

A brief summary of Bicknell's Thrush work in Canada

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Summary

Bicknell's Thrush is a federally-listed Species of Special Concern and is listed as Vulnerable in Nova Scotia, May-be-at-risk in New Brunswick and Special Concern in Quebec. The federal Status Report needs to be updated and reviewed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 2009. Yves Aubry is leading the Status Report preparation. Bicknell's Thrush may be uplisted (to Threatened or Endangered) in light of declining trends.

Much research in Canada has focused on Bicknell's Thrush habitat use, and in particular the use of industrial forest habitat (regenerating clearcuts and plantations 10-15 years after cutting/planting), and the associated impacts of pre-commercial thinning which occurs at a time which coincides with maximum BITH abundance in stands.

Bicknell's Thrush monitoring in Canada consists of the High Elevation Landbird Program (HELP) in the Maritimes (2002-2007) as well as point count surveys at Mount Gosford, QC (2000-2004, and 2007). The second Maritimes Breeding Bird Atlas (2006-2010) also has the potential to document changes in range in this species.

Wintering-ground research by Canadians has been restricted to Cuba where Bicknell's Thrush have been found only at high elevation sites of the Sierra Maestra by Yves Aubry and team.

Maritimes (NB and NS) highlights

1995-2001 – CWS (Dan Busby lead) surveyed the Maritimes to document locations where BITH was present and to obtain rough estimates of numbers and habitats.

1997-98 Erin Nixon was contracted to write the status report for the Committee on the Status of Endangered Wildlife in Canada. BITH was listed as "Special Concern".

1998 Erin Nixon, working for Canadian Forestry Service, conducted point counts and transects on industrial forest land in NB.

1998 – two Honour's theses were completed with Tony Diamond at UNB by Geoff Clarke and Richard Curran (both spatial analyses of NB habitat).

1999-2001 - Erin Nixon completed her Master's degree with Tony Diamond at UNB on habitat associations in NB industrial forest.

2001-Bird Studies Canada conducted field work in Cape Breton to develop a protocol for monitoring BITH and other high elevation bird species

2002– High Elevation Landbird Program (HELP) began. Protocol was modified in 2003 to mesh with VINS Mountain BirdWatch.

2004-05- Sarah Chisholm conducted her Master's research with Marty Leonard of Dalhousie University on the impact of pre-commercial thinning on abundance of Bicknell's Thrush and other high elevation birds

2005- CWS, with Matt Mahoney, conducted some habitat modelling, based on latitude/elevation model by Lambert et al.

2006 – Rob Gardiner completed Honour's thesis with Matt Evans at Mount Allison University on the long-term effects of pre-commercial thinning on Bicknell's Thrushes and four other high elevation songbirds in the New Brunswick highlands.

2006-2010 – Fieldwork for the second Maritimes Breeding Bird Atlas underway.

2007-08 – Emily McKinnon began Master's thesis with Tony Diamond at UNB on impacts of pre-commercial thinning on breeding biology of BITH. Kevin Fraser began PhD with Tony Diamond at UNB on how wintering habitat impacts breeding condition of BITH. Hubert Askanas began Honour's thesis research with Tony Diamond at UNB on the effect of polygynandrous mating on the immune system of BITH.

2007 – Five year analysis (2002-2007) of HELP data shows declines in the order of 19% per year in both Nova Scotia and New Brunswick, and within two distinct subregions per province as well (Poisson generalized linear model used).

Quebec highlights

(unless otherwise stated, most work in Quebec was conducted by Yves Aubry and collaborators from CWS and Université Laval).

1990s - In Quebec, the first person to investigate the Bicknell's Thrush was the late Henri Ouellet who worked with Gilles Seutin to have the Bicknell's Thrush recognized as a distinct species from Gray-cheeked Thrush.

1999-2000: Veronique Connolly conducted her M.Sc. research with Gilles Seutin and Jean-Pierre L. Savard (CWS), focusing on habitat used during the breeding period.

1997-98: Surveys were conducted at specific sites in southern Quebec by Y. Aubry (CWS) and team. Sites visited were located in the Laurentians, in the Estrie region, and on the Gaspé Peninsula. At the same time, Charlevoix was surveyed and some birds banded.

1999: A banding and radio-telemetry project began at Mine Madeleine (Gaspésie National Park). Intensive work ended in August 2003. Researchers video-monitored activities at nests from 1999 to 2003 and recorded movements of radio tagged birds.

1999: Melanie Ball conducted field work at Mine Madeleine for a Master's thesis on Bicknell's Thrush vocalizations under the supervision of Cindy Staicer, Dalhousie University.

2000: Yves Aubry started Ph.D. research at Laval University (André Desrochers, Director and Gilles Seutin, co-directors). Research topics are summarized here:

Chapter 1: BITH habitat selection and preferences on Mont Gosford in relation to thinned (in 1996 and in 1986) and unthinned forest stands. Estimated home ranges from radio-tracking data and used compositional analysis for this chapter.

Chapter 2. What are the environmental parameters influencing BITH occurrence at the local scale: altitude, height of dominant tree stratum, Swainson's Thrush abundance, slope, slope orientation, habitat composition, and habitat type (thinned and unthinned). Analysis from 2 regions: Gosford (129 point counts per year, 2001-2004) and Gaspé Peninsula. (n>400 point counts, mostly in 2005).

Chapter 3. Is there any genetic/social structure at the nest level (between feeding males and genetic fathers and between them and the mother), at sub local level (multi-nests or sub-sectors of Mount Gosford) and at regional level (Mount Gosford and Mine Madeleine).

2000-2004: Point-count surveys (129 stations; 2000-2004), banding, radio-telemetry, as well as nest video-monitoring were conducted at Mount Gosford.

2005: Extensive surveys were conducted at 389 sites throughout the Gaspé Peninsula. Sites were selected according to altitude (>600 m or <600 if within 15 km of coast) and habitat suitability (Balsam Fir as dominant or co-dominant species of forest stands). BITH was detected at 18 of the 389 sites.

2006: BITH surveys were done in an area north of Baie-Comeau, on the North shore of the St. Lawrence River. The study area was located on the edge of the Laurentian Shield, just south of the Manicougan reservoir. Of the 400 point-counts done, Bicknell's Thrush was recorded from only 2. There are a handful of previous records originating from the North Shore of the St. Lawrence River, where Black Spruce dominates the landscape with Balsam Fir restricted to small dispersed stands.

2007: At Massif du Sud (60 km east of Quebec City), surveys were conducted at 183 sites between May 31 and June 15; 41 were occupied by BITH. This site is targeted by a wind-power development project. The goal is to identify local Bicknell's Thrush concentrations/distribution, habitat used and potential impacts of the windmill project on its habitat and the species itself. At Mont Gosford, the 131 point-counts done in 2000-2004 were repeated to determine whether Bicknell's Thrush abundance and occurrence has changed. Results are pending.

Marc Mazerolle is currently analysing data from Quebec and Maritimes to determine the detectability of BITH.

Cuba highlights

1999 - Yves Aubry initiated surveys in Cuba in 1999 with local collaborators Alejandro Llanes from the Instituto de Ecología y Sistemática and Arturo Kirkconnell from the Museo Nacional de Historia Natural both in La Havana. Many areas were visited throughout the island of Cuba. The Bicknell's Thrush was located only in the high altitude cloud forests of the Sierra Maestra. So far, no bird has been found at low altitude.

References (Theses and publications, no unpublished reports are included in this list)

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Rompré, G., Connolly, V., Aubry, Y., Savard, J.-P.L. and Seutin, G. 2000. Les secrets de la Grive de Bicknell, une espèce vulnérable. *Québec oiseaux*. 4pp.

Critical Limiting Factor

A threat or agent that will likely impede our ability to meet a population goal for Bicknell's Thrush (i.e., will have a large effect on future Bicknell's Thrush trends). In some cases, these limiting factors may be identical with or related to the suspected causes for historical population trends; in other cases, these may be factors which may not have operated in the past but which will likely make it difficult to achieve positive results for BITH in the future (e.g., climate change). Our focus will be on addressing factors that will prevent effective future BITH conservation; we will seek to address historical causes of declines only to the extent that they are likely to affect future conservation actions. For the purposes of this meeting, we are assuming multiple limiting factors and are not necessarily asking for the ONE factor that constitutes the BITH bottleneck. Nonetheless, the term "critical" implies that these threats are important enough that BITH populations are unlikely to remain stable or have a chance to increase if these threats are not ameliorated.

Score Magnitude of the Effect - on the future BITH population trend

- 3 Strong Effect: If the proposed effect were one of the primary effects impacting BITH into the future, it would result in a steeply negative BITH population trend.
- 2 Moderate Effect: If the proposed effect were one of the primary effects impacting BITH, it would result in a moderate decline in BITH population trends.
- 1 Weak Effect: If the proposed effect were one of the primary effects impacting BITH, it would result in a slight or negligible decline in BITH population trends.

Score Level of Certainty - that the proposed cause and effect proposition will

- 3 High Certainty: the group feels there is a high likelihood (e.g., >75% chance) that the causal factor will occur in the future and it will have the proposed effect.
- 2 Moderate Certainty: the group feels there is a modest likelihood (50-75% chance) that the causal factor will occur in the future and it will have the proposed effect.
- 1 Low Certainty: the group feels there is a low likelihood (<50% chance) or unknown likelihood that the causal factor will occur in the future and it will have the proposed effect.

Most Important Action - type of conservation action that is most immediately needed to begin addressing this factor.

Type

- RE RESEARCH - more information is needed to fully understand the significance of the factor and the management actions that will be necessary to ameliorate it
- MO MONITORING - a monitoring program needs to be established or improved in order to track responses of BITH populations to the factor as a means of understanding its magnitude of effect
- MA MANAGEMENT - management activities that can ameliorate the effect of this factor are sufficiently well understood and need to be implemented
- ED EDUCATION - educating either the general public, agency decision makers, or land managers will be a critical component in addressing this factor

