INTRODUCTION

Introduced rats (Rattus sp.) in Hawaii are known predators of birds, tree snails, and plants. Since 1997, the Oahu Army Natural Resources Program has been controlling rats through the use of diaphacnome rodenticide in bait stations and snap traps on a relatively small scale at multiple sites for the protection of endangered plants and animals. In May 2009, as an alternative method of rodent control that did not require toxicants, a large scale trapping grid was initiated over a 26-ha forested management unit with 440 snap traps on the island of Oahu. New Zealand Department of Conservation current best practice rat trap technology was utilized for the first time in Hawaii with this trapping effort.

Goals of this study:
1) to reduce rat numbers to a level that significantly benefits endangered and other native species
2) to monitor endangered resources and forest health
3) to determine whether rats may be suppressing invasive slugs and predatory snails (Euglandina rosea)

METHODS

• Study Sites: Rodent control was conducted at the Kahanakaiki Management Unit in the northern Waianae Mtns. (Figure 1). Resources were monitored at Kahanakaiki, and at an adjacent site in the Pahole Natural Area Reserve where there was no rat control (Table 1).
• Rodent Control & Monitoring: 440 Victor snap traps in wooden boxes (Traps: 234 perimeter (12.5m) & 206 interior (25m)). Traps initially checked daily for 2 weeks then every 2 weeks thereafter. Traps baited with peanut butter or FeraFeed with a half of a Macadamia nut.
• Rat activity was measured monthly with 38 tracking tunnels divided among 3 zones at Kahanakaiki and quarterly with 30 tracking tunnels along two drainages at Pahole (Figure 1).
• Cyanea superba subsp. superba Fruit Predation Monitoring: Fruit predation monitored approximately every 2 days, December through January.
• Achatinella mustelina Monitoring: Annual census of live snails & quarterly ground shell plot monitoring for predated shells.
• Seed Rain Bucket Monitoring: (48 randomly placed & 10 under native Diospyros sp.) Buckets checked every 2 weeks.
• Seedling Plot Monitoring: (Kahanakaiki 80 plots & Pahole 65 plots) Plants checked at 6 month intervals
• Arthropod Composition & Abundance Monitoring: (16 pitfall traps & 32 vegetation beating samples) Sampling every 6 months.
• Slug & Euglandina rosea Monitoring: (Slug: 40 pitfall traps & Euglandina: 10 timed search plots) Sampling every 3 months.

RESULTS

Rodent Control & Monitoring: 562 rats caught (May 2009 - January 2010). Rat activity in tracking tunnels peaked in late fall at Kahanakaiki (Figure 2). There was no difference in tunnel activity during the two sampling periods for Kahanakaiki and Pahole (Figure 3).

Slug & Euglandina rosea Monitoring: 2009 – January 2010

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