Specialized weevil collecting methods

A. Sifting leaf litter – sifter as a means of concentrating the litter prior to arthropod extraction.

1. Winkler funnels => no electricity needed; movement of arthropods only… Requires 3 days of time for extraction.
    a. http://marizetedobrasil.loja2.com.br/
    b. http://marizetedobrasil.loja2.com.br/1543096-Extrator-de-Winkler-Maxi

2. Berlese funnels => 60 W light bulbs; use shallow samples (~ 8 hours)
    a. Look for areas around log or rocks that retain moisture; cave entrances, etc.
    b. Samples that are too wet are typically not productive

Can also use a low-temperature pan on a stove – catch insects as they come out. Or: large white sheet – spreading litter out on the ground (preferably in non-mosquito areas).

B. Pitfall traps – great for wingless weevils (broad-noses, cryptos, etc.)

=> Utilize a double cup (easy removal); no lid needed in AZ; vandalism can be an issue.
=> Barrier pitfalls: http://pubs.ext.vt.edu/444/444-416/444-416.html
=> Increases trap efficiency
=> Another modification: add/connect to PCB pipe (sandy areas, gopher habitats, softer ground preferred): https://jzolkowskiturf.files.wordpress.com/2012/03/canton-20120216-00291.jpg
=> Black cup barrier cups; non-toxic propylene glycol; Prestone Low Tox Antifreeze/Coolant: http://www.prestone.com/products/print/414?popup=1
=> "Ramp pitfall trap": http://www.academia.edu/4913242/Design_for_a_low-cost_covered_ramp_pitfall_trap
=> Aquatic pitfall trap - http://www.bioone.org/doi/abs/10.1649/072.065.0403

NAU pitfall trap instructions:
http://nau.edu/uploadedFiles/Centers-Institutes/Merriam-Powell/Biodiversity_Center/Museum_of_Arthropod_Biodiversity/_Forms/Pitfall%20Tube%20Trap%20Design.pdf

C. Light traps – smaller 8 W baffle traps; can run on 12V motor batteries

http://jenny.tfrec.wsu.edu/opm/displayspecies.php?pn=643
http://www.sil.si.edu/smithsoniancontributions/zoology/pdf_hi/SCTZ-0590.pdf

D. Lindgren funnels => imitate tree trunks; good for bark beetles and other (interesting weevils)

=> Use no pest strips or ethanol/Prestone/glycerine, or collect insect alive (requires frequent maintenance)
http://mississippientomologicalmuseum.org.msstate.edu/collecting.preparation.methods/Lindgrens.htm

E. Bait traps

=>E.g. malt baits; smell of fermentation attracts certain weevil groups
=> Also: pheromone traps, e.g. for *Rhynchophorus* & *Metamasius* (specific pheromones)
=> http://wiki.bugwood.org/Collecting_insects
=> Pineapple, fruit traps

F. Sticky traps – Tanglefoot

=> https://www.contech-inc.com/store/gardenprotection/product/40-tangletrap
=> Solvent available Histo-Clear: https://www.brunschwig-ch.com/pdf/downloads/ND_HistologyReagents.pdf

G. Boll weevil traps

=> http://ipm.ncsu.edu/cotton/insectcorner/photos/traps.htm
=> http://www.entsoc.org/PDF/Pubs/Periodicals/AE/AE-2003/summer/Feature-Hardee.pdf

H. Yellow pan traps

=> Use water + detergent, Use: http://blog.insectmuseum.org/?p=989 "Especially my two favorite models from the Solo® Cup Company: the 12 oz. PSB2Y 0099 and the 18 oz. SGB18 0100."
=> http://www.anything4restaurants.com/products/12-oz-yellow-plastic-party-bowl-79409.html

I. Flight Intercept Traps

http://mississippientomologicalmuseum.org.msstate.edu/collecting.preparation.methods/Flight.intercept.traps.htm
=> Can spray the mesh; many modification possible (trough, yellow plastic bags, etc.)

J. Malaise traps

=> E.g. BioQuip