



Aquatic Nuisance Species Task Force Activity Reporting Form

Form Instructions:

Report Type: Select Federal Member, Ex officio Member, or Regional Panel.

Affiliation: Specify the entity that the report will represent. If reporting for more than one entity, a separate form should be completed for each organization.

Point of Contact: Information for the individual who can address any follow-up questions about the form.

Accomplishments and Ongoing Efforts: Information should be completed for each specific Activity conducted within your organization that supports the goals and objectives of the ANSTF Strategic Plan. Additional pages will be generated as needed. Requested information for each Activity includes:

- **Activity Title:** A distinct title that can be used to identify the Activity.
- **Activity Description:** Brief description about the Activity that includes its goal, implementation steps, and how it supports the ANSTF Strategic Plan. If the Activity has been completed, include a short statement about what was accomplished. If the Activity is ongoing, include a short statement on what has been achieved to date.
- **Status:** Select Planned, Ongoing, Complete, or Routine Operation. Routine Operations are those that are performed on a routine basis to support the ANSTF or reporting organization (e.g., meetings, maintaining databases / websites).
- **Start / End Date:** Indicate the time frame when the Activity will be conducted. Fiscal Year(s) is sufficient; if more detailed information is available, please indicate.
- **Lead Organization:** Agency, Regional Panel, organization, or committee responsible for project implementation
- **Partners Organization(s):** Other entities involved in the projects. Please list all partners, even those not associated with ANSTF.
- **Funding Amount and Source(s):** Select the appropriate funding type and specific the specific agency / organization. For each funding type selected, include the amount of funding provided per fiscal year. Total Funding will be automatically calculated. If funding is "To be Determined"; indicate as "0" and note as such in "Additional Comments."
- **Relation to the ANSTF Strategic Plan Goals and Objectives:** Select the ANSTF Strategic Plan Goals and Objectives supported by the project. If the project clearly supports multiple goals, selecting more than one is acceptable. For each Goal selected, indicate the amount of funding spent for the management category (from all sources) per fiscal year. Total Funding will be automatically calculated; ensure that the amount matches the Total Funding in the Funding Amount and Source(s) section above.
- **Additional Comments** (optional): Any additional information you feel is necessary to adequately describe the Activity and its relationship to the ANSTF Strategic Plan.
- **Documents and Images** (optional): Citation, internet link, for documents and images relevant to this project. Write "Attached" if documents or images will be attached to the form submission.

Report Type:

Member or Panel:

Point of Contact:

Name:

Title:

Organization:

Address:

E-mail:

Phone:

Accomplishments and Ongoing Efforts:

Activity Title: Administration and Coordination of Panel Activities, and interagency Communications

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

The mission of the Mid-Atlantic Panel is to assist state and federal agencies and other stakeholders in developing and implementing strategic, coordinated, and action-oriented approaches for the prevention and control of aquatic invasive species in the mid-Atlantic region, and to coordinate and communicate these activities with the other Regional Panels, the ANSTF, and other partners. The MAPAIS chair attended all ANSTF meetings in FFY2015-2016.

The fall 2014 MAPAIS meeting was held December 10-11 in Virginia Beach, VA. The meeting focused on AIS issues of concern in Virginia, with presentations on blue catfish, nutria, snakehead, feral hogs, and phragmites, as well as presentations about issues of regional concern such as hydrilla, AIS in aquariums, and invasive species harvest incentives. A field trip informed MAPAIS members regarding monitoring and eradication of nutria and feral hogs. Sarah Whitney and Steve Minkinen stepped down as Panel chair and vice-chair, and Ray Fernald and Mike Allen were elected to serve as chair and vice-chair, respectively.

The spring 2015 MAPAIS meeting was held June 30 in Annapolis, MD, and focused on Small Grant Program (SPG) presentations. The panel also deliberated and made decisions on the 2015 Small Grants competition and the FFY2016 MAPAIS budget.

The fall 2015 MAPAIS meeting was held November 17-18 in Lewes, DE. The meeting focused on AIS issues of concern in Delaware, including invasive shore crabs, DE's Invasive Species Council, use of water buffalo for invasive plant control, phragmites control, and restoration of northern diamondback terrapin nesting habitat. Other presentations covered the Chesapeake Bay Sentinel Site Cooperative, waterwheel plant in Virginia, updates on ongoing SPG projects, and a tour of the UDE Research Facility.

The spring 2016 MAPAIS meeting was held in Annapolis, MD, and focused on our website rebuild project, the proposed Vessel Incidental Discharge Act, discussion of boat/trailer inspection/decontamination programs in the Mid-Atlantic region, SPG project updates, and proposal review / awarding of subgrants under our 2016 Small Grants Program.

This Activity supports Objectives 1.1, 1.2, 1.3, and 1.4 of the ANSTF Strategic Plan by enhancing coordination among MAPAIS agencies and partners, and the ANSTF, regarding all facets of AIS prevention, detection, and control.

Status: Routine Operation

Start Date: 1 October 2014

End Date, if applicable: 30 September 2016

Lead Organization: MAPAIS

Partner Organization(s): All Panel members and organizations, and invited speakers and public guests at MAPAIS meetings.

Funding Amount and Source(s)

	Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
<input checked="" type="checkbox"/>	Federal Agency U.S. Fish and Wildlife Service	5,850	4,850
<input type="checkbox"/>	State Government		
<input type="checkbox"/>	Local Government		
<input type="checkbox"/>	Tribal Government		
<input type="checkbox"/>	Academic Institution		
<input type="checkbox"/>	NGO		
<input type="checkbox"/>	Other		
Total Funding for Activity		5,850	4,850

- Education and Outreach \$ Amount FY 15 \$ Amount FY 16
- Objective 6.1: Increase understanding among the general public of the problems and impacts associated with ANS and actions that can be taken to prevent and control ANS
 - Objective 6.2: Disseminate ANS outreach and technical guidance materials to target audiences
 - Objective 6.3: Promote the use of guidance documents, best management practices and other outreach materials related to ANS
 - Objective 6.4: Promote awareness of the ANSTF and its activities and provide educational briefings on ANS threats and solutions and to legislators and other decision makers
- Research \$ Amount FY 15 \$ Amount FY 16
- Objective 7.1: Develop and maintain a list of ANS research priorities; communicate this list to the scientific community
 - Objective 7.2: Develop and maintain guidance documents, protocols, and best management practices related to ANS
 - Objective 7.3: Track the progress of research activities funded or prioritized by the ANSTF
 - Objective 7.4: Support development of socio-economic research to quantify the economic impact of ANS
 - Objective 7.5: Support research on interdiction methods for specific pathways of ANS3
 - Objective 7.6: Support efforts to identify gaps and expand research relevant to control and eradication measures to address ANS that have become established
 - Objective 7.7: Encourage research to develop species invasion-risk forecast tools
 - Objective 7.8: Support existing databases and global database networks
- Funding \$ Amount FY 15 \$ Amount FY 16
- Objective 8.1: Secure dedicated, long-term funding for the ANSTF Strategic Plan actions
 - Objective 8.2: Optimize use of current funding for ANS activities by engaging potential resources and programs within Federal agencies and additional partners
 - Objective 8.3: Develop a list of ANS funding priorities
- Total Funding for Activity:** \$ Amount FY 15 \$ Amount FY 16

Additional Comments (Optional):

While this activity addresses virtually all ANSTF Goals and Objectives in some fashion, it focuses on coordination of efforts among MAPAIS states and agencies: Activities more directly addressing specific Goals and Objectives are highlighted below. MAPAIS allocates most of our USFWS funding among projects in our Small Grants Program. Other expenditures include MAPAIS special projects such as our MAPAIS website redesign and relaunch, minimal expenses for meeting facilitation, administrative and fiscal support provided by Maryland Sea Grant, and travel by the MAPAIS chair to semiannual ANSTF and All-Panel meetings. No reimbursement is routinely provided to MAPAIS members or meeting participants for their time or travel expenses, unless provided for via a SGP subgrant.

Documents and Images (Optional)

Attachments: MAPAISFall2014mtg_minutes.pdf; MAPAISSpring2015mtg_minutes.pdf; MAPAISFall2015mtg_minutes.pdf; MAPAISSpring2016mtg_minutes.pdf

Additional Projects to Report?

- Yes** Please continue by entering information for the next project on the following pages
- No**

Accomplishments and Ongoing Efforts:

Activity Title: MAPAIS Small Grants Program (SPG)

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

The Panel conducts an annual grants competition to fund on-the-ground activities addressing MAPAIS' mission and regional priorities. Since 2007, the Panel has awarded \$327,184 in project funding, and has leveraged over half a million dollars in partner funds.

Funding for one project originally budgeted to FFY2013 funds, "The Good, The Bad, and The Ugly: an Invasive Species Toolkit for Educators" led by Kerry Wixted of the Maryland Department of Natural Resources, was extended at no additional cost through December 2015 to facilitate project completion. Thirteen new grant proposals requesting a total of \$242,884 were submitted in response to our 2014 Request For Proposals: three of these were approved at our spring 2014 meeting, for initiation in October 2014 using FFY2015 funds. These three projects included: (1) "Characterizing the Invasive New Zealand Mud Snail Population in Central Pennsylvania" led by Edward P. Levri of Pennsylvania State University; (2) "Engaging Lawyers to Facilitate Access to Private Land for Eradication and Control of Aquatic Nuisance Species" led by Stephanie Showalter Otts and Jeanette Manning of the University of Mississippi School of Law and the National Association of Attorneys General; and (3) "Mid-Atlantic Guide to Aquatic Invasive Species" led by Sara Stahlman of Pennsylvania Sea Grant.

At our spring 2015 meeting, the panel reviewed three proposals and decided to fund (FFY2016) one new project, "Training and Evaluation of Dogs for Early Detection of Nutria (*Myocastor coypus*)" led by Todd Engelmeyer of the Virginia Department of Game and Inland Fisheries, and also to supplement funding for waterproof copies of the Mid-Atlantic AIS Field Guide.

At our spring 2016 meeting, the panel reviewed eight SGP proposals, and selected three new projects for MAPAIS funding: addressing AIS Boat Inspection Stations, eDNA of amphibian pathogens, and economic analysis of AIS risk in the bloodworm trade.

Each SGP projects is documented below as a discrete Activity, beginning with the first fiscal year of project funding.

This Activity supports Objectives 1.1, 1.2, 1.3, and 1.4 of the ANSTF Strategic Plan by enhancing coordination among MAPAIS agencies and partners, and the ANSTF, regarding all facets of AIS prevention, detection, and control.

Status: Ongoing

Start Date: 1 October 2014

End Date, if applicable: 30 September 2016

Lead Organization: MAPAIS

Partner Organization(s): All Panel members participate in review and selection of Small Grant Program proposals at regularly scheduled MAPAIS meetings.

Funding Amount and Source(s)

	Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
<input checked="" type="checkbox"/>	Federal Agency U.S. Fish and Wildlife Service	0	0
<input type="checkbox"/>	State Government		
<input type="checkbox"/>	Local Government		
<input type="checkbox"/>	Tribal Government		
<input type="checkbox"/>	Academic Institution		
<input type="checkbox"/>	NGO		
<input type="checkbox"/>	Other		
Total Funding for Activity		0	0

- Education and Outreach \$ Amount FY 15 \$ Amount FY 16
- Objective 6.1: Increase understanding among the general public of the problems and impacts associated with ANS and actions that can be taken to prevent and control ANS
 - Objective 6.2: Disseminate ANS outreach and technical guidance materials to target audiences
 - Objective 6.3: Promote the use of guidance documents, best management practices and other outreach materials related to ANS
 - Objective 6.4: Promote awareness of the ANSTF and its activities and provide educational briefings on ANS threats and solutions and to legislators and other decision makers
- Research \$ Amount FY 15 \$ Amount FY 16
- Objective 7.1: Develop and maintain a list of ANS research priorities; communicate this list to the scientific community
 - Objective 7.2: Develop and maintain guidance documents, protocols, and best management practices related to ANS
 - Objective 7.3: Track the progress of research activities funded or prioritized by the ANSTF
 - Objective 7.4: Support development of socio-economic research to quantify the economic impact of ANS
 - Objective 7.5: Support research on interdiction methods for specific pathways of ANS3
 - Objective 7.6: Support efforts to identify gaps and expand research relevant to control and eradication measures to address ANS that have become established
 - Objective 7.7: Encourage research to develop species invasion-risk forecast tools
 - Objective 7.8: Support existing databases and global database networks
- Funding \$ Amount FY 15 \$ Amount FY 16
- Objective 8.1: Secure dedicated, long-term funding for the ANSTF Strategic Plan actions
 - Objective 8.2: Optimize use of current funding for ANS activities by engaging potential resources and programs within Federal agencies and additional partners
 - Objective 8.3: Develop a list of ANS funding priorities
- Total Funding for Activity:** \$ Amount FY 15 \$ Amount FY 16

Additional Comments (Optional):

While this activity addresses virtually all ANSTF Goals and Objectives in some fashion, it focuses on solicitation, review, and funding of specific AIS projects and activities to be developed and implemented by MAPAIS member agencies, NGOs, academic institutions, local governments, and other state and federal agencies. The Goals and Objectives of each project funded through out Small Grants Program are addressed in the project-specific narratives below. Similarly, Small Grant Project expenditures are provided in the Activity Report for each individual project. Expenditures related to management of the budgets, grants, and reports of the Small Grants Program are included in the total reported under Administration and Coordination, above.

Documents and Images (Optional)

Additional Projects to Report?

- Yes** Please continue by entering information for the next project on the following pages
- No**

Accomplishments and Ongoing Efforts:

Activity Title:

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

Invasive species of plants, animals and pathogens affect our everyday life, but often in ways that are not readily apparent to the public. This project is designed to provide comprehensive hands-on toolkits that teachers and other educators can use to deliver classroom lessons and exercises that fit their needs, meet state Standards of Learning and other educational requirements, target a wide range of age groups, educate teachers and students regarding AIS issues and specific threats, and motivate students to take action in their communities. The toolkit is designed to tell the story of invasive species in the eastern United States through five distinct units: (1) History of Invasive Species; (2) Introduction and Spread of Invasive Species; (3) Impacts to Natural Areas; (4) Impacts to Students' Lives; and (5) Student and Community Action.

The project provides: (1) Information, hands-on artifacts and other tools for classroom use; (2) Lesson ideas for incorporating invasive species topics into a variety of educational disciplines; (3) Correlation to Maryland environmental literacy and common core learning standards, National science standards, and STEM (Science Technology Engineering and Mathematics) goals; (4) Suggestions for student and community monitoring and action projects; and (5) Teacher/ environmental educator professional development to assure effective development and delivery.

The toolkits were distributed to appropriate agencies in all MAPAIS states, and thereby made available to educators.

This Activity directly supports Objectives 6.1, 6.2, and 6.3 of the ANSTF Strategic Plan by enhancing education and outreach regarding AIS. School, agency, and public adoption of AIS monitoring and actions taught through this Activity also support Objectives 3.1, 3.3, and 3.5 regarding early detection of and rapid response to AIS invasions.

Status:

Start Date:

End Date, if applicable:

Lead Organization:

Partner Organization(s):

Funding Amount and Source(s)

	Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
<input checked="" type="checkbox"/>	Federal Agency <input type="text" value="U.S. Fish and Wildlife Service (via MAPAIS)"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="checkbox"/>	State Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Local Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Tribal Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Academic Institution <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	NGO <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Other <input type="text"/>	<input type="text"/>	<input type="text"/>
Total Funding for Activity		<input type="text" value="0"/>	<input type="text" value="0"/>

Education and Outreach \$ Amount FY 15 \$ Amount FY 16

- Objective 6.1: Increase understanding among the general public of the problems and impacts associated with ANS and actions that can be taken to prevent and control ANS
- Objective 6.2: Disseminate ANS outreach and technical guidance materials to target audiences
- Objective 6.3: Promote the use of guidance documents, best management practices and other outreach materials related to ANS
- Objective 6.4: Promote awareness of the ANSTF and its activities and provide educational briefings on ANS threats and solutions and to legislators and other decision makers

Research \$ Amount FY 15 \$ Amount FY 16

- Objective 7.1: Develop and maintain a list of ANS research priorities; communicate this list to the scientific community
- Objective 7.2: Develop and maintain guidance documents, protocols, and best management practices related to ANS
- Objective 7.3: Track the progress of research activities funded or prioritized by the ANSTF
- Objective 7.4: Support development of socio-economic research to quantify the economic impact of ANS
- Objective 7.5: Support research on interdiction methods for specific pathways of ANS3
- Objective 7.6: Support efforts to identify gaps and expand research relevant to control and eradication measures to address ANS that have become established
- Objective 7.7: Encourage research to develop species invasion-risk forecast tools
- Objective 7.8: Support existing databases and global database networks

Funding \$ Amount FY 15 \$ Amount FY 16

- Objective 8.1: Secure dedicated, long-term funding for the ANSTF Strategic Plan actions
- Objective 8.2: Optimize use of current funding for ANS activities by engaging potential resources and programs within Federal agencies and additional partners
- Objective 8.3: Develop a list of ANS funding priorities

Total Funding for Activity: \$ Amount FY 15 \$ Amount FY 16

Additional Comments (Optional):

Note: no expenditures are recorded for FFY2015 or FFY2016 because the final invoices were processed at the end of FFY2014 when the products were completed, but prior to the final reports/presentations being submitted to MAPAIS.

Documents and Images (Optional)

Attached: Annual Performance Report and Final Report: AISToolkitPerfRpt_Wixted_MAPAIS20150924.pdf;
AISToolkit_EducationGuide_MDNR2016.pdf

Additional Projects to Report?

- Yes** Please continue by entering information for the next project on the following pages
- No**

Accomplishments and Ongoing Efforts:

Activity Title:

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

The New Zealand mud snail (NZMS) was first documented in interior waters of Pennsylvania in the summer of 2013. In North America, populations of this species are entirely asexual (clonal) and consist of at least three distinct clones. One clone (US1) is highly invasive and has spread throughout much of the American west and southwestern Canada. Another clone (US2) is mostly relegated to the Laurentian Great Lakes and a few streams in upstate New York. A third clone in Idaho does not appear to be invasive. Presence of the NZMS in central Pennsylvania is of concern because of the substantial ecological changes that can accrue from this species. This project is designed to: (1) determine the extent of the invasion in Pennsylvania; (2) determine the diversity and identity of the clone(s) in this population; and (3) determine whether the clone(s) found in central PA possess characteristics different from other clones of the species that may influence their spread and invasiveness (e.g., desiccation tolerance, dispersal, and predator avoidance behaviors). To accomplish these goals, the researchers are surveying streams in central PA for the snail's presence, determining the genotypes of the snails from multiple locations, and conducting lab experiments to determine propensity of the snails to disperse, tolerate drying, and respond behaviorally to light and gravity. These behaviors have been documented to influence this species' ability to avoid predators.

Thus far, minimal expansion of the species' range in central Pennsylvania has been detected. The desiccation experiment revealed that the PA clone is different from the US1 clone in that the PA snails are less tolerant of being out of water. The grantee will examine the physical and chemical characteristics of the water at the locations where NZMS are absent/present to determine if some of their distribution can be explained by calcium concentration and/or conductivity. In addition, he will conduct geotaxis, photokinesis, and dispersal experiments with the snails using water with and without fish chemical cues to determine whether the PA clone can detect and respond behaviorally to predators in its new environment.

This Activity directly supports Objectives 7.6, 7.7, and 7.8 of the ANSTF Strategic Plan by supporting research regarding a specific AIS recently documented in the Mid-Atlantic region. By virtue of the incorporated surveys for this species, the project also supports Objective 3.1 and 3.2 of the Strategic Plan regarding early detection of and rapid response to AIS invasions.

Status:

Start Date:

End Date, if applicable:

Lead Organization:

Partner Organization(s):

Funding Amount and Source(s)

	Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
<input checked="" type="checkbox"/>	Federal Agency <input type="text" value="U.S. Fish and Wildlife Service (via MAPAIS)"/>	<input type="text" value="12,000"/>	<input type="text" value="0"/>
<input type="checkbox"/>	State Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Local Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Tribal Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Academic Institution <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	NGO <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Other <input type="text"/>	<input type="text"/>	<input type="text"/>
Total Funding for Activity		<input type="text" value="12,000"/>	<input type="text" value="0"/>

- Education and Outreach \$ Amount FY 15 \$ Amount FY 16
- Objective 6.1: Increase understanding among the general public of the problems and impacts associated with ANS and actions that can be taken to prevent and control ANS
 - Objective 6.2: Disseminate ANS outreach and technical guidance materials to target audiences
 - Objective 6.3: Promote the use of guidance documents, best management practices and other outreach materials related to ANS
 - Objective 6.4: Promote awareness of the ANSTF and its activities and provide educational briefings on ANS threats and solutions and to legislators and other decision makers

Research \$ Amount FY 15 \$ Amount FY 16

- Objective 7.1: Develop and maintain a list of ANS research priorities; communicate this list to the scientific community
- Objective 7.2: Develop and maintain guidance documents, protocols, and best management practices related to ANS
- Objective 7.3: Track the progress of research activities funded or prioritized by the ANSTF
- Objective 7.4: Support development of socio-economic research to quantify the economic impact of ANS
- Objective 7.5: Support research on interdiction methods for specific pathways of ANS3
- Objective 7.6: Support efforts to identify gaps and expand research relevant to control and eradication measures to address ANS that have become established
- Objective 7.7: Encourage research to develop species invasion-risk forecast tools
- Objective 7.8: Support existing databases and global database networks

Funding \$ Amount FY 15 \$ Amount FY 16

- Objective 8.1: Secure dedicated, long-term funding for the ANSTF Strategic Plan actions
- Objective 8.2: Optimize use of current funding for ANS activities by engaging potential resources and programs within Federal agencies and additional partners
- Objective 8.3: Develop a list of ANS funding priorities

Total Funding for Activity: \$ Amount FY 15 \$ Amount FY 16

Additional Comments (Optional):

We anticipate presentation of the project final report at the Fall 2016 MAPAIS meeting in mid-November 2016.

Documents and Images (Optional)

Attached: Annual Performance Report: NZMudSnailPerfRpt_Levri_MAPAIS20151130.pdf

Additional Projects to Report?

- Yes** Please continue by entering information for the next project on the following pages
- No**

Accomplishments and Ongoing Efforts:

Activity Title:

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

One fundamental right of property ownership is the right to exclude others, whether they are private individuals or government actors, from the property. In general, state agencies and their agents must obtain landowner consent before undertaking eradication or control efforts on private land or waters. The National Sea Grant Law Center, the National Association of Attorneys General, and the Environmental Law Institute (Project Team) worked with MAPAIS to improve regional understanding of strategies available to access private land for eradication and control of aquatic nuisance species, and to lay a foundation for collaboratively addressing this widespread problem.

The Project Team focused on conducting legal research to inventory and analyze relevant state laws. A legal intern at ELI inventoried the laws and regulations of the eight Mid-Atlantic states and the District of Columbia, and compiled provisions relevant to AIS control efforts on private lands. She searched for authority to control AIS, noxious weeds, and plant pests as the categorization of such species varies by state. She looked at the authorities of state natural resource agencies and agricultural departments alike, as control authorities among these regulators can overlap or even conflict. The Project Team then condensed this information into brief summaries for each state. Legal authority to access private land for AIS eradication and control without landowner consent varies state-by-state, particularly in the level of procedure required for an agency to enter onto private property. Five states in the region (NC, NY, PA, VA, WV) have legislation explicitly authorizing entry onto private land without consent to inspect or control noxious weeds. Explicit legislative authorization to enter private land for AIS control and eradication, however, is rare, existing only in Maryland, Virginia, and New York, and under varying circumstances.

This Activity supports Objectives 1.2 and 1.3 of the ANSTF Strategic Plan regarding evaluation of statutory authorities and regulations of Mid-Atlantic States, and by facilitating development and effectiveness of state ANS management efforts. Facilitating access to private lands for AIS monitoring and control would also support Objectives 3.4 and 3.5 regarding development and implementation of rapid response actions.

Status:	<input type="text" value="Complete"/>
Start Date:	<input type="text" value="1 October 2014"/>
End Date, if applicable:	<input type="text" value="30 September 2015"/>
Lead Organization:	<input type="text" value="National Sea Grant Law Center / Stephanie Showalter Otts"/>
Partner Organization(s):	<input type="text" value="National Association of Attorneys General, and the Environmental Law Institute; Participating MAPAIS members."/>

Funding Amount and Source(s)

	Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
<input checked="" type="checkbox"/>	Federal Agency <input type="text" value="U.S. Fish and Wildlife Service (via MAPAIS)"/>	<input type="text" value="7,000"/>	<input type="text" value="0"/>
<input type="checkbox"/>	State Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Local Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Tribal Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Academic Institution <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	NGO <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Other <input type="text"/>	<input type="text"/>	<input type="text"/>
Total Funding for Activity		<input type="text" value="7,000"/>	<input type="text" value="0"/>

- Education and Outreach \$ Amount FY 15 \$ Amount FY 16
- Objective 6.1: Increase understanding among the general public of the problems and impacts associated with ANS and actions that can be taken to prevent and control ANS
 - Objective 6.2: Disseminate ANS outreach and technical guidance materials to target audiences
 - Objective 6.3: Promote the use of guidance documents, best management practices and other outreach materials related to ANS
 - Objective 6.4: Promote awareness of the ANSTF and its activities and provide educational briefings on ANS threats and solutions and to legislators and other decision makers
- Research \$ Amount FY 15 \$ Amount FY 16
- Objective 7.1: Develop and maintain a list of ANS research priorities; communicate this list to the scientific community
 - Objective 7.2: Develop and maintain guidance documents, protocols, and best management practices related to ANS
 - Objective 7.3: Track the progress of research activities funded or prioritized by the ANSTF
 - Objective 7.4: Support development of socio-economic research to quantify the economic impact of ANS
 - Objective 7.5: Support research on interdiction methods for specific pathways of ANS3
 - Objective 7.6: Support efforts to identify gaps and expand research relevant to control and eradication measures to address ANS that have become established
 - Objective 7.7: Encourage research to develop species invasion-risk forecast tools
 - Objective 7.8: Support existing databases and global database networks
- Funding \$ Amount FY 15 \$ Amount FY 16
- Objective 8.1: Secure dedicated, long-term funding for the ANSTF Strategic Plan actions
 - Objective 8.2: Optimize use of current funding for ANS activities by engaging potential resources and programs within Federal agencies and additional partners
 - Objective 8.3: Develop a list of ANS funding priorities
- Total Funding for Activity:** \$ Amount FY 15 \$ Amount FY 16

Additional Comments (Optional):

Documents and Images (Optional)

Attached: Final Project Report: PrivateLandsAccessFinalRpt_Otts_MAPAIS20151002.pdf

Additional Projects to Report?

- Yes** Please continue by entering information for the next project on the following pages
- No**

Accomplishments and Ongoing Efforts:

Activity Title:

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

The Pennsylvania Field Guide to Aquatic Invasive Species was completed in 2013, having been partially funded as a MAPAIS Small Grant Program project. MAPAIS subsequently proposed that the acclaimed Pennsylvania guide be expanded, with MAPAIS funding, as a field guide to AIS of the entire Mid-Atlantic region. The soon-to-be-released "Mid-Atlantic Field Guide to Aquatic Invasive Species" is designed to aid science professionals and other interested individuals in AIS early detection and reporting. This reference can help water conservation officers, regional biologists, volunteer monitors, resource managers, educators, students, and others working in the Mid-Atlantic to learn general information about significant AIS, identify the problem species, collect specimens for verification, and report new infestations. The 99 species included in this field guide were selected by experts from the Mid-Atlantic region, including MAPAIS members, to reflect species of greatest concern within the Mid-Atlantic region.

The guide is intended to help slow or stop the spread of invasive species in the Mid-Atlantic region. The focus of the first section is prevention, since it is important that readers understand how to minimize AIS introduction and spread. It highlights significant vectors of spread for AIS and describes reasonable preventative actions. The second section focuses on how to report invasive species occurrences, and on collecting specimens when appropriate. It is important that new infestations are reported quickly and accurately, and that specimens are collected correctly so that subsequent control or management actions can be pursued. The last section of "species profiles" highlights important characteristics that aid in distinguishing covered AIS from similar species. AIS are grouped together into larger, generally taxonomic cohorts. The Guide is to be published as a glossy paper edition, as a waterproof edition, and as downloadable .pdf files accessible on the MAPAIS and PA Sea Grant websites.

This Activity primarily supports Objectives 6.1, 6.2, 6.3, and 6.4 of the ANSTF Strategic Plan by enhancing education and outreach regarding AIS prevention, detection, and control. Through such public education, it also supports Objectives 3.1, 3.2, 3.3, 3.5, and 4.2 regarding early detection and rapid response to AIS invasions, and training of natural resources agency personnel.

Status:

Start Date:

End Date, if applicable:

Lead Organization:

Partner Organization(s):

Funding Amount and Source(s)

	Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
<input checked="" type="checkbox"/>	Federal Agency <input type="text" value="U.S. Fish and Wildlife Service (via MAPAIS)"/>	<input type="text" value="15,000"/>	<input type="text" value="21,500"/>
<input type="checkbox"/>	State Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Local Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Tribal Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Academic Institution <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	NGO <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Other <input type="text"/>	<input type="text"/>	<input type="text"/>
Total Funding for Activity		<input type="text" value="15,000"/>	<input type="text" value="21,500"/>

Education and Outreach \$ Amount FY 15 \$ Amount FY 16

- Objective 6.1: Increase understanding among the general public of the problems and impacts associated with ANS and actions that can be taken to prevent and control ANS
- Objective 6.2: Disseminate ANS outreach and technical guidance materials to target audiences
- Objective 6.3: Promote the use of guidance documents, best management practices and other outreach materials related to ANS
- Objective 6.4: Promote awareness of the ANSTF and its activities and provide educational briefings on ANS threats and solutions and to legislators and other decision makers

Research \$ Amount FY 15 \$ Amount FY 16

- Objective 7.1: Develop and maintain a list of ANS research priorities; communicate this list to the scientific community
- Objective 7.2: Develop and maintain guidance documents, protocols, and best management practices related to ANS
- Objective 7.3: Track the progress of research activities funded or prioritized by the ANSTF
- Objective 7.4: Support development of socio-economic research to quantify the economic impact of ANS
- Objective 7.5: Support research on interdiction methods for specific pathways of ANS3
- Objective 7.6: Support efforts to identify gaps and expand research relevant to control and eradication measures to address ANS that have become established
- Objective 7.7: Encourage research to develop species invasion-risk forecast tools
- Objective 7.8: Support existing databases and global database networks

Funding \$ Amount FY 15 \$ Amount FY 16

- Objective 8.1: Secure dedicated, long-term funding for the ANSTF Strategic Plan actions
- Objective 8.2: Optimize use of current funding for ANS activities by engaging potential resources and programs within Federal agencies and additional partners
- Objective 8.3: Develop a list of ANS funding priorities

Total Funding for Activity: \$ Amount FY 15 \$ Amount FY 16

Additional Comments (Optional):

Documents and Images (Optional)

Attached: Annual Performance Report: MAPAISGuidePerfRpt_Stahlman_MAPAIS20151027.pdf

Additional Projects to Report?

- Yes** Please continue by entering information for the next project on the following pages
- No**

Accomplishments and Ongoing Efforts:

Activity Title:

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

At our spring 2015 meeting, MAPAIS determined to move forward on a logo and website redesign and relaunch, precipitated by recognition that our website was outdated, and in fact had become unsustainable due to host site and platform incompatibility. The Executive Committee decided to have Maryland Sea Grant (MDSG) lead the website redesign as part of their administrative support of MAPAIS. At the fall 2015 MAPAIS meeting, the web designer presented a plan and initial logos for the redesign. The project proceeded during the next six months, guided by an ad-hoc committee of Panel members. MDSG proposed to redesign the MAPAIS website using WordPress, a widely-available design application. The redesign involved the transfer of selected existing web content and the incorporation of new MAPAIS approved content. MDSG collaborated with the MAPAIS design team to ensure that MAPAIS' interests were fully addressed. Upon completion of the redesign, training was provided to selected MAPAIS members to facilitate management of the website. Henceforth, MAPAIS will be solely responsible for website maintenance and updates.

This Activity supports Objectives 6.1, 6.2, 6.3, and 6.4 of the ANSTF Strategic Plan by providing a significant educational resource regarding MAPAIS, ANSTF, and invasive species of the Mid-Atlantic region; and it supports Objectives 1.1 and 1.3 by enhancing coordination among MAPAIS states, agencies, and partners, and the ANSTF, regarding all facets of AIS prevention, detection, and control.

Status:

Start Date:

End Date, if applicable:

Lead Organization:

Partner Organization(s):

Funding Amount and Source(s)

	Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
<input checked="" type="checkbox"/>	Federal Agency <input type="text" value="U.S. Fish and Wildlife Service"/>	<input type="text" value="150"/>	<input type="text" value="5,150"/>
<input type="checkbox"/>	State Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Local Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Tribal Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Academic Institution <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	NGO <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Other <input type="text"/>	<input type="text"/>	<input type="text"/>
Total Funding for Activity		<input type="text" value="150"/>	<input type="text" value="5,150"/>

Education and Outreach \$ Amount FY 15 \$ Amount FY 16

- Objective 6.1: Increase understanding among the general public of the problems and impacts associated with ANS and actions that can be taken to prevent and control ANS
- Objective 6.2: Disseminate ANS outreach and technical guidance materials to target audiences
- Objective 6.3: Promote the use of guidance documents, best management practices and other outreach materials related to ANS
- Objective 6.4: Promote awareness of the ANSTF and its activities and provide educational briefings on ANS threats and solutions and to legislators and other decision makers

Research \$ Amount FY 15 \$ Amount FY 16

- Objective 7.1: Develop and maintain a list of ANS research priorities; communicate this list to the scientific community
- Objective 7.2: Develop and maintain guidance documents, protocols, and best management practices related to ANS
- Objective 7.3: Track the progress of research activities funded or prioritized by the ANSTF
- Objective 7.4: Support development of socio-economic research to quantify the economic impact of ANS
- Objective 7.5: Support research on interdiction methods for specific pathways of ANS3
- Objective 7.6: Support efforts to identify gaps and expand research relevant to control and eradication measures to address ANS that have become established
- Objective 7.7: Encourage research to develop species invasion-risk forecast tools
- Objective 7.8: Support existing databases and global database networks

Funding \$ Amount FY 15 \$ Amount FY 16

- Objective 8.1: Secure dedicated, long-term funding for the ANSTF Strategic Plan actions
- Objective 8.2: Optimize use of current funding for ANS activities by engaging potential resources and programs within Federal agencies and additional partners
- Objective 8.3: Develop a list of ANS funding priorities

Total Funding for Activity: \$ Amount FY 15 \$ Amount FY 16

Additional Comments (Optional):

Documents and Images (Optional)

Link to new website: www.midatlanticpanel.org
Attachment: Website Tutorial: MAPAISWebsiteTutorial_20161004.pdf

Additional Projects to Report?

- Yes** Please continue by entering information for the next project on the following pages
- No** Please save a copy of this form for you records before submitting.

Accomplishments and Ongoing Efforts:

Activity Title:

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

This project used genetic monitoring of environmental DNA samples to establish a robust monitoring network for the highly invasive freshwater diatom, *Didymosphenia geminata* (aka, "Didymo"). It established a baseline inventory of Didymo presence and abundance in headwater streams throughout the Chesapeake Bay watershed, in partnership with the Maryland Biological Stream Survey (MBSS) and the National Park Service. The grantee teamed with MBSS to sample ca. 75 headwater streams for environmental DNA in the water, while MBSS measured a variety of physical, chemical, and biological variables including flow, temperature, pH, dissolved oxygen, conductivity, nutrients (N, P, and DOC), and taxonomic diversity of fish and benthic macroinvertebrates. Total DNA was extracted from filtered water samples and used to estimate the abundance of Didymo in the sample using quantitative PCR with a DNA probe that is specific for *D. geminata*. In addition, all positive samples were sequenced to characterize genetic diversity within and between sites, to evaluate how many genetic strains of Didymo are in the watersheds, and to determine how widely they are spreading. Didymo invasiveness at each site was then related to water quality, traditional bioindicators, and measurements of land use and urbanization using multivariate statistical models.

The project created an important baseline of Didymo distribution across a broad geographic extent for Maryland streams. Because only two streams contained Didymo, it established that Didymo is not widespread at detectable background levels. These findings provide a base map of current occurrences and absences and will allow a historical perspective for future monitoring and assessment programs. The sequencing of the two positive sites shows that Didymo occurs as multiple strains rather than as a single, invasive strain.

This Activity directly supports Objectives 7.6, 7.7, and 7.8 of the ANSTF Strategic Plan by supporting research regarding a specific AIS documented in the Mid-Atlantic region. By virtue of the incorporated surveys for this species, the project also supports Objective 3.1 and 3.2 of the Strategic Plan regarding early detection of and rapid response to AIS invasions.

Status:

Start Date:

End Date, if applicable:

Lead Organization:

Partner Organization(s):

Funding Amount and Source(s)

	Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
<input checked="" type="checkbox"/>	Federal Agency <input type="text" value="U.S. Fish and Wildlife Service (via MAPAIS)"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="checkbox"/>	State Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Local Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Tribal Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Academic Institution <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	NGO <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Other <input type="text"/>	<input type="text"/>	<input type="text"/>
Total Funding for Activity		<input type="text" value="0"/>	<input type="text" value="0"/>

- Education and Outreach \$ Amount FY 15 \$ Amount FY 16
- Objective 6.1: Increase understanding among the general public of the problems and impacts associated with ANS and actions that can be taken to prevent and control ANS
 - Objective 6.2: Disseminate ANS outreach and technical guidance materials to target audiences
 - Objective 6.3: Promote the use of guidance documents, best management practices and other outreach materials related to ANS
 - Objective 6.4: Promote awareness of the ANSTF and its activities and provide educational briefings on ANS threats and solutions and to legislators and other decision makers

Research \$ Amount FY 15 \$ Amount FY 16

- Objective 7.1: Develop and maintain a list of ANS research priorities; communicate this list to the scientific community
- Objective 7.2: Develop and maintain guidance documents, protocols, and best management practices related to ANS
- Objective 7.3: Track the progress of research activities funded or prioritized by the ANSTF
- Objective 7.4: Support development of socio-economic research to quantify the economic impact of ANS
- Objective 7.5: Support research on interdiction methods for specific pathways of ANS3
- Objective 7.6: Support efforts to identify gaps and expand research relevant to control and eradication measures to address ANS that have become established
- Objective 7.7: Encourage research to develop species invasion-risk forecast tools
- Objective 7.8: Support existing databases and global database networks

Funding \$ Amount FY 15 \$ Amount FY 16

- Objective 8.1: Secure dedicated, long-term funding for the ANSTF Strategic Plan actions
- Objective 8.2: Optimize use of current funding for ANS activities by engaging potential resources and programs within Federal agencies and additional partners
- Objective 8.3: Develop a list of ANS funding priorities

Total Funding for Activity: \$ Amount FY 15 \$ Amount FY 16

Additional Comments (Optional):

Note: no expenditures are recorded for FFY2015 or FFY2016 because the final invoices were processed at the end of FFY2014 when the products were completed, but prior to the final reports/presentations being submitted to MAPAIS.

Documents and Images (Optional)

Attached: Final Project Report: DidymoEDNAFinalRpt_Hildebrand_MAPAIS20150930.pdf

Additional Projects to Report?

- Yes** Please continue by entering information for the next project on the following pages
- No**

Accomplishments and Ongoing Efforts:

Activity Title:

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

Many Pennsylvania municipalities have Environmental Advisory Councils and/or watershed groups that work closely with elected officials and staff to accomplish important environmental projects. This SGP project was designed to identify and map invasive plant species; create a user-friendly action plan for all stakeholders; educate residents, landowners, and stakeholders using traditional and social media; and create an internet based cellphone application for identifying and mapping new invasive species infestations. The project is intended to establish a template for other municipalities, with most of the work products being reproducible or easily adapted.

Global Positioning System (GPS) / Geographic Information System (GIS) mapping, photography, and field data collection of targeted invasive species was completed by Lafayette College, with assistance from Bushkill Township and other watershed stakeholders. The Bushkill Township Invasive Species Management Plan Handbook was developed with considerable input on invasive species education and species-specific treatment needs/processes provided by the Pennsylvania Department of Conservation and Natural Resources. The environmental education components, including development of a newsletter article, webpage, and social media materials were completed by a qualified sub-contractor, and the project ArcGIS Data is housed on the Lafayette College server. The majority of targeted invasive species along roads and on Township-owned lands within Bushkill Township were mapped, by species, with additional data on coverage and density. The mobile application was finalized based on input from student use and review and testing by Hanover Engineering staff. The mobile application and handbook were designed to be used by Township residents and municipal staff to identify, map, and document treatment of invasive species populations within Bushkill Township. The handbook and mobile application will be introduced and made available to the Township residents through the Township's spring newsletter and website, and through public presentation at a Bushkill Township Environmental Advisory Council meeting.

This Activity supports Objectives 3.1, 3.2, 3.3, 3.4, and 3.5 of the ANSTF Strategic Plan by enhancing AIS early detection / rapid response efforts, and it also supports the Education and Outreach (6.1, 6.2, 6.3) and Control and Management (4.2) Objectives.

Status:

Start Date:

End Date, if applicable:

Lead Organization:

Partner Organization(s):

Funding Amount and Source(s)

	Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
<input checked="" type="checkbox"/>	Federal Agency <input type="text" value="U.S. Fish and Wildlife Service (via MAPAIS)"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="checkbox"/>	State Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Local Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Tribal Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Academic Institution <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	NGO <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Other <input type="text"/>	<input type="text"/>	<input type="text"/>
Total Funding for Activity		<input type="text" value="0"/>	<input type="text" value="0"/>

Education and Outreach \$ Amount FY 15 \$ Amount FY 16

- Objective 6.1: Increase understanding among the general public of the problems and impacts associated with ANS and actions that can be taken to prevent and control ANS
- Objective 6.2: Disseminate ANS outreach and technical guidance materials to target audiences
- Objective 6.3: Promote the use of guidance documents, best management practices and other outreach materials related to ANS
- Objective 6.4: Promote awareness of the ANSTF and its activities and provide educational briefings on ANS threats and solutions and to legislators and other decision makers

Research \$ Amount FY 15 \$ Amount FY 16

- Objective 7.1: Develop and maintain a list of ANS research priorities; communicate this list to the scientific community
- Objective 7.2: Develop and maintain guidance documents, protocols, and best management practices related to ANS
- Objective 7.3: Track the progress of research activities funded or prioritized by the ANSTF
- Objective 7.4: Support development of socio-economic research to quantify the economic impact of ANS
- Objective 7.5: Support research on interdiction methods for specific pathways of ANS3
- Objective 7.6: Support efforts to identify gaps and expand research relevant to control and eradication measures to address ANS that have become established
- Objective 7.7: Encourage research to develop species invasion-risk forecast tools
- Objective 7.8: Support existing databases and global database networks

Funding \$ Amount FY 15 \$ Amount FY 16

- Objective 8.1: Secure dedicated, long-term funding for the ANSTF Strategic Plan actions
- Objective 8.2: Optimize use of current funding for ANS activities by engaging potential resources and programs within Federal agencies and additional partners
- Objective 8.3: Develop a list of ANS funding priorities

Total Funding for Activity: \$ Amount FY 15 \$ Amount FY 16

Additional Comments (Optional):

Note: no expenditures are recorded for FFY2015 or FFY2016 because the final invoices were processed at the end of FFY2014 when the products were completed, but prior to the final reports/presentations being submitted to MAPAIS.

Documents and Images (Optional)

Attached: Final Project Report: BushkillFinalRpt_Smith_MAPAIS20150227.pdf

Additional Projects to Report?

- Yes** Please continue by entering information for the next project on the following pages
- No** Please save a copy of this form for you records before submitting.

Accomplishments and Ongoing Efforts:

Activity Title:

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

Through efforts funded in part by MAPAIS, the Interagency Mid-Atlantic Nutria Management Team has determined the known range of nutria in Virginia; established management zones for detection, monitoring, and eradication of this species; and developed a cooperative interagency program to address this invasive threat. Our primary current need is to detect range expansions within the "Early Detection – Rapid Response" management zone, and to facilitate "mop up" operations in areas that have already undergone extensive nutria removal, by developing an effective way to detect low-density nutria populations and incursions characteristic of range expansion or reoccupation. This project is designed to evaluate whether a dog can determine nutria presence or absence effectively, by controlling for the following variables: distance from evidence (1, 10, 20, and 40 meters), speed of search for evidence (1, 5, and 10 kilometers per hour), type of evidence (scat, hair, scent trail, and carcass), environmental exposure of the evidence (measured UV light, temperature, water saturation, and age), and likely false positives (muskrat, raccoon, and otter).

All materials needed for canine protection, health care, and training have been acquired, and two dogs (one a previously trained Law Enforcement K9, and the other a new "recruit") are undergoing training in nutria detection. Scat and other nutria "sign" have been collected for use in field experiments.

This Activity supports Objectives 3.1, 3.3, 3.4, and 3.5 of the ANSTF Strategic Plan by enhancing AIS early detection / rapid response efforts, and also supports Objectives 7.2 and 7.6 regarding development of guidance documents and protocols, and identification of gaps and expanding research relevant to control and eradication measures to address established ANS.

Status:

Start Date:

End Date, if applicable:

Lead Organization:

Partner Organization(s):

Funding Amount and Source(s)

	Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
<input checked="" type="checkbox"/>	Federal Agency <input type="text" value="U.S. Fish and Wildlife Service (via MAPAIS)"/>	<input type="text" value="0"/>	<input type="text" value="8,500"/>
<input type="checkbox"/>	State Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Local Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Tribal Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Academic Institution <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	NGO <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Other <input type="text"/>	<input type="text"/>	<input type="text"/>
Total Funding for Activity		<input type="text" value="0"/>	<input type="text" value="8,500"/>

- Education and Outreach \$ Amount FY 15 \$ Amount FY 16
- Objective 6.1: Increase understanding among the general public of the problems and impacts associated with ANS and actions that can be taken to prevent and control ANS
 - Objective 6.2: Disseminate ANS outreach and technical guidance materials to target audiences
 - Objective 6.3: Promote the use of guidance documents, best management practices and other outreach materials related to ANS
 - Objective 6.4: Promote awareness of the ANSTF and its activities and provide educational briefings on ANS threats and solutions and to legislators and other decision makers

Research \$ Amount FY 15 \$ Amount FY 16

- Objective 7.1: Develop and maintain a list of ANS research priorities; communicate this list to the scientific community
- Objective 7.2: Develop and maintain guidance documents, protocols, and best management practices related to ANS
- Objective 7.3: Track the progress of research activities funded or prioritized by the ANSTF
- Objective 7.4: Support development of socio-economic research to quantify the economic impact of ANS
- Objective 7.5: Support research on interdiction methods for specific pathways of ANS3
- Objective 7.6: Support efforts to identify gaps and expand research relevant to control and eradication measures to address ANS that have become established
- Objective 7.7: Encourage research to develop species invasion-risk forecast tools
- Objective 7.8: Support existing databases and global database networks

Funding \$ Amount FY 15 \$ Amount FY 16

- Objective 8.1: Secure dedicated, long-term funding for the ANSTF Strategic Plan actions
- Objective 8.2: Optimize use of current funding for ANS activities by engaging potential resources and programs within Federal agencies and additional partners
- Objective 8.3: Develop a list of ANS funding priorities

Total Funding for Activity: \$ Amount FY 15 \$ Amount FY 16

Additional Comments (Optional):

Documents and Images (Optional)

Additional Projects to Report?

- Yes** Please continue by entering information for the next project on the following pages
- No**

Accomplishments and Ongoing Efforts:

Activity Title:

Activity Description: Goals, activities, implementation steps, outcomes, and linkage to ANSTF Strategic Plan:

This project is designed to evaluate the economics of the commercial movement of bloodworms from sources along the Maine coast to the Chesapeake Bay region of the Atlantic coast and worldwide. Building on earlier research (supported by MAPAIS) on the ecological and social aspects of the trade in bloodworms, and in collaboration with researchers involved in that earlier work, Dr. Wieland will expand upon the previous research by considering the economic aspects of risk and risk reduction in the bloodworm trade.

Two levels of costs will be analyzed: first, the monetized cost of ecological impacts of an introduction (i.e., the scenario in which no attempt is made to mitigate risk of introduction), discounted by relevant probabilities; and, secondly, as the costs incurred by producers and consumers when risk-mitigating practices are implemented. Several approaches have been proposed for reducing incidental biota in the shipment of live bloodworms and the likelihood of unintended introductions. Estimating the cost of implementing those approaches will be a project activity, but findings from earlier bloodworm research regarding the efficacy of risk reduction practices will be used. Cost effects will be considered in the wider context of both factor and product markets. In factor markets, Dr. Wieland will evaluate the impact of changes in packing material on people who currently earn livelihoods supplying that packing material. In product markets, he will evaluate the potential for welfare effects in markets for recreational fishing.

This case study will be used to describe and explain the economic tools, models, methods, and even jargon used in such an analysis, to address the “communication gap” between economists and our “publics” focused on science, conservation, public education/policy, and politics. That is, the project will focus on the potential management, educational, and political implications and guidance that could be derived from this project.

This Activity supports Objectives 7.4 and 7.5 of the ANSTF Strategic Plan regarding research into the socioeconomic costs and impacts of AIS, regarding interdiction of specific AIS pathways of AIS. It also addresses Objective 2.2 regarding risk assessment of AIS introduction pathways, and Objective 6.1 regarding increasing public understanding of such risks and available preventative actions.

Status:

Start Date:

End Date, if applicable:

Lead Organization:

Partner Organization(s):

Funding Amount and Source(s)

	Source(s)	\$ Amount - FY 15	\$ Amount - FY 16
<input checked="" type="checkbox"/>	Federal Agency <input type="text" value="U.S. Fish and Wildlife Service (via MAPAIS)"/>	<input type="text" value="0"/>	<input type="text" value="2,256"/>
<input type="checkbox"/>	State Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Local Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Tribal Government <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Academic Institution <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	NGO <input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	Other <input type="text"/>	<input type="text"/>	<input type="text"/>
Total Funding for Activity		<input type="text" value="0"/>	<input type="text" value="2,256"/>

Education and Outreach \$ Amount FY 15 \$ Amount FY 16

- Objective 6.1: Increase understanding among the general public of the problems and impacts associated with ANS and actions that can be taken to prevent and control ANS
- Objective 6.2: Disseminate ANS outreach and technical guidance materials to target audiences
- Objective 6.3: Promote the use of guidance documents, best management practices and other outreach materials related to ANS
- Objective 6.4: Promote awareness of the ANSTF and its activities and provide educational briefings on ANS threats and solutions and to legislators and other decision makers

Research \$ Amount FY 15 \$ Amount FY 16

- Objective 7.1: Develop and maintain a list of ANS research priorities; communicate this list to the scientific community
- Objective 7.2: Develop and maintain guidance documents, protocols, and best management practices related to ANS
- Objective 7.3: Track the progress of research activities funded or prioritized by the ANSTF
- Objective 7.4: Support development of socio-economic research to quantify the economic impact of ANS
- Objective 7.5: Support research on interdiction methods for specific pathways of ANS3
- Objective 7.6: Support efforts to identify gaps and expand research relevant to control and eradication measures to address ANS that have become established
- Objective 7.7: Encourage research to develop species invasion-risk forecast tools
- Objective 7.8: Support existing databases and global database networks

Funding \$ Amount FY 15 \$ Amount FY 16

- Objective 8.1: Secure dedicated, long-term funding for the ANSTF Strategic Plan actions
- Objective 8.2: Optimize use of current funding for ANS activities by engaging potential resources and programs within Federal agencies and additional partners
- Objective 8.3: Develop a list of ANS funding priorities

Total Funding for Activity: \$ Amount FY 15 \$ Amount FY 16

Additional Comments (Optional):

To facilitate work during summer and fall 2016, before FFY2017 began, MAPAIS awarded a small portion of the project funds from unallocated FFY2016 grant funds. The project otherwise falls within our FFY2017 "year-class" of SPG projects.

Documents and Images (Optional)

Additional Projects to Report?

Yes

No Please save a copy of this form for you records before submitting.