

Notes for CRB Incident Planning Meeting

January 11, 2008
Prepared by Aubrey Moore

1. Pheromone Traps.

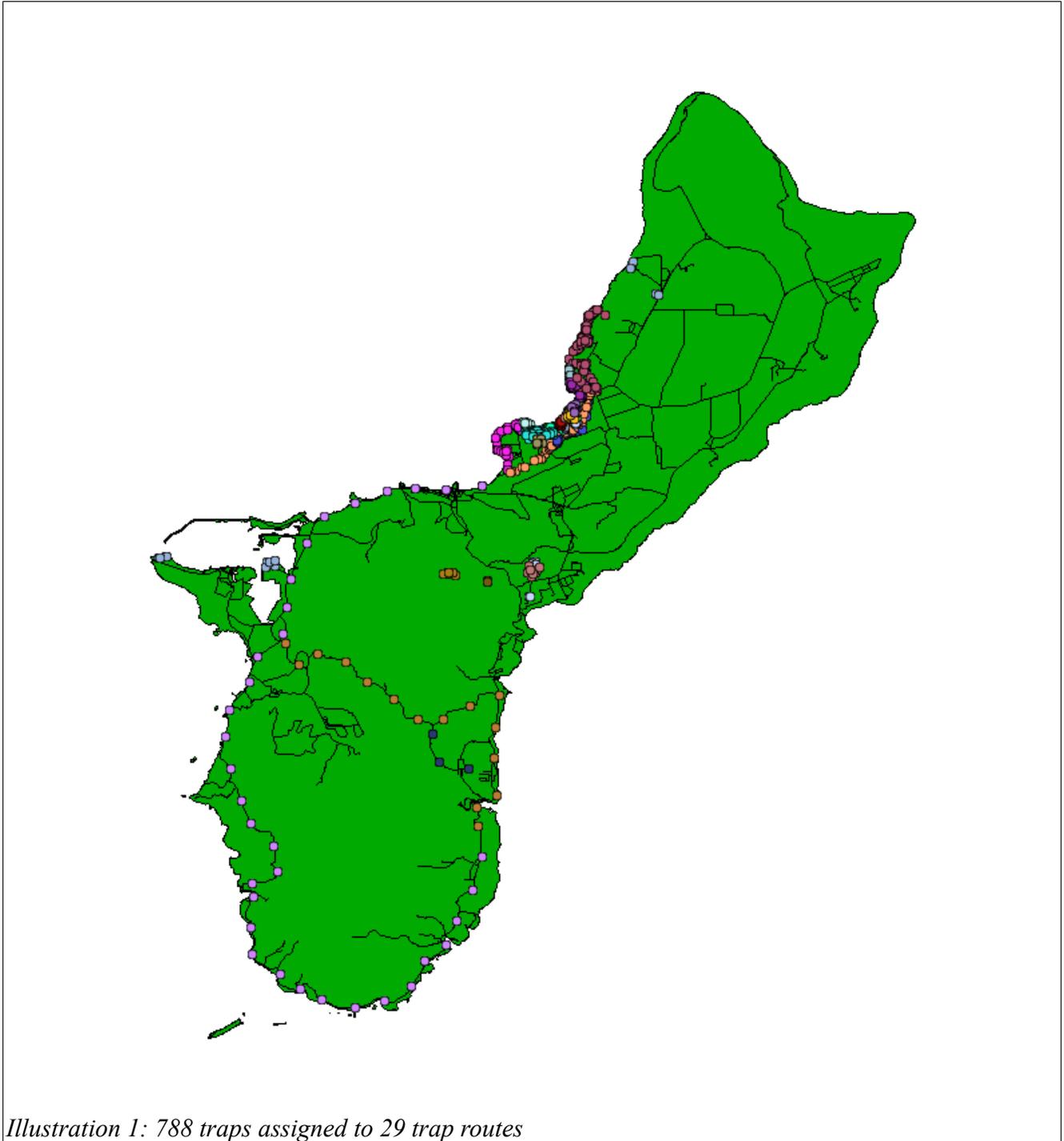


Illustration 1: 788 traps assigned to 29 trap routes

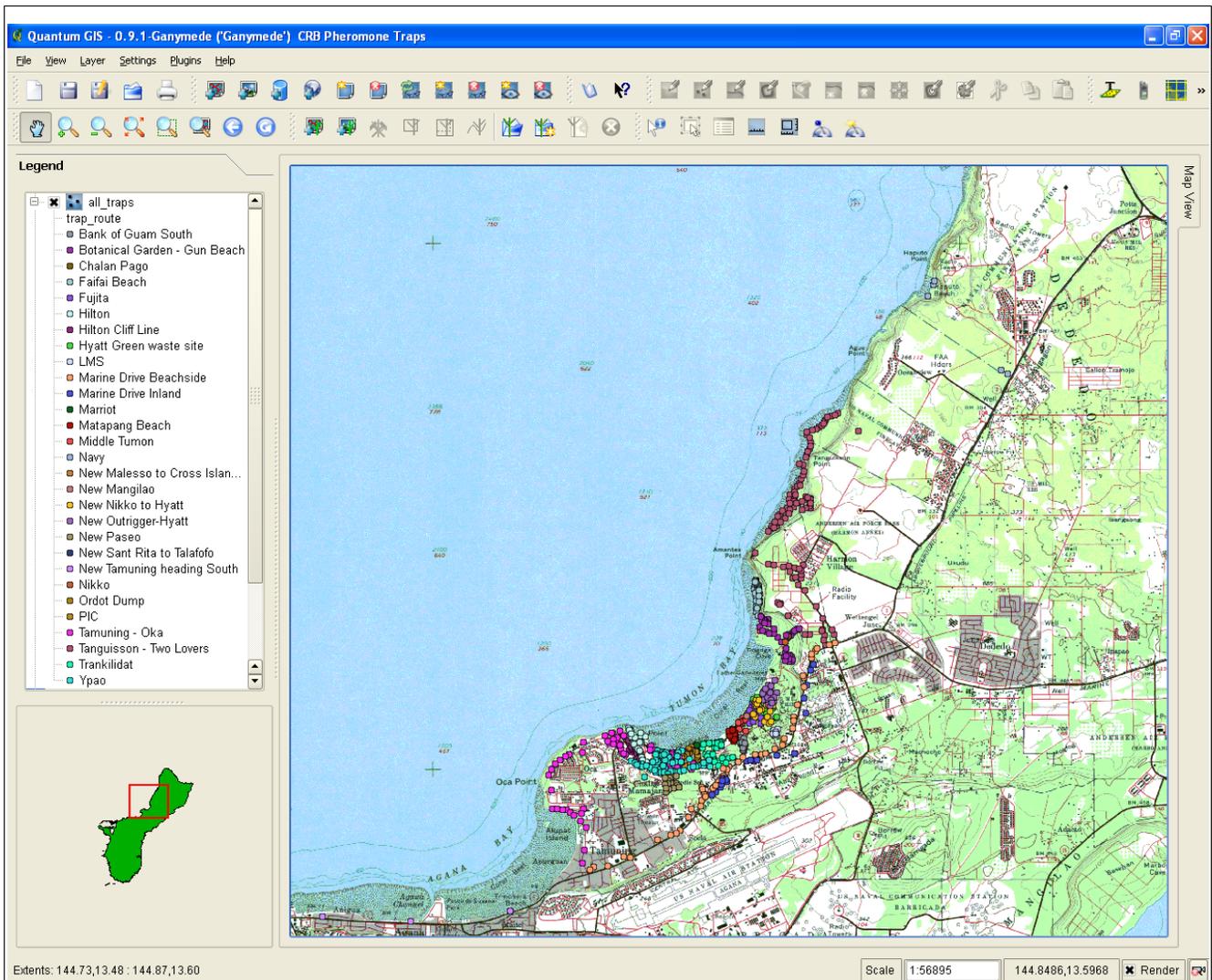
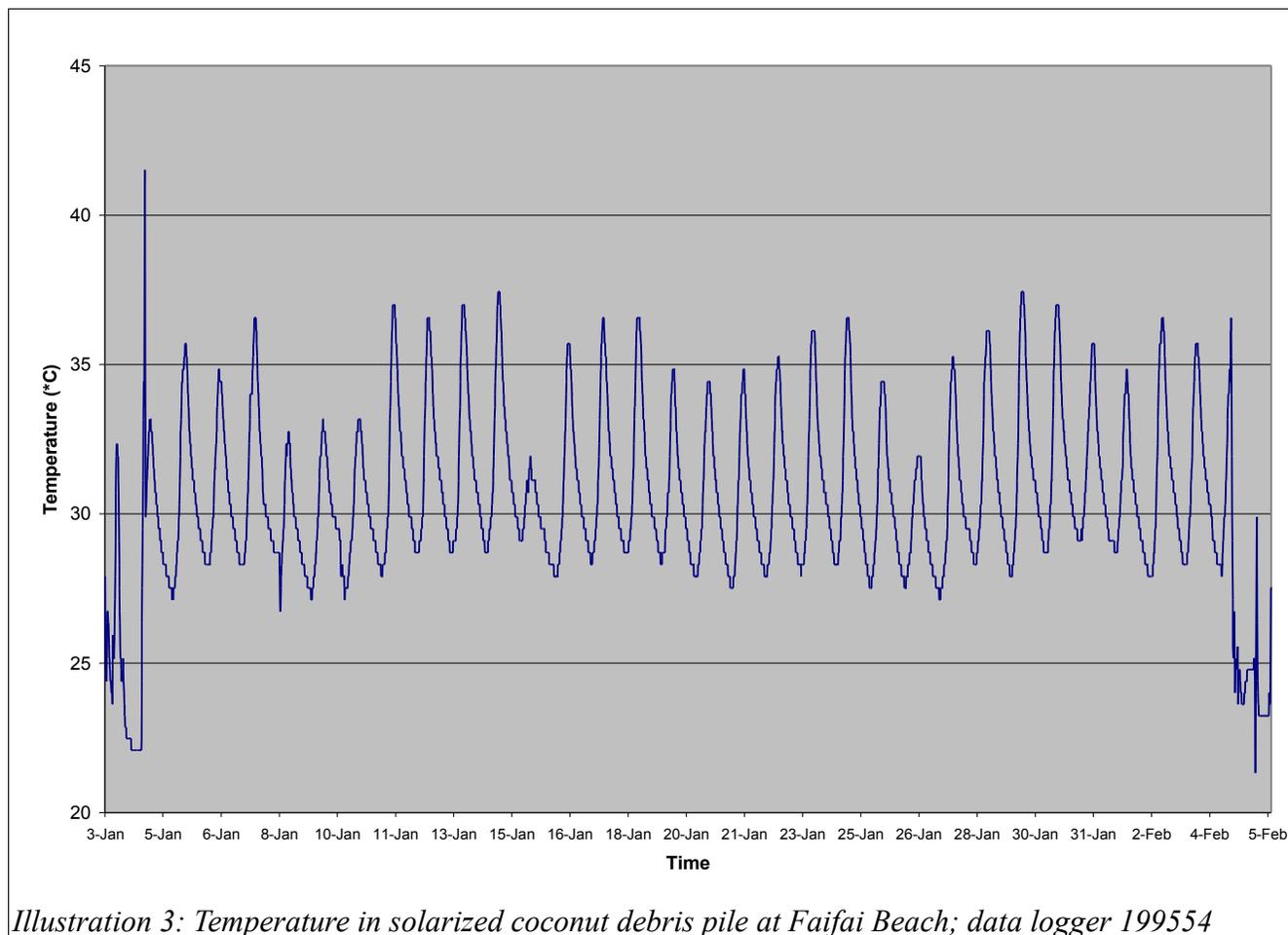


Illustration 2: Mass trapping

2. Solarization test.

Three HOBO(r) data loggers were placed in a pile of coconut debris covered with plastic on Faifai Beach. Data recorded by all 3 sensors indicate that solarization is not sufficient to generate lethal temperatures for RCB adults and immatures. The published lethal threshold for scarabs is about 40 C.



3. Baculovirus of *Oryctes* for Biocontrol

According to Konrad Englberger, a new strain of virus has recently been introduced in Palau. SPC is currently working with AgResearch of New Zealand in study of the virus. A new and more effective strain of the virus is available for use. Sada Lal, SPC entomologist in Suva, Fiji will provide details and my visit Guam.

4. RCB Flight Range

Maximum range for a single straight-line flight is 4 km, as measured in a lab experiment with tethered beetles on a flight mill. However, from field observations it appears that natural flight is limited to a few hundred meters. In a mark-release-recapture experiment, Kamarudin and Washid measured a dispersal rate of 19m per day.

References:

Hinckley, A. D. 1973. Ecology of the coconut rhinoceros beetle, *Oryctes rhinoceros* (Coleoptera: Dynastidae). *Biotropica* 5 (2):111–116. _

“Beetles freshly fed on a palm were flown on a tether in the laboratory. Their flight duration averaged between 2 and 3 hours. Distances traveled were between 2 and 4 km. Beetles exhausted by such long flights were held in moist soil or wood for a day or two, after which they could again fly, although seldom longer than 30 minutes.”

Kamarudin, Norman and Mohd B. Washid. 2004. Immigration and activity of *Oryctes rhinoceros* within a small oil palm replanting area. *Journal of Oil Palm Research* 16 (2):64–77.

“Based on the capture, mark, release and recapture experiment using pheromone traps, the beetle’s ability to fly was estimated at about 19 m day⁻¹ or more than 130 m in a week. The range covered was estimated at 10-23 m day⁻¹. This suggests that the flight of beetles within a replanting area is quite limited because of the abundance of food and breeding sites.”

“Earlier reports have suggested the ability of the beetle to fly considerably long distances (Nirula, 1955; Hinckley, 1973). A distance recorded in the field was about 700 m (Monty, 1974). However, a laboratory experiment has indicated that the beetle can fly up to 2 to 4 km in 2 to 3 hr (Hinckley, 1973). Liau and Ahmad (1991) reported a flying distance of 140 m into a replanting area. This was in the case of migration to new breeding areas. But in this study, which was done within a replanting area, the beetle was noted to fly less (estimated around 19 m day⁻¹, and about 133 m a week) (Table 5). These values may be below the actual flight potential as their flights were monitored using pheromone traps. However, the conducive environment, availability of food and abundant breeding sites in the replanting area logically play a role in the flight distance.”