Chimney Swift Conservation Program

Maryland Bird Conservation Partnership

A Community Science Program of the Maryland Bird Conservation Partnership

to benefit *Species of Greatest Conservation Need*

Contents

Contact us at: swifts@marylandbirds.org

Updated 9/1/2021

Cover photo: Michael Veltri

Overview

There are 143 Species of Greatest Conservation Need defined in Maryland's *State Wildlife Action Plan* (SWAP).[1] Several of these species readily take to artificial (man-made) nesting structures ("habitat"). Programs to build, install, and monitor nesting structures exist across the country and even around the world. Maryland has a few established nest box programs, but to date there has been no effort that provides a central point of coordination and support to tie these programs together. The Maryland Bird Conservation Partnership is working with partners throughout the state to launch such an effort. To have a successful state-wide initiative such as this, local groups need to be engaged and participating. In Maryland, there are 15 chapters of the Maryland Ornithological Society (MOS)[2] that operate at the county level (see Appendix I). Audubon Maryland-DC has 5 local chapter, two Audubon Centers, and 6 chapter-owned sanctuaries[3] (see Appendix II). Audubon and MOS chapters are at the heart of existing nest box programs. Efforts to install Chimney Swift towers are just getting started and individuals involved in bird club chapters have expressed interest in a state-wide effort to coordinate installations and data collection. A state-wide coordination includes guidance on construction, siting, and maintenance of nesting structures, as well as a standardized monitoring program for consistency in data collection to aid analysis of productivity.

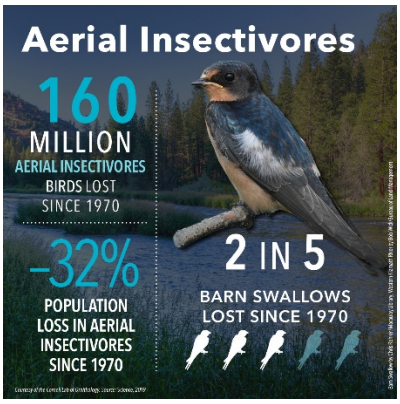
The Chimney Swift Conservation Program Recovery Goal sets the strategic direction to arrest or reverse the decline of swifts in Maryland. This includes the following objectives, which are detailed in parts 3 and 4 of this document:

1. Assess the population – distribution, abundance, trends and threats
2. Identify, protect, and restore critical habitats
3. Increase the availability of nest sites within critical habitats
4. Public awareness

For American Kestrel and Barn Owl nest box information, see our sister publication, *Maryland Farmland Raptor Program*.

[1] http://dnr.maryland.gov/wildlife/Pages/plants_wildlife/SWAP_home.aspx
[2] https://mdbirds.org/join/chapters/
[3] http://md.audubon.org/chapters-centers/marylands-centers-chapters-0

Decline of Aerial Insectivores



As a group, aerial insectivores—birds that eat flying insects—are declining rapidly. Aerial insectivores include swifts, nightjars, and swallows. As the graphic[4] at the right shows, the number of breeding adult aerial insectivores has declined 32% since 1970, a loss of 160 million birds. Barn Swallows have declined 40%, but more significantly, swifts have lost more than 19 million birds, a staggering 65% decline since 1970![5]

Aerial insectivores are extremely sensitive to environmental change. The increased effectiveness and use of agricultural insecticides such as synthetic neonicotinoids and chlorpyrifos have greatly reduced their prey base of flying insects. Neonicotinoids are also suspected in declines of native pollinators. Decreasing pesticide use, in agriculture and around the home, will benefit bees and butterflies as well as aerial insectivores.[6]

The family name for swifts, *Apodidae*, is derived from the Greek ἄπους (ápous), meaning "footless", a reference to the small, weak legs of these most aerial of birds.[7] There are four regularly occurring swift species in the United States: Black Swift (*Cypseloides niger*), Chimney Swift (*Chaetura pelagica*), Vaux's Swift (*Chaetura vauxi*), and White-throated Swift (*Aeronautes saxatalis*). Swifts are in the taxonomic Order—*Caprimulgiformes*—as nightjars and hummingbirds

Black Swift

Chimney Swift

Vaux's Swift

White-throated Swift

(Photos courtesy All About Birds, The Cornell Lab[8])

The tables below (Figure 1) shows the estimated global population sizes and trends[9] for these swift species. Since 1970, population declines range from 48% to 94% for these four swifts. At current rates of decline, Chimney Swift and Vaux's Swift will lose 50% of their remaining populations in 27 and 16 years, respectively.

[4] https://www.3billionbirds.org/
[5] http://science.sciencemag.org/cgi/content/full/science.aaw1313
[6] North American Bird Conservation Initiative, U.S. Committee. 2014. The State of the Birds 2014 Report. U.S. Department of Interior, Washington, D.C. 16 pages. See https://www.stateofthebirds.org/.
[7] https://en.wikipedia.org/wiki/Swift
[8] https://www.allaboutbirds.org/guide/browse/taxonomy/Apodidae
[9] Sources: Partners in Flight Avian Conservation Assessment Database http://pif.birdconservancy.org/ACAD/ and Populations Estimates Database http://rmbo.org/pifpopestimates/

Common Name	Global Pop Size	PS-g	BD-g	ND-g	TB-c	TN-c	PT-c	Continental Concern	Pop Change[1]	BBS half-life[2]
Chimney Swift	8,800,000	2	1	3	4	3	5	Watch List--d	-67%	27
Black Swift	210,000	4	2	2	4	3	5	Watch List--d	-94%	16
Vaux's Swift	700,000	3	2	3	3	3	4		-50%	106
White-throated Swift	1,200,000	3	2	2	2	2	4		-48%	ne

d=Prevent Decline

XX-**g** Global
XX-**c** Continental

[1] Population change from 1970-2014
[2] Projected timeframe (in years) until 50% of remaining population is lost

Scores from 1 (low) to 5 (high) vulnerability

PT-c Population Trend
TN-c Threats to Nonbreeding Habitat
TB-c Threats to Breeding Habitat
ND-g Nonbreeding Distribution
BD-g Breeding Distribution
PS-g Population Size

Figure 1. Data from the Partners in Flight Population Estimates and Avian Conservation Assessment databases.

Chimney Swifts

The Partners in Flight Population Estimates Database[10] documents a 67% population decline in Chimney Swifts from 1970-2014. The Appalachian Mountain Joint Venture and Atlantic Coast Joint Venture list the Chimney Swift as High Priority in their Priority Bird Species of Conservation Concern list. The Audubon/American Bird Conservancy Watch List puts the species on the Yellow List with the priority to reverse population declines.

Figure 2. IUCN status for Chimney Swift

The **Chimney Swift** (*Chaetura pelagica*) was added to the Red List of the International Union for Conservation of Nature and Natural Resources (IUCN) in August 2018 [11] (Figure 2).The Cornell Lab of Ornithology analyzed eBird data from 2004-2016 to develop a thorough breeding distribution map[12] but did not analyze populations trends. In recent years, the number of available chimneys (their nesting "habitat") has decreased as a result of the demolition of old buildings, the capping of old chimneys, and through chimney sweeps removing nests from chimneys during the nesting season (despite the species being protected by federal law). Even though a scarcity of chimneys may not be limiting the numbers of Chimney Swifts yet, the rate of habitat loss is increasing and possibly developing into a severe threat. As stated above, the decline of insects may contribute to fewer food resources and possibly a shifting of insect prey from their historical diet.[13]

[10] http://pif.birdconservancy.org/PopEstimates/
[11] https://www.iucnredlist.org/species/22686709/131792415
[12] https://ebird.org/science/status-and-trends/chiswi/
[13] Joseph Nocera and others. (2012). Historical pesticide applications coincided with an altered diet of aerially foraging insectivorous chimney swifts. Proc. R. Soc. B, published online http://dx.doi.org/10.1098/rspb.2012.0445

Nesting

Chimney Swifts originally nested in natural sites such as caves and hollow trees of old-growth forests. While one may occasionally find swifts nesting in these natural sites, Chimney Swifts now nest primarily in chimneys and other artificial sites with vertical surfaces and low light, including air vents, old wells, abandoned cisterns, outhouses, boathouses, garages, silos, barns, lighthouses, firewood sheds, and structures built specifically for their use. Both members of a breeding pair may fly toward several potential nest locations, then cling side by side at one particular site, with one member of the pair giving a rhythmic chipping call. Only one nest is constructed in any location, regardless of the size of the site.

The nest is a half-saucer of loosely woven twigs or pine needles, gathered in flight from the tips of standing trees by grasping with the feet. The selected matter is snapped off and transferred to the bill. In the nesting site, the material is stuck together and cemented to the inside of the vertical wall with the bird's glue-like saliva. Both parents independently contribute to the nest: they break off small twigs with their feet while flying through branches, then return to the nest site with the twigs in their bills. The completed nest measures 2–3 inches from front to back, 4 inches wide, 1 inch deep, and contains about 265 individual pieces![14]

[14] https://www.allaboutbirds.org/guide/Chimney_Swift/lifehistory; Kyle, Paul and Georgean. 2005. Chimney Swift Towers: New Habitat for America's Mysterious Birds: Texas A&M University Press. 96 pages.

Maryland Status

The *Atlas of Breeding Birds of Maryland and the District of Columbia* has been conducted two times: 1983-1987[15] and 2002-2006[16]. Chimney Swifts are found throughout the state; fewer birds are found in western Maryland and the on the Eastern Shore away from populated areas (Figure 3). The total number of atlas blocks with evidence of breeding dropped by less than 0.5%. Changes in the number of blocks where Chimney Swifts were detected were 3% or less in every atlas region except in one (Figure 3). The Upper Chesapeake atlas region showed a 14% decline in the number of blocks in which Chimney Swifts were detected. Changes in the distribution of where swifts were detected showed areas of gains and losses scattered throughout the different regions. The Eastern Shore had about 25 with gains as well as the same number of blocks with losses. It is important to note that the purpose of an atlas project is to document the distribution of species, and not the population. There is no way to determine how many nests per block existed in either atlas period.

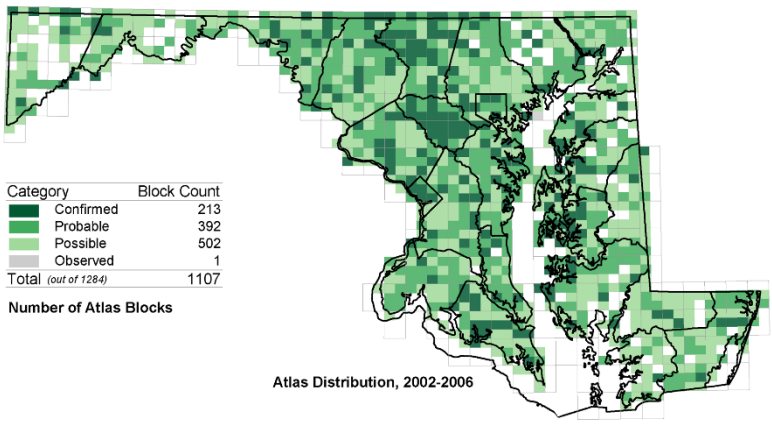
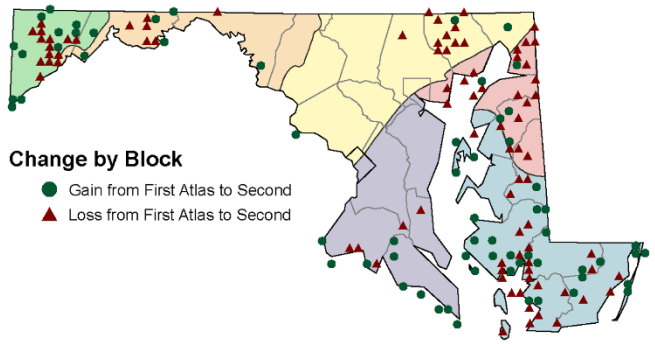


Figure 3. Distribution of Chimeny Swifts in the second Breeding Bird Atlas project.

Atlas Region	1983-1987	2002-2006	Change No.	Change %
Allegany Mountain	70	68	-2	-3%
Ridge and Valley	133	132	-1	-1%
Piedmont	311	303	-8	-3%
Upper Chesapeake	108	93	-15	-14%
Eastern Shore	267	267	0	0%
Western Shore	233	238	+5	+2%
Totals	1122	1101	-21	-2%

Change in Total Blocks between Atlases by Region

Figure 4. Change in distribution within the six atlas regions for detections of Chimney Swift between the 1st and 2nd atlas projects.



Change in Atlas Distribution, 1983-1987 to 2002-2006

Figure 5. Change in distribution of atlas blocks with detections for Chimney Swift between the 1st and 2nd atlas projects.

[15] Robbins, Chandler S, senior editor and Erik A. T. Bloom, project coordinator. 1996. Atlas of the Breeding Birds of Maryland and the District of Columbia. Pittsburgh, PA: University of Pittsburgh Press. 479pp.
[16] Ellison, W.G. 2010. Second Atlas of the Breeding Birds of Maryland and the District of Columbia. Baltimore, MD: The Johns Hopkins University Press. 520 pages.

In the Partners in Flight (PIF) *Avian Conservation Assessment Database*[17], each species is assigned scores for 6 factors, assessing largely independent aspects of vulnerability: Population Size (PS), Breeding (BD) and Non-breeding Distribution (ND), Threats for Breeding (TB) and Non-breeding (TN) seasons, and Population Trend (PT). Each score reflects the degree of vulnerability for the species (i.e., risk of significant population decline, major extirpation or extinction) due to that factor, ranging from "1" for low to "5" for high vulnerability. Scores are combined in various ways to produce an overall assessment of vulnerability, determine Watch List status and identify other categories of concern.

The PIF *Population Estimates Database* is intended to provide access to the latest USA/Canada landbird population estimates at a variety of geographic scales (global, continental, national, Bird Conservation Region, and state/province).[18] Maryland is a part of three Bird Conservation Regions[19] (BCRs):

BCR 28 - Appalachian Mountain
BCR 29 - Piedmont
BCR 30 - New England/Mid-Atlantic Coast

Chimney Swifts show a Population Trend score of 5, high vulnerability. Along with the Threats for Breeding score of 4 and a population decline of 67% between 1970 and 2014, the species is placed on the Watch List as Yellow, with the needed action of preventing further population declines (Figure 5).

The PIF BCR populations estimates for Chimney Swifts concur with the regionals data from the Breeding Bird Atlas, with 55-60% of the population in the coastal plain, 25-30% in the Piedmont, and about 10% in western Maryland.

	Maryland												
Global Pop Size	**Pop Est**	**BCR 28**	**BCR 29**	**BCR 30**	**PS-g**	**BD-g**	**ND-g**	**TB-c**	**TN-c**	**PT-c**	**Continental Concern**	**Pop Change[1]**	**BBS half-life[2]**
8,800,000	99,000	11,000	29,000	59,000	2	1	3	4	3	5	Watch List Yellow--d	-67%	27

XX-g Global
XX-c Continental

d=Prevent Decline

[1] Population change from 1970-2014
[2] Projected timeframe (in years) until 50% of remaining population is lost

Figure 6. Data from the Partners in Flight Population Estimates and Avian Conservation Assessment databases.

The *North American Breeding Bird Survey* (BBS) is a large-scale survey of North American birds. It is a roadside survey, primarily covering the continental United States and southern Canada, although survey routes have recently been initiated in Alaska and northern Mexico. The BBS was started in 1966 and now contains over 5,000 survey routes which are surveyed in June by experienced birders.

The primary objective of the BBS has been the estimation of population change for bird encountered along roadsides. However, the data have many potential uses, and investigators have used the data to address a variety of research and management objectives.

[17] http://pif.birdconservancy.org/ACAD/
[18] http://pif.birdconservancy.org/PopEstimates/
[19] http://nabci-us.org/resources/bird-conservation-regions/

Trend analysis for Maryland from 1966-2015 shows a decline of **2.19% *per year*** from 1966-2015. For the 11-year period from 2005-2015 the species declined at a higher rate of 2.78% per year.[20] The Chimney Swift population has **declined by 67%** since 1970.

		|------1966-2015------|	|------2005-2015------|	
	# routes	Trend	(95% CI)	Trend	(95% CI)	RA
Chimney Swift	71	-2.19	(-2.77, -1.62)	-2.78	(-4.82, -0.69)	17.6

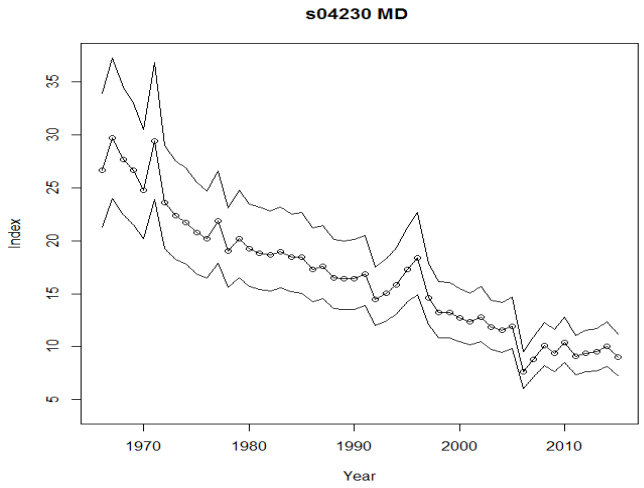


Figure 7. Trend analysis graph showing a 2.19% population decline per year in Maryland from 1966-2015. The average relative abundance (RA) during that timeframe is 17.6.

[20] https://www.mbr-pwrc.usgs.gov/cgi-bin/atlasa15.pl?MD&2&15&csrfmiddlewaretoken=3YKakk7LxT2ki6NSpl4mstudYCqdW02C

Chimney Swift Programs

National

Chimney Swift tower construction has been promoted by the *Chimney Swift Conservation Association* (CSCA).[21] Paul and Georgean Kyle, who founded and still run the CSCA, published a book on constructing swift towers, *Chimney Swift Towers: New Habitat for America's Mysterious Birds*. The book documents all materials needed and provides illustrated step-by-step instructions on the construction. We highly recommend anyone considering constructing a swift tower get this book. Their companion book, *Chimney Swifts: America's Mysterious Birds above the Fireplace*, is highly recommended for anyone interested in swifts.

Regional

Audubon Society of Western Pennsylvania began a Chimney Swift program to support swift conservation throughout the region.[22] Through a variety of partnerships, they have installed almost 150 Chimney Swift towers in Southwestern Pennsylvania. They launched a Chimney Swift Tower monitoring initiative in 2017. Contacts are Brian Shema (Operations Director) and Sarah Koenig (Conservation Director). It takes approximately 12 hours from start to finish for someone with carpentry skills. Once you do one it gets faster/easier.

Audubon North Carolina[23] has a Chimney Swift fact sheet[24] and tower construction fact sheet[25] on their web site. The tower fact sheet has "a few modifications (tried and true from the Audubon Society of Western Pennsylvania)". In North Carolina, local Audubon chapters have organized several conservation projects to protect Chimney Swifts. Wake Audubon Society in Raleigh named the Chimney Swift its Bird of the Year from 2011 to 2012[26] to raise awareness about this special bird.

The *Wisconsin Chimney Swift Working Group*[27] strives to inform Wisconsinites about Chimney Swifts and their ecological, economic, and aesthetic value, in order to inspire the appreciation and conservation of this amazing species in our state. They have established relationships with many chimney sweeps and masons. Sandra Schwab is the Working Group chair.

Northeast Ohio Chimney Swift Conservation[28] aims to make Northeastern Ohio an example of citizen action for bird conservation by building habitat and educating citizens about the importance of birds. Founder Amanda Sebrosky suggests that when you build Chimney Swift towers, at very least, increase the opening to 15 inches. If you want to go the 2nd mile, make the sides 24 inches and the height 16 feet.

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[21] http://www.chimneyswifts.org/
[22] http://www.aswp.org/pages/audubon-s-chimney-swift-tower-initiative
[23] https://nc.audubon.org/landingbirds/chimney-swift
[24] http://nc.audubon.org/sites/g/files/amh416/f/static_pages/attachments/chimney_swift_fact_sheet.pdf
[25] http://nc.audubon.org/sites/g/files/amh416/f/static_pages/attachments/chimney_swift_tower_recommendations_audubon_nc.pdf
[26] http://wakeaudubon.org/initiatives/conservation/boty/boty-2011-2012/
[27] https://www.wiswifts.org/
[28] https://www.facebook.com/chimneyswiftconservation

Chimney Swift Recovery Goal

The purpose of the Chimney Swift Conservation Program is to stabilize and begin to increase Chimney Swift populations in Maryland. The Recovery Goal sets the strategic direction to arrest or reverse these declines following the four objectives below.

Chimney Swift Recovery Objectives

1. Assessment of the population
    A. Develop and implement survey protocol for Chimney Swift sightings and reports of nesting and roosting
        i. Maintain a central database for sightings, survey results, nest site locations (chimneys, swift towers, tree cavities). Share with project partners
        ii. Create promotional products for recruiting and training citizens for reporting
        iii. Develop a vetting process for determining the validity of the reports
    B. Conduct spring and fall roost surveys
        i. Identify roost locations
        ii. Train volunteers on Swift Night Out protocols
    C. Determine recruitment, nest site fidelity, seasonal movements and natal dispersal of the regional population
        i. Band and recapture as many Chimney Swifts as possible
        ii. Utilize the most recent and relevant tracking techniques available, including Motus
        iii. Install tracking towers at strategic locations
    D. Identify the threats and limiting factors facing the regional populations
        i. Determine mortality through tracking methods

2. Identification, protection and restoration of critical habitats
    A. Identify and map chimneys used as roosts by 50+ swifts in the fall and spring
        i. Business or residential
        ii. Industrial (typically used by > 100 swifts)
    B. Conduct neighborhood assessments to determine the availability of uncapped chimneys and utilization of existing chimneys for nesting/roosting
    C. Work with chimney sweep and masonry companies to protect active nests

3. Increase availability of nest sites in critical habitats
    A. Identify areas where Chimney Swifts are present
        i. Conduct surveys outlined above
        ii. Recruit and train volunteers
    B. Distribute flyers about Chimney Swifts in areas with capped chimneys
    C. Build and install towers where lack of suitable chimneys exits

4. Public Awareness
    A. Promote the protection and conservation need of Chimney Swifts
        i. Produce and distribute various informational products to the media
        ii. Provide presentations to targeted audiences
        iii. Develop partnerships with chimney sweeps across the state
        iv. involve the public in citizen science opportunities where appropriate

Knowledge Gaps

Extensive knowledge gaps pertaining to the American Kestrel ecology in Maryland exists, including distribution, movements, abundance, recent population trends, habitat needs, and threats.

Monitoring and Data Entry

Monitoring a Chimney Swift tower is most effectively done with nest cams. These can be a type that only broadcast over Bluetooth so a smartphone or tablet can pick up the signal and view the nest. Alternately, the web streaming nest cam can connect to a computer for continuous viewing by a home computer or a nature center, which is a great education and public relations tool. If using a nest cam of some sort, an infrared camera is recommended. Off-the-shelf infrared cameras generally emit some light, which can stress the swifts. The Chimney Swift Conservation Association has developed equipment that is well-suited for monitoring swift nests or roosts.

Nesting and roosting data will be entered into NestStory. Appendix 5 shows the information that will be stored in NestStory for each swift tower. Information for chimney nest sites will be similar.

Estimated Program Costs

Table 1 below shows the cost of materials for nesting structures. The cost of materials for swift towers is generally $500-$700, depending on the style. It is recommended that every group installing swift towers has at least one copy of each book listed in Table 1.

	Estimated unit costs		
	Materials	Interpretive panels	Total
Chimney Swift tower	$1,000	$400	$1,400
Nest camera (optional)	TBD		TBD
	Book		Total
Chimney Swift Towers: New Habitat for America's Mysterious Birds[29]	$15	$0	$15
Chimney Swifts: America's Mysterious Birds above the Fireplace[29]	$15	$0	$15

Table 1. Estimated costs for a Chimney Swift tower. See Figure 4 for an interpretive panel sample. Note that materials costs have risen sharply since the start of the COVID-19 pandemic.

[29] Available from the Maryland Bird Conservation Partnership, https://marylandbirds.org/chimney-swift-books

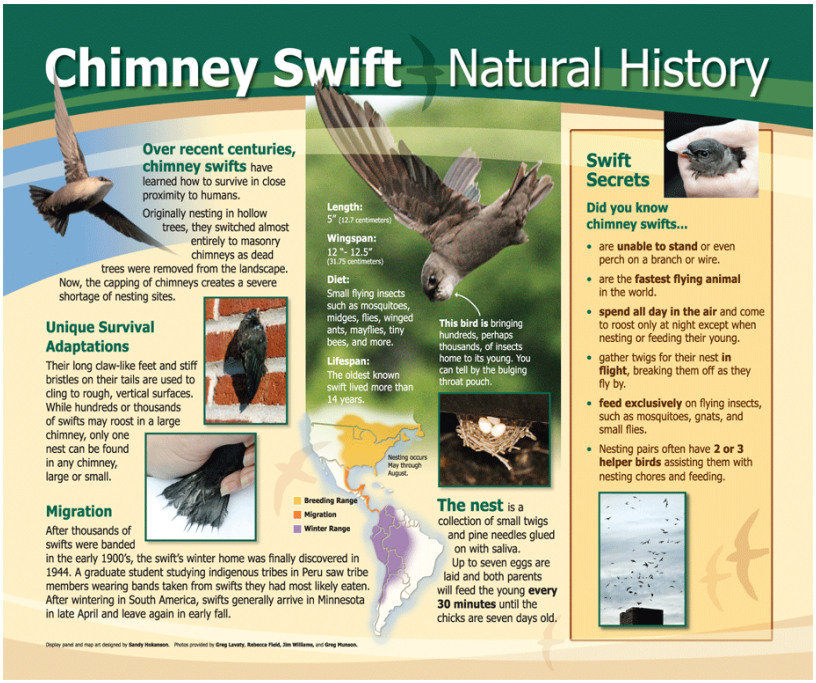


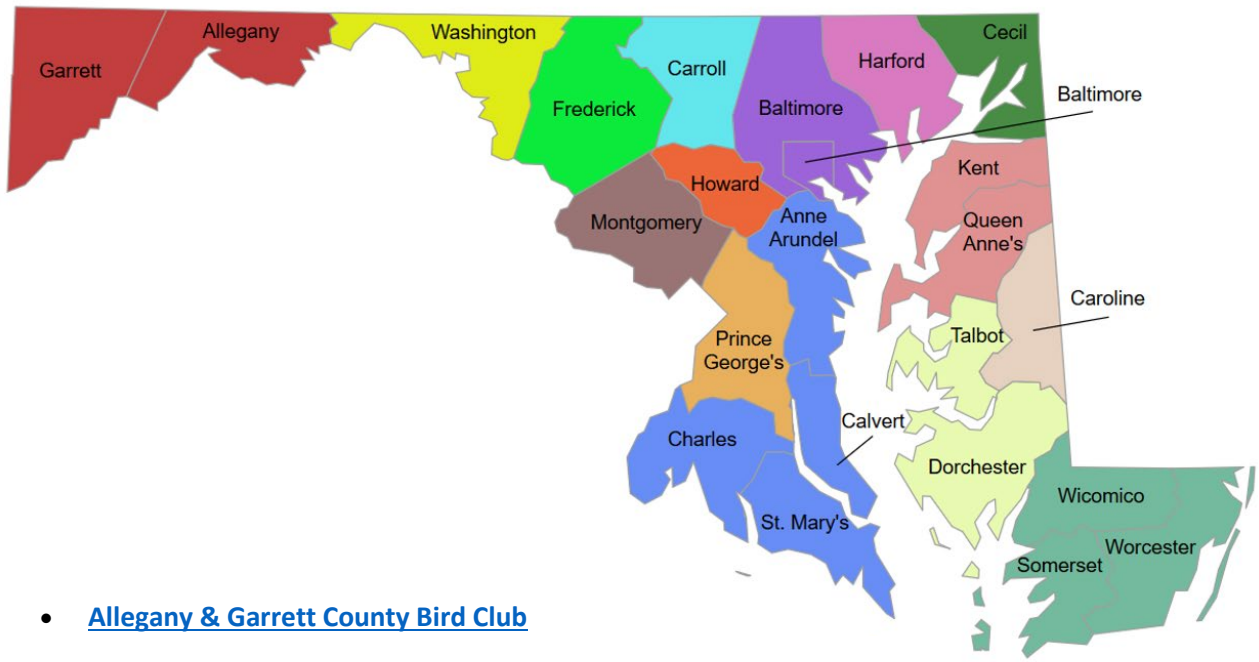
Figure 8. Interpretive panel on Chimney Swift tower.

Fundraising

To fund the program, money from grants, foundations, and donations/gifts will be pursued. MOS or Audubon chapters/centers may choose to contribute or raise funds. Fundraising can include an adopt-a-nest or adopt-a-bird program. An additional component (and cost) that might be considered is installation of a nest cam. While this is an added cost, it is also an additional fundraising opportunity which may appeal to additional donors.

The Maryland Bird Conservation Partnership has a fundraising campaign for swift towers at https://marylandbirds.networkforgood.com/projects/110901-chimney-swifts-nest-towers.

Appendix I. Maryland Ornithological Society chapters[30]



- **Allegany & Garrett County Bird Club**
- **Anne Arundel Bird Club** (Anne Arundel, Charles, Calvert, St. Mary's)
- **Baltimore Bird Club** (Baltimore City and County)
- **Caroline County Bird Club**
- **Carroll County Bird Club**
- **Cecil Bird Club**
- **Frederick Bird Club**
- **Harford Bird Club**
- **Howard County Bird Club**
- **Kent County Bird Club** (Kent, Queen Anne's)
- **Montgomery Bird Club**
- **Patuxent Bird Club** (Prince George's)
- **Talbot Bird Club** (Talbot, Dorchester)
- **Tri-County Bird Club** (Wicomico, Somerset, Worcester)
- **Washington County Bird Club**

[30] https://mdbirds.org/join/chapters/

Appendix II. Audubon Maryland-DC centers, sanctuaries, and chapters[31]

Centers and Sanctuaries of Audubon Maryland-DC:

Pickering Creek Audubon Center, Easton, MD **-** *sanctuary owned by Chesapeake Audubon Society, managed by National Audubon Society*
Patterson Park Audubon Center, Baltimore, MD- *park owned by Baltimore City Recreation and Parks, managed by National Audubon Society*
Audrey Carroll Audubon Sanctuary, Frederick County – *Audubon Society of Central Maryland*
Farm Creek Sanctuary, Dorchester County – *Chesapeake Audubon Society*
Fran Uhler Natural Area, Prince George's County, *managed by the Prince George's Audubon Society and the Maryland National Capital Parks and Planning Commission.*
Fred Archibald Audubon Sanctuary, Frederick County – *Audubon Society of Central Maryland*
High Banks Wildlife Sanctuary, Talbot County – *Chesapeake Audubon Society*
Nanjemoy Marsh Sanctuary, Charles County – *Southern Maryland Audubon Society*

In addition to the centers and sanctuaries of Audubon Maryland-DC, five local Audubon chapters are active in Maryland and the District of Columbia. Chapters enable Audubon members and others to meet and share an appreciation of their common interests. They create a culture of conservation in local communities through education and advocacy, focusing on the conservation of birds, other wildlife, and conservation of important habitats. Visit your local chapter today!

Southern Maryland Audubon Society

Prince George's Audubon Society

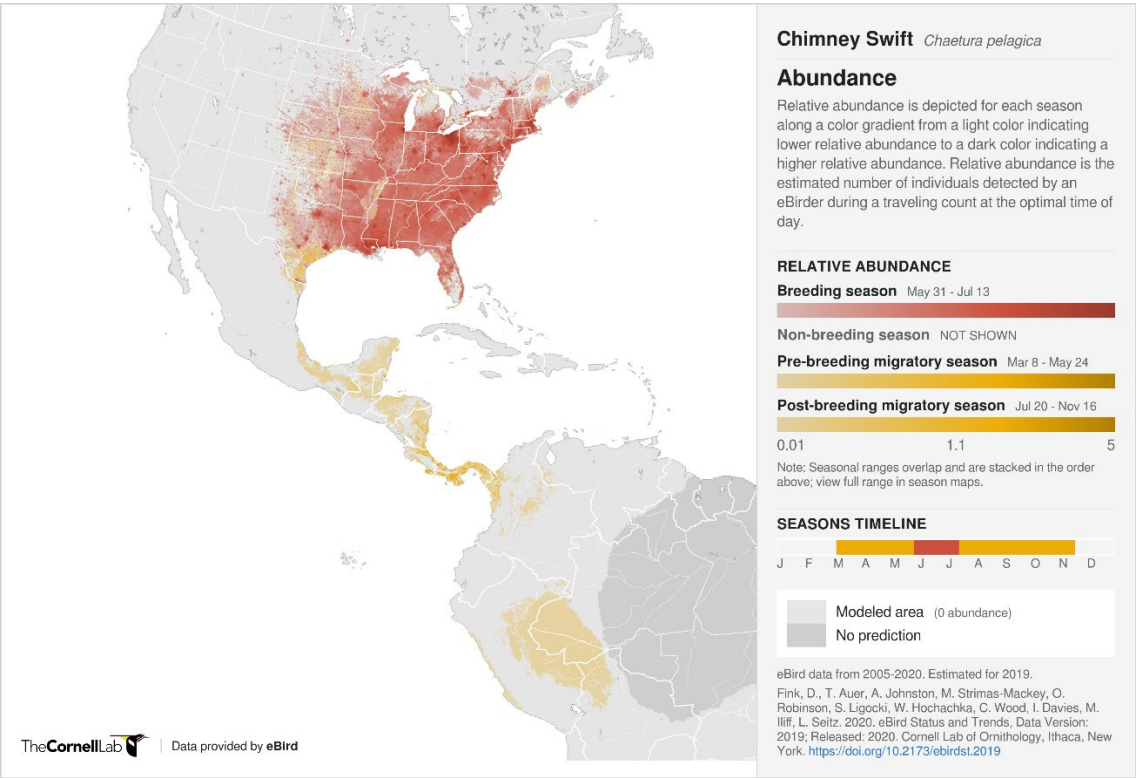
Chesapeake Audubon Society

Audubon Society of Central Maryland

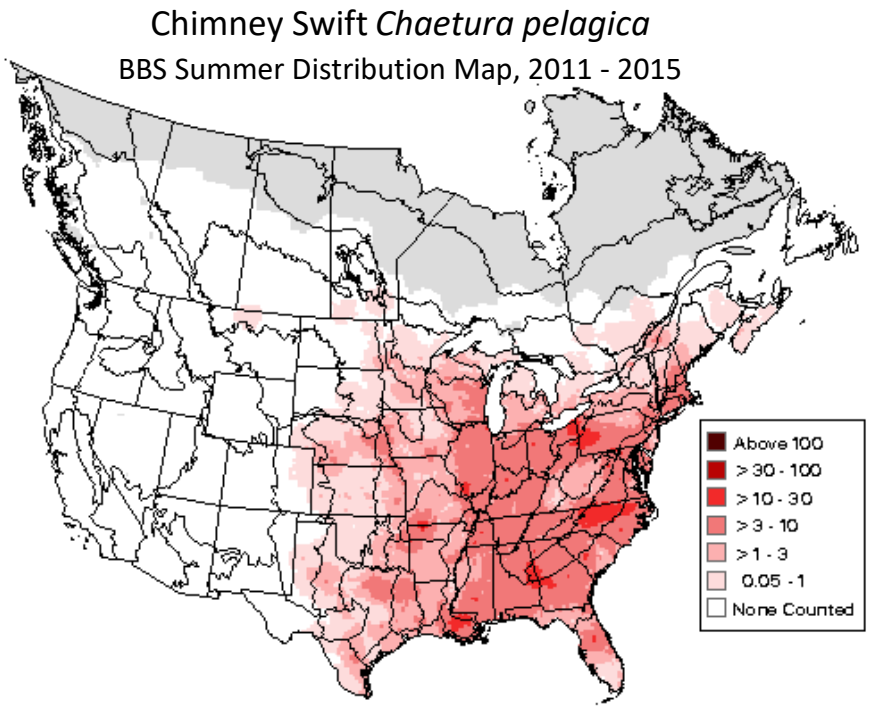
Audubon Society of the District of Columbia

[31] http://md.audubon.org/chapters-centers/marylands-centers-chapters-0

Appendix III. Chimney Swift Relative Abundance, eBird data 2005-2020[32]



Appendix IV. Chimney Swift Relative Abundance, BBS data[33]



[32] https://ebird.org/science/status-and-trends/chiswi/
[33] https://www.mbr-pwrc.usgs.gov/bbs/ra2015/ra2015_red_v3.html

Appendix V. ASWP[34] Chimney Swift Tower Data Collection

Tower Number	
Tower Location (address or general)	
Tower Type	☐ Kiosk 8 leg ☐ Kiosk 4 leg ☐ Kiosk other _____ ☐ Standard Tower ☐ Tower other ☐ N/A
Chimney Type	☐ Natural wood ☐ Chimney ☐ Other _____ ☐ N/A
Intended Use	☐ Breeding ☐ Roosting
Surroundings (check all that are applicable)	☐ Park ☐ Riverfront trail ☐ Wooded ☐ Meadow ☐ Turf grass ☐ Natural water feature ☐ Private residence - high density ☐ Private residence - medium density ☐ Private residence - low density ☐ Other _____
Date Installed / Identified	
Aspect	
Orientation (in degrees)	
Distance to road	
Distance to taller structure	
Distance to power lines	
Color	
Depth (inches)	
Exterior Height (inches)	
Interior Height (inches)	
Predator guard	☐ Yes ☐ No
Other comments	

Unique ID for GPS Coordinates _____ Photo ID _____

[34] Audubon Society of Western Pennsylvania