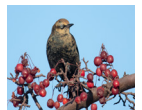


## Managing for Birds of Conservation Interest in the Great Lakes Region

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### Introduction

Birds are strongly tied to structural characteristics of forests and are excellent indicators of ecosystem health and environmental change. According to an analysis of the Breeding Bird Survey, nearly two-thirds of bird species breeding in forests in North America have declined, and half of those that breed in boreal forests are experiencing population declines. These changes amount to an average loss of abundance of 27% across all species since the 1970s, despite increases in forest cover in some areas. The underlying cause of many of these bird species declines in abundance has been attributed to anthropogenic stressors.



### Anthropogenic Disturbance and Bird Declines

Habitat loss and degradation are primary factors associated with declining bird populations. Historical land use has led to (i) declines in habitat quality for birds, including forest fragmentation; (ii) simplification of forest cover types and structure; and (iii) introduction of pathogens (e.g., oak wilt) and invasive species (e.g., emerald ash borer). Additional anthropogenic stressors can amplify negative effects on bird populations and contribute significantly to their decline (e.g., predation, outdoor cats, vehicle and building collisions, and light pollution; Soulliere et al. 2020).

### Benefits of Forest Management

Research has demonstrated that active forest management offers conservation benefits for bird communities because it provides a mosaic of healthy forest stands with diverse tree ages, structure, and composition. Further, it is becoming increasingly clear that birds require different types of forest depending on their developmental stage (e.g., nesting, fledging, adult). For example, bird species that rely on young forest stands for breeding and nesting activities may use mature forest stands after

fledging, and species that nest in mature stands may use regenerating stands during the post-fledging period. Forestry practices can be used to create, maintain, or improve forest stands for birds, and forest planning can ensure that a range of cover types is available across the landscape (e.g., Iglay et al. 2019).

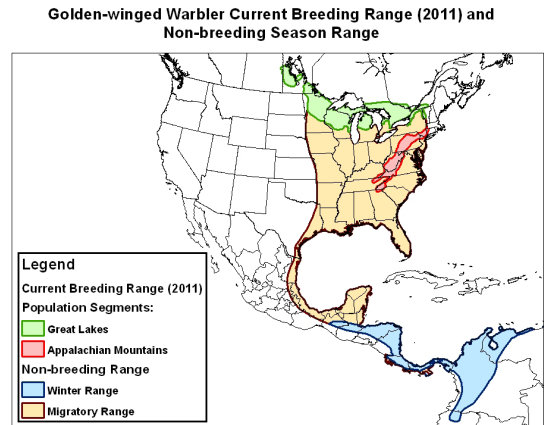
### Bird Species of Conservation Interest in the Great Lakes Region

Rusty Blackbirds, Kirtland's Warblers, and Golden-winged Warblers have been identified by forest managers, conservation agencies, and other organizations as forest bird species of conservation interest in the Great Lakes Region. Healthy forest systems typically reflect a diversity of forest sizes, ages, compositions, and landscape patterns that support the varied biological needs and life-history stages of diverse bird species. One of the major challenges of forest planning and management is integrating habitat considerations for birds of conservation interest that have different requirements. The diversity of structural needs requires creating a spatial mosaic of forest types across the landscape, as habitat for all bird species cannot be provided in one place at one time. Herein, this document presents ecological information for these three species.

# Golden-winged Warbler



Photo credit: John Jonas Photography



Map credit: Golden-winged Warbler Working Group

Figure 1. A Golden-winged Warbler (left) and a map highlighting this species’ seasonal distribution (right). The breeding season range, estimated in 2011, is based on current, expert knowledge of persistent, breeding populations.

## Background and Conservation Concern

The Golden-winged Warbler has experienced a population decline of 66% since the 1960s, and an estimated 390,000 breeding adults remain (Partners in Flight 2020). This species has declined sharply and has become extirpated from historically occupied parts of its range. At least 95% of the global population breeds in the Great Lakes Region, with less than 5% in the Appalachian Mountain regions.

## Habitat

Golden-winged Warblers breed in forested landscapes dominated by deciduous trees. Nesting usually occurs in young regenerating forests, especially aspen, and shrubby wetlands dominated by alder, willow, and dogwoods. They occur along mature forest edges during migration, and spend the winter in semi-open mid- to high-elevation forests in Central and northwestern South America (Confer et al. 2020).

## Threats

Population declines of Golden-winged Warblers correlate with loss of young forest and mixed open conditions in some areas in their range. Increasing competition for breeding territories and hybridization with Blue-winged Warblers are ongoing issues for this species. The loss of winter habitat in Central and South America and degradation of migratory habitat (both stopover sites and air space) have also contributed to their decline (Confer et al. 2020).

## Management Recommendations

This species uses a variety of plant communities for breeding, but common characteristics include dense, interspersed patches of herbs and shrubs with some large trees that provide 10 to 30% canopy cover. Disturbance from timber harvesting and prescribed fire should result in regenerating herbaceous and shrubby patches and scattered individual or groups of overstory trees (>9 inches in diameter) throughout the disturbed area. In shrubby wetlands, shearing strips or patches can be an effective approach for creating heterogeneity (or patchiness) that is preferred by the species. This species requires a diverse mix of forest ages and types for foraging and post-fledging habitat use (e.g., Golden-winged Warbler Working Group 2019; Soulliere et al. 2020). For more information see <http://gwwa.org/>.

# Kirtland's Warbler



Photo credit: Ryan Brady



Map credit: [www.allaboutbirds.org](http://www.allaboutbirds.org)

Figure 2. A Kirtland's Warbler (left) and a map highlighting this species' seasonal distribution (right).

## Background and Conservation Concern

Kirtland's Warbler is one of the rarest songbirds in North America. The species was federally listed as endangered in 1967, but thanks to dedicated conservation efforts through public-private collaborations it was removed from the endangered species list in 2019 (Bocetti et al. 2020).

## Habitat

This migratory songbird nests exclusively in young jack pine forests in northern Michigan, Wisconsin, and Ontario. However, the species favors dense scrub during migration and uses upland, young forests, and scrub/shrub areas on their wintering grounds in the Bahamas (Bocetti et al. 2020).

## Threats

Forest fragmentation, fire suppression, and nest parasitism by the Brown-headed Cowbird have led to the population decline of this species. Because of their reliance on young jack pine forests, Kirtland's Warblers are disturbance-reliant and depend on perpetual forest and fire management to establish and maintain young forest stands in their breeding range (Bocetti et al. 2020).

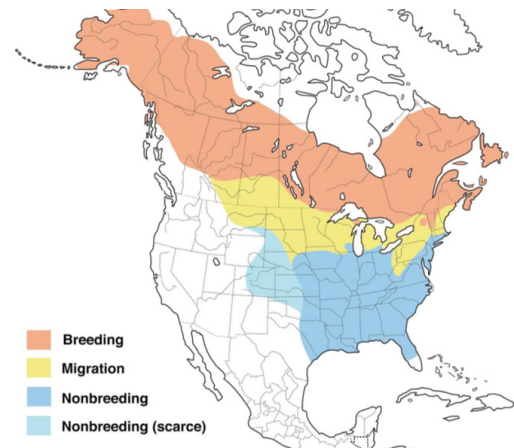
## Management Recommendations

This species prefers large jack pine complexes (>200 acres) that have a high abundance of seedlings and saplings (6 to 20 feet tall), often mixed with young oak and aspen. Harvest or fire disturbance and regeneration of large stands of jack pine are important for maintaining habitat for this species. Reforestation of these stands usually requires large-scale controlled burns (jack pine has serotinous cones that require heat to open and release their seeds) or mechanical scarification. When tree planting is required, stocking density should be >1400 seedlings/acre and roughly 6 foot spacing. Small openings in regeneration, totaling about 25% of stand area, improve site conditions for this species. Landscape-level forest management plans to ensure a continual supply of appropriate forest conditions will be beneficial for the species' continuing recovery (e.g., Souillere et al. 2020). For more information see <http://www.kwconservation.org/>.

## Rusty Blackbird



Photo credit: Steve Kolbe



Map credit: [www.allaboutbirds.org](http://www.allaboutbirds.org)

Figure 3. A Rusty Blackbird (left) and a map highlighting this species' seasonal distribution (right).

### Background and Conservation Concern

Rusty Blackbird populations have declined 85 to 95% in just 40 years, one of the most significant declines ever documented among North American birds. This species is distinct from other blackbirds because it breeds in boreal wetlands in Canada and the northern US (Avery 2020).

### Habitat

Rusty Blackbirds depend on forested wetlands during migration and on wintering grounds in the southeastern US. On breeding grounds north of the Great Lakes Region, Rusty Blackbirds prefer shallow wetlands with stunted conifers or near regenerating spruce-fir stands. During migration, they can be found throughout North America and forage in flooded forests, shrub swamps, wet fields, and edges of ponds and lakes. This species has a relatively leisurely migration and seems to show high site fidelity to stopover areas where they rest and refuel; thus, availability and quality of stopover sites may be important for this species (Avery 2020).

### Threats

Several factors have likely contributed to the dramatic decline of this species, including loss and fragmentation of breeding habitat, changes in habitat quality due to climate change, and loss of forested wetlands on the wintering grounds and along migration routes (Greenberg and Matsuoka 2010).

### Management Recommendations

Rusty Blackbirds rely on forested wetlands for nesting, foraging, and roosting during every part of their life cycle. Therefore, conservation and restoration of forested wetlands, shrubby wetlands, and herbaceous marshes should be prioritized. In managed forests, Rusty Blackbirds usually nest in stands approximately 5 to 15 years post-harvest. The composition of stands used for breeding varies, but in general, nesting areas have >35% softwood composition of relatively small trees (1.5 to 2 inches in diameter) and may include spruce, balsam fir, tamarack, white pine, birch, and red maple. Key structural characteristics include scattered live and dead residual overstory trees exceeding 13 feet in height. Methods to produce appropriate forest composition and structure will vary across the breeding range. However, management practices aimed at spruce and fir regeneration and focused on retaining mature dead and live trees, dispersed individually and in clumps, can benefit Rusty Blackbirds (e.g., Luepold et al. 2015; Foss and Lambert 2017; Avery 2020). For more information see <https://rustyblackbird.org/>.

## References

- Avery, M.L. 2020. Rusty Blackbird (*Euphagus carolinus*), ver. 1.0. In *Birds of the World*. Poole, A.F. (ed.). Ithaca, NY: Cornell Lab of Ornithology. <https://doi.org/10.2173/bow.rusbla.01>.
- Bocetti, C.I., Donner, D.M., and Mayfield, H.F. 2020. Kirtland's Warbler (*Setophaga kirtlandii*), ver. 1.0. In *Birds of the World*. Poole, A.F. (ed.). Ithaca, NY: Cornell Lab of Ornithology <https://doi.org/10.2173/bow.kirwar.01>.
- Confer, J. L., P. Hartman, and A. Roth (2020). Golden-winged Warbler (*Vermivora chrysoptera*), ver. 1.0. In *Birds of the World*. Poole, A.F. (ed.). Ithaca, NY: Cornell Lab of Ornithology <https://doi.org/10.2173/bow.gowwar.01>.
- Foss, C.R., and Lambert, J.D. 2017. *Guidelines for managing rusty blackbird habitat in New York and northern New England*. Hartland, VT: High Branch Conservation Services. [http://rustyblackbird.org/wp-content/uploads/RUBL\\_MGMT\\_Guidelines\\_NYNE\\_2017.pdf](http://rustyblackbird.org/wp-content/uploads/RUBL_MGMT_Guidelines_NYNE_2017.pdf).
- Golden-winged Warbler Working Group. 2019. *Best Management Practices for Golden-winged Warbler Habitats in the Great Lakes Region*, 2nd ed. Golden-winged Warbler Working Group. [www.gwwa.org](http://www.gwwa.org).
- Greenberg, R., and Matsuoka, S.M. 2010. Rangewide ecology of the declining Rusty Blackbird – Rusty Blackbird: mysteries of a species in decline. *Condor* 112(4):770-777. <https://doi.org/10.1525/cond.2010.100153>.
- Igley, R.B., Greene, R.E., Leopold, B.D., and Miller, D.A. 2019. Bird conservation potential of fire and herbicide treatments in thinned pine stands. *Forest Ecology and Management* 409:267-275. <https://doi.org/10.1016/j.foreco.2017.11.021>.
- Luepold, S.H.B., Hodgman, T.P., McNulty, S.A., Cohen, J., and Foss, C.R. 2015. Habitat selection, nest survival and nest predators of Rusty Blackbirds in northern New England. *Condor* 117:609-623. <https://doi.org/10.1650/CONDOR-14-215.1>.
- Partners in Flight. 2020. Population Estimates Database, ver. 3.1. <http://pif.birdconservancy.org/PopEstimates> [March 31, 2021].
- Soulliere, G.J., Al-Saffar, M.A., VanBeek, K.R., Tonra, C.M., Nelson, M.D., Ewert, D.N., Will, T., Thogmartin, W.E., O'Brien, K.E., Kendrick, S.W., Gillet, A.M., Herkert, J.R., Gnass Giese, E.E., Ward, M.P., and Graff, S. 2020. *Upper Mississippi/ Great Lakes Joint Venture Landbird Habitat Conservation Strategy – 2020 Revision*. Bloomington, MN: United States Fish and Wildlife Service [http://umgljv.org/docs/JVLandbirdStrategy\\_FinalV2\\_12-30-20.pdf](http://umgljv.org/docs/JVLandbirdStrategy_FinalV2_12-30-20.pdf).