

CENTER FOR ENVIRONMENT & SOCIETY

CHESTER RIVER FIELD RESEARCH STATION

2012 ANNUAL NEWSLETTER



Located on Chino Farms, about five minutes from Washington College in Chestertown, Maryland, the Chester River Field Research Station is dedicated to:

- Large-scale restoration of diverse wildlife habitats, especially mid-Atlantic coastal grasslands, Delmarva Bays and the Chester River (all suffering from the impact of agriculture and pasturing)
- Designing studies and protocols for sustainable management of these habitats, especially as they interact with on-going modern farming
- Conducting basic and applied research on the flora and fauna that colonize these restored habitats, to learn their natural requirements for survival, growth, and reproduction
- Sustaining the Foreman's Branch Bird Observatory, a year-round avian research and banding station
- Environmental education programs for K-12, undergraduate and graduate students, and people interested in the natural sciences.

Grasslands Research & Education



Grasslands Summary

The **Chester River Field Research Station** completed its 14th year of research on the restored grasslands in 2012. With the help of three Washington College interns and two research assistants from the University of Maryland, Baltimore County, we had a productive summer collecting data for our long-term demographic study and started four new projects within and around the grasslands.

Our long-term demographic study, initiated in 1999, focuses on Grasshopper Sparrows and Dickcissels. The first Grasshopper Sparrow arrived on the grasslands on April 15th, with a remarkable 19 additional males arriving on April 16th. This is by far the highest number of Grasshopper Sparrows to have set up territories at such an early date. The first Dickcissel arrived on May 3rd, a returning male originally banded in 2011. Dickcissels continue to show up in the grasslands earlier each year,

this male arrived at least two weeks earlier than any other Dickcissel in previous years.

This year we expanded our monitoring efforts to include Field Sparrows. Like Grasshopper Sparrows and Dickcissels, Field Sparrow populations are declining throughout their range.

Unlike the first two species that only summer at the research site, Field Sparrows offer a unique opportunity for study since they use the grasslands year-round. Investigating their wintering activities should shed light on their needs during this under-studied time period.

Fifteen acres under irrigation were taken out of crop production and planted with low-growing bushes and warm season grasses to provide quail habitat.

In addition to many hours in the field observing bird behavior to determine territory boundaries, pair bonds, breeding population

numbers and finding nests, we also spent a significant amount of time training interns to band birds.

Interns often cite banding as one of their favorite activities- it gives them an opportunity to see up close and in the hand birds that they spend every day observing through binoculars and spotting scopes. This summer we banded a total of 1,035 new individuals representing 44 species. There were also 286 birds that returned to the grasslands that had been banded in a previous year.

Other projects initiated in 2012 included systematic bird surveys of the grasslands,

point counts in crop fields and tracking Grasshopper Sparrow territories and nests in the crop fields surrounding the grasslands.

Grassland bird surveys focused on the six fields that have been divided into quarter blocks. These blocks are managed in a rotational system, burning two





Habitat Management

Fire has a long history in grassland management, primarily as a way to reduce accumulated duff and to set back encroaching trees; each fall and spring parts of the restored grasslands are burned. We have recently designed a new management scheme that reduces the size of habitat patch in the landscape, creating a mosaic throughout the grasslands. In just the first season of this change we have noticed differences between patches burned in the fall and spring.

Flowering plant abundance, important for insects and thus insectivorous birds, was greater in fall burned areas. Increasing plant diversity benefits all wildlife using the grasslands. We will monitor the vegetation and bird response to these differences to see if this pattern continues in the long-term.

blocks within each field once a year. Through our new management plan we can test whether birds show a preference for areas burned in the spring or fall. Along with vegetation monitoring this gives us the ability to assess our restoration efforts.

A novel restoration effort for the mid-Atlantic region began this summer on an irrigated crop field. Within the irrigated area of the field, approximately 15 acres were taken out of production and planted in a variety of low growing bushes and warm season grasses. This was done to provide shelter, movement corridors and nesting habitat for Northern Bobwhites.

We conducted point counts in the new restoration site within the crop field and another similar field without restoration. We will use baseline data to show whether this newly planted area provides additional habitat for grassland birds. Stay tuned for the results of this interesting project as the plantings continue to grow and

provide critical bird habitat within sub-optimal crop fields.

We also began a pilot project to determine Grasshopper Sparrow nest success and territory establishment in crop fields and to compare the restored grasslands to crop fields to determine if crop fields are population sinks. In the crop fields located immediately south of the grasslands we mapped territories and nest searched. In this first summer of data collection we found the density and number of territorial males were less than the nearby restored grasslands and nest success was also lower.

Top left: The 2012 summer field crew birding at Bombay Hook NWR. Bottom left: The crew enjoys milkshakes after a hot day in the field. Above: Grasshopper Sparrow chicks. Bottom right: Burning of the Grasslands for habitat management.



Grasslands Research & Education

Native Bees

Native bee populations are thought to be declining across North America. These species are important pollinators, critical not only to many food crops, but to maintain the 75% of all native plants that require insect pollination. This summer under the direction of **Sam Droege**, USGS entomologist, we started a monitoring program to establish baseline data of abundance, diversity and flight times for native bees on Chino. This is part of a nation-wide monitoring effort to document trends and patterns of change. Knowing where and which species are in trouble is critical to reversing negative population trends.

Three traps were established at 5 locations around the farm. The traps were 12-ounce plastic cups filled with propylene glycol and held upright in a stand so that its base touched the ground. Traps

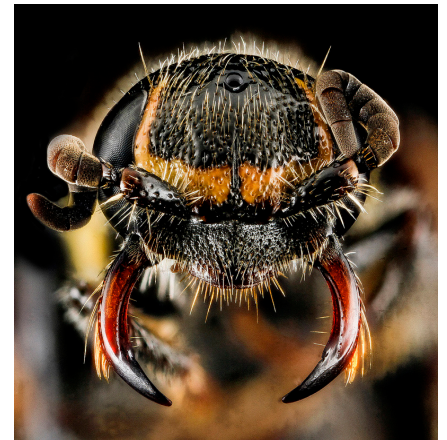
were checked throughout the summer and fall on a weekly basis. Bees were sent to the **USGS Native Bee Inventory and Monitoring Lab** at the Patuxent Wildlife Research Center to be identified. Droege and his team identified a total of 406 bee specimens of 60 species that were collected throughout the farm. Overall the number of bees caught was less than expected, however, “for the number of individuals captured, species richness was quite high, a good indication that there are many more species out there that were

“Not much is known about the [insect] species of this part of the Eastern Shore and, indeed, this small survey added 18 new Queen Anne’s County records.”

not captured,” said Droege. The survey resulted in 18 new Queen Anne’s County records as well as two second records for the state of Maryland. For those interested in seeing amazing up close photos of some of the bees caught on Chino and around the county, we encourage you to visit <http://www.flickr.com/photos/usgsbiml/>.

Native Wasps

Dr. Robert Kula, a Research Entomologist with the USDA **Systematic Entomology Laboratory**, has initiated a survey of Braconidae wasps in grassland habitats at Chino Farms.



Goals of the project are (1) discover and describe species of Braconidae and determine their distributions

across the area throughout the season, (2) assess the ability of braconids to recolonize a grassland following restoration from agricultural use, and (3) survey braconids in grassland habitat adjacent to crop fields to determine

if the former harbor species that attack pests in the latter. Six insect flight traps operated continuously from May 11 to November 2, 2012 and yielded 123 samples. Dr. Kula also used pan traps (yellow, water-filled bowls attractive to wasps and bees) to acquire an additional 35 samples. While Dr. Kula’s research focuses on the wasp family Braconidae, all wasp, bee, and ant specimens were kept and will be distributed to other specialists interested in grassland insect biodiversity.

Left: Malaise trap, used to collect wasps Above: Myzinum maculatum (native wasp species).



Northern Bobwhites

The **Eastern Shore Quail Restoration Project** held its second Quail Summit at Washington College on April 13, 2012. The summit brought local landowners interested in restoring habitat on their farms together with biologists



from Maryland DNR, Washington College, and **Tall Timbers Research Station and Land Conservancy**. Topics discussed included building cooperatives of habitat to restore bobwhites and various techniques for restocking birds such as imprinted pen-raised chicks. A highlight of the summit for many participants was a tour of Chino Farms lead by **Dr. Theron Terhune** from Tall Timbers. He took the group to various areas of the farm including recently restored habitat, areas still “under construction” and areas targeted for future reclamation. This provided a fantastic opportunity for landowners to see first-hand what bobwhite-appropriate habitat looks like and to discuss what has and has not been working for those who have already started restoration projects on their properties. We hope the restoration efforts on Chino will inspire other landowners to take action on their farms as the involvement of private

landowners will be instrumental in reversing declines in Northern Bobwhite populations. We are also pleased to announce that 2011 CRFRS summer intern **Margaret Rohde ‘12** will be working at Tall Timbers during winter 2013, banding and radio tracking bobwhite. A fall Quail Summit planned for October was canceled due to Superstorm Sandy. The next summit is planned for spring 2013.

Radio Tracking

This summer was the second and final season of a study radio tracking hatching-year Grasshopper Sparrows throughout the restored grasslands. The post-fledging period is widely recognized as a critical life stage, but recently fledged birds of any species are notoriously difficult to study, thus data for many species are lacking. Radio tracking opens the door to researchers allowing a glimpse into this critical period in a bird’s life. We were able to quantify post-fledging survival, determine vegetation preferences and discover movement patterns of hatching year birds in the grasslands. We are currently analyzing the data and plan to publish our results in an ornithological journal in 2013.



To to arrange a tour of the grasslands at Chester River Field Research Station, please contact Dan Small at dsmall2@washcoll.edu or call 410-810-7161.

Top: Dan Small holds a young Northern Bobwhite. Above: Dan uses an antenna to track young Grasshopper Sparrows.



Dan Small demonstrates bird banding for a group of YMOS students.

Birds & Habitat Workshop

Dr. Wayne Bell (former director of CES) and **Mr. George Radcliffe** once again coordinated the Birds & Habitat Workshop sponsored by the Youth Division of the **Maryland Ornithological Society** (YMOS) and the Center for Environment & Society at Washington College. The week-long residential camp is unique in that the participants were both students and educators who together learned basic bird identification skills, the value of contributing their sightings to the eBird database and took field trips to local birding hot spots like Bombay Hook NWR in Delaware and Elk Neck State Park in Cecil County. This year the program ran from June 25-29 and was composed of 2 adults and 8 students who spent the week both in the field and in the classroom.

“The mix of young birders and educators from local and distant environments creates a ‘teachable moment’ that lasts the entire week,” said Wayne Bell. “We learn together how birds with unfamiliar names are related to those we already know in terms of behavior, habitat requirements, and conservation,” he added.

The last day of their program was spent with field ecologists **Maren Gimpel** and **Dan Small** in the Chester River Field Research Station’s restored grasslands. The group learned about the important scientific contributions of bird banding and were excited to see birds up close. They were also thrilled to see some birds they hadn’t seen yet during their week like Dickcissel and Northern Bobwhite. The 2013 program will run from June 23-28.

Information on the workshop and other activities for young birders and educators can be found at www.ymos.org.

Grasshopper Sparrow Research

CRFRS collaborator **Dr. Bernard Lohr**, Assistant Professor of Biology at the University of Maryland, Baltimore County and his team of graduate student **Archer Larned** and biology major **Oliver Muellerklein** (UMBC '13), used long-term autonomous recording units (ARUs) to evaluate the importance of song output and song type in the Grasshopper Sparrow (*Ammodramus savannarum*). Song output (total amount of song produced) is a relatively under-studied male trait thought to be under sexual selection by females. Twenty ARUs, operating from 4am – 10am (6 hours/day) were deployed in Grasshopper Sparrow territories throughout the grasslands during the summer. An additional five units were operated in the same habitat from 4am – 10pm (18 hours/day). By continuously recording males each day they were able evaluate the song patterning by type and the song output of several territorial males in relationship to their seasonal breeding cycles.

Following the field season, digitized sound files from spot recordings and from ARUs were analyzed by Dr. Lohr's students in the laboratory at UMBC. Because songs of individual sparrows are unique, songs of target males could be discriminated from non-target males. Grasshopper Sparrows produce two types of song throughout the season; "buzz" song, and "warble" song. The total number of buzz versus warble songs for individual males was counted using the 6-hour ARUs. When possible (when nesting data was available), they examined the relationship of song type with an individual bird's breeding cycle (time of egg laying, egg hatching, and chick fledging). 18-hour ARUs were used to obtain an overall picture of song output throughout the day.

The long term population dataset of CRFRS Grasshopper Sparrows makes work such as this possible for our collaborators, and provides a unique baseline of information for more comprehensive studies of this species' behavioral ecology.



*Above: Dr. Lohr checks the settings on the ARU.
Top right: Leopard Frog.*



Amphibians & Reptiles

CRFRS staff kept records of amphibian and reptile sightings in 2012 as part of the 3rd year of the **Maryland Amphibian and Reptile Atlas** (MARA).

For the five years spanning 2010-2014, volunteers across the state are documenting the distribution of Maryland's herpetofauna. The resulting book will serve as an atlas of species distribution and abundance as well as a field guide to the state's species. CRFRS staff tallied 16 species this year including 4 frogs and toads, 1 lizard, 7 snakes and 3 turtles. New for our records were an Eastern Worm Snake and a Broad-headed Skink. Observations from throughout Maryland are needed and anecdotal records are welcome, so if you see a snake in your yard or a turtle in your pond, make a note (or take a photo if you need help to identify it). Sightings can be turned in online at the MARA website. For more information the MARA project please see <http://marylandnature.org/mara/>.

Foreman's Branch Bird Observatory

Foreman's Branch Summary

Now in its 15th year of banding at its current location on Chino Farms, FBBO is dedicated to monitoring the migration of birds during spring and fall, assisting collaborators interested in using FBBO data and providing training and learning experiences students and visitors.

During spring migration we banded 3,422 individuals and in the fall we banded 12,621 individuals. Additionally, breeding bird project manager **Amanda Spears** banded 1,107 birds during June and July to quantify numbers of nesting birds around the station. Combining the numbers from several banding days in winter and birds banded as part of the ongoing nest box monitoring project, the year's total was 17,235 which is the second highest in our 15 year history. Many birds we band show high site fidelity, returning to their breeding or wintering territories



from previous years. We recaptured a total of 4,865 birds; out of these 1,967 were returns (birds banded in a previous year). One hundred and



thirty-three species, two races and one intergrade were banded this year, which is eight species higher than our long-term average.

One very important use of bird banding is education. This year the bird observatory gave 73 banding demonstrations to 269 visitors. In addition to the many families that came by, high school and college classes learned the value of long-term monitoring projects like ours. We hope the lessons learned and the inspiration gained from seeing birds up close will create strong advocates for the environment.

Many species were captured in record numbers in 2012. While numbers are not our primary goal, it is interesting to note the changes in captures of species from year to year. Below are a few highlights from this year, the number in the parentheses is the previous high:

Semipalmated Sandpiper 8 (2), Purple Finch 234 (209), Northern Rough-winged Swallow 117 (67), Tennessee Warbler 37 (22), Magnolia Warbler 325 (209), Tufted Titmouse 120 (79), Carolina Chickadee 109 (68) and Golden-crowned Kinglet 299 (192).

Foreign Recaptures in 2012

In addition to the 17(!!!) foreign banded Northern Saw-whet Owls, FBBO captured three songbirds that were banded at other stations. This is perhaps one of the most exciting aspects of bird banding, the evidence of where a bird has been. While taking birds out of the net and later recording pertinent information one can only wonder where and how far away the bird was originally banded. The first foreign recap of the season was a color-banded Gray Catbird netted on May 4th. The catbird was banded at University of Delaware on July 20th, 2007. Two days later we caught a Myrtle Warbler that was banded at the Kingston Wildlife Research Station in Rhode Island on October 10, 2011. On May 13th we caught a male Common Yellowthroat that was banded in Factoryville, Pennsylvania on August 20th, 2011. These three birds along with hundreds of thousands of others were making

Top: Banding Director Jim Gruber gives a banding demonstration. Left: Intern Ryan Risher with a Great-crested Flycatcher.

Foreman's Branch Bird Observatory

their annual northward migration to the breeding grounds. For information on the foreign banded Saw-whet Owls, see the FBBO annual banding report.

Longevity Record Breakers

Through the combined banding efforts of FBBO and summer banding in the grasslands we captured four birds that established or tied North American longevity records in 2012. Together FBBO and CRFRS have banded a total of 11 species that hold NA longevity records. Many of these birds extend their own previous age record when they return to spend the summer or the winter on the farm. The now famous, at least around the farm, female Dickcissel returned for her 7th year to the grasslands. Dickcissels are



typically nomadic, moving to new areas as previous breeding habitats change. This speaks volumes to the importance of preserving and restoring grassland habitat and to paraphrase the famous movie quote "if you build it they will come." A Blue Grosbeak originally banded on June 24th 2008 returned in 2012 and was last caught on August 15, surpassing the previous age record by two months also held by a bird in the grasslands. A male Common Yellowthroat banded at FBBO on May 24th 2002 returned this year on May 4th, making this bird an amazing 10 years and 11 months old! This age ties the current record for the species. The final bird also ties a current record; a male Orchard Oriole banded on

May 3rd, 2003 returned to FBBO and was captured on June 4th. Now there are two Orchard Orioles in North America that are 10 years and 11 months old!

Standout Captures

Fall 2012 will be long remembered for the massive invasion of northern birds that moved south into Maryland. Winter finches including Pine Siskins, Red Crossbills, White-winged Crossbills and to a lesser extent Common Redpolls delighted birders with their unusual presence. While we



weren't lucky enough to catch or band most species of the irruptive winter finches, we caught more Pine Siskins this fall than in any

Together FBBO and CRFRS have banded a total of 11 species that hold North American longevity records.

other year. In fact, we caught more this fall than in all other years combined. General consensus is that widespread failure of seed and cone crops in the boreal forest, the

typical nesting and wintering areas for northern Finches, forced birds further south in search of food. Pine Siskins found the feeders at FBBO and although we banded many, birds didn't seem to stay at the station for more than a few days before moving on. We banded an amazing 572 Pine Siskins this fall bringing the total number banded at FBBO up to 701. We are looking forward to our spring banding season to see how many Pine Siskins we catch on their return flight northward and who knows, maybe we'll net a crossbill or two.

Left: Dan Small and Maren Gimpel check mist nets. Above right: Male Blue Grosbeak.

Foreman's Branch Bird Observatory

Northern Saw-whet Owls usually stay year-round throughout northern New England and most of the boreal forest, but this fall they irrupted southward in large numbers in search of food. The lack of sufficient food has two triggers. In one scenario, the vole experiences a population crash reducing available food and in the other, the voles are so abundant during the breeding season that the owls produce more young than usual and there is not enough food for the increased owl population. Whatever the cause, our sleep deficit was worthwhile. In 26 nights of banding this fall we caught 284 un-banded Saw-whets and caught an astounding 17 birds that had been banded elsewhere by other researchers. This fall's effort brings the total number of Saw-whets banded at FBBO to 460. We contribute our data to Project OwlNet, a program that monitors the population and seasonal movements of this secretive owl.



A Northern Saw-whet Owl perched after being banded.

For more information about the Station or to schedule a visit please contact Jim Gruber (jgruber2@washcoll.edu).



Be sure to check out our facebook page (www.facebook.com/CRFRC) for daily updates and photos!

Top Ten Table — 2012 Spring and Fall Migrations

The 10 most commonly banded species at Foreman's Branch Bird Observatory during migration periods.

Spring 2012

Species	Total
Gray Catbird	338
American Goldfinch	330
White-throated Sparrow	288
Common Yellowthroat	263
Red-winged Blackbird	227
Myrtle Warbler	198
Brown-headed Cowbird	124
Indigo Bunting	95
American Robin	86
Swamp Sparrow	69

Fall 2012

Species	Total
White-throated Sparrow	1,531
Song Sparrow	1046
American Goldfinch	593
Slate-colored Junco	580
Pine Siskin	572
Ruby-crowned Kinglet	544
Common Yellowthroat	438
Gray Catbird	382
Myrtle Warbler	374
House Finch	372

Thank You Hanson!

When **Hanson and Linda Robbins** moved to Chestertown a few years back, they chose their current home, in part, due to the proximity of the FBBO bird banding station at CRFRS. Hanson is a life-long birder who was very involved with ornithological organizations when he lived in Massachusetts. He began volunteering at FBBO almost immediately after moving to the area and he showed up ready to work! He was already familiar with all of our bird species and lucky for us, had years of prior experience bird banding.

Hanson can be relied upon to volunteer both as an extractor (removing birds from mist nets) and a scribe (recording data during the banding process) at FBBO several days a week. In addition to the joy of seeing the birds up close, Hanson has an educational interest in joining us. "I learn something every time I come out," he said.

In addition to his invaluable help at FBBO, Hanson &

Linda also support CRFRS projects at home. They live on Chino Farms and their house is adjacent to the restored grasslands. Hanson and Linda maintain most of their property in accordance with our habitat management plan by allowing the acreage to remain as grasslands and Hanson himself mows his front field to control invasive woody plants like sumac. Of course the birds don't know where property lines are so the research team often follows the birds on to the Robbinses land. Luckily, we have been welcome to prowl around their front yard, sometimes as early as 5 a.m., to monitor the sparrows and search for their nests. Talk about great neighbors! It's not every landowner that wants to look up from their morning cup of coffee to see someone with a spotting scope pointing back at them. Thank you, Hanson and Linda, for all of your support.



Christmas Bird Count

The 7th Chesterville Christmas Bird Count was held on December 23, 2012. Christmas Bird Counts (CBCs) are overseen by the National Audubon Society, but locally run. One of Audubon's best-known programs, the CBC is an early winter bird census conducted by thousands of volunteers across the world. This year, on our local Chesterville count, 23 participants traversed 530 miles by foot and car to tally every bird they could. Scouring parts of Cecil, Kent and Queen Anne's Counties, observers found six new species for our count, including Marsh Wren, Red Crossbill, White-winged Crossbill, Sora, Gray Partridge and Ring-necked Pheasant. Marsh Wrens breed in the area, but usually migrate south for the winter, so finding one in December in the Chester River marshes was a treat. The Sora was an unusual find in the marshes of Morgan Creek. The two crossbill species are part of an invasion of boreal bird species that descended south last winter. The last two new species,

the partridge and pheasant, are released locally for hunting. The 2012 count tallied **124,687 total birds of 102 species**. The cumulative total of species found in our count's history now stands at 149.

The 2013 Chesterville count will be held on December 22nd. For more information on Christmas Bird Counts both locally and nationally, please see www.audubon.org or contact Maren Gimpel at mgimpel2@washcoll.edu.

Left: Hanson and Linda Robbins holding American Robins. Top: White-Winged Crossbill, photo by Bill Hubick.



Chino Farms & Washington College

Chesapeake Semester visits Chino

Washington College's **Chesapeake Semester** (CS), is a 16-credit experiential study of the Chesapeake Bay.



Anchored at Washington College's rural campus along the Chester River, a team of faculty provides coordinated classroom curriculum and cohesive experiential learning through off-campus "journeys." During each of the multi-day trips, students study complex history, ecology, and culture of the Chesapeake as a microcosm of the challenges and transitions confronting coastal communities around the world. "Connecting students to the land and water fosters a powerful sense of place, giving students a better understanding of the human and social dimensions of environmental issues," CS Assistant Director **Mike Hardesty** says.

The Chesapeake Semester combines intensive study, field-work, and outdoor adventure. To kick off Journey 1: History and Sense of Place, Chesapeake Semester students visited Chino Farms for a 3 day-2 night camping trip with open fires, s'mores, and clear star-lit skies. With camp setup along the shores of Foreman's Branch, students reconnected to the tidewater and its elements through society's first and foremost interaction with the environment: harvesting of food.

Armed with only a little bug spray and a critical eye, professor of experimental archaeologist and expert in prehistoric food and food-ways, **Dr. Bill Schindler** led students on a forage for cattail roots, prickly pear cactus, persimmons, and wild mushrooms. Chino's forests, fields, and shorelines are home to all of these delectables.

Slowing down, learning, and paying attention to the landscape's ecology and imagining its history were the goals of this camping trip. How did people interact with their environment 10 thousand years ago? Chino's 230 acres of grasslands offered a good opportunity to answer that question.

At night students planned to combine their cornucopic collection of wild edibles with freshly prepared venison. Cooked with wild spice-berry in a hollowed pumpkin using hot stones from the fire, this dish was going to the sizzle. Unannounced to the intrepid campers however, mother-nature had different dinner plans. Threatening skies led to an evening thunderstorm that brought buckets of rain and gusts of wind up to 60 miles an hour. It was intense and so were the students! But with tall timbers all around, unfortunately it wasn't looking safe. In a frantic effort students packed up their belongings and jammed into the college van for an alternative meal at Higgy's diner.



Top left: Sarah Giordano forages with the Chesapeake Semester at Chino. Above: Shannon Denno stops to inspect some plants on the farm. Opposite top: Snapping Turtle. Bottom Right: Brendyn Meisinger and Aaron Krochmal.

For more information about the Chesapeake Semester please contact Assistant Director Mike Hardesty at mhardesty2@washcoll.edu or 410-810-7488.

Chester River Watershed Observatory

An exciting new project of the Center For Environment & Society is the Chester River Watershed Observatory (CRWO). Coordinated by CES **Deputy Director Dr. Doug Levin**, the project's goal is to make the Chester River the best understood river in the country. Various technologies will allow researchers to monitor the "pulse" of the Chester River. The resulting data will have myriad applications including analyzing nutrient management on farms, ecosystem studies, fisheries research, economic analysis, computer modeling and forecasting.

Part of the system has been installed on Chino Farms at Foreman's Branch. A monitoring station with a bank of sensors records water temperature, conductivity, pH, turbidity, nitrates, phosphates and dissolved oxygen. The initial installation is still being calibrated and tuned, but the data generated are already being used in a Washington College senior thesis by **Ben Chilton '13**.

For information on the Center's resources including summer programs on birds, Geographic Information Systems (GIS), or marine exploration and discovery aboard the College's research vessel Callinectes, visit the web site:

www.washcoll.edu/centers/ces



Faculty Focus

The Chester River Field Research Station continues to be a fantastic resource for Washington College faculty and students. **Nathan Nazdrowicz** brought two classes out to CRFRS this year. In late summer, 9 students from BIO 304 Invertebrate Zoology learned common techniques for finding invertebrates. Students used aerial and sweep nets along a field edge and searched under logs and sifted leaf litter in the forest to collect invertebrates for their collections. In October, 4 sections (64 students) of Dr. Nazdrowicz's BIO 206 Ecology class investigated dispersion patterns of plant species colonizing a fallow field. The students measured and calculated nearest neighbor distances of oak and milkweed and used these data to infer primary means of reproduction.

Assistant Professor of Biology **Dr. Aaron Krochmal** and **Brendyn Meisinger '13** have been monitoring the movements of Eastern painted turtles (*Chrysemys picta*) in small wooded wetlands on Chino Farms. To investigate the means by which turtles might navigate a rapidly changing environment, and to understand the effects of seasonal drought and climate change on animal cognition, Krochmal and Meisinger have been affixing miniature radio transmitters to turtles, to track their movements, and to monitor their responses to the natural drying cycle of the vernal pools in which they live. Though the study is ongoing, Krochmal says, "preliminary results suggest that spatial memory use or other cognitive factors are important during these navigations and that successful movement between water sources hinges on experience." By continuing to investigate conservation at the psychology-biology nexus, Krochmal and Meisinger hope to be able to inform future management decisions in light of human induced rapid environmental change.



Washington College Interns

Student Internships

Kelly Kunsch '14 interned at FBBO this spring. She is majoring in environmental studies and is a past participant of the Chesapeake Semester program at Washington College. A main appeal of the position was to spend time out of the classroom getting familiar with area bird species. “My internship at FBBO has been an invaluable part of my education at Washington College, as it strengthened my interest in field work and gave me a whole new appreciation for birds, even the noisy biting cardinals!” Kelly plans to pursue a career focusing on Chesapeake Bay ecology.



Biology major **Ryan Risher '12** had quite a bit of field time under his belt when he arrived to intern at FBBO this spring. An avid outdoorsman, Ryan had already spent two summers as a field technician for New Jersey’s Endangered and Nongame Species Program, where he worked mostly with breeding shorebirds. He was eager to gain more experience with mist-netting and handling passerines at FBBO. “I want to continue working with endangered avian species after completing graduate school,” says Ryan. “I ultimately want to teach at a collegiate level so that I can continue to not only apply what I’ve learned through opportunities such as this, but teach them to others.”

Jeffrey Sullivan '14 an environmental studies major and biology minor was the point man for the new Field Sparrow project in the CRFRS grasslands this summer. He spent the majority of his time identifying and mapping territories of this iconic bird of the countryside. Seeing the final map of the season he said “It was so cool to be able to see all of the data I had collected assembled right there in front of me, and to see how it had changed from the little bit of info we had at the beginning of the summer.”



After graduation, Jeffrey plans to work in wildlife or environmental management, preferably in his home state of Delaware.



Ian Hall '12, a biology major, always had a keen interest in the environment and was drawn to the hands-on field experience an internship a CRFRS provides. As part of the summer Grasshopper Sparrow team he spent long hours following birds and taking GPS points. Ian grew up in rural Pennsylvania exploring local wetlands and completed the Community Ecology of Coastal Maine field course sponsored by the biology department. With that background he knew a summer in the restored grasslands would be a good fit for him. One appealing aspect of his internship was the ability to contribute to research that can make a difference. “I was very excited about working to improve our environment,” said Ian.

Washington College Interns



Eric Waciega '13 is majoring in environmental studies and minoring in biology. With his interest sparked by the college's Birds of the Chesapeake class, he knew many of the locally breeding birds, but wanted to know more. Being a part of the summer field crew "is really what made me interested in wildlife biology," he said. Spending so much time in the grasslands made him want to "learn more about the flora and fauna that exists around the Chesapeake." Eric plans to pursue graduate studies after graduation and feels well prepared "the internship provided practical experience in wildlife management."

Amanda Spears (University of Vermont '15) spent her summer in one of her favorite places, the Foreman's Branch Bird Observatory banding lab. She returned to FBBO this summer to run a pilot project monitoring the breeding birds of the area through banding. "I greeted the fluting male Wood Thrush in the early June mornings, held the female carrying her pale blue egg, and banded their downy young in July. I witnessed the progression of the season and I gained valuable field skills that will guide me in future field positions." The Queen Anne's County native is pursuing a degree in wildlife biology and this summer will work on the renowned longitudinal study of Black-throated Blue Warblers in the Hubbard Brook Experimental Forest in the White Mountains of New Hampshire.



Rachel Field '11 has become a familiar sight around Chino and she once again loaned her avian experience to our projects. She was instrumental this summer in our pilot projects on grassland bird use of crop fields. She conducted surveys in the restored grasslands and point counts in the new pivot plantings (see the Grasslands Summary section describing this). Additionally, she searched for and mapped territories of Grasshopper Sparrows outside of the grasslands in adjacent soy bean and wheat fields. In addition to her field work, Rachel developed educational and promotional materials for CRFRS. She also assisted at FBBO several days each week. After the field season Rachel moved into the CES office as the new Program and Intern Coordinator.

The Center for Environment & Society is dedicated to providing excellent, challenging, and inspiring experiential internship opportunities. For more information on our internships or to apply please visit our website: www.washcoll.edu/centers/ces or call our office (410) 810-7161.

CRFRS 2012 Newsletter



From left to right: Bluestem owner Evan Miles, Chino owner Harry Sears, Chino staff Greg Cole, and Henry Davis after receiving the Chester River RIVERKEEPER® award.

Chino (the property) and Bluestem Farms (the commercial farming operation) have long been recognized for their environmental stewardship. The property was designated an Important Bird Area by Audubon in 2006 and the property's 5,630 acres are largely in conservation easements, but are also home to a successful commercial farming operation. This summer the Chester River Association gave its **RIVERKEEPER® Award** to Chino and Bluestem Farms for their outstanding commitment to a healthy Chester River through their leadership in environmentally farming and land management practices. We are proud to be an example of how modern agriculture and wildlife conservation can co-exist successfully. Congratulations!

The Center for Environment & Society at Washington College supports interdisciplinary research and education, exemplary stewardship of natural and cultural resources, and the integration of ecological and social values. By managing precious resources over the long term, we can preserve the natural world and opportunities to study it, for generations to come. One of our most important goals is to provide research opportunities for students. The Center awards 10-12 competitive internships each year, with many students choosing to work at the Chester River Field Research Station at Chino Farms.

Funds are needed to support a variety of programs and research projects. Gifts may be earmarked for the Center, the Field Research Station, or the Bird Observatory. Please contact Jenifer Emley at jemley2@washcoll.edu or 410-810-7161. Thank you.



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