

# Standard Operating Procedure (SOP) #4

## *Sanitation Protocol*

Version 1.01 (June 23, 2022)

### Change History

New Version #	Revision Date	Author	Changes Made	Reason for Change	Previous Version #
1.01	6/23/2022	Kathryn Akamine	Minor changes to procedures and inclusion of park specific SOPs.	Updated to more feasible procedures.	1.0

Only changes in this specific SOP will be logged here. Version numbers increase incrementally by hundredths (e.g., version 1.01, version 1.02) for minor changes. Major revisions should be designated with the next whole number (e.g., version 2.0, 3.0, 4.0). Record the previous version number, date of revision, author of the revision, changes made, and reason for the change along with the new version number.

### Purpose

This SOP explains the sanitation procedures that all Pacific Island Inventory and Monitoring Network (PACN I&M) field crews should implement to ensure that invasive plant and animal species are not spread by field crews working near, in, and around invasive species populations or in areas that are native-dominated. Sanitation, in this context, is best defined as the removal and destruction of invasive species, plant parts or propagules through the decontamination of vehicles, tools, equipment, supplies, clothes, and hands to prevent the spread of invasive plants, animals, or pathogens. The required sanitation procedures should be implemented by all agencies and organizations that work in natural areas of high ecological value, as one of the major dispersal mechanisms of invasive species into these areas is through human actions (i.e., on field staff, vehicles, helicopters, pack animals, equipment, and supplies). Before working in any park, review all sanitation guidelines for that park, and then implement whichever sanitation protocol (this protocol or the park protocol) is more stringent. In all cases, field crews are responsible for understanding and implementing sanitation guidelines before, during, and after monitoring events.

### Pre-survey Procedures

#### ***Field Clothes and Gear***

- Use only clean gear and clothes for field work. Launder clothes prior to field work and preferably dry clothes in high heat.

- Scrub shoes, packs, and pack contents and inspect them for any hitchhiking seeds, organisms, and soil. Take special care to check boot tongues and tread, pack, seams, pockets, radio harnesses, etc. A small brush should be used to clean boots, equipment, and gear.
- When available, use designated, specially marked clothing, shoes, and gear when working in areas with highly dispersible invasive species. Use this set of clothes and gear exclusively for work with specific invasive plants. Keep this set of clothes separate from personal, non-work clothes or field clothes used for native natural areas.
- Suggestion: Pack extra clothes to change into to prevent transport of invasive species.

### ***Equipment and Supplies***

- Wash all equipment and supplies prior to field work to ensure all soil, plant parts, and organisms are removed.
- Treat monitoring supplies (e.g., PVC poles, stakes) and transport equipment (e.g., helicopter sling nets) that have been stored outside or in unmonitored storage areas with a mild bleach or appropriate cleaning solution to kill hitchhiking organisms such as spiders, slugs, ants, cockroaches, and other species.
- If work is planned in a pristine natural area, inspect all gear and supplies before packing them. Store the gear and supplies in a pest free environment before taking them into the field (e.g., indoors or in plastic trash bags). It may be necessary to freeze gear overnight (or at least 12 hrs.) at or below 26°F and pack camp food in covered plastic buckets or action-packers to prevent accidental introductions of unwanted pests and to make freezing and cleaning easier. Refer to the park guidelines for more details on these procedures.

### ***Vehicles***

- Clean vehicle exteriors (especially wheel wells, bumpers, grill, fenders, and underneath) by washing with soap and strong spray, preferably using a high-pressure hose.
- Use a vacuum to clean vehicle interiors and remove soil, invasive plants, and plant parts. Use an air compressor to blow the insides clean, if needed.
- Do not allow vehicles to move from one area to another without first being cleaned and inspected.

### ***Survey Procedures***

- If possible, strategically plan field work to move from weed-free areas to weedy areas. If working over long distances, this often means walking from higher elevation sites that tend to be more pristine to lower elevation sites that tend to be weedier. If possible, limit field work to times when invasive plants of concern are not seeding.

- Pack out everything. Food scraps including orange peels and apple cores potentially introduce new organisms and are food for rats and other animals. Seeds of fruit may germinate in the field as well. All field crews should adopt a “leave no trace” policy.
- If possible, camp or arrange breaks in plant or animal pest-free sites to prevent transporting invasive species.
- When surveying along transects or clearing trails, limit the amount of ground disturbance and foliage removal, which may create suitable substrate and light conditions for weeds to become established.
- Report sightings of invasive species populations observed in the course of field work. Use the example form provided below (Figure SOP 4.1). Reporting incipient populations allows managers to eradicate populations before they become widespread.
- Inspect clothes and gear and take a few moments to clean them before heading to a new work area or leaving the field.
- Refrain from eating certain fruit to avoid becoming a dispersal agent. Eating the fruit of invasive species while in the field (e.g., blackberry) or eating fruit while at home (e.g., tomatoes) has resulted in their introduction to remote sites. If these items are eaten, bury waste at least 12 inches or use wag bags.

### **Post-survey Procedures**

- Clean gear and vehicles promptly with the understanding that transported frogs, insects, and plant seeds do not remain in one place for very long.
- Dispose of invasive plant seeds and plant parts that are removed from clothing. Appropriate disposal techniques include microwaving the seeds, grinding them in a food processor, using a pestle and mortar, or incinerating them. Often, it is not appropriate to throw them in the trash, which could result in their establishment at the refuse dump.
- Clean gear in a designated site at home or office so that the area can be continually monitored for invasive species.

### **Park-Specific Sanitation Protocols**

Some parks have their own protocols for biological sanitation. Field crews should always review any park-specific protocols before any monitoring occurs. The following is a list of HAVO protocols.

- HAVO:
  - Rapid ‘Ōhi‘a Death
  - Little Fire Ants

- Argentine ants
- Coqui frogs
- Kahuku specific