

Swift Watch Counts

Vaux's swift fall roost counts - Five year summary (2009-13)



Swifts entering Chapman school chimney (S. Carpenter)

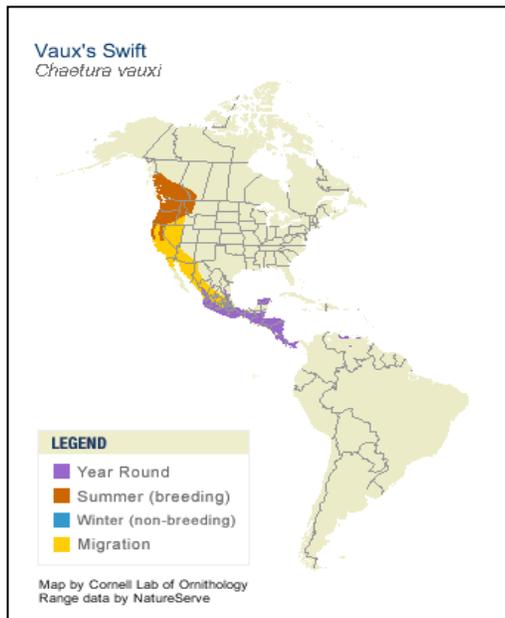
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Background

Vaux's swifts are aerial specialists built for speed and acrobatic maneuverability. They are a swallow-like bird (though more closely related to hummingbirds) with a "cigar-shaped" body, long tapered wings, often emitting twittery notes as they zoom about in the sky above. They are exclusively insectivorous catching an assortment of insects on the wing. Swifts also drink, bathe, and mate while in flight. They breed in the northwest US and winter in Mexico and Central America (see range map below). For both nesting and roosting, Vaux's swift were historically dependent on cavities in large old-growth trees. As ancient forests have been drastically reduced across the Pacific Northwest due to logging, chimneys are becoming increasingly important for nesting and roosting during migration. Vaux's swift populations are reported to be experiencing population declines across their breeding range (Fig. 1) so the structures humans provide are offering these birds an important refuge.



Since 2009, Portland Audubon has monitored Vaux's swifts at a number of roost sites in Portland and the surrounding area. The highlight of the fall season occurs in September at Chapman elementary school where thousands of swifts swirl into their chimney roost each evening. This dramatic spectacle

has truly become an urban phenomenon enabling thousands of Portlanders a way to engage with urban wildlife firsthand. Through the Swift Watch Outreach program, Portland Audubon staff and volunteers reach out to the public during the swift events at Chapman by providing information on the life history of these amazing birds as well as strategies to protect them in their urban environment (http://audubonportland.org/images/wcc_images/vauxs-swifts.pdf/at_download/file).

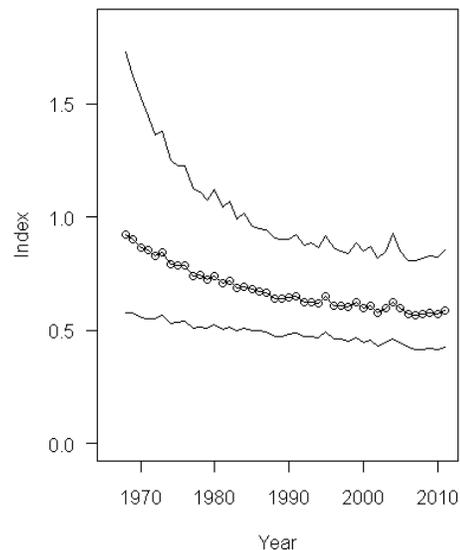


Figure 1. Vaux's Swift population trend in the Western Breeding Bird Survey region (Sauer et al. 2012). "Index" represents the average bird count on a typical route in the region for a year. Trend estimate is bounded by the 95% confidence interval.

Staff and volunteers also participate in Swift Watch Counts, the overall objectives of which are to:

- 1) Promote awareness of Vaux's swift conservation through public engagement including volunteer participation in swift roost counts and develop actions the public can take to protect swifts.
- 2) Track swift population changes in the Portland
- 3) Contribute to a larger swift monitoring effort occurring across the entire West Coast (<http://www.vauxhappening.org>).

In this report we summarize findings from the 5-year data set collected by Portland Audubon volunteers since 2009 at sites in Portland and the surrounding region.

Methods

Swift counts are conducted at roosts that support greater than a few hundred birds (“large roosts”). However, we do include locations of smaller roosts in our database when they are reported. Sampled roost chimneys are selected based on pre-existing knowledge of known sites or were sites discovered by swift watch observers or members of the general public. The number of chimneys surveyed often changes from year to year as some sites become inactive while new ones are discovered or are newly utilized by swifts. Sites that no longer appear to be active are monitored at least a few times in subsequent seasons to confirm inactivity.

As many evenings as possible between late August and early October swift counters arrive before swifts start funneling into the roosts (~ an hour before sunset). Clickers are used to tally the number of swifts entering the chimney. Start and end times of first and last observations of bird entry are recorded as well as ambient temperature and weather conditions. In addition, presence of raptors and predation events are recorded. At Chapman we also count the number of people coming to watch swifts.



Swift watch volunteer counting swifts (T. Hunsdorfer)

Results

Volunteer effort & Chapman attendance

Since 2009, 187 Swift Watch Outreach volunteers have contributed 1800 hours and ~ 100 Swift Watch Counters contributed ~400 hours by performing the

swift roost counts and/or conducting public outreach at the Chapman count. Over the past five years, an average of 1,145 people (per evening) came out to watch swifts in September at Chapman. The most people observed were 3,400 in one night!

Site usage

We conducted swift counts at a total of 10 sites in Portland and the surrounding region during the 5 year period (See Table & Roost Site Map at end of report). Of all sites, Chapman Elementary has, by far, had the largest numbers of swifts each year (Peak average: $11,804 \pm 3,346$; Fig. 2). The most swifts seen at any one time were at Chapman on September 10, 2012 when 16,395 were counted. The next most productive site was Oregon City - Hansen in 2009 however no swifts have used this chimney since 2010. At all other sites, peak swift numbers were much lower (Peak average: $1,855 \pm 1,863$; see Table). Swifts seasonally rotated use of three chimneys within two blocks of one another in the vicinity of Oregon City High School. Swift roosting at Duniway Elementary ended in August of 2012 when the top of the chimney was removed and capped. The Kenton site was discovered in 2010 and it is believed the Columbia site may be an alternate site for the same swifts. Likewise, the swifts that used the WL May (discovered in 2012) apparently moved to the Reach Building in 2013. The Tabor site was discovered in 2011 but no activity has been observed there during the last two seasons.

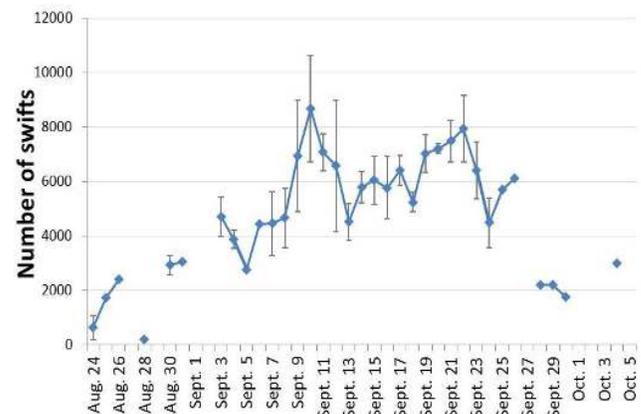


Figure 2. Average number of fall roosting swifts (± 1 st. error) counted at Chapman Elementary from 2009-13.

Swift trends & other findings

At all sites, the average date sites reached peak swift numbers was September 13 (± 7.7 days). At Chapman there appears to be a secondary peak later in September in most years (Fig. 2). Average swift numbers fluctuate by as much as 4,000 birds any given year with no clear upward or downward trend. So currently there does not appear to be a positive or negative population trend in fall roosting swifts across the Portland area.

Swifts tended to enter roosts in the highest numbers on the coolest nights (Fig. 3). This finding indicates chimneys provide a sufficiently warm environment that likely reduces thermoregulatory stress on resting birds. The same findings have also been documented at Washington roost sites (Pers. Comm. Larry Schwitters).

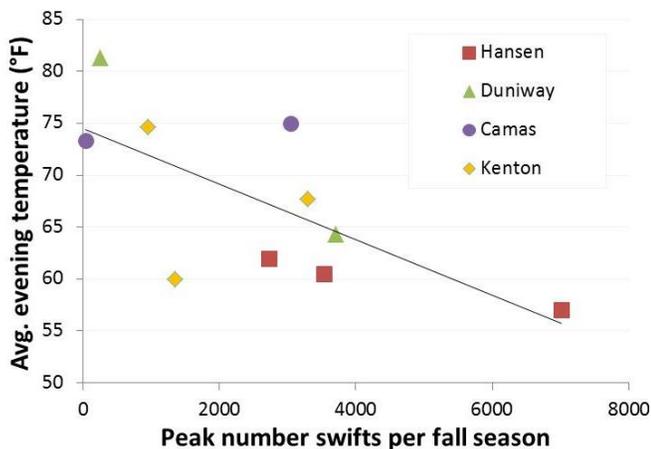


Figure 3. The relationship between average evening temperature (°F) and peak fall swift roost numbers at the four most intensely monitored sites. The same trend documented at Chapman but not included here as the higher abundances at Chapman make the graph difficult to interpret.

Chimney roosts also provide swifts relief from predators. However, as swifts funnel into the roost they can become easy pickings for hungry predators. We have documented 34 predation events by Peregrine Falcons (n=17), Cooper's Hawks (n=15) and American crow (n=2) over the 5 years of monitoring swifts. Sharp-shinned hawks have also been seen at roosts but have not been observed successfully

depredating swifts. On nights when more raptors are present, more swifts decide to depart the site rather than risk being eaten as they enter the roost (Fig. 4). We believe these late night stragglers roost in smaller chimneys nearby.

Next Steps

The success of our Swift Watch program is fueled by the high public interest in the swift roost spectacle. Thousands of people are learning more about the positive role the urban environment can play for swifts and about the larger conservation challenges this species is facing.

As demonstrated here, the swift count data is enabling us to learn more about swift population trends as well as gauging the influence of particular stressors to roosting swifts.

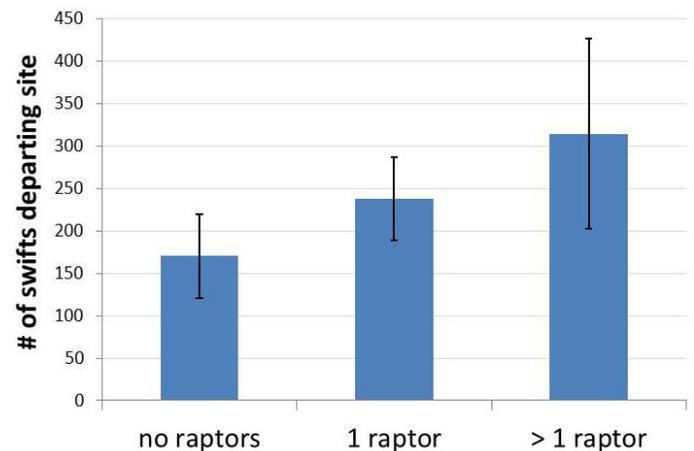


Figure 4. Average number of swifts (± 1 st. error) departing sites (not entering chimneys) with respect to increasing raptor presence. Data includes all roost sites.

We plan to continue conducting swift roost counts for the foreseeable future. Over the long-term the information we collect will inform us about swift population trends in the Portland area. By contributing our data to region-wide efforts (e.g. <http://www.vauxhappening.org>) we will help provide one of the most comprehensive estimates of Vaux's swift population status currently available. This information is vital given their current range-wide declines.

We are working with the owners of buildings that house large swift roosts to preserve them. This is a concern as unused chimneys are often capped or demolished. Vaux's swifts are selective of the type of chimneys they roost in. As a case in point, at Duniway Elementary an "artificial" chimney was constructed for swift use after the original chimney was capped however swifts have not used this new structure. We are beginning to catalogue information on "swift-friendly" chimney specifications to provide to people

interested in constructing their own swift roost chimneys.

Through our efforts we play a role in protecting this amazing species for generations to come. Swift Watch counts could not be performed without the hard work of our volunteers. Please contact Joe Liebezeit at Portland Audubon (jliebezeit@audubonportland.org) for more information and to learn how to get involved.

Acknowledgments

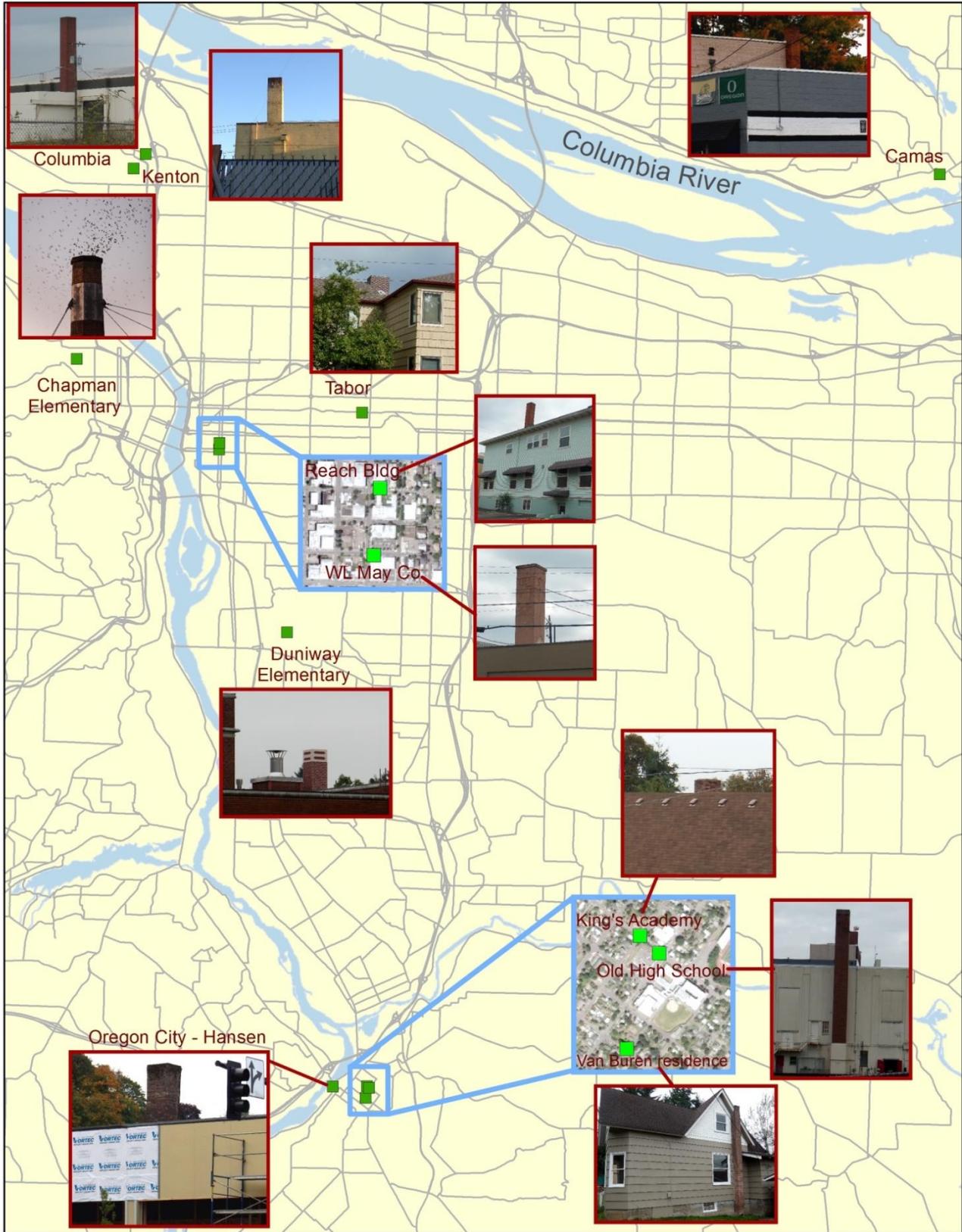
We would like to thank the many Swift Watch Outreach and Swift Watch Count volunteers that have generously donated their time to make Swift Watch a reality. We thank Mary Coolidge, former Portland Audubon Conservation Assistant, for initiating the Swift Watch counts. We also thank Chapman Elementary School for supporting the Swift Watch program.

Table. Fall swift roost counts conducted in Portland and the surrounding area including peak numbers (and peak date) of swifts counted on surveys. Peak number includes all swifts observed (those that went in the chimney and those that departed).

Site	2009	2010	2011	2012	2013
Oregon City - Hansen	7,005 (9/6)	3,531 (9/15)	0	0	0
Oregon City H.S. complex ¹	60 (9/21)	0	1,000 (9/4 & 9/8)	2,517 (9/8)	835 (9/29)
Chapman Elementary	8,700 (9/9)	12,000 (9/22)	10,120 (9/10)	16,395 (9/10)	6,860 (9/20) ²
Duniway Elementary	3,900 (9/20)	75 (9/5)	250 (9/3)	Not active	Not active
Kenton	Undocumented	2,000 (9/22)	3300 (9/18)	948 (9/12)	1,350 (9/7)
Columbia	Undocumented	Undocumented	Undocumented	3,010 (9/30)	0
Tabor	Undocumented	Undocumented	1,200 (9/10)	0	0
Camas	3,050 (9/2)	0	0	0	0
WL May Co	Undocumented	Undocumented	Undocumented	463 (9/24)	0
Reach Bldg	Undocumented	Undocumented	Undocumented	Undocumented	200 (9/3)

¹ Oregon City High School complex includes 3 nearby chimney sites: Old High School, Van Buren residence, King's Academy.

² Unverified count of 12,500 on 10/3/13



Swift Roost Map indicating location (including photographs) of Vaux's swift "large roost" sites monitored by Portland Audubon.