Cerulean Warbler 12-Month Finding Questions and Answers

The U.S. Fish and Wildlife Service was petitioned on October 31, 2000 by the Southern Environmental Law Center and 27 other organizations to list the cerulean warbler as threatened and to designate critical habitat. During October 2002 the Service made a preliminary (90-day) finding that the petition contained enough information to indicate that listing the cerulean warbler may be warranted. The Service then conducted a thorough review and analysis of available information and has made a finding that listing the cerulean warbler as threatened under the Endangered Species Act is not warranted.

1. What is the cerulean warbler?

The cerulean warbler (*Dendroica cerulea*) is a small, migratory bird that is named for the blue color of the male. It eats mostly insects and feeds in the middle and upper branches of tall trees. The cerulean is found in woodlands of the eastern United States in uplands, wetlands, and on mountainsides - but almost always associated with mature forests with canopy gaps and complex canopy structure, and often with very large, tall trees.

The cerulean warbler's summer range extends eastward from the Great Plains in eastern North and South Dakota, Nebraska, Kansas, and Oklahoma; south to Arkansas, Mississippi, Tennessee, northern Alabama and Georgia, and South Carolina; north to Massachusetts, southern Quebec, southeastern Ontario, Michigan, Wisconsin, and central Minnesota. Within this range their core breeding area is in eastern Tennessee, eastern Kentucky, southern and western West Virginia, southeastern Ohio, and southwestern Pennsylvania.

Cerulean warblers migrate to South America. During migration, they pass through the southern United States, flying across the Gulf of Mexico to the highlands of Central America and on to South America. They winter in broad-leaved evergreen forests within a narrow band of middle elevations (1,600 to 6,000 ft.) in the Andes Mountains of northern South America from Columbia to Peru and Venezuela.

2. Why are we concerned about the cerulean warbler?

Breeding Bird Survey data indicate that the cerulean warbler population has been declining since the Survey first began in 1966. The Breeding Bird Survey (BBS) is a long-term, large-scale, international bird monitoring program that tracks the status and trends of North American bird populations.

A published analysis of BBS data indicates that range-wide, cerulean warblers have declined at about 3 percent per year from 1966-2000. A more recent, but unpublished, analysis of the BBS data for the years 1966-2005 indicates a similar trend. Thus, available data indicate that the cerulean warbler population has been declining at about 3 percent per year for the last 40 years. That trend has not changed during the more recent period, including within the Appalachian core region (which supports about 80 percent of the breeding population).

For a detailed discussion of the cerulean warbler population trend based on the Breeding Bird Survey (and associated references) please see the **Population Size and Trends** section of the 12-month finding.

3. How is the Breeding Bird Survey conducted?

Since its inception in 1966, the North American Breeding Bird Survey (BBS) is the primary data source for estimating population trends of more than 400 species of birds that breed in North America. Over 4,000 BBS survey routes are distributed along secondary roads across the United States and southern Canada in a stratified random design. Each year, volunteer observers count birds along these routes, following standardized protocols. Surveys are conducted at about the same time each year, which is typically during the first half of June in most locations. Each survey route consists of 50 stops spaced 0.5 mile apart. Observers count all the birds seen and heard within 0.25 mile of each stop location during a three-minute period. The sum of the counts for each species over the 50 stops is used as an index of relative abundance for that route.

4. How many cerulean warblers are there?

Although the BBS was designed to estimate trends (changes in population) and not actual abundance (population size) of birds, Partners in Flight used BBS data to estimate a global population size. Their estimate of the cerulean warbler population was 560,000 individuals based on an average of counts made on BBS routes during the period of 1990-1999; it can be thought of as an estimate for the year 1995 (the mid-point of the time period). This estimate was thought to be accurate by plus or minus 50 percent, or in round numbers between 300,000 and 900,000 birds. Using the population trend of -3 percent annually since 1995 (discussed in the previous question), the 2006 abundance would be approximately 400,000 birds.

The Partners in Flight method uses BBS relative abundance data along with several assumptions and correction factors to calculate an estimated population size. The method is based on the idea that at each stop on a BBS route an observer is recording birds within 1300 ft. of that stop. Thus, the observer is effectively sampling an area equal to a circle with a 1300 ft radius. Over the 50 stops on a BBS route, this adds up to a sampling area of 9.7 mi^2. After making some assumptions regarding BBS routes adequately representing habitats across large landscapes and assumptions about the detectability of birds, the average number of birds counted on BBS routes within a particular region can be extrapolated across that region to calculate an estimated population size.

For a detailed discussion of Partners in Flight cerulean warbler population estimate (and associated references) please see the ***Population Size Estimate Based on the Partners in Flight Method*** section of the 12-month finding.

5. What is causing the cerulean warbler population to decline?

Scientists are not certain, but many believe the decline is due to the loss of habitat and poor quality in much of the remaining habitat.

Cerulean warblers are a forest species that breeds in the eastern U.S. and Canada and migrates to South America. Forests that cerulean warblers use (for breeding, migration, and over-wintering) have been cleared for other uses, and the quality of some remaining forests has declined because of management and fragmentation.

Across the cerulean's breeding range, over 50 percent of the original forest has been cleared for cities, suburbs, farms, and roads. Most of that clearing happened before 1900. Since then, the percentage of forested area has remained relatively constant with a slow rate of loss, but the quality of those lands is often not suitable for ceruleans. Small wooded tracts, particularly in areas where the landscape is predominately cleared, are either not used by ceruleans or the rate of predation and nest parasitism may be so high that few young are produced. Management of larger forested tracts often removes habitat features that ceruleans need, like mature trees and a complex canopy structure. Additionally, mountaintop removal mining, a method of mining coal by removing the tops of mountains and placing the overburden in stream valleys, destroys large acreages of suitable breeding habitat. The highest density of ceruleans is found in the coal-mining region where mountaintop removal mining is practiced.

We know little about the migratory habitat needs of ceruleans as they fly to and from the United States and South America. We do know that much of the forest along the migration route has been cleared. We also know that as they migrate back and forth across the Gulf of Mexico, they need cover along the coastlines for resting and foraging. Forests and woodlots near the coasts have been lost due to development and coastal erosion, so many former forests and woodlots no longer exist.

On their wintering grounds in South America, over 60 percent of all potential cerulean warbler forested habitat has been cleared and converted to other land uses. Most of the loss of tropical forests in the Northern Andes occurred within the later half of the 1900s. Although the rate of clearing has slowed, shade-grown coffee plantations, which ceruleans use, are being converted to sun-grown coffee.

6. Why are we publishing a 12-month finding?

Under the Endangered Species Act, anyone can petition the Service to list a species. On October 31, 2000, the Service received a petition to list the cerulean warbler as threatened and to designate critical habitat. The petition was sent by the Southern Environmental Law Center representing 28 organizations. The petition noted a rangewide decline of cerulean warbler populations of about 70 percent since 1966. The petitioners contended that the most immediate threat to the species is the loss of habitat, including fragmentation of its woodland breeding habitat due to logging, lack of mature forests and floodplain forests, and loss of winter habitat in South America.

On October 23, 2002, the Service made a 90-day finding that the petition contained information indicating there may be a need to list the cerulean warbler.

After the 90-day finding, the next step in the petition process is a thorough status review and a subsequent finding as to whether a listing is or is not warranted. The finding should be made within 12 months after the petition is received and is thus called a "12-month finding."

7. The petition was received in October 2000 and the 90-day finding was made in November 2002. Why has it taken so long to make the 12-month finding?

Due to budget shortfalls after 2002, the Service could not fund additional work on the petition until late in 2005. Since then we have analyzed the comments received after the 2002 finding and reviewed new published and unpublished reports and data on the species and factors affecting its habitat. After reviewing the available reports and data, we brought together a panel of cerulean warbler experts to provide additional insight into the current status and trends.

8. What information did the Service use to make the 12-month finding?

The references that the Service reviewed and analyzed to make the finding are listed in a separate document that is available on our website at http://www.fws.gov/midwest/eco_serv/soc/birds/cerw/cerw_find.html. Those references provided information on cerulean warbler life history, habitat use, population dynamics, dispersal mechanisms, population trends, and population size.

Due to data gaps, the Service did not conduct a "population viability analysis" to project extinction risks. Instead, the Service convened a panel to conduct a future risk assessment for the species. Panel members included cerulean warbler experts, quantitative and general ornithologists, and experts in land use. The Risk Assessment was conducted at a workshop on June 12, 13, and 14, 2006. Consensus was not sought, instead, panelist discussions focused on fully probing and understanding the basis for differences of individual expert opinion or interpretation. Panelists did not discuss or recommend management decisions related to the Endangered Species Act. The key topics of discussion were:

1) historical population size and trend
2) future population trend
3) factors causing the population trend
4) appropriate population goals
5) conservation actions to achieve desired population goals.

The future population trend and population size information were key factors in the Service's decision that listing the cerulean warbler as threatened is not warranted. Proceedings from the workshop are on our website at http://www.fws.gov/midwest/eco_serv/soc/birds/cerw/index.html.

9. If the cerulean warbler population is in a steady decline, why did the Service find that listing the species as threatened is not warranted?

The Endangered Species Act defines an "endangered species" as a plant or animal in danger of extinction in all or a significant portion of its range and a "threatened species" as a plant or animal likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Although the cerulean warbler population has been declining for at least 40 years and is expected to continue to decline, projections derived from the BBS data indicate effectively no chance for this species to become extinct in the next 100 years unless conditions change beyond what we can anticipate. Therefore, we do not believe this species is likely to become endangered within

the foreseeable future. With the current rate of decline a population size within the magnitude of tens of thousands would still be present in 100 years.

Even though we have made a finding that listing is not warranted, the Service recognizes that continued research and conservation are needed to stop the cerulean warbler population decline. Therefore, the Service is committed to working with partners to conserve cerulean warblers.

10. What steps are being taken to benefit cerulean warblers?

- The Cerulean Warbler Technical Group was formed in 2001 to develop a broad-based, scientifically sound approach to cerulean warbler conservation. The Group includes private, state, and federal natural resource managers and species experts. Two workshops have been conducted and subgroups formed to develop monitoring, research, and conservation strategies. Accomplishments to date include:

  The **Breeding Season Research Group** identified range-wide research priorities and designed a research experiment to test cerulean warbler response to commonly applied forest management practices, replicated at five study areas across the core of the breeding range.

  Priorities for the **Breeding Season Surveys and Monitoring Group** are to more completely map cerulean warbler distribution, to improve regional and global estimates of population size and trend, and to integrate inventory and monitoring efforts with predictive modeling. Successes include bringing together major forest-products companies in the mid-Appalachians in partnership to evaluate cerulean warbler status on up to 250,000 acres of habitat that have not previously been surveyed.

  The **Breeding Season Conservation Group** is developing goals for long-term sustainability of cerulean warblers and developing habitat conservation and management recommendations that can be incorporated into management plans for public and private forestlands. A direct outcome has been the formation of the Appalachian Mountains Bird Conservation Initiative (under the Atlantic Coast Joint Venture), a partnership organized to facilitate effective proactive conservation for ceruleans and ecologically related species.

  The Non-Breeding Season Group, ***El Grupo Cerúleo***, promotes multispecies habitat conservation on the wintering grounds. The *El Grupo Cerúleo* compiled a database of documented observations of cerulean warblers, assessed non-breeding threats and conservation coverage, identified opportunities for outreach and education to communicate awareness of migratory bird issues, and (via the USDA Forest Service and The Nature Conservancy) provided funding for South American biologists to conduct new research on Cerulean Warblers in winter 2003-2004 through 2005-2006.

- The Cerulean Warbler Technical Group is moving forward on the premise that the most successful conservation effort will bring together broad partnerships. To that end, the Cerulean Warbler Technical Group Steering Committee conducted two separate one-day meetings with forest and coal industry biologists and managers in March 2006 in Charlestown, West Virginia. The purpose for those meeting was to begin discussions on cooperative efforts to broaden cerulean warbler conservation management. Both

meetings explored the constraints and potential options for cerulean warbler conservation in the Appalachians and establishing a foundation for a broader conservation partnership summit in late 2006 that will focus on actions.

- The Service's Migratory Birds program is preparing a Cerulean Warbler Focal Species Strategy. To prepare the Strategy the Service is compiling comprehensive management/conservation documents into an action plan that will include monitoring, research, assessment, habitat and population management, and outreach to accomplish: 1) desired status; 2) a clear statement of the responsibilities for actions within and outside the Migratory Bird Program; 3) a focus of Service resources on implementing those actions; and 4) communications to solicit support and cooperation for partners inside and outside the Service.

  The Service's Migratory Bird Program consulted cerulean warbler experts and other partners to identify the future desired status and priority conservation measures for the focal species strategy. The Cerulean Warbler Focal Species Strategy will provide an important "blueprint" for use by federal and state agencies, conservation organizations, researchers, corporations, private landowners, groups like the Cerulean Warbler Technical Group, and other bird conservation programs such as the Important Bird Areas in implementing conservation actions.

- Trial timber harvest techniques intended to benefit cerulean warblers are being evaluated on several national forests in the Southeast. We believe these techniques have greater potential to create and restore habitat much faster than natural succession would allow.

- Bird Life International's Important Bird Areas Program (administered by the National Audubon Society) identifies, monitors, and conserves a global network of sites called Important Bird Areas. These areas provide needed habitat for birds and focus conservation efforts at the sites. The identification and inventory of Important Bird Areas has been an effective way to prioritize conservation efforts. Important Bird Areas are key sites for conservation – small enough to be conserved in their entirety and often already part of a conservation-area network. There are 112 Important Bird Areas in the United States and 2 in the Canadian Province of Ontario that support cerulean warblers. Several of these Important Bird Areas have core cerulean warbler populations and breeding habitat. Within cerulean wintering range, there are 30 Important Bird Areas that support the species. In 2005, Fundacion Aves and the American Bird Conservancy were successful in securing a 500-acre reserve of Andean subtropical forest in the Rio Chucurí basin of Santander, Colombia (within the Serrania de los Yariguies Important Bird Area) to protect wintering habitat for cerulean warbler.

- The State Wildlife Grants Program provides federal funds to every state and territory for developing and carrying out programs to benefit wildlife and their habitat. A primary focus of the State Wildlife Grants Program is conserving rare or declining wildlife species to prevent those species from becoming endangered in the future. To be eligible for State Wildlife Grants, states and territories were required to submit to the Service by October 1, 2005, a Comprehensive Wildlife Conservation Plan. Of the 33 states within the range of cerulean warbler, 23 identified the cerulean warbler as a Species of Greatest Conservation Need. In

addition, nine of these states identified priority conservation and management objectives and actions for the cerulean. Those actions include monitoring populations, managing forests to provide high quality nesting habitat, implementing measures to maintain appropriate habitat patch size and reduce forest fragmentation, and collaborating with others to conserve the species wintering habitat in South America.

11. What are the research needs for the cerulean warbler?

There are two areas of research where information is particularly lacking. The first is ecological information about females and juveniles. We do not know what habitat features females need during nesting and brood-rearing nor the habitat features juveniles need. We do not know the primary causes of juvenile mortality and we are not sure what mechanisms ceruleans use for dispersal. This information is needed to adequately manage forested lands within the breeding range and to ensure that suitable habitat is populated.

Habitat use and availability during migration and winter is the second area where we particularly lack information. Little is known about habitat characteristics that are optimal for ceruleans as they migrate and on their wintering grounds. We also have limited knowledge about threats to habitats that ceruleans use during the non-breeding seasons.

12. How do I get more information about cerulean warblers and the Service's 12-month finding?

Additional information about cerulean warblers and ongoing conservation can be found on our website at http://www.fws.gov/midwest/eco_serv/soc/birds/cerw/index.html. Information specifically about the 12-month finding is on our website at http://www.fws.gov/midwest/eco_serv/soc/birds/cerw/cerw_find.html.