Forest Resources: **Bottomland Hardwood Management for Wildlife**

Bottomland hardwood forests are extremely important to wildlife, sportsmen, and recreational landowners in Texas. As with many other habitat types, the value of bottomland forest to wildlife often increases with active management. However, it is critical that landowners manage with clear targets in view. The following guidelines, dubbed "Desired forest conditions for wildlife" (DFCWs) provide a general forest management framework for promoting the development of productive wildlife habitat. The guiding premise throughout is to diversify tree species composition, vertical and horizontal structure, tree age, and canopy densities within forest stands, creating a patchwork of habitats that benefit a wide variety of wildlife species across landscapes. These conditions provide productive habitat to sustain populations of forest-dependent wildlife in concert with sustainable forestry.

Examples of the forest stand parameters that are critical to achieving these desired habitat conditions include:

- High tree species diversity;
- Multiple tree size classes within stands;
- Forest canopy densities that allow sufficient sunlight needed for a healthy understory and midstory;
- Creation of forest canopy gaps through tree removal (group selection) to establish/release desirable advanced regeneration and internal stand structure.

For each forest variable (see Table), the "Desired Structure" should be viewed as the target for management, while the "Conditions that May Warrant Management" values serve as potential trigger points for considering the most appropriate treatment(s) for returning to Desired Structure.

Stand Scale Desired Forest Conditions for Wildlife in Bottomland Harwood Systems[1]

Forest Variables	Desired Structure	Conditions That May Warrant Management
	Primary Factors	
Overstory Canopy Cover	60-70%	>80%
Midstory Cover	25-40%	<20% or >50%
Basal Area	60-70 ft^2/ac with ≥25% in older age classes	>90 ft^2/ac or ≥60% in older age classes
Tree Stocking	60-70%	<50% or >90%
	Secondary Factors	
Dominant Trees	>2/ac	<1/ac
Understory Cover	25-40%	<20%
Regeneration	30-40% of area	<20% of area
Coarse Woody Debris	≥200 ft^3/ac	≤100 ft^3/ac
Small Cavities (<10 in diameter)	>4 visible holes/ac or >4 "snag" stems ≥4 in dbh or ≥2 stems > 20 in dbh	<2 visible holes/ac or <2 snags ≥4 in dbh or <1 stem ≥20 in dbh
Den Trees/Large Cavities (>10 in diameter)	1 visible hole/10 ac or ≥2 stems ≥26 in dbh (≥8 ft^2 BA ≥26 in dbh)	0 visible holes/10 ac or <1 stem ≥26 in dbh (<4 ft^2 BA ≥26 in dbh)
Standing Dead/Stressed Trees	>6 stems/ac ≥10 in dbh or ≥2 stems ≥20 in dbh (>4 ft^2 BA >10 in dbh)	<4 stems/ac ≥10 in dbh or <1 stem ≥20 in dbh (<2 ft^2 BA >10 in dbh)

[1] Excerpted from *Restoration, Management, and Monitoring of Forest Resources in the Mississippi Alluvial Valley: Recommendations for Enhancing Wildlife Habitat.* Edited by R. Wilson, K. Ribbeck, S. King, and D. Twedt. (2007)

A detailed description of DFCWs for wildlife can be found at www.lmvjv.org/pages/Planning/Forest_Resources.htm.

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- These guidelines **are not prescriptive**. They provide recommendations to consider when developing forest management plans where wildlife habitat is an important component. Land managers should consider site-dependent conditions and limitations in the context of overall management objectives to determine the most appropriate management actions for achieving those objectives, including quality wildlife habitat.
- These forest parameters, when measured across the stand, should average to be within desired stand conditions, but with a relatively wide range of variability across the stand**.** Hence, these conditions should not be met on every acre within a stand or within a landscape at the same instance. For example, **managing "on thirds"** across the landscape provides a broad array of diversity – 1/3 having grown out of DFCWs with closed canopy, open understory; 1/3 recently disturbed with canopy gaps, a flush of lush vegetation, and habitat metrics generally not within the desired range but poised to grow into that range; and 1/3 having responded to disturbances and within DFCWs.
- Because each forest stand and landscape is unique, based on hydrologic, soil, and climatic conditions, as well as past treatment and current management objectives, there is no "one set" of silvicultural practices deemed best to achieve DFCWs. The condition of each stand and landowner objectives dictate application of individual tactics, in consultation with your forester.
- Canopy gaps of sufficient size to promote advanced **regeneration of shade-intolerant species** are critical to maintaining healthy forest composition (see ***Harvest Strategies for Hardwood Regeneration*** under Timber Management in this series). Where desired advanced regeneration is present, providing canopy gaps to release these trees is highly recommended. With an adequate seed source and appropriate harvest treatment, natural regeneration of native species is usually adequate and less expensive compared to planting seedlings.
- Bottomland hardwood stands treated in keeping with DFCW recommendations may be productive enough to sustain partial timber harvest at intervals more frequent than occurred historically. Intervals of 10-15 years are commonly expected. Evaluate wildlife habitat conditions within timber management units every 10 years to determine need for subsequent treatments (timber harvests).
- A **long-term forest management plan is needed** to ensure continuity of management and to provide management direction.