

GOLDEN GATE
NATIONAL
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CONSERVANCY

PACIFIC RAPTOR

GOLDEN GATE RAPTOR OBSERVATORY





Photo: Allison Taggart-Barone

PACIFIC RAPTOR 43

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Front cover: Adult Red-shouldered Hawk at Hawk Hill, subspecies *elegans*. © John Davis

Photographer's note: *Time on Hawk Hill inevitably means questioning raptor identifications. Sometimes it's an identification from another hawkwatcher that*

just doesn't sit right. Sometimes it is your own identification that earlier felt confident but now seems suspect. We collectively wish the hawk was closer or in better light or in focus. We hope for a turn, for the flash of an undeniable field mark. This adult Western Red-shouldered Hawk, seen from Hawk

Hill in mid-November 2021, was a rare and very different moment for our hawkwatch team. With a perfectly lit, eye-level pass, uncertainty halted, discussion ceased, and a gorgeously clear identification in the North Quadrant wrapped up our season.



Volunteer GGRO bander Jean Perata holds an adult female Rough-legged Hawk, just the sixth Roughleg banded here in 39 years. Jean has banded at GGRO for 33 years, having started in 1988. Rough-legged Hawks nest in tundra, and so are great examples of the grandeur of the Pacific Flyway. Photo: Teresa Ely

INTRODUCTION

Dear Friends and Supporters,

The Pacific Flyway is a vast area of land and water stretching from Alaska to Patagonia, traveled by tens of thousands of migrating raptors each year. A broad highway of sorts, made of mountains and deserts, forests and fields, cities and towns. Viewed from a raptor's eye, it wouldn't resemble our maps, divided into countries, states, counties. Pacific Flyway raptors follow an incredibly varied landscape, often along the Pacific Ocean, and dotted with rest stops in the form of hilltops, wetlands or meadows, or even ledges on tall buildings.

To understand and protect raptors along their journey, there is a network of people, places, and partnerships that collaborate in numerous ways across this immense geography. For example, Golden Gate Raptor Observatory (GGRO) volunteers banded a female Cooper's Hawk in the Marin Headlands in 2011. A decade later, the same hawk was found grounded in Delta, British Columbia, and brought to the staff of the Orphaned Wildlife Rehabilitation Center for treatment. A Red-tailed Hawk banded by GGRO volunteers in the Marin Headlands in August 2018 was found two months later struggling to stand on a San Diego golf course. The San Diego Department of Animal Services came out to care for the bird.

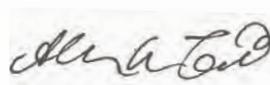
We work directly with over 50 partners to study and protect the Pacific Flyway. These are nature centers, universities, and government agencies, comprised of rescuers, rehabbers, scientists, activists, policymakers, teachers, and volunteers. Collectively, we form a grand safety net of information and action, tracking the lives of migrating raptors.

As we continue to navigate the impacts of the COVID-19 pandemic, we want to extend a special thanks to you for your ongoing support of our work and vision. Your contributions not only support the conservation of Pacific Flyway raptors, but also bring more voices to raptor conservation through our community approach to science. Our work together has never been more apparent, and necessary, than now.

With gratitude,



Christine Lehnertz
President & CEO,
Golden Gate National Parks Conservancy



Allen Fish
Director, Golden Gate Raptor Observatory
Associate Director, Conservation & Community
Science, Golden Gate National Parks Conservancy

GGRO ANNOUNCEMENTS

PEOPLE

We were truly fortunate in 2021 to bring two shining stars to the GGRO: Ashley Santiago and Mellice Hackett.

Ashley Santiago was selected from a competitive field to be the first-ever GGRO Seasonal Biotechnician. With the loss of the 25-year-long internship program due to the pandemic, we were able to bring aboard an experienced raptor biologist for the migration season.

Ashley was *Hawkwatch International's* Lead Bander at Bonney Butte in Oregon for two seasons, one of the best raptor migration sites in the Cascades. She has also worked with Dr. Julie Heath and Full Cycle Phenology studying American Kestrels, and spent a season as a Golden Eagle Technician with Boise State University surveying eagle territories, and rappelling into nests to monitor the presence of parasites.



Ashley Santiago

In 2021, Ashley provided critical support to GGRO staff and volunteers. She brought her skills as a raptor bander and counter to our field programs and her leadership to our day-to-day operations, maximizing our safety practices in this second COVID-19 year.

Ashley is now pursuing a master's degree in Raptor Biology at Boise State University and continues to study Golden Eagles. Our congratulations and our great thanks for spending 2021 back in California supporting the GGRO.

Mellice (Mel) Hackett is the first Operations Manager working with our entire Conservation and Community Science Department at the Parks Conservancy. Mel brings a wealth of administrative, problem-solving, and interpersonal skills to the GGRO. Originally from Minnesota, Mel came to San Francisco for college and never left, having fallen in love with this intricate city and its many stories and parklands. Over her subsequent 12 years of working with *Hosteling International* (HI), Mel worked at three San Francisco sites before transferring to the Marin Headlands Hostel. The Marin Headlands landscape also worked its magic on Mel—as it does for so many of us who get to work here—and we were lucky in the summer of 2021 to bring Mel onto our team.

Partly as a result of acquiring a global community of friends from her years at HI, Mel loves to travel the world, and currently lives in Sausalito with her partner and their dazzling sled dog.



Mellice (Mel) Hackett

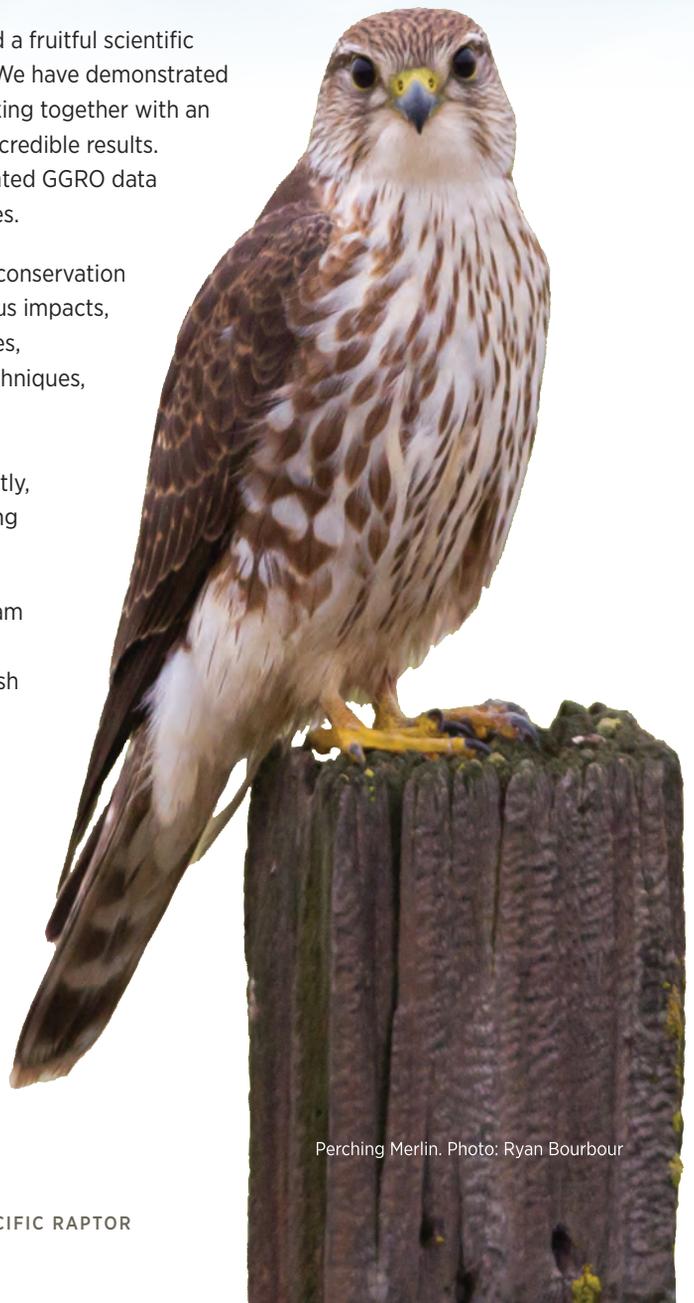
SCIENCE

Book review: While juggling many shifting gears in our second year of pandemic operations, GGRO raptor biologist and banding manager Teresa Ely somehow found time to review the newest in-hand guide to raptor ageing, sexing, and identification. Written largely from a bander's perspective, the information in the *In-Hand Guide to Diurnal North American Raptors* is an excellent skill-building tool for any serious birder or biologist. It can be purchased from our colleagues at hawkwatch.org.

Collaborations: Since 2006, the GGRO has enjoyed a fruitful scientific partnership with the Joshua Hull Lab at UC Davis. We have demonstrated that a long-term community science program working together with an innovative university research team can produce incredible results. Over 16 years, eight graduate students have presented GGRO data at 22 conferences and published 16 scientific articles.

Together, we have studied many aspects of raptor conservation biology: species population genetics, West Nile virus impacts, stable isotopes, *Chlamydia* infection, blood parasites, phenology and climate change, raptor trapping techniques, human bias in *Accipiter* identification, age and sex bias in migration timing, morphometrics, ectoparasites, rodenticide impacts, and most recently, novel approaches to analyzing the diets of migrating raptors.

In 2021, doctoral student Ryan Bourbour, with a team of UC Davis and GGRO co-authors, published his article on Merlins in the *Ibis*, the journal of the British Ornithological Union and one of the most widely read bird science journals in the world. "Falcon Fuel: metabarcoding songbird species in the diet of juvenile Merlins migrating along the Pacific Coast of North America" is the latest publication made possible by our collaboration. Congratulations to Ryan Bourbour, and great thanks to Dr. Joshua Hull and to all the graduate students who have worked to strengthen the GGRO-UC Davis alliance over the years.



Perching Merlin. Photo: Ryan Bourbour

BUTEO HABITS AND ACCIPITER LIFESTYLE: the California Red-shouldered Hawk

TERESA ELY

Red-shouldered Hawks are a favorite in the Marin Headlands among both hawkwatchers and banders. For starters, these western adult Redshoulders are beautiful, with black-and-white-checked flight feathers set against a deep rufous color on their shoulders and breast.

Redshoulders are also unique raptors in California because they fill a niche between the soaring hawk and the forest-hunting accipiter. While they are buteos, they have accipiter tendencies in their flight and hunting behaviors. They are found in riparian and oak woodland habitats. Their diet consists of a variety of animals—small mammals and birds, and also snakes, lizards, fish, crayfish, and worms!

We were ecstatic that this year was a good banding season for Redshoulders. We banded 22 in 2021, while the annual average is 17. Over the previous six years (excluding 2020 when we did not band), our annual banding numbers have ranged from one to 15



A juvenile Red-shouldered Hawk like this one flew from the Marin Headlands to Arizona in one month (see page 5 photos).
Photo: Ashley Santiago

Redshoulders, which made 22 feel like a huge leap. In addition, 2021 hawkwatch numbers were close to average, with 330 sightings despite the reduced season and just 8% under the program's average Redshoulder rate (see table on page 9).

We regularly count and band Red-shouldered Hawks in the Marin Headlands during fall migration, but are they considered truly migratory? According to *Birds of North America*, the western subspecies of Red-shouldered Hawk, *Buteo lineatus elegans* (translates as “the elegant banded soaring hawk”) is considered mostly non-migratory, or a partial migrant (Dykstra et al. 2020). Yet the northernmost nesting populations move south as a response to changes in prey availability in the winter.

In southern California, raptor biologist Pete Bloom and colleagues banded an incredible 2800 Red-shouldered Hawk nestlings over 40 years, and found that over 91% of the hawks were short-distance dispersers, each moving less than 100 km (Bloom et al. 2011). The rest were long-distance dispersers, each moving more than 100 km. Just three of the long-distance hawks (2.5% of the total) were vagrants (see below)—they flew long distances but moved outside of the hawks' normal range.

In the Bay Area, Red-shouldered Hawks are fairly common. You can see them in San Francisco while driving along Park Presidio Boulevard, in Marin County in Tennessee Valley, and among many of the region's riparian and eucalyptus forests. They are reliably sighted in any areas that fit their preferred habitat of creeks and trees.

At the GGRO, we have banded 502 Red-shouldered Hawks since 1982 and have recorded 27 recoveries/encounters as of December 2021. This is about a 5% recovery rate, compared to the general band recovery rate for medium-sized raptors, which is about 3%. Almost 90% of our Redshoulder recoveries have come from the greater Bay Area. These 25 records show hawks moving less than 100 km from the Marin Headlands, with an average distance of 50 km. They also generally moved northerly rather than southerly from the Bay Area. However, we have also received two recoveries for long-distance Redshoulders that traveled over 150 km.

Our first long-distance Redshoulder recovery was Band Recovery #1413. This hawk was banded on October 27, 2014, as a juvenile (hatch-year) bird. It was found dead on August 14, 2016, alongside Highway 101 in Eureka, Humboldt County, CA, most likely the victim of a vehicle collision.

The most recent Redshoulder recovery, #1712, was truly unexpected. It was a juvenile male, banded on October 1, 2021, and then was resighted by its color band (Blue A09) only a month later on November 4, in Dateland, Yuma County, Arizona—a distance of 900 km in 35 days! We were excited to receive our first color-band resighting of a Red-shouldered Hawk that flew farther than any other Redshoulder in our database. Even more amazing, A09 was photographed with another Red-shouldered Hawk, an adult, in a palm grove. The birds were seen together for a few days, according to eBird records: ebird.org/checklist/S97115607

This bird could be considered a vagrant. Vagrants are animals that move outside of their recognized ranges and migratory pathways, often associated with weather disturbances. There are many records of Red-shouldered Hawks in Arizona (Glinski 1988, Bloom et al. 2011), therefore it is not out of the ordinary. What is interesting is the incredible distance it flew to get there. We know from banding that the hawk was in the Marin Headlands in early October 2021. In late October, an atmospheric river swept through the Bay Area bringing historic heavy rains (Mt. Tamalpais in Marin County received 16.5 inches



These photos were taken of a banded juvenile Red-shouldered Hawk in Dateland, Arizona, by David Stejskal on November 4, 2021, and published on eBird. Great thanks to David and to Gary Rosenberg for their careful photo documentation of this hawk, far outside its normal range. This demonstrates the power of two community science efforts—GGRO banding and eBird—working together.

of rain in 48 hours). Could this storm event in California have helped push A09 to Arizona?

Unfortunately, we do not have any sightings between its banding date and its resighting date in Arizona, so we cannot piece together A09's exact movements. In the future, we hope to examine Red-shouldered Hawk movements more closely using satellite transmitters. This would be especially useful since band recoveries are biased toward hawks that fly to urban areas, simply because there are more people there to find them. Hawks tracked by satellite would give a fuller picture of hawk movements to more remote regions.

We do know that western Red-shouldered Hawks have been expanding their range in recent decades, with individual birds turning up in places like the Great Basin Desert, Arizona, Nevada, western Oregon, western Washington, and even Canada (Bloom et al. 2011). Western Redshoulders can adjust to human-caused habitat change, as observed by how often they nest in non-native trees such as eucalyptus (Rottenborn 2000) or palms (Bloom et al. 1993).

Looking at the ages of these recovered and encountered birds, four hawks were between nine and ten years old when recovered, and all four were found within 80 km of the Marin Headlands—Mill Valley, Deer Island Open Space (near Novato), Santa Rosa, and San Francisco. The majority of the Redshoulders recovered were three to five years old (14 birds), and ten birds were juveniles (hatch-year and second-year).

In sum, Red-shouldered Hawks are occasionally found in areas outside of their breeding range, and more information is needed to fully understand their partial migrations and dispersal. We hope through our color-banding work, and through the increasing use of eBird and bird photography, that our resighting rate will increase over time.

As an aside, in our experience color banding has varied in its impact on resighting rates, possibly due to different raptors' habits and preferences. After we started color banding Red-tailed Hawks, their resighting/encounter rate rose from 5% to 8%. We believe this was because of the Redtails' habits—they can be seen sitting on light posts or soaring above, in open areas and in urban areas, making the color band easy to read. In contrast, we have also color banded Cooper's Hawks, but their resighting rate did not increase. This was most likely due to their more elusive habits and preference for dense forested areas (and that they do not sit long in one spot for a photo). It will be interesting to see if color banding our photogenic Red-shouldered Hawk with its *buteo* habits and *accipiter* lifestyle will result in more resightings, especially in areas outside of its normal range.

Data presented in this article are preliminary and not to be used for publications outside of the GGRO. Raptor biologist Teresa Ely is GGRO's banding manager.

References:

- Bloom, PH, JM Scott, JM Papp, SE Thomas, and JW Kidd. 2011. Vagrant western Red-shouldered Hawks: origins, natal dispersal patterns, and survival. *Condor* 113: 538-546.
- Bloom, PH, MD McCrary, and MJ Gibson. 1993. Red-shouldered Hawk home-range and habitat use in southern California. *Journal of Wildlife Management* 57: 258-265.
- Dykstra, CR, JL Hays, and ST Crocoll. 2020. Red-shouldered Hawk (*Buteo lineatus*), version 1.0. In *Birds of the World* (A. F. Poole, ed). Cornell Lab of Ornithology, Ithaca, NY, USA. <https://doi-org.libproxy.boisestate.edu/10.2173/bow.reshaw.01>
- Gliniski, RL. 1982. The Red-shouldered Hawk (*Buteo lineatus*) in Arizona. *American Birds* 36: 801-805.
- Red-shouldered Hawk Blue A09 eBird entry: <https://ebird.org/checklist/S97115607>
- Rottenborn, SC. 2000. Nest-site selection and reproductive success of Red-shouldered Hawks in central California. *Journal of Raptor Research* 34: 18-25.



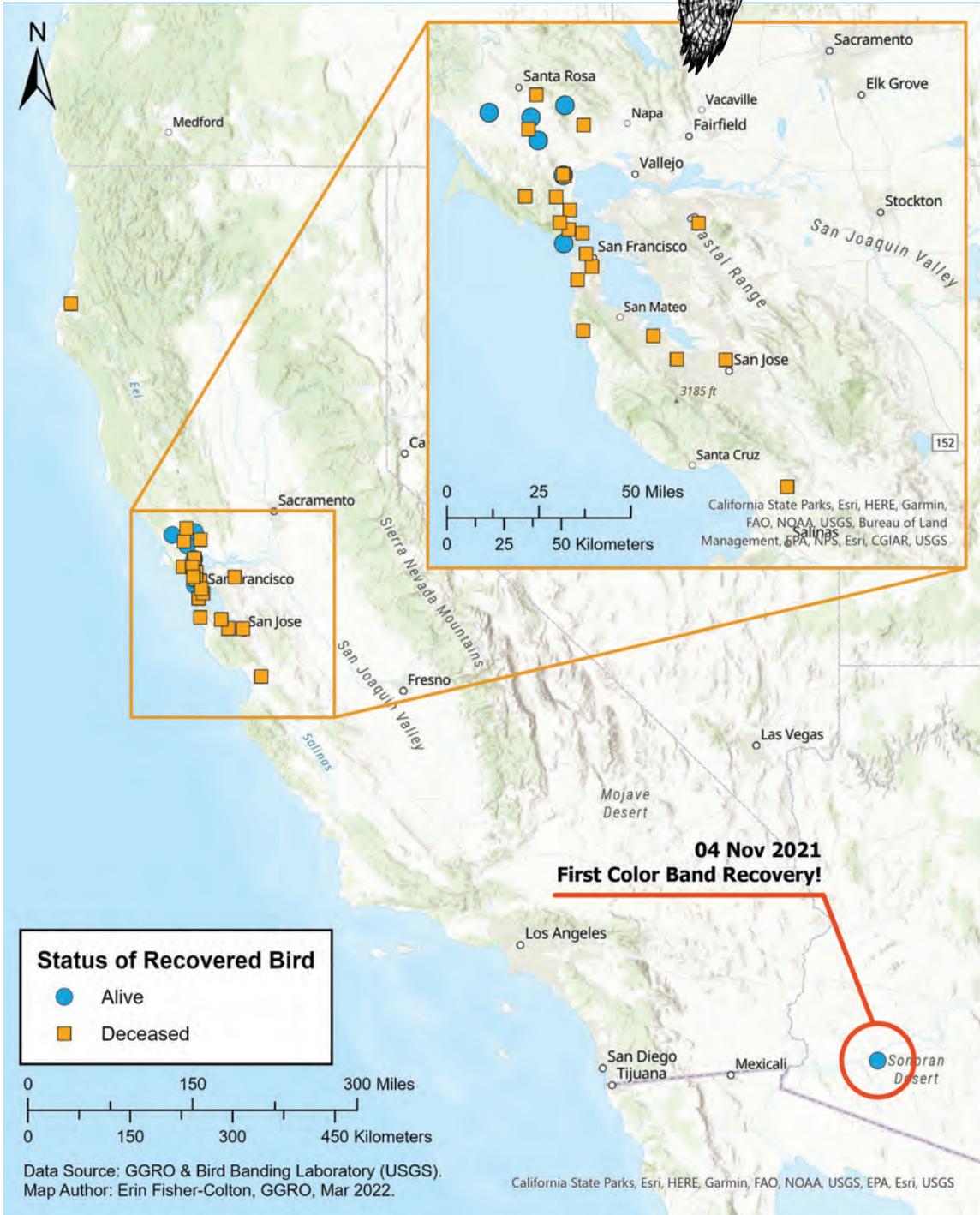
30 YEARS OF REDSHOULDERS!

One of the gifts of counting and banding raptors over decades is the chance to investigate patterns, fluctuations, and unexpected events that may happen in their populations. Scan below for more exploration of Red-shouldered Hawk migration. What do you detect in terms of peaks, valleys, changes, and trends in the counts over time?





RED-SHOULDERED HAWK BAND RECOVERIES 1988-2021



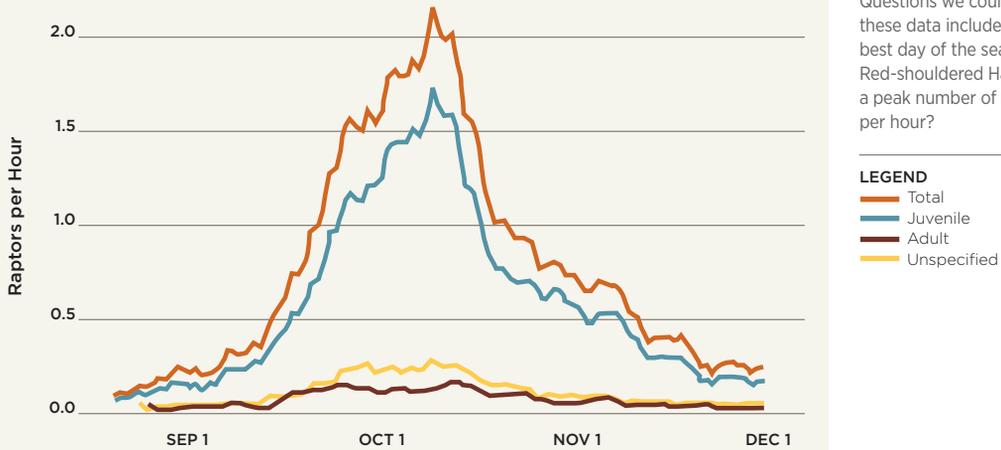
Juvenile Red-shouldered Hawk. Illustration: Emma Regnier

Measuring a Migration

How do you measure something as complex and as far-reaching as the Pacific Flyway? Banding, hawkwatching, radio tracking, and satellite tracking each provides a different and imperfect measure of raptor migration. Data from each method provide us with important clues for seeing the big picture—and for detecting change. For example, the band recovery map on page 7 shows where some Redshoulders have flown after leaving the Golden Gate, even years later. See the graphs below for some of the Redshoulder facts that can be learned from hawkwatching.

RED-SHOULDERED HAWK MIGRATION PROFILE

Based on GGRO hawk counts 1992-2021

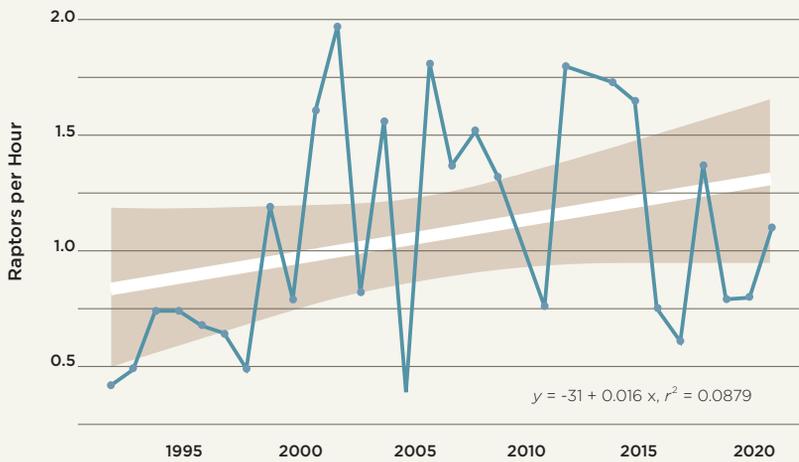


The graph at left shows an autumn migration profile, like a cross section of the combined daily Redshoulder hawkwatch counts from 1992 to 2021. Questions we could ask with these data include: What is the best day of the season to see a Red-shouldered Hawk? What is a peak number of Redshoulders per hour?

LEGEND
 Total
 Juvenile
 Adult
 Unspecified

RED-SHOULDERED HAWK TRENDS OVER TIME

based on GGRO hawk counts 1992-2021



The graph at left shows the Red-shouldered Hawk count trend over time. Questions we could ask with these data include: What is the trendline for changes in annual numbers of Red-shouldered Hawk sightings at the Golden Gate over the last 30 years? Are Redshoulders increasing or decreasing? The dark swath behind the trendline shows 95% of the data surrounding the mean—was this a narrow trend, or a broad trend with much variability?

Great thanks to Elizabeth Edson, the Parks Conservancy's Data Manager, for crafting the Redshoulder graphs.

Data collected by the Golden Gate Raptor Observatory, part of the Golden Gate National Parks Conservancy.



Juvenile Western Red-shouldered Hawks still have the red shoulders of the adult, however the chest pattern is mottled brown rather than brick-rust as in the adult. Photo: Jeff Robinson

COUNTING THROUGH COVID-19, Year Two

LINDA SCHNEIDER

The 2021 hawkwatch season was short. Due to the pressures of the COVID-19 pandemic, in its second year now, our season was only 12 weeks long versus the historical norm of 16 weeks, and our workday was reduced from six to five hours. We were short-staffed, too—70 volunteer hawkwatchers in the field, down from 140 or so pre-pandemic. On top of that, we lost nine count days to fog (not atypical) and eight to rain (yay!). Yet the fact that we were able to be out on Hawk Hill counting—that the season snuck into the gap between Delta and Omicron, that wildfire smoke didn't impact us this year, and that dedicated Parks Conservancy and National Park Service staff worked so hard to make it happen—feels like a victory.

Nevertheless, the shortness of the 2021 season left us with a total of 301 hours of counting, 169 fewer hours than the average of 470 count-hours per year during the previous decade. To compare the 2021 hawk count data more closely with the previous ten years, we made two adjustments. First, we used only the specific dates and times from the previous decade that matched up with the specific dates and times counted in 2021. Second, we divided counts from those matched hours, and the 2021 counts, by the number of count-hours for each year. The result is a rate of migration—raptors per hour or rph—for each species, both for 2021 and for the previous decade (see chart on page 14). We believe the rph rate is the most valid way to compare the 2021 data to previous years, species by species.

For example, if you wanted to know how Cooper's Hawks did in 2021, you could see from the chart that we counted 1407 sightings from Hawk Hill at a rate of 4.67 rph. However, the ten-year "matched" average was 6.37 rph, so they fell from that average by 27% in 2021. Although many species showed reduced numbers in 2021, a few species showed notable increases. Osprey were sighted at more than double their previous average, and Red-tailed Hawks were up by almost 20%. Please note that there is a big difference between these annual percentage changes and the long-term trend for each species. Any of these might bounce back in 2022. Time will tell.

So, what are the things that make a hawkwatcher come out in the heat and the cold and the wind, year after year, sometimes for decades, to document this rph? There is the science, of course—the opportunity to contribute meaningfully to a community science program that has amassed an important and unique data set over 37 years of continuous operation. But I think for most of us, that is not the main driver.



Captured in the middle of a downstroke, this juvenile Sharp-shinned Hawk is told by its large eyes, dense breast streaking, and only-slightly-curved tail tip. Photo: Don Bartling

This adult Peregrine Falcon, aged by the light cross-barring on its belly and slate gray back, circled several times to give the photographer every angle of light and form. Photos: Don Bartling



For me at least, the practice of spending a series of days outside each fall with the express purpose of being alert and observant to the natural world is hugely rewarding. We have a small window into the world of these charismatic apex predators. We watch the migration season unfold over the weeks, with waves of raptor species washing over us as they pass over the Marin Headlands—the early accipiters and Red-tailed Hawks giving way to Broad-winged and Red-shouldered Hawks, then a second wave of Redtails, and finally the late-season Ferruginous and Rough-legged Hawks.

It is hard to convey the thrill of excitement that comes with seeing a relative rarity, like the juvenile Golden Eagle that rose up out of Kirby Cove right beneath my feet, or the midday Short-eared Owls that we sometimes see in October. Even the so-called commonplace birds are amazing, and I don't think a hawkwatch day goes by without me feeling completely gobsmacked at least once by the beauty of a particular Red-tailed or Cooper's Hawk. I always

head home after a day on the Hill with my body tired and my mind and spirit invigorated.

There is also a great sense of satisfaction and achievement that comes from learning new skills and deepening them over the years. Early on, the challenge is just to absorb what seems like a vast amount of information—learning the field marks and flight characteristics of the 19 raptor species we might encounter on Hawk Hill. As time goes by and you internalize that “book learning”, you start to work on fuzzier challenges, like training yourself to focus during the brief moment you may have with a bird—to notice exactly the right stuff that will lead you to correctly identify it to age, sex, and species. The GGRO's culture prioritizes continuous learning and skills development—there is always room to grow. After 11 seasons as a hawkwatcher, I've stopped feeling like a total novice, but I'm still a student, still learning from my colleagues (and the birds) all the time.



Ken Wilson scans the eastern ridges for a fast-moving falcon. Photo: Allen Fish



Mary Kenney takes a selfie with her Tuesday 2 Hawkwatch team: Tom Luster, Catherine Elliott, Dennis Davison, Pat Bacchetti. Photo: Mary Kenney

HAWKWATCH 2021

Last, but not least, is the fabulous GGRO community. There is nothing quite like spending a day out in nature with a congenial gaggle of like-minded teammates. It is so satisfying to work together, to learn from one another, and to collaborate to reach a collective judgement on tricky birds. Particularly these days, when incivility seems to be the rule, Hawk Hill remains a bastion of civility. I have it on good authority that all hawkwatchers think their

team is the best one, and my hunch is that they're all right. The pleasures and rewards of being part of this community only grow over time, even in a short season.

Sonoma County resident and attorney Linda Schneider commutes southward on Highway 101 with the migrating hawks to help lead the GGRO hawkwatch.



Juvenile Red-tailed Hawk in full soar. Photo: George Eade



The first step in identifying a hawk is spotting the hawk. Photo: Allison Taggart-Barone

RAPTOR SIGHTINGS - MARIN HEADLANDS

	COUNT 2021	RATE 2021	AVG RATE 2008-2019*	% CHANGE IN RATE
	sightings	sightings/hr	sightings/hr	from AVG to 2021
Turkey Vulture	3414	11.34	17.39	-35%
Osprey	58	0.19	0.09	114%
White-tailed Kite	16	0.05	0.21	-75%
Bald Eagle	9	0.03	0.04	-25%
Northern Harrier	426	1.42	1.63	-13%
Sharp-shinned Hawk	2740	9.10	10.15	-10%
Cooper's Hawk	1407	4.67	6.37	-27%
Northern Goshawk	1	trace	trace	N/A
Red-shouldered Hawk	330	1.10	1.37	-20%
Broad-winged Hawk	194	0.64	0.65	-1%
Swainson's Hawk	9	0.03	0.02	50%
Red-tailed Hawk	6830	22.69	19.08	19%
Ferruginous Hawk	18	0.06	0.08	-25%
Rough-legged Hawk	9	0.03	0.02	50%
Golden Eagle	6	0.02	0.05	-60%
American Kestrel	126	0.42	0.70	-40%
Merlin	91	0.30	0.65	-53%
Peregrine Falcon	156	0.52	0.60	-14%
Prairie Falcon	5	0.02	0.01	66%
Unidentified	728	2.42	2.62	-8%
Total	16,573	55.06	61.73	-11%

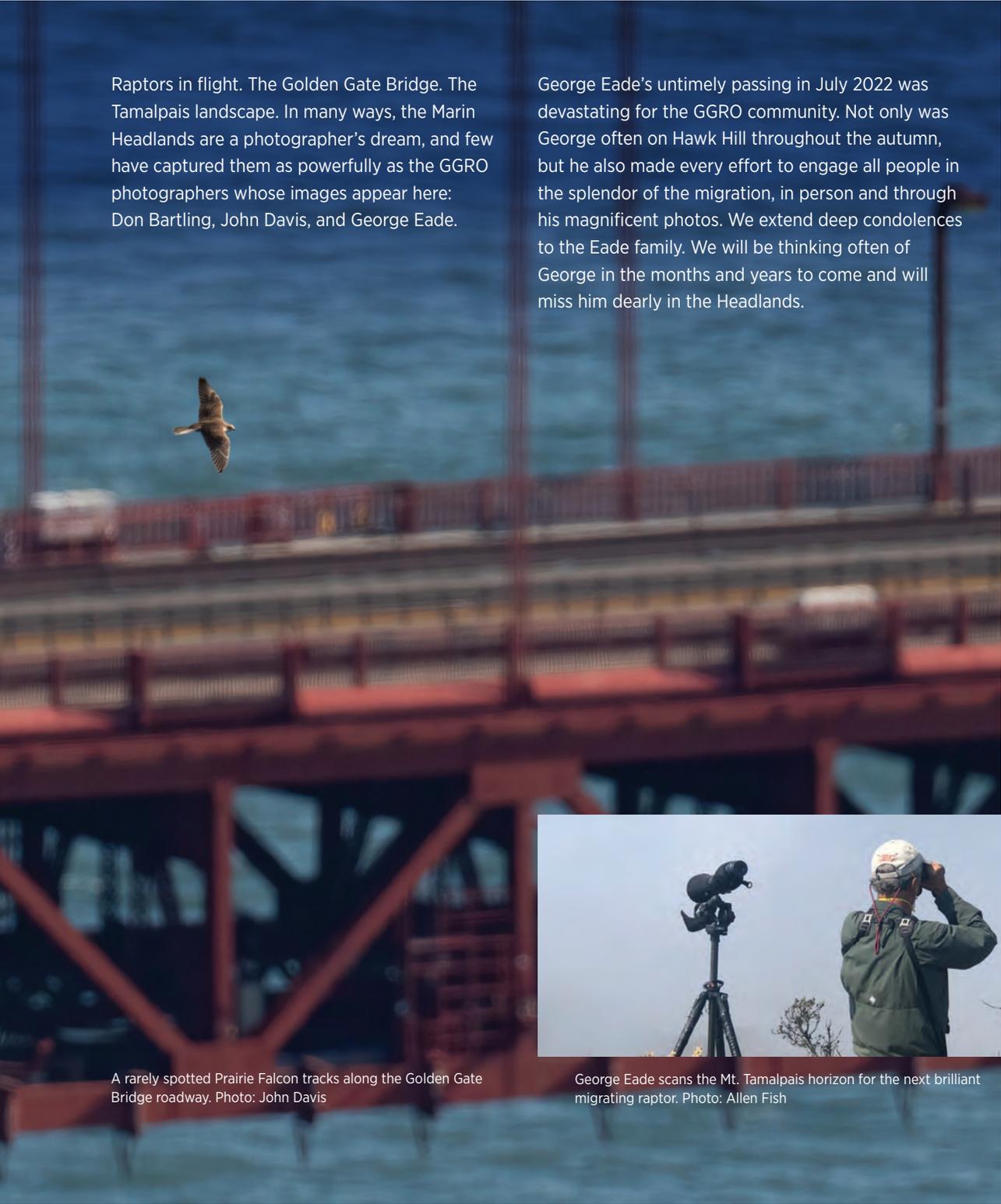
Data compiled by Elizabeth Edson and Allen Fish. If you would like to use these data, please contact Allen at ggro@parksconservancy.org.

*The 2021 season was shortened due to the COVID-19 pandemic. For AVERAGE RATE, we used "matched hours", i.e., 2008-2019 hours were matched by date and time when possible to those hours counted in 2021. Counts from 2010, 2013, and 2020 were not used due to gaps in the data.

HAWKWATCH 2021

Raptors in flight. The Golden Gate Bridge. The Tamalpais landscape. In many ways, the Marin Headlands are a photographer's dream, and few have captured them as powerfully as the GGRO photographers whose images appear here: Don Bartling, John Davis, and George Eade.

George Eade's untimely passing in July 2022 was devastating for the GGRO community. Not only was George often on Hawk Hill throughout the autumn, but he also made every effort to engage all people in the splendor of the migration, in person and through his magnificent photos. We extend deep condolences to the Eade family. We will be thinking often of George in the months and years to come and will miss him dearly in the Headlands.

A large photograph of a Prairie Falcon in flight over the Golden Gate Bridge. The bird is captured in mid-flight, with its wings spread, against a backdrop of the bridge's red steel structure and the blue water of the bay.

A rarely spotted Prairie Falcon tracks along the Golden Gate Bridge roadway. Photo: John Davis

A smaller photograph showing George Eade from behind, wearing a green jacket and a white cap, looking through binoculars. He is standing on a hillside, and a camera on a tripod is visible in the foreground. The background shows a clear sky and distant hills.

George Eade scans the Mt. Tamalpais horizon for the next brilliant migrating raptor. Photo: Allen Fish

HAWKWATCH 2021



A White-tailed Kite soars near the Golden Gate. Photo: Don Bartling



A Merlin expands its wings and tail to brake quickly enough to talon-grab a dragonfly, most likely a Variegated Meadowhawk, also a common migrant in the Marin Headlands. Photos: George Eade

BANDING RESUMES WITH CHANGES

TERESA ELY

The fall 2021 season started differently than any other banding season in GGRO history. Our trainings, meetings, and programming all revolved around new protocols to reduce the risk of COVID-19 exposure. This required thinking creatively, even for a program that has had solid safety protocols in place for decades.

Changes to the 2021 banding season's field work included:

- Ten- to 12-person teams were reduced to nine participants per day, and split up into three-person pods for the season
- Large training meetings for all banders became small-team, one-day trainings for a two-week training cycle
- Three blinds were operated (rather than the usual four) with a three-volunteer limit in the blind
- Raptor releases for the public were paused



A tale of two tails. Male American Kestrel (left) and adult Red-tailed Hawk (right). Photo: Jenn Armer



Bug eyes and smudgy streaks. A juvenile Sharp-shinned Hawk in the hand of Anne Ardillo. Photo: Teresa Ely

These operational changes, which amounted to limiting large gatherings, were very successful in keeping volunteers safe from exposure to COVID-19. However, we lost some of that sense of being part of a larger community.

What we did not lose last season were field days canceled due to wildfire smoke or to the pandemic, and by the end of the season we had banded 772 raptors. We placed color bands on three species: 152 Red-tailed Hawks, 19 Red-shouldered Hawks, and four Peregrine Falcons, and we banded a couple of rarer birds that included one Ferruginous Hawk and one Rough-legged Hawk. The numbers and species diversity were impressive given the hurdles we faced in 2021.

Raptor biologist Teresa Ely is the GGRO's banding manager.

COMING HOME TO BANDING

NATALIE TAN-TORRES

The 2021 banding season was anything but ordinary. By this time most of us had become accustomed to being six feet apart and wearing masks throughout the day.

I was so excited to be back in the Marin Headlands and in the blinds with familiar faces. 2020 had been a whirlwind of emotions and uncertainty. I kept busy by making content for GGRO Instagram posts and serving as co-chair of our volunteer Diversity, Equity, and Inclusion Think Tank.

I became familiar with the local Red-shouldered Hawk that hung out in my backyard, with the Red-tailed Hawks that got flushed out by corvids in



Natalie Tan-Torres shows the plumage of a juvenile Peregrine Falcon.
Photo: Kaela Schnitzler

the trees of our front yard, and with the geese that flew overhead every day at 5 pm. I missed banding so much that I got seven chickens! Home truly became a place for rest, play, and community care for me.

On one of the first days out for my 2021 banding season, Allen expressed how much he missed the Marin Headlands, how much it felt like home to him. He asked me where I felt most at home. I paused for a moment and answered, "People feel like home for me." The COVID-19 pandemic has really taught me that our communities and the love we share are what binds me to others.

The GGRO is no exception. We are a community of dedicated community scientists that share a love for raptors and for the planet. We are intentional with every move we make, for ourselves and for the safety of the raptors that we have the privilege of handling. This was exemplified through the early stages of the pandemic with our many Zoom meetings, our Think Tanks (special volunteer-led efforts within the GGRO launched during the pandemic), and all the ways that GGRO volunteers showed up for each other, despite through a screen.

The Diversity, Equity, and Inclusion Think Tank taught me how dedicated we are to preserving the ethos of the GGRO and to expanding that ethos to underrepresented communities. I am proud of the work that we've done and look forward to the future of the GGRO. When we were able to be physically present in the Marin Headlands, we showed up for each other by taking the necessary precautions to keep each other safe.

BANDING 2021



Small falcon, big voice. With a big rusty, banded tail to boot. Ashley Santiago holding a male American Kestrel. Photo: Jenn Armer

2020 was my fifth year with the GGRO, and in 2021, Teresa asked me to consider being a site leader—a dream! I felt a range of emotions—nervous, but definitely excited. Having missed the 2020 season, shutting down because of wildfire smoke in 2019, and enduring a government shutdown in 2018, I couldn't help but feel a little bit of imposter syndrome. But as the 2021 season started rolling, I realized that I was fully equipped to begin training to be a site leader.

I felt so lucky on my first day back in the field, going through our routine of morning meetings, cleaning dishes, and taking care of birds—all these things that I didn't realize I missed so much in 2020.

The feeling I get from seeing a Redtail flying straight towards me. My heart pumping, my fingers tingly, and as soon as the hawk is secure, how quickly we run out to safely pull it out of our nets. The deep

breath I take as I lower my seat to take measurements of the hawk I have in hand. The sound of my team talking about another hawk in the sky while I am banding a hawk. These are all feelings and sounds I hope to never forget.

My favorite day of the 2021 banding season was when our blind banded a juvenile Peregrine Falcon. It was so exciting that I think about it almost every day. I'm pretty sure that my heart was beating as fast as they fly. And when the falcon looked up at me and hissed, my heart melted.

There's something special about spending extended periods of time amongst raptors. You start to learn which Redtails hang around throughout the year. The adult Redtails that come into the site just to say hello. Or the Northern Harriers that hug the hills with their flight. Familiarity becomes a home.

I look forward to many more years with the GGRO, and to being in community and relationship with our volunteers and the raptors we have the honor to study.

The Marin Headlands are located in Coast Miwok territory near the village of Livaneglua. Natalie Tan-Torres has been with the GGRO since 2015. She is a biophilic who loves cultivation of community and social advocacy.

BANDING 2021

RAPTORS BANDED - MARIN HEADLANDS

	BANDED 2021	BANDED 1983-2021
Turkey Vulture	0	17
Northern Harrier	6	339
Sharp-shinned Hawk	184	13,430
Cooper's Hawk	283	17,071
Northern Goshawk	0	7
Red-shouldered Hawk	22	502
Broad-winged Hawk	1	47
Swainson's Hawk	0	11
Red-tailed Hawk	195	10,745
Ferruginous Hawk	1	4
Rough-legged Hawk	1	7
American Kestrel	7	1500
Merlin	16	856
Peregrine Falcon	5	129
Prairie Falcon	1	51
Total	772	44,725

Data compiled by Teresa Ely. If you would like to use these data, please contact Teresa at ggro@parksconservancy.org. Please note that the 2021 season was shortened due to the COVID-19 pandemic.

BAND RECOVERIES AND ENCOUNTERS

MARION WEEKS

Director's note: Band recovery reports, while brief, contain bits of ecological information about each recovered bird of prey. By compiling enough of these bits, we can tease out information on life spans, survival rates, migration behavior, mortality, and habitat use. Habitats used by migrating birds—called stopover sites—have long been a mysterious area, filled more with guesses than hard data, but that is changing.

Thanks to GGRO banders, we have data for both dead and sighted hawks that subsequently showed up at a variety of geographic locations, showing the kinds of habitats that Pacific Flyway raptors use. Using the 2021 listings below, we can get a small glimpse of the relative importance of some habitats over others. Thirty-three recoveries offer some habitat hints: 58% occurred in parklands or open space, 12% in pastures or agricultural lands, 9% in airports, 9% on school campuses, and 6% each at gardens and golf clubs. – Allen Fish



Encounter 1438. Photo: John Davis

1438 Juvenile Red-tailed Hawk banded 8/29/03 by Teresa Rettinghouse; first reported sighted on 1/4/17, now has further updates. Katherine Raspet photographed the hawk on 5/25/15 at Wavecrest Open Space Preserve, Half Moon Bay, San Mateo Co., CA, sitting atop a telephone pole. GGRO hawkwatcher John Davis sighted him again 9/25/20 at Wavecrest with “his massive partner, hunting voles and having good success.” On 12/28/20 a resident near Half Moon Bay Golf Links heard a hawk vocalizing while it stood near a mound. She went to investigate and found the dead Red-tailed Hawk. A necropsy of the 17-year-old bird revealed exposure to Brodifacoum (a second-generation rat poison), with the hawk dying of starvation; reported by Krysta Rogers, Senior Environmental Scientist for California Department of Fish and Wildlife (CDFW).

1445-B Juvenile female Red-tailed Hawk banded 8/25/07 by Jeff Acuff; euthanized after being found 14 years later 9/3/21 at Moffett Field Golf Course, Mountain View, Santa Clara Co., CA, with an old head wound, eye and nasal trauma, and infections that made it difficult to breathe; reported by Ashley Damm of Wildlife Center of Silicon Valley (WCSV).

1460-B Juvenile female Red-tailed Hawk banded 8/17/16 by Mary Malec; found dead 3/10/20 under an electrical pole holding an uneaten gopher at the Marin Headlands, Marin Co., CA. Found by necropsy to have died by electrocution; reported by Krysta Rogers of CDFW.

BANDING 2021

1537-B Juvenile female Peregrine Falcon banded with metal and color bands 11/1/18 by Teresa Ely; found 7/14/19 at a residence at San Leandro, Alameda Co., CA, “dragging itself for several days” before being taken to Sulphur Creek Nature Center (SCNC) and euthanized due to no leg mobility; reported by Isabelle Marquez.

1542-B Juvenile female Red-tailed Hawk banded 10/1/18 by Lora Roame; found dead 10/17/20 in Half Moon Bay, San Mateo Co., CA; reported by Barbara Dye.

1616 Juvenile male Red-tailed Hawk banded 10/5/19 by Nancy Mori with metal and color bands; has been previously encountered seven times at the San Francisco Botanical Gardens in San Francisco, San Francisco Co., CA. Observed by Megan Prelinger at the Botanical Gardens 6/11/20 while eating a gopher within 12 feet of observers. The most recent sighting was at Golden Gate Park, San Francisco, 7/9/20 while eating a rat; reported by GGRO bander Sarah Sawtelle.

1629 Juvenile female Sharp-shinned Hawk banded 9/18/15 by Jean Perata; died 3/18/20 after crashing into an office window, still holding a smaller bird in its talons at Santa Maria, Santa Barbara Co., CA; reported by Santiago Lopez.

1632-C Juvenile male Red-tailed Hawk banded with metal and color bands 9/4/19 by Paula Eberle; sighted with two other Redtails 4/2/21 at Fort Mason Community Garden, San Francisco, San Francisco Co., CA; reported by David Assman who has seen this group multiple times through 4/25/21.

1657-B Juvenile female Red-tailed Hawk banded with metal and color bands 8/23/19 by Maggie Brown; sighted 8/14/20 by GGRO bander Robert Martin, perched on a house spire near Buena Vista Park, San Francisco, San Francisco Co., CA.

1658-B Juvenile male Red-tailed Hawk banded with metal and color bands 9/10/19 by Eddie Bartley; sighted 1/18/21 by Denise Robichau at San Pedro Valley County Park, Pacifica, San Mateo Co., CA.

1671 Juvenile male Red-tailed Hawk banded 12/9/12 by Siobhan Ruck; captured and released 7/10/20 by biologist Matthew Stuber near Shady Cove, Jackson Co., OR. He described the bird as “very healthy.”



Encounter 1671. Photo: Matt Stuber

1672 Juvenile male Red-tailed Hawk banded with metal and color bands 9/3/19 by Cynthia Armour; observed just after sunrise near Silcott, Asotin Co., WA, 8/9/20; reported by Catherine Temple.

BANDING 2021

1673 Juvenile female Cooper's Hawk banded 9/4/16 by Craig Tewell; found dead but still warm, in driveway next to road and presumed hit by a car south of Watsonville, Monterey Co., CA, "in early spring or late winter" 2017; reported by James Roberts.

1674 Juvenile female Sharp-shinned Hawk banded 9/30/07 by Noreen Weeden; the "very worn looking" band only found 6/12/17 on a rocky beach at a resort at Cabo San Lucas, Baja California Sur, Mexico; reported by Connor Reilly.

1675 Juvenile male Red-tailed Hawk banded with metal and color bands 9/26/19 by Bill Prochnow; found as a carcass at the University of San Francisco, San Francisco, CA, 9/8/20; cause of death unknown; reported by Craig Peterson.

1676 Juvenile male Red-tailed Hawk banded with metal and color bands 8/28/19 by Paula Eberle; trapped and released 9/11/20 in banding operations at Boise Peak, Boise Co., ID by the Intermountain Bird Observatory (IBO); trapped by Caleb Hansen and reported by Robert Miller of Boise State University.



Encounter 1676. Photo: Intermountain Bird Observatory

1677 Juvenile male Red-tailed Hawk banded with metal and color bands 8/13/19 by Maggie Brown; encountered 10/14/20 paired with a dark morph Redtail at San Francisco International Airport, San Mateo Co., CA; reported by GGRO bander Ben Dudek.

1678 Juvenile female Cooper's Hawk banded 10/7/19 by Jeff Robinson; found dead 10/24/20 at Live Oak Park, Berkeley, Alameda Co., CA; reported by Eric Johnson.

1679 Juvenile Red-tailed Hawk banded 12/25/04 by Steve Rock; found dead 11/18/20 during a pasture clean-up near Wilsonville, Clackamas Co., OR; reported by Darlene Mardock. The photo showed the hawk suffered from long-billed syndrome and may have died of starvation as a result.

1681 Juvenile male Red-tailed Hawk banded with metal and color bands 9/29/17 by Ashley Santiago; found 9/23/20 injured in San Francisco, San Francisco Co., CA, and brought to the Peninsula Humane Society (PHS) with an open fracture of the left ulna and bruising of right wing; the hawk was euthanized; reported by Nicole Weger of PHS.

1682 Juvenile female Cooper's Hawk banded 10/11/19 by Anne Ardillo; found 11/28/20 at Stockton, San Joaquin Co., CA; brought to Stanislaus Wildlife Care Center (SWCC) with injured wing and euthanized on arrival; reported by Veronica Sandow (SWCC) who noted "feather damage from illness" or period of starvation.

1684 Juvenile female Red-tailed Hawk banded with metal and color bands 8/27/17 by Shannon Skalos; photographed 10/6/20 by Jesse Ng at John McLaren Park, San Francisco, San Francisco Co., CA; photographed again 12/15/20 at McLaren Park, by GGRO bander Ben Dudek

1685 Juvenile female Sharp-shinned Hawk banded 10/1/14 by Chris Briggs; desiccated banded leg found 1/14/21 by Jaqualyn Forrest near Mt Diablo at Walnut Creek, Contra Costa Co., CA.



Encounter 1677. Photo: Ben Dudek



A banded juvenile Cooper's Hawk just before its release back to the migration. Photo: Teresa Ely

BANDING 2021

1687 Juvenile female Cooper's Hawk banded 9/16/09 by Marc Blumberg; found at the Claremont Hotel, Berkeley, Alameda Co., CA; transported to Lindsay Wildlife Experience (LWE) 2/18/21 by Berkeley Animal Control with an injured wing "due to deceased bone", thus, the bird was euthanized; reported by Peter Flowers (LWE).

1688 Juvenile female Cooper's Hawk banded 10/1/14 by John Ungar; found dead 12/14/20 near front window of Smith River School, Smith River, Del Norte Co., CA; reported by Loretta Stoner.

1689 Juvenile male Red-tailed Hawk banded 9/10/15 by Nicole Beadle; found 12/11/15 injured in a field at the Sonoma Valley Airport, Sonoma, Sonoma Co., CA, and taken to the Santa Rosa Bird Rescue Center (SRBRC). The bird had severe head trauma, ataxia, and dehydration and died within 24 hours; reported by Dee Salomon and Katie Miller, both of SRBRC.

1690 Juvenile female Red-tailed Hawk banded 9/13/07 by Russ DeLong; found dead 3/16/21 almost 14 years later at Bayview Hill Park, San Francisco, San Francisco Co., CA, reported by Kelly Tankersley.

1691 Juvenile female Cooper's Hawk banded 9/22/17 by Traci Tsukida; a banded leg only was found 3/11/21 in a roof gutter at a duck club at the Suisun Marsh, Solano Co., CA; reported by Tom Figueira.

1692 Juvenile male Red-tailed Hawk banded with metal and color bands 11/21/17 by Lara Elmquist; sighted and photographed 1/19/20, and then seen in the area for several months at The Sea Ranch, Sonoma Co., CA; reported by Diane Hichwa and Charles Higgins.



Encounter 1692. Photo: Chris Beach

1693 Juvenile female Red-tailed Hawk banded with metal and color bands 9/12/18 by Steve O'Neill; killed 2/10/19 by a car while the hawk was dragging a squirrel off the road one mile east of Guerneville, Sonoma Co., CA. The incident was observed by SRBRC vet's son who noted that the driver "didn't slow down or anything"; reported by Katie Miller of SRBRC.

1694 Juvenile male Red-tailed Hawk banded 10/21/18 by Emily Abernathy; found dead 11/8/18 near a baseball field at Half Moon Bay, San Mateo Co., CA and picked up by PHS; reported by Ann Vander Vliet of PHS.

1695 Juvenile male Red-tailed Hawk banded with metal and color bands 9/4/19 by Ryan Byrnes; sighted 3/31/21 by Charlie Wells perched near a larger Redtail at Francisco Park, San Francisco, San Francisco Co., CA; reported again 5/5/21 at the same location by Wells as the hawk caught a Red-masked Parakeet from a local flock.



Encounter 1695. Photo: Charlie Wells

1696 Juvenile female Cooper's Hawk banded 9/26/17 by Rachel Miller; reported 1/31/19 by Cesar Alberto Flores Aguirre as poisoned by a factory supervisor at Mexicali, Baja California, Mexico; the supervisor has "a plague of pigeons and put poison out to eradicate them."

BANDING 2021

1697 Juvenile female Red-shouldered Hawk banded 10/22/11 by Robert Sexton; found freshly dead 3/31/21 under a coast redwood at Mill Valley, Marin Co., CA; reported by Susanne Tilp.



Encounter 1697. Photo: Susanne Tilp

1698 Adult Red-tailed Hawk banded 9/11/11 by Buzz Hull; caught by hand 4/25/15 at Daly City, San Mateo Co., CA; reported dead by Patrick Hogan of PHS and records no longer available.

1699 Juvenile male Red-tailed Hawk banded 9/16/16 by John Ungar; skeletal remains found 3/14/21 at Pt. Molate under the Richmond Bridge, Richmond, Contra Costa Co., CA; reported by Mark Dehmer.

1700 Juvenile male Cooper's Hawk banded 9/1/19 by Emma Regnier; found dead 9/10/19 at Fort Cronkhite, Marin Headlands, Marin Co., CA; reported by Alvaro Santoro of Nature Bridge

1701 Juvenile male Cooper's Hawk banded 8/24/18 by Kim Hettler-Coleman; found 4/26/21 dead on sidewalk at San Rafael, Marin Co., CA; reported by Julianne Russel.

1702 Juvenile male Red-tailed Hawk banded with metal and color bands 8/20/19 by Mark McCaustland; found 1/3/20 lethargic, unable to fly, appeared disoriented, and standing with difficulty at San Francisco, San Francisco Co., CA; caught by hand by SF Animal Care and Control (SFACC) and taken to PHS. Exam showed the bird to be emaciated and dehydrated; bloodwork revealed organ issues, especially of the liver, and possible rodenticide poisoning; found dead the next morning; reported by Kendra Jabin of PHS and Officer Andrews of SFACC.

1703 Juvenile male Red-tailed Hawk banded with metal and color bands 8/31/18 by Anne Ardillo; found nearly unconscious, after apparently hitting a glass wall 12/21/18 at Bodega Bay, Sonoma Co., CA. Taken to SRBRC; the hawk died that night; reported by Bix Swain.

1704 Juvenile male Red-tailed Hawk banded with metal and color bands 8/15/18 by Mamiko Kawaguchi; found 10/27/18 on Sycuan Golf Course, El Cajon, San Diego Co., CA; the bird was unable to fly; San Diego Department of Animal Services picked up bird; outcome unknown; reported by Melissa Prettyman.

1705 Juvenile female Red-tailed Hawk banded 9/9/18 by Ryan Bourbour; found 2/24/21 on top of garbage "headless, desiccated, carcass picked clean" at Laguna Honda Hospital, San Francisco, San Francisco Co., CA; reported by Deputy Steve Martin.

1706 Juvenile shouldered Hawk banded 10/25/12 by Claire O'Neil; found 6/16/21 on side of road at Santa Rosa, Sonoma Co., CA; brought to the SRBRC with massive injuries; "keel crushed, left humerus crushed and guts hanging out"; reported by MJ Davis of SRBRC.

BANDING 2021

1707 Juvenile female Cooper's Hawk banded 10/22/11 by Robert Sexton; found in poor condition 7/8/21 at Ladner, part of Delta, British Columbia, Canada; the bird was thin and died at Orphaned Wildlife Rehabilitation Society (OWL); reported by Rob Hope of OWL.

1708 Juvenile male Red-tailed Hawk banded with metal and color bands 9/2/21 by Candace Davenport; sighted 10/5/21 in a pine tree near Whiskeytown Lake and within the Carr Burn scar area, near Redding, Shasta Co., CA; reported by Lisa Thomas.

1709 Juvenile male Red-tailed Hawk banded with metal and color bands 9/12/18 by Paul Romanak; legs found separately 8/23/21, in a mowed field near the California Highway Patrol Academy Airport at the Sacramento Bypass Wildlife Area, Sacramento, Yolo Co., CA; reported by Kylan Dees.

1711 Juvenile female Red-tailed Hawk banded with metal and color bands 9/15/21 by Susanna Czuchra; depredated by Animal and Plant Health Inspection Service (APHIS) personnel at Oakland International Airport, Oakland, Alameda Co., CA.

1712 Juvenile male Red-shouldered Hawk banded with metal and color bands 10/1/21 by Marc Blumberg; sighted and photographed 11/4/21 in a date palm grove at Dateland, Yuma Co., AZ; reported by Gary Rosenberg who noted that it was in the company of another Red-shouldered Hawk. Redshoulders are rare in Arizona.

1713 Juvenile female Red-tailed Hawk banded 11/22/12 by Noreen Weeden; found 11/4/21 bone only with band and talons intact, in cow pasture five miles west of Tomales, Marin Co., CA; reported by Esgardo Lozano.

1716 Juvenile female Cooper's Hawk banded 9/26/17 by Danielle Husband; found live 12/17/21 holding a dead Mourning Dove after hitting a window at Crockett, Contra Costa Co., CA, and taken to LWE where the hawk was diagnosed with head and eye trauma, swelling of left ear, broken clavicle and ruined shoulder; it was euthanized the next day; reported by Peter Flowers of LWE.

1718 Juvenile female Red-tailed Hawk banded with metal and color bands 9/15/21 by Mark McCaustland; sighted and photographed on same day by John Davis during the GGRO hawkwatch at Hawk Hill, Marin Headlands, Marin Co., CA.

1719 Juvenile male Red-tailed Hawk banded with metal and color bands 11/14/21 by Lora Roame; found 12/5/21 standing, unable to fly and lethargic at Tiburon, Marin Co., CA, taken to WildCare, San Rafael, Marin Co., CA; he was found to be severely dehydrated, stuporous, not putting weight on left leg and described as "insanely emaciated;" the hawk was set up in the ICU and fed but was found dead the next day; reported by Officer Kenan Boyle.

1720 Juvenile female Red-tailed Hawk banded 9/15/21 by Ashley Santiago; found 12/20/21 on a street at Hillsborough, San Mateo Co., CA. The animal control officer's note said it was unable to stand or fly and was taken to PHS where it died; reported by Alex Elias of PHS.

1722 Adult female Red-tailed Hawk banded 9/22/21 by Katherine Rasket; brought to PHS 12/10/21; reported to have hit a window at San Francisco, San Francisco Co., CA by SFACC. Upon arrival at PHS, it was bleeding from the nares, and had an abrasion on left leg; found dead the next morning of suspected internal injuries; reported by Makayla Berndt of PHS.

BANDING 2021

1724 Juvenile female Red-tailed Hawk banded 10/15/21 by Robert Martin; found dead 12/21/21 by Michael Baca while walking on a path in a riparian area near a creek at the Google Campus, Mountain View, Santa Clara Co., CA.

1725 Juvenile female Cooper's Hawk banded 9/23/17 by Sean Peterson; found freshly dead 1/27/22 in West Sacramento, Yolo Co., CA. The bird was brought to CDFW and appeared to be "healthy, 4+ fat, feathers in great condition, no obvious trauma, fractures or wounds" and sent for a necropsy; reported by Krysta Rogers (CDFW) who is awaiting the toxicology report.

1726 Juvenile female Red-tailed Hawk banded with metal and color bands 9/13/21 by Ashley Santiago; found 1/29/22 as a decomposed bird with "spine, head, and feet at base of a tree stump" at Mount Tamalpais State Park, Marin Co., CA; reported by Grace Rawlins.

1727 Juvenile male Sharp-shinned Hawk banded 10/3/21 by Lora Roame; found dead 12/8/21, headless and predated upon at Los Altos, Santa Clara Co., CA; reported by Nick Kravevich.

1728 Juvenile female Red-tailed Hawk banded with metal and color bands 11/23/19 by Jenni Peters; found injured 1/16/22 at US Cellular Sports Park, Medford, Jackson Co., OR; the bird had a dislocated elbow, could not fly, and was euthanized; reported by Elizabeth Burton of Badger Run Wildlife Rehabilitation.

1729 Juvenile male Red-tailed Hawk banded with metal and color bands 11/12/21 by Michael Armer; found 1/17/22 freshly dead, intact, no apparent wounds, at a chicken farm at Santa Rosa, Sonoma Co., CA, reported by Viviane Marani.

1730 Juvenile female Red-tailed Hawk banded 9/21/11 by Buzz Hull; depredated 2/24/22 by APHIS personnel at Moffett Federal Airfield, Mountain View, San Mateo Co., CA.

1731 Juvenile male Red-tailed Hawk banded with metal and color bands 9/4/21 by Teresa Ely; photographed 12/5/21 while standing on tidal salt flats near Bedwell Park, San Mateo, San Mateo Co., CA; reported by Robert Smith.

1732 Juvenile male Red-tailed Hawk banded with metal and color bands 11/3/21 by John Ungar; found dead 12/31/21 under a coast redwood at Geyserville, Sonoma Co., CA; reported by Jeffrey Brule.

1733 Juvenile male Red-tailed Hawk banded 10/13/21 by Craig Nikitas; found dead under a power pole 1/8/22 at Fort Bragg, Mendocino Co., CA; taken to a local CDFW office by a neighbor; a necropsy by the CDFW revealed it had been electrocuted; reported by Tonya Lindler.

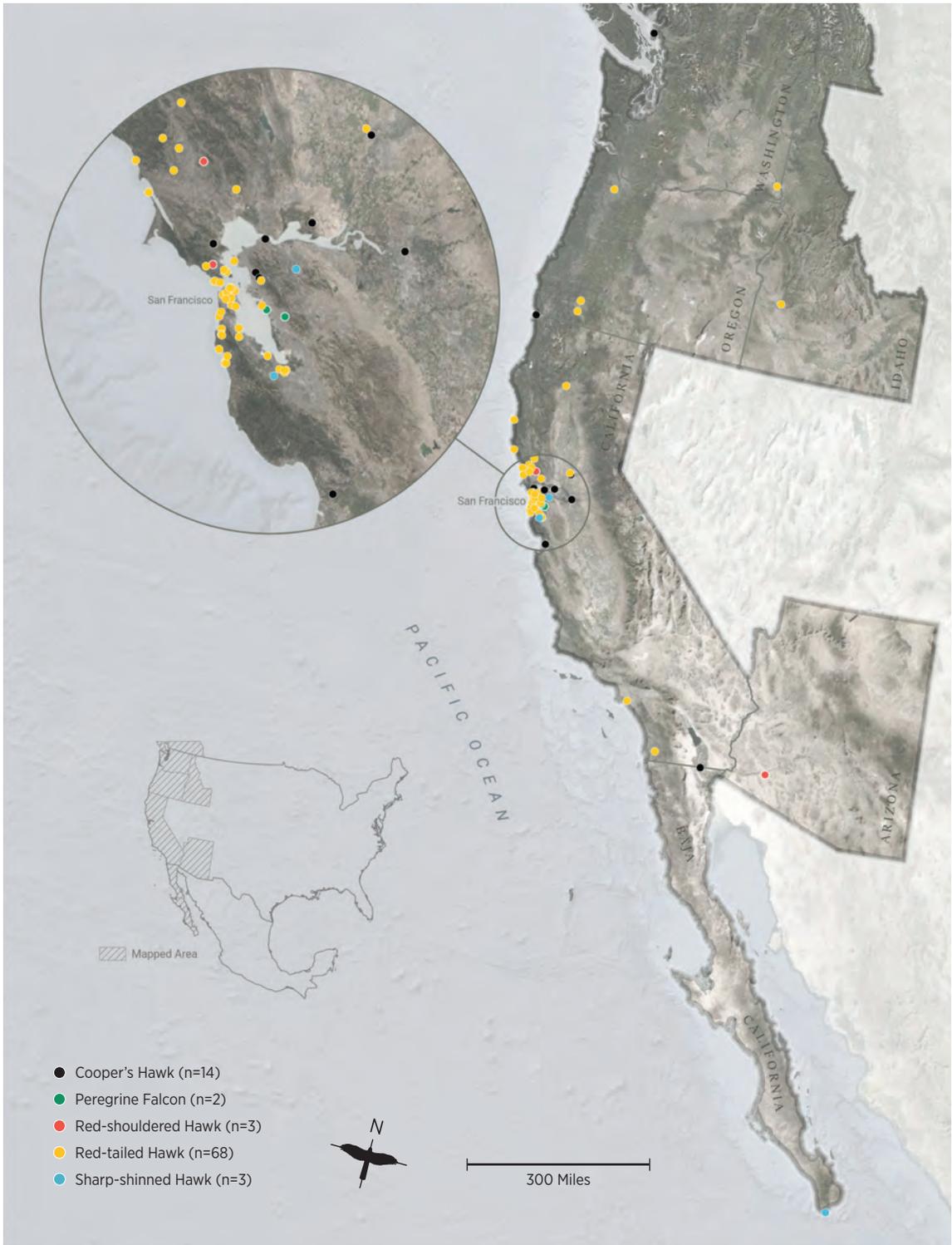
1734 Juvenile male Red-tailed Hawk banded with metal and color bands 11/17/21 by John Keane; photographed 11/23/21 perched in a tree at Lake Temescal, Oakland, Alameda Co., CA; reported by Erica Rutherford. On 1/3/22 this hawk was found dead at Tiburon, Marin Co., CA; reported by Elle Chiang.

1735 Adult Red-tailed Hawk banded with metal and color bands 10/27/18 by Anastasia Ennis; photographed 3/13/21 while courting a female Red-tailed Hawk at Sebastopol, Sonoma Co., CA; reported by Nick Dunlop.

Retired frontline UCSF nurse and three-decade GGRO bander, Marion Weeks has kept up with our band recovery correspondence for well over 20 years.

BANDING 2021

BAND RECOVERIES/ENCOUNTERS 2021



Map Author: Zac Stanley

SPECIAL SIGHTING: A Hybrid Hawk in the North Bay



Who Is the Hybrid Hawk?

DON BARTLING

One of the farthest out-of-range raptors ever recorded in Sonoma County was the Common Black Hawk that was observed in the Laguna de Santa Rosa Wetlands Complex over a 15-year period from 2005 to 2020. This bird became the subject of much attention when in 2014, she paired up with a male Red-shouldered Hawk and successfully fledged a thoroughly documented and viable hybrid offspring. Intergeneric hybrid raptors (*Buteo lineatus* x *Buteogallus anthracinus* in this case) are extremely rare with only three cases known from the wild, and two of those involved known or likely escaped captive birds (Moore and Coulson 2020). This 2014 hybrid pairing event was the subject of two journal articles (Hug 2016, Moore and Coulson 2020).

Because of the rareness of this event, we really know very little about the reasons two species of raptor might hybridize in the wild. There is something called the “desperation hypothesis” that involves an out-of-range species searching for a conspecific mate, but with none available, it ends up with a local, common species as the only option. An apparent,

shared prey preference for crayfish may have also helped seal the deal. There were continuous reports of courtship behavior and nesting activities over the 15-year period, but only two years (2012 and 2014) have well-documented reports of viable offspring. The only offspring with sightings reported on eBird was the banded 2014 bird, and it was seen only for a brief period after fledging.

In early February 2022, a possible hybrid offspring was reported to have reappeared as an adult bird in the same area. While there is still no DNA evidence of the hybrid’s parentage, the physical traits would be difficult to explain otherwise. The bird is enormous in side-by-side flight comparison with a Red-shouldered Hawk. It has pattern and coloration traits of both species.

I spent three days in the area in mid-February 2022 hoping to catch a glimpse and a photo. Late on day three, the hybrid hawk flew in low through a riparian corridor and bumped a Red-shouldered Hawk from its perch. The two raptors then briefly soared and called together in behavior that didn’t look exactly like courtship flight, but it wasn’t quite a territorial dispute either. More like a first date?

As of June 2022, there are now reports of advanced courtship behavior that suggest the possibility of a hybrid x Red-shouldered Hawk nesting event this year. It will be interesting to follow any successive generations of hybrids and see if and how they merge into the local Red-shouldered Hawk population.

Photographer and naturalist Don Bartling has been a volunteer hawkwatcher with the GGRO since 2008.

References

Hug, L. 2016. Common Black Hawk X Red-shouldered Hawk in California. *Western Birds* 47: 325-326.

Moore, S. and JO Coulson. 2020. Intergeneric hybridization of a vagrant Common Black Hawk and a Red-shouldered Hawk. *Journal of Raptor Research* 54: 74-80.

(ABOVE) Possible Common Black Hawk x Red-shouldered Hawk hybrid, photographed in February 2022, near Santa Rosa, California. Photo: Don Bartling



Please note: These three raptor images were digitally combined into one image. From left to right: Common Black Hawk, a suspected Common Black Hawk x Red-shouldered Hawk hybrid, and a Red-shouldered Hawk. All are adults. The possible hybrid appeared to be close to the wingspan of a normal Common Black Hawk by field observations. Photos (left to right): Sergio Seipke, Don Bartling, and John Davis

What Does a Hybrid Hawk Mean?

ALLEN FISH

Longtime GGRO volunteer Don Bartling has captured stunning photos of a never-before-seen hybrid raptor living in a riparian reserve in the northwest corner of the San Francisco Bay watershed. While not a GGRO project, we share this wild hybrid event because of its rarity and its significance to our region and beyond.

The story of this unusual individual, a probable hybrid between a Common Black Hawk and a Red-shouldered Hawk, is also a story about range and behavioral shifts for a wild bird. We know from a generation of scientific articles that some birds are slowly shifting their ranges due to global temperature changes. But what happens to an individual bird whose northward shift places it entirely outside of its former breeding range? Might it encounter an ecologically similar species? Might it interbreed with a different species and have viable young? Turns out, it might.

We do not have the historical details on this bird to know whether it was a product of range shift due to climate change. Future ecologists might be able to deduce that. What we do have is 1) a Common Black Hawk in Sonoma County, 700 miles northwest of its closest normal nesting range, that crossed significant ecological barriers to breed with a Red-shouldered Hawk from 2014 to 2020; and 2) an apparent hybrid adult of the two species now in the same region in February to June 2022.

Thanks to GGRO volunteers Don Bartling, Becky Olsen, and Ken Wilson for their watchfulness, and especially to naturalist Brian Webb, for his focused and sensitive observations of this spectacular bird.

Allen Fish is the GGRO Director and Associate Director of the Conservation and Community Science Department at the Parks Conservancy.

VOLUNTEERS & DONORS 2021



While we still operated under COVID-19 protocols and impacts in 2021, with your support we were able to bring banding back to life and expand hawkwatch to include more participants. As we approach almost four decades of raptor research and conservation here at the GGRO, we are reflecting on how the two most recent seasons were our most trying as a program and as a community. You, our incredible community of supporters, helped us pull through this difficult part of our journey together and sustain our important work to protect raptors during theirs. Whether you shared your time, your skills, or your resources with the GGRO, we are ever grateful.

2021 VOLUNTEERS

Jon Altemus
Jan Ambrosini
Anne Ardillo
Jennifer Armer
Michael Armer
Stefanie Arthur
Patricia Bacchetti
Lynn Bantley
Eddie Bartley
Don Bartling
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A close-up of a juvenile Peregrine Falcon in its first autumn. The bluish color of the cere and eye-ring will gradually change to lemon-yellow in the first year of life. The structure inside the nostril, called a tubercule, is thought to relate to mediating the wind speed hitting the face during fast flying or diving.
Photo: Teresa Ely

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Becky Olsen and Ken Wilson scan the Golden Gate Bridge for migrants. Photo: Allen Fish

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(ABOVE) Merlin at the Golden Gate. Photo: Ryan Bourbour

