IMPROVING EARLY DETECTION AND RAPID RESPONSE FOR CRYPTIC SPECIES: CURRENT ANALYTICAL TOOLS AND FUTURE DIRECTIONS

Amy A. Yackel Adams[1], and Robert N. Reed[2]
[1]U.S. Geological Survey, Fort Collins Science Center, 2150 Center Ave., 970-226-9489, yackela@usgs.gov
[2]U.S. Geological Survey, Fort Collins Science Center, rreed@usgs.gov

Successful eradication of invasive species is facilitated by early detection and prompt onset of control. However, realizing or verifying that a colonization has occurred (or not) is difficult for cryptic species especially at low densities. Equally difficult is knowing when to declare successful eradication of a once established invasive population. Effective detection tools combined with advanced analytical tools can improve management efforts and decisions in both scenarios. In our various research efforts to (1) determine the absence of an incipient population of invasive reptiles after a confirmed sighting, and (2) declare an eradication successful, we developed two quantitative models to assist resource managers. We review these two models and comment on the current state of available analytical tools for improving decision making for early detection and rapid response in natural areas.