

**Environmental Security Technology Certification Program (ESTCP)**

**ENHANCED BIOSECURITY AND STRATEGIC MOBILITY  
WITH IMPROVED BROWN TREE SNAKE CONTROL**

**OBJECTIVE**

ESTCP projects are sought that result in innovative tools, attractants, methodologies, or technologies that improve the efficiency of Brown Tree Snake (*Boiga irregularis*) (BTS) trapping and removal on the island of Guam and similar locations. Specifically, ESTCP is interested the following:

- Devices optimized for high BTS density scenario where the goal is to rapidly reduce the numbers of snakes in an area. Designers may assume that the devices will be serviced by personnel on a regular basis with the result that live lures may be maintained and the removal of live snakes feasible.
- Devices optimized for low BTS density scenario where snakes have been consistently removed and are known to be at low densities, where incipient snake populations are suspected, or where risk of accidental snake arrival is high. In the low density scenario, “sentinel devices” that require low maintenance but result in the capture or death of any snake encountering the device is optimal. In the low density scenario, must not need to be frequently visited; as a result, live lures or live snake capture may not be suitable.
- Operational analysis of the current Brown Tree Snake methods used on DoD installations on Guam. Performers are encouraged to propose a systematic examination of current BTS control tactics by mathematical and statistical methods to determine their efficiency and to devise or indicate possible improvements.

Proposals may address one or more of the above interests. Proposals that attempt to address all of the above listed interests, risk appearing unfocused.

With regard to devices, proposals for systems that remove snakes that are not actively foraging or are in prey-rich environments will receive strong consideration. Lethal or nonlethal methods for BTS removal may be proposed. Lethal removal devices, or ‘kill traps’ must be designed to achieve a quick, reliable, and relatively humane death. All efforts must comply with the Animal Welfare Act. Dead bait systems currently in use are well understood and optimized for simplicity, so their modification is not being sought in this call for proposals. Proposed systems should minimize nontarget by-catch such as coconut crabs (*Birgus latro*) and rats (*Rattus* spp.) to the extent possible. Devices must be demonstrated in a field environment and evaluated by qualified BTS research or management agencies using, at a minimum, the trap evaluation criteria outlined by Engeman and Vice (2000)<sup>1</sup> modified to include attractions, captures, and escapes per unit effort (e.g., trap night), size distribution, cost, practicality, humaneness, and information content. Proposals related to

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<sup>1</sup> Engeman, R. M., and D. S. Vice. 2000. Standardizing the evaluation of brown tree snake trap designs. *Integrated Pest Management Reviews* 5:205-212.

device development should propose criteria to test system efficacy and validate population impacts.

Proposers should demonstrate an understanding of the biology and behavior of BTS, the objectives of BTS control, and an awareness of the control tools currently in use. Proposals should explicitly describe the proposed device and explain the concept of operation of the proposed device within the current control framework.

## **BACKGROUND**

The brown tree snake was accidentally transported from its native range to Guam. In the absence of natural predators on Guam, the brown tree snake has been responsible for the extirpation of most of the native forest vertebrate species; hundreds of power outages affecting private, commercial, and military activities; large-scale loss of domestic birds and pets; numerous potentially fatal envenomations of children; and considerable emotional trauma to residents and visitors alike. In addition, Guam is a major transportation center for military traffic in the Central Pacific Region. As such, the Department of Defense (DoD) has systems and methods in place to reduce opportunities for the brown tree snake to be introduced accidentally on other Pacific islands; however, the DoD continues to seek methods that reduce costs and improve efficiency.

The ESTCP Resource Conservation and Resiliency Program Area supports the DoD mission by demonstrating and validating innovative and cost-effective technologies that enhance DoD capabilities that rely on training lands, cantonment areas, test stands, and many other types of installation facilities. This call for proposals seeks to provide new, cost-effective, and efficient tools for controlling the BTS.

## **POINT OF CONTACT**

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For pre-proposal submission due dates, instructions, and additional solicitation information, visit the [ESTCP website](#).