

*This is the fourth update from the field team delivering the Palmerston Island Rat Eradication in the Cook Islands. The project is funded by the New Zealand Ministry of Foreign Affairs and Trade through the MISCCAP programme. The planning and operational delivery of the eradication project is led by the New Zealand Department of Conservation, in collaboration with the Cook Island's National Environment Service, Ministry of Agriculture, the NGO – Te Ipukarea Society, and the Palmerston Island community. The project has been in planning stages for 18 months and the operational delivery is being carried out by the field team and community over August/September period.*

### **Kia Orana from Palmerston Atoll,**

I may be communicating from a near rat-free atoll! This week has been eventful, with the completion of the first application of bait on both Home and Cooks Islands.

On the 28<sup>th</sup> of September about 4 million two gram baits were spread across Home island from the 20 by 20 meter grid, and 541 bait trays were filled inside the various nooks and crannies of 116 buildings. This took a collaborative effort from the field team of eleven from dusk till dawn.

The next day, the same team spread almost another 6 million two gram baits across the grid on Cooks motu.



**Above:** John Tuakana Marsters broadcasting bait from a grid point on Cooks motu

Drowsy and dead rats have been observed from as early as the second day since bait has been applied – rats will be significantly reduced by now but it can take time for all rats to consume a bait, and for the latent poisoning to take effect for some individuals. The weather conditions have been excellent (relatively low humidity and no rain) during and since the first bait application, which should mean bait is available to rats for a longer period of time.

Building bait trays on Home Island are checked and topped up every two-three days, and we are able to monitor the amount of bait being consumed. Initial checks find high bait consumption, but as the week progresses this is tapering off – as we would expect as rats succumb to poisoning.



*Above: Julianna Marsters topping up a bait tray in a building on Home Island*

In addition to monitoring bait consumption in buildings, we also establish twenty 25m<sup>2</sup> rectangular monitoring plots on both islands and mark and monitor the disappearance rate of bait in these plots over the first 5 days of bait application. This monitoring informs us if our bait application rates are enough to have all rats exposed to bait for a minimum of 3 nights – which is considered essential to be successful in eradicating rats.



*Above: Flags mark individual baits in 25m<sup>2</sup> rectangular bait availability plots which are monitored daily over the first 5 days of bait application to determine that baiting rates are high enough to ensure bait is available for at least 3 nights to rats*

One of the biggest issues with bait availability in tropical environments is non-target consumption by crabs, and bait applications are usually significantly higher in tropical environments compared to temperate climates (such as NZ) to counter this. Fortunately, the bait/toxin does not affect crabs or invertebrates as the active toxin is an anticoagulant that prevents blood clotting in mammals, and both crustaceans and invertebrates have different physical and chemical wound healing mechanisms that are not affected. Crabs consume and excrete the toxin, and as a precaution a ra'ui is placed on crab harvesting for several months to ensure there is no risk of humans consuming toxin which could be in crab muscle/flesh.



**Above left:** Hermit crabs consuming bait on Home Island, **Above right:** Land crabs consuming bait on Cooks motu

We plan to do a second application of bait on the 7<sup>th</sup> and 8<sup>th</sup> September - ten days after the first application. This 2<sup>nd</sup> application ensures bait exposure to any rats that may have missed out in the first round – sometimes due to those rats still being natal, or from inter-species dominance where more than one species of rat is present.



**Above:** Teariki Tearetoa carting used bait buckets after the first application on Cooks motu

The other happenings contributing to our eventful week was one of our NZ team members, Michael, departing Palmerston as a precautionary measure to ensure an injury he had would not develop complications. Based on advice from our medical advisor in New Zealand, a decision was made to evacuate him back to New Zealand to be within close proximity of hospital level care if required, and we saw him off today from the Island. I'd like to thank the Palmerston Nurse Mele, our medical advisor Dr Mark Floyd, NZ high commission in Rarotonga, team mates on-site and manger back home, and the Anuanua Moana for facilitating the transport. I know Michael was gutted to leave the project early and his contributions have been valuable during his time here – we wish him a speedy recovery.



**Above:** The full RAT field team before Michael's departure – from top left: Alanna, Henry, Deon, Mia, Julianna, James; bottom from left: Teariki, Jenny, Em, Michael, and John.

This coming week will see us establishing a network of permanent biosecurity infrastructure to allow ongoing monitoring on the Atoll to prevent the chances of rodents establishing on the Atoll after our eradication efforts; remeasuring bait availability plots until 5 days post-application; monitoring building baiting trays; caching bait buckets for the second bait application; and apply the 2<sup>nd</sup> round of bait.

I'll finish this update by sharing a semi-regular ritual the team have developed, known as the Finlay L Cox award. At our daily briefings, this award is often given out in recognition of a good effort, or amusing happening throughout the previous day/s. The recipient receives the trophy (a cardboard cutout of the namesake) and gets a fingernail painted for more permanent recognition. A shout-out goes to Deon Frisbee – a senior student at Palmerston Lucky School who has been a key member of our field team – stepping up and always keen to help out with our track cutting and baiting which has really helped the team out. As you can see – Deon has two fingers painted – cheers Deon for your mahi – you are a great example of the community's investment in the project



*Above: Deon Frisbee receiving his second Finlay L Cox nomination*

Meitaki, best regards, and until next week

Em and the RAT team.