

**Guidance for the Review & Mitigation of Impacts to Bicknell's Thrush Habitat in
Connection with Regulated Projects in Vermont**

Signed: 
Commissioner, Vermont Fish & Wildlife Department

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Vermont Fish & Wildlife Department
Agency of Natural Resources



Introduction

This document provides Vermont Fish and Wildlife Department (VFWD) wildlife biologists guidelines to ensure consistent, objective application of avoidance, minimization, and mitigation measures where Bicknell's Thrush (*Catharus bicknelli*) habitat is threatened from some forms of development. These guidelines are specifically intended for the development of biological opinions in the Section 248 and Act 250 processes and other local, state; and federal regulatory processes that apply to the protection of Bicknell's Thrush habitat in Vermont. Furthermore, these guidelines set forth a decision-making framework by which VFWD determines the level of impact and necessary avoidance, minimization and mitigation/compensation measures that apply to a proposed development's impact on Bicknell's Thrush habitat. These guidelines are intended for use by VFWD biologist when making recommendations to the Public Utility Commission (PUC), Act 250 District Environmental Commissions, and other local, state and federal regulatory decision makers for permit conditions, mitigation agreements, land conservation instruments (e.g., easements), and, if necessary, permit denials.

These guidelines are designed for application on a case-by-case basis to allow for the use of professional judgement and discretion by the VFWD. For example, some impact may be relatively minor and thus, may not require habitat compensation in perpetuity. In some cases, restrictions on operation dates, or habitat protection for a specified period (e.g., for the life of the permit) may be sufficient to mitigate relatively minor impacts to Bicknell's Thrush habitat. These determinations will be made by VFWD and will be based on past precedent and individual circumstances, as well as current species status.

Bicknell's Thrush habitat contributes to the ecological health and diversity of wildlife in Vermont by providing the conditions necessary for numerous species of birds, plants, and other wildlife. Blackpoll Warbler also requires montane spruce-fir habitats in Vermont and is undergoing significant population declines. In addition, other species, including yellow-bellied flycatcher and yellow-rumped warbler, reach their highest breeding densities in these montane habitats. Protection of Bicknell's Thrush habitat now will contribute to reducing the declines of these species, and many more, and thus reduce the need to list montane bird species as Threatened or Endangered overtime.

Section 248 and Act 250 Review Process

In accordance with 30 V.S.A § 248(b)(5), petitioners for a Certificate of Public Good (CPG) are required to demonstrate that the construction and operation of an electric generation, transmission facilities, or natural gas facility will not have "an undue adverse effect on aesthetics, historic sites, air and water purity, the natural environment, the use of natural resources... with due consideration having been given to the criteria specified in 10 V.S.A. §§ 1424a(d) and 6086(a)(1) through (8)." To meet the criteria, a project cannot have an undue adverse effect on rare, threatened, or-endangered species, necessary wildlife habitat, or the natural environment. "Necessary wildlife habitat" is defined as "concentrated" habitat which is identifiable and is demonstrated as being decisive to the survival of a species of wildlife at any period in its life including breeding and migratory periods." 10 V.S.A. § 6001 (12). Under Section 248, the Agency is statutorily required to provide evidence and make recommendations to the Vermont Public Utility Commission (PUC) concerning a project's effect on the natural environment, including its effect on wildlife habitat. In Act 250, a permit will not be granted if any party demonstrates that the project will destroy or significantly imperil necessary wildlife habitat. Under Act 250, the Agency is a party by statute in any proceeding affecting the Agency and may also be called upon by a District Environmental Commission to make recommendations regarding a project's impacts to necessary

wildlife habitat.

The VFWD has a long history of considering Bicknell's Thrush habitat as "necessary wildlife habitat" in Vermont.

Justification

Bicknell's Thrush is classified as a High Priority Species of Greatest Conservation Need in Vermont. It is classified as a Regional Species of Greatest Conservation Need for the Northeast US. And, globally it is classified as Vulnerable to extinction by the International Union for the Conservation of Nature.

Bicknell's Thrush is estimated at fewer than 120,000 individuals worldwide-this is one of the smallest populations of any regularly occurring songbird in North America (Hill and Lloyd 2017). Vermont is estimated to support a population of approximately 292 individuals (Hill and Lloyd 2017). The species is declining across its global range. In the Northeastern United States, Bicknell's Thrush are declining at a rate of approximately 2.41% each year (Hill 2020).

Bicknell's Thrush breed only in the montane conifer forests of the northeastern US and young forests of Atlantic Canada – this is one of the most limited breeding ranges of any bird in North America. Vermont's potential Bicknell's Thrush habitat may be as little as 100,025.79 acres-about 1.6% of Vermont's total area (Hill and Lloyd 2017).

Current threats to the species include degradation and fragmentation of breeding habitat, contamination from materials such as mercury, and loss of wintering ground habitat (Vermont 2015). These ongoing threats will be exacerbated by climate change, which is projected to eliminate as much as half of present Bicknell's Thrush habitat, due to upslope movement of northern hardwood communities, within the next 200 years (Wang et al 2017).

Habitat Definition

Bicknell's Thrush habitat supports successful reproduction, nesting, rearing of young, foraging, shelter, and cover for these birds. Bicknell's Thrush habitat meets the definition of necessary wildlife habitat in that it is a landscape condition that is concentrated and easily identifiable, meaning it can be mapped as a discrete geographic area, and is essential for the reproductive success and survival of this species of high conservation concern.

The Agency defines Bicknell's Thrush habitat for the purposes of this document as:

- Forests of any age/size class composed predominantly of softwood species, and
- Elevation of 2,500 feet or greater

OR

- Anywhere Bicknell's Thrush is present during their breeding season (May 15 -August 1)

Bicknell's Thrush are habitat specialists. They breed only in high-elevation areas of dense young balsam fir, typically less than 15 feet tall, with lesser amounts of red spruce, black spruce, white birch, mountain ash, and other hardwood species (Townsend et al 2020, Hill 2020). In natural conditions, the

dense fir growth required by Bicknell's Thrush is created by harsh weather, wind disturbance, and insect outbreaks in montane spruce-fir forests, which lead to "fir waves," canopy gaps which young trees aggressively fill, and continuously stunted dense krumholtz (Hill 2020; Vermont 2015).

Vegetation along ski slopes and other human alterations can create conditions similar to those of natural habitat. These altered habitats are used by Bicknell's Thrush, where birds appear to have similar behaviors, levels of survival, and home range sizes as those breeding in natural habitats (Rimmer2004). The presence of such dense, altered vegetation along ski slopes and other openings can draw Bicknell's Thrush to lower elevations than they are typically expected to occur.

Sites within the elevations typical for Bicknell's Thrush and composed of montane Spruce-fir natural communities but lacking dense young fir trees are less likely to be used for nesting in their current state. These areas, however, are still considered habitat since any disturbance within them would lead to ideal conditions for Bicknell's Thrush.

[Bicknell's Thrush Breeding Bird Survey](#) [When is a Breeding Bird Survey Necessary?](#)

A Section 248 petition or application should include a breeding bird survey when a proposed project is sited in potential Bicknell's Thrush habitat. Failure to perform a survey and produce it with a petition could result in delayed review or an incomplete petitioner determination from the Agency because the petitioner bears the burden of demonstrating that the project will not have an undue adverse impact on necessary wildlife habitat. Other unique circumstances, as described below, may also warrant the need for a survey. In other words, the burden is on the applicant to demonstrate that the site clearly provides no suitable Bicknell's Thrush habitat. Otherwise, the presumption is that Bicknell's Thrush habitat is potentially present when suitable site characteristics are present.

The Agency encourages Act 250 permit applicants to consult with the VFWD prior to filing an application with a District Environmental Commission if a project is proposed in potential Bicknell's Thrush habitat.

The results of a bird breeding survey should be provided with the Act 250 application if the VFWD determines a survey is necessary during pre-application consultation. The Agency may request a survey be completed and results appended to an Act 250 application prior to the issuance of a permit if a survey has not been filed with the application and the project is sited in potential Bicknell's Thrush habitat. Though the burden of proof under Criterion 8(A) in Act 250 is with parties opposing an application, an applicant must still provide District Environmental Commissions adequate information to make positive findings under Criterion 8(A).

Projects proposed in areas that have either of the following site characteristics will require a breeding bird survey be included as part of a project application:

- The project is proposed in a forested area consisting predominantly of softwood trees, at an elevation of at least 2,500 feet; or
- The project is proposed in a location that has a history of Bicknell's Thrush use as evidenced by the VFWD Natural Heritage Database (available publicly on the ANR Natural Resources Atlas), e-

Bird database, or other reliable sources of bird-related scientific information.

Contact the VFWD if there is any question as to whether a breeding bird survey is necessary.

Conducting a Breeding Bird Survey

Breeding bird surveys must be conducted by a qualified biologist, and with a protocol that is reviewed and approved by the VFWD. Project developers and potential surveyors should note that breeding bird surveys can only be conducted during limited and seasonal time windows—in the case of Bicknell's Thrush, surveys will only be considered reliable when conducted during from late May through the month of June. Surveys may also require multiple visits across that time. Therefore, developers are strongly encouraged to consult with the VFWD early in the project planning process to determine whether a breeding bird survey is necessary and if their proposed survey designs are appropriate. Surveys which are not approved by VFWD due to timing, personnel, or procedures may result in postponing the review of the project.

Survey Report and Determination of Bicknell's Thrush Habitat

Applicants must include completed forms from the Survey Protocol along with a narrative report with their Section 248 or Act 250 project application. The Agency will use the survey results to make its determination as to whether the project has the potential to impact Bicknell's Thrush habitat. In certain instances, the Agency may need to conduct its own survey before making a final determination. The Agency's determination of Bicknell's Thrush habitat will primarily be based upon the habitat conditions and presence of the species during the breeding season.

Assessment of Impacts to Bicknell's Thrush Habitat

The VFWD will consider the following factors in assessing the extent of a project's impact on Bicknell's Thrush habitat:

Direct Impact: Direct impact is measured as the area of Bicknell's Thrush habitat occupied by the project, or project components, which converts forest to another use (e.g., structure, road, trail).

In addition, Bicknell's Thrush do not nest in small forest patches (smaller than 0.25 acre) surrounded by wide openings (larger than 35m), so the creation of such features will be considered a direct impact to the full acreage of the patch, even if the patch remains forested (Rimmer 2004).

Indirect Impact: Indirect impacts to Bicknell's Thrush habitat can be caused by activities that disturb normal bird behavior within Bicknell's Thrush habitat during the breeding season, such as nearby blasting, heavy equipment operation, and helicopter flights.

Human use will be judged for its potential to cause indirect impacts on a case-by-case basis. Routine levels of on-trail recreational use, for example, are unlikely to cause significant impacts. Large events or uncommon uses will be assessed as they arise.

Impact Avoidance Analysis and Mitigation Requirements

The currently practiced stepwise mitigation process utilized by the VFWD for other resources is appropriate for managing impacts to Bicknell's Thrush habitat. Steps 1 and 2 must be demonstrated before moving to step 3.

1. Avoid all direct and indirect impacts to Bicknell's Thrush habitat if possible, through site selection and design of the project. Is an alternate site, either within or outside of the host parcel, available and suitable for the project? If an alternate site is available, then neither direct nor indirect impacts should be allowed. If a suitable alternate site is not available, proceed to Step Two.
2. Minimize unavoidable project impacts to Bicknell's Thrush habitat by adjusting the scope, scale and design of the project.
3. Compensate for unavoidable impacts (Mitigation). Is the project developer willing to provide for mitigation to offset the project's impacts to Bicknell's Thrush habitat? If yes, then apply the below mitigation requirements to establish the appropriate type and amount of mitigation. If no, then impacts, whether direct or indirect, should not be permitted and the Department's recommendation will reflect that position.

Avoidance and Minimization Requirements

Avoid: All clearing, development, and other similar activities with direct habitat impacts. Additionally, operations with potential to cause disturbance to nesting birds (such as helicopter flights or blasting), within 300 feet of Bicknell's Thrush habitat; shall be conducted outside of the Nesting Season (May 15- July 31, inclusive), unless approved by the Fish and Wildlife Department.

Minimize: Unavoidable impacts due to temporary disturbances within the nesting season and in or within 300 feet of suitable habitat shall be reduced to the greatest extent possible. Past examples of minimizing these impacts include the use of long-haul cables on helicopters to prevent impact from rotor-wash on nesting birds; and use of additional matting for noise reduction of blasting.

Where possible, vegetation management should seek to maximize habitat contiguity and minimize fragmentation, for example:

- Maintain clearings (e.g., ski trails) narrower than 114 ft in width
- Increase the size of "islands" or "strips" of trees between clearings
- "Feather" the edges of clearings, allowing young dense fir regeneration to grow along tall trees
- Maintain young fir trees within glade areas

Mitigation Requirements

Compensation for the unavoidable loss of habitat shall be based on a habitat compensation ratio of 2:1 (protected to directly impacted) to conserve habitat of similar or better quality on or near¹ the impact.² This ratio is not punitive, but rather is designed to accomplish the goal of no net loss of Bicknell's Thrush habitat in Vermont.

Such acreage may be secured by a variety of means, including on-site mitigation as a condition of the project permit, a settlement agreement, and an easement. Any such mechanism shall:

- a) include terms and conditions reviewed and approved by VFWD
- b) include a habitat protection and enhancement plan reviewed and approved by the VFWD. Such a plan shall:
 - o specifically protect the Bicknell's Thrush habitat functions for the duration of the project impacts.³
 - o include mechanisms for monitoring implementation and adjustment overtime as necessary to maintain or improve habitat quality
 - o include a plan for alternative mitigation if the creation or protection of habitat is not successful after 10 years
 - o if on-site mitigation is used, the habitat protection and enhancement plan must include all areas of the ownership or lease area previously designated as compensatory mitigation for Bicknell's Thrush habitat lost from prior development projects.

Bicknell's Thrush habitat proposed as mitigation should be of equal or greater quality in accordance with the following standards.

- a) Habitat must be evaluated by, and subject to the prior approval of, the VFWD
- b) Habitat should be located near or adjacent to currently occupied habitat
- c) Habitat should occur at an equal or higher elevation than the impacted area
- d) Habitat should, to the extent possible, be subject to natural disturbance from wind and ice (e.g., west-facing slopes and ridgelines)

¹ Within the same Biophysical region unless otherwise specified by the VFWD.

² The same policy of no net loss of habitat functions and values has been applied by the Department to other forms of necessary wildlife habitat (e.g., bear habitat, wetlands, deer winter habitat). This no net loss policy should govern all aspects of the mitigation process.

³ See "Duration of Compensation" below

Duration of Compensation

Projects without a finite duration, such as residential or commercial development, will be considered to have a permanent impact to Bicknell's Thrush habitat and will be required to provide for compensation in perpetuity to mitigate the project's impacts. Projects with a predetermined and finite duration and are subject to an approved and financially secured decommissioning plan, such as certain energy generation facilities approved by the PUC, will be required to remit compensation for a time period equivalent to the duration of the project's impact on the habitat. Typically, this will be for the life of the project plus the time necessary to restore the impacted habitat to pre-project conditions after the project has been decommissioned.

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