

**ADDENDUM TO RECOVERY PLAN FOR THE BLACK
ASH (*FRAXINUS NIGRA*) IN NOVA SCOTIA –
CORE HABITAT**



Nova Scotia Department of Natural Resources and Renewables

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IDENTIFICATION OF CORE HABITAT

Under the *Nova Scotia Endangered Species Act*, core habitat is defined as “specific areas of habitat essential for the long-term survival and recovery of endangered or threatened species and that are designated as core habitat pursuant to Section 16 or identified in an order made pursuant to Section 18”. A definition for Black ash core habitat is included here using the best available information at the time of writing; however, given the knowledge gaps and anticipated increases in our collective knowledge of this species’ needs in Nova Scotia, this definition should be updated when new information becomes available.

Core Habitat Definition and Attributes

The scattered distribution and poor health of Black ash trees in Nova Scotia together with the vulnerability of wetland habitats to disturbance and development suggest that the designation of core habitat will be an important element in the recovery of this species. Due to these factors, as well as the species’ limited reproductive ability, gaps in knowledge about seed production and viability, and the new and potentially devastating threat of the Emerald ash borer, core habitat has been drawn to include all known occurrences of Black ash and associated habitat with a surrounding buffer to protect habitat and biological values (e.g., wetland hydrology, seed dispersal distances). It should be noted that known occurrences are assumed to represent only a subset of actual occurrences of Black ash in Nova Scotia, as the species is difficult to identify and sites are often inaccessible, leading to incomplete distribution data for the province. Protection of all currently known occurrences is considered necessary to help sustain ecologically functioning stands of Black ash throughout the province.

More specifically, core habitat for Black ash is defined as all known records with a locational uncertainty of 100 m or less, grouped into minimum convex polygons¹ where they are separated by 1 km or less², and polygons buffered by 200 m to account for associated habitat and biological factors (e.g., seed dispersal distances). Resulting polygons are further refined on the basis of suitable / unsuitable habitat (e.g., removal of dry or upland areas with more than 2 m depth to the water table) and then re-buffered by 100 m to protect the integrity of wetland boundaries and account for accuracy of available map layers. A 100 m buffer is a standard for protecting a variety of wetland ecological and habitat values (e.g., Faber-Langendoen et al. 2006; Environmental Law

1 Minimum convex polygons (MCPs) are an accepted, standard method for estimating species ranges, defined as “the smallest polygon in which no internal angle exceeds 180 degrees and which contains all sites of known, inferred and projected occurrence” (IUCN 2021)

2 The 1 km distance is based on NatureServe guidance for determining element occurrences (EOs) for plants, defined as an “area of land and/or water in which a species or natural community is, or was present” (NatureServe 2020).

Institute 2008; Beacon Environmental Ltd. 2012). Element occurrences are also re-buffered by 200 m in the final step, to ensure protection of seed dispersal distances around individual trees. Where occurrences are associated with river floodplains rather than wetlands, polygons are defined by buffering the streamlines of the river along segments where records are separated by 1 km or less and extending 1 km upstream and downstream from the outermost records, with the remainder of the steps being the same (e.g., removal of unsuitable habitat, re-buffering of polygons and records). Delineation of core habitat is considered to be dynamic rather than static and mapping will need to be updated periodically as factors such as population dynamics and location of known occurrences are expected to change over time.

In summary, core habitat for Black ash can be identified based on the following criteria (maps included below):

- Known occurrences, i.e., all known records with locational uncertainty of ≤ 100 m, as identified in the Atlantic Canada Conservation Data Centre biodiversity database (AC CDC 2021) or reported through subsequent fieldwork, grouped into minimum convex polygons where they are separated by ≤ 1 km, OR, where occurrences are associated with rivers, grouped along streamlines where they are separated by ≤ 1 km, and extending 1 km upstream and downstream from the outermost points;
- Minimum convex polygons and river line polygons buffered by 200 m;
- Removal of unsuitable habitat from resulting polygons (i.e., dry/upland areas with > 2 m depth to water table) based on available GIS Wet Area Mapping (WAM) layers (NSDNR 2012), and;
- Polygons re-buffered by 100 m to protect wetland boundaries and account for uncertainty in available map layers, and individual records buffered by 200 m to protect seed dispersal distances around individual trees.

Areas within delineated core habitat polygons that consist of human infrastructure (e.g., roads, buildings, parking lots, etc.), and currently active agricultural lands, are not considered part of core habitat.

Activities Likely to Result in the Destruction of Core Habitat

Destruction of Black ash core habitat would result if part of the habitat was degraded, either permanently or temporarily, such that it would not serve its function when needed by the species. Destruction may result from single or multiple activities at one point in time or from the cumulative effects of one or more activities over time and must be determined on a case by case basis.

Activities likely to result in destruction might occur within the core habitat but might also occur outside of the core habitat. Activities that are likely to result in the destruction of Black ash core habitat include but are not limited to:

- Development activities causing destruction of trees and/or loss or alteration of Black ash habitat including:
 - residential/commercial development
 - recreational/tourism activities
 - agricultural activities
 - oil & gas drilling
 - mining & quarry activities
 - renewable energy development
 - road construction or expansion (e.g., highway twinning)
 - utility and service lines
 - dams & water management
- Forest activities such as logging and wood harvesting
- Any other activities that damage trees or alter associated habitat (e.g., road and trail maintenance, recreational activities, plant collecting, etc.);
- Introduction of invasive or native species that may cause harm to Black ash, including movement of wood containing Emerald ash borer, and;
- Pollution including effects from residential/domestic effluents and agricultural use of fertilizers and pesticides.

Habitat Protection / Ownership

Known records of Black ash in Nova Scotia are widely scattered across the province, in small patches of wetlands and along floodplains and riparian areas. Several of the largest known stands occur on private land with a lesser number on provincial and crown lands, although the scattered nature of Black ash sites and incomplete stand data make it difficult to summarize the true relationship between distribution and land ownership. Some of the most studied stands of Black ash are in and around national parks (e.g., Kejumkujik National Park), provincial parks (e.g., Smiley's Provincial Park) and First Nations reserve lands.

The area identified as core habitat for Black ash in this document consists of approximately: 78% private land; 13% provincial lands including crown, protected areas and other public lands; 5% federal land including national parks and First Nations land holdings; 1% municipal land, and; the remaining 3% with ownership undetermined. A total of about 10% of the area identified is currently protected, in a combination of national parks (4%), provincial parks and protected areas (3%) and private conservation areas (3%).

Maps of identified core habitat for Black ash in Nova Scotia

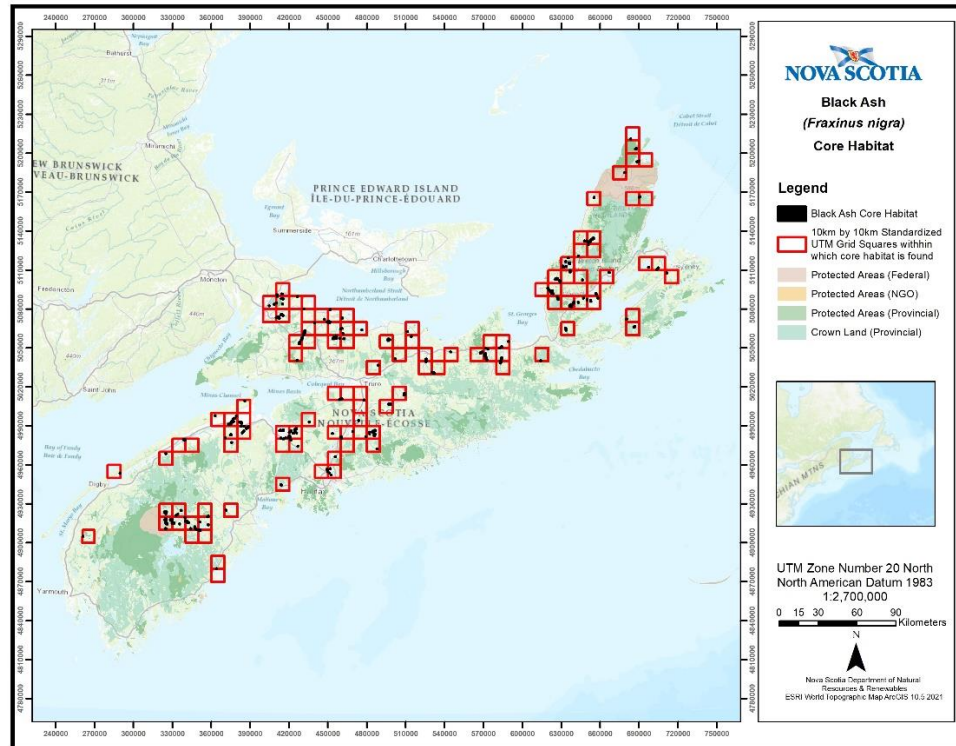


Figure 1. Identified core habitat for Black ash in Nova Scotia.

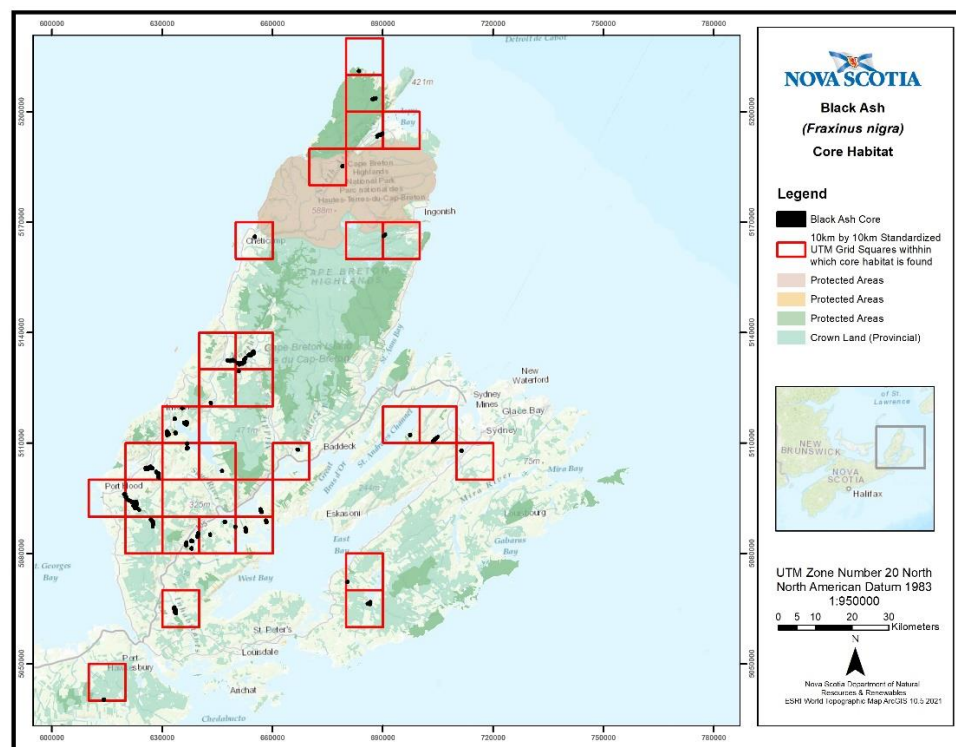


Figure 2. Identified core habitat for Black ash in Eastern region, Nova Scotia.

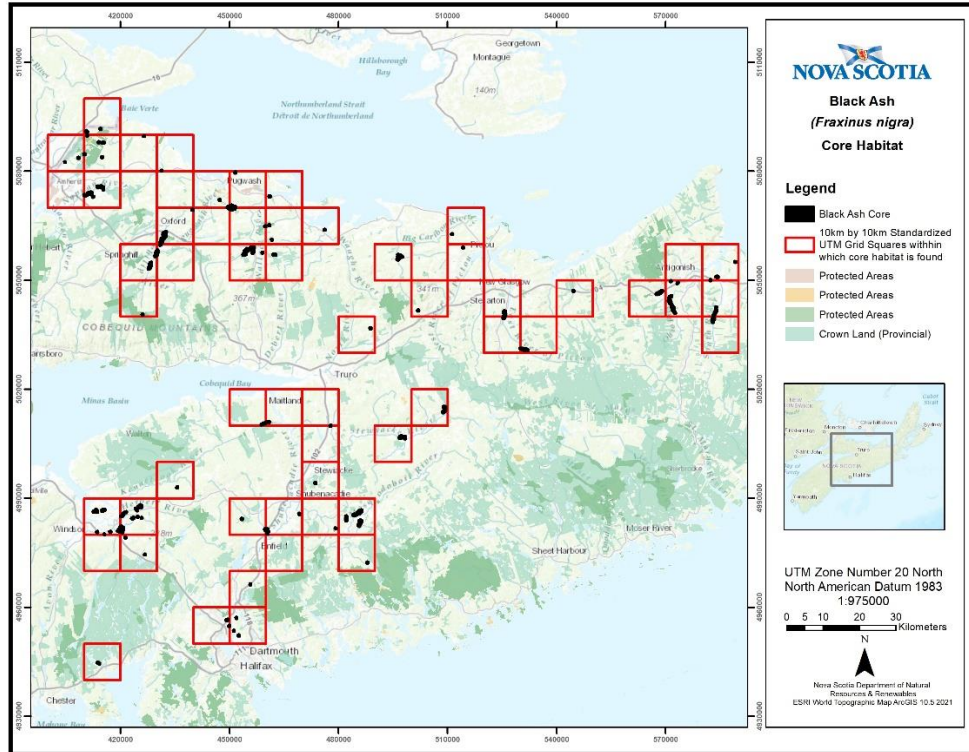


Figure 3. Identified core habitat for Black ash in Central region, Nova Scotia.

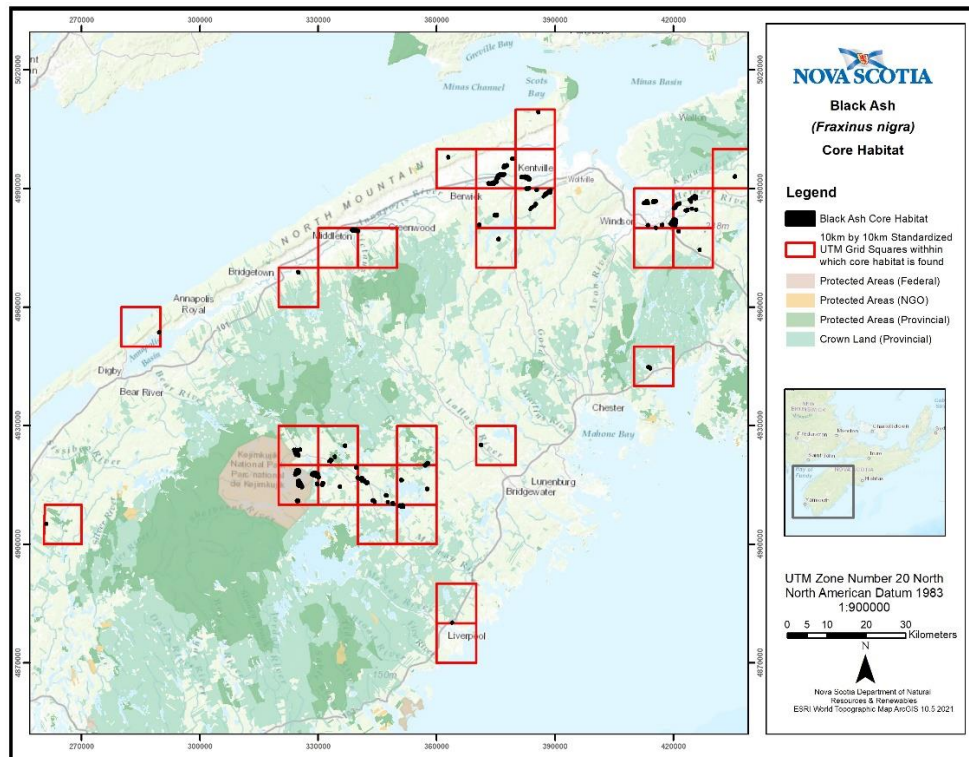


Figure 4. Identified core habitat for Black ash in Western region, Nova Scotia.

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