



LOUISIANA WILDLIFE FEDERATION

The voice of Louisiana's wildlife and natural resources since 1940.

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Pine Forest Management in Louisiana: Advancing Biodiversity-Based Forest Landscapes for Wildlife and Wildlife Habitat

April 21, 2026

Louisiana's forests are foundational to the state's wildlife, water resources, outdoor heritage, and rural communities. Forest management decisions made today will shape habitat quality, ecosystem resilience, and public trust values for generations. The Louisiana Wildlife Federation (LWF) supports forest management approaches that prioritize biodiversity, structural complexity, and long-term ecological function, recognizing that forests managed primarily as short-rotation commodity systems can fail to deliver sustained benefits for wildlife or the public.

Biodiversity-based Forest Landscapes Provide Multiple Benefits

While longleaf pine restoration remains an important and proven conservation strategy in appropriate landscapes, no single tree species or planting model should be treated as a universal solution. LWF's core position is that biodiversity-based forest landscapes, not monoculture forestry, represent the most effective path forward for wildlife habitat, water protection, and forest resilience in Louisiana. Biodiversity forests are not defined by one prescription. They are landscapes intentionally designed to support a wide range of wildlife, adapt to disturbance, and deliver lasting public benefits, and they can be achieved through multiple forest types and management strategies matched to local soils, hydrology, and ecology.

Healthy wildlife populations depend on diverse habitats that provide food, cover, nesting structure, and seasonal resources. Forests dominated by a single species and age class inherently limit these attributes. In contrast, biodiversity-based forest landscapes incorporate variation in species composition, canopy structure, age classes, and groundcover, creating conditions that support a broad array of game and nongame species.

Longleaf Pine and Landscape Resilience

Longleaf pine ecosystems illustrate the value of this approach. Historically widespread across central and western Louisiana, longleaf pine systems supported open canopies, native grasses, wildflowers, and frequent low-intensity fire. When properly managed, longleaf pine forests support northern bobwhite, American woodcock, wild turkey, white-tailed deer, red-cockaded woodpeckers, Louisiana pine snakes, pollinators, and grassland birds. However, the conservation value of longleaf pine lies not in the species alone, but in the management philosophy it represents long rotations, structural diversity, fire-maintained understories, and habitat-driven

objectives. These same principles can and should be applied across other forest types where longleaf pine is not ecologically appropriate.

Shortleaf Pine Diversity and Landscape Resilience

In addition to longleaf restoration goals, forest biodiversity strategies should recognize the unique role that shortleaf pine can play in strengthening landscape resilience across Louisiana's upland and transitional forest systems. Unlike single-species plantation models, shortleaf pine is well suited for mixed-species stands where pine, hardwood, and early successional components exist together across varying elevations and soil types. Its natural ability to regenerate through both seed and sprouting allows it to persist through disturbance events such as fire, storms, or selective harvest, helping maintain forest continuity in areas where other pine species may struggle to recover. This characteristic makes shortleaf pine particularly valuable for building structural diversity across fragmented ownership patterns, utility corridors, and previously converted pine landscapes where restoring longleaf may not be practical.

From a biodiversity standpoint, shortleaf pine contributes to habitat mosaics by supporting transitional forest conditions that bridge open pine systems and hardwood-dominated bottoms. These mixed stands create seasonal forage diversity and varied canopy structure that benefit a broader suite of wildlife, including species adapted to edge habitats and shifting forest succession stages. Incorporating shortleaf pine into reforestation or stand conversion efforts can also reduce long-term vulnerability to pests, disease pressure, and climate variability by diversifying species composition at the landscape scale. Rather than replacing longleaf initiatives, shortleaf pine provides an additional tool that expands restoration opportunities into regions where soil, ownership objectives, or management constraints limit longleaf establishment. Including shortleaf pine within Louisiana's forest biodiversity discussions supports a more flexible and regionally appropriate approach that balances working forest objectives with long-term ecological stability.

Louisiana's Forest Biodiversity Extends Well Beyond Pine Systems

Upland hardwood forests provide critical mast production, vertical habitat structure, and seasonal food sources that support deer, turkey, small mammals, birds, and numerous nongame species. Bottomland hardwood forests are equally irreplaceable. They function as natural flood buffers, water filters, and nutrient cycling systems while providing essential habitat for migratory birds, amphibians, reptiles, and aquatic species. Bottomland hardwoods are inseparable from healthy watersheds and downstream fisheries and wetlands. Replacing these systems with simplified plantations undermines both wildlife habitat and water quality. A biodiversity-based forest strategy recognizes that pine, upland hardwood, and bottomland hardwood systems must coexist across the landscape, each managed according to site conditions and ecological function rather than uniform economic prescriptions.

Expanding Louisiana's Mature and Old-Growth Forests

Louisiana's remaining mature and old-growth forests represent some of the most structurally complex and ecologically valuable habitats left on the landscape. Although much of the state's

forest cover was altered during early industrial logging, remnant stands that retain old-growth characteristics, including large legacy trees, multilayered canopies, and abundant deadwood, continue to provide irreplaceable wildlife habitat and ecological function. These systems support cavity-nesting species, specialized plant communities, and long-term ecosystem stability that cannot be replicated within short-rotation forestry models alone. As forest policy discussions evolve at both state and national levels, there is growing recognition that protecting and better understanding mature forest structure is essential to maintaining biodiversity, water quality, and Louisiana's outdoor heritage.

A biodiversity-based forest strategy does not view mature forests as separate from active management, but as foundational components within a broader landscape mosaic that includes working forests, restoration areas, and regenerating stands. Identifying and conserving remaining mature forest conditions, while encouraging research, inventory, and education around these systems, strengthens the overall resilience of Louisiana's forest landscapes. Integrating mature forest conservation with mixed-species management, and regionally appropriate restoration efforts, including longleaf and shortleaf pine, provides a balanced path forward that supports wildlife habitat, recreational values, and sustainable forest use across both public and private lands.

Expanded Cavity-Nesting Trees and Structural Habitat

Forest biodiversity efforts should also prioritize the retention, recruitment, and long-term management of cavity-nesting trees, including standing dead timber, den trees, legacy pines, and mature hardwood components within actively managed forests. Across the Southeast, many bird and mammal species depend on natural cavities for nesting, roosting, and refuge, with primary excavators such as woodpeckers creating habitat that is later used by secondary cavity nesters including songbirds, owls, wood ducks, bats, and small mammals. Maintaining a diversity of tree age classes and species composition is essential to sustaining this process. Snags and partially decayed trees provide foraging opportunities by supporting insects beneath bark and within deadwood, while older trees with heart rot or lightning scars often become critical nesting sites. In longleaf and shortleaf pine systems, the presence of older trees and open stand structure enhances cavity availability and improves visibility and predator avoidance for nesting species.

From a management perspective, incorporating cavity-tree priorities does not require limiting forestry operations but instead encourages intentional structural diversity within working forests. Retaining select legacy trees during thinning, allowing portions of stands to mature beyond typical rotation ages, and promoting uneven-aged structure where feasible can significantly improve habitat value. Prescribed fire plays a complementary role by maintaining open understories, reducing mid-story competition, and supporting the insect communities that many cavity-dependent species rely upon. These practices align with broader biodiversity goals by strengthening ecological resilience, supporting pollinators and prey species, and creating vertical habitat layers that benefit both game and nongame wildlife. Including explicit guidance on cavity-tree retention within forest biodiversity strategies reinforces a balanced approach, one that recognizes Louisiana's forests as both economic resources and critical wildlife habitat capable of sustaining diverse species assemblages over the long term.

Problems With Pine Monocultures

Short-rotation loblolly pine monocultures have become increasingly common across the South. These dense, even-aged stands typically lack understory diversity, offer limited wildlife habitat, and are inherently vulnerable to disturbance. As climate variability intensifies, the ecological and financial risks of monoculture forestry are becoming more pronounced. Recent concerns regarding brown spot needle blight in north Louisiana and southern Arkansas highlight these vulnerabilities. Disease pressure spreads more rapidly in uniform, dense stands, increasing management costs and reducing long-term forest stability. These risks underscore the weakness of treating single-species plantations as the default forest management model. From a wildlife perspective, monoculture forestry consistently underperforms. Simplified forests do not provide the diversity of food sources, cover, or nesting structure required to sustain healthy wildlife populations over time.

Forest structure directly influences water quality, hydrology, and watershed function. Biodiversity-based forests improve soil stability, increase infiltration, reduce erosion, and protect headwater streams. Bottomland hardwood systems, in particular, play a critical role in flood attenuation and water filtration. Repeated clear-cutting, intensive site preparation, and simplified replanting associated with short-rotation monoculture forestry degrade these water functions. The long-term costs of these impacts are often borne by the public through degraded fisheries, increased flooding, and impaired water quality. Protecting wildlife habitat and protecting water resources are inseparable goals.

Concerns About Large-Scale Industrial Forestry

Large-scale industrial forestry tied to global biomass markets introduces additional concerns beyond habitat loss. Industrial pellet production facilities have been associated with air-quality violations, particulate emissions, and disproportionate impacts on rural communities. When forest management decisions are driven primarily by overseas energy demand, forests risk being reduced to fuel stockpiles rather than managed as complex ecosystems serving local wildlife and people. LWF distinguishes conservation-driven forest management from extractive models that prioritize continuous high-volume harvest at the expense of habitat, water, and community health.

Opportunities to Improve Forest Policy in the State

The Louisiana Department of Agriculture and Forestry (LDAF) plays a significant role in shaping forest management outcomes through technical guidance, recommendations, and landowner assistance programs. While LDAF materials acknowledge the importance of species diversity in certain contexts, state-supported forestry guidance has historically emphasized commodity-oriented outcomes, often treating pine monoculture as a baseline recommendation in practice. This creates a clear opportunity for improvement. State forestry recommendations and assistance programs should better reflect modern ecological science and wildlife habitat needs by explicitly promoting forest diversity rather than implicitly incentivizing monoculture planting. LWF believes that state forestry guidance should align with the same principles used in wildlife management: diversity, resilience, and long-term sustainability.

Emerging “forest-to-fuels” and biomass energy projects also create a timely opportunity to align economic development with wildlife habitat outcomes. In Caldwell Parish, Strategic Biofuels’ Louisiana Green Fuels project describes plans to utilize forestry material, including plantation pine thinnings augmented with hardwood thinnings, sourced from Louisiana’s managed forestry industry. The company’s published project information and press materials emphasize reliance on plantation pine-derived feedstocks and forestry wastes, with additional references to sustainability auditing under federal Renewable Fuel Standard requirements. These statements indicate that large-scale industrial demand may be linked to how forests are managed and regenerated across the landscape, even when projects describe the feedstock as “waste” or “thinnings.”

Because these projects are built around ongoing feedstock supply from managed forests, they present a practical leverage point for biodiversity improvements. LWF’s position is that new forest-based industries operating in Louisiana should be encouraged, and, where appropriate through permits, incentives, or procurement standards, required, to incorporate biodiversity outcomes within their sourcing and land stewardship expectations. This is not a call to end forestry markets; it is a call to ensure that markets do not push landowners toward simplified monocultures that degrade habitat and water resources. Projects that depend on plantation thinnings can help shift the baseline by rewarding landowner practices that build structural diversity, maintain and restore hardwood systems, and establish biodiverse wildlife corridors that connect habitat across ownership boundaries.

LWF sees an opportunity to recommend that projects such as Strategic Biofuels’ Caldwell Parish development incorporate, within their management plans, sourcing standards, and community benefit commitments, measurable actions to improve habitat connectivity. This could include support for replanting or restoring biodiverse corridors on suitable lands; protecting riparian and bottomland hardwood buffers; encouraging mixed-species regeneration following harvest; and partnering with state wildlife agencies, universities, and conservation organizations to identify priority wildlife movement corridors and habitat restoration zones. Corridors designed for biodiversity provide multiple benefits: they improve wildlife movement and genetic exchange, increase landscape resilience to storms and disease, reduce erosion and protect water quality, and help ensure that Louisiana’s forests remain functional ecosystems rather than uniform fiber fields.

Further Recommendations to Improve Wildlife Habitat and Provide Economic Benefits

LWF recommends the following principles be adopted and advanced through policy, agency engagement, and future resolutions:

- oppose forestry guidance or recommendations that treat single-species, even-aged plantations as the default or preferred forest management outcome.
- support forest management approaches that promote species diversity, structural complexity, and multiple age classes to maximize wildlife habitat and ecosystem resilience.

- support longleaf pine restoration where ecologically appropriate while affirming that biodiversity can be achieved through multiple forest types, including mixed pine-hardwood systems, upland hardwoods, and bottomland hardwood ecosystems.
- Encourage LDAF to update forestry recommendations to explicitly prioritize wildlife habitat outcomes, not solely timber production metrics, and to discourage single-species dominance while encouraging mixed-species planting and management where site conditions allow.
- Urge state agencies to recognize forest management as a critical component of water quality protection and watershed health, and supports forestry policies that consider air quality, community impacts, and public health alongside economic objectives.

In addition, LWF recommends that Louisiana's emerging forest-to-fuels and biomass industries adopt biodiversity-forward commitments within their sourcing and stewardship frameworks. These commitments should include promoting mixed-species regeneration where appropriate, maintaining and restoring upland and bottomland hardwood components, and establishing or replanting biodiverse wildlife corridors as part of landscape-scale management. Where projects receive public support, permitting decisions, or state-facilitated benefits, Louisiana should use those levers to ensure wildlife habitat, water resources, and community protections remain central outcomes of forest-related economic development.

Conclusion

Louisiana's forests must be managed for the long term, not short-term extraction. Biodiversity-based forest landscapes provide superior wildlife habitat, stronger resilience to disease and disturbance, healthier watersheds, and greater public benefit. Longleaf pine restoration remains an important tool, but it is not a substitute for landscape-scale diversity. The Louisiana Wildlife Federation will continue to advocate for forest policies and management practices that place wildlife habitat first, protect water resources, and serve the broader public interest.