

OVERVIEW

The youngsters sample and compare the insects living in two different areas: a managed lawn and a weedy area.



BACKGROUND



Animal diversity refers to the number of different kinds of animals living in an area. The diversity of animals reflects, in part, the diversity of vegetation in that area. Animals need plants not only for food, but also for shelter, shade, and moisture.

When people move into an area, they usually influence the diversity of animals in the area by altering the animals' habitat. A **habitat** is the place where an organism lives. A weedy field with a variety of tall grasses and shrubs provides habitats for many kinds of animals. If the same field is transformed into a well managed lawn with only one or two

types of grass, the number of available habitats for animals will be greatly reduced. Fewer species of animals can live in a well managed lawn than can live in a more diverse weedy field. (A **species** is a group of organisms different from all other kinds of organisms.) In the case of a managed lawn, people reduce the diversity of animal species not only through weed control, but also by direct pest control.

CHALLENGE: FIND AS MANY DIFFERENT KINDS OF ANIMALS AS YOU CAN IN A MANAGED LAWN SITE AND IN AN UNMANAGED WEEDY AREA.

MATERIALS



For each team of two:

- 1 sweepnet* (See the "Sweepnet" Equipment Card.)
- 2 plastic bags* (25 cm × 35 cm—the size that is commonly found in the produce section of grocery stores)
- 2 rubber bands* for sealing the plastic bags
- 1 observation tray, labeled either "lawn" or "weedy" (half-gallon milk carton). (See the "Preparation" section.)
- 1 hand lens or bug box

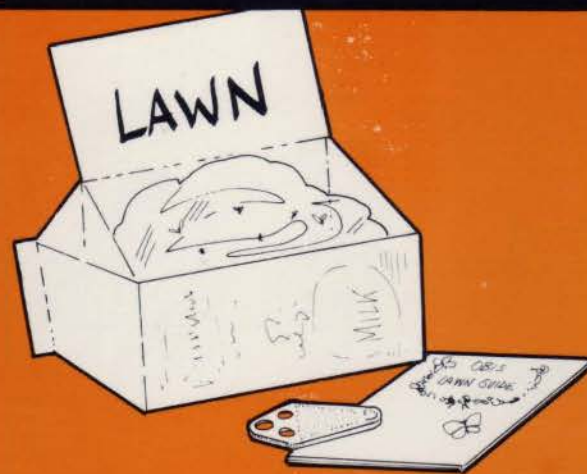
For the group:

- 1 "Sweepnet" Equipment Card
- several *OBIS Lawn Guides*, or other lawn or field insect guides
- several permanent-ink marking pens

For "Branching Out":

For each team of two:

- 1 20-cm × 30-cm piece of cardboard
- masking tape
- extra pieces of cardboard



PREPARATION



Group Size. This activity is suitable for any size group.

Time. Plan on forty to fifty minutes for this activity. Warm, sunny days provide more exciting results because more animals tend to be active. If you plan to have the youngsters make their own sweepnets, allow a separate session for construction.

Site. Choose a well managed lawn (few or no weeds) and an unmanaged weedy lot or hedgerow for this activity. The two areas should not be separated by more than 50 meters unless there is one adult to supervise each area.

Observation Trays. Rinse and dry the half-gallon milk cartons. Cut along three sides (two short and one long) of one wall of each carton to make a hinged-top observation tray. With a permanent-ink marking pen, label half the trays "lawn" and the other half "weedy" inside the hinged flaps.

Sweepnet and Insect-Transferring Techniques. Refer to the "Sweepnet" Equipment Card for directions on using a sweepnet and transferring insects into a plastic bag. Practice the techniques so you can demonstrate them to the group.



Branching Out. If you plan to do the “Branching Out” activity (see the last section of the folio), prepare the plant cards ahead of time. Pick samples of the most common plants in the weedy area (one plant for each team of two and a few extra samples), and tape each one to a piece of cardboard.



ACTION



1. Tell the youngsters that they will catch different kinds of animals, particularly insects, with sweepnets to compare what kinds of animals live in two different areas: a managed lawn area and an unmanaged weedy area. Clearly point out boundaries for the two areas.

2. Demonstrate the sweepnetting and insect-transferring techniques described on the equipment card. Ask a youngster to hold the plastic bag open while you invert the net into the bag. Twist the bag near the top and secure it with a rubber band. Pass your catch bag around so everyone can see the animals you caught. Tell the kids to keep their bags of insects out of direct sunlight as much as possible or the animals may overheat and die.

3. Divide the group into teams of two, and assign half the teams to sample the lawn area, and the other half to sample the weedy area. Suggest that team members take turns using the sweepnets.

4. Pass out the sweepnets and bags, and challenge the two groups of teams to collect as many different kinds of animals as they can in their respective areas.

5. After ten to fifteen minutes, call the teams together to share what they caught. A shady spot is good for this part of the activity. Show the teams how to place their sealed catch bags into an observation tray for easy viewing. Distribute “lawn” observation trays to the lawn teams and “weedy” trays to the weed teams. After the teams have placed their bags in observation trays, ask the teams to carefully count how many different kinds of animals they caught. Distribute marking pens so the teams can record on the flaps of their observation trays the number of different kinds of animals they caught.

6. Have hand lenses or bug boxes and *OBIS Lawn Guides* available for the teams while they count.

7. After all the teams have finished recording their catch counts, find out which “lawn” team and which “weedy” team found the largest number of different kinds of animals. Then have each “lawn” team pair up with a “weedy” team, and ask the paired-up teams to compare the animals they caught.

THE CLEAN SWEEP



Ask the following questions:

1. What are some of the differences between animals found in the lawn and those found in the weeds? What are some of the similarities?

2. Introduce the term **animal diversity** (the number of different kinds of animals living in an area). In which of the two sites did you find a greater diversity of animals?



3. Why do you think there is a difference in the diversity of animals in the two areas? How do you think people have affected the diversity of animals in the lawn?

4. Can you describe other examples of how people alter animals' habitats?

5. As a human, which of the two areas do you prefer and why?

6. If an area is not a suitable living space for a certain animal, that animal simply will not be found there. Do you think this applies to humans as well as other animals?

Take 'Em Back Alive! Have the teams release their animals back into the habitat from which they were taken.

BRANCHING OUT

Finding the Most Popular Plants.

Bring out the plant cards. Explain that each team will select one card and then find a plant like the one on the card in the weedy area. The youngsters will then collect all the animals they can that live on or near the plant. Holding a sweepnet underneath a plant and then vigorously shaking the plant is a good way to collect animals from a single plant. Distribute plastic bags for holding and observing the captured animals. Ask the youngsters which plant had the greatest number of different animals living on or near it. Ask if the kids noticed certain animals that lived only on one kind of plant.

Tell the youngsters to release their animals after the discussion.

SWEEPNET

Equipment Card



Side 1



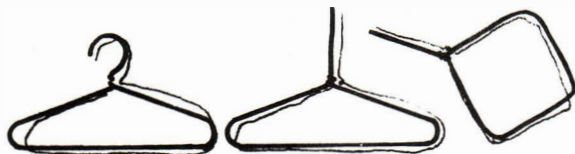
Note: Commercially available sweepnets are more durable and we suggest such an investment for schools, camps, or clubs.

MATERIALS FOR ONE SWEEPNET:

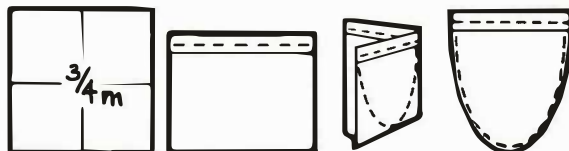
- 2 wire coat hangers or 1 piece of heavy-duty wire
- 1 dowel or broom handle about one meter long and 1.5 cm in diameter
- 1 piece of nylon netting* (mosquito netting), .75 square meter
- 1 needle and thread for sewing (or a sewing machine)
- filament or duct tape
- 1 pair of pliers

MAKING A SWEEPNET:

1. Preparing the Hoop. Take the wire coat hangers, straighten the hooks and pull the hangers together into a square (one hanger on top of the other). The pliers make this job easier.



2. Preparing the Bag. Your net should be approximately .75 meter in circumference at the top, tapering down to a point. A sewing machine speeds up construction, but older kids can hand sew the nets if sufficient time is provided. Sew like this:

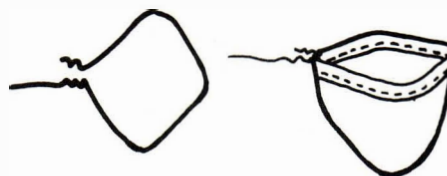


Fold one edge down and sew

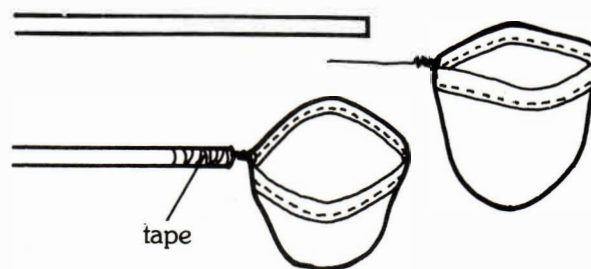
Fold square in half and sew

Cut off excess

3. Assembling the Net. Open the wire square (both squares, if you used two hangers) and thread the net on the wire (or wires).



Attach the wire hoop to the stick.



USING A SWEEPNET:

While a sweepnet can be used to pursue and capture an animal that has caught your eye, this is not the most efficient use of the net. A sweepnet is best used as a random sampling tool. You walk at moderate speed across a grassy area, sweeping the net back and forth in pendulum fashion, in front of you. The net should just brush across the top of the grass. The idea is to sweep any animals that are buzzing around in front of you into the nets, so you must turn the net in your hand to capture animals on both right and left swings of the net. After you have made fifteen to thirty swings of the net, make a quick swing around your head to concentrate the animals at the bottom of the net, and grab the top of the net in your hand to keep the catch from escaping.

SWEEPNET

Equipment Card



Side 2



TRANSFERRING ANIMALS FROM THE NET TO AN OBSERVATION BAG:

1. Concentrate the animals in the bottom of the net.



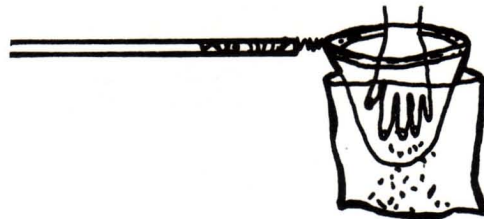
2. Pinch the net closed, keeping the animals in the bottom of the net.



3. Turn the net inside out while holding the animals.



4. Place the net in a plastic bag, then release and shake the animals into the bag.



5. Grab the top of the bag.



6. Twist the top of the bag a couple of times and tuck the top under your belt or into an open pocket while you continue to sweep.