



Early Detection of Invasive Plant Species Monitoring Plan

Standard Operating Procedure #2: Training Observers

Version 1.0 (6 June 2017)

Change History

New Version	Revision Date	Author	Changes Made	Justification
1.0	6/6/17	A. Ainsworth, J. Gross	Developed.	Significant changes to draft ED narrative document.

Only changes in this specific SOP will be logged here. Version numbers will be incremented by a whole number (e.g., Version 1.3 to Version 2.0) when a change is made that significantly affects requirements or procedures. Version numbers will be incremented by decimals (e.g., Version 1.6 to Version 1.7) when there are minor modifications that do not affect requirements or procedures for publication in the series.

Purpose

This SOP outlines the steps to train observers to identify non-native plant species within Pacific Island Network (PACN) parks and to become familiar with methods used to collect field data as part of the Early Detection of Invasive Species Monitoring Plan (Ainsworth et al. 2017). Skill in native and local plant identification is particularly important as familiarity will increase surveying efficiency and reduce the amount of time required to identify species after returning from the field.

Procedures

Prior to initiating monitoring all field crew members will review the entire monitoring plan, including SOPs. Additionally, time will be spent learning or reviewing field identification characteristics for plant species that may be observed during the field season as well as practicing field collection methods.

Species Identification

The ability to identify both native and non-native plant species is essential to the collection of credible, high-quality invasive species data. Recognizing that a species is unknown and collecting a voucher specimen is equally as crucial. It is important that each member of the field crew has a basic understanding of field botany as well as plant anatomy. The field leader will have a more advanced

understanding of field botany and ability to identify plant species; however, there will be times when an unknown plant is encountered and cannot be identified to the desired taxonomic level. In these cases, a voucher specimen must be collected and assigned a temporary name to be recorded in the field records until a proper determination can be made for that specimen (see SOP #9 “Collecting and Vouchering”).

Species identification training (or refresher training) will be conducted prior to the initiation of data collection in the field. Training will involve reviewing local checklists (e.g. NPSpecies) of native and non-native species and becoming familiar with field identification of the local flora and the additional target species. Technicians must be able to identify species with and without reproductive structures, which may require additional training. Field crew members will examine books, reports, journal publications, web sites, photographs, and herbarium collections that contain examples of all of the plant species that are expected to be encountered during the monitoring effort that coming year. A list of references is provided in the “Suggested Reading” section of this SOP. Copies of most of these resources should be available at each park so they can be used to assist with field identifications as needed. Training may also involve a trial period during which the project lead or other plant identification expert checks random corridor segments read by a less-experienced technician. Any differences in data will signal further training is needed and ideally benefit the project by identifying these training needs early on.

Field Surveying Methodology

A detailed description of the methods used to monitor for new or incipient species is provided in SOP #8 “Conducting Corridor Surveys.” Additional procedures used during surveying are described in SOP #7A “Using Global Positioning System (GPS) Units.” During the training period prior to each field season, the entire crew will practice surveying corridors and review all data collection and recording procedures required in the field. Post-processing procedures will also be reviewed at this time.

Navigating Survey Corridors

Corridors are located across parks. Reviewing maps of survey corridors and current site information will help both the first-timer and repeat observers. See SOP #8 “Conducting Corridor Surveys” for details.

GPS Use

Collection of GPS waypoints is integral to early detection of invasive species. Prior to field work, surveyors should review SOP #7A “Using Global Positioning System (GPS) Units” and if a tablet will be used SOP#7B “Using ArcCollector” to setup the GPS or tablet in preparation for data collection and become comfortable with the electronic device being used. Practice scenarios will help solidify techniques. To be effective in the field, observers should be able to:

- Create and store waypoints,
- Create and store track lines using the tracking feature,
- Navigate to a pre-designated position using the navigation feature,
- Create, store, download, and archive GPS data on a computer.

Taking Photographs & Image Vouchering

Field observers will have a basic understanding of how to operate a digital camera and download and archive the images. Prior to surveying, observers will read the user manual and practice taking

photos. Tips can be gleaned from experienced observers to optimize the photo images. See SOP #9 “Collecting and Vouchering” regarding photographing plants.

Plant Collections & Vouchering

Prior to making collections, surveyors will review the Collecting Plant and Image Voucher section of SOP #9 “Collecting and Vouchering.” Surveyors making plant collections will have knowledge of the local flora and be able to determine when and how to properly make a collection. Training may involve collecting plants with an experienced plant collector. Visiting herbaria prior to plant collection is recommended to determine herbaria needs and to understand herbaria accessioning protocols.

Data management

Prior to surveys, observers will review all SOPs pertinent to data management (SOPs 11-18). The computerized data entry and management requires standard computer and data entry skills for MS Access or Excel. Observers should have an understanding of database design, data entry steps, archiving methods, and metadata procedures. Training may involve entering data jointly with an experienced data manager.

Suggested Reading

Field Sampling Methods

Elzinga, C. L., D. W. Salzer, J. W. Willoughby and J. Gibbs. 2001. Monitoring plant and animal populations. Blackwell Science Ltd., Denver, CO.

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Species Identification

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