RECOVERY PLAN FOR THE *CHIMNEY SWIFT (CHAETURA PELAGICA)* IN NOVA SCOTIA

A recovery plan adopted by the Nova Scotia Department of Natural Resources and Renewables

2023 – 2028

Recommended citation:

Nova Scotia Department of Natural Resources and Renewables. 2023. Recovery Plan for the Chimney Swift (*Chaetura pelagica*) in Nova Scotia [Final]. *Nova Scotia Endangered Species Act Recovery Plan Series*.

Cover illustration: Chimney Swift — Photo by Alix d'Entremont

Adoption of a Recovery Plan per Section 15(9) of the Endangered Species Act

Species:

Chimney Swift (*Chaetura pelagica*)

Reference:

Environment and Climate Change Canada. 2022. Recovery Strategy for the Chimney Swift (*Chaetura pelagica*) in Canada [Proposed]. Species at Risk Recovery Strategy Series, Environment and Climate Change Canada, Ottawa, ix + 147 pp.

Whereas a Species at Risk Act Recovery Strategy has been prepared for this species by Environment and Climate Change Canada, and that plan has been reviewed by members of the applicable Nova Scotia Recovery Team and determined to fulfil the requirements of Section 15(4) of the Endangered Species Act as they pertain to Nova Scotia, the above-named recovery strategy shall be adopted in lieu of a Nova Scotia Recovery Plan subject to the following:

Expiry/renewal Date: 5 years

Conditions:

1. Adoption of this recovery plan will be reviewed 5 years from the Date of Adoption.

2. Only elements of this plan that are relevant to Nova Scotia and are in accordance with the Endangered Species Act (Nova Scotia) shall be used.

Environment and Climate Change Canada (2022). Species description (3.1), Species population and distribution (3.2), Needs of the Chimney Swift (3.3), Threat assessment (4.1), Description of threats (4.2), Population and distribution objectives (5), Strategic direction for recovery (6.2), Narrative to support the recovery planning table (6.3), Identification of the species' critical habitat (7.1), Habitat occupancy (7.1.1), Biophysical features and attributes of critical habitat (7.1.2), Application of critical habitat identification criteria (7.1.3), Activities likely to result in the destruction of critical habitat (7.2), Measuring progress (8).

1. The Recovery Team has recommended the following changes to the adopted

recovery plan:

- Given the stability of the Chimney Swift population in Nova Scotia (Figure 1), the Recovery Team has concluded that the short-term objective has been achieved and is therefore, no longer applicable; only the long-term objective has been adopted over the next 10 years.

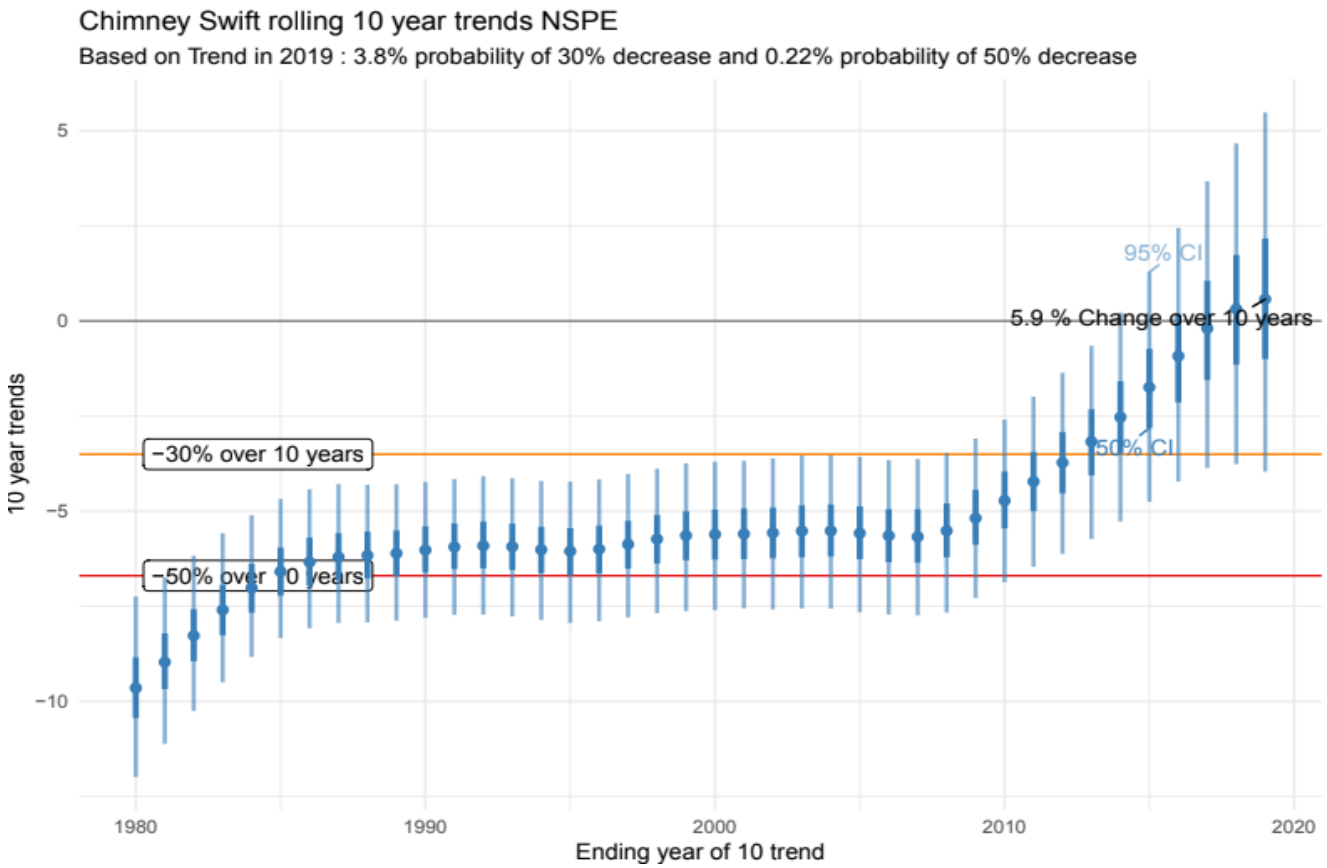

Figure 1. Rolling 10 year trends based upon Breeding Bird Survey (BBS) data for Nova Scotia and Prince Edward Island combined. Source: Smith, A.C., Hudson, M-A.R. Aponte, V.I., and Francis, C.M. 2020. North American Breeding Bird Survey - Canadian Trends Website, Data-version 2019. Environment and Climate Change Canada, Gatineau, Quebec, K1A 0H3

- It is the expert opinion of the Recovery Team that under section 4.1, threat 5.3 Logging and Wood Harvesting should be reassessed as having an impact ranking of “Unknown”, given that the amount and quality of suitable natural nesting and roosting habitat is not well understood, but likely impacted to some degree by this activity. The threat assessment will need to be revised as the transition from anthropogenic to natural habitat occurs over time, but the timeframe for this remains unclear.

- Although Core Habitat has been defined and identified according to the criteria set forth in section 7. Table D-5 of the Recovery Strategy has been updated to reflect new sites and changes in status to existing sites (as of 2022) as follows:

Table 1. List of sites identified as Core Habitat in Nova Scotia.

Grid square ID	Building type	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Description	Land tenure
20TMR36	freestanding, but historically was Industrial building	45.732	-63.869	Duke Street	Oxford		Non-federal
20TNR24	Residential and/or commercial building	45.583	-62.643	Temperance Street	New Glasgow		Non-federal
20TLQ99	Freestanding, but historically was Industrial building	45.092	-64.363	Front Street	Wolfville		Non-federal
20TPS20	Religious building	46.073	-61.394	Mabou Harbour Road	Mabou		Non-federal
20TMQ07	Residential building	44.958	-64.200	Sangster Bridge Road	Falmouth		Non-federal
20TLQ37	Educational building	44.942	-65.072	Gates Avenue	Middleton		Non-federal
20TLQ32	Industrial building	44.417	-65.056	McGowan Lake Road	Caledonia		Non-federal
19TGK32	Religious building	44.401	-66.047	Route 1	Saint Bernard		Non-federal
20TMR72	Office building - Service building	45.364	-63.279	Prince Street	Truro		Non-federal
20TLQ27	Residential building	44.883	-65.166	Main Street	Lawrencetown		Non-federal
20TMR72	Industrial building	45.372	-63.262	Rock Garden Road	Bible Hill		Non-federal
20TKP67	Residential building	44.009	-65.915	Perry Road	Carleton		Non-federal
20TLQ37	Commercial building	44.943	-65.068	Main Street	Middleton		Non-federal
20TLQ89	Office building - Service building	45.077	-64.498	Main Street	Kentville		Non-federal
20TLQ16	Residential building	44.833	-65.295	South Street	Bridgetown		Non-federal
20TLQ54	Agricultural building	44.686	-64.799	Cherryfield Road	Cherryfield		Non-federal
20TLQ54	Agricultural building	44.661	-64.803	Cherryfield Road	Cherryfield		Non-federal
20TLQ65	Agricultural building	44.711	-64.766	East Dalhousie Road	East Dalhousie		Non-federal
20TLQ99	Residential and/or	45.092	-64.350	Main Street	Wolfville		Non-federal

	commercial building						
20TLQ99	Office building - Service building	45.088	-64.371	Earnscliffe Avenue	Wolfville		Non-federal
20TLQ99	Residential and/or commercial building	45.091	-64.351	Main Street	Wolfville		Non-federal
20TNR61	Residential building	45.272	-62.127	Route 348	Smithfield		Non-federal
20TLQ99	Educational building	45.089	-64.367	University Avenue	Wolfville	southwest chimney	Non-federal
20TLQ99	Educational building	45.089	-64.366	Crowell Drive	Wolfville		Non-federal
20TLQ37	Residential building	44.875	-65.146	Carleton Road	Lawrencetown		Non-federal
20TMQ54	Residential building	44.662	-63.556	Maplehurst Drive	Dartmouth		Non-federal
20TLQ05	Residential building	44.684	-65.400	Perotte Road	Annapolis Royal	woodstove flue	Non-federal
20TLP68	Residential building	44.133	-64.633	Port Medway Road	Mill Village		Non-federal
20TLQ14	Agricultural building	44.668	-65.391	Perotte Road	Perotte		Non-federal
20TLP67	Religious building	44.038	-64.717	Main Street	Liverpool		Non-federal
20TLP06	Residential building	43.910	-65.411	Route 203	Middle Ohio		Non-federal
20TLP06	Agricultural building	43.925	-65.404	Route 203	Middle Ohio		Non-federal
20TLP07	Agricultural building	43.980	-65.426	Back Lake Extension Road	Upper Ohio		Non-federal
20TLQ89	Commercial building	45.078	-64.498	Main Street	Kentville		Non-federal
20TLQ89	Residential and/or commercial building	45.078	-64.498	Main Street	Kentville		Non-federal
20TLQ89	Commercial building	45.097	-64.408	Middle Street	Port Williams		Non-federal
20TLQ36	Residential building	44.796	-65.056	Route 10	New Albany		Non-federal
20TLQ89	Commercial building	45.077	-64.493	Main Street	Kentville		Non-federal
20TKP67	Residential building	44.006	-65.925	Highway 203	Carleton		Non-federal
20TLQ16	Residential building	44.840	-65.290	Washington Street	Bridgetown		Non-federal
20TLQ37	Commercial building	44.943	-65.069	Commercial Street	Middleton		Non-federal
20TMQ54	Residential building	44.663	-63.556	Maplehurst Drive	Dartmouth		Non-federal
20TMQ54	Residential building	44.663	-63.556	Maplehurst Drive	Dartmouth		Non-federal

20TLQ16	Artificial roost	44.842	-65.280	Granville Street	Bridgetown		Non-federal
20TLP14	Residential and/or commercial building	43.762	-65.323	Water Street	Shelburne		Non-federal
20TLQ35	Residential building	44.736	-65.035	Highway 10	New Albany		Non-federal
20TMQ54	Commercial building	44.653	-63.586	Cunard Street	Halifax	southwest chimney	Non-federal
20TMQ54	Commercial building	44.653	-63.586	Cunard Street	Halifax	northeast chimney	Non-federal
20TMQ54	Religious building	44.663	-63.597	Kaye Street	Halifax		Non-federal

Approved: **Date:**

Donna Hurlburt, Manager of Biodiversity 2 February 2023

Appendix A:

Environment and Climate Change Canada. 2022. Recovery Strategy for the Chimney Swift (*Chaetura pelagica*) in Canada [Proposed]. Species at Risk Recovery Strategy Series, Environment and Climate Change Canada, Ottawa, ix + 147 pp.

PROPOSED

Species at Risk Act
Recovery Strategy Series

Recovery Strategy for the Chimney Swift (*Chaetura pelagica*) in Canada

Chimney Swift

2022

Government of Canada
Gouvernement du Canada

Canada

Recommended citation:

Environment and Climate Change Canada. 2022. Recovery Strategy for the Chimney Swift (*Chaetura pelagica*) in Canada [Proposed]. *Species at Risk* Recovery Strategy Series, Environment and Climate Change Canada, Ottawa, ix + 147 pp.

Official version

The official version of the recovery documents is the one published in PDF. All hyperlinks were valid as of date of publication.

Non-official version

The non-official version of the recovery documents is published in HTML format and all hyperlinks were valid as of date of publication.

For copies of the recovery strategy, or for additional information on species at risk, including the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Status Reports, residence descriptions, action plans, and other related recovery documents, please visit the Species at Risk (SAR) Public Registry[1].

Cover illustration: Chimney Swift by Serge Beaudette ©

Également disponible en français sous le titre
« Programme de rétablissement du Martinet ramoneur (*Chaetura pelagica*) au Canada [Proposition] »

ISBN
Catalogue no.

[1] www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html

Preface

The federal, provincial, and territorial government signatories under the Accord for the Protection of Species at Risk (1996)[2] agreed to establish complementary legislation and programs that provide for effective protection of species at risk throughout Canada. Under the *Species at Risk Act* (S.C. 2002, c. 29) (SARA), the federal competent ministers are responsible for the preparation of recovery strategies for listed extirpated, endangered, and threatened species and are required to report on progress within five years of the final version of this recovery strategy being posted on the Species at Risk Public Registry.

The Minister of Environment and Climate Change and Minister responsible for the Parks Canada Agency is the competent minister under SARA for the Chimney Swift and has prepared this recovery strategy, as per section 37 of SARA. To the extent possible, the recovery strategy has been prepared in cooperation with the provinces of Saskatchewan, Manitoba, Ontario, Quebec. New Brunswick and Nova Scotia, as per subsection 39(1) of SARA.

Success in the recovery of this species depends on the commitment and cooperation of many different constituencies that will be involved in implementing the directions set out in this strategy and will not be achieved by Environment and Climate Change Canada, the Parks Canada Agency, or any other jurisdiction alone. All Canadians are invited to join in supporting and implementing this strategy for the benefit of the Chimney Swift and Canadian society as a whole.

This recovery strategy will be followed by one or more action plans that will provide information on recovery measures to be taken by Environment and Climate Change Canada, the Parks Canada Agency, or any other jurisdictions and/or organizations involved in the conservation of the species. Implementation of this strategy is subject to appropriations, priorities and budgetary constraints of the participating jurisdictions and organizations.

The recovery strategy sets the strategic direction to arrest or reverse the decline of the species, including identification of critical habitat to the extent possible. It provides all Canadians with information to help take action on species conservation. When critical habitat is identified, either in a recovery strategy or an action plan, SARA requires that critical habitat then be protected.

In the case of critical habitat identified for terrestrial species including migratory birds, SARA requires that critical habitat identified in a federally protected area[3] be described

[2] www.canada.ca/en/environment-climate-change/services/species-risk-act-accord-funding.html#2

[3] These federally protected areas are as follows: a national park of Canada named and described in Schedule 1 to the *Canada National Parks Act*, Rouge National Urban Park established by the *Rouge National Urban Park Act*, a marine protected area under the *Oceans Act*, a migratory bird sanctuary

in the *Canada Gazette* within 90 days after the recovery strategy or action plan that identified the critical habitat is included in the public registry. A prohibition against destruction of critical habitat under subsection 58(1) will apply 90 days after the description of the critical habitat is published in the *Canada Gazette*.

For critical habitat located on other federal lands, the competent minister must either make a statement on existing legal protection or make an order so that the prohibition against destruction of critical habitat applies.

If the critical habitat for a migratory bird is not within a federal protected area and is not on federal land, within the exclusive economic zone or on the continental shelf of Canada, the prohibition against destruction can only apply to those portions of the critical habitat that are habitat to which the *Migratory Birds Convention Act, 1994* applies as per SARA subsections 58(5.1) and 58(5.2).

For any part of critical habitat located on non-federal lands, if the competent minister forms the opinion that any portion of critical habitat is not protected by provisions in or measures under SARA or other Acts of Parliament, or the laws of the province or territory, SARA requires that the Minister recommend that the Governor in Council make an order to prohibit destruction of critical habitat. The discretion to protect critical habitat on non-federal lands that is not otherwise protected rests with the Governor in Council.

under the *Migratory Birds Convention Act, 1994*, and a national wildlife area under the *Canada Wildlife Act*. See subsection 58(2) of SARA.

Acknowledgements

This recovery strategy was prepared under the direction of François Shaffer (Environment and Climate Change Canada, Canadian Wildlife Service – Quebec Region), Ron Bazin (Environment and Climate Change Canada, Canadian Wildlife Service – Prairie Region), Angela Darwin, Ken Tuininga and Mike Cadman (Environment and Climate Change Canada, Canadian Wildlife Service – Ontario Region), Kathy St-Laurent, Kendra Marshman, Karen Potter and Becky Whittam (Environment and Climate Change Canada, Canadian Wildlife Service – Atlantic Region), and Véronique Connolly (private consultant).

Other contributors who made comments on the recovery strategy are Wendy Dunford, Krista Holmes, Manon Dubé, Véronique Brondex, Thomas Calteau and Marie-Andrée Carrière (Environment and Climate Change Canada, Canadian Wildlife Service – National Capital Region) and Céline Maurice, Marianne Gagnon, Sylvain Giguère and Caroline Bureau (Environment and Climate Change Canada, Canadian Wildlife Service – Quebec Region).

The following organizations also provided comments that contributed to improving the quality of the document: Bird Studies Canada[4] and Regroupement QuébecOiseaux.

Thanks also to the many individuals and organizations that provided information on the location of Chimney Swift nesting and roosting sites, in particular the Manitoba Chimney Swift Initiative, Bird Studies Canada and Regroupement QuébecOiseaux. The information they provided was very useful in the identification of critical habitat.

Lastly, acknowledgement and thanks are given to all other parties that provided advice, guidance and information to help inform the development of this document including various organizations, Indigenous groups, provincial governments, other federal departments (e.g., Parks Canada), landowners, citizens, and stakeholders.

[4] This organization is now called “Birds Canada”.

Executive Summary

The Chimney Swift (*Chaetura pelagica*) is an aerial insectivorous bird species that is associated primarily with urban areas and is also found in rural and agricultural areas as well as forests. It perches exclusively on vertical surfaces, such as the inside of hollow tree trunks and chimneys. The species was assessed as Threatened in Canada by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 2007 and was added to Schedule 1 of the *Species at Risk Act* in 2009. In 2018, the species was reassessed and its status remained unchanged.

The Chimney Swift breeds in central and eastern North America and winters in South America, mainly in the Amazon basin. In Canada, it breeds in Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, and Nova Scotia. The Chimney Swift population in Canada is estimated between 20,000 and 70,000 mature individuals.

The main threats to the species have been identified as declines or changes in insect populations (due to pesticide use, urban development and other factors), chimney modification or demolition, chimney sweeping or use of chimneys during the breeding season, forestry practices on the breeding grounds, and logging on the wintering grounds.

There are some unknowns regarding the feasibility of recovery for the Chimney Swift. In keeping with the precautionary principle, this recovery strategy has been prepared as per subsection 41(1) of SARA, as is the case when recovery is determined to be feasible. The recovery strategy addresses the unknowns surrounding the feasibility of recovery of the species.

The long-term population and distribution objective is to maintain a stable Chimney Swift population in the current known extent of occurrence in Canada, for a period of 10 years following the achievement of the short-term objective (approximatively 2032 to 2042). The short-term population and distribution objective for the Chimney Swift in Canada is to halt the population decline within 10 years and to maintain its current known extent of occurrence.

Broad strategies as well as research and management approaches for achieving the objectives are presented in section 6.2, “Strategic Direction for Recovery.”

Critical habitat for the Chimney Swift is partially identified in this recovery strategy. The identification of critical habitat is based on two criteria: habitat occupancy by the species and the biophysical attributes of suitable habitat. Habitat occupancy criteria in human-altered environments are as follows:

- any confirmed breeding record between 2011 and 2017, such as the observation of a nest, eggs or young inside a structure, or the observation of a bird entering a structure with a twig

or

- any observation of at least one swift entering or leaving a structure, on at least two different days, including at least one day between 2011 and 2017 and another between 2001 and 2017.

Suitable Chimney Swift habitat generally has the following biophysical attributes: chimneys with interior walls constructed of masonry (stone, brick, concrete or ceramic tile), or other vertical structures such as barns, silos, artificial towers, or abandoned buildings with openings allowing access to the interior. The natural habitat characteristics that could provide suitable sites for the species are not sufficiently documented. Therefore, no natural habitat is identified as critical habitat in this recovery strategy. A schedule of studies, setting out the activities that must be carried out in order to complete the identification of the species' critical habitat, has been included. Also provided are examples of activities likely to cause destruction of critical habitat.

One or more action plans for the Chimney Swift will be posted on the Species at Risk Public Registry within five years of the final publication of this recovery strategy.

Recovery Feasibility Summary

Based on the following four criteria that Environment and Climate Change Canada uses to establish recovery feasibility, there are unknowns regarding the feasibility of recovery of the Chimney Swift. In keeping with the precautionary principle, this recovery strategy has been prepared as per subsection 41(1) of SARA, as would be done when recovery is determined to be technically and biologically feasible. This recovery strategy addresses the unknowns surrounding the feasibility of recovery.

1. **Individuals of the wildlife species that are capable of reproduction are available now or in the foreseeable future to sustain the population or improve its abundance.**

   Yes. Breeding individuals (between 20,000 and 70,000) are currently available and distributed throughout the Canadian range as well as in the United States.

2. **Sufficient suitable habitat is available to support the species or could be made available through habitat management or restoration.**

   Unknown. Within the species' range in Canada, suitable habitat offering nesting and roosting sites still exists, including chimneys in urban areas and large hollow trees in forested areas. The suitable habitat located in human-altered environments is probably sufficient to maintain the population at its current level, but not to reach the historical level that existed prior to the 1970s, that is, before the decline was detected. Over time, some of these human-made structures are demolished or access to them is blocked, thereby reducing the availability of suitable habitat. In natural areas, suitable sites have also decreased in number compared to what likely existed before European settlement, and they are now quite rare. Thus, it is unclear whether the suitable habitat available in natural areas would be sufficient to support a stable population, or even a population comparable in size to the present population. Management efforts could help provide sufficient suitable habitat, but, as indicated in Criterion 4, it will take decades to achieve this. For recovery purposes, a very long-term transition to the exclusive use of natural habitat is envisioned for the species; however, the likelihood of success is unknown, and the transition will take decades. The use of human-made structures will, therefore, serve as intermediate measures to facilitate the anticipated transition, as will habitat in natural environments, which will gradually contribute to providing suitable sites for the species. With respect to suitable habitat on wintering grounds, the current knowledge is very incomplete, but such habitat is likely threatened by heavy logging and forest fires in the Amazonian forest. It is not certain that it will be possible to stop such habitat loss.

3. **The primary threats to the species or its habitat (including threats outside Canada) can be avoided or mitigated.**

   Unknown. It is possible to mitigate some threats to the species and its habitat (e.g., modification or demolition of chimneys; chimney sweeping) through management, conservation and legal protection of nesting and roosting sites as well as through stewardship and outreach. However, the trend among building owners toward renovating, modifying or demolishing chimneys for safety reasons, throughout the species' range in Canada, represents a threat that is likely to compound the effects of other threats, thereby compromising the species' recovery. Given current forestry practices, preserving nesting sites in forests also poses a major challenge, especially with the loss of old growth forests. In addition, the timber harvesting cycle is generally too short to allow the trees to grow large enough to develop cavities that could be used as nesting or roosting sites. Another major challenge is maintaining the insect populations on which the Chimney Swift depends for food; these populations are threatened by the use of pesticides as well as by unfavourable weather conditions. There are ways to reduce the use of pesticides, and doing so could contribute to improving the status of insect populations. The threat related to unfavourable weather conditions, which is linked to climate change, might not be reduced quickly enough to ensure that a stable Chimney Swift population is achieved and maintained over the long term.

4. **Recovery techniques exist to achieve the population and distribution objectives or can be expected to be developed within a reasonable timeframe.**

   Unknown. Although methods exist (notably stewardship) for counteracting the loss of nesting or roosting sites in urban areas, there is no guarantee that these methods will be effective enough to achieve the population and distribution objectives. Chimneys have a limited lifespan, and owners must eventually demolish, renovate or replace them, or upgrade them to meet new safety standards and comply with current building codes. This makes it impossible, in the long term, to save many of the chimneys currently used by Chimney Swifts as nesting or roosting sites. Installing artificial towers[5] has been relatively ineffective in Canada to date, only nine artificial towers have been adopted for nesting by swifts out of several dozen built. The construction of artificial towers to replace a roosting site has had some success with at least five structures being adopted by the Chimney Swift, one in Nova Scotia, one in Quebec and three in Manitoba. This type of initiative could be repeated, but the high cost limits the possibility of using them in

[5] Artificial tower: A structure that replicates the features sought by Chimney Swifts for nesting and can provide an alternative to building chimneys. Stakeholders occasionally use the term "artificial nesting structure."

large numbers. A style of artificial tower adapted to the Canadian climate must therefore be developed and the best locations for their installation them must be determined before this option for providing alternative nesting sites can be pursued. The development of new forestry practices aimed at conserving large hollow trees might prove beneficial for the species, but it could take decades for trees to meet the species' needs. However, the impact of certain other threats, such as those related to climate conditions or human activities that disturb or destroy insect-producing habitats, will be an ongoing challenge.

Table of Contents

1. COSEWIC* Species Assessment Information

Assessment Summary – April 2018

Common name: Chimney Swift

Scientific name: *Chaetura pelagica*

Status: Threatened

Reason for designation
This aerial insectivore is a long-distance migrant, breeding in central and eastern Canada and wintering in South America. It has experienced a long-term population decline of close to 90% since 1970 in areas outside towns and cities, including a reduction of 49% over the past three generations (14 years). However, most roost counts in towns and urban areas show relatively stable numbers. A significant cause of decline is the reduced availability of aerial insects, likely due to the effects of agricultural and other pesticides, changing agricultural practices, and broad-scale ecosystem modifications in much of its breeding, migratory and wintering range. Reduced availability of roosting and nesting sites in chimneys and similar human-made structures, and in large hollow trees, is also likely contributing to declines. Greater frequency and severity of weather extremes may be reducing productivity, and increasing mortality during migration.

Occurrence: Saskatchewan, Manitoba, Ontario, Québec, New Brunswick, Nova Scotia

Status history: Designated Threatened in April 2007. Status re-examined and confirmed in April 2018.

* COSEWIC (Committee on the Status of Endangered Wildlife in Canada)

2. Species Status Information

Canada includes approximately one quarter of the Chimney Swift's breeding range (COSEWIC 2018). The Chimney Swift has been listed as threatened on Schedule 1 of the *Species at Risk Act* (S.C. 2002, c. 29) since 2009. In Manitoba, it is listed as a threatened species under the *Endangered Species and Ecosystems Act* (C.C.S.M. c. E111). It has been listed as a threatened species under Ontario's *Endangered Species Act, 2007* (S.O. 2007, c. 6) since 2007 and appears on the *Liste des espèces de la faune vertébrée susceptibles d'être désignées menacées ou vulnérables au Québec* (Gouvernement du Québec 2010). In New Brunswick, it is designated threatened under the *Species at Risk Act* (RSNB 2012, c. 6). In Nova Scotia, the species has been listed as endangered under the *Endangered Species Act* (1998, c. 11, s. 1.) since 2007. Although COSEWIC does not consider it to be a breeder in Newfoundland and Labrador, the species is nonetheless listed as threatened under the

Newfoundland and Labrador Endangered Species Act (SNL 2001 c. E-10.1). Lastly, the species has no legal provincial status as a species at risk in Saskatchewan. The *Migratory Birds Convention Act, 1994* (MBCA), and its regulations apply across Canada.

In North America, the Chimney Swift's conservation status rank is G5 (Secure) (NatureServe 2019). In Canada, its rank is N4B (apparently secure, breeding), and in the United States, it is N5B (secure, breeding). In addition, the Chimney Swift's conservation status ranks vary by province (see Table 1).

Table 1. Conservation status ranks for the Chimney Swift in North America (NatureServe 2019)

Global (G) Rank	National (N) Rank	Subnational (S) Rank*
G5 (secure)	Canada: N4B (apparently secure) United States: N5B (secure)	Saskatchewan: S2B Manitoba: S2B Ontario: S4B, S4N Quebec: S2S3 New Brunswick: S2S3B, S2M Nova Scotia: S2B, S1M Prince Edward Island: SHB Newfoundland: SNR Labrador: SNA

* See Appendix A for definitions of status ranks used by NatureServe (2019).

3. Species Information

3.1 Species Description

The Chimney Swift is a small bird that, in flight, resembles a flying cigar because of its shape. It has a sooty brown body and a pale grey throat. The species has long wings that extend beyond the tip of its tail when it roosts. Each tail feather ends in a spiny tip. When the Chimney Swift perches, it clings to vertical surfaces inside chimneys, hollow trees, or similar structures. The species is mostly seen when flying. Its flight is rapid. Its call is a distinctive, high-pitched, twittering "tchit-tchit-tchit" that can be heard over a long distance and fades into a long warble (Godfrey 1986). The Chimney Swift's call is often the first indicator of its presence and is an effective way of distinguishing it from swallows and other aerial insectivores.[6]

3.2 Species Population and Distribution

The Chimney Swift population in Canada is estimated at between 20,000 and 70,000 mature individuals (COSEWIC 2018). For its part, Partners in Flight estimates the Canadian population at 74,000 birds and the US population at 8.5 million birds (Partners in Flight 2019). Annual monitoring of Chimney Swift roosts was carried out over most of the species' Canadian range between 2013 and 2018, and a maximum of

[6] Aerial insectivores: birds that feed on insects captured in flight.

17,121 birds was recorded in a single night in 2015, which included both breeding and non-breeding individuals (COSEWIC 2018). Since the monitoring was restricted to known roosts, this number represents a minimum estimate. The species' exact abundance by province is unknown. Based on data from the monitoring program, it is estimated that Ontario and Quebec likely have the highest number of Chimney Swifts, followed by New Brunswick, Nova Scotia, and Manitoba (Canadian Wildlife Service, Bird Studies Canada and Manitoba Chimney Swift Initiative, unpublished data 2018). Saskatchewan, located at the northwestern limit of the species' range, also has a small population.

The Chimney Swift breeds in central and eastern North America (Figure 1). In Canada, the species nests in Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick and Nova Scotia (Figure 2). It is occasionally observed in Prince Edward Island and in Newfoundland and Labrador. It was detected as a probable or possible breeder in Prince Edward Island when the first *Atlas of Breeding Birds of the Maritime Provinces* was compiled (1986 to 1990), but there were no confirmed breeding records (Erskine 1992). Furthermore, it was not detected during the development of the second Atlas (Stewart et al. 2015). In Newfoundland and Labrador, the species is observed mainly during the spring and fall migration and there are no records of confirmed nesting (Government of Newfoundland and Labrador 2019). The Canadian extent of occurrence[7] is 200,000 km^2 and the index of area of occupancy[8] is estimated at 12,424 km^2 (COSEWIC 2018). Chimney Swifts winter in South America, mainly in the Amazon basin (COSEWIC 2018). Individuals fly over Central America, the Gulf of Mexico or the Caribbean Sea on their migration between breeding and wintering grounds.

The Chimney Swift is part of a group of aerial insectivores (including swallows and nighthawks) that feed in flight, and whose North American populations have declined significantly over the past 40 to 50 years. Breeding Bird Survey (BBS) results for the period between 1966 and 2015 show a significant decline of 2.5% per year in Chimney Swift populations in North America and an identical decline of 2.5% in the United States, for a cumulative decline of 70.64% (Sauer et al. 2017). In Canada, BBS data show a sharp decline of 4.38% per year between 1970 and 2017, which is equivalent to a total population loss of 87.8% (Smith et al. 2019). For the period 2007 to 2017, the data show that the decline has levelled off in Canada, at 2.6% per year (Smith et al. 2019).

[7] Extent of occurrence: The extent of occurrence is the area contained within the shortest continuous boundary drawn to encompass all the known, inferred or projected sites of present occurrence of the wildlife species, excluding cases of vagrancy (COSEWIC 2015).

[8] Area of occupancy: The area within the extent of occurrence that is occupied by the wildlife species, excluding cases of vagrancy. This measure reflects the fact that the extent of occurrence may contain unsuitable or unoccupied habitat. The index of area of occupancy (IAO) is a measure that aims to provide an estimate of area of occupancy that is not dependent on scale (COSEWIC 2015).

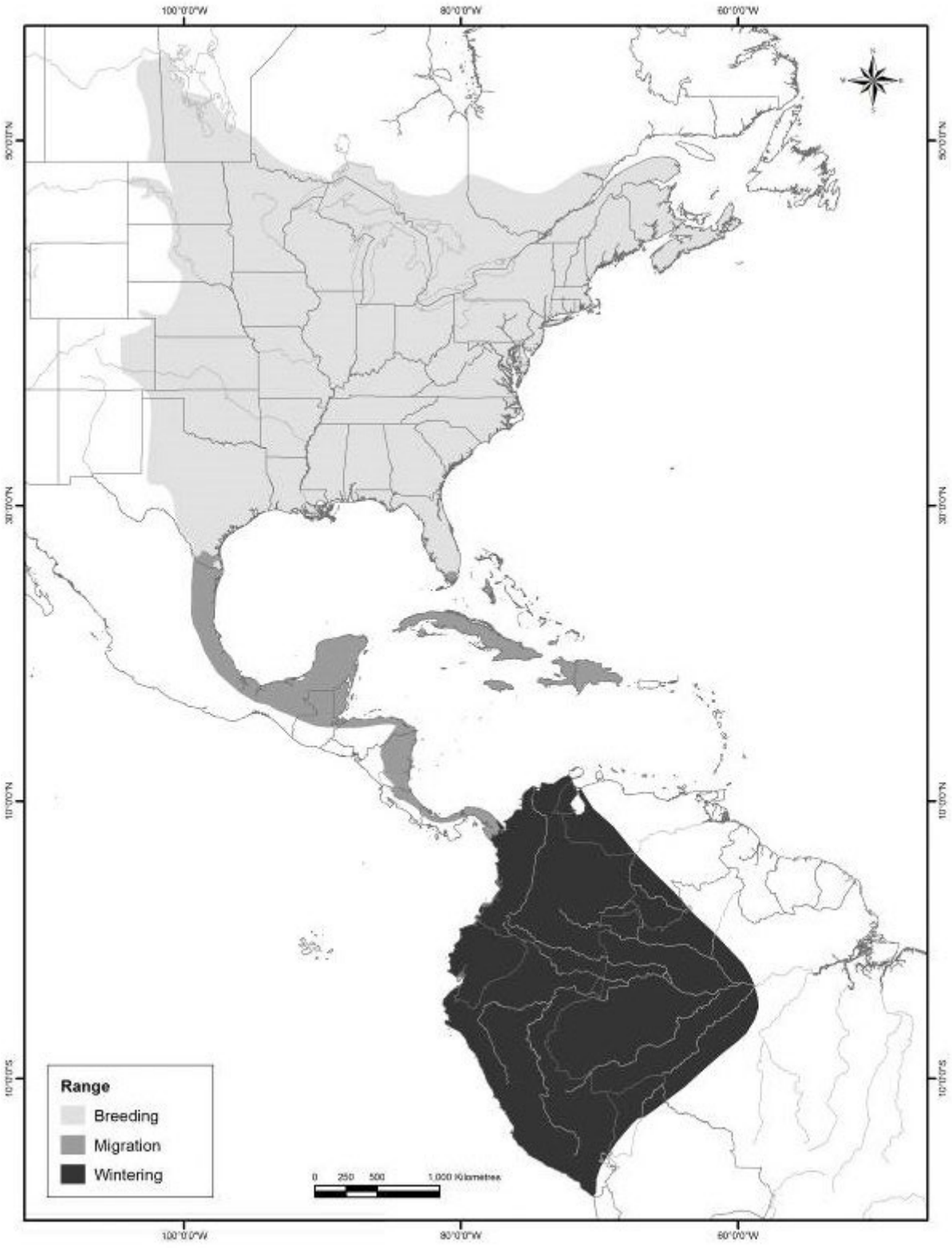

Figure 1. Global distribution of the Chimney Swift (adapted from Ridgely et al. 2007).

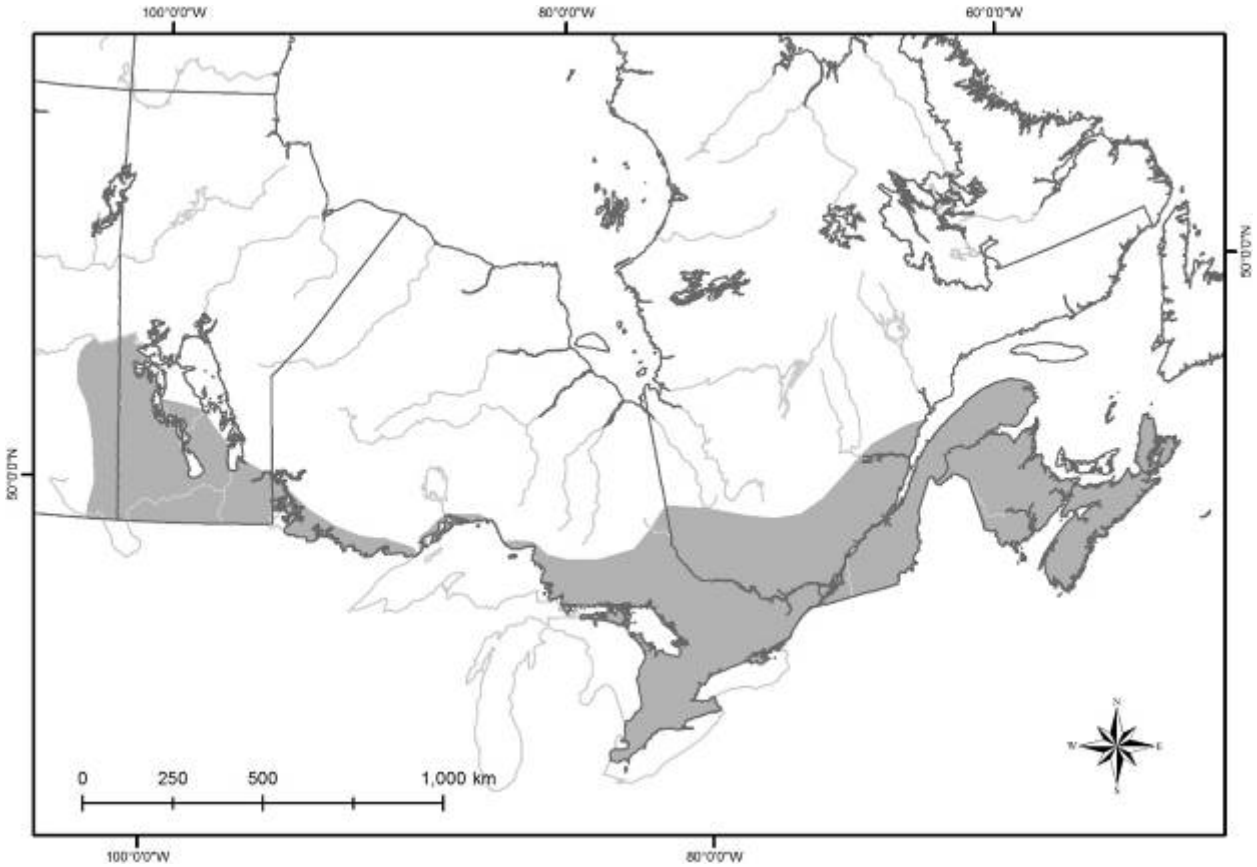

Figure 2. Breeding range of the Chimney Swift in Canada (Canadian Wildlife Service unpublished data).

3.3 Needs of the Chimney Swift

In Canada, the Chimney Swift is primarily associated with urban and suburban areas as well as small towns. It spends most of the day in flight feeding on flying insects wherever it can find them. This includes urban areas, rural and agricultural areas, aquatic environments and forests. It is thus difficult to associate the species with one specific type of habitat since its presence in an area depends mainly on the abundance of flying insects and the availability of suitable nesting and roosting sites (COSEWIC 2018). The Chimney Swift needs a vertical cavity with rough surfaces to which it can cling, spend the night and attach its nest (COSEWIC 2018). These sites protect the birds from inclement weather and predators (Graves 2004). Both nesting and roosting sites are generally occupied year after year (Fischer 1958; Gauthier et al. 2007). It is important to note that since the Chimney Swift is rarely observed in its natural habitat except in flight, human-made sites used for nesting or roosting are currently the main elements that can be used to characterize its habitat.

Prior to European settlement in North America, it is likely that the Chimney Swift nested and roosted mainly inside large hollow trees in old-growth forests (COSEWIC 2018). When large-scale logging began in the early 19th century, forests containing suitable trees for the species became increasingly scarce, and Chimney Swifts started to use

human-made structures, particularly chimneys, for nesting and roosting. The species has thus shown adaptability in choosing its nesting sites. Today, the Chimney Swift is primarily associated with urban and suburban areas where chimneys are available. An unknown proportion of the population is associated with mature forests (COSEWIC 2018).

The Chimney Swift most often nests in chimneys (generally having an opening diameter greater than 28.5 cm), although it also uses large hollow trees (> 50 cm in diameter at breast height, or DBH) (COSEWIC 2018). The species commonly nests in old brick or stone chimneys built before the 1960s; however, it occasionally uses vent pipes, wells, silos, barns, tobacco-drying sheds and abandoned buildings. Quebec data appear to show that in the summer, the temperature inside chimneys used as nesting sites rarely drops below 13 ºC at night (COSEWIC 2018), while the lowest temperatures recorded in a study at nesting sites in New Brunswick and Nova Scotia were 9.7 ºC and 11.7 ºC, respectively (le Roux et al. 2019). This latter study found that Chimney Swifts preferred chimneys that buffered the nesting site from excess ambient heat.

The species is known for its gregariousness. At night and on days with inclement weather (e.g., heavy rain, wind, cold temperature), Chimney Swifts gather at roosting sites in flocks ranging in size from several dozen to more than 1,000 birds (Steeves et al. 2014). Chimneys used as roosting sites are generally bigger than those used for nesting. Roosts are used primarily during migration, when the birds arrive on their breeding grounds, and after the breeding season just before the birds migrate to their wintering area (Steeves et al. 2014). Some non-breeding individuals and failed breeders continue to congregate in roosts at night throughout the breeding season (Steeves et al. 2014). All along the migration route, the birds spend their nights in such roosting sites (Steeves et al. 2014).

Chimney Swifts arrive on their breeding grounds in Canada between late April and late May. The period of possible occupancy of the structure housing the nest is about four months, from the beginning of May to the beginning of September. Once the nest site is selected, the birds will start the nesting season which usually extends from late May to Mid-August (COSEWIC 2018). The nest takes close to 18 days or more to build. The egg-laying period can vary and may take about seven days for a clutch of four eggs, since eggs are generally laid at a rate of one every two days (COSEWIC 2007). Incubation takes on average 19 days (Fisher 1958, Steeves et al. 2014). The chicks remain in the nest for an average of 19 days, after which they leave it to cling to the inside of the chimney wall (Fisher 1958). Juveniles take their first flight at about 30 days of age (Fisher 1958). They can then come back to the structure housing the nest for another one or two weeks (Steeves et al. 2014). Fall migration occurs from late July to late September. In Ontario, the majority of Chimney Swifts have left for their wintering grounds by October, although a small number of birds remain until the end of the month (Bird Studies Canada, unpublished data). During migration, the Chimney Swift requires access to an abundance of insects and high-quality roosting sites to meet its significant energy needs (Steeves et al. 2014).

Information on the Chimney Swift's wintering habitat is incomplete. However, its roosting sites in wintering areas appear to resemble those used in its breeding range or during migration (COSEWIC 2018). At night the species roosts in chimneys, churches, caves (Fjeldså and Krabbe 1990) and hollow trees in the Amazon forest (Whittemore 1981). Habitats used include open areas, riparian forests, tropical lowland deciduous forest, and areas undergoing regeneration (Rappole et al. 1983; Stotz et al. 1996). The species also frequents irrigated farmland and suburban and central urban areas (Hughes 1988). It regularly occurs on the Peruvian coast and can also be seen annually in regions at elevations of up to 2,500 metres and sometimes even 3,000 metres (Hughes 1988).

Little is known about the Chimney Swift's diet, but it is known to feed on insects, in particular Trichoptera, Ephemeroptera, Diptera, Coleoptera, Hymenoptera and Hemiptera. An abundant supply of insects is required to meet the dietary needs of both adults and chicks (Steeves et al. 2014). Chimney Swifts also need water sources, from which they drink while in flight by skimming the surface with their bills (Steeves et al. 2014).

4. Threats

The threat assessment for the Chimney Swift is based on the IUCN-CMP (World Conservation Union–Conservation Measures Partnership) unified threats classification system. Limiting factors are not considered during this assessment process. Threats are defined as the proximate activities or processes that have caused, are causing, or may cause the destruction, degradation, and/or impairment of the entity being assessed (population, species, community, or ecosystem) in the area of interest (global, national, or subnational). For more detailed information on how the values are assigned in the table (Table 2), see the table footnotes. For purposes of threat assessment, only present and future threats are considered. Historical threats, indirect or cumulative effects of the threats, or any other relevant information that would provide a better understanding of the nature of the threats are presented in the Description of Threats section.

4.1 Threat Assessment

Table 2. Threat Assessment

Threat		Impact[a]	Scope[b]	Severity[c]	Timing[d]
1	**Residential and commercial development**	Medium	Large	Moderate	High
1.1	Housing and urban areas	Low	Restricted	Moderate	High
1.2	Commercial and industrial areas	Low	Restricted	Moderate	High
4	**Transportation and service corridors**	Negligible	Negligible	Negligible	High
4.1	Roads and railroads	Negligible	Negligible	Negligible	High
4.2	Utility and service lines	Negligible	Negligible	Negligible	High
5	**Biological resource use**	Low	Small	Slight	High
5.1	Hunting and collecting terrestrial animals	Negligible	Negligible	Negligible	High
5.3	Logging and wood harvesting	Low	Small	Slight	High
6	**Human intrusions and disturbance**	Low	Restricted	Slight	High
6.3	Work and other activities	Low	Restricted	Slight	High
7	**Natural system modifications**	High - Medium	Pervasive	High - Moderate	High
7.1	Fire and fire suppression	Unknown	Unknown	Unknown	High
7.3	Other ecosystem modifications	High - Medium	Pervasive	High - Moderate	High
8	**Invasive and other problematic species**	Negligible	Negligible	Negligible	High
8.2	Problematic native species	Negligible	Negligible	Negligible	High

Threat		Impact[a]	Scope[b]	Severity[c]	Timing[d]
9	**Pollution**	Unknown	Large	Unknown	High
9.3	Agricultural and forestry effluents	Unknown	Large	Unknown	High
9.5	Air-borne pollutants	Unknown	Large	Unknown	High
11	**Climate change and severe weather**	Unknown	Pervasive	Unknown	High

[a] **Impact** – The degree to which a species is observed, inferred, or suspected to be directly or indirectly threatened in the area of interest. The impact of each stress is based on the severity and scope ratings and considers only present and future threats. Threat impact reflects a reduction of a species population or decline/degradation of the area of an ecosystem. The median rate of population reduction or area decline for each combination of scope and severity corresponds to the following classes of threat impact: very high (75% decline), high (40%), medium (15%) and low (3%). Unknown: category used when impact cannot be determined (e.g., when the values for scope and severity are unknown). Not calculated: impact was not calculated when the threat does not occur within the assessment period (e.g., timing is insignificant/negligible or low because the threat existed only in the past). Negligible: when the value for scope or severity is negligible. Not a threat: when the value for severity is neutral or there is a possible benefit.

[b] **Scope** – Proportion of the species that can reasonably be expected to be affected by the threat within 10 years. Usually measured as a proportion of the species' population in the area of interest (pervasive = 71–100%; large = 31–70%; restricted = 11–30%; small = 1–10%; negligible < 1%).

[c] **Severity** – Within the scope, the level of damage to the species (usually measured as the percentage of reduction in the species' population) expected to be caused by the threat within a 10-year or three-generation timeframe (extreme = 71–100%; serious = 31–70%; moderate = 11–30%; slight = 1–10%; negligible < 1%; neutral or possible advantage ≥ 0%).

[d] **Timing** – High = continuing. Moderate = only in the future (could happen in the short term [< 10 years or 3 generations]) or now suspended (could come back in the short term). Low = only in the future (could happen in the long term) or now suspended (could come back in the long term). Insignificant/Negligible = only in the past and unlikely to return, or no direct effect but limiting.

4.2 Description of Threats

The Chimney Swift faces a number of threats. Although each of these on its own can have a varying impact on the population, the combined effects of these threats make their overall impact high (COSEWIC 2018). The main threats to the species are presented in section 4.2.1, and threats with a negligible or unknown impact are outlined in section 4.2.2.

4.2.1 Main threats

IUCN threats 1.1 Housing and urban areas and 1.2 Commercial and industrial areas

Chimney demolition or modification

Chimney Swifts are dependent on chimneys in urban and suburban areas for nesting and roosting sites. Residential and commercial development is a medium impact threat for the Chimney Swift (Table 2) since it results in the demolition or modification of chimneys and thus the loss and degradation of habitat for the species (COSEWIC 2018). Most of the chimneys that provide suitable habitat for Chimney Swifts were built before 1960 (Gauthier et al. 2007); therefore, many of them have reached the end of their service life and need to be demolished or renovated. More recent buildings do not have chimneys (because electric heating is more common) or they have chimneys that are unsuitable for the Chimney Swift (natural gas) (COSEWIC 2018). Newer chimneys, along with older ones that have been renovated, have an inner metal liner that is too smooth for the Chimney Swift to cling to. In addition, a number of municipalities require that chimneys that are still being used for heating have spark arresters and that inactive chimneys be closed or capped (Lamoureux 2012), both of which make them inaccessible to the species. Depending on the region, 14% to 29% of chimneys known to be used by the Chimney Swift in Canada were destroyed or rendered unsuitable for the species between 1998 and 2017 (COSEWIC 2018). The scope assessment for threats 1.1 and 1.2 is based in part on this known decrease in chimney availability. Although threats 1.1 and 1.2 were each found to have a restricted scope (11–30% of population affected within 10 years; Table 2), their combined effect is such that the scope of the threat posed by residential and commercial development is large (Table 2), particularly since the scope of threat 1.1 is at the upper limit of the “restricted” category.

Urban and suburban development – Change or decline in insect populations

Draining or filling of wetlands for residential or commercial development can result in changes in insect populations or reduce the availability of insect prey for the Chimney Swift and thus adversely affect the species’ productivity (COSEWIC 2018).

IUCN threat 5.3 Logging and wood harvesting

Forestry practices on the breeding grounds

The fragmentation and loss of old-growth forests through forestry operations can reduce the availability of natural nest and roost sites for the Chimney Swift (COSEWIC 2018).

Before the European colonization of North America, the sites used by Chimney Swifts for nesting and roosting consisted mainly of hollow trees greater than 50 cm in diameter at breast height (Gauthier et al. 2007; Steeves et al. 2014; Zanchetta et al. 2014). Historical and present-day forest clearing in a large part of eastern North America has considerably reduced the number of trees of suitable size for this species (Gauthier et al. 2007). In addition, current logging practices, which favour a relatively short harvesting cycle to meet market demand, translate to a smaller percentage of trees that are old enough or large enough to serve as Chimney Swift nesting or roosting sites. The possibility of preserving suitable trees is also reduced by forestry practices that favour the removal of hollow trees in logging areas for safety reasons.

Logging on the wintering grounds

Since the Chimney Swift uses hollow trees in its South American wintering range, the species is likely threatened by the intensive logging taking place in the Amazon forest (COSEWIC 2018). No information is available on the effects of logging on the wintering grounds.

IUCN threat 6.3 Work and other activities

Chimney sweeping and heating during the breeding season

Chimney sweeping is essential for proper chimney upkeep and to reduce the risk of fire. When done outside of the breeding period, this work is not harmful to the species because the nest often falls to the bottom of the chimney in fall or winter or is simply not reused by birds from one year to the next. However, chimney sweeping that is conducted during the period of possible occupancy, namely between early May and early September, can pose a threat to the species (Table 2), because it can destroy the nest, eggs and chicks (COSEWIC 2018). A survey of professional chimney sweeps in the Maritimes revealed that this work is done mainly in the fall; however, it can be done at any time of year, and certain municipalities in Quebec request that chimney sweeping be done during the summer (Lamoureux 2012; COSEWIC 2018).

Some chimneys are used for heating in cold weather during the breeding season, preventing their use by swifts or destroying nests or killing adults (sometimes large numbers of roosting swifts) (COSEWIC 2018).

IUCN threat 7.3 Other ecosystem modifications

Decline in insect populations

A reduction in insect prey availability to the Chimney Swift, an aerial insectivore, represents a change in the ecosystem to which it belongs and is the most significant threat to the species (Table 2; COSEWIC 2018). The use of insecticides in forestry and agriculture, in urban insect control programs, and in control programs for insects that carry pathogens, such as the West Nile virus, affects insect populations (Avian Effects Dialogue Group, 1994; Poulin et al. 2010; Wood and Goulson 2017; COSEWIC 2018) and thus affects the Chimney Swift's food sources. A number of recent studies have established a probable link between the use of insecticides, particularly neonicotinoids,

and declines in populations of insect pollinators (Goulson, 2013; Godfray et al. 2014). The use of insecticides is widespread throughout the species' range and has intensified in recent decades (COSEWIC 2018).

Draining and filling of wetlands to control mosquito populations on the Chimney Swift's breeding and wintering grounds as well as along its migration routes may also lead to decreases in insect prey availability for the species (COSEWIC 2018).

4.2.2 Threats with a negligible or unknown impact

IUCN threat 4.1 Roads and railroads

Collisions with vehicles

Chimney Swifts are at risk of being killed by vehicle strikes when they fly over roads (Bohlen, 1989; COSEWIC 2018). This seems to occur more often in cold weather, when insects also fly at a lower level.

IUCN threat 4.2 Utility and service lines

Collisions with communication towers

The species may occasionally be at risk from collisions with communications towers (COSEWIC 2018).

IUCN threat 5.1 Hunting and collecting terrestrial animals

Destruction of nests

Many homeowners consider the presence of Chimney Swifts in their chimneys to be a nuisance or concern. For example, they dislike hearing the birds' cries and they incorrectly believe that Chimney Swifts produce large accumulations of droppings or create a fire risk. Some homeowners may arrange to have their chimneys cleaned to get rid of the birds (Steeves et al. 2014). Public misunderstanding and lack of knowledge about the species are therefore likely to lead to the destruction of nests every year (COSEWIC 2018).

IUCN threat 7.1 Fire and fire suppression

Fires in the wintering range

On the species' wintering grounds, fires set to clear land for agriculture that end up destroying large, hollow trees may pose a threat to the Chimney Swift (COSEWIC 2018) however, not enough information is available at present to assess the impact of this threat.

IUCN threat 8.2 *Problematic native species*

Predation

Predation by certain native species may at times have a negative impact on Chimney Swift populations (COSEWIC 2018). For example, raccoons (*Procyon lotor*) and squirrels (*Sciurus* spp.) are suspected predators of Chimney Swift chicks (Steeves et al. 2014). Accounts of predation on adult swifts usually involve birds of prey, such as the Merlin (*Falco columbarius*) (COSEWIC 2018). The Merlin has become increasingly widespread in urban areas (Warkentin et al. 2005) and its population is on the rise in Canada (Smith et al. 2019).

IUCN threat 9.3 Agricultural and forestry effluents

Pesticide use

The direct effects of pesticide use in agriculture and forestry on insectivorous birds vary with the chemical composition of the products concerned and may include acute toxicity, sublethal effects or reduced reproductive success (COSEWIC 2018). Little information is available at present to assess the impact of this threat on the Chimney Swift.

IUCN threat 9.5 Air-borne pollutants

Acid rain and bioaccumulation of mercury

Acid rain and bioaccumulation of mercury may affect certain Chimney Swift populations, especially if swifts consume insects originating from contaminated wetlands (COSEWIC 2018). Although the effects of mercury on the Chimney Swift have not been documented, studies have shown that this pollutant can reduce reproductive success, impair immune function and modify the behaviour of some bird species (COSEWIC 2018).

IUCN threat 11. Climate change and severe weather

Climate change and extreme weather could have adverse effects on Chimney Swift populations, but their impact and severity are currently unknown (Table 2; COSEWIC 2018). More specific threats associated with this broad category are described below. It should be noted that the impact, scope, severity and timing were assessed only for the broad threat category and not for the subcategories (Table 2).

As an aerial insectivore, the Chimney Swift is affected by weather conditions that influence the presence and abundance of flying insects. Climate change is likely to generate changes for many insect populations and the ecosystems they inhabit (Stange and Ayers 2010; Jonsson et al. 2015). There is a strong synchronization between birds' reproductive timing (egg hatching) and peak food (insect) abundance. Climate change could create a temporal mismatch between the energetic requirements of the Chimney Swift and the availability of insect prey (COSEWIC 2018).

Drought causing a decrease in the abundance of insect prey for the Chimney Swift could represent a threat to the species (COSEWIC 2018).

In Canada, prolonged periods of rain, wind and cold in late spring or early summer, shortly after the Chimney Swifts arrive on their breeding grounds, could cause mortality or reduce reproductive success due to a lack of food resources (Newton 2007; Steeves et al. 2014; COSEWIC 2018). According to Parry et al. (2007), episodes of extreme weather conditions could become more frequent with climate change.

Climate change could also reduce the lifespan of chimneys by accelerating their deterioration due to more frequent freeze-thaw cycles, which degrade the cement between the bricks and stones (COSEWIC 2018). The weakened chimney structure would then require repair or removal, which would result in a loss of chimneys suitable for nesting and roosting.

Climate change could affect the frequency, intensity and trajectory of hurricanes (NOAA 2005). Hurricanes are likely to cause Chimney Swift mortality during the fall migration period as well as on the wintering grounds. In 2005, Hurricane Wilma caused the death of a large number of Chimney Swifts (likely a few thousand), and this had an impact on the breeding population across a large part of the species' breeding range (Dionne et al. 2008).

Changes in wind patterns could have certain effects on the Chimney Swift (COSEWIC 2018). A study on the Tree Swallow (*Tachycineta bicolor*), another aerial insectivore, showed that wind could affect the breeding phenology[9] of this species and that windy conditions could delay clutch initiation (Irons et al. 2017).

5. Population and Distribution Objectives

The long-term population and distribution objective is to maintain a stable Chimney Swift population in the current known extent of occurrence (i.e., the area that encompasses the geographic distribution of all known populations) in Canada, for a period of 10 years following the achievement of the short-term objective (approximatively 2032 to 2042).

The short-term population and distribution objective for the Chimney Swift in Canada is to halt the population decline within 10 years and to maintain the current known extent of occurrence.

[9] Phenology is the study of periodic events in biological life cycles and how these are influenced by seasonal and interannual variations in climate, as well as habitat factors (such as elevation).

5.1 Rationale for the Population and Distribution Objectives

Over the past decades, the Chimney Swift population has experienced a significant decline across Canada (COSEWIC 2018). Several threats to the species still exist, but there is no simple way to address them. Changes in insect populations have occurred as a result of a variety of factors that have adversely affected them, through mechanisms that are not yet all well understood. Action will have to be taken to restore the insect populations, but it could take years before their benefits are felt.

Today, the vast majority of the species' known nesting and roosting sites, which comprise the species' entire current known extent of occurrence, are located in human-made structures that are part of the built heritage. These include primarily chimneys and, to a lesser extent, silos, barns and wells, which have gradually declined in number. Even when they are retained, these structures are likely to require renovations or repairs to meet safety standards or comply with new construction standards. Such changes may render them unsuitable for Chimney Swifts.

In addition, prior to European colonization in the 16th century, mature forests provided the Chimney Swift with hollow trees suitable for nesting and roosting. Forests containing large-diameter hollow trees have long since given way to agriculture and urban development. Forest harvesting cycles are such that there is not enough time for trees to reach a size and conditions suitable for Chimney Swifts.

In short, given the threats that still exist to the Chimney Swift population and its habitat, it could be very difficult to return the population to its pre-decline level. Chimney Swift recovery efforts cannot be based solely on the availability of existing human-made structures, since the number of such structures will decline over time. With the gradual loss of existing human-made structures and the challenge posed by the return of Chimney Swifts to their natural habitat, as well as the uncertainties regarding the use of artificial structures made for nesting or roosting, increasing the population in the short and long term is not a realistic objective. The objective must be to first halt the species' decline and to then maintain the population for a period 10 years. Considerable time and effort will be required to achieve this objective as a number of factors that adversely affect the species still exist.

The target horizon for achieving the short-term recovery objective is a period of 10 years, beginning on the date the recovery strategy is posted on the Species at Risk Public Registry. To achieve the short-term population objective, the cumulative rate of decline of the population in Canada has to be no more than 10% for that period.

Outreach to owners of buildings used by Chimney Swifts and the implementation of stewardship activities to preserve a sufficient number of suitable human-made structures for breeding and roosting activities by the species for as long as possible will contribute to the achievement of the objectives. Considering the importance of roost sites in the species' ecology and the high fidelity exhibited by the species to roost sites, conserving such sites must be a priority. Maintaining existing human-made structures

will be necessary to achieve the short-term recovery objective. It will also contribute to the long-term recovery objective, although it is currently difficult to estimate the proportion of structures that will have to be maintained over time. This information will be needed before the short-term recovery objective is met. Best management practices for chimneys suited to the species will have to be developed and distributed to owners of buildings with chimneys and to chimney-cleaning companies. A network of artificial nesting towers—both freestanding and attached to buildings—will, if proven to be effective and appropriate, be established to offset the gradual loss of existing human-made structures. Additional approaches, including public outreach, SARA compliance promotion, protection of residences within the meaning of SARA, and protection under the *Migratory Birds Convention Act, 1994*, will also have to be used to conserve and protect a sufficient number of human-made nesting and roosting sites, as well as adult swifts, their eggs and their young. The achievement of the recovery objectives will also require a better understanding of the threats to the species. Known threats to the Chimney Swift are both numerous and complex, and they are likely to have a cumulative effect. Filling knowledge gaps related to the main threats to the species is therefore relevant to facilitating its recovery.

To achieve the long-term recovery objective, the species' decline will first have to be halted (short-term objective). In the longer term action will have to be taken to restore flying insect populations and to increase the number of suitable nesting and roosting sites in the natural environment, specifically hollow trees of a sufficient diameter. A number of unknowns exist, however, with regard to the present and future distribution, abundance, and availability of these trees and the extent to which they can help maintain a stable population in the species' current Canadian range. Acquiring this knowledge and implementing measures to enable the species to use these trees are part of the strategic direction for recovery (section 6.2) and could take several decades .

The 10-year time frame for achieving the recovery objectives (consecutively) was considered an appropriate period for assessing changes in the Chimney Swift population. This time frame was chosen not only because halting the decline of a species is challenging and cannot be achieved in just a few years, but also because COSEWIC species assessments are prepared every 10 years. The assessment criteria often include reviewing population changes within 10-year windows. These objectives will be examined (and updated if needed) based on new available information.

Aerial insectivores, including the Chimney Swift, are currently in decline in eastern North America. It is important to note that population changes at the continental level may have a significant effect on the feasibility of recovery in Canada. The risk of decline is increased by the limited possibilities for effectively reducing or mitigating some of the significant threats to the species (e.g., chimney modification or demolition, pesticide use, unfavourable weather conditions produced by climate change). Therefore, despite the best efforts described in this recovery strategy to mitigate the main threats and to ensure that a sufficient number of suitable nesting and roosting sites are available, the number of Chimney Swifts in Canada may continue to decline.

6. Broad Strategies and Approaches for Meeting Recovery Objectives

6.1 Actions Already Completed or Currently Underway

Environment and Climate Change Canada has been funding projects related to Chimney Swift conservation across its Canadian range through the Habitat Stewardship Program (HSP) and Aboriginal Fund for Species at Risk (AFSAR) since 2001 and the Interdepartmental Recovery Fund (IRF, now called the Critical Habitat Interdepartmental Program, CHIP) since 2004. Projects have included activities such as: undertaking targeted surveys for the species; identifying important habitat; studying the severity of and/or mitigating threats; soliciting observations and encouraging public reporting of sightings; and educating landowners on species identification, threats, and stewardship options. Some of these projects, along with those funded by the provinces and others, are described below.

- Identification and monitoring of certain nesting and roosting sites in Saskatchewan (Saskatchewan Breeding Bird Atlas), Manitoba (Manitoba Chimney Swift Initiative; Stewart *et al.*, 2017; Poole and Ogilvie, 2020), Ontario (Algoma SwiftWatch (Great Lakes Wildlife Research and Algoma University), Bert Miller Nature Club, Canadian Nuclear Laboratories, City of Mississauga, Essex County Field Naturalists' Club, Bird Studies Canada (Ontario SwiftWatch), Georgian Bay Biosphere Reserve, Halton/North Peel Naturalist Club, Hamilton Conservation Authority, Nature Aurora, Nature Barrie, Nature London (McIlwraith Field Naturalists), Nipissing Naturalists Club, Parry Sound Nature Club, Prince Edward County Field Naturalists Club, Sault Naturalists, Stratford Field Naturalists and Canadian Wildlife Service), Quebec (Canadian Wildlife Service, Regroupement QuébecOiseaux and several other organizations), in New Brunswick (Bird Studies Canada, Nature NB and Canadian Wildlife Service), and in Nova Scotia (Bird Studies Canada, Blomidon Naturalists Society (Jim Wolford), Canadian Wildlife Service and Mersey Tobeatic Research Institute);
- Installation and assessment of artificial nesting towers (freestanding and attached to buildings) in Manitoba (Manitoba Chimney Swift Initiative 2016; Firlotte et al 2020), Ontario (Finity and Nocera 2012; Bird Studies Canada 2019), Quebec (Canadian Wildlife Service, Regroupement QuébecOiseaux, Société Provancher d'histoire naturelle, Sanatorium historique du Lac-Édouard, Montreal Botanical Garden, Musée des sciences et de la nature, Éco-Nature, Groupement Agro-Forestier Lotbinière Mégantic Inc., Club ornithologique des Hautes-Laurentides, Héritage Saint-Bernard, Club des ornithologues de Québec, Centre de recherche industrielle du Québec, municipality of Trinité-des-Monts, Centre 24-Juin, Centre de formation professionnelle Rimouski-Neigette, Zoo de Granby and private property owners), in New Brunswick (Nature NB), and in Nova Scotia (Government of Nova Scotia). Of the many attempts to install structures for the swift, there are only a few that have been successful, with five structures that are used as roost (Bridgetown (NS), Trinité-des-Monts (QC), and Selkirk (MB) (n=3))

and there are at least nine structures used as nesting sites (Winnipeg (MB), Selkirk (MB), Etobicoke (ON), Lévis (QC), Lac-Édouard (QC) (n=4); Granby (QC));

- Preparation of an overview of the implications of the presence of Chimney Swifts for insurance companies, chimney-cleaning companies and fire departments (Bird Studies Canada, Regroupement QuébecOiseaux);
- Design and production of a Chimney Swift-friendly chimney cap (Éco-Nature et Regroupement QuébecOiseaux);
- Development of a decision support tool to assess nest and roost sites for maintenance, repair or reconstruction in Ontario and the Atlantic region by Bird Studies Canada.
- Outreach and stewardship to owners of buildings with chimneys used by the Chimney Swift in Nova Scotia and New Brunswick (Canadian Wildlife Service and Bird Studies Canada), Quebec (Regroupement QuébecOiseaux), Ontario (Bird Studies Canada) and Manitoba (Manitoba Chimney Swift Initiative);
- Outreach to increase awareness of best practices and chimney sweep regulations among chimney sweeps and municipalities (Regroupement QuébecOiseaux and other conservation groups);
- Consideration of the Chimney Swift in conservation planning initiatives such as Species at Risk Partnerships on Agricultural Lands (SARPAL) in New Brunswick and Kespukwitk/Southwest Nova Scotia Priority Place.
- Research on foraging behaviour, on the birds' daily movements around nest sites, on breeding success and reproductive rates, on changes in diet that have occurred in recent decades, on the history of the presence of contaminants in the species' diet and on the relationship between ambient temperature and bird behaviour in roost sites (Finity et al. 2010; Nocera et al. 2012; Stewart and Stewart 2013; Farquar et al. 2018);
- Research on Chimney Swift habitat, including the availability of chimneys, the use of trees by Chimney Swifts, temperature conditions at nesting sites, and the species' use of territory during breeding and migration (Fitzgerald et al. 2014; Zanchetta et al. 2014; le Roux et al. 2019; Société zoologique de Granby 2018);
- Development of a pan-Canadian survey protocol for nesting and roosting sites (Rioux et al. 2010; Shaffer et al. in preparation) and study on a survey protocol aimed at limiting the incidence of nondetection error and reducing threats to nest sites (Purves et al. 2019);
- Consolidation of data on the existence of nesting sites in natural environments in the Prairies (Manitoba Chimney Swift Initiative), Ontario (Bird Studies Canada), Quebec (Regroupement QuébecOiseaux and Canadian Wildlife Service) and Atlantic Canada (Bird Studies Canada).

941
942 ## 6.2 Strategic Direction for Recovery
943
944 Table 3. Recovery planning table

Threats or limiting factors	Broad strategy for recovery	Priority[10]	General description of research and management approaches
All threats	Conservation and stewardship of the species and its habitat	Urgent	Support measures promoting the recovery of insect populations, such as reducing pesticide use, conserving areas favourable to insect reproduction, and adopting appropriate measures for addressing climate change
		High	Support stewardship among owners of structures used by the species and promote compliance with acts, regulations and policies protecting Chimney Swifts among stakeholders involved in the various issues facing the species
		High	Promote collaboration with forest-sector stakeholders to reduce the threats to natural habitats and encourage the development of measures that promote the presence of a large number of large hollow trees in forests, woodlots and parks
		Medium	Promote collaboration with partners in North and South America aimed at working to maintain natural habitats of a quality that is required to meet the species' needs during migration and wintering
		Medium	If this technique is found to be fully effective, increase the number of human-made nesting and roosting sites by installing networks of structures that are suitable for nesting and roosting.

[10] The term "priority" reflects the degree to which the approach contributes directly to the recovery of the species or is an essential precursor to an approach that contributes to the recovery of the species.

Threats or limiting factors	Broad strategy for recovery	Priority[10]	General description of research and management approaches
		Medium	Plan for the transition from existing human-made structures (nesting and roosting) to natural habitat, as well as the use of human-made structures designed for nesting and roosting (if found to be fully effective)
Knowledge gaps	Surveys and monitoring	High	Increase knowledge of the species' demographics (e.g., population size and trend, clutch size, reproductive success, distribution)
All threats and knowledge gaps	Research	Urgent	Increase knowledge of the use of the natural environment for nesting and roosting
		Medium	Increase knowledge of the species' distribution, habitat and threats on wintering grounds in collaboration with partners in North and South America
		Medium	Increase knowledge of artificial nesting towers and human-made structures used for roosting in order to develop effective models
		Medium	Increase knowledge of the characteristics of human-made structures and of methods for increasing their useful life in order to develop effective and appropriate conservation strategies
		Medium	Identify the existing human-made structures that will need to be maintained over time in order to achieve the long-term recovery objective
		Low	Obtain knowledge needed to determine the impact of threats about which little is known, including those in section 4.2.2

Threats or limiting factors	Broad strategy for recovery	Priority[10]	General description of research and management approaches
All threats	Communication, partnerships, outreach and education	High	Develop and implement a strategy for communicating with the general public, Indigenous communities, owners of human-made structures used by the Chimney Swift, chimney sweeps, building contractors and other interest groups
		Medium	Promote collaboration with governments, municipalities, landowners, Indigenous communities, the forestry sector, agricultural producers, industry and other interest groups to mitigate the threats to the species, its habitat and its prey
All threats	Legislation and policy	High	Promote compliance with international, federal (SARA, MBCA), provincial and municipal legislation and policies that will protect Chimney Swifts and their habitat
		High	Promote new and existing legislation and implement policies and programs to reduce the use of pesticides that affect insect populations that are part of the Chimney Swift's diet
		High	Investigate and promote means by which to renovate, repair or upkeep existing chimneys to meet safety standards or comply with new construction standards while maintaining their suitability for Chimney Swifts

6.3 Narrative to Support the Recovery Planning Table

The recovery of the Chimney Swift will require the collaboration and cooperation of international, federal, provincial and territorial jurisdictions, Indigenous communities, local communities, landowners, industry and other interested parties. Since the majority of Chimney Swift nesting and roosting sites are currently associated with human-made structures, communication and stewardship strategies will be particularly important.

Conservation and stewardship of the species and its habitat

Conservation actions aimed at maintaining the diversity and abundance of insects are crucial to supporting the recovery of the Chimney Swift: promoting a reduction in pesticide use is a critical step to be taken to support the species' recovery.

Owners of human-made structures and all stakeholders involved in some aspect of the species habitat will play a key role in supporting the species' recovery. Therefore, it is important to work closely with all of these owners and stakeholders to increase awareness and to support them in carrying out suitable stewardship actions. Another priority will be to promote the conservation or creation of natural habitats to encourage the species to rely more on natural sites as it did in the past. Given that not all of the chimneys or other human-made structures currently used will be conserved in the long term, new human-made nesting or roosting sites will have to be created. These new sites are designed specifically to provide habitat and are part of a transitional strategy that may help maintain the species' numbers until it begins making greater use of natural habitat in the long-term. A large number of researchers, governments, stakeholders from various relevant sectors, Indigenous communities and volunteers will have to be called upon to coordinate activities, effectively communicate results, pool resources, and share findings in an efficient manner. It could also be advisable to reopen sites that were once used by the species, but that have recently been capped or otherwise blocked, provided the site is still suitable. Carrying out conservation and stewardship actions in collaboration with the appropriate authorities and with stakeholders in other countries visited by the species during migration and wintering is one approach that should be developed and implemented. Together, these actions should have a positive effect on other species at risk whose habitat needs are similar to those of the Chimney Swift (see Appendix B).

Surveys and monitoring

Prior to the publication of the 2007 COSEWIC report, knowledge about population status and distribution was limited. Although progress has been made (see COSEWIC 2018), there is still a need to enhance the existing monitoring programs and to expand their coverage to the species' entire range. To obtain high-quality data, monitoring needs to be conducted over several decades. A number of key sector stakeholders, such as researchers, governments, Indigenous communities, and volunteers, could take part in surveys and monitoring. The monitoring data will shed light on the species' distribution, clutch size, reproductive success and population size and trends. The data can also be used to identify locations where action needs to be taken, including urgent measures, to protect nesting sites and roosts. Monitoring can also provide information on the effectiveness of the measures put in place to conserve structures. This information will be useful for measuring progress and re-assessing the species' status.

Research

Over the long term, as human-made structures become less available for use as nesting and roosting sites, the Chimney Swift will need to make greater use of natural habitat, such as hollow trees. Consequently, increasing our knowledge about current habitat use in natural areas is a priority. Although some evidence exists that the species still nests in hollow trees, such behaviour has rarely been observed. It is therefore not possible to determine the attributes of the natural habitat needed by the species, and this makes it difficult to promote the maintenance or development of suitable natural habitat for the species.

To ensure the availability of nesting sites and roosts, cost-effective nesting and roosting models will be needed. This will require increased knowledge of the structures used. However, it is important to find ways to extend the useful life of human-made structures currently used by the species in order to buy time to ensure a gradual transition to natural habitat. At the same time, it will be necessary to identify the existing human-made structures that will have to be maintained on a priority basis over time in order to achieve the long-term recovery objective.

The threats to insectivorous bird species are serious. A better understanding of the multiple facets of those threats is needed in order to develop appropriate responses. Learning more about the species' diet, identifying habitats that produce the types of insects consumed by Chimney Swifts, and identifying the threats and factors affecting those environments are avenues of research that should be given priority. Additionally, more precisely determining the real impact on the population of other threats is also a research priority.

The Chimney Swift is a migratory species. During its annual cycle, it winters in South America, migrates through Central America, and breeds in North America. Each of these regions has an influence on the species' survival. Collaboration with partners in these regions is necessary to obtain the knowledge required to improve our understanding of the threats to the species and to develop appropriate recovery strategies. Increasing our knowledge about the location of the wintering grounds and the threats to the species in those regions is a priority.

Communication, partnerships, outreach and education

The majority of known Chimney Swift nesting and roosting sites are closely associated with human-made structures, and the species forages in natural areas as well as in urban, agricultural and forested areas. The species' ability to nest or to use a roosting site may therefore be affected by several facets of human activities. To promote the species' recovery, communication, outreach and education strategies must be used to reach the many stakeholders who can have an influence on the species' habitat. These stakeholders include, chimney sweeps, 'pest' control companies, insurance companies, fire departments, building standards organizations, and companies involved in the installation and repair of heating systems.

Monitoring of the Chimney Swift population relies mainly on public participation, which needs to be encouraged and highlighted. Observers in the field often act as an early warning system, since they can report specific problems related to nesting or roosting sites, allowing corrective measures to be taken more rapidly. National coordination of recovery efforts, collection of data and citizen experiences should be encouraged in order to develop best management practices and educational tools to assist citizens and pest control and chimney cleaning companies. Such coordination is also likely to accelerate the discovery of effective species recovery measures.

Legislation and policy

Legal tools already exist to protect nests, eggs and individuals and their habitat. It is crucial to ensure that these tools are well understood and used appropriately to promote the protection of the Chimney Swift.

The *Migratory Birds Convention Act, 1994* protects individuals, nests and eggs anywhere they are found in Canada, regardless of land ownership. It is therefore important to raise awareness among chimney sweeps, municipalities and chimney owners of this act, as well as provincial and other legislation that protect the species and its habitat.

Chimney sweeping carried out during the breeding season can destroy eggs and nests. Appropriate regulations that incorporate and are consistent with MBCA and SARA prohibitions should therefore be developed in cooperation with the relevant authorities to ban chimney sweeping during the breeding season at sites occupied by the species. The same is true for ‘pest’ control companies.

Initiatives aimed at reducing the risks related to the use of pesticides (including neonicotinoids) and encouraging the adoption of alternative pest management approaches, practices and technologies are already underway (Agriculture and Agri-Food Canada 2016). These initiatives target a variety of habitats, including agricultural areas, forests and golf courses. To promote the recovery of the Chimney Swift, it is important to encourage the implementation of such initiatives and promote the development of additional legislation and policies, should this become necessary.

Federal, provincial and municipal legislation exists and deals with safety and construction standards related to the renovation and/or reparation of existing chimneys. It will therefore be important to work closely with all stakeholders in the construction industry to find and develop innovative means by which to renovate and/or repair chimneys to meet those standards while maintaining their suitability for Chimney Swifts.

7. Critical Habitat

SARA defines critical habitat as “the habitat that is necessary for the survival or recovery of a listed wildlife species.” Under paragraph 41(1)(c) of SARA, recovery

strategies must include an identification of the species' critical habitat, to the extent possible, as well as examples of activities that are likely to result in its destruction. Under subparagraph 41(1)(c)(1) of SARA, the recovery strategy must also include a schedule of studies to identify critical habitat where available information is inadequate, as it is in the case of the Chimney Swift.

7.1 Identification of the Species' Critical Habitat

The identification of critical habitat for Chimney Swift is based on two criteria: habitat occupancy and biophysical attributes of suitable habitat.

Given that all currently known Chimney Swift nesting sites or roosts in Canada are located in human-made structures, the current identification of critical habitat comprises exclusively human-made structures, which are required for the species recovery. Maintaining existing human-made structures is of paramount importance to achieve the short-term recovery objective. It will also contribute to the long-term recovery objective, although it is currently difficult to estimate the proportion of structures that will have to be maintained over time. This information will be needed before the short-term recovery objective is met.

The critical habitat of the Chimney Swift is partially identified in this recovery strategy, taking into account the best information that is available. However, basic information on the biophysical attributes and the location of suitable habitat used by the species in the natural environment, namely forested areas, is lacking. Available information on natural areas that produce insects that are part of the species' diet is also very limited. Additional critical habitat units may be identified as new knowledge becomes available. A schedule that sets out the studies required to complete the identification of the species' critical habitat is included (section 7.2, table 5).

7.1.1 Habitat occupancy

This criterion is intended to identify, with a reasonable degree of certainty, the suitable nesting and roosting sites used by the species. Since it is very difficult to find Chimney Swift nests, eggs and young because they are located in confined spaces, such as inside chimneys, it is necessary to rely on observations of swifts entering or leaving a structure. Habitat occupancy is determined on the basis of standardized survey data and incidental observations. Since the Chimney Swift is a bird species that is easily recognized by its characteristic shape, flight pattern and call, sightings reported by observers are considered reliable.

Chimney Swifts exhibit high nest and roost site fidelity. A site that is occupied as a nesting or roosting site is likely to be occupied again in subsequent years. Since a Chimney Swift may enter a structure in which it does not actually nest or roost, at least two observations of a swift entering or exiting a structure, on two different days, are required for it to be considered critical habitat. A single record of a swift observed entering or exiting a chimney, barn, or other human-made structure is considered

insufficient to meet the occupancy criterion. An activity was added to the schedule of studies in order to validate records that require more details before they can be considered critical habitat. A single confirmed breeding record, within the sense of the breeding bird atlas, namely the presence of a nest, eggs or young in a structure, or the observation of a bird entering the structure with a twig, from 2011 to 2017 inclusive, was considered to be a good indicator of habitat occupancy. This time period was considered adequate to indicate recent occupancy, given the high degree of site fidelity exhibited by Chimney Swifts.

Knowledge of Chimney Swift occupancy of nesting and roosting sites has increased considerably over the last 20 years (since 2001) in Canada. Before this period, very little effort was devoted to locating nesting and roosting sites. As a result, the data used for the identification of critical habitat in this recovery strategy consist solely of observations made from 2001 to 2017, inclusive. Data for 2017 were available during the selection of critical habitat units. In addition, observations from 2001 to 2010 inclusive must be corroborated by a more recent sighting, i.e., one made from 2011 to 2017 inclusive, in order to demonstrate that the site has been recently occupied. The data sources consulted to establish critical habitat are presented in Appendix C.

The habitat occupancy criteria in human-altered areas are as follows:

- Any confirmed breeding record between 2011 and 2017, namely the observation of a nest, eggs or young inside a structure or the observation of a bird entering a structure with a twig, or
- Any observation of at least one Chimney Swift entering or leaving a structure, on at least two different days, including at least one between 2011 and 2017 and another between 2001 and 2017.

The habitat occupancy criteria in natural areas will be developed once data have been obtained on the natural environment from the activities set out in the schedule of studies.

7.1.2 Biophysical attributes of suitable habitat

This criterion refers to the biophysical attributes of the various habitats in which individuals can carry out activities related to breeding (such as courtship, defence of territory, nest building, and foraging) and activities associated with roosting (Table 4). Given that all identified critical habitat sites are human-made structures, this table presents only the biophysical characteristics of this type of structure. Research on habitat characteristics in natural areas is identified in the schedule of studies (section 7.2). The biophysical characteristics of suitable habitat in natural areas will be defined when we have obtained data on this type of habitat from the activities outlined in the schedule of studies.

Table 4. Description of the biophysical attributes of suitable habitat for the Chimney Swift

Components of habitat suitability	Biophysical attributes
Nesting or roosting sites in human- built structures	Chimneys accessible to the species (i.e. unobstructed and large enough to allow birds to enter and leave freely) and with a rough or porous interior constructed of stone, brick, concrete or ceramic tile OR other vertical structures with interior walls made of wood, stucco, etc., such as barns, silos, wells, artificial towers, or abandoned buildings with openings allowing access to the interior (broken windows, door always open). Structures used as roosting sites are generally bigger than those used for nesting. In all cases, the interior surfaces to which Chimney Swifts cling are dimly lit.

7.1.3 Application of critical habitat identification criteria

In this recovery strategy, critical habitat for the Chimney Swift is partially identified as human-made structures occupied as nesting or roosting sites during the period from 2001 to 2017 (see section 7.1.1) that have suitable biophysical attributes as defined in section 7.1.2 (see also Figure 3).

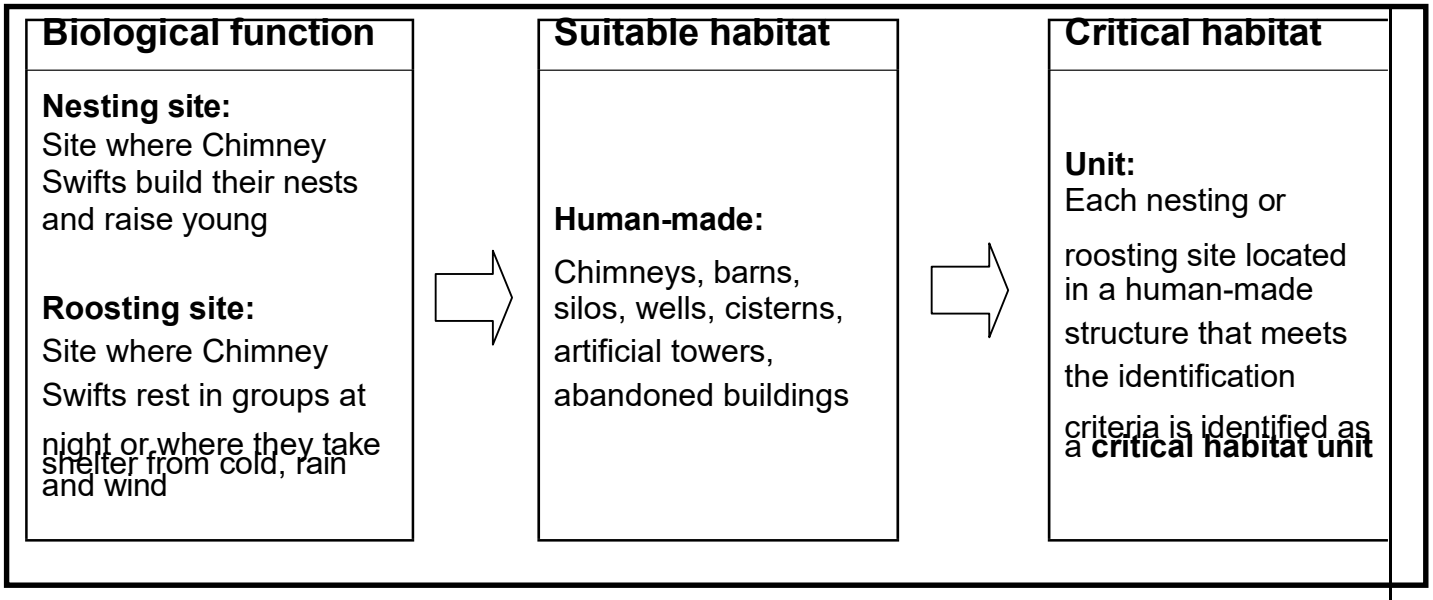

Figure 3. Explanatory diagram of terminology used

The location of critical habitat of the Chimney Swift is presented using 10 × 10 km UTM grid squares (Appendix D: Tables D-1 to D-5; Figures D-1 to D-4.7). The UTM grid is part of a standardized grid system that indicates the general geographic area containing the critical habitat. This information can be used for planning and environmental

assessment purposes. Critical habitat within each grid square consists of human-made structures that meet the criteria described in sections 7.1.1 and 7.1.2. Each human-made structure that was selected corresponds to a critical habitat unit (Figure 3). The geographical coordinates of each critical habitat unit are presented in Tables D-1 to D-5 and are indicated by a yellow dot within the associated 10 × 10 km square in Figures D-1 to D-4. Tables D-1 to D-5 also provide the thoroughfare and city where each human-made structure is located and information to correctly identify it if the building or property has more than one structure. More detailed information may be obtained on the location of each critical habitat unit to support the protection of the species and its habitat, on a case-by-case basis, by contacting Environment and Climate Change Canada's Recovery Planning section at ec.planificationduretablissement-recoveryplanning.ec@canada.ca.

By applying the identification criteria described in sections 7.1.1 and 7.1.2, based on the most recent data for the 2001-2017 period, it is possible to identify a total of 1039 units for the entire Canadian population, specifically 122 units in Manitoba, 381 in Ontario, 468 in Quebec, 28 in New Brunswick, and 40 in Nova Scotia. There are no known occupied chimneys in Saskatchewan for the 2001-2017 period, and therefore no critical habitat units have been identified in that province.

7.2 Schedule of Studies to Identify Critical Habitat

Table 5. Schedule of studies

Description of activity	Rationale	Timeline
Conduct a survey in locations where: • the records obtained between 2001 and 2017 indicate that the occupancy criteria are only partially met; • current occupancy needs to be checked against those records.	Identification of additional critical habitat to achieve the population and distribution objectives.	2022-2025
Locate nesting and roosting sites in natural areas and define their biophysical characteristics.	Identification of sites currently being used in natural areas with a view to identifying critical habitat.	2022-2025
Model natural habitat that may contain suitable sites and validate the model.	Identification of portions of the range that contain natural habitat suitable for the species and that could be identified as critical habitat.	2024-2026
Determine the characteristics of habitats that support populations of insects on which the Chimney Swift feeds.	Identification of sites that support populations of insects that are part of the Chimney Swift's diet.	2024-2026

7.3 Activities Likely to Result in the Destruction of Critical Habitat

Understanding what constitutes destruction of critical habitat is necessary for the protection and management of critical habitat. Destruction is determined on a case-by-case basis. Destruction occurs when part of the critical habitat is degraded, either permanently or temporarily, such that it can no longer serve its function when needed by the species. Destruction may result from a single activity at one point in time or from the cumulative effects of one or more activities over time.

Examples of activities likely to result in destruction of critical habitat for the Chimney Swift include, but are not limited to, activities that eliminate nesting or roosting sites, prevent the birds from gaining access to those sites, or modify structures to the extent that they are unsuitable for the species. Examples are presented in Table 6.

It is recognized that human-made structures used for nesting and roosting are temporary and may need periodic maintenance or may need to be removed for health and safety reasons. When such structures are identified as critical habitat, priority will be given to stewardship, voluntary measures, mitigation or other appropriate measures, in order to protect them. Where, for public health and safety reasons, it is unavoidable to remove a human-made structure used by the Chimney Swift for nesting or roosting or to modify it in such a way as to compromise its habitat function, a permit would be required before work can proceed.

In the event that repairs or changes to the interior or exterior of a human-made structure used by the Chimney Swift for nesting or roosting are needed, if the work is done outside the breeding period, it will be not considered destruction of critical habitat provided it does not impair habitat function. A permit would be required before work could proceed.

1267 Table 6. Examples of activities likely to result in the destruction of critical habitat for the
1268 Chimney Swift

Description of activity	Description of effect	Details of effect
Repairs to a chimney or other type of human-made structure (building, old barn, silo, well, etc.) that modify its internal structure or its opening.	Destruction of critical habitat; loss of access to critical habitat.	The interior walls of chimneys or other types of human-made structure must be textured so that Chimney Swifts can cling to the vertical surface. In addition to being rough-textured, it must be sufficiently porous to allow the bird's saliva to cement the nest to the wall. Modifications to the texture of the interior walls of chimneys or other types of human-made structure that make them unsuitable for use by Chimney Swifts, such as the installation of metal liners in chimneys, is considered destruction of critical habitat. A modification that results in a change to the internal conditions of the structure (temperature, light, etc.) is considered destruction of critical habitat. To gain access to the interior of a chimney or other human-made structure, the Chimney Swift must be able to pass through the opening without encountering an obstruction. The opening must therefore remain unobstructed and be large enough to allow the bird to enter and leave freely. An aesthetic change to the exterior of a chimney or other type of human-made structure is not considered destruction of critical habitat.
Closure or demolition of a chimney or other type of human-made structure (building, old barn, silo, well, etc.).	Destruction of critical habitat.	To access to interior walls of a chimney or other type of human-made structure, the Chimney Swift must be able to pass through the opening without encountering an obstruction. The opening must therefore remain unobstructed and be large enough to allow the bird to enter and exit freely. An aesthetic change to the exterior of a human-made structure is not considered destruction of critical habitat. Loss of access by Chimney Swifts or demolition of a chimney or other type of human-made structure meeting the critical habitat criteria reduces the number of nest or roost sites available to the species.

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8. Measuring Progress

The performance indicators presented below provide a way to define and measure progress toward achieving the population and distribution objectives.

The performance indicators for the recovery of the Chimney Swift are as follows:

- In the short term (10 years, beginning on the date the recovery strategy is posted on the Species at Risk Public Registry): the cumulative rate of decline of the population in Canada has not been significantly more than 10%.
- In the long term: the population trend has remained stable (i.e., not significantly different from zero) over a 10-year period following the achievement of the short-term objective, approximatively from 2032 to 2042.
- The Chimney Swift's current extent of occurrence in Canada has been maintained.

9. Statement on Action Plans

One or more action plans will be posted on the Species at Risk Public Registry within five years of the final publication of this recovery strategy.

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Appendix A: Definitions of NatureServe Conservation Ranks

The table below lists the conservation status ranks used by NatureServe and their definitions. These ranks are appended to the letter “G” (global rank, applies to the entire range), “N” (national rank, applies on a national scale) or “S” (subnational rank, applies to a province or state). A numeric range rank (e.g., S1S2) is used to indicate uncertainty about the status of the species or community in question.

Rank	Definition
1	Critically Imperiled – Species or community that is extremely rare (often five or fewer occurrences) or is affected by some factors such as very steep declines making it especially vulnerable to extirpation.
2	Imperiled – Species or community that is rare due to very restricted range, very few populations (often fewer than 20), steep declines, or other factors making it very vulnerable to extirpation.
3	Vulnerable – Species or community with a very restricted range and relatively few populations (often 80 or fewer) that has experienced recent and widespread declines, or is affected by other factors making it vulnerable to extirpation.
4	Apparently Secure – Species or community that is uncommon but not rare, with some cause for long-term concern due to declines or other factors.
5	Secure – Species or community that is common, widespread and abundant in the jurisdiction in question.
B	Breeding – Conservation status refers to the breeding population of the species in the nation or state/province.
N	Non-breeding – Conservation status refers to the non-breeding population of the species in the nation or state/province.
M	Migrant – Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the nation or state/province.
NR	Species or community that is unranked because its status has not yet been assessed.
NA	Not Applicable – The species or community is not a suitable target for conservation activities.
?	Denotes inexact or uncertain numeric rank.

Appendix B: Effects on the Environment and Other Species

A strategic environmental assessment (SEA) is conducted on all SARA recovery planning documents, in accordance with the *Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals*[11]. The purpose of a SEA is to incorporate environmental considerations into the development of public policies, plans, and program proposals to support environmentally sound decision-making and to evaluate whether the outcomes of a recovery planning document could affect any component of the environment or any of the Federal Sustainable Development Strategy's[12] (FSDS) goals and targets.

Recovery planning is intended to benefit species at risk and biodiversity in general. However, it is recognized that strategies may also inadvertently lead to environmental effects beyond the intended benefits. The planning process based on national guidelines directly incorporates consideration of all environmental effects, with a particular focus on possible impacts on non-target species or habitats. The results of the SEA are incorporated directly into the strategy itself, but are also summarized below.

Like several other bird species that are considered aerial insectivores, the Chimney Swift feeds on insects that it captures in flight. Several of the recommended activities may therefore benefit the following species at risk: Common Nighthawk (*Chordeiles minor*), Eastern Whip-poor-will (*Antrostomus vociferus*), Olive-sided Flycatcher (*Contopus cooperi*), Acadian Flycatcher (*Empidonax virescens*), Barn Swallow (*Hirundo rustica*) and Bank Swallow (*Riparia riparia*). The proposed measures may also benefit several other aerial insectivores that are not at risk, such as other swallow and flycatcher species. Measures to preserve hollow trees could also have a positive impact on forest species that use tree cavities.

The potential for this recovery strategy to inadvertently lead to adverse effects on the environment and other species was considered. It can be concluded that this strategy will have no significant adverse effects.

[11] www.canada.ca/en/environmental-assessment-agency/programs/strategic-environmental-assessment/cabinet-directive-environmental-assessment-policy-plan-program-proposals.html
[12] www.fsds-sfdd.ca/index.html#/en/goals/

Appendix C: Acquisition dates of best available data

Biodiversity datasets are regularly updated with new or historical occurrences. Critical habitat is based on all suitable occurrence data available to Environment and Climate Change Canada. The following list indicates for each region the main sources of the data that were consulted and the dates on which the data were obtained in order to establish the list of critical habitat units. These datasets are likely to be regularly updated with new or historical occurrences and are therefore not an exhaustive list of the datasets that constitute the best available data.

Prairies Region

Manitoba Chimney Swift Initiative database, December 23, 2020

Ontario Region

Birds Canada database; various datasets including SwiftWatch - September 2018, eBird - 2016, and Project NestWatch – 2016. Ontario Natural Heritage Information Centre, April 2012

Québec Region

SOS-POP database, March 02, 2021

Atlantic Region

Birds Canada database, January 26, 2021

Appendix D: Critical Habitat for the Chimney Swift

Table D1. Description of the 10 × 10 km standardized UTM grid squares and critical habitat units for the Chimney Swift in Manitoba. Critical habitat occurs where the criteria described in sections 7.1.1 and 7.1.2 are met.

10 x 10 km standardized grid square ID[13]	Building type[14]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[15]	Land tenure
14UMA32	Residential and/or commercial	49.84704	-99.95438	Princess Ave.	Brandon	W. smaller chimney	Non-federal
14UNV78	Residential	49.50451	-98.00331	1st St. SW.	Carman	N. chimney	Non-federal
14UNV78	Office - Public	49.50522	-98.00231	2nd Ave. SW.	Carman		Non-federal
14UMV94	Educational	49.13352	-99.03485	10th St. N.	Clearwater		Non-federal
14UNV45	Office - Public	49.20523	-98.38076	Bradburn St.	Darlingford		Non-federal
14UMB26	Office - Public	51.15101	-100.05188	1st Ave. NW.	Dauphin	Shorter roofline chimney on N. corner of building	Non-federal
14UMB26	Residential and/or commercial	51.15085	-100.04884	Main St. N.	Dauphin	NW. chimney	Non-federal
14UPV88	Religious	49.52508	-96.50979	Rue Principale	La Broquerie	S. side tall chimney	Non-federal
14UPV88	Religious	49.52508	-96.50979	Rue Principale	La Broquerie	E. end small chimney	Non-federal
14UPA20	Religious	49.69404	-97.26847	Rue Beaudry	La Salle	E. side of building	Non-federal
14UQA07	Commercial	50.25790	-96.05986	1st St.	Lac Du Bonnet	Chimney on main building	Non-federal

[13] Based on the standard UTM Military Grid Reference System (see https://www.nrcan.gc.ca/earth-sciences/geography/topographic-information/maps/9789), where the first 2 digits represent the UTM zone, the following letter represents the UTM row, the next 2 letters indicate the 100 km x 100 km standardized UTM grid, followed by 2 digits to represent the 10 x 10 km standardized UTM grid comprising one or several critical habitat units. This unique alphanumeric code is based on the methodology used for the Breeding Bird Atlases of Canada (see https://www.birdscanada.org/ for more information on breeding bird atlases).

[14] See Appendix E for a description of building types.

[15] When there is more than one chimney on the building or property. N = north; S = south; E = east; W = west.

10 x 10 km standardized grid square ID[13]	Building type[14]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[15]	Land tenure
14UQA07	Commercial	50.25794	-96.06150	1st St.	Lac Du Bonnet		Non-federal
14UPA45	Office - Public	50.11162	-96.93192	Hwy. 9	Lower Fort Garry	W. chimney	Federal
14UPA45	Office - Public	50.11179	-96.93225	Hwy. 9	Lower Fort Garry	W. chimney	Federal
14ULV55	Office - Public	49.27329	-100.99158	Ash St.	Melita	Main large chimney	Non-federal
14ULV55	Office - Public	49.26997	-100.99038	Main St.	Melita		Non-federal
14ULV55	Office - Public	49.27143	-100.99147	Main St.	Melita		Non-federal
14ULV55	Office - Public	49.27137	-100.99557	Summit St.	Melita	NW. side of main entrance building	Non-federal
14UPV48	Educational	49.50113	-97.04592	College Cres.	Otterburne	Main building N. chimney near bell tower	Non-federal
14UPV48	Educational	49.50113	-97.04592	College Cres.	Otterburne	Main building large SW. chimney	Non-federal
14UPV48	Educational	49.50113	-97.04592	College Cres.	Otterburne	Main building skinny SE. chimney	Non-federal
14UNA53	Educational	49.97167	-98.28219	5th St. SE.	Portage la Prairie	S. side of building	Non-federal
14UNA43	Office - Public	49.96211	-98.32283	Crescent Rd. W.	Portage la Prairie	S. chimney of building	First Nation
14UNA53	Office - Public	49.97183	-98.28513	Duke Ave.	Portage la Prairie	Central longer narrow chimney W. side of S. building extension	Non-federal
14UNA53	Office - Public	49.97183	-98.28513	Duke Ave.	Portage la Prairie	S. side tall stack chimney	Non-federal
14UNA53	Commercial	49.97240	-98.28951	Royal Rd. S.	Portage la Prairie		Non-federal
14UNA53	Residential and/or commercial	49.97270	-98.28938	Saskatchewan Ave. E.	Portage la Prairie		Non-federal
14UNA53	Religious	49.97240	-98.29181	Tupper St. S.	Portage la Prairie	NW. rectangular chimney (middle of 3)	Non-federal

10 x 10 km standardized grid square ID[13]	Building type[14]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[15]	Land tenure
14UNA53	Religious	49.97240	-98.29181	Tupper St. S.	Portage la Prairie	NW. square chimney (northernmost of 3)	Non-federal
14UPA55	Commercial	50.14368	-96.86971	Eveline St.	Selkirk	Large central chimney	Non-federal
14UPA55	Residential	50.14369	-96.87553	Main St.	Selkirk		Non-federal
14UPA55	Residential and/or commercial	50.14488	-96.87156	Manitoba Ave.	Selkirk	NW. side of building	Non-federal
14UPA55	Office - Public	50.15399	-96.88999	Manitoba Ave.	Selkirk	Provincial Offices Building (100253) West side of centre block	Non-federal
14UMA51	Office - Public	49.79923	-99.62594	DND Shilo	Shilo	Building Q2 chimney	Federal
14UMA51	Office - Public	49.80539	-99.63182	DND Shilo	Shilo	Building C101 chimney	Federal
14UMV09	Residential and/or commercial	49.61776	-100.25832	1st St. S.	Souris	NE. corner of building	Non-federal
14UMV09	Residential and/or commercial	49.62062	-100.25849	1st St. S.	Souris		Non-federal
14UMV09	Residential and/or commercial	49.61759	-100.26092	2nd St. S.	Souris		Non-federal
14UMV09	Residential	49.61757	-100.26211	5th Ave. W.	Souris	Large chimney on main white building	Non-federal
14UMV09	Religious	49.61821	-100.26045	5th Ave. W.	Souris	E. side of building	Non-federal
14UMV09	Office - Public	49.61631	-100.25675	Crescent Ave. E.	Souris	E. chimney	Non-federal
14UMV09	Residential and/or commercial	49.61671	-100.25832	Crescent Ave. W.	Souris	Tall chimney on W. side	Non-federal
14UMV09	Residential and/or commercial	49.61669	-100.25850	Crescent Ave. W.	Souris	W. side of building	Non-federal
14UNA52	Office - Public	49.91570	-98.27380	Centennaire Dr.	Southport		Non-federal

10 x 10 km standardized grid square ID[13]	Building type[14]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[15]	Land tenure
14UPA30	Office - Public	49.67150	-97.11100	Main St.	St. Adolphe	SE. Chimney	Non-federal
14UPA30	Office - Public	49.67160	-97.11100	Main St.	St. Adolphe	NE. Chimney	Non-federal
14UPA30	Office - Public	49.67232	-97.11113	Main St.	St. Adolphe		Non-federal
14UPA30	Residential	49.67300	-97.11181	Main St.	St. Adolphe		Non-federal
14UPA30	Religious	49.67320	-97.11049	Main St.	St. Adolphe		Non-federal
14UPA03	Religious	49.91333	-97.54088	Hwy. 26	St. Francois Xavier		Non-federal
14UPV25	Religious	49.26565	-97.34136	Caron St.	St. Jean Baptiste		Non-federal
14UPV68	Office - Public	49.52945	-96.68049	Henry St.	Steinbach	Tall W. chimney near parking lot	Non-federal
14UMB31	Office - Public	50.65765	-99.97230	Wasagaming Dr.	Wasagaming	E. chimney of NE. pair of chimneys	Federal
14UPA32	Residential	49.87340	-97.18150	Academy Rd.	Winnipeg		Non-federal
14UPA32	Commercial	49.89759	-97.14438	Adelaide St.	Winnipeg		Non-federal
14UPA32	Residential and/or commercial	49.89647	-97.14087	Albert St.	Winnipeg	NW. corner of building	Non-federal
14UPA33	Religious	49.92098	-97.12429	Anderson Ave.	Winnipeg		Non-federal
14UPA32	Residential	49.88568	-97.13820	Assiniboine Ave.	Winnipeg	N. chimney	Non-federal
14UPA32	Residential	49.88568	-97.13820	Assiniboine Ave.	Winnipeg	S. chimney	Non-federal
14UPA33	Residential	49.93436	-97.09332	Brazier St.	Winnipeg		Non-federal
14UPA33	Residential	49.93477	-97.09290	Brazier St.	Winnipeg		Non-federal
14UPA22	Residential	49.87679	-97.21216	Cavell Dr.	Winnipeg		Non-federal
14UPA33	Religious	49.91555	-97.11578	Cobourg Ave.	Winnipeg		Non-federal
14UPA32	Residential	49.86887	-97.16049	Corydon Ave.	Winnipeg	W. chimney	Non-federal
14UPA31	Office - Public	49.76753	-97.15140	De La Digue Ave.	Winnipeg	Central of 3 chimneys	Non-federal
14UPA32	Office - Public	49.88499	-97.14289	Edmonton St.	Winnipeg	SW. corner of building	Non-federal
14UPA32	Office - Public	49.89317	-97.15823	Ellice St.	Winnipeg		Non-federal
14UPA32	Residential	49.88187	-97.17095	Evanson St.	Winnipeg		Non-federal

10 x 10 km standardized grid square ID[13]	Building type[14]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[15]	Land tenure
14UPA32	Religious	49.87501	-97.14774	Gertrude Ave.	Winnipeg		Non-federal
14UPA32	Office - Public	49.88258	-97.15064	Granite Way	Winnipeg		Non-federal
14UPA22	Religious	49.88189	-97.21233	Hampton St.	Winnipeg	E. chimney	Non-federal
14UPA22	Religious	49.88189	-97.21233	Hampton St.	Winnipeg	N. chimney	Non-federal
14UPA22	Residential	49.87194	-97.21630	Handsart Blvd.	Winnipeg	S. chimney	Non-federal
14UPA33	Commercial	49.93515	-97.09493	Henderson Hwy.	Winnipeg		Non-federal
14UPA22	Residential	49.86338	-97.19843	Lanark St.	Winnipeg	Apartment Building B	Non-federal
14UPA32	Residential	49.88144	-97.17137	Lenore St.	Winnipeg	NW. of the 2 chimneys, centre of roof	Non fédéral
14UPA32	Commercial	49.89525	-97.13354	Lombard Ave.	Winnipeg	E. chimney	Non fédéral
14UPA32	Commercial	49.88960	-97.13590	Main St.	Winnipeg		Non fédéral
14UPA32	Commercial	49.88220	-97.10910	Marion St.	Winnipeg		Non fédéral
14UPA32	Residential and/or commercial	49.89890	-97.13570	Market Ave.	Winnipeg		Non fédéral
14UPA32	Commercial	49.88200	-97.16036	Maryland St.	Winnipeg		Non federal
14UPA32	Industrial	49.90167	-97.15417	McDermot Ave.	Winnipeg	NW. chimney	Non federal
14UPA32	Industrial	49.87330	-97.14015	Mulvey Ave. E.	Winnipeg		Non federal
14UPA32	Residential	49.85990	-97.12964	Osborne St.	Winnipeg		Non federal
14UPA32	Office - Public	49.86347	-97.13471	Osborne St.	Winnipeg		Non federal
14UPA32	Éducational	49.90037	-97.13513	Pacific Ave.	Winnipeg		Non federal
14UPA31	Educational	49.79872	-97.13438	Patricia Ave.	Winnipeg		Non-federal
14UPA32	Commercial	49.84269	-97.15411	Pembina Hwy.	Winnipeg		Non-federal
14UPA32	Commercial	49.84530	-97.15380	Pembina Hwy.	Winnipeg		Non-federal
14UPA22	Residential	49.87451	-97.10336	Portage Ave.	Winnipeg	Easternmost apartment block east chimney	Non-federal
14UPA22	Residential	49.87663	-97.24425	Portage Ave.	Winnipeg	Westernmost building N. chimney	Non-federal

10 x 10 km standardized grid square ID[13]	Building type[14]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[15]	Land tenure
14UPA22	Residential	49.87700	-97.24010	Portage Ave.	Winnipeg		Non-federal
14UPA22	Residential	49.87843	-97.21238	Portage Ave.	Winnipeg		Non-federal
14UPA22	Residential	49.87858	-97.21096	Portage Ave.	Winnipeg		Non-federal
14UPA22	Residential	49.87863	-97.21135	Portage Ave.	Winnipeg	N. chimney	Non-federal
14UPA22	Commercial	49.87890	-97.22620	Portage Ave.	Winnipeg		Non-federal
14UPA22	Commercial	49.87930	-97.20989	Portage Ave.	Winnipeg		Non-federal
14UPA32	Commercial	49.89663	-97.14303	Princess St.	Winnipeg	NE. chimney	Non-federal
14UPA32	Religious	49.87905	-97.14537	River Ave.	Winnipeg	NE. stone chimney recessed from edge	Non-federal
14UPA32	Residential	49.87950	-97.14448	River Ave.	Winnipeg	W. chimney	Non-federal
14UPA32	Residential	49.87950	-97.14448	River Ave.	Winnipeg	E. chimney	Non-federal
14UPA32	Residential	49.88019	-97.14426	River Ave.	Winnipeg	Northernmost outer chimney	Non-federal
14UPA32	Residential	49.88097	-97.14189	River Ave.	Winnipeg		Non-federal
14UPA32	Residential and/or commercial	49.88009	-97.14589	Roslyn Rd.	Winnipeg	W. chimney	Non-federal
14UPA32	Commercial	49.90359	-97.15585	Sherbrook St.	Winnipeg	Centre of building	Non-federal
14UPA32	Educational	49.84320	-97.12240	South Dr.	Winnipeg	Administration building chimney	Non-federal
14UPA32	Commercial	49.89333	-97.12281	St. Joseph St.	Winnipeg		Non-federal
14UPA32	Residential and/or commercial	49.88864	-97.15027	St. Mary Ave.	Winnipeg	S. side chimney	Non-federal
14UPA32	Religious	49.84601	-97.11245	St. Mary's Rd.	Winnipeg		Non-federal
14UPA32	Religious	49.86269	-97.11043	St. Mary's Rd.	Winnipeg		Non-federal
14UPA31	Religious	49.76486	-97.14329	St. Pierre St.	Winnipeg		Non-federal
14UPA32	Residential	49.87854	-97.14376	Stradbrook Ave.	Winnipeg		Non-federal
14UPA32	Residential	49.87904	-97.14224	Stradbrook Ave.	Winnipeg	NE. chimney	Non-federal

10 x 10 km standardized grid square ID[13]	Building type[14]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[15]	Land tenure
14UPA32	Residential	49.87968	-97.14011	Stradbrook Ave.	Winnipeg		Non-federal
14UPA32	Commercial	49.90181	-97.12723	Waterfront Dr.	Winnipeg	NW. corner of building	Non-federal
14UPA32	Commercial	49.90205	-97.12678	Waterfront Dr.	Winnipeg	E side of building	Non-federal
14UPA33	Commercial	49.92313	-97.09184	Watt St.	Winnipeg		Non-federal
14UPA32	Residential	49.90137	-97.14780	William Ave.	Winnipeg	S. chimney on W. portion of building	Non-federal
14UPA32	Residential	49.90211	-97.14844	William Ave.	Winnipeg	Large chimney on W. side recessed from edge	Non-federal
14UPA22	Educational	49.87780	-97.20989	Winston Rd.	Winnipeg		Non-federal
14UPA32	Residential	49.86896	-97.17194	Yale Ave.	Winnipeg	S. chimney	Non-federal
14UPA32	Educational	49.88057	-97.10831	Youville St.	Winnipeg	N. chimney	Non-federal

1630

Table D-2. Description of the 10 × 10 km standardized UTM grid squares and critical habitat units for the Chimney Swift in Ontario. Critical habitat occurs where the criteria described in sections 7.1.1 and 7.1.2 are met.

10 x 10 km standardized grid square ID[16]	Building type[17]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[18]	Land tenure
17TNJ73	Commercial	43.63221	-80.04228	Willow St. N.	Acton		Non-federal
18TUR93	Commercial	45.43426	-76.3532	John St. N.	Arnprior		Non-federal
17TPJ27	Residential	43.99825	-79.46384	Wells St.	Aurora		Non-federal
17TPJ27	Commercial	43.99864	-79.46769	Yonge St.	Aurora		Non-federal
17TPJ27	Commercial	43.99898	-79.46769	Yonge St.	Aurora		Non-federal
17TPJ27	Residential and/or commercial	43.99906	-79.46774	Yonge St.	Aurora		Non-federal
17TPJ27	Commercial	43.99906	-79.46721	Yonge St.	Aurora	S. chimney	Non-federal
17TPJ27	Commercial	43.99912	-79.46716	Yonge St.	Aurora	E. chimney	Non-federal
17TPK01	Residential and/or commercial	44.39526	-79.69477	Bayfield St.	Barrie		Non-federal
17TPK01	Residential	44.38685	-79.69363	Bradford St.	Barrie		Non-federal
17TPK01	Educational	44.37188	-79.69011	Burton Ave.	Barrie		Non-federal
17TPK01	Residential	44.39133	-79.69031	Clapperton St.	Barrie		Non-federal
17TPK01	Commercial	44.39015	-79.6867	Collier St.	Barrie		Non-federal
17TPK01	Commercial	44.39018	-79.68691	Collier St.	Barrie		Non-federal
17TPK01	Commercial	44.39073	-79.68174	Collier St.	Barrie		Non-federal

[16] Based on the standard UTM Military Grid Reference System (see https://www.nrcan.gc.ca/earth-sciences/geography/topographic-information/maps/9789), where the first 2 digits represent the UTM zone, the following letter represents the UTM row, the next 2 letters indicate the 100 km x 100 km standardized UTM grid, followed by 2 digits to represent the 10 x 10 km standardized UTM grid comprising one or several critical habitat units. This unique alphanumeric code is based on the methodology used for the Breeding Bird Atlases of Canada (see https://www.birdscanada.org/ for more information on breeding bird atlases).

[17] See Appendix E for a description of building types.

[18] When there is more than one chimney on the building or property. N = north; S = south; E = east; W = west.

10 x 10 km standardized grid square ID[16]	Building type[17]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[18]	Land tenure
17TPK01	Residential	44.3911	-79.68005	Collier St.	Barrie		Non-federal
17TPK01	Commercial	44.38943	-79.68666	Dunlop St. E.	Barrie		Non-federal
17TPK01	Residential and/or commercial	44.38947	-79.68507	Dunlop St. E.	Barrie		Non-federal
17TPK01	Residential and/or commercial	44.38957	-79.68925	Dunlop St. E.	Barrie		Non-federal
17TPK01	Residential	44.38483	-79.70082	Dunlop St. W.	Barrie		Non-federal
17TPK01	Residential	44.3859	-79.69835	Dunlop St. W.	Barrie		Non-federal
17TPK01	Educational	44.38607	-79.69497	Dunlop St. W.	Barrie		Non-federal
17TPK01	Residential and/or commercial	44.38628	-79.69734	Dunlop St. W.	Barrie		Non-federal
17TPK01	Commercial	44.38891	-79.69173	Dunlop St. W.	Barrie		Non-federal
17TPK01	Commercial	44.38895	-79.68845	Fred Grant St.	Barrie		Non-federal
17TPK01	Residential	44.37036	-79.6841	Holgate St.	Barrie		Non-federal
17TPK01	Residential	44.37047	-79.6828	Holgate St.	Barrie		Non-federal
17TPK01	Commercial	44.37227	-79.69334	Innisfil St.	Barrie		Non-federal
17TPK01	Residential	44.38912	-79.69278	Mary St.	Barrie		Non-federal
17TPK01	Residential	44.37634	-79.69425	Sandford St.	Barrie		Non-federal
17TPK01	Residential	44.38721	-79.69259	Toronto St.	Barrie		Non-federal
17TPK01	Residential	44.3945	-79.69291	Wellington St. E.	Barrie		Non-federal
17TPK01	Residential	44.39451	-79.69289	Wellington St. E.	Barrie		Non-federal
17TPK01	Residential	44.39179	-79.68651	Worsley St.	Barrie		Non-federal
18TTP88	Educational	44.04513	-77.73103	Dundas St.	Brighton		Non-federal
18TTP88	Residential and/or commercial	44.04205	-77.73679	Prince Edward St.	Brighton		Non-federal
18TVQ43	Residential and/or commercial	44.58968	-75.68363	King St. W.	Brockville		Non-federal
18TVQ43	Educational	44.59796	-75.67927	Pearl St. E.	Brockville		Non-federal
17TNH99	Residential	43.33146	-79.80511	Blairholm Ave.	Burlington	On church	Non-federal

10 x 10 km standardized grid square ID[16]	Building type[17]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[18]	Land tenure
17TNH99	Commercial	43.32982	-79.80192	Brant St.	Burlington		Non-federal
17TNJ80	Office - Public	43.42359	-79.90301	Britannia Rd.	Burlington		Non-federal
17TNH99	Residential	43.32016	-79.80324	Maple Ave.	Burlington		Non-federal
17TNJ90	Residential	43.3545	-79.76642	New St.	Burlington		Non-federal
17TNH99	Residential	43.32765	-79.79579	Pearl St.	Burlington		Non-federal
17TNH99	Office - Public	43.28767	-79.87616	Spring Gardens Dr.	Burlington		Non-federal
17TNH99	Educational	43.30865	-79.84589	Townsend Ave.	Burlington		Non-federal
17TNJ90	Educational	43.36409	-79.82504	Upper Middle Rd.	Burlington		Non-federal
17TNJ50	Industrial	43.36714	-80.30446	Beverly St.	Cambridge		Non-federal
17TNJ50	Residential and/or commercial	43.35859	-80.31491	Main St.	Cambridge		Non-federal
17TNJ50	Commercial	43.39357	-80.34698	Montrose St. N.	Cambridge	Large chimney on N. side	Non-federal
17TNJ50	Commercial	43.3701	-80.30701	Samuelson St.	Cambridge		Non-federal
17TNJ81	Residential and/or commercial	43.48721	-79.98245	Main St. N.	Campbellville		Non-federal
17TNJ81	Residential	43.48702	-79.98168	Main St. S.	Campbellville	N. chimney	Non-federal
18TUS10	Industrial	46.05339	-77.36528		Chalk River		Other federal
18TTP67	Residential and/or commercial	44.00557	-77.88718	King St. E.	Colborne		Non-federal
18TTP67	Residential and/or commercial	44.00561	-77.88695	King St. E.	Colborne		Non-federal
17TNK62	Residential and/or commercial	44.50207	-80.21587	Saint Marie St.	Collingwood		Non-federal
17TNH44	Office - Public	42.85431	-80.4983	Main St.	Delhi		Non-federal
17TNH89	Commercial	43.26585	-79.95766	Hatt St.	Dundas		Non-federal
17TNH89	Commercial	43.26586	-79.94633	Thorpe St.	Dundas		Non-federal
18TVQ04	Residential	44.61011	-76.21826	Main St.	Elgin		Non-federal
17TLG46	Educational	42.13532	-82.87495	County Rd. 12	Essex		Non-federal

10 x 10 km standardized grid square ID[16]	Building type[17]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[18]	Land tenure
17TPH65	Commercial	42.93033	-78.91907	Central Ave.	Fort Erie		Non-federal
17TPH75	Commercial	42.92904	-78.91579	Courtwright St.	Fort Erie		Non-federal
17TPH65	Commercial	42.93085	-78.91857	Dufferin St.	Fort Erie		Non-federal
17TPH65	Office - Public	42.92951	-78.91679	Jarvis St.	Fort Erie		Non-federal
17TPH65	Residential	42.92982	-78.92397	Jarvis St.	Fort Erie		Non-federal
17TPH75	Residential	42.92775	-78.91407	Lewis St.	Fort Erie		Non-federal
17TNJ83	Educational	43.65025	-79.92059	Guelph St.	Georgetown		Non-federal
17TNJ83	Residential and/or commercial	43.65548	-79.91542	Lamb St.	Georgetown		Non-federal
17TNJ83	Office - Public	43.65027	-79.9277	Main St. S.	Georgetown		Non-federal
17TNJ62	Commercial	43.54386	-80.24911	Carden St.	Guelph		Non-federal
17TNJ62	Office - Public	43.54443	-80.24683	Carden St.	Guelph		Non-federal
17TNJ62	Residential	43.54488	-80.24706	Carden St.	Guelph		Non-federal
17TNJ62	Commercial	43.54493	-80.2468	Carden St.	Guelph		Non-federal
17TNJ62	Office - Public	43.55119	-80.2542	Cardigan St.	Guelph		Non-federal
17TNJ62	Educational	43.53392	-80.22928	College Ave. E.	Guelph		Non-federal
17TNJ61	Educational	43.52405	-80.24491	College Ave. W.	Guelph		Non-federal
17TNJ52	Religious	43.56832	-80.29559	Hwy 6 N.	Guelph	Chapel	Non-federal
17TNJ52	Religious	43.57024	-80.2844	Hwy 6 N.	Guelph	Loyola House	Non-federal
17TNJ62	Residential	43.54193	-80.25125	Northumberland St.	Guelph		Non-federal
17TNJ62	Residential and/or commercial	43.5453	-80.25163	Quebec St.	Guelph		Non-federal
17TNJ62	Educational	43.53382	-80.22827	Trent Lane E.	Guelph		Non-federal
17TNJ62	Educational	43.53751	-80.25484	Waterloo Ave.	Guelph		Non-federal
17TNJ62	Residential and/or commercial	43.54357	-80.24971	Wilson St.	Guelph		Non-federal
17TNJ62	Residential and/or commercial	43.5481	-80.24948	Woolwich St.	Guelph		Non-federal

10 x 10 km standardized grid square ID[16]	Building type[17]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[18]	Land tenure
17TNJ62	Residential and/or commercial	43.5471	-80.25109	Wyndham St. N.	Guelph		Non-federal
17TNJ62	Residential and/or commercial	43.54713	-80.24994	Wyndham St. N.	Guelph		Non-federal
17TNJ62	Residential and/or commercial	43.54659	-80.25222	Yarmouth St.	Guelph		Non-federal
17TNH99	Religious	43.26397	-79.86651	Barton St. W.	Hamilton		Non-federal
17TNH99	Residential and/or commercial	43.25987	-79.86644	Hughson St. N.	Hamilton		Non-federal
17TNH98	Office - Public	43.25696	-79.86817	James St. N.	Hamilton	Back of building	Non-federal
17TNH99	Commercial	43.2589	-79.8675	James St. N.	Hamilton		Non-federal
17TNH89	Religious	43.25998	-79.91039	King St. W.	Hamilton		Non-federal
17TNH98	Residential and/or commercial	43.25514	-79.88608	Locke St. S.	Hamilton		Non-federal
17TNH89	Educational	43.26391	-79.91902	Main St. W.	Hamilton	Edwards Hall – South	Non-federal
17TNH89	Educational	43.26405	-79.91901	Main St. W.	Hamilton	Edwards Hall - Middle	Non-federal
17TNH89	Educational	43.26426	-79.91899	Main St. W.	Hamilton	Edwards Hall – North	Non-federal
17TNH98	Religious	43.25145	-79.88773	Stanley Ave.	Hamilton		Non-federal
17TLG44	Office - Public	41.98459	-82.93027	Bagot St.	Harrow		Non-federal
17TPL32	Residential and/or commercial	45.32609	-79.22165	Main St. W.	Huntsville		Non-federal
17TML69	Religious	45.97132	-81.51366	Channel St.	Killarney	Church Rectory	Non-federal
17TLG55	Religious	42.03577	-82.74021	Division St. S.	Kingsville	S. chimney	Non-federal
17TLG55	Religious	42.03588	-82.7402	Division St. S.	Kingsville	N. chimney	Non-federal
17TNJ41	Industrial	43.45612	-80.49338	Breithaupt St.	Kitchener		Non-federal
17TNJ31	Residential	43.45599	-80.51762	Union Blvd.	Kitchener		Non-federal
17TNJ41	Residential and/or commercial	43.45646	-80.49429	Weber St. W.	Kitchener		Non-federal
17TPK81	Religious	44.35316	-78.73743	Russell St. W.	Lindsay		Non-federal

10 x 10 km standardized grid square ID[16]	Building type[17]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[18]	Land tenure
17TPK81	Educational	44.35407	-78.73057	St. Lawrence St.	Lindsay		Non-federal
17TMH75	Religious	42.9729	-81.2563	Askin St.	London		Non-federal
17TMH75	Commercial	42.98027	-81.24612	Bathurst St.	London		Non-federal
17TMH75	Religious	42.95342	-81.33088	Boler Rd.	London		Non-federal
17TMH75	Residential and/or commercial	42.98307	-81.25143	Dundas St.	London	W. chimney	Non-federal
17TMH75	Office - Public	42.98461	-81.2455	Dundas St.	London		Non-federal
17TMH85	Office - Public	42.9866	-81.24053	Dundas St.	London		Non-federal
17TMH85	Religious	42.98793	-81.23668	Dundas St.	London	NE. chimney (small slim chimney)	Non-federal
17TMH85	Commercial	42.99035	-81.22529	Dundas St.	London		Non-federal
17TMH85	Commercial	42.99083	-81.22544	Dundas St.	London		Non-federal
17TMH86	Commercial	42.99494	-81.21244	Dundas St.	London		Non-federal
17TMH85	Religious	42.99023	-81.22896	Elizabeth St.	London		Non-federal
17TMH76	Educational	43.01283	-81.25684	Epworth Ave.	London		Non-federal
17TMH76	Office - Public	42.99735	-81.33559	Gainsborough Rd.	London		Non-federal
17TMH85	Residential	42.97984	-81.24493	Horton St. E.	London		Non-federal
17TMH76	Industrial	43.00612	-81.27383	Lambton Dr.	London		Non-federal
17TMH85	Commercial	42.97572	-81.23071	Maitland St.	London		Non-federal
17TMH76	Religious	42.99659	-81.25091	Oxford St. E.	London	W. chimney	Non-federal
17TMH76	Religious	42.99663	-81.25079	Oxford St. E.	London	E. chimney	Non-federal
17TMH75	Religious	42.97338	-81.32652	Oxford St. W.	London		Non-federal
17TMH75	Residential	42.99059	-81.27138	Oxford St. W.	London	N. chimney	Non-federal
17TMH85	Residential	42.9907	-81.24278	Princess Ave.	London		Non-federal
17TMH85	Religious	42.98773	-81.24312	Queens Ave.	London	NW. chimney	Non-federal
17TMH85	Religious	42.98778	-81.24293	Queens Ave.	London	NE. chimney	Non-federal
17TMH85	Religious	42.98781	-81.24276	Queens Ave.	London	S. chimney (rectangular chimney on S. side of annex)	Non-federal

10 x 10 km standardized grid square ID[16]	Building type[17]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[18]	Land tenure
17TMH85	Religious	42.98786	-81.24289	Queens Ave.	London	N. chimney (big square one on N. side of annex building)	Non-federal
17TMH85	Residential	42.98971	-81.23458	Queens Ave.	London	SW. chimney	Non-federal
17TMH85	Residential	42.98973	-81.23462	Queens Ave.	London	NW. chimney	Non-federal
17TMH75	Commercial	42.98208	-81.24909	Richmond St.	London		Non-federal
17TMH75	Religious	42.98622	-81.24941	Richmond St.	London	Church Hall	Non-federal
17TMH75	Religious	42.98919	-81.2503	Richmond St.	London		Non-federal
17TMH75	Commercial	42.98941	-81.25099	Richmond St.	London		Non-federal
17TMH76	Office - Public	42.99407	-81.25213	Richmond St.	London		Non-federal
17TMH76	Religious	43.01144	-81.26324	Richmond St.	London		Non-federal
17TMH76	Residential	43.01187	-81.26522	Richmond St.	London		Non-federal
17TMH76	Residential	43.01324	-81.26648	Richmond St. N.	London		Non-federal
17TMH75	Residential	42.97162	-81.24799	Ridout St. S.	London		Non-federal
17TMH75	Residential	42.97218	-81.24918	Ridout St. S.	London		Non-federal
17TMH85	Industrial	42.97715	-81.24524	Simcoe St.	London	Round brick chimney	Non-federal
17TMH75	Educational	42.96972	-81.27836	Springbank Dr.	London		Non-federal
17TMH76	Religious	42.99866	-81.25171	St. James St.	London		Non-federal
17TMH85	Educational	42.96907	-81.24332	Tecumseh Ave.	London		Non-federal
17TMH75	Commercial	42.96774	-81.26325	Tecumseh Ave. W.	London		Non-federal
17TMH75	Office - Public	42.97615	-81.30599	Valetta St.	London		Non-federal
17TMH76	Educational	43.00468	-81.25154	Waterloo St.	London		Non-federal
17TMH85	Commercial	42.98163	-81.24074	Waterloo St.	London		Non-federal
17TMH75	Residential and/or commercial	42.9889	-81.24582	Wellington St.	London		Non-federal
17TMH85	Office - Public	42.98094	-81.2426	Wellington St.	London		Non-federal
17TMH85	Office - Public	42.9524	-81.21974	Western Counties Rd.	London		Non-federal

10 x 10 km standardized grid square ID[16]	Building type[17]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[18]	Land tenure
17TMH76	Educational	43.0032	-81.27803	Western Rd.	London		Non-federal
17TMH76	Residential	43.00817	-81.27811	Western Rd.	London	O'Neil/Ridley Residence	Non-federal
17TMH75	Commercial	42.97167	-81.25315	Wortley Rd.	London		Non-federal
17TMH75	Residential and/or commercial	42.97308	-81.25413	Wortley Rd.	London	Big square chimney on centre N. side	Non-federal
17TMH75	Residential and/or commercial	42.98057	-81.25168	York St.	London		Non-federal
17TMH75	Commercial	42.98186	-81.2476	York St.	London		Non-federal
17TNJ91	Religious	43.51126	-79.88568	Main St. E.	Milton		Non-federal
17TPJ12	Educational	43.58129	-79.62028	Hurontario St.	Mississauga		Non-federal
17TPJ12	Educational	43.58528	-79.57291	Ogden Ave.	Mississauga	S. chimney	Non-federal
17TPJ12	Educational	43.58563	-79.57276	Ogden Ave.	Mississauga	N. chimney	Non-federal
17TPJ02	Educational	43.54858	-79.66194	Outer Circle Rd.	Mississauga		Non-federal
17TPJ02	Religious	43.57925	-79.71102	Queen St. S.	Mississauga		Non-federal
17TPJ12	Educational	43.6037	-79.59959	Tomken Rd.	Mississauga		Non-federal
17TPJ12	Educational	43.60526	-79.60178	Tomken Rd.	Mississauga	W. chimney	Non-federal
17TPJ12	Educational	43.60558	-79.60205	Tomken Rd.	Mississauga	N. chimney	Non-federal
17TMJ81	Residential and/or commercial	43.46757	-81.19734	Ontario Rd.	Mitchell		Non-federal
17TMJ81	Residential	43.46801	-81.19727	Ontario Rd.	Mitchell		Non-federal
17TMJ81	Residential and/or commercial	43.4681	-81.19728	Ontario Rd.	Mitchell		Non-federal
17TPJ27	Religious	44.05686	-79.46047	Ontario St.	Newmarket	Parish Centre & Offices	Non-federal
17TPH57	Residential and/or commercial	43.10688	-79.06409	Queen St.	Niagara Falls		Non-federal
17TPH57	Religious	43.10664	-79.07394	Victoria Ave.	Niagara Falls		Non-federal
17TPM13	Residential and/or commercial	46.31455	-79.46807	Main St. W.	North Bay		Non-federal

10 x 10 km standardized grid square ID[16]	Building type[17]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[18]	Land tenure
17TPM13	Office - Public	46.31377	-79.46429	Worthington St. W.	North Bay		Non-federal
17TPJ00	Residential	43.39411	-79.71353	Bronte Rd.	Oakville		Non-federal
17TPJ01	Office - Public	43.446	-79.66968	Church St.	Oakville		Non-federal
17TPJ01	Religious	43.44642	-79.66653	Dunn St.	Oakville		Non-federal
17TPJ00	Residential	43.395	-79.70828	Marine Dr.	Oakville		Non-federal
17TPJ00	Residential	43.39522	-79.70804	Marine Dr.	Oakville		Non-federal
17TPJ01	Office - Public	43.4633	-79.70185	McCraney St. E.	Oakville		Non-federal
17TPJ01	Educational	43.46324	-79.70215	Montclair Dr.	Oakville		Non-federal
17TPJ00	Residential	43.39472	-79.70731	Ontario St.	Oakville		Non-federal
17TPJ00	Residential	43.39651	-79.70523	Ontario St.	Oakville		Non-federal
17TPJ00	Educational	43.40086	-79.71992	Rebecca St.	Oakville		Non-federal
17TPJ01	Residential	43.45258	-79.67237	Reynolds St.	Oakville	SW. chimney	Non-federal
17TPJ01	Residential	43.45269	-79.67253	Reynolds St.	Oakville	NW. chimney	Non-federal
17TPJ01	Residential	43.4527	-79.67222	Reynolds St.	Oakville	SE. chimney	Non-federal
17TPJ01	Residential	43.45281	-79.67241	Reynolds St.	Oakville	NE. chimney	Non-federal
17TPK24	Commercial	44.60839	-79.42027	Mississauga St. W.	Orillia		Non-federal
17TPK24	Residential	44.61206	-79.42362	West St. N.	Orillia		Non-federal
17TPK24	Commercial	44.61227	-79.42337	West St. N.	Orillia		Non-federal
17TPJ76	Religious	43.91148	-78.86627	Hillcroft St.	Oshawa		Non-federal
18TVR43	Educational	45.45091	-75.65598	Braemar St.	Ottawa		Non-federal
18TVR43	Residential	45.45142	-75.67766	Buena Vista Rd.	Ottawa	E. chimney	Non-federal
18TVR43	Residential	45.45143	-75.67786	Buena Vista Rd.	Ottawa	W. chimney	Non-federal
18TVR32	Educational	45.35459	-75.77754	Elmira Dr.	Ottawa		Non-federal
18TVR42	Educational	45.41144	-75.71044	Empress Ave.	Ottawa		Non-federal
18TVR43	Residential	45.45055	-75.67438	Fernhill Rd.	Ottawa		Non-federal
18TVR42	Educational	45.40093	-75.69075	Fifth Ave.	Ottawa		Non-federal
18TVR42	Religious	45.40239	-75.68821	Fourth Ave.	Ottawa		Non-federal
18TVR42	Religious	45.39239	-75.75483	Richmond Rd.	Ottawa		Non-federal

10 x 10 km standardized grid square ID[16]	Building type[17]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[18]	Land tenure
18TVR43	Residential	45.42855	-75.67944	Stewart St.	Ottawa		Non-federal
17TNL72	Office - Public	45.35303	-80.03661	Church St.	Parry Sound		Non-federal
17TNL72	Residential	45.34264	-80.0347	Gibson St.	Parry Sound		Non-federal
17TNL72	Residential and/or commercial	45.34384	-80.0341	James St.	Parry Sound		Non-federal
17TLG52	Office - Public	41.76294	-82.68865	West Shore Rd.	Pelee Island		Non-federal
18TUR37	Religious	45.82438	-77.11479	Church St.	Pembroke	E. chimney	Non-federal
18TUR37	Residential	45.82202	-77.11696	Mary St.	Pembroke		Non-federal
18TUR37	Religious	45.82044	-77.12426	Miller St.	Pembroke	Church Office	Non-federal
18TUR37	Office - Public	45.82429	-77.12127	Pembroke St. W.	Pembroke		Non-federal
18TVQ07	Commercial	44.90061	-76.25086	Gore St. E.	Perth		Non-federal
17TQK10	Commercial	44.30301	-78.32044	George St. N.	Peterborough		Non-federal
18TUP27	Residential	44.01039	-77.13799	Main St. E.	Picton		Non-federal
18TUP27	Commercial	44.00684	-77.14092	Main St. W.	Picton		Non-federal
17TNH12	Commercial	42.64622	-80.8069	Robinson St.	Port Burwell		Non-federal
17TNH41	Residential and/or commercial	42.62366	-80.45047	Bay St.	Port Rowan		Non-federal
18TUP37	Educational	44.03763	-77.05231	County Rd. 7	Prince Edward		Non-federal
18TUR63	Office - Public	45.47043	-76.68593	Lochiel St.	Renfrew		Non-federal
18TUR63	Commercial	45.46994	-76.68246	Raglan St. S.	Renfrew		Non-federal
17TMG29	Educational	42.4449	-81.87983	Main St. E.	Ridgetown		Non-federal
18TTS91	Industrial	46.18646	-77.65745	Culter Ln.	Rolphton		Other federal
16TGS05	Office - Public	46.51123	-84.33336	Queen St. E.	Sault Ste. Marie		Other federal
16TGS05	Office - Public	46.51203	-84.33251	Queen St. E.	Sault Ste. Marie		Non-federal
17TPJ07	Residential and/or commercial	44.00179	-79.68397	Main St.	Schomberg		Non-federal
17TPJ07	Educational	44.00109	-79.68683	Western Ave.	Schomberg		Non-federal
17TMJ62	Religious	43.55467	-81.39517	Goderich St. W.	Seaforth		Non-federal

10 x 10 km standardized grid square ID[16]	Building type[17]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[18]	Land tenure
17TNH54	Office - Public	42.83845	-80.30582	Kent St. N.	Simcoe		Non-federal
17TNH54	Commercial	42.8378	-80.30384	Norfolk St. N.	Simcoe		Non-federal
17TPH47	Educational	43.15751	-79.24357	Artists' Common	St. Catharines		Non-federal
17TPH38	Educational	43.1955	-79.28115	Bayview Dr.	St. Catharines		Non-federal
17TPH47	Religious	43.13977	-79.21225	Chestnut St. E.	St. Catharines		Non-federal
17TPH48	Religious	43.17423	-79.23991	Geneva St.	St. Catharines		Non-federal
17TPH47	Educational	43.13918	-79.23608	Glen Morris Dr.	St. Catharines		Non-federal
17TPH47	Residential and/or commercial	43.15264	-79.21473	Hartzel Rd.	St. Catharines		Non-federal
17TPH48	Commercial	43.16802	-79.23624	Maple St.	St. Catharines		Non-federal
17TPH48	Religious	43.18682	-79.2368	Scott St.	St. Catharines		Non-federal
17TPH48	Residential	43.18948	-79.22906	Scott St.	St. Catharines		Non-federal
17TPH48	Educational	43.19395	-79.21688	Scott St.	St. Catharines		Non-federal
17TPH47	Educational	43.1436	-79.21268	Seymour Ave.	St. Catharines		Non-federal
17TPH47	Residential and/or commercial	43.15743	-79.24472	St. Paul St.	St. Catharines		Non-federal
17TPH47	Residential and/or commercial	43.15769	-79.24408	St. Paul St.	St. Catharines		Non-federal
17TPH47	Residential and/or commercial	43.15803	-79.24344	St. Paul St.	St. Catharines		Non-federal
17TPH48	Educational	43.1906	-79.23227	Vine St.	St. Catharines		Non-federal
17TPH48	Commercial	43.16618	-79.22908	Vine St. S.	St. Catharines		Non-federal
18TTQ90	Industrial	44.29599	-77.5472	West Front St.	Stirling		Non-federal
17TNJ00	Commercial	43.3702	-80.96621	Albert St.	Stratford		Non-federal
17TNJ00	Residential	43.35816	-80.96997	Borden St.	Stratford		Non-federal
17TNJ00	Residential	43.35843	-80.96995	Borden St.	Stratford		Non-federal
17TNJ00	Residential	43.35895	-80.96991	Borden St.	Stratford		Non-federal
17TNJ00	Residential	43.35921	-80.96988	Borden St.	Stratford		Non-federal
17TNJ00	Commercial	43.3659	-80.97944	Downie St.	Stratford		Non-federal

10 x 10 km standardized grid square ID[16]	Building type[17]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[18]	Land tenure
17TNJ00	Residential and/or commercial	43.36631	-80.97961	Downie St.	Stratford		Non-federal
17TNJ00	Industrial	43.36324	-80.98885	Erie St.	Stratford		Non-federal
17TNJ00	Residential	43.35396	-80.97514	Home St.	Stratford		Non-federal
17TNJ00	Residential	43.35419	-80.97436	Home St.	Stratford		Non-federal
17TNJ00	Residential	43.35456	-80.97417	Home St.	Stratford		Non-federal
17TNJ00	Residential	43.35469	-80.97583	Home St.	Stratford		Non-federal
17TNJ00	Residential	43.35469	-80.97512	Home St.	Stratford		Non-federal
17TNJ00	Residential	43.35499	-80.97481	Home St.	Stratford		Non-federal
17TNJ00	Religious	43.37402	-80.984	Mornington St.	Stratford		Non-federal
17TNJ00	Residential	43.35966	-80.97036	Norfolk St.	Stratford		Non-federal
17TNJ00	Residential and/or commercial	43.37122	-80.98111	Ontario St.	Stratford		Non-federal
17TNJ00	Commercial	43.37164	-80.98107	Ontario St.	Stratford		Non-federal
17TNJ00	Religious	43.37169	-80.97704	Ontario St.	Stratford		Non-federal
17TNJ00	Religious	43.37177	-80.97998	Ontario St.	Stratford		Non-federal
17TNJ00	Commercial	43.36637	-80.96862	Trinity St.	Stratford		Non-federal
17TNJ00	Office - Public	43.37582	-80.9793	Waterloo St. N.	Stratford		Non-federal
17TNJ00	Office - Public	43.36991	-80.98226	Wellington St.	Stratford		Non-federal
17TNJ00	Religious	43.3625	-80.98187	West Gore St.	Stratford		Non-federal
17TPH47	Residential and/or commercial	43.12401	-79.20097	Front St. S.	Thorold		Non-federal
17TPH47	Religious	43.12275	-79.20528	Queen St. S.	Thorold		Non-federal
17TPJ23	Commercial	43.63931	-79.42041	Atlantic Ave.	Toronto		Non-federal
17TPJ23	Residential	43.68835	-79.42081	Bathurst St.	Toronto		Non-federal
17TPJ23	Residential	43.69503	-79.42355	Bathurst St.	Toronto		Non-federal
17TPJ33	Commercial	43.68518	-79.36542	Bayview Ave.	Toronto		Non-federal
17TPJ24	Residential	43.72696	-79.40355	Bedford Pk.	Toronto		Non-federal

10 x 10 km standardized grid square ID[16]	Building type[17]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[18]	Land tenure
17TPJ23	Commercial	43.65052	-79.47839	Bloor St.	Toronto	Rear chimney	Non-federal
17TPJ23	Office - Public	43.65198	-79.47387	Bloor St. W.	Toronto		Non-federal
17TPJ23	Residential	43.65284	-79.46981	Bloor St. W.	Toronto		Non-federal
17TPJ23	Residential	43.65519	-79.45587	Bloor St. W.	Toronto		Non-federal
17TPJ23	Educational	43.65882	-79.43708	Bloor St. W.	Toronto	Smallest chimney	Non-federal
17TPJ23	Educational	43.65884	-79.43701	Bloor St. W.	Toronto	Larger chimney	Non-federal
17TPJ23	Religious	43.66027	-79.4313	Bloor St. W.	Toronto		Non-federal
17TPJ23	Residential and/or commercial	43.66065	-79.43085	Bloor St. W.	Toronto		Non-federal
17TPJ23	Commercial	43.66117	-79.43079	Bloor St. W.	Toronto		Non-federal
17TPJ23	Educational	43.66236	-79.42009	Bloor St. W.	Toronto		Non-federal
17TPJ23	Religious	43.63973	-79.4327	Cowan Ave.	Toronto	E. side	Non-federal
17TPJ23	Office - Public	43.6408	-79.43317	Cowan Ave.	Toronto		Non-federal
17TPJ33	Religious	43.67764	-79.35389	Danforth Ave.	Toronto		Non-federal
17TPJ33	Commercial	43.67858	-79.34539	Danforth Ave.	Toronto		Non-federal
17TPJ44	Residential	43.74088	-79.2445	Danforth Rd.	Toronto		Non-federal
17TPJ23	Residential	43.68794	-79.39896	Deer Park Cres.	Toronto		Non-federal
17TPJ33	Residential	43.6808	-79.33712	Donlands Ave.	Toronto		Non-federal
17TPJ33	Educational	43.68211	-79.33748	Donlands Ave.	Toronto		Non-federal
17TPJ23	Commercial	43.66187	-79.43019	Dovercourt Rd.	Toronto		Non-federal
17TPJ23	Commercial	43.66267	-79.4296	Dovercourt Rd.	Toronto	W. chimney	Non-federal
17TPJ23	Commercial	43.66275	-79.42928	Dovercourt Rd.	Toronto	E. chimney	Non-federal
17TPJ23	Residential	43.66495	-79.43728	Dufferin St.	Toronto		Non-federal
17TPJ23	Office - Public	43.67674	-79.44222	Dufferin St.	Toronto		Non-federal
17TPJ24	Office - Public	43.78209	-79.46847	Dufferin St.	Toronto	NE. stack	Other federal
17TPJ23	Residential	43.65092	-79.44484	Dundas St. W.	Toronto		Non-federal
17TPJ23	Residential	43.67075	-79.42883	Dupont St.	Toronto		Non-federal
17TPJ33	Educational	43.67497	-79.37973	Elm Ave.	Toronto	SE. chimney	Non-federal

10 x 10 km standardized grid square ID[16]	Building type[17]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[18]	Land tenure
17TPJ23	Residential	43.63864	-79.42999	Elm Grove Ave.	Toronto		Non-federal
17TPJ23	Educational	43.65723	-79.47512	Evelyn Cres.	Toronto	NW. chimney (rectangular)	Non-federal
17TPJ23	Educational	43.65726	-79.47473	Evelyn Cres.	Toronto	NW. chimney (tall cylindrical)	Non-federal
17TPJ24	Religious	43.7312	-79.40452	Fairlawn Ave.	Toronto		Non-federal
17TPJ23	Educational	43.64527	-79.4461	Fern Ave.	Toronto		Non-federal
17TPJ23	Religious	43.70153	-79.39627	Glebe Rd. E.	Toronto		Non-federal
17TPJ23	Residential	43.65437	-79.4479	Golden Ave.	Toronto		Non-federal
17TPJ33	Religious	43.67925	-79.34593	Gough Ave.	Toronto		Non-federal
17TPJ23	Educational	43.65207	-79.41392	Grace St.	Toronto		Non-federal
17TPJ23	Religious	43.65905	-79.42908	Hepbourne St.	Toronto		Non-federal
17TPJ23	Religious	43.65212	-79.45181	Hewitt Ave.	Toronto		Non-federal
17TPJ33	Residential	43.69359	-79.35223	Hopedale Ave.	Toronto		Non-federal
17TPJ33	Residential	43.66805	-79.2934	Hubbard Blvd.	Toronto	Central chimney	Non-federal
17TPJ33	Residential	43.66811	-79.29343	Hubbard Blvd.	Toronto	N. chimney	Non-federal
17TPJ23	Educational	43.66417	-79.46339	Keele St. W.	Toronto		Non-federal
17TPJ33	Commercial	43.65247	-79.36397	King St. E.	Toronto		Non-federal
17TPJ33	Commercial	43.65321	-79.3628	King St. E.	Toronto		Non-federal
17TPJ33	Educational	43.66846	-79.30281	Kippendavie Ave.	Toronto		Non-federal
17TPJ22	Residential	43.60926	-79.48961	Lakeshore Blvd. W.	Toronto		Non-federal
17TPJ23	Residential	43.69491	-79.39892	Lascelles Blvd.	Toronto		Non-federal
17TPJ23	Residential	43.69516	-79.39795	Lascelles Blvd.	Toronto		Non-federal
17TPJ44	Residential	43.75603	-79.24095	Lawrence Ave. E.	Toronto		Non-federal
17TPJ23	Residential	43.694	-79.39659	Lawton Blvd.	Toronto		Non-federal
17TPJ23	Residential	43.6943	-79.39747	Lawton Blvd.	Toronto		Non-federal
17TPJ23	Residential	43.69483	-79.39685	Lawton Blvd.	Toronto		Non-federal
17TPJ23	Commercial	43.63727	-79.42473	Liberty St.	Toronto	S. chimney	Non-federal

10 x 10 km standardized grid square ID[16]	Building type[17]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[18]	Land tenure
17TPJ23	Commercial	43.63737	-79.42471	Liberty St.	Toronto	N. chimney	Non-federal
17TPJ23	Residential and/or commercial	43.63794	-79.42069	Liberty St.	Toronto		Non-federal
17TPJ23	Residential	43.66976	-79.40029	Lowther Ave.	Toronto		Non-federal
17TPJ23	Office - Public	43.66469	-79.46531	Mavety St.	Toronto		Non-federal
17TPJ23	Religious	43.65481	-79.39085	McCaul St.	Toronto		Non-federal
17TPJ23	Residential	43.64561	-79.4734	Morningside Ave.	Toronto		Non-federal
17TPJ24	Residential	43.70566	-79.38943	Mount Pleasant Rd.	Toronto		Non-federal
17TPJ24	Educational	43.70989	-79.39027	Mount Pleasant Rd.	Toronto		Non-federal
17TPJ23	Commercial	43.64443	-79.40874	Niagara St.	Toronto		Non-federal
17TPJ23	Commercial	43.64251	-79.4301	Noble St.	Toronto		Non-federal
17TPJ23	Residential and/or commercial	43.64284	-79.43199	Noble St.	Toronto		Non-federal
17TPJ23	Religious	43.66169	-79.42569	Ossington Ave.	Toronto		Non-federal
17TPJ23	Educational	43.66831	-79.41539	Palmerston Ave.	Toronto		Non-federal
17TPJ33	Religious	43.68043	-79.34606	Pape Ave.	Toronto		Non-federal
17TPJ23	Office - Public	43.68026	-79.39013	Price St.	Toronto		Non-federal
17TPJ33	Office - Public	43.65514	-79.37268	Queen St. E.	Toronto		Other federal
17TPJ23	Residential	43.6387	-79.44473	Queen St. W.	Toronto		Non-federal
17TPJ23	Religious	43.63924	-79.44138	Queen St. W.	Toronto		Non-federal
17TPJ23	Office - Public	43.64213	-79.4179	Queen St. W.	Toronto	Maintenance Building	Non-federal
17TPJ33	Religious	43.65787	-79.36318	Regent St.	Toronto		Non-federal
17TPJ24	Residential	43.7097	-79.3915	Roehampton Ave.	Toronto		Non-federal
17TPJ23	Residential and/or commercial	43.65335	-79.45188	Roncesvalles Ave.	Toronto		Non-federal
17TPJ33	Educational	43.68709	-79.37842	Rosedale Hts.	Toronto		Non-federal
17TPJ13	Educational	43.63735	-79.56656	Rossburn Dr.	Toronto		Non-federal
17TPJ33	Office - Public	43.65532	-79.37055	Sherbourne St.	Toronto		Non-federal

10 x 10 km standardized grid square ID[16]	Building type[17]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[18]	Land tenure
17TPJ33	Educational	43.66464	-79.36398	Spruce St.	Toronto		Non-federal
17TPJ23	Religious	43.67875	-79.44179	St. Clair Ave. W.	Toronto		Non-federal
17TPJ23	Residential	43.6875	-79.39876	St. Clair Ave. W.	Toronto		Non-federal
17TPJ23	Residential	43.66934	-79.40009	St.George St.	Toronto		Non-federal
17TPJ23	Residential	43.6695	-79.40016	St.George St.	Toronto		Non-federal
17TPJ23	Residential	43.67135	-79.40219	St.George St.	Toronto		Non-federal
17TPJ13	Residential	43.63826	-79.56496	The West Mall	Toronto		Non-federal
17TPJ23	Commercial	43.66193	-79.44715	Wallace Ave.	Toronto		Non-federal
17TPJ23	Religious	43.64961	-79.48096	Windermere Ave.	Toronto		Non-federal
17TPJ23	Commercial	43.68001	-79.39109	Yonge St.	Toronto		Non-federal
17TPJ23	Religious	43.69039	-79.39568	Yonge St.	Toronto		Non-federal
17TPJ23	Industrial	43.69605	-79.39757	Yonge St.	Toronto		Non-federal
17TPJ24	Residential and/or commercial	43.7023	-79.39796	Yonge St.	Toronto		Non-federal
17TPJ24	Residential and/or commercial	43.71201	-79.39972	Yonge St.	Toronto		Non-federal
17TNH89	Office - Public	43.33483	-79.89207	Mill St. N.	Waterdown		Non-federal
17TPH46	Religious	42.99064	-79.24823	Division St.	Welland		Non-federal
17TMK85	Residential	44.73847	-81.14092	Berford St.	Wiarton	S. chimney	Non-federal
17TLG38	Religious	42.30641	-83.05469	McEwan Ave.	Windsor		Non-federal
17TLG38	Commercial	42.31698	-83.03922	Ouellette Ave.	Windsor		Non-federal
17TLG38	Educational	42.31739	-83.00718	Richmond St.	Windsor		Non-federal
17TNH27	Commercial	43.13053	-80.75043	Young St.	Woodstock		Non-federal

1635

Table D-3. Description of the 10 × 10 km standardized UTM grid squares and critical habitat units for the Chimney Swift in Quebec. Critical habitat occurs where the criteria described in sections 7.1.1 and 7.1.2 are met.

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
19TCM77	Religious	46.74435	-70.58923	Rue Principale	Armagh		Non-federal
18TYR30	Residential	45.16548	-72.03851	Rue Main	Ayer's Cliff	At front of building	Non-federal
19TCN85	Religious	47.44068	-70.50690	Place de l'Église	Baie-Saint-Paul		Non-federal
17TPN23	Religious	47.29286	-79.32841	Rue Principale N.	Béarn		Non-federal
17TPN23	Educational	47.29355	-79.32867	Rue Principale N.	Béarn		Non-federal
19TCN51	Religious	47.04936	-70.88481	Rue de Fatima E.	Beaupré		Non-federal
18TXS93	Residential and/or commercial	46.33456	-72.50870	Boul. Bécancour	Bécancour		Non-federal
18TXQ59	Industrial	45.12318	-72.99261	Rue Champagnat	Bedford		Non-federal
18TXR44	Religious	45.57079	-73.19952	Rue Richelieu	Beloeil		Non-federal
18TWR95	Residential	45.68483	-73.83336	Ch. de la Côte-Saint-Louis E.	Blainville		Non-federal
18TWR95	Educational	45.66975	-73.75758	33e Avenue	Bois-des-Filion	On SE. side of building	Non-federal
20ULU12	Religious	48.04566	-65.49289	Av. de Port-Royal	Bonaventure		Non-federal
18TXR25	Religious	45.61232	-73.45557	Boul. Marie-Victorin	Boucherville		Non-federal

[19] Based on the standard UTM Military Grid Reference System (see https://www.nrcan.gc.ca/earth-sciences/geography/topographic-information/maps/9789), where the first 2 digits represent the UTM zone, the following letter represents the UTM row, the next 2 letters indicate the 100 km x 100 km standardized UTM grid, followed by 2 digits to represent the 10 x 10 km standardized UTM grid comprising one or several critical habitat units. This unique alphanumeric code is based on the methodology used for the Breeding Bird Atlases of Canada (see https://www.birdscanada.org/ for more information on breeding bird atlases).

[20] See Appendix E for a description of building types.

[21] When there is more than one chimney on the building or property. N = north; S = south; E = east; W = west.

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
18TXR25	Office - Public	45.61214	-73.45620	Boul. Marie-Victorin	Boucherville		Non-federal
18TWS20	Religious	46.07524	-74.67209	Rte 323	Brébeuf		Non-federal
18TXR82	Religious	45.31917	-72.65474	Rue Shefford	Bromont		Non-federal
18TUR76	Residential and/or commercial	45.73297	-76.60111	Rue Front	Campbell's Bay		Non-federal
18TUR76	Commercial	45.73378	-76.60168	Rue Front	Campbell's Bay		Non-federal
18TUR76	Religious	45.73526	-76.60250	Rue Front	Campbell's Bay		Non-federal
19TCN81	Religious	47.03830	-70.45590	Rue Jacob	Cap-Saint-Ignace		Non-federal
19TBM87	Religious	46.67067	-71.78783	Place de l'Église	Cap-Santé	On E. side of building	Non-federal
18TXR33	Religious	45.44424	-73.26541	Av. Bourgogne	Chambly		Non-federal
18TXR33	Office - Public	45.44998	-73.29126	Rue Martel	Chambly		Non-federal
18TXR37	Commercial	45.85607	-73.23745	Rue Legendre	Contrecoeur		Non-federal
18TXR37	Religious	45.85669	-73.23865	Rue Marie-Victorin	Contrecoeur		Non-federal
19TBL93	Residential	45.41133	-71.63439	Rue Pope	Cookshire-Eaton		Non-federal
18TXR03	Residential	45.46777	-73.66992	Av. Glenarden	Côte-Saint-Luc		Non-federal
18TXR70	Educational	45.20619	-72.74355	Boul. Davignon	Cowansville		Non-federal
18TXR70	Residential	45.21253	-72.74213	Rue du Nord	Cowansville		Non-federal
18TXR70	Religious	45.20776	-72.71664	Rue Principale	Cowansville		Non-federal
18TXR19	Religious	45.96352	-73.47380	4e Avenue	Crabtree		Non-federal
18TXR19	Office - Public	45.96338	-73.47377	4e Avenue	Crabtree		Non-federal
18TYR37	Religious	45.78330	-72.01567	Rue du Carmel	Danville	Chimney at back of building. on NW. side	Non-federal
18TYS26	Residential	46.63098	-72.07249	3e Rang O.	Deschambault-Grondines		Non-federal
18TYS26	Office - Public	46.59207	-72.04119	Ch. du Roy	Deschambault-Grondines	On W. side of building	Non-federal
19TBM76	Residential	46.63291	-71.96977	Ch. du Roy	Deschambault-Grondines		Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
19TBM77	Office - Public	46.64832	-71.92732	Rue Saint-Joseph	Deschambault-Grondines	On W. side of building	Non-federal
19TCL18	Religious	45.89941	-71.35546	Av. Champlain	Disraeli	On W. side of building	Non-federal
19TCL18	Religious	45.89940	-71.35532	Av. Champlain	Disraeli	On right side when facing front of building	Non-federal
18TXR98	Religious	45.88410	-72.48853	Rue Brock	Drummondville		Non-federal
18TXR98	Residential	45.87889	-72.47828	Rue Brock	Drummondville		Non-federal
18TXR98	Office - Public	45.88229	-72.49339	Rue Cockburn	Drummondville		Non-federal
18TXR98	Religious	45.88120	-72.50365	Rue Saint-Pierre	Drummondville		Non-federal
18TXQ79	Commercial	45.13041	-72.80046	Rue Principale	Dunham	On S. side of building	Non-federal
18TXQ79	Commercial	45.13057	-72.80047	Rue Principale	Dunham	N. side of building	Non-federal
18TXR51	Residential	45.28449	-72.97707	Rue Principale E.	Farnham	Rear chimney on right side. when facing front of building	Non-federal
18TXR51	Residential and/or commercial	45.28480	-72.97762	Rue Principale E.	Farnham		Non-federal
18TXR51	Residential	45.28425	-72.97673	Rue Principale E.	Farnham	On E. side of building	Non-federal
18TXQ79	Residential	45.05011	-72.82741	Ch. de Richford	Frelighsburg		Non-federal
18TVR53	Office - Public	45.49964	-75.60780	Boul. Lorrain	Gatineau		Non-federal
18TVR43	Religious	45.43582	-75.73411	Boul. Saint-Joseph	Gatineau		Non-federal
18TVR53	Religious	45.49917	-75.60776	Boul. Saint-René E.	Gatineau		Non-federal
18TVR32	Commercial	45.39495	-75.83217	Ch. d'Aylmer	Gatineau		Non-federal
18TVR33	Office - Public	45.48340	-75.84780	Ch. MacKenzie King	Gatineau		Federal
18TVR43	Office - Public	45.44261	-75.73574	Rue Berri	Gatineau		Non-federal
18TVR43	Office - Public	45.42595	-75.74007	Rue Pharand	Gatineau		Non-federal
18TVR32	Commercial	45.39497	-75.84060	Rue Principale	Gatineau	Tall chimney at front of building	Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
18TVR32	Educational	45.39511	-75.83778	Rue Principale	Gatineau		Non-federal
18TVR43	Religious	45.42794	-75.72386	Rue Sainte-Bernadette	Gatineau		Non-federal
18TVR43	Educational	45.42857	-75.73612	Rue Saint-Jean-Bosco	Gatineau		Non-federal
18TXR72	Commercial	45.39506	-72.74180	Rue Cowie	Granby		Non-federal
18TXR72	Religious	45.38834	-72.73788	Rue Denison O.	Granby		Non-federal
18TXR73	Educational	45.40203	-72.73933	Rue Laval S.	Granby		Non-federal
18TXR72	Religious	45.39862	-72.72516	Rue Principale	Granby		Non-federal
18TXR72	Commercial	45.39872	-72.72554	Rue Principale	Granby		Non-federal
18TXR72	Educational	45.39985	-72.73079	Rue Saint-Antoine S.	Granby		Non-federal
18TXR72	Industrial	45.38989	-72.73757	Rue Saint-Vincent	Granby		Non-federal
18TXR73	Educational	45.40766	-72.73124	Rue York	Granby		Non-federal
18TXS77	Religious	46.68692	-72.72594	4e Avenue	Grandes-Piles		Non-federal
18TXS77	Commercial	46.68761	-72.72729	4e Avenue	Grandes-Piles		Non-federal
19TCL23	Water well	45.47431	-71.20061	Ch. Franceville	Hampden		Non-federal
19TBL61	Residential	45.27418	-71.94975	Ch. Hill	Hatley	Largest of two chimneys	Non-federal
18TXQ18	Residential	45.03886	-73.54974	Ch. Brownlee	Hemmingford	Brick chimney on S. side of building	Non-federal
18TWR63	Religious	45.45714	-74.13948	Rue Main	Hudson		Non-federal
18TWR63	Educational	45.45634	-74.13807	Rue Main	Hudson		Non-federal
18TWR63	Educational	45.45110	-74.14211	Rue Mount Pleasant	Hudson		Non-federal
18TWQ69	Commercial	45.08749	-74.17349	Rue Châteauguay	Huntingdon	Central chimney on NW. portion of building	Non-federal
18TWQ69	Office - Public	45.08869	-74.17364	Rue King	Huntingdon		Non-federal
18TWQ69	Educational	45.08749	-74.17453	Rue King	Huntingdon		Non-federal
18TWQ69	Religious	45.08775	-74.17513	Rue King	Huntingdon		Non-federal
18TWQ69	Religious	45.09282	-74.17184	Rue York	Huntingdon		Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
18TXR29	Educational	46.02264	-73.43602	Rue Lanaudière	Joliette		Non-federal
18TXR29	Residential	46.02011	-73.43251	Rue Marguerite-Bourgeoys	Joliette		Non-federal
19TDN17	Commercial	47.65443	-70.15122	Rue John-Nairne	La Malbaie		Non-federal
19TDN17	Residential	47.65253	-70.15006	Rue Saint-Étienne	La Malbaie		Non-federal
19TCL23	Residential	45.40582	-71.25280	Rue Principale N.	La Patrie		Non-federal
19TCL23	Religious	45.40289	-71.25401	Rue Racine N.	La Patrie		Non-federal
18TVR26	Religious	45.74158	-75.90963	Ch. Plunkett	La Pêche		Non-federal
18TVR15	Religious	45.64241	-76.03724	Rte Principale E.	La Pêche		Non-federal
18TXR13	Religious	45.420627	-73.494426	Ch. de Saint-Jean	La Prairie		Non-federal
18TXR13	Office - Public	45.42078	-73.49475	Ch. de Saint-Jean	La Prairie		Non-federal
18TXR13	Office - Public	45.41934	-73.49670	Rue Saint-Georges	La Prairie		Non-federal
18TXT65	Office - Public	47.44256	-72.78863	Rue Beckler	La Tuque	On E. side of building	Non-federal
18TXT65	Office - Public	47.44254	-72.78915	Rue Beckler	La Tuque	On W. side of building	Non-federal
18TXT65	Commercial	47.44060	-72.78458	Rue Commerciale	La Tuque		Non-federal
18TXT65	Office - Public	47.43555	-72.77816	Rue Joffre	La Tuque		Non-federal
18TXT65	Religious	47.44134	-72.78456	Rue Saint-Joseph	La Tuque		Non-federal
18TWS22	Office - Public	46.27824	-74.73399	Rue du Couvent	Labelle		Non-federal
18UYU05	Religious	48.27501	-72.19098	Rte de l'Ermitage	Lac-Bouchette		Non-federal
18TXR91	Religious	45.21670	-72.50792	Ch. de Knowlton	Lac-Brome		Non-federal
18TYT08	Industrial	47.64913	-72.29244	Rue Principale	Lac-Édouard	Big round chimney of former boiler room	Non-federal
18TYT08	Office - Public	47.64808	-72.29075	Rue Principale	Lac-Édouard	On former hospital	Non-federal
18TYT08	Chimney tower	47.64938	-72.29170	Rue Principale	Lac-Édouard	Chimney tower near the former boiler room	Non-federal
18TWR55	Industrial	45.64339	-74.35508	Av. Hamford	Lachute		Non-federal
18TWR55	Agricultural	45.62493	-74.28262	Ch. Saint-Jérusalem S.	Lachute		Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
18TWR55	Office - Public	45.65250	-74.32847	Rue Catherine	Lachute	On N. section of building which is in SE. corner of property	Non-federal
19TCL54	Religious	45.57914	-70.88687	Rue Laval	Lac-Mégantic		Non-federal
19TCL54	Residential	45.57915	-70.88718	Rue Laval	Lac-Mégantic		Non-federal
18TXR06	Residential	45.69164	-73.61757	Boul. des Mille-Îles	Laval	On W. side of building	Non-federal
18TXR05	Agricultural	45.67966	-73.69541	Boul. des Mille-Îles	Laval	Vent in middle of roof of barn	Non-federal
18TXR05	Agricultural	45.67874	-73.70477	Boul. des Mille-Îles	Laval		Non-federal
18TXR06	Residential	45.69164	-73.61750	Boul. des Mille-Îles	Laval	On E. side of building	Non-federal
18TXR06	Religious	45.69101	-73.61796	Boul. des Mille-Îles	Laval		Non-federal
18TXR04	Educational	45.55525	-73.68932	Boul. des Prairies	Laval	Chimney at back of building. on N. wing	Non-federal
18TXR04	Educational	45.55463	-73.68929	Boul. des Prairies	Laval	On W. wing of building	Non-federal
18TXR04	Religious	45.55381	-73.68662	Boul. des Prairies	Laval		Non-federal
18TXR04	Religious	45.54601	-73.71011	Boul. des Prairies	Laval		Non-federal
18TWR94	Office - Public	45.53491	-73.73869	Boul. Lévesque O.	Laval	On the right when facing front of building	Non-federal
18TWR95	Educational	45.61361	-73.78778	Boul. Sainte-Rose	Laval		Non-federal
18TWR95	Commercial	45.61178	-73.79006	Boul. Sainte-Rose	Laval		Non-federal
18TXR05	Agricultural	45.64278	-73.66261	Rang du Bas-Saint-François	Laval		Non-federal
18TWR95	Educational	45.60369	-73.72680	Rue Bédard	Laval	On NW. side of building	Non-federal
18TWR95	Educational	45.61254	-73.78537	Rue Deslaurier	Laval		Non-federal
18TXR04	Religious	45.58507	-73.67025	Rue Roland-Forget	Laval		Non-federal
17TPN36	Residential	47.55192	-79.23707	Rue des Rapides-des-Quinze	Laverlochère-Angliers		Non-federal
19TCM38	Office - Public	46.80821	-71.18168	Av. Bégin	Lévis		Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
19TCM17	Residential	46.70163	-71.39931	Rue Le Picart	Lévis		Non-federal
19TCM38	Residential	46.82717	-71.15428	Rue Saint-Joseph	Lévis		Non-federal
19TCN92	Religious	47.12704	-70.37337	Ch. des Pionniers E.	L'Islet		Non-federal
18TXR14	Office - Public	45.52640	-73.48301	Boul. Curé-Poirier O.	Longueuil		Non-federal
18TXR14	Office - Public	45.53902	-73.50862	Rue Grant	Longueuil	Tall red brick chimney at back of building	Non-federal
17TPN24	Religious	47.35407	-79.35036	Rue de l'Église N.	Lorrainville		Non-federal
17TPN24	Educational	47.35409	-79.34935	Rue Notre-Dame E.	Lorrainville		Non-federal
18TXS52	Educational	46.25785	-72.94197	Av. Saint-Jacques	Louiseville		Non-federal
18TXS52	Religious	46.25677	-72.94139	Av. Saint-Laurent	Louiseville	On E. side of building	Non-federal
18TXS52	Religious	46.25671	-72.94184	Av. Saint-Laurent	Louiseville	On W. side of building	Non-federal
18TYR21	Religious	45.26866	-72.15638	Rue Merry N.	Magog		Non-federal
18TYR21	Office - Public	45.26779	-72.15613	Rue Merry N.	Magog		Non-federal
18TYR21	Residential and/or commercial	45.26612	-72.15188	Rue Principale O.	Magog		Non-federal
18TYR21	Commercial	45.26556	-72.14888	Rue Principale O.	Magog		Non-federal
18TYR21	Residential and/or commercial	45.26552	-72.15178	Rue Principale O.	Magog		Non-federal
18TYR21	Residential	45.26774	-72.14348	Rue Sherbrooke	Magog		Non-federal
18TYR21	Commercial	45.26715	-72.13870	Rue Saint-Luc	Magog		Non-federal
18TXS23	Residential	46.35900	-73.35280	Rue Desjardins	Mandeville		Non-federal
20UKU73	Office - Public	48.17355	-65.98546	Boul. Perron	Maria	Smaller of 2 side-by-side chimneys (near centre of building)	Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
20UKU73	Office - Public	48.17355	-65.98546	Boul. Perron	Maria	Largest of 2 side-by-side chimneys (near centre of building)	Non-federal
18TXR06	Office - Public	45.76020	-73.63236	Ch. Sainte-Marie	Mascouche	Near centre of building adjacent to dam	Non-federal
18TXR06	Educational	45.74986	-73.60369	Ch. Sainte-Marie	Mascouche		Non-federal
18TXR06	Residential	45.74922	-73.60493	Ch. Sainte-Marie	Mascouche	On E. side of building	Non-federal
18TXS52	Residential	46.22651	-73.01644	Rue Saint-Joseph	Maskinongé		Non-federal
18TWR76	Residential	45.71103	-74.08893	Boul. de Saint-Canut	Mirabel		Non-federal
18TWR64	Residential	45.60007	-74.12777	Rang Saint-Vincent	Mirabel		Non-federal
18TWR65	Residential	45.62681	-74.11745	Rte Arthur Sauvé	Mirabel		Non-federal
18TWR75	Religious	45.62456	-73.98159	Rue de Saint-Augustin	Mirabel	Big red brick chimney on E. side of building	Non-federal
18TWR65	Religious	45.60373	-74.19328	Rue Lalande	Mirabel		Non-federal
18TWR86	Religious	45.70536	-73.93103	Rue Sacré-Cœur	Mirabel		Non-federal
18TWR05	Religious	45.65111	-74.93979	Rue Notre-Dame	Montebello		Non-federal
18TWR05	Commercial	45.650522	-74.935258	Rue Notre-Dame	Montebello		Non-federal
18TVS65	Office - Public	46.55177	-75.50187	Rue de la Madone	Mont-Laurier		Non-federal
18TVS65	Educational	46.55874	-75.50059	Rue de la Montagne	Mont-Laurier		Non-federal
18TVS65	Religious	46.55237	-75.50097	Rue du Pont	Mont-Laurier		Non-federal
18TVS65	Educational	46.55323	-75.50102	Rue du Pont	Mont-Laurier	On S. side of building	Non-federal
18TVS65	Educational	46.55340	-75.50109	Rue du Pont	Mont-Laurier	On N. side of building	Non-federal
18TVS65	Commercial	46.55570	-75.49168	Rue Hébert	Mont-Laurier		Non-federal
18TVS65	Commercial	46.55686	-75.49022	Rue Vaudreuil	Mont-Laurier		Non-federal
19TCN80	Residential	46.98214	-70.55569	Av. de la Fabrique	Montmagny		Non-federal
19TCN80	Residential	46.97997	-70.55714	Av. Sainte-Julie	Montmagny		Non-federal
19TCN80	Religious	46.98195	-70.55630	Rue Saint-Jean-Baptiste E.	Montmagny		Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
19TCN80	Commercial	46.97954	-70.55851	Rue Saint-Thomas	Montmagny	On NE. side of building	Non-federal
18TXR04	Residential	45.56228	-73.66220	Av. Christophe-Colomb	Montréal		Non-federal
18TXR14	Commercial	45.50911	-73.57135	Av. du Parc	Montréal		Non-federal
18TXR04	Office - Public	45.51247	-73.61930	Av. Lajoie	Montréal		Non-federal
18TXR14	Residential	45.55519	-73.55030	Av. Pierre-de Coubertin	Montréal		Non-federal
18TXR04	Office - Public	45.54674	-73.63652	Boul. Crémazie E.	Montréal		Non-federal
18TXR03	Educational	45.50284	-73.61852	Boul. Édouard-Montpetit	Montréal	On SE. side of building	Non-federal
18TXR04	Religious	45.55235	-73.67266	Boul. Gouin E.	Montréal		Non-federal
18TWR83	Religious	45.48027	-73.87194	Boul. Gouin O.	Montréal		Non-federal
18TXR04	Residential	45.56263	-73.66170	Boul. Henri-Bourassa E.	Montréal		Non-federal
18TXR04	Residential	45.56229	-73.66256	Boul. Henri-Bourassa E.	Montréal		Non-federal
18TXR04	Residential	45.57171	-73.65831	Boul. Henri-Bourassa E.	Montréal		Non-federal
18TXR04	Residential	45.57528	-73.65526	Boul. Henri-Bourassa E.	Montréal		Non-federal
18TXR14	Residential	45.54378	-73.54299	Rue Aylwin	Montréal		Non-federal
18TWR83	Religious	45.48718	-73.87962	Rue Cherrier	Montréal	On church	Non-federal
18TWR83	Religious	45.48729	-73.87923	Rue Cherrier	Montréal	On presbytery	Non-federal
18TXR14	Educational	45.54866	-73.57779	Rue Dandurand	Montréal		Non-federal
18TXR04	Industrial	45.54333	-73.65930	Rue de Port-Royal O.	Montréal		Non-federal
18TXR14	Religious	45.52746	-73.55875	Rue Dorion	Montréal		Non-federal
18TXR14	Office - Public	45.52873	-73.54903	Rue Dufresne	Montréal		Non-federal
18TXR14	Residential	45.52784	-73.54861	Rue Fullum	Montréal	On W. side of NE. wing of building (former chapel)	Non-federal
18TXR04	Residential	45.52603	-73.71092	Rue Grenet	Montréal		Non-federal
18TXR04	Residential	45.52616	-73.71112	Rue Grenet	Montréal		Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
18TXR14	Religious	45.54823	-73.57596	Rue Masson	Montréal		Non-federal
18TXR14	Religious	45.54779	-73.57557	Rue Masson	Montréal		Non-federal
18TXR14	Religious	45.52427	-73.56125	Rue Ontario E.	Montréal		Non-federal
18TXR04	Residential	45.56658	-73.65015	Rue Papineau	Montréal		Non-federal
18TXR04	Residential	45.54603	-73.69630	Rue Poincaré	Montréal		Non-federal
18TXR04	Religious	45.55458	-73.65847	Rue Sauriol E.	Montréal		Non-federal
18TXR04	Residential	45.56380	-73.64829	Rue Sauvé E.	Montréal		Non-federal
18TXR14	Residential	45.58847	-73.54017	Rue Sherbrooke E.	Montréal		Non-federal
18TXR13	Residential and/or commercial	45.48383	-73.58274	Rue Saint-Antoine O.	Montréal		Non-federal
18TXR14	Religious	45.52728	-73.54716	Rue Sainte-Catherine E.	Montréal		Non-federal
18TXR44	Commercial	45.53518	-73.16973	Ch. de la Montagne	Mont-Saint-Hilaire		Non-federal
18TXR44	Residential	45.53367	-73.15572	Ch. des Moulins	Mont-Saint-Hilaire	2nd chimney from front of building (rectangular chimney)	Non-federal
18TXR44	Residential	45.53364	-73.15562	Ch. des Moulins	Mont-Saint-Hilaire	3rd chimney from front of building	Non-federal
18TXR44	Commercial	45.55987	-73.20056	Ch. des Patriotes S.	Mont-Saint-Hilaire	Northmost of chimneys located in centre of central building	Non-federal
18TXR44	Commercial	45.54139	-73.18755	Ch. Ozias-Leduc	Mont-Saint-Hilaire		Non-federal
18TXR44	Office - Public	45.54907	-73.18932	Montée des Trente	Mont-Saint-Hilaire	Small chimney on N. part of building	Non-federal
18TXR44	Educational	45.56820	-73.19360	Rue Sainte-Anne	Mont-Saint-Hilaire		Non-federal
18TXR44	Educational	45.56930	-73.19320	Rue Sainte-Anne	Mont-Saint-Hilaire		Non-federal
18TXR44	Office - Public	45.56920	-73.19486	Rue Saint-Hippolyte	Mont-Saint-Hilaire		Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
18TWS31	Commercial	46.21205	-74.58563	Ch. de la Chapelle	Mont-Tremblant	Chimney near centre of building (front section of building)	Non-federal
18TWS31	Commercial	46.21230	-74.58551	Ch. de la Chapelle	Mont-Tremblant	On N. part of building	Non-federal
18TWS31	Commercial	46.18156	-74.56832	Ch. Saint-Bernard	Mont-Tremblant	On building with bell tower	Non-federal
18TWS30	Religious	46.11904	-74.59366	Rue de Saint-Jovite	Mont-Tremblant		Non-federal
18TWS30	Religious	46.11899	-74.59425	Rue de Saint-Jovite	Mont-Tremblant		Non-federal
19TCL45	Residential	45.63146	-71.02395	Rue Principale	Nantes		Non-federal
18TXS82	Educational	46.22881	-72.62113	Rue Saint-Jean-Baptiste	Nicolet	Eastmost of the 2 chimneys located in centre of building's front section	Non-federal
18TVS93	Commercial	46.39479	-75.02832	Ch. du Tour du Lac	Nominingue		Non-federal
19TCL32	Residential	45.39403	-71.07387	Rue Principale O.	Notre-Dame-des-Bois		Non-federal
18TYR22	Residential	45.31162	-72.16530	Ch. Bice	Orford		Non-federal
18TWQ79	Religious	45.12541	-73.99176	Rue Lambton	Ormstown		Non-federal
18TWQ79	Residential	45.12576	-73.99199	Rue Lambton	Ormstown	On W. side of building	Non-federal
18TXR44	Commercial	45.53571	-73.19756	Ch. Ozias-Leduc	Otterburn Park	Brick chimney on E. side of building	Non-federal
18TXR44	Educational	45.54702	-73.20598	Rue Helen	Otterburn Park		Non-federal
18TVR95	Residential	45.61849	-75.01735	Rue Henri-Bourassa	Papineauville		Non-federal
18TVR95	Office - Public	45.61910	-75.01814	Rue Jeanne-d'Arc	Papineauville		Non-federal
18TXS60	Residential	46.07016	-72.81065	Rue Georges	Pierreville		Non-federal
18TXS60	Commercial	46.07060	-72.81193	Rue Maurault	Pierreville	Tall chimney at back of building. on E. side	Non-federal
18TXS60	Residential	46.07077	-72.81030	Rue Rouillard	Pierreville		Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
18TXS60	Residential	46.06895	-72.81142	Rue Trahan	Pierreville	Brick chimney at back of building located on S. portion of property	Non-federal
19TBM82	Religious	46.21593	-71.77503	Rue Saint-Calixte	Plessisville		Non-federal
19TBM82	Residential	46.21694	-71.77652	Rue Saint-Calixte	Plessisville	On rear portion of building	Non-federal
19TDN85	Religious	47.45605	-69.15134	Rue de la Fabrique	Pohénégamook		Non-federal
19TDN85	Office - Public	47.45663	-69.15206	Rue des Étudiants	Pohénégamook		Non-federal
18TVR24	Religious	45.53402	-76.01623	Ch. du Village	Pontiac		Non-federal
18TVR04	Religious	45.52003	-76.23404	Rue Clarendon	Pontiac		Non-federal
18TUR74	Office - Public	45.59098	-76.66500	Rue Mill	Portage-du-Fort		Non-federal
19TCM38	Residential	46.82595	-71.22230	8e Avenue	Québec		Non-federal
19TCM28	Residential and/or commercial	46.78443	-71.24782	Av. du Chanoine-Morel	Québec		Non-federal
19TCM38	Commercial	46.83137	-71.22508	Ch. de la Canardière	Québec	Largest of chimneys. located almost in centre of NE. portion of building	Non-federal
19TCM28	Educational	46.76987	-71.26104	Ch. Saint-Louis	Québec	Wide grey brick chimney in centre of W. wing of building	Non-federal
19TCM38	Religious	46.80787	-71.20726	Côte de la Citadelle	Québec		Federal
19TCM28	Religious	46.75580	-71.30993	Rue Armand-Hamelin	Québec		Non-federal
19TCM38	Residential	46.81145	-71.21157	Rue d'Auteuil	Québec	Rearmost chimney on building	Non-federal
19TCM38	Residential	46.80959	-71.20694	Rue de Brébeuf	Québec	On S. side of building	Non-federal
19TCM38	Educational	46.81530	-71.20629	Rue de la Vieille-Université	Québec		Non-federal
19TCM38	Religious	46.81470	-71.20495	Rue des Remparts	Québec		Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
19TCM28	Religious	46.79904	-71.23709	Rue Père-Marquette	Québec		Non-federal
19TCM38	Residential	46.81125	-71.20841	Rue Saint-Louis	Québec		Non-federal
19TCM38	Commercial	46.81453	-71.20311	Rue Saint-Pierre	Québec		Non-federal
19TCM38	Commercial	46.81412	-71.20236	Rue Saint-Pierre	Québec		Non-federal
18TWR99	Religious	46.04464	-73.71228	Rue Queen	Rawdon		Non-federal
18TXR26	Office - Public	45.73807	-73.44784	Rue Notre-Dame	Repentigny		Non-federal
18TXR26	Religious	45.73896	-73.44732	Rue Notre-Dame	Repentigny		Non-federal
18TYR26	Residential	45.66008	-72.13923	Rue Craig	Richmond		Non-federal
19UEP36	Educational	48.44556	-68.52630	Rue Saint-Jean-Baptiste O.	Rimouski		Non-federal
18TWS13	Educational	46.40966	-74.86721	Rue Dupont	Rivière-Rouge		Non-federal
18TXR83	Religious	45.47531	-72.65884	Rue Principale	Roxton Pond		Non-federal
19UCP36	Commercial	48.41434	-71.25404	Rue Saint-Dominique	Saguenay		Non-federal
19TDM39	Religious	46.86475	-69.89825	Rue Principale	Saint-Adalbert		Non-federal
18TXS44	Office - Public	46.46344	-73.14473	Rue Saint-Olivier	Saint-Alexis-des-Monts		Non-federal
18TVR96	Residential	45.71755	-75.05779	Rue Principale	Saint-André-Avellin		Non-federal
18TWR54	Religious	45.56351	-74.33556	Rte des Seigneurs	Saint-André-d'Argenteuil		Non-federal
18TWQ59	Office - Public	45.14127	-74.36252	Rue Saint-Anicet	Saint-Anicet		Non-federal

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19TCM46	Residential	46.62810	-70.97171	Rue Principale	Saint-Anselme	On NW. side of building	Non-federal
18TXR47	Religious	45.77864	-73.17288	Rue du Rivage	Saint-Antoine-sur-Richelieu		Non-federal
18TXR47	Office - Public	45.77809	-73.17319	Rue du Rivage	Saint-Antoine-sur-Richelieu		Non-federal
18TXQ58	Religious	45.01722	-73.08650	Rte 133	Saint-Armand	On small building at back (W.) of main building	Non-federal
18TXQ58	Religious	45.01698	-73.08617	Rte 133	Saint-Armand	On the W. side (rear) of north section of main building	Non-federal
18TXQ58	Religious	45.01693	-73.08615	Rte 133	Saint-Armand	In centre of main building	Non-federal
19TCM17	Residential	46.74294	-71.46114	Rte 138	Saint-Augustin-de-Desmaures		Non-federal
19TCL52	Residential	45.34902	-70.89851	Rang Tout-de-Joie	Saint-Augustin-de-Woburn		Non-federal
18TXS41	Religious	46.19080	-73.11886	Place Saint-Barthélemy	Saint-Barthélemy		Non-federal
18TXS41	Office - Public	46.19135	-73.11900	Rue Bonin	Saint-Barthélemy		Non-federal
18TXR34	Religious	45.52674	-73.28818	Rue Principale	Saint-Basile-le-Grand		Non-federal
19TCM60	Residential	46.06832	-70.79070	Rue Principale	Saint-Benoît-Labre		Non-federal
18TXR30	Residential	45.19737	-73.26673	Rte 223	Saint-Blaise-sur-Richelieu	Chimney at S. extremity of building	Non-federal
18TXR30	Religious	45.22235	-73.30431	Rue Principale	Saint-Blaise-sur-Richelieu		Non-federal
17TPN15	Religious	47.46456	-79.43738	Rue Principale N.	Saint-Bruno-de-Guigues		Non-federal
18TXR34	Commercial	45.52811	-73.31194	Rang des Vingt	Saint-Bruno-de-Montarville	Near centre of main building	Non-federal
18TYS16	Residential	46.63488	-72.17105	Rang du Rapide N.	Saint-Casimir		Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
18TYS17	Residential	46.65379	-72.13855	Rue Notre-Dame	Saint-Casimir	Big chimney on larger section of building (near fire escape)	Non-federal
18TYS17	Residential	46.65353	-72.13928	Rue Notre-Dame	Saint-Casimir		Non-federal
18TYS17	Residential	46.65589	-72.13927	Rue Tessier E.	Saint-Casimir		Non-federal
18TYS17	Commercial	46.65811	-72.13657	Rue Tessier E.	Saint-Casimir		Non-federal
18TYS17	Residential	46.65524	-72.13970	Rue Tessier O.	Saint-Casimir		Non-federal
18TYS17	Residential	46.65565	-72.13939	Rue Tessier O.	Saint-Casimir		Non-federal
18TXR46	Office - Public	45.68349	-73.18764	Ch. des Patriotes	Saint-Charles-sur-Richelieu	Chimney with metal collar on S. side of building	Non-federal
18TXR46	Office - Public	45.68359	-73.18757	Ch. des Patriotes	Saint-Charles-sur-Richelieu	On N. side of building	Non-federal
19TCM76	Religious	46.62517	-70.65612	Rue Commerciale	Saint-Damien-de-Buckland	Near center of building	Non-federal
18TWR59	Religious	46.04591	-74.28564	Rue Principale E.	Sainte-Agathe-des-Monts		Non-federal
19TCN50	Office - Public	47.02526	-70.91990	Boul. Sainte-Anne	Sainte-Anne-de-Beaupré		Non-federal
18TWR82	Residential	45.40490	-73.94350	Rue Lakeshore	Sainte-Anne-de-Bellevue	Rectangular brick chimney on central part of W. wing of building	Non-federal
18TWR82	Residential	45.40486	-73.94360	Rue Lakeshore	Sainte-Anne-de-Bellevue	Chimney at junction of central part of W. wing of building (former residence) and W.section of this wing	Non-federal
18TWR82	Residential	45.40484	-73.94370	Rue Lakeshore	Sainte-Anne-de-Bellevue	Chimney in centre of W. section of W. wing of building (former residence)	Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
18TWR82	Residential	45.40491	-73.94298	Rue Lakeshore	Sainte-Anne-de-Bellevue	On central part of building (former residence). just W. of main entrance	Non-federal
18TWR82	Residential	45.40484	-73.94288	Rue Lakeshore	Sainte-Anne-de-Bellevue	Chimney on central part of building (former residence). just E. of main entrance	Non-federal
19UFQ84	Religious	49.12978	-66.48534	1re Avenue E.	Sainte-Anne-des-Monts		Non-federal
18TWR96	Religious	45.75931	-73.81583	Boul. Sainte-Anne	Sainte-Anne-des-Plaines	On N. side of presbytery	Non-federal
18TWR96	Office - Public	45.76011	-73.81581	Boul. Sainte-Anne	Sainte-Anne-des-Plaines		Non-federal
18TWR96	Religious	45.75982	-73.81610	Boul. Sainte-Anne	Sainte-Anne-des-Plaines	Completely at back of church	Non-federal
18TWR96	Religious	45.75971	-73.81589	Boul. Sainte-Anne	Sainte-Anne-des-Plaines	Largest of chimneys on church; located on N. side of building	Non-federal
18TWR96	Office - Public	45.76007	-73.81575	Boul. Sainte-Anne	Sainte-Anne-des-Plaines	Left side chimney when facing front of building	Non-federal
18TWR96	Office - Public	45.76025	-73.81568	Boul. Sainte-Anne	Sainte-Anne-des-Plaines	Northmost of 3 chimneys on rear side of building	Non-federal
18TXS01	Religious	46.19425	-73.62085	Rue de l'Église	Sainte-Béatrix		Non-federal
19TCN30	Religious	47.00208	-71.19337	Rue du Couvent	Sainte-Brigitte-de-Laval		Non-federal
19TCM56	Religious	46.59790	-70.86679	Rue Principale	Sainte-Claire	Big square chimney at back of building	Non-federal
18TYR19	Residential	45.98988	-72.23677	Rue Principale	Sainte-Clotilde-de-Horton		Non-federal
18TYS11	Religious	46.11192	-72.25005	Rue des Érables	Sainte-Eulalie		Non-federal
19TDN20	Religious	46.96633	-69.94898	Rue de l'Église N.	Sainte-Félicité		Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
18TXR25	Religious	45.59286	-73.33885	Rue Principale	Sainte-Julie		Non-federal
18TXS55	Commercial	46.49095	-72.95928	Av. Principale	Saint-Élie-de-Caxton	Large chimney near centre of building	Non-federal
18TXS55	Commercial	46.49101	-72.95918	Av. Principale	Saint-Élie-de-Caxton	Back of building	Non-federal
19TDN97	Office - Public	47.59239	-69.09507	Rue de l'Église	Saint-Elzéar-de-Témiscouata		Non-federal
18TYS13	Religious	46.32340	-72.17933	Rue des Bosquets	Sainte-Marie-de-Blandford		Non-federal
18TXR18	Religious	45.93196	-73.49640	Ch. Saint-Jean	Sainte-Marie-Salomé		Non-federal
18TWR91	Commercial	45.25263	-73.79759	Rue de la Station	Sainte-Martine		Non-federal
18TWR91	Religious	45.24618	-73.80595	Rue Saint-Joseph	Sainte-Martine		Non-federal
18TWR91	Religious	45.24531	-73.80588	Rue Saint-Joseph	Sainte-Martine		Non-federal
18TXS91	Residential	46.15740	-72.53862	Rue Principale	Sainte-Monique	Large chimney at back of building	Non-federal
19TDN21	Religious	47.05780	-69.92629	Rue de l'Église	Sainte-Perpétue		Non-federal
19TDN21	Religious	47.05794	-69.92581	Rue de l'Église	Sainte-Perpétue		Non-federal
18TWR95	Residential	45.63477	-73.83697	Rue Napoléon	Sainte-Thérèse		Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
19TEN06	Religious	47.54245	-68.91240	Rue de l'Église	Saint-Eusèbe		Non-federal
18TXR49	Religious	45.94866	-73.08779	Rang Sud	Sainte-Victoire-de-Sorel	Chimney at back of building	Non-federal
18TWS40	Religious	46.11364	-74.48105	Rue de la Pisciculture	Saint-Faustin-Lac-Carré		Non-federal
18TXS21	Religious	46.17037	-73.42576	Rue Principale	Saint-Félix-de-Valois	Tall red brick chimney on NW. portion of church	Non-federal
18TXS21	Religious	46.16994	-73.42575	Rue Principale	Saint-Félix-de-Valois	Most central and largest of 2 chimneys on rear part of presbytery	Non-federal
19TCM69	Office - Public	46.88731	-70.71444	Ch. du Rocher	Saint-François-de-la-Rivière-du-Sud	On left side when facing front of building	Non-federal
19TCM69	Religious	46.88812	-70.71377	Ch. Saint-François O.	Saint-François-de-la-Rivière-du-Sud		Non-federal
18TXS22	Religious	46.29299	-73.38555	Rue Saint-Gabriel	Saint-Gabriel	On the right when facing back of building	Non-federal
18TXS22	Religious	46.29306	-73.38562	Rue Saint-Grabriel	Saint-Gabriel	On left side when facing back of building	Non-federal
19TCM70	Industrial	46.12237	-70.66686	120e Rue	Saint-Georges		Non-federal
18TXQ49	Residential	45.06308	-73.21710	Ch. Wolfe Ridge	Saint-Georges-de-Clarenceville		Non-federal
18TXQ39	Religious	45.06429	-73.24679	Rue Front N.	Saint-Georges-de-Clarenceville		Non-federal
18TXQ39	Religious	45.06353	-73.24649	Rue Principale	Saint-Georges-de-Clarenceville		Non-federal
19TCM47	Religious	46.69257	-71.06622	Rue Commerciale	Saint-Henri	Completely at back of building	Non-federal
19TCL58	Religious	45.86474	-70.85780	Rue Principale	Saint-Hilaire-de-Dorset		Non-federal
18TXR67	Office - Public	45.79220	-72.85590	Rue Notre-Dame	Saint-Hugues		Non-federal
18TXR55	Religious	45.62840	-72.95583	Av. Bourdages N.	Saint-Hyacinthe		Non-federal

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18TXR55	Commercial	45.62754	-72.94771	Av. Laframboise	Saint-Hyacinthe		Non-federal
18TXR65	Residential and/or commercial	45.62533	-72.94509	Av. Mondor	Saint-Hyacinthe		Non-federal
18TXR65	Residential	45.62315	-72.94511	Av. Sainte-Anne	Saint-Hyacinthe		Non-federal
18TXR65	Residential and/or commercial	45.62407	-72.94587	Av. Saint-François	Saint-Hyacinthe		Non-federal
18TXR65	Residential	45.62624	-72.94478	Rue Calixa-Lavallée	Saint-Hyacinthe	On the right when facing front of building	Non-federal
18TXR65	Residential and/or commercial	45.62381	-72.94724	Rue des Cascades	Saint-Hyacinthe		Non-federal
18TXR65	Residential and/or commercial	45.62433	-72.94650	Rue des Cascades O.	Saint-Hyacinthe		Non-federal
18TXR65	Office - Public	45.63361	-72.94347	Rue Girouard E.	Saint-Hyacinthe		Non-federal
18TXR55	Residential	45.62858	-72.95400	Rue Papineau	Saint-Hyacinthe		Non-federal
18TXR65	Residential	45.62451	-72.94433	Rue Saint-Antoine	Saint-Hyacinthe		Non-federal
18TXR65	Residential	45.62445	-72.94446	Rue Saint-Antoine	Saint-Hyacinthe	On N. side of building. overlooking a parking lot	Non-federal
18TXR65	Residential	45.62297	-72.94376	Rue Saint-François	Saint-Hyacinthe		Non-federal
18TXR31	Religious	45.30932	-73.24243	1re Rue	Saint-Jean-sur-Richelieu		Non-federal
18TXR31	Office - Public	45.30513	-73.25410	Rue Jacques-Cartier N.	Saint-Jean-sur-Richelieu		Non-federal
18TXR31	Office - Public	45.30531	-73.25400	Rue Jacques-Cartier N.	Saint-Jean-sur-Richelieu	On E. side of building	Non-federal
18TXR31	Office - Public	45.30519	-73.25407	Rue Jacques-Cartier N.	Saint-Jean-sur-Richelieu		Non-federal
18TXR31	Residential	45.30476	-73.25465	Rue Longueuil	Saint-Jean-sur-Richelieu	On N. side of building	Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
18TXR31	Religious	45.30528	-73.25519	Rue Longueuil	Saint-Jean-sur-Richelieu	On S. side of building	Non-federal
18TXR31	Religious	45.30534	-73.25521	Rue Longueuil	Saint-Jean-sur-Richelieu	On N. side of building	Non-federal
18TXR31	Residential	45.30466	-73.25465	Rue Longueuil	Saint-Jean-sur-Richelieu	On S. side of building	Non-federal
18TXR31	Office - Public	45.30597	-73.25301	Rue Saint-Jacques	Saint-Jean-sur-Richelieu		Non-federal
18TWR76	Religious	45.76071	-73.98829	Boul. des Laurentides	Saint-Jérôme		Non-federal
18TWR76	Religious	45.777915	-74.001526	Place du Curé-Labelle	Saint-Jérôme		Non-federal
18TWR76	Commercial	45.77607	-74.00135	Rue de la Gare	Saint-Jérôme	On N. side of building	Non-federal
18TWR77	Commercial	45.79323	-74.00533	Rue de Sainte-Paule	Saint-Jérôme		Non-federal
18TWR76	Commercial	45.77644	-74.00138	Rue de Villemure	Saint-Jérôme		Non-federal
18TWR77	Religious	45.78892	-74.00707	Rue Labelle	Saint-Jérôme		Non-federal
18TWR77	Office - Public	45.78876	-74.00668	Rue Labelle	Saint-Jérôme		Non-federal
18TWR77	Office - Public	45.78320	-74.00594	Rue Laviolette	Saint-Jérôme		Non-federal
18TWR77	Office - Public	45.77952	-73.99626	Rue Melançon	Saint-Jérôme		Non-federal
18TWR76	Residential and/or commercial	45.77142	-74.00289	Rue Saint-Faustin	Saint-Jérôme		Non-federal
19TCN61	Office - Public	47.05174	-70.81857	Ch. du Cap Tourmente	Saint-Joachim	On W. side of building	Non-federal
19TCN61	Residential	47.05326	-70.84089	Ch. du Cap Tourmente	Saint-Joachim	On W. side of building	Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
19TCM74	Religious	46.47850	-70.61844	Rue Principale	Saint-Léon-de-Standon		Non-federal
18TWR70	Religious	45.21498	-73.99892	Rue Principale	Saint-Louis-de-Gonzague		Non-federal
18TWR70	Office - Public	45.21473	-73.99840	Rue Principale	Saint-Louis-de-Gonzague		Non-federal
19TDM19	Religious	46.89889	-70.06057	Ch. Taché E.	Saint-Marcel	Tall chimney on N. side of building. towards back	Non-federal
18TXR45	Religious	45.67749	-73.19451	Rue Richelieu	Saint-Marc-sur-Richelieu	Tall red brick chimney on N. side of building	Non-federal
18TXR33	Religious	45.47400	-73.26800	Ch. des Patriotes	Saint-Mathias-sur-Richelieu		Non-federal
18TXR33	Residential	45.47040	-73.26750	Ch. des Patriotes	Saint-Mathias-sur-Richelieu		Non-federal
19TCM59	Religious	46.87631	-70.90725	Rue Principale	Saint-Michel-de-Bellechasse		Non-federal
19TCM59	Educational	46.87662	-70.90650	Rue Saint-Georges	Saint-Michel-de-Bellechasse		Non-federal
18TWS86	Commercial	46.67754	-73.91688	Rue Brassard	Saint-Michel-des-Saints		Non-federal
19UEP20	Religious	47.88034	-68.72298	Rue Saint-Joseph	Saint-Michel-du-Squatec		Non-federal
19TDM39	Commercial	46.92196	-69.83257	Rang Double	Saint-Pamphile		Non-federal
19TDN40	Office - Public	46.96068	-69.77798	Rte Elgin S.	Saint-Pamphile		Non-federal
18TXR29	Religious	45.98358	-73.44597	Boul. Brassard	Saint-Paul	On presbytery: chimney on right side when facing back of building	Non-federal
18TXS54	Religious	46.41888	-73.01289	Rue Laflèche	Saint-Paulin		Non-federal
19TCM79	Residential	46.90343	-70.62660	Rang du Côteau S.	Saint-Pierre-de-la-Rivière-du-Sud		Non-federal
18TYS15	Residential	46.50715	-72.20418	Rte Marie-Victorin	Saint-Pierre-les-Becquets	On left side when facing front of building	Non-federal
18TWR51	Religious	45.30276	-74.30241	Ch. de l'Église	Saint-Polycarpe		Non-federal
19TCM68	Religious	46.79461	-70.75445	Rue Principale	Saint-Raphaël		Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
19TBM89	Residential	46.89057	-71.83449	Av. Saint-Michel	Saint-Raymond		Non-federal
18TXS78	Religious	46.81098	-72.76944	Rue Principale	Saint-Roch-de-Mékinac		Non-federal
18TWR60	Religious	45.17875	-74.13017	Rue Principale	Saint-Stanislas-de-Kostka		Non-federal
18TXR27	Religious	45.82677	-73.35609	Rue Notre-Dame	Saint-Sulpice		Non-federal
18TXR86	Religious	45.68554	-72.58363	Rue Principale	Saint-Théodore-d'Acton		Non-federal
19TCM69	Religious	46.89318	-70.82427	Av. de l'Église	Saint-Vallier		Non-federal
18TWR51	Religious	45.24273	-74.24714	Rue Principale	Saint-Zotique		Non-federal
18TWR61	Religious	45.24834	-74.13067	Ch. Larocque	Salaberry-de-Valleyfield	On the right when facing front of building	Non-federal
18TWR61	Religious	45.25944	-74.12230	Rue Alphonse-Desjardins	Salaberry-de-Valleyfield		Non-federal
18TWR61	Educational	45.26227	-74.13085	Rue Gault	Salaberry-de-Valleyfield		Non-federal
18TWR61	Office - Public	45.25938	-74.12034	Rue Saint-Paul	Salaberry-de-Valleyfield		Non-federal
19TCL24	Residential	45.52437	-71.27688	Rue Osborne	Scotstown		Non-federal
18TXS76	Educational	46.61514	-72.69906	8e Rue	Shawinigan		Non-federal
18TXS76	Commercial	46.61554	-72.69789	8e Rue	Shawinigan		Non-federal
18TXS75	Religious	46.56269	-72.74750	Rue Gignac	Shawinigan		Non-federal
18TUR85	Educational	45.60273	-76.49343	Rue Centre	Shawville		Non-federal
18TUR85	Residential	45.60413	-76.49097	Rue Centre	Shawville		Non-federal
18TUR85	Residential and/or commercial	45.60356	-76.49190	Rue Main	Shawville	Rearmost chimney on building	Non-federal
18TUR85	Religious	45.60412	-76.49371	Rue Main	Shawville		Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
18TUR29	Office - Public	45.95063	-77.27128	Ch. Perrault	Sheenboro	On NW. side of building (smallest chimney)	Non-federal
18TYR32	Educational	45.34246	-72.04333	Boul. Bourque	Sherbrooke		Non-federal
19TBL73	Residential	45.40204	-71.90201	Boul. Queen-Victoria	Sherbrooke	Tall rectangular chimney on SE. portion of building	Non-federal
18TYR33	Religious	45.39495	-72.03988	Ch. de Saint-Élie	Sherbrooke		Non-federal
19TBL62	Religious	45.34795	-71.99165	Ch. Saint-Roch S.	Sherbrooke		Non-federal
19TBL72	Residential	45.37085	-71.85893	Rue Academy	Sherbrooke		Non-federal
19TBL72	Residential	45.36738	-71.86135	Rue Church	Sherbrooke		Non-federal
19TBL72	Residential	45.36693	-71.83640	Rue College	Sherbrooke	On E. side of building	Non-federal
19TBL63	Educational	45.47456	-71.94584	Rue Curé LaRocque	Sherbrooke	Chimney close to centre of N. side of building	Non-federal
19TBL73	Residential	45.41053	-71.90897	Rue de l'Ontario	Sherbrooke		Non-federal
19TBL73	Residential	45.40570	-71.89297	Rue des Abénaquis	Sherbrooke		Non-federal
19TBL73	Religious	45.40897	-71.89755	Rue Dufferin	Sherbrooke		Non-federal
19TBL73	Commercial	45.39938	-71.90672	Rue King O.	Sherbrooke		Non-federal
19TBL73	Office - Public	45.40284	-71.88847	Rue King O.	Sherbrooke		Non-federal
19TBL63	Commercial	45.39771	-71.94291	Rue King O.	Sherbrooke		Non-federal
19TBL73	Residential and/or commercial	45.40249	-71.88898	Rue King O.	Sherbrooke		Non-federal
19TBL73	Residential	45.40386	-71.90641	Rue Portland	Sherbrooke		Non-federal
19TBL72	Office - Public	45.36781	-71.85642	Rue Queen	Sherbrooke	On W. side of building	Non-federal
19TBL72	Commercial	45.36912	-71.85634	Rue Queen	Sherbrooke		Non-federal
19TBL72	Office - Public	45.36782	-71.85629	Rue Queen	Sherbrooke	On E. side of building	Non-federal
19TBL72	Religious	45.36501	-71.85621	Rue Queen	Sherbrooke		Non-federal
18TXS40	Office - Public	46.04244	-73.11424	Av. de l'Hôtel-Dieu	Sorel-Tracy		Non-federal
18TXS40	Office - Public	46.04510	-73.10863	Rue de Ramezay	Sorel-Tracy		Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
18TXS40	Residential and/or commercial	46.04433	-73.11411	Rue du Prince	Sorel-Tracy		Non-federal
18TXQ99	Residential	45.11125	-72.57199	Ch. du Plateau	Sutton	Chimney at W. end of building	Non-federal
17TPM38	Office - Public	46.83175	-79.19189	Ch. Opémican	Témiscaming	Central chimney	Non-federal
17TPM47	Religious	46.72134	-79.09895	Rue Boucher	Témiscaming		Non-federal
18TXR06	Residential	45.69297	-73.63077	Rue Chapleau	Terrebonne		Non-federal
18TXR06	Residential	45.70376	-73.66122	Rue de l'Espinay	Terrebonne		Non-federal
18TXR06	Residential	45.69201	-73.63432	Rue Saint-André	Terrebonne		Non-federal
18TXR06	Educational	45.69520	-73.63777	Rue Saint-Louis	Terrebonne		Non-federal
19TCM21	Religious	46.14027	-71.21587	Boul. Frontenac E.	Thetford Mines		Non-federal
19TCM20	Office - Public	46.09067	-71.29967	Rue Saint-Alphonse S.	Thetford Mines		Non-federal
19TCM10	Office - Public	46.04326	-71.36459	Rue Saint-Jean	Thetford Mines		Non-federal
18TVR84	Religious	45.59603	-75.24536	Rue Victoria	Thurso		Non-federal
18TXS83	Religious	46.34772	-72.55327	Boul. Saint-Louis	Trois-Rivières		Non-federal
18TXS83	Office - Public	46.34389	-72.54010	Rue Laviolette	Trois-Rivières		Non-federal
18TXS83	Residential and/or commercial	46.34337	-72.53985	Rue Notre-Dame C.	Trois-Rivières		Non-federal
18TXS83	Office - Public	46.34271	-72.54028	Rue Radisson	Trois-Rivières		Non-federal
18TXS83	Office - Public	46.34506	-72.54244	Rue Royale	Trois-Rivières	On SE. corner of building	Non-federal
18TXR26	Educational	45.68490	-73.44213	Rue Sainte-Anne	Varennes	On W. section of building	Non-federal
18TWR72	Religious	45.39818	-74.02639	Av. Saint-Charles	Vaudreuil-Dorion		Non-federal
19TBM70	Religious	46.03424	-71.91608	Rue Laurier O.	Victoriaville		Non-federal
19TBM70	Educational	46.03525	-71.91572	Rue Laurier O.	Victoriaville		Non-federal
19TBM70	Commercial	46.05278	-71.95821	Rue Octave	Victoriaville		Non-federal
17TPN14	Office - Public	47.32848	-79.44111	Rue Maisonneuve	Ville-Marie		Non-federal
17TPN14	Educational	47.33308	-79.43478	Rue Montfort	Ville-Marie		Non-federal
17TPN14	Office - Public	47.33313	-79.44389	Rue Notre-Dame N.	Ville-Marie		Non-federal

10 x 10 km standardized grid square ID[19]	Building type[20]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[21]	Land tenure
17TPN14	Commercial	47.33197	-79.43417	Rue Sainte-Anne	Ville-Marie		Non-federal
17TPN14	Office - Public	47.32900	-79.43736	Rue Saint-Gabriel S.	Ville-Marie		Non-federal
18TXR92	Residential	45.34538	-72.51775	Rue Young	Waterloo		Non-federal
19TCL06	Religious	45.70148	-71.46378	Rue Saint-Janvier	Weedon		Non-federal
18TYR35	Office - Public	45.56595	-72.01025	Rue Greenlay S.	Windsor		Non-federal
19TBL64	Commercial	45.55528	-71.99711	Rue Principale S.	Windsor		Non-federal
18TYR35	Office - Public	45.56989	-72.00374	Rue Saint-Georges	Windsor		Federal
18TXR69	Religious	46.00827	-72.91515	Rue Principale	Yamaska	On presbytery: chimney on N. side of building	Non-federal

Table D-4. Description of the 10 × 10 km standardized UTM grid squares and critical habitat units for the Chimney Swift in New Brunswick. Critical habitat occurs where the criteria described in sections 7.1.1 and 7.1.2 are met.

10 x 10 km standardized grid square ID[22]	Building type[23]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[24]	Land tenure
20TLR45	Residential	45.60244	-64.94254	Main St.	Alma		Non-federal
20TKR96	Residential	45.69796	-65.61182	Rte. 121	Apohaqui		Non-federal
20TLT07	Commercial	47.62018	-65.65705	Main St.	Bathurst		Non-federal
19TFM40	Residential	46.11423	-67.09516	Hainesville Rd.	Central Hainesville		Non-federal
19TEN54	Religious	47.36276	-68.33297	Rue Rice	Edmundston		Non-federal
19TFL89	Residential	45.96994	-66.63500	Bowlen St.	Fredericton	W. chimney	Non-federal
19TFL89	Residential	45.98318	-66.59256	Canada St.	Fredericton		Non-federal
19TFL89	Commercial	45.95308	-66.64255	McLeod Ave.	Fredericton		Non-federal
19TFL89	Residential	45.95700	-66.65264	Victoria St.	Fredericton		Non-federal
19TFL89	Residential	45.95984	-66.64613	York St.	Fredericton		Non-federal
20TKR74	Office - Public	45.52582	-65.82664	Centennial Rd.	Hampton		Non-federal
20TKR74	Office - Public	45.52649	-65.82685	Main St.	Hampton	SW. SE. and NW. chimneys	Non-federal
20TLR68	Agricultural	45.90960	-64.79270	Osborne Corner Rd.	Hillsborough		Non-federal
19TFL79	Residential and/or commercial	45.96648	-66.79919	Rte. 102	Island View	Nursery office chimney	Non-federal

[22] Based on the standard UTM Military Grid Reference System (see https://www.nrcan.gc.ca/earth-sciences/geography/topographic-information/maps/9789), where the first 2 digits represent the UTM zone, the following letter represents the UTM row, the next 2 letters indicate the 100 km x 100 km standardized UTM grid, followed by 2 digits to represent the 10 x 10 km standardized UTM grid comprising one or several critical habitat units. This unique alphanumeric code is based on the methodology used for the Breeding Bird Atlases of Canada (see https://www.birdscanada.org/ for more information on breeding bird atlases).

[23] See Appendix E for a description of building types.

[24] When there is more than one chimney on the building or property. N = north; S = south; E = east; W = west.

10 x 10 km standardized grid square ID[22]	Building type[23]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[24]	Land tenure
19TFL87	Residential and/or commercial	45.80228	-66.61422	Rusagonis Rd.	Lincoln		Non-federal
20TLR79	Office - Public	45.97691	-64.56607	Rue Centrale	Memramcook		Non-federal
20TLT48	Religious	47.66873	-65.10856	Rue des Fondateurs	Paquetville		Non-federal
19TFM29	Educational	46.91332	-67.39167	Main St.	Plaster Rock		Non-federal
20TLR66	Residential	45.74590	-64.74228	King St.	Riverside-Albert		Non-federal
20TLR98	Residential	45.89898	-64.36334	Squire St.	Sackville		Non-federal
19TFK59	Residential	45.07265	-67.04566	Augustus St.	Saint Andrews-by-the-Sea	Centre chimney	Non-federal
19TFK59	Residential	45.07368	-67.04680	Montague St.	Saint Andrews-by-the-Sea	NW. chimney	Non-federal
19TEN73	Religious	47.24767	-68.02861	Rue Principal	Sainte-Anne-de-Madawaska		Non-federal
19TEN73	Educational	47.24919	-68.02857	Rue St-Joseph	Sainte-Anne-de-Madawaska		Non-federal
20TLR06	Residential	45.72182	-65.51977	Albert St.	Sussex		Non-federal
20TLR06	Residential	45.71931	-65.50938	Church Ave.	Sussex	W. chimney	Non-federal
20TLR06	Residential	45.72187	-65.51952	St. George St.	Sussex		Non-federal
19TFM11	Educational	46.15480	-67.57520	Green St.	Woodstock		Non-federal

1647

Table D-5. Description of the 10 × 10 km standardized UTM grid squares and critical habitat units for the Chimney Swift in Nova Scotia. Critical habitat occurs where the criteria described in sections 7.1.1 and 7.1.2 are met.

10 x 10 km standardized grid square ID[25]	Building type[26]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[27]	Land tenure
20TLQ05	Residential	44.68431	-65.39982	Perotte Rd.	Annapolis Royal	Woodstove flue	Non-federal
20TMR72	Industrial	45.37172	-63.26220	Rock Garden Rd.	Bible Hill		Non-federal
20TLQ16	Residential and/or commercial	44.84079	-65.29191	Middle St.	Bridgetown		Non-federal
20TLQ16	Residential	44.83321	-65.29472	South St.	Bridgetown		Non-federal
20TLQ32	Industrial	44.41652	-65.05616	McGowan Lake Rd.	Caledonia		Non-federal
20TKP67	Residential	44.00864	-65.91528	Perry Rd.	Carleton		Non-federal
20TLQ54	Agricultural	44.66140	-64.80320	Cherryfield Rd.	Cherryfield		Non-federal
20TLQ54	Agricultural	44.68570	-64.79880	Cherryfield Rd.	Cherryfield		Non-federal
20TMQ54	Residential	44.66172	-63.55570	Maplehurst Dr.	Dartmouth		Non-federal
20TLQ65	Agricultural	44.71053	-64.76646	East Dalhousie Rd.	East Dalhousie		Non-federal
20TMQ07	Residential	44.95780	-64.20028	Sangster Bridge Rd.	Falmouth		Non-federal
20TMQ54	Educational	44.66244	-63.59702	Russell St.	Halifax		Non-federal
20TLQ89	Office - Public	45.07687	-64.49752	Main St.	Kentville		Non-federal
20TLQ89	Commercial	45.07695	-64.49339	Main St.	Kentville		Non-federal

[25] Based on the standard UTM Military Grid Reference System (see https://www.nrcan.gc.ca/earth-sciences/geography/topographic-information/maps/9789), where the first 2 digits represent the UTM zone, the following letter represents the UTM row, the next 2 letters indicate the 100 km x 100 km standardized UTM grid, followed by 2 digits to represent the 10 x 10 km standardized UTM grid comprising one or several critical habitat units. This unique alphanumeric code is based on the methodology used for the Breeding Bird Atlases of Canada (see https://www.birdscanada.org/ for more information on breeding bird atlases).

[26] See Appendix E for a description of building types.

[27] When there is more than one chimney on the building or property. N = north; S = south; E = east; W = west.

10 x 10 km standardized grid square ID[25]	Building type[26]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[27]	Land tenure
20TLQ89	Residential and/or commercial	45.07782	-64.49753	Main St.	Kentville		Non-federal
20TLQ89	Commercial	45.07835	-64.49795	Main St.	Kentville		Non-federal
20TLQ37	Residential	44.87460	-65.14580	Carleton Rd.	Lawrencetown		Non-federal
20TLQ27	Residential	44.88297	-65.16580	Main St.	Lawrencetown		Non-federal
20TLP67	Religious	44.03792	-64.71742	Main St.	Liverpool		Non-federal
20TPS20	Religious	46.07327	-61.39441	Mabou Harbour Rd.	Mabou		Non-federal
20TLP06	Residential	43.91022	-65.41055	Rte. 203	Middle Ohio		Non-federal
20TLP06	Agricultural	43.92491	-65.40425	Rte. 203	Middle Ohio		Non-federal
20TLQ37	Educational	44.94237	-65.07159	Gates Ave.	Middleton		Non-federal
20TLQ37	Commercial	44.94312	-65.06799	Main St.	Middleton		Non-federal
20TLP68	Residential	44.13334	-64.63272	Port Medway Rd.	Mill Village		Non-federal
20TLQ36	Residential	44.79565	-65.05640	Rte. 10	New Albany		Non-federal
20TNR24	Residential and/or commercial	45.58296	-62.64325	Temperance St.	New Glasgow		Non-federal
20TMR36	Chimney tower	45.73217	-63.86861	Duke St.	Oxford		Non-federal
20TLQ14	Agricultural	44.66809	-65.39100	Perotte Rd.	Perotte		Non-federal
20TLQ89	Commercial	45.09690	-64.40820	Middle St.	Port Williams		Non-federal
19TGK32	Religious	44.40061	-66.04724	Rte. 1	Saint Bernard		Non-federal
20TNR61	Residential	45.27205	-62.12704	Rte. 348	Smithfield		Non-federal
20TMR72	Office - Public	45.36404	-63.27861	Prince St.	Truro		Federal
20TLP07	Agricultural	43.98042	-65.42641	Back Lake Exten. Rd.	Upper Ohio		Non-federal
20TLQ99	Educational	45.08889	-64.36597	Crowell Dr.	Wolfville		Non-federal
20TLQ99	Office - Public	45.08764	-64.37085	Earnscliffe Ave.	Wolfville		Non-federal
20TLQ99	Chimney tower	45.09240	-64.36306	Front St.	Wolfville		Non-federal
20TLQ99	Residential and/or commercial	45.09148	-64.35059	Main St.	Wolfville		Non-federal

10 x 10 km standardized grid square ID[25]	Building type[26]	Latitude (DD)	Longitude (DD)	Thoroughfare	City	Chimney or structure position/description[27]	Land tenure
20TLQ99	Residential and/or commercial	45.09160	-64.34990	Main St.	Wolfville		Non-federal
20TLQ99	Educational	45.08907	-64.36730	University Ave.	Wolfville	SW. chimney	Non-federal

1652

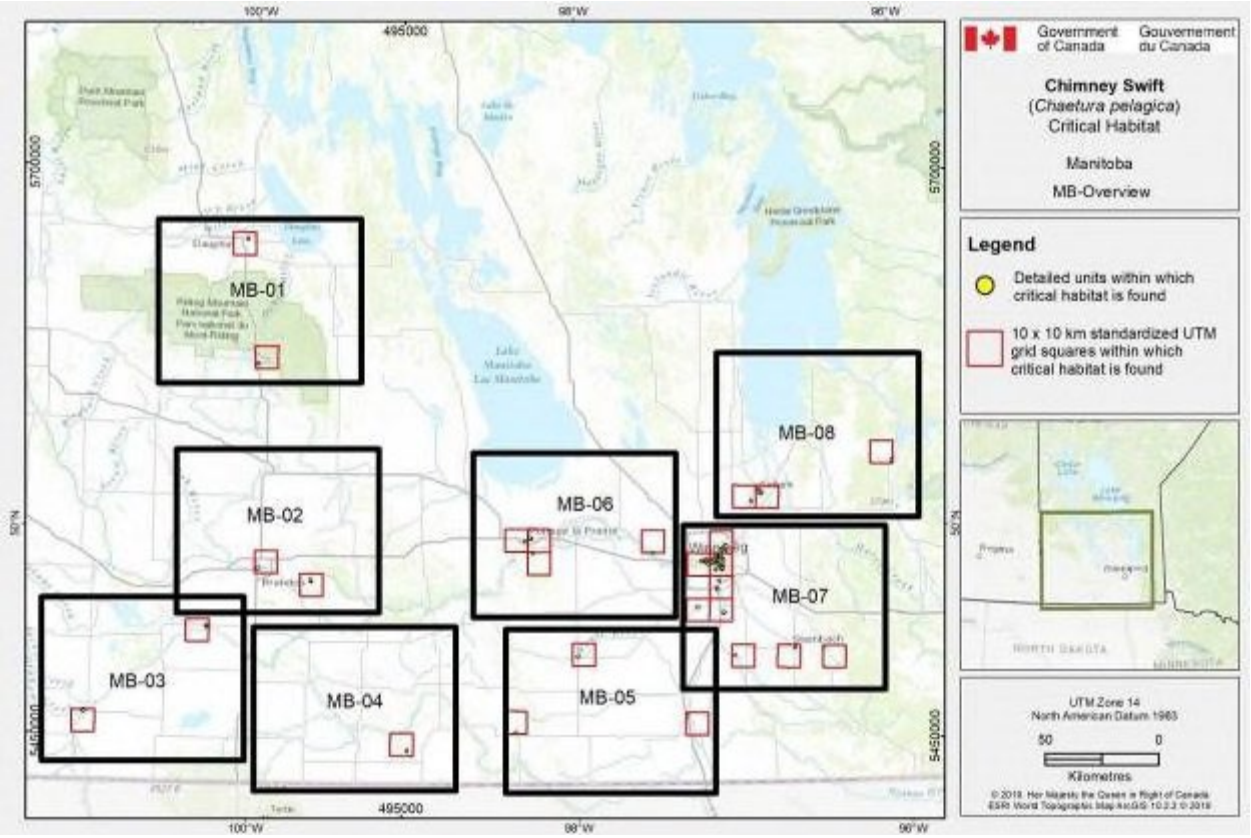

Figure D-1. Overview of Figures D-1.1 to D-1.8 (maps MB-01 to MB-08) representing the critical habitat for the Chimney Swift in Manitoba. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

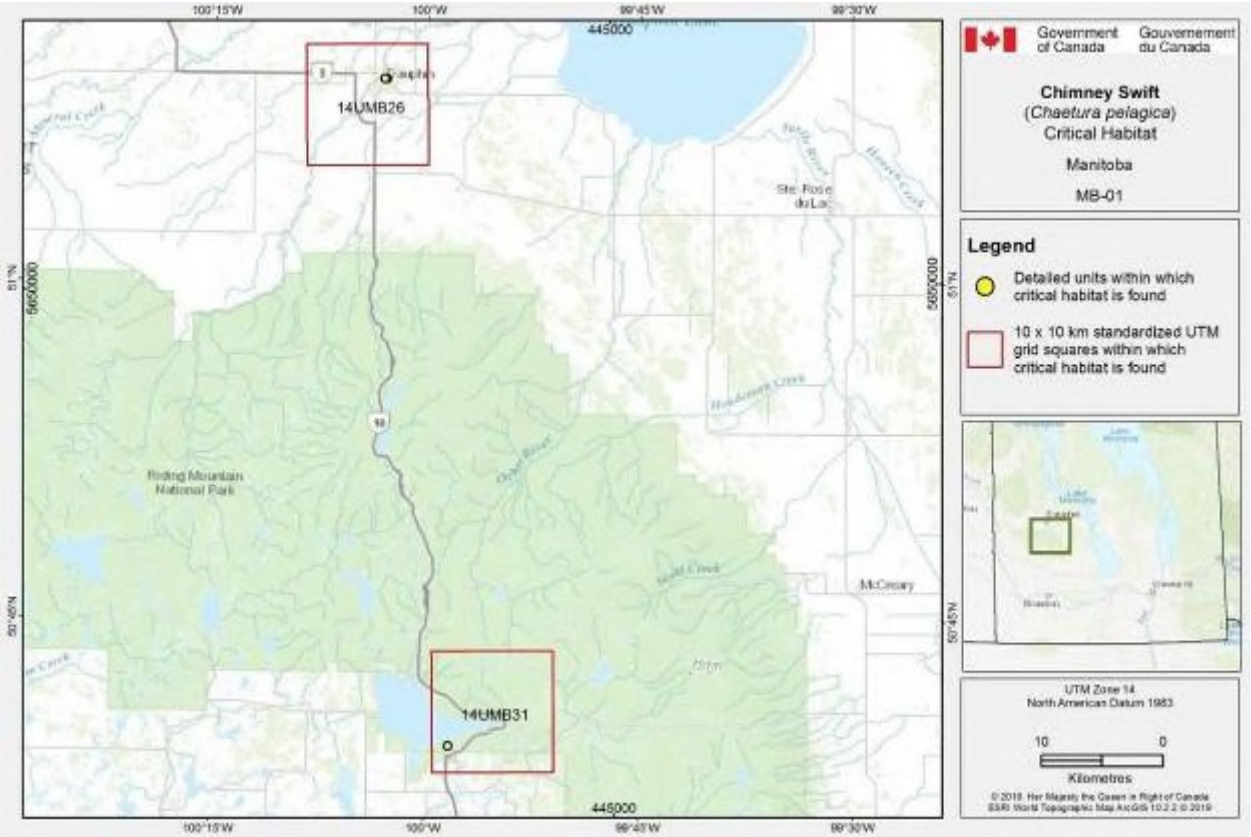

Figure D-1.1. Critical habitat for the Chimney Swift in Manitoba. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

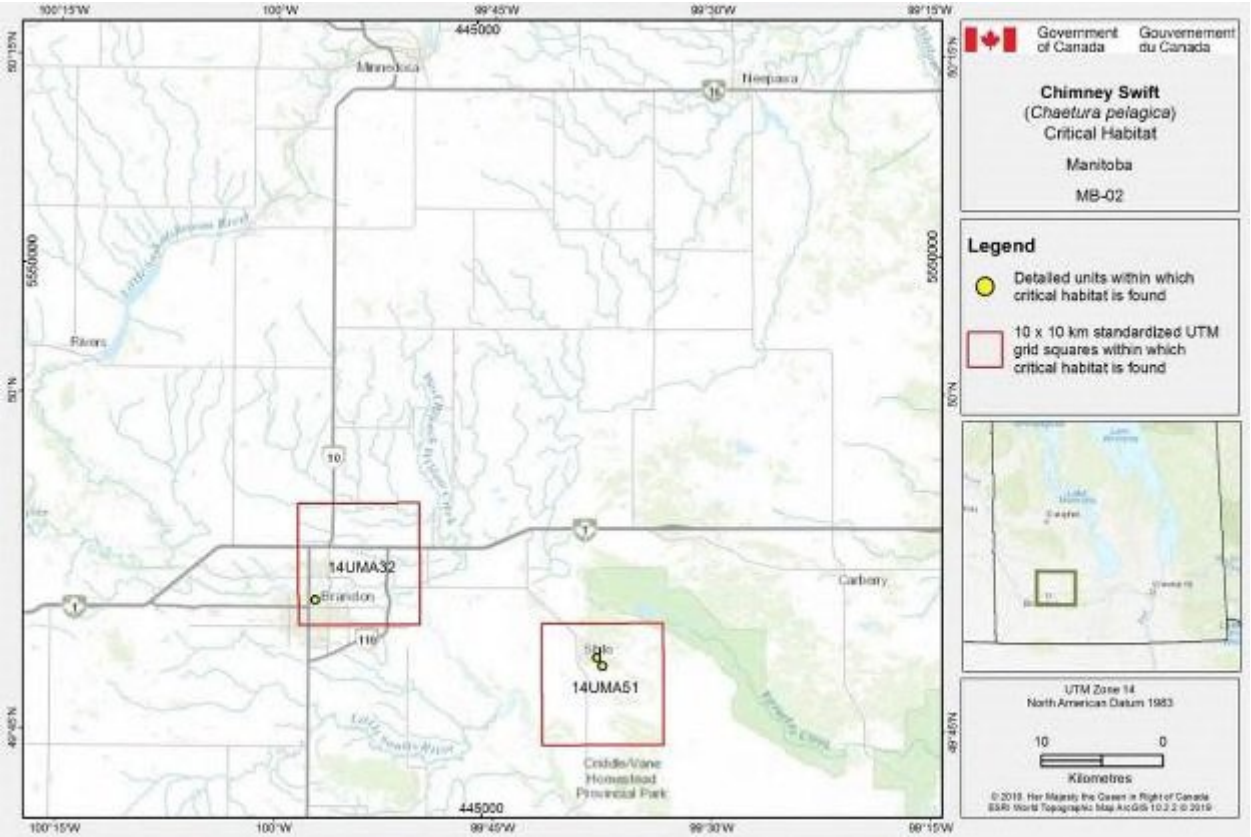

Figure D-1.2. Critical habitat for the Chimney Swift in Manitoba. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

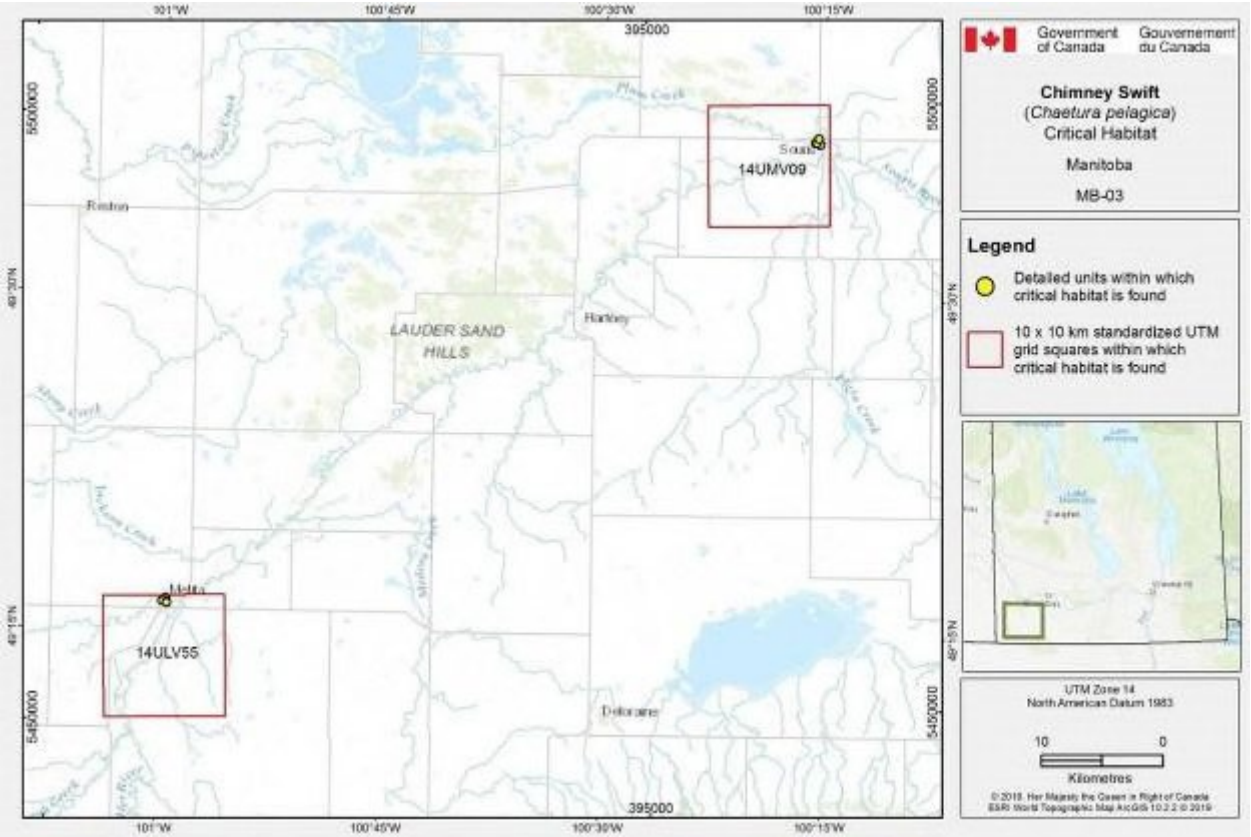

Figure D-1.3. Critical habitat for the Chimney Swift in Manitoba. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

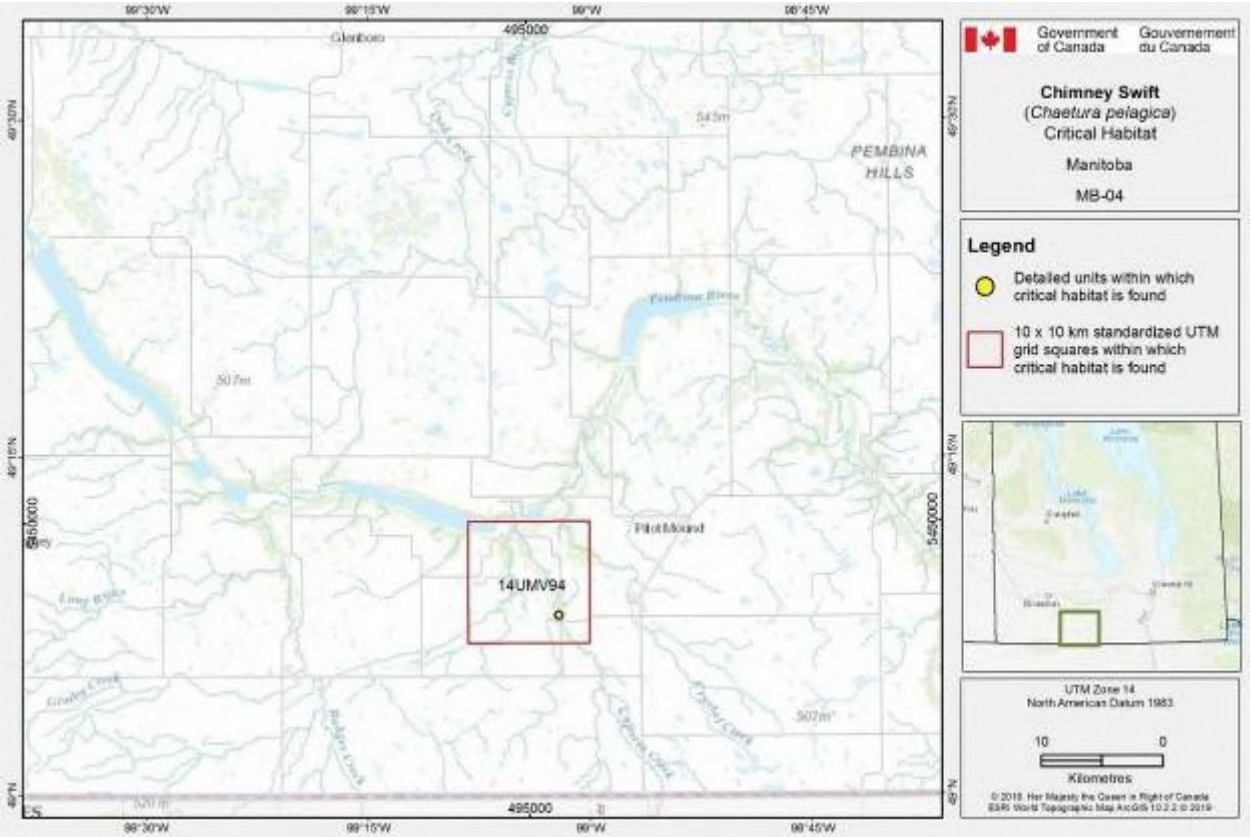

Figure D-1.4. Critical habitat for the Chimney Swift in Manitoba. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

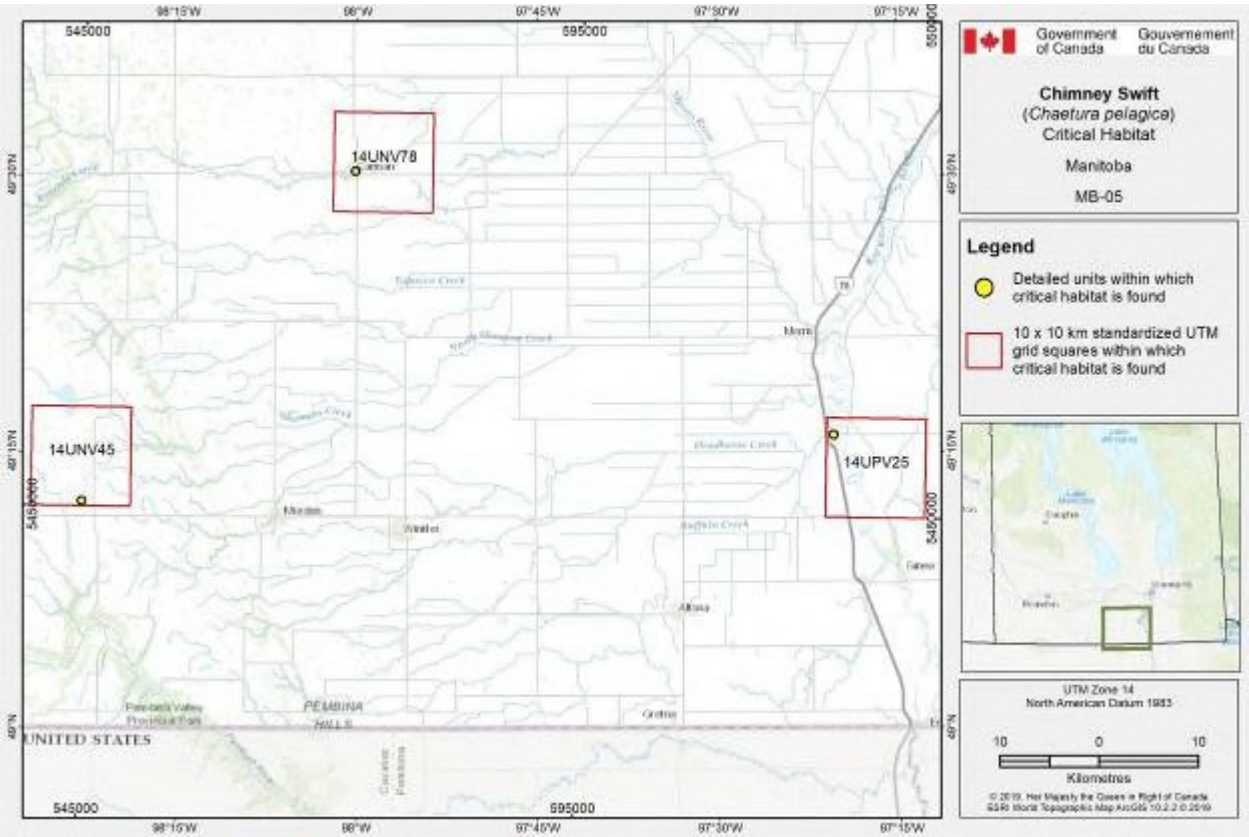

Figure D-1.5. Critical habitat for the Chimney Swift in Manitoba. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

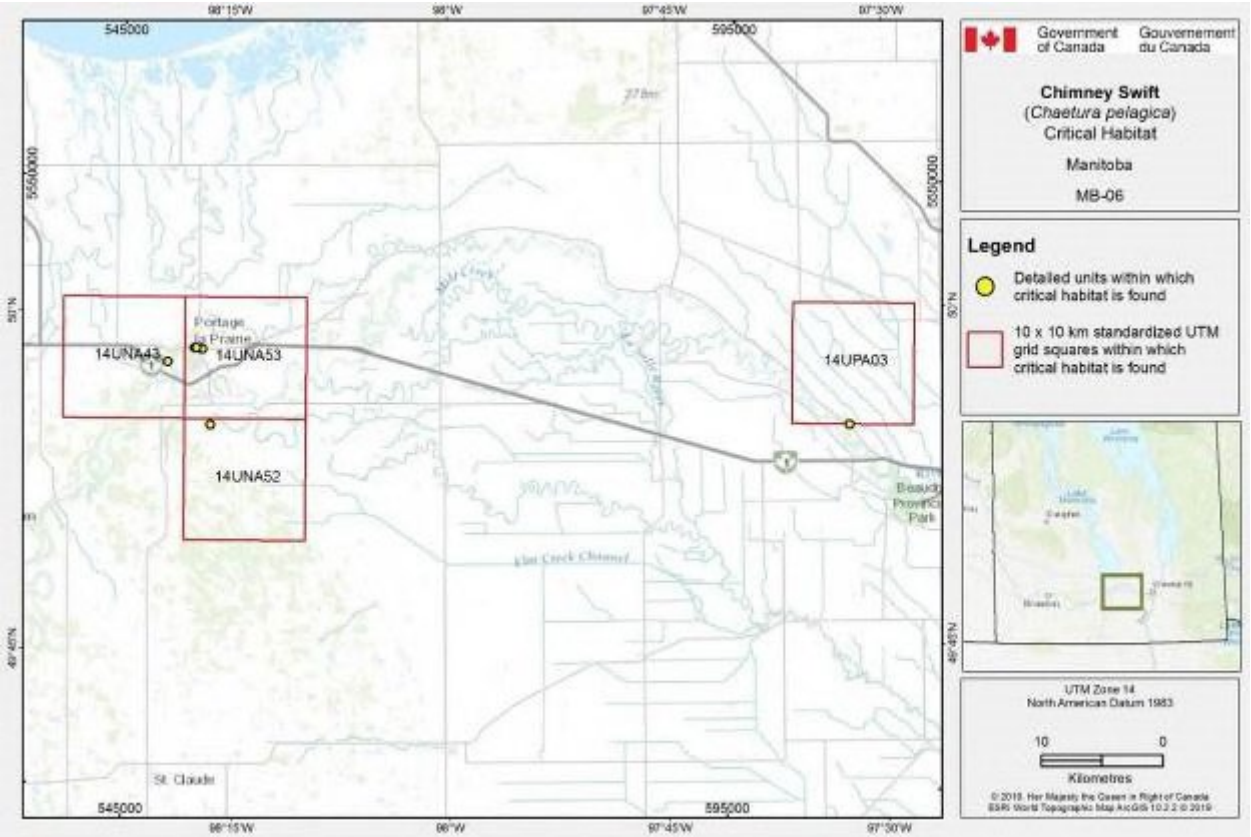

Figure D-1.6. Critical habitat for the Chimney Swift in Manitoba. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

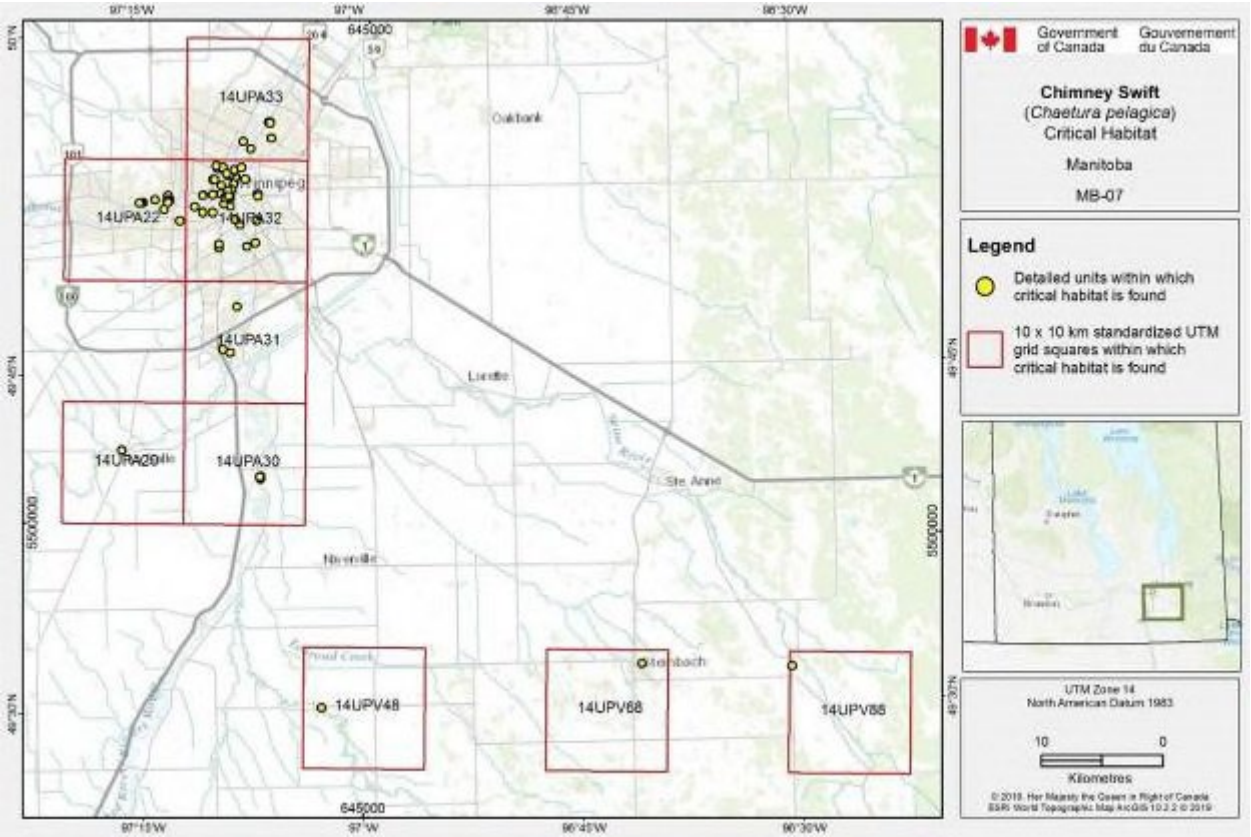

Figure D-1.7. Critical habitat for the Chimney Swift in Manitoba. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

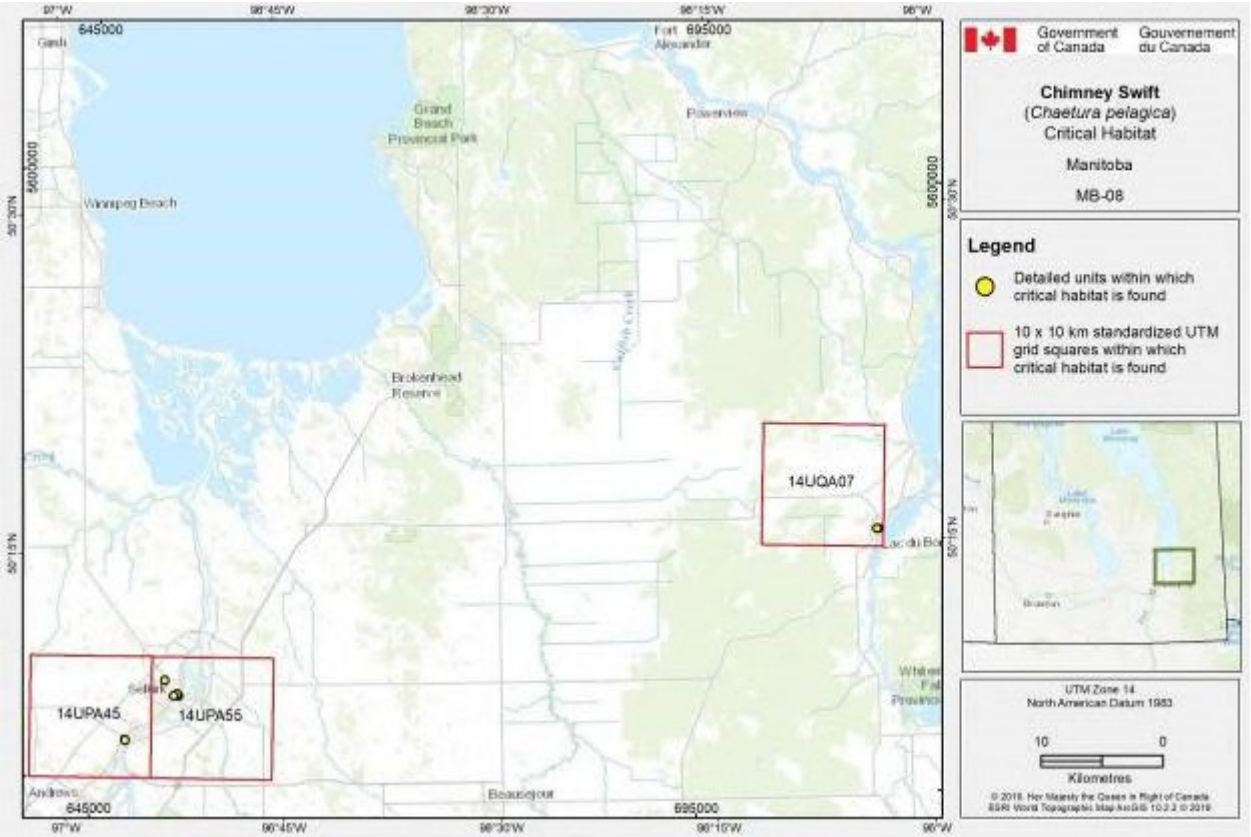

Figure D-1.8. Critical habitat for the Chimney Swift in Manitoba. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

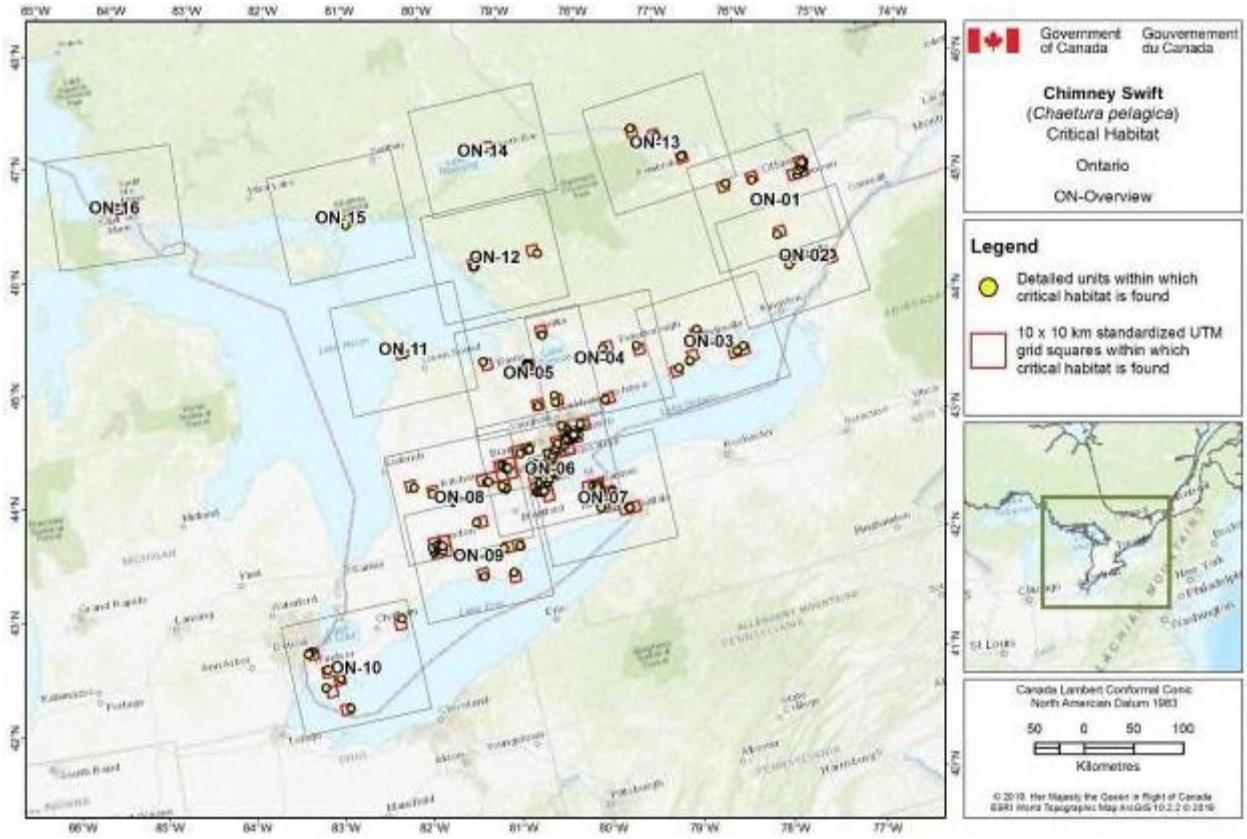

Figure D-2. Overview of Figures D-2.1 to D-2.16 (maps ON-01 to ON-16) representing the critical habitat for the Chimney Swift in Ontario. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

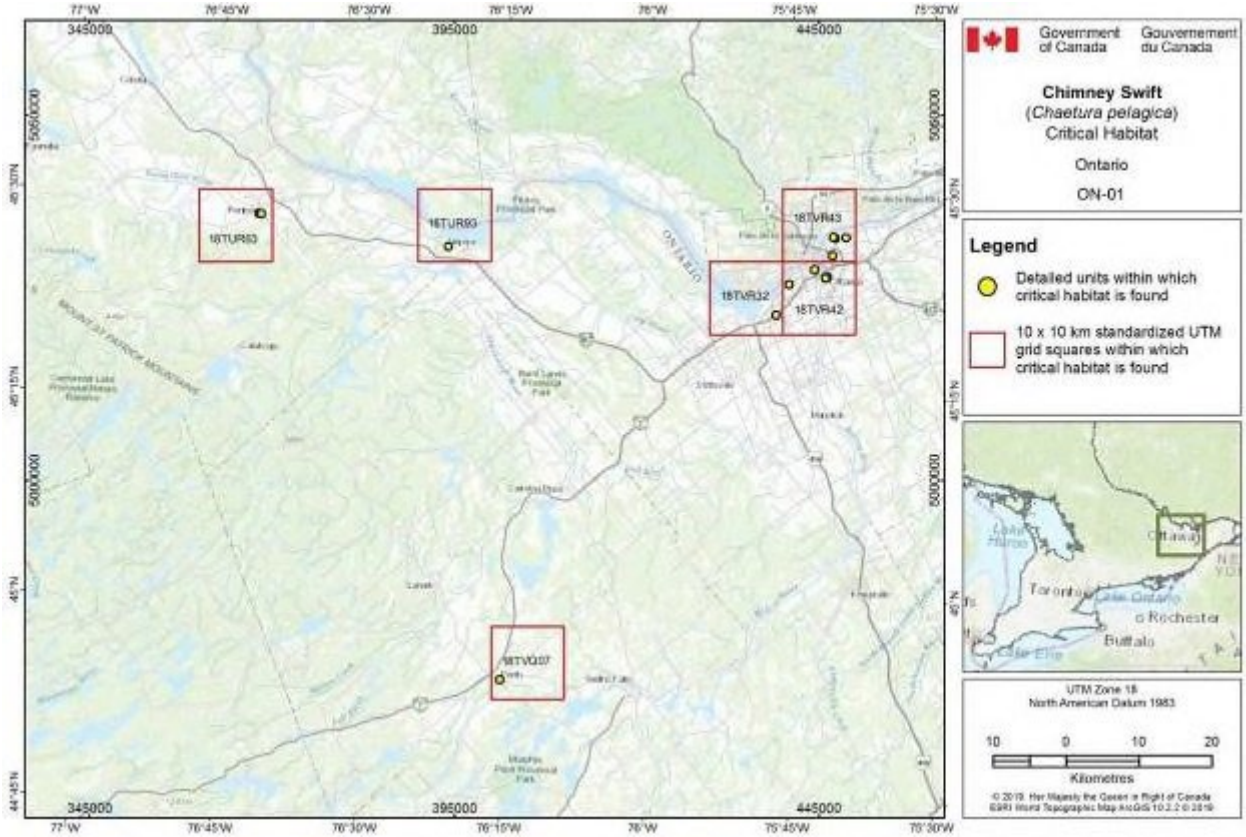

Figure D-2.1. Critical habitat for the Chimney Swift in Ontario. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

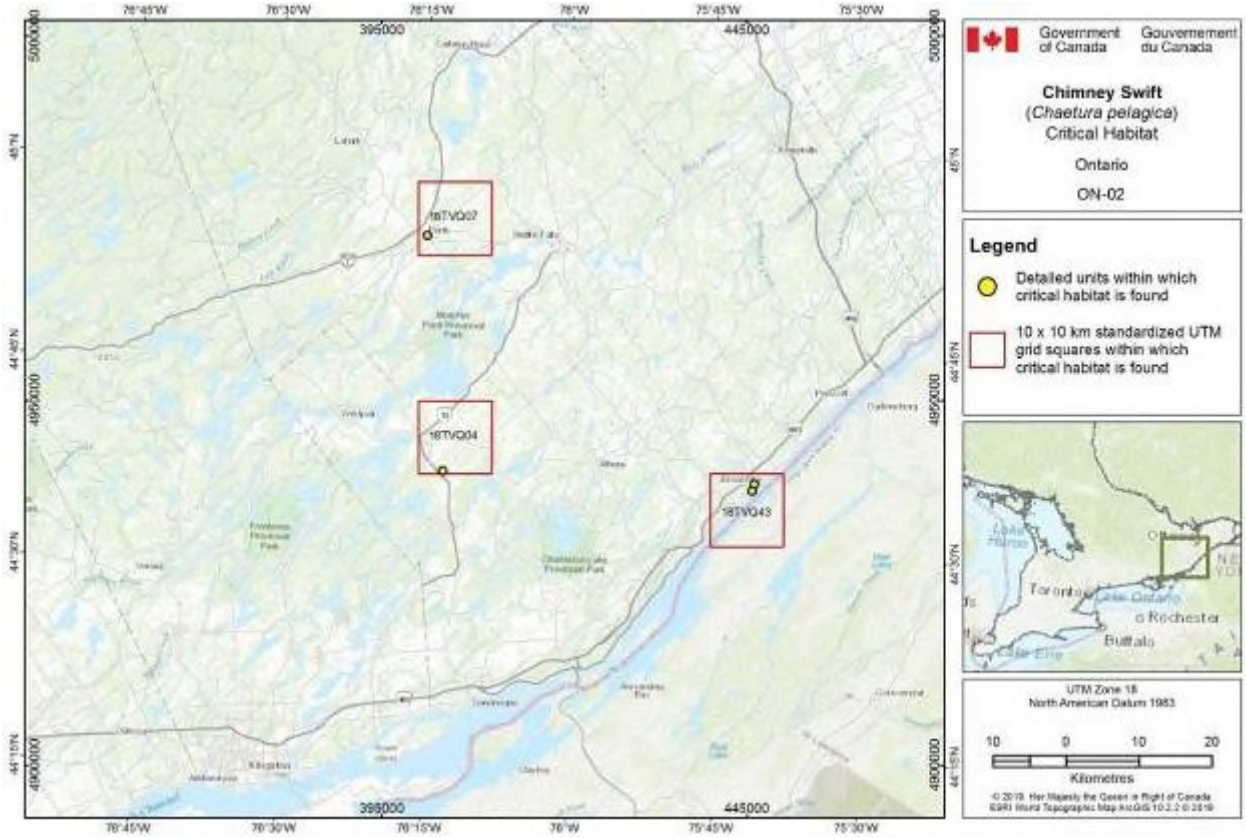

Figure D-2.2. Critical habitat for the Chimney Swift in Ontario. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

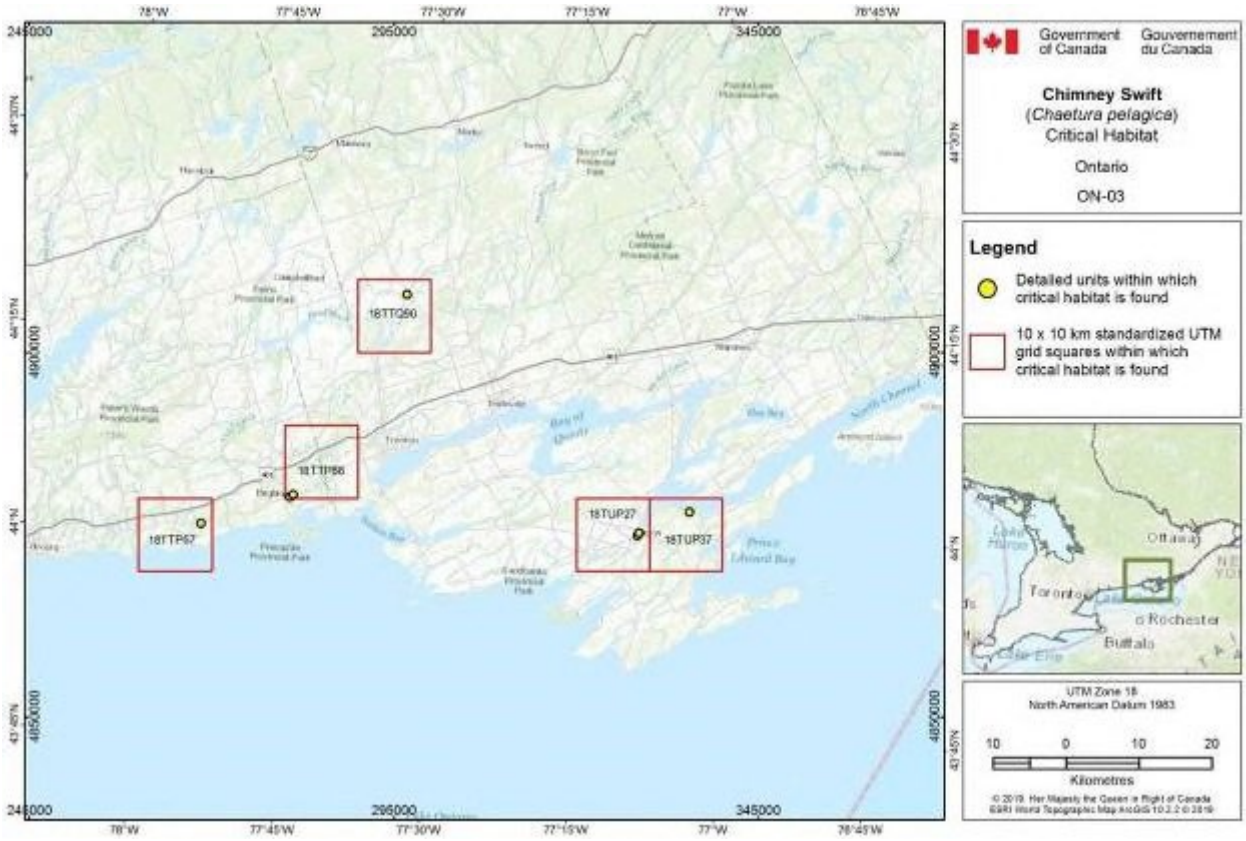

Figure D-2.3. Critical habitat for the Chimney Swift in Ontario. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

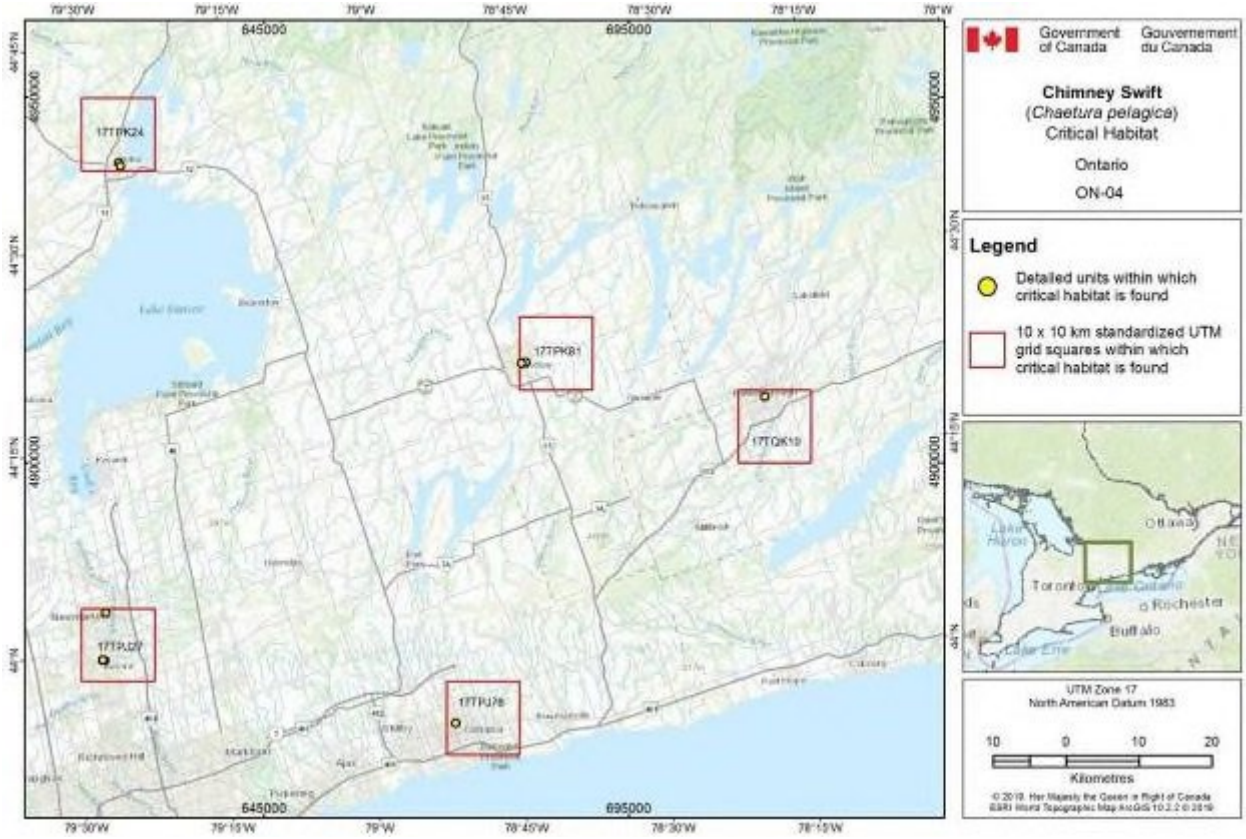

Figure D-2.4. Critical habitat for the Chimney Swift in Ontario. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

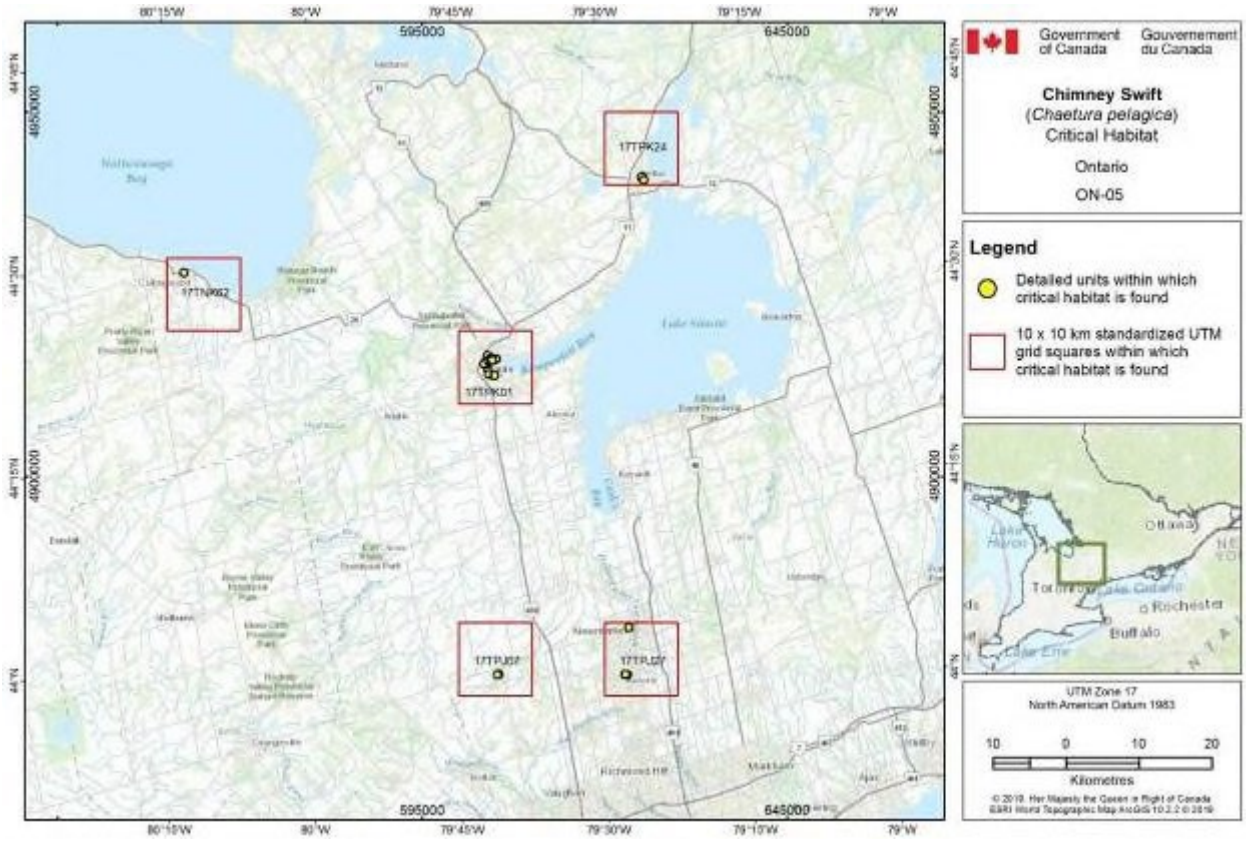

Figure D-2.5. Critical habitat for the Chimney Swift in Ontario. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

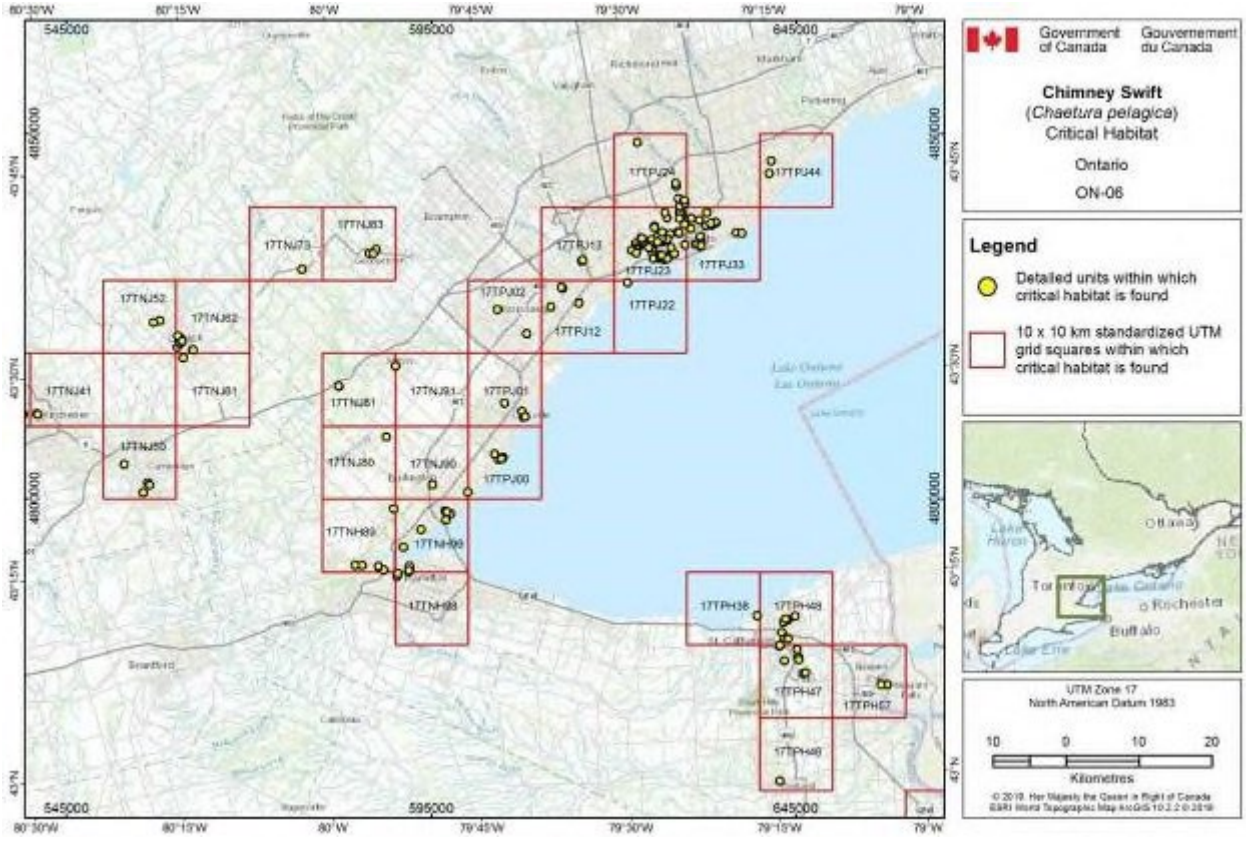

Figure D-2.6. Critical habitat for the Chimney Swift in Ontario. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

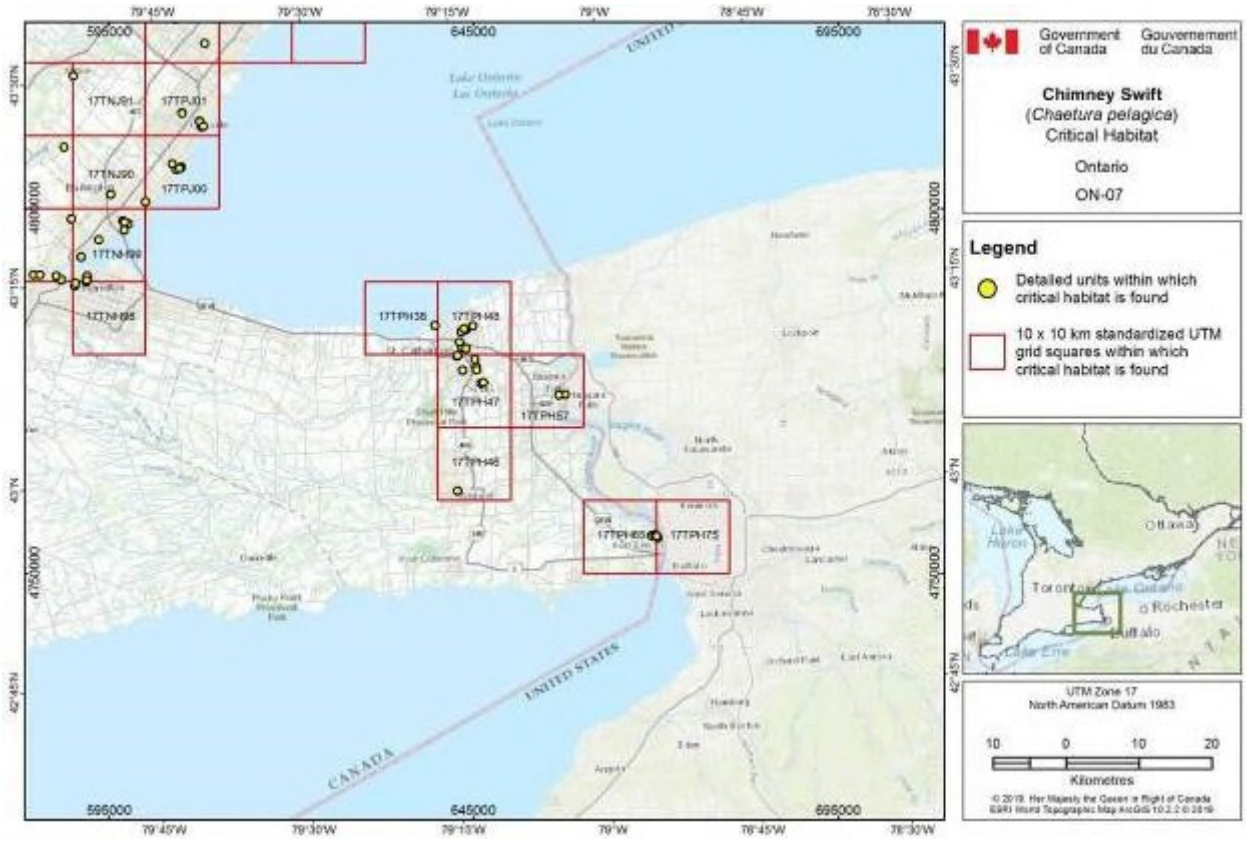

Figure D-2.7. Critical habitat for the Chimney Swift in Ontario. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

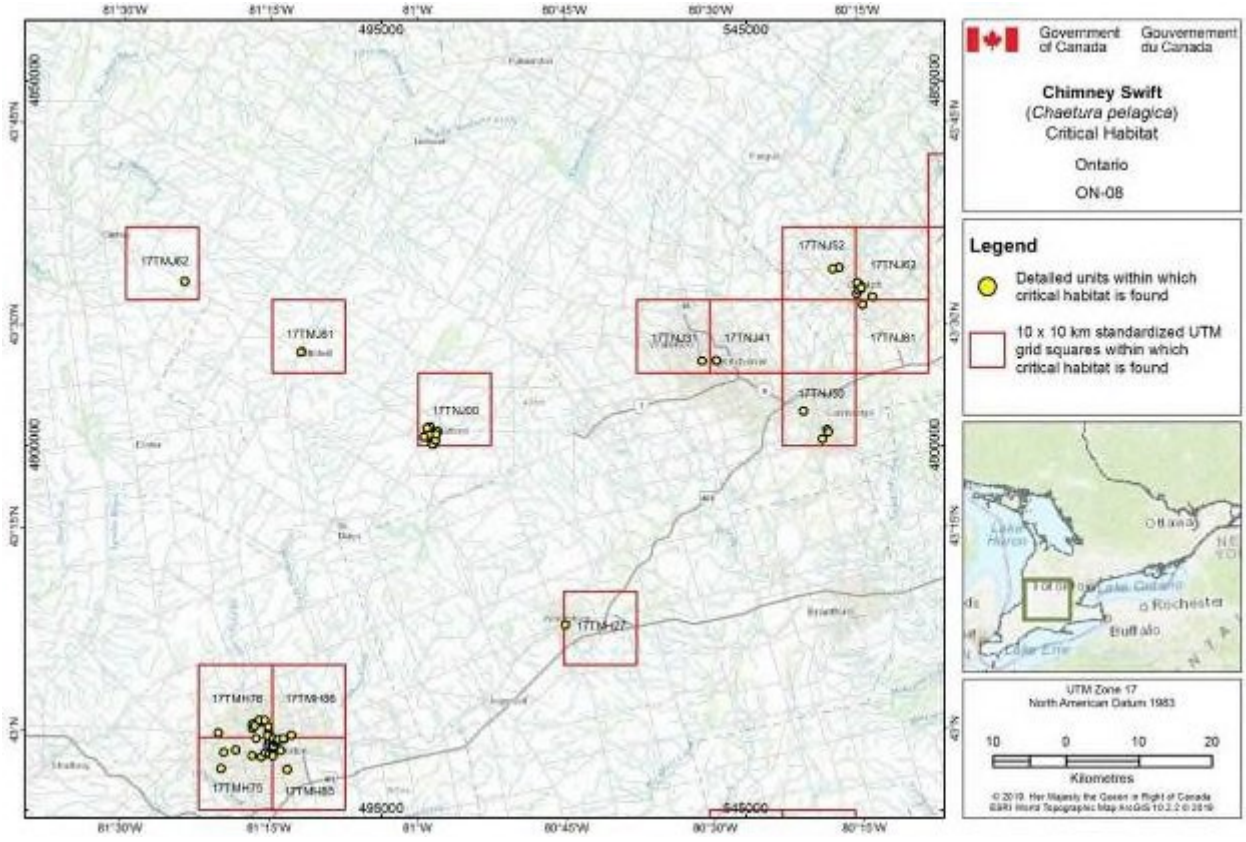

Figure D-2.8. Critical habitat for the Chimney Swift in Ontario. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

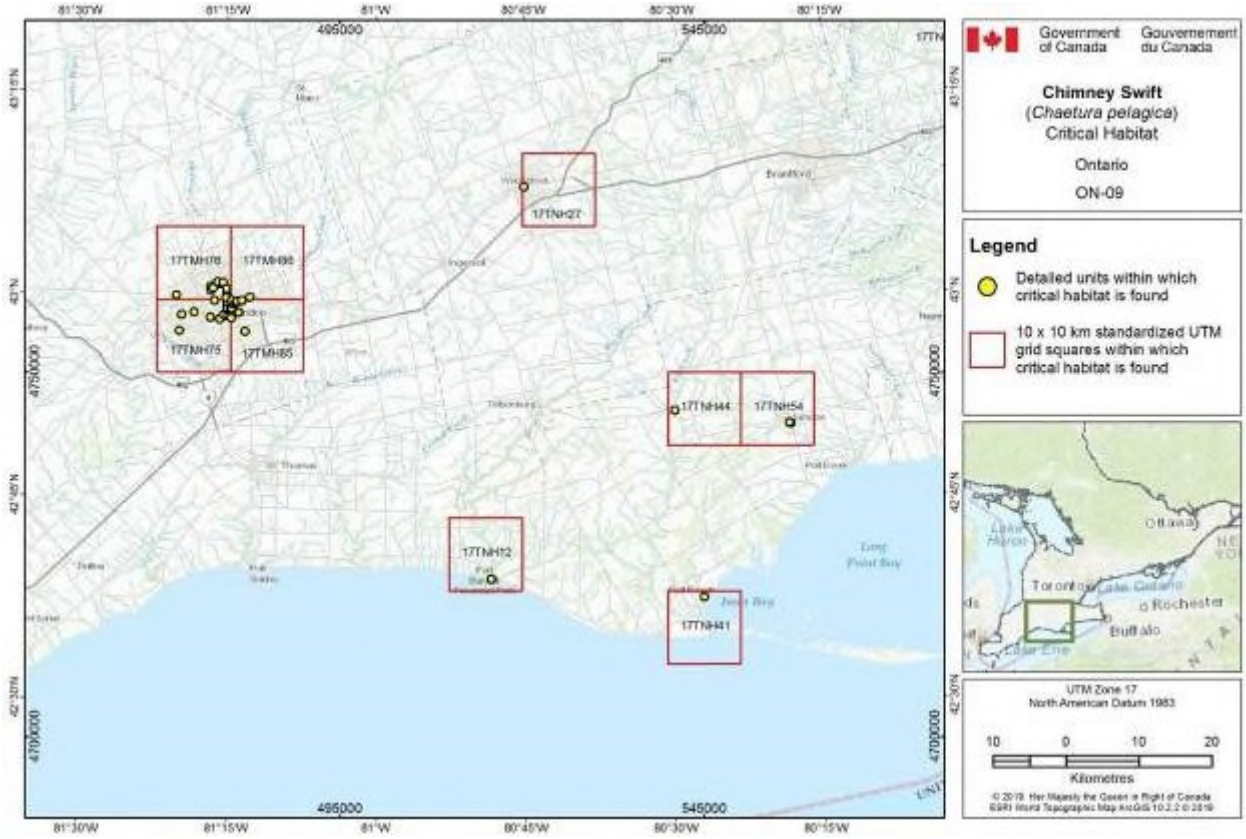

Figure D-2.9. Critical habitat for the Chimney Swift in Ontario. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

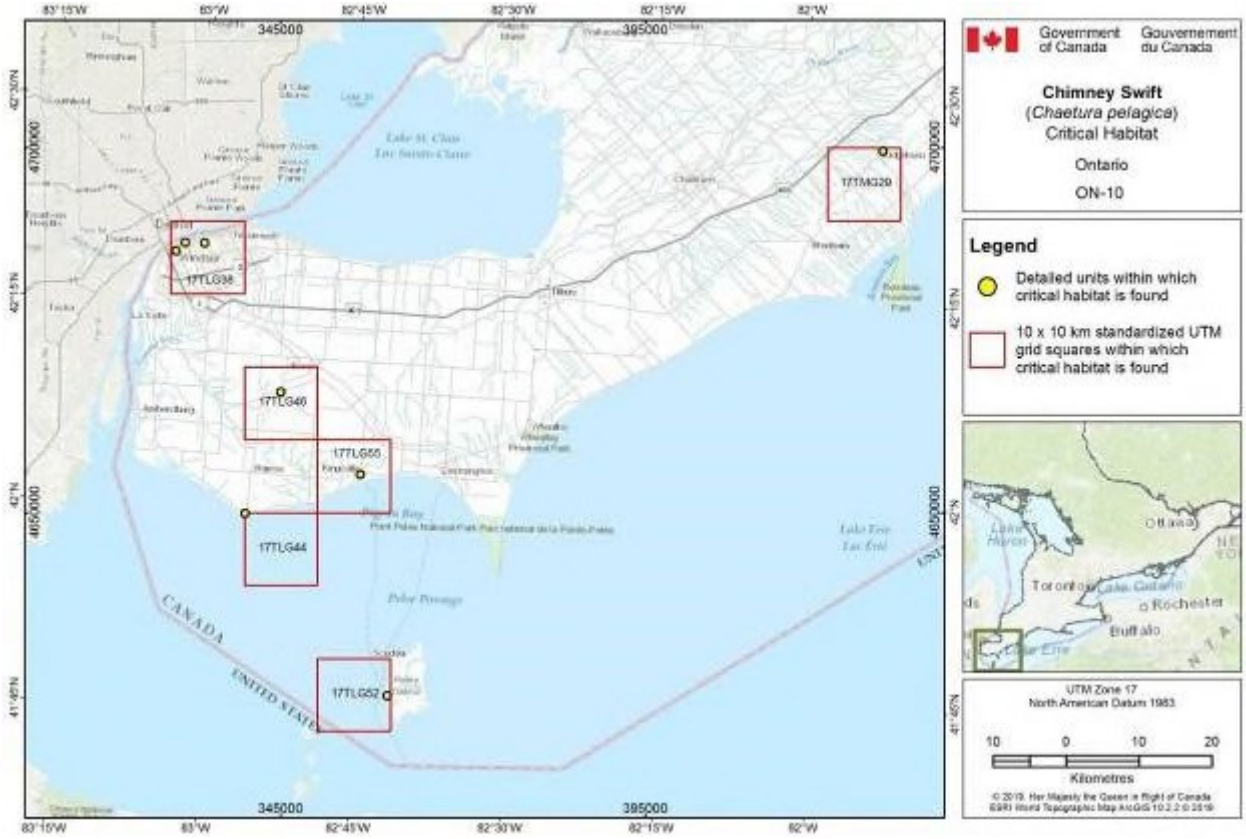

Figure D-2.10. Critical habitat for the Chimney Swift in Ontario. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

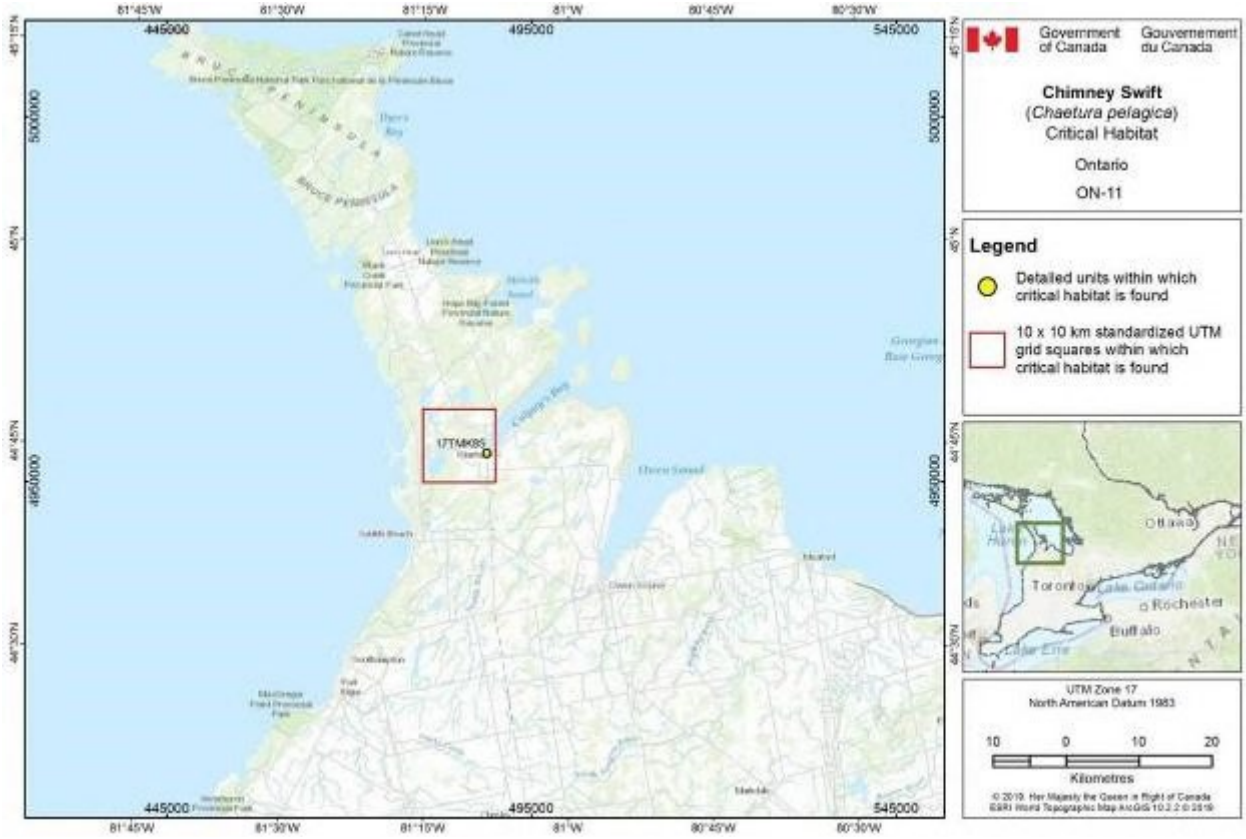

Figure D-2.11. Critical habitat for the Chimney Swift in Ontario. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

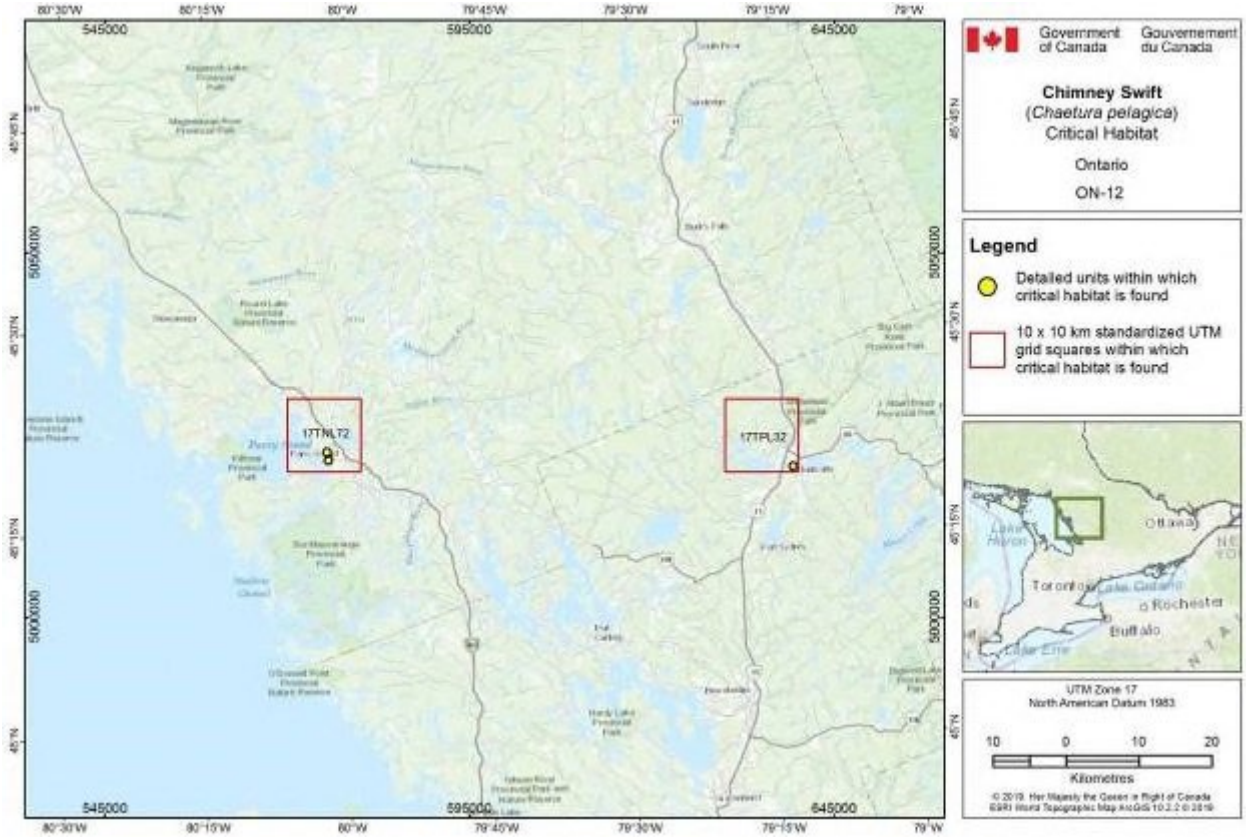

Figure D-2.12. Critical habitat for the Chimney Swift in Ontario. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

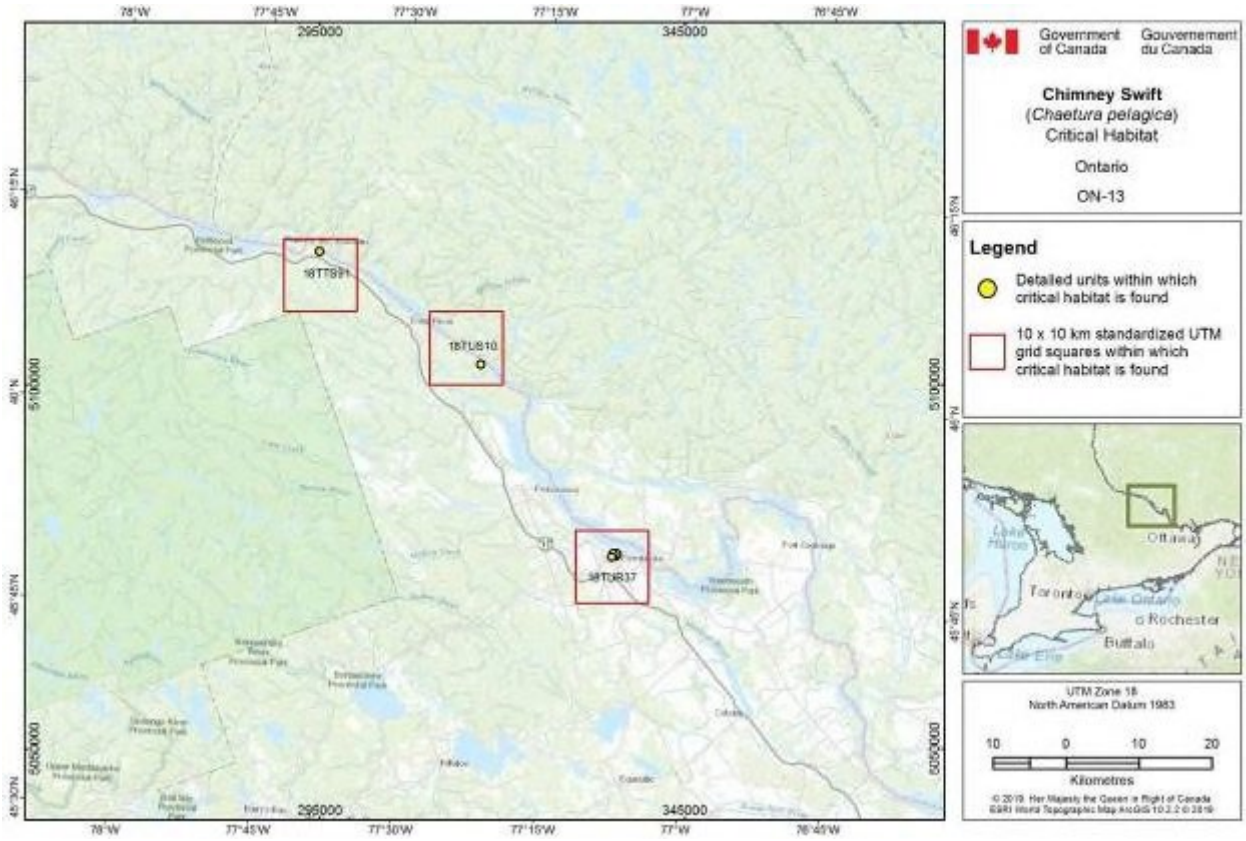

Figure D-2.13. Critical habitat for the Chimney Swift in Ontario. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

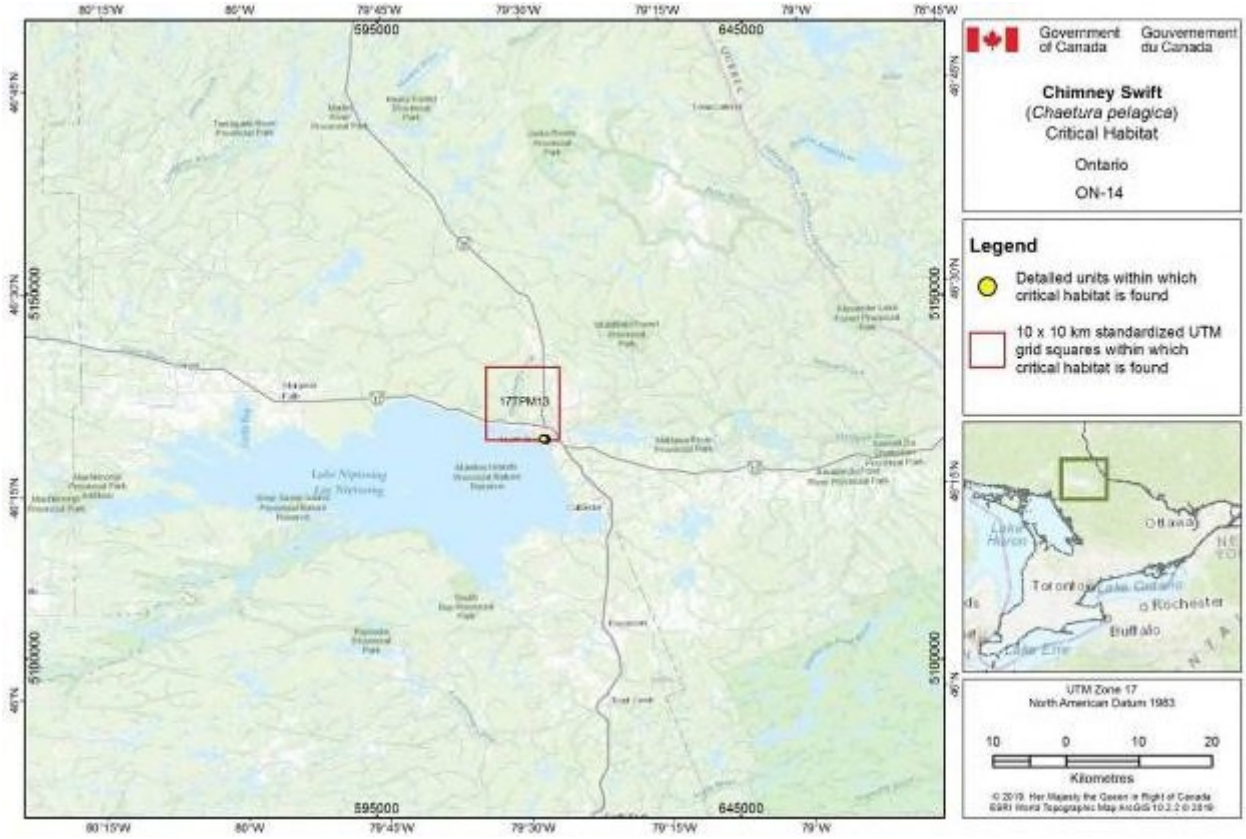

Figure D-2.14. Critical habitat for the Chimney Swift in Ontario. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

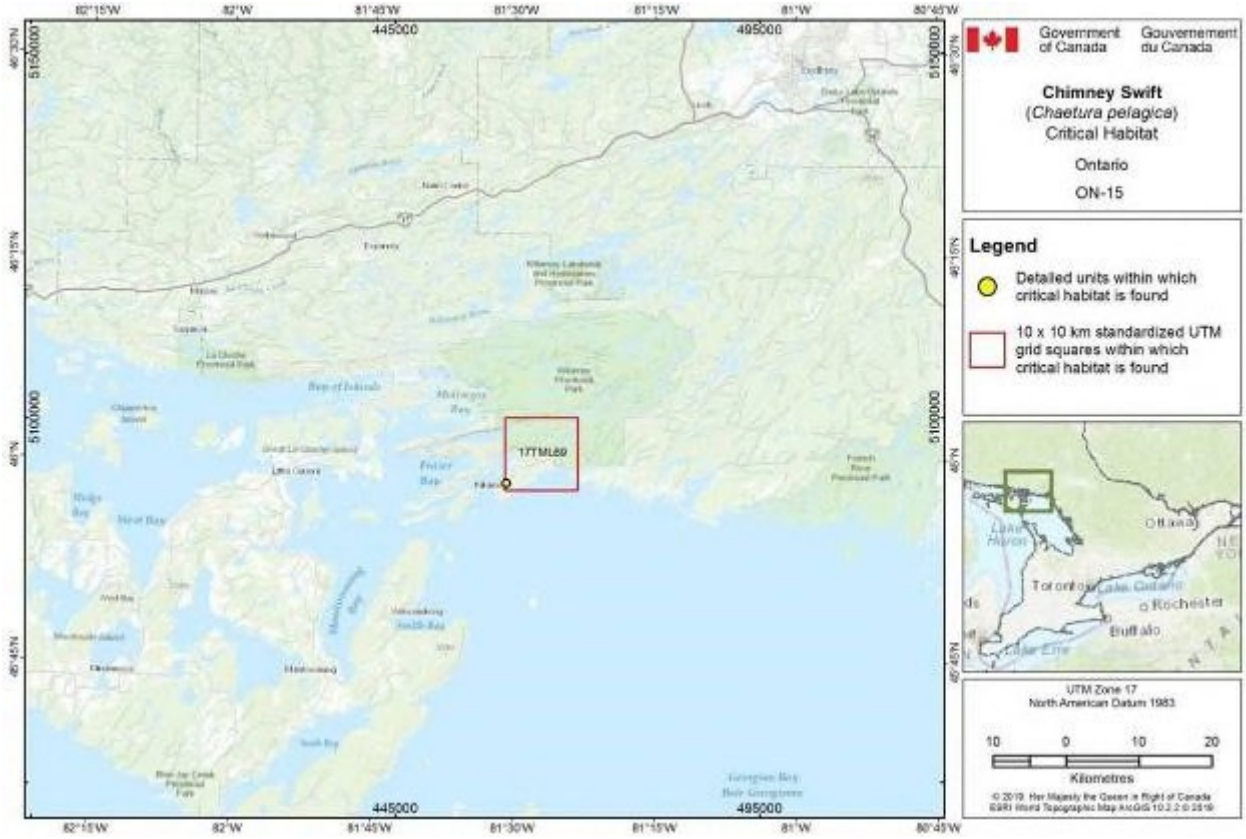

Figure D-2.15. Critical habitat for the Chimney Swift in Ontario. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

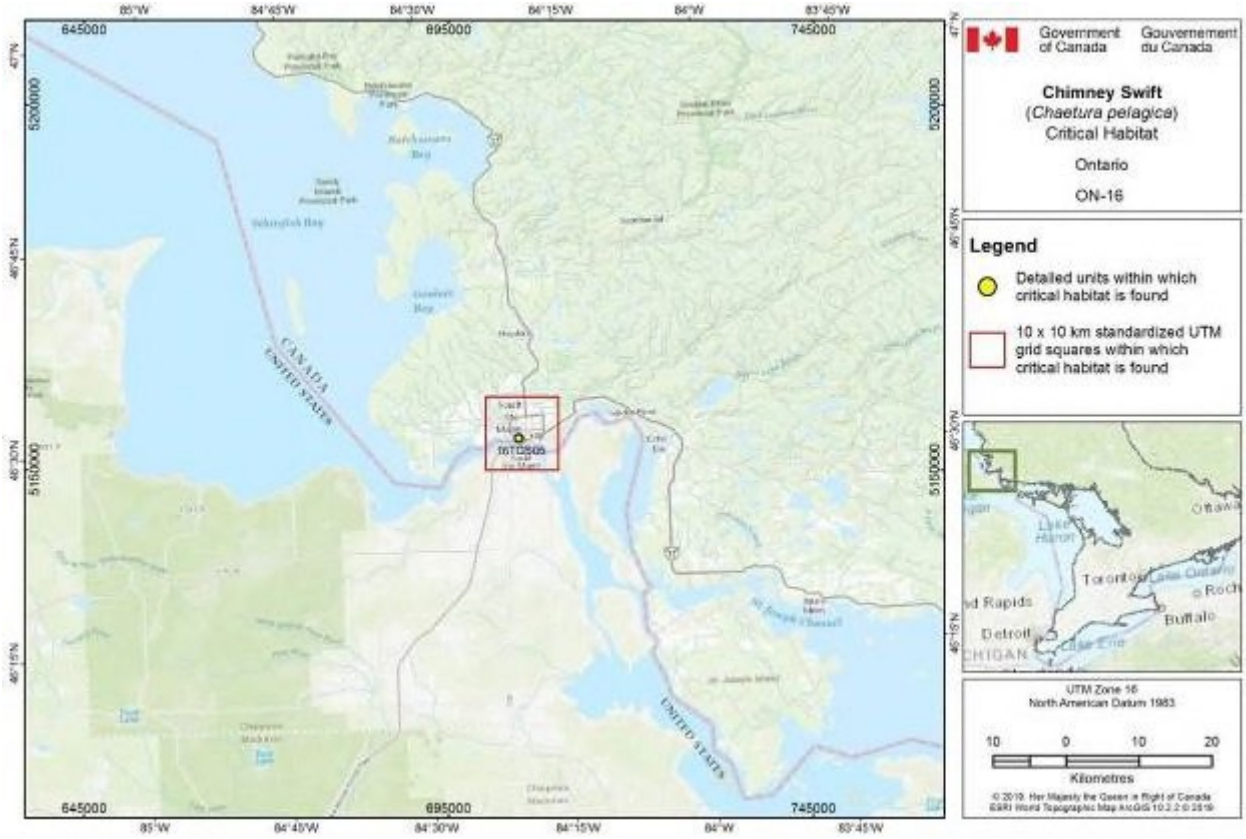

Figure D-2.16. Critical habitat for the Chimney Swift in Ontario. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

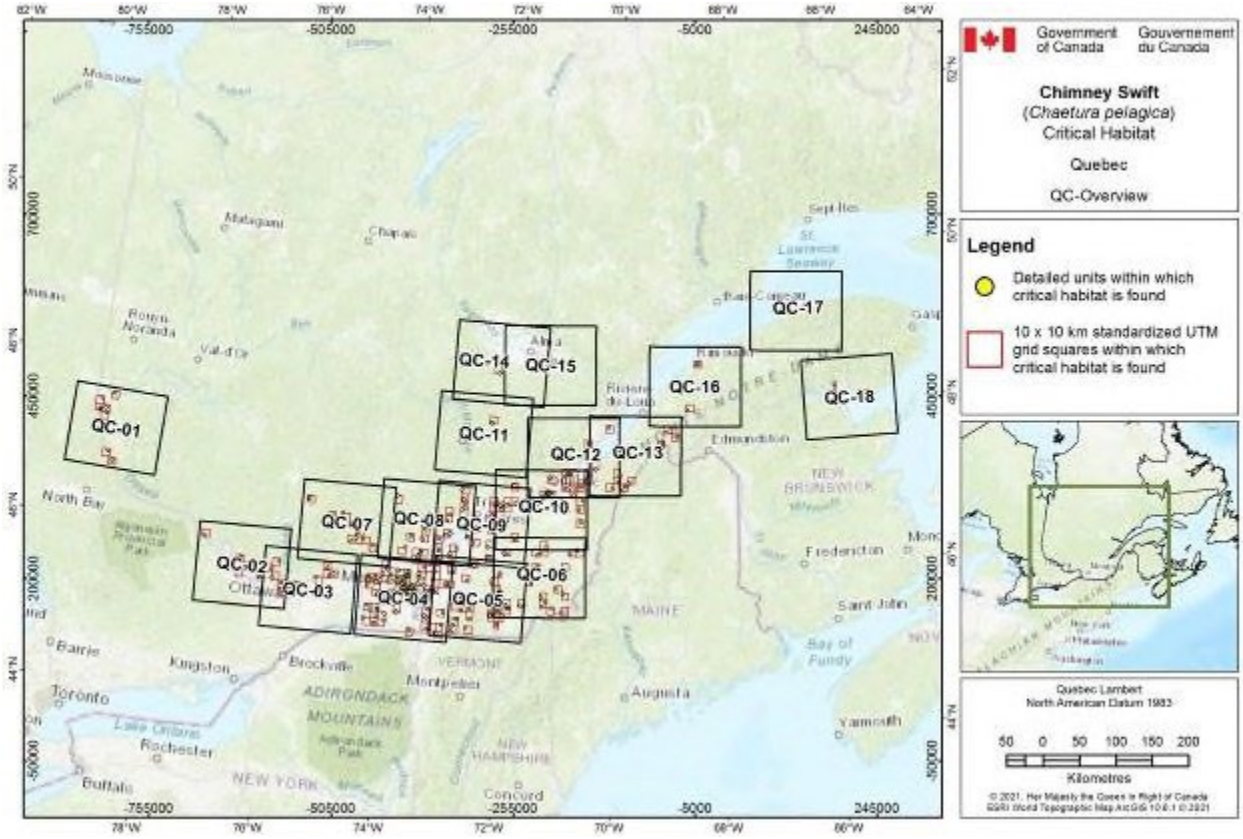

Figure D-3. Overview of Figures D-3.1 to D-3.18 (maps QC-01 to QC-18) representing the critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

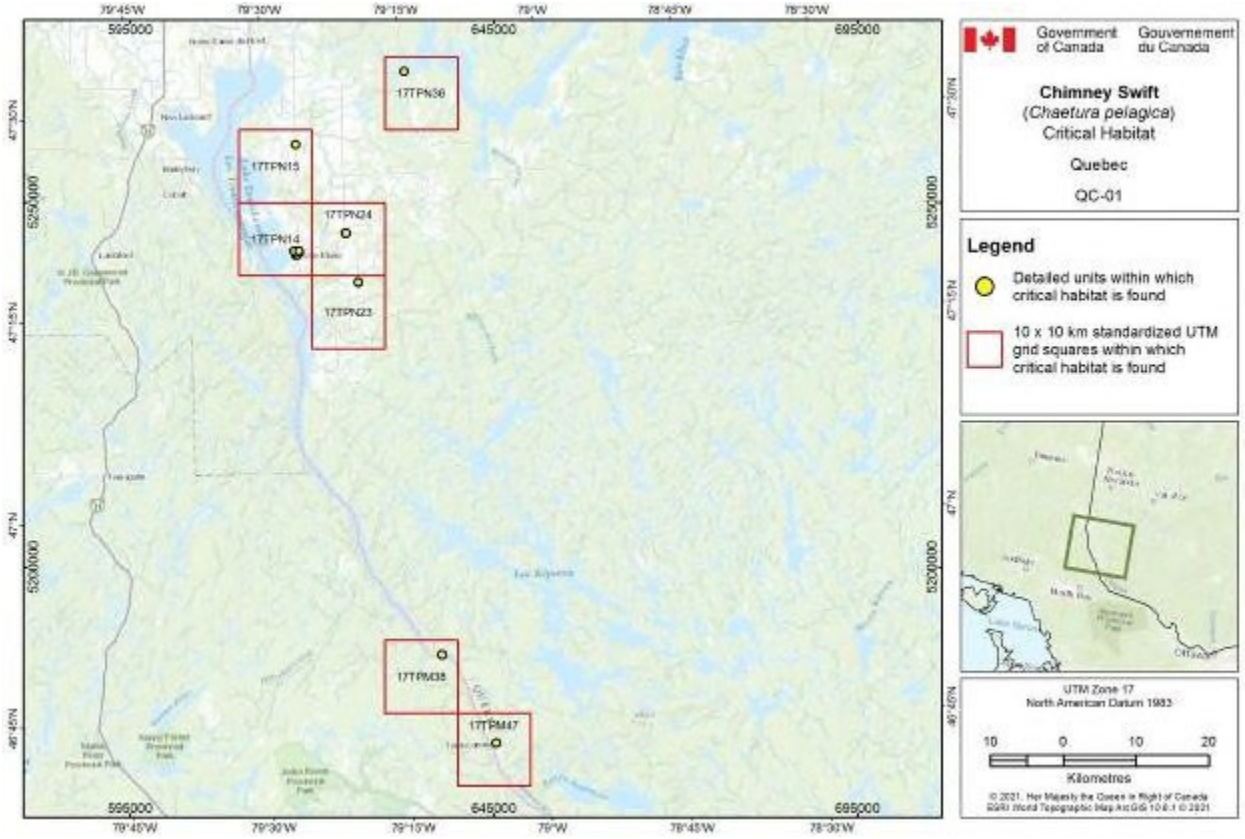

Figure D-3.1. Critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

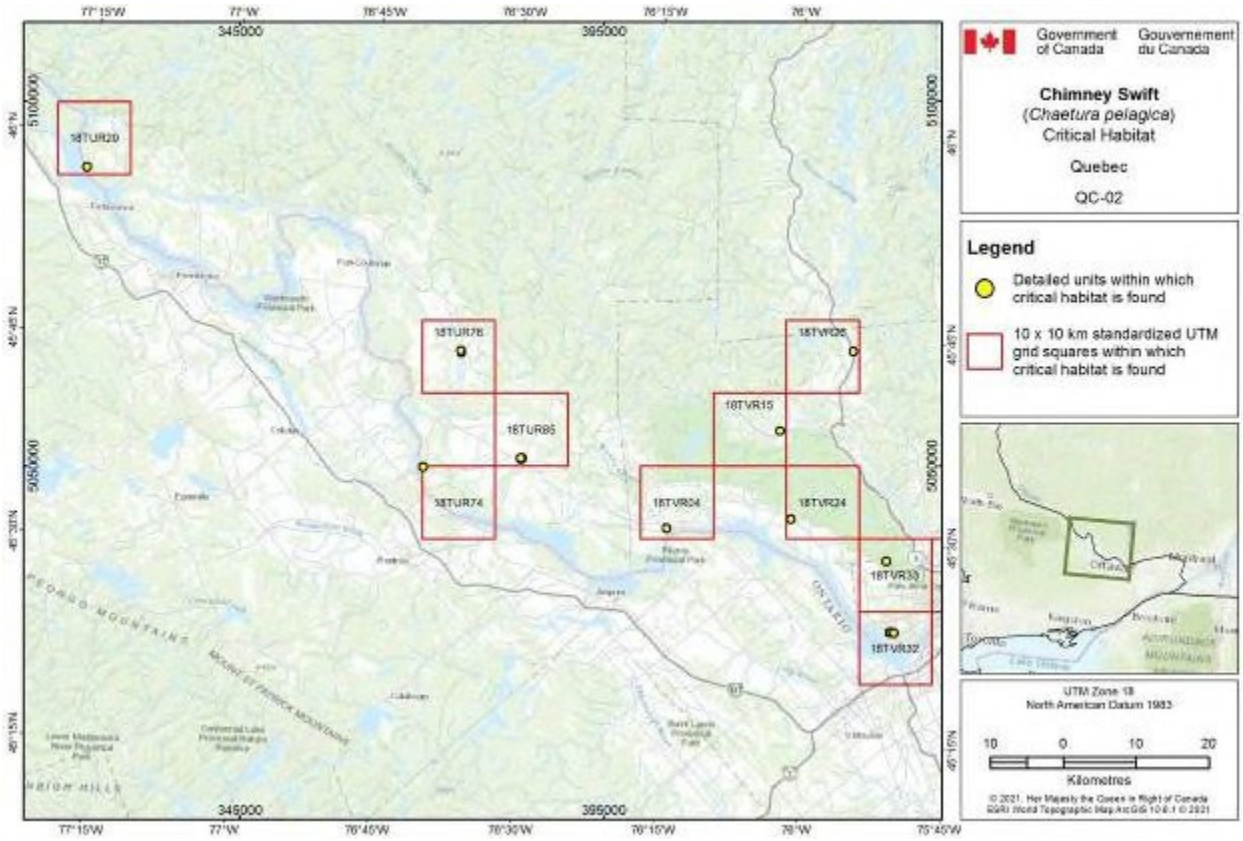

Figure D-3.2. Critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

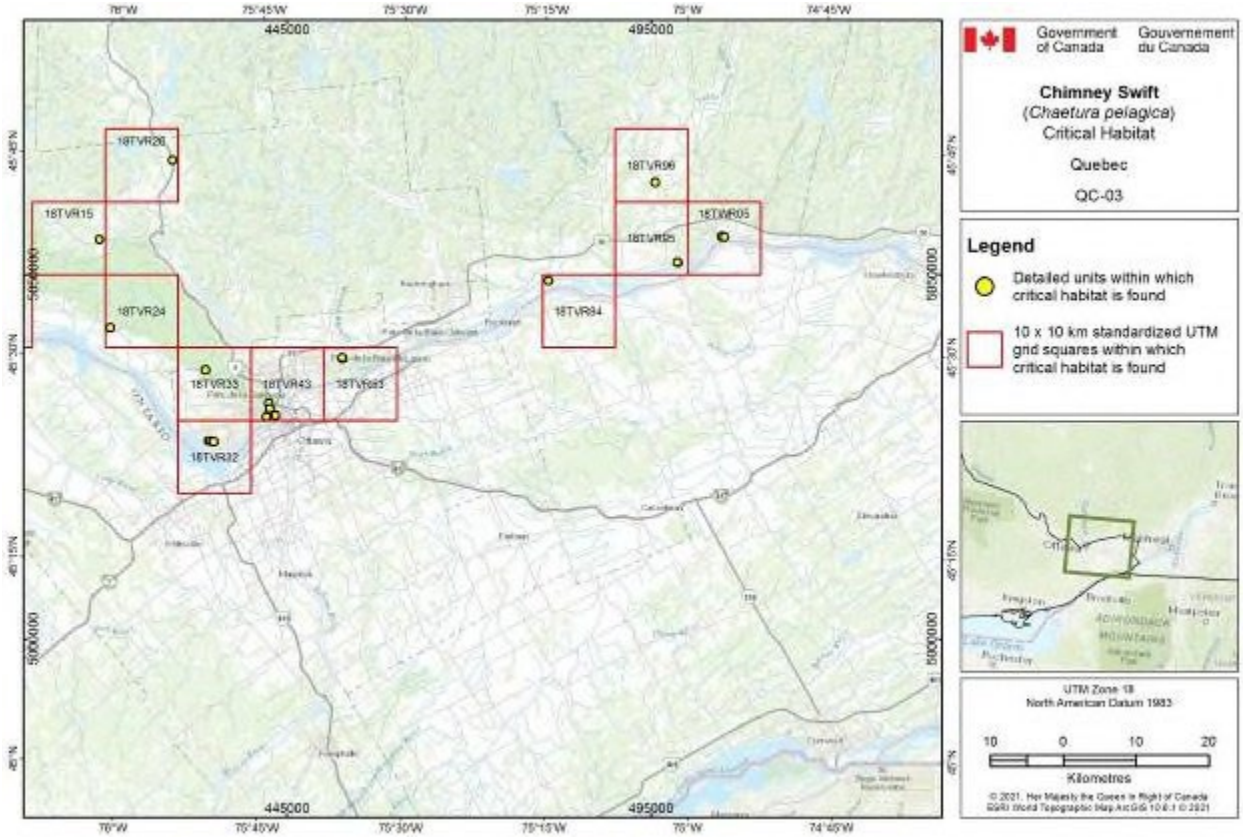

Figure D-3.3. Critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

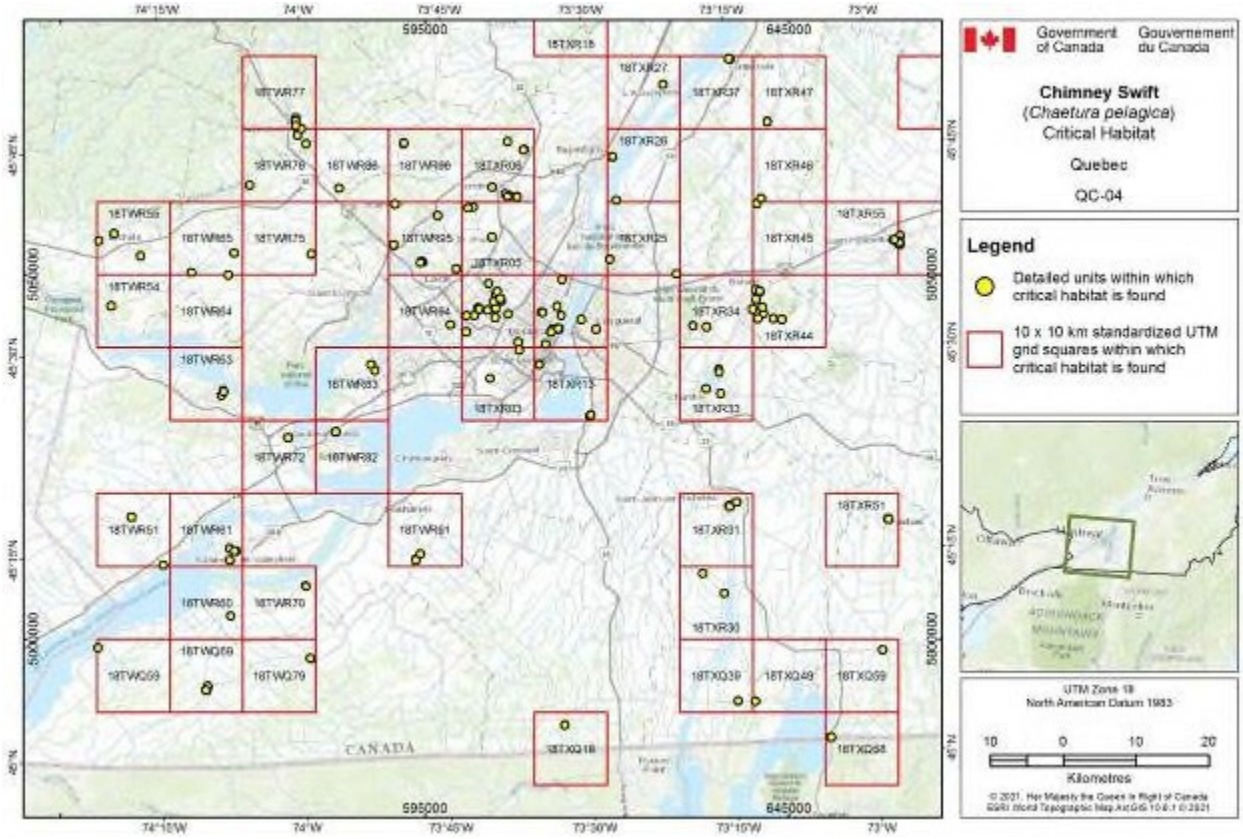

Figure D-3.4. Critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

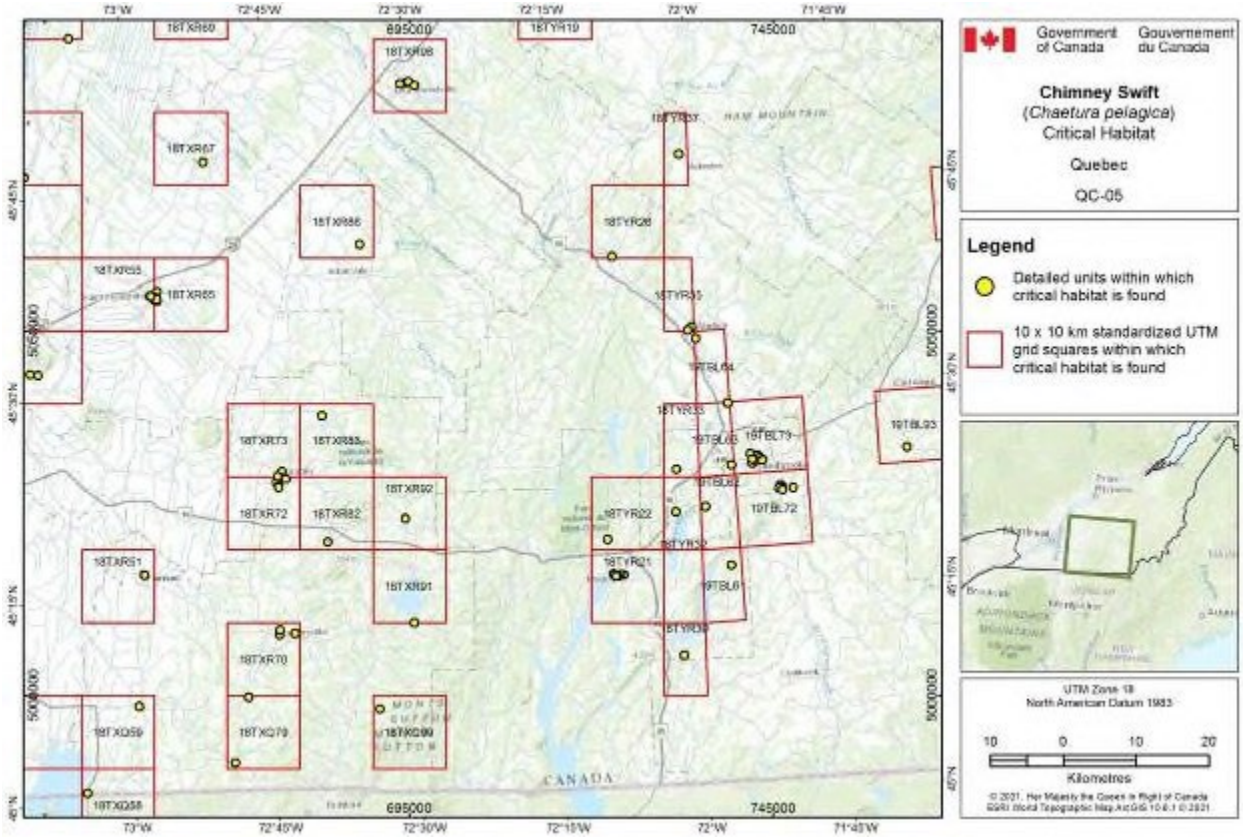

Figure D-3.5. Critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

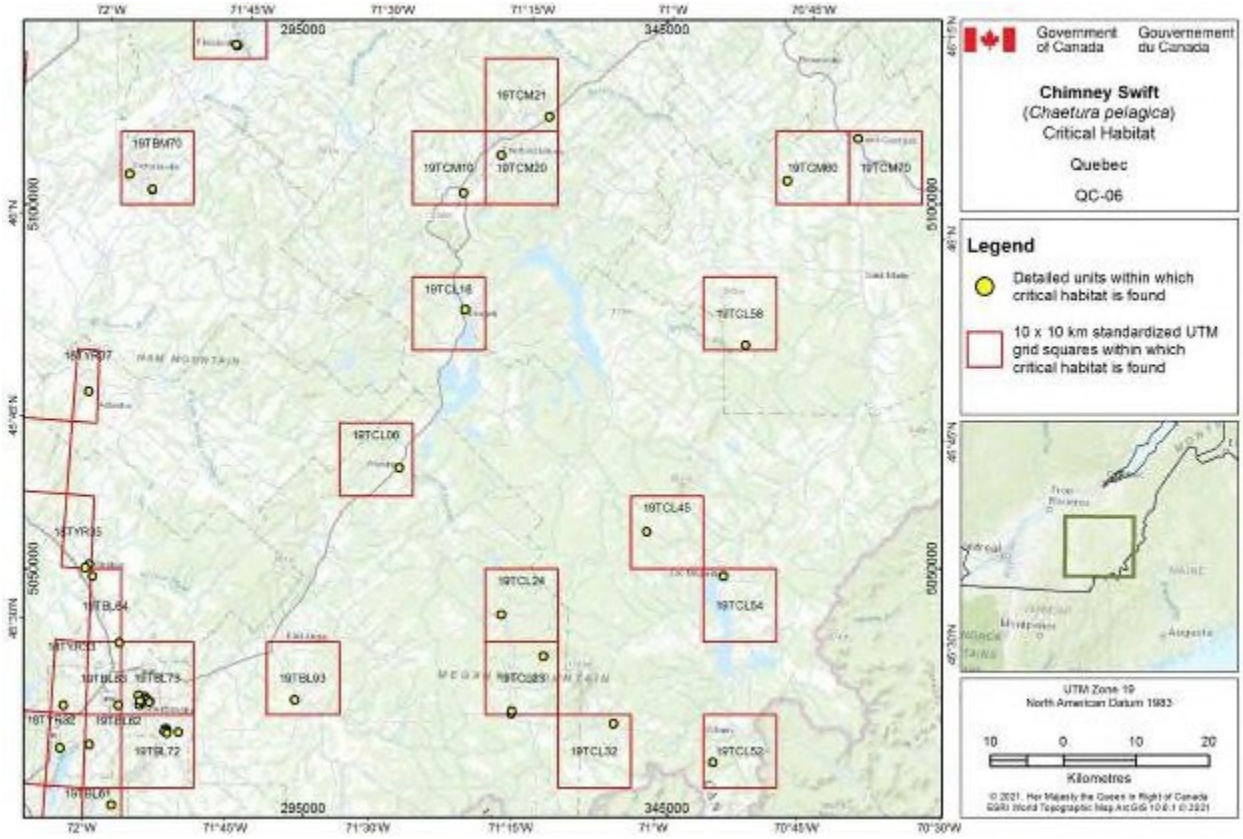

Figure D-3.6. Critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

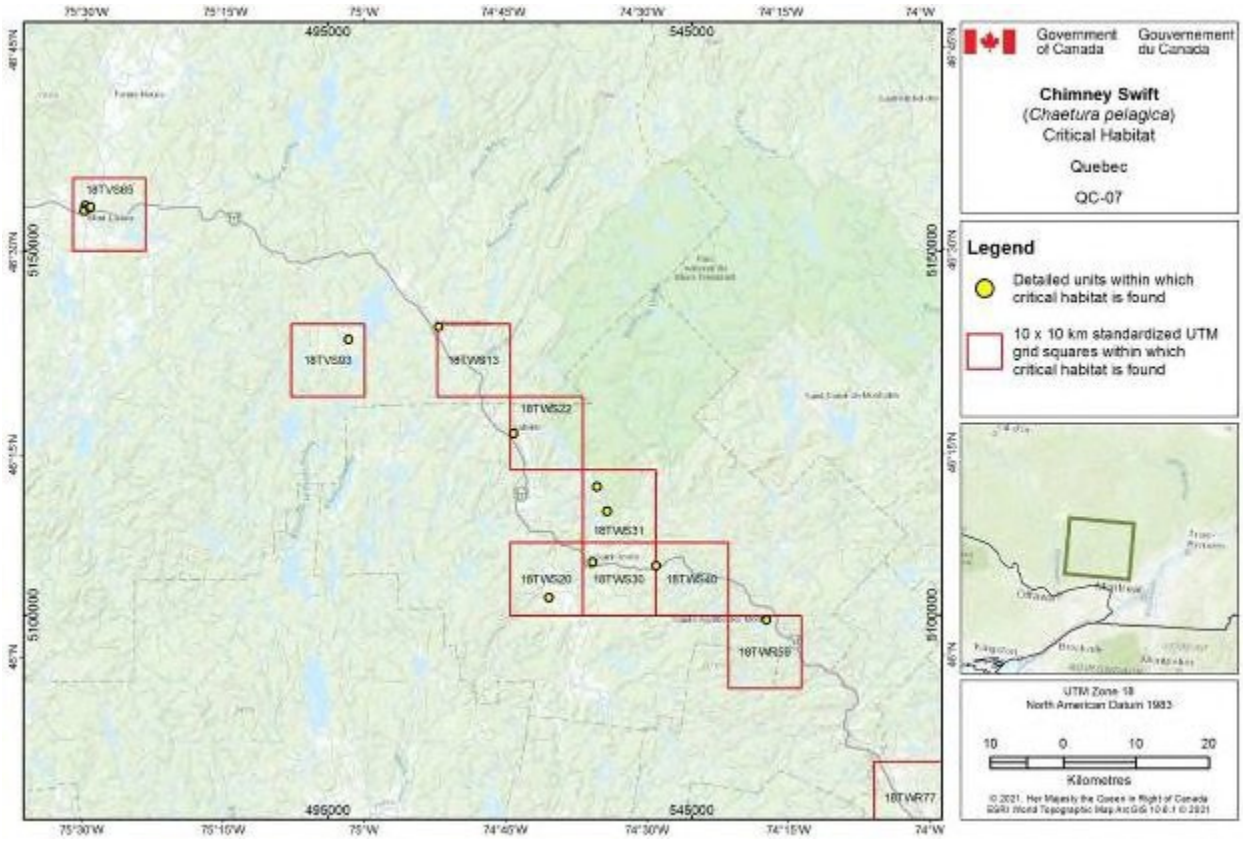

Figure D-3.7. Critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

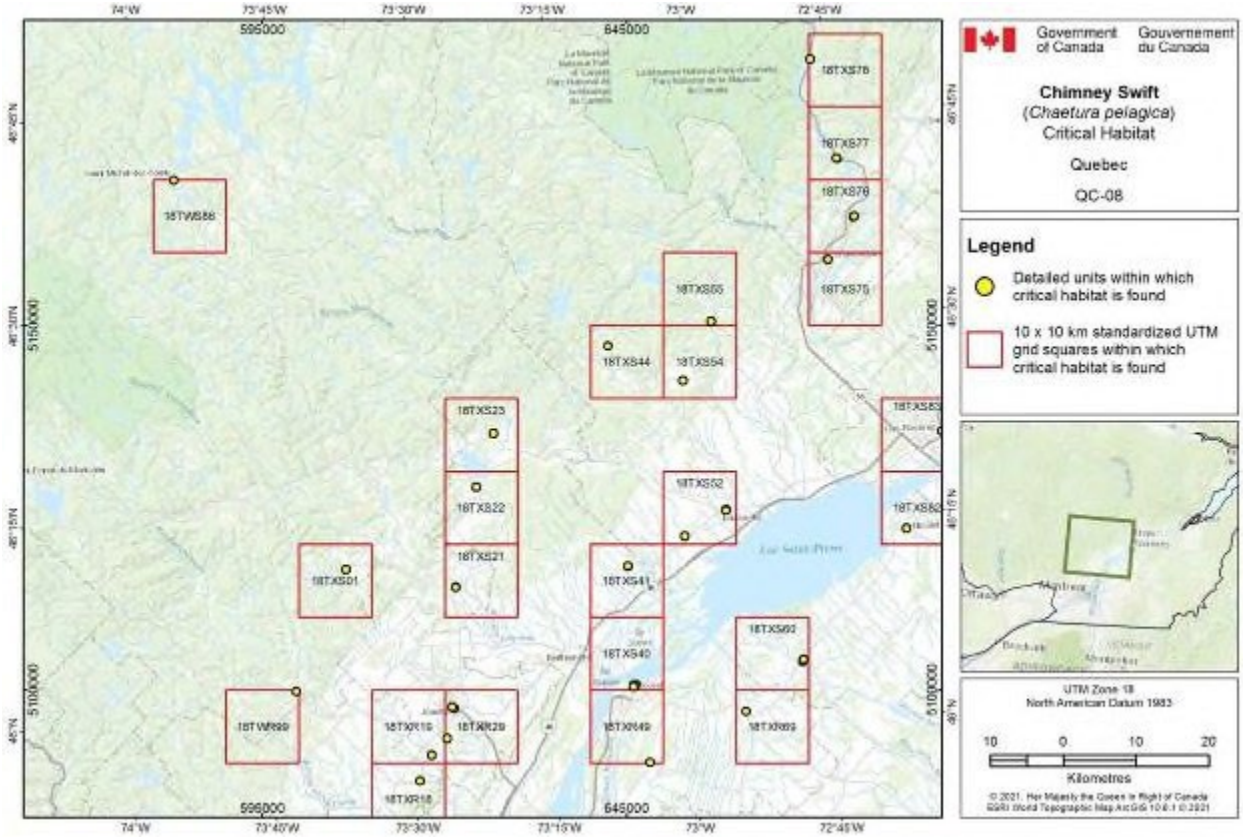

Figure D-3.8. Critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

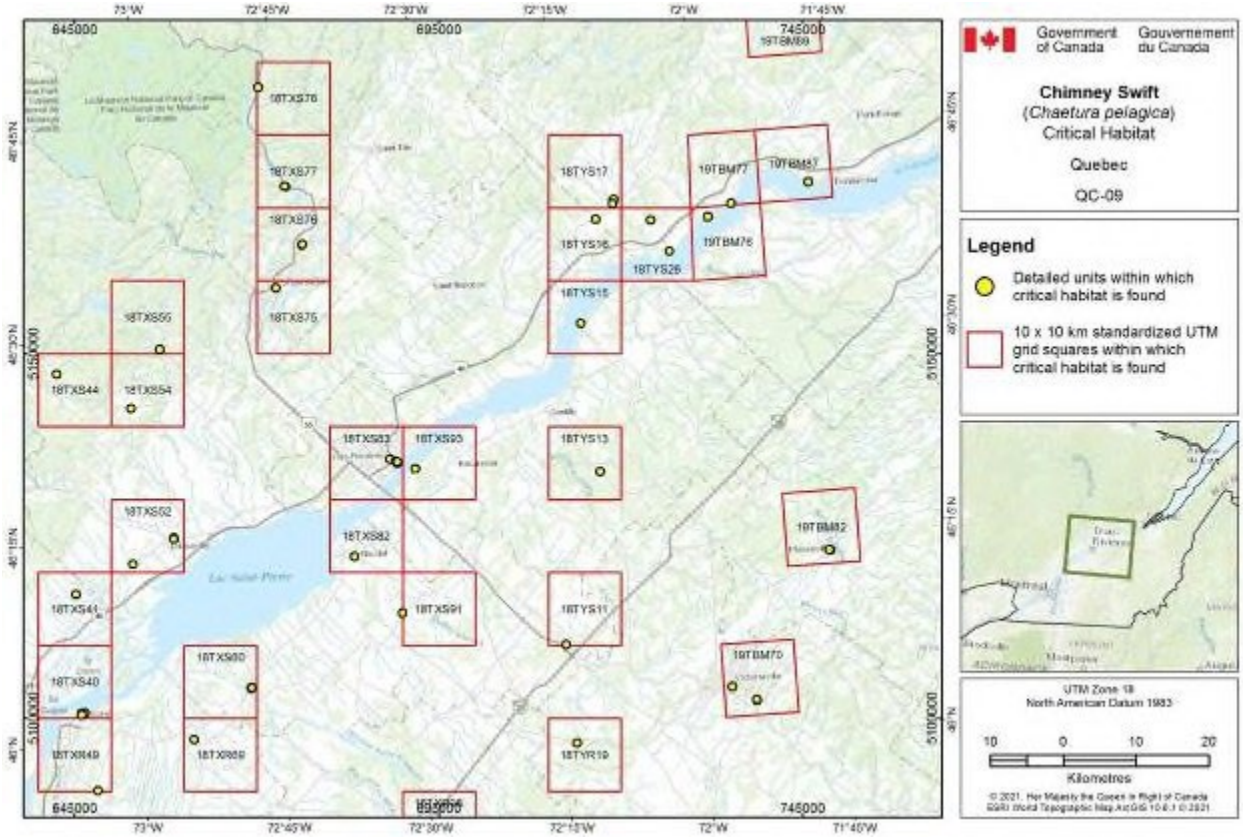

Figure D-3.9. Critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

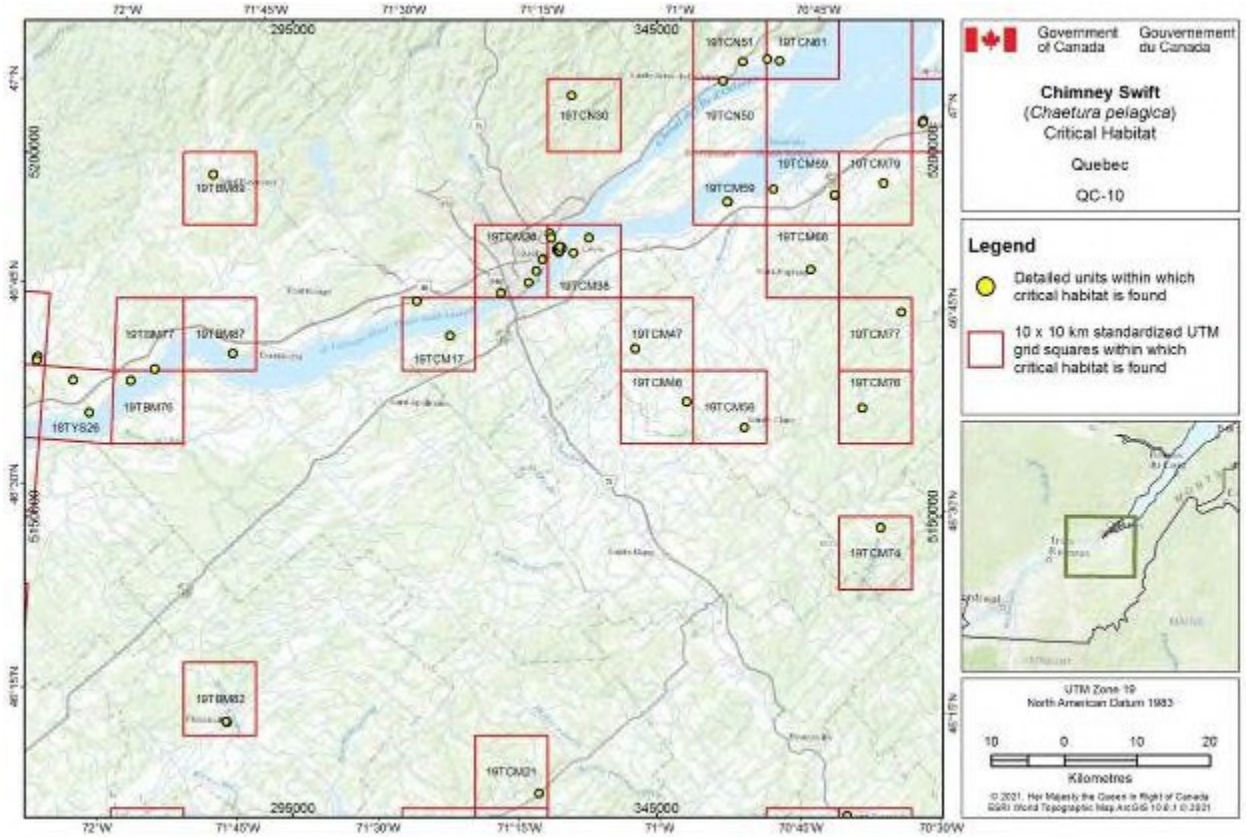

Figure D-3.10. Critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

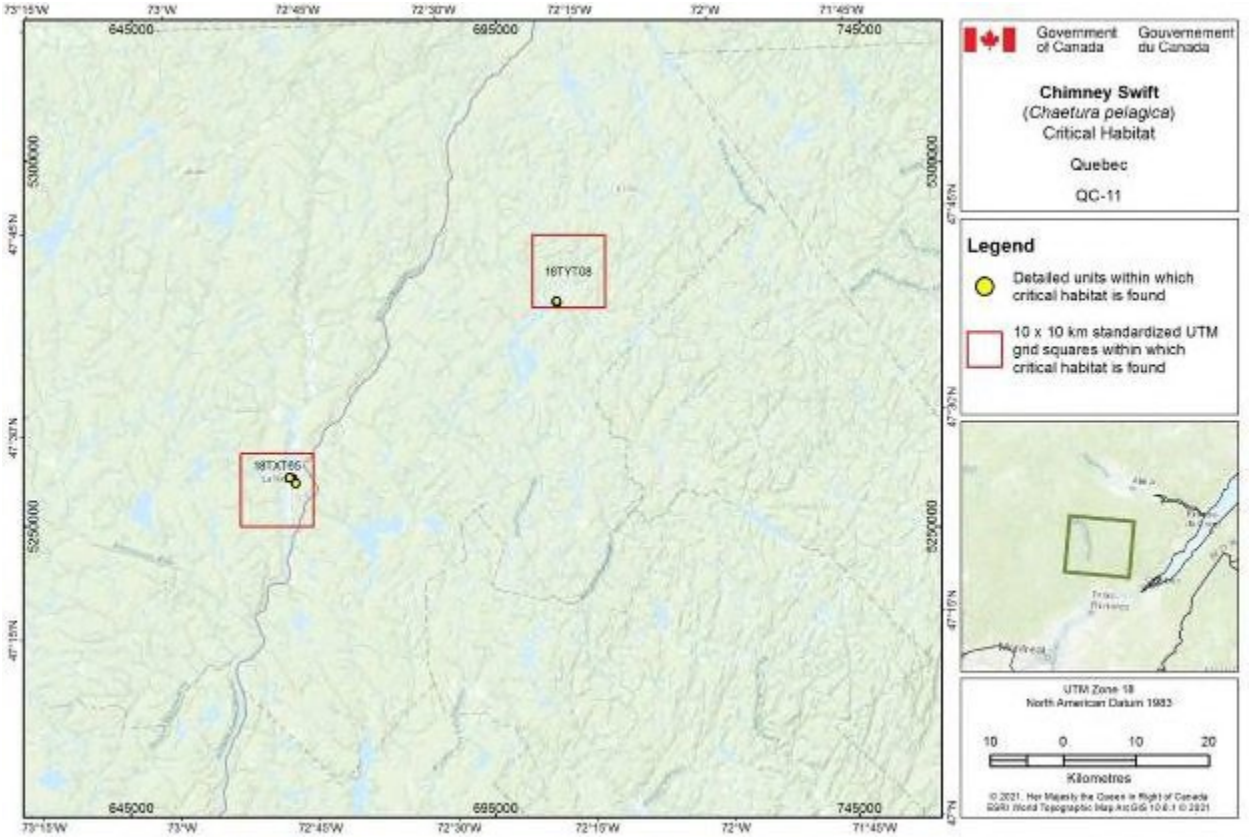

Figure D-3.11. Critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

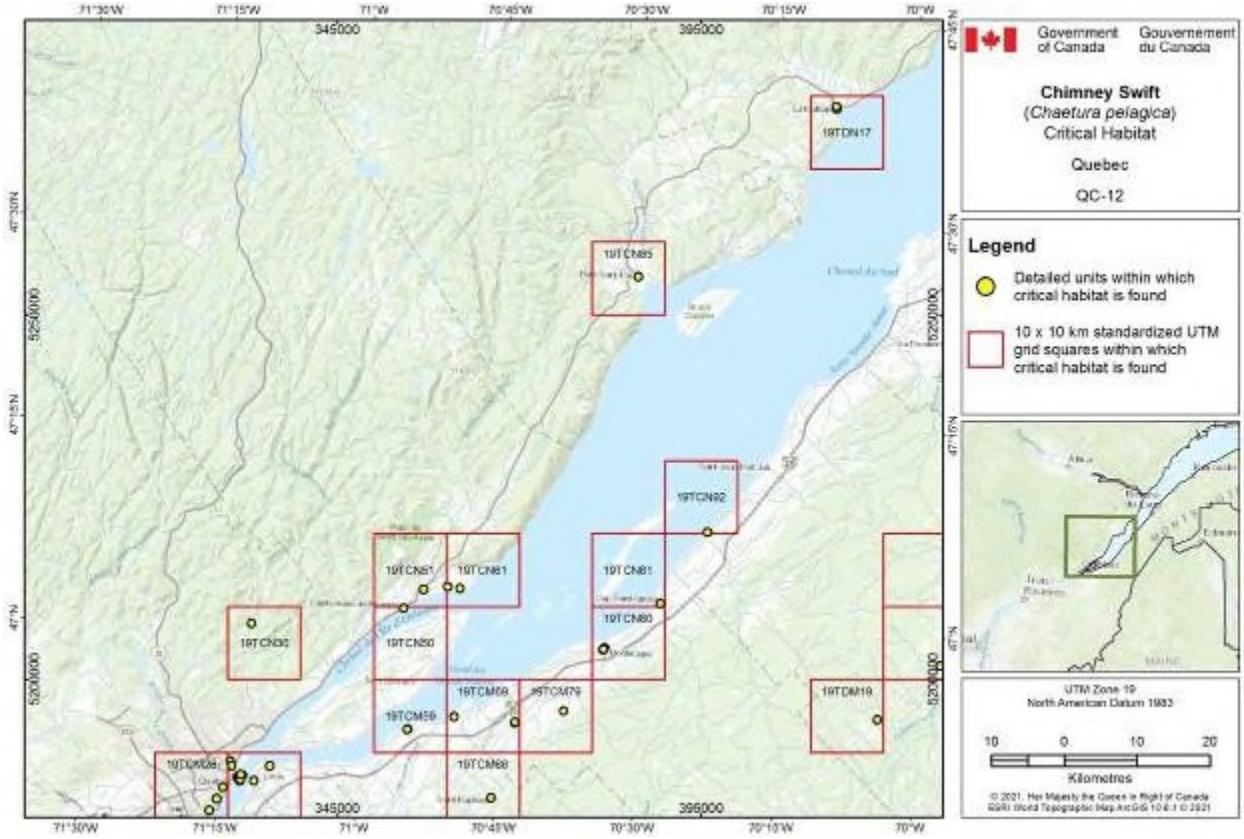

Figure D-3.12. Critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

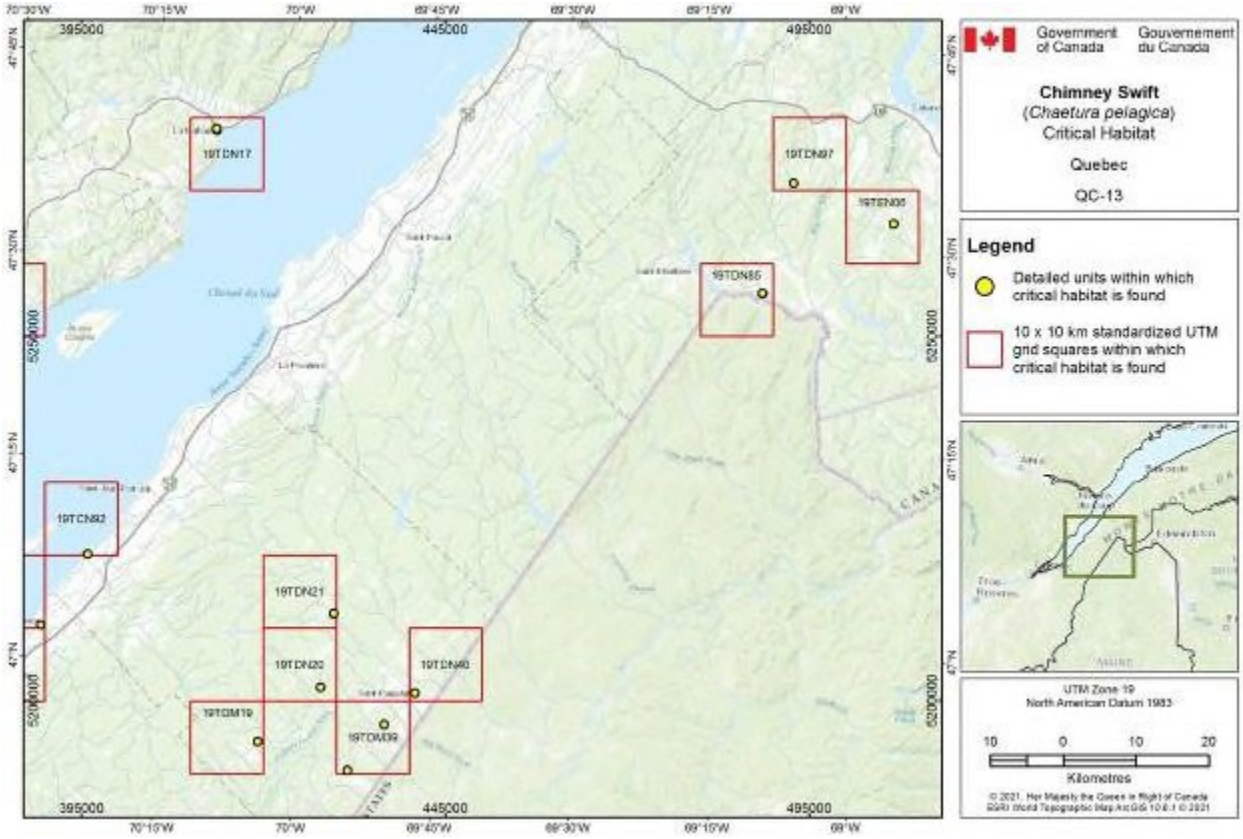

Figure D-3.13. Critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

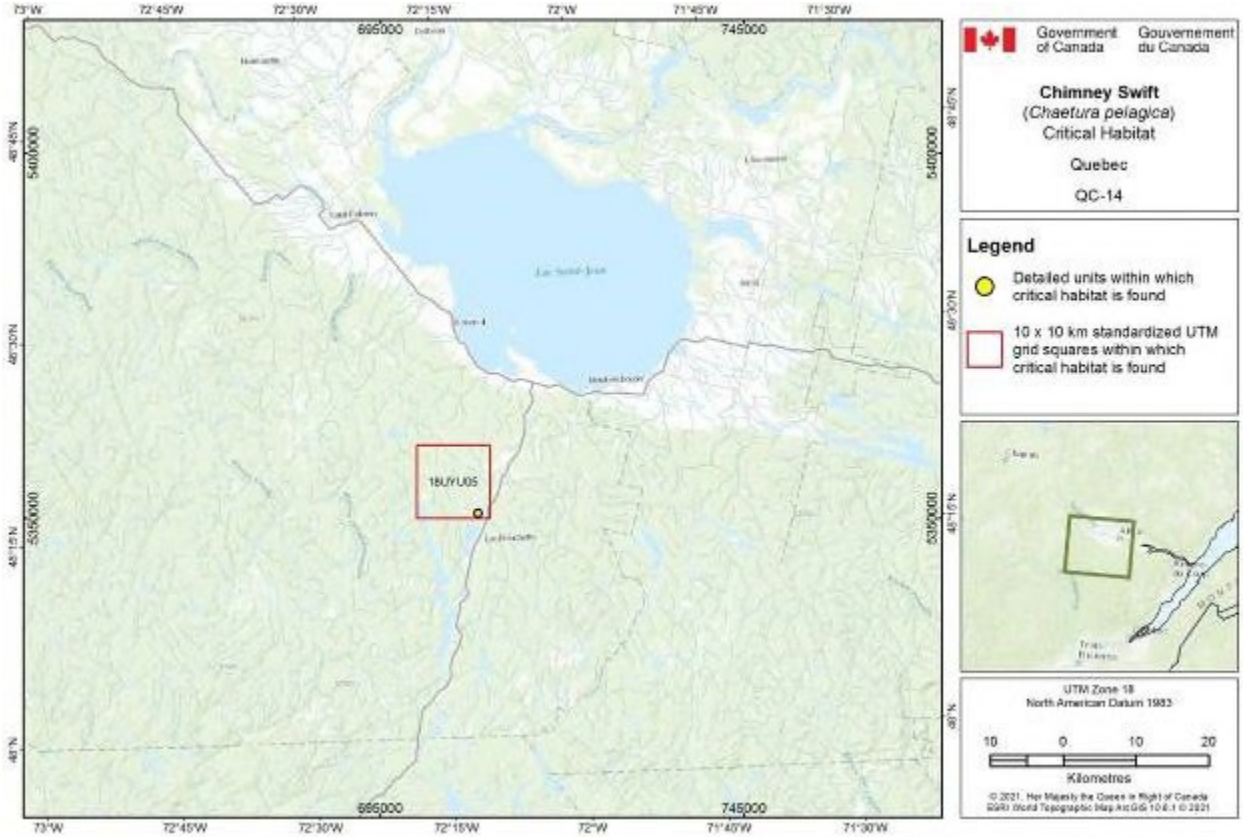

Figure D-3.14. Critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

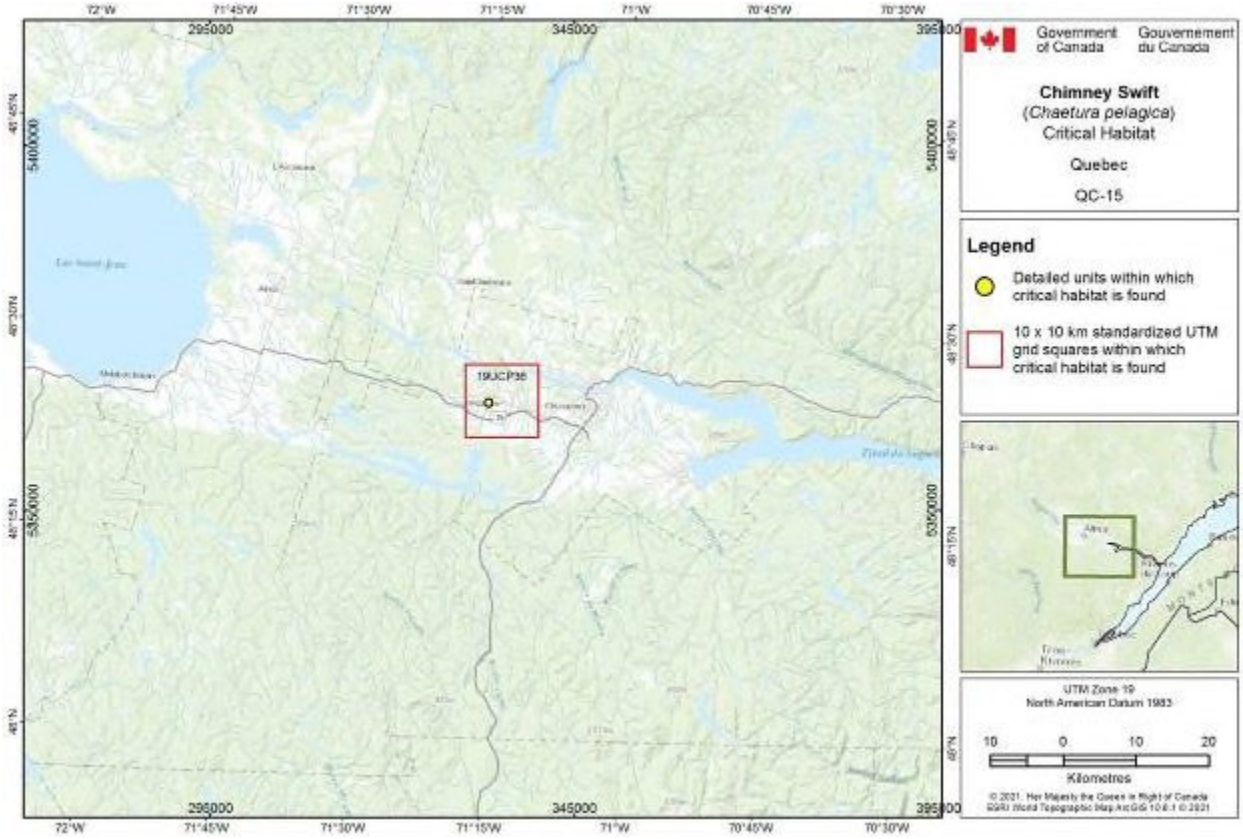

Figure D-3.15. Critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

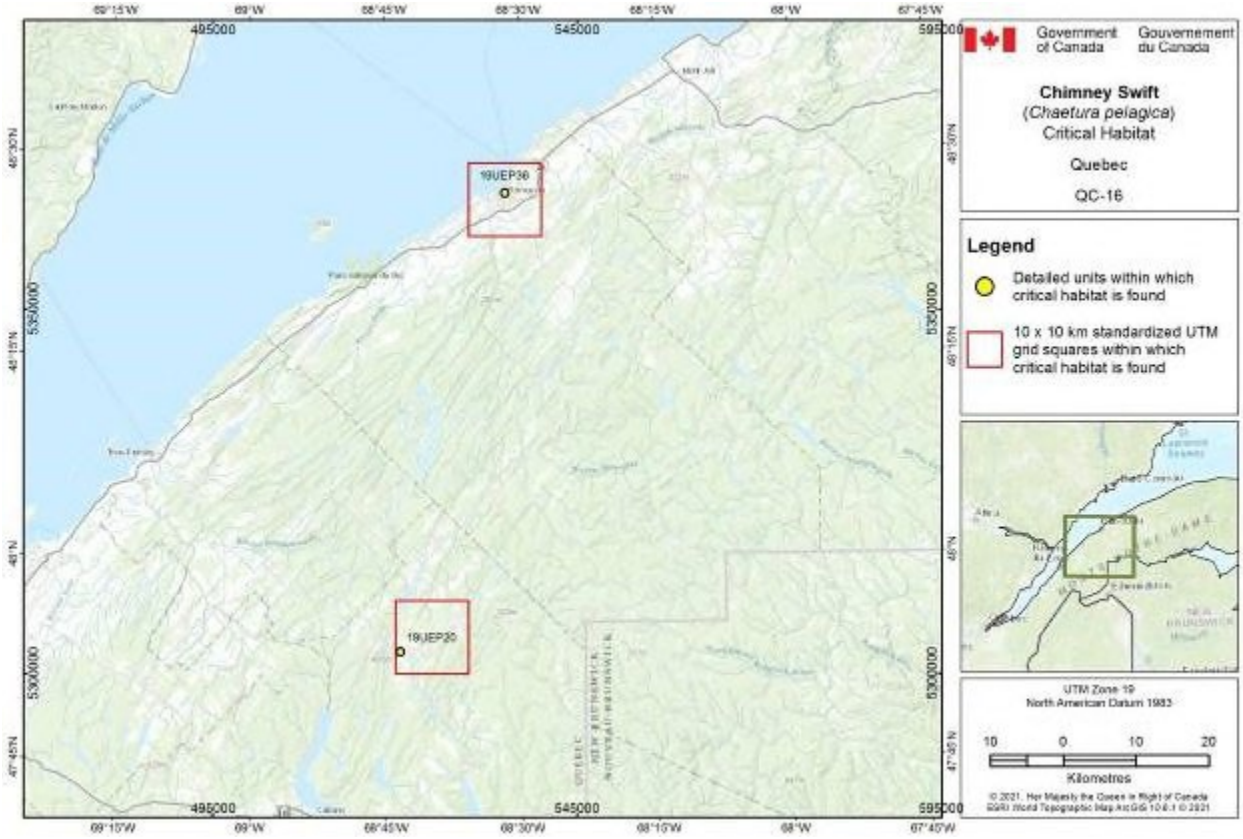

Figure D-3.16. Critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

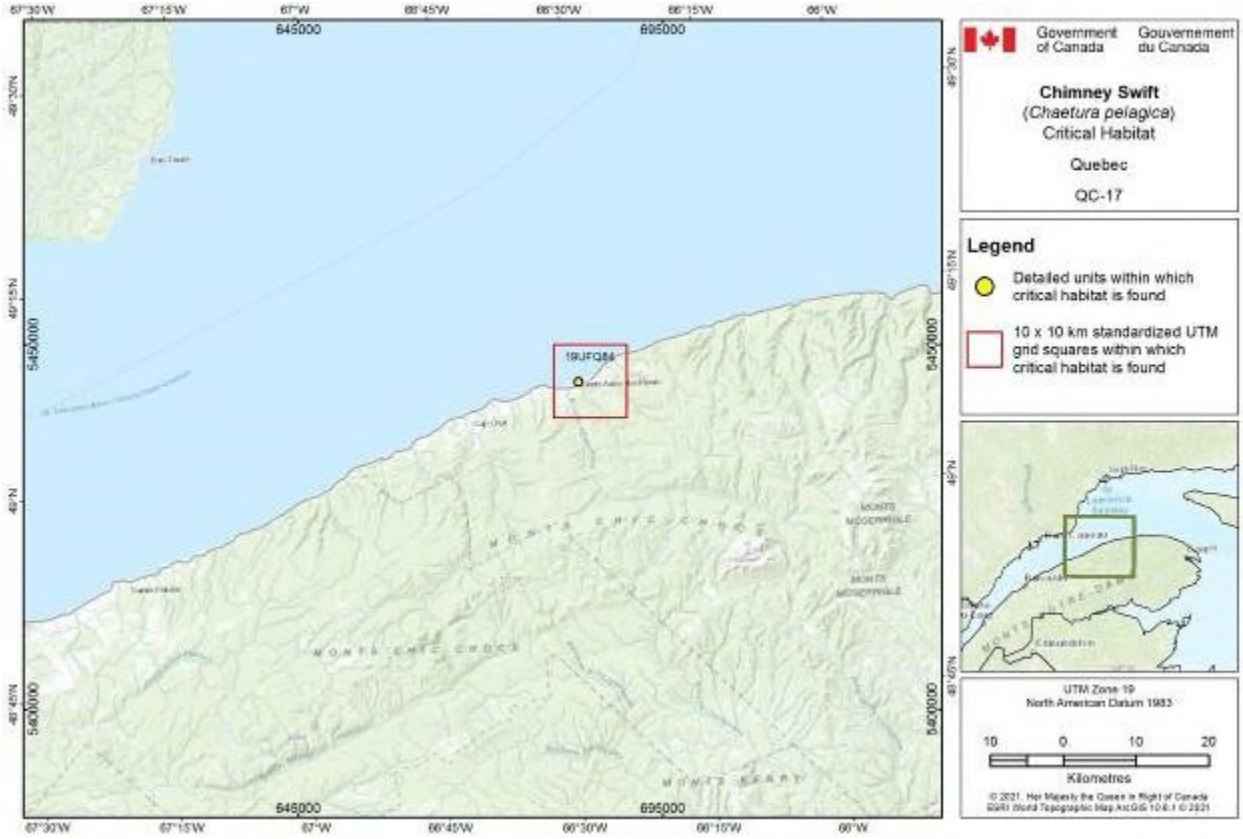

Figure D-3.17. Critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

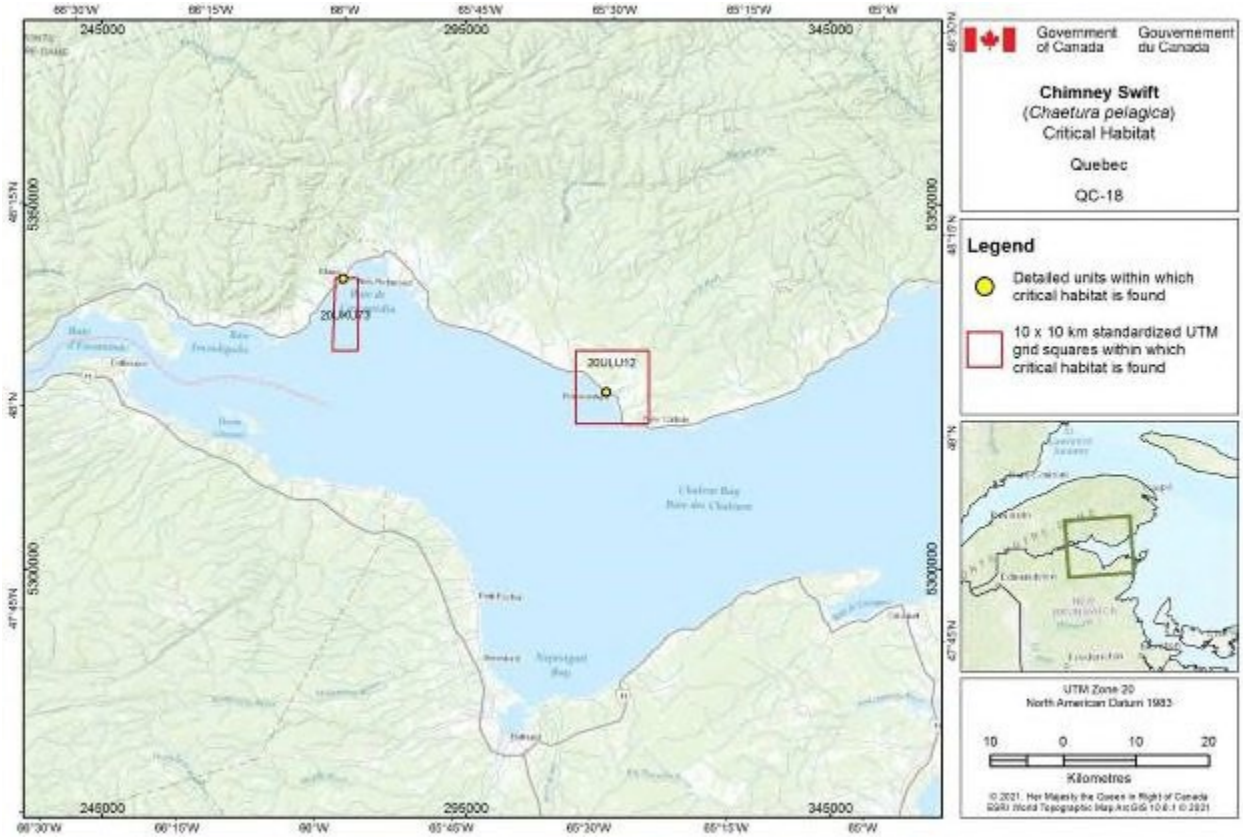

Figure D-3.18. Critical habitat for the Chimney Swift in Quebec. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

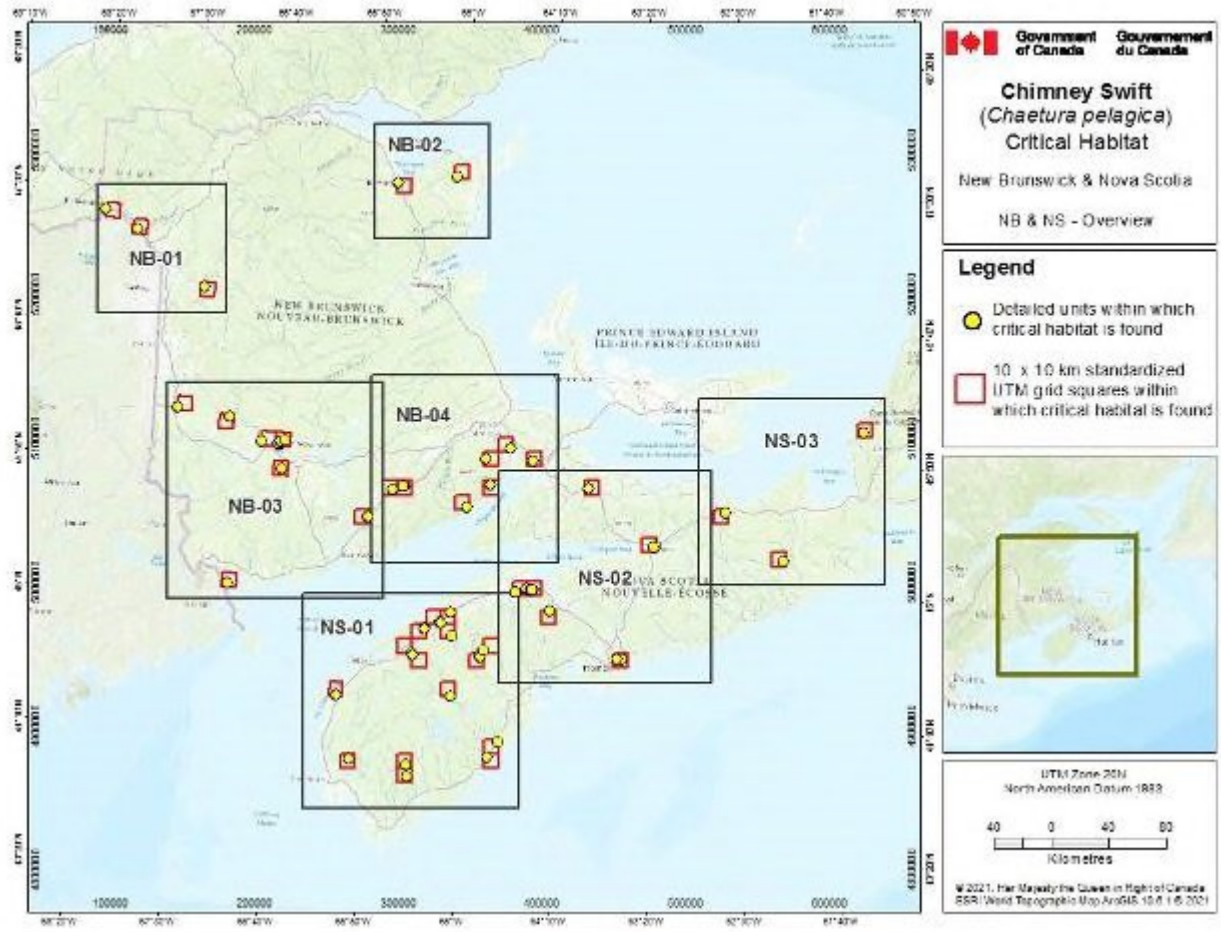

Figure D-4. Overview of Figures D-4.1 to D-4.7 (maps NB-01 to NB-04 and NS-01 to NS-03) representing the critical habitat for the Chimney Swift in New Brunswick and Nova Scotia. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

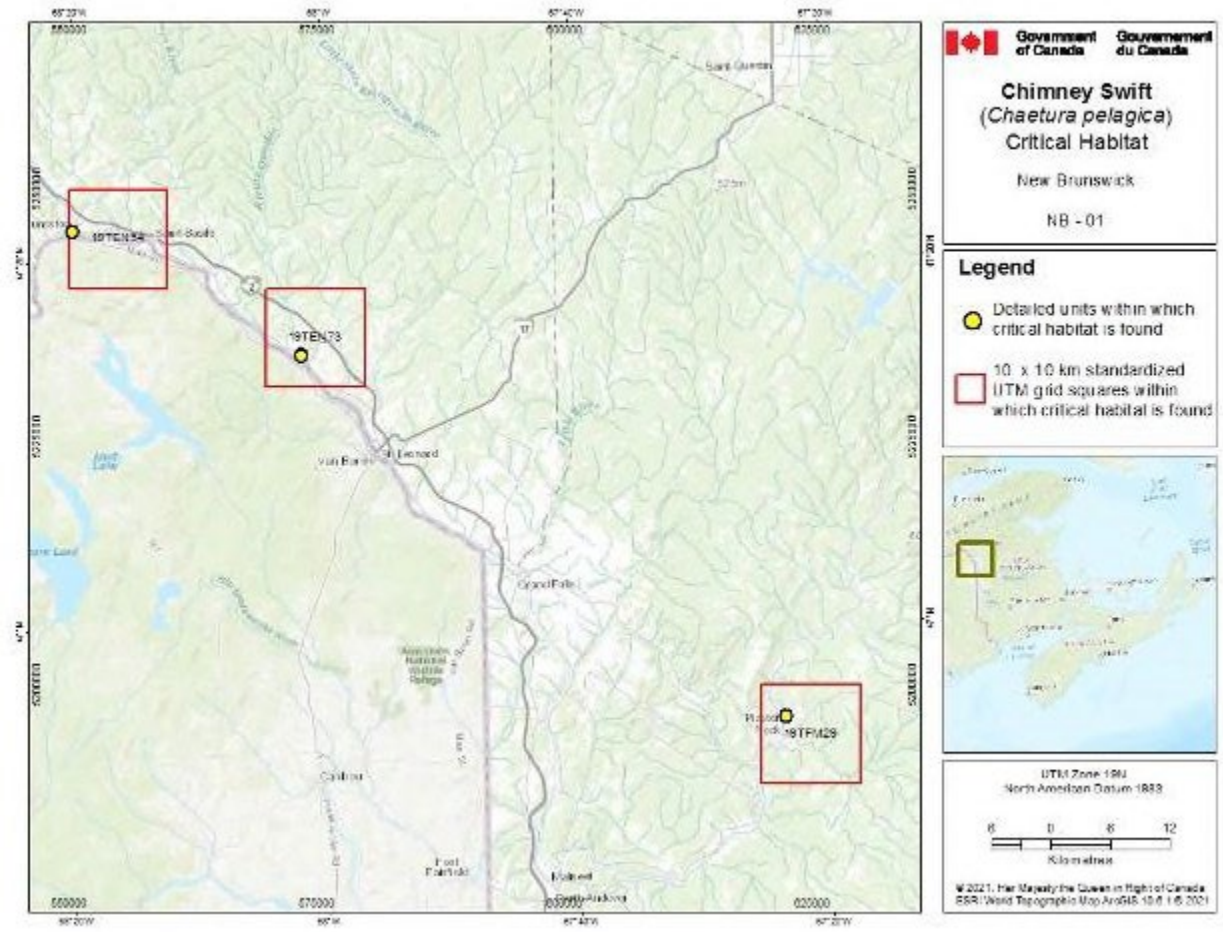

Figure D-4.1. Critical habitat for the Chimney Swift in New Brunswick. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

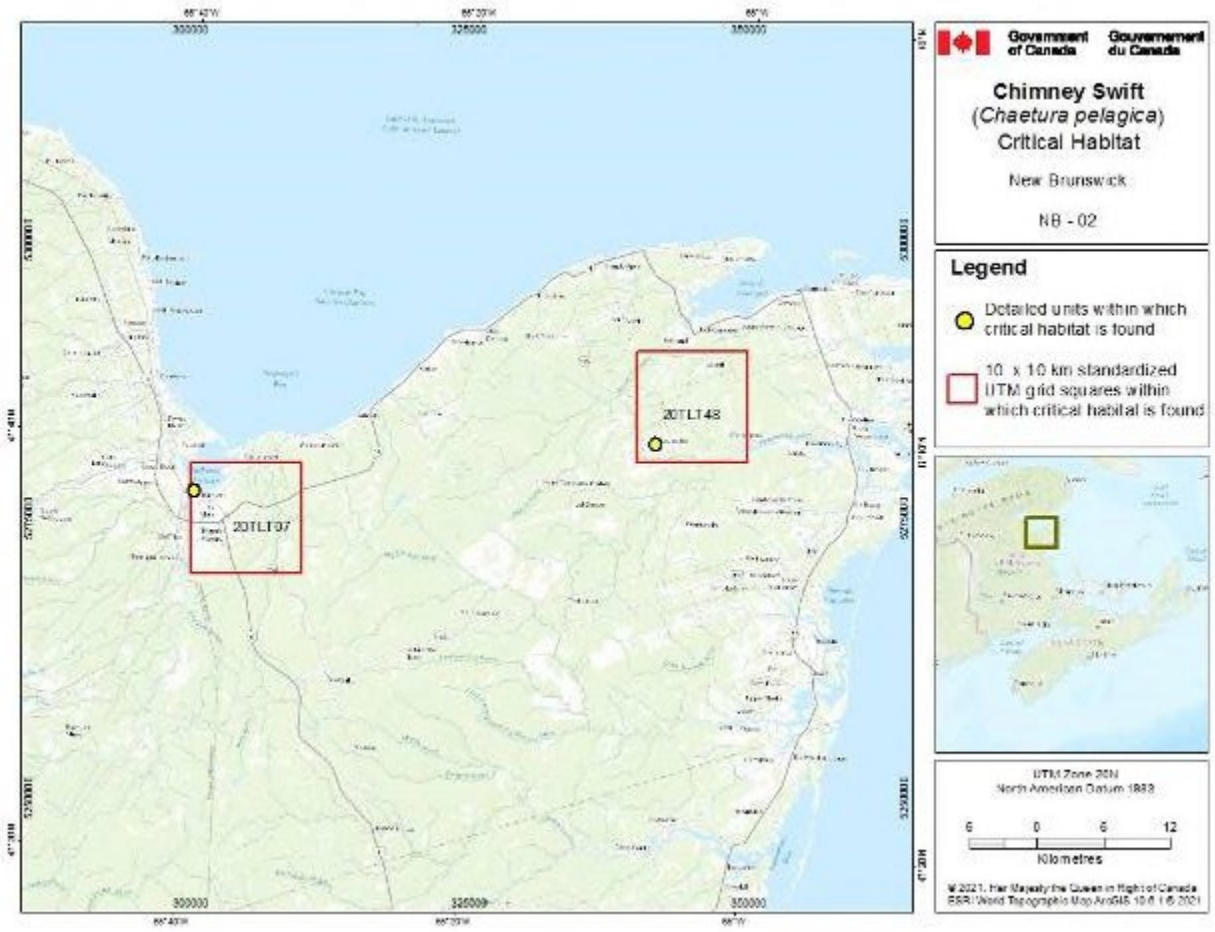

Figure D-4.2. Critical habitat for the Chimney Swift in New Brunswick. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

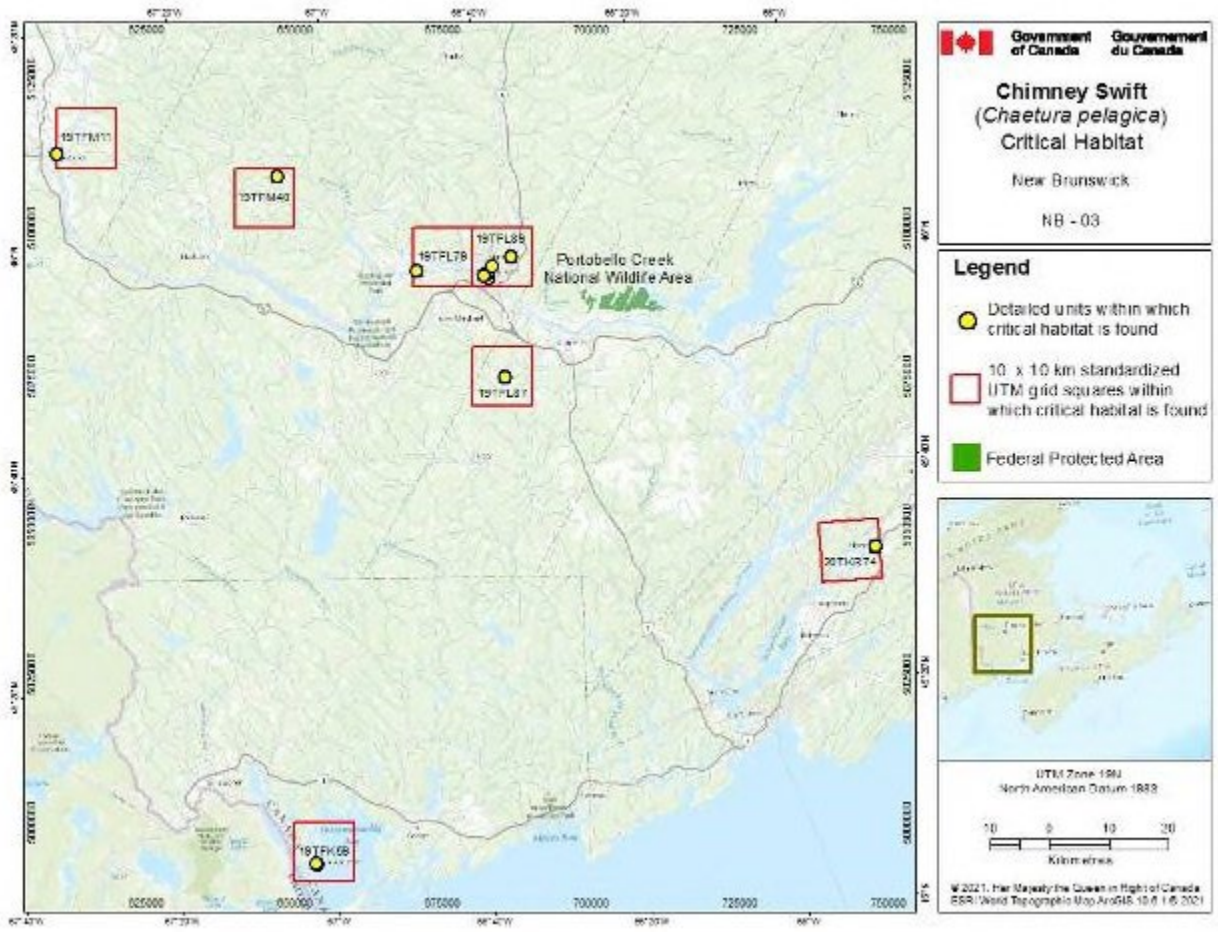

Figure D-4.3. Critical habitat for the Chimney Swift in New Brunswick. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

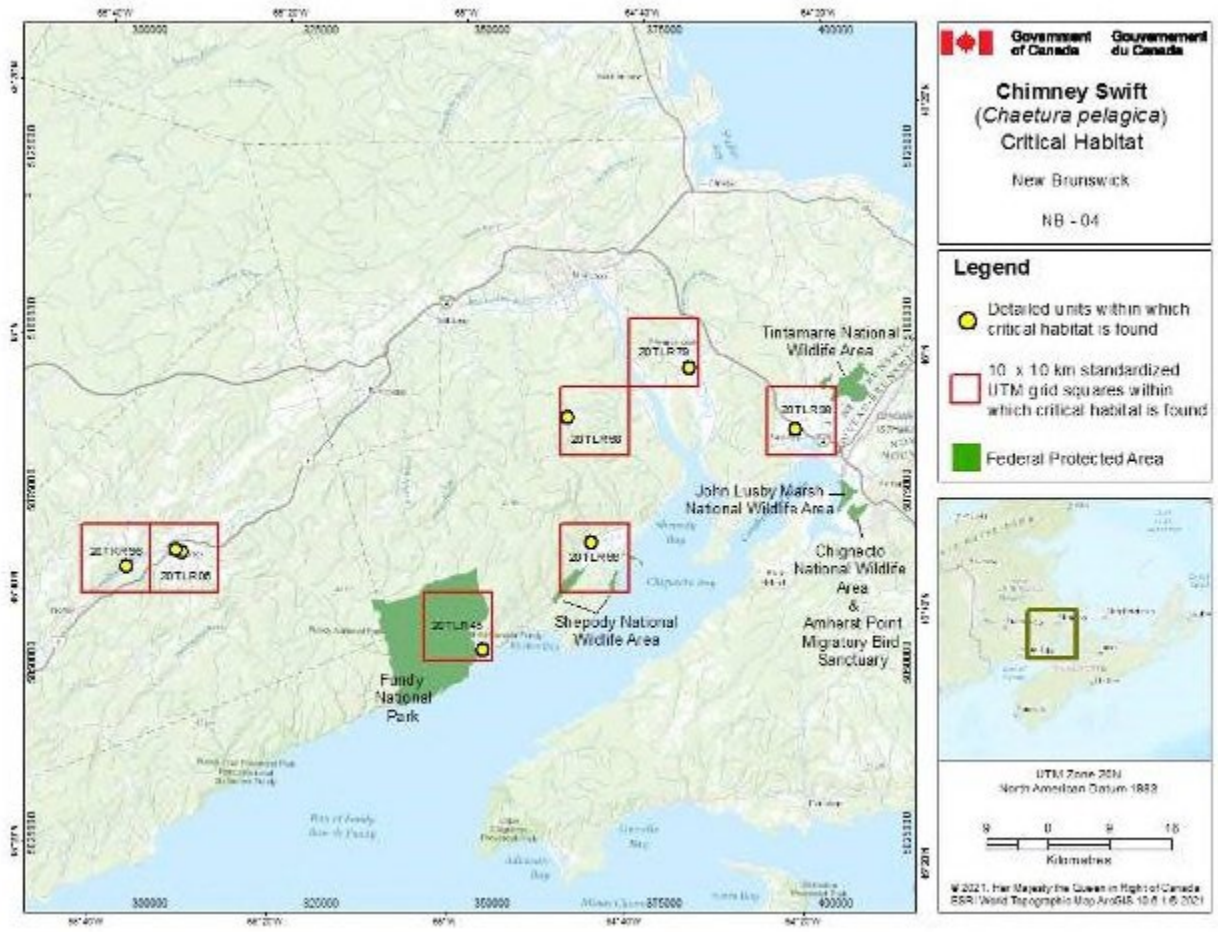

Figure D-4.4. Critical habitat for the Chimney Swift in New Brunswick. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

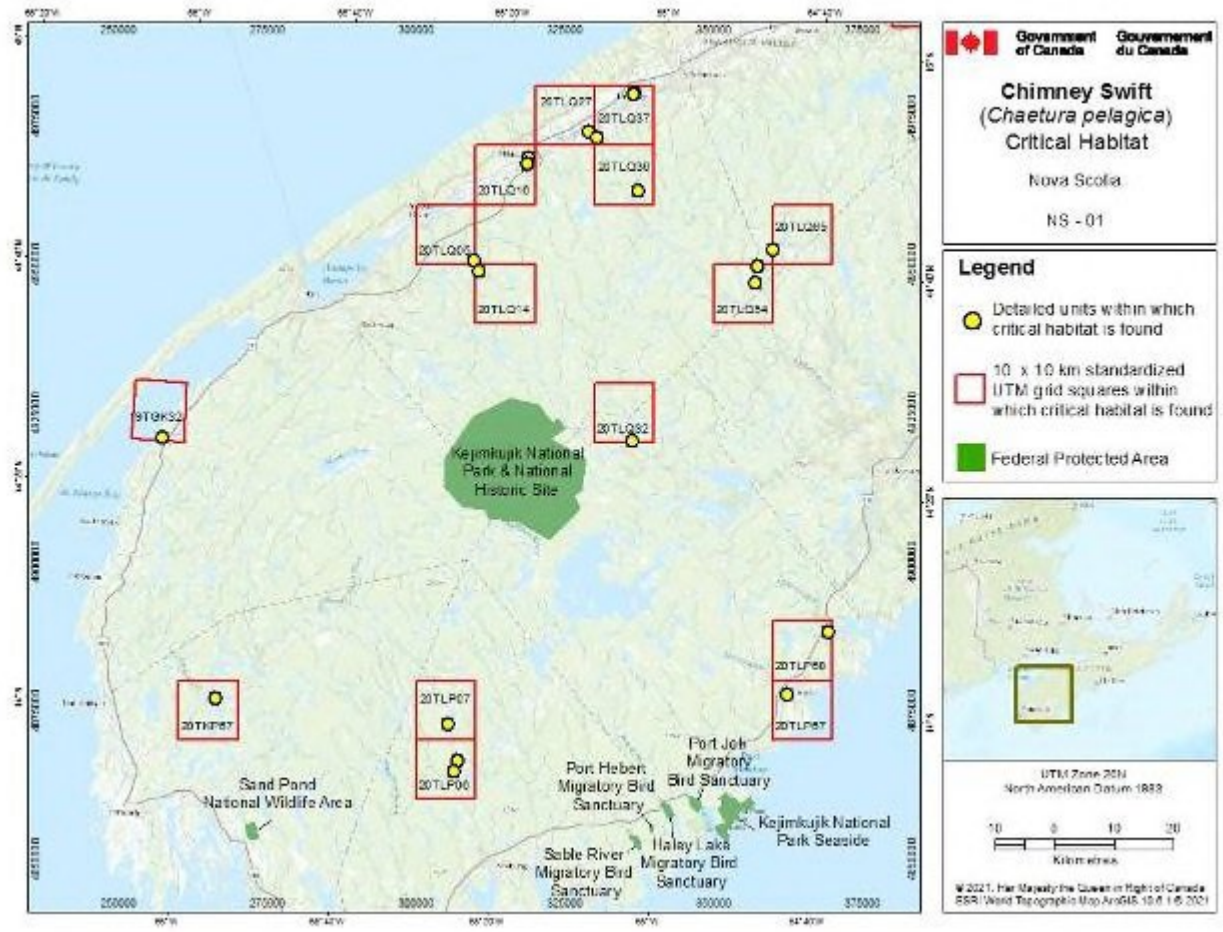

Figure D-4.5. Critical habitat for the Chimney Swift in Nova Scotia. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

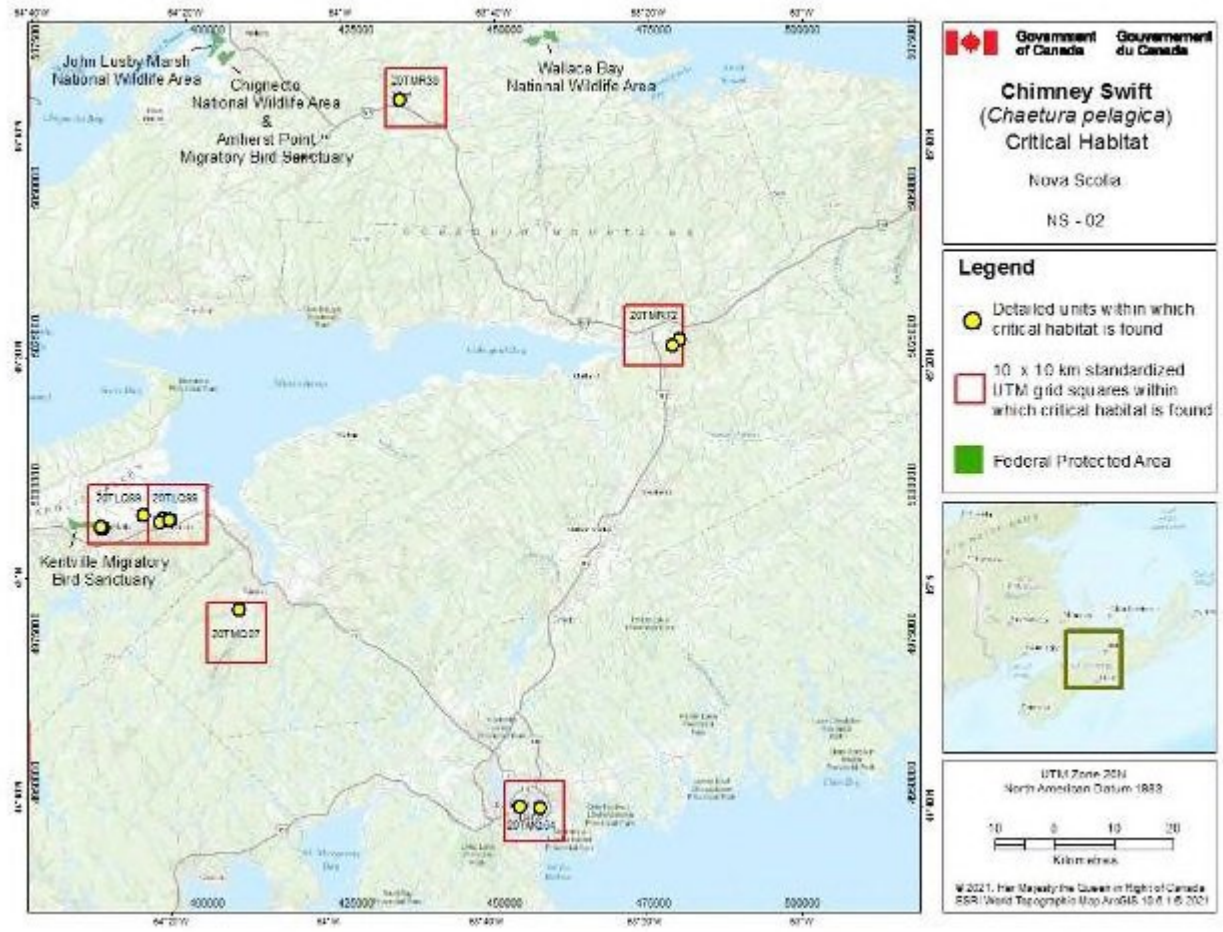

Figure D-4.6. Critical habitat for the Chimney Swift in Nova Scotia. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

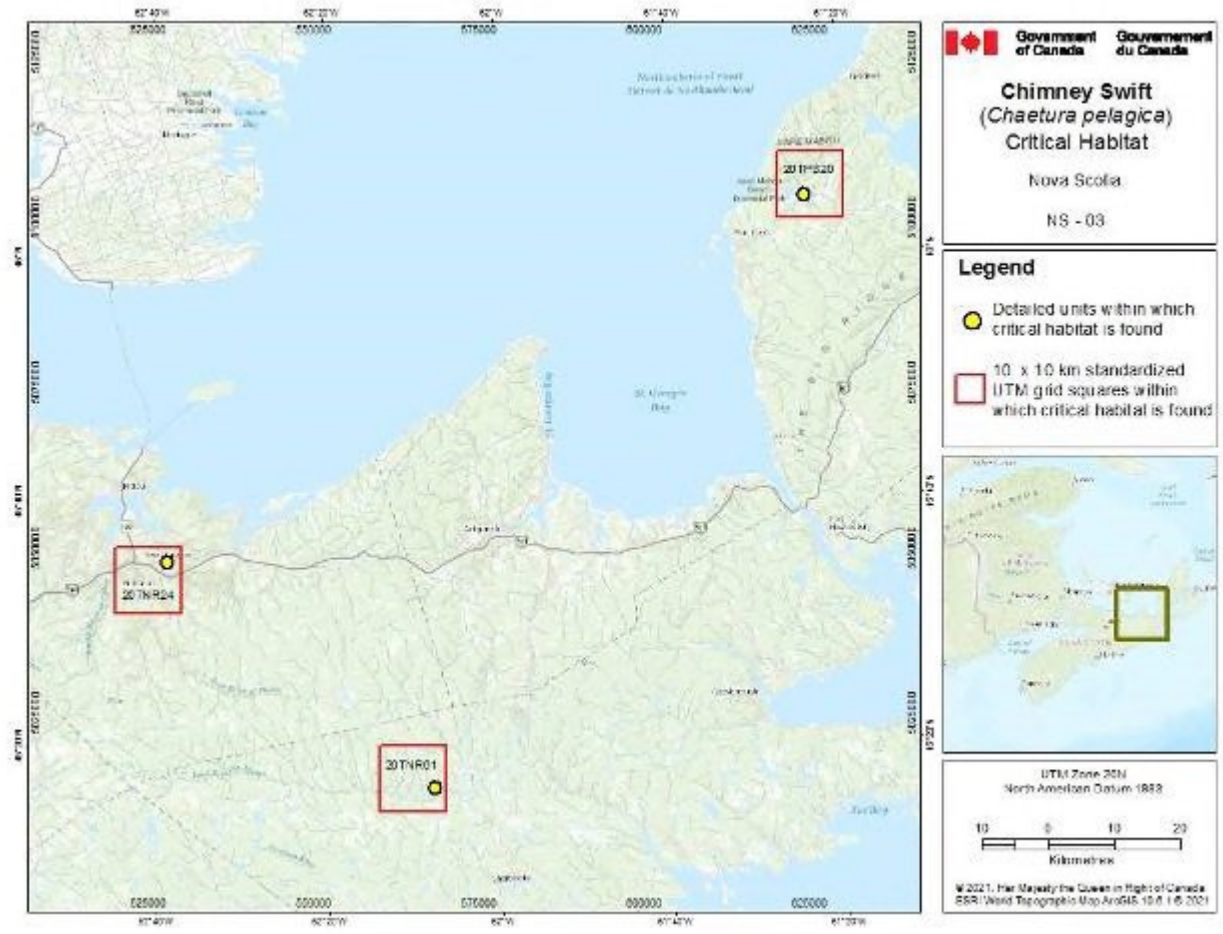

Figure D-4.7. Critical habitat for the Chimney Swift in Nova Scotia. The critical habitat units are indicated by a yellow dot within the red 10 × 10 km squares. where the criteria and method for identifying critical habitat set out in section 7.1 are applied. The 10 × 10 km squares in the standardized UTM grid system of Canada indicate the general geographic location of the critical habitat.

Appendix E: Description of building types

Below are descriptions of the building (or structure) types identified as being associated with critical habitat for the Chimney Swift (see Tables D-1 to D-5). In the case of an abandoned building. the most recent known use of the building was used to identify the building type.

- **Residential building:** a single-family or multi-family building used primarily for dwelling purposes. Examples: detached house. apartment building. condominium. duplex. triplex. fourplex. townhouse.
- **Commercial building:** a building used for the sale of retail goods or the supply of services to the public. Examples: car dealership. automobile repair shop. gas station. bank. bookstore. movie theatre. pharmacy. bakery. bar. restaurant. supermarket. shopping mall. department store. convention centre. hotel.
- **Residential and/or commercial building:** a building that is both used for residential and commercial purposes. For example. a building comprising condominiums or apartments as well as retail stores. This combination of categories was also applied if there was uncertainty in specific building type based on best available information.
- **Office building – Public building**: a large building containing offices OR a government building OR a building used to provide public services. activities or transportation to citizens. Examples: city hall. embassy. courthouse. prison. fire station. police station. post office. hospital. rehabilitation centre. medical clinic. nursing home. public swimming pool. public sports hall. public arena. public library. museum. community centre. airport terminal. railway station. bus station. military building (e.g.. barracks. citadel. fortification).
- **Educational building:** a building in which education or training are provided to children or adults. Examples: nursery school. elementary and secondary schools. college. university. vocational school.
- **Religious building:** a building used for religious purposes. Examples: church. temple. mosque. synagogue. shrine. presbytery. convent.
- **Industrial building:** a building or structure designed to house industrial operations. Examples: factory. brewery. mill. hydroelectric power station. warehouse.
- **Agricultural building:** a building or a structure designed for agricultural and farming practices. Examples: barn. silo. stable.
- **Water well:** a hole or shaft sunk into the earth for the purpose of withdrawing water.
- **Chimney tower:** a freestanding chimney that was originally part of a building or that was specifically built for the Chimney swift.