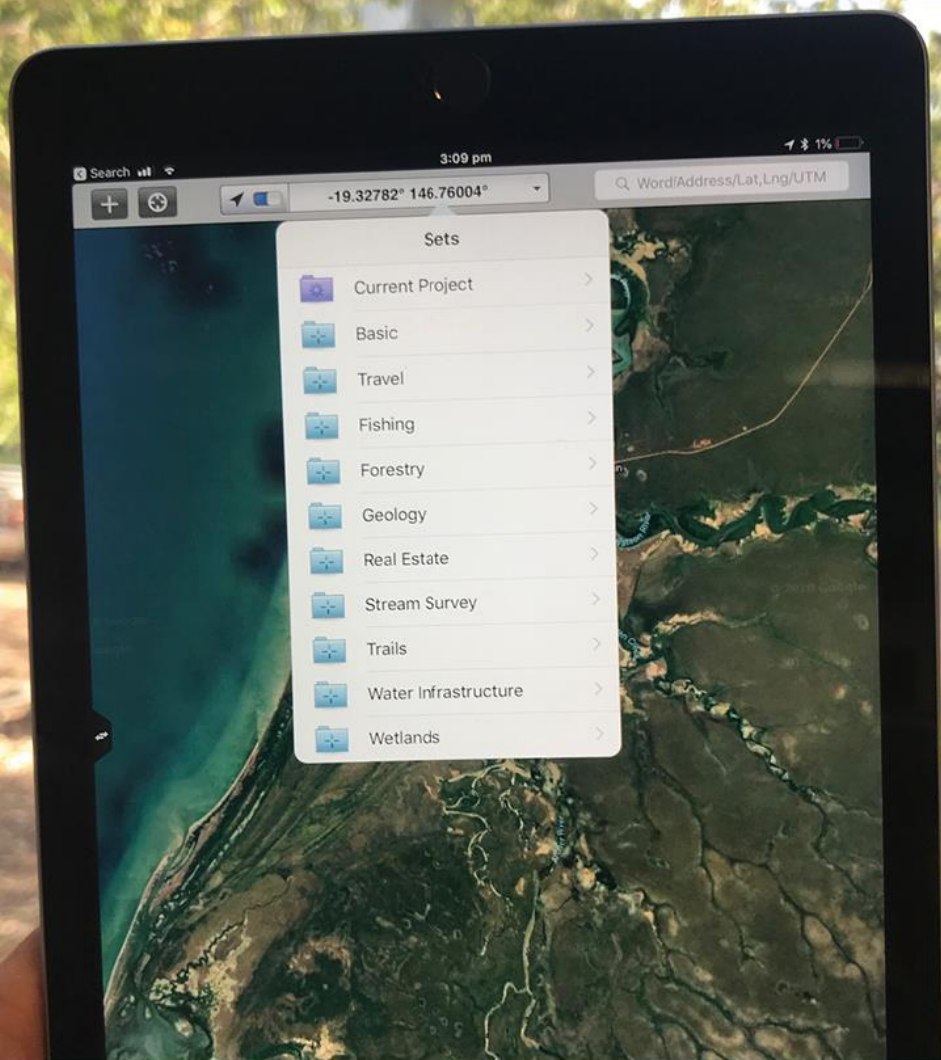# A Ranger's Handbook

Data Management

Managing Feral Pigs for Biodiversity Conservation in Cape York

Balkanu
Cape York Development Corporation P/L

This series of handbooks helps you choose suitable methods for the control of feral pigs and the monitoring of their impacts on biodiversity in your region. The techniques it describes have been used on Cape York Peninsula, Australia, but the ideas can be applied in similar environments in other regions.

To choose what will work best in your area, it is important to understand the techniques that are available and their limitations. These handbooks provide a brief overview of the available options.

There are multiple techniques for both control and monitoring. Often the best approach for successful control is a combination of techniques (as opposed to just one). Knowing what impacts you want to monitor will drive your decision for a monitoring technique.
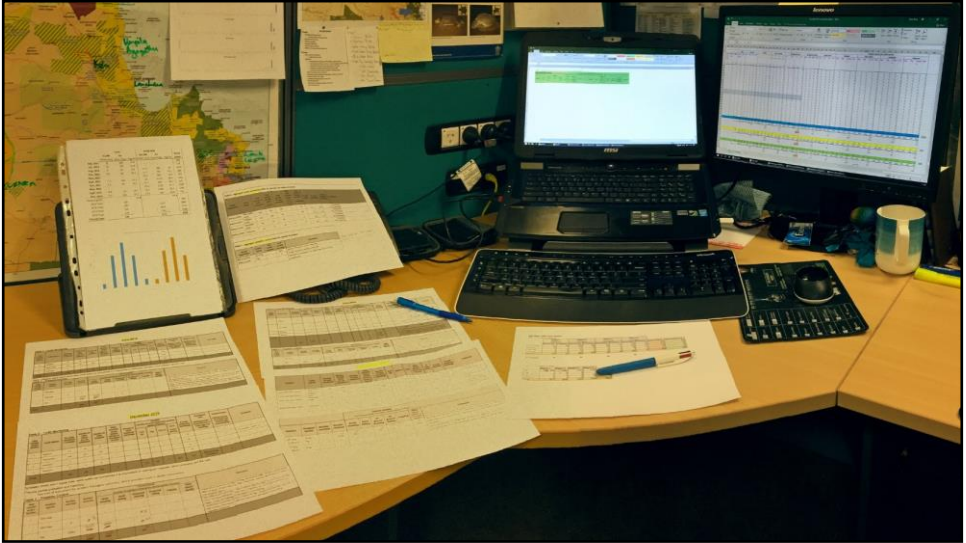
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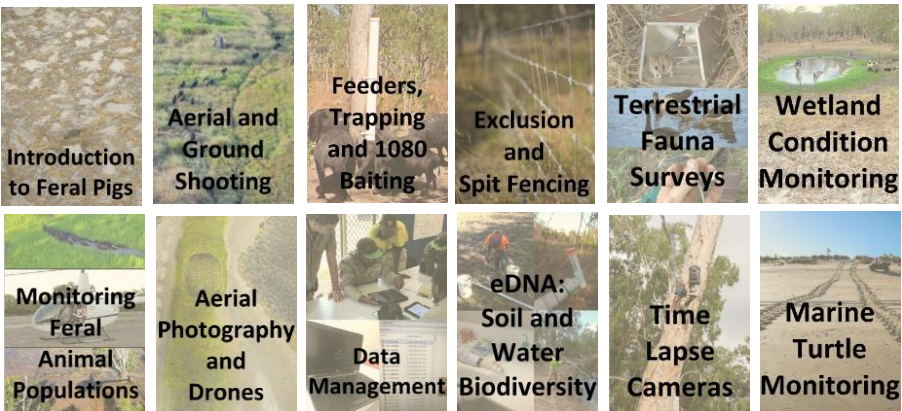
Data Management

Background

Data management is a critical part of a monitoring program, yet is often an afterthought, making analysis, visualisation, reporting and adaptive management recommendations very difficult and unnecessarily time-consuming. There are many different data management systems around. Ranger groups need to carefully consider what they want to achieve and choose the system that works best for their particular requirements.

Key considerations are:

- Is the data safe and backed up? Thousands of hours and dollars are spent collecting data. Storing data on only a portable hard drive or personal computer in the office is not a good idea and undervalues the effort and resources that have been expended.
- Is the data easy to access and share? There is no point in collecting data unless it is used to help achieve better management outcomes.
- Is it easy to use and analyse the data, to report results back to the community and to funders? If it takes a huge effort to enter data and turn it into something useful then the data management system needs some work.

- Is the data accessible without internet, when connection speeds are very slow, or without the help of an expert? Lots of remote areas in northern Australia don't have reliable or fast internet. It is critical that the data can be accessed both online and offline.

Purpose

The purpose of data management is to ensure all relevant information from a project is properly recorded in a standardised way and securely stored for current and future analysis including for project reporting, informed decision-making, adaptive management and research. Data is a fundamental, deliverable and vital asset from an investment and contains value beyond the project period. Careful management of data collection, storage and access is essential for project success.

A good data collection and management system has a few key elements:
- Data is easy to collect in the field with limited training and is at a standard that can be used to effectively answer key questions
- Data is easy to transfer to a permanent and safe store
- Data is easy to access, share and summarise for reporting and analysis.

Intellectual Property and Data Sharing

It is important to note that data from government funded projects is public data. It is important to be clear about who owns the data you collect, and whether the data needs to be stored privately. The intellectual property of the data needs to be considered. If the data needs to be stored privately, uploading it to publicly accessible databases, such as the Atlas of Living Australia or 'BioCollect', will not be an option. Note that data that is collected due to government investment is owned by the government and must be publicly accessible, however, permissions can be applied to ensure the data is being accessed only by people with the appropriate authority.   Permissions should be decided in consultation with Indigenous communities where data is collected on Indigenous lands or by Indigenous rangers or communities. If you are collecting the same sorts of data that is being collected in other projects, you should consider sharing your data. The Queensland Government, for example, has been collecting sea turtle data for many years, and will no doubt appreciate any records you can contribute to their database.

Data Storage Options

There are many good options for data management. If the data collection and management system works for you, it shouldn't matter which system is used. Options range from simply taking photographs or notes in a notebook to more advanced tablet and phone applications, GIS systems and database options. Described here, are a couple of options to choose from that allow data to be permanently stored free of charge and don't require specialist skills and equipment.
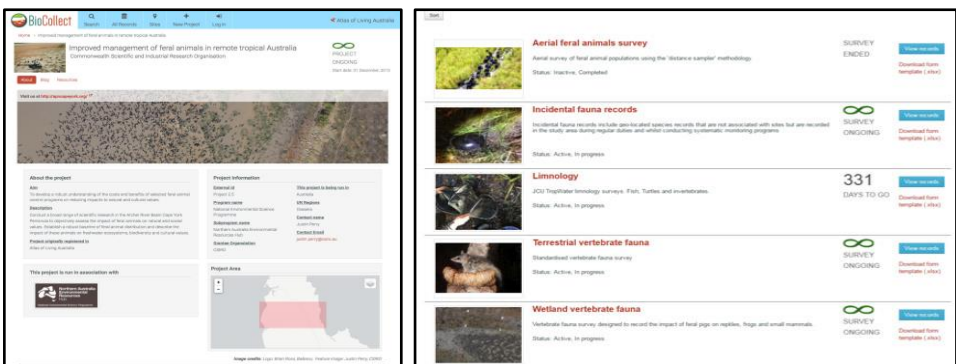
Cloud Storage

Many cloud storage (online storage and backup) providers offer free, limited accounts. A free Dropbox account, for example, will still give you enough storage to enable you to save thousands of photos and documents. These can be synchronised across multiple computers so that everyone in your group has access to the same files. Cloud storage also serves as a backup — you have one copy on your local computer and a backup in the cloud.

BioCollect

BioCollect is a public system that is supported by the federal government through funding for national collections. BioCollect allows users to set up their own projects that match the surveys and monitoring they are undertaking. Data can be manually entered into the system or uploaded in bulk. As an example, the Balkanu Biodiversity Fund feral pig project and National Environmental Science Programme (NESP) northern Australia wetlands data can be viewed here:

https://biocollect.ala.org.au/ecoscience/project/index/f0b53dfa-7bee-4d04-b0d3-6ec71049e70a

For feral animal survey and cull data, an iPad application (Distance Sampler) has been developed that links directly to BioCollect (see the 'Monitoring Feral Animal Populations' Handbook).

A marine turtle predation and nesting data collection application is also available (Nestor – see the 'Marine Turtle Monitoring' handbook). This application also directly links to BioCollect and produces data that is

relevant for the Queensland Government's marine turtle data system.

These applications support rangers in collecting robust monitoring data in the field and provide a means for automatically uploading the data to a permanent storage location. Data can be accessed by funders, the community and research partners for analysis and reporting. Data stored on BioCollect can be accessed by any other data storage systems via a direct download. Data becomes part of the national collections through the Atlas of Living Australia if projects agree to make the data public. Data can also be directly entered into BioCollect.

Access to Data

It is important to understand that data stored on BioCollect is generally made available under a creative commons licence, which means that anyone can access the data and use it for analysis. Sensitive data such as the location of threatened or endangered species are automatically generalised for non-project viewers. Other licence arrangements, including limiting access to sensitive data, can be arranged with the BioCollect team. Access can be restricted to this data to ensure it's accessed by people with appropriate authority.

Feral Scan

To contribute feral animal distribution data to a national dataset, using the Feral Scan website and mobile application is another good option:

https://www.feralscan.org.au/

The feral pig scan section offers various options for recording feral pig data, mapping and setting up communities where interaction with other land managers is possible. This option is more for sharing data to contribute to current knowledge, rather than storing project data.

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