



# Graphing Chimney Swift Populations

Chimney Swifts are recognized as a Threatened species under the Species at Risk Act in Canada. The North American Breeding Bird Survey is the primary source of long-term population data for breeding bird species in Canada and estimates a 90% reduction in the Chimney Swift population between 1970 and 2017.

There are many potential causes for the decline of Chimney Swifts:

- Nesting habitat loss (natural old-growth forests; man-made masonry chimneys)
- Winter range habitat loss (logging in the Amazon basin)
- Acid rain (contributes to the decline of invertebrate populations)
- Asynchronous changes in insect and avian phenology (Chimney Swifts migrate back to the nesting grounds following the emergence of flying insects, their food source. If the peak emergence of insects occurs off-cycle, they will not have enough resources to support themselves during incubation, feeding young and migration)
- Climate change (affects migratory behaviour, egg-laying, fecundity and survival)
- Insect declines due to pesticides, invasive species or habitat changes (Chimney Swifts are aerial insectivores depending entirely upon natural insect populations)

## Materials

- Data
- Graph paper
- Pencil

## Instructions

1. Graph the data below on the provided graph paper (last page) to analyze the change in population from 1970-2009
2. Brainstorm thoughts and ideas regarding this population change. Why do you think the Chimney Swift population has declined so much so quickly?

### Chimney Swift Population Data

Data courtesy of: Smith, A.C., Hudson, M-A.R. Aponte, V., and Francis, C.M. 2019. North American Breeding Bird Survey- Canadian Trends Website, Data-version 2017. Environment and Climate Change Canada, Gatineau, Quebec, K1A 0H3. <https://wildlife-species.canada.ca/breeding-bird-survey-results/P002/A001/?lang=e>

YEAR	INDEX	YEAR	INDEX
1970	0.78	1990	0.12
1971	0.59	1991	0.17
1972	0.40	1992	0.15
1973	0.41	1993	0.06
1974	0.33	1994	0.11
1975	0.36	1995	0.07
1976	0.33	1996	0.10
1977	0.31	1997	0.07
1978	0.25	1998	0.08
1979	0.39	1999	0.08
1980	0.25	2000	0.08
1981	0.26	2001	0.06
1982	0.20	2002	0.12
1983	0.25	2003	0.11
1984	0.27	2004	0.07
1985	0.24	2005	0.07
1986	0.21	2006	0.04
1987	0.20	2007	0.06
1988	0.21	2008	0.05
1989	0.19	2009	0.06

# Chimney Swift Population in Canada

(data courtesy of Canadian Wildlife Service and Breeding Bird Survey)

