

BURNS FORESTRY NEWSLETTER



Timber Rattlesnakes (Part 2)

By: Lydia Rogers

This is the second part of Lydia’s series on timber rattlesnakes. Lydia is a Timber and Wildlife Specialist with Burns Forestry. She has a Bachelor of Science in Wildlife and Fisheries Science with an emphasis in management from Texas A&M.

Researchers have been trying to better understand the reproduction habits such as frequency of reproduction, body mass changes, and fecundity of these snakes to positively affect their survivability (Brown 2016). If we better understand the breeding habits and reproduction patterns of timber rattlesnakes, we can set forth conservation efforts focusing on the reproduction of this species. This snake does not sexually mature quickly and has short breeding seasons. Therefore, the more we know the better we can understand how to help the stability of this population. Since there is so little known and understood about the reproductive biology of this species and the sexual maturity is so high, studies are conducted over a very long period, some of these being over a 10-30-year period. Understanding so little about a species that was threatened can be detrimental to the chances of humans repairing part of the damage we can cause to these species.

Snakes were tracked for studies by a few different methods including vaginal implant transmitters (VITs in females snakes only), temperature sensitive radio transmitters, and radiotelemetry: for the most part these snakes were captured, marked, and recaptured. Snakes that were marked by temperature sensitive radio transmitters had these transmitters placed under their skin, and then were released back into the wild. These snakes could then be tracked by radiotelemetry and recaptured at the researcher’s discretion. Females that received vaginal implant transmitters were captured before mating, a transmitter was placed inside the reproductive organs, and the snakes were released. The females that were marked with vaginal implant transmitters only needed to give birth to pass the transmitter along with their litter and researchers could then recover the transmitter via radiotelemetry as well.

The little we know about this species reproduction is difficult to understand when compared to other species. For the most part, wildlife follows patterns that are relatively simple. We know that deer reach sexual maturity and start reproducing once a year having 1-2 offspring for roughly 6 years. Cows reach sexual maturity around 18 months old and reproduce for about 10 years, they even breed as soon as a month after birthing a calf. Timber rattlesnakes, however, do not follow such simple patterns. Timber rattlesnakes face high sexual maturity and low reproductive values; these snakes also have many differences in comparison to other snakes. These rattlesnakes have a breeding season from spring to late summer, but females do not breed every year like most species. For example, Texas rat snakes have a breeding season between May and June every year meaning these snakes reproduce annually. With these snakes maturing late in their lifespan and then only contributing back to their population between 1-6 times, the odds are against them. These snakes breed and reproduce extravagantly less than expected for a species with a lifespan such as theirs.



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We have learned that the reproduction success consists of three major components: reproductive life span, offspring survival between birth and reproductive life span, and average annual fecundity over the reproductive life span (Brown 1991) (Clutton-Brock and Sheldon 2012). The reproductive life span varies with this species, and it is difficult to pinpoint the exact age their reproduction begins, but the longer these snakes are in reproduction the better it is for their population. Offspring survival between birth and reproduction is also difficult to maintain since these snakes are losing habitat, killed on roadways, and often killed by people. Average annual fecundity is important for researchers to understand the potential production compared to the actual production of this species which can help estimate future populations and to track how the population is changing over time.

If we lost this species there would be negative effects on the ecosystem they are part of. For example, if timber rattlesnakes went extinct, raptorial birds would lose a food source and rodents would lose a predator. Like everything else in nature these snakes have a place and purpose; if they are removed something else will be affected too. Nature always has a domino effect even if we do not fully understand why something is here. Removing it always affects something else in some way. This snake's venom is the key to making antivenom which can be the difference in life and death if you receive a bite from this viper. Also, with the rapid incline of medical uses of snake venom, this snake may be a key to some cure for a disease one day.

IP's Orange Mill Closes

International Paper (IP) has announced that it will permanently close its containerboard mill in Orange, Texas, by the end of the year. This will reduce the company's containerboard capacity by approximately 800,000 tons.

IP will also permanently cease production of two of its pulp machines- the #20 machine in Riegel, N.C. and the #4 machine in Pensacola, Florida. A total of about 900 positions will be impacted.

SPB Cost Share Program

Applications for the 2024 Southern Pine Beetle (SPB) prevention cost-share program are due by February 1, 2024. The program's purpose is to reduce the risk of southern pine beetle infestation while promoting tree vigor, growth, and stand health.

Landowners may receive up to \$50 per acre, with a 100- acre maximum to conduct a first-thin operation. The thinning must be in dense pulpwood pine stands and must be completed within 14 months of approval.

Priority is given to the following 21 counties: Angelina, Cass, Cherokee, Hardin, Harrison, Houston, Jasper, Liberty, Marion, Nacogdoches, Newton, Panola, Polk, Rusk, Sabine, San Augustine, San Jacinto, Shelby, Trinity, Tyler, and Walker.

Texas Christmas Tree Industry

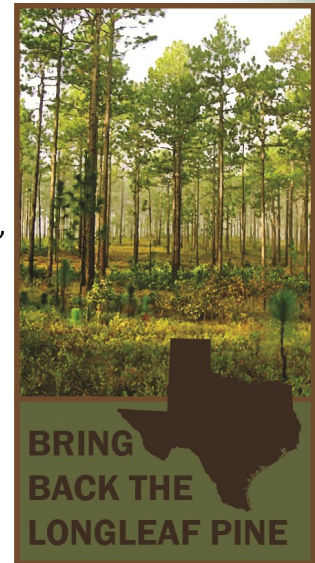
There are about 15,000 tree farms growing on 350,000 acres of land in the United States. The most popular trees include Fraser Fir, Noble fir, Balsam Fir, Douglas Fir, and Scots pine. The sale of real Christmas trees in the U.S has been decreasing since 2018, and artificial trees have been outselling real trees since 2020. Real U.S tree sales in 2022 were \$22 million, while artificial tree sales were \$24 million.

Here in Texas, the Christmas tree industry has not received much attention, but it is an important contributor to the state's economy. Prior to the 1980s, most Christmas trees sold in Texas were from other states, such as Michigan, Oregon, and Wisconsin. However, we now have a growing number of choose-and-cut tree farms in Texas. The Texas Christmas tree industry, based on average annual employment and wages, is second in the U.S South and fourth nationally, behind California, Florida, and Oregon.

Longleaf Pine Restoration

The Coca-Cola Foundation, Silk (a Danone North America brand), Google, Meta, and Microsoft have collaborated to invest \$972,000 to restore 2,000 acres of longleaf pine forest on private lands in Trinity County, Texas. The project is coordinated by the Texas Longleaf Team, with support from Texas by Nature. The restoration entails managing and removing invasive plants, conducting prescribed fire, and planting approximately 100,000 longleaf pine seedlings over five to ten years.

The result will be a healthy longleaf pine ecosystem that will filter and store freshwater, sequester carbon and support biodiversity, as well as benefit the community. Water is the main benefit driving the investment, and the restoration of the 2,000 acres is projected to increase water infiltration by over 200 million gallons per year for 8-12 years. The investing companies may choose to claim this benefit in support of their water goals and strategies.



<https://txlongleaf.org/>

Ticks and Fire

University of Florida scientists say that while pollinators survive the temporary displacement caused by a forest fire, ticks cannot escape the flames. The temperature of the fire alone can kill the ticks, and the fire leaves a more open canopy that is not favorable habitat for them. The result is they can be kept in control with fire.

The scientist, in turn, recommended the use of prescribed fire as a tool for controlling tick populations in the Southeastern United States. While fire won't eradicate the tick population, it will suppress their numbers. Later, the survivors are preyed upon by opossums, turkeys, and other wildlife after the fire. Prescribed fire, of course, not only controls disease-carrying ticks, but also benefits the growing forest by reducing both the competition and fuel load that contributes to more wildfire destruction.

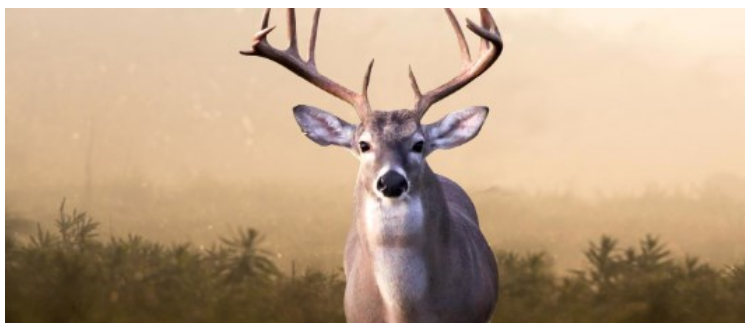
New Breeder Deer Restrictions

The Texas Parks and Wildlife Department (TPWD) adopted an emergency rule for additional movement and testing restrictions for white-tailed deer in deer-breeding facilities. The 120-day temporary order went into effect July 24th and may be extended an additional 60 days. The rule is in response to positive detections of chronic wasting disease (CWD) in these facilities since 2021. The order requires all breeder deer to be live-tested before being removed to another facility or a release site. It also restricts removal of the identification tags.

The TPWD recently received confirmation of a case of chronic wasting disease (CWD) in Cherokee County, the first detection in a deer breeding facility in the county. A four-year-old buck tested positive.

CWD is a fatal neurological disease found in deer, elk, and moose as well as other members of the deer family. It is a slow, progressive disease that may take several years to show up after infection. Signs may include progressive weight loss, loss of appetite, stumbling, lack of coordination, teeth grinding, and excessive thirst, salivation, or urination. The deer may also have an abnormal head posture and drooping ears.

CWD was first discovered in Texas in 2012 in mule deer near the Texas-New Mexico border. It has since been found in captive and free-ranging animals in the state, including white-tailed deer, mule deer, red deer, and elk.



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Chronic Wasting Disease.

<https://tpwd.texas.gov/huntwild/wild/diseases/cwd/>

New Forestry Technology Degree in LA.

This fall the Huey P. Long Campus of Central Louisiana Technical Community College (CLTCC) offered an associate degree in Forest Technology. The Forest Technology Program at CLTCC was initially launched as a technical diploma and now has been elevated to an Associate of Applied Science (ASS) degree.

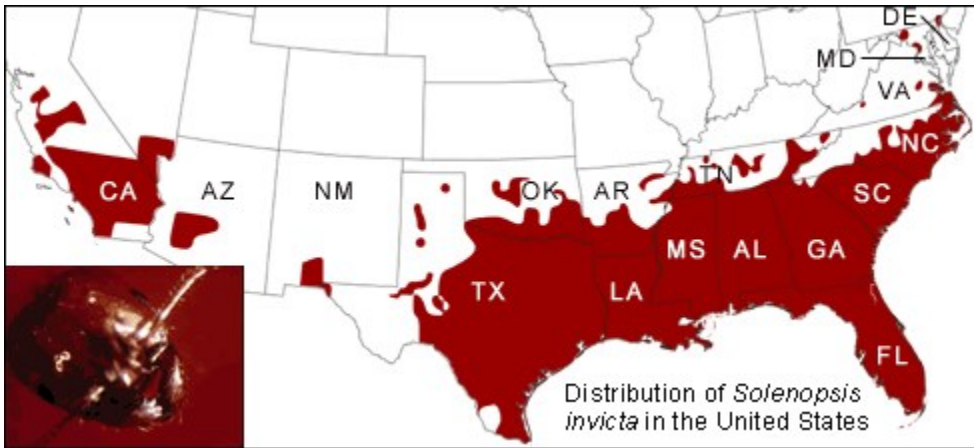
This new program uses modified hybrid course offerings in response to student feedback. The courses which combine in-person and online learning allow the students to customize their schedules.

Fire Ants and Butterflies

According to a study in Texas by Emily Geest, a postdoctoral fellow in conservation science at Oklahoma City Zoo and Botanical Garden, fire ants attack and lower the total butterfly abundance. Dr. Geest and her research team collected 1,262 butterflies in 28 species, including one monarch (*Danaus plexippus*). They found that butterfly abundance was 26.6 percent higher in areas treated for fire ants compared to those that hadn't received treatment.

The researchers also found that butterflies that wintered in the area as eggs, larvae or chrysalises were more prone to predation from fire ants. They are more vulnerable since they can't fly away to escape a swarm of fire ants. Eighty percent of the butterflies collected in the study were skipper species, the predominant butterfly pollinators. So, removal of these pollinators may affect the density of wildflowers.

The red imported fire ant (*Solenopsis Invicta*), a native to parts of Brazil and Argentina, is invasive to the United States, first being introduced in Mobile, Alabama in the 1930s. In addition to butterflies, they kill birds, small mammals, and amphibians.



http://evolution.berkeley.edu/evolibrary/article/_0_0/fireants_02



<https://texasinsects.tamu.edu/red-imported-fire-ant/>



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