
Saving a Rare Songbird

THE CONSERVATION PLAN FOR BICKNELL'S THRUSH IN THE GREATER ANTILLES

Each spring, across a small section of North America, dawn comes with an event witnessed nowhere else on Earth. It happens in a zone of mountainous and coastal forest sites scattered across southeastern Canada and the northeastern United States. As the day begins, these forests come alive with the swirling song of the Bicknell's Thrush. Arriving after a 2,000-kilometer migration from wintering grounds in the Greater Antilles, the thrushes will breed and raise young in these forests, not far removed from population centers with millions of people. Only four months later, they will depart and migrate south before the onset of winter. With each journey, north or south, Bicknell's Thrush flies toward an uncertain future.

Already a rare songbird, Bicknell's Thrush now faces threats at nearly every stage of its life. In response, a coalition of scientists, natural resource managers and conservation planners, forming the International Bicknell's Thrush Conservation Group (IBTCG), has published an innovative plan of action designed to keep this enigmatic, captivating songbird from becoming endangered. The full report, *A Conservation Action Plan for Bicknell's Thrush (Catharus bicknelli)*, is available at the IBTCG's Web site: www.bicknellsthrush.org. This document summarizes the plan and its initiatives on behalf of Bicknell's Thrush across its wintering grounds in the Greater Antilles. A similar document summarizes initiatives in North America.

Background

With a wingspan of about 30 centimeters, colored in rich brown feathers above with pale undersides and a speckled breast, the Bicknell's Thrush requires specialized habitat. On the breeding grounds it is restricted to a highly fragmented zone of forest sites, dominated by balsam fir, in coastal and mountainous regions of the northeastern U.S. and adjacent Canada. In winter it is limited to the Greater Antilles, with most of the global population occupying mountainous forests of the Dominican Republic. Populations also overwinter in remnant forests of Haiti, Jamaica, Puerto Rico and eastern Cuba. Bicknell's Thrush is scarce and declining over portions of its range. The global population is estimated at between 95,000 and 126,000, small by comparison to other songbirds, positioning Bicknell's Thrush as a species of high conservation concern.



Challenges and Threats

Its small global population and restricted habitat preferences present Bicknell's Thrush with inherent challenges. The species' low overall numbers and clumped distribution may themselves limit the stability of its populations and potential for growth. New research suggests that females are not surviving as well as males, in part because they occupy inferior habitat in winter; this may have profound implications for the songbird's future. But also troubling is that an array of human activities – contributing to habitat loss, pollution and climate change – threatens Bicknell's Thrush. The IBTCG has identified major threats that, combined with the intrinsic limits on the species, raise serious concerns about the future of Bicknell's Thrush.

HABITAT LOSS AND DEGRADATION

- **Subsistence Farming and Logging on Wintering Grounds** – Farming, logging, charcoal production and human-caused fires have contributed to severe habitat loss on Hispaniola and elsewhere in the Greater Antilles, particularly in areas where female thrushes are concentrated. Only 10 percent of the original forest in the Dominican Republic and 2 percent in Haiti remains.
- **Cultural Conflicts** – Feral pigs and free-ranging cattle can cause severe damage to critical forest understory at wintering sites on Hispaniola. Introduced rats are known to kill Bicknell's Thrush on Hispaniola; other introduced predators, such as feral cats, may kill wintering birds.
- **Forestry Practices** – In portions of Canada and northern Maine, where Bicknell's Thrush inhabits forests managed for timber harvests, thinning and clear-cutting could be reducing the suitability and quantity of habitat. Timber operations during the breeding season may directly cause the loss of nests, eggs and young.
- **Commercial Development** – Wind power, telecommunications facilities and recreational skiing development threaten to remove, fragment or alter breeding habitat. Recreational hiking may also disturb nesting birds.

ATMOSPHERIC POLLUTION

- **Mercury Bioaccumulation** – Released into the atmosphere from waste incinerators, coal-burning power plants and industrial smelters, mercury causes developmental problems and reduced survivorship in birds and other wildlife. Researchers have found elevated levels of methylmercury, the element's toxic form, in Bicknell's Thrush tissues sampled at breeding sites and at Greater Antillean wintering sites.
- **Acid Deposition and Calcium Depletion** – Acid deposition depletes calcium from soils in areas of the northeastern U.S. Songbirds breeding in acidified areas may be unable to obtain sufficient high-calcium foods (such as land snails) for eggshell production. Acid rain, mist and fog can also weaken or kill red spruce, which may result in the encroachment of less-favorable trees into Bicknell's Thrush habitat.

CLIMATE CHANGE

- **Increased Precipitation and Storms** – At wintering sites, more frequent storms and erratic weather, a predicted result of climate change, could limit foraging opportunities, reduce roosting cover, destroy lower-altitude habitats or cause direct mortality of overwintering thrushes. During the breeding season, an increase in the frequency of precipitation and wind could cause more nests to fail.
- **Pests, Pathogens and Fires** – Climate change has the potential to cause various other deleterious impacts. These include: an expansion of forest pests and pathogens into high-elevation breeding areas and creation of drier tropical forests, which could result in fires that damage wintering habitat.
- **Rising Temperatures and Forest Conversion** – Warmer growing seasons could gradually push the thrush's breeding zone to progressively higher, smaller and more isolated mountain patches. By the end of this century, summer temperatures are projected to increase enough to potentially eliminate nearly all balsam fir habitat in the U.S. and possibly Canada, which could result in a dramatic reduction in Bicknell's Thrush breeding habitat.

A Conservation Plan for Bicknell's Thrush

Declining populations and steep rates of winter habitat loss warrant a new conservation initiative for Bicknell's Thrush. The IBTCG recommends an ambitious course of action with an attainable goal: to increase the global population of Bicknell's Thrush by 25 percent over the next 50 years and to avoid a reduction of the species' breeding distribution. On the Caribbean wintering range, habitat protection and restoration provide the most feasible means to enhance the winter survival of Bicknell's Thrush, in turn increasing its global population. The most effective conservation measures on the breeding grounds are the protection, management or restoration of Bicknell's Thrush breeding habitat, particularly on large tracts of potentially suitable habitat in Maine and Canada.

Bicknell's Thrush Winter Range



Deforestation of Bicknell's Thrush winter habitat.

CONSERVATION STRATEGIES FOR WINTERING HABITAT IN THE GREATER ANTILLES

- Develop explicit strategies to restore areas of degraded forest to conditions suitable for Bicknell's Thrush.
- Secure and distribute funds locally to obtain needed resources for habitat protection (e.g., infrastructure, equipment and local personnel to effectively monitor and enforce protection of habitat).
- Develop economic incentives to foster the conservation of winter habitat, including a system based on carbon, water or other markets (often called Payments for Ecosystems Services) and community-based, sustainable agriculture, such as cacao or shade coffee agro-forestry.
- Expand the Bicknell's Thrush Habitat Protection Fund and solidify a parallel fund on Hispaniola so that each effectively disburses grants to local partners for Bicknell's Thrush winter habitat conservation.
- Strengthen links between North America and the Caribbean by: creating new partnerships and reinforcing current ties among biologists, students, government officials, nongovernmental organizations and community members; recruiting additional IBTCG members from the Caribbean; and regularly holding IBTCG meetings in the Dominican Republic or other Caribbean countries.

- Establish protocols to monitor the habitat occupancy and population dynamics of Bicknell's Thrush and other species over time; evaluate findings to guide future restoration projects.

CONSERVATION STRATEGIES FOR BREEDING HABITAT IN NORTH AMERICA

- Partner with timber companies and managers of public lands to develop practices that enhance breeding habitat, such as: avoiding or limiting pre-commercial thinning in areas occupied by Bicknell's Thrush, conducting such activities outside the breeding season, and incorporating Best Management Practices into legislation or public land management practices.
- Identify and maintain a target amount of Bicknell's Thrush habitat in commercial forests by encouraging land managers to rotate harvests, creating a mixed distribution of stand ages. Also set flexible targets for each jurisdiction where Bicknell's Thrush breeds on forestry lands in Canada and Maine because each has different management regimes and goals.

Research Actions

Additional research will help realize the most effective actions for reaching the goals of this plan. The IBTCG identifies the following among research priorities during the next five years (2010–2014).

- Clarify winter distribution and habitat use on islands other than Hispaniola.

- Determine how Bicknell's Thrush populations respond to varying habitat conditions on wintering grounds.
- Determine how thrush populations respond to specific forestry practices on the landscape.
- Better assess the effects of climate change and calcium depletion on Bicknell's Thrush.
- Identify important migratory stopover sites, routes and patterns.

Evaluating Accomplishments

The Conservation Action Plan is a living document that provides an adaptive framework to guide Bicknell's Thrush conservation efforts. Evaluation of the plan's success will take two general forms.

- **Mountain Birdwatch 2.0** – An international, volunteer-based program to track Bicknell's Thrush populations across the breeding range will be critical to evaluating progress toward the IBTCG's conservation goals. (Details are summarized at www.vtecostudies.org/MBW/MBW2.html.)
- **IBTCG meetings and Collaboration** – The IBTCG will meet formally at least once per year to track progress on conservation and research actions, discuss funding needs and revise the action plan as appropriate. Every effort will be made to ensure that emerging information is used to inform groups working to conserve Bicknell's Thrush across its range and to strengthen links among these groups.

The International Bicknell's Thrush Conservation Group is an alliance of scientists, natural resource managers and conservation planners advancing the study and conservation of Bicknell's Thrush through sound science and international cooperation.

www.bicknellsthrush.org

