

Friends of Plant



Conservation, Inc.

Summer 2020

Editor: Katherine Schlosser

Volume XII, Number 2

A Message from the President...

It's that time of year again when we ask you to renew your annual membership in Friends of Plant Conservation (FoPC). If you have not already done so, please renew now and invite others to join us. One need only visit our website at <https://www.ncplantfriends.org/> to join or renew online, or to print a form to send in with your check. Also, please consider making an additional donation to one of our specific funds. Your membership contribution and any other contributions are fully tax deductible.



While your financial support is critical, we depend on you in many other ways to advance our mission of helping the North Carolina Plant Conservation Program (PCP) in its efforts to protect the rare plant species of North Carolina in their and their critical habitats. Volunteers are particularly important. We will hold an election for Board members at our Annual Meeting on October 3 and hope that some of you will volunteer to run for election. We also need volunteers to take active roles on our various committees. If you are interested, do not hesitate to contact me (peet@unc.edu).

A key component of FoPC's contributions to PCP is the work of volunteers in field events focused on managing the 26 PCP rare plant preserves. We regularly advertise upcoming volunteer events on our website, so please watch and then join us when you can. Our part-time volunteer coordinator Olivia Dannemiller deserves special commendation for organizing these activities. She has also been very productive in providing content for our web and Facebook sites. The family of past PCP Administrator David Welch provided initial funding for Olivia's position and finding additional

funding to retain her will be a critical fund-raising activity over the remainder of the year.

The PCP Redlair Preserve was one focus of FoPC volunteer activity this spring with emphasis on removing exotics and burning the site of the endangered Schweinitz's sunflower. The Redlair Preserve was initially established to protect the charismatic and state-listed bigleaf magnolia. However, large preserves with a diverse range of high-quality natural habitat often contain biological surprises. Redlair recently provided such a surprise when

two individuals of chalk maple were found that significantly surpass the previous national champion tree.

Despite the recent restrictions on activities owing to Covid-19, we have had a productive and exciting year and I thank all of you for your contributions of time, resources, and ideas. Of special interest is that we have had three stellar interns assisting us this summer and who are introduced in detail elsewhere in this Newsletter. Rachel Milkereit, a Biology major at Appalachian State, has been working to complete our Stewardship Manual to assist volunteers who lead the management efforts at specific PCP preserves, and has also created a couple short educational videos that highlight the work of PCP and FOPC. Shannon Dolan, an Environmental Science major at NC State, has been creating ArcGIS Story Maps featuring two of our preserves and is also helping improve our website.

Continued on following page....

President Peet, continued

Miranda Hoff, also an NC State student majoring in Environmental Science, is creating educational material on plants for use with K-12 students. Watch for all of their products to appear soon on our website.

Partnerships can be very important in conservation work and we have further developed our partnerships with the NC Botanical Garden and the NC Museum of Natural Sciences. Together we planned a series of joint fieldtrips to visit natural populations of such rare species as smooth coneflower and fire lily. While we have had to cut back on fieldtrips owing to the Covid-19 outbreak, at least these two field trips (and probably others) are taking place with small groups and appropriate social distancing. Our partnership with the Botanical Garden also led to our joint proposal for a new specialty license plate featuring the Venus flytrap. A total of 770 applications were submitted by March 31st, far exceeding the minimum order of 500. The legislature will have this application in front of them when they next vote on new plates. We hope that many of you will order these plates to promote conservation of our rare flora.

Again, thank you for your many and varied contributions. For a further statement of our deep appreciation, please visit <https://youtu.be/9pSnHUMvXiM>. I hope to encounter many of you at future FoPC activities, be they virtual or in person.

Robert K Peet,

on behalf of the Friends of Plant Conservation Board

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Our Annual Meeting will be **virtual** this year,
on **Saturday, October 3rd**.

Watch for details and sign up information.



By NASA Earth Observatory - <http://eol.jsc.nasa.gov>

Period	Week	Atmospheric CO2
Last Week	July 19 - 25, 2020	413.90 ppm
1 Year Ago	July 19 - 25, 2019	411.32 ppm
10 Years Ago	July 19 - 25, 2010	390.21 ppm

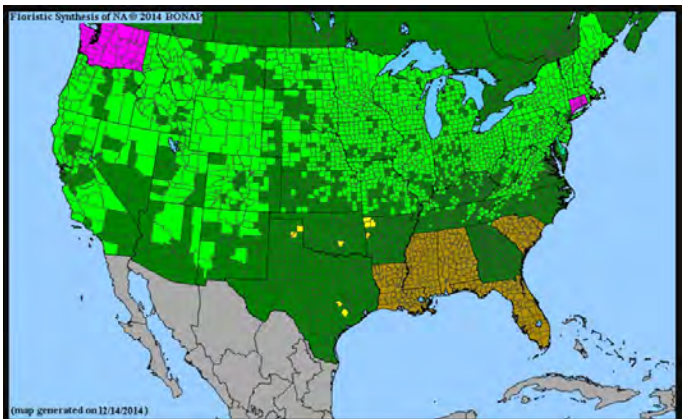
Atmospheric CO2 reading from Mauna Loa, Hawaii (part per million). Source: NOAA-ESRL

*We can only be said to be alive in those moments
when our hearts are conscious of our
treasures.*

~Thornton Wilder

Hard work pays off: Updates from the Bat Fork Plant Conservation Preserve

The PCP staff has been battling an infestation of reed canary grass (*Phalaris arundinacea*), a thatch-building rhizomatous grass, at the Bat Fork PCP Preserve (Henderson Co.) for many years. This species is a cool season, circumboreal grass which has been spread through much of the US, including parts of NC for cattle forage, erosion control, and in some cases pollution remediation. At present, reed canary grass occupies nearly half of the protected acreage at the Bat Fork Preserve. PCP is focusing on removing this invasive exotic species to be able to restore more of the protected area to the swamp forest-bog community present in the rest of the preserve.



A few years ago, we initiated a new treatment plan and I'm happy to say, we're starting to see encouraging results. I'm not sure who said it first, but it's commonly repeated that taking on a large restoration project like this requires several years of sustained effort before lasting impacts begin to appear. It just so happens that as we begin our fourth consecutive year of treatments, there was a noticeable decrease in volume and distribution of the canary grass—a very welcomed sight.

Beginning in 2017, we have focused on three growing season herbicide treatments per year. For the first two years we clocked ~130-140 person hours per year knocking back this aggressive grass. Last year, we were able to treat the remaining target areas in much less time (only 80 person hours) due to a patchier grass infestation.

In late June of this year, the PCP staff—plus extra help from Cheryl Knepp who joined us for the day!—tackled the canary grass again. Our plan is to return two more times this season to retreat any plants that were missed and to continue to monitor for native species emerging. It has been very rewarding to watch individual areas respond to our treatments. We're finding more and more native plant species popping up in between the clumps of canary grass. To see a monoculture of canary grass turn into a meadow of mannagrass dotted with arrowheads, sedges, rushes, etc. it

feels like all of those hours slogging through the bog were worth it!

As we go forward, we will continue with our plan of multiple treatments for at least 5-10 years based on seed bank estimates. From our best understanding, canary grass spreads primarily through rhizomes, but it can also self-seed, so we will be keeping careful watch for any new patches emerging.



1. June 2017, photo taken just prior to reinitiating treatments. View of near perfect monoculture of reed canary grass (*Phalaris arundinacea*).



2. Same vantage point from June 2020. It is difficult to make out, but essentially none of the grasses in view are reed canary grass. Instead the dominant bunching grass is now fowl mannagrass (*Glyceria striata*).

~ Lesley Starke, PCP Program Manager

Welcome to PCP Plant Ecologist: Geoff Austin



Geoffrey C. Austin, NCPCP Plant Ecologist

Environmental stewardship has been Geoff Austin's passion since his childhood. He grew up moving back and forth across the country as a child in a military family, experiencing the diverse ecosystems of both the Atlantic and Pacific coastlines, eventually growing his passion for the natural world. He attended James Madison University in Harrisonburg, Va. getting a B.S. in the Integrated Science and Technology program, with a major in Environmental Studies. He then attended Virginia Commonwealth University in order to pursue an M.S. degree in Environmental Studies. Geoff's thesis work focused on mapping and modeling the potential benthic spawning habitat of the Federally listed Atlantic Sturgeon, found within the James River. Geoff worked both in the fish research lab at VCU, and at the USGS stream monitoring program, while completing his graduate degree.

After completing his education, Geoff worked for the Virginia Department of Conservation and Recreation, in

the Natural Heritage program, as the Northern Operations Steward from 2013 to 2020, working to protect several Natural Area Preserves, but primarily focusing on 3,000+ acres at Crow's Nest Natural Area Preserve, in Stafford, Va. He eventually attended a law enforcement academy to become a sworn Conservation Officer in Virginia during his time with Natural Heritage, in order to better enable him to protect the resources he was tasked with stewarding.

During his time with Virginia's Natural Heritage Program, Geoff became versed in prescribed fire, invasive species management, deer management, assisted with numerous monitoring and research programs, on top of regular operations such as being the tractor and boat operator for the Northern Region. Geoff also designed and built the public access for the preserve, ensuring that sensitive resources were avoided and not compromised by allowing the public into the preserve. In his free time, Geoff enjoys tinkering with computers and electronics, hunting, fishing, hiking, and backpacking, and is an avid wildlife and landscape photographer.

PCP Field Techs: Fisher Stines and Kyle Stoudt



Fisher Stines, a native of Gastonia, North Carolina, grew up just a few miles from Redlair preserve. His involvement at Redlair began by chance with a fieldtrip to the property as a student in Sabine Rankin's German language class. It was there he met Haywood Rankin. Fisher's volunteer involvement and later, his part-time work at the preserve from December of 2017 through February of 2018 with the Catawba Lands Conservancy, would soon follow. In the Spring of 2018, Fisher departed as an North Carolina State University student for an exchange semester to Freiburg, Germany where his botanical education would truly begin. There, his fascination of the flora in both the Black Forest and the Alps would solidify his decision to become a botanist and inspire him to continue his education at North Carolina State University as a student of plant biology. Fisher will graduate from North Carolina State University in May of 2021 with a dual degree in Plant Biology and German Studies. Upon his graduation, Fisher will pursue a PhD in botany, and he aspires to become a teaching professor. In the Summer of 2019, Fisher designed a comprehensive ecological study of the Bigleaf Magnolia population at Redlair, and he plans to publish his work as his bachelor's thesis. In his free time, he enjoys traveling and playing or conducting in various North Carolina State music ensembles. Fisher Stines began working as the new Field Technician for the Plant Conservation Program in May of 2020 and has devoted his time to protecting rare members of the Piedmont Prairie Community including the Smooth Coneflower in Durham and Granville counties.

Kyle Stoudt, a native of Gastonia, first came to the Redlair Preserve in the summer of 2019 to help Fisher Stines with his ambitious bigleaf-magnolia study. They had been eagle scouts together, and Fisher knew of Kyle's love for nature. Fisher was desperate for help and Kyle proved to be the one person he called who consistently showed up to volunteer long hours in 90-95 degree weather. Later in the year, Haywood Rankin, who stewards the 1200-acre preserve (partly State-owned), was equally desperate for help but had been consistently disappointed with the reliability and work ethic of volunteers who had briefly come and gone. He called Kyle and has never looked back. Kyle has now been toiling in paradise for many months, showing a quiet resolve and dedication that are extraordinary: the answer to Haywood's cry for help. He instantly showed a fine instinct for discerning good and bad plants, becoming a fervent warrior against invasive plants; he never flags in his keen sensitivity to, perceptivity of, and joy in mushrooms, insects, flowers, reptiles, indeed, every aspect of nature; and his work ethic is unpretentiously intense. Many people say pleasant things about nature, but it is a rare person who confronts its rough edges and embraces them as fully as Kyle Stoudt.

Introducing our 2020 Student Interns...

FOPC proudly announces that we have three interns working with us this summer. After being alerted to the opportunity by Bob Shepherd, former board member and current Advisory Board member, FOPC applied but was not accepted for the recommended program. We then proceeded to advertise on our own. We turned up many qualified candidates and selected 2 to hire at half time for 6 weeks, but also accepted a third, Miranda Hoff, who is working as a no-compensation volunteer on botanical educational material for K-12 students, this being to satisfy her requirement of public service as part of her NCSU degree. We welcome them all and though it isn't likely you will have a chance to meet them (coronavirus), they will share their experiences with us on the website.



RACHEL MILKEREIT



Hello! My name is Rachel Milkereit, a Durham native and junior Biology student at Appalachian State University in Boone, NC. I grew up spending summer days at the Eno River, taking family trips to the Blue Ridge Mountains,

NCs' coastal State Parks, and three summers out west working on conservation crews.

As an intern for FoPC, I look forward to developing and creating educational material to share with stewards and the public. I am also eager to learn about hands-on management and document the great work FoPC and PCP do to conserve rare plants in North Carolina.

SHANNON DOLAN



I am Shannon Dolan, a rising junior at North Carolina State University majoring in Environmental Sciences and minoring in Marine Science, Applied Ecology, and Technical and Scientific Communication. I enjoy spending time outdoors, photographing nature, and exploring ways to use technology for

environmental conservation and education. I am excited to work with FoPC to develop an ArcGIS story map illustrating the many plant preserves and their natural history!



MIRANDA HUFF

As an undergraduate in Environmental Science at NCSU, I am eager to gain professional experience in my field. I have a passion for outreach and experience with teaching and training. Most recently I developed a plan for the Environmental Education Program for K-12 Schools in the SCALT Region. I think I will be a perfect fit for this intern position not only because I meet the qualifications you are looking for but also because my ideals strongly align with the FoPC's mission of environmental outreach and stewardship. I am graduating this December and will have a light course-load as I finish up, allowing me to provide plenty of availability throughout the semester as needed.

Welcome to Alan Smith, FOPC's newest Preserve Steward



A big welcome to Alan Smith, our new Preserve Steward for both Bat Fork Bog and Ochlawaha Bog! We are excited to bring him on board. Alan Smith is a retired Professor of Biology more or less equally trained and interested in Ornithology, Botany, and Ecology. Career in academia at three colleges and universities, including Lynchburg College, Warren Wilson College, and 26 years at Mars Hill University. He also worked as an independent contract Conservation Biologist for agencies and organizations including US Forest Service, The Nature Conservancy, National Park Service, SAHC, NC Heritage Program, other private groups and individuals. He grew up in Southern Alabama, migrated north after college and have roamed the So. Appalachians for over 40 years.

A May Melrose Mountain Preserve Workday

In May a small group from the Polk County Master Gardeners Program was able to get outside and help us on PCP's Melrose Mountain Preserve. This preserve is home to the federally endangered white iresette among other state listed plant species. The group hiked in to the preserve to help dig up ornamental hostas and relocate them to their own gardens and homes. We spent about two hours on the preserve digging up around a hundred hostas and a couple other ornamental species that didn't belong on the preserve. We believe these plants are the result of an old homesite. This was a win win workday, free plants for the Master Gardeners of Polk County and less unwanted ornamentals on the preserve! Thank you to those who helped with this project!

~ Olivia Dannemiller, Vol. Coordinator





A Note from Carrie DeJaco, FOPC Board Member



Oak-leaf hydrangea (*Hydrangea quercifolia*) is blooming now and is for sale at many nurseries and garden centers.

In recent months, many people have turned to gardening as a hobby. Working in your own yard is a great way to get a bit of fresh air, exercise, and it helps us not feel so cooped up during these times of Covid-19. Many native plants can easily be incorporated into the landscaping of your yard. In fact, because native plants are adapted to our climate and soil, they often require much less TLC than non-native landscaping! Using native plants in your landscaping allows your yard to “give back” to nature in a way that using non-native plants does not. Native plants are part of the natural food web, providing not only nectar for pollinators, but also food for caterpillars and other herbivorous bugs that typically don’t recognize non-native plants as food. Those bugs then become food for the higher links in the food web — birds, frogs, lizards, and so on.

A new book has just been published that serves as a guide for people who would like to incorporate more native plants in their landscaping. The authors Larry Mellichamp and Paula Gross are the former Director and Assistant Director of the Botanical Gardens at the University of North Carolina— Charlotte, while the third author, Will Stuart, is a well-known photographer and naturalist in North Carolina. The book, titled The Southeast Native Plant Primer: 225 Plants for an Earth-Friendly Garden is now available for purchase on [Amazon.com](https://www.amazon.com).

Often, the most difficult part of gardening using native plants is finding them for sale! Some smaller nurseries are now including many native plants in their selections for consumers, and you can now even find a few kinds of native plants for sale at large box stores such as Lowe’s. When you’re shopping for native plants for your yard, it can be confusing to know which plants are native and which are not. Using the web browser on your phone, you can easily determine whether a plant is native by searching for the plant name and “native”.

Local botanical gardens and native plant societies often have plant sales and seed-sharing parties. The North Carolina Native Plant Society has numerous chapters across the state. You can go to this webpage to see if there’s one near you:

https://ncwildflower.org/about/all_chapters.

~ Carrie DeJaco

Volunteer Coordinator Report for 2019

TOTAL HOURS for Volunteers:	2,401
TOTAL MONETARY WORTH OF HOURS: \$61,057.43	
TOTAL PRESERVE STEWARD HOURS:	1,448
TOTAL HOURS SPENT REMOVING NON-NATIVE INVASIVE PLANTS:	224
TOTAL HOURS SPENT MONITORING RARE PLANTS:	131



Plants on Preserves that are not protected but are part of the habitat



Photo taken by Cheryl Gregory, former PCP Director.

Triosteum aurantiacum Orange-fruited Horse Gentian

Horse gentians, a member of the honeysuckle family (Caprifoliaceae) were traditionally valued for their medicinal properties. They were used by Native Americans for urinary pain and applied topically to sores and swollen areas. Roots were used to treat fevers, induce vomiting, and were a powerful laxative. The berries, when roasted and dried, are claimed to have been used as a substitute for coffee beans.

This is not a protected species, but an interesting plant found on some Preserves.

It grows to 36" tall on stiff, hairy stems with large opposite, elliptic leaves. Flowers from May to late June with bright orange drupes maturing in Fall.





NCDA&CS

Plant Industry Division

Plant Protection Section

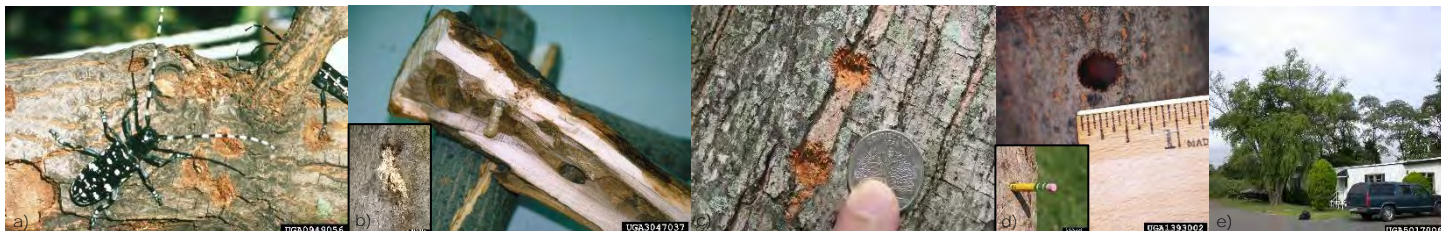
PEST WATCH

Asian Longhorned Beetle

Anoplophora glabripennis (Motschulsky, 1853)
(Coleoptera: Cerambycidae)



The Asian longhorned beetle (*Anoplophora glabripennis*; ALB) is native to Asia and was first detected in the United States in 1996 in Brooklyn, NY. This invasive insect has since been found in other parts of New York, Illinois, Massachusetts, New Jersey, Ohio, and South Carolina. This pest is not known to occur in North Carolina but early detection is critical for protecting North Carolina agriculture, businesses, and forests.



a) Adult ALB (Photo by Kenneth Law, USDA-APHIS-PPQ, Bugwood.org); b) ALB larva tunneling in branch (Photo by Larry Barber, USDA-Forest Service, Bugwood.org) and inset shows frass build-up caused by larvae tunneling under bark (Photo by Kenneth Law, USDA-APHIS-PPQ, Bugwood.org); c) Egg niches where a female ALB has chewed the bark to create a pit to deposit an egg (Photo by Joe Boggs, Ohio State University); d) ALB exit hole (roughly $\frac{3}{8}$ "); Photo by Dennis Haugen, USDA Forest Service, Bugwood.org); inset image shows pencil in exit hole for size reference and to differentiate from carpenter bee activity [ALB tunnels straight through wood and carpenter bee goes in and down] (Photo by Joe Boggs, Ohio State University, Bugwood.org); e) Beginnings of tree dieback caused by ALB infestation (Photo from Pennsylvania Department of Conservation and Natural Resources, Bugwood.org)

HOSTS:

This insect is a known pest of many species of hardwood trees. Preferred hosts include *Acer* (maple, boxelder), *Aesculus* (horsechestnut, buckeye), *Betula* (birch), *Salix* (willow), and *Ulmus* (elm). Less common hosts include *Albizia* (mimosa), *Fraxinus* (ash), and *Populus* (poplar).

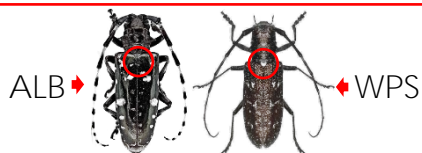
IDENTIFICATION:

Adults of Asian longhorned beetle are about an inch long and are black with irregular white spots along their backs. Their antennae are quite long (typically longer than their bodies) and have alternating black and white segments. Commonly mistaken for a native insect, whitespotted pine sawyer (WPS).

SIGNS AND SYMPTOMS:

Perfectly round exit holes in hardwood trees are a key sign of ALB infestation. Other signs include presence of many small wounds with chew marks around the edges on the bark of trees known as egg niches where a female will lay her eggs (image 'c') above). As the larvae tunnel and feed under the bark a build-up of frass (looks like sawdust) may appear. Evidence of tunneling in cut or broken branches is also common. Other signs include weeping sap, early leaf color change and drop, and branches dropping or dying.

How do you know if you're looking at ALB versus WPS? The native whitespotted pine sawyer has a white spot at the base of its wings while the invasive Asian longhorned beetle does not (this feature circled in red)



WHAT TO DO:

Collect a specimen: If you suspect you have found Asian longhorned beetle please collect a specimen and report it to newpest@ncagr.gov. We will assist you with specimen submission.

Take a picture: If you aren't sure if what you're looking at is ALB you can submit a photograph to newpest@ncagr.gov or contact your local plant pest specialist (see contact information on back).

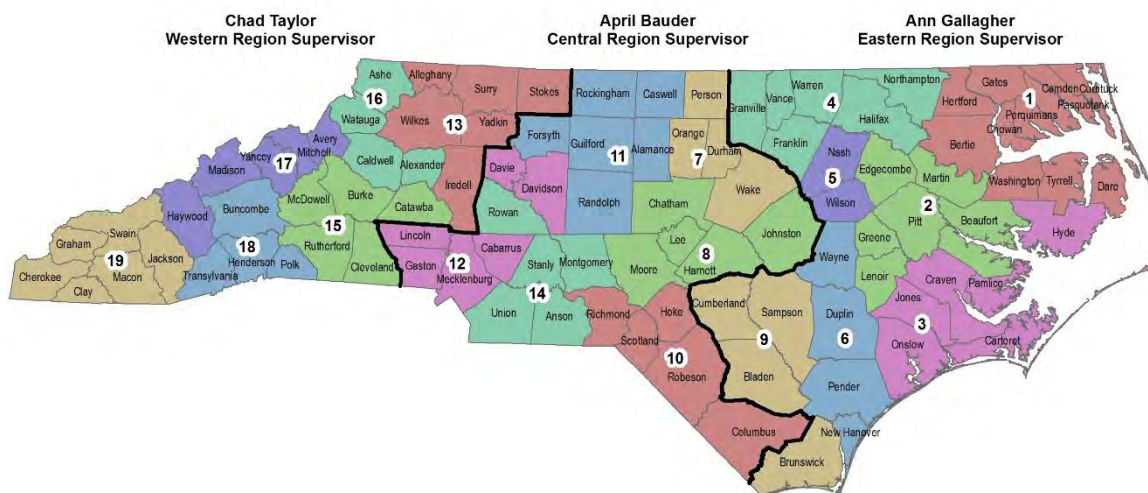
Report a find: When reporting a potential find to newpest@ncagr.gov please include the location & date of the find and a size reference (e.g. a quarter) when submitting a photo.

Please note: This pest is most commonly moved in solid wood packing material and in infested materials such as logs and firewood. Do not move firewood and remember to buy it where you burn it to help prevent the spread of invasive pests.

Steve Troxler, Commissioner of Agriculture
Phil Wilson, Plant Industry Division Director
NC Department of Agriculture & Consumer Services

For up to date information please visit:
www.ncagr.gov/plantindustry

NC Department of Agriculture & Consumer Services
Plant Industry Division – Plant Protection Section
Plant Pest Specialist Work Areas



Specialist's Names, Contact Information and Assigned Areas

Area 1:	Bertie, Camden, Chowan, Currituck, Dare, Gates, Hertford, Pasquotank, Perquimans, Tyrrell, Washington	Joe Davenport	(919) 608-0635
Area 2:	Beaufort, Edgecombe, Greene, Lenoir, Martin, Pitt	Bonnie Faulkner	(252) 521-3180
Area 3:	Carteret, Craven, Hyde, Jones, Onslow, Pamlico	David Pearce	(252) 670-1742
Area 4:	Franklin, Granville, Halifax, Northampton, Vance, Warren	Derreck Long	(252) 567-1247
Area 5:	Nash, Wilson	Ann Gallagher	(919) 218-1765
Area 6:	Duplin, New Hanover, Pender, Wayne	Scott Cannady	(919) 270-4910
Area 7:	Durham, Orange, Person, Wake	April Bauder	(919) 777-3251
Area 8:	Chatham, Harnett, Johnston, Lee, Moore	Jensen McLamb	(910) 638-4943
Area 9:	Bladen, Brunswick, Cumberland, Sampson	Chris Carter	(919) 218-8654
Area 10:	Columbus, Hoke, Richmond, Robeson, Scotland	Michelle Shooter	(910) 734-3477
Area 11:	Alamance, Caswell, Forsyth, Guilford, Randolph, Rockingham	Andrew Allen	(336) 404-5873
Area 12:	Cabarrus, Davidson, Davie, Gaston, Mecklenburg, Lincoln	Heidi Humlicek	(406) 750-6432
Area 13:	Alleghany, Iredell, Stokes, Surry, Wilkes, Yadkin	Ginger Hemmings	(336) 314-9334
Area 14:	Anson, Montgomery, Rowan, Stanly, Union	Samuel Harris	(919) 604-3896
Area 15:	Burke, Catawba, Cleveland, McDowell, Rutherford	Amanda Cook	(828) 443-1289
Area 16:	Alexander, Ashe, Caldwell, Watauga	Chad Taylor	(336) 466-0478
Area 17:	Avery, Madison, Mitchell, Yancey	Tim Hartley	(828) 260-0588
Area 18:	Buncombe, Henderson, Polk, Transylvania	Sue Dial	(828) 577-0915
Area 19:	Cherokee, Clay, Graham, Haywood, Jackson, Macon, Swain	Ryan Holquist	(828) 421-5445

Mailing Address: 1060 Mail Service Center, Raleigh NC 27699-1060

Physical Address: 216 West Jones Street, Raleigh NC 27603

Phone: (919) 707-3730 | Fax: (919) 733-1041

Please visit our website at www.ncagr.gov/plantindustry for more information!