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## A Cost-Efficient Live Trap for Small Mammals

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Le Boulengé E. & Le Boulengé-Nguyen P. Y., 1987: A cost-efficient live trap for small mammals. *Acta theriol.*, 32, 10: 140—144 [With 1 Fig.]

An efficient and easily home-made live trap for small mammals called the "WEB" trap, is described. It consists of a wooden box, with internal door and trigger mechanism made of galvanized iron plate. Our experience using the WEB trap intensively since ten years, totalling over 24,000 captures of small mammals, shows it to be a performant and inexpensive alternative to the commercial traps.

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### 1. INTRODUCTION

Many devices have been developed to live-catch small mammals. This mere diversity points to the fact that making a "good" live trap is not a simple matter (*e.g.* Bateman, 1971; Twigg, 1975; and DeBlase & Martin, 1981). The ideal live trap should be attractive, sensitive, robust, reliable, escape-proof, inconspicuous, and easy to set, clean, carry and repair; it should offer the captured animal a good protection and, last but not least, be inexpensive (*e.g.* Rose, 1973). Probably no single live trap is optimal for all of the above criteria, and commercial traps especially

fail to optimize the last one. This note presents a new design of small mammal live trap, aimed at being at least as efficient as commercial traps, but less costly and easily home-made.

## 2. MATERIAL

The proposed live trap, called the "WEB" (Wooden Economical Box) trap (Fig. 1), is a  $277 \times 124 \times 100$  mm box made of 12 mm thick "exterior" type, water resistant plywood. The rear half of the roof is a removable plexiglass window. The door and trigger mechanism (a treadle and an arm supporting the door when the trap is set) are made of 0.5 mm galvanized iron plate and rotate on galvanized iron axes driven through the wood (Fig. 1A and C). The trap weighs about 700 g, its constituent materials cost less than 1 US \$ and manufacture time is about half an hour. Exact dimensions of all parts, and positions of the rotation axes, are shown on the figure (Fig. 1B: box — wooden and plexiglass parts; Fig. 1C: door, treadle and arm — metallic parts).

## 3. RESULTS AND DISCUSSION

The WEB trap was designed in 1975 while the authors worked in Chile where commercial traps were prohibitively costly and delivery times were very long. Hot weather moreover induced mortality in metallic traps. Hence we aimed at a simple design, easily home-made for a low cost, and with good thermal insulating capacity. Obviously, a new trap often is based on characteristics of existing models (*e.g.* Holdenried, 1954; Rose, 1973); also the WEB trap is new as a combination of formerly known desirable features. The use of wood, already advised by Blair in 1941, was inspired from the Polish wooden trap (*e.g.* Andrzejewski, 1963). "Exterior" type plywood proved to withstand continuous use in the field for at least six years without any protective treatment. The trigger mechanism, similar to one described by Mosby (1955, cited by Day, Schemnitz & Taber, 1980), is simple and entirely inside the trap, which minimizes its sensitivity to external disturbances (Aubry, 1950). In the Longworth trap, the mechanism is further protected in a double wall (Chitty & Kempson, 1949), but this makes the construction more complicated. The sensitivity of the trap, as well to external disturbances as to an animal stepping on the treadle, critically depends on the position of the axis on which the treadle rotates; the position shown on the figure is highly sensitive. The sensitivity is still enhanced by preventing a lifting up of the door before it shuts when the treadle is pressed down, as advised by Chitty and Kempson (1949). This is achieved by soldering the arm to the treadle at an adequate angle (Fig. 1, A and C). On the other hand, the door is shaped so that it cannot possibly be opened from inside. The trap is thus escape-proof, without need for a

locking system. Galvanized iron was preferred over the lighter aluminium for the door and trigger, because, contrary to the latter, it resists gnawing by rodents. The plexiglass window is useful for checking the trap and for cleaning. Finally, a place is left free behind the treadle for bait and eventual bedding material — although we do not find it useful to provide the latter.

In more than ten years of intensive use as well in semi-desertic environments in Chile (Le Boulengé & Fuentes, 1978; Meserve & Le Boulengé, in press) as in the temperate climate of Belgium (Bauchau & Geuse, 1985; Geuse *et al.*, 1985), the WEB trap allowed capturing all small to medium-sized (<1 kg) mammals known to exist on the study areas. This means a total of 27 species, ranging in size from 3 g specimens of *Micromys minutus* and *Sorex cf. araneus*, to young *Erinaceus europaeus* and *Oryctolagus cuniculus* weighing over 500 g, a size range comparable to that cited by Holdenried (1954) for his trap. In an on-going long-term capture-mark-recapture study on bank voles and wood mice in central Belgium using the WEB trap, totalling over 24000 captures, the daily trappabilities averaged 0.71 for *Clethrionomys glareolus* and 0.54 for *Apodemus sylvaticus* (trappabilities calculated after Le Boulengé & Le Boulengé-Nguyen 1981).

Large-scale experiments comparing the WEB with several commercial live traps are underway. Their results will be published shortly. Our present experience already shows the WEB trap to be efficient, inexpensive, easy to manufacture and to use in the field.

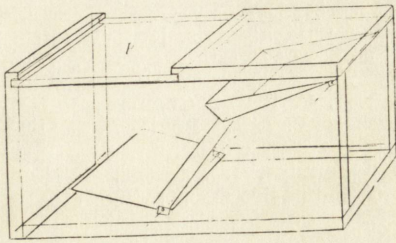
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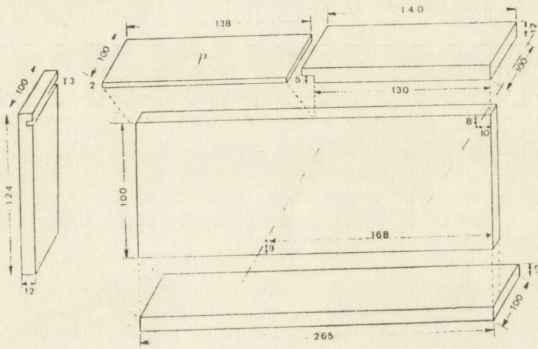
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Fig. 1. A: The WEB trap: perspective view of the trap. B: Wooden elements of the box ("exterior" type plywood, 12 mm) and plexiglass window (P); length values in mm. C: Metallic elements: door, treadle, arm (galvanized iron plate, 0.5 mm) and axes (galvanized iron wires). The arm is soldered onto the treadle in the position shown. Dotted lines on the metallic parts show the foldings.

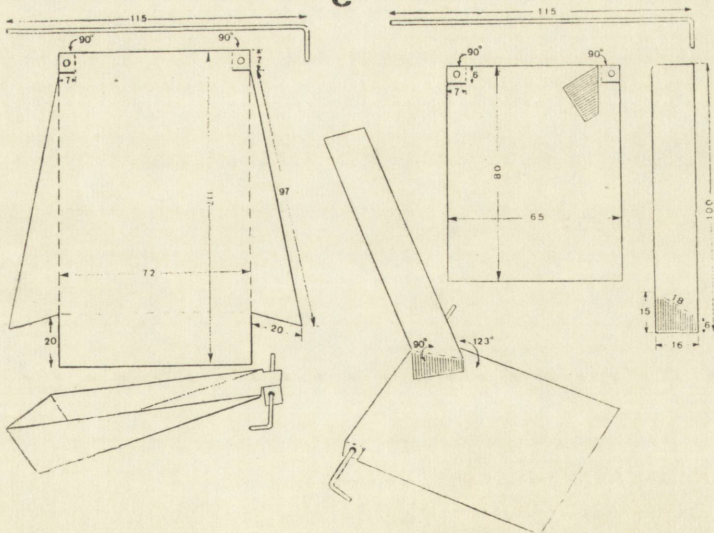
**A**



**B**



**C**



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