

Turtle Conservation Challenges in Papua New Guinea

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The Pig-nosed Turtle is aptly named. Its nostrils terminate in a fleshy proboscis reminiscent of a pig's snout. The species is abundant in the extensive delta regions of the major rivers discharging into the Gulf of Papua, PNG, including the Kikori River. PHOTO CREDIT: ROBERTO DA SILVA, PIKU TEAM

The tropical nation of Papua New Guinea located just north of Australia is one of the world's most ecologically diverse nations. This astonishing diversity is all the more important regionally because progressive aridification of Australia has dramatically changed, and reduced, biodiversity of many vertebrate groups there.

New Guinea is, in a sense, a museum of biodiversity for the landmasses on the southern Australian tectonic plate—a region comprising Australia, New Zealand, New Guinea and neighbouring Pacific islands. It is in New Guinea that we find the highest diversity of freshwater turtles in Australasia—five species of long-necked or snake-necked turtle (*Chelodina*); two species of Australasian snapping turtle (*Elseya*); two spe-

cies of softshell turtle (*Pelochelys*); one *Emydura* species represented by the New Guinea Painted Turtle; and of course, the Pig-nosed Turtle (*Carettochelys insculpta*). The last three species are of Asian origin.

The biodiversity of New Guinea is matched by equally astonishing cultural diversity—Papua New Guinea (PNG) boasts an astounding 800 native languages, each bringing with it its own cultural heritage and perspectives on life. Surprisingly, little land is government owned, with land tenure resting instead in the hands of village communities and family groups. Most of PNG's 7.4 million people still rely on a subsistence economy, built around remarkable market gardens and hunting—at which the people are

devastatingly efficient.

Conservation in PNG has many challenges. The nation is remote, with associated logistical difficulties. Community engagement is mandatory in any project because of the land tenure arrangements, but necessary in any case to achieve sustainable outcomes. Conservation is made even more complicated by the rich diversity of cultural perspectives and the acute need to put food on the table.

THREATS TO THE PIG-NOSED TURTLE

It is within this context that we have embarked on the conservation of the Pig-nosed Turtle in the Kikori River Basin of the southern lowlands of Papua New Guinea, a project receiving financial support from the region's petroleum



Landowner Frank John and his family release turtles that successfully hatched from the protected nesting beaches on his land. PHOTO CREDIT: CARLA EISEMBERG, PIKU TEAM



Papua New Guinea preserves much of the biodiversity in the Australasian region. Shown here is Parker's Snake-necked Turtle (*Chelodina parkeri*), centre, and clockwise from top left, the New Guinea Giant Softshell Turtle (*Pelochelys bibroni*), New Guinea Long-necked Turtle (*Chelodina novaeguineae*), New Guinea Painted Turtle (*Emydura subglobosa*), Pig-nosed Turtle (*Carettochelys insculpta*), New Guinea Snapping Turtle (*Eseya branderhorsti*), and Northern Snake-necked Turtle (*Chelodina oblonga*, formerly *rugosa*). PHOTO CREDIT: ARTHUR GEORGES, PIKU TEAM

producing industry.

Internationally, the Pig-nosed Turtle is of conservation concern, being the sole remaining species in its family. In Papua New Guinea, the Pig-nosed Turtle is a vital part of the community fishery, and it supplies a seasonally important source of protein to the local diet. The continued decline of the species to a point where it is at risk of extinction, either regionally or globally, is in no one's interest.

It is also clearly to everyone's benefit to preserve *C. insculpta* and prevent a fishery collapse.

The eggs and meat of the Pig-nosed Turtle are highly prized by the local community as an important source of protein. Over 90 percent of *C. insculpta* eggs laid annually are harvested. Perhaps more critical for the turtle populations, adult females are heavily harvested too—an activity made easier by the animals' predictable

seasonal nesting habits. On the coast, during the peak of nesting at the king tide, one man can turn a score of nesting females on their backs in little over an hour, all to be taken back to the village to feed families and for local trade. A number of factors are putting intense pressure on turtle populations, including a dramatic increase in human population (which has doubled since 1971), the concentration of that population along river banks since the cessation of tribal warfare, the use of efficient modern fishing nets and lines, and access to banana boats and outboard motors.

BUILDING *C. INSCULPTA* EDUCATION AND AWARENESS

Our initial objectives in the region have been to disseminate knowledge, to build awareness and local capacity, and to support community-led conservation initiatives.

We first set about proving that there had been a decline in *C. insculpta* numbers. We achieved this via market and village surveys of egg volume traded, matched against similar surveys in the 1980's by Mark Rose. Using this method, we estimated that Pig-nosed Turtle populations had declined by more than 50 percent in the last 30 years. Community engagement in these surveys helped to convince locals who doubted the decline. The science gave credibility to the claims of older people that egg harvests were much better in the past than they are today. We used the survey to directly challenge the often stated community view that the turtles have always been there, are there now, and will always be there for future generations.

With the survey complete, we focused next on strengthening community awareness about environmental issues and sustainability among children—the future stewards of PNG's biodiversity. We have produced two children's books, delightful stories with a conservation message written by Carla Eisemberg and beautifully illustrated by Fernando Perini. We have printed and distributed 10,000 copies of each book, one for every child in the Kikori catchment. We have also organized workshops for schoolteachers to show them how to optimally use the books to deliver the imperative environmental education message. The books have been exceptionally well received by the teachers, and for many children these are their first books—offering an opportunity to learn about conservation while also learning how to read.

We've also actively engaged students in the education process. High school students have produced a series of radio plays, each with a conservation message, and built around an



The eggs of the Pig-nosed Turtle are highly prized by local villagers, who include them in a variety of meals for consumption at home; they also sell them in the Kikori market to generate cash. PHOTO CREDIT: ARTHUR GEORGES, PIKU TEAM

indigenous animal of particular value to them. To reach a larger audience, the plays have been translated into three languages—English, Motu and Pidgin. The students took great pride in recording the plays, then hearing them broadcast on local (and later, national) radio.

We also provide scholarships for the brightest students who engage in our data collection effort, experiential learning that serves as a complement to formal classes. These exceptional students—the scientists and conservationists of the future—help us locate nests, measure eggs and hatchlings, mark adult turtles, record data, and to communicate with others about the work. All of these efforts with young people are leading to greater awareness, commitment, and capacity building in Kikori communities.

LOCALLY DRIVEN CONSERVATION EFFORTS

Another potentially effective component of our conservation work is our support for community-led conservation initiatives. No community likes outsiders coming in and deciding how things should be done, and expatriates working within PNG communities are no exception. Instead, we are working with a local landowner whose conservation views are aligned with those we think will bring long-term conservation benefits to the community; we support him and his family to achieve their community-focused conservation objectives.

The landowner, Frank John, has agreed to protect nesting beaches on his land in Wau Creek in the Kikori Basin—with a long term objective of obtaining government support for his project, and potentially some income as a land manager/



All 24 of these nesting females were collected on Turuvio Island in the Gulf of Papua by one hunter in one night. Predictable nesting habits and synchronised nesting increase vulnerability.

PHOTO CREDIT: CARLA EISEMBERG, PIKU TEAM

ranger. We are providing logistical support, transportation, and employment for Frank John and his family as he works to provide nesting beach protection, and as we build our ranger and research facilities at the Wau Creek site. Masters student Yolarnie Amepou is assessing the efficacy of beach protection there, comparing on-site and off-site causes of egg and adult mortality.

Our hope—and we can now see this unfolding—is that other communities will see what Frank John is achieving, and the benefits flowing to him for his conservation efforts, causing other families and villages to engage in a similar way. To this end, we would eventually like to see a Coastal Wildlife Management Area established, and the expansion of the Aird Hills Wildlife Management Area to include the needs and conservation of the Pig-nosed Turtle.

Challenges remain. There is exceptional goodwill in Kikori communities and awareness of the issues and options for action are building. However, protecting beaches from egg and adult turtle harvest comes at a cost in lost livelihood and a local food source. We are offsetting those costs through payments to landowners for conservation work done. The real challenge before us now is to devise and put in place sustainable economic systems to generate ongoing income from setting land aside for conservation. Of course, this is a challenge faced in developing countries everywhere.

For more information and regular project updates, sign on to our Facebook page: “Saving Piku – PNG’s Pig-nosed Turtle”

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