Survey of Bruce Peninsula residents on breeding swallows and swifts

by

Stéphane Menu, Ph.D.
Cabot Head Research Station
Bruce Peninsula - Ontario
stefmenu@gmail.com

prepared
for

BRUCE PENINSULA BIRD OBSERVATORY

March, 2016

Background

Bruce Peninsula Bird Observatory is an independent, non-profit organization devoted to conservation, education and research related to birds and the environment. Our primary program is to operate the migration monitoring program (part of the Canadian Migration Monitoring Network) at Cabot Head Provincial Nature Reserve. As "the voice for the birds on the Bruce", we undertake a variety of outreach and research/citizen science initiatives.

The purpose of this survey is to determine actual and historic (last 10 years) distribution, and abundance of breeding Barn Swallow, Cliff Swallow, Tree Swallow, Purple Martin and Chimney Swift populations on the Bruce Peninsula. All of these species use human structures (barns, the eaves and walls of houses, nest boxes, or chimneys) for building their nests, some or most of the time.

There has been a noted decline of swallows and swifts in other parts of Ontario in the last couple decades. We, at BPBO, would like to get a better understanding of local and regional trends, most notably on the northern Bruce Peninsula. A paper and online survey of Bruce Peninsula landowners was performed in November 2015. The information gathered in this survey will help in determining if future stewardship efforts are required in this ecologically unique region of Ontario.

Methods

A survey (both on paper and online) on current and historical breeding swallows, martins, and swifts was distributed across the northern Bruce Peninsula in November 2015 (see Appendix 1 for the paper survey). One hundred paper surveys were distributed to mailboxes on the Bruce Peninsula. The online survey link was sent to various organizations on the Bruce Peninsula (e.g. Bruce Peninsula Environment Group, Ontario Farmers Organization) for distribution through email to their members. Further publicity was done through a piece in the "Peninsula Press" and by putting up about 40 posters in the study area (on notice boards, grocery stores, post offices and banks, etc.).

Survey participation rate and completion

There were a total of 44 respondents: 15 people responded to paper surveys and 29 to online surveys representing a 15% return rate for the paper survey. With the online distribution system, it is not possible to assess how many people received the link. Of the 44 respondents, two paper surveys and 10 online surveys were rejected as all or most questions were left unanswered. A further three paper surveys and eight online surveys were of very limited value, given that only a few relevant questions were answered. Thus, there were only a total of 21 fully completed surveys (10 from paper survey and 11 from online survey). Where appropriate, we included answers from the 11 partially completed surveys in our reported results. Answers to individual questions range from 18 to 39.

Results

Birds

Current breeding of swallows and swifts

From 32 usable answers, a little more than half the properties (*n* = 17) reported still having breeding Barn and/or Tree swallows (for one location reporting breeding, the question about species was skipped)(Fig.1). This further suggests that for the 32 properties across the northern Bruce Peninsula for which a resident responded, breeding Cliff Swallows, Purple Martins, or Chimney Swifts were absent or could not be identified by the respondents. However, a respondent reported a breeding Cliff Swallow colony on a building (a general store) some distance from their property.

There were a total of 10 properties with Barn Swallow nests: two reported a single nest for this species, whereas there were multiple nests in the other eight properties. Tree Swallows nests were present on seven properties, with almost half as a single nest, and the rest as multiple nests (Fig.2).

Of the 17 properties with current breeding swallows, three properties reported that both species of swallow were present as breeders.

There were a total of seven properties with breeding Barn Swallows with information on nest numbers. There was one location reporting a single nest, while the others reported from two to 15 nests. Across the seven properties, there were a total of 55-58 Barn Swallows nests reported (one report gave a range of 1 – 3 nests). Distribution of nest numbers shows either just a few nests (1, 2, or 1 – 3) or a small colony (10, 12, 14, or 15 nests).

Information on Tree Swallows nest numbers came from three locations, sharing the property with Barn Swallows in 2 of them. Numbers of nests reported were one, two, and six nests.

As expected, all barn swallow nests were reported as being located on a human structure: barns on 8 properties and houses on 3 properties. Tree Swallow nests were reported as being in either nesting boxes on 5 properties or in natural locations on 3 properties.

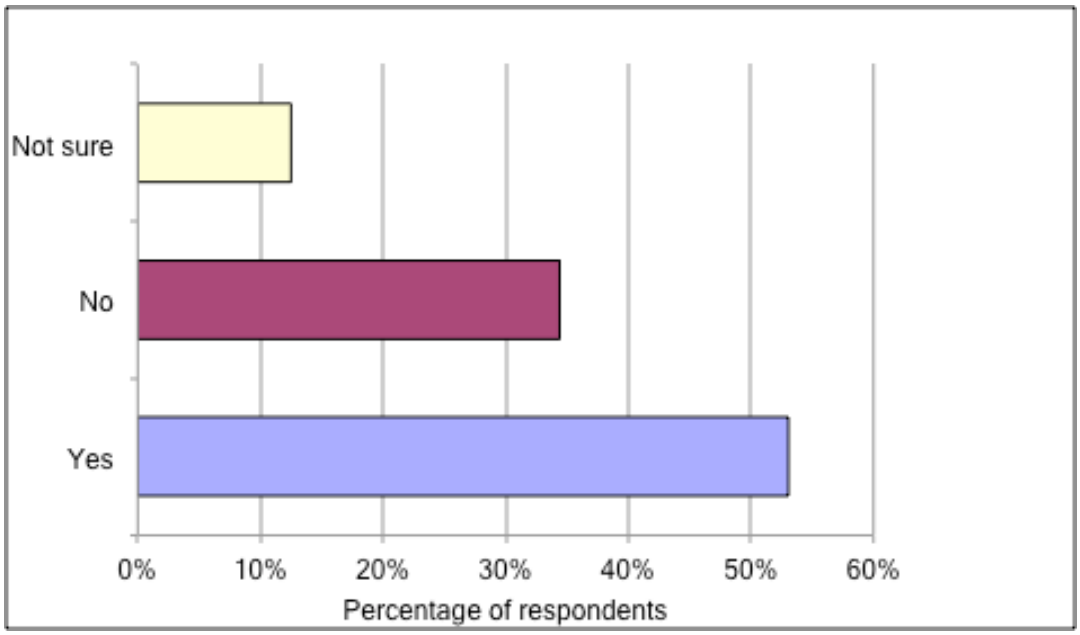


Fig.1. Respondent answers to the question: "I currently have at least one of the species of interest nesting on my property". (Number of responses: *n* = 32)

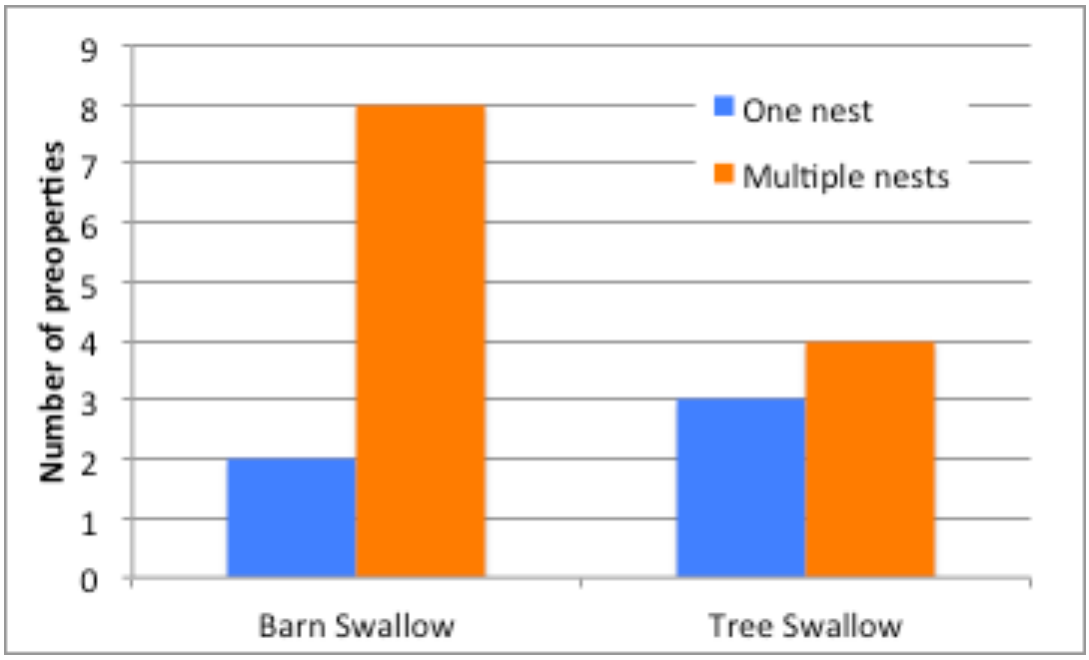


Fig.2. Species and numbers of nests currently nesting on respondents' property. (*n* = 17)

Historical breeding

Overall

A total of 28 respondents answered about the population changes on their property (Fig.3). The vast majority (*n* = 17 or 61%) of answers indicate a decline over the last 10 years across all species. Some respondents (*n* = 5) indicated no change in population but only 3 respondents described an increase in the numbers of Tree and/or Barn Swallows at their property. About 18% of the respondents (5 out of 28) were not sure about the changes in population of swallows and swifts on their property. Two respondents indicated different trends for different species: for example, increasing Tree and Barn Swallows while Cliff Swallows were decreasing.

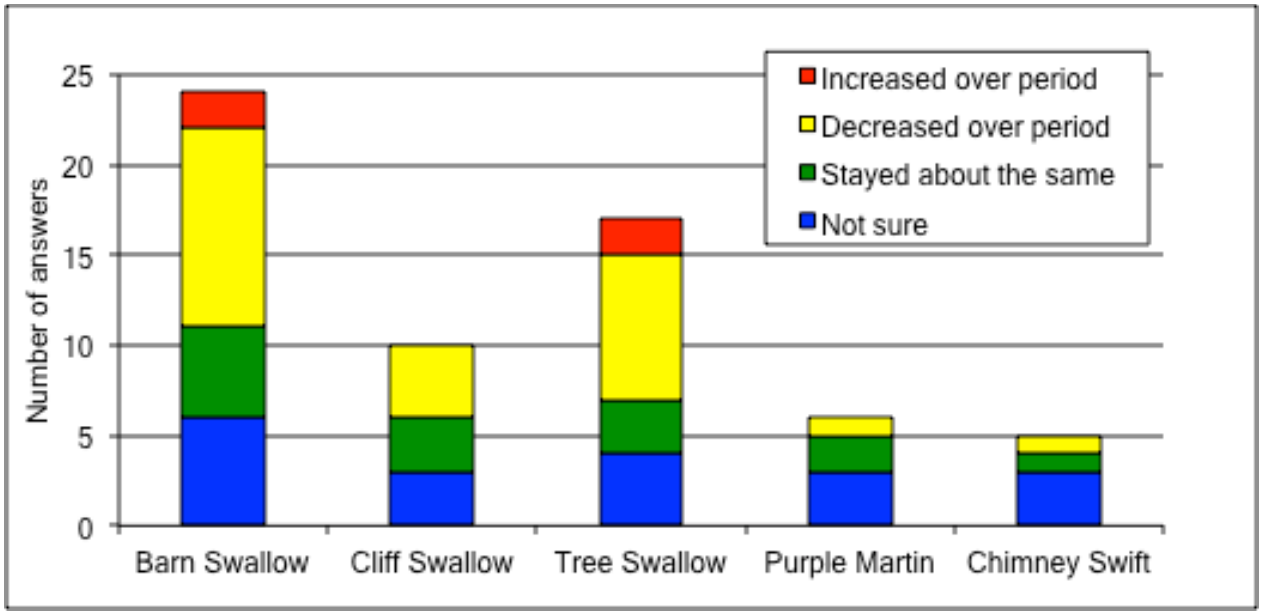


Fig.3. Respondent answers to the question: "If you can, tell us how different species' populations have changed over the last 10 years on your property" (*n* = 28).

Observation of historical breeding

A total of 14 respondents answered the question about which species used to, but no longer, nest on their property. Of the respondents, only one respondent did not lose species at their property, in that case, Barn Swallow. One or more species of swallows had disappeared from the other 13 properties. Specifically, Barn Swallows disappeared from seven properties, Cliff Swallows from six properties, and Tree Swallows from two property. Three properties reported losing more than one species: one lost Barn and Cliff Swallows but still has Tree Swallows breeding; and one lost Barn and Tree Swallows and no longer has any species breeding; one indicated the loss of Cliff and Tree Swallows.

Of the 13 properties having lost breeding swallow species, seven still have at least one breeding species of swallow.

One respondent listed Purple Martin but none listed Chimney Swifts as species having stopped breeding on their property. At the same time, no respondents also listed these species as currently having bred on their properties.

The decline of swallow population seems to have been gradual as respondents list the time of last breeding from as early as the previous year to over 10 years ago (Fig.4).

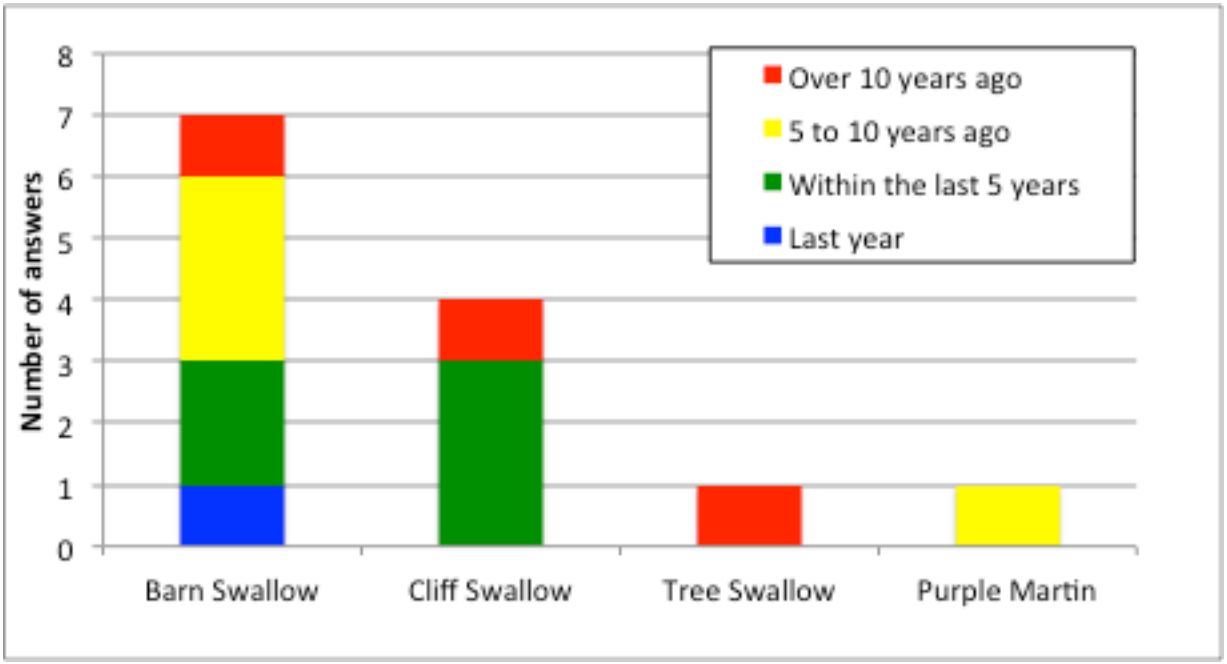


Fig.4. Respondent answers to the question: "For the species that used to, but no longer do, tell us when you believe they stopped breeding on your property" (n = 16).

As expected, past breeding was done mostly in "colonies", that is, multiple nests or pairs were reported for species that used to breed on the properties. Only on a few occasions, single nests were reported.

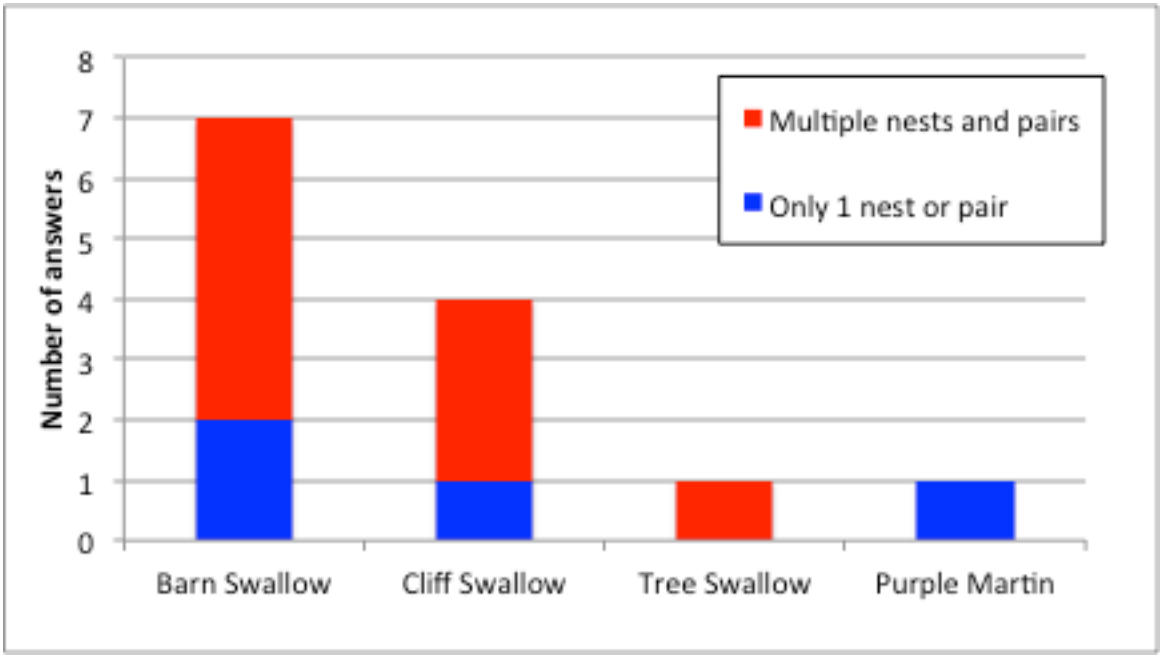


Fig.5. Respondent answers to the question: "For species that used to, but no longer do, tell us the highest number of nests for each species" (*n* = 20).

Participants were asked about the number of nests of species breeding currently or historically on their property. However, there was no question attempting to quantify the population changes of the current breeders. Only a qualification of change was asked, through decrease, increase, or stay the same. However, one respondent indicated for Q22 that 12 – 15 nests of Barn Swallows used to be at the property. Although this question was aimed at species no longer breeding at a given property, this respondent also indicated that there was one Barn Swallow nest still being occupied on their property. It seems to indicate that this species is indeed still breeding at this particular location, albeit in much reduced numbers compared to previously.

People

Characteristics of participants

Residency: Of the 35 answers to the residency question, the majority of respondents declared having been living in Bruce County for a long time, at least for more than 10 years, and some for longer than 20 years (15 – or 43% - of respondents)(Fig.6). Likewise, most respondents have lived for quite some time at their current address, with about half of them having lived there at least 10 years. However, some respondents were fairly new to their current location: eight (i.e. 25%) respondents have lived less than 5 years at their current location (Fig.7).

Age: Most respondents were over 60 years old, with a majority of them being 61 to 70 years old (Fig.8).

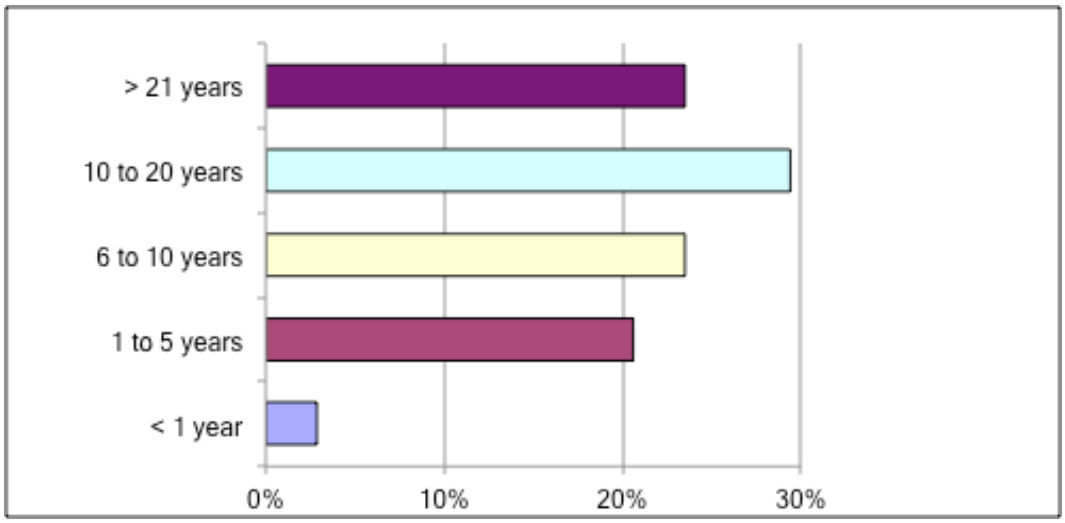


Fig.6. Respondent answers to the question: "How long have you lived at your current address?" (*n* = 36).

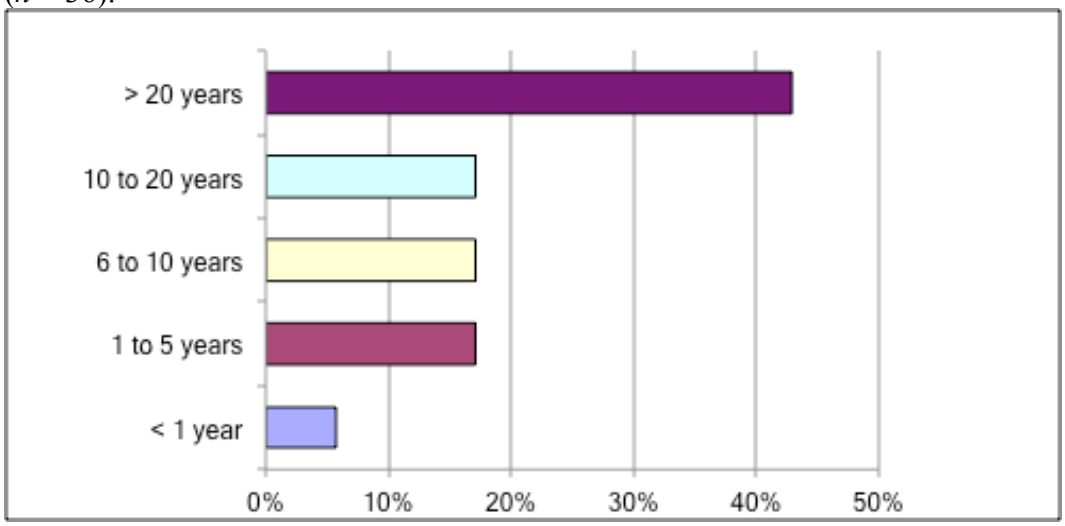


Fig.7. Respondent answers to the question: "How long have you lived in Bruce County?" (*n* = 36).

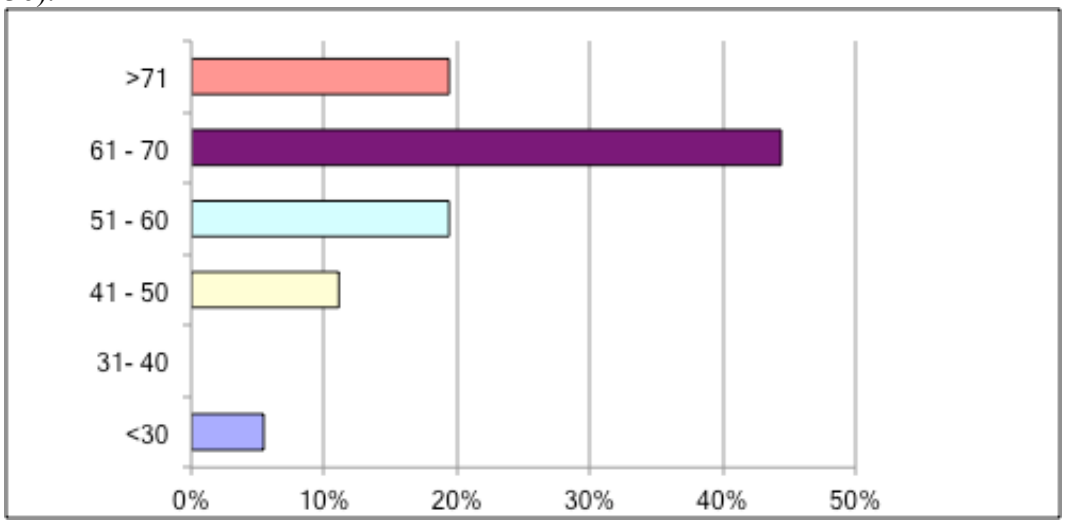


Fig.8. Respondent answers to the question: "What is your age?" (*n* = 36).

Actions and attitudes

Observations of swallows (Questions 11 to 17):

Most people with swallows on their property pay attention to the birds, either casually or more intensively (Fig.9). For example, a vast majority of respondents note the return of the first swallows in spring (Fig.10). However, most never note the date when they leave in the fall (Fig.11). It seems that most people keep their observation for themselves, as 17 of 23 respondents (i.e. 78%) never report them to anyone (and an additional 22 skipped this question).

A small majority of respondents prefer not to disturb the nesting process, as they never look for young in nests (Fig.12). The few who check nests look mostly to see if young have left the nest or if breeding was a success or failure (Fig.13).

Report of observations to others: no one reports through eBird or Bird Studies Canada.

Actions and interests toward swallows (Questions 24 to 29):

14 of the 27 respondents (52%) reported having done something to encourage swallows to breed on their property (Fig.14). This question was skipped 16 respondents. The main actions undertaken were to avoid disturbing them during breeding and to install nest boxes (Fig.15): 10 respondents indicated that they have nest boxes.

Responses regarding the value of swallows to their property were positive, with 13 respondents indicating enjoying having them around (a total of 22 respondents skipped the question). 13 respondents also pointed the swallow role as bug eaters (multiple answers were given to this question). Only one answer was negative, with the respondent saying that they were a nuisance, “flying at you all the time”.

Respondents were overwhelmingly interested in working with BPBO to help these birds recover (Fig.16), with only 4 out of 27 respondents (15%) not wanting to. A total of 23 respondents indicated needing and/or willing to provide some sort of help: 14 (44%) were interested in the reasons why these species were declining and in what they could do for specific species. Eight (25%) respondents indicated a willingness to get involved in monitoring these species and/or attend an information session.

Respondents indicated a strong interest in learning more about BPBO and its programs, as 6 of the 31 respondents to this question decline further information (Fig.17).

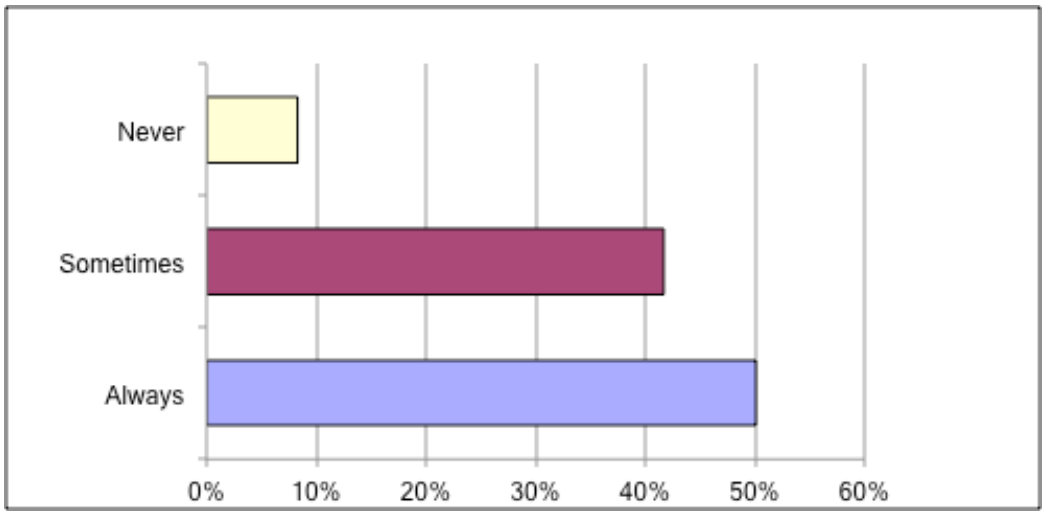


Fig.9. Respondent answers to the question: "Do you keep an eye on the birds while they're around your property?" (*n* = 24).

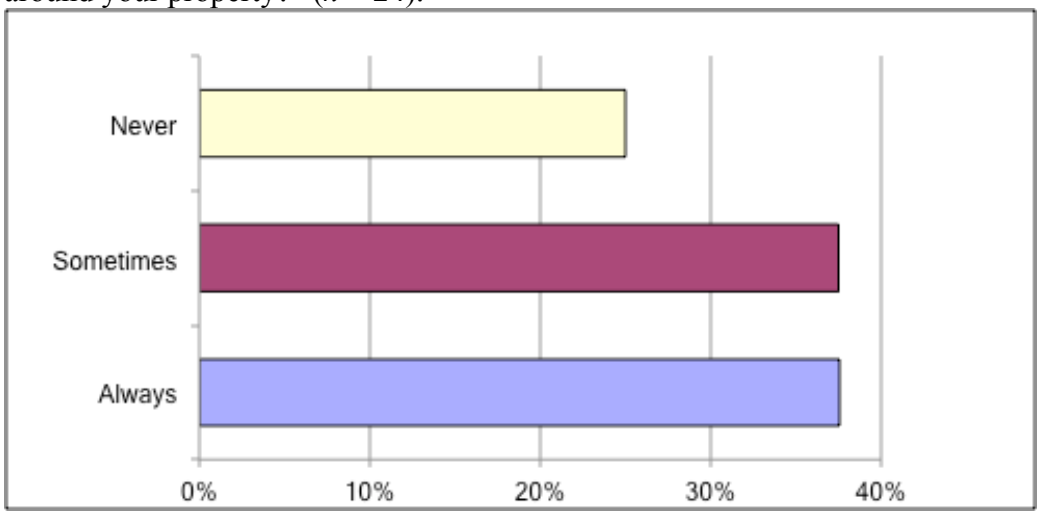


Fig.10. Respondent answers to the question: "Do you note the return of the first swallow/swift in the spring?" (*n* = 24).

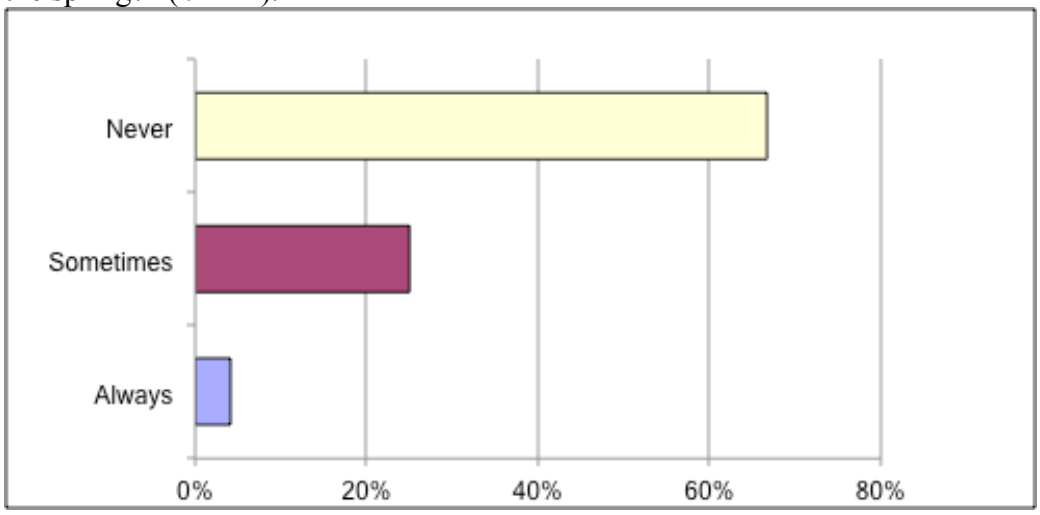


Fig.11. Respondent answers to the question: "Do you note the date(s) when they left in the fall?" (*n* = 24).

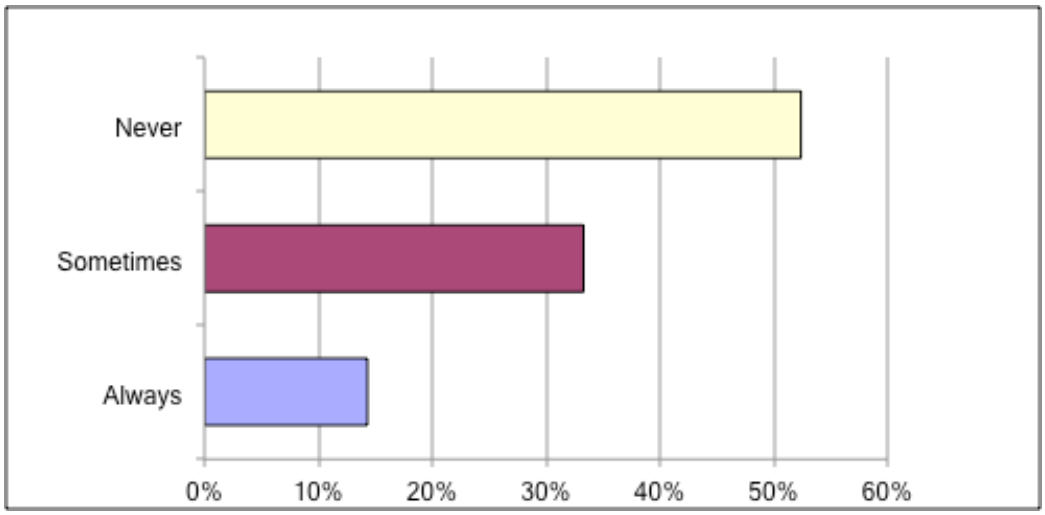


Fig.12. Respondent answers to the question: "Do you look for young in the nests?" (*n* = 21).

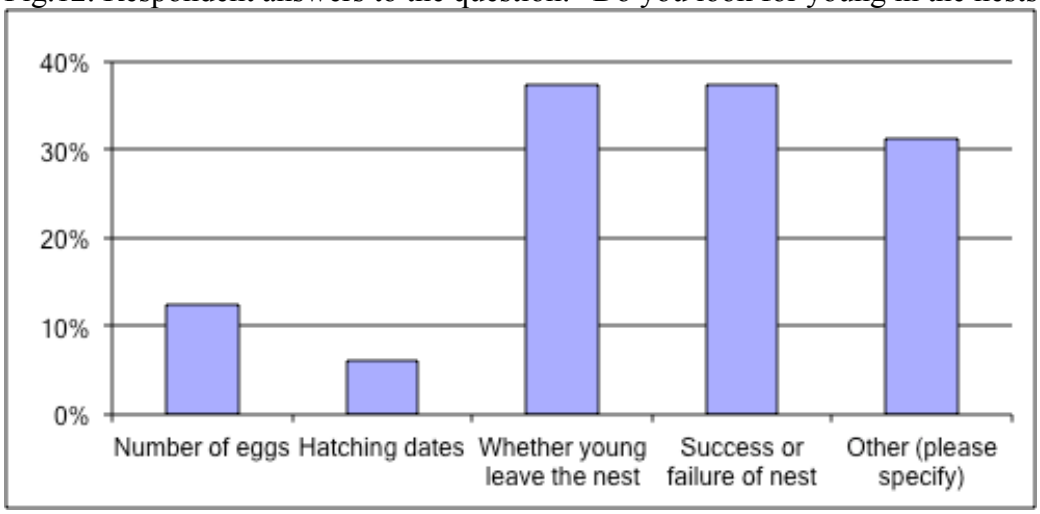


Fig.13. Respondent answers to the question: "If you do check nests, what information do you keep track of?" (*n* = 16).

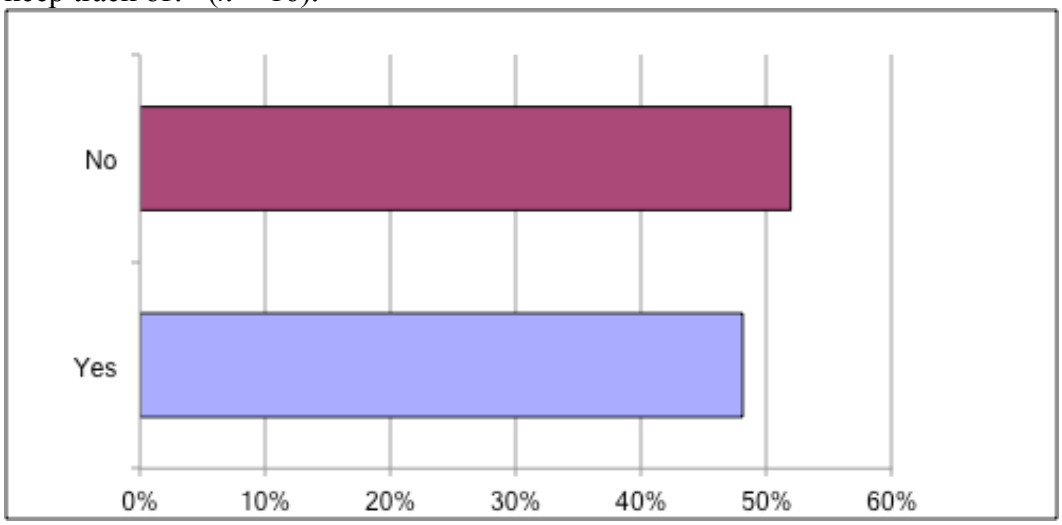


Fig.14. Respondent answers to the question: "Do you do anything to encourage any of these species to breed on your property?" (*n* = 27).

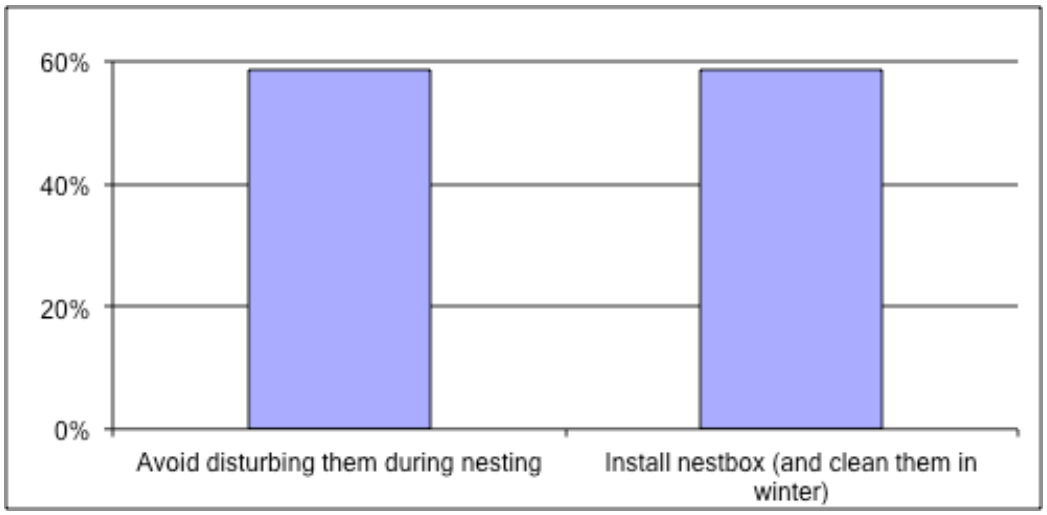


Fig.15. Respondent answers to the question: "If yes, what do you do?" (*n* = 17).

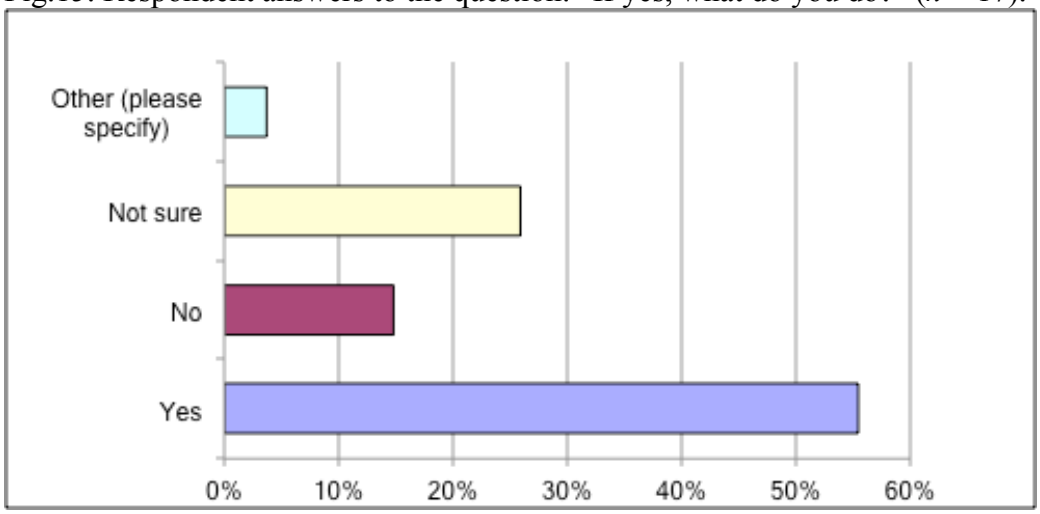


Fig.16. Respondent answers to the question: "Would you be interested in working with us to help these birds recover?" (*n* = 27).

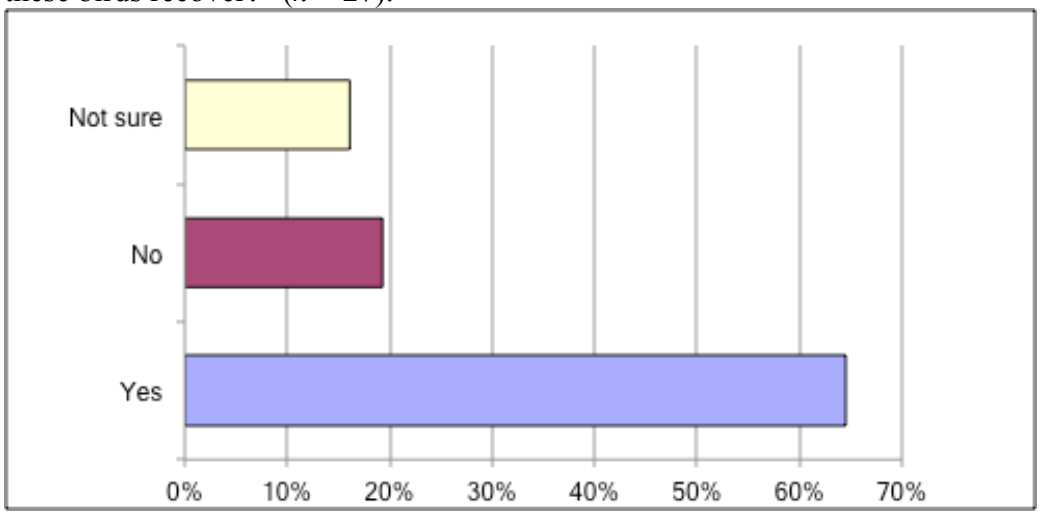


Fig.17. Respondent answers to the question: "Are you interested in receiving more information about what BPBO is doing for birds on the Bruce Peninsula?" (*n* = 31).

Discussion

The survey designed and conducted by Bruce Peninsula Bird Observatory provided a detailed, local view on current and historical breeding populations of swallows and swifts on the Bruce Peninsula. This project can be described as a "citizen science" project, with citizen science defined as "scientific work undertaken by members of the general public, often in collaboration with or under the direction of professional scientists and scientific institutions". As such, there are advantages and limitations.

Specifically, for our survey, there were many skipped questions by a large number of respondents. We may consider fewer but more targeted questions for future surveys. The timing of the survey delivery needs to be considered as well. Due to funding, the survey was done in late fall, at a time when swallows are gone. It might have deterred some persons from answering. Also, a few personal visits to landowners at the time of the survey distribution might have improved the return rate. In small, rural communities, word-of-mouth and personal interactions may greatly influence people. There was a higher ratio of usable surveys from paper survey compared to online survey, but a smaller absolute number. We should potentially increase the paper survey effort next time.

It would be worthwhile to send a follow-up survey to the landowners who responded the present survey to refine the information already collected. The follow-up survey should probably be sent in late spring, when swallows have already returned to the Bruce Peninsula and have started building nests and are breeding. It would likely encourage people to respond to the new survey. At this time of year, personal visits could possibly be arranged for formal interviews and ground-truthing.

A copy of the present report will be sent to all people involved in survey. A number of respondents indicated an interest in BPBO and its actions: it is suggested to keep them involved through various means, like having them on BPBO electronic newsletter list and sending email notifications when the first swallows are observed at Cabot Head research Station.

Conclusion

Our survey of landowners on the middle to upper Bruce Peninsula regarding trends on breeding swallows and swifts, despite its limitation (sample size, timing and distribution of the survey), has given a valuable picture of the current and past situation of breeding swallows and swifts. It appears that populations of breeding swallows and swifts have declined throughout the Bruce Peninsula over the last 10 years, as it is the case for other areas in Ontario. Based on survey responses, only two breeding species remain, Barn and Tree Swallows on the respondents' properties. These two species breed almost exclusively on human structures (mostly barns and nest boxes, respectively) and usually with multiple nests.

Among respondents who answered this series of questions, most properties lost at least one species of breeding swallows. However, only a small numbers of these properties no longer have any breeding swallow species. Barn and Cliff Swallows were the species reported to have declined the most, disappearing from many properties, while Tree Swallows disappeared from

just two properties. It is worth noting that Cliff Swallows were reported as a historic breeder on some properties but this species was reported as no longer breeding on any of the properties.

Some species, like Purple Martin and Chimney Swift, seem to have declined drastically, being absent even in memories as past breeders. None of these two species were reported currently breeding in the properties surveyed.

Breeding birds were surveyed intensively in Ontario for the Ontario Breeding Bird Atlas from 2001 to 2005. Results provided a province-wide view on breeding populations of all bird species, at a 10X10km square level in the southern part of Ontario, and indicated an overall significant decline of swallows and swifts. On the Bruce Peninsula, Chimney Swifts, Purple Martins, and Cliff Swallows disappeared from some 10X10km squares compared to the previous atlas (1981-1985), whereas Barn and Tree Swallows were still present in all the atlas squares. Our survey generally mirrors the atlas results but also indicates, at a finer scale, that Barn and – to a lesser - Tree Swallows disappeared from some properties on the Bruce Peninsula.

Most people who responded to the survey look favourably to the presence of swallows on their properties, keeping an eye on them, and sometimes, helping them by providing nest boxes or avoiding disturbances. They also expressed interest in learning more about the causes of the decline and what to do to counter it. However, relatively few of them expressed a willingness to get directly involved in monitoring "their" swallows more consistently.

Acknowledgments

The author wishes to thank, first and foremost, all the people on the Bruce Peninsula who took the time to respond to the survey. The survey design was definitively a teamwork and was greatly improved with help from Ted Cheskey, Cavan Harpur, Dominique Henri (who performed an amazingly thorough review of the online survey), Gregory Mitchell, and Rod Steinacher. Annick Antaya and Valérie Tchang, BPBO volunteers, helped with the paper survey. Rod Steinacher organized the publicity and distribution of the online survey.

Appendix

Survey of landowners with swallow or Chimney Swifts nests on their property.

Bruce Peninsula Bird Observatory is an independent, non-profit organization devoted to conservation, education and research related to birds and the environment. Our primary program is to operate the migration monitoring program (part of the Canadian Migration Monitoring Network) at Cabot Head Provincial Nature Reserve. As the voice for the birds on the Bruce, we undertake a variety of outreach and research/citizen science initiatives.

The purpose of this survey is to determine actual and historic (last 10 years) distribution, and abundance of breeding Barn Swallow, Cliff Swallow, Tree Swallow, Purple Martin and Chimney Swift populations. All of these species use human structures (barns, the eaves and walls of houses, nest boxes, or chimneys) for building their nests, some or most of the time.

There has been a noted decline of swallows and swifts in other parts of Ontario in the last couple decades. We, at BPBO, would like to get a better understanding of local and regional trends, most notably on the northern Bruce Peninsula. The information you will provide as part of this survey is important for determining if future stewardship efforts are required in this ecologically unique region of Ontario.

This questionnaire should take between 15 and 30 minutes for you to do. If there are questions that are not relevant or too difficult to answer, you may skip them. Thank you in advance for sharing your valuable knowledge with us. You can also do the survey online at: https://www.surveymonkey.com/r/5HJSDRL

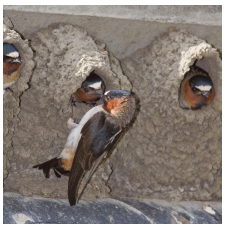
Species descriptions

Here are descriptions and images of the species of concern, to help you answer the questions in this survey.

Barn Swallow: Has long, deeply forked tail, throat is reddish-brown; underparts usually cinnamon or buffy. Nest is cup-shaped and made of mud, placed under eaves, rafters, and cross beams of barns, sheds and stables, as well as the undersides of bridges, wharfs, and culverts.


Barn Swallow (left)(from Cornell's All about Birds). Barn Swallow nest with young (right)(from Wikimedia Commons)

Cliff Swallow: Square tail, buffy rump (on back), pale reddish collar and white forehead distinguish this swallow from all other species. Nest is a gourd-shaped cylinder made of mud. Nests in colonies. Colonies may be located on cliffsides, caves, building eaves, bridges, highway culverts, dams, or large trees, and each nest is built at the juncture between a vertical wall and a horizontal overhang.



Cliff Swallows and nest (from Wikimedia Commons)

Tree Swallow: Is blue above, white below, with slightly forked tail. Nests in old woodpecker cavities of trees, often near water, or in nest boxes (same box as used by Eastern Bluebird).

Purple Martin: Largest of our swallows. Male is dark, glossy purplish blue, female and juvenile gray and brown above and below. Nests in colonies, usually in human=made apartment-like housing.

Chimney Swift: Not a swallow, even though looks like one: cigar-shaped body; short, stubby tail; brown overall. Chimney Swifts nest in cavities, like chimneys or hollowed tree trunks. Never perches, except at its nest!




From left to right: Tree Swallow; Purple Martin; Chimney Swift (from Wikimedia Commons)

Use and sharing of information from this survey and consent

Results and summaries of the information gathered in this survey on the species of concern will be presented to Environment Canada, and shared with the public, including residents of the Bruce Peninsula, through our webside at www.bpbo.ca. Any residents wishing more information or interested in stewardship can contact us directly at bpboinfo@gmail.com.

Personal information (name or addresses) collected in this survey will be kept strictly confidential and will not be shared with other organizations or individuals.

1. I consent to providing the information in this survey freely and allow the Bruce Peninsula Bird Observatory to use the information for the purposes of this project.

- Yes
- No

Personal Information

2. First and last name

3. Address

4. Email address

5. How long have you lived at your current address?
- 1 year
- 1 to 5 years
- 6 to 10 years
- 10 to 20 years
- >21 years

6. How long have you lived in Bruce County?
- < 1 year
- 1 to 5 years
- 6 to 10 years
- 10 to 20 years
- >20 years

7. What is your age?
- <30
- 31- 40
- 41 - 50
- 51 - 60
- 61 - 70
- >71

Current nesting activity on your property

The following questions require you to choose the best answer by ticking the appropriate box. In some cases you can tick more than one box per question

8. I currently have at least one of the species of interest nesting on my property
- Yes
- No

9. Species and number of swallows and swifts currently nesting on your property
(SKIP THIS QUESTION IF NONE OF THESE BIRDS CURRENTLY NESTS ON YOUR PROPERTY)

Species	One nest	Many nests (give your best estimate)	Probably nesting (but not sure)	Not nesting currently
Barn Swallow				
Cliff Swallow				
Tree Swallow				
Purple Martin				
Chimney Swift				

10. Where are they nesting on your property?
(SKIP THIS QUESTION IF NONE OF THESE BIRDS CURRENTLY NESTS ON YOUR PROPERTY)

Species	On or in barn or shed	On house	In nesting box	In chimney	Natural location (e.g. in forest)	Not sure
Barn Swallow						

Cliff Swallow						
Tree Swallow						
Purple Martin						
Chimney Swift						

Keeping track of the birds on your property

Check the most appropriate answer for the following questions.

11. Do you keep an eye on the birds while they're around your property?
- Always
- Sometimes
- Never

12. Do you note the return of the first swallow/swift in the spring?
- Always
- Sometimes
- Never

13. Do you note the date(s) when they left in the fall?
- Always
- Sometimes
- Never

14. Do your report your observations to anyone?
- Always
- Sometimes
- Never

15. Do you look for young in the nests?
- Always
- Sometimes
- Never

16. If you do check nests, what information do you keep track of? (You can select multiple answers).
- Number of eggs
- Hatching dates
- Whether young leave the nest
- Success or failure of nest
- Other (please specify)

17. If you do report your observations, how do you report them? (You can select multiple answers).
- eBird
- Send report to Bird Studies Canada
- Other (please specify)

Population changes over time
For questions 18, 20, 21 and 22, select one answer per row.
18. If you can, tell us how different species' populations have changed over the last 10 years on your property.

Species	Increased over period	Decreased over period	Stayed about the same	Not sure

Barn Swallow				
Cliff Swallow				
Tree Swallow				
Purple Martin				
Chimney Swift				

19. Which of the following species used to, but no longer nest on your property based on your recollections?

- Barn Swallow
- Cliff Swallow
- Tree Swallow
- Purple Martin
- Chimney Swift

20. For the species that used to, but no longer breed on your property, tell us when you believe they stopped breeding on your property.

Species	Last year	Within the last 5 years	5 to 10 years ago	Over 10 years ago	Not sure
Barn Swallow					
Cliff Swallow					
Tree Swallow					
Purple Martin					
Chimney Swift					

21. For the species that used to, but no longer breed on your property, tell us where these birds used to build their nests?

Species	On or in barn or shed	On house	In nesting box	In chimney	Natural location (e.g. in forest)	Not sure
Barn Swallow						
Cliff Swallow						
Tree Swallow						
Purple Martin						
Chimney Swift						

22. For species that used to, but no longer breed on your property, tell us the highest number of nests or pairs for each species on your property

Species	Only 1 nest or pair	Multiple nests and pairs	Not sure
Barn Swallow			
Cliff Swallow			
Tree Swallow			

Purple Martin			
Chimney Swift			

23. Any thoughts about why some species may have stopped breeding on your property?

Looking towards the future

24. Do you do anything to encourage any of these species to breed on your property?
- Yes
- No

25. If yes, tell us what you do
- Avoid disturbing them during nesting
- Install nestbox (and clean them in winter)
- Other (please specify)

26. In a few words, what do swallows/swifts bring to your property and yourself?

27. Would you be interested in working with us to help these birds recover?
- Yes
- No
- Not sure
- Other (please specify)

28. What sort of help would you like to have or provide?
- Knowledge of why they are declining
- Knowledge of what I can do for specific species
- Materials for habitat improvements
- I would like to get involved in monitoring these species
- I would like to attend an information session on these species
- Other (please specify)

29. Are you interested in receiving more information about what BPBO is doing for birds on the Bruce Peninsula?
- Yes
- No
- Not sure

Thank you so much for taking the time to complete this survey. Your knowledge and information will help us all understand what is happening to the populations of our swallows and swifts, and help us recover their populations.

Do you take pictures of these birds or their nests? We would be delighted to see your pictures of the nests, nesting locations or birds. If you wish to share any with us, please do! Contact us at bpboinfo@gmail.com.

Many thanks!

Ted Cheskey
President
Bruce Peninsula Bird Observatory