

Collecting and Preserving Insects

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Insects are a remarkable group of animals. They occur virtually everywhere and make up more than half of all living things on earth. Collecting insects can be a fun, inexpensive, and fascinating hobby.

Equipment

1. insect net
2. killing jar
3. forceps
4. relaxing jar
5. spreading board and pinning block
6. insect pins and labels
7. storage box

Where to Get Equipment

1. Insect net

You can buy insect nets from a biological supply company or from a hobby shop. There are two basic kinds of nets — aerial nets and sweep nets. The lighter bag on an aerial net is designed to capture insects in flight or at rest. The heavier bag on a sweep net is designed to collect insects in tall grass or shrubs by sweeping or beating through the plants.

2. Killing jar

You can make your own killing jar (**Figure 1**) with common household materials:

- wide-mouth pint, quart, or similar glass jar with a tight-fitting screw lid
- absorbent material like cotton, sawdust, or plaster of paris
- ethyl acetate (finger nail polish remover)
- blotter or cardboard, cut in a circle to fit in jar

Place a one- to two-inch layer of absorbent material in the bottom of the jar. Pour in ethyl acetate and allow it to soak in. Pour so there is little, if any, extra liquid (when using plaster of paris, do not allow any excess ethyl acetate). Try not to breathe in the fumes. Place the blotter or cardboard over the absorbent material (if using plaster of paris, this layer is not necessary). Seal the jar lid tightly. Wrap the lower half of the jar with masking tape to prolong the potency of the killing jar by protecting it from sunlight.

When it takes noticeably longer to kill specimens in your killing jar, recharge the jar by adding more ethyl acetate.

3. Forceps

You risk damaging specimens whenever you handle insects by hand. Forceps minimize the damage and can be bought at a biological supply company. Tweezers can be used but are not designed to handle insects and are more likely to accidentally injure specimens than forceps.

4. Relaxing jar

It is best to pin insects soon after they die and while they are still relaxed to minimize breaking any body parts. If this is not possible, you can soften insects in a relaxing jar.

A relaxing jar, like a killing jar, should have a wide mouth (to easily place and remove specimens) and a tightly fitting lid. Place an absorbent layer (such as sand, cotton, cloth, sponge) in the bottom of the jar. Saturate the material with water and add a little ethyl acetate to inhibit fungus development. Place a protective layer (such as cork, cardboard) over the absorbent material. Place insects that need to be softened on the top layer for several days until they are relaxed.

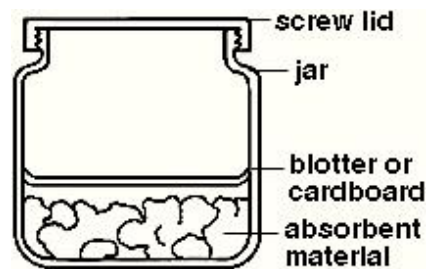


Figure 1. Killing jar

5. Spreading board and pinning block

Spreading boards are useful for laying the wings of insects out flat and holding them in place while the specimen dries. They can be bought at a biological supply company. A pinning block can be any piece of styrofoam (styrofoam used for packing appliances in boxes, for instance). A pinning block is useful to position legs and other body parts before the insect dries. A pinning block can also be used as a mounting board by cutting a rectangular slit large enough to position an insect's body and allow the wings to lay flat. Different-sized slits are necessary for different-sized insects.

6. Insect pins and labels

Insect pins are long, slender pins made specifically for mounting insects. They are available from a biological supply company. Size #2 and #3 are the most useful for general collectors.

Labels for pinned specimens should be made on relatively heavy stock paper (about 120 pound). You can purchase blank labels from a biological supply company or you can make your own with unlined index cards or heavy paper. Each label should be approximately 1/2 x 3/4 inch in size or smaller. For neatness, all labels should be close to the same size.

The following information should be included on your labels:

- **location** (nearest town, county, and state)
- **date** specimen was collected (day, month, and year)
- **name** of the collector
- **environment** from which specimen was collected (feeding on oak leaf, on goldenrod, on surface of pond, under log, at black light, etc.).

Use a permanent ink pen or pencil to write on labels. Computer printing is also acceptable. Do not use ball point ink or other nonpermanent ink that can run or smear when wet.

7. Storage boxes

You can store your insect collection in Schmidt boxes or similar insect storage boxes available at biological supply companies. Cigar boxes and small cardboard boxes may be used but only for short-term storage ÷ carpet beetles and other scavenging insects can get into these boxes and destroy specimens. Cut out a piece of corrugated cardboard or styrofoam the same size as the bottom of the box to make it easier to place the specimens in the box.

Larger collections can be stored in glass-topped display cases. Display cases can be bought from a biological supply company or constructed at home (**Figure 2**).

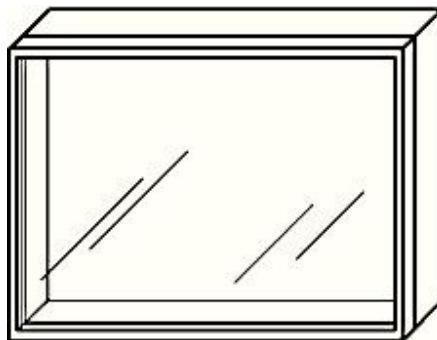


Figure 2: Collection display case.

Collecting Insects

You can collect insects from almost anywhere. The more places you look, the more types of insects you can find. You can find many insects on plants, especially on flowers and leaves. Also examine bark, stems, and branches. Insects are common in and around buildings and under objects like rocks and logs. Aquatic insects can be found in ponds, lakes, streams, rivers, and bogs and on nearby plants. Watch for insects at different times of the year. Insects are most common during summer, although they can be found outdoors from early spring to late fall. Some may be out only at certain times of the year.

You can increase your chances of finding different insects by using different collecting methods. One common type, known as sweeping, is done by moving a net back and forth through tall plants. This collects a variety of small insects that may otherwise be overlooked.

Another common collecting method is using pit fall traps. A tin can or similar container is sunk into the ground so the top is even with the ground. A small hole is drilled into the bottom to prevent water from accumulating. A piece of old fruit or other type of material is placed as bait to attract insects. Different baits attract different insects. A fine-meshed screen is put over the bait to make it easier to remove insects that fall into it. Insects walking on the ground fall into the container and become trapped (flying insects can escape).

Another good method for collecting is gathering insects found at night around lights. Black lights are the most attractive. Not all nocturnal insects are attracted to lights so inspect plants and other sites at night.

Once insects are collected, put them in killing jars for several hours. You can also kill insects by putting them in the freezer for one day (some insects may take longer to be killed by freezing). Take them out after they are dead but before they dry out and are rigid.

Pinning Insects

Rest the specimen on a pinning block and steady the insect by either holding it with your fingers or holding it in place with a forceps. Place the insect pin into the insect body. Insects are generally pinned through the thorax on the right side (**Figure 3**).

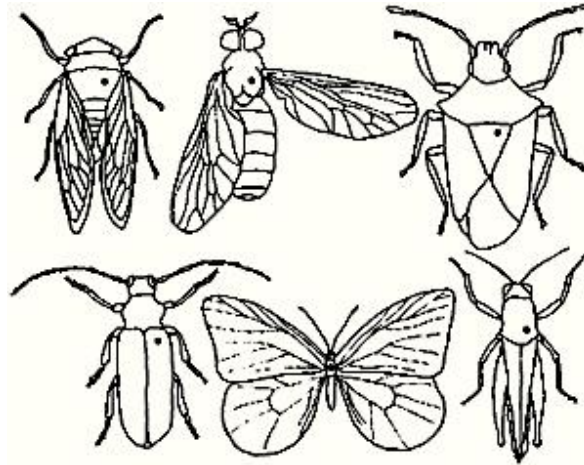


Figure 3. Proper insect pinning.

Approximately 3/8 inch of the pin should be showing above the insect body, enough so you can comfortably hold the pin with little risk of accidentally touching the specimen (**Figure 4**).

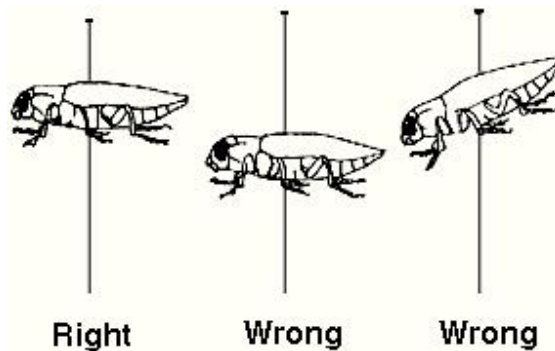


Figure 4. Placement of the pin.

Once the insect is pinned you can spread the wings by placing it on the spreading board so the wings are level with the top of the board. Position the wings where you want them, then use strips of paper anchored by pins to hold the wings down. If it is necessary to position any body parts, place the specimen on a pinning block and use insect pins to maneuver the body part into the position you want.

Insects too small to pin can be placed on a paper point. Use stiff paper, such as an index card, and cut out to the shape and size shown in **Figure 5**.

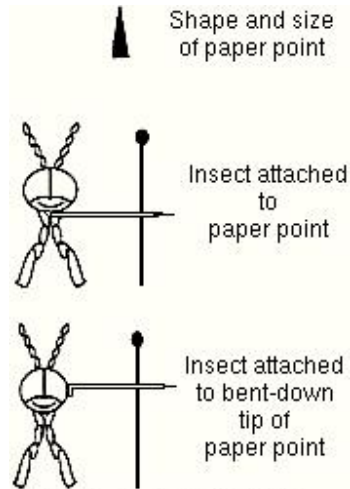


Figure 5. Mounting small insects.

Place an insect pin through the point on the wide end. The tip of the point can be left as is or bent. Apply a small drop of glue to the tip of the point. Place the insect so the right half of the body is on the point (if the point is left unbent) or place the bent tip against the right side of the body (**Figure 5**). You may have to hold the insect with forceps until the insect dries enough and won't fall off.

References and Sources

The following are common references containing information about collecting, preserving, and identifying insects. This is not a complete list of resources, but it gives you a place to start. Field guides and other reference books can be found in many book stores. Equipment can be found in hobby stores. Both books and equipment can be mail ordered (see list below).

Books

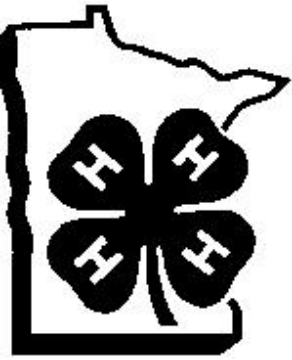
Beetles. Richard E. White. 1983. Houghton Mifflin Company, Boston.

Eastern Moths. Charles V. Covell, Jr. 1984. Houghton Mifflin Company, Boston.

(A) *Field Guide to the Butterflies of North America, East of the Great Plains*. Alexander B. Klots. 1951. Houghton Mifflin Company, Boston.

(A) *Field Guide to the Insects of America North of Mexico*. Donald J. Borror and Richard E. White. 1970. Houghton Mifflin Company, Boston.

Field Guide to North American Insects & Spiders. Lorus and Margery Milne. 1980. Alfred A. Knopf, New York.



Field Guide to North American Butterflies. Michael Pyle. 1995. Alfred A. Knopf, New York.

Guide to Insects. Richard Jacques Jr. 1981. Simon and Schuster Inc., New York.

Insects of the Great Lakes Region. Gary Dunn. 1996. University of Michigan Press, Ann Arbor.

(An) Introduction to the Study of Insects (6th ed.). Donald Borror, Charles Triplehorn, Norman Johnson. 1989. Saunders College Publishing, Philadelphia.

Sources for Equipment and References

BioQuip (including books)
17803 LaSalle Ave.
Gardena, CA 90248-3602
310-324-0620
310-324-7931 fax

Ianni Butterfly Enterprises (primarily
insect pins)
P.O. Box 81171
Cleveland, OH 44181
216-888-2310
216-886-6009 fax

Trans-Mississippi Biological Supply
590 Cardigan Road
St. Paul, MN 55126
800-544-5901
612-484-4488
612-484-4971 fax

Young Entomologists Society, Inc. (including
field guides)
1915 Peggy Place
Lansing, MI 48910-2553
517-887-0499

Books Underground
1420 Eckles Ave.
7 Student Center
University of Minnesota
St. Paul, MN 55108
612-624-9200