

Use of bait stations and hand-broadcast to fill gaps in bait availability on-the-ground on Desecheo Island. April 07 2016.

Analysis of the bait availability monitoring data after the 1st bait application on Desecheo Island (March 16) indicated that on average there was more bait available through the targeted 4 days than in 2012 (the failed attempt). On average there was bait available in the valleys and cliffs after the desired 4 days, and bait was readily available on the ridgelines which did not see significant bait movement after 3 nights post-application. However, despite the higher application rate, bait disappeared in the valleys quickest, and some individual plots went to zero between day two and day three. Bait also disappeared at a quicker rate in the valleys than in 2012, which seems to support the theory that crabs, as non-target consumers, do not consume bait at a fixed rate over time, but proportionally to how often they encounter it.

In addition to supporting higher densities of crabs as non-target consumers, the three valleys (West, Long, and East – see maps) are expected to support higher densities of rats, as well as invertebrates and reptiles – which are alternative food sources for rats - because the microclimate is more humid and there is deeper leaf litter than elsewhere on the island.

In order to sustain bait availability at all points in the bottom of the 3 valleys for the targeted 4 days post-aerial broadcast, we propose to install bait stations. Also, given the known neophobia of rodents which may reduce the efficacy of bait stations, follow-up hand-broadcast of bait in the valleys is proposed in areas where rats and rat sign continues to be seen, and in areas where the targeted bait availability is not sustained for 4 days after bait broadcast and there are no indications that the bait stations are being used by rats.

Bait availability monitoring transects in the West and Long Valleys will be used to inform the bait station and hand-broadcast refinements by indicating any specific areas in the valleys where bait may be disappearing more quickly than targeted.

While bait applied to bait stations and by hand-broadcast in the valleys would be additional to the total amount of bait aerially broadcast in the valleys (**45 kg/ha** in an 80m swath up the valley floor), the total amount of bait applied to Desecheo will not exceed the stated amount (**10,888 kg / 24,004 lbs**) on the supplemental bait label (EPA REG. NO. 56228-37, EPA Est. No. 056228-ID-1).

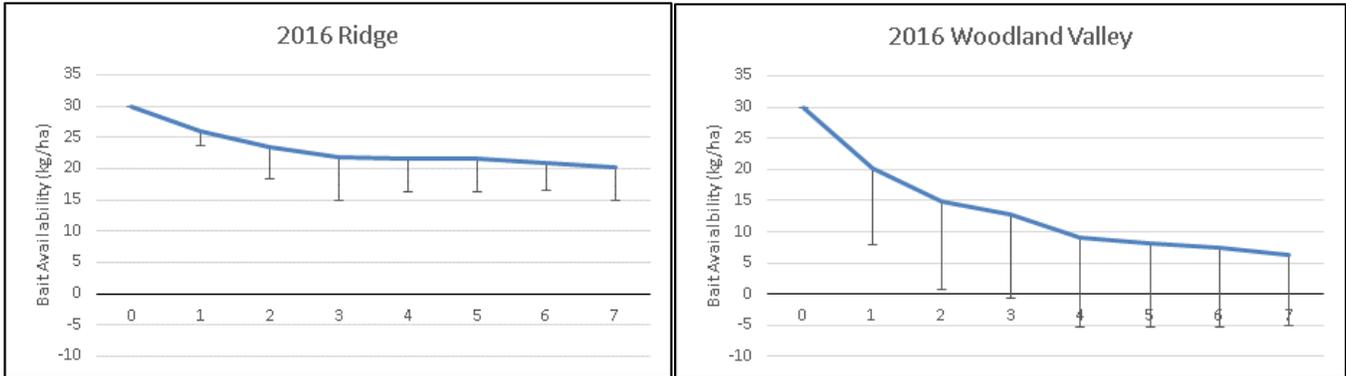
Bait Stations - methods

In total up to 125 bait stations would be installed, and spaced every 25m (see map). The Long Valley would have most stations - it is longer, wider, and more humid than the East Valley which is drier. The West Valley is relatively small and would hold about 12 bait stations. An additional 8-10 bait stations will be also placed around the main field camp in the West Valley, and on the beach camp below West Valley, to target potential commensal rats.

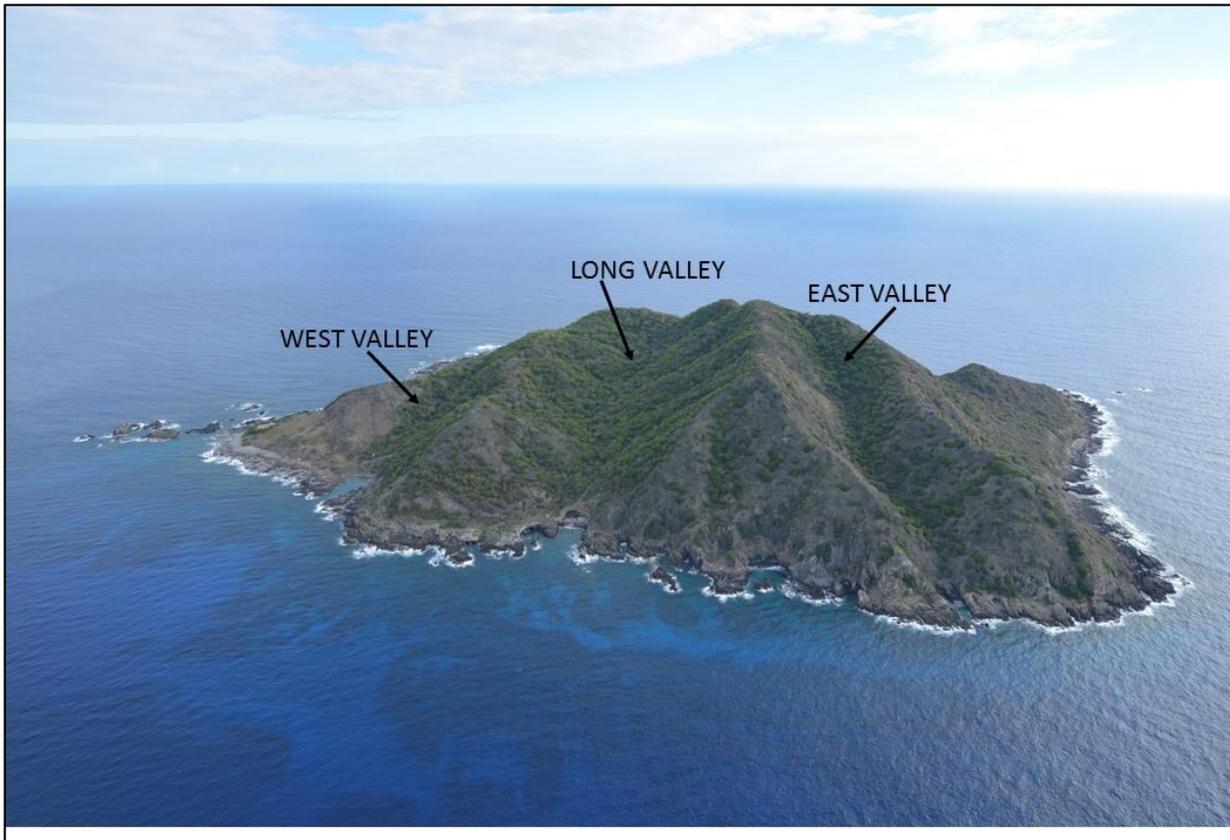
Bait stations would be armed with bait the day after the aerial bait broadcast. Bait stations will be elevated in trees wherever possible to reduce the frequency of bait take by crabs. Each station would hold no more than **75g** (2.6 oz) (equivalent to **30 kg/ha**) of bait and subsequently checked and replenished (if needed) about three times: twice from 3 to 7 days after aerial bait broadcast and subsequently about once per week. Bait stations would be sustained with bait until April 30 2016, after which all bait and bait stations would be removed from the island and unused bait disposed appropriately.

Hand Broadcast - methods

Bait would be broadcast by gloved hand at no more than **15 kg/ha** in the valley bottoms in areas where bait was not available for the targeted 4-days, rat sign continues to be seen, or there has been no sign of rats at bait stations. Hand-broadcast of bait would be from pre-defined gps points. The 25m-spaced gps points for the bait stations would be utilized also for hand-broadcast stations, and a minimum of ~100 sq m area would be treated at each target site.



Mean 99% confidence interval for bait availability (kg/ha) on Desecheo Island March 2016, in ridgeline shrubland (left) and woodland valley floors (right). Vertical bars are lower limits.



Desecheo Island showing the location of the three valleys to be treated.

Desecheo Island showing: (*upper*) planned aerial broadcast bait application (colors) and valley floor bait stations (dots); (*lower*) proposed bait station locations with visible topographical contours. Spacing is every 25m.

