

CU IN THE WOODS

Clemson Extension Forestry and Wildlife Newsletter



The Five-Step Felling Plan

By Patrick Hiesl

This is an excellent time of the year to fell trees in your woods. It is cool enough to be comfortable, but not so cold that you would rather sit by a fire inside the house. However, using a chainsaw can be dangerous, and we covered chainsaw use previously in the CU in the Woods articles. Today, I would like to talk about the five-step felling plan I highly recommend when considering felling a tree using a directional open-face with trigger wood felling technique. The plan is simple and is to be used before you even start the chainsaw. The steps are: 1) hazard evaluation, 2) lean evaluation, 3) escape route considerations, 4) hinge thickness considerations and 5) cutting plan.

The first step, hazard evaluation, is important because it involves examining the tree to identify any hazards and risks associated with it. This could be dead branches at the top that you would want to avoid standing underneath. It could be vines or crowns of other trees intertwined, which may change how the tree falls. Maybe it is a nearby power line or structure that you need to avoid. But it also includes looking around the base of the tree to identify any hazards, such as saplings that may be in your way, or catfaces/scars on root flares and the trunk that may indicate the potential for rot. Once you have assessed the hazards, you can come up with a plan to work with them or decide not to move forward with tree felling at all.

The second step, lean evaluation, is to assess the forward, backward, and side lean of the tree. This assessment is based on knowing the felling direction, so this is what you have to decide on first. For the side lean assessment, walk in line with the felling direction, about one tree length back. Now form a triangle with your pointer fingers (up) and your thumbs (down), and try to capture the entire crown within this triangle. If you can't fit it all within the triangle, walk back some more. Now move this triangle downwards until you see where your thumbs meet the ground. This spot indicates whether you have a lean to the left or right of the tree, but it also shows you how much lean you have to one side or the other. Now walk perpendicular to the felling direction and do the same thing for the forward/backward lean. These two assessments will now show you in which directions the tree naturally wants to go. This is not always the direction you want to fell in, but that is a discussion for another day. Just keep in mind that the side with lean is your "bad" side, and the opposite side is your "good" side. Always finish your felling cuts on the "good" side, to minimize the risk of being hit by a falling tree.

Your third step is considering your escape route. Once a tree starts falling, it



Directional open-face with trigger wood felling technique can be a great way to safely fell a tree. Jaime Pohlman, Clemson Extension.

In This Edition

The Five-Step Felling Plan

Page 1-2

Find Your County Forestry Association

Page 2

Invasive Tree Pests in South Carolina Forests: 2026

Page 3

Lend a Helping Hand to Bluebirds

Page 4-5

Forestry Herbicide Series- Triclopyr

Page 5

Stumpage Price Trends & Market Update

Page 5-6

Protecting Yourself from Chainsaw Injuries

Page 6-8

It's Timberdoodle Time Y'all

Page 8-9

Invasive Species Spotlight- Autumn Olive and Thorny Olive Staff

Page 9-10

Our Extension Forestry and Wildlife Staff

Page 10

Events and More

Upcoming Events

Find out about all of our upcoming events by visiting our events page:

<https://www.eventbrite.com/o/clemson-extension-forestry-amp-wildlife-75733679603>

Looking for more forestry and wildlife information?

Check out our blog page for past articles and other great forestry and wildlife information-

blogs.clemson.edu/fnr

The Five-Step Felling Plan cont.

is in your best interest to move far away from the tree to minimize the risk of serious injuries. Your escape route should be backward on your “good” side at a 45-degree angle to your felling direction. Make sure you identify the escape route and cut any saplings or brush that block your way. You should back up at least 20 feet once the tree starts falling; farther is better.

The fourth step is thinking about the hinge thickness. With directional tree felling, a hinge will guide the tree to the ground in the direction you want it to go. The general rule for the hinge thickness is 10% of the diameter of the tree at breast height (DBH). For a 10-inch-diameter tree, a 1-inch hinge would be sufficient; for a 20-inch-diameter tree, a 2-inch hinge would work. Depending on the species, you may adjust the hinge thickness a bit. For example, long-fibered species such as our yellow pines can get by with a slightly smaller hinge, while some oaks with shorter fibers may benefit from a slightly larger hinge thickness.

The fifth step is your cutting plan. For the open-face with trigger wood felling technique, your first step would be to cut an open-face or notch in the side of the tree, which will determine the felling direction. This notch should have an opening angle of about 70 to 90 degrees, and the apex length where the two notch faces meet should be about 80% of the DBH of the tree. This often translates to a depth of about 20% to 25% of the DBH. So for a 20-inch-diameter tree, the apex length should be about 16 inches from one side to the other.

Your next cut to consider is the one that forms your hinge. This is most often a bore cut that starts well behind the hinge. Once cut through the tree, you can move the saw forward to shape the correct thickness of the hinge. It is important to consider from which side you will make the cut, and whether you can make it on one side or need to make two cuts from opposite sides. Once the hinge is formed, you can move your saw backwards to shape the trigger wood that you will leave to hold the tree in place and keep it from falling while you assess the surrounding area. Think about where you want to put the trigger, how you will shape it, and where you will insert any felling wedges to help with lifting the tree so that it can fall. The last step to consider is where you will cut the trigger wood. It is good practice to cut the trigger wood below your previous cuts to avoid cutting into any wedges. Make sure your trigger wood and your final cut can be made from the “good” side, so you can use the escape route once the tree starts falling.

Now that you have made a plan using the five steps above, you can start your chainsaw, clear a path around the tree and down the escape route, and start making your felling cuts. Keep in mind that tree felling is dangerous, and a lot of things can go wrong. If you are unsure about felling a tree, don't do it and call a professional. Clemson Extension has a chainsaw safety website (<https://www.clemson.edu/extension/chainsaw/>) that has educational videos and information on upcoming chainsaw safety classes.

County Forestry Associations

Abbeville County Forest Landowners Association

Contact: Stephen Pohlman

Aiken County Forestry Association

Contact: Janet Steele

Anderson Forestry & Wildlife Association

Contact: Carolyn Dawson

Calhoun-Orangeburg Forest Landowners Association

Contact: Janet Steele

Darlington/Florence Landowners Association

Contact: TJ Savereno

Edgefield County Forestry Association

Contact: Stephen Pohlman

Greenville Forestry & Wildlife Society

Contact: Carolyn Dawson

Greenwood County Forestry Association

Contact: Stephen Pohlman

Kershaw County Forest Landowner Association

Contact: Robert Carter

Laurens County Forest Landowners Association

Contact: Jeff Fellers

Lexington County Forestry Association

Contact: Janet Steele

Lowcountry Landowners Association

(Beaufort, Colleton,
Hampton, Jasper)

Contact: Mike Windhorn

McCormick County Forestry Association

Contact: Stephen Pohlman

Newberry County Forestry Association

Contact: Jeff Fellers

Salkehatchie Forestry Association

(Allendale, Bamberg and
Barnwell)

Contact: Janet Steele

Saluda County Forestry Association

Contact: Stephen Pohlman

Tri-county Forestry Association

(Berkeley, Charleston,
Dorchester)

Contact: Mike Windhorn

Williamsburg County Forest Landowners Association

Contact: Tancey Belken

Invasive Tree Pests in South Carolina Forests: 2026 Update

By Dave Coyle

It's time for our annual update on invasive tree pests in South Carolina! We all know that South Carolina's forests have their share of pests – most of which are native and typically only impact stressed or injured trees. However, several invasive species are established in our state or in neighboring states.

Emerald ash borer

The emerald ash borer is still present in Pickens, Oconee, Anderson, Greenville, Spartanburg and York counties. This beetle's adults are bright green and the whitish larvae feed on the tree's phloem (just under the bark). Larval feeding can kill mature trees in just a few months, as their winding feeding galleries cut off nutrient transport within the tree and essentially cause starvation. Little can be done to manage emerald ash borer populations in natural areas, though there are several biological control agents that have been shown to help reduce beetle populations. These beetles only impact ash (*Fraxinus*), so if you have dying ash, it's worth checking it out and notifying your local Extension agent or SC Forestry Commission forester.



Adult emerald ash borer.
Dr. Matt Bertone, ©2017, NC State University

Laurel wilt

Laurel wilt is a devastating disease spread by the redbay ambrosia beetle that affects all species in the family Lauraceae, which includes redbay and sassafras. This disease is present in 22 counties in South Carolina's Piedmont and Coastal Plain regions. The beetles attack healthy trees and introduce a fungus, which quickly grows and clogs the tree's water-conducting tissues – and this nearly always results in tree death. You can track the spread of laurel wilt [here](#).

Asian longhorned beetle

While neither the emerald ash borer nor laurel wilt have significantly expanded their ranges in the last couple of years, the same cannot be said for some other invasive tree pests in South Carolina. The Asian longhorned beetle is under federal and state regulation and is now present in Mount Pleasant as well as in the original area where it was first found, around Hollywood and Ravenel (in Charleston and Dorchester counties). This large black and white beetle primarily attacks maple (*Acer*), but can also use poplar (*Populus*), willow (*Salix*), birch (*Betula*), sycamore (*Platanus*), and elm (*Ulmus*) as hosts. Larvae can grow up to nearly 2" long and feed on the wood, causing branches and stems to break. While this pest can be eradicated, total host removal is necessary, which means removing and grinding the infested tree and stump.

Species to be on the lookout for:

Spotted lanternfly

The spotted lanternfly is an insect that feeds on over 100 different host plants, including several smooth-barked hardwoods, like maples and young walnuts (*Juglans*). This pest was first found in Greenville and then Oconee counties in summer 2025. Spotted lanternfly is unlikely to be a forest pest but feeding by this insect can negatively impact tree growth and health. We are asking anyone who sees this pest to report it immediately, as the impacts of this pest are both known and significant.



Spotted lanternfly adult coloration.
Pennsylvania Department of Agriculture,
Bugwood.org

Elm zigzag sawfly

The elm zigzag sawfly isn't known to be present in South Carolina yet, though it is present in both North Carolina and Tennessee. This pest is capable of defoliating any species of elm and is fairly distinctive in appearance – elm zigzag sawfly larvae make characteristic feeding patterns in leaves, and can quickly defoliate entire trees. We also have a great fact sheet on the elm zigzag sawfly- <https://hgic.clemson.edu/factsheet/elm-zigzag-sawfly/>.

If you see either any of these pests, please let your local Clemson Extension agent or SC Forestry Commission forester know right away. Find out more about these pests from the South Carolina Forestry Commission (<https://www.scfc.gov/protection/forest-health/>) or at our state regulatory page (<https://www.clemson.edu/public/regulatory/plant-industry/invasive/index.html>) and report them if you see them!

Lend a Helping Hand to Bluebirds

By Marion Barnes

With all the winter weather conditions of late, it is not too early to be thinking of spring! The Eastern Bluebird is one of South Carolina's most colorful year-round feathered residents and is often referred to as a harbinger of spring. Early settlers called them the "blue robin".

These birds get their name from the male with its reddish or rust colored throat and chest, white underbelly and brilliant blue plumage on its back. The females are a grayish blue with a duller, rust-colored breast. Many birding enthusiasts admire bluebirds for their colorful appearance, gentle disposition, devotion to family, and soft, low-pitched call.



An Eastern Bluebird perched on a fence post.
Marion Barnes, Clemson Extension.

The Eastern Bluebird habitat consists of a mix of open pastures, fields and park-like meadows with scattered trees, open woodlands and forest edges with hollow tree cavities for nesting. Eastern bluebirds can also be found in urban areas with large open lawns, good nesting sites and abundant insect populations for food. Considered secondary cavity nesters, unable to excavate their own cavities, they seek out abandoned woodpecker cavities and other natural openings.

From the mid 1920's to the 1970's the Eastern Bluebird species began to decline due to a number of factors including loss of nesting sites attributed to increased urbanization, changing forestry and agricultural farming practices, competition for nesting cavities from introduced exotic species such as the European House Sparrow and European Starling and severe winter and spring ice storms in the Eastern U.S. Bluebird populations declined over 90% during this time and were listed as an endangered species in the 1970's. Eastern Bluebird populations have stabilized thanks to efforts by homeowners and conservation groups to provide nest boxes and improve habitat suitable for these birds to thrive.

Year-round residents in the low country of South Carolina, bluebirds' nesting season typically runs from February through September, with peak mating activity in April. Male bluebirds locate a suitable nesting site, establish a territory and sing to attract a female and warn other male bluebirds to stay away. Females build the nest, a neat, cup-shaped structure made of fine grass and pine straw. After mating, the female lays a total of 1 to 6 eggs and immediately begins incubation, which lasts about two weeks. Chicks usually remain in the nest for another two to three weeks before fledging. Bluebirds can raise two to three broods a year in South Carolina.

Bluebirds are primarily insectivores, feeding mainly on insects, which make up approximately 2/3rds of their diets; the remainder consists of wild fruits and berries, especially during winter, when insects are less common. Listed in a 1915 USDA Farmers' Bulletin 630 titled, "*Some Common Birds Useful to the Farmer*", bluebirds are praised for the amount of harmful insects they consume, especially grasshoppers and caterpillars that damage crops.

One of the biggest challenges the Eastern Bluebird faces today is finding suitable nesting sites. What can we do to help?

Fortunately, bluebirds regularly use nest boxes provided by homeowners and landowners. Providing nest boxes can be a rewarding hobby for individuals, clubs, and classes. Nest boxes are usually erected in February, but due to multiple broods, they can be placed at any time of the year. Nest boxes are easy to build and maintain, and numerous plans and designs have proven successful.

When considering the construction of bluebird nest boxes, here are a few things to keep in mind:

- Make boxes the correct size & use a design that is easy to clean and inspect
- Use rough cut cedar or cypress lumber 3/4 to 1 inch thick (insulation & resists decay)
- Avoid the use of treated wood for box construction
- Entry holes should not be larger than 1.5 inches to deter predators, including the European Starling
- Provide drain and ventilation holes (to keep young birds dry and to prevent overheating)
- Do not add perches since they attract house sparrows
- Mount on a smooth, round pole, such as a metal electrical conduit, that helps deter intruders
- Provide predator protection by installing a baffle or other type of predator guard
- Place nest boxes at least 5 feet in height, keeping in mind that higher placement makes monitoring difficult
- Place nest boxes in good bluebird habitat, open areas such as around open fields and pastures, gardens, and large lawns where insects are plentiful.
- Avoid areas with heavy insecticide use, as these areas can reduce insect populations and may unintentionally harm bluebirds.
- Place nest boxes at least 100 yards apart (if possible) since male bluebirds are very territorial.
- Locate nest boxes at least 50 feet from wooded areas to avoid competition from birds like house wrens,

Lend a Helping Hand to Bluebirds cont.

chickadees, nuthatches and titmice who will use the nest boxes.

- Face nest boxes away from prevailing winds and within 25 to 100 feet of perches, such as fences, utility wires, small trees, and shrubs. These structures are used by bluebirds for feeding and by young birds for perches during their first flights.

For more information on attracting Eastern Bluebirds to your property, contact your local county Extension agent. You can also view a copy of [HGIC Factsheet HGIC 2908 Providing for Bluebirds: Guidance for Bluebird Nest Box Establishment in South Carolina](#) or [Eastern Bluebirds from](#)

[the Alabama Cooperative Extension System](#) for additional information on bluebirds.

Information for this article was taken in part from Clemson University HGIC Factsheet 2908, Providing for Bluebirds: Guidance for Bluebird Nest Box Establishment in South Carolina and Eastern Bluebirds, Alabama Cooperative Extension System.

Forestry Herbicide Series- Triclopyr

By Jeff Fellers

Triclopyr was first registered for forestry use in 1979 and is currently used in both agricultural and non-agricultural settings. With widespread use, there are over 200 products that contain triclopyr. As always, it is important to read the label, as it is the law and make sure the product you purchase has a forestry label and is labeled for your intended use.

Triclopyr is a systemic herbicide that mimics the plant hormone auxin. This causes uncontrolled, disorganized plant growth, leading to a slow death, typically within weeks. Broadleaf herbs and woody species are the target species, making triclopyr a selective herbicide. There are two basic formulations used in forestry: triethylamine salt (commonly known as Triclopyr 3) and butoxyethyl ester (commonly known as Triclopyr 4). Triclopyr 3 is water-soluble, whereas triclopyr 4 is oil-soluble (bark treatments) and water-soluble (foliar treatments). Triclopyr 4 can volatilize at temperatures above 85° F. Triclopyr 3 does not have that risk. Neither formulation has soil activity.

Triclopyr can be used in all facets of forest management. It is commonly used in site preparation tank mixes, conifer release (directed spray application), mid-rotation vegetation

control, and spot treatments for invasive species and other competitive vegetation. With conifer release, one needs to read the label on the application because triclopyr can kill pines. Application techniques range from basal bark, cut-stump, foliar, and hack-and-squirt. For basal bark applications, one would use butoxyethyl ester.

As with any herbicide, I would recommend contacting your local Extension Agent. It is important to identify the weeds you want to control, the crop trees you want to protect, and any sensitive areas that do not need to be sprayed.

Common Triclopyr Products that Contain a Forestry Label

triethylamine salt (Triclopyr 3)	butoxyethyl ester (Triclopyr 4)
Garlon 3A	Garlon 4
Alligare Triclopyr 3	Remedy Ultra
Vastlan	Pathfinder
	Alligare Triclopyr 4
	Boulder 6.3

Stumpage Price Trends in South Carolina for the Q4, 2025

By Puskar Khanal

South Carolina Hardwood Pulpwood Prices Show Mixed Trends

In the fourth quarter of 2025, the average statewide stumpage prices for pine and hardwood pulpwood in South Carolina were \$5.00 per ton and \$6.30 per ton, respectively. Compared to the third quarter of 2025, pine pulpwood prices declined by approximately 10%, while hardwood pulpwood prices increased by about 40%. This substantial percentage increase for hardwood pulpwood should be viewed in the context that prices reached their lowest level

in the prior quarter before this recent rebound. Following the increase, hardwood pulpwood prices have returned to levels like those at the beginning of 2025, whereas pine pulpwood prices have continued to trend downward. Both pine and hardwood pulpwood prices remain at lower levels relative to the past three years. Overall, pulpwood prices in 2025 have been disappointing for South Carolina forest landowners, as weak market conditions have persisted throughout the year with limited signs of meaningful recovery, particularly in the pine pulpwood segment.

Stumpage Price Trends in South Carolina for the Q4, 2025 cont.

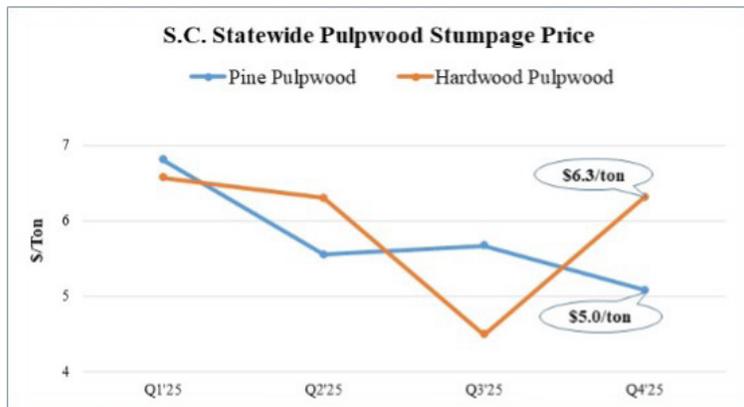


Figure 1. Compared to the third quarter of 2025, pine pulpwood prices declined by approximately 10%, while hardwood pulpwood prices increased by about 40%. Puskar Khanal, Clemson University.

South Carolina Sawtimber Prices Show Mixed Trends

In the fourth quarter of 2025, statewide average stumpage prices for pine and hardwood sawtimber in South Carolina were \$18.40 per ton and \$17.40 per ton, respectively. Compared to the third quarter of 2025, pine sawtimber prices declined by about 20%, while hardwood sawtimber prices increased by about 9%. Both pulpwood and sawtimber stumpage prices for pine trees fell during the quarter, reflecting the emerging impacts of recent mill closures on local demand and stumpage values. Hardwood sawtimber prices rebounded slightly from their low point in the prior quarter, though they remain below levels observed at the beginning of 2025. Overall, pine sawtimber prices declined by roughly 20% year-to-date, while hardwood sawtimber prices fell by about 9% compared to the start of the year.

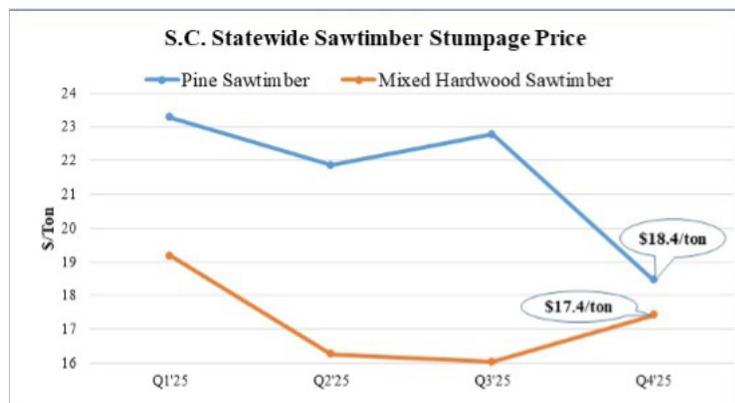
In summary, the sawtimber stumpage market in South Carolina remained challenging for forest landowners

throughout 2025, with persistently low prices. While hardwood prices showed some modest improvement, they stayed near multi-year lows. Pine sawtimber prices continued a steady downward trend over the years, underscoring a difficult market environment statewide influenced by mill closures and broader demand pressures.

Wood Market is Local

Stumpage prices for both sawtimber and pulpwood in your local markets could vary significantly as compared to the above statewide averages depending on: size and species composition, quality of timber, total acres and volume, logging operability, distance from nearby mills, and overall market condition.

Data credit: The sawtimber and pulpwood price data included in this newsletter are published with permission from TimberMart-South Athens, GA 30605 email tmart@timbermart-south.com.



Compared to the third quarter of 2025, pine sawtimber prices declined by about 20%, while hardwood sawtimber prices increased by about 9%. Puskar Khanal, Clemson University.

Protecting Yourself from Chainsaw Injuries

By Janet Steele

Most forest landowners and agricultural producers, as well as many homeowners, own a chainsaw for use on their property. Chainsaws can make quick work of clearing land, removing downed trees or limbs, and cutting firewood. However, chainsaws are inherently dangerous tools, and when injuries occur, they can be very severe and even fatal. The improper use of chainsaws, often due to a lack of training and experience, and the absence of personal protective equipment (PPE) result in thousands of injuries each year. Combined Occupational Safety and Health Administration (OSHA) and hospital emergency room admissions for chainsaw-related injuries totaled 128,000 over the 5-year span from 2018 to 2022, or an average of 25,600 injuries per year during that time. The Centers for Disease Control and Prevention (CDC) has an even higher annual estimate of 36,000 chainsaw-related injuries that require a

hospital visit. The majority of these injuries occur among non-occupational chainsaw users, as OSHA reported that 202 occupational chainsaw-related injuries requiring hospital admission happened during this time period.

Grand Forest, located in Summerville, SC, produces chainsaw protective apparel, including chainsaw chaps. Their most recent “dot man”, which illustrates the frequency of lacerations caused by chainsaws on different areas of the body, showed a total of 23,822 such injuries reported for 2023 by the US Consumer Product Safety Commission. Overall, the statistics for chainsaw-related injuries should prompt any chainsaw user to consider how well-trained and prepared they feel to operate a chainsaw.

Chainsaw facts and statistics

Protecting Yourself from Chainsaw Injuries cont.

- Chainsaw chains revolve at 55-60 MPH
- Chainsaw teeth are designed to rip and pull apart wood fibers, not making a clean cut like a knife
- Chainsaw lacerations usually are jagged and deep, requiring, on average, 110 stitches
- For lacerations requiring a hospital visit, which is about 76% of all chainsaw injuries, they occur primarily on the left side of the body above the waist and about equally on either side of the body below the waist
 - 11% of injuries were to the head and neck – these injuries are usually caused by kickback and can be fatal due to major veins and arteries located in the neck, and the risk of brain injury
 - 14% of injuries to the torso and arms
 - 35% to the hands and fingers
 - 40% to the legs and feet
- About 7% of chainsaw injuries are fractures, and about 5% are soft tissue injuries
- 6% of hospital visits require admission, particularly for pain management and IV antibiotics, or when severe cuts involve joints or amputations
- 50% of the hospital admissions are due to lacerations
- 25% of the hospital admissions are due to fractures
- The remainder are due to burns and amputations
- The number of annual fatal chainsaw accidents has been reported as high as 250; non-occupational deaths may go unreported; OSHA reported 57 deaths related to occupations for the 5 years from 2018 to 2022
- Falling trees and tree limbs, or “struck by” accidents, account for the majority of the fatal injuries

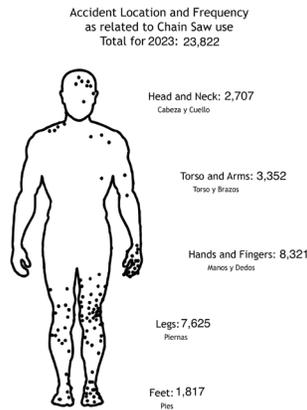


Chart developed by Grand Forest with 2023 statistics provided by the US Consumer Product Safety Commission

Table desarrollada por Grand Forest Inc. según los estadísticos de 2023 de la Comisión de Seguridad de Productos de Consumo de EE. UU.

A dot man graphic illustrating that the majority of chainsaw injuries occur in the hand, finger and leg area. Graphic provided by Grand Forest Inc., using 2023 CPSC data.

For anyone considering purchasing a chainsaw or who already owns one and has not evaluated its safety features or considered proper PPE for operating a chainsaw, two great articles are already available on the Clemson Extension Forestry and Wildlife website. These articles, written by Patrick Hiesl, Ph.D., Associate Professor of Forest Operations in the Department of Forestry and Environmental Conservation, can be found at these links: “The Safety Features of a Modern Chainsaw” <https://blogs.clemson.edu/fnr/2023/09/05/the-safety-features-of-a-modern-chainsaw/> “Personal Protective Equipment for Chainsaw Users” <https://blogs.clemson.edu/fnr/2024/01/08/personal-protective->

[equipment-for-chainsaw-users/](#)

Safety features on a chainsaw and proper PPE are critical for reducing the risk of chainsaw injury. However, the Clemson Extension Forestry and Wildlife team learned during a recent in-service training with Greg Helton, Chainsaw and Logging trainer with Forestry Mutual Insurance Company, that the best line of defense is proper training and the development of good habits when operating a chainsaw. To help reduce your risk of becoming a chainsaw-related injury statistic, best practices when operating a chainsaw include:

1. Wear the appropriate clothing, including sturdy, closed footwear, preferably boots, and the proper PPE.
2. Ensure that the safety features on your chainsaw are working correctly and that the saw is well-maintained.
3. Evaluate the area you will be working in for overhead hazards, such as dead limbs, check for spring poles and other vegetation which could lead to “struck by” injuries, and consider any slope in the work area to make sure cut material will not roll downhill toward an operator.
4. Evaluate the tension and compression in the woody material that is going to be cut and determine which side of the limb or log to start cutting on and how deep each cut can be made before the bar will become pinched. Tension and compression will change along the length of a limb or log as weight is removed and sections are no longer supported.
5. Maintain a balanced stance without the risk of debris or other vegetation becoming tangled around your feet.
6. Maintain a firm grip on the chainsaw, with the left thumb wrapped under the front handle and the right thumb wrapped around the rear handle.
7. Stand to the side of where you are cutting, not directly over a rotating chain.
8. Do not take your eyes off of what you are cutting and pay attention to shifts in the limb or log, particularly if it is starting to move towards you.
9. Set the chain brake between cuts or when moving from one position to another.
10. Do not remove either hand from the running saw to clear your work area or remove limbs without first setting the chain brake.
11. Always be aware of where the “kickback” corner of the saw is when it is running.
12. Never run a chainsaw above shoulder level. The weight of the saw will shift your center of gravity, and if kickback occurs, the face, neck, and upper body are at increased risk of injury.
13. While having a second person on-site to serve as a spotter is a good practice, ensure that they are at least a



Depending on whether a log or limb is suspended or has points of contact that help support its weight, both tension and compression need to be considered. Janet Steele, Clemson Extension.

Protecting Yourself from Chainsaw Injuries cont.

full tree length away from any cutting area. Never use a second person to hold woody material while it is being cut, or to push or pull material as it is being cut.

No matter how experienced a sawyer, accidents can still happen. Be prepared by having a first aid kit, including a bleeding control kit, on the site where you will be operating your chainsaw. If you are working alone, let a friend or family member know your location and when they can expect to hear from you.

Since the fall of 2021, the Clemson Extension Forestry and Wildlife Program Team has been offering chainsaw workshops around the state. The lead instructor is Patrick Hiesl, Ph.D., who relied on years of experience as a professional logger in his home country of Germany when developing a curriculum designed for non-professional chainsaw users. The Chainsaw Safety and Handling course covers the basics of chainsaw operations, with an emphasis on the importance of using Personal Protective Equipment (PPE) and selecting chainsaws that feature the most up-to-date and functional safety features. In the hands-on portion

of this course, participants learn the primary cutting techniques for handling stems already on the ground. Upon completing that course, participants can then take the Tree Felling course. This course teaches directional felling using the open-face felling method and techniques to maintain control while felling trees, thereby reducing the risk of injuries and damage to residual trees or structures. So why should you consider taking one or both of these courses?

Because the best protection against injury from chainsaws begins with knowing how to handle the saw properly, learn the combination of cuts that can be used to safely limb, buck, or fell a tree, and most importantly, do not place yourself in a position that puts you at an added risk of injury. And then like any other skill, practice, practice and practice!



Patrick Hiesl, Ph.D., provides one-on-one instruction during a chainsaw workshop. Jaime Pohlman, Clemson Extension.

It's Timberdoodle Time Y'all

By Robert Carter

Timberdoodles are crawling through the young, moist forests and grasslands of the Carolinas. Most people never see them, but the lucky ones get to see their sky dance. Timberdoodles (*Scolopax minor*) are also called woodcock, mudsucker, mudsnipe, mudbat, night partridge or Labrador twisters. They are the only woodcock native to the Americas, with the other species in Europe and Asia.

Woodcock are cryptic, elusive, and rarely seen, but they are game birds in South Carolina. When people see them for the first time, they often believe they aren't real. Mudbats are about the size of a robin with dark streaked buff colored plumage that perfectly matches the forest floor. You often don't see them until they erupt from the ground a few feet from you. They weigh between 6 and 8 ounces, with the females slightly bigger than the males. Their bill is up to 3 inches long and sensitive to touch and pressure near the tip to detect movement of invertebrates in the soil. The tip of the upper mandible (upper portion of the beak) is flexible so prey can be captured underground. Rough edges on the bill and tongue help to hold their prey while it is pulled out of the ground. The nostrils are on the beak close to the skull so they can breathe while their bill is underground. The eyes are far up on the skull so woodcock's can see predators from above while feeding. This is a disadvantage when flying with poorer vision in front of the bird leading to building and tower collisions. The ears are located between the eyes and the beak, so the skull is organized differently than most birds. The brain is also different with the cerebellum (controls muscle movement) located back and downward

compared to other birds. It is almost like the brain is upside down. They look goofy, don't have much of a neck, and their brain is scrambled, but they are highly adapted to be successful in their habitat.

Woodcock are a shorebird related to snipes, but their habitat is moist, early successional forests and shrubby areas during the day and open grassy areas at night. They are primarily nocturnal (active at night) and crepuscular (active at sunrise and sunset). They need moist soil to feed and will abandon areas if the soil is exceptionally dry or frozen. Woodcock have been observed tapping the ground on dry soil. It is hypothesized that this behavior causes worms to think it is raining so they head to the surface.

When walking, mudsuckers really strut their stuff with their short legs and plump bodies. As they walk, they seem to waddle through the leaf litter while their head does not change position. Try listening to "Staying Alive" by the Bee Gees while watching a video of them strutting. It fits perfectly. The reason for this unusual strut is not known. It is hypothesized that as the birds hit the ground with their feet, they are feeling for the movement of invertebrates underground. Most of the food comes from underground and includes earthworms, grubs, snails, insects, and occasionally some seeds.

Woodcock are year-round residents in all parts of the Carolinas except for the higher elevations of the mountains. During the fall, there is a mass migration south

It's Timberdoodle Time Y'all cont.

as woodcocks seek warmer climates without frozen soil. The populations really increase by early December with migratory woodcock starting to move north by February. While they are spending the winter in the South, the males will perform their sky dance to attract a mate. They find an area with an open canopy or grassy field and begin their call. The call sounds like a buzzy "peent." They are inviting the females to come check out their moves. After a few minutes of peenting, the male suddenly flies upward and makes whistling sounds with the flight feathers. After reaching a height of 200 and 300 feet, he circles downwards while making chirping noises with his mouth. He is silent when he reaches the ground before he peents and repeats the process. If a female has come to inspect him, he may raise his wings and do a stiff legged strut. All this occurs soon after sunset and right before sunrise. If the female is impressed, they will mate and the relationship is over. The dance can continue for several months, and the males mate with multiple females but do not assist with rearing the chicks.

A mudbat nest is simply slight depression on the ground near the base of a tree or shrub. Up to four pink to buff-colored eggs with brown spots are laid between March and June. An egg is laid each day until the clutch is complete and incubation begins. Beginning incubation after the last egg is laid ensures synchronous hatching. The eggs are incubated

for about 20 days. The precocial chicks have feathers and are able to move and feed soon after hatching. Precocial means they leave the nest soon after hatching. The chicks are buff colored with dark spots, so they are well camouflaged. They will freeze when threatened or hear an alarm call from the mother. The mother will sometimes squeal and act like



An adult woodcock. Hamilton. (n.d.). American woodcock – *Scolopax minor* [Adobe Stock image].

she has a broken wing to draw attention to her instead of chicks only to make a quick get away when a predator approaches. Pretty smart for an upside-down bird brain. The chicks follow their mother and learn feeding techniques. Earthworms are high calorie, so the chicks grow quickly. After two weeks they can fly and by week four they are nearly the size of an adult. They typically leave their mother by week six.

As game birds, hunting woodcock is regulated by the SC Department of Natural Resources, but the daily limit is low. The birds are no longer abundant primarily due to habitat changes. They prefer early successional forests or areas that have recently been burned or thinned with moist soil. Development, conversion to agriculture and changes in forestry practices have reduced available habitat. Habitat for woodcock and many Carolina wildlife species can be improved by thinning the forest when needed and using prescribed fire to reduce stem density and create openings.

Invasive Species Spotlight- Autumn Olive and Thorny Olive

By Jeff Fellers

When I visit with landowners, I have noticed thickets of thorny olive (*Elaeagnus pungens*) and/or autumn olive (*Elaeagnus umbellata*) throughout woodlands, especially in bottom lands. It was introduced from China and Japan in the 1830s and was widely planted for wildlife habitat and ornamental purposes. While animals do like the fruits from these olives, they outcompete our native plants, and they are listed as a non-native invasive species. American Beautyberry is a good native alternative to olives and benefits wildlife.

Thorny olive and autumn olive can look similar to one another, but they do have some differences that help with identification. Thorny olive is an evergreen shrub that will grow between 3 to 25 feet in height. The branches have thorns scattered with thick leaves that are silver-



Autumn olive foliage. Richard Gardner, Bugwood.org.



Thorny olive foliage, Richard Gardner, Bugwood.org.

brown on their underside. Autumn olive is a deciduous shrub that grows 3 to 20 feet in height. It will also have scattered thorns along the branches, with a silvery underside to the leaves.

The leaves of the thorny olive are alternate and oval to elliptic. The leaves range in size from 0.4 to 4 inches long. The margins are irregular and wavy. Autumn olive leaves range from 2-3 inches long and all the leaves will be elliptic in shape.

The timing of the flowers and fruit can also help in identification. Thorny olive flowers from October to December, while autumn olive flowers from February to June. Fruits of the thorny olive will set from March to June, while the autumn olive sets its fruit from August to November.

Invasive Species Spotlight- Autumn Olive and Thorny Olive cont.

Control Methods:

Control methods for both thorny olive and autumn olive are similar and listed below.

- Foliar – Thoroughly wet all leaves.
 - Arsenal AC or Vanquish – 1% solution in water applied from April to October. Nontarget plants may be killed or injured by root uptake.
- Basal Bark – For stems too tall for foliar sprays. Apply to young bark as a basal spray from January to February or from May to October.
 - Garlon 4 – 20-percent solution in basal oil, vegetable oil, crop oil concentrate, diesel fuel, or kerosene (2.5 quarts per 3-gallon mix)
 - Pathfinder II – undiluted
- Cut Surface – large stems and immediately treat the stumps.
 - Arsenal AC – 10-percent solution in water (1 quart per 3-gallon mix). Nontarget plants may be killed or injured through root uptake.
 - Glyphosate – 20-percent solution in water (2.5 quarts per 3-gallon mix).

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