

squill baits are available at low cost for community treatment. Further information concerning prepared bait can be obtained from your county agricultural agent.

#### BIRD PESTS

Several species of birds may damage garden plants. Blackbirds and crows are the most troublesome due to their attacks on corn immediately after planting and also when it is in the "milk" or "dough" stage.

Frightening devices usually prove very effective, particularly if they are changed frequently during the period the garden

needs protection. Thus, one may put up tall sticks or poles (6 to 8 feet or higher) around the garden with one or two strands of twine or heavy cord strung between the poles. After a few days fasten pieces of white paper at intervals on the string, then in two or three days change to a bright colored paper, and so on. Pieces of metal or mirror that reflect light from the sun, or objects that make noise in the wind can be substituted for the paper. These scares are easy to install but birds will get used to them, hence the need to change them frequently during the few weeks that birds may be injurious.

## Collecting Spring Peepers

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The spring "peeper" (*Hyla crucifer*)\* is rarely seen by the beginning biologist unless this little amphibian appears in the museum as a preserved specimen. It is much more fun to observe living ones, and a study of their modes of life and ecology is truly instructive.

\* *Hyla crucifer* is common throughout eastern and central North America. Two other small amphibians which "peep" are the Cricket Frog (*Acris gryllus*) and the Swamp Cricket Frog (*Pseudacris triseriata*). The latter species range farther to the west and southwest than does *Hyla*. Their breeding habits are similar and habitats identical.

FIG. 1. A "night" field trip—looking for spring peepers. Photo by D. S. Lacroix.



This tiny frog is not seen easily during daylight hours even though his shrill note attracts attention, but at night, his whereabouts is readily spotted by using a flashlight (Fig. 1). For some reason he doesn't mind the light of an electric torch. Boys and girls can find hundreds of specimens in any swampy or boggy area in the early spring. All that is needed for equipment is a pair of rubber boots, a flashlight and some sort of container to bring back a few of the frogs. In attempting to find the peeper, try wading around in the shallower parts of the area to be covered. Care should be observed not to cause too much commotion as the peeper will "shut up" if his perch is shaken. Two people approaching from opposite sides can locate him by his note, and his white, distended vocal sac will stand out clearly in the rays of a flashlight (Fig. 2). He sings his mating song from the vantage point of a stick, grass-stem, or floating debris only a few inches above the surface of the water, and will continue to peep vociferously if not jarred or jiggled.

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## Garden Education

In collecting these small animals, place them in a moist atmosphere—in a tin can containing wet grass, damp moss, or moist leaves—not directly in water. Bring them in to the biology laboratory and keep them in a terrarium or aquarium. If in the former, have a small “water-hole,” ferns and damp moss available. If in the latter, provide a place for them to rest above the water line. Small worms and small insects are their favorite foods.

If a dozen or more are kept in the laboratory, their shrill notes may disturb near-by classrooms, but in any case they



FIG. 2. The spring peeper, *Hyla crucifer*, singing his spring song with plenty of pressure on his vocal sac. Photo by R. L. Coffin.

will advertise themselves so well that all persons passing by will be tempted to investigate.

# Garden Education in the High School

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The food that can be produced through successful gardening has attracted wide interest. The war and subsequent rationing have made the citizens of the United States aware of the passing of the era of plenty.

It is imperative that boys and girls and young men and women appreciate the importance of maintaining land and plants that will produce a superior food supply. A prevalent American concept of food production has been that all that is required is to plant seed and to harvest crops from our unlimited agricultural land resources. This concept clearly shows that the American biologist has not given to youth the leadership and foundational training which is necessary to understand food production. Good food is produced by seeds from superior parents cultivated in good land. Superior plants are produced by the plant breeder. This is a specialized applica-

tion of biology. The use of mathematics and an application of the chemicals known to influence biological activity are hand tools of the plant breeder. It is just as important to appreciate a new plant as it is a new tool, machine, car, or aeroplane. The success of a superior plant may change the course of a community or a nation. Mismanaged soil is not an aid to production. When soil is mismanaged it not only injures the plants which insure the food supply but it changes the course of industrial and agricultural procedure. These are examples of the rule that there is nothing constant but constant change.

Planning to cope with constant change is one of the basic reasons for the teaching of biology. Preparation for meeting and understanding the broad application of biological principles to all society is available when a garden is used in connection with the High School Biology