2014 DISC Annual Meeting

Invasives: An Ever Growing Problem With An Ever Shrinking Budget

St. Jones Reserve, Dover, Delaware
October 22, 2014
Meeting Notes
## 2014 DISC Annual Meeting Agenda

**St. Jones Reserve**  
**Wednesday, October 22, 2014**

### INVASIVES: AN EVER GROWING PROBLEM WITH AN EVER SHRINKING BUDGET

<table>
<thead>
<tr>
<th>TIME SLOT</th>
<th>TALK/TOPIC</th>
<th>SPEAKER/PANELISTS</th>
</tr>
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<tbody>
<tr>
<td>8:30 am – 9:00 am</td>
<td>Registration &amp; Networking</td>
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<tr>
<td>9:00 am – 9:05 am</td>
<td>Welcome</td>
<td>Marcia Fox – Secretary/Treasurer</td>
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<tr>
<td>9:05 am – 9:35 am</td>
<td>Next Steps in Reducing the Sale of Invasive Ornamentals</td>
<td>Sue Barton – University of Delaware</td>
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</table>
                               Todd Davis – Del. Dept. of Agriculture, Noxious Weed Program  
                               Nathan Shampine – Mt. Cuba Center  
                               Craig Rhoads – DNREC, Div. of Fish and Wildlife  
                               Chip Rosan – Del. Dept. of Transportation |
| 10:25 am – 10:40 am | Break, Poster, and Networking Session                                     |                                                                                  |
| 10:40 am - 11:00 am | Biological Control of the Brown Marmorated Stink Bug: An Update          | Ashley Colavecchio – USDA-ARS Beneficial Insects Introduction Research Unit       |
| 11:00 am – 11:20 am | Live Baitworms as a Potential Pathway for Invasive Species               | John Ewart – Delaware Sea Grant                                                 |
| 11:20 am – 11:40 am | Relationship Between Exotic Invasive Shrubs and American Woodcock        | Eric Miller – Pennsylvania Game Commission                                       |
| 11:40 am – 12:00 pm | The Ebb and Flow of Invasive Crabs Along the Delaware Coast              | Chris Petrone – Delaware Sea Grant                                              |
| 12:00 pm – 1:00 pm | Lunch and DISC Business Meeting (beginning at 12:30)                    |                                                                                  |
| 1:00 pm – 1:20 pm | Does Non-Native Plant Invasion Amplify Disease Risk? Effects of Multiflora Rose on Ticks, Hosts, and Infection Prevalence | Solny Adalsteinsson – University of Delaware                                     |
| 1:20 pm – 1:40 pm | Patch and Landscape Level Effects on Breeding Birds in Urban Forest Fragments | Greg Shriver – University of Delaware                                           |
| 1:40 pm – 2:00 pm | Forest Health Threats and Monitoring in Delaware, 2014                    | Bill Seybold – Delaware Forest Service                                          |
| 2:00 pm – 2:20 pm | An Assessment of White Ash for an Emerald Ash Borer Management Plan of the Robert B. Gordon Natural Area | Kendra McMillin – West Chester University                                       |
| 2:20 pm – 2:30 pm | Wrap Up and Evaluations                                                   | Marcia Fox – DISC Treasurer                                                     |
| 2:30 pm – 2:45 pm | Break, Poster, and Networking Session                                     |                                                                                  |
| 2:45 pm – 3:30 pm | Hike DNERR’s St. Jones Reserve with a naturalist as you discuss invasive species management issues | DNERR Staff                                                                   |
| 3:30 pm – 4:30 pm | Field Trip to St. Jones Reserve                                            |                                                                                  |
Susan Barton, University of Delaware Department of Plant and Soil Sciences

The Plants for a Livable Delaware campaign has educated industry members and some homeowners about the need to stop planting and control existing invasive plants. What are the next steps we as an industry and group of concerned citizens can do to reduce the impact of invasive plants in Delaware? This talk will present results from a recent industry survey and discuss potential strategies for moving forward.

Susan Barton is an extension specialist in the Plant and Soil Sciences Department at the University of Delaware. She has worked with the Delaware Department of Transportation to research and implement new roadside vegetation management strategies. Sue specializes in implementing sustainable landscape practices, assessing and changing public perceptions about sustainable landscapes, garden maintenance and lawn care.


Moderator: Greg Gagliano, Red Tail Restoration & Land Management LLC

Greg Gagliano has worked in the field of ecology for over a decade. With a degree in wildlife conservation from the University of Delaware, he has worked across the Mid-Atlantic region with invasive species, aquatic ecosystems, endangered shorebirds, wildlife diseases, deer management, wetland and salt marsh quality assessment, youth education, and land management.

Chris Bennett, Natural Resource Planner, Division of Parks and Recreation, DNREC

Chris Bennett has worked for the Division for nearly 18 years, 12 of them with the Environmental Stewardship Program. The ESP provides technical assistance to Parks central office and field staff about natural resource issues. As a member of the ESP he conducts breeding birds surveys at White Clay Creek and Brandywine Creek State Parks, maintains the terrapin exclusion fence at Delaware Seashore State Park, conducts surveys of herons and egrets nesting on Pea Patch Island and helps control invasive plants on the Division’s 25,000-plus acres.

Todd Davis, Noxious Weed Specialist Supervisor, Seed Laboratory Supervisor, Del. Department of Agriculture

Todd Davis grew up on a small dairy farm in Milford. He’s been pulling weeds since he was 5 (in the chicken yard at home, lambsquarters, hates the smell to this day). He has an agribusiness degree from Delaware Tech and a Bachelor’s in Agriculture Education from UD. He worked in Agri-business for 12 years, and has worked with DDA in Noxious Weed program for 19 years. He does not like long walks on the beach or margaritas. And his only addiction is old cars and trucks.
Craig Rhoads, Program Manager II, Habitat Conservation & Management, Division of Fish & Wildlife, DNREC

Craig Rhoads has been a wildlife biologist with the Division of Fish and Wildlife for eight years, six as the Regional Wildlife Manager for New Castle County, and the last two as the Environmental Program Manager for Habitat Conservation and Management. During my time in Delaware, he has been heavily involved in habitat restoration projects, with many being focused on invasive species removal and control, and conversion of degraded habitats to native species. Throughout these projects he has dealt with virtually every invasive plant species known to occur in Delaware, with particular emphasis on autumn olive, multiflora rose, mile-a-minute, phragmites, and Japanese honeysuckle.

Chip Rosan, Roadside Environmental Administrator, Delaware Department of Transportation

Chip Rosan is the Roadside Environmental Administrator for the Delaware Department of Transportation (DelDOT), a position he has held for the last twelve years. He has over thirty-five years experience in roadside vegetation management, including everything from herbicide applications to tree removals to writing IRVM policy for DelDOT.

Nathan Shampine, Natural Lands Manager, Mt. Cuba Center

Nathan Shampine is the Natural Lands Manager at Mt. Cuba Center. He graduated from the State of NY College of Environmental Science and Forestry with a degree in Environmental and Forest Biology. Broadly stated, the overall goals at Mt. Cuba Center are to conserve the Natural Lands in order to promote ecosystem health and function, to support environmental education, and to maintain the character of the regional landscape.

10:40 am - 11:00 am  Biological Control of the Brown Marmorated Stink Bug: An Update

Ashley M. Colavecchio, Kathleen Tatman, Christine Dieckhoff, and Kim A. Hoelmer
USDA-ARS Beneficial Insects Introduction Research Unit

The invasive Brown Marmorated Stink Bug (Halyomorpha halys) has caused devastating losses to the North American agriculture and has been a nuisance pest since its accidental introduction in the mid-1990s. This Asian pest has now been detected in 41 states in the U.S. and 2 Canadian provinces. Extensive research programs across the U.S. have been studying the pest’s biology and methods for its control since 2005. Natural biological control by native parasitoids and predators has shown to have a minor impact on H. halys populations. Foreign explorations to Asia have identified several egg parasitoid species in the genus Trissolcus attacking H. halys in the field. Within a secure quarantine facility at the USDA-ARS unit in Newark, DE, researchers are currently evaluating these natural enemies as candidate biological control agents. The results of these and other research activities reveal the potential of a classical biological control program to manage H. halys.

Ashley M. Colavecchio, B.Sc., received her degree in Entomology from the University of Delaware in 2010. She is currently a research specialist in collaboration with USDA Agricultural Research Service in Newark, Delaware where she works on the biological control of the brown marmorated stink bug.
Live marine bloodworms (Glycera dibranchiata) harvested in Maine are packaged with seaweed (algae) commonly known as wormweed (Ascophyllum nodosum) and are shipped throughout the coastal United States and Europe. Bait boxes may serve as a potential vector for the introduction of non-native organisms living in the wormweed. When the algae are discarded into the water after use, these “aquatic hitchhikers” may become invasive, causing detrimental changes to the structure and functions of rivers and streams and impacting local fisheries. Results of a Mid-Atlantic Sea Grant regional study of biological and human influences on this vector are reviewed along with a public education effort “Protect Our Fisheries: Keep Out Invasive Species/Trash Extra Worms and Packaging” to reduce the risk of AIS introductions by recreational anglers.

John W. Ewart is the Aquaculture & Fisheries extension specialist with the Delaware Sea Grant Program. He received his bachelor's degree in zoology from the University of Rhode Island and a master's degree in Marine Studies from the University of Delaware. His background includes work as a commercial fisherman, oceanographic technician, field biologist, research associate, laboratory technical coordinator, and international consultant. Professional interests include shellfish and finfish aquaculture; aquatic production systems/live transport; commercial and recreational fisheries; shellfish restoration and stock enhancement; water quality management; invasive species; technology transfer and training; aquaculture policy; and Information Technologies. As an aquaculture and fisheries specialist with the University of Delaware Sea Grant Marine Advisory Service, Ewart works with Delaware private and public sector groups, and state extension programs in the northeast region to support and improve commercial and recreational fisheries and aquaculture industry development. He is an active member of the World Aquaculture Society (WAS), US Aquaculture Society (USAS), the National Shellfisheries Association (NSA), and currently serves as Treasurer for the East Coast Shellfish Research Institute (ECSRI).
**Relationship between Exotic Invasive Shrubs and American Woodcock (Scolopax minor) Nest Success and Habitat Selection**

H. Eric Miller¹,² and Mark J. Jordan¹, ¹Green Mountain College, ²Pennsylvania Game Commission

Habitat loss is thought to be a cause of woodcock population declines, however little is known about the impact of exotic invasive vegetation on woodcock nest site selection and nesting success. In March and April of 2009 and 2010, we examined nest success and nesting habitat selection in relation to the abundance of exotic invasive vegetation at 13 nests in southeastern Pennsylvania. We used logistic regression and Akaike’s Information Criterion (AIC) to determine the best models for nest success and habitat use. Woodcock avoided exotic invasive vegetation when selecting nest sites. Nest success and habitat use decreased significantly with an increase in percentage of exotic invasive woody vegetation. Models containing percentage of exotic invasive woody vegetation were highly supported for nest success and habitat selection. We recommend that managers attempt to control and remove exotic invasive vegetation to promote increased woodcock nesting success and habitat use.

Eric Miller is a Wildlife Habitat Biologist and the Public Lands Habitat Section Chief in the Game Commission’s Bureau of Wildlife Habitat Management. He is the invasive vegetation liaison for the Game Commission and is responsible for wildlife habitat planning, development and implementation on the State Game Lands system. Eric earned his Bachelor’s degree in Wildlife Management from Delaware State University and his Master’s degree in Conservation Biology from Green Mountain College. He represents the Game Commission on the Governor’s Invasive Species Council and the Appalachian Trail Committee. Eric is a member of the Wildlife Society, the Pennsylvania Academy of Science, the Ruffed Grouse Society and Woodcock Limited of Pennsylvania.

**The Ebb and Flow of Invasive Crabs Along the Delaware Coast**

Christopher Petrone, Delaware Sea Grant, University of Delaware

Like their terrestrial cousins, marine invasives wreak havoc with the native system and can have serious environmental and economic implications. Because they are out-of-sight, it is all too easy to forget that Delaware’s coastal waters have its fair share of invasive species. This session will focus on two invasive crabs – one established, one potential – of Delaware Bay and its tributaries. We will look at over a decade’s worth of data to understand the invasion ecology of the Asian shore crab, *Hemigrapsus sanguineus*, and Chinese mitten crab, *Eriocheir sinensis*.

Christopher Petrone is the Marine Education Specialist with Delaware Sea Grant, which is housed within UD’s College of Earth, Ocean, and Environment. Based at the UD Hugh R. Sharp Campus in Lewes, Chris conducts professional development opportunities for classroom teachers and informal educators in the ocean sciences. He also works with classrooms and informal students groups, such as the Boy/Girl Scouts, to increase environmental and ocean literacy and access to ocean science research. Chris has a B.S. in Biology from Washington College and an M.S. in marine biosciences from the University of Delaware. Prior to his current position, he has been a classroom teacher, commercial oyster farmer, and a Marine Education Specialist with Virginia Sea Grant and the Virginia Institute of Marine Science.
1:00 pm – 1:20 pm  Does Non-Native Plant Invasion Amplify Disease Risk? Effects of Multiflora Rose on Ticks, Hosts, and Infection Prevalence

Solny Adalsteinsson, University of Delaware Department of Entomology and Wildlife Ecology

Delaware has the highest number of Lyme disease cases per capita of any state. Lyme disease is difficult to control because of its complexity; we must understand the many interactions among ticks, hosts, pathogens, and the surrounding environment. Within a network of forest fragments in northern Delaware, we are investigating the direct and indirect effects of multiflora rose, a ubiquitous and aggressive invader of forested habitats, on the Lyme disease system. I will present preliminary results on the effects of multiflora rose on tick abundance in the environment as well as on important avian and mammalian hosts. I will also describe upcoming plans to understand the effects of multiflora rose on pathogen prevalence in ticks.

Solny Adalsteinsson is a Ph.D. candidate at University of Delaware in the Department of Entomology and Wildlife Ecology. Her research focuses on the influence of urban forest fragment characteristics on the dynamics of tick-borne diseases. Specifically, Solny is studying the interactions among invasive plants, vertebrate hosts, and host movements, and their resulting effects on blacklegged tick abundance and Lyme disease infection prevalence. Solny earned B.Sc. and M.Sc. degrees in Biology from Penn State University, and has held field research positions with the Icelandic Institute of Natural History, the Research Corporation of the University of Hawaii, and non-profit conservation research groups.

1:20 pm – 1:40 pm  Patch and Landscape Level Effects on Breeding Birds in Urban Forest Fragments

Greg Shriver¹, Vincent D'Amico III², Zach Ladin¹, Jeff Buler¹
¹Entomology & Wildlife Ecology, University of Delaware, ²NRS-04, USDA Forest Service

We established 30 forest fragment sites along an urban – rural gradient in northern Delaware and southeastern Pennsylvania to determine the effects of patch and landscape factors on breeding birds. We quantified the soil chemistry, vegetation structure and composition, litter invertebrate biomass; including specific estimates for Arachnida, Isopoda, Diplopoda, Gastropoda, and Insecta. We developed and included an index of lepidopteron biomass to estimate canopy productivity. At the landscape scale, we quantified patch size, forest and agricultural cover and road density within 500 m. We estimated breeding territory density for Carolina Chickadee, Gray Catbird, Eastern Towhee, Wood Thrush, and Carolina Wren, and reproductive success (fledglings per patch) for Gray Catbird and Wood Thrush. We used AICc to select from a series of general linear models to determine the effects of these patch and landscape scale variables on territory density and reproductive success. Within patch scale variables were more important for determining territory density than landscape scale variables for all five species. Carolina Chickadee and Wood Thrush territory density were positively related to Ca rich prey while Gray Catbirds, Carolina Wren, and Eastern Towhee territory density were positively related to the amount of non-native stems within the patch. We also found that the number of Wood Thrush fledglings produced within a patch was positively related to the amount of Ca rich prey. Within this urban / rural landscape it seems that factors influencing Ca availability and nest site vegetation structure are more important than landscape features for these species.
Greg Shriver is an Associate Professor in the Department of Entomology and Wildlife Ecology at the University of Delaware where he teaches Ornithology and Conservation Biology. Shriver holds a Bachelor of Science degree in Wildlife Management from the University of Maine, a M.S. in Wildlife Conservation from the University of Massachusetts, and a PhD in Environmental Forest Biology from the State University of New York College of Environmental Science and Forestry. Shriver’s research program is focused on ecological monitoring, the effects of sea-level rise on tidal wetlands, and urban forest ecology.

1:40 pm – 2:00 pm  Forest Health Threats and Monitoring in Delaware, 2014

William Seybold – Delaware Department of Agriculture, Delaware Forest Service

An overview of the major current insect and pathogen threats to Forest Health in Delaware, and how the Delaware Forest Service uses techniques such as aerial survey, remote sensing data, ground surveys, pheromone lures on insect traps, bio-surveillance, and most of all public awareness to monitor their status.

Bill Seybold received a B.S. in botany from Univ. of Wisconsin in 1989, and an M.S. in forestry (management and economics) from Univ. of MN in 1996. After working as New Castle and Kent Co. service forester with the Delaware Forest Service since late 2006, he began as the forest health specialist in the summer of 2013.

2:00 pm – 2:20 pm  An Assessment of White Ash (Fraxinus americana) for an Emerald Ash Borer (Agrilus planipennis Fairmarie) Management Plan of the Robert B. Gordon Natural Area, West Chester University

Kendra McMillin and Greg Turner, Department of Biology, West Chester University of Pennsylvania

There are many challenges facing the long-term health of forest communities in Pennsylvania, such as those found at the Gordon Natural Area (GNA), a Wild Plant Sanctuary found on West Chester University’s campus in Chester County. Among these is expected severe, White ash (Fraxinus americana) mortality over the next 10 years due to Emerald Ash Borer (EAB) (Agrilus planipennis) infestation. To plan for this event, an ash assessment was conducted in six habitats at GNA. Each ash tree was numbered, measured for size and crown condition, and geolocated to determine distributions. Results found that ash is highly abundant compared to other native species, and is randomly distributed, though at high densities in some locales. Given its abundance, we expected an average loss of $114,735 per a year from ash in ecosystem services. Thus, efforts to mitigate this loss are being considered as part of a plan to manage the inevitable extirpation of the species in this natural area.

Kendra McMillin is an undergraduate Biology major and Student Stewardship Manager at West Chester University. She also works with Pennsylvania Department of Conservation and Natural Resources and Pennsylvania Urban and Community Forestry Council promoting emerald ash borer management plans in Pennsylvania. Dr. Greg Turner is an Associate Professor of Biology at West Chester University.
Delaware Wetland Restoration Strategies: Does Planting Make a Difference after 15 years?

John H. Dougherty, Stephanie Stotts – Department of Environmental Science, Wesley College

We compared the plant communities of two wetlands that were restored in 1992, one planted and one not planted. We surveyed the plant communities using the Stephenson-Adams vegetation sampling method, a modified version of the Whitaker plot. After collecting field data, we calculated the Shannon-Weiner Diversity index, evenness, density, and invasive species prevalence and compared the two sites. The results of this project indicate that planting a wetland may result in greater plant diversity than a naturally revegetated wetland. The primary results show that the planted wetland had a higher number of herbaceous invasive species but a lower percentage of the total species, while naturally revegetated wetland had a less herbaceous invasive species but a higher percentage of the total species. We are in the process of sampling additional restored wetlands which will allow for a statistically comparison between planted and non-planted wetland restoration projects.

John Dougherty is a junior Environmental Science major at Wesley College, completed directed research on a method that could be used for invasive species prevention.

Nutrient Cycling in the Blackiston Tax Ditches

James Welsh, Stephanie Stotts – Department of Environmental Science, Wesley College

Tax ditches were implemented in the 1950s for agricultural drainage but now drain roads and residential areas as well. The purpose of this project is to compare the water quality, including phosphate, nitrate, dissolved oxygen, and temperature, of three tax ditches with varying vegetated buffer widths. Water samples were collected from three tax ditches within the Blackiston Wildlife Preserve: one with no buffer, one with minimal buffer, and one with a relatively wide buffer. Test kits were used to determine nitrate and phosphate levels, and a YSI electronic reader was used for water temperature and oxygen measurements. The nitrate level at the ditch with a wide buffer was higher than the ditches with no buffer and a narrow buffer. Also, the ditch with no buffer had significantly lower phosphate levels than the other water systems. These results indicate that additional factors, perhaps the ditch size, have substantial impacts on water quality.

James Welsh is a senior Biology major at Wesley College in Dover, DE. He has participated in two summer internship programs, working as an INBRE intern in the summer of 2011 researching reaction rates for solvolysis reactions. In the summer of 2014, he worked as an EPSCoR intern comparing the water quality of tax ditches with various riparian buffer widths.
Annual Business Meeting
10/22/2014
St. Jones Reserve, Dover, DE

AGENDA

Old Business
- Acceptance of Minutes
- Treasurer’s Report
- DISC Committee Updates
  - Education/Outreach
  - Data Management/Research
- Aquatic Invader Signage
- DISC Teacher Workshop
- DISC Banner Up

New Business
- Outstanding Priorities for 2014
  - Field Trip
  - Website Updates
  - Stop the Spread Workshop
- DISC Chair Position

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<th>Priority Item and Description</th>
<th>Tentative Completion Date</th>
<th>Progress</th>
<th>Point of Contacts</th>
<th>Completed (Yes or No)</th>
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<td>Stop the Spread Workshop: Resurrect the workshop to include in State Park’s annual training or as a presentation at DRPS.</td>
<td>4th Quarter</td>
<td>None</td>
<td>Ashley K., Kate</td>
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<td>Create a new banner up display</td>
<td>1st Quarter</td>
<td>Draft presented to Board</td>
<td>Jimmy</td>
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<td>DISC Teacher Workshop</td>
<td>August</td>
<td>Discussions with Education Committee</td>
<td>Rick &amp; Ashley P.</td>
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<td>DISC Aquatic Signage</td>
<td>1st Quarter</td>
<td>Draft presented to Board, approved in July.</td>
<td>Marcia, Edna, Kelly, Cathy</td>
<td>No; not received from DelDOT</td>
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<td>Field Trip</td>
<td>3rd Quarter</td>
<td>Further Discussion Needed</td>
<td>Marcia &amp; Rick</td>
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<td>Website Updates</td>
<td>Ongoing</td>
<td>Meeting set for April 30th</td>
<td>Jimmy &amp; Linda</td>
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Chair: Ashley Kroon, Delaware Division of Parks and Recreation

Vice Chairs:
Ashley Peebles, Delaware Department of Agriculture, Forest Service
Linda Rossell Bailey, Winterthur Museum, Garden & Library

Secretary/Treasurer: Marcia Fox, Delaware Division of Watershed Stewardship

Parliamentarian: Roger Fuester, Ph.D, USDA

Committee Chairs:

Research/Data Management: Jimmy Kroon, Delaware Department of Agriculture, Plant Industries

Education/Outreach: Kelly Valencik, Delaware National Estuarine Research Reserve

Greg Gagliano, Red Tail Restoration & Land Management, LLC