

## Learning about land crabs in Palau

By Elizabeth Matthews, Palau Conservation Society

Land crabs are a very popular food in Palau. Women and children collect the crabs in large numbers as they emerge from their burrows in the forest in the late afternoons. Some land crabs migrate to the sea to release their eggs around the full moon. Others stay closer to the forest. In Peleliu, an island at the edge of Palau's southern lagoon, land crabs are an important resource. Peleliu crabs are sold in markets and restaurants around Palau, and are common delicacies on plates served at local customs.

Although land crabs are a popular food item throughout the Pacific region, very few studies have been conducted on them. In Palau, they are a completely unmonitored resource. No one tracks their status, sales or export. In addition, local markets do not keep detailed records of sales for any of the species that are sold.

It is often assumed that the land crabs are an abundant and inexhaustible resource. However, there are signs that these crabs are beginning to be over-exploited. In 1994, Palauan law made it illegal to export crabs and lobster from the country.

Although land crabs are included in this export ban, it is still possible to export them as *ukaeb* (mixed with coconut and stuffed in a crab shell). No records are kept of how many land crabs are leaving the country in this form.

Some women who have traditionally collected these crabs for subsistence and commercial purposes have begun to notice declines in the numbers of crabs they collect.

In fact, in 2001, the women's group Ngaratatirou, asked staff at the Palau Conservation Society to

conduct a study of the land crabs in Peleliu because they were concerned with a diminishing harvest.

The Palau Conservation Society recruited three eighth-grade students from the Peleliu Elementary School to help conduct the study of land crabs. The research team interviewed 23 women about their land crab collection activities, and measured and weighed close to 500 land crabs found in the wild and in containers at peoples' homes. Fieldwork for this study was conducted from April to June 2002. These are the peak harvesting months for Peleliu land crabs.

The most commonly collected land crabs in Peleliu are *Cardisoma hirtipes* (*rekung el beab*) and *Cardisoma carnifex* (*rekung el daob*). *Gecarcoidea lalandii* (*kesuar*) is less commonly collected in Peleliu, since many people have allergic reactions to the crab. A fourth crab species (*cheoich*, *Eriphia sebana*) was often seen in markets along with land crabs. Although sold with land crabs, this species is not a land crab. It is found in and around mangrove areas.

Much of Peleliu's coastline contains long stretches of sandy beaches. Peleliu also contains large forested areas. The land crabs can be found among the



Rekung el beab  
(*Cardisoma hirtipes*)



Rekung el daob  
(*Cardisoma carnifex*)



Students weighing and measuring land crabs being raised in a truck tire.



Kesuar  
(*Gecarcoidea lalandii*)

roots and brush in many sites on the island. All of the forested areas are secondary growth due to the massive destruction of vegetation that occurred on the island during World War II. Many areas appear to have been upturned from the impact of bombs exploding and then regrown with vegetation. These areas are dense and tangled messes of roots and scrubby second growth trees — a perfect site for land crabs to find protective holes.

Land crabs can be collected all year, but at certain times of the year they can be seen almost everywhere in Peleliu. In southern Palau, they are most abundant from April to May, especially around the time of a full moon. Land crab eggs need to be in salt water in order to hatch. *Cardisoma hirtipes* (*rekung el beab*) females migrate from their holes in the forest to beaches to release their eggs in the sea during the few days before or after the full moon. The land crabs are easily harvested during this migration. They are also harvested at other times of the month when they emerge from their burrows to feed in the early morning or late afternoon. Peleliu state law prohibits land crab collection the three days before and the three days after the full moon. At the beginning of this study there was little enforcement of the law; however, enforcement was increased towards the end of the study.



Female land crab heavy with eggs

In the late afternoon, groups of women and their children drive to their favourite sites. The dark crabs are quite visible on the white coral roads that cross all over southern Peleliu.

During the interviews, there was general acknowledgement that people preferred to collect female land crabs. Collecting gravid females is not illegal, but some women told the research team that they thought it was better to let the females with eggs go. However, the team did not see an overwhelming number of females, with or without eggs, in the collection bags the team randomly sampled.

Many of the women who collect land crabs bring them home and raise them in pens. The land crabs in these containers were much larger than any that the research team measured in the wild. The crabs are fed a richer diet in the pens than they regularly eat in the wild. Women feed them coconut, rice and a variety of non-toxic leaves. The crabs are usually kept in the pens for several days before the household eats them.

Half of the women interviewed sold crabs. They are sold cooked whole, or more commonly as *ukaeb* (cooked with coconut and stuffed into a crab shell). *Ukaeb* is a very sought-after food for special occasions and customs. Most of the women who sell crabs from Peleliu receive requests from people living in the main town of Koror who need 100 or more pieces of *ukaeb* for a custom. Other women sell crabs in local markets.

The research team learned about several activities that could contribute to a decline in the land crab population: collection of gravid females, preference for females in general, unmonitored export of land crabs, initially unenforced state conservation laws, more people who are collecting the crabs, use of freezers to store crabs, and use of cars to reach land crab collection sites.

Construction of roads throughout Peleliu may also be disturbing the monthly spawning migrations of crabs if the crabs can no longer travel from the forest to the sea. Finally, several women mentioned that some areas have been remarkably dry in recent years. Land crabs, which must remain wet while in their burrows, may be affected by such dry weather. It was beyond the scope of this research project to study the affects of these or other factors (such as predation by birds) on the land crab population.

Many women suggested management strategies to protect the land crabs from over harvest. They mentioned that previously women did not always collect the whole crab, but only broke one of the large front claws off. Some women recommended several sites that could be closed to all harvest for a year or more. They also suggested setting minimum sizes on both crabs collected as well as those that are sold as *ukaeb*. Many women thought it should be illegal to collect crabs with eggs. Some women were curious about the possibility of farming the crabs.

This study is the beginning step in understanding the status and uses of the land crabs in Peleliu. The Palau Conservation Society will continue to work with the people of the state to see what actions they want to take in regards to land crab collection activities. If they decide to develop a management strategy, the suggestions offered by the women in this study would be a strong starting point.