

MANAGING FOREST BIRDS IN SOUTHEAST OHIO:

Summary of
Management
Recommendations



OHIO BIRD



ABOUT THIS BULLETIN

This bulletin summarizes the management recommendations included in an expanded guide by Amanda Rodewald entitled “Managing forest birds in southeast Ohio: a guide for land managers”. The guide is written for land managers seeking to improve habitat conditions for forest birds. Recommendations are based on research conducted in the forested landscapes of southeast Ohio by The Ohio State University and Ohio Division of Wildlife. Although many of the patterns and general strategies may apply elsewhere, birds are known to show regional variation in habitat associations and responses to disturbance. Additional detail about study site locations, methodology, and results as well as site-specific data can be found in theses and dissertations of graduate students and published articles (see appendix in the expanded guide for a list of these sources).

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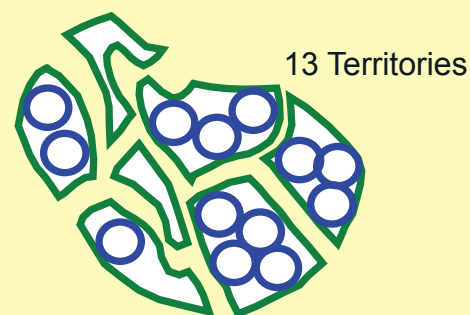
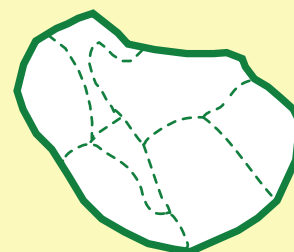
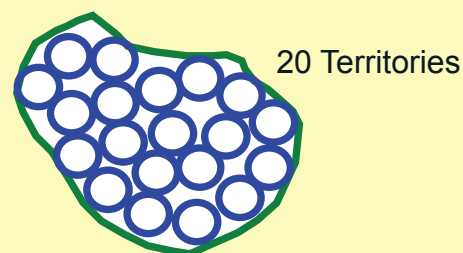
MANAGEMENT RECOMMENDATIONS

EARLY-SUCCESSIONAL HABITATS FOR SHRUBLAND BIRDS


1. In harvests that are regenerating, **encourage growth of native hardwood vegetation** rather than planting conifers. Allow dense woody vegetation to regenerate in some areas, as density of shrubland birds increases with woody stems during the first several years of regeneration. Although native and non-native plants both contribute to vegetative structure, native plants offer better food resources to birds and their insect prey. Because exotic plants can quickly invade following disturbance, managers should use species-specific recommended techniques to remove exotic plants both before and after harvest.
2. For sites permanently managed as successional habitats, **introduce disturbance at 6-8 year intervals**. Abundance of shrubland specialists declines sharply after 6 years post-harvest.
3. When possible, avoid creating small (<12 acres; 5 ha), narrow (<300 ft wide; 100 m), or irregularly-shaped shrubland patches. A better strategy is to manage for patches large enough to provide habitat >250 ft (75 m) from edges. Smooth or straight edges of harvests also will allow greater numbers of territories to be accommodated. **Favoring square or circular patches** rather than rectangular or irregular ones will increase the interior habitat of clearcuts without necessarily increasing harvest area (see box at right).
4. When possible, **cluster harvests and shrubland patches** within particular management areas or zones. Providing multiple patches within 0.3-0.6 miles (0.5 -1.0 km) may promote landscape connectivity for shrubland birds.
5. Recognize that these recommended strategies (i.e., creating larger and more regularly shaped shrubland patches or clustering of patches) also have the potential to benefit mature forest dependent species in managed forest landscapes by **reducing the amount of edge and fragmentation**.
6. Engage in **landscape-scale and long-term planning** to ensure that the needs of early- and late successional wildlife are met.


DOES PATCH SHAPE MATTER?

Shape of a harvest can limit the number of territories that can be accommodated even in the absence of true edge avoidance. In this example, a greater number of fixed-size territories can be accommodated in one contiguous harvest patch versus several smaller patches of equal total area.



MATURE FORESTS FOR LATE-SUCCESSIONAL BIRDS

1. Efforts to **manage local habitat features**, such as forest structure, are an important piece of sustaining mature-forest breeders. In the forested landscapes (>70% forest cover) of southeast Ohio, structural attributes of forest (i.e., canopy structure, tree size, vertical complexity) had strong relationships with density and nest survival of sensitive species.
2. Features generally associated with older forests may be important habitat components for mature forest breeders, such as cerulean warbler. These **old-forest characteristics** include a heterogeneous canopy, diverse understory vegetation, grapevines, and emergent large trees. Thus, using longer rotation ages (>100 years), as well as specific harvest prescriptions (e.g., single tree and group selection) and timber stand improvement practices (e.g., thinning and crop tree release) are likely to encourage the development of these features.

Cerulean warbler. Photo by Marja Bakermans.
3. As described in the section on “managing shelterwood harvests”, **white oak should be emphasized** in management because it is a favored nesting tree for cerulean warblers and other canopy-nesting birds. (see next chapter for additional details about floristic composition of stands).
4. Several sensitive species breeding in mature forest would benefit from **creating canopy gaps** (>430 ft², 40 m²) through single-tree or group selection cuts.
5. Based on results from the Cooperative Cerulean Warbler Forest Management Project (Boves 2011), recommendations for Appalachian forested landscapes specify that forests supporting >2 territories per 10 acres (>5 territories / 10 ha) of cerulean warbler should be managed without harvesting and in ways that minimize disturbance. On forest stands with fewer territories, management should reduce basal area to 56-78 ft² / acre (13-18 m² / ha) while retaining large overstory trees (>16 inches dbh; >40cm dbh), especially of white oak. Because identifying the best management course depends upon bird densities, coordination and cooperation with wildlife biologists may be necessary.

White oak leaves. Photo by Amanda Rodewald.

SHELTERWOOD HARVESTS FOR EARLY AND LATE-SUCCESSIONAL BIRDS



Scarlet tanager. Photo by T.K. Tolford.

1. **Partial harvesting** (~50% stocking level), such as the shelterwood technique, can be used to provide habitat to both early-successional birds (e.g., prairie warbler, Eastern towhee) and canopy-nesting species usually associated with mature forest (e.g., yellow-throated vireo, scarlet tanager). In southern Ohio, reducing basal area from 100-143 ft²/ acre to 39-70 ft²/ acre (23-33 m²/ ha to 9-16 m²/ ha) supported greater numbers of both shrubland and canopy-nesting species than unharvested mature forest.
2. Recognizing that overstory is typically removed for oak regeneration within 5-10 years, shelterwood prescriptions need to **ensure that nesting habitat is maintained** across space and through time within the landscape.
3. **Favor white oaks** rather than red oaks in shelterwood harvests, as white oaks (white and chestnut oaks) were strongly favored for nesting and foraging by most canopy nesting species. Red oaks (Northern red, Eastern black, and scarlet oaks) also may depress nesting success of canopy nesting birds.
4. When possible, **retain large diameter trees** (>15 inches dbh; >38 cm dbh), which are most heavily used for nesting by canopy birds, including cerulean warbler.
5. In cases where there is wide latitude in choice of harvest location, **avoid older forests with canopy gaps** and/or those on northeast-facing slope, because these tend to be most heavily used by the declining cerulean warbler. Instead, shelterwood harvests are better implemented in areas that lack steep slopes (> approximately 15%) and/or have few canopy gaps, where they are more likely to create or improve habitat for species requiring heterogeneous canopies.

WHAT IS A SHELTERWOOD HARVEST?

A shelterwood harvest is a cut that retains an overstory of maturing trees. This technique allows new stems to grow under the cover of the remaining trees. In traditional shelterwood harvests, residual overstory trees are typically removed within 10-30 years.



Shelterwood harvest. Photo by Amanda Rodewald.

LANDSCAPE MOSAICS AND STRUCTURALLY COMPLEX HABITATS FOR POST-FLEDGING AND POST-BREEDING BIRDS

1. Manage mature forests in ways that **promote structural complexity**, which encourages microhabitats that provide dense understory vegetation. Examples include treefall gaps, riparian thickets, and natural patches of shrubs. Because some of these features are typical components in old, uneven-aged forests, consider allowing stands to reach ages greater than 100 years.
2. **Allow roadsides and other human-associated edges to develop** the thick vegetation that is heavily used by post-breeding birds. There appear to be no strong size requirements for use by birds.
3. When consistent with other management goals (e.g., oak regeneration), consider using silvicultural techniques to **create areas with dense vegetation**. Group-selection harvests and shelterwood harvests may be good examples of this. Although use of these harvest types has not been specifically studied during this stage in the annual cycle, changes in habitat structure associated with those silvicultural techniques are consistent with features preferred by post-breeding and post-fledging birds.
4. Regarding harvest size, **be attentive to needs of other species** and during other stages of the annual cycle. Post-fledging birds do not seem to require large patches of successional habitat and can use dense vegetation within mature forests. Consequently shrubland habitats are probably best managed according to recommendations for early-successional breeders.
5. Engage in **landscape-scale planning** to ensure that sufficient forest is retained to permit movement through the landscape. Not only are independent juveniles known to make extensive movements, but numbers of post-breeding birds using harvests was positively related to forest cover within 0.62 miles (1 km).



Yellow-breasted chat. Photo by TK Tolford.

Management prescription

General Habitat Type	Nest	Clear-cut	Seed tree	Shelterwood	Management prescription			
					Single tree	Group Select	Light Thin	Heavy Thin

Other regional species

Wild Turkey	forest	gr	√	√	√	√	√	+	
Red-bellied Woodpecker	forest	cv	—	√	√	√	√	+	snags, dead limbs
Downy Woodpecker	forest	cv	—	√	√	√	√	+	snags, dead limbs
Hairy Woodpecker	forest	cv	—	√	√	√	√	+	snags, dead limbs
Pileated Woodpecker	forest	cv	—	√	√	√	√	+	snags, dead limbs
Acadian Flycatcher	forest	us	—	—	√	—	—	+	
White-eyed Vireo	shrub	us	+	+	—	√	—	—	
Red-eyed Vireo	forest	us	—	√	√	√	√	+	
Carolina Chickadee	forest	cv	—	√	√	√	√	+	snags, dead limbs
Tufted Titmouse	forest	cv	—	√	√	√	√	+	snags, dead limbs
White-breasted Nuthatch	forest	cv	—	√	√	√	√	+	snags, dead limbs
Brown Creeper	forest	cv/bark	—	√	√	√	√	+	snags, dead limbs
Gray Catbird	forest/shrub	us	+	+	+	+	+	√	multi-layered forest
Ovenbird	forest	gr	—	—	√	—	—	+	
Louisiana Waterthrush	forest	gr	—	—	√	—	—	+	forested headwater streams
Northern Parula	forest	can	—	√	√	√	√	+	riparian forest
Summer Tanager	forest	can	—	√	+	+	+	√	
Northern Cardinal	forest/shrub	us	+	+	√	+	+	√	
Rose-breasted Grosbeak	forest	can	—	√	√	√	√	√	
Baltimore Oriole	forest	can	√	+	—	+	+	—	