BEFTA Protocol

Insect combination trap protocol 04/10/2013

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Background

Combination (pitfall, flight intercept and Malaise) traps are being used to sample a variety of different insect groups. These traps have been used successfully before in related projects in Malaysia (see www.safe.project.net) and will ensure that results are comparable with other studies.

Their design consists of two interlocking Perspex sheets, with a large plastic funnel at the top and bottom of the trap. In addition, at the top there is a funnel of fabric that acts as a mini-malaise trap. When the trap is set, the corners of the fabric funnel are pulled out to the sides with string, stabilising the funnel and trap (Figure 1). The bottom funnel is set flush with the ground, creating a pitfall trap. Bottles of alcohol at the top and bottom of the trap catch and preserve any insects that fly up or fall down.



Figure 1. An insect combination trap being set in one of the BEFTA plots. Inset – insects being collected from the trap.

Methods

Three trapping locations were selected in each plot. These are 50m apart from each other, spaced at regular intervals around the centre of the plot. Trapping points were initially located by measuring out 31m from the central point at bearings 45, 165, and 285 degrees.

A hole was dug at each point and a large bucket sunk into the ground, with the lip below the surface. These were left covered with their lids, to avoid accidental captures. These holes form permanent sampling locations and were marked with large plastic poles.

Insect trapping will take place three times a year in February - March (end of wet season), June, and September-October (end of dry season).

Due to the number of the traps and the time it takes to set them, roughly 18 traps can be set each day. Although it is not possible to set all the traps at once, they are set in as limited a timeframe as possible, to reduce the influence of climatic variation.

Traps are set as described above and illustrated in Figure 1. Care is taken to ensure the lip of the bottom funnel is exactly flush with the ground. Bottles are set with a small amount of 75% alcohol to catch and preserve the insects.

The date and time that each trap is set is recorded on a sheet. At the time of trapping, the % cover of different understory cover types (bare ground, ferns, other vegetation, EFB, frond piles, deadwood, grass, other; as a percentage of a 5m by 5m box around the traps is estimated by eye), the canopy cover (using a spherical densiometer), and the free height of the vegetation immediately adjacent to the trap is recorded (see Figure 2 for recording sheet)

| | | | | | | | Densiometer | | | ter | % cover (5m) | | | | | |
|----------|---------|----------|----------|----------------|----------------|------------|-------------|---|---|-----|--------------|------|-------|--------------|-----|------------------|
| Plot no. | Bearing | Date set | Time set | Date Collected | Time collected | Veg height | N | Ε | S | W | Bare ground | Fern | Frond | other plants | EFB | Other |
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Figure 2. Recording sheet for insect trap setting and collection.

Traps are left for three days and then the insect samples collected. The date and time of collection for each trap is noted.

The contents of the top and the bottom bottles is poured through a fine sieve and the material transferred into an individual tube each containing a small label with the plot number, the bearing of the trap, the date and time the trap was collected and whether the sample was from the top or the bottom of the trap:

| Plot no. | |
|------------|--|
| Bearing | |
| Date | |
| Time | |
| Top/bottom | |

The bottle is then topped up with fresh 75% alcohol to preserve the specimens.

All insects will subsequently be identified to order and counted. With the help of collaborators, ants, will be identified to species and beetles to family and morphospecies. A mounted collection of the different species found will be deposited at SMARTRI to aid future identification.

Status

The insect traps have been set three times already (March, June and September 2013) and material is currently being identified.