeed all those organisations and individual members who have given their support to us over the past years. Without this assistance the Trust would not be able to directly target such important areas as weed control on a focused basis.

We assist in the health of the island through both the work of participants in the supporters' working weekends and with more specific or targeted projects that require special financial assistance. May I urge those who can assist financially to consider a donation to the Trust, targeted or otherwise? The squeeze on the Department of Conservation as a consequence of the financial restraints implemented by the government means that more must be done with less. In this new regime, essential maintenance such as weed eradication can be forced off the list of can-dos.

The Trust had a very productive meeting with senior DOC manager Tim Brandenburg in October, and canvassed many of the issues facing the island. We were also delighted to see the results of the recent artists' trip to the island, exhibited at the Parnell Gallery. Some of us were lucky enough to acquire a treasure as a result.

John Hagen – Chairman

IN THIS ISSUE

HAUTURU ON CANVAS

Last November five well-known artists spent three days visiting Hauturu as part of an artists' programme run by Sally Souness's Parnell Gallery, in Auckland, with the support of the Department of Conservation. The 27 paintings and works on paper by Don Binney (the patron of the Hauturu Little Barrier Island Supporters' Trust), Tony Ogle, Russell Jackson, Brian Strong and Paul Woodruffe, created as a result of that time on and around the island, were unveiled to the public on October 11 at Parnell Gallery. The Trust is delighted that the gallery and the artists have given permission for five of those works to be reproduced in this newsletter. To see all the works in the exhibition please go to the Parnell Gallery website, **www.parnellgallery.co.nz**. Although this exhibition officially closed on October 28, several of these works are still available for viewing at the gallery.

HOW THE *RENA* DISASTER COULD AFFECT HAUTURU

When taking time out during a visit to Hauturu, I have always found myself drawn down to the island's coastal boulder banks to enjoy the flocks of kereru feeding in Muehlenbeckia, to watch the seabirds 'wheeling in the wind' and enjoy the views across the stunning waters of the Hauraki Gulf. One thing that always strikes me during these little moments of coastal reflection is the number, size and speed of commercial container and cargo vessels that ply the Gulf between Hauturu and the mainland, moving to and from the Port of Auckland. So I did a little sleuthing and it appears my observations over a beer were correct. ▶

▶ A few facts

- The port of Auckland receives over 1400 large vessels per year – carrying approximately 870,000 containers and 2.8 million tonnes of non-containerised cargo per year.
- These huge vessels move at speed (20 knots plus) through a Gulf dotted with reefs and small islands.
- The waters of the Hauraki Gulf are precious, and if the recent tragic events of the *Rena* disaster off Tauranga should yield anything positive, it should be to should remind us all of how much we have to lose if such an event occurred within the Gulf.

"What do we have to lose?" you might ask. A little background. The Hauraki Gulf is a marine environment of national significance. Extending from shallow inshore waters to the continental shelf-edge, the Gulf is a gently sloping plain studded with islands such as Hauturu, and foul ground or reef. Influenced by the warm oceanic east Auckland current and seasonal variations in water temperature, the region presents a complex marine ecosystem of high diversity and productivity vital for conservation, recreation, cultural values and commercial activity.

From a conservation perspective, Hauturu and many other Gulf islands are a critical lifeboat for rare and threatened species that could be severely impacted by a shipping disaster like the *Rena*. Oil damages the protective layers of birds' feathers, leaving them unable to fly and keep themselves warm resulting in hypothermia and death. Over one thousand birds were recovered dead from the region around *Rena* (a small measure of the likely numbers killed) and hundreds of others are still being rehabilitated. It is important to note that the breeding grounds for many of these seabirds lie further north, within the Hauraki Gulf. In fact the Hauraki Gulf represents a world centre of seabird diversity, with 25 breeding species, of which 14 (56 per cent) breed only in New Zealand. Four of these species (Buller's shearwater, New Zealand fairy tern, Pycroft's petrel and black petrel) breed nowhere else in New Zealand or the world. And as you know, 98 per cent of the world's population of Cook's petrels breed on Hauturu.

But what's the point this seabird-nerd is trying to make, you might say? Well, in short, it is to say that a *Rena*-like event within the Hauraki Gulf could be so much worse. Many seabird species are nocturnal and aggregate offshore from their breeding colonies, awaiting dark before coming ashore to their burrows.

For example, Cook's petrel breeding on Hauturu number over 1.2 million individuals and on summer evenings the island is ringed by hundreds of thousands of birds waiting for the cover of darkness. Run a large slick of oil through this area and the ecological disaster would be catastrophic. Scarily, the scenario is repeatable throughout the Gulf's seabird islands: the Poor Knights Islands (eight seabird species breeding and the world's only population of Buller's shearwater), Great Barrier Island (world's largest population of black petrel that breeds elsewhere only on Hauturu), the Mokohinau Islands (nine seabird species). Moreover, what would be the ecological impacts of partially oiled birds coming ashore, dying, and thus introducing pollutants into the heart of pristine reserves such as Hauturu?

But it is not just seabirds that are at risk. The waters of the Gulf represent vital foraging habitat for populations of common and bottle-nosed dolphins and orca, and migratory resting points for species such as the Southern Right whale. A large proportion of the country's estimated 250 Bryde's whales use the Gulf as essential feeding, breeding and calving habitat. Add in the unique geography of the Gulf, where the mainland, Coromandel Peninsula and Great Barrier Island act as barriers to dispersal, pollutants would wash around the Gulf with the tides like soap in a basin, ending up on the shorelines of our precious islands, beaches and or coast. And I have not even mentioned the impacts to our vital fishing and marine aquaculture industries, our precious marine ecosystem below the sea's surface, and the cultural and recreational importance we place on the Gulf. It's time to wake up people! We take our marine environment too much for granted in this country.

And finally, if you are one of those people who have faith in the authorities to ensure such a disaster never happens in the Hauraki Gulf, it is my duty to inform you of Keith Gordon's excellent book on the RMS *Niagara*, a 160-metre, 13,000-tonne passenger ship sunk by German mines in 120 metres of water between the Mokohinau, Hen & Chickens and Poor Knights Islands in 1940. At the time of its sinking the ship was the focus of the deepest ever attempted salvage operation to recover a large cargo of gold. They got the gold but unfortunately no one ever thought it important to recover the 1500-plus tons of bunker oil that is still sitting in the ship's decomposing carcass. A ticking time bomb still to explode.

Matt Rayner – LBIST Trustee

JON IRVINE

A tangle of baby tuatara.

Leigh, Mahina and Liam watch the archaeologist at work.

Boxes of tuatara ready for their return to Hauturu.

RANGERS' REPORT

WEED TEAM

The island population grew significantly on the fifth of September with the arrival of the 2011 Weed team. Karen Ziegler, Patrick Crowe, Genevieve Spargo and, temporarily, Monique Retter, were warmly welcomed to the island, inducted and quickly in the field hot on the trail of climbing asparagus. Ben Sewell, a trainee DOC ranger, has also joined the team, spending his time between weeding and helping Richard out with island maintenance and operation. The weather has been generally favourable with only one lost day to rain. As a result we are rocketing through the south-west plots and looking forward to getting our teeth into Orau Gorge after Labour Weekend. The abseil contactors arrive in a couple of weeks and will be on the cliffs hunting out the more daring asparagus plants. Likewise, Skyworks Helicopters have set up base on the island and will be spraying for pampas as soon as the weather allows.

BABY TUATARA

On the 23 September, Richard returned home from Wellington with 28 baby tuatara in tow. The eggs, which were collected from the captive tuataras on the island, had been relocated to Victoria University for incubation and hatching. They are now settling back into island life and will receive supplementary feeding in the juvenile tuatariums until they are of an appropriate size and age to be released.

HIHI DISTANCE SAMPLING

Robyn and his team returned again this year to continue the annual hihi distance sampling. The first team, based at the bunkhouse, completed the 'backcountry' lines on the fourth of October. Robyn has now relocated to Orau Hut to complete the 'extreme backcountry' sampling.

ARCHAEOLOGICAL FIND

Following the chance discovery of what looked like human bones near the Awaroa Stream mouth in early September, Anne McKenzie (DOC archaeologist) and Ringi Brown (on behalf of Ngati Manuhiri) paid a visit to the island on the fourth and fifth of October. The bones were confirmed to be human and represented at least two individuals. The site was blessed and the remains reburied.

ONGOING INFRASTRUCTURE WORK

Richard continues to be kept busy with the maintenance of the island's infrastructure. Big projects coming up include:

- Repair of the vehicular crossing to bunkhouse
- Installation of a new diesel tank and bunding
- Upgrade of the island's drinking water well and
- Relocation of the incinerator and weed pit.

The bunkhouse is booked solid for the next few months with lots of interesting researchers and volunteers.

Nichollette Brown and Richard Walle – Hauturu Rangers

THE SECRETS OF SEABIRD MIGRATION

Ground-breaking NIWA research, partly carried out on Hauturu and in collaboration with the University of Auckland, investigating the annual movements of New Zealand seabirds migrating within the Pacific Ocean, has revealed that populations are genetically distinct, and have been for centuries as a result of their differing migration behavior. A NIWA press release reports that the research, published by the prestigious science journal *Nature Communications*, "studied the migratory behaviour and genetics of two populations of Cook's petrel", a small 200g seabird that breeds only in New Zealand. It surprisingly revealed that the populations are not interbreeding despite the fact that they could easily visit each others' colonies during breeding.

Migratory seabirds are some of the most mobile in the world – they can travel over 1000 km in a day. "We found that migrating to different locations contributes to genetic differences between seabird populations as a result of the selection of differing foraging habitats with subsequent impacts on the breeding timetables of the different populations," says NIWA scientist Dr Matt Rayner, who conducted his research on Hauturu with financial support from the Little Barrier Island Supporters Trust (through an ASB Community Trust grant) and the Ministry of Science and Innovation. [Matt has since joined the Little Barrier Supporters Trust as a trustee.]

Until recently it has been impossible to track many small seabirds at sea over long periods. This research conducted between 2008 and 2010 used new geolocators which are lightweight tracking devices attached to the birds' legs that weigh only two grams. The data is retrieved from the geolocator when the birds return to New Zealand. "It works just like a sextant used on Captain Cook's voyage through the Pacific, you get latitude from day length and longitude via the timing of sunrise or sunset … We found that seabirds from one Cook's petrel population breeding on Little Barrier Island migrated across the equator to the North Pacific Ocean, whereas birds from Codfish Island stayed within the South Pacific, and migrated to the waters off South America," says Dr Rayner.

The scientists looked at DNA from tissue samples of old Cook's petrel skins, collected within the North Pacific and South Pacific destinations of the tracked birds, but over 100 years ago. They found that the DNA from these skins matched perfectly the DNA of the modern populations, confirming the populations have been migrating and adapting to those different locations for a long time.

An important spin-off conclusion from this research is that the two remaining Cook's petrel populations on Hauturu and Codfish Island are distinct, not interbreeding and should thus be managed as separate conservation units, with consideration given to establishing other breeding locations for each population. This is currently occurring for Hauturu Cook's petrel with the translocation of chicks to a protected site at Cape Kidnappers.

Those interested in reading a full version of the publication can contact Matt at m.rayner@niwa.co.nz

WELCOME DONATIONS

The Chisholm Whitney Family Trust, which has been a generous financial supporter of essential weed eradication and research work on the island in recent years, has again shown its enthusiasm for research work on Hauturu by donating $5460 towards hihi research. As readers of *Hauturu* will be aware, the Hauturu Supporters Trust sees knowledge of the island's hihi population as a high priority, and has raised funds for such research over a number of years.

This year's third annual survey of hihi (stitchbird – *Notiomystis cincta*) by 'distance sampling' began in October (see Rangers' report). It establishes valuable base-line information about breeding, habitat use and population size of Hauturu's natural, self-sustaining population of this unique bird. This information is particularly important in the light of recent transfers from the island. It also contributes to the management of the small but growing number of translocated hihi populations in protected locations around the North Island.

With constant demands for Hauturu hihi to act as a source for translocations of the species, it is important to understand the biology and status of this population which is the stronghold for the species.

The Doone Trust has recently donated $3000 towards the island's tuatara captive breeding programme. Given that the tuatara do not begin to breed until they are twelve years old, this programme is one that may well extend well into future years, and so continuing support such as that shown by the Trust is extremely helpful.

RARE BEETLE FOUND

Mecodema haunoho: not your everyday ground beetle. Indeed, it's rather special and found only on Little Barrier. David Seldon (University of Auckland) has been researching the invertebrate fauna of Little Barrier for seven years with many surprising discoveries. An article published in the journal *Zootaxa* this year by David and Richard Leschen (Landcare Research) describes six new species of ground beetle from the endemic genus *Mecodema*, including three from offshore islands.

Mecodema haunoho, which is 20 to 26 mm in size, is relatively abundant on the wetter parts of Hauturu and is closely related to the newly described *Mecodema aoteanoho* (Great Barrier Island). Both these species are related to the Coromandel coastal species, *Mecodema atrox*, and are the first ground beetles found to be endemic to each island. All of the other 16 native ground beetle species present on Hauturu are also on the mainland.

Mecodema haunoho's name was selected from several suggested by Ngati Manuhiri; 'hau' means the site (Hauturu) and 'noho' means to dwell or inhabit. In addition while looking for a rare species of giant *Collembola* (a primitive soil dwelling insect) that has not been seen on the island since 1935, David and a previous ranger Pete Barrow discovered a different giant Collembola, a new species. It is 10-14 mm long, blue with yellow spikes and looks like a soft-bodied slater, it is also relatively abundant along the stream edges in the northwest of the island.

KIWI MONITORING NEWS

On Monday the 27 June 2011, and after two days of postponements, our keen team of volunteers headed for Hauturu on *Sumo*. We were met by the new rangers, Richard Walle and Nichollette Brown, and Richard's wife Leigh and children Mahina and Liam, all of whom were to help with the monitoring, as well as Aaron, a guest. Wendy Sporle of the BNZ Save The Kiwi Trust was part of the team and gave us a good introduction to kiwi and the monitoring process shortly after our arrival.

Over the week on the island we managed to get in the required four nights of listening at the six sites which we had monitored from in the past. We heard more calls than in 2009 but estimate slightly fewer birds overall. This is not surprising considering the summer drought of 2010 and that 30 birds were translocated to Pukaha/Mount Bruce in April 2010. Overall I believe numbers are fairly stable. Some volunteers were lucky enough to have close encounters with kiwi.

In our spare time some of us did some jobs for the rangers such as pruning in the tuatarium, washing down equipment and cleaning out the quarantine room. We were also lucky enough to do some exploring, feed the tuatara and celebrate two birthdays in style.

Future plans for kiwi monitoring on Hauturu are for two more annual sessions, then possibly to run them five-yearly thereafter.

A big thanks to BNZ Save the Kiwi Trust this year for sponsorship of our travel costs and to those eight volunteers and the staff on Hauturu for your time, energy and laughter.

We have sponsorship in place from a local fisherman for next year's kiwi monitoring travel costs. The plan is for nine days on Hauturu mid-July 2012, so if you are interested and don't mind trekking rugged country in the dark, please contact me at ddlc.wade@xtra.co.nz

Lyn Wade – LBIST Trustee and group leader

The hardy kiwi-monitoring group. Back row: Charlie Bedford, Margaret Law, Jonathon Pote, Nichollette Brown.
Middle row; Leslie Baigent, Richard Walle, Nicki Atkinson, Jill Stone, Leigh Walle with Liam and Mahina, Wendy Sporle, David Stone.
Front row: Lyn Wade (missing Aaron Agnew, taking photo.)

WORKING WEEKEND REPORT

My first thought as I approached Warkworth early on a beautiful, calm Saturday morning in April was relief that the trip had been postponed from the previous weekend and that the forecast was for good weather on both days. Whilst part of the beauty of Hauturu is its ruggedness I think everyone agreed that the previous weekend would have been a mistake!

The quarantine procedure at the DOC office was quite rightly extremely thorough (velcro is good stuff but attracts a lot of debris) but eventually everything was checked and packed into plastic containers and we made our way down to Sandspit to join team leader Lyn's husband Dave on his brand new vessel *Sumo* (more of a luxury liner really!).

Sumo made short work of the crossing in the fair conditions, although with a bit of a south-east breeze blowing we anchored at the West Landing and ranger Shane kindly came round the point to pick us up. It took two trips to ferry ten people and luggage, expertly approaching the ramp each time so there was no danger of a 'wet' landing for the only slightly intrepid volunteers. I guess Shane has had a bit of practice. The creek near the bunkhouse had recently been turned into more of a ravine with no way over for the tractor, so the luggage was hauled the last hundred metres by foot – it was, after all, a 'working' weekend.

My last trip to Hauturu had been about six or seven years ago (prior to the kiore eradication) and the increase in the number of saddlebacks in particular was immediately noticeable. Bellbirds were also extremely numerous and very vocal all weekend, probably outnumbering tuis ten to one. As we settled in at the ▶

April working weekend group

▶ really quite luxurious accommodation we were greeted within ten minutes by two kokako feeding in the fig tree as well as numerous saddlebacks, robins, red-crowned parakeets and one friendly kaka.

Our designated work for Saturday was clearing and weeding the tuatarium, which had become fairly overgrown. Pruning and ripping up weeds proved the saying 'many hands make light work' and progress was rapid. After a break for lunch we continued with the clearing and also collected leaf litter from across the flats to spread and keep the weeds at bay. The highlight for me was seeing four or five very fine wetapunga specimens; apparently they are introduced as babies in with the leaf litter and then grow too big to get out through the mesh. Amazing insects. Shane also brought out a couple of the adult tuatara as well as showing us young ones at the nursery next to his house.

In the evening there was a BBQ with a spectacular array of salads and varied and entertaining conversation stretching from council and university politics, Tai Ji, Pilates, heart surgery, errant children (mainly mine), ex wives (mine again), photography, Shane's next posting and of course the magnificence of the island itself. My pending unemployment saw me volunteered for this not too taxing task of documenting the weekend. About an hour after dark, Lyn led a kiwi-spotting tour which resulted in only one male kiwi being heard in the distance on the flats. Better luck next time!

Sunday was a deserved day off from the tough working life and an early walk up Hamilton Track. We were rewarded with excellent views of whitehead, tomtit, robins, saddleback, kaka and red-crowned parakeets and we heard kokako singing beautifully in the valley. I was the only one to see the one and only female hihi to be sighted this weekend. I wonder if the high number of bellbirds around had pushed them to feed higher up the island? At the top Lyn told us some fascinating background on her father's pioneering work on the island. He was a true adventurer.

The rest of the day was very relaxing. A bit more walking allowed me to add yellow-crowned parakeet, to the bird list for the weekend. Then it was a calm trip back to Sandspit on *Sumo*. It was a fantastic weekend and my thanks for their great company to David Tippin, Phillippa Redwood, Greg and Heather Stump, Graeme and Fiona McEwan, David and Jill Stone, ranger Shane and last, but by no means least, expedition leader Lyn Wade.

Richard Fenner

On our September weekend, after an early start, we met at the DOC office in Warkworth for our biosecurity check. Once everything was in order it was a short drive to Sandspit to catch Sumo, our charter boat, across to Little Barrier. It was a very pleasant ride to the island where we were met by the ranger who ferried us onto the island. Luckily no wet feet!

After morning tea we set to work clearing the tuatarium and removing onion weed. Because the forecast was for inclement weather the following day we walked up the Hamilton Track in the afternoon. Liam, the ranger's son, was a brilliant assistant guide to Lyn. Along the way we were fortunate enough to come across a dead wetapunga (though a live one would have been preferable, at least we got to see one!). In the evening we had a communal BBQ in the rangers' garden with a lovely open fire/BBQ.

On Sunday the weather was not in our favour so we mostly stayed close to the bunkhouse, taking a few short walks during the breaks in the weather. Fortunately we were lucky enough to be ferried back to Sumo before the wind changed direction for our trip home. It was a bit of a bumpy ride back to Sandspit, but we all made it back with our lunches still firmly in our stomachs.

All in all it was a very worthwile trip and we had the chance to meet a great bunch of people.

Sheila and Michele Walsh

WORKING WEEKENDS: AUTUMN 2012

Two working weekends are planned for autumn 2012. The island is very busy with research, maintenance and translocations at that time which means that this year our dates are more spread out. All participants need to be reasonably fit and agile and to be prepared to cope, if necessary, with a wet and difficult landing over large slippery boulders. We will be given a variety of tasks to do by the ranger plus there will be time for walking, bird-watching and botanising.

Target dates (weather dependent)

February 25-26 (Back-up 31 March-1 April)
April 21-22 (Back-up 28-29 April)

For further details and to register your interest in either of these weekends, please ring Judy Hanbury (09) 817 7604 or email her on jrhanbury@actrix.co.nz, giving your full name, home address and phone number.

Closing date for enquiries: 15 January 2012

ISLAND RESEARCH NEWS

The importance of Hauturu as a location for groundbreaking scientific research has been highlighted once again by several study applications which have recently been made to the Department of Conservation and have been passed to the Trust for comment. All are well considered and aim to expand scientific knowledge in a variety of fields.

The aims of three projects of particular interest are outlined below. The Trust looks forward with interest to learning the results of these studies.

Investigations into weta and carabid by David Seldon and Kate Lomas and Thomas Buckley, School of Biological Sciences, University of Auckland

David and Kate have already been researching on the island and they would now like to extend the scope of their research by collecting one adult male and one adult female wetapunga from Hauturu in order to extract DNA and other genetic material. As they note, 'studying wetapunga genetic material will greatly help us understand the history of this species. Knowledge of the history of this species can assist with making decisions around conservation strategies and the management of captive populations. This research does not involve genetic modification of any sort. Following the completion of the research the two wetapunga will be held permanently in the Ko te Aitanga Pepeke o Aotearoa (New Zealand Arthropod Collection), at Manaaki Whenua in Auckland. The wetapunga will become part of the insect collection where they will be stored permanently for future generations. The collection is not open to the public, however other scientists and iwi are welcome to view and study the insects.'

Blood sampling for research into avian malaria by Ellen Schoener of Massey University

There has not been a lot of work undertaken on avian (bird) malaria in New Zealand and it is not known whether this disease has the potential to develop into a threat to native birds. Ellen proposes to look at the different malaria strains of tieke (saddleback) on different offshore and mainland islands around the North Island.

Ellen proposes to capture a limited number of tieke per site in spring, and approximately double that number at other times of year. She will take blood samples within a prescribed maximum per body weight in order to detect infection and determine prevalence. A smaller number of blackbirds will also be caught and sampled. Most birds in the study will have two samples collected, one year apart.

Research into the conservation of New Zealand's Long-tailed Cuckoo by Michael Anderson, a FoRST Postdoctoral Fellow and member of the Ecology, Behaviour and Conservation Group at Massey University.

This project will attempt to gain a better understanding of several of the basic life-history traits (migration patterns and movements within New Zealand) of the long-tailed cuckoo to try to determine how best to conserve this species. Little is known

An adult Long-tailed Cuckoo, or Koekoea (*Urodynamis taitensis*). PHOTO: J. L. KENDRICK

about the species, although it is thought that the population is declining. Michael is hoping to eventually undertake a translocation of long-tailed cuckoo to see if this technique will work to establish new populations.

As he notes, "reintroductions are a widely used conservation tool aimed at returning species to parts of their natural range based on detailed knowledge about the biology of the species being moved. The reintroduction of threatened avian brood parasites that require a host species to raise their offspring is a complex conservation endeavour, especially when their host species are also endangered. Therefore, a research-driven project is essential for developing successful reintroduction protocols for threatened brood parasites.

The long-tailed cuckoo, or koekoea (*Urodynamis taitensis*) is a native brood parasite that breeds in New Zealand and migrates to islands in the Western Pacific. Their population numbers are known to be declining, but little is known about their biology, making it difficult to identify and implement conservation strategies. Maintenance of viable host populations will be essential for conservation of the long-tailed cuckoo that only parasitises three closely related endemic *Mohoua* species (the brown creeper, whitehead and yellowhead) given that these species are also of conservation concern, particularly yellowhead, as populations have declined dramatically."

Michael will use mist-nets to catch five cuckoos prior to migration and attach 5g solar PTTs transmitters to them, using a harness. These will transmit their location to orbiting satellites every 48 hours. These transmitters are designed to transmit for several years, giving information on multiple migration journeys. The primary location for this research will be Hauturu, where there is an established population of long-tailed cuckoos at a fairly high density.

RUUD'S RAVINGS No 14

Don't get caught! Don't know about you, but every time I go out muckin' about at night in the garden, I walk into a spider web. The result is known as Arachnoleptic fit (*n*.). It's amazing how many of these webs are around, especially at night. On Hauturu I rarely sleep. The night is just as good as the day for me, and make no mistake, the spiders are just as busy there as anywhere else in New Zealand. A great proportion of them build their webs every evening and tear them down again in the morning so that the material can be re-cycled for the next nocturnal trap. Often the best 'web sites' are in the forest's natural corridors; yes – the very paths that you and I walk.

Flying insects use the same convenient network of tracks to go about their nocturnal (and diurnal) business thus spider webs are very much a natural hazard… and aren't they sticky? Spiders are able to produce silk from the glands and spigots at the tip of their abdomen. Contrary to popular belief they do not make just one type of silk, but half a dozen or so, at least. One type of silk forms strong, tensile strands, to anchor the web with, another forms the basic 'spokes-of-the-wheel' of the web. The circular connections are made from silk that has sticky droplets at regular intervals. When the spider runs over the web it makes sure to grab the non-sticky bits. Makes sense, eh?

Judging from the stickiness of all those webs that adhere to my face, it seems as if any insect will be fair prey to our webbing arachnids, but in reality this is not the case at all. Obviously we are dealing here with an ancient arms race between the predator and its prey and sometimes the prey comes out on top. Lepidoptera are a prime target for cobweb spiders: they are juicy, bulky and have relatively large wings. Unfortunately – for the spider – those wings are covered in scales, hence the name *Lepidoptera* (Lepidos = scales, ptera = wing). It's that 'dust' that rubs off when we hold a butterfly or moth by its wings. Those scales provide the wing membrane with a substantial cover, insulation if you like, and it helps to make those wings act like solar panels that heat the body and musculature of the moth or butterfly. Cold-blooded insects rely on external temperatures to get their energy for locomotion.

But one of the most spectacular functions of those scales is the – shall we say – 'Houdini' job in spiders' webs. Moths either bounce out of the webs (leaving some scales behind on the sticky globules) or, after being stuck for a few seconds, they actively manage to slide out of a web, leaving a whole trail of scales behind them.

Apparently there are spiders that can detect from the vibrations of the web, what type of prey is 'caught'; if it is a moth they run as fast as they can to grab them, before the Houdini slide takes place. Apparently, the moths win the race on quite a few occasions. I suppose it depends on the species involved. There is also a fabulous example of chemical warfare on the websites. Most folk will have smelled the foul stench of the green vegetable bug on the beans, tomatoes and other desirable plants. This exotic pest is probably the best example of an invertebrate creature that makes life uncomfortable for a potential predator.

Although the defence chemical is a quite common and simple, straight chain of aldehydes and ketones, many web-building spiders simply don't like it when they get doused by it. This often happens when the bug has been wrapped in silk and the spider is starting to chow down on its captive. It triggers the emergency button of the vegetable bug. Some spiders cut their losses and literally cut the offending insect from their web. Other spider species simply retreat, to clean themselves and perhaps to let the stench waft away. In the meantime, the vegetable bug will use droplets of saliva from its long proboscis to wet that annoying silk around its feet and other appendages. This has a remarkable effect. The glue on the silk becomes diluted and hence, less sticky silk, and it plays havoc with the silk's elasticity. It becomes less stretchy and more brittle, allowing the bug to free itself slowly from the web. So next time you walk over the Hamilton Track at night and you get *silked*, try a little bit of good old spit, here and there… and report back to me, please!

Ruud Kleinpaste – LBIST Trustee

Hauturu Supporters Trust

The Trust was established in 1997 to help support conservation and research activities on Hauturu Little Barrier Island. Membership of the Trust is by subscription and donations are also welcome. All donations and subscriptions are directed towards activities of benefit to Hauturu.

Your subscription ensures that you receive *Hauturu*, the Trust newsletter, twice a year, bringing you up-to-date news about the island. Copies of past issues are available on request.

If you wish to become a supporter, make a donation or offer help in some other way, please contact the Trust secretary Sandra Jones

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THE TRUST

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