



GOLDEN GATE RAPTOR OBSERVATORY

# Season Summary 2023

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HAWKWATCH • BANDING • COMMUNITY SCIENCE • RESEARCH

# Golden Gate Raptor Observatory

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## ABOUT THE GGRO

The Golden Gate Raptor Observatory is a program of the Golden Gate National Parks Conservancy in cooperation with the National Park Service and is made up of over 150 community volunteers and a small staff. GGRO's mission is the preservation of California raptors through scientific research, outreach, and community involvement. Each year, we study and monitor the Pacific Raptor Flyway from the Marin Headlands, part of the Golden Gate National Recreation Area.

Our deep gratitude to the Gregory Hind Endowment Fund for critical support of the GGRO, and to the hundreds of people who donated to the GGRO in 2023.

## SEASON SUMMARY 2023

Compiled and edited by Mellice Hackett and Michela Gentile. Text by Allen Fish and Teresa Ely. The GGRO Season Summary offers preliminary data and observations from the 2023 fall raptor migration at the Marin Headlands, as well as updates on our programs and research.

If you would like to use GGRO data, please contact us: [ggro@parksconservancy.org](mailto:ggro@parksconservancy.org)

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Cover Illustration: White-tailed Kite by Siobhan Ruck, from a photograph by Ryan Bourbour

Below Illustration: Merlin by Emma Regnier

Introduction Illustration: Hawkwatcher and a Rough-legged Hawk by: Laura Echávez

## GGRO SUPPORT

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# Introduction

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## BIRD STUDY IS BOOMING

In the early 1980s, as the threads of the Golden Gate Raptor Observatory were coming together, avian conservation biology and bird population monitoring were relatively new and somewhat narrow areas of science conducted mostly by professionals. The GGRO founders took some risks in 1984, inviting a community of volunteers into the national parklands of the GGNRA to staff a serious, long-term study of bird migration. What seemed innovative in 1984 has become wonderfully commonplace in 2023. More people than ever before — professional and non-professional — are engaging in forms of bird study.

Many actions come under the heading of *bird study* now, from science to art, from field time to screen time, from cell biology to activism. There's backyard birding and eBird birding, ornithology and ornitherapy. Bird study is more expansive and more engaging. The range of people seeking information about birds, their behaviors and populations, their lives, and conservation has never been greater. This is such a great thing – imagine having more stockholders for wild bird conservation. In 2016, the US Fish and Wildlife Service published [a report on birding economics](#) in the US: 45 million people (that's more than the population of California) considered themselves birders. Birding travel and equipment businesses generated more than \$95 billion, including \$17 billion in taxes, and supported 782,000 jobs. And that's before Covid hit.

At the GGRO, we also witnessed a surge of interest in bird study over the last few years through social media, emails, phone calls, and talking to visitors on Hawk Hill. People have been curious about bird behavior and biology. They've wanted to know about climate impacts, diseases, the impacts of rodenticides and other toxins, about conservation impacts of all kinds.

2024 will be an exciting year for the GGRO as we celebrate our 40th year as a long-term, community science program of the Golden Gate National Parks Conservancy and the National Park Service. We hope you will join us for celebrations both on and off Hawk Hill.

Thank you to our entire GGRO community for your commitment to bird study in 2023: to our volunteers collectively contributing more than 12,000 hours; to our dedicated Parks Conservancy and NPS staff support system, to our innovative scientific and outreach partners; to our unflaggingly supportive and resourceful donors; and to all the newly inspired visitors to Hawk Hill. From our perspective, Bird study is booming, a great thing for everyone involved, including birds. And we think it will be evident to you in the pages ahead.

Allen Fish, GGRO Director

Teresa Ely, GGRO Senior Biologist/Banding Manager

Conservation and Community Science Department  
Golden Gate National Parks Conservancy





Golden Eagle Illustration by Lora Roame

# Hawkwatch

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In many ways, 2023 felt like a return to normal on Hawk Hill as we opened the fencing that we had set up to protect counters from possible Covid contact from 2020 to 2022. However, the last few years also gave us a chance to pause and improve on our methods. For example, we standardized group size across all count days, with each team led by two volunteer Day Leaders and a staff leader supported by five counters and a GGRO Intern.

The hawkwatch chart on the adjacent page visualizes this season's migration rate for each species and compares them to past seasons, measured in raptors observed per hour. Note that the data have been trimmed to a five-hour counting window of 10 am to 3 pm across seasons, and that we often use the previous ten-year averages for each species' migration rate to compare to past years.

Four species — Red-tailed, Cooper's and Sharp-shinned Hawks, and Turkey Vultures — account for close to 90% of our observed flight each fall. Although the vulture numbers slipped below their average this year, take a glance at the "% Change in Rate" column for Redtails, Coops and Sharpshins. The two accipiters are off by only 2.5% of their previous ten-year average, while Redtails are up by a mere 1.4%. The rates are so close to past years! This is incredible considering every year's weather variability across huge areas of the Pacific region, the changes in egg and nestling numbers, and the ups and downs of winter survival for these three species.

What about other species? Bald Eagles and Broad-winged Hawks increased in both 2022 and 2023. The largest 2023 decreases were Golden Eagles, Red-shouldered Hawks, Northern Harriers, White-tailed Kites, and American Kestrels. These last two species have shown declining migration rates since 2007, harriers since 1999.

## DAY LEADERS

Jon Altemus, Jane Ambrosini, Pat Bacchetti, Don Bartling, Andy Bradshaw, Courtney Buechert, Christine Cariño, Deborah Crooks, John Davis, Catherine Elliot, Michaela Figari, Sam Hontalas, Mary Kenney, Mary Malec, James McDermott, Horacio Mena, Brian O'Laughlin, Becky Olsen, Libby Rouan, Jane Rudebusch, Rod Santos, Linda Schneider, Holly Thomas, Ken Wilson, Gretchen Zantzinger

# Hawkwatch

Raptor sightings in the Marin Headlands, California, during autumn

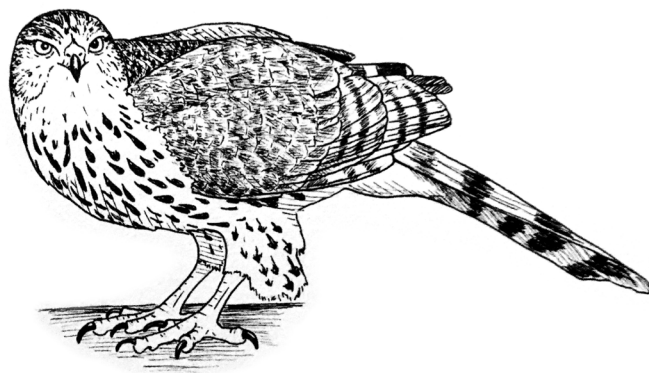
	Count 2023 (sightings)	Average Count 2009-2022* (sightings)	Migration Rate 2023 (sightings/hour)	Average Rate 2009-2022* (sightings/hour)	% Change in Rate**
Turkey Vulture	5216	5471	13.28	16.66	-20
Osprey	69	51	0.18	0.16	12.5
White-tailed Kite	21	46	0.05	0.14	-64
Bald Eagle	25	9	0.06	0.03	100
Northern Harrier	175	367	0.45	1.12	-60
Sharp-shinned Hawk	2794	2392	7.11	7.29	-2.5
Cooper's Hawk	1821	1564	4.64	4.76	-2.5
American Goshawk	0	< 1	0	< 0.01	n/a
Red-shouldered Hawk	208	329	0.53	1.00	-47
Broad-winged Hawk	410	278	1.04	0.85	22
Swainson's Hawk	4	6	0.01	0.02	-50
Red-tailed Hawk	7160	5904	18.23	17.98	1
Ferruginous Hawk	15	20	0.04	0.06	-33
Rough-legged Hawk	2	3	0.01	0.01	0
Golden Eagle	5	10	0.01	0.03	-67
American Kestrel	178	207	0.45	0.63	-29
Merlin	173	121	0.44	0.37	19
Peregrine Falcon	215	171	0.55	0.52	6
Prairie Falcon	5	4	0.01	0.01	0
Unidentified	589	673	1.50	2.05	-27
<b>TOTAL</b>	19,085	17,626	48.59	53.69	-12
<b>Hours Counted</b>	392.8	328.4			

Data compiled by Lizzy Edson and Allen Fish. If you would like to use these data, please contact us: [ggro@parksconservancy.org](mailto:ggro@parksconservancy.org)

\* The ten-year average used survey hours 10 am to 3 pm only for the years 2009-2022, removing 2010, 2013, 2020, and 2021

\*\* Change in migration rate from the 2009-2022 average to 2023





# Banding

The 2023 banding season ran from August 14 to December 3, during which 859 raptors of eight species were banded among three banding stations.

Of the top three species typically banded at the GGRO, Cooper's and Sharp-shinned Hawk banding totals appeared to return to the average after some below-average years. For Red-tailed Hawks, the migration season started out with strong banding numbers, but the second wave of Redtail migration was more of a ripple.

Northern Harrier, Peregrine Falcon, Red-shouldered Hawk, Merlin, and American Kestrel banding totals were all below the previous ten-year averages. For Merlins and Kestrels, part of the decrease was due to an unplanned reduction in trapping effort. Unfortunately, no Prairie Falcons nor Broad-winged Hawks were banded in 2023. Although the number of species banded was average, the total for each individual species was low relative to previous years.

The peak season felt more like the usual lead-up to a "normal" peak day as the numbers of hawks banded exponentially increased, but this peak day was followed by a drastic decline. Teams banded 20 to 40 raptors per day for about a week as we reached the peak day on Tuesday, October 3. On this day, 75 raptors (44 Cooper's, 28 Sharpshins, and three Redtails) were banded. The following day, 29 raptors were banded, but after October 4, banding totals never reached above 10 to 16 birds on a single day.

Our color-banding efforts were successful this season as we placed a unique color band on two Peregrines, four Redshoulders, and 119 Redtails. We placed nine Motus tags on raptors during October and November, eight on Sharpshins, and one on a female Kestrel. See more on Motus on page 8.

We had two "foreign recaptures" in 2023, which means trapping a bird from a different banding station than the GGRO. Both were from HawkWatch International's site located at Bonney Butte, OR. One juvenile female Sharp-shinned hawk banded in Oregon on September 14 was recaptured at the GGRO on September 27. A juvenile female Cooper's Hawk banded on September 17 was recaptured at the GGRO on October 3, 2023.

We were also excited this season by community milestones. We had nine apprentices complete their second-year apprenticeship in 2023. We welcomed three experienced banders to the ranks of Day Leaders, and after much hard work by GGRO staff, we invited four GGRO interns into our community.

## DAY LEADERS

Anne Ardillo, Mike Armer, Eddie Bartley, Marc Blumberg, Robyn Boothby, Nancy Brink, Carmen DeLeon, Ben Dudek, Laura Echávez, Teresa Ely, Anastasia Ennis, Krista Fanucchi, Elisha Hull, Eric Jepsen, John Keane, Eric Lynch, Mark McCaustland, Nancy Mori, Craig Nikitas, Jeff Robinson

# Banding

Raptors banded in the Marin Headlands, California, during autumn

Species	Past 10-Year Average*	2023
Turkey Vulture	2	2
Northern Harrier	6	1
Sharp-shinned Hawk	291	318
Cooper's Hawk	393	379
American Goshawk	0	0
Red-shouldered Hawk	17	4
Broad-winged Hawk	3	0
Swainson's Hawk	0	0
Red-tailed Hawk	225	140
Ferruginous Hawk	0	0
Rough-legged Hawk	0	0
American Kestrel	21	3
Merlin	22	12
Peregrine Falcon	5	2
Prairie Falcon	1	0
Total Banded		861



Sarah Parnell holds a Red-tailed Hawk. Illustration by Emma Regnier

Data compiled by Teresa Ely. If you would like to use these data, please contact us: [ggro@parksconservancy.org](mailto:ggro@parksconservancy.org)

\*From the early 1990s through 2019, on most days, we used four banding blinds in the GGRO Banding Program. From 2021 on, we only used three blinds, therefore this chart shows the ten-year banding average for only the three blinds, making comparisons more valid.



# Research

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## PUBLICATIONS

Martinico, BL, GK Sage, MC Gravley, SL Talbot, RC Bourbour, AC Hull, BA Haak, AM Fish, and JM Hull. 2023. Population genetics and phylogeography of North American Merlins (*Falco columbarius*) in the post-DDT era. Ibis. <https://doi.org/10.1111/ibi.13182>

Smallwood, JA, TE Ely, and CE Hallett. 2023. The use, and misuse of the subterminal black tail band to age female American Kestrels. Journal of Raptor Research. <https://doi.org/10.3356/JRR-22-45>

## PRESENTATIONS

Ely, TE, LM Echávez, and JA Smallwood. Oct. 2023. Techniques for handling, auxiliary marking, and measuring raptors after capture. Workshop. Raptor Research Foundation Conference. Albuquerque, NM.

Fish, AM. Feb 2023. Shifting phenologies, shrinking birds, and migratory short-stopping – 40 years at the intersection of climate change & the Pacific Raptor Flyway. Pacific Climate (PACCLIM 2023) Conference. Asilomar, CA.

## MOTUS

2023 marks the first year that we have participated in the [Motus Wildlife Tracking System](#), a collaborative research network that uses radio telemetry and fixed-location receivers to monitor the movements of birds, bats, and even insects. In coordination with Ryan Bourbour, Levi Souza, and Shannon Skalos of the California Department of Fish and Wildlife (CDFW), we placed the first set of Motus tags, or transmitters, on raptors during October 2023.

Between mid-October and mid-November, we placed tags on one female American Kestrel, four juvenile female Sharp-shinned Hawks, three juvenile male Sharp-shinned Hawks, and one adult female Sharp-shinned Hawk. This is the first official project to track Sharp-shinned Hawks with Motus tags, and one of a few projects to place Motus tags on American Kestrels.

A few highlights have already resulted from the Motus tracking. The first bird to receive a Motus tag was a juvenile female Sharp-shinned Hawk on October 11. It remained in the Bay Area and “pinged” Motus towers at Wolfback Ridge (above Sausalito), at Richardson Bay Audubon Center (Tiburon), and at Napa-Sonoma Marshes Wildlife Area regularly for two months, until December 7.

The female American Kestrel was fitted with a tag and released on October 27. On October 28, it pinged the Wolfback Ridge and Richardson Bay Audubon Center towers, then just five hours later, pinged a CDFW tower at Santa Cruz, CA. All was silent until 22 days later, when she pinged the tower at Punta Mazo, San Quintín Nature Reserve, Baja California, on November 19, 24, and 26 – 700 miles south of the Marin Headlands.



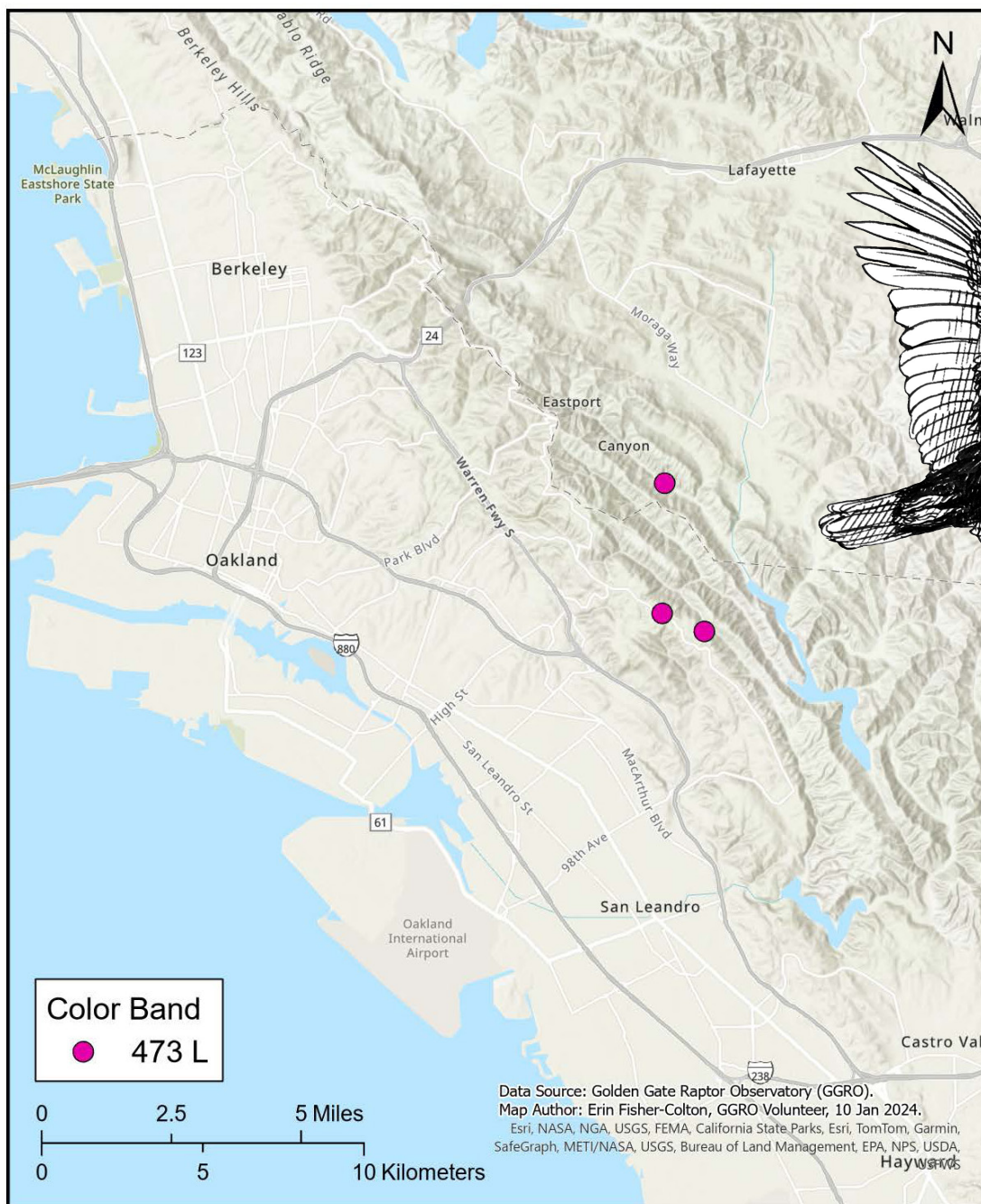
# PROJECT ZOPILOTE

[Project Zopilote](#) (GGRO's vulture ecology study) has evolved to include collaboration with wildlife rehab centers by tagging Turkey Vultures just before they are ready to be released. This year we tagged two juvenile vultures that had been orphaned and rehabilitated at the California Raptor Center at UC Davis. We gave them blue wing-tags (numbered 476 and 477) and released them in the Marin Headlands on September 6. They were seen multiple times during the 2023 season, and we look forward to hopefully seeing them in the future.

Turkey Vulture #368, tagged in January 2018, has been the most re-sighted tagged vulture at Hawk Hill. Unfortunately, 2023 marked the first season that we had no re-sightings of this bird.

## TURKEY VULTURE BAND RECOVERIES IN 2023

This map shows tagged Turkey Vulture sightings, outside of the GGRO Hawkwatch in the Marin Headlands, for the greater Bay Area. Only one of the 19 vultures tagged since 2018 was re-sighted in 2023.



Data Source: Golden Gate Raptor Observatory  
Map Author: Erin Fisher-Colton, GGRO Volunteer, 11 Jan 2024  
Turkey Vulture Illustration by Emma Regnier



# Outreach

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Outreach takes many forms at the GGRO, some of it outside, some in the community, some in person, some digital. But there's no better classroom for learning about birds of prey than being on Hawk Hill, watching the birds pass by. Here are some of the raptor educational impacts made possible by our GGRO and broader Parks Conservancy/NPS staff and volunteers over the past year.

Most importantly, we tallied more than 9300 visitors to Hawk Hill last fall during hawkwatch days, for a rate of 23 people per hour. (That's 1.3 visitors for every Red-tailed Hawk sighting.) On weekends, we had staff on-hand to answer questions about the migration and raptor identification. During September and October, a small team of ready-and-able volunteers helped us meet and greet at the central "Wingspan" platform on Hawk Hill, where we've used colored duct tape to show the lengths of all 19 raptor species. Our thanks to volunteers Woody Woodbury, Jennifer Miller, Jan Ambrosini, Holly Thomas, and Brian Kemler.

Among the many people and groups ascending Hawk Hill to see the migration in 2023 were the Golden Gate Bird Alliance, the Sonoma Chapter of the Feminist Bird Club, Children's Day School (SF), UC Santa Cruz and USF ornithology classes, the SF Veterans Administration Warriors, the Yale Blue-Greens Alums, Marin County Parks, and the Junior Raptor Society of San Francisco. Off-site GGRO talks included People for the Parks, the Berkeley Rotary Club, California Academy of Sciences, and St. Andrew's Episcopal School Science Fair in Saratoga.

One new 2023 tool in Hawk Hill outreach was the Roving Ranger, the Parks Conservancy's Redtail-orange, four-wheeled, National Parks visitor center hosted by our very talented Community Engagement Team. They spent three peak migration days in 2023, greeting Hawk Hill visitors and running beginning birding walks up the Hill.

Also in 2023, our Parks Conservancy colleagues at the Crissy Field Center brought 12 SFUSD middle school classes up to Hawk Hill as part of the nine-year old Migratory Story curriculum. Also, NatureBridge instructors have been bringing youth from across California to Hawk Hill for more than 40 years, focusing both on raptor migration and the power of community science.

An increasing number of GGRO fans are finding us through digital media, thanks especially to our twice-weekly social media posts. GGRO staff created more than 110 GGRO posts via [Instagram](#) during 2023, resulting in over 3600 followers, plus over 5400 on [Facebook](#). More than 46,000 page views were recorded on the GGRO page at [parksconservancy.org](#) as the love for birds and birding is soaring. Thanks to all the Parks Conservancy, NPS, and volunteer educators who fanned the flames of love for the Pacific Raptor Flyway in 2023.

# Volunteers

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As we celebrate our 40th season of conducting community science in the Marin Headlands, it's humbling to see how many volunteers have been with us through most (if not all) of this journey! The longevity of our volunteers and their mentorship is crucial to our success and our ability to run a consistent, organized, and safe program while apprentice volunteers bring new ideas and fresh perspectives. Our sincerest gratitude to our 2023 migration season volunteers:

Jon Altemus	Ben Dudek	Rachel Lawrence	Lora Roame
Jan Ambrosini	Joan Duffield	Patricia Lessard	Jeff Robinson
Anne Ardillo	Wade Eakle	Cody Levin	Steve Rock
Jennifer Armer	Rich Eliason	William Ludan	Paul Romanak
Michael Armer	Catherine Elliott	Tom Luster	Will Rose
Stefanie Arthur	Anastasia Ennis	Eric Lynch	Anne Ross
Patricia Bacchetti	Michaela Figari	Yvette MacDonald	Elizabeth Rouan
Mary Badger	Erin Fisher-Colton	Mary Malec	Siobhan Ruck
Lynn Bantley	Dan Foldes	Robert Martin	Jane Rudebusch
Eddie Bartley	Lief Gallagher	Breanna Martinico	Rod Santos
Don Bartling	Carole Garrett	Cindy McCauley	Peter Sapienza
Margot Bezruczyk	Alison Gee	Mark McCaustland	Sarah Sawtelle
Marc Blumberg	Zeka Glucs	James McDermott	Linda Schneider
Robert Blumberg	Maureen Grabowski	Tomas McKay	Jack Schofield
Jeff Boissier	Susan Greef	Horacio Mena	Paulette Sherry
Robyn Boothby	Mitchell Green	Rachel Miller	Shannon Skalos
Ryan Bourbour	Keith Gress	Jennifer Miller	Tim Stroshane
Andy Bradshaw	Jessica Grubaugh	Margarita Montenegro	Linda Sudduth
Nancy Brink	JJ Harris	Nancy Mori	Natalie Tan-Torres
Mona Broukhim	Melissa Hero	Paula Moser	Christina Tarr
Jennifer Brown	Tori Herzog	Kimberlie Moutoux	Holly Thomas
Lydia Bruno	Kimberly Hettler-Coleman	Tani Myers	Laura Thomas
Arden Bucklin-Sporer	Parker Holzman Smith	Jody Newman	Traci Tsukida
Courtney Buechert	Calvin Hom	Wing Ng	Michael Voeltz
Ryan Byrnes	Sam Hontalas	Craig Nikitas	Kristin Vorhies
Christine Cariño	Diane Horn	Brian O'Laughlin	Noreen Weeden
Kirsti Carr	Buzz Hull	Ana Olivar	Marion Weeks
Conner Cimmeyotti	Elisha Hull	Rebecca Olsen	Emily Weil
Laura Coatney	Eric Jepsen	Kristin Olson	Carol Weinstein
Patricia Contaxis	Chelsea Johnson	Sarah Parnell	Jared Westbrook
Patrick Coughlin	John Keane	Sean Parnell	Jeff Wilcox
Alexandra Cox	Brian Kemler	Denise Peck	Ken Wilson
Deborah Crooks	Mary Kenney	Jean Perata	Woody Woodbury
Chris Cruz	Melissa Kohner	Roy Pisetsky	Jim Yampolsky
Candace Davenport	Rina Kor	Cricket Raspet	Nick Yatsko
John Davis	Maryrose Kulick	Sonja Raub	Pauline Yeckley
Dennis Davison	Erin Lacour	Kinley Renger	Gretchen Zantzinger

# NUMBER OF RAPTOR SIGHTINGS 2012–2023

Marin Headlands, California

	2012	2014	2015	2016	2017	2018	2019	2021	2022	2023
<b>Turkey Vulture</b>	6622	8433	9692	5998	7063	6694	7340	3414	5974	5216
<b>Osprey</b>	62	79	83	67	63	67	58	58	41	69
<b>White-tailed Kite</b>	129	73	36	20	61	42	31	16	14	21
<b>Bald Eagle</b>	8	9	8	8	17	14	19	9	20	25
<b>Northern Harrier</b>	523	394	442	354	905	600	807	426	191	175
<b>Sharp-shinned Hawk</b>	3149	3539	4652	4138	3107	3389	2021	2740	1905	2794
<b>Cooper's Hawk</b>	2695	2169	3106	1998	2198	1914	2629	1407	891	1821
<b>American Goshawk</b>	0	0	2	0	0	3	0	1	0	0
<b>Red-shouldered Hawk</b>	604	578	574	265	220	362	280	330	189	208
<b>Broad-winged Hawk</b>	756	310	344	289	286	295	110	194	558	410
<b>Swainson's Hawk</b>	11	10	6	5	13	5	4	9	8	4
<b>Red-tailed Hawk</b>	8601	7559	10,017	5676	9132	9230	8248	6830	6195	7160
<b>Ferruginous Hawk</b>	32	19	73	48	20	29	17	18	11	15
<b>Rough-legged Hawk</b>	19	1	1	4	1	8	8	9	1	2
<b>Golden Eagle</b>	13	32	18	13	16	14	13	6	8	5
<b>American Kestrel</b>	396	380	297	229	268	349	286	126	115	178
<b>Merlin</b>	180	183	257	178	252	182	156	91	87	173
<b>Peregrine Falcon</b>	246	279	225	199	252	205	196	156	209	215
<b>Prairie Falcon</b>	8	7	6	2	5	2	0	5	4	5
<b>Unidentified</b>	1084	1159	1381	862	906	909	784	728	424	589
<b>Total Sightings</b>	25,138	25,213	31,220	20,353	24,785	24,323	23,007	16,573	16,845	19,085
<b>Hours</b>	442	488	540	443	474	408	443	301	411	392.8
<b>Raptors Per Hour</b>	56.9	51.7	57.8	41.2	52.3	59.7	51.9	55.3	41.0	48.6

Data compiled by Lizzy Edson and Allen Fish. Due to the impacts of regional and world events, GGRO annual data trends should not be assessed without specific knowledge and consultation with GGRO staff. If you would like to use these data, please contact us: [ggro@parksconservancy.org](mailto:ggro@parksconservancy.org).

# NUMBER OF RAPTORS Banded 1983–2023\*

Marin Headlands, California

	1983-2014	2015	2016	2017	2018	2019	2021	2022	2023	Total
<b>Turkey Vulture**</b>	n/a	n/a	n/a	5	5	2	0	0	2	19
<b>Northern Harrier</b>	293	8	3	3	6	10	6	1	1	341
<b>Sharp-shinned Hawk</b>	11,453	481	463	330	413	181	184	238	318	13,994
<b>Cooper's Hawk</b>	14,238	649	503	496	468	596	283	197	379	17,645
<b>American Goshawk</b>	6	1	0	0	1	0	0	0	0	7
<b>Red-shouldered Hawk</b>	413	33	12	3	12	15	22	12	4	518
<b>Broad-winged Hawk</b>	37	3	2	1	5	0	1	1	0	48
<b>Swainson's Hawk</b>	10	0	0	1	0	0	0	0	0	11
<b>Red-tailed Hawk</b>	9319	251	229	212	342	227	195	127	140	11,013
<b>Ferruginous Hawk</b>	2	0	0	1	0	0	1	0	0	4
<b>Rough-legged Hawk</b>	6	0	0	0	0	0	1	0	0	7
<b>American Kestrel</b>	1362	41	24	21	26	10	7	10	3	1512
<b>Merlin</b>	692	50	34	37	21	23	16	8	12	876
<b>Peregrine Falcon</b>	90	2	9	11	5	7	5	7	2	138
<b>Prairie Falcon</b>	44	3	2	1	1	0	1	0	0	51
<b>Total Banded</b>	37,965	1522	1281	1122	1305	1071	722	601	861	46,184

Data compiled by Teresa Ely. Due to the impacts of regional and world events, GGRO annual data trends should not be assessed without specific knowledge and consultation with GGRO staff. If you would like to use these data, please contact us: [ggro@parksconservancy.org](mailto:ggro@parksconservancy.org).

\*The 2021-2023 banding seasons operated with three blinds. All previous seasons operated with four. This is a contributing factor to lower numbers. Numbers have not been adjusted for changes in banding season start and end dates in recent years, nor for changes in daily start and end times.

\*\*The 2020 banding season was suspended due to the COVID-19 pandemic. However, five Turkey Vultures were tagged in 2020.





Peregrine Falcon by Krista Fanucchi, from a photograph by John Davis

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**Golden Gate Raptor Observatory**

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