North Carolina Forest Stewardship News

Winter 2014

Washington Boy Finds Giant Maple Leaf

In this Oct. 28, 2013 photo, Tommy Lindsey holds a maple leaf that he found that is almost as big as he is in Mount Vernon, Wash. Tommy Lindsey of Mount Vernon was walking with his family Sunday when he picked up the leaf that is more than two feet from stem to tip and more than 21 inches wide. Photo: Frank Varga, AP

MOUNT VERNON, Wash. (AP) — While playing in leaves, a 4-year-old Washington boy found a maple leaf almost as big as he is. Tommy Lindsey of Mount Vernon was walking with his family Sunday when he picked up the leaf that is more than 2 feet from stem to tip and more than 21 inches wide.

The Skagit Valley Herald reports it's a little wider but shorter than the record maple leaf listed in Guinness World Records.

Information from: Skagit Valley Herald, http://www.skagitvalleyherald.com

The Stewardship Coordinator's Corner

2014 arrived with a blast of arctic air and its tree planting season, right? Maybe, maybe not. Planting tree seedlings may be a forest landowner's investment of a lifetime, so make sure your planting site and seedlings are prepared and protected. Important Information on Winter Seedling Survival, shared by The Nursery Cooperative, is a good resource to use and a start towards protecting your investment. Should you have more questions on this particularly frigid tree planting season contact your local forester or county ranger or call the NCFS Raleigh office at 919-857-4801.

The promise of spring means the deadline for filing taxes is approaching. The US Forest Service publication, Tax Tips for Forest Landowners for the 2013 Tax Year, is a helpful tool to for you or your accountant to use in preparing your taxes. It provides federal income tax reporting tips to assist forest landowners and their advisors in filing their 2013 income tax return.

A reminder that the First In Forestry license plates are available for purchase from the NC Division of Motor Vehicles online and at offices throughout the state. In recognition of the importance of forestry in North Carolina and the state's status as the birthplace of professional forestry in the United States, the N.C. General Assembly approved a special "First in Forestry" license plate. $20 of the $30 fee collected for each plate will go toward forestry education programs in the state. If you have any questions about the First in Forestry plates, please contact Chris Carlson at 919-857-4819. Thank you for supporting Forestry in North Carolina.

For more information about the North Carolina Forest Stewardship Program, contact your county forest ranger or Stewardship Coordinator Les Hunter or simply fill in our online Stewardship Request Form.

Thank you,

Les Hunter

Stewardship Coordinator

PEOPLE

Dynamic Duo

Eugene and Opal Brown are shown receiving the 2013 North Carolina Tree Farmers of the Year Award from Jim Long (right) of the North Carolina Forestry Association. Contributed Photo by NC Forest Service – Northampton County

By Cal Bryant

RICH SQUARE – If it weren't such an arduous task, perhaps Eugene W. Brown Jr. would have individual names for each tree within his 787-acre tree farm located off Lovers Lane Road near here.

Minus the individual names, he can quickly reel off exactly how many acres are in each stand, and the year they were planted, thinned, and/or harvested….only to begin the life cycle once again.

And because he fully understands the concept of renewable natural resources as well as the importance of sound management practices, Brown and his wife, Opal, have earned the distinction of being named the 2013 North Carolina Tree Farmers of the Year. That award was presented earlier this month during the annual meeting of the North Carolina Forestry Association, held this year at the Wilson County Agricultural Center.

"It's an honor to receive the award, but all the accolades need to be given to those that offered all the good advice about timber management, people like Rodney (Black, Northampton County Forest Ranger) and others within the forest management industry," Brown said. "If you want to learn about tree farming, I would recommend you start with the Forest Service in your county."

For the Browns, they turned what once was "low ground" farm land (250 acres of open fields), combining it with natural stands of timber, into what is now a neatly groomed and well-managed tree farm.

'The open farmland that once was here was poor due to the fact that the soil was wet most of the time," said Mrs. Brown. "It really had to be an exceptional year weather-wise just to break even when harvesting the row crops."

What stands today began in 1883 when Mr. Brown's grandfather purchased the original 34 acres. Eugene acquired the family farm in 1956. At that time it consisted of 535 acres. Five years later, the first Forest Management Plan was written for the Browns, thus certifying it as a Tree Farm in Northampton County.

One tract, planted in the early 70's, has seen a pair of commercial saw timber harvests.

"I would have never believed I'd be around long enough to see it commercially harvested the second time," said Mr. Brown, who has twice been the "bridesmaid" (NC Tree Farmer of the Year runner-up in 1989 and 2012) before becoming the "bride" in 2013.

"You just have to stick with it," Brown said, referencing the time he spends daily (except Sundays) grooming the land, to include maintaining 6.7 miles of improved forest roads, all passable with a pick-up truck.

"Just look how clean it (forest floor) is, you can tell just how much work Mr. Brown puts in spraying (to kill the

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underbrush) and mowing," said Black. "This land may have not been much for crops, but it sure can grow trees."

Over the years, Brown has purchased smaller tracts of adjoining land to account for the 787 total acres.

Now retired (the former General Manager of Roanoke Electric Cooperative), Brown's focus has shifted full-time to maintaining the tree farm.

"Mr. Brown continually plants and maintains 12 acres of wildlife food plots; constructs and maintains some 10 miles of fire lines; keeps the road system maintained; is constantly digging new and maintaining old drainage ditches; constructs and maintains miles of hunting and recreational vehicle trails; and removes storm damaged trees," Black noted. "His passion is to leave this property in better shape than when it was acquired."

Black referenced Eugene and Opal Brown as, "two of the most humble forestry landowners I have ever met."

"They have taken their family farm and turned it into the best example of a working tree farm you will ever see," he added. "He knows each and every inch of the property and works it daily, not as a chore, but as a passion. He often jokes with Mrs. Brown that he loves his trees more than he loves her. I know that's not true, but his love for this land is apparent when you visit this property."

Brown doesn't mind showing the natural – and man-made (at his hands) – beauty of his tree farm, often hosting tours and field days.

He is a long-standing member of the Northampton County Forestry Association, serving 20 years as president of that organization. Under his leadership, the Association now has over 200 members within a county that boasts of 227,876 acres of forestland.

"He has promoted and continues to promote active forestry management, not just locally, but across the state," Black said. "His tree farm and his work ethic of blood, sweat and tears is a shining example of what can be done on a working forest. He and his wife are most deserving of North Carolina Tree Farmer of the Year Award."

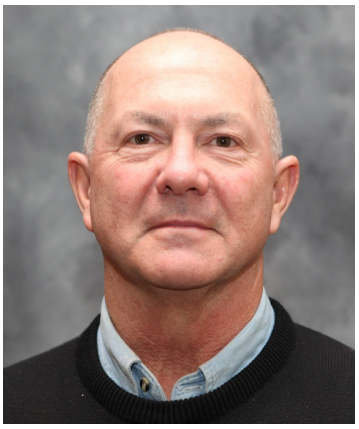
Tracing its roots back to the 1940′s, The American Tree Farm System can lay claim to being the oldest form of certification or recognition system for the practice of growing trees and sustaining sustainable forests in America. For generations, American landowners and farmers have proudly posted their Tree Farm signs as a way of displaying their stewardship values.

North Carolina forest owners have been part of this tradition since the program's inception. The North Carolina Tree Farm program has over 800 Certified Tree Farms in the program today. Under the direction of an executive branch of interested Tree Farmers, the North Carolina Tree Farm program typically hosts three or four workshops for forest landowners in addition to a few more workshops designed for foresters interested in becoming a certified Tree Farm Inspector.

North Carolina boasts 18.6 million acres of forestland. 85% of these forests are privately owned and roughly 64% of these forests are owned by private, non-industrial landowners. Successful Tree Farmers believe that the key to sustaining our state's forests is the sharing of information on various programs that are out there to assist landowners be better stewards of their forests. The group also believes that North Carolina should pursue public policy that promotes forestry and the conservation of working forests and farms in the state.

To learn more, contact the North Carolina Forest Service office in your county.

Rackley Named Interim Executive Vice President of NCFA



Frank Rackley

The NCFA Executive Committee has named current NCFA President Elect/Treasurer Frank Rackley as the Interim Executive Vice President for the NCFA, effective January 1, 2014. Rackley, who recently retired after 40 years of service with Weyerhaeuser Company, will direct the NCFA until a permanent executive vice president is selected in the coming months.

"We are fortunate to have an individual like Frank Rackley to lead our association at this time," explained NCFA President Ray Allen. "He has the proper skill set to keep our staff motivated and on task and obviously an excellent working knowledge of our association as a member of our executive committee for the past couple of years. We have not set a definite time table for naming a new executive vice president, and with Frank in place, it gives us the time to conduct a proper search for our next leader. We really appreciate that he is willing to step in and accept this role."

Rackley has spent the past 11 years of his career with Weyerhaeuser as the North Carolina Timberlands Manager. A New Bern native, Rackley graduated from North Carolina State University with his bachelor's degrees in Wood Science and Technology and Economics in 1973. He earned his MBA at East Carolina University in 1978.

N.C. Forest Service accepting entries for 2014 Arbor Day Photo Contest

The N.C. Forest Service's Urban and Community Forestry Program is accepting entries for its 2014 Arbor Day Photo Contest through Feb. 28. The contest is open to North Carolina students in fifth through 12th grades, including public, private and home schools. The theme is "Young and Old."

"The theme reflects not just the beauty of North Carolina's trees and forests, but also the values and benefits that many generations have enjoyed," said Agriculture Commissioner Steve Troxler.

The competition will be divided into fifth through eighth grades and ninth through 12th grades. A panel of judges will select a winner from each division and one grand prize winner. Honorable mentions may also be awarded. Winners of each division will receive $50 and a tree to plant on their school grounds. The grand prize winner will receive $150, a tree to plant at school and a framed reproduction of the winning photo. To enter, participants should download and complete an entry form, and include a caption and photographer's statement. One photo per photographer may be entered. Entry forms and a list of submission requirements can be found under the Urban and Community Forestry link on the N.C. Forest Service website at http://ncforestservice.gov.

Schools may select up to six best photos for entry. Each photo should be submitted electronically in a JPEG format (maximum of 6 megabytes), along with an accompanying entry form and emailed to jennifer.rall@ncagr.gov. Any school submitting more than one photo should submit photos on a CD by mail to Jennifer Rall, N.C. Forest Service, 1616 Mail Service Center, Raleigh, NC 27699-1616.

Entries will be judged on how well the photo and caption express the contest theme; overall aesthetics of the photo; evidence that the student researched the benefits and importance of trees in communities as related to the contest theme; how well the photographer's statement addresses the contest theme; spelling and grammar. All decisions of the judges are final. Winners will be selected and notified by March 14. Prizes will be awarded at the N.C. Arbor Day celebration on March 22 in Raleigh. For more information, contact Rall at 919-857-4849 or jennifer.rall@ncagr.gov.

FOREST HEALTH

Protect Ash Trees: Don't Move Firewood!

Emerald ash borer. Photo by Pennsylvania Dept. of Conservation & Natural Resources, Bugwood.org.

By Sarah Farmer, SRS Science Delivery Group

Emerald ash borer was recently detected in Georgia, making it the 21st state invaded by the non-native pest that attacks all members of the ash genera. First found in Michigan in 2002, the insect has since spread south (and north into Canada), mainly on wood moved long distances.

The number one strategy for preventing further spread of the emerald ash borer? "Don't move firewood," says Paul Merten, entomologist with U.S. Forest Service Forest Health Protection unit. "Emerald ash borer larvae tunnel into trees underneath the bark, and cutting a tree into firewood does not kill them. They can emerge as adult beetles ready to infest healthy trees." To protect forests from the emerald ash borer and other invasive exotic forest pests:

- Never move firewood.
- Use local sources of firewood. Burn it where you buy it!
- If you think you have emerald ash borers on your property, or have seen the beetles elsewhere, take a look at emerald ash borer identification materials, and call your local authorities.

Merten and his colleagues are working with land managers to monitor public lands in Tennessee, Virginia, Ken-

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tucky, and North Carolina. They use several methods to detect emerald ash borers including trap trees, hanging traps with attractants, and biosurveillance. To make trap trees, they girdle living ashes, causing the trees to emit chemical distress signals that attract wood-boring insects. After a few months, scientists cut the trap trees down, peel off the bark, and look for emerald ash borers beneath the bark.

Purple triangular traps are also used to detect emerald ash borers. These sticky traps are placed in high risk ash trees, and if the bugs are around, they're drawn to the trap by its color and a chemical attractant. Once the beetles make contact with the trap, they become stuck to its surface.

Another way of determining whether ash borers are in the neighborhood involves a technique called biosurveillance, in this case monitoring nest entrances of a native wasp, *Cerceris fumipennis.* Females of the species hunt for beetles in the buprestid family, which includes emerald ash borers. Once a beetle is captured, the wasp paralyzes it and carries it to a subterranean nest before laying an egg on the hapless beetle. When the egg hatches, the wasp larvae eat the living but paralyzed beetle. The entrance to this macabre nursery can be monitored for emerald ash borers.

Merten and his colleagues have been monitoring wasp nests located on baseball fields across North Carolina. That's a typical place to find colonies," says Merten. The wasps like sunny open fields with sandy compacted soils." Merten and other researchers will be watching the wasps this year for signs of beetles on the move.

"There's been some pushback on the 'don't move firewood' message," says Merten. But if everyone is more mindful of their part of the problem, we could really slow the spread of pests like the emerald ash borer and help protect our forests."

For more information, contact Paul Merten at pmerten@fs.fed.us

Access the latest publications by SRS scientists.

Firewood infested with emerald ash borer. Photo by Troy Kimoto, courtesy of Bugwood.org.

Girdled trap tree. Photo by Pennsylvania Dept. of Conservation & Natural Resources Forestry Archive, courtesy of Bugwood.org.

Emerald ash borers only attack ash trees.

Learn to identify ash, and watch for the following signs of infestation:

- **Jagged holes from woodpeckers feeding on larvae**
- **Cessation of terminal growth**
- **Crown dieback**
- **Small leafy branches sprouting from the trunk**

Finding Emerald Ash Borer in the Winter

What to Look For

Ash bark splitting as a result of emerald ash borer attack. Photo by Mich. Dept. of Agriculture (www.bugwood.org)

Since the emerald ash borer was first **found in North Carolina** last summer, forestry and plant health specialists have been on the lookout to determine the extent and spread of this tree killing pest. Keeping track of the presence and movement of emerald ash borer is important in the understanding of the pest and developing strategies to slow its spread. Slowing the spread of emerald ash borer will hopefully ensure the presence of ash tree resources when research related to the pest catches up. Finding new infestations of emerald ash borer can be difficult at first because it takes several years for symptoms and signs to appear.

Once signs and symptoms of infestation are present, they are very noticeable and can be observed from a distance when leaves are on the tree. Infested ash trees exhibit a general decline in tree health. The crown thins, the tree appears to be dying from the top down, and entire branches may die. In addition, there could be numerous sprouts growing from the trunk of the tree, a phenomenon called epicormic sprouting. A number of tree ailments can cause these same symptoms, so any ash tree with these symptoms should be observed more closely for more distinctive signs of the insect itself. Signs of infestation include quarter-inch D-shaped exit holes in the bark and winding, serpentine larval galleries under the bark. Most formal surveys for the pest are done in the summer when tree decline is obvious.

Winter Observation

Just because leaves are off the trees, it does not mean that presence of the beetle cannot be detected. There may still be indications that emerald ash borer are present even in the winter. Because they are not as apparent from a distance, finding clues of emerald ash borer infestation involves walking in the woods and keeping a sharp eye out for damage caused by both the insect and its natural enemy: woodpeckers.

The most obvious insect damage visible any time of the year is vertical splits in the bark, which is caused due to trees developing callus tissue around larval galleries under the bark. The slightly raised bark can easily be pried with a prying tool to expose the larval galleries beneath the bark split.

Woodpeckers find emerald ash borer larvae to be tasty treats. Since this grub-like, immature insect stage lives under the bark of ash trees, woodpeckers will poke, pry, and knock off bark in order to find their prey. This is usually

observed high on the trunk or on crown branches where emerald ash borers first attack ash trees. The resulting damage looks like tan colored "flecks" in the otherwise grey to silver colored bark where patches of bark have been removed. When large numbers of larvae are present, woodpecker damage may look like large strips of bark have been pulled from the tree.

Damage, called flecking, on ash branch from woodpeckers aggressively foraging for emerald ash borers. Photo by K. Oten, N.C. Forest Service

Only ash trees are susceptible to emerald ash borer attacks. In North Carolina, this includes white, green, Carolina, and pumpkin ash. In general, ash trees can be distinguished from other trees in the forest during the winter by their twig and branch characteristics and their bark. All ash trees have opposite leaves and opposite branching — this means that buds and branches form on both, opposing sides of a stem at once. Ash, maple, dogwood and buckeyes are the most common trees with opposite leaves and branches, contrasting with most other tree species which have alternating buds. Bark on white and green ash (the two most commonly found ash species found in the state) is ashy grey to silver in color with deep furrows separating interlacing ridges. In many instances, the furrows and ridges give the bark a braided appearance.

Enjoy the outdoors this winter and take a walk in the woods. If you see and identify an ash tree that does not have signs or symptoms of emerald ash borer, enjoy it and wish it luck—the emerald ash borer has just begun its march into North Carolina!. However, if you suspect based on the signs and symptoms that emerald ash borer is present, report the location of the suspect trees to 1-800 -206-9333 or **newpest@ncagr.gov**.

Twig and bark of green ash. Notice opposite leaves and branching (in winter, scars where leave were present are opposite). Photo by R. Trickel, N.C. Forest Service

ForWarn Follows Rapidly Changing Forest Conditions

by Perdita Spriggs, EFETAC

U.S. Forest Service and partner scientists are keeping a watchful eye on forest health. As fall colors replace the lush greenness of spring and summer, researchers recognize telltale signs of change in healthy forests.

A new publication highlights specific examples where researchers have used *ForWarn*, a state-of-the-art forest change recognition and tracking system, to detect disturbances and track forest recovery. *ForWarn* uses NASA satellite imagery to develop real-time maps that assist forest managers in the continental United States.

Since 2010, *ForWarn* has detected significant coast-to-coast forest changes, including early or delayed growing seasons in the East and Midwest, effects of extreme drought in the Southwest, scars from notable tornado outbreaks in the South, insect outbreaks in the Northeast, and wildfires in the West.

The report introduces general and moderately technical audiences to *ForWarn* and demonstrates how the web-based tool can help federal, state, tribal, and private land managers focus time and resources as they monitor and respond to forest disturbances.

Forest Service Eastern Forest Environmental Threat Assessment Center *ForWarn* researcher and lead author Steve Norman believes the publication will share insight into the system's advanced capabilities. "Since *ForWarn* became operational in 2010, we've detected a broad range of disturbances and then tracked how their effects evolved over weeks and years," says Norman. "Having such near-real-time monitoring capabilities for disturbance and recovery is a huge step forward that helps us put disturbance and climate-related effects into a broader context."

On Friday, September 27, for example, *ForWarn captured the early effects of the floods in Colorado.*

ForWarn is a collaborative effort among federal and university partners, and forest monitoring products are available at no cost via the Internet.

Access the new publication about *ForWarn*.

For more information, email Steve Norman at stevenorman@fs.fed.us

Access the latest publications by SRS scientists.

USDA Invests in Research to Convert Beetle-Killed Trees into Renewable Energy

USDA Invests in Research to Convert Beetle-Killed Trees into Renewable Energy

WASHINGTON, – The U.S. Department of Agriculture (USDA) today announced it has awarded nearly $10 million to a consortium of academic, industry and government organizations led by Colorado State University (CSU) and their partners to research using insect-killed trees in the Rockies as a sustainable feedstock for bioenergy. The award, provided under the Agriculture and Food Research Initiative (AFRI), is part of USDA's effort to develop modern solutions for climate challenges in agriculture and natural resource management. AFRI is provided under the Farm Bill, and Secretary Vilsack highlighted the need for passage of a comprehensive, long-term Food, Farm and Jobs Bill to continue groundbreaking agricultural research across the nation.

"Infestations of pine and spruce bark beetles have impacted over 42 million acres of U.S. forests since 1996, and a changing climate threatens to expand the threat from bark beetle on our forest lands," said Agriculture Secretary Tom Vilsack. "As we take steps to fight the bark beetle, this innovative research will help take the biomass that results from bark beetle infestation and create clean, renewable energy that holds potential for job creation and promises a cleaner future for America. This is yet another reminder of the critical investments provided by the Farm Bill for agricultural research, and I urge Congress to achieve passage of a new, long term Food, Farm and Jobs Bill as soon as possible."

Vilsack noted that the funding for this research is provided by the National Institute of Food and Agriculture (NIFA) under the Agriculture and Food Research Initiative (AFRI) – a 2008 Farm Bill program – and reiterated the critical need for passage of a new Food, Farm and Jobs Bill that adequately invests in groundbreaking agricultural research.

There are many benefits to using beetle-killed wood for renewable fuel production. It requires no cultivation, circumvents food-versus-fuel concerns and likely has a highly favorable carbon balance. However, there are some challenges that have been a barrier to its widespread use. The wood is typically located far from urban industrial centers, often in relatively inaccessible areas with challenging topography, which increases harvest and transportation costs. In addition to technical barriers, environmental impacts, social issues and local policy constraints to using beetle-killed wood and other forest residues remain largely unexplored.

CSU researchers, together with other scientists from universities, government and private industry in the region, created the Bioenergy Alliance Network of the Rockies (BANR) to address these challenges. The project will undertake comprehensive economic, environmental and social/policy assessment, and integrate research results into a web-based, user-friendly decision support system. CSU will collaborate with partners across four states to complete the project. Partners include: University of Idaho, University of Montana, Montana State University and the University of Wyoming, U.S. Forest Service Rocky Mountain Research Station, National Renewable Energy Lab and Cool

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Planet Energy Systems. More information is available on the project website at banr.colostate.edu.

Specifically, the team will explore recent advances in scalable thermochemical conversion technologies, which enable the production of advanced liquid biofuel and co-products on-site. The project is working with Cool Planet Energy Systems, which is based out of Greenwood Village, Colorado. The company's prototype pyrolysis system can be tailored to the amount of feedstock available and thus can be deployed in close proximity to stands of beetle-killed timber. This localized production leads to significantly lower costs related to wood harvest and transportation. Their distributed scalable biorefinery approach is a key element in making the use of insect-damaged trees as feedstock plausible.

As a NIFA Coordinated Agricultural Project (CAP), this grant brings together teams of researchers that represent various geographic areas to support discovery, applications and promote communication leading to innovative, science-based solutions to critical and emerging national priorities and needs. This year's awards broaden NIFA's CAP bioenergy portfolio, which includes six projects awarded since 2010 focusing on woody biomass, switchgrass and perennial grasses, energy cane and sorghum.

NIFA made the awards through The AFRI Sustainable Bioenergy challenge area, which targets the development of regional systems for the sustainable production of bioenergy and biobased products that contribute significantly to reducing dependence on foreign oil; have net positive social, environmental, and rural economic impacts; and are compatible with existing agricultural and forest production systems. All grants are awarded over a period of five years, with continued funding contingent on annual project success.

AFRI is NIFA's flagship competitive grant program and was established under the 2008 Farm Bill. AFRI supports work in six priority areas: 1) plant health and production and plant products; 2) animal health and production and animal products; 3) food safety, nutrition and health; 4) renewable energy, natural resources and environment; 5) agriculture systems and technology; and 6) agriculture economics and rural communities.

Through federal funding and leadership for research, education and extension programs, NIFA focuses on investing in science and solving critical issues impacting people's daily lives and the nation's future. More information is available at: www.nifa.usda.gov.

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Stress-busting Effect of Green Spaces Stronger on Women

By Elizabeth Richardson - Postdoctoral Research Associate at University of Edinburgh

Elizabeth Richardson receives funding from the European Research Council and UK Research Councils. She currently collaborates with Prof Rich Mitchell, an author on the new green space study.

The Conversation is funded by the following universities: *Aberdeen, Birmingham, Bristol, Cardiff, City, Glasgow Caledonian, Liverpool, Open, Salford, Sheffield, Surrey, UCL and Warwick.*
It also receives funding from: *Hefce, Hefcw, SFC, RCUK, The Nuffield Foundation, The Wellcome Trust and The Alliance for Useful Evidence*

Working hard at keeping healthy. Katie Collins/PA

A new study sheds light on why natural spaces in cities can help keep us healthy. Researchers found that people living in neighborhoods with a large amount of green space, such as parks or playing fields, had lower stress levels. They also found that women were particularly affected: those with little neighborhood green space showed higher stress levels than men in the same situation.

The research is part of wider efforts to understand why green space seems to be good for many aspects of human health. There is **good evidence** from the UK and elsewhere that suggests it leads to lower blood pressure, better mental health, and reduced risks of being overweight or dying from heart disease.

Importantly, this relationship remains after researchers account for how affluent or deprived an area is. When we consider the growing impact on society of the sort of chronic illnesses that green space could help to reduce, it's easy to see why there's so much interest in the connection.

But how, exactly, does green space benefit our health? The jury is still out on this one, but there are a few key suspects (and they may all be in on it together). First, green spaces may encourage us to be more physically active, such as going for a walk or a jog. Second, they may enhance our opportunities for social interaction with others. And third, they may help to relieve stress and mental fatigue. Each of these - lack of exercise, poor social relationships and stress - are known to lead to health problems, so it's not surprising that improving them could improve our health.

This latest study pursued the stress-relieving hypothesis, by investigating how different amounts of green space in a neighborhood related to the stress levels of unemployed people living in deprived areas of Dundee, Scotland. The research team was led by Dr Jenny Roe of Edinburgh's Heriot-Watt University, along with members from the Universities of Edinburgh, Glasgow and Westminster, the James Hutton Institute and Biomathematics and Statistics Scotland.

The levels of the hormone cortisol in participants' saliva were measured every three hours, as it is a good indicator of stress levels. Cortisol concentrations peak in the early morning and subsequently decline through the day: individuals with more stress exhibit slower declines than less stressed people. To complement the tests a questionnaire survey

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was also used to measure perceptions of their own stress levels.

It transpired that both men and women in neighbourhoods with more green space had lower levels of self-reported stress and sharper declines of cortisol than those in less green areas. So it seems that living in a greener area appeared to counteract at least some of the negative effects of urban deprivation. It's well known that poverty and living in a poor environment is bad for health, so this finding is very significant.

Researchers in the Netherlands also **found evidence** that green spaces can provide a cushion against the negative health impact of stressful life events. And an **earlier study** in England found that excess deprivation-related mortality – the "health gap" between the richest and poorest – was smallest in the greenest neighbourhoods. How this occurred was unclear. This new study contributes one promising explanation: that large amounts of greenery promote better health in deprived populations.

Interestingly, those participants in the study living in areas with little green space were more stressed overall, but women were especially so. They not only self-described as more stressed than men in the questionnaire, but their cortisol measurements indicated chronic stress and exhaustion.

The results clearly suggest that women take the absence of green, open spaces harder than men. As five times as many women in the study were caring for family than were men, a shortage of local parks and play spaces for children may have affected women more keenly. But this needs further investigation.

By adding to the evidence for the stress-relieving properties and health benefits of green space, this study adds to the body of research that should inform urban planning and health policies in our cities. More work like this is needed to fine-tune such policies, by asking how green spaces influence stress in different places and among different population groups. A point that needs particular attention is the comparison of quality versus quantity, as **other studies** suggest that it is the quality of green space that drives women to use and therefore benefit from it, and this will be an important factor in the provisions made by town planners.

Quarantine area for the imported fire ant expanded to include Lincoln County and parts of Catawba County

RALEIGH -- Lincoln County and parts of Catawba County now fall under state quarantine rules for the imported fire ant as part of a continuing effort to monitor the spread of this pest and address control measures. With today's announcement by the N.C. Department of Agriculture and Consumer Services, the quarantine now includes portions or entire areas of 71 counties.

Effective Jan. 1, 2014, the imported fire ant quarantine is revised to include the addition of all of Lincoln County and the area south of Interstate 40 from the Iredell County line to the Burke County line in Catawba County. Under the rules, residents and business owners in the affected areas will now need to obtain a permit before moving plants, sod and related equipment into or through non-infested areas.

Items requiring a permit include sod, soil, hay and straw, nursery plant material, logs or pulpwood with soil, and soil-moving equipment. Movement of infested materials could result in the establishment and secondary spread of

the pest to non-infested areas. Certificates can be obtained from a local plant protection specialist or by contacting the Plant Protection Section at 800-206-9333 or 919-707-3730.

"It is important for operators within the quarantined area to contact the NCDA&CS Plant Industry Division to obtain the needed inspections and certifications for movement of regulated articles," said Vernon Cox, director of the division. "Fire ants can be harmful to humans and livestock. It is critical we continue proactive efforts to slow down fire ant movement into non-infested areas of the state."

The imported fire ant first entered the United States through Alabama in 1918. It was first identified in the southeastern portion of North Carolina in Brunswick County in 1957. Since its introduction, it has spread north to additional areas in the state, becoming recognized as an aggressive pest of farmlands, pastures, residential areas and wildlife. The imported fire ant is considered to be a nuisance and a health concern to humans, livestock and wildlife due to its painful sting.

For a map of the quarantine area, go to www.ncagr.gov/plantindustry/plant/entomology/documents/FireAntMap2014.pdf

BIODIVERSITY

DISTURBED TROPICAL FORESTS ARE SLOW TO REGAIN PLANT BIODIVERSITY

Ricardo Solar—A re-growing tropical forest in Brazil

In tropical forests that are regrowing after major disturbances, the ability to store carbon recovers more quickly than plant biodiversity, researchers from the U.K. have found. However, even after 80 years, recovering forests store less carbon than old-growth forests, according to a study published in the *Proceedings of the Royal Society B.* This is likely because regenerating forests are often dominated by small, fast-growing trees and it may take centuries for larger trees, which hold more carbon, to become established, according to scientists from the Center for Ecology & Hydrology and Bournemouth University, who studied more than 600 recovering tropical forests. Tree species that are hallmarks of old-growth forests, and are often quite vulnerable to extinction, were rare or missing in the regrowing forests, the study showed. Since regenerating forests are often located far from old-growth forests and surrounded by farmland, it may be difficult for animals to move seeds between the forests, which may account for the lower plant biodiversity, researchers said. They suggest planting trees throughout a wider landscape to provide better connections between old and regrowing forests. More than half of all tropical forests have been cleared for agriculture by logged or burning in the recent past; regrowing some of those forests is important for maintaining tree biodiversity and carbon storage.

UPDATE 1-Quebec sells carbon-emission permits at C$10.75 a tonne

Reuters - Permits to emit greenhouse gases in Quebec sold for C$10.75 per tonne, the minimum bid price, at the Canadian province's first auction, a component of its response to climate change.

Nineteen companies participated in the auction, which was held on Tuesday, according to a statement from the Quebec government on Friday. The bidders included ArcelorMittalMontreal, Transcanada Energy, HydroQuebec and Glencore Canada.

Auction participants bought 1.025 million permits for the right to emit one tonne of carbon dioxide-equivalent in 2013, out of 2.97 million permits offered.

Participants also bought 1.7 million out of 6.31 million permits for the right to emit one tonne of carbon dioxide-equivalent in 2016 at the minimum bid clearing price of C$10.75 per tonne.

Quebec plans to link its carbon market with California's year-old cap-and-trade system in January. The two jurisdictions will hold joint auctions later in 2014.

The auction results were termed largely as expected by market participants and officials.

Quebec's environment minister, Yves Blanchet, said the auction was executed without a hitch.

"The auction generated revenues of more than C$29 million, which is consistent with our expectations. The market works, and it works well," Blanchet said in a statement.

The result was in line with her expectations, said Samantha Katz, managing director of BGC Environmental Brokerage Services, a company that provides financial services to environmental and green energy markets.

There was "no surprise with the price at the floor. With the account restrictions for who can trade, it was anticipated that participation would be low," she said in an e-mail.

Erica Morehouse, an attorney with the Environmental Defense Fund, a U.S.-based advocacy group, said the smooth operation of the auction demonstrates that Quebec will be ready to link with the larger California market next year.

"With a today's auction, Québec now sets the stage for successful linkage with California's cap-and-trade program and opens the door for businesses to use carbon allowances interchangeably," she said.

"First in Forestry" License Plate

In recognition of the importance of forestry in North Carolina and the state's status as the birthplace of professional forestry in the United States, the N.C. General Assembly has approved a special "First in Forestry" license plate. $20 of the $30 fee collected for each plate will go toward forestry education programs in the state.

The plates are available for purchase from the NC Division of Motor Vehicles online and at offices throughout the state.

FIRE

Long-Term Research on Fire Ecology in the Southern Appalachians

Eastern fence lizard, one of the reptile species studied at Green River Game Land. Photo by Sally King, courtesy of National Park Service.

Scientists with the U.S. Forest Service Southern Research Station (SRS) Upland Hardwoods Ecology and Management unit recently received a grant from the Joint Fire Sciences Program to continue a study on the long-term effects on wildlife of using prescribed fire and mechanical fuel reduction treatments in upland hardwood forests.

The study is on the southern Appalachian site of the National Fire and Fire Surrogate Study led by Tom Waldrop, team leader with the SRS Center for Forest Disturbance Science, and is located on the Green River Game Land in North Carolina.

"Prescribed burning is a commonly used management tool for upland hardwood forests, with fuel reduction, ecosystem restoration, and wildlife habitat improvement often cited as primary goals," says Katie Greenberg, project leader of the SRS Upland Hardwoods unit who directs the wildlife research component of the multidisciplinary study. "Although ecosystem 'restoration' burns are being used more frequently across large landscapes with complex and diverse topography, the knowledge about how different frequencies, seasons, or severities of burns affect wildlife communities is incomplete. This long-term research is providing insight into how birds, reptiles and amphibians, small mammals, insects, and forest vegetation respond to repeated burning and burn severity over time."

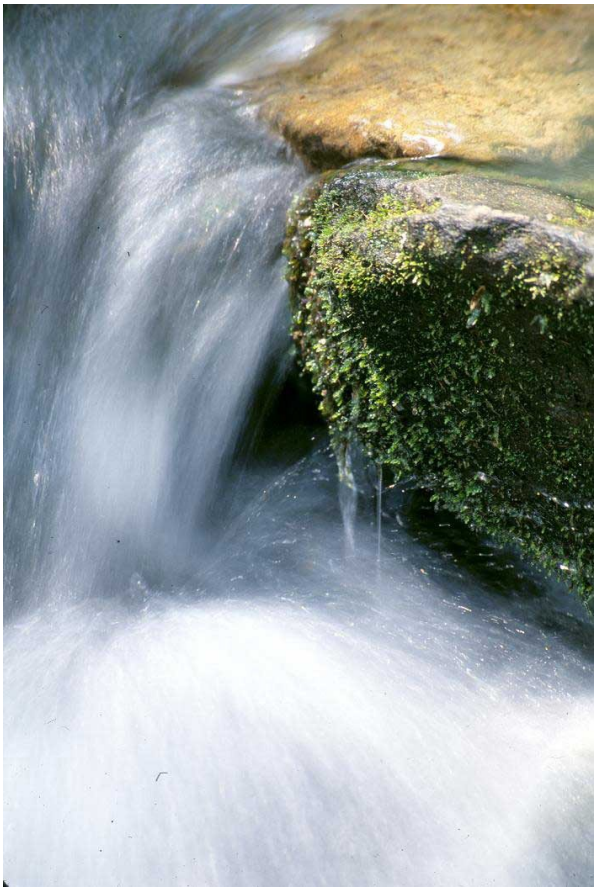
Since 2002, researchers have conducted two mechanical fuel reductions in one of the treatments; three low-intensity prescribed fires in another; and a high-severity prescribed fire (with heavy tree mortality) followed by two additional low-intensity burns in the third fuel reduction treatment–all on the study area in the Green River Game Land.

Recent publications about the research include a 2010 article by Greenberg, Waldrop and others on the results of a study of reptile and amphibian response to fuel reduction in the study areas. In 2013, with different collaborators, they published the results of a study on bird response to fire severity and repeated burning in the same areas.

Over the next few years, SRS scientists and research partners from North Carolina State University and High-point University will study how reptiles and amphibians, breeding birds, insects, and vegetation respond to fuel reduction treatments in the long-term. The study is a research partnership with the North Carolina Wildlife Resources Commission. Research results will help land managers establish objectives and plan science-based treatments to meet their forest management and restoration goals.

For more information, contact Katie Greenberg at kgreenberg@fs.fed.us or Tom Waldrop at twaldrop@fs.fed.us. Read more about the project in a previous CompassLive article.

WATER



Southern forests provide clean drinking water to millions. Photo by U.S. Forest Service.

Southern Forests and Water

Key Findings from the Southern Forest Futures Project Technical Report

The ***Southern Forest Futures Project Technical Report*** is now available online, both in entirety and by chapter. The report forecasts changes in forest conditions and resources based on a variety of scenarios—potential futures—and analyzes what those changes might mean for the future of southern forests. Over the next few months, CompassLive will feature key findings from report chapters to prompt more in-depth reading about the complex issues the South faces in coming years.

The **Southern Forest Futures Project** **(SFFP)** started in 2008 as an effort to study and understand the various forces reshaping the forests across the 13 states of the Southeast. Chartered by the **U.S. Forest Service Southern Region** and **Southern Research Station**, along with the **Southern Group of State Foresters**, the project examines a variety of scenarios that reflect different combinations of interconnected factors, including climate change, population growth, land use change, and economic conditions.

Forests in the South provide the cleanest and most stable water supplies for drinking, recreation, power generation, aquatic habitat, and groundwater recharge. Water resources in the South are at risk of degradation from growing population, continued conversion of forests to other land uses and climate change. The **SFFP chapter on forests and water** evaluates the possible consequences of forest loss from conversion and from changing forest management practices. Chapter authors discuss in depth the implications of climate change, growing demand for water, and land use change on water resources — and the impact of sea-level rise on the coastal plains of the South.

Key findings include:

Forest conversion to agriculture or urban use consistently causes increased discharge, peak flow, and velocity of streams. Subregional differences in hydrologic responses to urbanization are substantial.

Sediment, water chemistry indices, pathogens, and other substances often become more concentrated after forest conversion. If the conversion is to an urban use, the resulting additional increases in discharge and concentrations will produce even higher loads.

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Although physiographic characteristics such as slope and soil texture play key roles in hydrologic and sediment responses to land use conversion, land use (rather than physiography) is the primary driver of water chemistry responses.

Conversion of forest land to urban uses may decrease the supply of water available for human consumption and increase potential threats to human health.

Increases in urbanization by 2060 in the Appalachians, Piedmont, and Coastal Plain will increase imperviousness and further reduce hydrologic stability and water quality indices in the headwaters of several major river basins and in small watersheds along the Atlantic Ocean and Gulf of Mexico.

On average, water supply model projections indicate that water stress due to the combined effects of population and land use change will increase in the South by 10 percent by 2050.

Water stress will likely increase significantly by 2050 under all four climate change scenarios, largely because higher temperatures will result in more water loss by evapotranspiration and because of decreased precipitation in some areas.

Approximately 5,000 miles of southern coastline are highly vulnerable to sea level rise.

Access the Southern Forest Futures Project Technical Report.

Access the Summary Report of the Southern Forest Futures Project.

Access the latest publications by SRS scientists.

WILDLIFE

Cutting Trees for the Early Birds

Long-term study on the effects of forest management practices on early successional species

U.S. Forest Service scientists recently published the results of one of the longest studies conducted on the effects of multiple forest harvest methods on early successional bird species. Published online in *Forest Ecology and Management*, the articleby Forest Service Southern Research Station research wildlife biologist **Roger Perry** and retired scientist **Ron Thill** presents findings from an 18-year study in pine-dominated stands on federal lands in Arkansas and Oklahoma.

Early successional bird species—those that breed in young, disturbed, often shrubby forests—are consistently declining across the eastern United States due to loss of habitat. Over the past 50 years, various factors—fire suppression, farm abandonment, land development, and recolonization by second-growth forests—have shrunk the area of early successional habitat, squeezing out the species that rely on it.

By opening gaps, timber harvesting creates favorable conditions for bird species that prefer early successional

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Blue grosbeak, one of the species found in early successional habitat in southern pine-dominated forests. Photo by National Park Service.

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habitat. In the past, clearcutting served as the primary method for regenerating forests, and previous research shows that clearcutting provides excellent habitat for early successional, shrub-adapted birds. The long-term study confirmed that clearcutting may still be the best option for maximizing densities of many early successional bird species.

Clearcutting is unpopular with the public, and public opposition to the practice led the U.S. Forest Service to limit the use of the method on many federal lands, relying more on a range of other even- and uneven-aged management practices to harvest and restart forests. Much less research has been conducted on the effects of these alternative systems on early successional bird populations, especially in pine-dominated forests of the Southeast.

The researchers conducted the study in the Ouachita and Ozark-St. Francis National Forests in Arkansas and Oklahoma. "We evaluated the long-term responses of 12 disturbance-associated bird species to four different forest regeneration methods—clearcut, shelterwood, single-tree selection, and group selection," says Perry. "We compared these treatments with unharvested controls for 2 years prior to harvest and at various intervals for 16 years after harvest." (Read explanations of the different silviculture systems used in the study.)

Bird species studied included:

the 9 most abundant species associated with clearcuts: American goldfinch, blue grosbeak, common yellowthroat, indigo bunting, prairie warbler, northern bobwhite, yellow-breasted chat, field sparrow, and white-eyed vireo;

three species associated with less intense disturbances that generally retain some mature trees: northern cardinal, Kentucky warbler, and hooded warbler; and

the brown-headed cowbird, a significant nest parasite of shrub-nesting birds.

Multiple bird surveys took place and data on vegetation structure in each of the experimental plots was collected each year. In the article, the researchers provide findings for each bird species studied. In general they found that many bird species were found for longer periods of time in clearcuts than in other treatments.

"For some early successional species, it appears that clearcutting may still be the best option for maximizing densities," says Perry. "Shelterwood treatments offer the closest approximation to clearcuts given the amount of trees that are removed during harvesting. In addition, shelterwood and single-tree selection treatments provide habitat to species that prefer stands with some mature trees and abundant shrubs, such as Kentucky warbler and hooded warbler, which were rare in both unharvested control stands and clearcuts."

SILVICULTURE

Growing Chestnut Trees and Hope in Western North Carolina

by Ryan Johnson, Volunteer Intern, National Forests of North Carolina

A University of Tennessee research technician measures a chestnut tree planted in 2011. Photo by U.S. Forest Service.

Working with others, the U.S. Forest Service may be one step closer to restoring the American chestnut tree to the mountains of western North Carolina.

Beginning in 2009, agency researchers and partners planted close to 1,000 potentially blight-resistant American chestnut trees in the **Nantahala National Forest** in North Carolina, as well as in national forests in Tennessee and Virginia. Two additional plantings were established in Tennessee and Virginia a year later. The goal is to test their resistance to chestnut blight.

Since then, more than 80 percent of the American chestnut backcross hybrid saplings planted in the three national forests have survived. Most of the trees are healthy, growing steadily and showing differing levels of resistance so far, which is encouraging for the hopeful people working to return the tree to its native range.

As they enter their fifth year, the once-young seedlings have reached an average height of 8 feet and overcome what Forest Service scientist **Stacy Clark**, Ph. D., calls "planting shock" by developing a strong root system and adapting to their new environment. Clark, a researcher with the agency's Southern Research station, oversees the project.

Before the introduction of the chestnut blight in the early 20th century, American chestnut trees dominated forests of the eastern United States. Known as the "redwood of the East," the tree often reached towering heights of 150 feet. Experts estimate that at one time, one in every four hardwood trees in the East was an American chestnut.

"The chestnut was important for both the forest ecosystem and human use for several reasons," said Forest Service Geneticist **Barbara Crane**, Ph. D., based in Atlanta, GA. "Its nuts were a valuable food source for both animals and people. It was resistant to most diseases and wood rot, and its wood was easy to work with for loggers."

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By the 1950s, the blight had killed billions of trees and left the species virtually non-existent. Today, any chestnuts found in the Eastern forests never grow beyond a few feet tall and rarely flower. Chestnut trees have reached a "genetic dead-end" in the United States because of their inability of reproduce.

"One level of success is to develop a tree that will survive long enough to naturally pollinate and reproduce," said Bryan Burhans, president of **The American Chestnut Foundation (TACF)**.

Since the early 1980s, TACF has worked to restore the trees to Eastern forests through the development of a blight-resistant backcross hybrid. The foundation has used traditional backcrossing methods to produce a tree that is an American chestnut and blight-resistant Chinese chestnut backcross hybrid. The seedlings are 94 percent American chestnut and carry the gene for blight resistance. Of the American chestnut trees planted in three national forests, half were backcross hybrids and half were native chestnut trees.

The trees were planted through a collaborative effort between the Forest Service, TACF and the University of Tennessee. In 2004, the Forest Service signed a Memorandum of Understanding with TACF, designating the Forest Service as the "most favored recipient" of the TACF's chestnut material, and the resulting seedlings are to be incorporated into management activities on National Forest System lands. The University of Tennessee's Tree Improvement Program provides the necessary infrastructure for Forest Service scientists to implement nursery and field studies of chestnut material.

The Forest Service has played an important role in restoring the American chestnut through funding and expertise, as well as allocating land usage.

"The Forest Service and its scientists work with TACF on a number of different levels, in the field and with planning and monitoring," said Bryan Burhans. "There are all kinds of ways that we have worked together."

Burhans says he is optimistic about the future of the American chestnut hybrid, but admits that the trees planted in the three national forests face challenges in the coming years. As the trees continue to mature, their blight-resistance will be put to the test.

Meanwhile, Stacy Clark, TACF scientists and others will continue to look for conditions and other useful information that will help to return chestnuts to the East.

"There is still a lot to learn about these trees," said Stacy Clark, "And there is a lot more work to be done in restoring the American chestnut."

More than a hundred years ago, American chestnuts thrived in forests of the East. With ongoing refinement of the hybrid trees, collaboration by partners and hope, widespread restoration of the American chestnut may become a reality the next one hundred years.

This story was written for the National Forests of North Carolina (NFNC) and originally published on the NFNC website at http://www.fs.usda.gov/detail/nfsnc/home/?cid=STELPRDB5439130 .

Read a recent article by Stacy Clark on the reintroduction of American chestnut.

For more information, email Stacy Clark at stacyclark@fs.fed.us .

Access the latest publications by SRS scientists.

AGROFORESTRY

Secretary Vilsack Highlights First-Ever Report on USDA Efforts to Expand Agroforestry Practices on Farms, Ranches and Woodlands

WASHINGTON, - Agriculture Secretary Tom Vilsack today released the first-ever report on USDA's role advancing agroforestry. Agroforestry: USDA Reports to America details how agroforestry practices are helping farmers, ranchers and woodland owners enhance agricultural productivity, protect the environment and increase profits.

"USDA has invested less than one percent of its budget into tree-based practices. Yet that small investment allows us to help create private goods and public services that reap great rewards, including reduced greenhouse gas emissions and more resilient agricultural lands," Vilsack said. "However, much work remains to promote and sustain agroforestry practices, which have great potential to promote economic growth and job creation in rural communities."

Agroforestry is a management approach that intentionally combines agriculture and forestry to create more sustainable land-use systems. Over the last five years, USDA has assisted landowners financially and with technical guidance to establish roughly 336,000 acres of windbreaks, riparian forest buffers and alley cropping; about 2,000 acres of silvopasture; and about 500 acres of forest farming. Those acres represent less than 1 percent of the potentially suitable land for applying those practices, suggesting there is an opportunity to significantly expand the application of agroforestry in the United States.

"Agroforestry provides benefits beyond rural areas," Vilsack said. "In suburban areas, agroforestry practices can improve wildlife habitat, mitigate the movement of odors and dust, serve as noise barriers and act as filters that help keep water clean."

Agroforestry: USDA Reports to America is a cross-Departmental effort from eight agencies serving on the Agroforestry Executive Steering Committee: Agricultural Marketing Service; Agricultural Research Service; Farm Service Agency; National Agricultural Statistics Service; National Institute of Food and Agriculture; Natural Resources Conservation Service; Rural Development; and U.S. Forest Service. These agencies work closely with the USDA National Agroforestry Center to advance the science, practice and application of agroforestry, and guide implementation of the USDA Agroforestry Strategic Framework. A longer version of the report will be posted by USDA soon.

With the release of this report on agroforestry, USDA wants to start a national conversation about agroforestry with producers, landowners, communities and young people - America's future farmers.

"Our goal is and always has been to help landowners understand that trees - and other permanent vegetation - planted in the right place for the right reason, will add value to their lands," said Wayne Honeycutt, USDA Natural Resources Conservation Service Deputy Chief for Science and Technology, who chairs USDA's Agroforestry Executive Steering Committee. "Through the report, we are able to show landowner successes. In some cases, family farms have been saved and woodlands spared from development. We hope by showing these stories, more landowners will see the potential for their operations."

To access the report, visit www.usda.gov/agroforestry. Send comments and questions about the report and USDA's role in agroforestry to agroforestry@USDA.gov.

Families, Forests, and Taxes

Financial incentive programs are generally successful in promoting sustainable practices

Key Findings from the Southern Forest Futures Project Technical Report

The ***Southern Forest Futures Project Technical Report*** is now available online, both entire and by chapter. The report provides an interdisciplinary assessment of potential futures of southern forests and the many benefits they provide. The **Southern Forest Futures Project (SFFP)** started in 2008 as an effort to study and understand the various forces reshaping the forests across the 13 states of the Southeast. Chartered by the U.S. Forest Service Southern Region and Southern Research Station, along with the Southern Group of State Foresters, the project examines a variety of possible futures and how they might shape forests and their many ecosystems and values.

Chapter 11 of the technical report delves into the effects of taxes and financial incentives on family-owned forest land in the Southeast. Federal, state, and local taxes are an important consideration for owners and managers of private forest land, and a critical factor in determining the level of stewardship practiced and types of products and services provided.

Of the 751 million acres of forest land in the United States, 35 percent (264 million acres) is owned by families, and 18 percent (138 million acres) is owned by forest industry. Private forest ownership is even more prevalent in the South, with 59 percent of forest land (128 million acres) held by families and 27 percent (57 million acres) held by forest industry.

Key findings from the report:

Most family forest owners are aware of some general business provisions of the Federal income tax, but half or fewer are aware of provisions specifically for forests and other working lands, such as the reforestation incentives and special treatment of qualifying cost-share payments.

Federal and State taxes reduce the pre-tax value of family-owned forest land in the South by amounts ranging from little more than one-quarter to nearly half, with the greatest share of the reduction attributable to the Federal income tax and State property taxes.

For family forest owners who do not grow timber for sale, State property taxes are of greater concern than any other tax, because they occur annually and are perceived as being high in relation to the value of the land.

State-to-State variability in property taxes produces relative disadvantages to holding forest land and likely contributes to conversion of family-owned forest land in States that tax property at higher rates.

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Owners of family forests and other working lands are many times more likely than U.S. taxpayers in general to incur the Federal estate tax. Of the forest estates that owe estate tax, 40 percent sell timber or land to pay part or all of the tax, with roughly one-quarter of the acres sold converted to other uses.

Financial incentive programs are generally successful in promoting sustainable practices among the family forest owners who participate in them, but funding levels and owner confusion about the requirements to apply for and participate in the programs limit the number of acres that are treated.

Now available! Tax Tips for Forest Landowners for the 2013 Tax Year**.**

Access the latest publications by SRS scientists.

Help for Forest Landowners: Estate Planning

Most of the forested land in the South is owned by families and private individuals. Photo by U.S. Forest Service.

Family forest owners may use consulting foresters or State extension foresters for advice on the technical details of land management, but many owners shy away from thinking about how best to pass their forest on to the next generation. Poor estate planning–or no planning at all–can result in a tax bill that requires selling timber or forest land, which in turn can lead to subdivision and development.

Estate Planning for Forest Landowners, a Southern Research Station (SRS) publication, provides a comprehensive guide to estate planning specifically designed for forest landowners.

"Over the past decade, demographic, social, and market trends have converged to increase the effects of the Federal estate tax on rural landowners." says **John Greene**, emeritus scientist with the SRS **Forest Economics and Policy unit** based in Research Triangle Park, North Carolina. "Although the minimum estate value for paying tax may seem high, family forest owners, farmers, and ranchers remain many times more likely than the U.S. population in general to incur the estate tax."

"Besides," Greene adds, "the guide is about estate planning, not just the estate tax. As well as describing how to use the available tax provisions to minimize or avoid the Federal estate tax, it discusses strategies and tools to interest younger family members in keeping the forest intact and train them in how to manage it for the values the family holds for it."

Greene and coauthors **William Siegel** and **Harry Haney** designed *Estate Planning for Forest Landowners* to provide specific guidelines and assistance on applying estate planning to forest properties. The guide, which is available free of charge from SRS, is designed for use by both private landowners and advisers—legal, financial, insurance, and forestry professionals—who help them with estate planning. The guide presents a working knowledge of the Federal

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estate and gift tax law as it relates to forest properties.

Access *Estate Planning for Forest Landowners*.

Available Now! Tax Tips for Forest Landowners for the 2013 Tax Year.

For more information, email John Greene at jgreene01@fs.fed.us

Forest Taxation

Assuring that Non-Industrial Forest Landowners Have Access to the Best Available Information on Forest Related Tax Law

Information about the Program....

Program Purpose

The taxation program provides non-industrial private forest (NIPF) landowners with a consolidated source of information on the complex tax issues associated with forest maintenance and management. While our national forests are of course exempt form federal taxes, and corporate forest landowners often employ taxation specialists to help them manage their forest assets, NIPF landowners rarely have this expertise at their disposal. As a consequence, many forest landowners under invest in their forest lands and even unnecessarily subdivide them, leading to forest fragmentation and eventually forest disappearance.

Well managed forests produce timber and other forest products, provide wildlife habitat, recreational opportunities, aquifer and watershed protection, and other amenities. The nation's NIPF lands, comprising approximately 60% of its forest land, make significant contributions to maintaining these values, and could do more. Providing tailored tax information is one way in which the Forest Service is working to increase forest productivity on non-industrial forest lands.

Program Activities

The taxation program relies upon collaborative efforts involving the Cooperative Forestry staff of the Forest Service, state forestry agencies, the Internal Revenue Service, cooperative state extension services and private groups. The partners work together to collect, analyze and disseminate information about tax law as it pertains to non-industrial forest landowners' forest management. The Forest Service, in concert with the IRS, provides much of the tax expertise, while the State forestry agencies and other partners carry the information to NIPF landowners.

Eligibility

The program directly benefits accountants, lawyers, forestry consultants and State personnel who receive training and information on the Federal tax laws. Non-industrial private forest landowners are the program's ultimate benefici-

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aries, as they receive the best tax information available, and can subsequently make more informed choices about how to manage their forest lands.

Program Administration and Informational Contacts

The cooperative forestry forest taxation program relies upon multiple partners to accomplish its goals. The States provide the contact point for interested members of the public, while the Federal government, in collaboration with private and educational sources, provides information and training to the States.

What's New

Tax Tips for Forest Landowners for the 2013 Tax Year

Federal Income Tax on Timber: A Quick Guide for Woodland Owners (October 2012 Edition)

Useful Information and Resources

Timber REITs and Taxation (A Briefing of Key Issues)

Timber REITs and Taxation (Technical Report)

2010 and 2011 Farm Credit System Bank Rates

Timber Casualty Loss Tax Deduction

Federal Income Tax and Conservation Easement Donations

Forest Owners Guide to the Federal Income Tax

National Timber Tax Website

Loss Deductions for Timber Damaged or Destroyed by a Natural Disaster

Federal Income Tax on Timber:A Key to Your Most Frequently Asked Questions

Timber Investment Management Organizations and Real Estate Investment Trusts

Estate Planning for Forest Landowners: What Will Become of Your Timberland

Federal Income Tax on Timber: A Key to Your Most Frequently Asked Questions (3rd Edition)

Meetings

April 2, 2014 (rescheduled from 2/13/2014) - Community Forest Stewardship Workshops at the Catawba County Center in Newton, NC, . Click here for more details.

April 2-4, 2014 - A Forestry Summit will be held at the Kingsmill Resort in Williamsburg, Virginia. Click here for more details.

April 10, 2014 - The Western North Carolina Timber Conference will be held in the auditorium at The Regional High Technology Center, 112 Industrial Park Drive, Waynesville, NC 28786. Click here for more details.

April 10, 2014 - The Western North Carolina Timber Conference will be held in the auditorium at The Regional High Technology Center, 112 Industrial Park Drive, Waynesville, NC 28786.

I am a forest landowner interested in Forest Stewardship on my property. Please have a representative call me.

PLEASE REMOVE THIS PORTION AND MAIL TO: State Stewardship Coordinator, 1616 Mail Service Center, Raleigh, NC 27699-1616

(or contact one of the cooperating agencies listed on this brochure)

Name: _____

Address: _____

_____

_____

Phone: _____

County where property is located:

_____

Tract Size: % Forested

Do you have a forest management plan? YES NO

Are you currently receiving technical assistance?

YES NO If yes, by whom - _____

Organization _____

I am specifically interested in

- ☐ aesthetics
- ☐ recreation
- ☐ soil
- ☐ non-game species
- ☐ wildlife
- ☐ timber
- ☐ water quality
- ☐ rare plants
- ☐ other

Stewardship FOREST

N.C. DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES - FOUNDED 1877 -

NORTH CAROLINA FOREST SERVICE NC

For more information on Forest Stewardship in North Carolina fill out the attached form and send to us or contact the N.C. Forest Service Stewardship Coordinator Les Hunter at (919) 857-4833 or via email at les.hunter@ncagr.gov.