

Implicated Section of draft Recovery Strategy	Detailed Comment from Reviewers	Comment Response
7.1: Identification of the Species' Critical Habitat	<p>Lines 1757-1761: "Human-made nesting habitats require ongoing maintenance to preserve the characteristics of natural nesting habitat for Bank Swallows. This type of habitat does not possess the biophysical attributes required to maintain the long-term persistence of Bank Swallows (Bank Swallow Technical Advisory Committee 2013); as such, human-made habitat is not identified as critical habitat in this recovery strategy."</p> <p>- This section suggests human-made habitat is not listed as critical because it requires maintenance. Management is necessarily required for Species At Risk, so why should management of human-made sites not be considered a reasonable strategy when so much natural habitat has been lost, and there are so few options for creation of new habitat (e.g., given the present extent of and continued predicted progression of shoreline development that affects natural habitat)? Furthermore, this section seems to conflict with the rationale for the decision not to include human-made habitat as critical given on Lines 1678-1686 (below).</p>	<p>Recovery implies that eventually human interventions to support the species can be minimized. This is clarified in the recently published Species at risk policy on recovery and survival (https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/policies-guidelines/survival-recovery-2020.html). In consultation with provinces and territories, two jurisdictions (Alberta and Prince Edward Island) explicitly noted that natural nesting habitat are not limiting to the Bank Swallow. While the recovery strategy recognizes the past, ongoing and future loss of nesting habitat as an important threat, it is likely that sufficient natural habitat exists to support recovery of the Bank Swallow. Therefore, management of human-made sites is not limited by the proposed recovery strategy for the Bank Swallow.</p> <p>Nests of migratory birds are protected by the Migratory Birds Convention Act, 1994. In sandpits and quarries, Environment and Climate Change Canada (ECCC) recommends that areas be set aside as nesting habitat for the species. The Province of Ontario developed best management practices for Bank Swallow habitat (https://files.ontario.ca/bansbmpenpdffinalv.1.117mar17.pdf). The Province of Quebec is developing best management practices for the forestry sector which is associated with the creation of many burrow pits used by the Bank Swallow. ECCC considers all reports from the public regarding possible migratory bird nest destructions and take appropriate enforcement measures.</p>

<p>7.0 Critical Habitat</p>	<p>The Strategy states that sufficient natural habitat is likely available to support Bank Swallow recovery, so human-made nesting habitat is not required or considered critical habitat, but then immediately goes on to say that critical habitat identified in the Strategy is not sufficient to meet population recovery objectives of the Strategy. This is a glaring conflict that must be remedied. Numerous points in the report indicate there are insufficient data to determine whether sufficient natural habitat is available to support Bank Swallow recovery (e.g., Lines 222-233, Line 459).</p>	<p>As stated in the summary above, we encourage you to consult the Policy Regarding the Identification of Anthropogenic Structures as Critical Habitat (https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/policies-guidelines/identification-anthropogenic-structures.html), section 4.2.3. The proposed recovery strategy recognizes aggregate pits as anthropogenic structures under the policy; it has determined that sufficient natural habitat is available to support the recovery of the Bank Swallow; and as such, that aggregate pits are not required to meet the population and distribution objectives. The proposed recovery strategy notes the potential contribution of these structures to the recovery of the Bank Swallow in terms of stewardship opportunities and beneficial management practices. We added to following to the first paragraph of section 7.1 for clarity: <u>"The number of confirmed nesting records was insufficient to fully identify the nesting and foraging components of critical habitat."</u></p>
<p>3.3 Needs of the Bank Swallow</p>	<p>Human-made habitats support a substantial proportion of the Bank Swallow population, and the importance of human-made habitats for Bank Swallow recovery is reflected throughout the Strategy.</p> <ul style="list-style-type: none"> • We would like to see the above statement (Lines 609-617) elaborated upon: "Human-made settings may become unsuitable..." What causes these settings to become unstable? Are there human-made sites that remain suitable for nesting for longer than 3-5 years? What actions are needed to maintain the settings over the long term? • Please provide more information and supporting references for this statement: "Human-made structures built as surrogate nesting habitat have been 	<p>Related to the first bullet, we modified the text to reflect the uncertainty and variation in the number of years nesting habitat remains suitable. We made the following changes as underlined: <u>"Human-made settings may become unsuitable for nesting within a few years without regular sediment excavation (Ghent 2001; Lind <i>et al.</i> 2002; Burke 2017). In both human-made and natural settings, banks lose their nesting quality when they are not regularly refreshed, resulting in hardening of the sediments, or after collapsing, resulting in a slope lower than 70 degrees (Burke 2017). Nesting habitat created from human intervention have persisted over several decades (Campbell <i>et al.</i> 1997), likely as a result of wind or rain erosion (R. Darvill, pers. comm.)."</u></p> <p>Related to the second bullet, we modified the text to reflect that providing human-made structures show mixed results. We made the following changes as underlined: <u>"Recent human-made structures built as surrogate nesting habitat have been rapidly colonized by Bank Swallows where natural conditions suitable for nesting have previously existed (Laberge and Houde 2015). In Ontario and California, surrogate nesting locations showed mixed results such</u></p>

	<p>rapidly colonized..." It is our understanding that many previous attempts to provide artificial breeding habitat for the Bank Swallow have proven unsuccessful. We would like to see more information about what constitutes a successful provision of surrogate nesting habitat, towards development of best practices.</p>	<p><u>that the structure was either removed or maintenance was ceased (OMNRF 2017)."</u></p>
<p>6.3 Narrative to Support the Recovery Planning Table</p>	<p>Lines 1590-1601 and 1745-1761. - 44% of the population nesting in human-made habitats is still very high. Losing 44% of nesting habitat for a Species at Risk should not be considered acceptable under any scenario. This 16% decrease in use of human-made habitats in recent years is, as previously indicated in various sections of the report, likely due to changes in management practices at aggregate sites (e.g. Lines 450-453). Therefore, significant breeding does occur in human-made sites, and continuing to promote management practices that support Bank Swallow breeding success at human-made sites could have a significantly positive impact on population recovery.</p>	<p>There is no expectation that the availability of nesting habitat in human-made settings will change following the designation of critical habitat for the Bank Swallow in natural settings. On the contrary, the recovery strategy for the Bank Swallow will be an additional outreach tool that promotes the existing protections of migratory bird nests, eggs and individuals under the Migratory Birds Convention Act, 1994 and the residence under the Species at Risk Act (see footnote 20). The recovery strategy highlights the beneficial management practices for aggregate pit operators that were developed both in Ontario and by ECCC.</p> <p>Under the MBCA, there is no authorization for removing unoccupied migratory bird nests, or burrows in the case of Bank Swallow. Therefore, aggregate pit owners must follow beneficial management practices, such as providing alternative nesting habitat before the breeding season, if operations will target areas of the pit previously occupied by the Bank Swallow.</p>
<p>5.0 Population and Distribution Objectives</p>	<p>Lines 1337-1339: "This recovery strategy defines recovery of the Bank Swallow as a reduced risk of extinction relative to the conditions that led COSEWIC to designate the Bank Swallow as Threatened. The Bank Swallow faces an increased extinction risk due to its steep</p>	<p>The 2013 COSEWIC Report cites destruction of nests in aggregate pit as a contributing factor to the declines, "having some importance to the population", but does not cite this threat as a top threat. Please see the response to the comment above, under 6.3 Narrative to Support the Recovery Planning Table.</p>

	<p>population declines. “Page 12 COSEWIC Species Assessment Information: “The reasons for these declines are not well understood, but are likely driven by the cumulative effects of several threats. These include loss of breeding and foraging habitat, destruction of nests during aggregate excavation,...”</p> <p>- The Strategy highlights the importance of aggregate sites for Bank Swallows and identifies them as a probable top contributor to Bank Swallow declines, therefore, the Strategy must necessarily include consideration of aggregate sites, as these are among the top conditions that have led COSEWIC to designate the species as threatened.</p>	
<p>4.1 Threat Assessment</p>	<p>See Lines 1321-1323: - The claims that aggregate pits affect a negligible proportion of the population must be qualified, as this directly conflicts with points throughout the Strategy that emphasize the importance of human-made habitats for Bank Swallows.</p> <p>- For example, Lines 1280-1323: Aggregate pits (see also Table 4, Line 360) are listed as a negligible threat, but Bank Swallows are most frequently located in aggregate pits in Ontario, Quebec, and the prairie provinces, which collectively host 53% of the estimated Bank Swallow breeding population in Canada (see Lines 473-475).</p>	<p>The threat assessment relies on a standardized ranking and assessment using a "threats calculator". During this assessment and in order to follow similar assessments for other species, we determined that activities under 3.2 Mining & Quarrying overall have a positive impact on the species: where creation of nesting habitat counters incidental mortality of eggs and young during operations. During this threat assessment, scope and severity scores are determined on the basis of expert opinion, accounting for relative abundance of the population by region where the threats/activities might occur. In the threat assessment table under threat 3.2, the scope was changed from Restricted-Small (1-30%) to Large (30-70%), also increasing rolled-up scope to Large. A large scope adequately reflects the range of proportions of the Bank Swallow population breeding in human-made settings across Canada. Severity remains "Neutral or Potential Benefit" but must be considered on the balance that creating nesting habitat positively outweighs the negative impact of incidental take during operations. Impact of incidental take range from negligible (Williams 2010 reports estimate of 58,000 eggs or nestlings destroyed annually</p>

	<p>- How does this claim of negligible impact align with the fact that we have very poor/limited data on nesting sites in general and the use of aggregate pits in particular (see Lines 459-461)? How does this align with the fact that the causes of Bank Swallow decline are overall poorly understood (Lines 779, 1528; Table 5 Knowledge Gap Basic Research & Status Monitoring), particularly with respect to nesting colonies in human-made settings?</p>	<p>by pit operations in Canada) to Serious (31-70; in COSEWIC: Sixty-three percent of the occupied pits conducted excavation activities that directly destroyed some nesting burrows during the breeding season, amounting to a total loss of 32% of all burrows in the study area (1,762 of 5,868)). As such, we have added a paragraph in the Threat Description section to discuss incidental take in aggregate pits.</p> <p>Also, note that overall impact of activities under Threat 7.4 Removing / Reducing Human Maintenance was increased from Negligible to Low.</p>
<p>4.1 Threat Assessment</p>	<p>Lines 1321-1323: - This statement also conflicts with several points in the Strategy that emphasize the importance of aggregate pits: a) They are readily used as nest sites (see Lines 609-617, 628-634); b) reduction in Bank Swallow area of occupancy is associated with changes in the design and management of aggregate and other human-made habitats (Lines 450-453); c) nestlings at aggregate sites suffer lower predation & ectoparasitism (Lines 734-736, 744-747); and d) Table 5 (Line 1538) lists mining & quarrying in several high priority areas for recovery planning. In fact, one of the main reasons for the designation of Bank Swallows as threatened is due to the destruction of nests during aggregate excavation (page 12, COSEWIC Species Assessment Information).</p> <p>- This statement of negligibility of aggregate impacts also conflicts with the</p>	<p>The 2013 COSEWIC Report cites destruction of nests in aggregate pits as a contributing factor to the declines, "having some importance to the population", but does not cite this threat as a top threat. Please see the response to the comment above, under 4.1 Threat Assessment.</p>

	<p>fact that loss of nesting habitat is prevalent in the southern part of the species range (Lines 1554-1562), where one of the major sources of remaining nesting habitat are at aggregate sites (Ontario acknowledges [see hyperlink for details] that over half of the provincial population of the Bank Swallow occurs in aggregate pits, further emphasizing their importance for Bank Swallow recovery).</p>	
<p>4.1 Threat Assessment</p>	<p>Lines 1321-1323: Overall, the Strategy places emphasis on natural habitats; however, it also acknowledges that these habitats are compromised, perhaps irreversibly. Given the loss and degradation of natural habitats, it is important to consider the role of artificial and human-made habitats such as aggregate pits (quarries) and artificial nesting structures (Burke <i>et al.</i> 2019). Greater emphasis should be placed on these options. For example, it would be useful to clarify and make specific recommendations regarding progressive rehabilitation of aggregate sites and maintenance of appropriate grades on slopes to maintain human-made Bank Swallow habitat (Lines 1000-1016). Such practices could be implemented and encouraged by providing offsets (e.g., tax breaks) to aggregate companies/operators, in a similar manner as offsets are negotiated with</p>	<p>While permanent loss of shorelines have likely occurred throughout the Canadian breeding range, it is unknown if natural nesting habitat is limiting the recovery of Bank Swallow. We clarified that the number of <u>confirmed nesting records</u> was insufficient to fully identify the nesting and foraging components of critical habitat.</p> <p>Under the description of Threat 7.4 (fourth paragraph), we removed the statement that sandpits could be ecological traps based on the Burke 2019 study. Text was changed to: "Sandpits contribute to the regional persistence of Bank Swallows in areas where riverbanks have become unsuitable for nesting (Burke 2017, <u>2019</u>; Masoero <i>et al.</i> 2019). <u>However</u>, compared to natural nesting sites, increased mortality occurs as a result of predation or excavation (Williams 2010; Cadman and Lebrun-Southcott 2012; Calvert <i>et al.</i> 2013) and adults show poorer body condition at the end of the breeding season (Burke 2019). <u>Despite those hazards, high reproductive success in aggregate pits of southern Ontario suggests that those habitats are at least equivalent in quality to natural nesting sites (Burke 2019).</u> Overall, closure or reduced maintenance of aggregate pits reduces the availability of nesting habitat for the Bank Swallow (Lind <i>et al.</i> 2002; Heneberg 2013), but likely impacts a <u>small</u> proportion of the population."</p>

	<p>agricultural landowners/farmers to encourage best management practices.</p> <ul style="list-style-type: none"> - There should be a focus in the Strategy on the importance of human-made and artificial nesting habitat given that natural habitats are identified as insufficient to support recovery goals (Lines 191, 1690). 	
<p>Recovery Feasibility Summary</p>	<p>Lines 225-233: - This refers to sufficient habitat in natural settings only. There is no consideration of human-made habitat here. While important for Bank Swallows (see Lines 1745-1749), the suitability of human-made sites has declined due to changes in quarry operation & management (Lines 448-453), and other sections of the Strategy discuss the importance of working with aggregate operators to promote best management practices for Bank Swallows, e.g. Line 1538: Table 5. Recovery Planning Table. “Awareness raising” Item 3.2 Mining & quarrying, promote habitat stewardship and compliance to SARA, MBCA and its regulations. “Broad strategy” 3.2 Mining & quarrying (high importance – again, how does this align with the claim that impacts are negligible?; Lines 1321-1323).</p> <ul style="list-style-type: none"> - Table 5 5.2: tapering bank slope outside of nesting season seems to directly conflict with the ECCC recommendation 2 to increase slope above 70 degrees 	<p>While limited information is available, it is unlikely that natural nesting habitat is limiting the recovery of Bank Swallow.</p> <p>Recovery must be based on a return to the natural condition of the species. A return to this natural condition can be supported by human intervention, such as better adherence of aggregate pit owners to legislation and to beneficial practices, however recovery cannot be based on long-term, direct human intervention, such as maintaining nesting habitat. For additional details, please see the response to the comment above, under 7.0 Critical Habitat.</p>

	<p>outside of nesting. This should be clarified.</p> <ul style="list-style-type: none"> - 10.3 Alliance and partnership development (mining & quarrying – develop appropriate stewardship, mitigation, voluntary measures, other appropriate measures to protect occupied nests in human-made habitat) – we feel greater emphasis could be placed on these items to promote Bank Swallow recovery. - All of the above points indicate the importance of human-made habitats, particularly aggregate sites like quarries and sandpits, and it is unclear why these are not considered critical habitat or included more specifically in the Strategy as part of the Bank Swallow recovery plan. 	
<p>Recovery Feasibility Summary</p>	<p>Line 272-274: “When alternative natural habitat cannot be created to offset habitat loss from development, surrogate nesting structures might be considered while ensuring that foraging habitat is available.”</p> <ul style="list-style-type: none"> - Why not recommend or propose that inactive quarries/aggregate sites be preserved, protected and maintained as habitat? Such sites could also potentially be converted into ecotourism and natural heritage features (e.g. renaturalized parks with educational signage about Bank Swallows and other wildlife), and 	<p>We welcome this recommendation, but most aggregate pits are located on private lands and rehabilitation of those sites is mandated by provincial human safety regulations.</p>

	<p>could potentially serve as a model to be implemented more broadly throughout Canada. Conserving lands occupied by quarries/aggregate sites could be incorporated into Canada's goal to conserve 30% of the nation's land by 2030.</p>	
4.1 Threat Assessment	<p>Lines 1301-1302: "The ongoing rehabilitation of smaller aggregate pits reduces the availability of nesting sites." - This reflects a major source of nest site loss (e.g. see Lines 448-453) throughout southern Ontario and human-made habitat at aggregate sites should be considered as critical habitat in the Strategy.</p>	<p>Please see the response to the comment above, the <i>first</i> of the two responses under Recovery Feasibility Summary.</p>
4.1 Threat Assessment	<p>Line 1307: "In Ontario, demand of aggregate material is expected to increase over the next 20 years based on economic and population growth (OMNR 2010). Progressive rehabilitation of aggregate sites represent a beneficial management practice that maintains nesting habitat and contribute to the regional persistence of the Bank Swallow (OMNRF 2017)." - What does "progressive rehabilitation" mean and why isn't there an emphasis on capitalizing on this option to achieve species recovery goals in the Strategy?</p>	<p>The sentence "Progressive rehabilitation of aggregate sites represent a beneficial management practice that maintains nesting habitat and contribute to the regional persistence of the Bank Swallow (OMNRF 2017)." was changed to "<u>Newly created aggregate pits that provide and maintain nesting habitat will contribute to the regional persistence of the Bank Swallow.</u>"</p>

<p>4.1 Threat Assessment</p>	<p>Lines 1000-1016: This section indicates that soft-structures or non-intervention measures are optimal for erosion control in 85% of scenarios. It is unclear whether 'soft-control' measures are more compatible with preserving natural habitat for Bank Swallows, but it seems obvious that non-intervention should be best for Bank Swallows as this would preserve natural banks & erosion processes that they have evolved with, but no clear recommendations are given in this section.</p> <p>- This section should be more clearly explained and should provide clear recommendations and/or areas of action. For example, given the optimality of soft-control and non-intervention methods of erosion control, perhaps an educational campaign and directed efforts to change policy around erosion control methods should be undertaken to reduce instances of hard-control measures that may not be as effective for erosion control, that are likely more expensive, and that are also a major contributor to loss of natural habitat for Bank Swallows.</p>	<p>Recommendations are provided in section 6.2 Strategic Direction for Recovery. Current recommendations in Table 5 - 1.2 Ecosystem & Natural Process (Re)Creation align with your proposed changes.</p>
<p>4.1 Threat Assessment</p>	<p>Lines 1427-1432: - This emphasizes lack of certainty in ability to achieve the Strategy goals for recovery. Therefore, it is important to include reasonable climate change projections in the recovery strategy and employ a</p>	<p>Developing projections of the effects of climate change on the Bank Swallow population and its recovery are beyond the scope of a recovery strategy. Recovery strategies are written based on available information. As mentioned in the Recovery Feasibility Summary section, various aspects of recovery feasibility are "unknown", however the recovery strategy has been prepared</p>

	<p>reasonable effort to take the predicted impacts into consideration and implementation within the strategy.</p> <p>- Rather than settling for the excuse that it's unclear how climate change impacts will unfold, it is important to use the best available data to incorporate anticipated impacts of climate change into the Strategy. This is currently lacking but is extremely important to include.</p>	<p>with the recovery, and all underlying conservation measures, considered feasible.</p>
4.1 Threat Assessment	<p>Lines 1337-1347: - It is difficult to understand what is meant here, particularly in the bolded section. This is a really important paragraph and must be clarified.</p> <p>- This section suggests that successful recovery is contingent on documenting locally abundant Bank Swallows in natural settings; however, this ignores the fact that anthropogenic landscape modifications are extreme and pervasive, and drastically reduce the potential to achieve this goal. It also seems unrealistic to expect species recovery to be reflective of pre-colonization conditions, and therefore it is recommended to consider a modern, adaptive recovery strategy that considers alternative (i.e. artificial and human-made habitats) as part of a successful recovery.</p>	<p>The recovery strategy sets a recovery goal (long-term objective) that accounts for the likely role of human-made habitat in inflating the population size and area of occupancy (locations of breeding colonies within the breeding range; see section 3.2 Species Population and Distribution); the permanent loss of foraging and natural nesting habitats; the multiple threats to the species with unknown population effects; and the feasibility of mitigating threats. The introduction statement in section 5.0 Population and Distribution Objective indicates that the recovery goal targets population stability (i.e. by eliminating or mitigating the causes of declines). In achieving this population trend stability, population size will likely remain well below numbers that prevailed during the mid-20th century (before the 93% decline that occurred between 1970 and 2019). The Bank Swallow population size in Canada remains around 2.4-3.4 million individuals. Assuming a 50-50 distribution between natural and human-made nesting habitat, a stable population of 1.2-1.7 million individuals would likely be considered "not at risk" from a COSEWIC assessment standpoint. Existing legal protection of individuals and nests, as well as beneficial management practices, that support nesting opportunities in human-made nesting habitat are expected to continue supporting regional persistence and national recovery, while stronger measures are put in place (e.g. through critical habitat) to recover and protect natural nesting habitats.</p>
4.1 Threat Assessment	<p>Line 1480-1483: "Environment and Climate Change Canada published</p>	<p>You are correct that the two first bullets in the guidance document, under the "What You Can Do" section, are confusing. We have directed this comment to</p>

	<p>beneficial practices for sandpit and quarry owners on reducing disturbance to Bank Swallow colonies”</p> <ul style="list-style-type: none">- Bullet 1 suggests operators discourage Bank Swallows by reducing slope of piles below the 70 degrees required for Bank Swallows to use them for nesting. However bullet 2 appears to completely conflict with the above recommendation, as it recommends increasing the slope above 70 degrees to encourage nesting, but only outside the breeding period! Bullet 3 is again somewhat conflicting as it then recommends installing deterrents to prevent Bank Swallows from becoming established in active areas. Bullets 1 and 2 should be clarified to indicate whether they refer to active or inactive areas, with consistent language used throughout all 3 points, and Bullet 2 should also be reworded so that it makes sense.- While we acknowledge that the above information is not part of the proposed Strategy itself, it is referred to as a point of progress towards meeting the requirements of the Strategy. These statements on the ECCC site are confusing, illogical, difficult to understand, and in apparent conflict. This document should be carefully re-worded to make the guidelines very clear for aggregate operators/owners.	<p>the relevant ECCC team with the following recommended change to the second bullet with underlined text added: "<u>In areas where operations will not be carried out during the breeding season, create suitable nesting habitat with vertical faces of at least 70 degrees that will remain available for the Bank Swallow throughout the breeding season.</u>"</p> <p>The underlined text clarifies the measures that should be taken by aggregate pit owners before the breeding season, and provide a coherent message that aligns with the first and third bullets. The intended recommendation is for pit owners deter Bank Swallows from establishing colonies in areas where operations will be carried out, while creating nesting habitat in areas where operations will not be carried out. The last underlined phrase further clarifies that the nesting habitat must remain available for Bank Swallows even if they do not end up establishing a colony, so this area should be avoided by operations through the breeding season.</p>
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