Techniques and Methods 2–A5

U.S. GEOLOGICAL SURVEY
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Section A, Biological Science
Book 2, Collection of Environmental Data

Herpetological Monitoring Using a Pitfall Trapping Design in Southern California

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Cover Photo

Abstract

The steps necessary to conduct a pitfall trapping survey for small terrestrial vertebrates are presented. Descriptions of the materials needed and the methods to build trapping equipment from raw materials are discussed. Recommended data collection techniques are given along with suggested data fields. Animal specimen processing procedures, including toe- and scale-clipping, are described for lizards, snakes, frogs, and salamanders. Methods are presented for conducting vegetation surveys that can be used to classify the environment associated with each pitfall trap array. Techniques for data storage and presentation are given based on commonly use computer applications. As with any study, much consideration should be given to the study design and methods before beginning any data collection effort.

Contents

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Pitfall traps containing a preservative have become the standard method of sampling for epigeal invertebrates such as carabid beetles and cursorial spiders. However, they often result in high levels of mortality for small mammals and amphibians. We compared the carabid, spider, and vertebrate captures within five pitfall trap types (conventional trap, funnel trap, shallow trap, Nordlander trap, and the ramp trap) to determine the trap type that would reduce vertebrate incidental catch without compromising the capture of invertebrates.Â A pitfall trap for large-scale trapping of Carabidae: comparison against conventional design, using two different preservatives. Pedobiologia, 43: 245â€“253. Luff, M.L. 1968. Some effects of formalin on the numbers of Coleoptera caught in pitfall traps. View Pitfall Traps Research Papers on Academia.edu for free.Â We tested the effectiveness of molluscs as indicators for monitoring by contrasting species richness and community structure in burned relative to unburned forests. Both species richness and community structure changed significantly with burning. Some mollusc species (e.g. Macroptychia africana) showed marked negative responses to burning, and these species have potential for use as indicators.Â We studied carabid beetle abundance at eight forest-farmland edges using pitfall traps across 60-m gradients (30 m into the forest, 30 m into the adjacent farmland) in southern Finland in Mayâ€“August 2001. Pitfall traps with guidance barriers proved most effective in our study and showed coherent carabid beetle assemblage structures. These pitfall trap designs have been proposed several times in the past but have seen little use so far (Durkis & Reeves, 1982; Boetzl et al. (2018), PeerJ, DOI 10.7717/peerj.5078. 7/14. Figure 3 Carabid beetle species richness (A) and community weighted mean body size within the carabid assemblages (B) for the four different pitfall trap types. Means Â± 95% CI. Different letters above indicate signicant differences ($p < 0.05$). Herpetological Review is a peer-reviewed quarterly that publishes, in English, articles and notes concerning the study of amphibians and reptiles, as well as book reviews, commentaries, regional and international herpetological society news, and letters from readers directed to the field of herpetology.Â Complete issues from the last five years are available to SSAR members. There is also a link to a downloadable EndNote library of HR references. Information for Contributors to Herpetological Review. Herpetological Review is a peer-reviewed