

Project to Eradication of Alien Rats on Helen Island, Helen Reef, Hatohobei State, Republic of Palau, Micronesia

June 1, 2000

PROPOSED BY:

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Summary

The Helen Reef Atoll is a priority conservation site for marine and coastal biodiversity protection in Pacific Ocean. The Community Conservation Network is working with the historical resource owning community, the people of Hatohobei, to develop a management plan for enhancing the conservation of the Helen Reef ecosystem and its resources. One of the activities identified by preliminary planning efforts is the eradication of recently introduced rats to Helen Reef Island. Rats are viewed as one of the primary threats to the continued existence to ground dwelling sea birds, as well as a serious impact on the reproduction of threatened nesting sea turtle populations. This project proposes to implement a complete eradication of rats on Helen Islands, as well as to incorporate preventative measures and policies to reduce the likelihood of rat reintroduction on the island.

Helen Reef Background

Helen Reef is a 162 km² coral reef atoll situated between the Palau archipelago in Micronesia and insular Southeast Asia. This large remote coral reef atoll is unparalleled in all of Palau and Micronesia in terms of its ecological integrity, abundance, and biological diversity, and provides habitat for – or otherwise supports – many renowned and critical wildlife populations. Located just north of the equator in the far Western Pacific, Helen Reef is remote from large human settlement, being over 600 km from the main islands of Palau, with Eastern Indonesia 200 km to the south and the Southern Islands of the Philippines more than 400 km to the west. As the largest geologic formation in the Southwest Islands of Palau, Helen Reef, its lagoon and near-shore waters, and associated vegetated low coral islet support a vast diversity of marine habitats and abundance of tropical coastal biota.

Problem Context and Opportunity

In 1996, two confiscated fishing vessels from the Philippines were anchored and abandoned at Helen Island. Unwittingly, this event introduced rats to the island, which had been previously believed not to harbor alien rat species (Maragos et al. 1994). This introduction was of concern to the community, which quickly initiated a rat control program. These efforts to control rats failed, due to inappropriate rodenticide choice and incomplete bait delivery. While this attempt to eradicate rats demonstrates the community's motivation to undertake conservation activities, it illustrates that technical assistance is necessary to completely and effectively eradicate rats on Helen Island.

This project will plan for an effective rat eradication so that further damage by rats to sensitive sea bird and sea turtle populations is avoided. Effective rat eradication approaches have been developed in recent years with the improvement of delivery systems and rodenticide formulas, namely Brodifacoum (Morrell et al. 1991). An opportunity to conduct rat eradication activities will occur during a resource monitoring expedition to Helen Reef scheduled for July

2000. The community will participate in all aspects of planning and implementation of this project, with expert advice, as a means of furthering involvement and experiences with management efforts. This project will also include the planning of preventative measures to lessen the chance of re-introduction once rats are eliminated (Moors et al. 1992).

Biodiversity Features of Concern

Many biologists and resource managers have verified the rat as a significant factor in the degradation of island ecosystems, especially island avifaunas (Atkinson 1985). Helen Reef Island (3 ha) and surrounding waters historically supports some of the largest known nesting sea bird colonies in Micronesia (Enbring, 1983), all of which are threatened, to a greater or lesser extent, by alien rats. These colonies include brown footed boobies (*Sula Leucogaster*), red footed boobies (*Sula sula*), the great and lesser frigatebirds (*Fregata minor and Fregata ariel*), great crested terns (*Sterna bergii*), black-naped terns (*Sterna sumatrana*), sooty terns (*Sterna Fuscata*), black noddys (*Anous Stolidus*), and white terns (*Gygis alba*) (Keppler, 1993). The rare coastal nesting population of the great crested tern at Helen is thought to be one of the largest colony remaining in the entire Pacific Ocean (King et al. 1980, in Keppler 1993). In addition, regionally important foraging and nesting populations of green (*chelonina mydas*) and hawksbill (*Eretmochelys imbricata*) sea turtles may be impacted, as rats have been witnessed attaching hatchling turtles (Morrell et al. 1991). The eradication of rats will reduce an important threat to existing nesting sea birds (and sea turtles), and with further management and protection create the conditions necessary for Helen Reef to regain important avifuna components typical of undisturbed Pacific islands through successful re-colonization (Flint, 1999).

Objectives

1. To enhance the survivorship of nesting sea birds and sea turtles on Helen Island by eradicating rats recently introduced to and preventing their reintroduction.
2. To catalyze community involvement and participation in site management activities through this important and measurable conservation action.

Activities

- Design Rat Eradication Plan with Community Based Participation.
- Community Implement and Monitoring Rat Eradication Plan
- Monitor Effectiveness of Eradication Activities
- Follow-up Eradication Treatments as needed

Rat Eradication Design and Implantation

Complete eradication of the rat population on Helen Island is the desired outcome of this project. To reach this goal of complete eradication, the island (area = 3ha) will be gridded with bait stations at 3m apart. Bait station will be composed of PVC piping material constructed in such a way that the bait is available to targets that can fit through a hole the diameter of 6cm. The bait (0.002% Brodifacoum) placed in bait stations will be made available to rats and stations monitored and replenished as necessary for 4 to 5 days. Possible non-target effects (eg: small sand crabs, sea birds) will be monitored for impact. Live traps will also be placed on the island during the final days of the first application of the bait to monitor for rat survivorship. If necessary a second application of bait will be implemented to attempt the complete eradication of any surviving rats. Special safety procedures and handling precautions will be explained and demonstrated to project assistants. Palau EQPB and the Sanitation Division will be contacted and notified of intended activities and invited to participate. All appropriate procedures and practices will followed and adhered to by State and participating agency staff. To minimize the potential for future reintroduction, a rat prevention and education program will be developed for the State.

Deployment strategy:

Assuming 7 days at Helen Reef:

Day 1: Arrive Helen Reef; prepare deployment supplies; lay out 40 kg bait.

Day 2-6: Monitor uptake by crabs, rats.

Day 7: Lay out another 40 kg, depart Helen.

Project Budget Worksheet

Helen Reef Rat Eradication Project - July – December 2000

Item	Description	
<u>I. Personnel Costs</u>		
Project Staff	State Staff and Local Assistants (for eradication and follow up over one year)	
Expert Technical Assistance	Rat Eradication Expert	
<u>II. Travel</u>		
Round trip travel from Koror, Palau to Helen Reef, JUNE 2000	Cost include travel for Implementation Team	
<u>III. Supplies</u>		
Rodenticide: Talon-G WeatherBlok	Sufficient supply for the treatment of 3ha (40 kg) and follow-up, plus shipping from New Zealand	
Rodenticide Bait stations	Agricultural pipe	
Safety Equipment	Gloves for handling rats and rodenticide	
Rodent Live Traps	For follow-up monitoring	
<u>IV. Other</u>		
Community Planning Meeting	Design and Coordinate Community Participation	
Community Honorarium	For participation in eradication and follow-up monitoring	
Project Administration	For administration costs	
Miscellaneous	Hospitality costs, contingencies, communications, etc.	

Total:

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