Collaborative research

demonstrates that turtle harvesting in the Maningrida region is sustainable

Last year saw the completion of an Australian Research Council funded collaborative research project involving the Bawinanga Aboriginal Corporation (BAC), Djelk Rangers and the Institute for Applied Ecology (University of Canberra). The project was successful in providing the fundamental knowledge and understanding to underpin sustainable harvests of *C. rugosa* eggs and adults in the Maningrida region.

Indigenous communities in northern tropical Australia have used northern snake-necked turtles (*Chelodina rugosa*) as a significant source of food for generation upon generation. They have developed a wealth of knowledge of *C. rugosa* and how they can be sustainably utilised for subsistence. BAC has been keen to see this knowledge put to use in developing a local industry which contributes to economic self-sufficiency while at the same time maintaining and reinforcing links to indigenous culture. The harvest and incubation of *C. rugosa* eggs and the sale of hatchlings into the local (NT) pet industry provides such an opportunity.

Compared to other freshwater turtles, *C. rugosa* are fast growing, reach a breeding age quickly and lay multiple clutches of eggs per year. Our research shows that these life-history traits, in conjunction with density limited hatchling recruitment and local harvest practices, are responsible for the continued persistence of *C. rugosa* over the long period of interaction with people in northern tropical Australia.

Although subsistence harvesting in the Maningrida region appears sustainable, people today are finding it harder to locate turtles. This is not because of cultural changes to meet contemporary circumstances, but rather, because feral pigs deplete turtle populations immediately prior to harvesting. Projective models indicate that predation by pigs will almost certainly lead to the local extinction of *C. rugosa* in most savannah billabongs in the Maningrida region within 50 years time.

On a more positive note, modelling also shows that if a multi-faceted approach to pig management (including fencing of billabongs, periodic culling and restocking with juvenile turtles) is adopted, *C. rugosa* can continue to be harvested without threatening local population persistence. In fact *C. rugosa* could be harvested for commercial purposes if pigs are appropriately managed. This discovery has the potential to transform present approaches to turtle conservation and management.

On ground training has played a critical role in the project. Djelk Rangers and some community members now possess the necessary skills to detect and quantify contemporary threats to turtle abundance, and to harvest and incubate *C. rugosa* eggs and care for subsequent hatchlings. Importantly, the research has provided a management tool to support judgements on appropriate levels of exploitation in support of indigenous harvests.

Over the next couple of years the BAC Djelk Rangers will continue to collaborate with western scientists, to examine the economic, cultural and environmental benefits of several approaches for managing feral pigs and, in turn, conserving *C. rugosa*. We will keep you updated with our progress.

Djelk Ranger, Caleb Campion, with a gravid snake-necked turtle, Photo by B. Corey

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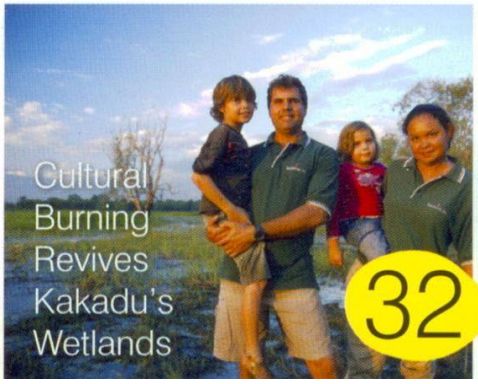

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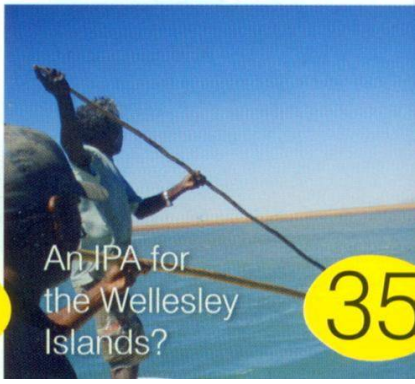

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