

BENEFICIAL INSECTS FOR NATURAL PEST CONTROL:

Soil Scouting

PURPOSE

Beneficial insects like predatory ground beetles and spiders can provide important natural pest control in a farm or garden setting. This guide and worksheet is designed to help you assess the presence of predatory organisms that hunt and rest on soils. Using catch-and-release pitfall traps, you will be able to easily detect and count these soil-surface predators. Use this guide along with our flower and foliage scouting guides to gain a better understanding of the beneficial insect community on your farm.

WHAT YOU NEED	<ul style="list-style-type: none">• Clipboard , worksheet copy, and pen/pencil• Small spade or trowel• Containers for pitfall traps (e.g., plastic drinking cups or large yogurt containers, ideally with lids)• Flags or stakes (to mark trap locations)
WHERE TO USE	Undisturbed habitats adjacent to crops (e.g. field borders, hedgerows, woodland edges) or within crops (e.g. cover crops, beetle banks, insectary strips). Scouted habitat areas should be located in full sun and protected from pesticide applications.
WHEN TO USE	Twice per year, July-September <ul style="list-style-type: none">• Visits separated by at least 1 month• Deploy pitfall traps in early evening• Empty traps as soon as possible the next morning Warm conditions with daytime temperatures >60 °F (15.5 °C) Avoid sampling in rainy conditions that may flood traps



HOW TO SCOUT

You will be setting out catch-and-release pitfall traps (see photo, right) to observe and record soil-surface predators. The number of traps you will set out is dependent on the number of habitat areas you are interested in monitoring. We recommend one or two pitfall traps per habitat feature of interest, placed at least 50 ft. apart (further apart in larger habitat areas).

- **Select habitat area(s) you want to monitor.**
- **Deploy traps in late afternoon or early evening.** Dig an appropriate-sized hole in each location you wish to survey. Place container (lidded if possible) inside the hole so that its rim is level with the soil surface. (Using lid prevents dirt from spilling into bottom of the trap, and a dirt-free container makes trap evaluation easier the next morning.) Once the container is well-positioned, fill dirt in around the container and carefully remove the lid.
- **Use flags or stakes to mark trap locations.** Mark trap locations to ensure you can find traps again the next morning.
- **Revisit traps the following morning.** Use provided worksheet to record any predators in traps. Use photos at right for guidance on commonly caught predators.
- **Remove trap, or place lid on the trap (if reusing).** The stake/flagging should be left in place for the next survey date. Traps can be left in place, but must be covered to prevent further captures during the interim period. If farm practices (like mowing) prevent use of physical markers in some habitat areas, then a detailed description of trap locations is needed.



Acknowledgments: Guide created by Thelma Heidel-Baker, Sarah Foltz Jordan, Jarrod Fowler, and Eric Lee-Mader of The Xerces Society. All photos taken by Sarah Foltz Jordan. Project funding provided by U.S. Department of Agriculture Sustainable Agriculture Research and Education program.

SOIL SCOUTING WORKSHEET

Site Name: _____

Observer: _____

Date Trap Deployed: _____ / _____ / _____

Time: _____ AM / PM

Date Trap Emptied: _____ / _____ / _____

Time: _____ AM / PM

Visit #: _____ of _____ Temperature: _____ °F

Skies (circle one): Clear / Partly Cloudy / Bright Overcast

DIRECTIONS:

Conduct monitoring twice per year from July-September, with survey dates separated by at least one month. Deploy traps in the early evening and empty them the following morning. Avoid rainy or unusually cold conditions. We recommend one or two pitfall traps per habitat feature of interest (e.g., native field border, cover crop field, beetle bank, etc.). Take care to place each trap so that the rim is perfectly level with the soil surface. See protocol for further details.

Trap Number	Habitat Type (field border, cover crop, hedgerow, etc.)	Microhabitat (sandy soil, straw mulch, wood chips, etc.)	# Ground Beetles	# Ground-Dwelling Spiders	# Tiger Beetles	Notes
Trap 1						
Trap 2						
Trap 3						
Trap 4						
Trap 5						
Trap 6						

(Expand data sheet if additional traps are used.)

ADDITIONAL OBSERVATIONS (Habitat area details, plant species in bloom, etc.):

