

Intensive Pest Animal Management

Outcome monitoring

April 2009

What to measure

The indicators that will tell you the most about success and improvements in the ecosystem you are controlling pests in will be -

- bird counts
- vegetation monitoring

There are other indicators that can be measured too, but these require more specialised skills and need to be done to an intensity that is probably beyond the capacity of most community groups or projects. Simple insect (invertebrate) monitoring can be undertaken too if you have the time but there are many other factors other than pest control which will influence the abundance of invertebrates, so it's a 'nice to do' rather than 'need to do' activity.

Bird counts will give you a direct method of assessing the responses and breeding success of birds in relation to the reduction in predators.

Vegetation monitoring will show a direct benefit too, and can also be used as a limited overall indicator of ecosystem functioning and health.

Bearing in mind the caveat given above, invertebrate monitoring can give an indication of the effect rat, hedgehog or possum removal may be having.

Bird Counts

The most commonly used and accepted method is 5 minute bird counts. These are conducted at set points (stations) which need to be 200m apart. Aim to have a minimum of 10 stations in your area if possible. It's fine to use a ridge line or existing track to place stations along, as long as differing habitats are represented. Counts are repeated at these stations twice yearly, in May & October.

We recommend you focus on some of the easier to identify bird species that are good indicators of forest health such as fantail, grey warbler, tui, tomtit and kereru. As with any other form of monitoring, replica control site monitoring should be set up in similar habitat nearby. However, due to constraints of volunteer time available and such land being likely to be in private ownership, we don't expect every group to be able to undertake this. What would be useful are occasional counts on a control site to compare results from your project site.

Undertaking bird counts requires a reasonable amount of skill and consistency in recording so ideally the same core group of volunteers would need to commit to this. The ARC is happy to train groups, advise on station placement and can also undertake counts with you until all have acquired a good skill level. Please contact your [Biosecurity Community Coordinator](#) for assistance.

To help with identification of birds and their calls, try using this site www.whatbird.co.nz.

Vegetation monitoring

Vegetation monitoring is time consuming, but once set up will only need to occur every 3 years. Plots of 20m x 4m will need to be permanently marked so they can be returned to over time. The number of plots required will depend on the size of your area and the number of different habitat types within it, and it may be useful to place these plots alongside rat monitoring lines for ease of access. Part of the monitoring can be done using photo points – photographs taken from exactly the same point. It's essential that these points are clearly marked and the direction faced and zoom used are recorded so that useful comparisons can be made over time.

At one metre intervals on each plot, record ground cover type, seedling and sapling counts, canopy cover and tree diameter. We have monitoring kits containing all the required equipment available to lend to your group, along with the necessary recording sheets and detailed instructions. People undertaking vegetation monitoring will need fairly good native species identification skills. Contact your [Biosecurity Community Coordinator](#) for training or assistance in carrying out your vegetation monitoring.

Invertebrate (insect) monitoring

Population density of some of the larger invertebrates is a useful indicator of the success of possum and rat control. Ground weta and beetle numbers should increase, as will tree weta numbers. However, invertebrate populations respond to many environmental factors and to ensure robust results a lot of monitoring stations would need to be set up, making this type of monitoring beyond the scope and ability of most projects. Monitoring ground insects will require pitfall traps (recessed pottles filled with glycol) which need to be set and checked three times over spring (September to November). Some basic skill level is required to identify the insects caught. Please note that this method kills all insects trapped and that processing or identifying all the insects can take quite a lot of time.

Alternatively, weta 'motels' mounted on trees will also be a good indicator of general insect numbers and will require less volunteer input. These can be placed near bird

monitoring stations and checked at the same time i.e twice yearly. To ascertain whether this type of monitoring is appropriate for your project and for detailed instructions on how to set up pitfall traps and identify species caught, please contact your [Biosecurity Community Coordinator](#).