TUMBLING LONGLEAF ECOSYSTEM

Extension Activity

THE LONGLEAF ALLIANCE

The Tumbling Longleaf Ecosystem activity was first developed by the North Carolina Forest Service to promote the Longleaf Pine Initiative.

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Longleaf Tumbling Ecosystem

'Longleaf Tumbling Ecosystem' was born out of an opportunity – the rise of fire festivals in the Southeast. The mission of these festivals is to communicate the importance of prescribed fire to the public, often attracting families with children. A welcomed opportunity for natural resource professionals invested in longleaf, it also presents a challenge – how do you tell the story of 'good fire' to a diverse group of people (from young preschoolers to mature audiences) in a fun AND concise way?

▲ *'Tumbling Longleaf Ecosystem' was developed by the North Carolina Forest Service and is used at outreach events like Party for the Pine Festival. Photo by Barry New.*

◀ *Handouts, facilitator guide, and tips for making a set can be found at longleafalliance.org/what-we-do/education-outreach/next-generation.*

Knowing that interactive visuals convey messages more effectively than words alone, I sought to create an eye-catching educational game that emphasized the importance of fire in longleaf pines ecosystems. Like many good ideas, inspiration struck over a beer. As new parents, my husband and my most common social outings were to family-friendly breweries, giving us a chance to enjoy much-needed adult interactions with no sitter required. A common component at these establishments is yard games. Seeing customers of all ages appreciate these games inspired the creation of 'Longleaf Tumbling Ecosystem' – an oversized Jenga® like activity.

With color-coded blocks representing components of the longleaf ecosystem – longleaf pines, groundcover plants, wildlife, and fire – the block tower is an excellent way to demonstrate the role of fire visually.

What would happen if all the red fire blocks were removed? The ecosystem would quickly change or collapse.

A practiced facilitator can enhance the educational component through discussion on why parts of the ecosystem might be lost as blocks are removed, including succession, predation, and natural and human-caused disturbances.

My favorite part? The game ends on a message of restoration. Recruiting the participates to reconstruct the tower after it collapses symbolizes restoring the longleaf ecosystem. Naming these restoration activities – plant trees, sow native grass seed, conduct a prescribed fire – while restacking the blocks emphasizes this connection while setting up for the next round. Double win!

Tumbling Longleaf Ecosystem

The block tower represents a longleaf pine ecosystem.

Color coded blocks with symbols represent ecosystem components.

Longleaf Pines

Groundcover Plants

Wildlife

Good Fire

Take turns removing one block at a time.

Removing a block represents a loss from the ecosystem due to:

- Natural processes – succession, predator & prey relationships
- Natural disturbance – storms, floods, drought, lightning strikes
- Human disturbance – development, fire suppression, non-native species

Place the removed block to the side.

DO NOT return the removed block to the top of the tower.

Why? Once a part of the ecosystem is lost, it may not be immediately replaced.

Continue to remove blocks until the tower falls.

Who made the longleaf pine ecosystem fall?

Don't blame the last person to pull a block! Everyone who removed a block helped make the tower fall.

Could the removal of one color of block cause the tower to collapse?

Altering one ecosystem component could change the nature of the ecosystem or result in its total loss.

Restore the longleaf ecosystem.

Restack the blocks to create a new tower to represent restoration activities such as:

+ Planting longleaf trees
+ Planting native grasses and flowers
+ Conducting a prescribed fire
+ Creating good habitat for wildlife

Play Safe!

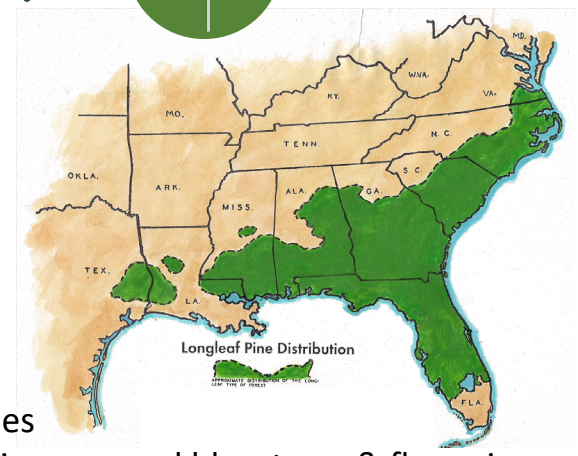
+ DO NOT stack removed blocks on top of the tower.
+ Enter the play zone ONLY on your turn.
+ WAIT for others to move before removing a block.

'Tumbling Longleaf Ecosystem' was developed by the North Carolina Forest Service.
Find more longleaf lessons at longleafalliance.org/what-we-do/education-outreach/next-generation.

Why Longleaf?

Historically, longleaf pine ecosystems dominated the Southeast. Once covering over 90 million acres, only 3 million acres remained by the early 1990s.

Longleaf habitat was lost due to conversion to non-forest uses, replacement by other tree species, and exclusion of frequent fire from the landscape.



Longleaf ecosystems are one of the most diverse systems in the world! Much of this diversity resides in plants on the forest floor. Native grasses like wiregrass and bluestems & flowering plants, especially 'sunflowers' (the Composite family) and 'peas/legumes' (the Fabaceae family), are common understory species. Several plant species are rare and/or found nowhere else, including some carnivorous plants like the Venus flytrap and white-topped pitcher plant.

A diverse native groundcover, maintained by periodic fire, supports diverse wildlife populations including games species like quail, turkey, & fox squirrels, rare species such as the red-cockaded woodpecker, songbirds, amphibians, reptiles, and pollinators.

What is Good Fire?

Frequent, low intensity, and often large scale, surface fires were the dominant factor shaping longleaf pine ecosystems. This frequent fire regime, over generations, selected for longleaf pine's fire-resistant attributes. Today, landowners and land managers use prescribed fire to achieve specific objectives and to mimic the natural processes that shaped the landscape.

Longleaf pines are "built by fire" with many fire-resistant attributes.

+ Young longleaf stay in the grass stage, focusing growth underground in their roots while their long, dense needles protect the growth bud above ground. When a fire occurs, burned or scorched needles are replaced with new growth.
+ Once it initiates height growth, the young tree quickly "rockets" upward, moving its bud above typical flame lengths.

+ Thick, flaky bark protects the inner bark from low intensity surface fires.
+ Longleaf pines shed their needles, making excellent fuel for future fires.

Prescribed fire is "good fire" that provides many benefits.

+ **Fuel reduction -** Low intensity prescribed fires reduce wildfire risk.
+ **Competition control -** Removing weeds and competing woody plants creates a more favorable environment for recruitment and growth of native plants.
+ **Habitat -** Fire maintains open conditions which is good for native plants, providing excellent food and cover for wildlife.
+ **Control insects & disease -** Brown-spot needle blight is controlled with prescribed fire in young longleaf pine stands.

Visit longleafalliance.org to learn how longleaf pine ecosystems are being restored across the Southeast!

Tumbling Longleaf Ecosystem – Facilitator Guide

An interactive way to distribute information about longleaf pine ecosystems and the role of GOOD FIRE!

The block tower represents a healthy longleaf pine ecosystem.	Each color-coded block represents a component of the ecosystem—longleaf pines, groundcover plants, wildlife, and fire.  *Note — To place an emphasis on the role of fire in longleaf ecosystems, this game does not address abiotic ecosystem components (water, air, soil).*	The tower is set up with alternating rows of 3 blocks. For the 1st layer, place 3 blocks next to each other. For the 2nd layer, place 3 blocks perpendicular to the previous layer. And so on… 
Take turns removing one block at a time.	Try out different strategies to determine which color to remove. There are multiple ways to play. + Roll a dice with corresponding colors. + Use a spinner with corresponding colors. + Assign specific colors to players.	Also consider assigning a single color for ALL participants to remove to speed up the play of the game and/or to emphasize the role of a specific ecosystem component.
Provide examples why these components might be lost as blocks are removed.	Tailor examples to the participant demographic. + Natural processes – succession, predator & prey relationships + Natural disturbance – storms, floods, drought, lightning strikes + Human disturbance – development, fire suppression, logging, non-native species	Example – when a green "pine" block is removed early on, you might say: *A longleaf pine was cut down for timber, but cutting down a few trees did not destroy the tower.* The participants can see that the tower is still standing.
DO NOT return the blocks to the top of the tower.	Why? Once a part of the ecosystem is lost, it may not magically reappear. *Example – a mature tree with a red-cockaded woodpecker cavity takes years to replace.*	Note — Placing blocks to the side will keep the tower shorter and safer. See additional safety considerations on page 2.
Continue removing blocks until the tower falls. Discuss the results.	Ask participants to explain what happened. + *Who is to blame for destroying the longleaf pine ecosystem?* + *What would happen if we removed all the fire blocks?* + *Could the extinction of a plant/animal cause the tower to collapse?*	Participants may be quick to blame the last person who pulled a block, but anyone who took a block helped make the tower fall.
Reconstruct the longleaf tower.	Recruit the participates to "restore" the longleaf ecosystem. While restacking the blocks, name the restoration activities – *plant trees, sow grass seed, conduct a prescribed fire, etc.*	This is an important take home message about restoration and management while also setting up the tower for the next round. Double win!

Tips for Creating a Tumbling Longleaf Ecosystem Set

Finding or making your block set –

This activity was originally created using a giant tumbling block set, but smaller sets work too. If using a large set, consider the size and weight of the blocks.

+ Hollow block sets are ideal to reduce the hazard of heavy falling blocks.
  **Similar to Super Tumbling Timbers set by S&S Worldwide.*
+ Colored block sets are available to buy online, but many have more than 4 colors included.
  **Don't rule these sets out as the additional colors could provide an extension to the ecosystem lesson. For example, what happens when an invasive species is introduced to an ecosystem? Demonstrate this by asking the participants to add different colored blocks into the empty spaces and see the tower transform.*

Customize the blocks to emphasize the different ecosystem components.

+ Paint – Easy to do, but painting the whole block changes the finish and reduces the ability for the blocks to slide easily. Recommend painting the ends only.
+ Stickers – Turn artwork into custom stickers to add to the ends. This is a great way to have both the words, images, and colors on each block.
+ Vinyl cutouts – Very durable & holds up great.

Plan your play space.

+ A small platform or wooden crate makes a great playing surface that is low to the ground.
+ Suggest using a tarp to designate the "play space" for young kids, emphasizing one player at a time in this area.
+ Indoor spaces: the falling blocks can be quite loud in closed spaces and on hard floors. If using inside, consider a carpet to help muffle the sound.

Safety Considerations - Toppling of heavy wooden blocks pose a falling risk, especially for children. To minimize this risk:

+ DO NOT stack removed blocks on top of the tower.
+ Keep the game low to the ground (on a small table/platform).
+ Set up a safety play zone with only 1 person near the tower per turn.

Signage! Provide handouts or signs to explain the game.

A note on engaging people about "Good Fire"-

The block tower is an excellent way to visually demonstrate the role of good fire in longleaf ecosystems. Try engaging folks who may not want to play the game with a quick take home message, such as:

+ *This block tower represents a healthy longleaf ecosystem, with trees, understory plants, wildlife, and natural FIRE.*
+ *Many habitats, like longleaf pine, are shaped by fire. The plants and wildlife that live here depend on fire to create good habitat.*
+ *What would happen if all the red fire blocks were removed? The ecosystem would quickly change (or collapse).*