

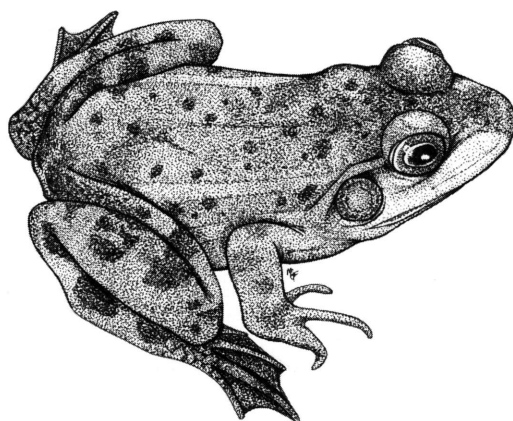
hatchlings, *Cnemidophorus sexlineatus*, *Bufo woodhousii*, *Rana catesbeiana* and *Rana clamitans*. Small mammals were usually more frequently found in open pitfalls than in flip-top lid traps and were almost never found in wire box traps.

We suspect that frogs and toads may be attracted to the open pitfalls by the abundant insects that accumulate there and this could be a feature in attracting lizards as well. *Cnemidophorus* sometimes used the flip-top lids as basking places, tilting the angle of the lid appropriately into the early morning sun (Fig. 2). The biases introduced by trap type should be considered along with the biases created by drift fences and proximity to other structures reviewed by Dodd (1991), Corn (1994), and Brown (1997). The results of this study suggest that flip-top 19-liter pitfall traps are much more effective in capturing adult terrestrial turtles than are either wire box traps or open pitfalls. Open pitfalls were more effective at capturing amphibians, lizards, and small mammals. Because of these observations, we suggest that a combination of open pitfalls and flip-top lid pitfalls be used in studies intended to sample reptile and amphibian species richness. Box traps set on the two sides of the fence need to be tested to determine their effectiveness in comparison to flip-top lid pitfalls.

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Rana grylio (Pig Frog), young female. Illustration by Michael G. Frick.

“Habitat Trap” for the Capture of Small- to Medium-Sized Lizards

G. MICHAEL ALLAN¹
CHRISTOPHER J. PRELYPCHAN²
and

PATRICK T. GREGORY³
*Department of Biology, University of Victoria
P.O. Box 3020, Victoria, British Columbia, Canada V8W 3N5*

¹Present address: 4034 Cumberland Road, Victoria, British Columbia, Canada V8X 2E6; e-mail: M&B_Allan@telus.net

²Present address: #3 – 795 West 8th Avenue, Vancouver, British Columbia, Canada V5Z 1C9

³Author to whom correspondence should be directed; e-mail: viper@uvic.ca

The study of animals in the field usually requires their capture and this often can be a challenging part of research. The number of possible techniques for capturing small- to medium-sized lizards continues to grow. “Active traps” include noosing (Strong et al. 1993; Durden et al. 1995), or elastic bands and varied grabbing devices (Bedford et al. 1995; Durtsche 1996; Witz 1996), but some lizards are particularly elusive and difficult to capture by these methods. “Stable traps” include drift fences (Greenberg et al. 1994; Enge 1997), pit traps (Greenberg et al. 1994), glue traps (Bauer and Sadlier 1992; Rodda et al. 1993; Zani and Vitt 1995; Whiting 1998), and wire mesh traps (Doan 1997; Zani and Vitt 1995), but these kinds of traps need to be checked frequently or animals may die in them.

We studied a growing population of European wall lizards (*Podarcis muralis*), introduced near Victoria, British Columbia, Canada. Although we were able to capture most animals with a simple noose, we noticed that some lizards consistently avoided the noose and that other lizards used habitat unsuitable for noosing (e.g., brush and tall grass). To capture these additional lizards, we installed pit traps around the habitat. These traps were successful, but we found that predatory animals, such as raccoons, were quick to prey on the trapped lizards. Raccoons were adept at catching the lizards despite partial lids over the traps, frequent checking of traps, and relocation of traps. As well, frequent relocation of traps led to considerable disruption of the habitat area.

To overcome these difficulties, we developed a “habitat trap” for *Podarcis muralis*. We believe that this kind of trap likely also would be effective for catching many other small- to medium-sized lizards and other terrestrial animals. The trap consists of an artificial construct of a preferred habitat, which is placed on a large piece of camouflaged plastic. Once the animals begin to occupy the artificial habitat, the plastic sheet is lifted at all edges and the animals are trapped.

To catch wall lizards, we decided to simulate a rockpile or woodpile, structures in which these animals naturally seek shelter. First, we excavated a shallow pit about 15 cm deep, gradually tapered in depth, with a total area of about 1 m². Whether a pit is a required part of the trap is not known, but we thought that it would increase the attractiveness of this artificial habitat to lizards by allowing

them to go deeper, especially at night. A clear plastic sheet was then laid in the shallow pit with a border of plastic approximately 30 cm beyond the excavated area. The edges of the plastic were buried in a shallow layer of soil or surrounding substrate. Then, we placed large cover structures, each approximately 30 cm³, such as cinder blocks, stones or pieces of wood, centrally on the plastic. We arranged these objects to simulate a natural shelter habitat. Additional cover objects could have been added to assist in camouflaging the plastic and make the habitat structure more attractive to the lizards, but we found this to be unnecessary for wall lizards. Camouflaging the edge of the plastic sheet with cover leaves or grass also must be balanced against the added time of locating captured lizards in the clutter of excess camouflage litter when the edges of the plastic are lifted. For wall lizards, 2–3 days was sufficient time for lizards to be attracted to the trap.

A limiting feature of our trap is that at least two people are needed to lift the plastic and catch the entrapped lizards. We approached the trap from opposing sides, in order to reduce the likelihood of lizards fleeing the trap from a side away from us. This method in fact seemed to encourage the lizards to take refuge inside the shelter habitat, rather than attempting to leave. We then simultaneously lifted the edges of the plastic, while trying to ensure that soil at the perimeter fell to the outside of the plastic. We kept the edges of the plastic raised and rolled it while moving towards the center of the trap. The large stone and wood cover objects, along with any litter, were removed carefully to ensure that lizards were not injured. The trapped and exposed animals could then easily be collected from the bottom of the bowl formed by the plastic sheet. After we had recorded data on the lizards, we returned them to the now reassembled trap. This experience did not seem to have any long-term effect on the lizards and they continued to use the trap after re-assembly. It took about 20 minutes to disassemble the trap, capture the lizards, and then reassemble the trap.

Because we constructed only one trap and terminated the study shortly afterwards, we cannot give any experimental results that test its effectiveness. We used the trap from 15 July–19 August 1992. During this period, we caught 33 individual lizards at the study site, six of which were caught in the trap; one of the six was a recapture from earlier in the study. Repeated sampling at the trap resulted in repeated capture of the same lizards. Thus, it appears that lizards, at least temporarily, adopted the trap as a regular refuge. Because wall lizards do not move around very much (unpublished data), we would have needed to set up traps throughout the study site to sample the population more broadly. Nonetheless, the results of this short trial suggest that this is a feasible approach for studying this species.

The main advantage of this trap is that it allows the animals to live in their “natural” habitat with safe hiding places, without requiring us to check the traps at any particular time. The only cost is the expense of plastic sheeting and the brief period of time required for assembly and sampling. We believe that the habitat trap would be an effective way to catch various kinds of lizards and other terrestrial animals.

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Field Use of Propofol: a Rapid Recovery Anesthetic with Data from Brown Treesnakes (*Boiga irregularis*)

NANCY L. ANDERSON

BRAD COUPE

GAD PERRY*

THOMAS E. HETHERINGTON

and

JOSEPH B. WILLIAMS

Department of Evolution, Ecology, and Organismal Biology

The Ohio State University, Columbus, Ohio 43210, USA

e-mail (NLA): anderson.296@osu.edu

*Current address: *Department of Zoology, University of Wisconsin
430 Lincoln Drive, Madison, Wisconsin 53706, USA*

In reptiles, prolonged anesthesia is often the frustrating consequence of a relatively slow metabolic rate combined with the use of traditional anesthetics. A drawn out anesthetic procedure is perhaps most problematic in field studies because prompt return of a fully recovered reptile to its habitat minimizes data artifacts which may be generated by stress, anesthesia, fasting, or dehydration. Propofol is a new generation, non-barbiturate, substituted isopropyl phenol anesthetic (Weaver 1990). Its benefits include rapid onset and rapid recovery from anesthesia, short duration of action, safety for use in physiologically compromised animals, lack of significant side effects, and minimal equipment requirements (Sebel and Lowden 1989; Smith et al. 1994). Its main disadvantage is that it must be administered into a blood vessel or bone marrow cavity. Propofol has a very large volume of distribution, which results in a rapid drop of anesthetic blood levels once the drug is discontinued (Biebuyck 1989; Branson and Gross 1994).