

## SPECIES PROFILE

# Golden-winged Warbler

*Vermivora chrysoptera*

**Federal Listing:** Species of concern  
**State Listing:** Species of conservation concern  
**Global Rank:** G4  
**State Rank:** S2B  
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## ELEMENT 1: DISTRIBUTION AND HABITAT

### 1.1 Habitat Description

The Golden-winged Warbler prefers early successional habitats such as pastures reverting to woodland, brushy fields, marshes, bogs, stream borders, powerlines, and openings in deciduous woods (Confer 1992, Curson et al. 1994). In New Hampshire, most breeding-season records have been in abandoned fields or clearcuts in an early stage of succession and along powerlines. According to Confer (1992), Golden-winged Warbler nesting territories are consistently found in habitat with patches of herbs, shrubs and scattered trees with a forested edge.

### 1.2 Justification

Considered rare in the early 1900s, the species expanded its range northward and eastward in response to farmland abandonment (Dunn and Garrett 1997). It began declining in the latter half of the 1900s and by the 1990s populations had decreased in 9 of 12 states (Confer 1992). The Breeding Bird Survey (BBS) data through 2003 show that the Golden-winged Warbler has declined by 8.3% in the USFWS's Region 5 (Sauer et al. 2004). Canada shows an increase on the BBS, although the trend is not significant (Sauer et al. 2004), and northeastern New York and central Ontario appear to have an expanding population (Confer 1992). Interim results on the New York Breeding Bird Atlas web site show

only one small section of the state with an increased distribution and the majority of the state with a dramatic decrease when compared with the first Atlas in the 1980s (NYSDEC 2004). The overall regional pattern corresponds with a gradual northward shift in the species range (Dunn and Garrett 1997).

Golden-winged Warblers established breeding populations in the southeastern coastal plain of New Hampshire by early to mid-1900s (Foss 1994, Donsker 2004). In the 1950s through the mid-1970s, up to 10 individuals were reported in New Hampshire nearly every year, but that number has declined to less than five individuals annually between 1988 and 2003 (figure 1), with none reported in six of those years (Donsker 2004). There were only two breeding-season Golden-winged Warbler reports in 2000, one in 2001, and none in 2002-2004. The only reports from 2003 and 2004 were both likely migrants, one from Sandwich and one from Epping, respectively.

The Golden-winged Warbler is on the Partners in Flight Watch List and is one of 28 species in need of immediate conservation attention in the continental United States and Canada due to multiple causes for concern across its entire range (Rich et al. 2004). Reasons for the decline are not clear, but its early successional habitat has declined in the Northeast.

### 1.3 Protection and Regulatory Status

The Golden-winged Warbler is classified as a species of concern by the USFWS (Confer 1992), and is listed on the Partners in Flight Watch List (Rich et al. 2004), and on the Audubon Society's WatchList (National Audubon 2002). Along with most birds, it is protected more generally under the Migratory Bird Treaty Act, which prevents the killing of most non-game birds and collection of their nests or eggs.

## 1.4 Population and Habitat Distribution

New Hampshire is at the northeastern edge of the species' range in New England. There was only one record during the Maine Breeding Bird Atlas (Adamus 1983) and it is considered uncommon and declining in Massachusetts (Veit and Peterson, 1993). Most Golden-winged Warbler reported were from southeastern New Hampshire in the early 1980s, particularly Durham, Kensington, Exeter, and Newmarket. The primary locations with multiple reports over the years were Foss Farm, Longmarsh Road, and Packer's Falls Road in Durham, and South Road and North Road in Kensington. Only two locations in these four towns had sightings after 1995: Packer's Fall Road (through 1997), and Bald Hill Road in Newmarket (one report in 2000). The most recent sighting from the southeastern portion of the state during the breeding season was a male in July 2001 along a Northwood powerline. This was most likely a breeding individual and illustrates the potential for this species to occur at inaccessible locations along powerlines. There were also single sightings from seven other southeastern towns: Deerfield (1982), Dover (1984), East Kingston (1983), Hampstead (1999), Hollis (1997), Portsmouth (1996), and South Hampton (1986). There are only two locations outside of southeast New Hampshire where birds were reported regularly:

- Hanover: Goodfellow Road, reported annually from 1991-1997, with two nests in 1992 (although each was paired with a Blue-winged Warbler), and a pair carrying nesting material in 1993 (both Golden-winged Warblers).
- Weare/Dunbarton: Clough State Park and vicinity (a male in 2000, 1997, 1996, 1995). This is a location with many Blue-winged Warblers.

Three other locations had reports from two different years: Fox State Forest in Hillsborough (1985, 1996), Pisgah State Park in Winchester (1982, 1993), and Pembroke Academy area in Pembroke (1997, 1999). The other eight reports away from the southeast are single sightings from scattered locations as far north as Jefferson, none more recent than 1996. Infrequency of the reports may suggest rarity because many of the areas are regularly surveyed.

## 1.5 Town Distribution Map

*Not completed for this species.*

## 1.6 Habitat Map

*N/A*

## 1.7 Sources of Information

Species information was compiled from the pertinent literature. Information on the location of Golden-winged Warblers in the state refers to the period from 1980 through 2004. Only those sightings that represented potential breeding reports were included and those that were most likely migrants are not included unless specifically stated. The primary data source was NHBR with a few reports from the New Hampshire Breeding Bird Atlas (BBA) and the Breeding Bird Survey. There have been no organized survey efforts for this species in the state.

## 1.8 Extent and Quality of Data

Birders seek Golden-winged Warblers and sightings are likely to be included in NHBR. Many locations where the species was formerly found are still birded regularly, and some sightings were from locations where active reporters still reside.

## 1.9 Distribution Research

It is important to know if and where breeding Golden-winged Warblers remain in the state so that critical areas can be protected. Surveys should focus on historic locations and nearby suitable habitat. Surveys should also document the distribution of Blue-winged Warblers and Blue-winged Warbler/Golden-winged Warbler hybrids (see section 2.2).

## ELEMENT 2: SPECIES/HABITAT CONDITION

### 2.1 Scale

The absence of currently breeding individuals in the state and the regional northward expansion of this species' range make it difficult to establish any appropriate conservation planning units.

## 2.2 Relative Health of Populations

After the early 1980s Golden-winged Warbler reports declined in number and regularity, with none in 1986-1988, few in the 1990s with the exception of the remarkable record year in 1996 (figure 1), and two during 2000-2004 (note that 1996 was also a record year for Blue-winged Warblers and their hybrids.) The number of Blue-winged Warblers and their distribution in the state has increased rather dramatically during the same period that Golden-winged Warblers have declined (figure 1).

Hybridization between Blue-winged and Golden-winged Warblers has been well documented in New Hampshire (NHBR). In 1992, two mixed pairs were documented in Hanover. One was a male Blue-winged with a female Golden-winged at a nest with four eggs that fledged successfully, and the other was a male Golden-winged with a female Blue-winged at a nest with three young that also fledged. The nests were relatively close to each other on opposite sides of the same road (NHBR). A male Golden-winged Warbler at Langmaid Farm in Durham was believed to nest with a female Blue-winged Warbler in June 1989 (NHBR). In South Hampton during the Breeding Bird Atlas, males of both species and both hybrids were singing in a clearcut, and in Kensington a territorial male Golden-winged Warbler was replaced first by a hybrid and then by a male Blue-winged Warbler in the space of one week during two different breeding seasons (Foss 1994). Details on all hybrid sightings are not included here.

Donsker (2004) summarized all New Hampshire reports of the two species and their hybrids, documenting the arrival of Blue-winged Warblers in 1955, their subsequent increase, the increase in hybrids, and the decline of Golden-winged Warblers (figure 1). The number of hybrids reported between 1999 and 2003 exceeds the number of Golden-winged Warblers reported, although reports of hybrids have declined in the last ten years, as might be expected given the decline of Golden-winged Warblers. The pattern of reports with increasing Blue-winged Warblers followed by "Brewster's" hybrids, declining Golden-winged Warblers and a few "Lawrence's" hybrids matches that described by Dunn and Garrett (1997). Over a 50-year time frame, this results in a population of entirely Blue-winged Warblers and an occasional "Lawrence's" hybrid.

## 2.3 Population Management Status

Golden-winged Warblers are not currently managed in New Hampshire.

## 2.4 Relative Quality of Habitat Patches

Current reports indicate that Golden-winged Warblers are no longer breeding in the state and that the quality of current habitat patches is difficult to evaluate.

## 2.5 Habitat Patch Protection Status

*N/A*

## 2.6 Habitat Management Status

There are no habitat management activities taking place for Golden-winged Warblers. There have been some efforts in the state to promote management of some lands for early successional habitat.

## 2.7 Sources of Information

Species information was compiled from the pertinent literature. Information on hybridization of Golden-winged Warblers with Blue-winged Warblers refers to the period from 1980 through 2004. The primary data source was NHBR with a few reports from the New Hampshire Breeding Bird Atlas (BBA) and the Breeding Bird Survey.

## 2.8 Extent and Quality of Data

The absence of Golden-winged Warblers in New Hampshire makes it difficult to evaluate the condition of existing habitat and whether habitat degradation was a factor in this species' disappearance from the state.

The presence of Blue-winged Warblers and the occurrence of hybridization with Golden-winged Warblers is adequately documented in New Hampshire by the current reports. Both species are popular among birders and there is awareness of the potential for hybridization such that reports of both these species and their hybrids are most likely to be included in NHBR.

## 2.9 Condition Assessment Research

- If any Golden-winged Warblers still breed in the state, it is critical to determine their productivity

and assess the habitat parameters, including presence of invasive species and the degree of fragmentation.

- Revisit historical locations to determine if habitat conditions are still suitable for Golden-winged Warblers

### **ELEMENT 3: SPECIES AND HABITAT THREAT ASSESSMENT**

Threat assessment for Golden-winged Warbler is difficult because few individuals remain in the state. A description of broad-based threats that apply to the species as a whole are listed below, but which of these factors were the cause of Golden-winged Warbler decline in New Hampshire is not clear.

#### **3.1.1. Altered Natural Disturbance (Natural Succession)**

Development and the re-growth of forests on formerly open land has reduced early successional habitat throughout the Northeast (see Shrublands habitat profile).

#### **3.1.2. Introduced Species, Development (Fragmentation), Predation and Herbivory**

- Invasive species: In Michigan, the planting of non-native autumn-olives for game caused Golden-winged Warblers to disappear from formerly suitable shrub-habitat (Dunn and Garrett 1997). Autumn-olives are also known to invade fields in New Hampshire and their impact on Golden-winged Warblers is not known.
- Fragmentation: Golden-winged Warblers nest on the ground leaving them vulnerable to ground predators, especially in smaller patches where predators can more easily detect nests. Remaining patches of appropriate habitat, especially in the southern part of the state, are likely to be adjacent to suburbia where ground predators are more common. Nearby development or human disturbance may cause Golden-winged Warblers to abandon nests during nest construction or egg-laying, although they will remain on the nest once incubation starts, despite considerable disturbance (Confer 1992).

#### **3.1.3. Scarcity (Competition)**

Although Blue-winged Warblers appear to displace Golden-winged Warblers, this may be a result of habitat change and not competition. Local declines correlate with advancing succession and reforestation combined with Blue-winged Warbler range expansion (Confer 1992). Studies support Blue-winged Warbler dominance in some cases and Golden-winged Warbler dominance in others, but in areas of New York and New Jersey with suitable habitat, both species have coexisted for nearly 100 years (Confer 1992, Coker and Confer 1990). Brown-headed Cowbirds are known to parasitize Golden-winged Warblers and Confer (1992) reported that 30% of nests were parasitized out of several hundreds nests, but the effect on nest success was unknown.

#### **3.2 Sources of Information**

Pertinent literature was reviewed for determination of threats to the species as a whole. There is no state-specific information on these threats for New Hampshire, although the loss of early successional habitat is well known in the state (see habitat profile).

#### **3.3 Extent and Quality of Data**

Information on threats to the species as a whole is well described in the literature, but since Golden-winged Warbler is no longer present in the state, we do not know how each threat affects the species in New Hampshire.

#### **3.4 Threat Assessment Research**

More information is needed on the extent to which all threats listed above impact Golden-winged Warbler populations. Should any breeding Golden-winged Warblers remain, more information is needed on the effect of their interaction and hybridization with Blue-winged Warblers and its impact on the population.

### **ELEMENT 4: CONSERVATION ACTIONS**

#### **4.1. Regulation and Policy**

Due to the dramatic decline of Golden-winged War-

blers in the state, and especially the absence of reports since 2000, this species should be upgraded to Endangered in New Hampshire. The population may be beyond recovery in the state, but this is uncertain and results from inventory, research, and management efforts are needed to guide future status revisions. The absence of known breeding Golden-winged Warblers in the state precludes any further specific conservation actions.

#### 4.2 Conservation Action Research

- Determine if habitat manipulation can attract Golden-winged Warblers to areas with past breeding-season reports and possibly restore the species.
- If any breeding individuals are found remaining in the state, there may be opportunities for research into habitat management regimes most beneficial for Golden-winged Warblers.

#### ELEMENT 5: REFERENCES

##### 5.1 Literature:

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- Veit, R.R., and W.R. Petersen. 1993. Birds of Massachusetts. Massachusetts Audubon Society, Lincoln, Massachusetts, USA.

##### 5.2 Data Sources

- NHBR. New Hampshire Bird Records database and archives. New Hampshire Audubon, Concord, New Hampshire, USA.

#### ELEMENT 6: LIST OF FIGURES

- Figure 1. Records of Golden-winged and Blue-winged Warblers and their hybrids, "Brewster's" and "Lawrence's" Warblers. New Hampshire 1953-2003. Reprinted from *New Hampshire Bird Records*, Vol. 22, No. 1 (Donsker 2004).

## Distribution of Golden-winged Warbler in New Hampshire

### Distribution

-  Known
-  Potential
-  Historic



Known = confirmed breeding observations as reported in the NH Natural Heritage Bureau's Element Occurrence Database and obtained from NH Bird Records and the NH Breeding Bird Atlas, Audubon Society of New Hampshire  
Potential = possible breeding and other observations from the same data sources  
Historic = observations greater than 20 years old

