Worksheet answers

Scenario 1 — Hypothesis

There will be no change in centipede abundance over time.

or

As the distance from the original population increases then the number of centipedes will decrease

Experimental design

Variables to change (independent): time or distance from population

Variables to measure (dependant): centipede number

Variables to keep constant (control): all aspects of measurement such as time interval, sampling technique, time of day

Plan

1. *Set up sampling sites along a series of transects that start at the site of the known centipede population.*
2. *Sample along each transect, at regular intervals, for the presence of centipedes.*
3. *Repeat sampling at set time intervals, eg twice yearly.*

Scenario 2 — Hypothesis (part 1)

Burning the native bushland has no significant effect on the abundance of the soil mite.

Experimental design

Variables to change (independent): the burning of the bushland

Variables to measure (dependant): soil mite abundance

Variables to keep constant (control): the control will be unburnt bushland

Plan

1. *Divide the sample area into burnt and unburnt areas.*
2. *Before carrying out the burn, take soil samples from both areas.*
3. *Sample burnt and unburnt areas again after the burn.*
4. *Identify areas where mites are likely to be found, then sample randomly within these areas (stratified sampling).*

If mite number does show a significant difference between burnt and unburnt areas then continue with hypothesis 2.

Hypothesis (part 2)

The number of mites in the burnt area will be similar to that found in the unburnt area after two years.

Experimental design

Variables to change (independent): time (also sampling both burnt and unburnt sites.)

Variables to measure (dependant): soil mite abundance

Variables to keep constant (control): the control will be unburnt bushland

Plan

1) The area is already divided into burnt and unburnt areas.
2) Sample both areas at set time intervals for the next two years, eg every six months.
3) Once again identify areas where mites are likely to be found, then sample randomly within these areas (stratified sampling).