

**Don't Pine Away Your Independence**  
**By: Adam Downing, Virginia Cooperative Extension**

In anticipation of our nation's celebration of independence and out of respect for those who have given so much for this unique gift of freedom, I would like to pose the following question: What do the flags of Maine and Vermont have in common with the Royal Navy and the American Revolution? (Hints: The answer is a species of tree that was fought over; the ensuing rebellion paved the way for the better-known Boston Tea Party; and it has been called the sequoia of the East).



*The state flags of both Maine (left) and Vermont (right) prominently feature eastern white pine.*



*The King's Broad Arrow marked trees to be reserved for masts for the English navy during the Colonial Period and was one of the irritations that led to the American Revolution. Photo by William Cullina.*

While not as tall as the sequoias, eastern white pine (*Pinus strobus*) is the tallest species in the Eastern US and the tallest pine in all of North America. White pines growing on good soils today can easily exceed 150 feet. The current champion exceeds 180 feet. Even more remarkable, though not verifiable, is that, according to some sources, old-growth white pine in the New England region of pre-colonial America may have exceeded 200 feet. This height, combined with the lightweight and excellent strength of the wood, leads us to the story behind the flags bearing this majestic tree and its role in American history.

Great Britain's Royal Navy ruled the seas in wooden ships powered by wind. To go farther and faster, to maintain their nautical supremacy, the Navy needed tall masts. However, England's forests had long ago been cut over several times, leaving little but firewood. By the 17th century, the King was competing with other great empires for shipbuilding material in the Baltic region. Then came knowledge of an abundance of the perfect tree, the white pine! In addition to the desirable growth characteristics, white pine also provided pitch and tar used for waterproofing and making turpentine.

White pine became a significant export commodity. But, when the King of England felt that too many of the best trees were being used by the colonists, he feared a shortage would ensue. The Crown revised its Massachusetts Bay Charter in 1691 to include a "Mast Preservation Clause" which stated that all trees 24 inches and larger (measured one foot above the ground) belonged to the King. Royal surveyors then commenced to mark such trees with the King's Broad Arrow. The colonists grew to resent this act of eminent domain on what they viewed as their private property; many began to resist. Many pines with this three-hatchet mark in the shape of an upward pointing arrow were poached by colonists and sawed into widths just under 24 inches to spite the law.

This civil disobedience culminated in 1772, a year before the Boston Tea Party, with what came to be called the Pine Tree Riot. Officials in New Hampshire, who were to protect the King's trees, arrested six sawmill owners for possessing and milling the King's trees without a license. One of the owners refused to pay the fine of £100. This sawmill was released with the agreement he would return the next day with his bail. He did return and brought with him 30 to 40 of his friends, all disguised with soot covering their faces. They literally ran the tree police out of town. According to Heather Cox Richardson, Professor of History at Boston College, "While eight of the men were later charged with assault, the local judges who sentenced them let them off so lightly the verdict could easily be seen as support for their actions."

We are a nation and a people based on principle. Many historians regard this act of rebellion every bit as important in launching the fight for independence as the wrongful taxation of tea. I think these rioters had at least one thing right, that our trees should be used to meet our needs as a society. Thankfully, we did win our independence and we still have eastern white pine and other tree species as a continuing rich natural resource unique to our great country.

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**VIRGINIA FOREST LANDOWNER UPDATE**

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**Useful Resources**

The Virginia Forest Landowner Education Program and Virginia Cooperative Extension are very proud to announce the release of a new landowner publication: *Welcome to the Woods! A Guide for New Virginia Woodland Owners*. This Guide covers the top ten things new woodland owners (or those new to woodland management) should know. Download a PDF here: <https://pubs.ext.vt.edu/ANR/ANR-136/ANR-136.html> or contact Jennifer Gagnon for a hard copy.

**Follow the Virginia Forest Landowner Update on Twitter @VFLEP**  
**Like the Virginia Forest Landowner Education Program on Facebook.**  
 We have started a monthly trivia contest - on the first of each month, be the first to answer a forestry-related trivia question, and win a free VFLEP logo hat! See the Facebook page for complete rules: [www.facebook.com/VFLEP](http://www.facebook.com/VFLEP).

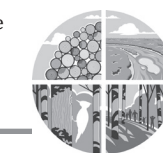
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900 Natural Resources Drive Ste. 800 Charlottesville, VA 22903 434/977-6555 www.dof.virginia.gov	228 Cheatham Hall 0324 Blacksburg, VA 24061 540/231-6391 http://forestupdate.frec.vt.edu	1400 Independence Ave. SW Washington, D.C. 20078 202/205-8333 http://www.fs.fed.us/spf/coop/programs/loa/fsp.shtml	3808 Augusta Ave Richmond, VA 23230 804/278-8733 www.vaforestry.org	3808 Augusta Ave Richmond, VA 23230 804/278-8733 www.vaforestry.org/virginia_tree_farm.html	

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**VIRGINIA FOREST LANDOWNER EDUCATION PROGRAM**

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**Useful Resources**



Sign up to receive the Virginia Forest Landowner Update at: <http://forestupdate.frec.vt.edu>

**The number one priority for the Virginia Department of Forestry (VDOF) is wildfire suppression. Even with the 4 p.m. Burn Law in place, VDOF responded to an average of 1,000 wildfires each year from 2005 to 2014. VDOF personnel are highly trained and their efforts from July 1, 2013 through June 30, 2014 resulted in the protection of 1,258 homes, worth more than \$147 million. Unfortunately, about \$1.5 million in damage to other homes and structures occurred and more than \$6.8 million in timber was damaged. The best way to suppress a fire and protect your assets is prevention. The article below describes actions you can take to prevent wildfires on your land. JG**

**Do You Have a Fire Safety Plan for Your Woodlands?**  
**By George Hurd, Penn State**

One of a forest landowner's greatest dangers is a wildfire. Is your forested property in a condition that could survive a wildfire? Could firefighters easily get to a wildfire on your property? Do you have a plan that includes maps and details of exact locations for access and water supplies? Regardless of the season, conditions often prevail that allow wildfires to start. Wildfires can occur in any month, at any time of the day, destroying valuable woodlands and wildlife habitat. Droughts and dry conditions at various times of the year increase the risk for wildfires. Careless use of fire in wooded areas can also increase the chance of a wildfire, which can then quickly spread and threaten homes and human lives.

Whether you own a few acres or thousands, there are steps you can take to help reduce the potential for wildfire damage on your property while improving overall forest health and wildlife habitat. You can also help ensure firefighters are able to attack and extinguish any wildfires that do occur.

Roads provide critical access to your property so firefighters can extinguish wildfires while they are still small and do the least damage. According to the Pacific Northwest Extension Publication "Reducing Fire Risk on Your Forest Property" (<http://ir.library.oregonstate.edu/xmlui/handle/1957/19402>), fire and fuel breaks are more effective if anchored to a good road system. If you live on your forested property, roads also are critical for your escape and for fire trucks to get to and protect your home. The publication provides proven design criteria for your road system.

The availability of water during fire operations is critical. The location, access points, and availability of all water sources including streams, rivers, ponds, lakes, dry hydrants, water mains, and fire hydrants should be identified and mapped. Water sources are often a long distance from the fire, and it can take a great deal of time and effort to transport water to where it is needed. Additionally, transporting water requires equipment and personnel who could otherwise be fighting fire. The lack of readily available water can seriously impair the ability of firefighters to do their job in a safe and effective manner.

Many people make their homes in woodland settings or near forests. These rural homeowners enjoy the beauty of the environment but also need to plan to address wildfire. Tips for homeowners in or near woodlands are available at the FEMA Wildfires website (<http://www.ready.gov/wildfires>).

For homes in or near woodlands, FEMA recommends homeowners create a safety zone around the home where no flammable materials are kept. Keep this zone clear of dead leaves, branches, and other materials that easily catch fire. Keep the roof and gutters free of flammable debris.

EVENTS CALENDAR			For the most complete listing of natural resource education events, visit the on-line events calendar at <a href="http://forestupdate.frec.vt.edu">http://forestupdate.frec.vt.edu</a>		
Contact	Date	Location	Event	Time	Fee
DCR	July, Aug. & Sept.	Virginia's State Parks	<b>A variety of events and activities</b> For a complete list, visit: <a href="http://www.dcr.virginia.gov/parks">www.dcr.virginia.gov/parks</a> .	Varies	Varies
AC	Year-round	State-wide	<b>Virginia Master Naturalist Volunteer basic training</b> <a href="http://www.virginiamasternaturalist.org/chapters.html">www.virginiamasternaturalist.org/chapters.html</a>	Varies	Varies
JG	July 11-12	Abingdon	<b>Southwest Virginia Landowner Weekend Retreat</b> Spend the weekend with fellow forest owners and natural resource professionals. A combination of classroom talks, field tours, and hands-on experiences will teach those new to woodland management how to get started.	All weekend	Varies*
AD	July 19	Montpelier Station	<b>Working Woods Walk</b> Venture deep into the Montpelier Demonstration Forest on a two-hour hike guided by experts in forest conservation. Learn about cultivation strategies that generate mutual benefit to man and nature, both in the Madisons' time and today.	2:00 p.m.	\$10/person or \$5 with purchase of mansion tour
JG	Aug. 28-30	Wakefield	<b>Southeast Virginia Landowner Weekend Retreat</b> See Southwest Virginia Landowner Weekend Retreat above.	All weekend	Varies*
AD	Sept. 14 & 21	Natural Bridge	<b>Family Forestland Short-course: Focusing on Land Transfer to Generation NEXT</b> Concerned about passing your family land and management values to your heirs? Interested in saving money? If you answered yes, then this program is for you.	12:30 - 7:30 p.m.	\$60* for up to 2 family members; \$20 for each additional
JG	Oct. 3-4	Cumberland	<b>Central Virginia Landowner Weekend Retreat</b> See Southwest Virginia Landowner Weekend Retreat above.	All weekend	Varies*
AD JF NC BW	October	Northern VA Nelson Southampton SW VA	<b>Fall Forestry &amp; Wildlife Field Tours</b> Join VCE, natural resource professionals, and fellow forest owners to learn about forest and wildlife management on private, public, and industry-owned lands. A complete schedule will be available in August.	All day	Varies*
If you are a real estate professional or Commissioner of the Revenue, please visit the Landowner Update website for a schedule of our continuing education classes, Real Forestry for Real Estate. ( <a href="http://forestupdate.frec.vt.edu">http://forestupdate.frec.vt.edu</a> ).					
*meals included					

EVENT CONTACTS			
Contact	Name/Affiliation	Phone	e-mail/website
DCR	Virginia Department of Conservation & Recreation	804/786-1712	<a href="http://www.dcr.virginia.gov">www.dcr.virginia.gov</a>
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#### Funding Available for Conservation Practices on Privately Owned Forestland

Well-managed, productive forests offer numerous conservation benefits, but the long growth cycle of trees can present a financial challenge for landowners seeking to retain working forestlands. USDA's Natural Resources Conservation Service (NRCS) is now making \$470,000 available to help increase adoption of forestry practices statewide through a new Regional Conservation Partnership Program (RCP) project.

Offered in cooperation with the Virginia Department of Forestry (VDof), the RCP Forestry Program offers landowners an opportunity to help establish and maintain the forestlands that are fundamental to clean air and water, wildlife habitat and recreation/tourism. Interested individuals have two opportunities to sign up for this special funding. The first application deadline is July 8 and the second is July 22. All applications must be submitted by July 22 to be considered for FY15 funding.

To apply or to receive additional information on Virginia RCP projects, visit [www.va.nrcs.usda.gov](http://www.va.nrcs.usda.gov). To learn about technical and financial assistance available through conservation programs, visit [www.nrcs.usda.gov/GetStarted](http://www.nrcs.usda.gov/GetStarted) or your local USDA Service Center.

#### You Ain't From Around Here! Exotic Invasive of the Quarter: Giant Salvinia (*Salvinia molesta*) By: Jennifer Gagnon, Virginia Tech

This quarter I will return to writing about what I promised to write about in the Winter edition of the VFLU – invasive species that aren't established in Virginia....but are lurking outside our borders. (Last quarter I strayed because someone offered to write an article for me about mile a minute vine and I am not one to turn down a free, well-written article.)

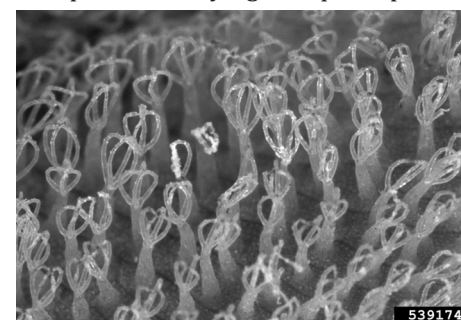
Let's take a look at a plant called giant salvinia. Pseudonyms include kariba weed, salvinia, water fern, and aquarium watermoss. The scientific name, *molesta*, comes from the Latin, *molestus*, meaning troublesome, irksome, grievous, annoying or tiresome. Seems appropriate based on what I've learned about this species.

Giant salvinia has several characteristics that make it intriguing. First, this recent invasive comes to us not from Asia, like so many do, but from South America. It is native to southeastern Brazil and northern Argentina. It has invaded Australia and many tropical and subtropical counties of Asia, Africa and the Pacific and is considered one of the world's worst aquatic weeds.

The first observation in the US was in South Carolina in 1995. This infestation was successfully eradicated (giving us hope!). However, since 1995, giant salvinia has become established in 24 watersheds across the southeast (none documented in Virginia yet). The USDA recognized what a potential problem this plant could be and listed it as a noxious weed in 1983, way before its arrival in US waterways (and when I had more important things on my mind – like tall bangs, Duran Duran, and Miami Vice).

Second, it is an aquatic invasive fern and I believe I have only written about 2 aquatic invasives before (see hydrilla, VFLU Spring 2008 and alligatorweed, VFLU Winter 2009). Giant salvinia is free floating. Although it can invade most aquatic systems, it thrives in slow-moving, nutrient-rich, warm, freshwater. Like other aquatic invasives, pieces of giant salvinia can be transported and spread to new areas via boats, by a piece breaking off and floating downstream, or through trading among aquatic plant enthusiasts.

Unfortunately, the leaves of this fern form long chains that develop into mats on the surface of the water. It grows very quickly - mat size can double in 7 to 10 days. In some overseas locales, mats are more than 2 feet thick. The mats prevent oxygen and light from penetrating the water. This results in the death of algae and macrophytes, the bases of the food chain. This reduction in food availability can negatively impact creatures higher up in the food chain. Additionally, giant salvinia clogs irrigation and drinking water lines, and damages hydroelectric plants. As you might imagine, giant salvinia-choked waterways are not enjoyable places to swim, fish, or boat. These mats can spread over 40 square miles of water in one year. Oh, and they are prime habitat for encephalitis-carrying mosquito species, two of which are found in the US.



**The eggbeater-like structures provide buoyancy for the leaves. Photo by: Barry Rice, [sarracenia.com](http://sarracenia.com).**

**FronDS/Leaves:** Green to gold to brown; oblong; floating; 0.5 – 1.5 inches long; tops covered in rows of cylindrical hairs topped with 4 branches which are joined at the tips to form an eggbeater shape; immature leaves lie flat on the water's surface; mature leaves are forced upright, out of the water.

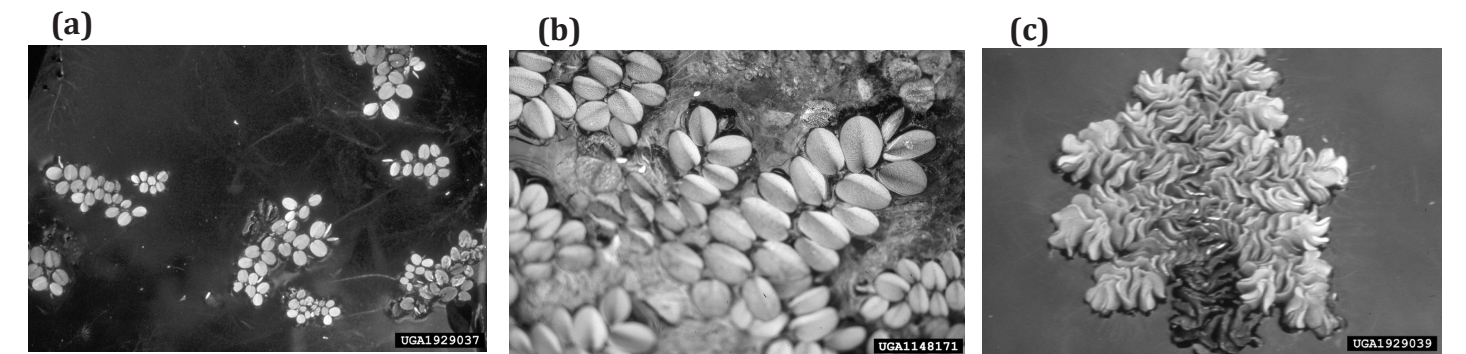
**Roots:** Free-floating; submerged; conceal stalks with egg-shaped (infertile) spore cases attached.

#### Controlling giant salvinia

For most invasive species, controlling means just that – keeping them in check, not necessarily complete eradication. In the case of giant salvinia, complete eradication is recommended. Otherwise, the rapid growth rate results in a resurgence of the species almost immediately. Fortunately, history demonstrates that eradicating giant salvinia is possible.

According to Virginia Cooperative Extension's Pest Management Guide for Horticultural and Forest Crops (<https://pubs.ext.vt.edu/456/456-016/456-016.html>) the herbicide that most effectively kills giant salvinia is diquat (brand name, Diquat). Other herbicides which have also been effective include glyphosate (Roundup), flumioxazin (Clipper), and imazapyr (Arsenal). Follow the labels for timing and concentration.

#### Salvinia cont. from page 3



**These images show the three growth forms of giant salvinia. As an invasion progresses, the plants become more crowded. As the plants become more crowded, they move from the primary growth form made up of individual free-floating plants (a), through the secondary form (b), and ultimately, in a well-developed invasion, to the tertiary form (c). Photos by: (a & c) Mic Julien, Commonwealth Scientific and Industrial Research Organization; (b) USDA APHIS PPQ Archive, USDA APHIS PPQ.**

Additionally, there is a biological control for this plant. It's a small (2 mm long) dark-colored weevil, called *Cyrtobagous salviniae*, or, appropriately, the salvinia weevil. These weevils kill salvinia in two ways. First, the adults eat the small developing buds and new leaves. Second, the females lay their eggs in pits in the leaves, rhizomes, petioles and roots. The newly hatched larvae damage the plants by tunneling.

The salvinia weevil successfully controls giant salvinia in 12 countries, mostly in tropical and subtropical climates, although a few are in temperate climates. Research shows that releasing more cold-tolerant strains of the weevil could be more effective in temperate climates - which may be especially important for Virginia at the northern edge of the infestation in the US. If the infestation is large, herbicides may be needed as well.

Keep an eye out for this plant over the summer while you are out boating, swimming and fishing in Virginia. If you see it, be sure to report it using the Mid-Atlantic Early Detection Network smart phone App, available free at <http://apps.bugwood.org/apps.html>.

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#### Wildfire cont. from page 1

Trim branches hanging over the house and trim shrubbery back from around the house. Widen the access road to the home for emergency vehicles in the event a wildfire does begin. Treat any flammable materials used as part of the home or deck with fire-retardant chemicals. You should report hazardous conditions that could cause a wildfire. Plan several escape routes away from your home by both car and foot.

Another good information resource for those who own homes in woodlands or are planning to build homes in or near forests is the Virginia Department of Forestry's FireWise website (<http://www.dof.virginia.gov/fire/firewiseva/index.htm>). This website provides information on landscaping for fire prevention, building a Firewise home, and even Firewise building materials.

To ensure that adequate measures are taken for the prevention and suppression of fire, forest landowners should have a fire safety plan for their woodlands. Additional information is available at the PA DCNR Wildfire Risk Reduction website (<http://www.dcnr.state.pa.us/forestry/wildlandfire/firewise/index.htm>).

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