Guam Coconut Rhinoceros Beetle Eradication Project

Olfactometer Bioassay: 100 percent Oryctalure

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1 Notes

- Date and Time: Performed on March 2, 2011.

- Lighting: Darkened room with single red LED over decision point.

- Olfactometer: Sides of glass Y masked with blue tape.

- Insects: Batch 2 field collected beetles last fed 5 days prior to expt.

- Stimulus in left hand branch of olfactometer for first half of expt.

2 Results

- Beetles responded (made a decision within 10 s) in 32 of 48 trials.
  (Response rate = 67 %)

- In 21 of the 32 responses, the beetle went towards the stimulus.
  (Not significant; P-value = 0.1102; Two-tailed binomial test)

- In 18 of the 32 responses, the beetle went to the left.
  (Not significant; P-value = 0.5966; Two-tailed binomial test)

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2.1 Test for Attractiveness

Exact binomial test

data: total.attracted and total.responses number of successes = 21, number of trials = 32, p-value = 0.1102 alternative hypothesis: true probability of success is not equal to 0.5 95 percent confidence interval: 0.4680690 0.8142809 sample estimates: probability of success 0.65625

2.2 Test for Directional Bias

Exact binomial test

data: total.left and total.responses number of successes = 18, number of trials = 32, p-value = 0.5966 alternative hypothesis: true probability of success is not equal to 0.5 95 percent confidence interval: 0.3766257 0.7363619 sample estimates: probability of success 0.5625

3 Raw Data

	l.response	r.response
1	-	l
2	r	r
3	l	r
4	-	r
5	-	l
6	r	l
7	l	-
8	-	r
9	l	l
10	l	l
11	l	-
12	l	r
13	l	r
14	-	-
15	-	-
16	-	-
17	l	l
18	l	l
19	-	-
20	l	r
21	l	r
22	r	r
23	-	-
24	r	r

Table 1: Raw. data. l.response = response when stimulus is placed in left branch of the Y tube; r.response = response when stimulus is placed in right branch; r = beetle chose left branch; l = beetle chose right branch; - = beetle failed to make a decision within 10 s.