

## Successful rat eradication on Chumbe Island in 1997



Rat infestation is a common problem on islands worldwide. On Chumbe Island, *Rattus rattus* was a serious pest, probably introduced when the lighthouse was established on the island around the turn of the century. Part of the breeding colony of Roseate Terns, *Sterna dougall*, was decimated by rats in 1994, and the birds did not come back to breed on Chumbe probably for this reason. Any bottom-breeding bird species on the island are threatened by rats. In addition, rats are a serious health hazard, damage buildings, electrical cables, diving gear and food-stuff and are a menace to rangers and visitors alike, thus frustrating prospects for eco-tourism.

Measures to control or even eliminate the pest had been studied by the project management from 1994, in consultation with experts from New Zealand, Germany, Netherlands, Britain and Ireland. One very interesting option considered was the biological control of the pest by introducing a rat-specific pathogen, the monocell *Sarcocystis singaporensis* from Thailand. This could not be pursued further, as Tanzania lacks the legal framework for introducing exotic species for pest control. A SES-consultant visited the island in early 1996 and proposed a more conventional control strategy with rodenticide.

Finally, in April/May 1997, an Irish scientist funded by the Agency for Personal Services Overseas (APSO), Dublin, has succeeded in eradicating rats on Chumbe, by using a second generation rodenticide donated by the British firm ZENECA (former ICI). The rat campaign has been conducted with close monitoring of any possible effects on non-target species. Monitoring of any reappearance of rodents continued until August 1997, including measures to prevent re-infestation. A scientific publication on the methods used and results of the campaign is being prepared. It is probable that the expertise gained during this campaign can be deployed in other rat infested islands in the region.

The rat eradication campaign on Chumbe was conducted in close co-operation with the Plant Protection Division of the Ministry of Agriculture, Livestock and Natural Resources, the EDG-Zanzibar Project and CHICOP.

### The story behind the Chumbe Rat Eradication Campaign

As we were developing Chumbe Island as a strict nature reserve, we favoured biological control, and had an offer from GTZ and the University Hohenheim to recruit and fund a PHD student for the introduction of the exotic monocell *Sarcocystes singaporensis* to Chumbe Island that killed *Rattus rattus* but had not been given a chance to eradicate a whole population. For this an island would have been ideal, and Chumbe did have the pythons needed as hosts...!

However, it was not possible to get GoZ permission for this. Therefore, back to Plan B, the conventional method of using rodenticides.

Thus, communication with experts worldwide who could help, and we got a few people who even came over and wrote consultancy reports on how to do it, but Paddy answered offering to volunteer and do the job, instead of just written advice, we loved this turn of events!

These were the steps taken by Paddy and me together with the Chumbe team, in particular Park rangers, who were intensively trained on the whole process:

1. Get the Brodifacoum wax blocks donated by ZENECA,
2. Win GoZ Dept of Pest Control to authorize the campaign and allow their staff to participate for training;
3. Test Brodifacoum with our Coconut Crabs, *Birgus latro* (categorized as 'rare' in the IUCN Red list) to establish whether they feed on Brodifacoum wax blocks and show effects? They loved it and no effects. Fortunately, there were no other mammals on the island at the time, only rats.
4. Cover the whole island with a grid of ropes and rat traps to establish rat population density and status in reproduction cycle. It was found out that the rats were breeding a lot in the trees, probably to avoid their only possible predator for juveniles: *Birgus latro*!
5. Develop a wooden device (small cross with wax blocks nailed in the middle and red flag for visual identification) that was thrown up into the trees to attract rats there, in addition to terrestrial poison stations all over the place.
6. Saturate the whole 22ha island with poison stations to target all rat populations together and at once.
7. Wait a few days, check for odour of carcasses and visual evidence, preparing to collect and remove them from the island, but we found very few and wondered what had happened. Also no rat occurrence in the nights anymore.... Finally, we found out that the carcasses had been eaten by the Coconut crabs, thus nothing left to remove!
8. Establish a monitoring system with chew sticks (small sticks soaked in coconut oil) and train Rangers on their use.
9. Rigorous monitoring since then, recurrence of individual rats happened twice which had come over one in the pocket of a divers' vest and another one with roof thatch. Both hunted and killed, nothing since then.

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