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VIRGINIA FOREST LANDOWNER UPDATE

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

VIRGINIA FOREST LANDOWNER EDUCATION PROGRAM

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The Forest Foundation (Part I)

By: Adam Downing, Virginia Cooperative Extension

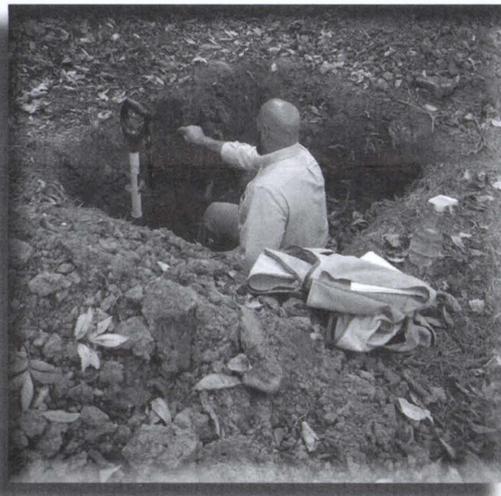
A Riddle: What am I?

I withstand an amazing amount of abuse. Sometimes it's just too much and I'm lost. The dirty names I've been called... yet people can't live without me. So many dump their problems on me. I was here before you, and I will be here after you, and I am all over the world. What am I?

I am soil.... the stuff of dirt-balls, mud-slides and plant growth!

The first thing I learned in my Purdue soils class was the difference between soil and dirt. Dirt is the stuff under fingernails and stuck on the bottom of boots. Soil is a living system necessary for life. Since dirt often carries a negative connotation, I think this is a valuable distinction. Soil is, quite literally, the foundation of our lives. Even though it is such a thin layer of our earth's surface, like the peel of an apple, we depend on it for our daily food and fiber.

Soil is a complex system of living and non-living things. The shortest definition of soil, published in the Soil Science Glossary by the Soil Science Society of America, is: "The unconsolidated mineral or organic material on the immediate surface of the Earth that serves as a natural medium for the growth of land plants."



Soils are complex, living systems. Here, Don Flegel, a scientist with the Natural Resources Conservation Service, examines soil in a recently excavated pit in Page County. Photo by: Jennifer Gagnon, Virginia Tech.

The mineral and organic components of soil are variable and depend on many factors. These factors include the geologic history of an area (e.g., glaciated or not), past use of the soil (e.g., forest, crops, pasture), and management (e.g., drained, fertilized, limed).

The basic mineral components of soil result from the type of parent material (i.e., the rock and such beneath the soil) from which it came. These mineral components give soil its pH and texture (sand, clay, loam) which are relatively

stable properties and difficult to modify. Gardeners and lawn care enthusiasts know this. Where native soils are more acidic than what is optimal for most vegetable crops and turf, lime can be applied to modify pH. However, this needs to be repeated on a regular basis to keep the soil from reverting to its native pH.

The organic components of soil, however, are readily modified. This lesson was learned the hard way during the dust bowl when the Great Plains were plowed under to grow wheat. This worked well until the organic matter was depleted and the soil lost its structure (ability to hold together) and became dust in the wind. Organic matter is living material such as woody plants and grasses. While alive, organic matter holds the soil in place with its roots. Once dead, as it decomposes, organic matter acts as a glue, holding soil particles together in various aggregate sizes.

In general, soils in forested areas are the healthiest soils in the world. This is due in large part to the nutrient cycle. The forest is nearly a closed system with the ability to cycle nutrients from the soil, into the tree, and back again to the soil. This cycle retains and may even increase soil nutrient and organic matter content, critical for soil fertility.

In addition to a healthy nutrient cycle, forest soils also have good physical properties that allow roots to grow freely and water to penetrate. The forest floor, with a healthy covering of leaf litter, protects the soil

Soils cont. on page 4

EVENTS CALENDAR			For the most complete listing of natural resource education events, visit the on-line events calendar at http://forestupdate.frec.vt.edu		
Contact	Date	Location	Event	Time	Fee
DCR	Jan., Feb., & Mar.	Virginia's State Parks	A variety of events and activities For a complete list, visit: www.dcr.virginia.gov/parks .	Varies	Varies
AC	Year-round	State-wide	Virginia Master Naturalist Volunteer basic training www.virginiamasternaturalist.org/chapters.html	Varies	Varies
DL	Jan. 14, 21, 28, & Feb. 4	Charlottesville	Exploring the Small Farm Dream Course This course is for people who are considering launching a small farm enterprise, but are not sure where to start. Designed to guide students through an exploratory decision-making process.	6:30 - 8:30	\$160
SG	Jan. 27, Feb. 3, 10, & 17	On-line	Master Tree Farmer 2015 Join Clemson University and natural resource professionals from throughout the Southeast for this 4-part Master Tree Farmer Program. The program will cover certification systems, prescribed fire, forest genetics, and forest pests.	7 - 8:30 p.m.	\$85
FFX SE GM	February Feb. 3-Apr. 14 March 2- June 3	Fairfax Arlington-Alexandria Stafford County	Tree Steward Training Programs Tree Stewards are volunteers dedicated to improving the health of urban trees through educational programs, tree planting and tree maintenance throughout the community.	Varies by location	\$120
BW	February - March	Various locations in SW VA	Protect Your Woodland Resources Learn about current threats to the health and security of your woodlands and what you can do to reduce these risks. Topics will include invasive species, diseases, boundary line marking and maintenance, and safe ways to sell your timber. Multiple evening programs will be offered. Details available in January.	6 - 9:00	Free
VAFHP	Feb. 2-3	Staunton	Forest Health Conference This conference will help forest health professionals manage forests more effectively and sustainably in the face of current and emerging threats.	All day	\$95*/full; \$65*one-day
JG	March 2	On-line	On-line Woodland Options for Landowners Registration opens Jan. 12. Learn the basics of forest management, from setting goals and objectives to developing a management plan, in this 12-week class. On-line registration is available at: http://forestupdate.frec.vt.edu .	Varies	\$45/family
AD	March 14	Culpeper	11th Annual Woods & Wildlife Conference Join Virginia Cooperative Extension for a full day of presentations and workshops geared to help both large and small acreage landowners become better stewards. On-line registration available; http://forestupdate.frec.vt.edu .	8:30 - 4:30	\$40*/person; \$75*/couple
LD	March 21	Providence Forge	Walk in the Forest Take a walk in the woods with professional foresters at this historically well-attended event.	All day	Free
SM	April 15-16	Charlottesville	Virginia Forestry Summit: Wood Connections & Relationships Join professional foresters, loggers, wood products manufacturers, and woodland owners at this annual meeting. Educational programs will be available for everyone.	All day	Varies*
JF	April 24 May 15 TBA	Alberta Halifax Bedford	Spring Venture Outdoors Interested in learning about current forestry issues that pertain to the health and management of your land? If so, join Virginia Cooperative Extension and partners at one of these 3 locations.	9 - 3:30	Free*
EP	May 1 - 3 (tentative)	Central VA	Spring Landowner Weekend Retreat Spend the weekend with fellow forest owners and natural resource professionals. A combination of classroom talks, field tours, and hands-on experiences will teach new landowners about important aspects of forest management.	6 p.m. Fri. - 1 p.m. Sun.	\$65**/person, \$95**/couple** or \$35*/person, \$50*/couple*
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. (www.forestupdate.frec.vt.edu).					
*meals included ; ** meals and lodging included					

You Ain't From Around Here! Exotic Invasive of the Quarter: Cogongrass (*Imperata cylindrica*)

By Jennifer Gagnon, Virginia Tech

Early detection (ED) species are exotic invasive plants that have not yet been documented in Virginia, but are found in nearby states. In 2014, we featured an article about one of these ED species, wavyleaf basketgrass. Considering early detection is often the key to keeping these species from becoming overwhelming and expensive problems, I've decided to focus on additional ED species in this column throughout 2015. So in the coming year, look for stories on some of these plants: beach vitex, tropical soda apple, giant salvinia, water hyacinth, and waterwheel.

Because of my fascination with the super-invasives, I'm starting 2015 off with a bang by writing about the 7th worst weed on EARTH! This plant grows on every continent except Antarctica!! Native to SE Asia, Philippines, China, and Japan, cogongrass was first introduced to the United States in Grand Bay, Alabama, in 1911-12. It arrived as a packing material for Satsuma orange plants and quickly made itself at home. Farmers and researchers saw potential for cogongrass as a forage and planted it. However, they soon learned that the grass' high silica content damaged the mouths of the livestock, thus rendering it useless as a forage. But, by then the deed was done. Cogongrass already had a strong foothold in the US.

Over the past 100 years, cogongrass has become a major problem in many southeastern states, and now covers over 500,000 acres. Cogongrass is able to reproduce by seed; a single seed head can produce up to 3,000 seeds. Seed viability tends to be low (in some places only 1%) but the sheer number of seeds still makes this a viable means of reproduction. Seeds are dispersed by wind, humans, animals, and logging equipment. This grass also reproduces vegetatively, from sharp-ended underground root structures called rhizomes. Rhizomes can grow 4.5 to 9' a year and are capable of piercing and growing through the roots of other species.

Cogongrass forms large, dense, circular infestations underlain by thick mats of thatch from the rhizomes. These infestations shade out native vegetation, compete with native vegetation for soil moisture, and prevent native seeds from germinating (by preventing them from reaching the soil). Cogongrass is adapted to all light and soil conditions except dense shade and permanently wet areas. Thus far, it has only established in areas with temperate winters – but there are cold-hardy varieties sold commercially for ornamental purposes.

Additionally, cogongrass is extremely fire-adapted. It burns at temperatures up to 842 degrees F and flame heights can reach 8'. In the SE, where prescribed fire is a necessary management tool, having cogongrass in a forest can cause more frequent, more intense fires, resulting in high mortality of desirable species. This creates more open space into which cogongrass can spread. It's pretty much impossible to establish a forest in an area infested with cogongrass.

As far as wildlife is concerned, this species is a bust. The dense growth habit prevents ground-dwelling animals from moving through and ground birds from nesting under, the grass is not suitable browse, and the seeds are not eaten.

How to identify cogongrass

Flowers/Seed heads: cylindrical, 2 -8" long; silvery-white, light, fluffy dandelion-like seeds; blooms late March through early June; up to 200 seed heads per square yard.

Blades: up to 6' long and 1" wide; whitish prominent mid-rib (central vein), commonly off-center; finely serrate edges; some blades stand erect, others lie flat; light yellow-green (reddish or brown in fall).

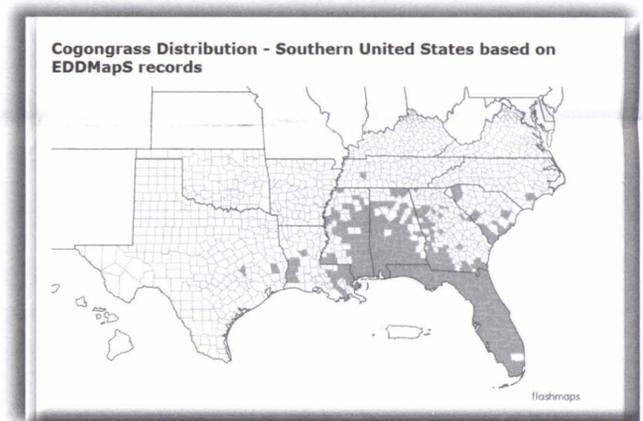
Base: no apparent stem – blades appear to emerge directly from or close to the ground; overlapping sheaths give a rounded appearance; plants grow individually, not in clumps; often surrounded by thatch.

Rhizomes/Roots: form dense mats in the soil; segmented; covered in flaky scales; bright white under scales; sharply-pointed.

Plant form: dense circular patches; 3-4' tall.

In my experience, most grasses are dreadfully difficult to identify. Cogongrass is no exception and may easily be mistaken for common native grasses. Native Virginia grasses that look similar include broomsedge, Johnson grass and Vasey's grass. Fortunately, there is a great resource from the USDA Forest Service and the Bugwood Network that clearly shows the differences among these species (<http://www.cogongrass.org/cogongrassid.pdf>).

According to the folks in Alabama, a sure-fire way to identify cogongrass is to run barefoot through a suspected infestation. Upon exiting the infestation, if your feet are bloody and unusable from being pierced by sharp rhizome tips, then you just ran through cogongrass. Easy-peasy. And fun!



Current range of known cogongrass infestations.
EDIS Maps.

Cogongrass cont. from page 3

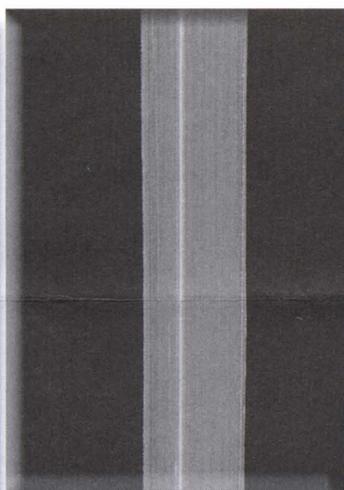
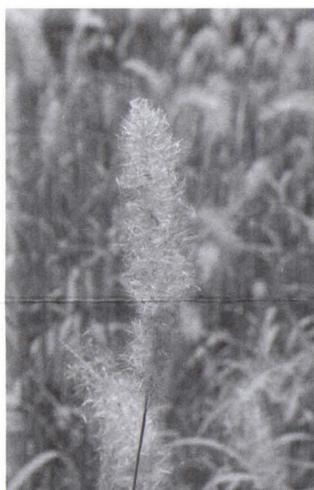
How to control cogongrass

The seeds of cogongrass are relatively short-lived, so there isn't a persistent seed bank. This means control efforts can focus on the rhizomes. Which is easier said than done. The rhizomes are very persistent, aggressive, and resistant to heat and water stress. The thick mat they form can be over 7" deep.

Mechanical: Grubbing up rhizomes for multiple years can be an effective control mechanism. But this is only practical for very small infestations. Mowing and burning are the opposite of control methods – both stimulate growth. **Do not mow a cogongrass infestation unless you follow up with a chemical treatment. Never intentionally burn a cogongrass infestation** unless you are filming an apocalyptic movie and want to create conditions that look like the end of the world. Don't believe me? Watch this: <https://www.youtube.com/watch?v=uAMlrDyllSg>

Chemical: Repeated applications of herbicides containing glyphosate and/or imazapyr have been shown to be effective at controlling and even eliminating cogongrass in Alabama. Efficacy of treatment may vary by site, indicating that site-specific prescriptions may be most effective. Since this grass is not currently in Virginia, specific recommendations for herbicide treatments in the commonwealth have not yet been developed.

CWMAs: Readers may recall that in the Summer 2014 edition of the *Forest Landowner Update* we featured a story about Cooperative Weed Management Areas (CWMAs). This is the successful approach the state of Georgia took to control cogongrass. Read about their efforts here: <http://www.cogongrass.org/georgia/Georgia's%20Cogongrass%20Efforts-%20Education%20Detection%20and%20Eradication%202007-June%202012.pdf>.



The fluffy white seed heads of cogongrass (left) are very apparent in the spring and early summer. Notice the slightly off-center midrib (center) on this blade of cogongrass. This characteristic tends to become more noticeable later in the growing season. The sharp points on rhizomes (right) allow them to pierce through the roots of other plants (and your feet). Photos by: (left & right) Chris Evans, Illinois Wildlife Action Plan; (center) Florida Division of Plant Industry Archives, Florida Department of Agriculture and Consumer Services.

Cogongrass is definitely something we don't want in Virginia. But, if we've learned anything from invasive species, it's that we often get what we don't want. The best thing we can do is keep a lookout for anything that looks like cogongrass and report it. The folks at the University of Georgia and the Bugwood Network have developed an App to help you do just that. The free App is called the Mid-Atlantic Early Detection Network. It allows you to properly identify invasive species, map them using the GPS feature on your device, and photograph and report them to the Early Detection Network. The App is available here: (http://apps.bugwood.org/mid_atlantic.html). See the Useful Resources section of this newsletter for more invasive species resources. Early detection is the key!

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Soils cont. from page 1

from direct impact with rain drops that can result in compaction and erosion. Leaf litter also moderates soil temperature and moisture, allowing important microorganisms and roots to thrive.

Farmers in developing countries often lack knowledge of and access to soil fertility management tools. This is the basic reason for slash and burn agriculture in some parts of the world. Recently cleared forest soils offer excellent fertility, at least for a while, allowing the farmer to feed his family, quite literally, from the land. But without proper management, these soils soon lose their fertility, causing the farmer to move on and clear more forest land. Here in the U.S., we too are just as much connected to the land for our food and fiber, though we might not get as much dirt under our fingernails in the process. We'll talk more next time about applying our knowledge of soils to planting things, like trees.

Visit the Web soil Survey to create a map of the soils under your forest: <http://websoilsurvey.org>.

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Useful Resources

Want to learn more about Virginia's efforts to control invasive species? Visit the Virginia Natural Heritage Program: http://www.dcr.virginia.gov/natural_heritage/vaisc/index.htm. Here you'll find Virginia's Invasive Species Management Plan, lists of current and potential invaders, a link to report new occurrences of invasive species, and much more.

Follow the Virginia Forest Landowner Update on Twitter: @VFLEP

Like the Virginia Forest Landowner Education Program on Facebook: www.facebook.com/VFLEP

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.

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