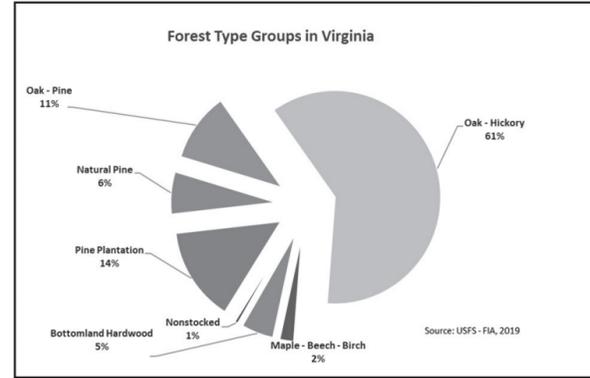


Bottomland hardwood forests comprise about 5% of Virginia's forests. Species composition in these valuable forest types vary, depending on where they are in Virginia. Typically, they are a mixture of ash (rapidly disappearing), gums, and maples. These forests help maintain cooler water temperatures, provide high-quality wildlife habitat, and stabilize stream banks.

Finally, about 2% of Virginia's forests are classified as the maple-beech-birch type. These forests are dominated by shade-tolerant species that thrive under low light conditions and are maintained by management strategies that involve little disturbance. This forest type does not produce valuable timber species but does provide some wildlife benefits.



Virginia's main forest types. Data and graph from the Virginia Department of Forestry.

and has led to an overall decline in hardwood forest health throughout the region.

Another issue all Virginia's forests face is the introduction of nonnative invasive species. These can include plants, animals, diseases, and insects. An extreme example of how a nonnative invasive disease has impacted our forests is the chestnut blight. This pathogen, introduced in the early 1900s, resulted in the loss of American chestnut throughout its range in the Appalachians. Once the dominant species in the region, now only occasional blight-tolerant trees and small stump spouts are found. But the loss of American chestnut opened up a niche for oaks, which are now the dominant species in most of the southern Appalachians.

Unfortunately, the oaks that came in after the loss of American chestnut are old, with many close to 100 years. Like humans, as trees age, they become less resilient. In the face of other damaging factors, such as drought, insects, and diseases, they are more likely to die, a phenomenon known as oak decline.

Another challenge with oaks is regeneration. Partial harvests, like those conducted in high-grades, may not allow enough sunlight to reach oak seedlings on the forest floor. Too much shade prevents oak seedlings from thriving. On the other end of the spectrum, management practices like clearcutting allow too much sunlight to reach the forest floor. Full sunlight allows species such as yellow-poplar to out-compete oaks. High deer populations in many areas of the state also have a negative impact on oak regeneration as deer browse heavily on small oaks.

And lastly, affordable management options are limited by a lack of markets for low-quality trees that dominate Virginia's hardwood forests. Without markets, landowners must pay out-of-pocket for management activities that improve forest health, such as thinning and removal of unhealthy or undesirable trees. These costs are often prohibitive and no management is able to be conducted. Strong markets for low-quality products incentivize landowners to manage their forests.

But it's not all gloom and doom. There is hope for improving hardwood management and improving the quality of Virginia's hardwood forests. First, demand for bourbon is at an all-time high. White oak is used to make barrels for bourbon. In fact, spirits can only be labeled as bourbon if they are aged in a brand-new white oak barrel. While the current supply of mature white oak is good, future supply may be difficult to come by. As such, the bourbon industry has a vested interest in helping landowners improve the management of their forests to encourage the regeneration and growth of white oak.

Additionally, the forestry community in Virginia recognizes the importance of the hardwood resource. To this end, the Hardwood Forest Habitat Initiative is being developed to help give landowners the tools they need to practice sustainable forest management in their hardwood forests. More information will be available in late 2022.

VIRGINIA FOREST LANDOWNER UPDATE

Winter 2022



Virginia Cooperative Extension
Department of Forest Resources &
Environmental Conservation (0324)
Virginia Tech
Blacksburg, Virginia 24061



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Volume 36, Number 1

https://forestupdate.frec.vt.edu

Winter 2022

VIRGINIA FOREST LANDOWNER UPDATE

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

VIRGINIA FOREST LANDOWNER EDUCATION PROGRAM

Jennifer L. Gagnon, Editor

Address all correspondence to:
Virginia Forest Landowner Update
228 Cheatham Hall (0324)
Blacksburg, VA 24061
540-231-6391
jgagnon@vt.edu
https://forestupdate.frec.vt.edu

Virginia Forest Landowner Update is published four times per year (January, April, July, and October) by the Virginia Forest Landowner Education Program. Circulation 4,000.

Subscriptions are free of charge to citizens of the Commonwealth of Virginia and non-resident Virginia forest landowners. Subscriptions to other non-Virginia residents at the discretion of the publisher. Printing and distribution cost is approx. \$1/subscriber per year.

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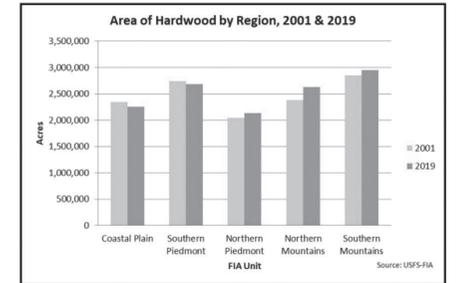
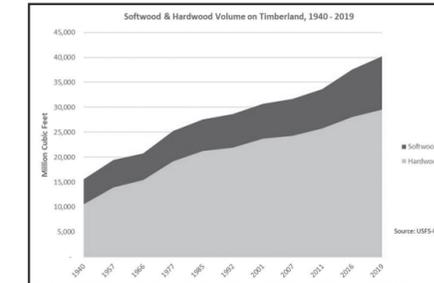
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2022 The Year of the Hardwood

By: Michelle Stoll, Virginia Department of Forestry

In 2022, we plan to feature one article per newsletter that relates to managing Virginia's hardwood forests. We'll start this winter with a discussion of the current status of our hardwood forests.

A common concern among Virginians is that all the hardwood forests are being harvested and replaced with planted pine. And while there is indeed plenty of planted pine in the commonwealth, there are actually more acres in hardwoods today than there were in the 1940s. In fact, total standing volume of hardwoods (what is growing in the woods) has increased from 10 billion cubic feet in 1940 to over 25 billion cubic feet in 2019. And the acreage of hardwoods across Virginia has remained stable in every region from 2001 to 2019. This is good news, because Virginia's hardwood forests provide high ecological, societal, and economic values.



Total standing volume of hardwoods and softwoods in Virginia from 1940-2019 (left). A comparison of the acreage in hardwoods in the physiographic regions of Virginia in 2001 and 2019 (right). Data and graphs from the Virginia Department of Forestry.

From an ecological perspective, hardwood forests provide food, shelter, and nesting sites for a multitude of wildlife species. Additionally, they take up and store carbon from the atmosphere, stabilize stream banks, and reduce soil erosion. From a societal perspective, hardwood forests offer recreational opportunities, including hiking, hunting, fishing, and leaf peeping. And these recreational opportunities help stimulate local economies.

Additional economic benefits are derived from harvesting hardwood timber. Hardwood forests provide high-quality lumber for furniture, flooring (what would all the home renovation shows do without hardwood flooring??), pallets, railroad ties, barrels for spirits, paper, and packaging.

The 12.6 million acres of hardwood forests currently make up 79% of Virginia's 16.1 million acres of forest. Over 100 different hardwood species are found in the commonwealth, so these are diverse forests. The exact mix of species will depend on climate, elevation, aspect, soils, and past land use. Yet, these hardwood forests can be classified into several main types.

Over 61% of Virginia forests are in the oak-hickory forest type. In general, oak-hickory forests in Virginia have a mix of white oak and northern red oak on more productive soils, scarlet and chestnut oak on drier, less productive soils, and mockernut, pignut, and shagbark hickories, along with a wide variety of other species. Oak-hickory forests provide valuable habitat and hard mast for wildlife and contain valuable timber species.

Approximately 11% of Virginia's forests fall into the oak-pine category. These forests are characterized by having a mix of hardwoods and pines. These are extremely important for wildlife. The hardwoods provide both soft and hard mast for food, while the pines provide thermal cover over the winter. This forest type needs periodic disturbance such as fire or timber harvesting to be maintained. Otherwise, it will go through the natural process of succession, with the short-lived pines slowly dying off and the hardwoods becoming dominant, resulting in an oak-hickory forest.

CONTACT OUR SPONSORS AND STATE NATURAL RESOURCE MANAGEMENT AGENCIES:



Virginia Department of Forestry	Virginia Tech Department of Forest Resources & Environmental Conservation & Virginia Cooperative Extension	USDA Forest Service Forest Stewardship Program	Virginia Forestry Association	Virginia Sustainable Forestry Initiative SIC/Virginia Tree Farm Foundation
900 Natural Resources Drive Ste. 800 Charlottesville, VA 22903 434-977-6555 https://www.dof.virginia.gov	228 Cheatham Hall 0324 Blacksburg, VA 24061 540-231-6391 https://forestupdate.frec.vt.edu	1400 Independence Ave. SW Washington, D.C. 20250 202-205-0929 https://www.fs.usda.gov/managing-land/private-land/forest-stewardship	3808 Augusta Ave Richmond, VA 23230 804-278-8733 www.vaforestry.org	804-278-8733 http://virginiasfi.org/ 757-241-0956 https://virginiatff.org/



This publication is supported by matching grant funds from the Virginia Forest Stewardship Program administered by the Virginia Department of Forestry in cooperation with the USDA Forest Service.



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EVENTS CALENDAR			For the most complete listing of natural resource education events, visit the on-line events calendar: https://forestupdate.frec.vt.edu		
Contact	Date	Location	Event	Time	Fee
DCR	Jan., Feb., & March	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 spring 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	Fridays	Online	Fifteen Minutes in the Forest Join Virginia Cooperative Extension's Forestry Team (and their special guests) every other Friday for a video on a natural resources-related topic. View previous videos on YouTube.	12:15	Free
WS	Jan. 18 Jan. 25 Feb. 1 Feb. 8 Feb. 15	Online	Woodland Stewards Webinar Series - Forestry Taxes Seeing the Forest for the Trees: An Overview of Forestry Taxes Basics of Timber Basis: Re(setting) the Table Timber Management Expenses and Deductions Keeping More of Your Timber Income Following a Timber Sale Coping with Losses from Nature and Chance	1:00	Free
VAFHP	Feb. 14-15	Staunton or Online	Virginia Association of Forest Health Professionals Conference Learn about emerging threats to forest health.	Varies	\$110/Online access is free
JG/BW/EP AD/EP	Feb. 19 Feb. 26	Wytheville Culpeper	Woods & Wildlife Conferences The Woods & Wildlife Conferences provide information, tools, and personal contacts to help private woodland owners keep their woods, and the wildlife that live in them, healthy and productive. A variety of topics are offered to appeal to owners of both small & large tracts, and both new & experienced owners.	8:30 - 4:30	\$45*/person; \$80*/couple
JG	March 7 - June 3	Online	Online Woodland Options for Landowners This 12-week self-paced online course teaches the fundamentals of forest management. Upon completion of the class, you can have a draft forest management plan. Natural resource professionals serve as mentors and the class wraps up with an optional end-of-the-semester hands-on field trip.	NA	\$45/family
JG/EP/JF	March 18-19	Appomattox	Woodland Owner Retreat Forest Management - Beyond the Basics The Retreats were developed for those new to active woodland management. But we are excited to announce that in 2022 we will offer Forest Management: Beyond the Basics. This advanced program will take a deeper dive into woodland and wildlife management topics as identified by past Retreat attendees.	March 18 7:15 - 6 March 19 7:15 - 1	No Lodging Individual \$65* Couple \$110** Lodging Individual \$105* Couple \$190**
VFA	May 3-6	Blacksburg	Virginia Forestry Summit Come to beautiful Blacksburg and join woodland owners and natural resource professionals to learn about the hottest topics in forestry. Special landowner activities will be offered.	Varies	Varies

*Meals included; **Meals & lodging included

[See Event Contacts on page 4](#)

Hardwoods cont. from page 5

Finally, Virginia Tech is developing an interactive tool to help landowners conduct crop tree release on their property. Crop tree release is an easy way to improve the quality of desirable trees in a hardwood forest. The tool should be ready late in 2022.

In future editions of the Virginia Forest Landowner Update, we will have articles focused on different aspects of hardwood management – management practices landowners can do to improve their hardwood forests.

Michelle Stoll is the Director of Public Information; michelle.stoll@dof.virginia.gov; 434-220-9098.

Chronic Wasting Disease ALERT!

Chronic wasting disease in white-tailed deer is spreading in Virginia. Learn more by watching this video by Katie Martin, Virginia Department of Wildlife Resources' Deer/Bear/Turkey Biologist: <https://youtu.be/6ORJ957P3u0>.

You Ain't from Around Here! Invasive of the Quarter: Rabbit Hemorrhagic Disease Virus 2 (RHDV2)

By: Jennifer Gagnon, Virginia Tech

As a Virginia woodland owner, you are probably quite familiar with the eastern cottontail (*Sylvilagus floridanus*). Every morning as I drive to work I pass a few (and sometimes follow one as it jumps ahead of me along the road). You may not be as familiar with other rabbits that may be found or have historically occurred in restricted areas of Virginia, such as the Appalachian cottontail (*Sylvilagus obscurus*), marsh rabbit (*Sylvilagus palustris*), Mearn's eastern cottontail (*Sylvilagus floridanus mearnsii*), Smith's Island cottontail (*Sylvilagus floridanus hitchensi*) or the nonnative black-tailed jackrabbit (*Lepus californicus*), which is actually a hare. In addition to being charming additions to the landscape (when they aren't eating our garden vegetables), rabbits are important indicators of healthy ecosystems. They help disperse the seeds of native plants and are an important food source for a variety of predators, including hawks, owls, foxes, bobcats, and coyotes. They are also economically valuable. Small game hunters, including rabbit hunters and falconers, contributed \$2.6 billion to the US economy in 2011. And rabbits are the third most common house pet in the US.

Unfortunately, a highly contagious strain of rabbit hemorrhagic disease (RHD), spread by a nonnative virus (rabbit hemorrhagic disease virus 2 [RHDV2]), currently is spreading through parts of the US. A previous strain of RHD (RHDV1) was present in Europe since the late 1970s and had spread to over 40 countries. Although RHDV1 only affected young European rabbits (*Oryctolagus cuniculus*), it resulted in dramatic declines in wild rabbit populations throughout Europe and Asia. The newer RHDV2 strain was first identified in France in 2010 and quickly spread throughout Europe. Unlike its predecessor, RHDV2 infects many species of rabbits, as well as hares. It also appears to affect both young and adults.

Here in the US, RHDV2 was first detected in domesticated rabbits in Ohio (2018), Washington State (2019), and New York (2020). It was first detected in wild rabbits in the Four Corners Region (CO, UT, AZ, NM) of the southwestern US in 2020. Since then, confirmed cases of RHDV2 have spread rapidly from the initial area of outbreak, affecting both wild and domestic populations. As of this writing, it has been confirmed in 16 states (see map); however it is not known to be present in Virginia. Cases of RHDV2 that have arisen farther to the north and east have been attributed to the exposure and subsequent movement of infected domestic and/or commercial rabbits, especially those that have been caged in close proximity to other rabbits (such as would occur at competitions and shows). This movement likely occurred before any diagnostic symptoms of disease were evident.

RHD progresses rapidly and damages the liver of infected animals. RHD is fatal in up to 80% of infected animals. It is likely that all rabbit and hare species in the US are susceptible. Infected animals who survive RHD can continue to shed the virus for at least 42 days.

The progression of RHDV2 is so fast that it is rare to observe clinical signs, especially in wild rabbits. Often, sudden death is the first sign of a problem. Where observed, clinical symptoms may include:

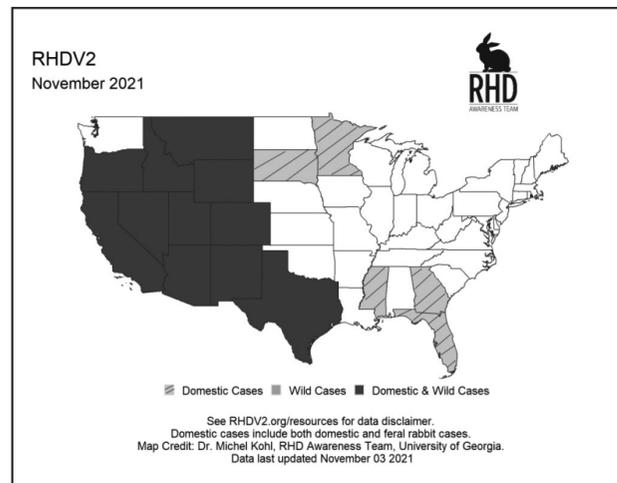
- Bleeding from the nose, other orifices, or internally within various body cavities
- Lethargy and depression
- Convulsions
- Lack of coordination
- Blue-tinged lips
- Difficulty breathing
- Fever
- Decreased appetite

However, finding dead rabbits and hares with no obvious signs of trauma will be the most likely indication of infection.

[RHDV2 cont. on page 4](#)



A young eastern cottontail rabbit. Photo by: Jen Goellnitz. Creative Commons — Attribution-NonCommercial 2.0 Generic — CC BY-NC 2.0.



RHDV2 cont. from page 3

RHDV2 spreads through direct contact between rabbits and hares and indirectly through contact with meat, fur, blood, urine, feces, and materials an infected animal has touched, such as bedding, cages, clothing, and shoes. The virus may last a long time on contaminated materials. As is the case with many nonnative species, people are the greatest vectors contributing to the spread of this disease as infected animals and contaminated materials are moved to new areas.

What can be done to protect rabbits and hares from RHDV2?

- If you find a sick or dead rabbit or hare that has blood around its nose or mouth or does not show any obvious signs of death, please mark the location and report it. Do not touch or move dead animals.
 - Report domesticated animals to the Virginia State Veterinarian at 804-692-0614 or vastatevet@vdacs.virginia.gov.
 - Report wild animals to your local Virginia Department of Wildlife Resources (DWR) District Biologist: <https://dwr.virginia.gov/wp-content/uploads/media/dmap-map.pdf> or call the Wildlife Conflict Helpline at 855-571-9003.
- Leave wild rabbits where you find them. Remember, it is illegal in Virginia to have any wild animal in possession or to relocate one to property you do not own without a permit from DWR to do so.
- Do not move or transport rabbits long distances.
- If you live in or near an area with confirmed RHDV2 cases (none in Virginia at the time of this writing) and are taking an injured rabbit to a wildlife rehabilitation center or veterinarian, contact the business before arrival to discuss their RHDV2 precautions.
- Do not transport live or dead rabbits into or out of RHDV2 positive areas.

If you have pet or show rabbits, additional precautions may be warranted — consult your veterinarian for further guidance.

There is no cure for animals infected with RHDV2; however, there is a vaccine under emergency authorization in the US. The developer of the vaccine, Medgene Labs, is working with state veterinarians to meet individual state requirements for distribution and reporting of the vaccine. Because of the rapidly expanding availability, check with your state's agriculture agency to determine the status of this vaccine's availability in your state. Of course, vaccination is not a viable solution for protecting wild rabbits and hares at this time.

Although RHDV2 certainly is worrisome, there are other diseases that also can lead to death in rabbits, some that also display few to no clinical signs. Therefore, if you observe dead rabbits and hares, please contact the appropriate agencies noted above so they can accurately determine a cause of death.

Addition information is available from:

- RHD Awareness Team: <https://rhdv2.org/>
- The Center for Food Security and Public Health: https://www.cfsph.iastate.edu/Factsheets/pdfs/rabbit_hemorrhagic_disease.pdf
- USDA Animal and Plant Health Inspection Service: [fs-rhdv2.pdf](https://www.aphis.usda.gov/rhdv2) ([usda.gov](https://www.usda.gov)).
- Virginia Department of Wildlife resources:
 - Rabbit Hemorrhagic Disease: <https://dwr.virginia.gov/wp-content/uploads/media/RBDV2.pdf>
 - Rabbit Hemorrhagic Disease Virus Serotype 2: <https://dwr.virginia.gov/wp-content/uploads/media/RHDV2-Shows-and-Fairs.pdf>

Jennifer Gagnon is an Extension Associate; jgagnon@vt.edu; 540-231-6391.

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	
WS	Woodland Stewards	https://forestrywebinars.net/sponsor-pages/woodland-stewards/	
VAFHP	Virginia Association of Forest Health Professionals	https://www.vafhp.org/	
JG	Jennifer Gagnon	540-231-6391	jgagnon@vt.edu
BW	Bill Worrell	276-889-8056	bworrell@vt.edu
EP	Ellen Powell	434-977-6555	ellen.powell@dof.virginia.gov
AD	Adam Downing	540-948-6881	adowning@vt.edu
JF	Jason Fisher	434-476-2147	jasonf@vt.edu
VFA	Virginia Forestry Association	804-278-8733	https://www.vaforestry.org/