

**90-DAY FINDING ON A PETITION TO REMOVE THE GOLDEN-CHEEKED
WARBLER FROM THE LIST OF ENDANGERED AND THREATENED WILDLIFE**

Background

Section 4(b)(3)(A) of the Endangered Species Act (Act) requires that we make a finding on whether a petition to list, delist, or reclassify a species presents substantial scientific or commercial information indicating that the petitioned action may be warranted. Our standard for substantial scientific or commercial information with regard to a 90-day petition finding is “that amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted” 50 C.F.R. § 424.14(b).

Petition History

On June 30, 2015, we received a petition dated June 29, 2015, from Nancie G. Marzulla (Marzulla Law, LLC – Washington, DC) and Robert Henneke (Texas Public Policy Foundation – Austin, TX) requesting that the golden-cheeked warbler be removed from the list of endangered and threatened wildlife (“delisted”) due to recovery or error in information. The petition clearly identified itself as a petition and included the requisite identification information for the petitioner, as required by 50 C.F.R. § 424.14(a).

On December 11, 2015, we received supplemental information from the petitioners that included additional published studies and an unpublished report. These studies, as well as others known to the Service and in our files at the time the supplement was received, are addressed as appropriate in this finding. This finding addresses the petition.

Evaluation of a Petition to Delist the Golden-cheeked Warbler Under the Act

Species and Range

Does the petition identify an entity that may be eligible for removal from listing (delisting) (that is, is the entity a species, subspecies, or DPS)?

Yes

No

The American Ornithologists’ Union adopted a new classification of the Parulidae based on a phylogenetic analysis by Lovette et al. (2010, p. 763) that resulted in all *Dendroica* species being placed into of a single clade for which the generic name *Setophaga* has taxonomic priority (Chesser et al. 2011, p. 608). Hereafter, the Service recognizes the golden-cheeked warbler as *Setophaga chrysoparia*, formerly placed in the genus *Dendroica*.

If yes, list common name (scientific name); and range.

Golden-cheeked warbler (*Dendroica chrysoparia* = *Setophaga chrysoparia*, hereafter warbler), breeding exclusively in Texas; wintering in the highlands of Mexico (Chiapas) and Central America (Guatemala, Honduras, Nicaragua, El Salvador).

Information in the Petition

Factor A

1. Does the petitioner claim the entity warrants delisting based on the lack of the present or threatened destruction, modification or curtailment of the species' habitat or range?

Yes

No

- a. If the answer to 1 is yes:

Do the sources cited in the petition provide substantial information to support the claim?

Yes

No

If yes, indicate for which activity(ies) present or threatened destruction, modification or curtailment of the species habitat or range (e.g., logging, agriculture, overgrazing, etc.) is a threat and list the citations with page numbers for each purpose. If no, please indicate for which activity(ies) and explain.

The petition asserts that none of the statutory factors pose a significant threat to the continued existence of the warbler (p. 15) and that "the warbler was either listed in error or has recovered since listing" (p. 13). The petition states that because the numbers of warblers and extent of warbler habitat is far greater than the Service determined in 1990, the warbler should not have been listed as endangered, and further cites several studies known to the Service (2014) indicating the species is not in danger of extinction throughout all or any significant portion of its range and requests that the warbler be removed from the federal endangered species list (Petition, p. 29).

The petition states that recent studies confirm there are more warblers and more warbler habitat than at the time the Service listed the warbler as endangered (p. 18). Much of this argument is based on Mathewson *et al.* (2012, p. 1,123) which employed a spatially-explicit model to estimate the range-wide population of male warblers to be 263,330 and the amount of warbler habitat to be 4,147,123 acres (1,678,281 hectares). The Mathewson *et al.* (2012) study was considered by the Service and discussed in our most recent 5-year review for the warbler, which was completed in 2014 (Service 2014, p. 5). The Mathewson *et al.* (2012, entire) study estimated a range-wide population number of warblers by applying warbler density estimates to the Collier *et al.* (2011, entire) model, which estimated the

probability of warblers occupying given patches of woodland habitats throughout the breeding range of the warbler. Previous estimates of the total adult golden-cheeked warbler population range from 14,950 individuals to 26,978 pairs (Service 2014, p. 5). Previous estimates of potential golden-cheeked warbler breeding habitat range from 326,000 to 4,378,148 acres with differences due primarily to varying definitions of breeding habitat associated with vegetation types and habitat patch size, differing parameters included in habitat models, and remote sensing techniques and data sets (Service 2014, pp. 6–7). We acknowledge that the known potential range is geographically more extensive than when the golden-cheeked warbler was originally listed. However, population estimates are very difficult to determine and threats described in the original listing rule remain and recovery criteria have not been accomplished. This and other pertinent information was evaluated in the 2014 5-year review where we recommended that the species remain listed as in danger of extinction throughout its range (Service 2014, p. 15).

Efforts to model warbler habitat, estimate patch-level occupancy probabilities, and draw inferences about distribution and abundance of warblers across the landscape will ultimately be useful to the Service in planning and implementing recovery actions and conservation measures designed to provide for the continued existence of the warbler (Mathewson *et al.* 2012, p. 1,127). However, the Service does not agree with the petitioner's assertion that the 2015 Texas A&M Survey (Petition, Exhibit 1) "confirms that the warbler is not and never has been endangered in Texas" (Petition, p. 14). The Survey (Petition, Exhibit 1) summarizes information already known to the Service and discussed in the 5-year review (Service, 2014), which represents the best available body of science known to the Service pertaining to the status of the warbler. The Service recognizes that the modeling studies described in the 2015 Texas A&M Survey (Petition, Exhibit 1) do represent the most recent and comprehensive efforts to estimate range-wide warbler habitat and population size to date.

However, these efforts represent new estimates rather than indicators of positive trends in warbler habitat and population size, and thus do not imply recovery. Further, a recent study reported results of a similar modeling effort to infer warbler density from landscape and habitat relationships that performed well at sites with high known densities but tended to overestimate plots with lower known densities (Reidy *et al.* 2016, p. 379) and it is apparent that uncertainty still exists, especially for habitats occupied by warblers at lower-densities. Habitat destruction, fragmentation and degradation remain a real and significant threat to the continued existence of the warbler (Service 2014, pp. 8–10). The Service does plan to apply these and other modeling efforts, in the context of all that is known about the warbler and warbler habitat, to help inform and guide recovery efforts for the warbler now and in the future (Service 2014, p. 16). A recent population modeling study found that movement rates were high among warbler breeding habitat patches, immigration (i.e., natal dispersal) appears to be an important driver of local warbler population dynamics. Because these complex

processes occur on a landscape scale, the authors recommended that future conservation efforts be implemented at a larger spatial extent (Duarte *et al.* 2015 pp. 70–72).

The petition discusses habitat fragmentation generally (pp. 27–28), but fails to articulate whether or not habitat fragmentation is a significant threat to the warbler, instead stating simply that “studies emphasize the importance of large and small patches to sustain the warbler population on its breeding ground”. While we agree that all patches are important because they provide potential habitat for the warbler, we believe that larger more connected habitat patches are especially important for supporting a viable warbler population given that occupancy probability increases with patch size (Collier *et al.* 2010, Figure 4, p. 144). McFarland *et al.* (2012, p. 438) concluded that large patches are important for maintaining high rates of warbler occupancy, small isolated patches have a lower probability of occupancy, and habitat connectivity is especially important in areas where habitat patches are small. A recent study found that significant losses of warbler breeding habitat have occurred over the past decade, warbler habitats are far more likely to be diminished than regenerated, dispersal of juvenile warblers among patches of breeding habitat is essential for maintaining local warbler populations, and concluded that the conservation of large blocks of habitat is especially important for ensuring the long-term viability of the species (Duarte *et al.* 2016, pp. 57–60).

The petition briefly mentions warbler habitat loss from 1992–2001 (p. 27), but does not cite any new studies showing increasing urbanization, habitat loss, and habitat fragmentation within the range of the golden-cheeked warbler. As we describe in the 2014 5-year review, warbler habitat loss and habitat fragmentation are mostly driven by rapid suburban development and human population growth in Travis, Williamson, and Bexar Counties (Service 2014, pp. 8–9). In the warbler breeding range, the human population has increased by nearly 50 percent from 1990 to 2010 (Groce *et al.* 2010, p. 123). Further, population projections from 2010 to 2050 for 35 counties within the warbler breeding range report a 64 percent increase in the human population from 4.7 to 7.8 million, and with the population of Williamson and Hays Counties expected to more than double (Potter and Hoque 2014, entire). The threat of habitat fragmentation is ongoing and is expected to threaten the continued existence of the golden-cheeked warbler into the foreseeable future (Service 2014, p. 9). The petition does not provide any information on these significant threats.

- b. Provide additional comments, if any.

Factor B

2. Does the petitioner claim the entity warrants delisting based on the lack of overutilization for commercial, recreational, scientific, or educational purposes (Factor B)?
 Yes

No

a. If the answer to 2 is no:

Do sources cited in the petition provide substantial information indicating the entity may warrant delisting based on factor B, even though the petitioner does not make this claim?

Yes

No

If yes, indicate for which purpose(s) overutilization is a threat and list citations with page numbers for each purpose. If no, please explain.

Factor B (overutilization) is not specifically discussed in the petition, despite the assertion that none of the statutory factors apply and that the warbler should not be listed (Petition, p. 14). However, the Service does not consider overutilization to be a threat to the warbler (Service 2014, p. 10).

c. Provide additional comments, if any.

Factor C

3. Does the petitioner claim the entity warrants delisting based on the lack of disease or predation (Factor C)?

Yes

No

a. If the answer to 3 is yes:

Which does the petitioner claim is not a threat such that delisting may be warranted? (check all that apply)

Disease

Predation

b. If the answer to 3 is yes:

Do the sources cited in the petition provide substantial information to support the claim?

Yes

No

If yes, indicate which (disease, predation, or both) is a threat and list the citations with page numbers for each. If no, please indicate disease and/or predation and provide an explanation.

The petitioners claim that neither disease nor predation constitutes a significant threat to the continued existence of the warbler and that the warbler should not be listed (Petition, p. 22). Information provided in the petition is refuted by the 2014 5-year review, in which we conclude that multiple factors such as urbanization and fragmentation have likely resulted in increased rates of predation of warbler

nests by a wide variety of animal predators (Service 2014, p. 11), especially rat snakes (*Elaphe spp*). This increase in nest predation by rat snakes has been proposed as a proximate explanation for the observed negative effects of forest edge on warbler nest survival and productivity (Peak and Thompson 2014, p. 554–557).

No diseases in golden-cheeked warblers have been reported; therefore, we do not consider disease to be a threat to this species (Service 2014, p. 11). However, nest parasitism and nest depredation, both of which occur to a varying degree across the range of the warbler, are exacerbated by habitat fragmentation and are considered a moderate threat (Service 2014, p. 11). The petition does not provide any new information indicating that predation is no longer a threat to the warbler.

- c. If the answer to 3 is no:

Do sources cited in the petition provide substantial information indicating the entity may warrant delisting based on factor C, even though the petitioner does not make this claim?

Yes

No

If yes, indicate which (disease, predation, both) is a threat and list citations with page numbers for each. If no, please explain.

- d. Provide additional comments, if any.

Factor D

4. Does the petitioner claim the entity warrants delisting because existing regulatory mechanisms (Factor D) are adequate?

Yes

No

- a. If the answer to 4 is yes:

Do the sources cited in the petition provide substantial information to support the claim?

Yes

No

If yes, list the citations with page numbers. If no, please explain.

The petition asserts that, even with protections of the Act removed, the warbler will be protected by existing regulatory mechanisms including: the Migratory Bird Treaty Act of 1918, and the 1975 Texas Endangered Species law (pp. 22–25). However, as discussed in the 2014 5-year review, while these regulations do provide some protections for the birds neither “prohibits habitat destruction, which is an immediate threat to the warbler” (Service 2014, p. 12).

The petition also claims that warbler habitat is protected by the Balcones Canyonlands National Wildlife Refuge, the Balcones Canyonlands Preserve, and approximately 160 habitat conservation plans (HCPs). While we did not consider these long-term land protections as “existing regulatory mechanisms” under Factor D in the 5-year review, we did consider these land protection efforts under Factor A (Service 2014, p. 10). Many but not all of these protected lands are managed for the warbler and there have been important strides in regional planning in central Texas that include the county-wide HCPs that occur along the I-35 corridor from Williamson County to Bexar County. Despite these land protections and regional HCPs, an estimated 29 percent of existing breeding season habitat was lost between 1999–2001 and 2010–2011 (Duarte *et al.* 2013, p. 7) indicating that, but for protections of the Act, adequate regulatory mechanisms do not exist to prevent continued destruction of warbler breeding habitat in Texas. Given the projected population growth, the loss of warbler habitat is expected to continue.

- b. If the answer to 4 is no:
Do sources cited in the petition provide substantial information indicating the entity may warrant delisting based on Factor D, even though the petitioner does not make this claim?

Yes

No

If yes, list citations with page numbers. If no, please explain.

- c. Provide additional comments, if any.

The petition (p. 25) seems to confuse the Balcones Canyonlands National Wildlife Refuge, which is an approximately 24,000-acre Federal land unit of which 19,079 acres are actively managed for the warbler (Service 2015 p. 40), with the Balcones Canyonlands Preserve (BCP), which is a system of preserves managed under a regional Habitat Conservation Plan by the City of Austin and Travis County (Texas) to benefit multiple species including the warbler as well as several species of karst invertebrates. To date the BCP has protected 30,540 acres of golden-cheeked warbler and black-capped vireo habitat (Travis County-City of Austin 2014, p. 1).

Factor E

2. Does the petitioner claim the entity warrants delisting based on the lack of other natural or manmade factors affecting its continued existence (Factor E)?

Yes

No

- a. If the answer to 5 is yes:
Identify the other natural or manmade factors claimed by the petitioner to not be a threat such that delisting may be warranted.

- Habitat fragmentation (Petition, pp. 27–28)
- Habitat degradation (Petition, pp. 28–29)
- Forest management practices (Petition, p. 29)
- Noise (Petition, p. 29)

b. If the answer to 5 is yes:

Do the sources cited in the petition provide substantial information to support the claim?

Yes

No

If yes, indicate for which other natural or manmade factors (e.g., climate change, road mortality, or small population dynamics) are a threat and list the citations with page numbers for each factor. If no, please indicate for which factor(s) and explain.

The Service maintains that habitat fragmentation, habitat degradation, inappropriate habitat management practices, and excessive noise all contribute to reductions in overall warbler habitat quantity and quality and present a real and significant threat to the long term viability of the species (Service 2014, p. 15). We analyzed the threats of habitat fragmentation, habitat degradation, and poor forest management practices in our 2014 5-year review. Specifically, we described how the quality of habitat for warblers is reduced by small patch sizes, reduced oak recruitment, and unsustainable forestry practices (Service 2014, p. 9). The petition addresses some of these threats by describing research on warbler habitat quality that has resulted in some conflicting conclusions about the effects of oak wilt (described below), wildfire, vegetation management, road and construction noise, and patch size on warbler reproductive success (Petition, p. 28). While we agree that there is some uncertainty regarding the magnitude of threats these activities present to warbler habitat quality (and thus, warbler reproductive success and survival), the research cited in the petition does not allow us to conclude that oak wilt, wildfire, vegetation management, and patch size are not threats to the species.

Oak wilt is a fungal infection that can affect all oak species, especially red and live oaks, frequently occurs in warbler habitat, and has the potential to negatively affect warblers and their habitat (Stewart *et al.* 2014, entire).

Wildfire is known to be an important process for maintaining oak-dominated ecosystems throughout eastern North America (Brose *et al.* 2014, entire). However, catastrophic wildfires have the potential to significantly diminish occupancy by warblers in previously occupied habitat, and that effect can last for over a decade (Reemts and Hansen 2008, p. 8).

Vegetation management designed specifically to benefit warblers and warbler habitat is encouraged by state and federal agencies (Campbell 1995, pp. 23–27). However, inappropriate conversion of potential warbler habitat to other vegetation

types for agricultural and other practices remains a threat to the species. A recent study found that warbler breeding habitats, once lost, were not likely to be restored (Duarte *et al.* 2016, p. 56.)

The petition cites two studies conducted in 2012, which found no effect of noise disturbance on golden-cheeked warbler abundance, survival, or reproduction. While the literature on other songbird species has demonstrated profound behavioral responses to manmade noise pollution (Ortega 2012, entire), we currently have no evidence that noise pollution is affecting golden-cheeked warbler populations. Because the findings of these studies were not significant, noise from roads and construction was not discussed as a potential threat in our 2014 5-year review. We still do not consider noise to be a significant threat above and beyond the observed negative effects of edge on warbler occupancy and productivity.

Patch size is an important aspect of warbler habitat in that nest survival decreases as forest edge increases (Peak 2007, pp. 7–8) and “with an overall shift to smaller and more fragmented patches within the northern portions of the range, the probability of warbler occurrence declines significantly, even for large patches of woodland habitats” (Collier *et al.* 2011, p. 7). The combined effects of reduced patch size and increased forest edge on warbler reproductive success was recently evaluated by Peak and Thompson (2014) who demonstrated a negative relationship between forest edge density and period nest survival (p. 554). Nest depredation is one causal factor that may help explain this phenomenon. Fragmentation of woodland habitats resulting in reduced patch size and increased forest edge continues to be a threat to the warbler.

There are additional threats that we evaluated and identified in the 2014 5-year review, such as the potential consequences of climate change (that is, increased risk of catastrophic wildfire and range shifts or restrictions; Service 2014, pp. 12–14). Additionally, the 5-year review noted that recreation was a threat to the warbler (Service 2014, p. 14). The petition did not present any information to address these threats.

- c. Provide additional comments, if any.

Cumulative Effects

6. Does the petitioner claim that factors they have identified may have synergistic or cumulative effects such that the entity may warrant delisting?

Yes

No

- a. If the answer to 6 is yes:

Do the sources cited in the petition provide substantial information to support the claim?

Yes

No

If yes, indicate which factors the petitioner claims may have synergistic or cumulative effects and list the citations with page numbers. If no, please indicate which threats and explain.

Cumulative effects are not discussed in either the petition or the Service's 2014 5-year review.

- b. Provide additional comments, if any.

Petition Finding

The petition provided information indicating that the population was larger than estimated at the time of listing and that threats considered at the time of listing were no longer threatening the species. A 5-year review for the golden-cheeked warbler was completed on August 26, 2014, in which we recommended that the current classification as endangered should not change. The petition does not present substantial information not previously addressed in the 2014 5-year review for this species and does not offer any substantial information indicating that the petitioned action to delist the species may be warranted. We acknowledge that the known potential range is more extensive than when the golden-cheeked warbler was originally listed. However, threats of habitat loss and habitat fragmentation are ongoing and expected to impact the continued existence of the warbler in the foreseeable future. This and other pertinent information was evaluated in the 2014 5-year review.

No new information is presented that would suggest that the species was originally listed due to an error in information. The golden-cheeked warbler is a taxonomically unique species and was shown to be in danger of extinction at the time of the listing. The golden-cheeked warbler has not been recovered, and due to ongoing wide-spread destruction of its habitat, the species continues to be in danger of extinction throughout its range (Service 2014, p. 15).

Based on our review of the petition, sources cited in the petition, and information in our files, we find that the petition does not provide substantial scientific or commercial information indicating that the petitioned action may be warranted.

Author

The primary authors of this notice are the staff members of the Austin Ecological Services Field Office, U.S. Fish and Wildlife Service.

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Date: 5/25/16

A handwritten signature in black ink, appearing to read "Joseph J. ...", is written over a horizontal line.

Director
U.S. Fish and Wildlife Service

References

See enclosed

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