Guidelines for Submitting Wood Borer and Bark Beetle (WBBB) Specimens for identification

USDA-APHIS-PPQ CAPS Program

The purpose of this document is to outline the proper procedures for preserving, packaging and shipping WBBB specimens collected in Lindgren funnel traps as part of the USDA-APHIS-PPQ CAPS (Cooperative Agricultural Pest Survey) Program. The quality of specimens and the associated data is paramount in survey effectiveness. As such, this document will focus on the techniques and practices that ensure this high quality.

ATTENTION: Submit preserved samples only, do NOT send decayed specimens
Make sure the PPQ form 391 is clearly associated with each sample

General Procedures:

1. Service the traps
2. Take the samples to the lab and sort to order
3. Prepare samples for shipment

1. **Service the traps**

Lindgren trap samples are collected at the bottom of the trap in a container with a wet killing agent. For CAPS surveys, the collection container should be filled with a preservative, such as soapy water (a few drops of dish soap) or a 50% concentration of the non-toxic antifreeze (propylene glycol). Make sure to replace the solvent every time the trap is serviced.

Disposable paint filters. Photo by K. Metz, 2010

Traps should be serviced every 10-12 days or after a bad weather event which can disturb the sample, like rain, strong winds or snow. Leaving samples out for too long may damage them beyond recovery. Prior to going out in the field pack the following items: water and preservative mix to refill the trap, replacement bait (if needed), a pencil, adhesive label paper, disposable paint filters, a cooler with ice, and zippered bags each containing a paper towel wetted with 70% alcohol. At the site, strain the sample through the paint filter and place it in the zippered bag. A single sample, in this context, includes all contents of the collecting container. Use a pencil to write the label and stick it to the sample bag. It is good practice to double-label: a label inside the bag and an adhesive label on the outside. This minimizes error and ensures data preservation. If a sample is large, sub-divide it to several clearly labeled bags rather than overfilling. Make sure samples sit on top of the ice and are not crushed.

Lindgren trap. Photo by Bud Mayfield, 2004

2. **Take the samples to the lab and sort to order**

Once the samples are in the lab, place them in the freezer for 24hrs or until ready to process. Rinse the samples off the filter over a sorting tray. Then, using soft tweezers and a magnifying glass or a dissecting microscope, pick out all beetles (order Coleoptera) and wood wasps, such as *Sirex noctilio* (order Hymenoptera, family Siricidae).. The beetle or wood wasp sample is then placed into a glass vial filled with 70-80% ethanol with a label and packaged with form 391 to be sent to an identifier. Make sure the alcohol label contains the collection number matching the associated entry in the 391 data form. Similarly to the field practice, one vial is usually used per sample, but if the sample is too big it should be sub-divided among several vials and labeled.

3. **Prepare samples for shipment**

Vial packaging. Photo by K. Metz 2010

Mailing tube. Photo by J. Brambila 2005

Each sample is packaged with form 391: "Specimens for Determination." Fully capturing the collection data is critical to a successful survey so the data form must be filled out thoroughly. There is no such thing as too much data. Section 22 is reserved for survey description, in this case WBBB. Section 24 should be left blank to be used by the identifier.

When packaging samples for shipment, there are several ways of ensuring the form remains with the sample. A paper envelope or a zippered bag work well to contain the sample vial with the data form stapled to the bag. Alternatively, rubber bands can be used to secure the form – a method that works better if there are multiple vials per sample. When securing multiple vials in one shipment, make sure to wrap each one in a paper towel and tape so as to contain the sample in case of breakage.

The vials should then be packed in a cardboard box or mailing tube large enough to have space for packing material on all sides. Packing material prevents the vials from being shaken or broken. Styrofoam peanuts, plastic foam, bubble wrap or crumpled newspapers are examples of packing materials. The vials can also be sent in padded envelopes sealed with tape, not staples.

SURVEY MATERIALS AND SUPPLIES

Alcohol	Isopropyl alcohol, also known as "rubbing alcohol" or 70% Ethyl alcohol (ethanol) to rinse and preserve specimens.
Alcohol bottles	Neoprene plastic bottles with spouts to dispense alcohol. Make sure the bottles are clearly labeled with the chemical they contain.

Propylene glycol	Non-toxic antifreeze. Used as a preservative in Lindgren funnel trap collecting containers. Diluted to 50% concentration with water. An alternative is a few drops of dish soap in water.
Specimen bags	Large zippered bags. Used to hold freshly-collected specimens and specimen vials. Paper envelopes can also be used to hold contain vials during shipment.
Filters	Disposable cone paint filters are ideal for straining the preservative while catching the smallest of bark beetles.
Vials	Clean glass screw-top vials, new or recycled. A variety of vial sizes should be available to accommodate samples of various size.
Pipettes	Plastic or glass droppers or pipettes to transfer alcohol.
Tweezers	Fine tweezers to move specimens. Soft tweezers should be used to prevent specimen damage.
Sorting trays	Used to rinse and sort specimens in the lab.
Brushes	Fine paint brushes can be used to transfer small specimens.
Rubber bands	Assorted sizes, to tie vials together.
Writing utensils	Both standard ink and Sharpie marker inks are somewhat water soluble and run in alcohol. Micron pens have alcohol-proof ink and can be used alongside pencils. These pens come in a variety of tip widths, with very fine tips being preferable for writing and drawing. A sharp pencil is a good alternative to ink.

Authorship & Acknowledgements:

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