

**Strategic Environmental Research and Development Program  
(SERDP)**

**FY 2021 STATEMENT OF NEED**

**Resource Conservation and Resiliency (RC) Program Area**

**ADVANCED BIOSECURITY TOOLS FOR CONTROLLING INVASIVE,  
ALIEN TERRESTRIAL SPECIES (IATS)  
IN SUPPORT OF ENHANCED STRATEGIC MOBILITY**

**1. Objective.**

This Statement of Need (SON) seeks applied research projects to develop innovative technologies that can improve the efficiency of biosecurity efforts to control invasive, alien terrestrial species (IATS) found on military vehicles and cargo during deployment and redeployment activities. Of particular interest is research to improve the wash-down and cleaning processes; streamline and enhance inspection processes; improve early detection and surveillance; provide biological, chemical, or physical controls; and/or enhance mitigation, interdiction, and management techniques for IATS. The following items should be considered in the development of proposals.

- IATS include but are not limited to flora, fauna, and pathogens. The brown tree snake (*Boiga irregularis*) is not a species of interest for this SON; however, research into methods to control the Coconut Rhinoceros Beetle (*Oryctes rhinoceros*) is of particular interest. All proposals should include the rationale for the IATS of focus.
- Research to identify, prevent, and mitigate IATS pathways and transfer will be considered.
- Proposed technologies should pose minimum risks to human health and safety but raise the efficiency of IATS prevention measures.
- Proposed technologies must ultimately be simple, rugged, and inexpensive.

**2. Expected Benefits of Proposed Work**

The proposed research work will benefit the Department of Defense's (DoD's) critical need for strategic mobility and will improve the tools and procedures used to conduct biosecurity related efforts on deploying and redeploying cargo and craft.

**3. Background**

Several thousand non-native IATS of plants and animals have become established in the U.S. and globally. In the U.S., approximately one in seven invasive species impact the economy and together account for more than ~\$137 billion a year in losses. Military personnel work hard to limit the movement of IATS, but have limited tools to conduct biosecurity related efforts on deploying and redeploying cargo and craft. Current protocols focus on cleaning using power washers to prevent potentially invasive organisms from affecting agriculture, ecosystems, and animal/plant health. Biosecurity related procedures and organizational responsibilities vary, but in spite of the

military's best efforts, IATS still manage to be transported and arrive at unintended destinations, often with readiness, public affairs, environmental, and financial implications.

Labor-intensive cleaning, surveillance and mitigation methods are somewhat effective, but they are resource intensive and hinder time critical strategic mobility. In spite of interdiction efforts, unwanted organisms successfully transfer and establish themselves outside native ranges. The primary tools used to reduce the probability of transporting invasive organisms include power washers, compressed air, mops, brooms, etc. on metal shipping containers, enclosed cargo, heavy equipment, and vehicles. Depending on destination, glue boards, snap traps, rodent bait boxes, insecticidal dusts, and "No Pest Strips" containing a volatile insecticide. In particularly sensitive areas such as Guam and the Joint Region Marianas Area of Responsibility, all military cargo, equipment, and vehicles in support of operations are cleaned and inspected to strict standards<sup>1</sup> prior to movement. In the past, SERDP supported research to control the brown tree snake. This work has successfully transitioned to other agencies and into the field.

Applied research and advanced technology demonstration projects that result in the development of new and greatly improved tools, technological advancements, and biosecurity innovations are needed to prevent the unwanted spread of exotic species through strategic movements of DoD assets.

#### **4. Cost and Duration of Proposed Work**

The cost and time to meet the requirements of this SON are at the discretion of the proposer. Two options are available:

Standard Proposals: These proposals describe a complete research effort. The proposer should incorporate the appropriate time, schedule, and cost requirements to accomplish the scope of work proposed. SERDP projects normally run from two to four years in length and vary considerably in cost consistent with the scope of the effort but must not exceed \$900,000 per year. Preference will be given to proposals that efficiently address and integrate specific research objectives. Project budgets vary but must remain consistent with the scope of the effort.

Limited Scope Proposals: Proposers with innovative approaches to the SON that entail high technical risk or have minimal supporting data may submit a Limited Scope Proposal for funding up to \$250,000 and up to two years in duration. Such proposals may be eligible for follow-on funding if they result in a successful initial project. The objective of these proposals should be to acquire the data necessary to demonstrate proof-of-concept or reduction of risk that will lead to development of a future Standard Proposal. Proposers should submit Limited Scope Proposals in accordance with the SERDP Core Solicitation instructions and deadlines.

#### **5. Point of Contact**

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<sup>1</sup> Armed Forces Pest Management Board. Technical Guide 31. Guide for Agricultural Preparation of Military Gear and Equipment for Redeployment. 2017. <https://www.acq.osd.mil/eie/afpmb/docs/techguides/tg31.pdf>

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