Longleaf Leaflet

2018

THE NATURAL SHIFT: Slow Conversion to Longleaf

LL-#13

An overview on slowly converting to longleaf pine while retaining the existing forest overstory.

What?	Slow conversion is an alternative approach to longleaf restoration and establishment. Instead of a traditional clear-cut followed by planting longleaf, consider retaining the existing tree overstory while transitioning to a longleaf forest.
Why?	Keeping some of the existing pine overstory trees retains the appearance, structure, and function of the forest. It provides wildlife benefits, future economic products, and pine litter fuel for prescribed burns while putting the forest back to longleaf.
Where?	Consider this approach for areas with: • **Minor but manageable component of longleaf pine**—Often a mixed stand with other pines and hardwoods. • **Loblolly stands on soils that may favor longleaf**—The more favorable a site is for loblolly, the harder it will be to convert to longleaf while keeping loblolly overstory. Remnant longleaf mixed with loblolly is a great clue that your stand might be a good candidate for slow conversion. • **Regular burn management**—Keeping loblolly in the overstory requires burning every 2-3 years to control loblolly regeneration. If you cannot commit to regular fire, slow conversion is not for you. • **Existing gaps**—Disturbances such as wind, insects, or wildfire can create stand openings suitable for underplanting longleaf within an existing stand.
Who?	For landowners looking to manage their forest for multiple benefits and who can commit to regular prescribed fire.
How?	The overall steps are relatively simple, but the implementation details will vary depending on the site conditions, restoration timeframe, and objectives. 1. Control Competition: control woody competition and encourage native grass establishment using prescribed fire and herbicides. 2. Thin Overstory: Harvest a portion of the overstory trees to open the site for longleaf establishment/growth. 3. Establish longleaf through planting or natural regeneration. 4. BURN, BURN, BURN! *See page 2 for more details on implementation.*

Remember, fire is the number one management tool for longleaf.
Having a feasible burn plan will facilitate the success of any longleaf project.

Implementation details will vary depending on the site conditions, restoration timeframe, and objectives.

1. COMPETITION CONTROL:

Reduce woody competition & encourage native grass establishment using:

Prescribed Fire —Ideally begin burning the site to jumpstart competition control prior to harvesting the overstory.

Herbicides – Choose a chemical to target undesirable woody species, but go easy on understory groundcover, especially grasses, to maintain fuel for future prescribed fires.

Herbicide efficacy for common species during site preparation. Color coded by susceptibility: Red = High; Yellow = Moderate; Green = Low. Adapted from Forest Productivity Cooperative.

Species	Hexazinone	Triclopyr	Imazapyr	Glyphosate	Metuslfuron	Sulfmeturon
Oaks						
Sweetgum						
Maple						
Hickory						
Cherry						
Red Bay						
Pine						
Elm						
Gallberry						
Blackberry						
Grass						
Broadleaf Herbaceous						
Legumes						

2. THINNING: Harvest a portion of the overstory trees to open the site for longleaf establishment.

- Thinning decreases basal area & competition → increasing light → increasing longleaf growth.
- Remove most, if not all, the non-longleaf component, if sufficient longleaf exists in the canopy.
- For loblolly overstory, how much to remove depends on your objectives and future plans.

Thin to intermediate basal area: Can be accomplished in one or more selective harvests (Target 25-35 ft^2/acre).
Pros: Retaining overstory can suppress mid-story woody growth & provides consistent needle fall to carry fire.
Cons: Increasing basal area reduces longleaf seedling growth.

Create gap "clearcuts": Recommend expanding existing gaps, if possible, to create 0.5 acre gaps; Gaps can vary in size from 0.25 -2 acres, but keep larger gaps to a max width of 165ft.
Pros: Mimics natural structure & provides good longleaf seedling performance in gap centers.
Cons: Loblolly regeneration also responds well in gaps. While fire will kill most loblolly seedlings < 6ft tall, increased loblolly growth in gaps shortens the window of opportunity to control them with fire. Also, fire might not carry through all gaps due to reduced fuel from pine needle fall.

*Make sure to consider and plan for harvesting the retained overstory in the future.

3. ESTABLISH REPLACEMENT LONGLEAF STAND:

Natural Regeneration—FREE, but requires an adequate seed supply (mature longleaf of sufficient density & spacing as most longleaf seed disperses < 66 ft) and exposed mineral soil for optimal germination (recent burn).

Results will vary by year (good longleaf cone production is infrequent) and competition control after establishment (resume burning in 6-12 months).

Underplanting—If little or no longleaf remains in the overstory, establish longleaf using container grown seedlings. Make sure to control competition prior to planting. Underplant the entire stand or just the gap "clearcuts."

*Combination of both—For stands with some longleaf overstory, you may consider planting gaps while promoting natural regeneration in other areas with regular prescribed fire.

4. BURN, BURN, BURN! A 2-3 year fire cycle is necessary to control loblolly regeneration. Once loblolly reaches > 6 ft, it is more resistant to fire.