

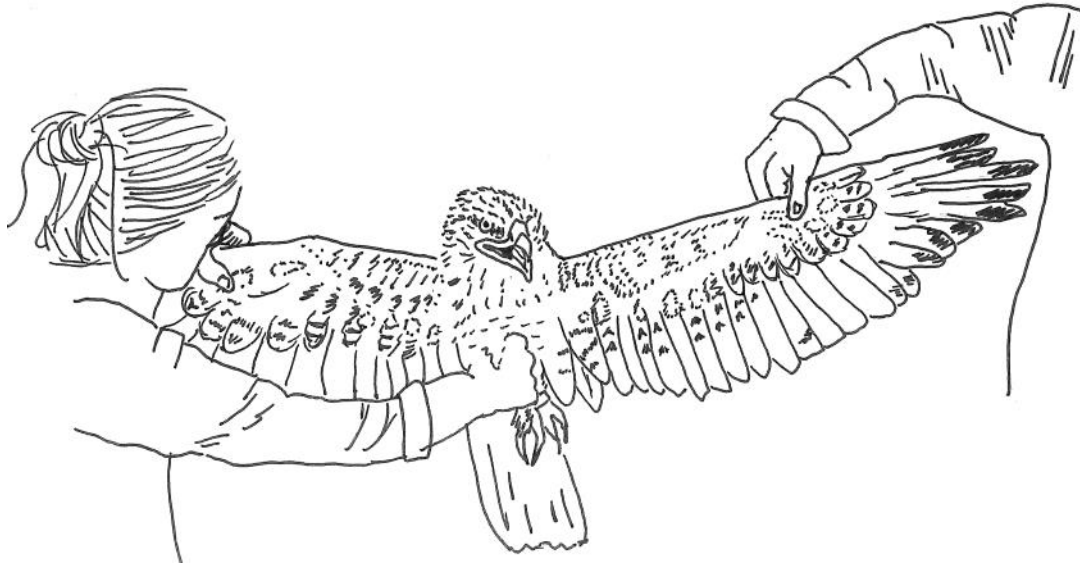
Golden Gate Raptor Observatory  
*Season Summary 2017*

---



VOLUNTEERS • RESEARCH • HAWKWATCH  
OUTREACH • BANDING • DONORS





*Banders study molt pattern on the first adult Ferruginous Hawk trapped at GGRO.  
(Illustration by Danielle Husband)*

---

## GOLDEN GATE RAPTOR OBSERVATORY

The Golden Gate Raptor Observatory's mission is to inspire the preservation of birds of prey. Our business is to monitor and study the bird of prey migration along the central California coast, particularly at the Marin Headlands, part of the Golden Gate National Recreation Area. We are dedicated to the conservation of raptors both through careful data collection *and* through involving the public in every aspect of our research. The GGRO is a program of the Golden Gate National Parks Conservancy and the National Park Service, and is made up of 290 community volunteers and a small staff.

*GGRO Season Summary 2017*

Compiled and edited by Laura Young

©2018 by the Golden Gate National Parks Conservancy. All rights reserved.

Requests for or questions about GGRO data should be addressed to [ggro@parksconservancy.org](mailto:ggro@parksconservancy.org).

Cover Illustration: Peregrine Falcon (*aquatint etching by Siobhan Ruck*)

---

## G G R O S T A F F

ALLEN FISH, GGRO DIRECTOR • LAURA YOUNG, OPERATIONS MANAGER  
TERESA ELY, BANDING MANAGER • STEP WILSON, HAWKWATCH & OUTREACH MANAGER  
BUZZ HULL, RESEARCH DIRECTOR EMERITUS  
2017 INTERNS: LAURA ECHÁVEZ, LARA ELMQUIST,  
DANIELLE HUSBAND, KAITLIN MCGEE, AND ASHLEY SANTIAGO  
SHARON FARRELL, VICE PRESIDENT, STEWARDSHIP & CONSERVATION

# I N T R O D U C T I O N

---

Last October I travelled to Cape May Point, NJ, to join 150 bird-people from 28 states and provinces, from 15 countries as far away as Brazil, Iceland, Israel, and South Korea, at the second International Bird Observatory Conference (IBOC). Seventy-four bird organizations were on-hand. Some call themselves observatories, but others are stations, reserves, institutes, councils, centers, sanctuaries, labs, and chapters. So many names, but just one phrase describes them all: *passionate bird-people*.

2018 is a milestone anniversary year for bird conservation law. The Migratory Bird Treaty Act was passed by US Congress in 1918 to surpass states' rights to micro-manage their own bird populations. Why should Congress have done this? And why call it a treaty? Two words: *birds move*. They move across state and international borders, and to be fully protected, the laws must move with them. Through 1976, four countries co-signed onto MBTA: Canada, Mexico, Japan, and Russia.

The MBTA isn't perfect. Some of the birds we see each fall over the Marin Headlands fly well into South America. What an achievement it would be to have Panama and Argentina on the MBTA. But the MBTA is what we have today. It protects Bushtits and Bald Eagles. Its 100-year history is a foundation for international environmental law, and something to be truly proud of, and that's why I am confounded by current proposals to weaken MBTA by giving industries a free pass around it.

IBOC and MBTA. These acronyms are deeply connected. Laws, especially international laws, to protect our magnificent wildlife are rare enough. When we get them on the books, we need to protect them as a goshawk protects her nest. That's my message: laws need constituency. And that's what bird observatories do. Observatories create constituency for wild birds, for bird migration, for refuges and sanctuaries. Ranging from the highly professional to the mom-and-pop, bird observatories bring science out of the closet and plug it into the real world.

Thank you for your support of bird observatories however you do your part. Wherever you travel, whatever birds you love, I hope you find the observatories that pertain, and do your bit to keep them happy and healthy. Our bird laws need them.

In December 2017, GGNRA's Chief of Natural Resources, Dr. Daphne Hatch, retires after a quarter-century of service to the National Park Service. As an advisor, strategist, and fellow birder, Daphne has been a true partner in growing the GGRO, and we thank her deeply for her years of good counsel. The GGRO would not be possible without the great support of all our Park colleagues, from the Parks Conservancy, the US Park Police, and NPS. Great thanks to the volunteers, interns, and donors who are our constituency and life-blood, and are listed in the pages that follow.

—Allen Fish, GGRO Director



# V O L U N T E E R S

Emily Abernathy  
 Rosa Albanese  
 Jon Altemus  
 Anne Ardillo  
 Jenn Armer  
 Kendra Armer  
 Michael Armer  
 Stefanie Arthur  
 Patricia Bacchetti  
 Michelle Bain  
 Jared Baker  
 Lynn Bantley  
 Kathleen Barker  
 Eddie Bartley  
 Don Bartling  
 Carie Battistone  
 Nicole Beadle  
 Tim Behr  
 Maxine Berg  
 Ronald Berg  
 Emily Berk  
 Chris Bessett  
 Sam Bessett  
 Alan Bleiman  
 Marc Blumberg  
 Robert Blumberg  
 Sara Bohannon  
 Jeff Boissier  
 Bob Boles  
 Laura Booth  
 Robyn Boothby  
 Carroll Botvinick  
 Ryan Bourbour  
 Andy Bradshaw  
 Herb Brandt  
 Randy Breaux

Lucy Breslow  
 Nancy Brink  
 Johnny Brown  
 Arden Bucklin-Sporer  
 Marcia Budarf  
 Courtney Buechert  
 Nicholas Buechert  
 Ryan Byrnes

Chris Cruz  
 Nevin Cullen  
 Susanna Czuchra  
 Candace Davenport  
 Tim Davis  
 Dennis Davison  
 Deanna de Castro  
 Carmen DeLeon

John Farnsworth  
 Michaela Figari  
 Robbie Fischer  
 Erin Fisher  
 Katie Fitzgerald  
 Dan Foldes  
 Andrew Ford  
 Ross Forman  
 Jessa Gabriel  
 Kathleen Gadway  
 Jen Gale  
 Claire Gallagher  
 Jack Gedney  
 Brianna Gerard  
 Theresa Gibbens  
 Angelo Gilbert  
 Maureen Grabowski  
 Alane Gray  
 Susan Greef  
 Keith Gress  
 Joshua Haiman  
 Jim Hallisey  
 Julie Hanft  
 Mary Ellen Hannibal  
 JJ Harris  
 Melissa Hero  
 Katie Herrmann  
 Jennifer Ho  
 Sanders Ho  
 Lynn Hoerle  
 Nora Holmes  
 Tom Holmes  
 Calvin Hom  
 Sam Hontalas  
 Diane Horn  
 Buzz Hull



*Bander Traci Tsukida displays a Red-tailed Hawk.  
 (Illustration by Laura Echávez)*

Christina Cambie  
 Ruth Cantwell  
 Christine Cariño  
 Koby Cariño  
 Caryl Carr  
 Sally Cedarblade  
 Daniel Chelsky  
 Richard Cimino  
 Conner Cimmiyotti  
 Jim Clausen  
 Terry Coddington  
 Deborah Crooks

Russ DeLong  
 Janine DeMartini  
 Ben Dudek  
 George Eade  
 Kathy Eagle  
 Wade Eakle  
 Laura Echávez  
 Richard Eliason  
 Nancy Elliot  
 Catherine Elliott  
 Lara Elmquist  
 Anastasia Ennis

# V O L U N T E E R S

---

Josh Hull	Tara McIntire	James Raives	Linda Sudduth
Jarod Hunting	Paul Meadow	Katherine Raspet	Candace Swimmer
Danielle Husband	Horacio Mena	Michael Reese	Natalie Tan-Torres
David Jesus	Kim Meyer	Eileen Richey	Michelle Tattersall
Lynn Jesus	Lisa Michl	Beverly Riehm	Craig Tewell
Debbie Kahn	Jennifer Miller	Lora Roame	Holly Thomas
Kanani Kauka	Rachel Miller	Jeff Robinson	Laura Thomas
Mamiko Kawaguchi	Steve Miller	Steve Rock	Laura Tracy
Shayan Kazemian	Nancy Mori	Paul Romanak	Traci Tsukida
John Keane	Tani Myers	Diane Rooney	John Ungar
Mary Kenney	Jennifer Nazzal	Will Rose	Brad Valentine
Avi Kertesz	Elizabeth Ng	Laury Rosenthal	Emily Van Poetsch
Violet Kimzey	Craig Nikitas	Libby Rouan	Kris Vanesky
Melissa Kohner	Wendy Niles	Siobhan Ruck	Michael Voeltz
Linda Kretchmar	Maureen Noon	Jane Rudebusch	Kristin Vorhies
Shelby LaMotte	John Odell	Dede Sabbag	Megan Walla-Murphy
Joan Lamphier	Christine Okon	Ashley Santiago	Noreen Weeden
Dian Langlois	Brian O'Laughlin	Peter Sapienza	Marion Weeks
Isabel Lawrence	Rebecca Olsen	Juta Savage	Emily Weil
Natasha Lekach	Claire O'Neil	Sarah Sawtelle	Carol Weinstein
Cheryl Lentini	Steve O'Neill	Sam Schloeman	Dave Wells
Patricia Lessard	Pat Overshiner	Linda Schneider	Alana Weston Cruz
Allison Levin	Ron Parker	Kaela Schnitzler	Nick Whelan
Ann Linder	Phoebe Parker-Shames	Jack Schofield	Lisa Whitaker
Patrick Lindley	Jean Perata	Lynn Schofield	Nelia White
Cathy Loewen	Ralph Pericoli	Terrie Schweitzer	Jeff Wilcox
Sandi Lucas	Philippe Pessereau	David Sexton	Ken Wilson
William Ludan	Jenni Peters	Amanda Shafer	Bright Winn
Tom Luster	Sean Peterson	Paulette Sherry	Pat Wong
Eric Lynch	Hailey Pexton	Shannon Skalos	Wayne Woodbury
Mary Malec	Ryan Phillips	Kate Skelly	Jim Yampolsky
Robert Martin	Roy Pisetsky	Brian Smucker	Pauline Yeckley
JoAnn McAllister	Janice Podoll	Virginia Snider	Laura Young
Cindy McCauley	Bob Power	Ed Sotello	Sabrina Young
Kaitlin McGee	Bill Prochnow	Tim Stoddard	

# R E S E A R C H

---

2017 was a dynamic year for GGRO research, both at home and at conferences. We currently have three active research partnerships with graduate students in the Joshua Hull Lab in the Animal Sciences Department at UC Davis. These include a range of topics: studying patterns of Merlin and Cooper's Hawk genetics, examining the DNA of avian prey in Sharp-shinned Hawks and Merlins, and investigating rodenticide contamination in soaring hawks. Great thanks are due to Josh, our long-time research consultant and volunteer bander, and to students Ryan Bourbour, Breanna Martinico, and Emily Abernathy for their hard work.

We are also cooperators on two multi-partner studies based in other organizations: (1) a flyway-by-flyway study of American Kestrel genetics coordinated by Neil Paprocki of Hawkwatch International, our sister organization based in Salt Lake City, UT; (2) a review of mercury contamination in birds by the USGS and headed up by Josh Ackerman.

## CONFERENCES

Allen Fish and Teresa Ely both presented GGRO talks at the National Park Service Science Symposium held at San Francisco in May 2017. Allen was also an invited speaker at the second Citizen Science Association held along the Mississippi River at St. Paul, MN, also in May, for a panel focusing on "place-based science" with *Citizen Scientist* author Mary Ellen Hannibal and marine biologist Dr. Julia Parrish. At St. Paul, Allen also helped instigate the first gathering of National Park Service Citizen Science practitioners, an initial group of 16 with roots across the continent, and coordinated by the new NPS Citizen Science chief, Dr. Timothy Watkins.

The annual *Raptor Research Foundation* was held in Salt Lake City, UT, in November 2017, and three of our four staff attended, while two of four presented: Step Wilson on the GGRO's *Migratory Story* outreach program, and Laura Young on satellite-tracking Red-tailed Hawks. Veteran bander and USFS biologist John Keane delivered a synopsis of GGRO hawk count trends from 1990 to 2011, while Ryan Bourbour and Breana Martinico presented on their Master's research projects. Of 167 talks and posters, 16 current or former GGRO staff, interns, and volunteers were co-authors, while 11 were primary authors. Finally and maybe most exciting, Teresa Ely somehow found time at the conference to bring together the first gathering of "Women in Raptor Research and Conservation."



*A Merlin rests calmly in a bander's hand.  
(Illustration by Danielle Husband)*

# R E S E A R C H

---

## VULTURES

Following more than a year of solidifying permits and preparation for a long-term study, “Rodenticides and Movement Ecology of Turkey Vultures in the Marin Headlands” Teresa Ely and Step Wilson convinced their first vulture to walk into a trap on December 1, 2017. Four Turkey Vultures were trapped and released back to the wild during December, each now bearing a light blue wing tag on the right wing with a 3-digit number, which may be read from a distance with binoculars. Great thanks to our awesome interns for their diligence in trap-checking, and to Melanie Piazza, Pete Bloom, Keith Bildstein, Bill Merkle, Chris Briggs, and Kris Vanesky for their support. We are also deeply grateful to the family and friends of bird-watcher and pioneering computer scientist Paul Armer. Donations in Paul’s memory provided the foundation for GGRO’s vulture research.

## EBIRD

Also late in 2017, Step Wilson started the conversation with Cornell Lab of Ornithology eBird coordinator Brian Sullivan and GGRO’s informatics consultant Nathan Elliott to begin to transfer our 35-years of hawk migration counts into the immense eBird database. This is a huge opportunity for us to offer up the GGRO dataset to a wide audience for long-term use. Thanks to all the players in making this possible.

—Allen Fish



*Wing-tagged Turkey Vultures can be reported to the Bird Banding Lab just like metal leg bands!  
(Illustration by Laura Echávez)*

# H A W K W A T C H

## RAPTOR-SIGHTINGS IN THE MARIN HEADLANDS DURING AUTUMN

	2017 Season (468 hours)		Past 10-Year Average (2005-2016)* (488 hours)	
	Sightings	Raptors/hour	Sightings	Raptors/hour
Turkey Vulture	7,063	14.53	7,910	16.26
Osprey	63	0.13	83	0.17
White-tailed Kite	61	0.13	77	0.16
Bald Eagle	17	0.03	7	0.01
Northern Harrier	905	1.86	567	1.16
Sharp-shinned Hawk	3,107	6.39	3,981	8.20
Cooper's Hawk	2,198	4.52	2,498	5.14
Northern Goshawk	0	<0.01	1	0.00
Red-shouldered Hawk	220	0.45	463	0.95
Broad-winged Hawk	286	0.59	261	0.55
Swainson's Hawk	13	0.03	7	0.01
Red-tailed Hawk	9,132	18.79	8,508	17.50
Ferruginous Hawk	20	0.04	29	0.06
Rough-legged Hawk	1	<0.01	7	0.01
Golden Eagle	16	0.03	19	0.04
American Kestrel	268	0.55	411	0.85
Merlin	252	0.52	187	0.39
Peregrine Falcon	252	0.52	233	0.49
Prairie Falcon	5	0.01	6	0.01
Unidentified	906	1.86	1,165	2.41
<b>Total</b>	<b>24,785</b>	<b>51.0</b>	<b>26,417</b>	<b>54.4</b>

*\*2010 and 2013 data not included due to partial seasons*

The 2017 hawkwatch season was conducted by 16 volunteer dayleaders with a couple extra in the wings for backup. We implemented a co-dayleader program this year with great success for a couple of the teams. All of the dayleaders guided their teams throughout the season making counts, instructing new

## D A Y L E A D E R S

JON ALTEMUS • TIM BEHR • LAURA BOOTH • CHRISTINE CARIÑO  
 DENNIS DAVISON • NANCY ELLIOT • KEITH GRESS • MARY KENNEY  
 NATASH LEKACH • CHERYL LENTINI • HORACIO MENA • KIM MEYER  
 BRIAN O'LAUGHLIN • BOB POWER • JAMES RAIVES • LAURY ROSENTHAL



# H A W K W A T C H

---

volunteers and ensuring the accuracy of the reported data. Collectively, the dayleaders managed 175 volunteers (30 of which were first-year apprentices) five interns, and me.



*The North platform of Hawk Hill  
(Illustration by Danielle Husband)*

All teams combined counted for 468 hours—about 4 days less than our ten-year average—which is impressive considering the conditions and experiences that swept across this season. The teams rose to every occasion. Dedicated hawkwatchers scanned those hours into 24,785 raptor-sightings (lower than our ten-year average, but up from last year’s total sightings.) They waited out fog and smoke and heat. They counted through busy-exciting days, and scanned on slow days to pick out distant raptors. The teams helped their fellow teammates with rides, snacks, and encouragement in identifying difficult birds. They offered their time, expertise, and homes to a few who needed it. I couldn’t be more proud to be a part of this most excellent canopy.

—Step Wilson

# O U T R E A C H

---

Our 2017 Outreach program was anchored on Hawk Hill by raptor-loving and people-savvy outreach interns Kaitlin McGee and Lara Elmquist, and master-minded by Step Wilson. Kaitlin and Lara provided weekend Hawk Talks in September and October, and were also on hand to assist with Raptor Releases. Great thanks to all of our docents listed below. Between NatureBridge classes and a broad swath of community groups, more than 1,800 people joined us on Hawk Hill for a GGRO program past fall.

For the third season, GGRO worked with the Crissy Field Center staff, led by Ranger Kelsi Ju, to provide the *Migratory Story*. This outreach program helps fifth-graders from Title One classrooms in San Francisco think about why animals move, whether raptors heading south for winter, or people looking for a better economic opportunity. Nearly 200 kids from seven schools joined us for two classroom visits sandwiched by a trip to Hawk Hill. Twenty teachers delivered programs, some completely in Mandarin or Spanish. Some kids crossed the Golden Gate Bridge for the first time in their lives. Great thanks to donor and visionary Tom Meyer for his support of this innovative program inspired by the passions of his late spouse, former GGRO bander, Judge Jennie Rhine.

—Allen Fish

---

## D O C E N T S

EDDIE BARTLEY • CARMEN DELEON • LARA ELMQUIST • ALLEN FISH  
BUZZ HULL • KAITLIN MCGEE • CRAIG NIKITAS • SIOBHAN RUCK  
LYNN SCHOFIELD • NOREEN WEEDEN • STEP WILSON

# B A N D I N G

## RAPTORS BANDED IN THE MARIN HEADLANDS DURING AUTUMN

	2017 (Aug 14, 2017 - Jan 1, 2018)	Annual Average* 1993-2016**	Totals 1983-2017
Northern Harrier	3	10.8	317
Sharp-shinned Hawk	330	478.4	12,661
Cooper's Hawk	496	562.9	15,724
Northern Goshawk	0	0.2	6
Red-shouldered Hawk	3	16.9	453
Broad-winged Hawk	1	1.5	41
Swainson's Hawk	1	0.4	11
Red-tailed Hawk	212	309.4	9,982
Ferruginous Hawk	1	0.0	3
Rough-legged Hawk	0	0.2	6
Golden Eagle	0	<0.1	2
American Kestrel	21	54.6	1,457
Merlin	37	31.2	796
Peregrine Falcon	11	4.0	112
Prairie Falcon	1	1.8	49
Eurasian Kestrel	0	<0.1	1
<b>Total</b>	<b>1,121</b>	<b>1,472</b>	<b>41,625</b>

\*2013 data are not a complete season; missed October 1-16 due to government shutdown.

\*\*1993-2015 are used for this comparison due to similarity of methods and effort between those years and 2016.

The 2017 season was below average in total birds banded, but above average in species diversity. The highlight was a Ferruginous Hawk banded on November 21. It's GGRO's first adult and the third banded overall; the previous two were banded in 1987 and 1990. On December 17, a juvenile Swainson's Hawk was banded; the eleventh in GGRO's history. Although numbers were down, we hit an all-time high of 11 Peregrines banded! Red-tailed Hawks started off strong; however, the November wave did not show up. We color banded 93 Red-tailed Hawks, 19 Cooper's Hawks, and placed patagial tags on four Turkey Vultures. Fewer adults were banded this year, only 40 compared to last year's total of 57.

We welcomed two new dayleaders and six new siteleaders. Fifteen second-year apprentices stayed the course for the 2017 season, making great progress despite experiencing fewer birds than in 2016.

—Teresa Ely

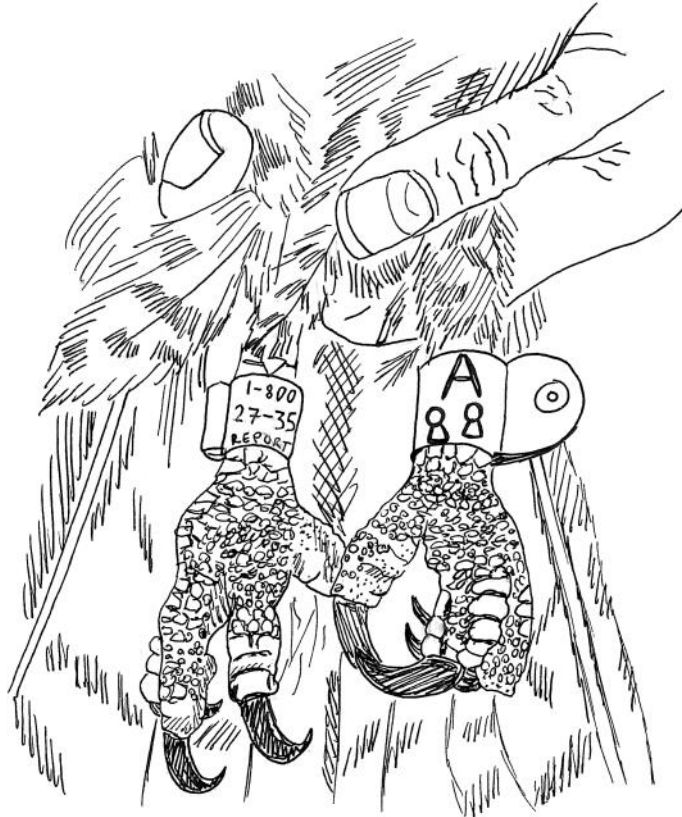
## D A Y L E A D E R S

ANNE ARDILLO • MIKE ARMER • EDDIE BARTLEY • ROBYN BOOTHBY • MARC BLUMBERG  
 NANCY BRINK • CARMEN DELEON • RUSS DELONG • TERESA ELY • CLAIRE GALLAGHER  
 BUZZ HULL • JOSH HULL • DAVID JESUS • MAMIKO KAWAGUCHI • JOHN KEANE • CRAIG NIKITAS

# D O N O R S

§ - Indicates donors who contributed to the Data Analysis and Publishing (DAP) fund

Cheryl Abel	Phyllis Browning	Terry & Zeo Coddington §	Tom Delebo
Ritch Addison	Shannon Burke	Laurie Cohen	Janine DeMartini §
Leslie Andrews	Ellen Burroughs	Edwin Colloff	Karen DeMello
Caryn Ansel §	Davida Bushner §	Ron Colwell	Leslie Dicke
Kendra Armer §	Ryan Byrnes	Huguette Combs	David Dotur
Mike & Jennifer Armer §	Diane Caliva	Kay & Tom Conneely §	Barbara Duncan
Loretta Armstrong			Steve Dykes
Stefanie Arthur §			Kathleen Eagle
Lee Aurich			Wade Eakle
Marylou Avanzino			Richard Engle & Paula Horowitz
Paul Babwin			Anastasia Ennis
Patricia Bacchetti §			Marian Erdelyi
Michelle Bain			Janeann Erickson
Lynn Bantley			Natalee Ernstrom
Kathleen Barker			John Farnsworth §
William Barnaby §			Tom Felts
Reginald Barrett			Ron Felzer
Mai-Liis & Don Bartling			Jeanne Fidler
Anne Baxter			Virginia Fifield
Katherine Baylor			Roberta Fischer
Nicole Beadle			George & Patsy Fish §
Mukund Belliappa			Sarah & Ian Flaherty
Sandra Berggren			Dan Foldes
Ardith Betts §			Gayle Fuetsch
Adam Birek			Laura Fujii
Alan Bleiman			Lillian Fujii
Carl Blom			Heidi Fuller
Marc Blumberg			Leo Gaspardone
Robert & Marion Blumberg §	Christina Cambie	Chris Cottrell	Kris Geiger
Robyn Boothby	Hugh Champion	Richard Crafton Chambers §	Valinda Gillis
Roxanne Borcich	Rocio Carballero	Deborah Crooks	Morey Goldstein
Heather Borman	Lynn Carew	Leah Curran	Quentin Goodrich §
Gleneda Borton	Oscar Carrillo	Reese Cutler	Cindy Goral
Ryan Bourbour	Agnes & John Caufield	Ludek Dadok	Linda Gordon
Randy Breaux	John Caulfield	Jon d'Alessio	Patricia Gotchall
Lucy Breslow	Sally Cedarblade	Jim Davis	Maureen Grabowski
James Broadstreet & Cheri Hinkley	Linda Chambers	Thomas Dawson	Alane Gray §
Johnny Brown §	Daniel Chelsky	Michael Dayton	David & Iris Gregoire



*Ninety-three Red-tailed Hawks were given both metal and color bands in 2017. (Illustration by Danielle Husband)*

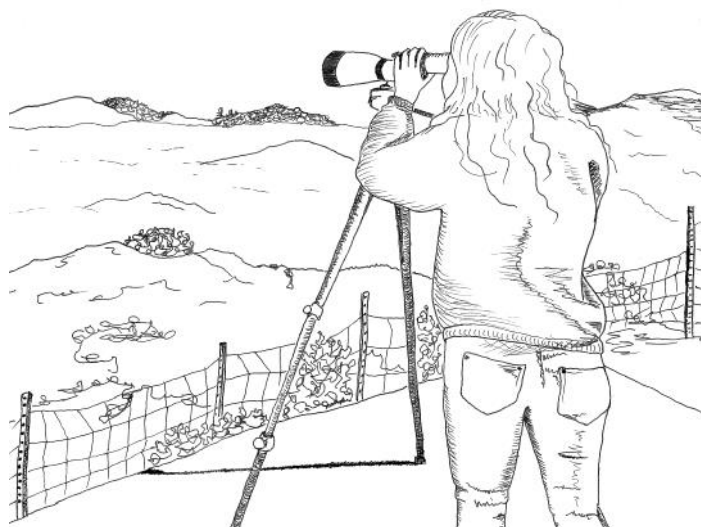
# D O N O R S

Dorothy Gregor §  
 Earl Gress  
 Keith Gress  
 Jeffrey Gualco  
 Mary Haack  
 Michael Hall  
 Jill Harley  
 John Harris  
 Judy Harris  
 George Hartzell  
 Jennifer Haynes  
 Kathleen Hazelton-Leech  
 Helen Heitkamp  
 Pete Heller  
 Lars Hellerslien  
 Melissa Hero §  
 David Herrema §  
 Ann Heurlin  
 Jan Hintermeister  
 Lynn Hoerle & Jeff Wilson §  
 Calvin Hom  
 Sam Hontalas §  
 Jennifer Hopkirk  
 Richard & Dian Horn  
 Richard & Terry Horrigan §  
 John Irwin  
 Heather Ishak §  
 Kathy Jarrett  
 Marcine Johnson  
 Craig Jones  
 Peter Joost  
 Mamiko Kawaguchi §  
 Mary Kenney  
 & Joe Pasqua §  
 Nancy Kittle  
 John Knox  
 Melissa Kohner  
 Pattie Krueger  
 Joan Lamphier

Barbara Lancaster  
 Dian Langlois §  
 Owen Leibman  
 Elizabeth Leite  
 Lamar Leland  
 Cheryl Lentini

Kimberly Mauch  
 Ronald Maykel  
 Cindy McCauley  
 Maureen McCormick  
 Frances McDermott §  
 Peter McGuire

Heidi Munzinger  
 Mikiye Nakanishi  
 Soo-Hi Nayer  
 Jennifer Nazzal  
 Gregg Niceley  
 Jeanette Nichols §



*Intern Ashley Santiago scans the horizon on hawkwatch.  
 (Illustration by Laura Young)*

Maureen Noon  
 Ed Nute  
 John Odell  
 Christine Okon  
 Brian O'Laughlin  
 Rebecca Olsen  
 & Ken Wilson  
 Martin O'Reilly  
 Douglas Overman  
 Patricia Overshiner §  
 Ron & Ruth Parker §  
 Vick Parks  
 Gene Pedrotti  
 Ruth Pennell  
 Allan Peoples  
 Jean Perata  
 & Dennis Davison §  
 Jenni Peters  
 Sean Peterson  
 & Lynn Schofield  
 Roy Pisetsky §  
 Allan Plumb  
 Audrey Polster  
 Bob Power  
 Megan Prelinger  
 David Presotto  
 & Caryl Carr §  
 Carol Prince  
 Bill Prochnow  
 & Hulda Nelson  
 C.J. Ralph  
 John Rathkey  
 Tyson Read  
 Donald Reinberg

Patricia Lessard §  
 Peter Leveque  
 Ann Linder §  
 Marie Lipman  
 David Loeb  
 Cathy Loewen  
 Carolyn Longstreth  
 Mary Lorey  
 Sharon Luster  
 Thomas Luster  
 Eric Lynch  
 Chris Macintosh  
 David Madison  
 Elizabeth Madriz §  
 Mary Malec  
 Ron Mallory  
 Nancy Martin  
 Robert Martin §

Carol McIntyre  
 Ewen McKechnie  
 John & Leslie McQuown §  
 Terry Mead §  
 Paul Meadow  
 Andrew Melomet  
 & Diane Rooney  
 Horacio & Mona Mena §  
 Amy Meyer  
 Ivan Meyerson  
 Rachel Miller  
 Steve Miller §  
 Katherine Mitchell  
 Richard Morgenstein §  
 Nancy Mori §  
 Denise Mortorff  
 Alida Morzenti  
 Kathleen Mugele

# D O N O R S

---

Gail Richardson  
 Eileen Richey  
 Allan & Helen Ridley  
 Beverly Riehm  
 Marci Riseman  
 Duane Robinson  
 Jeff Robinson §  
 Steve Rock & Nancy Brink §  
 Paul & Mara Romanak  
 Jason Rosenfeld  
 Elizabeth Rouan  
 Siobhan Ruck §  
 Pat Rudebusch  
 Leonard Rush  
 Walter Sakai  
 Serena Salomon  
 Ivan Samuels  
 Shankar Sankararaman  
 Peter Sapienza  
 Juta Savage §  
 Birgit Schilling  
 Marilyn Schmitz  
 Linda Schneider §  
 John Schofield §  
 Kevin Schofield  
 Noelle Schofield  
 Leslie Schroeder  
 Terrie Schweitzer  
 Anita Scuri  
 David Sexton §  
 James Shea  
 Debra Love Shearwater  
 Jay Sheets  
 Carrie Sherriff  
 David Shuford  
 Martin Sidor  
 Shannon Skalos  
 Sandra Slichter  
 Mary Smith

Roberta Smith  
 Ronald Smith  
 Virginia Snider  
 Sharon Solomon  
 Sheila Sousa  
 Patricia Spencer  
 Margaret Stanley  
 Philip Steiner §  
 Joan Stewart  
 Ann Stone  
 Byron Stone  
 Linda Sudduth  
 Hal Sugishita  
 Mark Sutherland  
 Candace Swimmer  
 Natalie Tan-Torres  
 Craig & Elise Tewell §  
 Susan Thomas  
 Laura Tracy  
 John Ungar §  
 Brad Valentine  
 Linda Vallee §  
 Richard Vanderlugt  
 Kristina Vanesky  
 Diana Vasquez  
 Jerry Vitenson  
 Wendy Warrington  
 Mary & Roman Watt  
 Noreen Weeden  
 & Eddie Bartley  
 Marion Weeks  
 & Stephen Blossom §  
 Carol Weinstein  
 S. Paul Welles  
 David Wells  
 Virginia Welsh  
 Nick Whelan  
 Lisa Whitaker §  
 Nelia White  
 Peter White

M.K. Whyte  
 Vicki Wilhite  
 Edwin Williams  
 Katie Winslow  
 Elizabeth Wommack  
 Pat Wong  
 Claire Woolf  
 Nick Yatsko  
 Pauline Yeckley  
 O'Brien Young  
  
**ORGANIZATIONS**  
 Birder's Garden  
 Columbia Sportswear  
 Genentech  
 March Conservation  
 Foundation §  
 Marin Horizon School  
 Mount Diablo  
 Audubon Society  
 Santa Clara Valley  
 Audubon Society  
  
**THE GREGORY HIND  
 ENDOWMENT:**  
 Leslie & Troy Daniels  
  
**IN MEMORY OF PAUL  
 ARMER:**  
 Lorne Abramson  
 & Elana Lieberman  
 Kendra Armer  
 Karen Billings  
 & James Russo  
 Karen Duncan  
 Pamela Evans  
 Rachel Jones  
 George & Martha Oetzel  
 Genentech  
  
**IN MEMORY OF  
 LEW COOPER:**  
 Delsa & Joe White

**IN MEMORY OF  
 WILLY FIVIS:**  
 Robert & Donna Fivis  
  
**IN MEMORY OF  
 CHARLES MASSEN:**  
 Guy & Mary Baty  
 Rigdon Currie  
 John & Nancy Griffin  
 Sandra Massen  
 David & Carla Parkinson  
 Katherine Preston  
 Jennifer, Rob,  
 & Cecilia Wolf  
  
**IN MEMORY OF  
 TOM MOUTOUX:**  
 Mary Kenney  
 Sue & Jim Liskovec  
 Marianne Moutoux  
 Clare & John Nash  
 Patricia Overshiner  
 Juta Savage  
 Doug Vaughan  
  
**IN MEMORY OF  
 TOM PAPPAS:**  
 Jean Perata  
 & Dennis Davison  
  
**IN MEMORY OF  
 JENNIE RHINE:**  
 Thomas Meyer  
  
**IN MEMORY OF  
 DANNY TYREE:**  
 Stephanie & George  
 Almeida  
 The Tyree Family  
  
**IN HONOR OF MIKE  
 & JENNIFER ARMER:**  
 Charles Channing

## NUMBER OF RAPTORS BANDED 1983-2016, MARIN HEADLANDS\*

	1983-2010	2011	2012	2013**	2014	2015	2016	2017	Total
Turkey Vulture	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4	4
Northern Harrier	257	2	16	10	18	8	3	3	317
Sharp-shinned Hawk	9,575	494	730	173	414	481	463	330	12,661
Cooper's Hawk	11,993	444	762	390	485	649	503	496	15,724
Northern Goshawk	5	0	0	0	0	1	0	0	6
Red-shouldered Hawk	302	15	42	21	25	33	12	3	453
Broad-winged Hawk	22	0	9	3	1	3	2	1	41
Swainson's Hawk	9	0	1	0	0	0	0	1	11
Red-tailed Hawk	8,099	188	348	433	222	251	229	212	9,982
Ferruginous Hawk	2	0	0	0	0	0	0	1	3
Rough-legged Hawk	5	0	0	1	0	0	0	0	6
Golden Eagle	2	0	0	0	0	0	0	0	2
American Kestrel	1,147	56	81	37	49	41	24	21	1,457
Merlin	522	60	36	24	33	50	34	37	796
Peregrine Falcon	76	3	7	2	2	2	9	11	112
Prairie Falcon	35	2	2	2	2	3	2	1	49
Eurasian Kestrel	1	0	0	0	0	0	0	0	1
<b>Total</b>	<b>32,052</b>	<b>1,264</b>	<b>2,034</b>	<b>1,096</b>	<b>1,251</b>	<b>1,522</b>	<b>1,281</b>	<b>1,121</b>	<b>41,625</b>

\*Data compiled by Teresa Ely. 2016 data are through January 5, 2017.

\*\*Not a complete season; missed October 1-16, 2013, due to government shutdown

## NUMBER OF RAPTOR-SIGHTINGS 2005-2016, MARIN HEADLANDS\*

	2006	2007	2008	2009	2011	2012	2014	2015	2016	2017
<b>Hours</b>	492	524	525	497	439	442	488	540	443	486
<b>Turkey Vulture</b>	9,211	9,228	7,529	8,060	6,447	6,622	8,433	9,692	5,998	7,063
<b>Osprey</b>	108	90	88	81	57	62	79	83	67	63
<b>White-tailed Kite</b>	130	71	74	93	74	129	73	36	20	61
<b>Bald Eagle</b>	2	2	6	10	9	8	9	8	8	17
<b>Northern Harrier</b>	1,090	1,002	454	614	335	523	394	442	354	905
<b>Sharp-shinned Hawk</b>	5,244	4,636	4,091	3,332	2,622	3,149	3,539	4,652	4,138	3,107
<b>Cooper's Hawk</b>	3,367	3,717	1,956	1,738	1,805	2,695	2,169	3,106	1,998	2,198
<b>Northern Goshawk</b>	0	4	2	1	0	0	0	2	0	0
<b>Red-shouldered Hawk</b>	612	512	559	529	248	604	578	574	265	220
<b>Broad-winged Hawk</b>	184	70	131	180	203	756	310	344	289	286
<b>Swainson's Hawk</b>	7	12	1	1	13	11	10	6	5	13
<b>Red-tailed Hawk</b>	11,390	11,869	6,862	8,297	7,530	8,601	7,559	10,017	5,676	9,132
<b>Ferruginous Hawk</b>	25	13	15	11	18	32	19	73	48	20
<b>Rough-legged Hawk</b>	21	10	4	2	0	19	1	1	4	1
<b>Golden Eagle</b>	24	38	18	11	9	13	32	18	13	16
<b>American Kestrel</b>	611	378	377	458	358	396	380	297	229	268
<b>Merlin</b>	230	140	184	149	166	180	183	257	178	252
<b>Peregrine Falcon</b>	237	181	224	259	264	246	279	225	199	252
<b>Prairie Falcon</b>	8	4	7	9	2	8	7	6	2	5
<b>Unidentified</b>	1,436	1,382	904	991	1,011	1,084	1,159	1,381	862	906
<b>Total</b>	<b>33,937</b>	<b>33,359</b>	<b>23,486</b>	<b>24,826</b>	<b>21,171</b>	<b>25,138</b>	<b>25,213</b>	<b>31,220</b>	<b>20,353</b>	<b>24,785</b>
<b>Raptor Activity</b> (raptors per hour)	<b>69.0</b>	<b>63.7</b>	<b>44.7</b>	<b>50.0</b>	<b>48.2</b>	<b>56.9</b>	<b>51.7</b>	<b>57.8</b>	<b>41.2</b>	<b>51.0</b>

\* 2010 data are not included here because two count sites were used and data are not directly comparable; 2013 data not included due to incomplete season caused by government shutdown

\*\* Total includes 1 Mississippi Kite.

## Golden Gate Raptor Observatory

Fort Cronkhite, Building 1064

Sausalito, California 94965

---

(415) 426-5290 • [ggro@parksconservancy.org](mailto:ggro@parksconservancy.org) • [www.ggro.org](http://www.ggro.org)

---

# *GGRO Season Summary 2017*

•

VOLUNTEERS

RESEARCH

HAWKWATCH

OUTREACH

BANDING

DONORS

•



*The Golden Gate Raptor Observatory is  
a program of the Golden Gate National  
Parks Conservancy in cooperation with  
the National Park Service.*

