Pselaphochernes	Gr.	*pselaph:* to feel or grope about, using the hands.
Roncus	L.	*runco:* a weed, (i.e. living in weeds).
Toxochernes	Gr.	*toxon:* a bow, as used by an archer. i.e. the two chelicerae resembling a bow shape.
Withius	Pat.	*C. J. With.*
Ephippiochthonius	Gr.	*ephippios:* a harness or saddle; refers to the central plate of the cephalothorax.
Neochthonius	Gr.	*ne:* not. i.e. not *Chthonius* or different from *C.*
Dinocheirius	Gr.	*dinos:* to whirl or turn about. *cheir:* a hand. i.e. to grope or feel about as one in the dark.

SPECIES

cambridgei	Pat.	*O. Pickard-Cambridge.*
cancroides	L.	*cancer:* a crab, crab like.
carpenteri	Pat.	*G. H. Carpenter.*
chyzeri	Pat.	*C. Chyzer.*
cimicoides	L.	*cimex:* a bug, bug like.
cyreneus	L.	*cyrnaeus:* Corsican.
dubius	L.	*dubius:* uncertain (identity).
godfreyi	Pat.	*R. Godfrey.*
halberti	Pat.	*J. N. Halbert.*
ischnocheles	Gr.	*ischnos:* weak. *chele:* a claw. i.e. weak chelicerae.
kewi	Pat.	*H. W. Kew.*
latreilli	Pat.	*P. A. Latreille.*
lubricus	L.	*lubricus:* smooth, slippery.
maritimum	L.	*maritimus:* of the sea's edge, coastal.
muscorum	L.	*muscus:* moss, in moss.
museorum	L.	Possibly a fabricated word (New Latin), a museum might be implied. The species is synanthropic.
nodosus	L.	*nodosus:* knotty or with nodules.
orthodactylus	Gr.	*orthos:* straight. *dactylos:* fingers. i.e. with straight chelicerae.
panzeri	Pat.	*G. W. Panzer.*
piger	L.	*piger:* slothful, slow moving.
powelli	Pat.	*H. J. Powell*

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Modifications to improve the efficiency of pitfall traps

by **Vlastimil Růžička**

Pitfall traps are commonly used nowadays for catching animals which move on the soil surface. Workers using these for surveys (e.g. Duffey, 1972; Skuhravý, 1969) have described the differences of various trap types mainly with regard to their size and improvement by which the escape of animals can be prevented, the kind of the fixation fluid used; the using of bait (if necessary) and the protection of the trap opening by a roof. Breymeyer (1966) and Duffey (1972) described a simple trap with drainage holes.

When using the common pitfall traps, we tried to make them as serviceable as possible and to prevent the rise of level of the fixation fluid caused by the influx of rain water. Furthermore, we tried to modify the pitfall traps in order to enable the catching of animals in the environments where hitherto only collecting by hand has been used (e.g. broken stones, rubble, thick layers of litter, and a water surface).

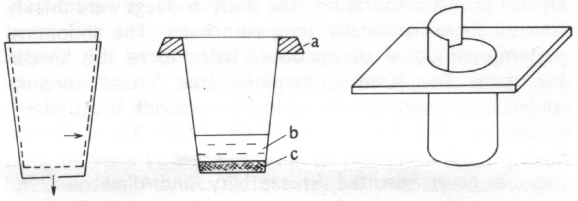
For pitfall traps, plastic pots of 0.35 litres volume were used. It is advantageous to use two pots one inside the other. When the contents are to be emptied, only the inside pot is lifted, so that the re-setting of the trap is made much easier. If only one pot is used, the soil, if dry, tends to fall into the pit, and the re-setting of the trap becomes difficult. In wet habitats, where the water level lies near the soil surface, the setting of a trap is impeded by the upward hydrostatic pressure in the pit whereby the pot is lifted. The outside pot, if permanently set, adheres to the wet soil and is resistant to the ground water pressure.

One of the serious problems we meet in the use of pitfall traps is the flooding of them by rain water. The water influx raises the level of the fluid to the pot edge, so that bigger animals can escape, and if the trap is filled up to its border, it is practically put out of action. Some authors therefore recommend the use of tin roofs. The roof causes shade and coolness attractive for the animals, which can result in a higher activity value than is normal (Tikhomirova, 1975). Another variant is the use of glass roofs (Heydemann, 1961; Huhta, 1971). If two pots, put one into the other are used, a different solution of the problem is possible (fig. 1). In the outside pot an opening is made in the bottom. In the inside pot there are several (2-3) openings made in the wall at the same height as the maximum desired level of the fixation fluid. The openings must be sufficiently great, to prevent their blocking. Pots must not be put one inside the other too closely, so that fluid can freely pass through. If water flows into the trap, the superfluous fluid runs out through the wall openings into the space between both pots and then it soaks into the

soil through the bottom opening. It is clear, of course, that this modification cannot be used at localities where the ground water level is high.

Fallen leaves and plant stems – with no influence of activity value – can be kept out by using a meshed roof screen.

The traps of this type were used for collecting material all the year round and proved to be very good. The fixing fluid level kept within the desirable limits, the formalin solution was never dissolved to such degree that the material would decay.



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4

Trapping is difficult in rubble or among broken stones where there is no even surface to provide a flush edge to the trap border. However, it is possible to make an artificial even surface, on which the animal can run. The pitfall trap – an empty can has been proved to be the best here – is put tightly into an opening cut out precisely in a wooden board (dimensions used: 20 x 20 cm). The trap is placed among the stones in that way so that the upper surface of the edge of the board is below the surrounding stones (fig. 4). The trap opening is covered with a bigger flat stone which prevents the movement of the rubble. When the fluid with the caught material is poured out, it is advantageous to stick on a strip of adhesive tape into the trap opening (fig. 3), lest the formalin should be spilled on the board. The pitfall trap modified in this way can also be used for catching animals in thick layers of litter, in stands of sedge, etc.

Some species of bugs, spiders and other animals also move easily on the water surface. For a full understanding of their biology and knowledge of species composition in stands of water plants it is necessary to collect material on the water surface too. For the investigation of the all-year-round activity of these animals it is possible to use another modified pitfall trap (fig. 2). This trap consists of a cork float and of a pot with formalin put in it. The upper edges of the float (dimensions used: 20 x 12 cm) are chamfered so that they are not an insurmountable obstacle for the animals. On the pot bottom a piece of lead is put (embedded in wax) of such weight that the whole water trap, if filled with fixation fluid, just floats on the water surface (fig. 5). If it is not possible to check the traps within short-term intervals, it is advisable to cover the opening with a low roof, similar to those for terrestrial pitfall traps; otherwise there is a danger of flooding the traps by rain water.

Three rubble traps were installed experimentally in August 1979 in a small stony area (about 200 m^2) in the region of the Bohemian Karst where they were very successful.

5

Fig. 1. Sketch of the pitfall trap with the bottom outlet for draining of the superfluous fixation fluid.

Fig. 2. Sketch of the water trap. a – cork float, b – fixation fluid, c – lead weight.

Fig. 3. Rubble trap with a stuck-in strip of adhesive tape for easy emptying of the pot content.

Fig. 4. Rubble trap placed among stones.

Fig. 5. Water trap floating on the water surface.

Five water traps were installed in 1979 on the surface of a fishpond among sedge tufts. Predominant part of the material caught was represented by the water bugs of the genus Gerris and by the spiders *Pirata piraticus, Dolomedes fimbriatus,* as well as other invertebrates.

Several rubble and water traps have been used for periods of one to four months and they can be recommended for zoological research work.