

## **Prevention of Alien Species Introduction Protocol for The Nature Conservancy of Hawaii**

Control of introduced plants and animals is one of the main focal points of resource management groups in Hawaii. As new accidental entries to the islands continue yearly, adding to the long list of alien species, resource management workers need to be concerned with a degree of urgency to prevent these introductions from ingress into natural areas. Such personnel, including researchers, volunteers, and other visitors must view themselves as possible vectors of these alien species. The realm of these pests can be other islands, even other parts of a fairly pristine preserve or natural area, as well as one's own home or the field operations baseyard. This paper covers the likely routes of accidental introductions and outlines procedures to be taken by staff to prevent or minimize these threats. Enforcing this protocol may not always be practical, but it should become second nature to TNCH field staff.

1) **Inspect field gear and equipment before going into the field.** This is best done at the baseyard under the supervision of an assigned staff person. Two categories of pests to be especially aware of are weed seeds and insects. Clods of dirt or mud can mask these hitchhikers. The array of items to inspect can include footwear, socks, pantlegs, jackets, raingear, food-stuffs, tools, packs and other containers. Cleaning of gear can be performed by use of a hose, brush, rags, or knife edge, and should be done in a designated area with a receptacle for proper disposal nearby.

2) **Keep the field vehicle clean.** The inside should be kept vacuumed of debris (in corners, seats, dash, and floorboards) and the pickup bed swept on a regular basis. Avoid carrying seeds on the tires by hosing off any mud before departing the baseyard. Maintaining clean field equipment will only be compromised by a dirty truck.

3) **Become acquainted with invasive species in Hawaii and their varying status regarding particular localities.** Learn which of these is localized to your area and which to be on the alert for that are established on other islands or natural areas. Take inventory of weeds that occur along preserve trails and byways and pay attention to any unusual changes or additions to these. There is much literature that aids in identification and provides current status throughout the various islands.

4) **Avoid carrying weed seeds from an infested part of the preserve to pristine areas.** If routes of transit go through invasive weed belts, be conscious of the potential for spread. A safeguard could be having a brush on hand to clean shoe soles at the boundary of such a site. This is especially a concern when performing priority weed work where there is a large seed bank.

5) **Prepare a checklist of items to be inspected before any extended field operations or camping trips.** Note all materials that will accompany staff during these maneuvers. During the baseyard prep day, an assigned person will inspect the supplies, concentrating on those most susceptible in aiding accidental introductions. A quick "once-over" should be performed the morning of departure as the gear is loaded into the vehicle. Items having the potential for carrying unwanted plants and insects into the field include: helicopter sling nets, wood, building materials, fencing material, bottoms of plastic buckets, boxes, any open food or water containers (beware of roaches and ants!), tool bags, and tents. Methods for cleaning such articles range from using brushes, bleached rags, or insecticides. Upon the worst possible scenario of contamination supplies, simply dispose of the item at the baseyard.

6) **Keep localized infestations from becoming established on other islands or preserves.** When working on a different preserve or other island, be very careful to avoid spreading pests that your destination may not have, and vice versa, by inspecting and cleaning gear before each departure. In some cases it may be wise to have completely different gear for other preserve work.

7) **Pack out you trash and unused foodstuffs.** Avoid taking any fruit (in your food or digestive tract) whose seeds have strong potential to naturalize, i.e. guava, cherry tomatoes, chili peppers, berries, etc.. Also be aware of the possibility of spreading unseen insects, bacteria, blights, and other plant pathogens.

Organic trash (orange and banana skins, apple or pear cores, peach and avocado pits, etc.) should be treated as other garbage and **packed out** the way it was packed into the preserve.

8) **Keep helicopter landing zones and camps free of significant weed species.** These helicopters not only land in our preserves but go to other islands' natural areas as well. Although it may be impractical to keep the skids of the chopper clean, a well used landing area can be managed. Potentially threatening weed species dominating these strategic places should be cut back periodically, if not completely eradicated. Camp sites are also a good indicator of weed and insect species brought into the preserve. Time should be set aside for any control efforts to eliminate these invaders when arriving at the camp.

9) **Educate preserve visitors to follow this protocol.** This includes membership or other organized hikes, volunteer groups, and researchers. It will be the responsibility of the TNCH hike leader or liaison to relate this information, as relevant, to the group prior to entering the preserve. A shoebrush and bag for disposing any unwanted debris should be made available for use at the preserve entrance. Concerning independent researchers, the TNCH liaison contacted for permission is responsible for informing them of these precautions. Since it is likely that researchers will be visiting pristine parts of the preserve, this procedure cannot be stressed enough. A very high probability exists that much of their gear (primarily packs and footwear) has seen other natural areas in Hawaii that may or may not have related infestations of alien species, and it is presumptuous to expect that they could not act as agents for dispersal. Persons who share in common an appreciation of Hawaii's native forests will not be insulted by these procedures if related firmly yet politely, but rather will be impressed with the diligence by which they are executed.

February, 1992. Draft by: Pat Bily, Invasive Plant Specialist  
The Nature Conservancy of Hawaii-Maui Field Office, Makawao, Hi. 96768  
(808)572-7849 ext.28 e-mail: pbily@tnc.org