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VIRGINIA FOREST LANDOWNER UPDATE

Events, News, and Information Promoting the Stewardship of Virginia's Forest Resources

INSIDE

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NRCS Virginia Golden-winged Warbler Initiative: A Working Lands for Wildlife Program

By Moriah Owen, Natural Resources Conservation Service

How did you come to find yourself on your property? Was it handed down by a parent or family member? Did you stumble upon a great deal and take a chance? Were you searching, hunting for just the right spot to put down roots? Or did you relocate for love?

We might ask these same questions of the golden-winged warbler (*Vermivora chrysoptera*), a chickadee-sized migratory songbird that spends its summers nesting in the Appalachian Mountains and upper Midwest into Canada. This striking creature overwinters in Central and South America from Guatemala south to Colombia and Venezuela. Come April, it begins its trek northward, flying across the Gulf in just one day!

Golden-winged warblers are about the size of a saltshaker and weigh as much as two nickels. These insectivores highly prefer caterpillars. They mate, nest, and raise offspring in young forests between May and July. Sadly, they are one of the most rapidly declining songbird species in the nation, down to a third of the 1970s population. Research studies identify habitat loss as the main culprit.

Despite their bravado in migration, golden-winged warblers tend to stick to what they know; most return to the same nesting sites year after year, unwilling to risk a lack of mates in new areas. This means that even if new patches of young forest are created, the birds may not find them or choose to use them for breeding.

They also have a problem with hybridization. The very closely related blue-winged warbler occupies nesting sites similar to the golden-wings. When blue-winged warblers and golden-winged warblers mate, the blue genes tend to present more in the offspring. This gradual decline in the gene pool threatens the species at lower elevations where blue- and golden-winged warbler ranges overlap. Thankfully, blue-winged warblers won't typically nest above 2,000 feet in elevation in Virginia, so at higher elevations the golden-wings are home free!

Or are they?

These birds require early successional habitat; this looks like shrubby overgrown fields or young forest openings with flowering plants and grasses in and amongst scattered overstory trees. A mix of hawthorns, oaks, cherries, blackberry canes, goldenrod, milkweed, and asters occupy most nesting sites. As a ground-nesting species, golden-winged warblers desperately need cover. They often construct nests at the base of a goldenrod stem or blackberry cane so the female can subtly enter and exit the nest without drawing the attention of predators.

A male golden-winged warbler perched on a blackberry cane. Photo by the Pennsylvania Golden-winged Warbler Team.

Aerial imagery from the western portion of the state reveals little young forest and shrubland. Agricultural valleys and floodplains appear to best resemble early successional stages but often are cleared of shrubs or trees and exist below 2,000 feet (higher risk of hybridization). Most of our highest elevations are covered in mature timber with very few openings. While we often perceive dense forest continuing for hundreds of thousands of acres as perfect wildlife habitat, these areas are food deserts for many species. They lack the structural variety and associated food resources that many forest dwellers require.

The dense canopies of mature trees soak up all the sunlight before it reaches the forest floor; consequently, this limits the plants growing in the mid- and understory.

–Golden-winged warbler, continued on page 3.

Events Calendar

For the most complete listing of natural resource education events, visit the online events calendar at https://forestupdate.frec.vt.edu

SCHEDULED EVENTS - AUGUST - NOVEMBER 2025

DATE	LOCATION / DETAILS	EVENT DESCRIPTION	CONTACT
Aug. 15 & 16 **Oct. 4** **Nov. 8**	Montpelier Station Farmville Southeast Virginia Times and registration fees vary by location	**Generation NEXT Legacy Planning Workshops** Join family communication, conservation, legal, and financial experts to learn how to plan for passing your land on to the next generation while keeping it intact, in forest, and in family ownership. Visit: https://sites.google.com/vt.edu/generationnext/home/workshops for details.	Karen Snape ksnape@vt.edu 540-231-6494
Aug. 22 **Sept. 4** **Sept. 15** **Sept.19** **Sept. 26**	King & Queen County Sussex County Bland County Shenandoah County Montgomery County 11:30 AM - 3:00 PM $15*/person	**Tree Farm Lunch Tours** These tours bring woodland owners together to visit an active Tree Farm, learn about the Virginia Tree Farm Foundation, and provide fellowship among those who care about healthy woods and active woodland management. Registration includes lunch.	Jennifer Gagnon jgagnon@vt.edu 540-231-6391
Sept. 5-6	Providence Forge 9/5 7:15 AM - 6:00 PM 9/6 7:15 AM - 1:00 PM $65*/person $130*/couple On-site lodging is available for an additional $65.	**Southeast Virginia Beyond the Basics: Advanced Woodland Owner Retreat** **Focus on Forest Management for Wildlife** For landowners who have some experience with forest management. We will take a deep dive into creating and managing wildlife habitat for both game and non-game species. Program includes classroom, field trip, and hands-on activities.	Jennifer Gagnon jgagnon@vt.edu 540-231-6391
Sept. 20	Jackson, NC 8:30 AM - 4:00 PM $30*/person	**Woods & Wildlife Conference** Join the first-ever south-central Virginia/north central North Carolina landowner Woods & Wildlife Conference. Modeled after the ever-popular Woods & Wildlife Conferences in Culpeper and southwest Virginia, this one-day event will consist of concurrent sessions and a tour of the nearby Roseburg Forest Products mill.	Neil Clark neclark@vt.edu 757-653-2572
Oct. 2 **Oct. 9** **Oct. 17** **Oct. TBA**	Henry Wise Frederick Virginia Beach $55*/person $90*/couple	**Fall Forestry & Wildlife Field Tours** Join landowners, natural resource professionals, and other outdoor lovers for day-long tours that explore a variety of sustainable forestry and wildlife management practices. Tours visit private, public, and industry-owned lands.	Jennifer Gagnon jgagnon@vt.edu 540-231-6391
Nov. 7	Critz 10:30 AM -4:00 PM $45*/person	**Timber Cruising for Woodland Owners** Hiring a professional forester is the best way to ensure an accurate accounting of your timber volume and value. And it's important for you to understand where these numbers come from. This hands-on class will teach you how a timber cruise is conducted.	Jennifer Gagnon jgagnon@vt.edu 540-231-6391

***Meal(s) included**

ONGOING EDUCATIONAL PROGRAMS

Virginia Master Naturalist Volunteer Basic Training

Available statewide. Dates, times, and fees vary.

People who are curious about nature, enjoy the outdoors, and want to be a part of natural resource management and conservation in Virginia are perfect candidates to become Virginia Master Naturalists.

Visit www.virginiamasternaturalist.org for a chapter near you.

Fifteen Minutes in the Forest

Online video series. Every 4th Friday at 12:15 pm.

Join Virginia Cooperative Extension's Forestry Team for videos about natural resource-related topics.

Connect/find past videos:

- **YouTube:** https://www.youtube.com/c/VirginiaForestLandownerEducationProgram
- **Facebook live:** www.facebook.com/VFLEP

Golden-winged Warbler, *continued from page 1*

A shrub-dominated field with scattered trees (top). Young forest habitat created by a recent timber harvest (bottom). Photos by the Pennsylvania Golden-winged Warbler Team.

The lack of fresh, nutritious growth and seed-bearing plants on the forest floor restricts food for turkeys, grouse, bear, deer, rabbits, and pollinators, not to mention the number of places for golden-winged warblers to hide a nest!

So, what do we do? The answer is simple yet challenging: create early successional habitat. In many areas, this means responsibly cutting trees. Opening the forest canopy and bringing light to the forest floor will stimulate plant growth to provide the essential nesting cover for golden-winged warblers.

The woody species that fill in these openings can vary greatly, and unwanted intruders may have negative effects. For example, nonnative invasive species like autumn olive, multiflora rose, and Japanese barberry establish and flourish in recently disturbed areas. They can outcompete native species and provide less nutritious forage and fewer insects for wildlife. While these shrubs might offer the correct structure for golden-winged warbler nesting cover, the long-term reduction of native species degrades the ecosystem's functionality and quality.

Even if invasive species are not present, some aggressive native species like red maple, sweet birch, and eastern white pine may dominate a site and outcompete regenerating desirable species like oaks. To clarify, none of these native trees are good or bad in and of themselves, but some certainly prove more useful to specific wildlife species that are in decline.

Golden-winged warblers primarily eat caterpillars of moths and butterflies. Oak trees are some of the most prolific hosts of these caterpillars, with white oak alone observed to host 200 species. It is no coincidence that the golden-winged warbler's distribution nearly matches the oak-hickory forest footprint across the Appalachians.

And in this case, bigger is better. A dominant, mature white oak over 20 inches in diameter acts as a better-stocked refrigerator of food compared to a smaller white oak with a diminished crown. The larger the spreading crown, the more branches and leaves there are to host caterpillars. Interestingly, part of the golden-winged warbler's mating ritual is for males to sing from the branches of mature trees scattered throughout the early successional nesting habitat where females reside, so these oaks double as perches.

More branches and larger crowns also mean more acorns. These nutrient-dense morsels are relished by everything from blue jays and squirrels to turkeys and record-setting white-tailed bucks. Young forest sites suitable for golden-winged warbler are tremendously productive for other wildlife species, such as cottontail rabbit, ruffed grouse, American woodcock, Baltimore oriole, yellow-breasted chat, chestnut-sided warbler, and a host of pollinator species. A testimony from one program participant boasted sixteen distinct ruffed grouse heard drumming in a single morning.

Considering these habitats in context raises yet another concern: What happens next? The nature of succession in the Appalachians is for young forests and fields to continue to grow up in trees, eventually reverting to mature, closed-canopy forest. By that time, a site is no longer appropriate for golden-winged warblers or providing diverse, abundant food for the myriads of other wildlife.

Again, we turn to succession. Logically, if one young forest patch begins to close and no longer exists as a shrubby opening, we can create another to reset succession somewhere else. Historically, frequent disturbances across the landscape have accomplished this naturally through ice storms, hurricanes, blowdowns, landslides, beaver activity, pest or disease outbreaks, and fires started by lightning or Native Americans. Another option is to maintain an existing shrubland through brush hogging or prescribed burning.

These are the general strategies implemented to best suit the golden-winged warbler, but each individual site has unique features that are considered when formulating a management plan. Location, slope, and aspect of a tract, along with its forest type, species, regenerating seedlings, invasive plant pressure, and proximity to known golden-winged warbler nesting sites, are key. As conservation planners, we match the plan to the land, just as a doctor matches a prescription to a patient. Our tools include noncommercial thinning, invasive species treatment, tree and shrub planting, timber harvest, and much more.

The Natural Resources Conservation Service Virginia Working Lands for Wildlife programs are designed to create and sustain wildlife habitat in the short and long term while still supporting responsible use of the land by its private landowners.

If you own property in the Appalachian region of Virginia and are interested in creating early successional on your property or just moving your forest in the right direction of sustainable management for habitat, we want to work with you! Our program provides financial and technical assistance on how to best manage your land to meet both your objectives and our program goals.

–Golden-winged warbler, continued on page 5.

You Ain't From Around Here! Nonnative Invasive of the Quarter: Hardy/Trifoliate Orange (*Poncirus trifoliata*)

by Jennifer Gagnon, Virginia Tech

Life is funny. I started writing this article a couple of weeks ago never having seen a trifoliate orange in person. Then, we had dinner at the home of some friends this past weekend and on a tour of their property they showed off their nicely planted, well-mulched, trifoliate orange. It was great timing as it gave me the opportunity to take photos for this article.

While researching trifoliate orange, I had to go to the second page of the Google results to find any information stating that this species is a nonnative invasive. Page 1 was consumed with websites selling this, apparently, desirable ornamental. It is, however, listed as a highly invasive species on the Virginia Invasive Species Plant List: https://www.dcr.virginia.gov/natural-heritage/invsppdflist. This is one of the hurdles to controlling nonnative invasives.

Background
Trifoliate orange, also known as hardy orange or Japanese/Chinese bitter orange, is a shrub or small tree native to China and Korea. It was introduced to Northern Europe in the 18th century and to the United States in 1850 or perhaps even earlier.

Here in Virginia, according to EDDMaps (https://www.eddmaps.org) trifoliate orange has been introduced in Albemarle, Amherst, Bland, Chesterfield, Giles, Goochland, Halifax, Henrico, Isle of Wight, Orange, Surry, and Washington Counties. And, as my recent sighting in Montgomery County suggests, it is most likely in many other Virginia counties as well.

Trifoliate orange prefers well-drained, acidic soil in sunny locations. It blooms in mid-spring and the fuzzy orange fruit ripens in early fall. Although the plant itself can tolerate temperatures as low as -20 degrees F, cold temperatures may prevent mature fruit from forming.

The Trouble with Trifoliate Orange
The thorns on trifoliate orange are long, sharp, and plentiful, thus making it unsuitable for high traffic areas. Unless you want to reduce traffic in these areas, in which case it is quite suitable.

The vicious thorns make it poor habitat or shelter for nesting birds, squirrels, or burrowing animals.

Additionally, in the right growing conditions, trifoliate orange can spread quickly once established. It spreads through root sprouts and seeds that are dispersed by animals.

This shrub invades woodlands, forest edges, and disturbed urban areas such as fence rows and green spaces. It grows rapidly and shades out native plants.

And did I mention the thorns?

How to Identify Trifoliate Orange
Leaves: Alternate, trifoliate, shiny dark green leaflets 1-2" long. The center leaflet is the longest. Crushed leaflets smell spicy.

One of many stiff, green, 1" thorns that cover the stem and branches of the trifoliate orange shrub. Photo by Jennifer Gagnon, Virginia Tech.

Flowers: White, fragrant, five-petaled, 1-2" wide flowers with pink stamens appear in the spring.

Fruit: Green, ripening to yellowish orange, the fuzzy fruits are 1-1.5" in diameter. They have a floral grapefruit smell, very sour taste, and numerous seeds. Fruits ripen in late summer. Trifoliate orange may take up to 12 years to produce fruit.

Twig: Green, stout twigs have numerous, stiff, 1" green thorns.

Bark: Light gray-brown and smooth.

Form: Small tree or shrub, up to 20' tall.

Uses
Although sour and seedy, the fruit of trifoliate orange is edible. The flavor is described as lime plus grapefruit, slightly bitter, and intense. Alas, there was no ripe fruit about at the time of this writing, so I was unable to taste one for myself.

The fruit tastes better with the addition of sugar. Trifoliate orangeade can be made like lemonade. The fruit is also commonly made into marmalade and the rinds candied. You can also eat the leaves, which taste nice when boiled (I cannot vouch for this either).

The fruit is used to create essential oils and the plant works well for indoor container gardens.

If you need a barrier planting to keep out dogs, burglars, or pedestrians averse to staying out of your yard, trifoliate orange can be used as a hedge. Though the leaves are deciduous, the green thorns are so thick they give the shrub the appearance of being evergreen.

Finally, because of the high concentration of poncirin in trifoliate orange fruit, there are traditional medicinal uses. These include treatment for allergic reactions, typhoid, and toothaches.

–Trifoliate orange, continued on page 5.

Trifoliate orange, *continued from page 3*

Trifoliate orange has alternately-arranged trifoliate leaves with shiny green leaflets (top). The five-petaled flowers are white with pink stamens, 1-2" wide, and bloom in the spring (middle). The 1-1.5" diameter fuzzy fruits start out green and ripen to a yellowish orange. They contain numerous small seeds (bottom). Photos (from top to bottom) by: Jennifer Gagnon, Virginia Tech, Ansel Oommen, Bugwood.org, and James Johnson, Georgia Forestry Commission.

If you choose to use trifoliate orange in any way, just be aware that the high acidity can give you stomach issues like nausea and pain. The shrub is also known to irritate the skin of sensitive individuals after prolonged contact. And of course, the thorns.

How to Control Trifoliate Orange
Mechanical: Pull any seedlings from the ground as soon as you see them. Trifoliate orange is easiest to eliminate before it produces fruit. Wear gloves to protect your hands from the thorns.

Use pruning shears or a saw to cut plants that are too large to pull. Leave only a few inches of the stump. Dispose of all fruit. Recall, the fruit contains many seeds, most of which are viable and take very little nurturing to grow. Place them in a heavy trash bag and throw them away or burn them.

Repeat this process as necessary until all plants are eliminated. Since seed dispersal via animals is common, it may take a few seasons to locate all the trifoliate orange plants and destroy them.

While mechanical management can be quite difficult because of all the thorns, bulldozing is an effective way to treat larger infestations.

Chemical: Trifoliate orange responds to chemical treatments with herbicides that contain glyphosate, triclopyr, or a combination of the two. The herbicides work better after the plant has been freshly cut and the chemicals are directly applied to the stump surface.

Cultural: Do not plant and remove prior plantings.

As a side note, while researching this topic, I discovered Jared Rydelek, a professional contortionist and sideshow performer, aka the Weird Fruit Explorer. The Weird Fruit Explorer has spent more than 10 years trying to eat and review every edible fruit on the planet. This took me down a strange, albeit interesting, rabbit hole on You Tube. You can watch Jared's video about trifoliate orange and get a recipe for trifoliate orangeade here: https://youtu.be/D4aL8PqL_xs?feature=shared. But be warned – you'll end up watching a bunch of his videos – they're fascinating!

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Golden-winged Warbler, *continued from page 3*

Please contact Moriah Owen if you would like more information, to discuss the potential for our program's forester to visit your land, or to begin the application process. We look forward to getting to know you and your property. Together, we can create healthier forests and ecosystems that keep golden-winged warbler habitat thriving in Virginia's mountains for generations to come!

Moriah Owen is the Golden-winged Warbler State Program Coordinator, moriah.owen@usda.gov.

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