

WEST GULF COASTAL PLAIN AND OUACHITAS FORESTED WETLAND CONSERVATION PLAN SUMMARY 2017



Forested wetlands, including bottomland hardwood forest and riparian areas, occur along the Arkansas, Ouachita, Sabine, Neches, and Red Rivers as well as in other river flood plains of the West Gulf Coastal Plain and Ouachitas (WGCP) Bird Conservation Region. Forested wetlands represent a unique and imperiled habitat in the region, which supports area-sensitive breeding birds, such as Acadian Flycatcher, Kentucky Warbler, Louisiana Waterthrush, Prothonotary Warbler, and Red-Shouldered Hawk.

Maintaining the structure and integrity of these forested wetlands may have conservation implications that extend well beyond the WGCP due to their importance for birds migrating to and from Mexico, the West Indies, Central and South America. Threats to bottomland areas include: conversion to plantation (monotypic stands or cropland; production of livestock, oil, or gas; and reservoir creation. Certain areas are hotspots for emerging development, which places additional demands on water supplies.

This plan defines forested wetland habitat, lists priority bird species within this habitat, and identifies umbrella species representative of the needs of priority birds dependent on forested wetlands. Additionally, the plan (1) describes the habitat structure necessary for viable populations for each umbrella species, (2) details how population and habitat goals were set based on stated assumptions for each species, and (3) describes a decision support model intended to help guide management actions supporting conservation of existing forested wetland habitat.

Forested wetlands are dominated by woody vegetation that is greater than 6 m tall and predominantly composed of woody broadleaf vegetation on soils that are periodically saturated or flooded. These include bottomland hardwood forests and cypress-tupelo swamps.

Forested wetlands considered in this WGCP bottomland hardwood and riparian plan include the following ecological systems (NatureServe 2014):

- West Gulf Coastal Plain Large River Floodplain Forest (AR, LA, OK, TX)
- West Gulf Coastal Plain Red River Floodplain Forest (AR, LA, TX)
- West Gulf Coastal Plain Small Stream/River Forest (AR, LA, OK, TX)
- West Gulf Coastal Plain Seepage Swamp and Baygall (AR, LA, OK, TX)
- Ozark-Ouachita Riparian (AR, OK)

Birds of WGCP Forested Wetlands

Twelve species have been designated as warranting conservation concern or given priority status in forested wetland habitats of the WGCP. Most of these species have decreasing population trends as identified from Breeding Bird Survey (BBS) data. The only priority wintering species, Rusty Blackbird, has declined by roughly 85% from 1966 to 2003, according to Christmas Bird Count data.

Birds of Forested Wetlands in the WGCPO

Six umbrella species represent potential limiting habitat factors within WGCPO forested wetlands.

These umbrella species have measurable populations, are relatively well-studied, and collectively represent the habitat requirements considered sufficient to meet the needs of all priority species in forested wetlands. The following is a list of priority species in the WGCPO, with designated umbrella species shown in bold.

- **Acadian Flycatcher (*Empidonax virescens*)**
- **Kentucky Warbler (*Geothlypis formosa*)**
- **Louisiana Waterthrush (*Parkesia motacilla*)**
- Northern Parula (*Setophaga americana*)
- **Prothonotary Warbler (*Protonotaria citrea*)**
- **Red-shouldered Hawk (*Buteo lineatus*)**
- Swainson's Warbler (*Limnothlypis swainsonii*)
- Wild Turkey (*Meleagris gallopavo*)
- Wood Thrush (*Hylocichla mustelina*)
- Yellow-throated Vireo (*Vireo flavifrons*)
- **Yellow-throated Warbler (*Setophaga dominica*)**
- Rusty Blackbird (*Euphagus carolinus*)

Population and Habitat Objectives

Lacking reliable population estimates, trend-based population goals were established for each umbrella species using BBS data. This plan has a **short-term goal to stabilize BBS trends based on the trend from the last ten years and a three-year moving average, and a medium-term goal of restoring populations to 2002 levels.**

Available landcover datasets indicate a 0.59% decline in woody wetlands from 2001 to 2011. Therefore, it is unlikely that declining bird population trends are due to loss of forest quantity over the past decade. **Hence, the primary habitat objectives in this plan are focused on improving the protection and management of existing tracts of forested wetland that have the potential to support minimum viable populations.** The decision support model is intended to highlight such areas where improvements will have the greatest potential for positive impact on landbird populations.

Habitat Factors by Species

Area requirements for each species were based on breeding territory size and natal dispersal distances. The amount of potentially "suitable habitat" on the landscape was quantified and mapped for each species, identifying areas capable of supporting minimum viable populations for each species.

Additional habitat-specific parameters for each species were then applied to these potential habitat layers to prioritize potential breeding habitat using a habitat suitability modeling approach. The habitat features used in the models include:

- Distance to Water
- Percent Forest in the landscape
- Flood Tolerance and Flood Preference
- Presence of Bald-cypress - Tupelo Floodplain Forest



Nearly 10% of the global Acadian Flycatcher population is estimated to breed in the WGCPO, with a 1.8 percent annual decline in the region (1966-2015). Percent Forest in the landscape was used in the model because Acadian Flycatchers are presumed to be negatively impacted by forest fragmentation. Because Acadian Flycatchers tend to be found near water, Distance to Water was also included.



Nearly 25% of the global Kentucky Warbler population is estimated to breed in the WGCPO, and continentally they have a steep population decline (-25%) making them a Partners in Flight (PIF) Yellow Watch List species. Within the region, the decline is 1.7% per year. This warbler nests on or near the ground making it vulnerable to

floods during the breeding season. To address these habitat factors, Percent Forest in the landscape was included as a positive factor and Flood Tolerance as a negative factor to model their habitat suitability.

Birds of Forested Wetlands in the WGCPO



Prothonotary Warblers have a steep continental population decline (-34%) making them a PIF Yellow Watch List Species. Regional population declines are 3.2% per year. As this species almost universally breeds near water, primarily in flooded bottomland forests, and has an affinity for

cypress swamps, Distance to Water, Percent Forest in landscape, Flood Preference, and Presence of Bald-cypress - Tupelo Floodplain Forest were used as suitability factors for modeling its habitat suitability.



Red-shouldered Hawk populations within the WGCPO have either stable or slightly increasing trends, with conditions for breeding populations projected to remain stable. Statewide trends in AR, OK, and TX are increasing while in LA the trend is stable. Red-shouldered Hawks respond

positively to the amount of forest in the landscape and often have a close association with water during nesting. Thus, Percent Forest in the landscape and Distance to Water were used as suitability factors when modeling this species.



Most of the Yellow-throated Warbler population is migratory, wintering in parts of Latin America and the Caribbean. Nevertheless, almost 8% of the global Yellow-throated Warbler population is estimated to breed in the WGCPO. This species breeds in mature bottomland forest, typically

nesting near water with a strong affinity for nesting in bald cypress and tupelo habitats. As such, Distance to Water, Percent Forest within the landscape, and Bald-cypress - Tupelo Floodplain Forest were included as suitability factors when modeling this species.



Louisiana Waterthrush was not included in the final composite habitat suitability model. The modeling for this species will be a part of an updated version 2.0 of this plan. Within WGCPO forested wetlands, a narrow zone of streamside habitats represents an important ecological interface for a number of priority bird

species. Specifically, a narrow width of stream borders where the vegetative composition is influenced by flooding and/or the moisture regime of the stream provide key foraging habitat for Louisiana Waterthrush.

Habitat Factors Influencing Habitat Quality	ACFL	KEWA	PROW	RSHA	YTWA
Large tree diameter (>23 cm dbh)	x			x	x
Density of large trees (>40 trees >50 cm dbh/ha)					x
Low tree density (250-300/ha)			x	x	x
Mid-story cover (open)	x			x	
Understory cover (open)	x				
Understory cover (dense)		x			
Moderate to well-developed canopy (60-70%)	x	x		x	
Small cavities (<25 cm diameter) or snag density of 5 snags/ha			x		

P.3 banner photo: **Water tupelo**/Duane Burdick; **Prothonotary Warbler**/Andy Reago & Chrissy McClarren; **Red-shouldered Hawk**/synspectrum; **Yellow-throated Warbler**/Andrew Cannizzaro; **Louisiana Waterthrush**/Andy Reago & Chrissy McClarren; p.4 banner photo: **Cache River NWR flooded bottomlands**/National Digital Library

Management & Monitoring

Species-specific habitat suitability for the umbrella species (except Louisiana Waterthrush) were combined and normalized into a composite model depicting the relative suitability of habitat for species using woody wetlands and riparian areas and providing a geographic framework for recommendations. This output indicates priority level for protection and/or management.

Management and Recommendations

It is important to note that **forest management results in a dynamic landscape**. Thus managing desired stand structure should result in a broad range of stand conditions that benefit a diverse suite of species. This diversity results, in part, from forest stands entering and exiting desired stand structure due to successional changes over time after management has been applied.

Acadian Flycatcher: This bird species is most abundant in large, mature forest tracts of sufficient area to deter parasitism and depredation. Ideally, these tracts should have little internal disturbance within predominantly rural landscapes. They typically nest in forests with a well-developed canopy and relatively open mid- and understory.

Kentucky Warbler: Forest management practices that maintain relatively mature trees with moderately high canopy cover, while encouraging a dense understory and well-developed ground cover are beneficial. Optimal habitat results from management that creates canopy gaps via harvesting techniques such as group selection, small or narrow clear-cuts, thinning, and selection-cutting in areas that are less frequently flooded.

Prothonotary Warbler: Land management should include the promotion of large forest tracts (>300 ha) with diverse hardwood species, seasonal to permanent shallow flooding, and cavity trees (<25cm diameter; >10 visible holes/ha) near or in standing water. Leaving broad riparian zones along waterways is beneficial to this warbler.

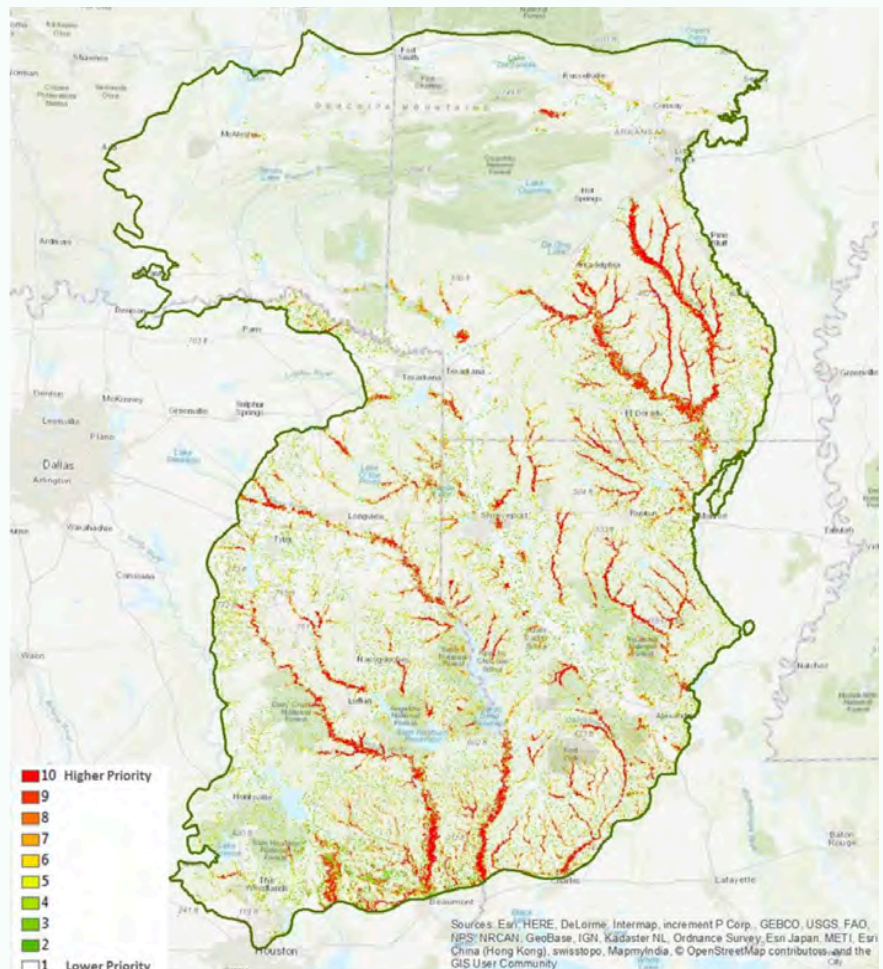
Red-shouldered Hawk: Maintaining and encouraging mature (50- to 100-yr-old) forest stands with relatively large (20-60 cm

dbh) trees at densities of 250–300 trees per ha appear to be desirable. Extensive areas (>250 ha) should be maintained in forest (>70% canopy).

Yellow-throated Warbler: These birds tend to inhabit open, mature forests (>23 cm dbh) with relatively low tree density. They prefer baldcypress (*Taxodium distichum*) and sycamore (*Platanus occidentalis*) as foraging substrate, utilizing Spanish moss as nest material, when available.

Monitoring

Assessment of population goals for umbrella species relies on continued or expanded bird monitoring via the North American BBS within the WGCP region. Habitat conservation activities through the LMJVJ's [Conservation Delivery Networks](#) (CDNs) focused on addressing priority needs of bottomland hardwood breeding birds, coupled with effects monitoring, provide opportunities to test key assumptions.



Composite priority map of West Gulf Coastal Plain and Ouachitas Bird Conservation Region forested wetlands for five umbrella bird species considered, including Acadian Flycatcher, Kentucky Warbler, Prothonotary Warbler, Red-shouldered Hawk, and Yellow-throated Warbler. Louisiana Waterthrush was not included in this final composite.