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Is Natural Regeneration of Forests Threatened?

According to the USDA Forest Service forest inventory, 67 percent of Maryland forests are of mature size and yield benefits for wildlife, recreation, quality of life, and forest products. About 20 percent are of intermediate maturity, and only 12 percent are just starting out as seedlings and saplings. Forests go through a natural process of regrowth after they are disturbed either by natural causes (ice, wind, fire) or by human intervention (harvest of forest products, land clearing, etc.)

Establishing or regenerating a new forest can be achieved by either artificial or natural means. Most hardwood forests are established by natural regrowth or regeneration. Natural regeneration relies on available seed from nearby trees or seeds stored in the soil, stump sprouts and existing seedlings to produce the new stand. Artificial regeneration occurs when seedlings are planted by hand or machine. Artificial regeneration is commonly used to reestablish pine forests, but hardwood planting has become common in the last few years. Either type of regeneration will benefit from active forest management by the landowner.

To the untrained eye, the majority of Maryland forests seem mature and full of vegetation, so it is assumed by many landowners that they are regenerating well. Unfortunately, this is not the case. Many of the existing mature forests are being seriously impacted by deer, invasive species, and high-grading (cutting your best trees and leaving the poorer ones), which threatens their ability to regenerate and their sustainable use for future generations. Practicing sound forest stewardship requires that you understand these threats and ways to minimize the impacts.

Deer

For the most part, forests have a very natural, orderly and predictable order of succession. If left alone, shrubs and saplings will seed in an open field. A young forest may have 10,000 or more stems per acre composed of many species, depending on the area. Over time, natural competition for sunlight and space will reduce the forest to about 150 trees per acre at maturity.

Many Maryland forests have an overabundance of deer that is altering the habitat for other species and the forest ecosystem. How? Deer selectively browse on certain tree and shrub species, which directly affects the presence of the species in the future forest. Most deer can only browse on seedlings within six feet of the ground. They also prefer tree species that are useful for wildlife, recreation, and forest products. These include white ash, yellow poplar, hemlock, sugar maple, oak and pine. The result of this activity over time is that forests are reduced to a mature canopy of trees lacking a diverse understory. Prized wildflowers, such as trilliums and others, are disappearing or may be gone already. The wildlife species (songbirds, amphibians, and others) that depend on that vegetation near the forest floor for their habitat also disappear.

Managing the deer herd while maintaining the health and diversity of your forestland is a challenge, and a responsibility of all forest landowners. Deer densities have escalated to 50, 100, or 150 deer per square mile due to parcelization of the landscape that results in more owners, less opportunities for hunting, the ability of deer to adapt to the changes, and diverse attitudes toward hunting in general. Repellents, fencing and other options are not

practical to keep deer out of most forests. Besides, it does nothing to deal with the core problem: too many deer.

Regulated hunting is the most effective deer population management tool. Forest landowners need to support efforts to lower deer abundance so the forest has a chance to regenerate naturally. While you may not hunt, work with neighbors and responsible hunters to allow them the opportunity to harvest doe deer. More information on setting up a hunting program can be obtained from Bulletin 354, "Managing Deer Damage in Maryland." It is available for purchase for $3.50 from your local Cooperative Extension office.

Invasive & Exotic (I&E) Species

When native vegetation is disturbed by deer browsing or other disturbances, what many times takes its place are I&E species that are present in the soil or in nearby areas, just waiting for an opportunity. The breakup of the landscape into smaller ownerships has allowed I&E species to establish themselves in many forests and compete directly with native vegetation, to the point where a large percentage of all the vegetation in many woodlands is not native. I&E species have the power to grow faster and reproduce more quickly than many young native seedlings; so that if trees are being planted in an effort to reforest an area, or trees are being harvested, the area may be overtaken unless I&E species are controlled. The survival and growth of planted tree seedlings can be increased significantly by controlling competing vegetation, many of which are I&E species. In the case of an existing forest, control of I&E species should usually be done before the area is harvested and the increased sunlight gives the advantage to I&E species.

The best and easiest way to control I&E species is through early identification and removal. Therefore, it is advised that forest landowners educate themselves about these species and learn how to identify them. The following is a list of the top 12 common I&E species of concern in Maryland according to the Maryland Invasive Species Council (MISC): Multiflora Rose; Tree of Heaven; Norway Maple; Autumn Olive; Vietnamese/Japanese stilt grass; Mile-a-Minute Vine/Devil's Tear Thumb; Oriental Bittersweet; Porcelain Berry; Purple Loosestrife; Canada Thistle/Bull Thistle; Garlic Mustard; and Japanese Knotweed/Mexican Bamboo. Photos and/or illustrations of all these species can be found at the MISC website at www.mdinvasivesp.org.

After you learn to identify invasive species, it's best to remove them before they become a problem. While mechanical means such as pulling or cutting is one option, anyone with experience dealing with controlling I&E species in the forest or elsewhere will tell you that the sound use of herbicides must be considered. Cutting and applying herbicide to the cut surface at the right time of year is an example of one technique that uses herbicide and restricts it to the immediate plant. Contact your local Cooperative Extension office or state forester for more information on controlling invasive species and using herbicides correctly and safely.

High-Grading

High-grading is the practice of cutting the largest and highest value trees and leaving the smaller, less valuable trees. Most forests contain trees that are about the same age, so the smaller trees are usually less suited for the site, malformed or diseased and not at all ideal to remain as the next forest or seed source for future forests. The immediate financial gain of high-grading is tempting, but do not be fooled, it is mining the resource, not managing it. Big dollars are often offered for "just the larger trees." However, the gain is brief and the consequences affect ownership objectives for decades. An analogy would be a farmer getting rid of the blue ribbon bull and using the runts of the litter for breeding stock. What is the future in that?

If you are approached by someone wishing to buy trees from your property, do not rush into a contract. First, contact your state forester, private consultant forester or go to www.naturalresources.umd.edu for information on how to carry out a timber sale.

Deer, invasive species, and high-grading are serious problems to the future of the forest. There are 130,000 private forest landowners that own 78 percent of Maryland's forests. It is the actions of these forest stewards on the issues above that will determine the future regeneration of Maryland's forests. Remember! Seek professional forestry assistance and rely on sound science.

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Cutting Firewood – A Win-Win Situation

Think about it! A young forest 20 years of age may have 700 trees to the acre, but by the time that forest is 70 years old there may be only 150 trees per acre. What happened to those trees? They died and fell to the ground and have been naturally recycled. Every forest has the potential to yield firewood as the forest naturally thins itself. We can wait for the trees to die and then cut them or decide which trees we will allow to stay. That is how we control the species, quality, and composition of the trees that will make up the future forest.

Cutting trees for firewood can benefit both the forest landowner as well as the land itself. Firewood can be used for personal use, sold to produce some income; all the while increasing the long-term value of the woodlot. Timber quality, species composition and growth rate are improved by removing undesirable, diseased or dying trees.

However, there is a delicate balance between removing undesirable trees for firewood and leaving some in the woodlot for wildlife. It's a good idea to leave some dead trees or "snags" in the woodlot for their wildlife value rather than taking the high risk of felling them. Tops and limbs frequently fall while these trees are being cut. Some large, poorly formed trees should be left if they are providing cavities for wildlife.

Trees that you will want to cut for their high heat potential include locust, oak, hickory, ash, beech, and elm. Pine and poplar produce much less heat.

Since firewood cutting is dangerous, learn how to properly use a chainsaw and identify and deal with potential hazards. Even the weekend firewood cutter should take appropriate precautions by learning safe techniques, using well-maintained equipment and wearing appropriate clothing and gear. This includes safety glasses, hearing protection, chaps, a helmet with a face shield and steel-toed boots. Besides a chainsaw, you will likely need a log splitter, an ax, a truck or tractor to transport the wood and ample room in the yard or a storage shed to dry the wood.

For additional resources, please read an online article by Patrice Jastrzembski who writes about Maryland Forests for the Maryland Forests Association. Her article is titled, "Firewood," and can be found at http://iaa.umd.edu/.

Work with your forester to determine how firewood cutting can fit into your management plan and improve your woodlot, wildlife, and recreational opportunities.

Firewood Fast Facts

- A cord is a pile of wood 4 ft. x 4 ft. x 8 ft.
- A cord of dry hardwood weighs approximately 2 tons.
- Dry wood burns more efficiently than green wood, reducing heat loss up the chimney.
- Two hardwoods that will burn green are ash and birch.
- It typically takes one full year to dry wood outdoors.
- A cord of hardwood has the heating value of a ton of coal or 200 gallons of heating oil.

New Tax Publication Available

Just in time for tax season, *Forest Management Account Book* (EB 360) is available for $7.50 from your local Extension office. The revised manual is designed for the forest landowner and provides a means of keeping up-to-date records of forest management activities. It will also help:

- maintain a historical record of your management activities;
- keep records of the costs and revenues associated with forest stewardship;
- report and support your income tax decisions; and
- provide a current picture of your forest assets.

The manual is intended for private forest landowners who manage their forestlands for their own enjoyment or as a secondary source of income.

Landowner Stewardship Short Courses

Six-week forestry short courses are being held on Tuesdays in Harford County starting April 13 - May 18 and on Thursdays in Frederick county starting April 8 - May 13 and are available to all landowners. Both will be from 7-9 at the local Extension office. Course titles are:

- How to Become a Steward of My Woodland Property
- Identifying Trees on My Property and Legal Issues Regarding Access
- How the Forest Works: Principles & Practices of Forest Ecology and Management
- Managing Wildlife in Your Woodland
- Forest Stewardship Plans & Practices for My Woodland
- The Forest Enterprise: How to Earn Income & Rewards

For Frederick County, contact Terri Poole at 301-694-1594, x13577 or tepoole@umd.edu. For Harford County, contact David Almquist at 410-638-3255 or almqvist@umd.edu. More information is available on the natural resources web calendar.

Farmers and Hunters Feeding the Hungry

Farmers and Hunters Feeding the Hungry began in 1997 and has been responsible for processing 1,400 tons of venison and other big game for soup kitchens and food pantries.

Participating farmers and hunters follow normal check-in or crop damage permit procedures defined under their state's regulations. They then deliver the harvested surplus deer and other big game to participating meat processors in each county. Donations from churches, clubs, businesses and individuals cover the costs of processing, packaging and freezing the meat. The frozen meat is then available free of cost for pickup by a nearby food bank or feeding program. The meat is then distributed and/or cooked by hundreds of community agencies such as: church pantries, church feeding ministries, Salvation Army, community food banks, emergency assistance programs, rescue missions and children's homes.

The program is funded with corporate and individual donations - and in Maryland, $1 from hunting license fees. To learn more or to make a donation, log onto their website at www.fhfh.org.

Natural Resources Website Updated

The natural resources website has recently been updated. Changes include new drop-down menus, resources that are easier to find and reorganized pages. Check it out at www.naturalresources.umd.edu.

Free Wildlife & Native Plant Newsletter

WindStar Wildlife Garden Weekly e-newsletter is published by WindStar Wildlife Institute and features topics on wildlife, wildlife habitat, forest and wildlife management, native plants and gardening. To subscribe, visit www.windstar.org. You can also visit the website to learn how you can become a certified wildlife habitat naturalist.

Newly Revised Book Updates Solid-Fuel Heating Options

A newly revised book from NRAES is a must-read for anyone interested in heating their home with wood or coal. *Heating with Wood and Coal, 2003 Revision* updates readers on technological advances and installation code changes and provides comprehensive information on the strengths and drawbacks of various solid-fuel heating systems. The 69-page book includes sections on evaluating solid-fuel options, fireplaces, stoves, furnaces and boilers, installation, chimneys, wood as a fuel and coal as a fuel and has an appendix on cutting firewood with a chainsaw.

Single copies are available from NRAES (Natural Resource, Agriculture and Engineering Service) for $12 plus $4.25 S&H. Contact NRAES at 607-255-7654, nraes@cornell.edu or log onto their website at www.nraes.org.

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See page 2 for addresses and phone number.

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