

AQUATIC NUISANCE SPECIES TASK FORCE: MINUTES OF THE 2008 FALL MEETING OCTOBER 28–29, 2008

On October 28–29, 2008, the Aquatic Nuisance Species Task Force (ANSTF) met at the U.S. Fish and Wildlife Service (USFWS) Office in Arlington, VA. On the first day, the Task Force heard reports and recommendations. Of special concern were staffing and funding issues. The Executive Secretary position is unfilled, and interviews are scheduled for the imminent future. Funding remains a challenge: Several ideas were brainstormed and the USFWS budgeting process summarized. Regional panels and committees then updated Task Force members on their activities and presented recommendations. Several decisions were made and action items assigned. The National Invasive Species Council (NISC) management plan and ANSTF strategic plans were also discussed, and it was determined that the new Executive Secretary will assess the intersection of these two documents.

The second day comprised reports on species such as the European green crab (*Carcinus maenas*), brown tree snake (*Boiga irregularis*), and quagga and zebra mussels (*Dreissena bugensis* and *D. polymorpha*, respectively) in the West, as well as presentations on state aquatic nuisance species (ANS) management plans. The U.S. Coast Guard also discussed the status of federal activities regarding ballast water management, while the Environmental Protection Agency informed members about National Pollution Discharge Elimination System permits for vessel operations. Decisions and action items made during the meeting are listed below and followed by a summary of the two-day ANSTF meeting.

Decisions

The ANSTF made the following decisions:

- Approved the meeting agenda and minutes for the spring 2008 ANSTF meeting.
- Endorsed simplified research protocols and charged the Research Committee with bringing revised protocols to the ANSTF for consideration at the spring meeting.
- For the present, declined to assemble and maintain a national invasive species list for the sole purpose of providing ANSTF recognition of individual species as aquatic nuisance species.
- Approved the Tennessee, New Mexico, Oklahoma, and Kentucky ANS management plans.
- Conditionally approved the South Dakota ANS management plan, pending incorporation of any ANSTF comments and a letter from the governor.
- Approved Michael Hoff, USFWS, as chair of the Aquatic Organism Screening Work Group.

New Action Items

- (Executive Secretary) Evaluate the regional panels' rapid response plans and recommend a model to the ANSTF, if appropriate.
- (Executive Secretary) Step down the strategic plan by assessing the intersection of the NISC management plan and ANSTF strategic plan to identify initial priorities, tasks, leads, and funds.
- (National Park Service and U.S. Coast Guard) Draft a proposed protocol for dealing with ballast water discharge in cases of stranding and provide to the ANSTF for further discussion.
- (Western Regional Panel) Take the lead on developing an action plan for quagga/zebra mussels in the West, with a feasibility report due within 45 days and an update at the spring 2009 meeting.
- (Aquatic Organism Screening Work Group) Refine the joint Mississippi River Basin Panel–Great Lakes Panel recommendation about a model risk assessment/risk management process and provide to the ANSTF at the spring 2009 meeting.

October 28 Welcome and Preliminary Business

Co-chair Gary Frazer, USFWS Assistant Director of Fisheries and Habitat Conservation, opened the meeting, after which Co-chair Tim Keeney, National Oceanic and Atmospheric Administration (NOAA) Deputy Assistant Secretary for Oceans and Atmosphere, introduced replacements and new members. Commander Gary Croot replaced Commander Vicky Hyuck for the U.S. Coast Guard, and Stephen DeVincent replaced Winnie Lau for the Department of State. New federal members to the ANSTF included Mike Ielmini for the Forest Service, Fred Nibling for the Bureau of Reclamation, and Tom Mendenhall for the Bureau of Land Management.

Frazer recognized Tina Proctor and Jay Troxel, retiring USFWS Regions 6 and 4 ANS Coordinators respectively, for their service and accomplishments. Frazer then recognized Erin Williams as Proctor's replacement in Denver. He also introduced Craig Martin, who will join the Washington, DC, office as Branch Chief of Invasive Species, replacing Kari Duncan. The ANSTF then approved the agenda for this meeting and the summary for the spring 2008 meeting in Charleston, SC.

ANSTF Staffing and Funding

Darren Benjamin, Acting Executive Secretary, distributed information showing how the USFWS's fiscal year 2009 budget supports staff and ANSTF operations. The 2009 budget of \$5.3 million is funded under a continuing resolution through March 2009. Although this resolution holds funding at 2008 levels, the USFWS anticipates an across-the-board cut. Of concern is the diminishing amount to each state as more states develop ANS management plans. Frazer said he would listen carefully for funding opportunities from the agencies to fully support ANSTF efforts. He would also note tasks for the new executive secretary. Interviews will soon be conducted for that position. Frazer emphasized the need to work at all levels to elevate the importance of ANS issues, especially prevention, to the congressional and presidential budgeting processes. He suggested that representatives work within their agencies to make funding part of the president's request. Showing the economic costs of ANS will emphasize the issue's importance. He admitted that this strategy takes time but can be effective.

Frazer reviewed the distributed information. Funding to support the executive secretary and regional panels comes through the federal appropriations process. Although fiscal year 2009 funding remains flat at 2008 levels, purchasing power has declined. Given competing federal priorities, finding adequate funding for ANS issues is challenging.

Joe Starinchak, USFWS, who serves as the ANSTF outreach coordinator and chairs the Communication, Education, and Outreach Committee, added that the two outreach campaigns—Habitattitude and Stop Aquatic Hitchhikers!—have attracted considerable private attention, sometimes in the form of direct financial support. Over the past six years, the campaigns have received \$14 from private sources for every \$1 that the ANSTF has spent. This strategy should also be ramped up.

ANSTF members brainstormed other strategies for securing funding:

- Appeal to governors and congressional delegates.
- Urge partners (nongovernmental organizations and private partners) to visit appropriations staff.
- Ask states to match federal funds for state ANS management plans.
- Request more of the full \$12 to \$16 million appropriation. (The \$300,000 maximum for regional panels is already fully funded, but \$4 million for state ANS management plans is not.)
- Refocus ANS as a biosecurity issue (as other countries view it) rather than the resource issue it is now.
- “Piggyback” on other events such as the movement of troops from Okinawa to Guam.

- “Tell the story” better, including the annual report to Congress, with a strategic and compelling approach and a unified message.
- Reenergize the cross-cutting budget process and make it comparable with other non-ANS issues.
- Work with NISC on the cross-cutting budget approach.

Benjamin, who spent three years in congressional appropriations, explained the USFWS budgeting process, starting with submitting a request to the Department of the Interior in May. The Department of the Interior then submits its budget request to the Office of Management and Budget in September, and that information is considered as the administration develops the president’s request, submitted to Congress in February. Congress appropriates funds in September or later. Appropriations staff are willing to hear from nongovernmental organizations and others, especially coalitions who convey their issues in compelling ways.

Regional Panel Recommendations

Prior to the ANSTF meeting, regional panels submitted documents that highlighted their priorities, emerging issues, and recommendations to the Task Force. These documents were posted to the ANSTF website. Principals met the previous day to discuss this information. In reporting to the full Task Force, the principals expressed the need for the panels to work more closely and adhere to their strategic plans to maximize tight funding. They suggested that the regional panels and Task Force analyze the strategic plans to ensure that they align and reflect emerging issues. The ANSTF strategic plan could also drive annual reporting from the regional panels. Following the general discussion of panel needs, principals summarized their submitted documents, focusing on recommendations.

Northeast Aquatic Nuisance Species Panel

Kevin Cute, Coastal Resources Management Council, recounted that, at the spring meeting, the ANSTF had assigned the Communication, Education, and Outreach Committee to coordinate with the regional panels to assess existing database resources and their capabilities for addressing the Northeast Regional Panel’s recommendation that the Task Force design a national tool with data from regional guides. At the principals’ meeting, Cute learned from Joe Starinchak that the U.S. Geological Survey’s and other databases could be used or tooled to meet the regional panel’s request. The Army Corps of Engineers also has an information system that will soon be available for download to personal handheld devices. Frazer asked about having someone present at the next meeting of the Northeast Regional Panel or its communication, education, and outreach committee to help determine whether existing databases could be used to meet the panel’s needs. Starinchak added that numerous resources are available for staff biologists and volunteer groups: We need to ensure that these tools and resources are brought to people’s attention so that redundant resources aren’t developed.

Cute then summarized the high-priority and emerging regional issues. In its seventh year, the panel has grown into an effective regional body. The focus has moved from pet projects to a regionwide network for early detection and rapid response. This focus will be discussed further at the December panel meeting. The Northeast Regional Panel is also working on a statement for the New England Governors Association to continue building collaborations and power. The panel is also drafting a letter to the ANSTF emphasizing that more of the \$4 million authorized under the National Invasive Species Act of 1996 needs to be appropriated for state ANS management plans.

Mid-Atlantic Regional Panel

Jonathan McKnight, Maryland Department of Natural Resources, reviewed information on the document that the Mid-Atlantic Regional Panel provided for the Task Force website. He sought feedback on two panel priorities: the newly completed model rapid response plan that incorporates the Incident Command System process and the Environmental Law Institute report with recommendations

and strategies to improve regional involvement in early detection/rapid response. The panel also asked McKnight to mention the Nonnative Wildlife Invasion Act. The Environmental Law Institute believes it may pass. Frazer commented that the bill would create significant new authority and raise the profile of issues and risks associated with species importation.

The ANSTF then discussed NOAA funds provided to each panel several years ago to develop regional rapid response plans. The executive secretary can evaluate the plans and recommend a model.

Gulf and South Atlantic Regional Panel

James Ballard, Gulf States Marine Fisheries Commission, reported that the Gulf and South Atlantic Regional Panel had no recommendations for the ANSTF at this time. He reviewed information from the document provided on the ANSTF website, focusing on giant salvinia (*Salvinia molesta*) in Texas and Louisiana, giant reed (*Arundo donax*) in Texas, and the channeled applesnail (*Pomacea canaliculata*) and associated rat lung worm (*Angiostrongylus cantonensis*) parasite. Texas and Louisiana are collaborating on an integrated pest management approach to controlling giant salvinia. Texas is having problems combating *Arundo* in the Rio Grande Basin because Mexico dislikes spraying. But the *Arundo* wasp (*Tetramesa romano*) has been approved for use as a biocontrol.

Ballard summarized details on the rat lung worm study in New Orleans and the Miami Metro Zoo. This parasite may be a human health hazard if infected channeled applesnails are ingested. None of the snails from the zoo were positive for the parasite, but five of the snails from New Orleans were. Snails were collected from the Tamiami Canal that borders Everglades National Park and are being analyzed.

Western Regional Panel

Erin Williams, USFWS, reported many activities for the Western Regional Panel center on quagga and zebra mussels. At the annual meeting, the panel decided to develop committees on an ad hoc basis. Current committees include the Work Plan Committee, Climate Change Committee, and Boat Inspection Regional Protocols Committee. [Note: Since this meeting, the Boat Inspection Committee has been removed as a panel committee and is instead a larger regional group led by Bill Zook, Pacific States Marine Fisheries Commission.] The last committee was formed to address frustrations of anglers and others stemming from large differences in state protocols that seek to prevent further spread of quagga and zebra mussels. The mussel issue is also gaining traction with western fish and wildlife agencies, state fish chiefs, and other stakeholder groups. The committee will work closely with the 100th Meridian Initiative. Williams summarized the document provided on the ANSTF website regarding projects funded by the Western Regional Panel and other panel activities.

Mississippi River Basin Panel

Doug Keller, Indiana Department of Natural Resources, reviewed the 2008 annual report (on the ANSTF website) from the Mississippi River Basin Panel, which included the status of state ANS management plans and major accomplishments of the regional panel and its committees. Priority items for the Mississippi River Basin Panel include boater/angler awareness of ANS, early detection monitoring for Asian carps near the electric dispersal barrier in the upper Illinois waterway, insufficient funding for state ANS management plans and state participation in panel meetings due to limited funds, lack of policies and regulations prohibiting use of diploid grass carp (*Ctenopharyngodon idella*) instead of triploid grass carp, and the recent discovery of northern snakeheads (*Channa argus*) in Arkansas.

Keller then presented the panel's two recommendations to the ANSTF: support for the Symposium on Genetic Biocontrol of Invasive Fish planned for June 2010 in Minneapolis and a common reporting template when the ANSTF requests specific information from regional panels. The most recent example was the request for "state and regional ANS lists" and what these lists should comprise. Other

recommendations were listed in the report, but they had already been presented to the ANSTF in previous meetings.

Great Lakes Panel

Kathe Glassner-Shwayder, Great Lakes Commission, commented on the benefits of meeting jointly with the Mississippi River Basin Panel in June. She hoped this collaboration between the two panels continues. She then reviewed several important priority issues for the Great Lakes region that had been included in the ANSTF website materials:

- Need for viral hemorrhagic septicemia control guidelines that are consistent across jurisdictional lines, with further coordination on management and outreach programs among agencies in the Great Lakes region.
- Need for increased funding for regional panels and state ANS management plan implementation.
- Value of the annual report for sharing the ANSTF's progress and highlighting the need for additional funding.
- Vector of organisms in trade, emphasizing the need for reducing risk for ANS introduction and spread.

Glassner-Shwayder also mentioned that the Great Lakes Panel submitted a regulated species list to the Task Force that was compiled from the eight states and two provinces in the Great Lakes region. That list, yet to be finalized, is based on regulations that restrict or prohibit the possession and/or sale of live organisms. The primary focus of the list thus far has been on horticulture, water gardens, aquarium and live food trades, with aquaculture and live bait not yet explicitly covered.

She brought forward two recommendations from the Great Lakes Panel. The first, submitted jointly with the Mississippi River Basin Panel, was for the ANSTF to evaluate proposed risk assessment methods to understand their strengths and weaknesses and then recommend how best to adapt screening approaches and methods that rapidly and accurately assess risks to native species and ecosystems (see page 16). The Great Lakes Panel also requested that the ANSTF revise guidelines for state ANS management plans to better reflect the needs of the states and streamline the reporting process.

Several panels shared their concerns about the inadequate funding to support state ANS management plans and expressed interest in influencing the formulation of future USFWS budgets. To inform Department of Interior and USFWS budget priorities, Frazer noted that people might wish to write to the Secretary of the Interior and send copies to ANSTF co-chairs and USFWS regional directors. These letters would inform the USFWS budget process and hopefully become part of the president's request. He also encouraged people to contact the federal agencies that administer programs supporting the state plans and request technical assistance for working the appropriations committees.

Committee Chair Reports and Recommendations

ANSTF committees had been asked to look at their charges and make recommendations to the Task Force, if appropriate. The executive secretary, once hired, will help reinvigorate and support the five existing committees. Co-chair Keeney first introduced David Reid who recently received a gold medal award from the Secretary of Commerce for his work with saltwater flushing of vessels with no ballast on board.

Research Committee

David Reid, NOAA and chair of the Research Committee, reported on committee activities via teleconference. The Research Committee was reorganized in January and now has 13 members. It was asked to assess whether the 1994 Research Protocol needed to be revised. The document was

distributed to the Research Committee, and Reid heard back from only a few members. Of those, the consensus was that the protocol is outdated and, in some parts, irrelevant. Then Reid wrote a “strawman” revision based on the existing document, his own ideas, and comments from those members who responded. That document was sent out in April, and Reid received comments from about a third of the committee. For the most part, those comments affirm his approach in simplifying the protocol. Feedback on a second draft is due next week.

Reid requested ANSTF’s guidance on two issues: whether the protocol is meant to be mandatory or a guideline and whether it should remain detailed or be simplified. He thought containment was an important issue that needs to be address, but he was uncertain who took responsibility for enforcement once a protocol was established. As the draft reads now, potential researchers do a simplified risk assessment and, if necessary, are responsible for submitting and implementing a containment plan, which the agency overseeing the research is responsible for reviewing and accepting. However, several committee members wanted to know whether the funding agency is also responsible for follow-up to ensure that a containment plan is actually implemented.

During discussion, most members agreed that establishing the revised protocol as a guidance document would be more productive and that the funding agency should evaluate containment plans as necessary. But implementation of the containment plan would be the responsibility of the researcher and his/her institution, as would assurance that principal investigators followed them. Sharon Gross, U.S. Geological Survey, commented that research was originally considered to be a major pathway for ANS spread. But other pathways have emerged as more problematic. Frazer summarized that the ANSTF is comfortable with simplified measures to ensure that research doesn’t lead to unintentional introduction. This stance meets legal requirements but gives funding agencies the necessary flexibility. He suggested having the committee do one more pass at a workable product and deliver it to the Task Force to review before the spring 2009 meeting. Based on the input, Reid said he would also capture the ANSTF position in the next draft revision. Federal agencies were encouraged to provide participation and input to the protocol.

Prevention Committee

Richard Orr, NISC, talked about the joint Prevention Committee. This committee was formed six years ago by combining similar committees under the ANSTF and NISC. There are three current working groups covering pathways, screening, and risk analysis. The Pathways Working Group accomplished its original task of ranking pathways within the agencies and will be discontinued. Cynthia Kolar, U.S. Geological Survey and chair of the Risk Analysis Working Group, is reorganizing the working group. The Aquatic Organisms Screening Working Group has been unable to move forward and needs a chair.

High-priority issues include adding ANSTF members to the Prevention Committee, reevaluating the working group structure, roles, and responsibilities against the new NISC management plan and ANSTF strategic plan, and identifying a new chair for the committee.

Orr did not predict any inconsistencies regarding prevention priorities between the two new NISC and ANSTF plans. Generally, the NISC plan is more specific. Although Orr could think of no contradictions, he would bring any concerns to the Task Force and advisory group for clarification. A Task Force member noted that alignment of NISC and ANSTF for this purpose is effective and valuable.

Lori Williams, NISC, will replace Orr’s position in NISC with two people. A temporary replacement may be an option for chairing the joint committee, although the replacement may fear he or she will become permanent. Orr recommended that the Task Force consider discontinuing the joint prevention committee with NISC if finding a chair becomes a problem.

Control Committee

As chair, McKnight also reported on the Control Committee. At the spring 2008 meeting, the committee was charged with recommending a framework or approach for responding to requests to identify species as ANS. To date, there is no official ANSTF list of invasive species. Most states and regional panels have some kind of list, but some members believe that an ANSTF list should be developed as a precursor to a regulatory list. McKnight read from the Control Committee report available on the Task Force website prior to the meeting. In it, he included the committee recommendation to decline to construct a national invasive species list or select any species for special consideration beyond those species previously selected as suitable for ANSTF national plans. The online document included issues that were considered and reasons for the recommendation. The Task Force decided to discuss the issue further during the next day's agenda item on a national invasive species list (see page 10).

McKnight also updated the ANSTF on the status of national ANS management plans. The nutria (*Myocaster coypus*) control and management plan is still being developed, but its completion depends on the Chesapeake Nutria Partnership, which is primarily funded by the USFWS. All the control plans approved by the ANSTF have a federal agency coordinator, and all are in some stage of implementation. McKnight recommended that the ANSTF set aside time to bring coordinators for the control plans back for a status report, including what is being tracked and what lessons they have learned. McKnight volunteered to arrange for coordinators to present at the fall 2009 meeting. He believed that beleaguered management plan coordinators could adapt the matrix framework developed by Jeff Herod, USFWS, to track implementation activities for *Caulerpa* species.

The Control Committee has struggled for membership, making finishing products difficult. McKnight supported the idea of joint committees between NISC and the ANSTF whenever possible to address some of the workload. He also commented that he has been designated as the acting wildlife director for Maryland, so he will have little time to dedicate to the Control Committee while filling that role.

Communication, Education and Outreach Committee

Starinchak informed participants that the Communication, Education, and Outreach Committee report was available on the ANSTF website. This committee had two action items from the previous meeting: 1) coordinate with the regional panels to assess existing database resources and their capabilities for designing a national tool with data from regional guides and 2) determine the feasibility of harmonizing state or regional ANS lists and/or posting them in similar formats. Regarding the first, he had spoken with Pam Fuller, U.S. Geological Survey, and Al Cofrancesco, Army Corps of Engineers, about making databases accessible and adaptable. Based on these conversations, he learned that the work the U.S. Geological Survey has done, in particular, Fuller's work with the Nonindigenous Aquatic Species (NAS) database, will meet the needs expressed by the Northeast Regional Panel (<http://nas.er.usgs.gov/queries/default.asp>). And on the second action item, the committee posted a request on the regional panel listserv to find out how the panels characterize regulated species and what states are doing with their lists. The Western Regional Panel responded that it did not coordinate state lists, and the Great Lakes Panel has sought clarification about these lists.

Starinchak has been trying to reinvigorate the Communication, Education, and Outreach Committee and asked the Task Force to make infrastructure a priority and take advantage of new membership. The committee has developed two national campaigns in the last eight years (Habitattitude and Stop Aquatic Hitchhikers!), but some areas of the country are more active than others and the campaigns need consistency. Citizen intervention has become an important part of the national campaigns. Workshops drill these campaigns to the local level and allow people to share ownership; information alone doesn't change behaviors.

Starinchak reported that, in September 2005, Patagonia had a sales meeting where its employees were briefed by resource managers about invasive species. Patagonia then became involved in the Stop Aquatic Hitchhikers! campaign and funded several workshops. Nongovernmental organizations now have boot-cleaning stations throughout the states, and these companies and organizations are adept at marketing to the public. Since engaging individual citizens to adopt prevention behaviors has become an important part of the government's overall response, he recommended that the ANSTF develop and deliver a series of consistent workshops around the country to help government agencies use these campaigns to engage citizens and communities as the next level for implementation and evaluation. Members suggested conducting these workshops with panel meetings to dovetail them with local issues and partners.

2008–2012 NISC Management Plan Overview and Next Steps

Orr also updated the ANSTF on revision of the NISC management plan. This plan covers all taxa, not just ANS. The Secretaries of Agriculture, Commerce, and Interior serve as NISC co-chairs. Lori Williams serves as the current executive director. A number of other departments and agencies are also NISC members and assign liaisons to the council. The Invasive Species Advisory Committee, a nonfederal organization, plays an advisory role.

NISC staff have an extensive coordination responsibility, including about 390 programs, 170 groups, and 250 organizations. Its primary coordination tool is the national management plan, which is revised every few years. NISC completed the latest revision August 1, 2008. This plan is based on five key strategic long-term goals: prevention, early detection/rapid response, control, restoration, and organizational collaboration. NISC tracks the progress of each strategic goal. Orr reviewed each goal in more detail and then distributed copies of the management plan for participants to review. The plan is also available on the ANSTF website. Orr was not sure how much of the governmentwide cross-cut budget estimation was directed at ANS specifically since NISC's budget is generally divided by strategic goals rather than species.

ANSTF Strategic Planning

Starinchak discussed the need for the ANSTF to focus on strategic planning for its work and communication. He reviewed the five primary goals of the strategic plan. Though these goals need to translate into operational action, generating funding is the main challenge.

According to Starinchak, significant opportunities exist, particularly with shared creativity and ownership, but the Task Force needs to act. He emphasized involving the private sector and using the connections regional panels have with the states. The Task Force will have to align with NISC and break the perceived cycle of bureaucratic inertia and inactivity; demonstrate increased transparency, accountability and responsiveness; recast expectations; and clearly communicate to Congress and other stakeholders. Finally, the ANSTF needs to give life to the strategic plan; one report in eight years is abysmal. The visibility of the ANSTF needs to be leveraged, including producing an annual report that spotlights investments, activities, milestones, and accomplishments. The ANSTF must align operating infrastructure with funding. These goals will only be fulfilled with leadership and change. Ensuing discussion focused on the following:

- Proving that existing funds are well spent is important since decision makers can often feel overwhelmed.
- A visit to congressional staff may be better than increasing reports to Congress since these reports do not generate much response. Other options are to improve the report so that congressional members read it or to hold an event showcasing ANS.

- The ANSTF could develop an action plan to guide activities in the short term and spell out how progress is measured.
- Regional panels and other federal agencies need to help generate interest within and outside Congress.

Following the discussion, Frazer noted another task for the executive secretary: step down the strategic plan by assessing the intersection of the NISC management plan and Task Force strategic plan to identify initial priorities, tasks, leads, and funds.

October 29 Welcome and Preliminary Business

Co-chair Tim Keeney, NOAA, welcomed people and encouraged those who wanted to make public comment to sign up by lunchtime.

Control and Management of European Green Crab on the Pacific Coast

Stephen Phillips, Pacific States Marine Fisheries Commission, presented a brief overview of the commission and its work on the European green crab on the Pacific Coast. The ANS program, established in 1999, concentrates on species that affect commercial and recreational fisheries such as Atlantic salmon (*Salmo salar*), European green crab, and dreissenid mussels (*Dreissena* spp.). The green crab has substantially impacted both the Atlantic and Pacific coasts and is associated with declining numbers of native aquatic species. In 2002, the ANSTF passed a green crab management plan, which included an eight- to ten-year implementation plan. Two meetings have been held on the West Coast since 2002 (2005 and 2008), including participants from both coasts (United States and Canada) and the United Kingdom. Many presentations from these meetings are available at www.aquaticnuisance.org/species.php.

In 1998, El Niño conditions enabled the green crab to expand its range from California up the West Coast to Vancouver Island. In the early part of the new millennium, Washington undertook smooth cordgrass (*Spartina alterniflora*) eradication efforts, which reduced habitat for the green crab. Oregon green crab numbers are also down, probably reflecting a shift in ocean conditions. Since 2006, researchers have studied removal efforts of green crab from Bodega Harbor, a shallow Central California estuary. These efforts appear to be working because green crab populations have declined, and the size and abundance of the native yellow shore crabs (*Hemigrapsus oregonensis*) are greater than before these efforts. Sampling will continue to test effects on recruitment of green crab and native crab populations.

British Columbia is conducting large-scale trap surveys for green crabs that have colonized the west coast of Vancouver Island. In 2007, trapping in Barclay Sound produced an average of 50 crabs per trap, indicating a robust population. Researchers fear that warming water temperatures will lead to further expansion of the green crab distribution into northern (Alaska) waters. Other work has focused on using sex pheromones to control green crabs. Sylvia Yamada, Oregon State University, in collaboration with Jorg Hardege, University of Hull, tested the effectiveness of green crab sex pheromones as potential new tools for controlling this species on a local scale. Female sex pheromone in gel capsules was placed inside mesh balls and offered to male crabs in the lab. One field trial conducted in July 2006, which used a combination of female pheromone and male urine in fast-release gels, showed great promise. Unfortunately, further study to replicate these positive results in 2007 and 2008 were unsuccessful. Once the male cue is isolated, identified, and synthesized by the Hardege Lab, field trials will carry on.

Progress continues toward management plan deliverables, including a network for rapid response; predictive capability regarding new invasions; a process for vector management; a public outreach system, including a third technical meeting; and examples of eradication and control projects.

Marilyn Katz, Environmental Protection Agency, followed Phillips's presentation with a brief update on a bioeconomic model that can be adapted to species with similar impacts. The final conclusions of the study will be published and on the ANSTF website when available. Participants agreed that the green crab was likely being introduced through ballast water and freight.

National Invasive Species List

At the spring 2008 ANSTF meeting, the Communication, Education, and Outreach Committee was charged with determining the feasibility of harmonizing state or regional ANS lists and posting them in similar formats, per the Mid-Atlantic Regional Panel's request. The regional panels had difficulty fulfilling a request because lists, if they do exist, are very different. Several requested that the ANSTF provide templates when they request information from the regional panels so that the needs are clear and information provided is consistent.

On a related issue, in the previous day's meeting, Control Committee Chair McKnight reported on the committee's action item from the spring 2008 meeting to recommend a framework or approach for responding to requests to identify species as ANS. The Control Committee recommended not establishing a Task Force-approved list of species. Some ANSTF participants agreed that high-priority species should be determined in a local or regional forum. For example, species of cordgrass (*Spartina* spp.) are native to some areas but invasive in others within the states. Others commented that people who see the existing management plans may think that those are the only species the ANSTF considers in its work. As presented by McKnight the day before, the recommendation was for the ANSTF to "decline to construct a national invasive species list or to select any species for special consideration beyond those species previously selected as suitable for ANSTF national plans." Members suggested striking language about selecting species for special consideration or the word "previously," which constrains the Task Force from considering species for future management plans.

State ANS Management Plans

Although funding is distributed evenly among states with approved ANS management plans, the decreased funding does not appear to be deterring states from developing their plans. If approved, the 5 plans presented at this meeting will put the total at 31 plans, with several more in development.

Tennessee

Jay Troxel, USFWS, presented the Tennessee ANS management plan. Tennessee is one of the few states that didn't use a contractor to develop the plan, which allowed for greater interaction with the government agencies and a greater understanding of ANS. The state believes that the plan meets all federal standards and is succinct and flexible.

Don MacLean reviewed the planning process for the ANSTF. A state works with the executive secretary and regional panel coordinator. The plan then undergoes a preliminary review process that the ANSTF added about four years ago. Once Task Force suggestions are incorporated, the plan is submitted to the appropriate governor to be signed, and then it is brought before the ANSTF for approval. The Tennessee plan followed the process and was vetted by the ANSTF prior to being finalized and signed by the governor. The ANSTF voted to approve the Tennessee ANS management plan.

New Mexico

Brian Lang, New Mexico Department of Game and Fish, announced that the New Mexico governor approved the state management plan. Although New Mexico is known as the "Land of Enchantment," it has also been referred to as the land of entrapment or land of mañana, where nothing happens. The arrival of quagga mussels in Arizona hastened development of the plan. A doctoral student originally

developed the plan, which was revived in January when the state formed an advisory council consisting of six state agencies, five federal agencies, seven nongovernmental organizations, three universities, some private citizens, and others. The public comment period ended in August. Comments were quickly incorporated into the plan, and it was submitted for approval in September. When the state discovered didymo (*Didymosphenia geminata*), the plan was revised to incorporate more information about this species and updated species accounts for Asian carps and applesnails, based on ANSTF comments. The plan was signed by the governor on October 20, and the state submitted the revised plan to the ANSTF immediately thereafter. Multiple state agencies will propose boating interdiction legislation for the 2009 New Mexico legislative session. The ANSTF voted to approve the New Mexico state management plan.

Oklahoma

Jeff Boxrucker, Oklahoma Department of Wildlife Conservation, reported that Oklahoma's plan was developed in-house, much like Tennessee's. Oklahoma has had significant ANS issues for several years. The number of zebra mussels remained low from 1993 through early 2000 and then exploded. Invasive mussels are found in the northeast quadrant of the state and have spread via barge traffic on the Arkansas River navigation system, downstream movements from Kansas along the Arkansas River, and recreational boat traffic. Golden algae, which have caused fish kills in southwest Oklahoma, threaten the striped bass (*Morone saxatilis*) fishery on Lake Texoma. This situation quickly attracted the attention of administrators. The state wildlife agency has already spent \$2 million on golden algae monitoring and research and has the same amount budgeted for the next two years. Since submitting the plan, the Bureau of Reclamation has found zebra mussels in two western reservoirs (Foss and Fort Cobb), as well as some Harris mud crabs (*Rhithropanopeus harrisi*) in Lake Texoma, likely brought in by boaters. The current plan has not incorporated the latest discoveries, but the state is incorporating those species into the current monitoring schedules. In addition, as of January 2008, the state has an ANS coordinator. The ANSTF voted to approve the Oklahoma ANS management plan.

Kentucky

Michael Mahala, University of Kentucky, presented a brief update on the Kentucky ANS management plan. Based on the definition of an ANS, Kentucky has incorporated a few exceptions into its plan, including the rusty crayfish (*Orconectes rusticus*), nonaquatics such as the nutria, and some disease-causing microbes that would be handled by health agencies. Mahala noted that hydrilla (*Hydrilla verticillata*) is not on the list because the state battles with the perception that hydrilla is good for bass fishing.

Mahala reviewed the goals and objectives of the plan. Priorities for 2008 included ten plant species, five fish species, two mollusks, one alga, and one mammal. Highlights of the plan are creating an ANS coordinator position, developing a Kentucky-specific ANS education program, developing and using an early detection/rapid response system, organizing an annual ANS conference, and establishing a permanent Kentucky task force. Monitoring and evaluation include indicator action and quantitative biological and social measures. Following Mahala's presentation, the ANSTF approved the Kentucky ANS management plan.

South Dakota

Co-chair Keeney introduced the South Dakota ANS management plan since the state did not send anyone to present it to the ANSTF. He commented that the management plan had been distributed about a month prior and posted to the ANSTF website. Tina Proctor, ANS Coordinator for the Mountain-Prairie region, read the plan and gave it an extremely positive review. MacLean noted that this is the only plan that didn't go through the preliminary review process, and he will review it

thoroughly. Still, the ANSTF could conditionally approve the plan based on Proctor's endorsement and pending further Task Force review. Because the deadline for approval is 90 days, the ANSTF has approximately two months for review. The plan must also be signed by the governor to be approved. The ANSTF will collect comments for a month and then compile those comments for South Dakota.

The ANSTF voted to conditionally approve the South Dakota ANS management plan, pending incorporation of any ANSTF comments and the governor's signature. [Note: Comments on the South Dakota ANS management plan were provided to the state at the beginning of December. On December 17, the ANSTF staff received word from Andy Burgess, South Dakota Game, Fish and Parks, that the comments were incorporated and the plan had been signed by South Dakota Governor Michael Rounds. The South Dakota ANS management plan is now considered fully approved.]

Federal Activities Regarding Ballast Water Management and Biofouling

Commander Gary Croot, U.S. Coast Guard, updated the ANSTF on the status of the ballast water program. The proposed ballast water rulemaking and supporting documents are finished and in the final stages of clearance. The election will play a role in when the proposed rulemaking is published. Croot requested that, once it's ready, concerned agencies comment directly to the Coast Guard regarding the proposed rule instead of to the docket. When standards are established, protocols will need to be developed to conduct type approval for ballast water treatment systems. The Coast Guard is working closely with the Environmental Protection Agency on protocols and will likely incorporate the agency's Environmental Technology Verification testing protocols.

The Shipboard Technology Evaluation Program is intended to promote development of effective ballast water treatment systems. The program has received four applications, and the final environmental assessments will be published soon for the first three. The technologies are already on board ships and will be tested soon.

The National Park Service recently hosted a meeting in Minnesota to discuss impacts of ANS on its waters and marine sanctuaries. The National Park Service is concerned about invasions from untreated ballast water being discharged by commercial and recreational vessels. Various federal agencies presented, and attendees broke into working groups. The National Park Service and Coast Guard will pursue a formal partnership. The National Park Service may also enter the Ranger III into the Shipboard Technology Evaluation Program. The two agencies are also requesting that the ANSTF convene an ad hoc subcommittee to address the potential effects of ballast water discharge in vessel groundings in National Park Service waters, marine sanctuaries, and coral reefs. Often, a vessel that is grounded will deballast in an attempt to refloat. The intent of the committee would be to provide responders with environmental and ANS factors to consider when developing a salvage plan

Croot reported that the Marine Environment Protection Committee of the International Maritime Organization met at its 58th session in London last month and completed guidelines for ballast water sampling. The *Ballast Water Management Convention* itself requires signatures from 30 countries representing 35 percent of the world's tonnage for ratification.

The following issues were discussed after the presentation:

- California's 2020 standard establishes a zero discharge standard, which is much more stringent than the International Maritime Organization standard.
- The incoming administration may look at Coast Guard permits that allow boating events along the Colorado River in light of the concerns about dreissenid mussels.
- New technology typically drives stringency standards; however, making the standards more stringent every few years may drive technology development. Originally, the United States

proposed standards that were more stringent than the International Maritime Organization's standards during negotiations.

- When the United States signs onto the international convention, we may be obligated to accept international testing facility results.

The Task Force also discussed the joint recommendation to look at ballast water discharge to grounded or stranded vessels. The National Park Service wants to prevent introductions and has unique branding and a public role. Participants appreciated the concern to accommodate these interests of the agency but noted that the National Park Service has jurisdiction over a limited proportion of at-risk waters. Some constituents believed that national standards should preempt state standards.

ANSTF members asked whether the Task Force should get more involved to assist the Coast Guard in obtaining clearance on the ballast water discharge standard rulemaking. Croot reiterated that the rulemaking package is close to being finalized, so additional pressure from the ANSTF would probably not be beneficial. Because the rulemaking provides for a review every two years, standards could increase. The ANSTF requested that the National Park Service and Coast Guard draft a proposed protocol for dealing with ballast water discharge in cases of stranding and provide it to the Task Force for further discussion. The ANSTF might be a useful entity to coordinate grounding responses, but the recommendation was tabled until the ANSTF can better understand its potential role.

Quagga/Zebra Mussels in Western States

Before introducing presenters, Co-chair Frazer introduced Monica Noe, Deputy Assistant Secretary–Human Capital, Performance and Partnerships. Noe reported that Secretary of the Interior Dirk Kempthorne convened a meeting to approve the NISC management plan and has been very supportive. Noe is ready to work with states and other federal partners and continues work on the budget during this transition period. Noe invited participants to contact her if they had any questions.

The quagga mussel is spreading across the United States, causing water supply and power production concerns. The ANSTF wants to prevent further spread and asked for federal and state perspectives on the response in the West. According to Frazer, the quagga mussel provides an opportunity to emphasize the importance of the ANSTF. But failure to act could raise questions about the groups' effectiveness.

California's Response

Susan Ellis, California Department of Fish and Game, reported on the discovery of quagga mussels in Lake Mead. The state responded quickly, increased enforcement at the borders, and provided funding for monitoring and enforcement. Approximately 7,000 boats have been cleaned, and at least one quarantine notice arrives each week. The mussels are found attached to weeds so weed die-offs may help. The Pacific States Marine Fisheries Commission has provided 90 monitoring stations, helping California water agencies. And California is working on canine inspections of boats to speed the detection process. The most labor-intensive process has been creating an inspection book, which is now posted on the California Department of Fish and Game website. The agency is still concerned about fishing tournaments, live bait, and aquaculture.

Ellis attended a water users symposium that was developed with the help of Dr. Renata Claudi, RNT Consulting in Ontario, Canada. The symposium reviewed methods for limiting downstream migration. The metropolitan water district has photographs of mounds of shells being scraped off as equipment is removed from Lake Havasu. The California Department of Fish and Game is working on an eradication plan with the Bureau of Reclamation, which operates a number of facilities in the West. The plan is developing slowly because of required environmental documentation and a lack of money.

A treatment may be ready in 2010 or 2011. The California Department of Fish and Game is not working with Region 9 of the Environmental Protection Agency since the state now has the authority to inspect vessels to the degree needed. Initial inspections focused on commercial vehicles, with a pilot program focused on recreational vehicles. The mussel has been detected in other parts of California, but these reports have not yet been confirmed.

Arizona's Response

Larry Riley, Arizona Game and Fish Department, emphasized what has been helpful and what is missing from the response to quagga mussel infestations in the Southwest. The Colorado River system is an hourglass shape with inputs and outputs, and most of the water is diverted downstream through conveyance channels. Collaborative efforts with the National Park Service, USFWS, Colorado Fish and Wildlife Council, and states of Nevada and California were extremely valuable. The 100th Meridian Initiative and existing communication networks, established through other unrelated cooperative efforts, were also helpful, despite there not being a specific rapid response plan in place. The efforts of the National Park Service to lead, collaboratively with Arizona and Nevada, a modified incident command approach for the initial infestation at the Lake Mead National Recreation Area was particularly commendable. Other useful tools that are only now beginning to emerge on the scene include integrated pest management, which capitalizes on multiple points of control to protect facilities. Integrated pest management for quagga and zebra mussels is still in its infancy but holds some promise.

Missing tools included an area-specific rapid response plan, a national control plan that brought together technologies and discussed efficacies and vulnerabilities of the quagga mussel, access to emergency financial resources, and additional partners. Riley believes authorities need better grounding and adequate financial resources. The Bureau of Reclamation is now seriously looking at new and innovative technologies for detection and control. Yet questions remain about the efficacy of treatments. Obviously, Arizona, Nevada, and California have immediate issues, but most western states are concerned about the potential for invasion of their waters by quagga and zebra mussels. [Note: Since this meeting, quagga or zebra mussels have been detected at additional locations in Utah and Colorado.]

100th Meridian Initiative's Response

Bob Pitman, USFWS, spoke about the 100th Meridian Initiative. This program was largely developed by the USFWS to prevent the westward spread of zebra mussels and other ANS. The second goal of the initiative is to monitor and control zebra mussels and other ANS if they are detected in the western United States. The initiative has seven components: providing information and education; conducting boat inspections and surveys; addressing commercially hauled boats, which has never worked well; establishing monitoring sites, which now includes using genetic analysis of plankton to detect presence; rapidly responding to new detections; identifying and assessing pathway risks; and evaluating overall control/prevention effectiveness to initiate adaptive management changes.

The 100th Meridian Initiative has been involved at Lake Mead since 2000 when it was identified as a high-risk location. In that time, the interagency 100th Meridian practitioners and Western Regional Panel have developed a structure to collaborate across the West and respond to early detections of ANS. The 100th Meridian is an example of the value of the ANSTF and its coordinated network of regional panels for national and international ANS controls. In this example, stepped-down coordination maximized control efficiency by leveraging agency and stakeholder resources to accomplish 100th Meridian actions.

The 100th Meridian could be used as a success story of the ANSTF. However, the program has considerable work to do to prevent invasive mussel spread throughout the West. Asian carps are

another species on which the program is focusing since the only way they can spread to western waters is through human-mediated pathways.

Reclamation's Response

Fred Nibling, the Bureau of Reclamation, discussed invasive mollusks, primarily zebra and quagga mussels, in its water systems. Bureau of Reclamation facilities, with their pipes and other structures, provide good habitat for these invasive mussels. To date, the Bureau of Reclamation has spent millions of dollars on preventing ANS and maintaining facilities to remove ANS.

Bureau of Reclamation concerns about interbasin transfers of water as a means of spreading mussels was also discussed. Preventing spread in these conditions can be difficult because mussel larvae or veligers are free-swimming for three to four weeks, and during that time, they can travel long distances and spread easily in water delivery systems. An example was given of the “keystone” state of Colorado where water flows to both the Pacific and the Atlantic oceans and is transferred to several other states. In 2008, mussels were discovered in the Colorado–Big Thompson Project in north-central Colorado, which diverts water from the Pacific drainage to the Atlantic drainage. This implies a partial loss of the benefit provided by the transcontinental divide as a barrier to the transfer of mussels.

Zebra and quagga mussels cause flow restriction, chemical degradation, and biological/environmental impacts. Many Bureau of Reclamation structures were built 50 to 80 years ago before biofouling was a concept; therefore, they lack operational standards and features needed to protect them from mussels. The Bureau of Reclamation has the authority to protect infrastructure facilities, but it has turned over management of many secondary facility assets (such as those for recreation) to other agencies, which may lack the necessary resources for aggressive programs to prevent spread and infestations.

The mussels are now found in many of the 17 western states where the Bureau of Reclamation has authority. The agency has five regions, each with a mussel task force that meets regularly and reports to a corporate task force. The Bureau of Reclamation has a good, though modest, research program and is working with several states toward registering bacteria for experimental/emergency-use permits. The Bureau of Reclamation is also working on improving methods for detecting invaders early and preventing spread. Western water systems are unique; the lessons learned in the eastern United States don't necessarily apply in the West. Facility closures (such as reservoirs for boating) might be best left to states, but the agency is ready to assist in preventing the spread of mussels wherever it can.

Regional Federal Response

Heather Stirratt, NOAA, reported on a collaborative federal effort that covers eight states within the Great Lakes region. This spring, the NOAA Great Lakes regional team developed an action plan with 13 priorities, including some aimed at preventing or reducing the spread of ANS. The fiscal year 2009 action plan has been approved by NOAA and includes one action item for dreissenids. The action entails conducting an information-sharing workshop in the West that covers data management techniques and lessons learned from the Great Lakes region for the newly infested or emerging expansion areas out West. The primary target audience for the workshop is resource managers. The workshop is slated for September 2009, and \$10,000 has already been allocated. In speaking with other federal agencies involved in the management of dreissenids, including the USFWS, Army Corps of Engineers, Sea Grant, Bureau of Land Management, and the 100th Meridian Initiative, NOAA became aware of the recent call for action from Senator Dianne Feinstein (D-CA; see below). NOAA wants to ensure that this money is put to the best use. Therefore, the agency is revisiting the original action item for dreissenids. NOAA is actively investigating partnership opportunities and welcomes suggestions from ANSTF members on how the available money could be used to support the call for action. NOAA wants to ensure that the use of these funds complements current efforts across federal agencies.

Response to Feinstein's Letter

Senator Feinstein submitted a letter asking the federal government to respond to quagga mussel establishment and spread in the West. The ANSTF proposed that the Western Regional Panel take the lead on an action plan that includes identifying the highest-priority prevention, control, and rapid response actions needed at local, state, tribal, and federal levels; the parties involved; challenges and opportunities; integration of state plans; timeframes for implementation and completion; measures of success; and required funding and potential sources. The action plan will also include recommendations on how the ANSTF can help and who/how to best coordinate the effort. After discussion, the Western Regional Panel agreed to look into developing an action plan for dreissenids in the West, with a feasibility report due within 45 days and an update at the spring 2009 meeting. Frazer added that the co-chairs would send a letter to Feinstein about the ANSTF decision and copy it to the relevant agencies.

NPDES General Permits for Vessel Operations

John Lishman, Environmental Protection Agency, presented background information about the Clean Water Act, which relies on National Pollution Discharge Elimination System (NPDES) permits for all pollution discharges to navigable waters of the United States, unless a vessel has an exemption. Two effluent limitations exist: technology-based and water quality-based. States have also developed water quality standards under section 303 of the Clean Water Act. Vessels are covered in inland waters and out to 3 miles, although some statutory exclusions exist. The regulatory exclusion for certain discharges incidental to the normal operation of vessels was at issue in a lawsuit. The court ruled that vessels are subject to permitting under the Clean Water Act (unless otherwise exempted by statute). As of December 19, 2008, the court will revoke the regulatory exclusion. The Environmental Protection Agency is preparing so that all affected vessels will have permit coverage by that date.

On July 29, 2008, Congress passed Senate Bill S 2766 (Public Law 110-288), which excludes recreational vessels from NPDES permitting but directs the Environmental Protection Agency to develop alternative best management practices that they will have to comply with. Congress also passed Senate Bill S 3298 (Public Law 110-299) on July 31, providing for a two-year suspension on NPDES permitting of nonballast water discharges from fishing vessels (as defined in the bill) and nonrecreational vessels shorter than 79 feet. As of December 19, 2008, over 60,000 vessels will be subject to NPDES permitting. Therefore, the Environmental Protection Agency has developed a general permit that will be national in scope. The general permit applies to nonrecreational vessels 79 feet and longer, excludes fishing vessels except for ballast water, and covers discharges incidental to normal operations. Everyone will get automatic permit coverage on December 19 for six months, but thereafter, a notice of intent must be filed to continue coverage for larger vessels.

The permit effluent limits are based on technology (minimum control) and water quality. The permit does not contain technology-based numeric limits for ballast water, but it does have a reopener clause in case technologies become available before the five-year renewal. Besides complying with effluent limits in the permit, permittees must do routine self inspections and annual comprehensive inspections. Most analytical monitoring will be for graywater from cruise ships and biocides in ballast water treatment systems. Lishman noted that the Clean Water Act allows for citizen lawsuits, as well as government enforcement. He invited participants to review additional details and documents at www.epa.gov/npdes/vessels.

Model Risk Assessment Recommendation

Michael Hoff, USFWS, discussed the model risk assessment process developed by the Mississippi River Basin Panel and jointly recommended by that panel and the Great Lakes Panel. The genesis for the process was the risk assessment training workshop convened by the Mississippi River Basin Panel

in August 2007. Hoff unsuccessfully attempted to find an expert who could train attendees how to conduct rapid screening for species that are assessed as 1) low risk of impact (that is, no need for regulation, additional risk assessment, or other action at this time), 2) high risk of impact (that is, immediately take action by regulating, conducting outreach and/or education, managing in public waters, etc.), and 3) species for which a more detailed risk assessment is recommended. So the Mississippi River Basin Panel developed its risk assessment/risk management process, which includes seven steps and focuses on rapid screening.

The two factors most highly correlated with invasiveness are history of invasion and climate–habitat match between the source area and area of concern. To support decisions about self-regulating (by industry) and regulating (by agency) resulting from a rapid screening process, climate and habitat matching tools are necessary. A climate software developed in Australia has 16 variables, and Fisheries and Oceans Canada is likewise developing a tool to match river basins from around the world based on several variables. Many other databases are available on the web, and even more information is available, but funds are insufficient to move it online. Risks of species invasion under various climate change scenarios can be assessed using the climate software.

As far as next steps, the regional panel’s Prevention and Control Committee is tasked with developing a ranking system for species categorized as requiring a detailed risk assessment (that is, species for which one or more critical uncertainties exist). The two regional panels recommended that, if any member of the ANSTF issues a request for proposals for ANS research, the request includes scientifically evaluating existing rapid screening processes and reports on their strengths and weaknesses. The Mississippi River Basin and Great Lakes regional panels also recommended developing a database of species, categorized by their opportunity to become invasive in the United States, and convening a panel of experts to screen species in the database and tabulate the screening results. After further discussion, the Task Force asked that the Aquatic Organism Screening Work Group craft a proposal concerning screening tool development and testing. Then agencies could assess how to help fund the project. Hoff generously agreed to chair this group, which has stalled in recent years, and to refine the recommendation and present it at the spring 2009 meeting.

Brown Tree Snake Update

Jeff Herod, USFWS, updated ANSTF members on management actions and needs related to the brown tree snake, a species thought to have been introduced to Guam after World War II. Snake densities can be very high, which compounds the snake’s ecological impacts since it eats birds, native lizards, and bats. Economic impacts include power outages and loss of pets and poultry, while human health can be compromised by the snake’s venom.

Because the brown tree snake must not spread to other Pacific Islands or the mainland United States, education, outreach, and interdiction are vital, especially for places like the Commonwealth of the Northern Mariana Islands. Known to be a hitchhiker, this snake has been detected in Saipan (Commonwealth of the Northern Mariana Islands), Oahu (Hawaii), Okinawa (Japan), and Spain. Tools for brown tree snake control include traps, dogs, nighttime surveys, toxicants, and barriers.

The realignment of Department of Defense forces will pose a challenge to control of the brown tree snake. Construction in Guam will increase threefold, and the number of containers carrying construction materials transported there will increase sevenfold. Even when realignment is complete, shipping will remain well above current levels. An increase in interdiction and site-specific snake suppression efforts will be necessary, as will improvements in low-density snake detection. The Brown Tree Snake Technical Working Group has developed a series of options for interdiction and heavy suppression, but these efforts require additional funding beyond the fiscal year 2007 budget of \$6.3 million.

Pete Egan, Department of Defense Armed Forces Pest Management Board, noted that his organization hopes to fund a three-year study to test aerial toxicant dispersion. This study will analyze suppression, recovery time, and costs. Eradication techniques do not exist, particularly since smaller snakes are harder to target but easier to transport. However, snake barriers are highly effective.

Early Detection and Pathway Interdiction for the Brown Tree Snake

Samantha Wisniewski, Texas A&M University and USFWS, discussed efforts of the North American Brown Tree Snake Control Team, formed in 2002. The mission of the team is “to prevent the invasion of brown tree snakes into continental North America through education and awareness and through rapid response assessments of potential sightings via a partnership of stakeholders.”

The team is tracking shipments to southern Texas from Guam and developing two versions of watch cards to educate the public about the brown tree snake. One card is for people with existing knowledge of the threat; the other, for port workers and people in the pet trade. The team has updated its website (www.nabtsct.net) for accessibility and ease of use. A snake identification system was recently added, along with a database and search engine that include information on snakes native to North America. The team hopes to add geographic information system layers, develop a risk assessment model, disperse the watch cards, and work with port authorities and shipping companies in high-risk areas. The rapid response information has also been updated at 1-877-STOP-ANS.

This past summer, the group researched cargo and outgoing military shipments from Guam. These cargo shipping data will be added to the risk assessment model, which now consists of climate data that help identify areas at highest risk. The Gulf of Mexico area and Florida are high-risk areas, and risk in California is expected to increase after cargo data are added. Wisniewski noted that identifying high-risk areas is very important for focusing future efforts. Coordinating with agencies, organizations, and researchers is also important for developing a rapid response program.

Participants noted that native snake populations will slow establishment in the United States. But the United States has no arboreal snakes, so the brown tree snake could easily fill this niche. Because these snakes are definitely entering through the pet trade, inspectors need access to the watch cards.

Other Business

Starinchak raised the issue of dry hydrants, an emerging pathway nationwide. Two documents available on the ANSTF website explain the issue, specifically for Oneida County, WI, and amend the county ordinance to prevent spread of ANS. He suggested that people review these documents in preparation for the spring 2009 meeting, where more information will be shared.

Egan made a request on behalf of the Invasive Terrestrial Animals and Pathogens subcommittee of the Taxa Teams (under the National Invasive Species Program). The National Invasive Species Council will plan an all-taxa invasive species event if the Federal Interagency Committee for the Management of Noxious and Exotic Weeds and the ANSTF are willing to participate and share their collective wisdom and skills. Although event goals are still undecided, he thought the potential for a cooperative effort was great. Peg Brady, NOAA, Starinchak, and Orr volunteered to talk further with Egan.

Closing Business and Adjournment

The ANSTF reviewed decisions and action items, revising or clarifying as necessary. Frazer then asked that the Western Regional Panel host the spring 2009 meeting. Denver and Las Vegas were mentioned as potential host cities, but Erin Williams requested time to confer with the regional panel on location and dates. She will try to work around the International Conference on Aquatic Invasive Species in Montreal April 19–20. The meeting was adjourned at approximately 4:05 P.M.