Throwing a drone for "take off." More cumbersome to use then a multi-copter drone, fixed-wing mini drones are very efficient in vegetation mapping, able to cover a larger area and having safer recovery capabilities from motor power loss. Photo: Yves Laumonier

In terms of risks, in what context are drones of most concern: while you're using them in the field, or afterward, when you publish your findings?
I think both. In the field, so far we've had no problem because we get proper introductions and permits from communities and local government. But we were not in areas where you have potential conflict between companies and communities. We did fly and see illegal mining and illegal logging, for instance. I met the loggers in the forest, and they didn't ask questions—the drone was high enough you couldn't hear above the noise of their chainsaws.

Already with satellites you deal with conflicts between national parks and local villages. When you show the data, it can be a big risk. Or gold mining in Kalimantan, which means sucking up the banks of the river—some areas are deserts of white sand now that cannot be rehabilitated. Companies might be really unhappy for us to show details of their operations.

Ethically, are you obligated to publish your findings anyway?
I would be inclined to do so, yeah. I feel we need as independent scientists to show what's happening, looking at degradation of the environment and so on. It's important we keep doing so. I think we should be completely free to publish what we find for evidence.

What's your dream drone?
A drone that could collect leaves from trees for me. It's always a burden. For species identification, you need to collect from trees that are 60 meters high, so we use tree climbers, but I'm always afraid the person will fall. And if researchers can't get locals to climb trees and only come back with local names of species, it means little and can lead to a wrong assessment of diversity and species distribution. I've used monkeys, and it was great, but you will end up with animal activists after you. We really need drones that can collect twigs and leaves for us in the canopy. FS

For more information on this topic, contact Yves Laumonier at Y.Laumonier@cgiar.org.

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IN MEMORIAM

Julie Peltier, 54, of Hartford, Wisconsin, died unexpectedly at her home on September 26, 2018. Peltier attended Vermillion Community College in Ely, Minnesota, where she received an associate's degree in natural science technology. She continued her education at the University of Minnesota and graduated in 1993 with a bachelor's degree in forest resource management with a silviculture emphasis. Peltier worked for several years on the Black Hills National Forest before joining the Wisconsin Department of Natural Resources (DNR) as a field forester in 1997. She later became a forest tax law specialist. Peltier was recognized by the DNR in 2013 as the Cooperative Forest Management Forester of the Year.

Peltier held a number of SAF offices, including chapter chair, state treasurer, and Wisconsin SAF state chair, and she led or assisted in a number of executive committee positions. She served as chair of the 2016 SAF National Convention in Madison, Wisconsin. It was a memorable and successful conference and that success was in part due to Peltier's efforts.

Peltier continually sought professional growth within SAF. She attended the Leadership Academy, took part in SAF's mentoring program, and attended numerous national conferences. In 2008, SAF recognized her with the Presidential Field Forester Award; she received Wisconsin SAF's Michael King Award the same year. She was named an SAF Fellow in 2017. Peltier was a huge asset to Wisconsin SAF. Her influence has shaped this organization. Her leadership and knowledge will be greatly missed.—*submitted by Jeff Kante, Wisconsin SAF chair*

FOREST PRODUCTS MARKETPLACE

Chip-N-Saw Stumpage in the US South: An Often-Ignored Product

By Rajan Parajuli and Shaun Tanger

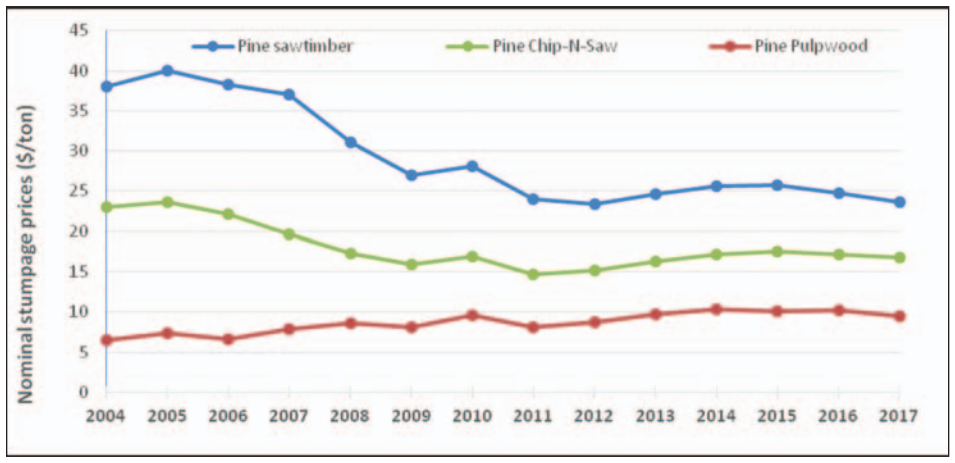

Figure 1. South-wide average timber prices (data: Timber-Mart South).

Historically, sawtimber and pulpwood have been the two major softwood stumpage products derived from timber properties. Trees at least 12 inches diameter at breast height (dbh) are able to produce sawtimber, which is primarily used to manufacture lumber, plywood, and other structural-grade dimension products. Small-diameter trees of at least six inches dbh are used as pulpwood, which is used for pulp and paper products and, more recently, pellets and other engineered products (i.e., oriented strand board, or OSB). However, due to technological improvements in manufacturing processes, coupled with high demand for framing lumber products (specifically 2x4s and 2x6s), a stumpage product class, called "chip-n-saw (CNS), an intermediate product between sawtimber- and pulpwood, has become a mainstay in softwood stumpage markets in the US South. The importance of CNS in timber markets is evidenced by timber tax regulations in some southern states. For instance, since 1993, CNS has been designated as a separate subgroup in the trees and timber category in timber severance tax collections in Louisiana. Similarly, for the timberland productivity calculation in Texas, CNS has been specified as a standalone product from mid-size trees.

CNS, as its name denotes, is the stumpage product harvested from mid-size trees with a dbh range of 8 to 11 inches (9 to 12 inches in some markets), producing wood chips for pulpwood, as well as small dimension lumber. The tops are used for wood chips in the production of pulp products, but the higher value is in its ability to produce lumber, particularly 2x4s, a common dimensional lumber size used in residential construction in North America. Recently, lumber prices across the board have reached record highs. The current price of #2 2x4 Southern Pine lumber is about $600 per thousand board feet.

Figure 1 shows where the CNS market stands in sawtimber- and pulpwood-dominated timber markets in the US South. In 2017, south-wide average prices of sawtimber, CNS, and pulpwood were about $24/ton, $17/ton and $9/ton, respectively. Since the pre-recession level of timber prices, historical trends indicated downward movements in both sawtimber and CNS prices (although the percentage losses in CNS are far smaller than sawtimber), but pulpwood prices remained relatively flat. A noteworthy point from Figure 1 is that sawtimber and CNS prices have been converging in recent years, which due in part to depressed sawtimber markets and technological improvements by mills to utilize smaller-diameter logs. For instance, the price ratio of sawtimber to CNS was 1.7 ($38/$22) in 2006, but the same ratio was 1.4 in 2017, the all-time low. Moreover, on average, the price ratio of CNS to pulpwood is about 2.0, indicating that CNS prices are about double pulpwood prices.

A recent study on the market dynamics of CNS stumpage in Louisiana by Tanger and Parajuli (2018) revealed that CNS quantity demanded and sawtimber price are inversely related, suggesting that mills are engaging in substitution with respect to the two products. Not surprisingly, when sawtimber prices rise, mills prefer CNS. The statistical model revealed a direct relationship between sawtimber and CNS, but not between CNS and pulpwood.

We offer a caution, however. Timber markets are very local in nature and vary quite a bit from one location to the next, even within the same state. Some markets have no mills at all that accept CNS, but that do take pulpwood and larger-diameter sawtimber (12 inches and larger). Some markets have plywood mills as well, which can take much larger-diameter trees. If a landowner is in a market where smaller-diameter logs are preferred by nearby mills, a shorter rotation focusing on CNS production could be an ideal alternative from both management as well as financial perspectives. A shorter rotation means early returns, less uncertainty and fewer risks, and an early opportunity for reforestation. It also ensures that landowners don't grow trees too large for the

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CONTINUING EDUCATION CALENDAR
December 2018 through February 2019

More Events at tinyurl.com/gnd78jh (www.eforester.org)

*Continuing education events for **December 2018 through February 2019**. SAF Continuing Forestry Education (CFE) credits are available at all events. Visit SAF's Continuing Education Calendar at tinyurl.com/gnd78jh for more information on these events and others that may have been recently added to the list. Note the webinars at the top of the listings.*

***CFE Providers:** To obtain pre-approval of Continuing Forestry Education credits for an event, complete and submit the CFE Provider Application Form on the Certification & Education/Continuing Education page at eforester.org (or tinyurl.com/z2zqc3o). Submittal instructions are included on the form.*

***CFE Post Approval for Individuals:** If an event was not preapproved for CFE credit, SAF will evaluate the meeting on an individual basis. This service is available to members and SAF-certified professionals at no cost; non-members are assessed an annual fee of $30. To apply, complete and submit the CFE Post Approval Form on the Certification & Education/Continuing Education page at eforester.org (or tinyurl.com/z2zqc3o). Submittal instructions are included on the form.*

WEBINARS

12/12/2018, Managing for Fire Resilience, Session 3 of 3
12/18/2018, A Fisheries Perspective on Timber Sale Design
12/19/2018, Don't Fear the Fire: Using Prescribed Fire to Build Pine Forest Resilience
1/8/2019–2/19/2019, Forest Adaptation Planning and Practices (Central Hardwoods/ Apps)
1/8/2019, PA Forests Webinar: Timber Harvesting on Private Lands
1/17/2019, Fire Ecology of Longleaf and Ponderosa Pine
2/12/2019, PA Forests Webinar: Hawk Talk: Hoo's in Your Backyard?
2/20/2019, Homeowner Preparedness in the WUI: What Motivates Action?

ARKANSAS

12/14/2018, AFA Project Learning Tree, Jonesboro

CALIFORNIA

12/3–7/2018, FVS Basic Training, Sacramento

COLORADO

2/4–8/2019, FVS Basic Training, Fort Collins

GEORGIA

12/4/2018, GA Forest Product Trucking Rules, Swainsboro
12/4/2018, Pest Manager Training, Martinez
12/5–6/2018, Deer Ecology & Management, Athens
12/12/2018, The Tree Course, Atlanta

IDAHO

12/13/2018, Current Topics in Farm & Forest Health: Climate Change, Orofino

INDIANA

12/18/2018, The Tree Course, Indianapolis

MAINE

12/6/2018, Forest Adaptation Listening Session, Orono

MASSACHUSETTS

1/9–30/2019, Landscape for Life, Boston
1/10–24/2019, Conservation Biology, Framingham
1/19/2019, Wetland Shrubs in Winter, Framingham
1/31/2019, Winter Botany, Framingham
2/9/2019, Understanding and Managing Soils, Whately
2/12/2019, Climate Change and the Plants of New England, Framingham

MICHIGAN

12/5/2018, Forest-Climate Working Group2018-19 Learning Exchange Series, Session 3, East Lansing
2/6/2019, Forest-Climate Working Group 2018-19 Learning Exchange Series, Session 5, East Lansing

MINNESOTA

12/7/2018, MN FEA Annual Meeting, Brainerd
2/5/2019, Forest Health Workshop 2019, Walker

MISSISSIPPI

12/6/2018, Reforestation Technology, Starkville
12/7/2018, Forest Valuation II, Starkville

NORTH CAROLINA

12/4/2018, Forest Health, Morganton
12/13–14/2018, NC Urban Forest Council, Greensboro
12/20/2018, Fall Forestry Tour, Jackson Springs

OREGON

12/4–5/2018, Vegetation Management in the Wildland-Urban Interface, Wilsonville
12/4–5/2018, Pacific NW Veg Mgmt Conference, Wilsonville
1/17/2019, Western Region Council on Forest Engineering Seminar, Eugene
2/1–2/2019, 2019 PNW Leadership Conference, Troutdale

PENNSYLVANIA

12/7/2018, The Tree Course: Science, Design and Sustainability, Coraopolis
12/11/2018, PA Forests Webinar: Finding Markets for Goods from the Woods, University Park

RHODE ISLAND

12/19/2018, Forest Adaptation Listening Session, Smithfield

South Carolina
12/4–6/2018, Longleaf Academy: Longleaf 101 Hobcaw Barony, Georgetown

VERMONT

12/14/2018, Forests and Climate Change: Managing impacts and planning for the future, Burlington

VIRGINIA

12/7/2018, VASAF Fall CFE Extravaganza Forestry updates for practicing foresters, Charlottesville

WASHINGTON

1/18/2019, 27th Annual Family Foresters Workshop, Spokane Valley

HURRICANE MICHAEL

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expensive and could be a real hindrance for private landowners."

Griffin said he has never seen damage to the extent caused by the storm in his career.

"It's definitely an eye-opener to the power of the storm like Hurricane Michael," he said.

The Alabama Forestry Commission estimates that timber on more than 43,000 acres was damaged in that state, with a value of nearly $20 million.

The Appalachian Society of American Foresters (ApSAF) reported that more than $14,000 in donations have been received to aid SAF members significantly affected by Hurricanes Florence (in the APSAF region) and Michael (in the Southeast region), and checks for $1,000 have been distributed to each of 12 SAF members in North Carolina, Florida, and Georgia. FS

HAGENSTEIN

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Forestry Source, November 2017.

A special "pop-up" lecture is scheduled for May 2, 2019, at the World Forestry Center: "A Conversation with John N. Maclean," author of *Fire on the Mountain*, *The Yarnell Hill Fire*, and *River of Fire: The Rattlesnake Fire and the Mission Boys*. Maclean will share his insights about wildfire, firefighters, and firefighting, and what the future may hold for the complex relationship of people, fire, and landscapes. The event will be hosted by Doug Decker, director of the Executive Seminar Program in Natural Resources Leadership at Portland State University's Hatfield School of Government. Decker previously served as Oregon's state forester and director of the Oregon Department of Forestry. FS

For information on the Hagenstein Lectures, including video recordings of the presentations, visit www.hagensteinlectures.org.

SCHOLARS

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As an officer in her college SAF chapter, Rebeca Rodriguez explained that "I can make a difference and I want others to see what I see when I look at the outdoors.". Jasmine Brown wrote about being exposed to "the sense of community within SAF" by virtue of the networking opportunities and relationships formed at the convention.

A key takeaway from all of the diversity scholars is that diversity is important, due to the impact it can have on decision-making and the long-lasting influence it has on younger generations of future leaders. It is forestry's responsibility to be a welcoming and inclusive profession. FS

The Diversity Scholarship Program is supported entirely by donations, which cover the scholars' registration fees, a modest travel and accommodations stipend, and the special event fees for some convention events. With additional funds, the Scholarship Committee envisions this program being expanded to provide added benefits both to diversity scholars and SAF. If you or your organization would like to become program sponsors, please contact Rachel Reyna (717-783-0385 or rreyna@pa.gov) or John Barnwell (barnwellj@safnet.org) to find out how. If you have questions about the program or are interested in becoming a part of the pool of diversity ambassadors, please feel free to contact Rachel Reyna.

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nearby mills if timber production is an important objective. We recommend that landowners know their surroundings and manage their timber accordingly. There is no one-size-fits-all strategy, especially when one considers that many landowners have objectives unrelated to harvesting operations. Since CNS is an important intermediate stumpage product, one should not ignore it in management planning, as well as investment analysis, particularly in the US South. FS

Rajan Parajuli is an assistant professor and extension specialist at North Carolina State University. Shaun Tanger is an assistant professor at Louisiana State University Agricultural Center.

References

Tanger, S., and R. Parajuli. 2018. "Toward an Elasticity of Chip-N-Saw: Demand and Supply Models of Chip-N-Saw Stumpage in Louisiana." *Forests*, 9, 211. (Available free at: www.mdpi.com/1999-4907/9/4/211/pdf).

Seeking GIS, Sci-Tech Articles

The Forestry Source welcomes contributions for the GIS for Foresters and Science & Technology sections. GIS for Foresters articles cover geographic information systems, lidar and remote sensing, tips and techniques for being more productive with ArcGIS and other software, and related topics. Science & Technology focuses on recent research, technologies, and techniques for forestry and natural resources management. These articles are not peer reviewed; they may include references and links to resources. Length: 700 to 1,200 words. High-resolution photos and graphics welcome. Information: Steve Wilent, Editor, 503-622-3033, wilents@safnet.org.