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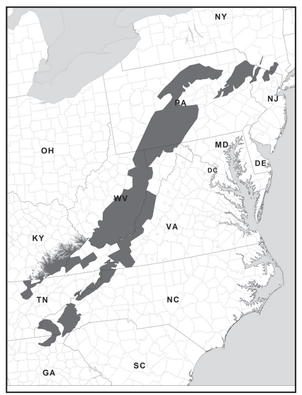
The RGS was founded in Monterey, Virginia. Over our sixty-year history, RGS (later joined by American Woodcock Society, or AWS) promotes good forest management that also creates habitat, on public and private lands, for all types of woodland species. With four chapters in Virginia, members raise money and support habitat projects in many areas of the state. Historically, habitat projects have been mostly non-commercial forest management, such as on stands that don't have enough volume for a logger to do a commercial timber harvest. The Virginia chapters have supported habitat projects on the George Washington and Jefferson National Forests.

To scale up habitat benefits and address the critical decline in grouse, woodcock, and other forest wildlife, in 2020 RGS announced a new model of conservation delivery. The model of working forests will be familiar to family forest owners who often use a portion of timber income for habitat creation, replanting, or the general maintenance of their forests. The model of working forests will involve partnering with public agencies and the forest products industry to create additional habitat from ongoing commercial forest management. It will also create new funding streams that can be re-invested in more habitat work.

How will RGS & AWS implement this model of working forests in Virginia? The first step was to hire Forest Conservation Directors. Nick Biemiller was hired in 2020 as the Southern Appalachian Forest Conservation Director, working in Southwest Virginia as well as North and South Carolina, Georgia, Tennessee, and Kentucky. Ben Larson was hired in 2021 as the Mid-Atlantic Forest Conservation Director, working in northern Virginia as well as West Virginia, Maryland, Pennsylvania, Delaware, and New Jersey. Nick and Ben are building networks of partners and developing projects funded with grants, donations, and corporate partnerships.

The focus of RGS is on developing landscape-scale projects, 2,500 to 25,000 acres in size, usually anchored on state or federal land, plus nearby private lands owned by interested landowners. Where forests are dominated by single-aged, closed-canopy forests—as they are across much of the central and southern Appalachian hardwood forests—the goal is to create a habitat mosaic with a healthier mix of age classes and forest structures. Over time, with appropriate management, the goal is to have 25-30% of stands in older or mature forest conditions, 15-20% in young forest conditions, and 50-60% in middle-aged stands. These landscape scale habitat projects are called dynamic forest blocks or dynamic forest restoration blocks.



USDA Natural Resource Conservation Service's Golden Winged Warbler prioritization map. Source: https://www.nrcs.usda.gov/Internet/FSE_MEDIA/nrcseprd1288210.png.

The RGS is working with a range of partners to improve habitat and forest resiliency at landscape-scales on private as well as public lands. To scale up habitat work on the George Washington & Jefferson National Forests, Nick Biemiller partnered with the Forest Service to hire a shared silviculturalist to assist with forest management project planning and implementation across the Clinch Ranger District, Mount Rogers National Recreation Area, and Eastern Divide Ranger District.

To work with private landowners in Virginia, RGS has a forester, Charles Faires, working with the Natural Resources Conservation Service (NRCS) in North Carolina who will begin working with landowners in southwest Virginia. Interested forest landowners can contact Charles directly (412-443-0905; charlesf@ruffedgrousesociety.org).

Partners at Indiana University of Pennsylvania and the American Bird Conservancy also have a forester working with private

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Events, news, and information promoting the stewardship of Virginia's forest resources.

VIRGINIA FOREST LANDOWNER EDUCATION PROGRAM

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Forests that Work for Landowners and Wildlife

By: Ben Larson, Ruffed Grouse Society & American Woodcock Society

Family forest owners are familiar with the ways that working forests benefit wildlife. Active forest management creates different types of habitats needed by many types of wildlife, particularly forest birds. For example, the wood thrush nests in mature forests, but take their fledglings to young forests for food. Golden-winged warblers nest in young forests or shrubby stands and often take their fledglings to middle-aged stands. Ruffed grouse and American woodcock also need both young forests and older forests in close proximity to one another.

The key for many forest birds is having a mix of forest habitat types within about a mile of each other. It's best to have young forest stands that are interspersed with older stands. Open-canopy stands need to be interspersed with closed-canopy stands. When envisioning this mixed mosaic of age classes and coverage, you can imagine a patchwork quilt or a camouflage pattern across the landscape. The way to achieve this habitat mosaic is through active forest management.

Some areas of Virginia already have this habitat mosaic, but unfortunately, many other areas do not. Mostly because of lack of appropriate habitat, all the birds listed above are 'Species of Greatest Conservation Need' in Virginia and in other states. The Ruffed Grouse Society (RGS) is working with many partners in Virginia and other states to help wildlife rebound by creating habitat mosaics that work for forest wildlife, including non-game birds as well as game bird species like ruffed grouse and American woodcock.

A woodcock (left) being banded. The Woodcock Banding Program is permitted by the USGS Bird Banding Laboratory to capture and band woodcock. A hen grouse (right). Photos by Ashley Peters and Steve Oehlenschlager, Ruffed Grouse Society and American Woodcock Society.

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EVENTS CALENDAR			For the most complete listing of natural resource education events, visit the on-line events calendar at https://forestupdate.frec.vt.edu		
Contact	**Date**	**Location**	**Event**	**Time**	**Fee**
DCR	Oct., Nov., Dec.	Virginia's State Parks	**A variety of events and activities** For a complete list, visit: www.dcr.virginia.gov/parks	Varies	Varies
MP	Year-round	Statewide	**Virginia Master Naturalist Volunteer Basic Training** Some Virginia Master Naturalist chapters will be holding training courses for new volunteers, if conditions allow. Visit http://www.virginiamasternaturalist.org/chapters-a-map-and-contacts.html for a map of chapters and information on training schedules and application procedures as they become available.	Varies	Varies
15Forest	Every other Friday	Online	**Fifteen Minutes in the Forest** Join Virginia Cooperative Extension's Forestry Team (and their special guests) for a video on a natural resources-related topic. View previous videos on our YouTube Channel.	12:15	Free
JF	Oct. 14	Cumberland County	**45th Annual Fall Forestry & Wildlife Field Tour: Cumberland** Join woodland owners and natural resources professionals for a day-long tour of active pine and hardwood management practices. You'll also learn how forests can help keep our water clean and how to control the emerald ash borer. Stops will include the Cumberland State Forest and private woodlands. Lunch and snacks provided.	8:30 - 5:00	$25*/person; $40*/couple Teacher scholarships available
NC	Oct. 19	Sussex County	**45th Annual Fall Forestry & Wildlife Field Tour: Sussex** Join woodland owners & natural resources professionals for a fall woodland & wildlife management tour. Stops include: the Garland Gray Nursery to learn how loblolly and longleaf pine seedlings are grown; the Big Woods State Forest and Wildlife Management Area and Piney Grove Preserve to hear about Virginia's Hardwood Initiative, how drones are used to ignite prescribed burns, and more! Lunch & snacks provided.	9:00 - 4:00	$25*/person; $40*/couple Teacher scholarships available
JF	Oct. 22-23	Appomattox	**Central Virginia Beginning Landowner Retreat** Is woodland management a new concept for you? If so, come spend a day and a half with fellow forest owners and natural resource professionals and learn how to get started. A combination of classroom talks, field tours, and hands-on experiences will provide you with the basics.	Friday 7:30 - 5; Saturday 7:30 - 1	**No Lodging** Individual - $55* Couple - $90* **Lodging** Individual - $95** Couple - $170**
AD/BW	Oct. 27	Botetourt/ Rockbridge Counties	**45th Annual Fall Forestry & Wildlife Field Tour: Botetourt/Rockbridge** Join woodland owners & natural resources professionals for a fall woodland & wildlife management tour. Stops include: the National Champion honey locust tree; Fraley Place to learn about the golden winged warbler, prescribed fire, and legacy planning; Ingleside Dairy to hear about farming for trout, managing for hardwoods, and a tour of a sawmill. Lunch & snacks provided.	8:30 - 4:00	$25*/person; $40*/couple Teacher scholarships available

*Meals included; **Meals and lodging included

All in-person events will follow current COVID-19 guidelines; full refunds will be issued if events are cancelled.

EVENT CONTACTS			
Contact	**Name/Affiliation**	**Phone**	**e-mail/website**
DCR	Virginia Department of Conservation & Recreation	804-786-6124	www.dcr.virginia.gov
MP	Michelle Prysby	434-872-4580	www.virginiamasternaturalist.org
15Forest	Fifteen Minutes in the Forest	**ZOOM live:** https://virginiatech.zoom.us/j/97509089739 **YouTube:** https://www.youtube.com/c/VirginiaForestLandownerEducationProgram **Facebook live:** www.facebook.com/VFLEP	
JF	Jason Fisher	434-476-2147	jasonf@vt.edu
NC	Neil Clark	757-653-2572	neclark@vt.edu
AD	Adam Downing	540-948-6881	adowning@vt.edu
BW	Bill Worrell	276-889-8056	bworrell@vt.edu

Beech Leaf Disease Found in Virginia
By: Lori Chamberlin, Virginia Department of Forestry

The last thing Virginia needed was another tree disease, but it arrived nonetheless. Beech leaf disease (BLD) has been confirmed in Virginia. This disease affects our native American beech trees and can cause tree mortality after several years, mostly in smaller trees. Plantings of other beech species such as European, Oriental, and Chinese beech are also susceptible.

When BLD was first detected in Ohio in 2012, the causal agent was unknown. A wide variety of insects and pathogens were found on symptomatic trees, but none appeared to be directly associated with the disease. It was not until years later that nematodes were investigated.

Nematodes are small, non-segmented worms that are normally invisible to all but a few specialized scientists. They tend to be microscopic and transparent, and feed on bacteria, fungi, or other microscopic creatures. While they may be difficult to see, nematodes are numerically the most abundant animals on the earth. Four out of every five animals on earth are a nematode worm. A study by Hoogen et al. (2019) revealed that there are 57 billion soil nematodes for every single living human being! They are so abundant, according to nematologist Nathan Augustus Cobb in 1915, that if all the matter in the universe except nematodes disappeared, we would still see the outline of everything represented by a film of nematodes.

So it's not surprising that nematodes have been found on symptomatic beech trees. The newly recognized nematode subspecies *Litylenchus crenatae* ssp. *mccannii* (Anguinata) is associated with BLD symptoms. *Litylenchus crenatae* was originally described in Japan, but the new subspecies found in North America has slight morphological and host range differences. It is a foliar nematode that overwinters in buds and detached leaves.

The first symptom of BLD is interveinal greening; leaf tissue darkens and thickens between lateral leaf veins. This is best observed by looking up into the canopy so that the leaves are backlit from the sun above. Beech leaves tend to overlap, which creates dark spots at overlapping leaf areas, but the banding caused by BLD always appears as striping between leaf veins. Impacted leaves are distributed unevenly on branches and trees, so you may only see a few symptomatic leaves on a branch or tree. Later symptoms include leaf crinkling, curling, and discoloration.

Interveinal greening on beech leaves, an early symptom of beech leaf disease. Photo credit: Lori Chamberlin, VDOF (left); Valerie Huelsman, Prince William County (right).

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Beech cont. from page 3

Reduced bud and leaf production lead to thin canopies, and tree mortality has been observed within 2-7 years, most commonly in smaller understory trees.

BLD has also been detected in Ohio, Connecticut, Massachusetts, New Jersey, New York, Pennsylvania, Rhode Island, West Virginia, and the Canadian Province of Ontario. In Virginia, the only known site to date is in Prince William County. If you see impacted beech trees with the symptoms listed above, please take photos and contact the Virginia Department of Forestry at foresthealth@dof.virginia.gov. Laboratory diagnosis may be necessary, in which case a local Virginia Cooperative Extension office can help obtain and submit samples. Find a local Extension office here: https://ext.vt.edu/offices.html.

Additional Information:
http://www.dontmovefirewood.org/wp-content/uploads/2019/02/Beech-Leaf-Disease-Pest-Alert.pdf

Cobb, N. A. 1915. Nematodes and their relationships. *Yearbook of the Department of Agriculture* 1914, pp. 457-90. Washington, DC: Department of Agriculture.

Reed, Sharon E.; Greifenhagen, Sylvia; Yu, Qing; Hoke, Adam; Burke, David J.; Carta, Lynn K.; Handoo, Zafar A.; Kantor, Mihail R.; Koch, Jennifer. 2020. Foliar nematode, Litylenchus crenatae ssp. mccannii, population dynamics in leaves and buds of beech leaf disease-affected trees in Canada and the US. *Forest Pathology* 50(3): e12599. 9 p.

Van den Hoogen, J., Geisen, S., Routh, D. et al. Soil nematode abundance and functional group composition at a global scale. *Nature* 572, 194–198 (2019).

Lori Chamberlin is the Forest Health Program Manager, lori.chamberlin@dof.virginia.gov, 434-220-9026.

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landowners interested in improving forest health, and in the process, creating habitat for golden-winged warblers (see the map on page 5 for the NRCS Working Lands for Wildlife-Golden-winged Warbler Initiative priority Virginia counties - in dark gray). Interested forest landowners in these priority counties can contact Chris Peters (540-569-4650; Christopher.Peters@usda.gov).

RGS is developing other partnerships as well. For example, RGS recently signed an agreement with the Association of Consulting Foresters (ACF) to advance mutual interests in forest management and improving habitat.

In Virginia and other states, the forest products industry will be a key partner in scaling up habitat improvements. Getting work done on the ground at scale simply requires markets to pay to cover most of the costs of implementing management. Markets for low-value hardwood and pine are particularly critical because they can make it viable to remove small-diameter trees necessary to create more open-canopy stands and young forest habitats. Thankfully, there are markets for low-value wood in much (though not all) of Virginia.

The RGS looks forward to collaborating with agencies, foresters, landowners, and forest product companies to create more wildlife habitat.

If you are interested in participating in a landscape-scale partnership in southern Virginia, Nick Biemiller can be reached at nickb@ruffedgrousesociety.org, and for landscape-scale partnership opportunities in northern Virginia, Ben Larson can be reached at benl@ruffedgrousesociety.org.

Ben Larson is the Forest Conservation Director for the Mid-Atlantic Region.