LOS ANGELES RAPTOR STUDY
2025 FINAL REPORT

Red-tailed Hawk juvenile in nest behind sign lettering
Photo credit: Nurit Katz

Prepared for:
Friends of Griffith Park
P.O. Box 27573
Los Angeles, CA 90027

Prepared by:
Daniel S. Cooper, Founder and Co-Director, Los Angeles Raptor Study
Resource Conservation District of the Santa Monica Mountains

Nurit D. Katz, Co-Director, Los Angeles Raptor Study
Ecology and Evolutionary Biology Department, UCLA

September 21, 2025

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

This project was made possible through the vision and support of Friends of Griffith Park, in particular Gerry Hans (President, Science and Conservation). Beginning in the 2025 season the study is now in partnership with the Resource Conservation District of the Santa Monica Mountains. Survey volunteers conducted much of the fieldwork, and provided invaluable ecological information that would have been otherwise difficult to obtain. In particular, we wish to thank the volunteers who completed our training session and tracked active nests for 2025:

Michael Albertson, Adrine Arakelian, Thais Arata, Beth Armstrong Shikano, Griffin Barchek, Katheryn Barton, Alix Bannon, Nina Beckhardt, Natalie Beckman-Smith, Tracey Beltran, Chloe Birch, Andy Birch, Jessica Blickley, Harnawaz Boparai, Evan Boucher, Kayla Borkovec, Sarah Bowman, Karen Boyarsky, Brett Boydstun, John Bridge, Allison Brooker, Mary Brooks, David Brown, Tad Brown, Carrie Brown-Kornarens, Maddie Brozen, Carol Brusha, Ronald F. Brusha, Diana Caliva, Jamie Cantor, Martha Carreon, Andrea Cavanaugh, Olivia Clark, Amy Clarke, Chip Clements, Bridget Conlin, Nicholas Connon, Danielle Cooper, Kevin Cooper, Carly Creley, Massimo De Maria, Lillian Diaz-Przybyl, Mimi DiMatteo, Julie Drake, Alix Duggins, Victoria Dyer, Adam Eeuwens, Meg Favreau, Dante Fierro, Carrie Fisher-Okmin, Emily Forscher, Melissa Freeny Gicela Galvez, Jack Garrison-Kingen, Shelly Gaytan, John Gittelsohn, Wendi Gladstone, Julia Glassman, Steven Goby, Jessica Granger, Michael Greening, Kristyn Guernica, Beth Hagenlocker, Eric Ha, Kelli Hailey, Elle Hajkova, Kat Halsey, Casey Halter, Eric Halvorsen, Suzie Hanrahan, Kelly Hayashibara, Chris Hero, Emily Hero, Chonny Hokama, Cynthia Holmes, Ruth Honegger, Erica Horton, Cynthia Hubach, Angela Huff, Michael Hughes, John Jeffrey, Olivia Jenkins, FeiFei Jiang, Penelope Jones, Amie Jordan, Helin Jung, Karin Kachler, Michael Kaczynski, Rachel Kaminer, Raphael Kaplan, Rose Kaplan, Jack Kappelman, Melanie Kaye, Paul Kaye, Suzanne Kelley, Liz Kennedy, Keri Kilgo, Julie Klabin, Ken Klotzle, Anthony Kornarens, Kalvin Lam, Jacob Lang, Aliyah Larsen, Jonas Lee, Suavek Lehmann, Sarah Leonard, Alex Levy, Joanne Lin, Jakob Longcob, Madeline Low, Bill Luddy, Trevor Lyon, Jeanie Lytle, Laurie MacDonald, Greg Macek, Alex MacInnis, Rebecca Marschall, Emily Martin, Syd Martinez, Koit McIntire, Patrick McMabell, Lisa Meldrum, Rebeca Méndez, Steve Miller, Melissa Mills, Lauren Molina, David Morales, Andrew Moseman, Merigan Mulhern, Kamran Muthleb, David Newland, Elinor Nissley, David Norris, Yolonda Nunley, Sandy Olson, Miguel Ordeñana, Keymi Ordeñana, Mia Picerno, Harry Pallenberg, Robert Panganiban, Betina Papadeas, Randi Parent, Nancy Perez, Maggie Perlman, Dan Pierce, Caitlin Pohl, Lauren Poor, Cody Porter, Chris Quinn, Laurel Randolph, Shana Rapoport, Susan Raudry, Brenda Rees, Gary Regester, Roshan Reporter, Rikka Richardson, Kari Richardson, Julia Rifa, Kimberley Rizzo, Kate Romero, Maggie Rose, Sarah Rogers, Jenn Rose, Kristin Rozum, Brent Rumble, Christian Rummel, Kate Scarborough, Dale Schafer, David Shadovitz, Dahlia Shammas, Cam Shaw, Bryan Shepard, Wilson Sherman, Mary Shurden, Nancy Simpson, Amy Sims, Drake Singleton , Annie Slagboom, Greg Slak, Patti Smentek, Susan Sterr, Susan Streaser, James Strzelinski, Caroline Su, Charlotte Swanson, Caroline Symons, Robert Swelgin, Jamie Szabadi, Fran Tait, Eliza Tate, Alice Taylor, Joseph Taylor, Matthew Testa, Amy Thompson, Stan Thompson, Jackie Thompson, Brian Tomikawa, Linda Topper, Kirsten Ushijima, Sasha Valarino, Drea Valentine, Carmelo Valone, Paul Vandeventer, Arlene Vargas, Crisanta Velazquez, Lucia Venegas, Diana Wagman, Dana Watson,

Michelle West, Patty Wheeler, Petyr Whisky, Amy White, Debra Wilbur, Heather Wilson, Kimberly Wolz, Angela Woodside, Jackson Yean, Corrin Yep, George Young, Jiawen(Jenelle) Yuan, Elva Zepeda Earnhart, Alexandra Zedalis, and Jaimi Zwerling.

Stefanie Smith, Griffith Region Superintendent, Department of Recreation and Parks, assisted us with access to several restricted access park venues. Los Angeles City Park Rangers provided patrols and maintained signage and fencing to protect a sensitive Peregrine Falcon nesting site in Griffith Park. Officer Jose Navarro and the Los Angeles Animal Services SMART team provided support for challenging re-nesting and rescue efforts, and shared helpful data on new nests. In addition, many residents responded to our outreach and shared helpful tips and notified us of local nests, and we thank them for their information and contributions to this study.

EXECUTIVE SUMMARY

In 2025, we launched the ninth year of the Los Angeles Raptor Study. As of August 2025, we have tracked more than 750 raptor territories across the study area, representing: 251 potential Cooper's Hawk territories (vs. 239 in 2024), 223 Red-tailed Hawk territories (vs. 215 in 2024), 65 Red-shouldered Hawk territories (vs. 57 in 2024), 156 Great Horned Owl territories (vs. 105 in 2024), as well as a handful of potential territories of American Kestrel, Peregrine Falcon, Barn Owl and Western Screech-owl. These numbers continue to more closely reflect the maximum number of territories in the study area, made more accurate thanks to increased effort and our growing knowledge of local species ecology.

Not all these territories were found to be "active" in 2025 (i.e., with a territorial pair present); the number of active territories within the study area for 2025 included: 152 Red-tailed Hawks, 110 Cooper's Hawks, 41 Red-shouldered Hawks, and 48 Great Horned Owls.

We have re-analyzed territory and productivity for each of the four common species, and again compiled examples of nest trees being severely trimmed (or removed altogether), which – at least for Red-tailed Hawks – may result in a pair completely abandoning its territory. We also more closely tracked nest takeovers, which we had not compiled in the early years of the study.

We again did not re-analyze nest structure re-use, territory distribution by subregion, native vs. ornamental tree use, nor nest phenology (i.e., when chicks first appear, and when they fledge) for the 2025 season, as patterns of each seemed to be similar to those observed in prior years. However, these data are available and could be analyzed.

1.0 BACKGROUND

The "Griffith Park Raptor Survey" was launched in 2017 by Friends of Griffith Park (Cooper et al. 2017)[1], renamed "Los Angeles Raptor Study" in 2021 to reflect the larger study area (see below). By documenting and tracking raptor nests across Los Angeles, we hope to understand how ecological dynamics change from year to year in the natural and built areas of Los Angeles, in particular how human activity is impacting wildlife. While a handful of Los Angeles-area raptor nesting sites had been documented by prior work (e.g., Allen et al. 2017), the data contained in our annual summary reports represent the first comprehensive dataset of an entire raptor community in the urban core of Los Angeles.

Raptors are important apex predators in most of the earth's ecosystems, and coastal Southern California supports (or once supported) around a dozen breeding species (Garrett and Dunn 1981). Based on recent records (e.g., eBird; www.ebird.org), the study area provides *potentially* suitable nesting habitat for nine resident raptors including Turkey Vulture (*Cathartes aura*), Red-shouldered Hawk (*Buteo lineatus*), Red-tailed Hawk (*Buteo jamaicensis*), Cooper's Hawk (*Astur cooperii*), Great Horned Owl (*Bubo virginianus*), Barn Owl (*Tyto alba*), Western Screech-Owl (*Megascops kennicottii*), Peregrine Falcon (*Falco peregrinus*) and American Kestrel (*Falco sparverius*). Turkey Vulture has not been confirmed as breeding in the study area in modern times, though suitable conditions exist to support its nesting, and summering individuals are present every year, mainly in the Santa Monica Mountains and western Griffith Park.

Former area nesters include Golden Eagle (*Aquila chrysaetos*) and Long-eared Owl (*Asio otus*), both are rare today at any season. Osprey (*Pandion haliaetus*) is frequently seen through the nesting season (mainly along the Los Angeles River) but has not been documented as nesting in the study area (though spring and summer records appear to be increasing). A handful of species of raptors occur locally or sporadically in migration and/or winter (e.g., White-tailed Kite (*Elanus leucurus*), but nesting has not been suspected as occurring in the study area in modern times.

[1] Dan Cooper (as Cooper Ecological Monitoring, Inc. and with the Resource Conservation District of the Santa Monica Mountains) has been conducting surveys on the flora and fauna in Griffith Park since 2007, when the Griffith Park Wildlife Management Plan (Cooper and Mathewson 2009) first documented the park's flora and fauna and suggested best management practices for the future, including improved species monitoring.

2.0 STUDY AREA AND METHODS

2.1 Location

Our study area, originally centered on Griffith Park, was expanded in 2020 to include additional portions of the San Fernando Valley and coastal plain that were not covered in prior years. This year, the study area again extended to the 405 Freeway/Sepulveda Pass in the west (with an "extension" to include Sepulveda Basin), Sherman Way/Vanowen Blvd. in the north, Slauson Ave. in the south, and East Los Angeles in the east (see **Figure 1**). As in prior years, a handful of raptor nests just outside this area were monitored by volunteers (e.g., Pasadena and Calabasas), but we did not specifically search for nests in these areas.

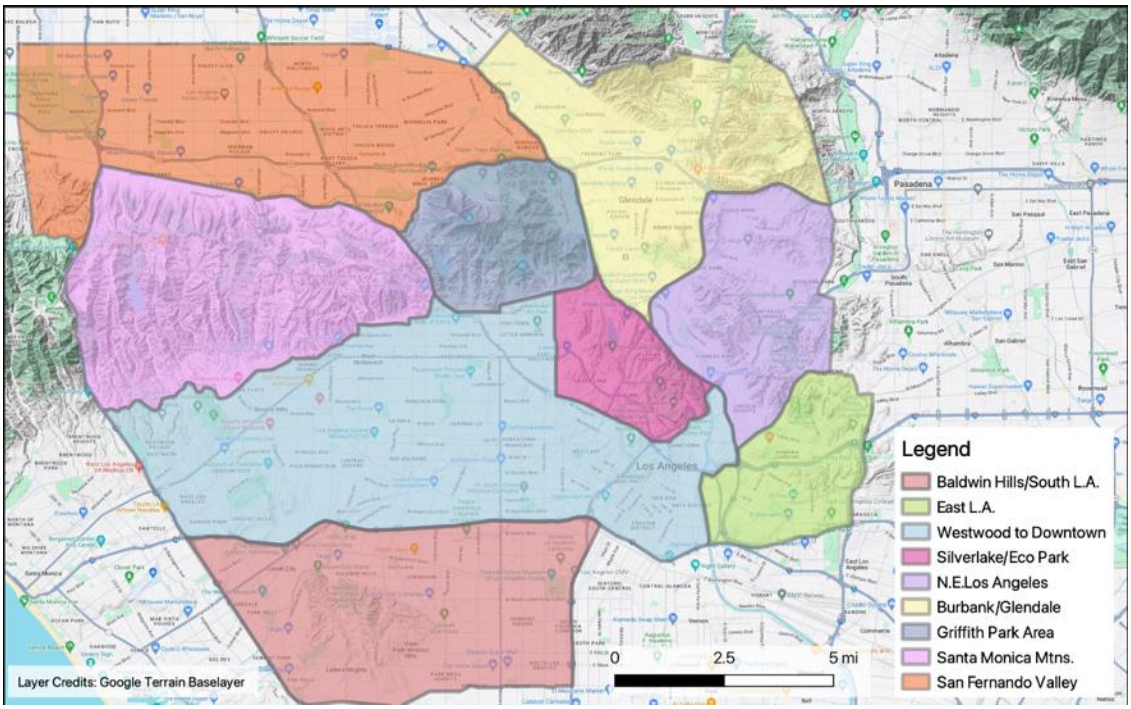


Figure 1. Study area updated in 2025 season. In addition to the areas shown, we monitored a handful of nests outside the study area, but did not include them in the analysis. Map credit: Ahalya Sabaratnam (UCLA IoES Practicum Raptor Team, 2024)

The region's climate is Mediterranean, with low or no summer precipitation, cool winters, and periods of drought. February sees the highest levels of precipitation with annual average rainfall of 14 inches. Fairly regular El Niño events once or twice per decade can result in much higher annual rainfall amounts, and regular droughts can reduce rainfall to half the normal amount (or less in exceptional years). For example, the year of the project launch (2017) followed an exceptional five-year drought in the Los Angeles area, with each prior year well below average rainfall. However, the 2018-2019 rainy season saw a total of 18.82 inches in the downtown Los Angeles area, 4.09 inches (>20%) above the seasonal average for the area. The 2019-2020 season saw a return to average (14.86 inches), though roughly half of it fell during

March and April (2020), which was unusually late, and which coincided directly with the start of our 2020 raptor nesting season. Rainfall in winter 2020-2021 was less than half that of normal (5.0 inches)[2], with above-average high temperature spikes in late May and mid-June, coinciding with local raptor fledging. Rainfall in winter 2021-2022 was below average, but not extremely so (12.4 inches)[3]. Two wet winters then followed, with 2022-2023 seeing exceptionally high precipitation (28.4 inches), and 2023-2024 again a heavy rain season with 25.2 inches recorded in downtown Los Angeles.

The winter prior to the 2025 season was unusual, in that while the total rainfall was about half that of average, the fall (2024) was exceptionally dry, with almost no rain falling until 2025. As climate change continues, these extreme variations may become more frequent. While raptors are not strongly territorial in fall, all of our local species are non-migratory, present year-round in their breeding territories. Thus, anomalies in the fall and winter may well impact breeding the following spring.

As in prior years, while most nests in the study area are on private property (mainly in residential areas), public parklands supported numerous raptor nests, including those managed by the Los Angeles Department of Recreation and Parks (incl. Griffith Park, Elysian Park, Echo Park, Debs Park, and most of the Sepulveda Basin; hiking/open space areas such as Runyon Canyon; and Encino and Woodley golf courses); the Los Angeles Department of Water and Power (Stone Canyon Reservoir, Silverlake Reservoir, Hollywood Reservoir); and Los Angeles County Department of Parks and Recreation (Kenneth Hahn Park). Other local cities in the study area that manage parks with raptor nests including Glendale (notably, Brand Park) and Beverly Hills. In the remaining open space of the eastern Santa Monica Mountains, Mountains Recreation and Conservation Authority manages Franklin Canyon.

We have found local golf courses (various owners) to be important areas for nesting raptors, and our volunteers have gained access to several in recent years. However, most nesting sites monitored were found in and around single-family homes and yards, and many nests were located in street trees, backyard trees, or along utility easements through residential areas. These street trees are maintained by the various cities in the study area, including Los Angeles, Culver City, Beverly Hills, West Hollywood, Burbank, and Glendale.

In 2025, we had limited coverage of Franklin Canyon (closed in 2024 due to storm damage, and infrequently visited in 2025) and the protected habitat area around Stone Canyon Reservoir (LADWP), but obtained permission to survey Hollywood Bowl late in spring. We did not, however, obtain permission to survey either Forest Lawn Cemetery-Hollywood Hills or the Los Angeles Zoo, but records uploaded to the online community science platform iNaturalist allowed us to confirm several raptor territories at the Zoo (various species).

[2] https://www.laalmanac.com/weather/we13.php

[3] https://www.accuweather.com/en/us/los-angeles/90012/may-weather/347625?year=2021

2.2 Survey Methods

As in prior years, Cooper, Katz, and Gerry Hans (Friends of Griffith Park) conducted opportunistic surveys in the study area starting in February to document the status of known and suspected new nests and territories, documenting status on a shared Google Sheet. This continued as time allowed through the spring and summer. We attempted to maintain the increased level of coverage afforded to the study area which started in 2020, including regularly checking online platforms such as eBird and iNaturalist for reports of adults and juveniles (the latter particularly evident by June), and visiting the reported areas to track down nests, which yielded several new territories/nests.

As in recent years, Katz posted several announcements and updates of the project to social media (Facebook, Instagram, LinkedIn, etc.) and local NextDoor boards, requesting sightings of nests and raptors. Volunteers were also provided outreach materials to share in their neighborhoods. This approach was again fruitful, especially during the end of the Cooper's Hawk nest period when juveniles are loud and visible in neighborhoods. We also again found new nests from receiving rescue calls about fallen nestlings.

Our surveys were performed mostly by foot using 8-10x binoculars, 20x spotting scopes, and "superzoom" cameras to determine nest activity and the presence or absence of raptors. Surveys were timed to avoid undue disturbance to nesting raptors and other birds during the most critical breeding periods later in spring.

We held one virtual (Zoom) training session (January 30, 2025) followed by two in-person field trainings which were well-attended by volunteer "community scientists". The first field training took place in Griffith Park on February 1, and the second in Sepulveda Basin on February 2. By the end of March, we had more than 750 potential raptor territories located, and the volunteers had started their bi-monthly visits. We again held a refresher training with a focus on Cooper's Hawks via zoom on April 3 and in the field on April 6.

As in prior years, we assigned nests to one or more volunteers based on their location preferences and birding ability. Volunteers were asked to visit their assigned nests twice per month (and no more than weekly to avoid disturbance) to identify nesting stages throughout the season, and were asked to complete the data entry form within a week of the visit. Each active nest was confirmed by a project staffer and/by photograph to ensure data reliability and support volunteer training. Staff also met with new volunteers one-on-one in the field for nest orientation, and with existing volunteers if they were assigned a new nest and had difficulty locating it. Data was collected via a Google Form (essentially an online survey), and all data maintained in an online spreadsheet (Google Sheet). GPS coordinates of nests were obtained with the Google Maps or Google Earth apps in the field, or later using volunteers' written descriptions and Google Earth Pro. Coordinates were taken as close to the nest tree as possible, but the accuracy of nest coordinates may vary due to access issues, proximity of the edge of a tree to the nest, or the inability to obtain accurate readings under dense tree canopy. Nest locations are not published to avoid disturbance to nesting raptors and to respect privacy for

residential area nests. However, locations were again shared with local government agencies and select property owners in order to ensure that maintenance and operations of parks did not disturb the nests.

2.3 Classifying Nest Structures and Territories

We largely maintained our definitions and classification of nests and territories solidified in 2020, which accounted for new information learned through our more intensive monitoring and nest-searching that began that year. Thus, we continued our focus on documenting use of *territories* (i.e., not just on physical nests), attempting to determine breeding activity even where we could not locate the nest structure. Definitions used as follows:

- Active (nest) – A physical nest in good condition with at least one individual of the appropriate species engaged in clear breeding behavior at the nest (e.g., nest-building, incubation, etc.);
- Active (territory) – An area with a pair of adult raptors interacting, or with an individual engaged in breeding activity. Also, "active territory" may refer to an area where we noted recently-fledged young clearly produced locally (e.g., with downy feathers, or incapable of sustained flight), even if the nest structure was unknown;
- Fledged (nest/territory) – Evidence of one or more young having successfully left the nest. Typically, this was confirmed by observations of large young in the nest, then an empty nest shortly thereafter, with copious whitewash and down feathers near the nest, and usually with at least one fledgling (dependent on adults and incapable of sustained/smooth flight) in the area. In some cases, a successful nest was identified based on whitewash/down even if no fledgling was observed nearby.
- Inactive (nest/territory) – A likely or known/historical raptor nest or territory in which no breeding activity was observed at any point in the season;
- Abandoned (nest) – A situation where adults (i.e., a pair) were present – usually only early in the season – within the territory at or near a known nest, but where no nesting activity at the nest was observed thereafter;
- Failed (nest) – An active nest that produced no young, but where nesting activity had been observed in the current season, such as incubating adults, suggesting that eggs may have failed to hatch or that young died in the nest;
- Unknown – Ambiguous observations, typically where we failed to revisit a nest in the study year due to scheduling/access issues, or where we felt we did not have enough observations to determine success or status.

In some cases, we identified a territory based on the presence of a single adult, such as an adult Cooper's Hawk delivering a territorial flight display or a call associated with breeding, but most nests and territories were deemed active by the presence of a *pair during the nesting season*.

As in prior years, we made a concerted effort in “gap areas”, those parts of the study area with no known nests, and confirming active nesting where we (or volunteers) had incidentally observed raptors exhibiting breeding behavior such as tandem flights, copulation, stick-carrying, etc.

In 2025, we made a special effort to survey and outreach in the West Los Angeles neighborhoods of Brentwood, West L.A., and Mar Vista, where we gathered important observations on several active nests.

Generally, we considered *two visits during the nesting season, along with no reported sightings of the target species in the territory that year, as sufficient to consider a territory “inactive”*. However, in several cases, juveniles and even nests were found late in the season, either by intrepid volunteers, or via observations submitted to eBird/iNaturalist, both of which continue to grow greatly in popularity each year since the inception of the study in 2017.

Again, we were able to confirm positive activity within many territories by the presence of recently-fledged young and recently-used nests (particularly Cooper’s Hawks), using clues learned while more closely observing known nests.

3.0 RESULTS

3.1 Territory Occupancy

By mid-August 2025, we had checked 251 Cooper's Hawk territories (vs. 239 in 2024), 223 Red-tailed Hawk territories (vs. 215 in 2024), 65 Red-shouldered Hawk territories (vs. 57 in 2024), 156 Great Horned Owl territories (vs. 105 in 2024), as well as a handful of territories of American Kestrel, Peregrine Falcon, Barn Owl and Western Screech-owl[4].

The rate of discovery of new territories appears to be slowing down (finally!), suggesting we are thoroughly covering the study area. In 2025, we found new territories for 15 new Cooper's Hawk pairs (17 were newly found in 2024), 9 new territories for Great Horned Owl (down from 22 newly found in 2024), 5 for Red-tailed Hawk (down from *30* newly found in 2024), and 5 for Red-shouldered Hawk (7 in 2024)[5]. Most of these territories supported active nests, but a handful were territories in which we found a pair of adults but no indication of nesting (this year); or where we observed recently-fledged juveniles with adults but with no obvious nest structure visible.

We noted 19 cases of "species turnover" at known nests, where one species took over another species' nest. In eight of these cases, this involved a different raptor species using the nest in 2025, while in 11 cases, a Common Raven (*Corvus corax*) or American Crow (*Corvus brachyrhynchos*) was found in the nest. In one case, a raptor (Red-shouldered Hawk) may have re-taken a nest that had been used by ravens the year before, but this was not confirmed as of the season's end. This was roughly the same rate of species takeovers as had been found in 2024 (21 cases), and these species patterns will be analyzed in a future report/paper.

This year (2025), we continued a concerted effort to document some of the rarer species in the study area for which we have little data. Just two American Kestrel territories were active and fledged young this year, both along the Los Angeles River. One was at Bette Davis Park (Griffith Park) and the other at Rio de Los Angeles State Park; the other 4-5 recent kestrel territories appeared to have been inactive this year.

We're up to eight known Peregrine Falcon territories in the study area, with breeding activity at five (fledged young confirmed at just one, Griffith Park). As in 2024, scattered Peregrine juveniles detected outside these areas during the study suggest several more territories await discovery.

---

[4] As our nest-searching effort increased greatly starting in 2020, the years 2017-19 may be thought of as preliminary compared to the years 2020-present. In particular, we searched for (and located) few urban Cooper's Hawk nests in the San Fernando Valley or mid-City area prior to 2020, before we learned some of the "tricks" to finding them there.

[5] These counts may be slightly different from the numbers reported in prior years' reports, due to merging/splitting of territories as we collected more observational data each year. This report reflects our best understanding of the distribution and outcome of breeding territories, both in prior years and in 2025.

We again increased our use of community-science platforms (eBird and iNaturalist) to locate territories for both (American) Barn Owl and Western Screech-Owl. This allowed us to add locations for (American) Barn Owl, particularly in the West L.A./Mar Vista area where they seem to be prevalent, including a handful west of the study area (not included in these totals). We are now aware of 13 Barn Owl territories in the study area, plus another three west of the 405 Fwy. just outside the study area. However, these territories are very hard to monitor, due to the secrecy and nocturnal habits of this cavity-nester (most were in palm trees, deep within fronds), and we only detected activity at one territory in the study area (and two just to the west, in Mar Vista). Fledged young were only confirmed at one nest, in Mar Vista (four juveniles).

Our monitoring of eBird and iNaturalist uploads also aided in locating additional Western Screech-owl territories in 2025, and we are now aware of 28 potential screech-owl territories, in that at least one adult or juvenile has been reported in recent years (up from 11 identified in prior years). While most are in Laurel Canyon and Mt. Washington, we have included others in the Burbank-Glendale area, as well as in Griffith Park. We confirmed breeding activity at just three in 2025, with young produced at just two sites (one brood emerged from a nest box near Mulholland Dr. above Sherman Oaks, and the other from an unknown nest site at Mt. Washington).

Comparing all species

Looking at the *total number* of young fledged each year (all species combined), 2025 was lower than the year prior, though still above the 6-year average (**Table 1**). These results are discussed further below ("Species Detail").

Table 1. Total number of young produced (either confirmed fledged young, or nestlings close to fledging), 2020-2025.

Species	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Red-tailed Hawk	187	204	125	165	242	199
Red-shouldered Hawk	28	27	24	30	44	36
Cooper's Hawk	131	139	129	166	184	206
Great Horned Owl	35	38	49	68	86	70
Total	381	408	327	429	556	511

Overall nest productivity rate, as measured in the mean number of chicks hatched from active nests (excluding failed/abandoned nests), appears to have peaked for all species in 2020 (mean = 2.18 chicks per active nest).

As shown in **Figure 2**, Cooper's Hawks continue to consistently fledge the highest mean number of chicks per (successful) nest[6] of each of the four focal species, with an average of 2.4 young from 2020-2025. Red-tailed Hawk and Great Horned Owl have been similar (c. 2 young/nest), with Red-shouldered Hawk showing the lowest value (1.7 young/nest).

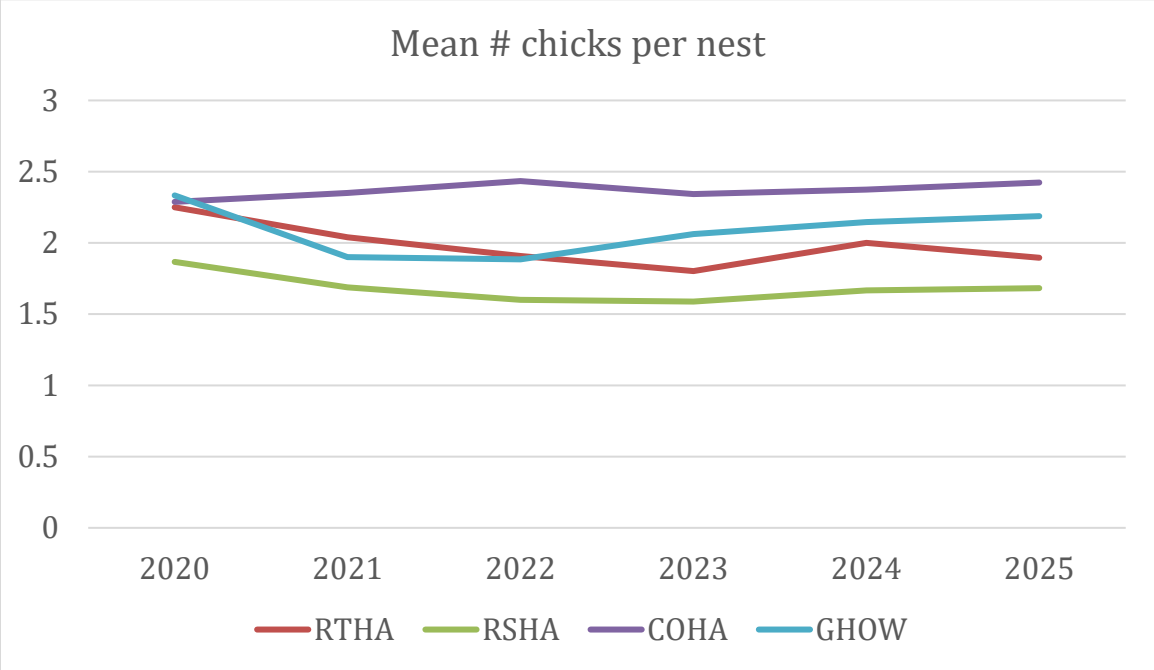


Figure 2. Mean number of chicks per nest[7], 2018-2025.

The proportion of active territories that fledge young each year for all species is another way of measuring breeding success, and we summarize this for the three hawk species in **Figure 3**. A convergence of fledging rates occurred in 2020 and 2024, though in other years, these rates differ by species, with Red-tailed Hawk and Red-shouldered Hawk rates lower than Cooper's in 2022, 2023, and again this year (2025). This was likely not due to low rainfall the prior winter (the 2023 season, for example, followed an exceptionally wet year), but to some other, as yet unknown factor. It appears that the two *Buteo* hawks may simply "take a year off" (or more), allowing Great Horned Owls or other species to use their nests, though reasons for this are unclear. It could be that Cooper's Hawks also pause breeding some years, but are less detectable than the larger hawks, so their territories are not recorded as "active" (hence inflating the observed rate of fledging across the study area).

[6] Apparently failed and abandoned nests were omitted from this analysis (i.e., those with a chick/fledgling count of zero). Including these was problematic, since we were frequently unsure if a given pair attempted to breed and produced no young, or bred somewhere else, or bred in the territory and we (or our volunteers) simply failed to find the young. And, our assessment was frequently dependent on effort and observer skill, which varies. Thus, we took a conservative approach and have only included nests with one or more young to assess productivity, and only looked at those from 2020 on (see explanation above).

[7] We include nests with large chicks that were last checked when nearly fledged, as well as confirmed fledged chicks (due to the difficulty of confirming fledging at all nests in the study with so many nests being monitored).

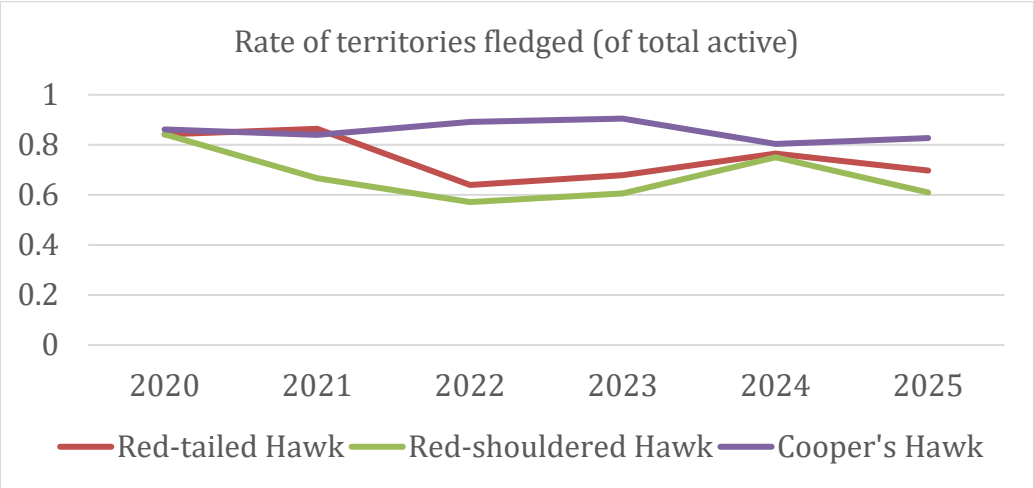


Figure 3. Proportion of territories that fledged young for each species, 2018-2024.

Re-occupancy rates of active territories year to year for the three focal hawk species are presented in **Figure 4** (such data were incompletely collected for Great Horned Owl, and other species had very low sample sizes, so are not included[8]). These rates appear to be smoothing out as we continue the project, likely due to our increased effort to confirm territory activity and fledging for *all* territories (not just known nests) well into summer, which we did not always do during the early years of the study. Overall, re-occupancy rate continues to be highest for Red-tailed Hawk (mean 76%) as compared to Red-shouldered Hawk (63%) and Cooper's Hawk (55%). Great Horned Owl territories have averaged around 50% re-occupancy; however, these require special effort (i.e., nocturnal surveys) to confirm activity, so are not included in the figures.

[8] Due to their cryptic behavior, we made no effort to search for Great Horned Owl territories, and most nests found were occupied by an incubating adult or young, hence skewing the nesting territory re-use/success calculation.

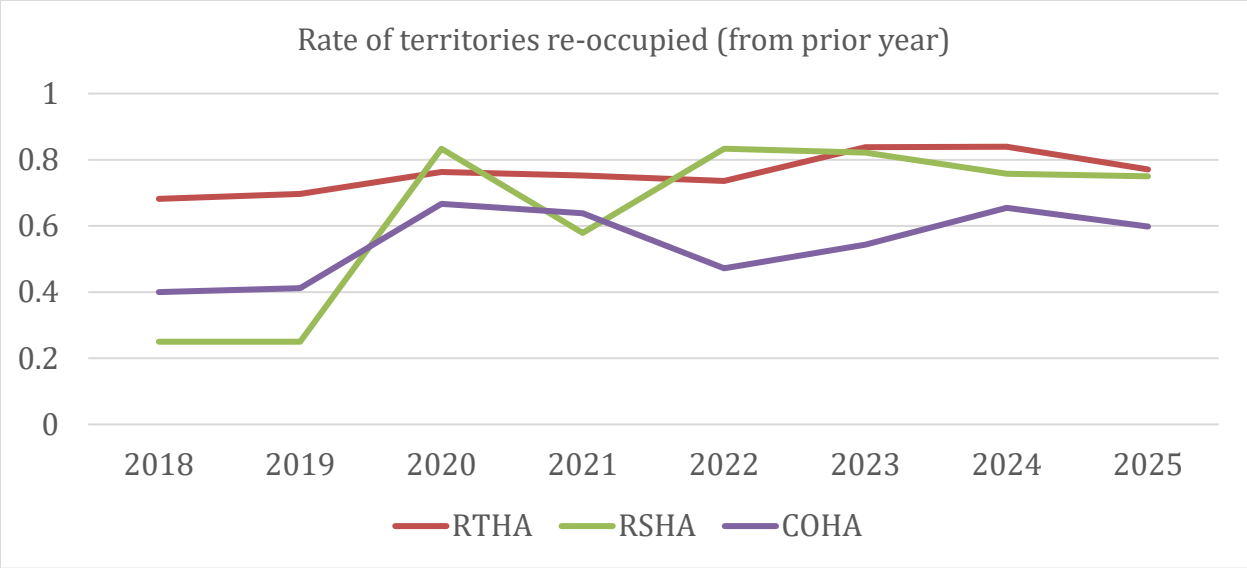


Figure 4. Annual re-occupancy rates of territories for the three focal hawk species, 2018-2024.

Trends in year-over-year breeding *success* (as measured by pairs that fledged young in both the prior *and* the current year) appeared to converge in 2025, owing largely to a dip in re-occupancy rate of Red-tailed Hawk territories (**Figure 5**).

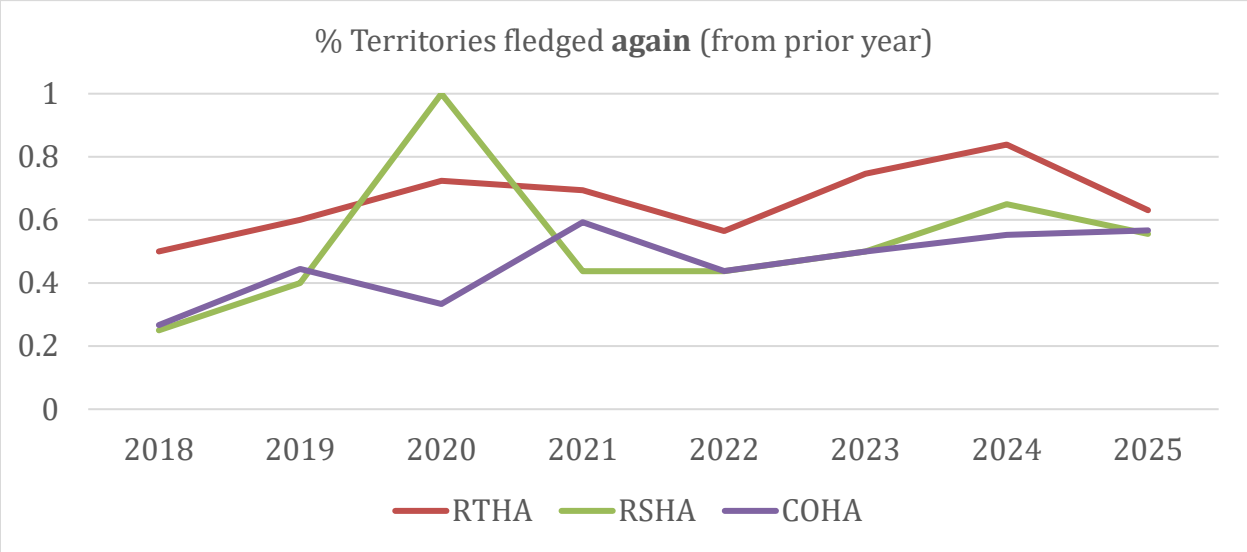


Figure 5. Proportion of territories that fledged for a second consecutive year for the three focal hawk species, 2018-2025.

3.2 Species detail

Red-tailed Hawk

This year saw 106 Red-tailed Hawk territories fledge (from 152 active territories tracked). As these numbers were down from the prior year (130 nests fledging from 170 known active territories in 2024[9]), it is likely we're "topping out" in terms of the total number of territories within the study area. This is also evident from the slowing rate of new/unknown (to us) territory discovery – just five new Red-tailed Hawk territories were newly discovered in 2025.

Fledging rates for active Red-tailed Hawk territories in 2025 (70%) were a little below the mean since 2020 (n = 6; mean = 75%) (**Figure 6a**).

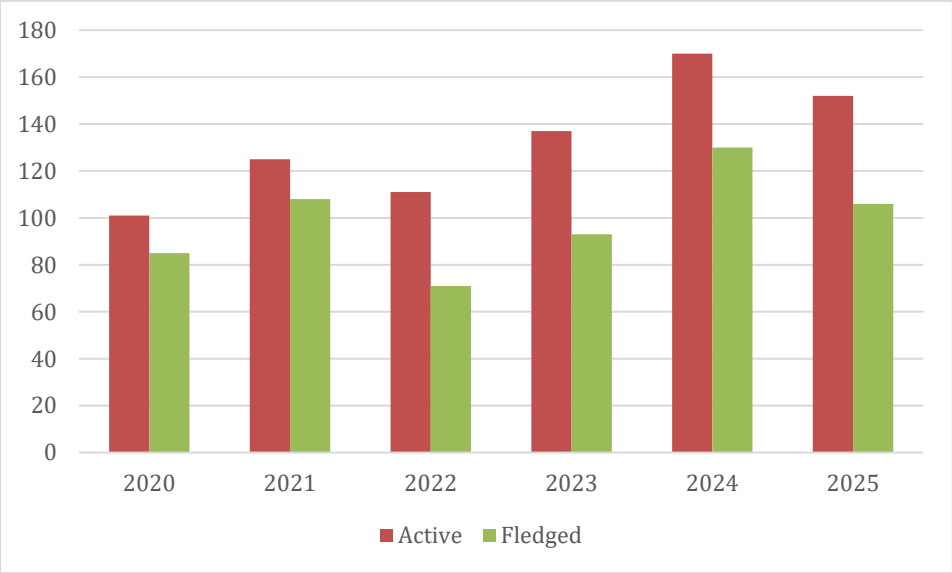


Figure 6a. Red-tailed Hawk active territories and fledging outcome, 2020-25.

Overall productivity of Red-tailed Hawks dipped in 2025 as compared to the prior year in terms of total chicks produced; the average number of chicks per nest also dropped (both were slightly below the 6-year average) (**Figure 6b**).

[9] These 2024 values may be slightly different than those reported last year, owing to improved data and analysis.

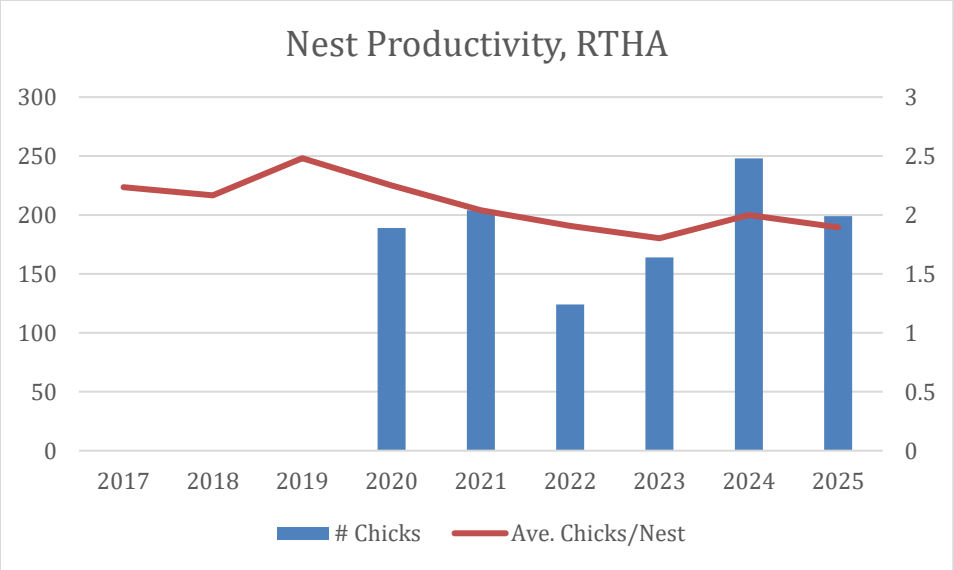


Figure 6b. Nest productivity for Red-tailed Hawk in 2025, expressed as total number of chicks across all nests (blue), and average number of young per nest (red).

Cooper's Hawk

This year (2025) saw nearly identical number of active and fledged Cooper's Hawk nests compared with 2024 (91 nests fledged out of 110 active, vs. 90 in 112 in 2024). This fledging rate (83%) was just below the 6-year average (85%) (**Figure 7a**).

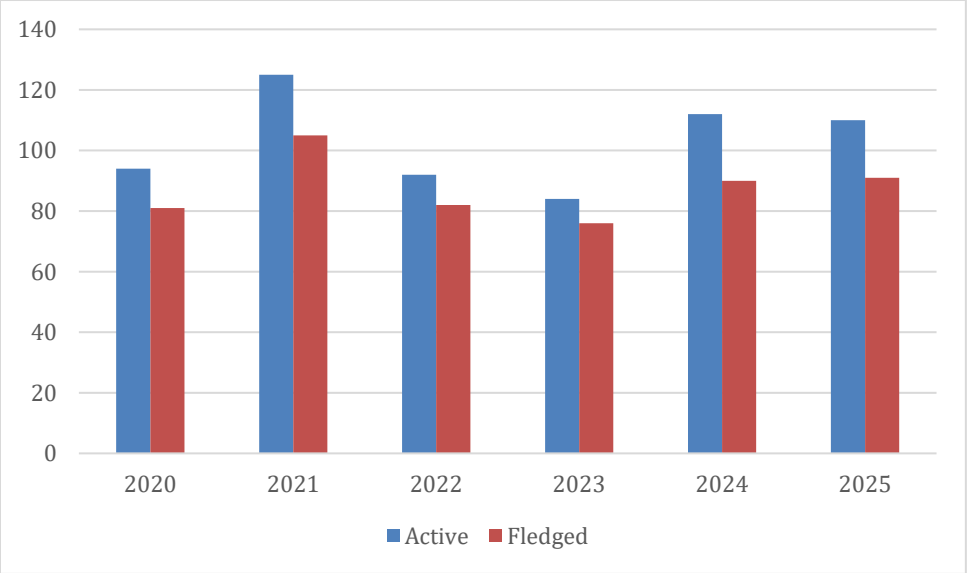


Figure 7a. Cooper's Hawk active territories and outcome, 2020-25. 2025 saw a very similar count of both total active territories and total fledged territories as in 2024.

In contrast to Red-tailed Hawks, Cooper's Hawk productivity appears to have climbed in 2025, with a notable jump in the total number of chicks produced, even as the average number of chicks per nest remained stable (**Figure 7b**). This was likely due to the continual discovery of new (successful) Cooper's Hawk nests, as discovery rate of Red-tailed Hawk nests slows down.

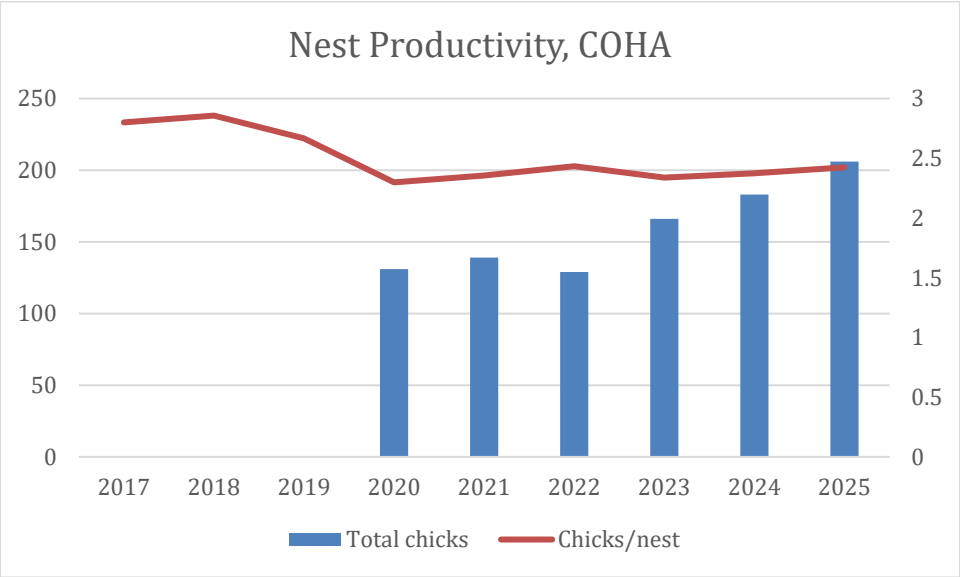


Figure 7b. Nest productivity for Cooper's Hawk in 2025, expressed as total number of chicks across all nests, and average number of young per nest.

Red-shouldered Hawk

This year (2025) saw 25 Red-shouldered Hawk nests fledge young from 41 active territories (61%). While this *number* of fledged nests was similar to that of 2024, due to the higher number of total active territories monitored in 2025, this proportion fledged represented a large drop from the prior year (75% in 2024), though only slightly lower than the 6-year average (67%) (**Figure 8a**).

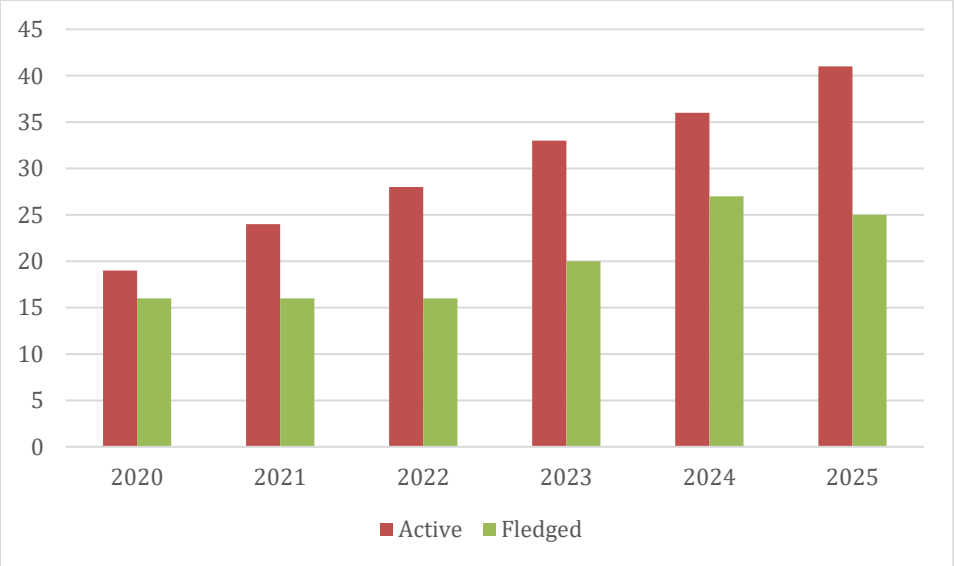


Figure 8a. Red-shouldered Hawk active territories and outcome, 2025.

The total number of chicks for Red-shouldered decreased fairly dramatically in 2025, even with more active nests being monitored, and a slight increase in young production per nest over the prior year (**Figure 8b**).

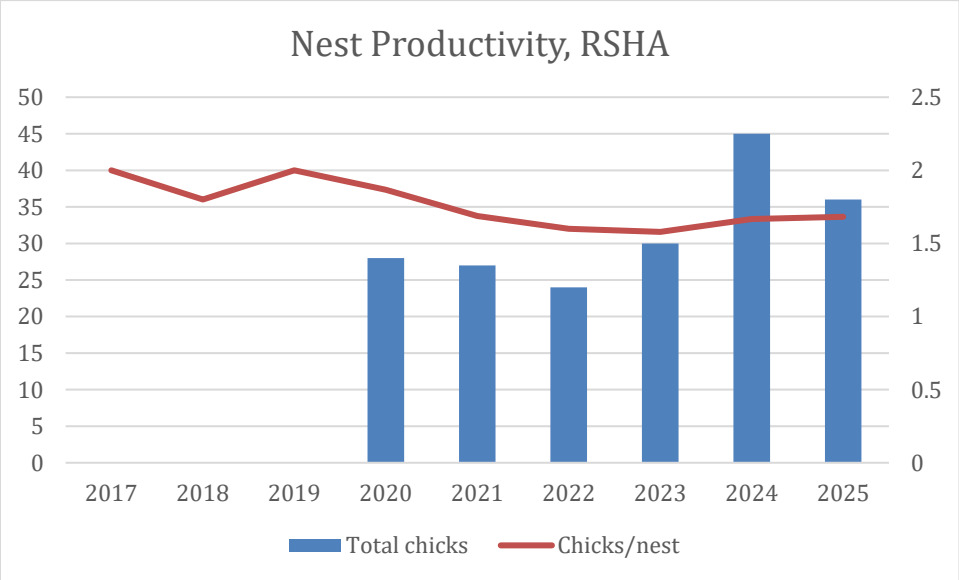


Figure 8b. Nest productivity for Red-shouldered Hawk in 2025, expressed as total number of chicks across all nests, and average number of young per nest.

Great Horned Owl

Our analysis of Great Horned Owl nests changed last year (2024) with the addition of several presumed-active territories based on reported duetting adults (which had *not* been included in prior years of the study). We had learned about these through observer tips as well as online community science platforms. In 2025, we found 32 of 48 active Great Horned Owl territories fledged young, down from 40 of 58 fledging in 2024 (i.e., a similar pattern found for Red-tailed Hawk). As in prior years, we did not attempt to specifically search for owls or owl nests in most of these territories (nor anywhere else) during the study, due to the difficulty of finding their nests during the day. However, we located several owl nests in nests that had previously been other raptor species, or ravens.

The number of owlets produced in 2025 also dipped from the 2024 high recorded, though the number of chicks per nest recorded (2.19/nest) was similar to the prior year, and near the 9-year average (**Figure 9**).

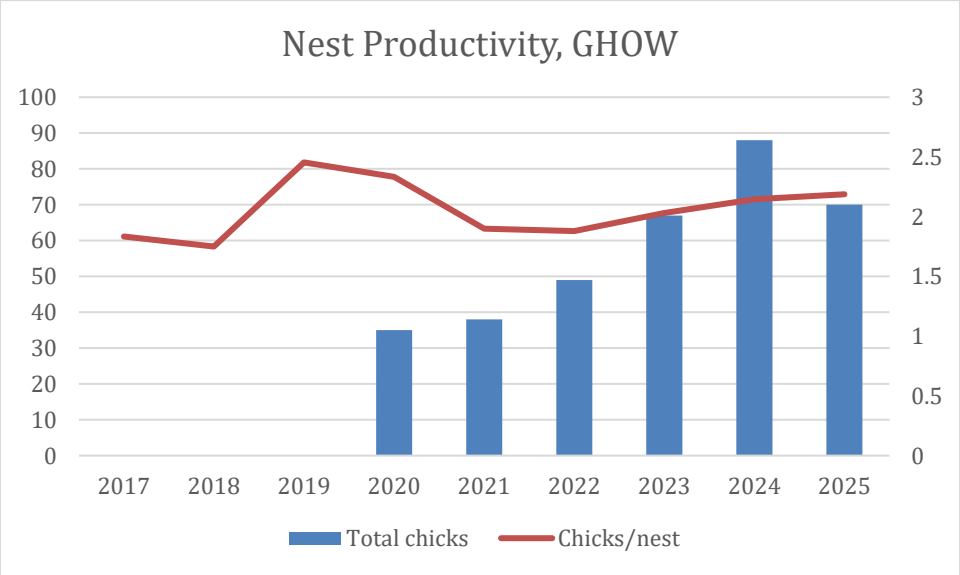


Figure 9. Nest productivity for Great Horned Owl in 2025, expressed as total number of chicks across all nests, and average number of young per nest.

Single-chick nests

Of the many ways to measure nest productivity, another is the proportion of *single-chick nests* (nests where the maximum number of chicks was believed to be just one, versus all other nests where chicks were produced), which could indicate a shortage of food that year. Assuming that Red-tailed Hawks would be most sensitive to change in precipitation (since they take more

native prey species from wildland areas than, say, Cooper's Hawk, which are well-distributed in urban areas), we again examined the relationship between precipitation the prior year, and the proportion of 1-chick nests for Red-tailed Hawk[10].

We found that the nesting seasons following the driest winters (i.e., 2018, 2021, 2022, and 2025 nesting seasons), *all* saw jumps in the proportion of Red-tailed Hawk nests with single chicks (**Figure 10**). Productivity can drop with drought, according to a study of precipitation and Northern Goshawk (*Accipiter gentilis*) nests (Bangerter et al. 2021), but the effect of extremely wet weather – while seemingly obvious – seems less well documented. We note that the two seasons following two exceptionally-high-rainfall winters, 2023 and 2024, each saw jumps in 1-chick nests. This would suggest that weather *extremes* may limit the number of young produced, albeit for different reasons (wet/stormy weather could result in chick loss due to exposure, for example). No such pattern was observed with the other raptor species, however (not graphed).

[10] As with assessing the mean number of chicks, we only included nests with one (or more) young in calculating the proportion of single-chick nests, and left out nests where we suspected no young were produced.

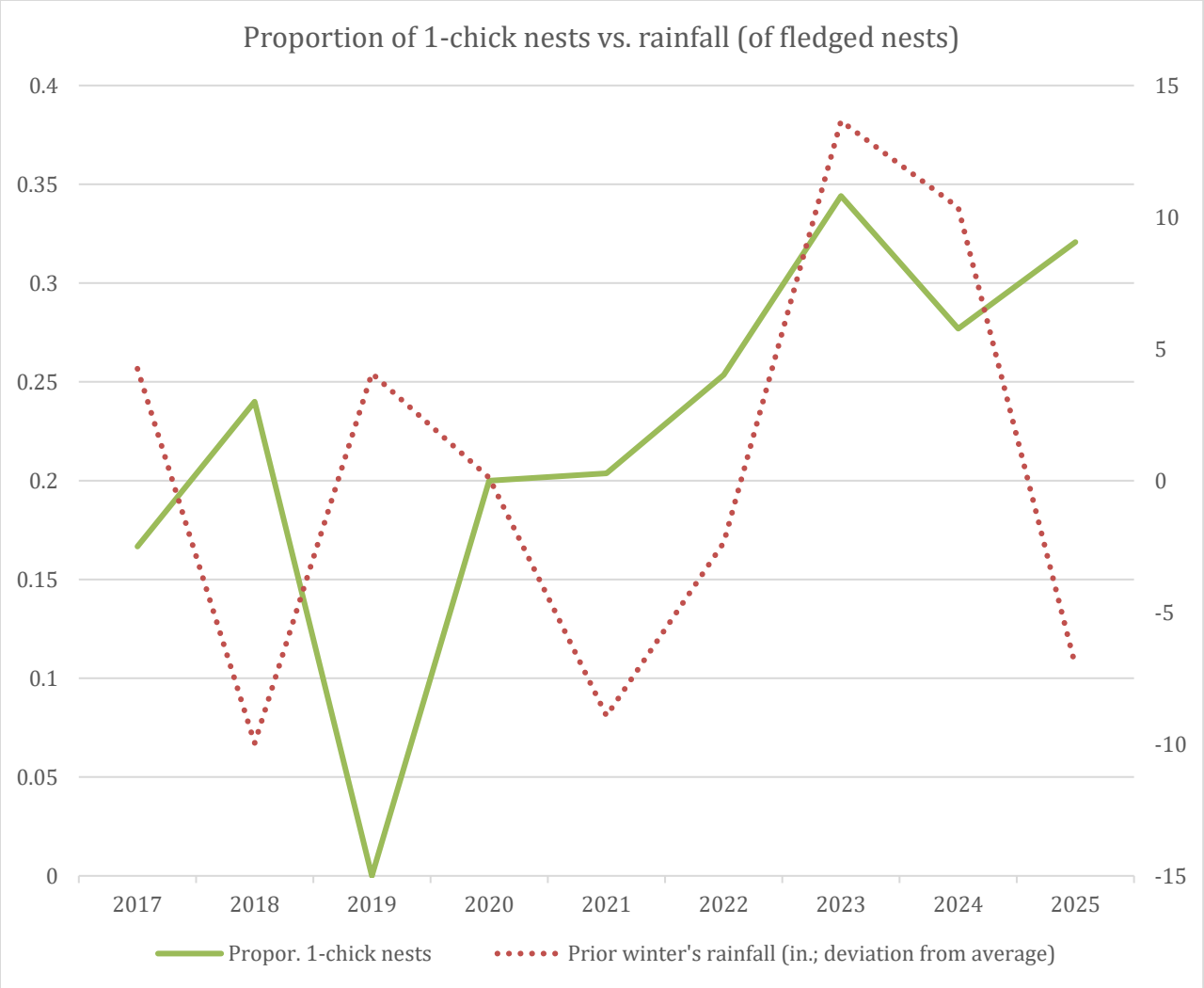


Figure 10. Proportion of single-chick nests of Red-tailed Hawks (primary y-axis) in relation to rainfall the *prior* winter (secondary y-axis). Rainfall measured from Downtown Los Angeles (see "Methods") and shown as a deviation from the c. 100-year average from the same location.

3.3 Geographic and Habitat Patterns

We intend to re-analyze geographic patterns of nesting in the future, specifically focusing on territories/nests that are active in each year of the study. As in prior years we noted Red-tailed Hawks as most numerous in the more sparsely-developed neighborhoods of the Santa Monica Mountains and Griffith Park, and still a common species in Northeast L.A. and in Silver Lake/Echo Park, with relatively few nests on the floor of the San Fernando Valley and in the urban Los Angeles Basin. As in 2024, we recorded several active Red-tailed Hawk nests in the Sepulveda Basin, suggesting a "recovery" in that area which was (inexplicably) lightly-used in 2022 and 2023.

We also intend to re-analyze nest tree and substrate type, specifically calculating the types of trees used by each species each year. Clearly, nest usage of non-native trees remains very high (in particular, pines *Pinus* spp., *Eucalyptus* spp., and Shamel ash *Fraxinus udhei*), with western sycamore (*Platanus racemosa*) supporting most of the few nests we found in a native tree species, with a handful of others being found in coast live oak (*Quercus agrifolia*).

3.4 Failed Nests

As in past years, it may be instructive to review why the few failed nests did so. In **Table 2**, we summarize all raptor nests believed to have failed in 2025, in that nesting was initiated, but was abandoned mid-season.

Eight nests of our four focal species were believed to have failed in 2024, 11 in 2023, and 12 in 2022. In 2025, 20 nests failed. This jump was likely not simply due to better coverage, as this did not substantially change in recent years. Failed nests were distributed throughout the study area, and, spring 2025 did not have exceptionally high winds, rainfall, or a heat wave that could account for this finding.

Table 2. Observations of failed raptor nests in 2025. This does not include territories with no nesting activity, where nesting was suspected but where no nest was found, or where observation time/number of visits were insufficient to determine success.

Territory	Location	Notes
RTHA-167	Griffith Park	Unk. reason; no change to nest area.
RTHA-195	Los Feliz	Unk. reason; no change to nest area.
RTHA-228	Sherman Oaks	Unk. reason; no change to nest area.
RTHA-378	Bel Air	Unk. reason; no change to nest area.
RTHA-500	Hollywood	Unk. reason; no change to nest area, but Great Horned Owl territory overlapping.
RTHA-504	Culver City	Unk. reason; no change to nest area.
RTHA-547	Sepulveda Basin	Unk. reason; no change to nest area.
RTHA-567	El Sereno	Unk. reason; no change to nest area.
RTHA-593	El Sereno	Unk. reason; no change to nest area.
RTHA-615	Los Feliz	Most of nest fell off branch (unk. reason).
RSHA-279	Beverly Hills	Unk. reason; no change to nest area.
RSHA-315	Glendale	Unk. reason; no change to nest area.
RSHA-524	Griffith Park	Unk. reason; no change to nest area.
RSHA-554	Griffith Park	Film crew directly below active nest in early April; abandoned nest by late April.

		Occupied new nest, but that nest failed-unknown reason
RSHA-561	Los Feliz	Tree-trimming during incubation (stopped), but pair still failed and raven moved in.
RSHA-687	Valley Glen	Unk. reason; no change to nest area. Chicks apparently died in nest.
COHA-317	Sherman Oaks	Major home construction near nest tree.
GHOW-101	West LA	Disturbance by tree-trimming adj. to nest site.
GHOW-331	Encino	Unk. reason; no change to nest area.
GHOW-876	Laurel Canyon	Unk. reason; no change to nest area, but a RSHA nest was very close by.

3.5 Tree-trimming and Nest disturbance

Tree-trimming/removal impacts are difficult to analyze since the timing of trimming or nest removal is not always known. Trimming itself, particularly during the fall and winter and not during the nesting season, does not appear to always result in major disturbance to nesting hawks, even if it results in the removal of nest structures. Many pairs will renest within the same territory (presumably the same birds as in the year/s prior) following tree-trimming or tree-removal. This nesting may either occur in the same nest structure (if not completely removed), or an alternate nest may be built nearby. In some cases, trimming occurs on territories where no nesting has been detected in recent years, so simply amassing examples of tree-trimming near known nests can inflate its actual impact.

However, Red-tailed Hawks do seem to abandon territories following tree or nest removal more than other raptor species, based on our observations since 2017. While some pairs are able to renest in an alternate tree, or return in subsequent years, several of these pairs have yet to return to the territories where nests were “trimmed out”, despite the existence of many seemingly suitable nest trees remaining, and our continual coverage each year (**Figure 11**).

In many cases, however, raptor pairs may simply elect not to nest (or nests will fail) even where no visible trimming or disturbance was detected, and where the prior year’s nest is still present. Or, observers note that the nest is simply be gone from the nest tree, with no sign of human disturbance (perhaps blown out by wind weeks or months before). We have not counted these instances as “disturbance”, though some may well be the result of some un-detected disturbance event. However, when observers noted clear evidence of wind or rain-caused nest disturbance, we have noted that.

Figure 11. Nest tree in Sherman Oaks before (2024) and after (2025) trimming; a Red-tailed Hawk nest that had been active in 2024 was apparently removed during trimming. While the removal of the nest structure commenced *after* fledging, this is still against state law, as raptors reuse their nests year over year. Further education of residents, tree-trimming contractors and arborists is needed. This pair did not return in 2025. Photos: Dan Cooper (before) and Nurit Katz (after).

We hope to track and analyze these disturbances more fully in future years, to search prior years' notes for clues about nest disturbance, and to examine long-term impacts to affected pairs. **Table 3** lists apparent disturbances to nests as recorded in 2025 (38 instances, up from 28 instances in 2024).

Table 3. Disturbances to nests noted during 2025 season, including notes on their impact. Some of these instances may have occurred in late 2024, subsequent to our data collection effort that year, and some may not have been the cause of the inactivity of a particular territory.

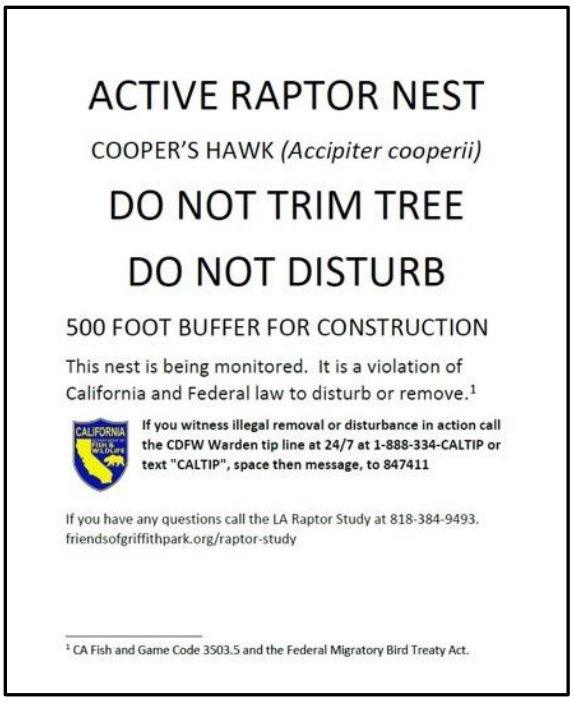
Year	**Location**	**Impact**
RTHA-LA-117	Highland Park	Trees trimmed heavily, nest gone, no activity.
RTHA-LA-249	Elysian Park	Tree trimmed, exposing nest; nest fledged.
RTHA-LA-257A	West LA	Original nest blew down; pair rebuilt in same tree and fledged young.
RTHA-LA-295	Studio City	Tree trimmed late Feb., but nest retained, and pair fledged young.
RTHA-LA-449	Highland Park	Tree severely trimmed, but nest still there, and fledged young.
RTHA-LA-453	Glendale	Original nest tree cut down; pair around but do not appear to be nesting.

RTHA-LA-505	Bel Air	Tree removed late May/early June 2025, presumably with active nest destroyed (?); pair then abandoned territory.
RTHA-LA-549A	South Pasadena	Original nest tree "decapitated" as of 2025, but pair nested in alternate tree and fledged young.
RTHA-LA-573B	Los Feliz	Tree trimmed; nest remained, but not confirmed as used.
RTHA-LA-645B	Hancock Park	Tree trimmed again, but pair fledged young presumably from alternate nest.
RTHA-LA-706	North Hollywood	Nest in tower apparently blown out by January winds, but rebuilt, and adult incubating when last checked.
RTHA-LA-826	Glendale	Nest blown out by wind; no activity.
RSHA-LA-068E	Mt. Washington	Tree severely trimmed, nest gone; pair apparently found alternate site and fledged young.
RSHA-LA-255A	Sherman Oaks	Nest tree "decapitated"; pair renesting in pine across street.
RSHA-LA-517	Studio City	Tree trimmed, but pair rebuilt in same tree and fledged young.
RSHA-LA-561C	Los Feliz	Tree-trimmers stopped by our staff, but nest still failed.
RSHA-LA-598	Mt. Washington	Tree trimmed in November, and nest removed; pair around, but nesting unconfirmed.
RSHA-LA-691B	Culver City	Tree trimmed in May and exposed nest; fledged one chick.
COHA-LA-063A	Eagle Rock	Possible wind-blown, but tree-trimming nearby; no activity.
COHA-LA-161	Atwater Village	Extreme tree trimming, nest gone; fledged young from alt. nest.
COHA-LA-173C	Mt. Washington	Nest trimmed out, still fledged chicks
COHA-LA-317A	Sherman Oaks	Construction nearby; nest failed.
COHA-LA-363	Hollywood	Tree heavily trimmed; nest gone; no activity.
COHA-LA-398	Valley Glen	Trees removed/trimmed; no activity.
COHA-LA-406	Valley Glen	Trees removed/trimmed; no activity.
COHA-LA-414	Studio City	Nest trimmed out; pair not around.
COHA-LA-421A	Van Nuys	Tree trimmed, nest gone; fledged young from alt. nest.
COHA-LA-486A	Larchmont	Trimmed; nest gone; single adult around but no alt. nest found.
COHA-LA-552	Los Feliz	Trimmed with nest exposed; no activity.
COHA-LA-614	Los Feliz	Trees greatly trimmed; no activity.
COHA-LA-629	South LA	Tree looked thinned; no nest, no activity.

COHA-LA-637	Hollywood	Prior nest tree removed; fledged young from alt. nest.
COHA-LA-696	Hollywood	Severely trimmed, right next to nest; still fledged young.
COHA-LA-771	Westwood	Tree trimmed; no activity.
COHA-LA-830	Glendale	Nest blown out by wind; rebuilt, and fledged young.
COHA-LA-862	Burbank	Heavily trimmed, nest still there, just exposed (inactive); no activity.
GHOW-LA-101C	Westwood	See above (tree-trimming near nest/failed)
GHOW-LA-317	Sherman Oaks	Washed away by rains; no activity.

It is likely that our paying more attention to these events, encouraging volunteers to do the same (with a separate category on the data form), and more diligent recording of this information, we now have a better picture of the extent of this disturbance. Fortunately, several territories seem to have weathered this disturbance and fledged young, though many did not.

As in 2024, to address trimming issues, we offered a sign to volunteers to place on nest trees that they were able to access that included information about applicable laws protecting the nests. We also provided a letter for interested volunteers to place in resident mailboxes to make them aware of nests on their property (**Figure 12**). Again in 2025, these letters proved helpful, and in a few cases residents contacted the study with issues.



ACTIVE RAPTOR NEST

COOPER'S HAWK *(Accipiter cooperii)*

DO NOT TRIM TREE

DO NOT DISTURB

500 FOOT BUFFER FOR CONSTRUCTION

This nest is being monitored. It is a violation of California and Federal law to disturb or remove.[1]

If you witness illegal removal or disturbance in action call the CDFW Warden tip line at 24/7 at 1-888-334-CALTIP or text "CALTIP", space then message, to 847411

If you have any questions call the LA Raptor Study at 818-384-9493.
friendsofgriffithpark.org/raptor-study

[1] CA Fish and Game Code 3503.5 and the Federal Migratory Bird Treaty Act.

Dear Resident,

You must have a lovely garden and home, because you've been chosen by **a special hawk or owl who is nesting in your tree**! These birds are unique and important parts of our local ecology.

We are monitoring the nest from the street as part of the Los Angeles Raptor Study, so you might see a volunteer with binoculars looking up at your trees. You can learn more about the study at **friendsofgriffithpark.org/raptor-study** and can contact me at 818-384-9493 with any questions or concerns.

The birds have special protections under state and federal laws- so if you are considering any tree trimming or construction in the area please reach out to me and/or be sure to notify your arborist there is a nest. If not an emergency, trimming should only be done in the fall after the babies have flown away. If there is a need to do anything during the nesting season- spring and summer for hawks, winter and spring for owls, you should get a consult with a wildlife biologist to be sure you aren't fined for improper practices. We would be happy to help with any questions, or there are good best practice resources at **treecareforbirds.com**

Lastly, as you might have heard about from case of the famous mountain lion P22, rat poison can make our wildlife very sick and can kill hawks and owls. Please encourage your neighbors not to use any poison and to use snap or electric traps instead for rodent control. The hawks and owls are great at catching rats too and should help!

Thank you for being good neighbors to our wildlife!

Nurit Katz

Outreach Coordinator, LA Raptor Study
818-384-9493
raptors@friendsofgriffithpark.org

Figure 12. Examples of tree signs and resident letters distributed to volunteers for posting and placing in resident mailboxes.

In addition to these education efforts, the LA Raptor Study was featured in the Daily News Premium Magazine story "How citizen science projects can expand your world – and help researchers.".

3.6 Raptor Mortality, Rescue, and Rehabilitation

One of the leading causes of injury and death for raptors in urban areas are collisions with vehicles and buildings. Dead adults and juveniles have been observed in the street due to vehicle collisions. Sometimes injured raptors survive and are able to be transported to licensed wildlife rehabilitators for treatment and rehabilitation. Katz serves as a volunteer with the Ojai Raptor Center, assisting with capture, transport, and release. In recent years, a successful partnership with LA Animal Services SMART team (https://www.laanimalservices.com/about-us-2/smart/) has led to a decreased need for staff transport and capture, and SMART has been able to assist in more challenging rescues. In 2025, SMART handled a range of raptor rescues including "re-nesting[11]" multiple Great Horned Owl nestlings at known nests.

In 2025 we received a number of reports of difficult-to-witness mortalities, including multiple Cooper's Hawk fledgling mortalities, one of which was completely flattened by a vehicle. Rodenticide continues to be a major threat to local raptors, and *all* dead raptors in the study area that have been tested (Testing coordinated by Friends of Griffith Park) have had evidence of multiple rodenticides in their system, and in some specimens, they were found to be the likely cause of death.

Disease can also impact urban raptors, including trichomoniasis, spread by members of the family Columbidae (pigeons and doves), including the feral Rock Pigeon. In 2022 a juvenile Cooper's Hawk was rescued in Echo Park in July after a window collision and had a burst crop (which can be a symptom of trichomoniasis infection). After transport, this juvenile tested positive for trichomoniasis, and although the injuries could have been repaired, it unfortunately had to be euthanized due to the disease.

Notable rescues in 2025 included a bedraggled and wet Barn Owl that was spotted by a volunteer in the LA River riverbed (**Figure 13**), and a Red-tailed Hawk that was surrendered after being kept at someone's apartment for two weeks.

[11] "Re-nesting", as used by wildlife rehabilitators, involves carefully replacing a young chick (still highly dependent on its parents) back into the nest from which it had fallen. These operations are done by trained, licensed professionals, usually with ropes, cranes, and other climbing gear, and are not attempted by Los Angeles Raptor Study staff. This usage is different from "renesting" used by ornithologists, which refers to a pair producing (or attempting to produce) a second brood of young in the same calendar year.

Figure 13. Officer Jose Navarro of LA Animal Services SMART team, with rescued Barn Owl. Photo credit: Alec Thompson

3.7 Rare Species

Just two American Kestrel territories were active in 2025, both along the Los Angeles River. One nest was in a sycamore at Bette Davis Park just north of Griffith Park, and the other was in or near Rio de Los Angeles State Park just north of downtown.

We monitored seven Peregrine nests, and confirmed chicks at two, one at Griffith Park and another at a long-term (est. 1980s[12]) mid-Wilshire high-rise site. As noted last year, confirming the exact nest site is difficult and requires coordination with building management; we hope to do additional outreach in the coming year.

We monitored two Barn Owl territories within the study area, but only confirmed breeding at one just to the west of the study area (Mar Vista). While we didn't formally monitor Western Screech-Owls, successful nesting was confirmed at a single site in Mt. Washington via iNaturalist. We still have yet to confirm breeding of Turkey Vulture, though scattered singles and pairs were detected during the study.

[12] https://www.latimes.com/archives/la-xpm-1985-01-01-vw-10376-story.html

Figure 14. American Kestrel with lizard prey (L), and adult Kestrel bringing prey to juvenile in cavity nest (R). Photo credit: Greg Slak

4.0 LITERATURE CITED

Allen, L.W., K.L. Garrett, and M.C. Wimer. 2017. Los Angeles County Breeding Bird Atlas. Los Angeles Audubon Society. 638 pp.

Artuso, C., C.S. Houston, D.G. Smith and C. Rohner.(2013).Great Horned Owl (*Bubo virginianus*), The Birds of North America (P.G. Rodewald, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America: https://birdsna-org.bnaproxy.birds.cornell.edu/SpeciesAccount/bna/species/grhowl

Bangerter, A.B., E.R. Heiser, J.D. Carlisle, and R.A. Miller. 2021. Local weather explains annual variation in Northern Goshawk reproduction in the northern Great Basin, USA. J. Raptor Research. 55:471-484.

Beebe, F.L. 1974. Field studies of the Falconiformes of British Columbia: vultures, hawks, falcons, eagles. British College Proceedings Museum Occasional Paper No. 17. Victoria, BC, Canada.

Bennett, J.R. and P.H. Bloom. 2005. Home range and habitat use by great horned owls (*Bubo virginianus*) in southern California. Journal of Raptor Research. 39:119-126.

Bloom, P.H. 1985. Raptor movements in California. pp. 99 – 123. In Harwood, M. ed. Proceedings of Hawk Migration Conference IV. Rochester, NY.

Bloom, P.H., M.D. McCrary, and M.J. Gibson. 1993. Red-shouldered Hawk home range and habitat use in southern California. J. of Wildlife Manage. 57:258-265.

Bloom, P.H. and J. Catino. 2016. Nesting Raptors of the Irvine Ranch Wildlands and Associated Environs. Unpublished report.

Boarman, W.I. and B. Heinrich. 1999. Common Raven (Corvus Corax), The Birds of North America (P.G. Rodewald, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America: https://birdsna-org.bnaproxy.birds.cornell.edu/Species-Account/bna/species/comrav

Chiang, S.N., P.H. Bloom, A.M. Bartuszevige, and S.E. Thomas. 2012. Home Range and habitat use of Cooper's Hawks in urban and natural areas. Urban bird ecology and conservation. Studies in Avian Ecology (no. 45).

Clark, R.J. 1977. Cooper's Hawk hunting in the city. Auk 94:142-143.

Cooper, D.S. and P. Mathewson. 2009. Griffith Park Wildlife Management Plan. Retrieved from the Friends of Griffith Park: http://www.friendsofgriffithpark.org/wp-content/uploads/2016/10/GP-WMP-Final.pdf

Cooper, D.S., C. Aiken and A. Spyrka. 2017. Nesting raptors of Griffith Park and the surrounding area, 2017. Report to Friends of Griffith Park, July 15, 2017.

Garrett, K. and J. Dunn. 1981. Birds of Los Angeles County: Status and Distribution. Los Angeles Audubon Society. 408 pp.

Goodman, T. 2025. How citizen science projects can expand your world – and help researchers. Daily News, Premium Magazine. https://www.dailynews.com/2025/06/04/how-citizen-science-projects-can-expand-your-world-and-help-researchers/

Pericoli, R.V. and A.M. Fish. 2004. GGRO's East Bay Cooper's Hawk Intensive Nesting Survey – 2003. Golden Gate Raptor Observatory/Golden Gate National Parks Conservancy. Unpublished Report. May 2004.

Preston, C.R. and R.D. Beane. 2009.Red-tailed Hawk (*Buteo jamaicensis*), The Birds of North America (P. G. Rodewald, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America: https://birdsna-org.bnaproxy.birds.cornell.edu/Species-Account/bna/species/rethaw

Rosenfield, R.N. 2018. The Cooper's Hawk: Breeding Ecology &Natural History of a Winged Huntsman. Hancock House. 164 pp.