

10 miles south of Junction, *Correll 12839*, June 22, 1946.— This species is not listed by Small (1903) nor by Cory and Parks (1937). Small described two new species of thistle from Texas. His *Carduus austrinus* (*Cirsium austrinum* [Small] E. D. Schulz), based on Charles Wright's no. 1291, collected "between the Pecos and the Limpio," probably in Pecos Co., Texas, is one of the common and widespread native thistles of south and west Texas. His *Carduus Helli* (*Cirsium Helli* [Small] Cory) is evidently, like *C. texanum*, a highly restricted endemic of the Edwards Plateau; the only specimen I have seen is the type, collected by A. A. Heller at Kerrville (in herb. New York Botanical Garden).

CREPIS CAPILLARIS (L.) Wallr. BREWSTER Co.: lawn, Alpine, *H. J. Cottle*, May 5, 1928 (in herb. Sul Ross State College). Both species and genus are recorded from Texas for the first time.

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Rapid Methods for Killing Planaria and Lumbricus in an Extended Condition

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PLANARIA

Most methods in vogue for killing planarians in an extended condition are time-consuming, and frequently do not give fully expanded specimens. Their successful expansion (when killed with hot Bouin's fluid, Gilson's, or hot corrosive sublimate) depends: (a) on whether the animal is fully or only partially expanded at the time when it is flooded with the killing solution. This calls for coördination of one's

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movements with the rather unpredictable ones of the planarian. (b) Frequently, also, there are long waits before the planarian extends itself. (c) Another objection is to irritating fumes, particularly in the case of hot Bouin's fluid. The effectiveness of a killing fluid which can be used *cold* (formol-acetic-H₂O solution, Shao-wen Ling, 1933) also depends on the previous expansion of the planarian. Weak nitric acid will kill equally well, but cannot be used successfully before the planarian extends itself.

The present method has proved successful in the rapid killing of planarians in an extended condition without required previous expansion. It has the added advantage of killing them flattened out, so that they may be transferred to slides with forceps, for hardening.

Solution A ("Stimulator")

Shake up an ordinary cigarette in 100 cc. of distilled water; decant, and use the clear fluid as a stimulator.

Solution B ("Killer")

Dissolve by shaking 1 gm. of oxalic acid crystals, technical grade, in 200 cc. of distilled water.

Procedure (1) Fill a Syracuse watch glass with Solution A, and a second one with Solution B. (2) Pick up the live planarian with a camel's hair brush, and shake it off into the watch glass containing Solution A. The planarian becomes active in the tobacco infusion. (3) Transfer the worm to Solution B, using light forceps (such as eye thumb forceps.) The planarian makes a few movements, then in a few seconds flattens and stretches out. (4) Now pick it up by its posterior end, and lay it out flat on an ordinary microscope slide.

About three planarians at a time can be cared for in Solutions A and B. Too long an interval in either solution is detrimental to best results. Nor can one obtain good results by introducing the planarian directly into the oxalic acid solution without use of the stimulator. From four to six planarians may be laid out on the microscope slide. They are then covered with another blank slide, and the complement placed into a finger bowl of 10% formalin to harden.

LUMBRICUS

The time-honored method of gradually adding alcohol to water containing Lumbricus until they are anaesthetized is time-consuming and in hot weather often leads to their

decomposition as well. An oxalic acid solution kills them rapidly in a state of relaxation. This solution is made by sprinkling about a half-ounce of the crystals (technical grade) into an enameled pan containing about a gallon of tap water.

The worms are first washed in tap water, and then transferred (about two dozen at a time) to the oxalic acid solution. As soon as their movements cease, they are picked up by the posterior end, with forceps. Draw them through the fingers of the other hand to stretch them. The worms are then laid out on a flat strip of wet cheesecloth, ventral side down, so that the setae will hold them extended. After five or ten minutes of quiet, the digestive tube is injected through the anus forward with formol-acetic-alcohol solution ["FAA".] They are then allowed to remain on the cheese-cloth for about fifteen minutes, and finally are laid out straight in a shallow pan of 95% alcohol to harden.

If left too long in the oxalic acid solution, *Lumbricus* will not extend fully. If not injected, as above, with the FAA solution, they will curl when placed in the hardening fluid.

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