

PACIFIC RAPTOR REPORT 33

FALL MIGRATION 2011 • GOLDEN GATE RAPTOR OBSERVATORY

PACIFIC RAPTOR REPORT

THE NEWSLETTER OF THE GOLDEN GATE RAPTOR OBSERVATORY



This adult Red-tailed Hawk shows a mix of tail feathers, some fully grown and others partially growing in.

The white feather is simply an under-tail covert peeking through. [Photo by Mike Armer]

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(Cover) An adult Red-shouldered Hawk watches for prey during a light rain at Pinnacles National Monument in central coastal California. [Photo by Bob Power]

THE GOLDEN GATE RAPTOR OBSERVATORY IS A PROGRAM OF THE GOLDEN GATE NATIONAL PARKS CONSERVANCY IN COOPERATION WITH THE NATIONAL PARK SERVICE

DIRECTOR'S NOTE Allen Fish

Tracking GGRO's DAP Fund



LATE 2004—as the GGRO and an annual crop of 40 to 70 slipped quietly past its 20th apprentice volunteers hoping to ▲ birthday—I was frustrated. Afreach veteran volunteer status. So, how could we turn the GGRO ter 20 years of collecting data on around its next evolutionary corhawk movements via counting, banding, and radio-tracking, we ner while keeping up with these only had a few scientific articles to tasks? How could we change from our name. This had a lot to do with being a method-focused organizathe way GGRO was set up back in tion, to being an organization that the mid-1980s: we were a small produced methods and scientific staff with a small budget, and we results in more equal parts? We focused on collecting the data. But decided to play to our strength: we we didn't want to just put bands asked the volunteers to help. on hawks; we wanted to collect careful measurements and assess the condition of each bird in hand. We didn't want to just look up and

ond-guess the flight plan of each hawk, falcon, or eagle.

We had 280 active volunteers.

count; we wanted a repeatable

count system that didn't try to sec-

In December 2004, Buzz Hull and I wrote a letter to all the GGRO volunteers asking them to donate to a new GGRO Data Analysis and Publishing Fund (DAP Fund). The Golden Gate National Parks Conservancy agreed to establish a restricted fund for us that would carry over

from year to year, and would be

GGRO Intern Robyn Smith (in background) guides a team of students through a practice hawk count. [Photo by Jessica Weinberg]

used only for analyzing, presenting, and publishing. We invited the volunteers to show their commitment to the data they had collected. Joan Chaplick, then a development strategist for the Parks Conservancy (and ace GGRO hawkwatcher), went a step further; she persuaded the Earth Friends Conser-

vation Fund in Jackson, Wyoming, to jump-start DAP with a \$4,000 grant.

What happened next was stunning. In just the first month, 32 volunteers donated a total of \$12,785 to the DAP fund. In the first six months, 85 volunteers donated a collective \$20,971. This was particularly exciting as it all came from the very people who are most invested in our data's publicationour volunteers, those who collected the data in the first place.

Since 2004, we've asked GGRO volunteers annually to put in a little extra for the DAP Fund, but otherwise we have kept the effort wordof-mouth and in-house. And at the end of seven years in December 2011, we have brought in just over \$106,000 for DAP! This is an impressive account for the GGRO, but just how do we use it to create scientific results?

First we had to fill in some software needs, so we purchased Arc-GIS software to organize our band recovery and radio-tracking data. We also used the DAP Fund to pay for page publication costs for several GGRO scientific articles. In 1998, Josh began banding with GGRO, and quickly rose to dayleader status, a position he's held now for 12 years.

On the way to earning his graduate degrees, from 2004 through 2008, Josh completed several projects in cooperation with GGRO: a population genetic study of migrating Sharp-shinned Hawks, a landscape analysis of Red-tailed Hawk genet-

an examination of GGRO Cooper's Hawk band recoveries, and (3) a 20-year review of GGRO autumn species trends. And the three below already have been published in scientific journals:

Hull, JM, HB Ernest, JA Harley, AM Fish, and AC Hull. 2009. Differential migration between discrete populations of juvenile Red-tailed Hawks (Buteo jamaicensis). Auk 126 (2): 389-396.

Hull, JM, AM Fish, JJ Keane, SR Mori, BN Sacks, and AC Hull. 2010. Estimation of species identification error: implications for raptor migration counts and trend estimation. Journal of Wildlife Management 74(6): 1326-1334.

Hull, JM, S Pitzer, AM Fish, HB Ernest, and AC Hull. Differential migration in five species of raptors in central coastal California. 2012. Journal of Raptor Research 46 (1): 50-56.

If you would like to receive copies of any of these recent papers, please e-mail me (afish@parksconservancy.org) and I will send you a pdf version.

To date, the GGRO has 19 scientific publications to its credit, and about three times as many scientific conference presentations and posters. With the recent addition of Chris Briggs to our staff as Banding Manager, and with Josh Hull's support, I look forward to a continued acceleration of scientific productivity as we move toward the GGRO's fourth decade.

Buzz Hull, Jill Harley, and I offer great thanks to the many volunteers who have donated to our DAP Fund over the last 10 years. You truly lifted us at a critical juncture.

GGRO director Allen Fish expresses gratitude to the Parks Conservancy and GGNRA for their unwavering support of citizen science at GGRO since 1983.



A heavily marked Red-tailed Hawk startles at the looming presence of the Golden Gate Bridge. [Photo by Walter Kitundu]

By late 2008, it was clear that we had pooled enough DAP funds to resolve our biggest obstacle—the staff time to focus on the analysis and publication side of our data. So, following a nationwide search, I hired Dr. Joshua Hull as a part-time research consultant. And yes, Josh is the son of GGRO Research Director Buzz Hull.

Josh Hull started working for the Parks Conservancy while still an undergraduate, interning with the Site Stewardship program and constructing the first vertebrate species list for Oakwood Valley. ics, a survey for West Nile virus exposure among California raptors, and a phylogenetic survey of Red-shouldered Hawks. Josh carried each of these from inception through to scientific publication.

Thanks to the support of the DAP Fund and its many donors, as of April 2012, Josh Hull has completed five manuscripts for GGRO, and has performed much data organization, analysis, literature searching, writing, and editing for several others. Three articles are being prepared or reviewed currently, including: (1) an analysis of mechanical-lure effectiveness, (2)

RESEARCH NOTE Suzz Hull

The Elusive & Puzzling Northern Harrier

orthern Harriers create some special problems for counters at migration sites. Most hawkwatchers have trained themselves to recognize both field marks and behavior in identifying raptor species, but few other species change both behavior and appearance as much as the Northern Harrier when migrating.

We are all somewhat conditioned to seeing harriers when flying low, coursing the ground with many directional changes, and with sudden quick turns and plunges as they spot or hear prey in the vegetation below them. Their signature white rump patch confirms what their behavior has told us and leaves us feeling secure in our identification.

Harriers on migration are often seen soaring and gliding above us, no white rump patch visible, and in shape and behavior very different from how they look when hunting. They become more difficult to differentiate from the other soaring, gliding, and flapping migrant raptors in the sky above us, mostly because we have such a strong visual memory of what a harrier looks like when hunting.

Understanding Northern Harrier movement continues to be a challenge to the hawk counters, banders, and radio-trackers of the GGRO. By 1992 the current count and banding protocols were firmly established, and I have used that starting point for this discussion of the Northern Harrier numbers.

From 1992 through 2009, the annual harrier count has varied from 160 to 1,369, and the banding numbers through 2011 have varied between no harriers banded and a high of 47 banded in 2002. The average number counted for the hawk count during this period was 693

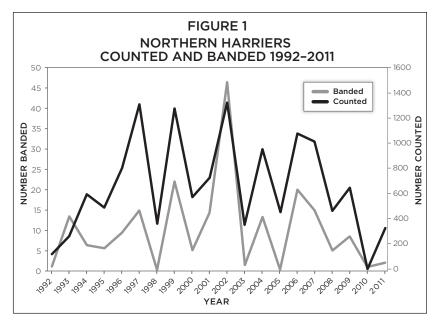
per season, and average number banded was 10 per season. In most seasons, there is a 100 to 1 ratio of harriers counted to harriers banded. See Figure 1 for count and banding details.

For comparison, the ratio is 20 to 1 for Redtails, about 10 to 1 for Sharp-shinned Hawks, and 4 to 1 for Cooper's Hawks.

HARRIER BAND RECOVERIES

We have received reports of only four banded birds out of the 259 harriers we have banded, an encounter rate of only 1.5%. In contrast, 5.3% of the Red-tailed Hawks banded by the GGRO subsequently have been encountered.

Redtail wing and tail measurements, and thus apparent size, are very similar to those respective measurements in Northern Harriers, leading one to expect that dead birds of both species would be detected at about the same rate. I strongly suspect this is another indication of the inherent bias in banding data: someone has



to find the bird and report the band number before it can become part of our recovery data. Redtails often die from human-related activities (hit by cars, electrocuted on power lines), and Northern Harriers may be more likely to die in a wetland, well away from human activity.

Two of the Northern Harrier recoveries were very local, in Sausalito and Muir Beach. Another was found in the Sonoma Marsh, about 30 miles north of the Marin Headlands, and one was a long-distance traveler, recovered at the mouth of the Coquille River near Bandon in southwest Oregon, several hundred miles to the north. Three of these were females and the one found in Sausalito was male. Data from other migration study sites suggest that harriers are more likely to engage in long-distance migration in other regions of North America. There is little specific information available regarding harrier migration on the West Coast.



A female Northern Harrier tracks the flight of her paler mate, only to discover that his "mouse" is a handful of grass. [Photo by Eddie Bartley]

HARRIER RADIO-TRACKING

We have attached radio transmitters to three juvenile harriers, two males in 1999 and one female in 2001. In 1999, the first bird was tagged on October 9. It was tracked a total of four miles over a one-week tracking period, settling over the next ridge to the north in Tennessee Valley. The second, tagged on October 17, went 27 miles north to the Petaluma River Marsh and then seemed to settle there. Both of these

birds were monitored intermittently for two or three more weeks with no indications of further movement.

The third harrier was tagged on September 30, 2001, and was tracked north to Bel Marin Keys, about 18 miles from the Marin Headlands, where she settled for at least several weeks and was monitored at intervals through November 10.

This small sample suggests that Northern Harriers passing through the Marin Headlands during the fall migration period are not long-distance migrants but are birds of local origin. Another possibility is that these harriers have migrated longer distances and are able to take advantage of the relatively mild climate to winter in central coastal California. No solid conclusions can be reached with such a small sample size.

AGE AND SEX

The GGRO banders have banded 259 harriers since 1984, broken down into subcategories as follows:

Juvenile Males	Adult Males	Juvenile Females	Adult Females
109	4	144	2

Harriers follow the same pattern as Cooper's and Sharpshinned hawks, with more females caught than males, although the difference between the numbers of each sex caught is smaller with the harriers than with either of the accipiter species. The disproportionate number of females in the banding sample cannot be taken as an indication of the sex ratio of the passing birds. Since the birds—not the trappers—are in control of which individuals are captured for banding, there may be a bias in the process that favors females and that we do not fully understand.

Ageing and sexing Northern Harriers in flight presents some difficulties for the hawk counters due to the dorsal plumage similarity between adult females and juveniles of both sexes. Because of this similarity, the hawk counters have introduced a new category called "undocumented" to the datasheet. This is the category applied to harriers for which only the dorsal view was observed and the age and sex were not determined. See pages 24-25 for tips on harrier identification.

The hawk count harrier numbers from 1992 through 2011, broken down by categories, are as follows:

Juveniles	Adult Male	Adult Females	Undocumented
8435	1053	399	2932

See Figure 2 for detail on the yearly age and sex variation.

The amount of information we have gathered about the fall movements of this species is very limited. It is tempting to believe that the harriers counted during fall "migration" move only short distances after passing through the Marin Headlands, but as yet both the band encounter and radiotracking sample sizes are too small for meaningful analysis.

Banding, radio-tagging, and patagial-tagging nestlings are all future research techniques that would prove useful in attempting to answer questions about the movement ecology of Northern Harriers. Unfortunately, use of these techniques would require an order of magnitude increase in both financial expenditures and human resources that seem beyond current possibilities.

Buzz Hull started his 29th year as a raptor bander in August 2012.

BANDING 2011 🛰 Marc Blumberg

Do You Feel Lucky?

AWK BANDERS ARE ONE OF THE MOST SUPERSTITIOUS GROUPS OF people one will encounter anywhere in the world. Every bander prepares for a day of trapping with individualized rituals, habits, and practices that to an outside observer would seem to have no correlation to the number or variety of hawks that we trap.

But this group of scientifically-minded volunteers practices them anyway. For example, most banders bring food to the blind that we swear to be "lucky"—sandwiches, brownies, chocolate, and even special bottled water for some. On slow days, we may go a little bit overboard. An actual conversation I took part in one day went like this: "Well, eating those chocolate malt balls didn't bring us any hawks. Maybe if we all bite into one at the same time they will work...."

The superstitions surrounding the tools we use to band and measure hawks run deep. Half of our volunteers neatly lay out the banding tools at the start of the day with the belief that the trapping day cannot start until we are ready to process a hawk. The other half strongly believes that laying out the tools imparts bad luck that repels hawks from our traps; this group insists on not even touching the tools until a hawk is in hand. This dichotomy can lead to some interesting but usually good-natured interactions when members from each camp share a blind.

The list of superstitions goes on and on. From the clothes we wear to the music we listen to on a trapping day, each bander has some ritual (or rituals) that he or she strictly practices, knowing that the hawks will follow.

Do these superstitious practices really help? I like to pretend I am neutral on the topic, but I know this: someday in the future when I catch a Ferruginous Hawk I will remember every little thing I did, the clothes I wore, and the food I ate that day. I will hold onto that information, and I will follow that exact routine for each day I spend banding thereafter.

One other admission: I believe that a certain mystical quality surrounds the raptor species that is chosen to grace the front of the GGRO T-shirt for a given season. It seems that whatever species is depicted on the season's T-shirt shows up in our

nets in high numbers that year. In 2011, we had a Merlin T-shirt. Next year, I'm pushing for a Ferrug shirt.

In truth, I strongly believe that banders make their own luck, and they do it in one simple way: by showing up. We get an incredible opportunity each fall to interact with the natural world in a way most people will never experience. The more we take advantage of this chance, the more rewarding it is.

No one is going to catch a Merlin or a Cooper's Hawk from their couch at home. The more time our volunteers spend in the Marin Headlands, both on trapping days and working behind the scenes, the more likely we are to have these magical, "lucky" days. The real

luck is persistence and optimism driving us to keep showing up. If our superstitions keep us coming back, so be it.

In the 2011 banding season, those who kept showing up were rewarded in the end. The theme for the whole year seemed to be "better late than never." Our volunteers began the season with excitement over a redesigned Slacker Hill Blind and we all had hopes that 2011 would be a turnaround year after a slower than average 2010.

Unfortunately, the season greeted us with an unusually high number of foggy days, which limited our trapping abilities and kept our season totals low well into September. In the Marin Headlands, the peak of trapping season occurs in late September when high numbers of accipiters fly through over a period of a few weeks. In 2011, peak seemed to start up as usual, but then suddenly the accipiter flight dried up. Total captures were way down and it seemed like the season was heading for record-low numbers.

Fortunately, October rolled around and brought us a late peak with some nice surprises. By the second week of the month, the accipiters were back and providing exciting numbers again. On October 7, banders Craig Nikitas, Brian Smucker, and Brittney Wendell trapped 29 hawks at the new Slacker Blind. This number broke the previous Slacker single-day record of 24 birds, which had stood since 1987 and dated



Once called the "Rusty-chapped Squirrel Hawk," the Ferruginous Hawk is a hunter of colonial mammals in the grasslands of the West. [Photo by Walter Kitundu]

back to the days before Slacker Blind's neighbor, Poison Oak Blind, was established.

The following day, the Saturday Two team trapped 78 hawks across all four blinds, the highest single-day total for the 2011 season. The date, October 8, is the latest calendar date that GGRO banders have ever recorded their peak banding day during a season. In fact, it is the first time in GGRO history that the peak day was not in late September.

The following week, on October 13, Jean Perata banded and released a juvenile female Sharp-shinned Hawk—the 10,000th Sharpie banded in Golden Gate Raptor Observatory history. Sharpies are the second species to reach that milestone number in the Marin Headlands (the 10,000th Cooper's Hawk was trapped at the GGRO in 2007).

2011 was also the year of the Merlin. Both on the wing and in hand, these fast, aggressive little falcons with attitude excited everyone—and stole the show at GGRO this year. Merlins showed up steadily through October and November, and we finished the season with 60 Merlins captured. This marked the second-best Merlin year in GGRO history, behind the 62 trapped in 2009.

This also marked the first time in GGRO history that we banded more Merlins than American Kestrels (the other

small falcon) in a season. Much has been made about the decline of Kestrels around North America, but in 2011 we caught 56—right at our annual average total and showing that this year's small falcon numbers truly were all about the Merlins.

Finally, in the latter half of our season, the banders collectively held our breath to see if the second wave of Red-tailed Hawks would arrive. Historically, we see two peaks of Redtail activity during an average fall season. In 2010, the second peak (usually seen in October to November) failed to materialize and we were left scrambling to solve the mystery of the missing Redtails. In 2011, the Redtails returned, though still below our usual numbers. We trapped 108 Redtails in the second peak (after October 1), low compared with our average of near 190, but much better than the mere 32 caught in 2010.

In total, GGRO banders trapped, banded, and released 1,263 raptors for the 2011 season. While this number was below our average total and well below our big years of the previous decade, it was a great number considering the slow start to the season and the muted September accipiter flight. It goes to show that those who stick it out might just find a little luck.

Pediatrician and Giants fan Marc Blumberg has been volunteering with the GGRO since age 12.

RAPTORS BANDED IN THE MARIN HEADLANDS DURING AUTUMN

(Aug 15, 2011-Jan 5,	2011	Annual Average 1992-2010*	Totals 1983-2011
Northern Harrier	2	11	259
Sharp-shinned Hawk	494	477	10,078
Cooper's Hawk	444	565	12,450
Northern Goshawk	0	0	5
Red-shouldered Hawk	15	14	320
Broad-winged Hawk	0	1	22
Swainson's Hawk	0	0	9
Red-tailed Hawk	187	322	8,298
Ferruginous Hawk	0	0	2
Rough-legged Hawk	0	0	5
Golden Eagle	0	0	2
American Kestrel	56	55	1,214
Merlin	60	27	582
Peregrine Falcon	3	4	80
Prairie Falcon	2	2	38
Eurasian Kestrel	0	0	1
Total	1,263	1,479	33,365

^{* 1992} through 2010 are used for this comparison due to similarities in banding methods and efforts in those years and the approaches used in 2011.

BAND RECOVERIES 2011

🦦 Jill Harley

Close Encounters with Banded Raptors

THE LIST OF BAND RECOVERIES compiled since the last issue of the *Pacific Raptor Report* is always interesting reading, whether you are a bander or a raptor enthusiast—or both!

The birds get themselves into some interesting situations, and sometimes the finder is touched by the experience of finding a dead or injured hawk with a band on its leg. We ask the finder for more information about the circumstances of the recovery, and the notes we receive from people range widely—from very basic information to thoughtful questions and details about the person's encounter with the hawk and how they felt about it.

Some may have never seen a hawk, or at least not so close-up. They may have never realized the fragile nature of these predators, usually only seen soaring overhead or perched in a tree. Some of these people send us a donation before even hearing more about our work, and some find a way to get involved with raptor conservation in their area.

Recoveries are reported to the GGRO from the Bird Banding Laboratory (BBL) with minimal information. Our hard-working band recovery volunteer, Marion Weeks, spends a lot of time and energy trying to contact the people listed as finders of banded hawks in the BBL report. She asks them to confirm or add information about finding the hawk—its condition, cause of death, habitat, date of recovery, and other details.

Marion has been tracking down finders of banded hawks for 13 years and has written up the list of band recoveries for Pacific Raptor Reports #2133. Marion's efforts have corrected many mistakes and added a wealth of details, photos, and stories to our band recovery dataset. Without her work, much less would be known about the 1,111 hawks we have banded and that have been found and reported back to the Bird Banding Laboratory.

To those people who respond to her additional questions, Marion also sends thank-you packets with more information about the GGRO's citizen-science research programs and the raptors. In her work, Marion not only double-checks the data and helps increase our knowledge about the birds we've banded—she also educates people about California raptor conservation. Read on for all of the highlights of recoveries reported since the last issue!

Jill Harley has been GGRO's office manager and project coordinator since 2004.

Band Recoveries

Marion Weeks

777-B Juvenile Red-tailed Hawk banded 8/21/05 by Bridget Ivins-Young; banded leg only found among leaves near the river in early August 2011 at Potter Valley, Mendocino Co., CA by Jodie Myers. This Redtail was first reported after being photographed many times to read the band number at Alta Park, San Francisco, San Francisco Co., CA on 6/20/06.

883-B Juvenile Red-tailed Hawk banded on 8/14/06 by Diane Bahr; previously recorded as being "caught by hand" on 3/26/08 at Redwood City, San Mateo Co., CA, and taken to the Peninsula Humane Society where it was evaluated and released the same day. Two years later on 9/14/10 the hawk was found "unable to fly" due to a gunshot wound to chest at Oakland, Alameda Co., CA; taken to a local veterinary clinic and then transferred to Lindsay Wildlife Museum and euthanized on 9/15/10; reported by Susan Heckly. Lindsay staff notified the California Department of Fish and Game to report unlawful activity.

1026-A Juvenile male Red-tailed Hawk banded on 9/20/08 by Rosemary Andrade; reported by Thomas Perricone as a "sight record, band read by telescope or other means while bird was free" on 4/27/09 at San Francisco, San Francisco Co., CA. Almost a year later this bird was found dead 3/3/10 on the side of MLK Drive in Golden Gate Park, San Francisco, San Francisco, San Francisco, Co., CA; reported by Joanne Rowan.

1030-B Juvenile Red-tailed Hawk banded on 10/14/92 by David Jesus; first found injured on the side of the road at Big Springs, Siskiyou Co., CA, on 2/13/10; patiently rehabbed and finally released 7/12/10. Later found dead at Etna,

Siskiyou Co., CA, on 2/2/11 by Brian Woodbridge, a U.S. Forest Service raptor biologist. Brian described the carcass as very decomposed when found as feathers and bones; he estimated that it "died in November."

1057 Juvenile male Cooper's Hawk banded on 10/10/08 by Craig Nikitas; found dead 10/18/08 by Debbie Egan at Oakley, Contra Costa Co., CA, "in front yard of my house dead on ground beneath a tree...the animal control officer said it was starving and young...full remains, no obvious injuries, and wasn't there an hour before!"

1075 Juvenile female Cooper's Hawk banded on 9/22/10 by Steve O'Neill; found dead 10/18/10 on the bank of the Sacramento River, one half-mile north of Freeport, Sacramento Co., CA; reported by Alan Christie.

1076 Juvenile female Cooper's Hawk banded on 10/11/10 by JD Durst; found dead 12/22/10 at Novato, Marin Co., CA; reported by James Reis.

1077 Juvenile female Sharp-shinned Hawk banded on 10/4/10 by Stacey Martinelli; found dead 12/5/10 at Santa Clarita, Los Angeles Co., CA; reported by Riel Johnson who found the hawk at the base of a glass fence, wings wide open, face down, with a dead hummingbird in its talons.

1078 Juvenile female Red-tailed Hawk banded 9/8/10 by Anastasia Ennis; caught due to injury 10/15/10 at Stanford, Santa Clara Co., CA; reported as "found dead" by Theresa Boyer of the Peninsula Humane Society; no further information available.

1079 Juvenile female Sharp-shinned

Hawk banded 9/23/10 by Nicolas Bell; caught in a sparrow trap 10/2/10 at Kendall Jackson's Barham Vineyard four miles south of Los Alamos, Santa Barbara Co., CA. Reported by Kort Clayton, a falconer, who kept the hawk in a box overnight and released it on 10/3/10 and noted, "she killed a sparrow in the cage, so she had quite a crop on her when put into the box."

1080 Juvenile male Cooper's Hawk banded on 9/27/10 by Suzanne Garcia; found dead 1/21/11 at Homeland, Riverside Co., CA; reported by Joann Hale.

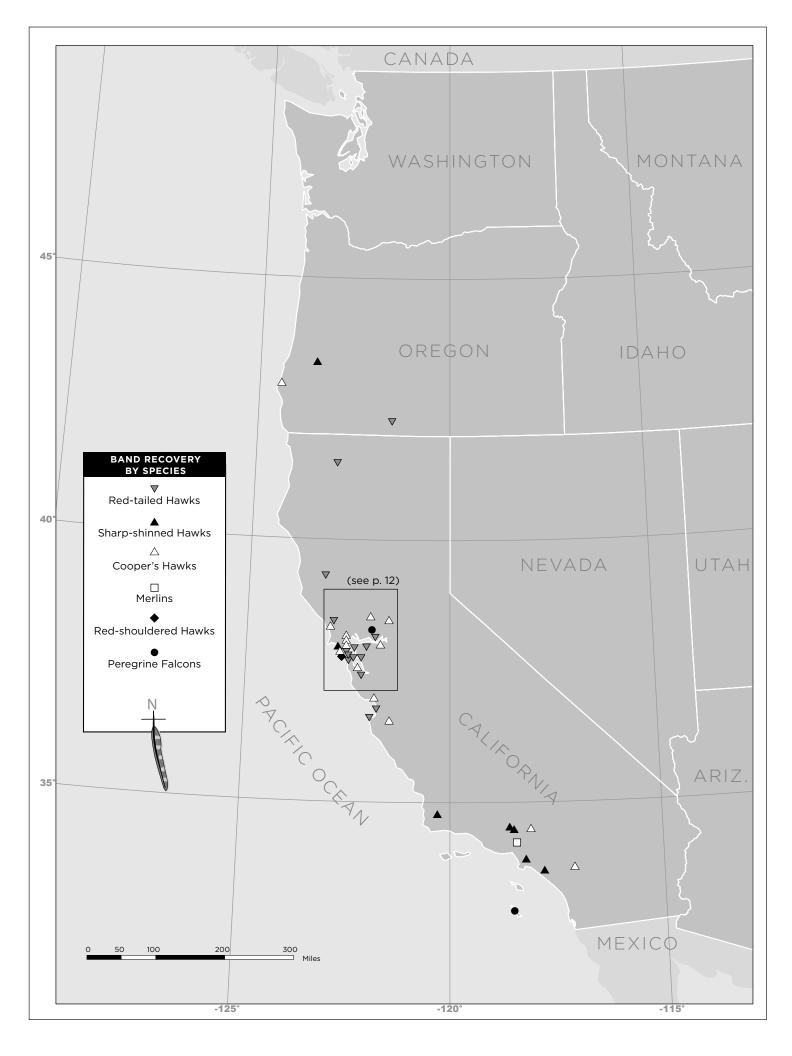
1081 Juvenile male Cooper's Hawk banded on 8/20/10 by Craig Tewell; found tangled in tree netting 1/21/11 at Muir Beach, Marin Co., CA; reported by Nat Smith of WildCare. This hawk was rehabbed and released at Muir Beach on 3/3/11

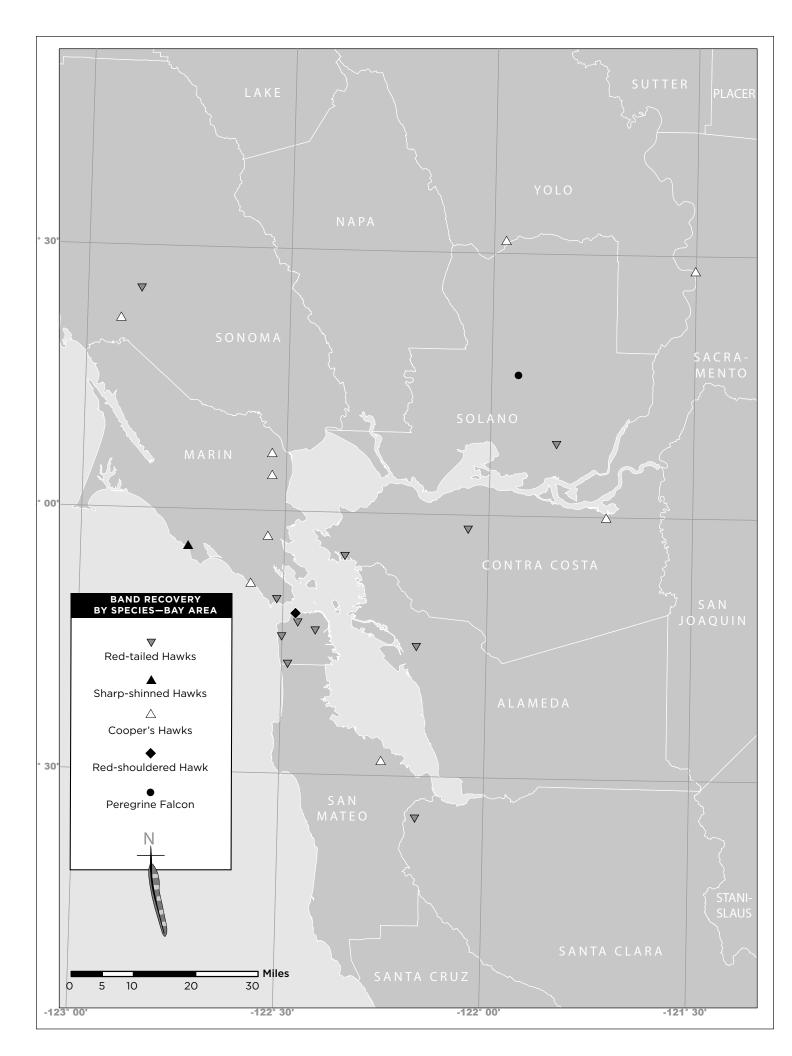
1082 Juvenile female Cooper's Hawk banded on 11/26/10 by Craig Tewell; band, tail feathers, and other small body parts found 1/30/11 northeast of La Selva Beach, Santa Cruz Co., CA; reported by Robert Moler.

1083 Juvenile female Red-tailed Hawk banded on 10/29/09 by Bill Prochnow; found "hit by a car...smashed on the road" 9/6/10, seven miles south of the Sprague River at Hildebrand, Klamath Co., OR; reported by Jim Jackson.

1084 Juvenile Red-tailed Hawk banded on 8/28/01 by John Payne; "clean skeleton...tarsus intact, talons included, with dessicated skin fully present" found by Aaron Breeden 1/5/11 at left rough of hole no. 4 at Cypress Point Golf Club, Pebble Beach, Monterey, Monterey Co., CA; reported by Merlyn Felton, formerly with the Santa Cruz Predatory Bird Research Group.

1085 Juvenile female Red-tailed Hawk banded on 11/28/08 by Carmen DeLeon; found dead 12/17/08 "at bottom of large





wooden electrical/telephone pole. Neck was broken; the rest of the body was in good condition. Bird was not warm, but it died between 5 pm 12/16/08 and before 8:30 am 12/17/08" at Richmond, Contra Costa Co., CA. Of interest: When this bird was trapped, it was already banded, but Carmen felt that the original band was too small, so the band was replaced with an appropriately-sized band. It is unknown where the bird was originally banded.

1086 Juvenile male Cooper's Hawk banded on 8/31/10 by Elin Gunnarsson; trapped and released 1/18/11 at Novato, Marin Co., CA, by Stan Moore, who trapped the same bird again in Novato on 2/9/11.

1087 Juvenile male Merlin banded on 10/19/10 by Genevieve Rozhon; found dead, "body soft, in excellent condition... below front window" 11/7/10 at Arleta, Los Angeles Co., CA; reported by Terry Burr.

1088 Juvenile female Sharp-shinned Hawk banded 9/14/10 by Jonathan Stein; trapped and released 9/16/10 at the Redwood Creek banding station of PRBO Conservation Science near Muir Beach, Marin Co., CA; reported by Renee Cormier of PRBO.

1089 Juvenile male Red-tailed Hawk banded 12/1/09 by Emily Weil; found dead by a field technician 2/16/11, intact with no obvious injury, on a wind farm at Birds Landing, Solano Co., CA; reported by Loan Tran who did not personally handle the recovery.

1090 After-hatch-year Red-tailed Hawk banded 11/8/1986 by Jim Mills; found 1/30/11 alive 24 years later grounded near embankment on Lake Merced Blvd, Daly City, San Mateo Co., CA; reported by Marisa Burman of Peninsula Humane Society. Teressa Boyer of PHS added "top beak severely overgrown—very emaciated...euthanized same day." PHS personnel did not take photos of this bird's beak and we have no record of any abnormalities at time of banding. Long Bill Syndrome is a condition affecting many species of birds and is being studied by various researchers. "Some Redtails can pick it up in their first year and die from it, while others acquire it at a much later age," according to the Falcon Research Group's Bud Anderson, who keeps a tally of raptors affected by this syndrome. No cause and no cure have been identified

to date. GGRO has trapped at least two raptors exhibiting this condition.

1091 Juvenile female Sharp-shinned Hawk banded 10/9/10 by Mike Armer; caught due to injury 2/24/11 at San Francisco, San Francisco Co., CA. SF Animal Control removed the hawk from a tomato cage and brought it to Pets Unlimited. Kathy Gervais, DVM, reported: "Unfortunately, it tore and almost amputated its leg, exposing its femoral vein. The injury was not repairable so I humanely euthanized it. If I could have

Rio; hit window at Saugus, Los Angeles Co., CA; reported by Peggy Myers. She heard it hit, went out to investigate, and found it shortly before its death on 3/7/11. Peggy took the bird to Placerita Nature Center where a volunteer in charge of taxidermy was very excited to receive such a specimen, and planned to have the hawk stuffed and put on display for school programs. Peggy said, "after feeling so bad on the death of the hawk, I felt better that some good could come of it."



After fitting it with a leg band and taking the proper measurements, a volunteer bander releases this adult Red-tailed Hawk. [Photo by Walter Kitundu]

stabilized the raptor I would have. Sorry I could not save it."

1092 Juvenile female Cooper's Hawk banded on 10/5/09 by Muki Belliappa; found dead 10/12/09 at Larkspur, Marin Co., CA, in garden, spread out, not stiff, still pliable, with ants on it; reported by Richard See.

1093 Juvenile male Sharp-shinned Hawk banded on 9/28/09 by John Holson; found 2/6/11 by Doug Wellet among trees on his farm at Umpqua, Douglas Co., OR, dead of unknown reason, "freshly dead, no missing feathers, no drainage from beak, no blood, no evidence of being shot." Doug reports that the day before a similar hawk was observed "just standing there in the duck pen;" reported by Rob Horn, a Bureau of Land Management biologist.

1094 Juvenile female Sharp-shinned Hawk banded on 9/16/08 by Rachel del **1095** Juvenile female Sharp-shinned Hawk banded on 9/26/08 by Lynn Schofield; found dead on 3/8/11 at Compton, Los Angeles Co., CA; finder unknown.

1096 Juvenile female Sharp-shinned Hawk banded on 9/25/10 by Misha Semenov; found dead 10/21/10 at Irvine, Orange Co., CA; reported by Casey Pickett.

1097 Juvenile female Peregrine Falcon banded 9/23/10 by Steve Rock; caught due to injury 3/1/11 at Travis Air Force Base, Solano Co., CA. Reported by James de Roque, a falconer, who found it with a dangling wing and thought it had hit a wire. He took it to Vicky Joseph, DVM, at Roseville Bird and Pet Hospital where X-rays were done and the bird was determined to be non-releasable. The falcon is still alive in captivity and will be used for educational programs.

1098 Juvenile female Cooper's Hawk

banded on 10/10/10 by Mark Fenn; found dead 3/18/11 six miles east of Acton, Los Angeles Co., CA. Greg Fisher reported that he found it on his ranch property and had spotted it a week before picking it up.

1099 After-second-year male Cooper's Hawk banded on 10/22/08 by Buzz Hull; found alive, caught by hand and released 3/30/11 about two and a half miles north of Gonzales, Monterey Co., CA. Lawrence Douglas reports "the bird was found in a goose pen which is about 500 by 160 feet and covered by a net. The bird was in great shape. Don't know how long it's been in the pen, it's been living on black-



GGRO Intern Megan Mayo flashes the dark patagial mark on a juvenile Red-tailed Hawk. [Photo by Beth Wommack]

birds. As of 4/18/11 he will be released again. Why does he come back? Lots of blackbirds. Your bird looks great; it also has a good bite! We get a lot of Red-tailed hawks too, but without leg bands."

1100 Juvenile female Cooper's Hawk banded on 10/10/10 by Anne Ardillo; caught by hand 3/26/11 at Winters, Yolo Co., CA and reported as alive in captivity by the BBL; reported by Amberly Sokoloff. No further information available.

1101 Juvenile male Cooper's Hawk banded on 10/21/10 by Nicolas Bell; found 4/1/11 dead or injured on highway three miles north of Valley Ford, Sonoma Co., CA; bird status listed as dead on BBL report; reported by Kevin Molseed.

1102 Juvenile Red-tailed Hawk banded on 8/31/04 by Pat Overshiner; found 4/12/11 as "absolutely clean skeleton—nothing holding bones together—head gone, parts found among the dunes" two miles

north of Marina, Monterey Co., CA; reported by Tony Lombardi while working to protect Snowy Plovers.

1103 Juvenile male Red-tailed Hawk banded on 8/21/05 by Bridget Ivins-Young; caught due to injury 4/30/11 at Presidio Golf Course, San Francisco, San Francisco Co., CA; reported by Nat Smith of Wildcare. Tanya Pollack, an employee of Presidio Trust Resources and former GGRO volunteer, called Kim Meyer, a GGRO volunteer, to collect the injured bird. Kim recalls: "The adult Red-tailed Hawk had apparently been hit while in flight by a high-velocity golf ball as it was hunting a probable pocket gopher.

The grounded raptor had escaped the driving range on foot, and was standing on the south edge of Fairway #1 when I arrived. The injured Redtail ran, dragging its left wing, into tall grass to try to escape my pursuit. The density of the grass slowed the running raptor, allowing me to catch up and capture him. He was alert and vigorous, and would have been difficult to apprehend were it not for the tall, thick grass." The bird was taken to WildCare and the compound fractured wing was determined to be not repairable; the hawk was euthanized 5/1/11; reported by Nat Smith of WildCare

and Kim Meyer of GGRO.

1104 Juvenile male Red-tailed Hawk banded on 8/29/08 by Saloman Martinez; found 5/8/11 on the center dividing line of a road near Santa Rosa, Sonoma Co., CA, by Burton Smith, a paramedic. He thought it was dead when he picked it up—but it "gave me a handshake—I got it in my right index finger...very sharp talons." Burton stated that one wing was folded much the way a wing of a chicken is folded for cooking. Unfortunately the bird died by the time he got it to the Santa Rosa Bird Rescue Center; reported by Rebecca Pearce, a volunteer at SRBRC.

1105 Juvenile male Cooper's Hawk banded on 9/5/05 by Diane Bahr; found dead 5/15/11 under pine trees near play structure at Redwood Shores, San Mateo Co., CA; reported by Aaron Kurtzman.

1106 Juvenile female Cooper's Hawk banded on 9/16/07 by Dick Horn; found

dead 5/2/11 one mile northeast of Langlois, Curry Co., OR; "fully degraded, mostly feathers and bones...had been there a while" under a holly hedge that a power company had recently trimmed; reported by Donna Futrell-Barker.

1107 After-hatch-year Red-shouldered Hawk banded on 9/30/02 by Elizabeth Palmer; found dead 6/6/11 by Presidio tree crew that discovered the carcass between the stacked Cypress logs at the Presidio log dump, San Francisco, San Francisco Co., CA; reported by Kim Meyer; circumstances of death unknown.

1108 Juvenile male Red-tailed Hawk banded on 10/23/07 by Pat Overshiner; found 6/9/11 behind Water World at Concord, Contra Costa Co., CA with injuries to a wing and foot "consistent with electrocution;" prognosis very poor for recovery and release, thus euthanized on 6/10/11; reported by Susan Heckly of Lindsay Wildlife Museum.

1109 Juvenile male Peregrine Falcon banded on 10/31/10 by Steve O'Neill; found dead by electrocution from a power line 6/16/11 at San Clemente Island, Los Angeles Co., CA; found by Laura Duvall, but reported by Justyn Stahl of Institute for Wildlife Studies, hired by the U.S. Navy to study the Bald Eagle population on the island.

1110 Juvenile male Red-tailed Hawk banded on 12/13/08 by Diane Horn; trapped and released 3/3/09 by Buzz Hull at Presidio Stables, on Bunker Road, Fort Cronkhite, Marin Headlands, Sausalito, Marin Co., CA.

1111 Juvenile female Red-tailed Hawk banded on 9/3/06 by Noreen Weeden; carcass received 2/4/11 at California Department of Fish and Game office; "info passed along to me is that a school teacher living in San Francisco, (San Francisco Co., CA) had a neighbor, and the neighbor's window was smashed by the hawk. The hawk apparently had captured a Mourning Dove or pigeon in the neighbor's backyard. Crows mobbed and harassed the hawk. The hawk tried to escape and smashed into the neighbor's window and was killed. The talons did not release the dove and so it was still held in the hawk's talons;" reported by Stacy Martinelli, a CDFG biologist and GGRO volunteer.

Marion weeks has served as GGRO's faithful band recovery czar since before anybody can remember.

TELEMETRY 2011 🛰 Lorri Gong

Coco: Reflections of a Newbie Hawk Tracker

OVEMBER 3, 2011: The wait for a suitable telemetry bird to be caught by GGRO banders began. I arrived at the office full of the nervous excitement that goes with any new endeavor. Ann Greiner, a veteran on the telemetry team, had told me: "You'll either love it or you'll hate it."

Would I hate it? Would I be any good at it? A week or so prior we had played "find the transmitter" during training. "Come inside when you've found it," we were instructed. Dan No-

vello and I had roamed the grounds and followed the signal to the stairs of a nearby building. The stairs went up to the second floor. I decided that ascending the stairs felt a little like invading someone's privacy, so we kept looking and finally gave up and went inside empty-handed. The transmitter, it turned out, was hidden under those stairs. Maybe I wasn't going to be any good at this, but at least I was on the right track.

The sky was full of fog

Barbara Westree applies the 6-gram radiotransmitter to a central tail feather while David Jesus holds Coco the Red-tailed Hawk, and Coco watches Lynn Jesus watch Barbara at work. [Photo by Ron Parker]

and the veterans didn't seem optimistic that banders would trap a bird to track today. There was a flip-chart full of brainstormed possible bird names, all beginning with "C" for the next radio-tagged Red-tailed Hawk. Then a call came from Hawk Blind saying, "We have a bird for you."

A juvenile male Redtail was brought into the office and I was able to shoot some pictures of this magnificently handsome bird. One team of telemetrists (Dan and Phil Capitolo) departed for San Bruno Mountain. Another team (Cheryl Krawinkel and me) departed for San Pablo Ridge, and the third team (Larry Beard and Barb Westree) stayed behind to apply

the transmitter and be "on the bird." This Redtail had unusual light-brown eyes, which led the team to choose the name "Coco" (creative spelling license used). Coco was released at 1:25 PM above Kirby Cove.

Then the real training began. Remember all this and you'll do fine: Take bearings at least 10 feet from the vehicle, away from metal fences or power poles. Check that the Omni or Yagi antenna is plugged into the receiver. Attenuator off.

Battery on. Record the time of the reading at the moment you put down the Yagi. Take a left null and a right null and calculate the midpoint. The receiver is not waterproof! Never write in pencil. Spell out the month when you write the date. Check both vertical and horizontal signal strength but take your bearings only in the horizontal! Take bearings every 15 minutes without fail-and in between, send a page to the other teams and write down received pages. Decipher the

messages from the list of 40+ pager codes. Plot the bearings from the three teams when they are taken simultaneously to triangulate the bird's position. Don't forget to adjust for north on the map and for magnetic declination....

AN PABLO RIDGE WAS RAINY AND MUDDY—with no "facilities." The bearings didn't change much all day. Coco never left Marin. He reportedly flew down into Kirby Cove, where he stayed for a few hours in the fog, and then moved to the Tiburon Peninsula and chose a location for his roost on Ring Mountain. The day ended late, with dinner and paperwork. Lots of paperwork. I began to understand why

the flier had read "Calling All Insomniacs" to participate in the telemetry program. We'd meet tomorrow morning at 0600.

NOVEMBER 4: I was assigned to be on the chase team! Woo hoo! And the weather was great.

On my second day out I was working with and learning from Phil. He had a different style of taking bearings than Cheryl had, and I decided which parts of Cheryl's style worked for me and which parts of Phil's style I would incorporate. We started at Coco's roost site, Ring Mountain, a place I have hiked dozens of times. Taking bearings from the end of Robin Drive, we abruptly lost the signal. Coco had begun a series of short flights to the northwest. We followed, taking bearings at high points here and there, moving through Marin. At Azalea Hill in Fairfax, at the Pine Mountain Road trailhead, we got a loud, clear signal from over Bolinas at 2 PM. I kept thinking, "This is so fun!"

Phil decided we should move to the Mount Vision highpoint, west of Point Reyes, so we could keep up with Coco's movements. On Mount Vision, a gentle breeze blowing through the Omni coils sounded like faint harp music.

But we had no signal from the hawk! Why? The team at Twin Peaks in San Francisco quickly indicated a change in their bearings, as did the San Pablo Ridge team. In one long, direct, fast burst of energy, Coco had flown south from Bolinas toward Sutro Tower in San Francisco. Coco roosted that night in a steep, forested area near Sutro Tower. The teams pulled together for the end-of-the-day paperwork and a meal.

NOVEMBER 5: Phil and I arrived at Grizzly Peak in Berkeley at 7:30 AM. I could see Hawk Hill from there and took a picture. We watched Sutro Tower all morning and got out of the car only to take bearings in the cold drizzle. We were entertained by a partially leucistic Red-tailed Hawk that frequented the area during our stay.

We lost our signal in the afternoon and were informed that Coco had moved south. We headed to Loma Prieta Summit just in case Coco continued moving in a southerly direction. But at Los Gatos, we received a call. Coco had stopped in the Crystal Springs area at San Andreas Lake. We turned north and got a bearing from the Sweeney Ridge trailhead in the San Bruno area. I was so happy to get out of the car and take a hike, albeit brief and in drizzle. Ten minutes down the trail we were able to get a second bearing. We called it a day, and

went to meet the other teams for dinner and the inevitable paperwork.

NOVEMBER 6: I'm hooked on telemetry. I was back at work and wondering what Coco was doing, and as soon as I got home I was checking the tracking report, which indicated that Coco had moved "locally" all day.

NOVEMBER 7-9: The end of the day reports indicated that Coco was a "stationary" bird, still located at San Andreas Lake. After three days in the same location, the plan was to track a second bird. I participated in that tracking too, but Coco will always be my first telemetry bird, so...

"How long will the transmitter last?" I asked. I ended up taking the equipment out multiple times post-season to check on Coco's location, determined to make the most of the transmitter's battery life.

NOVEMBER 26: I hiked Sweeney Ridge all the way to the end. Afterward, I took a few more readings on the road. I plotted my bearings, which put Coco in the area between the south end of San Andreas Lake and San Mateo Creek. During one of the readings, the signal was clearly circling, so the transmitter was still on him.

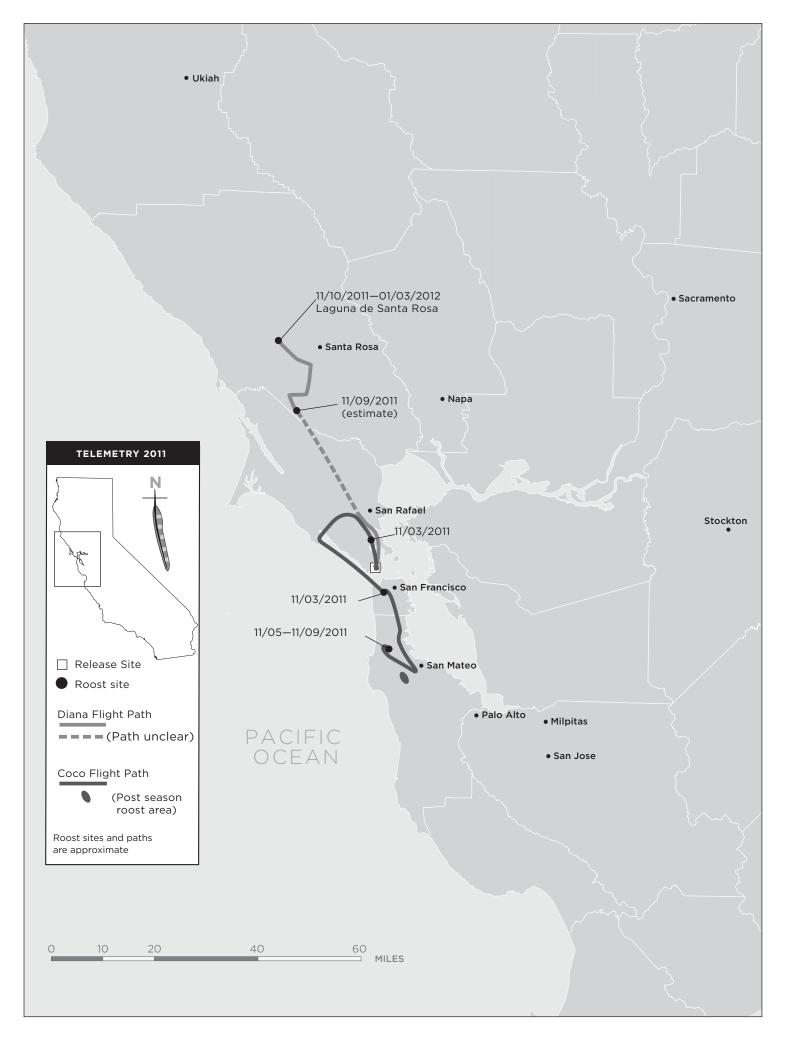
DECEMBER 31: Dan and I checked on Coco. He was moving while Dan was trying to take the first reading. Assured that Coco was alive and well, we went on our way, birding merrily.

JANUARY 8, 2012: Dan and I found that Coco moved 2.8 miles south of the last position. The bearings put Coco due west of Denise Drive in Hillsborough.

JANUARY 21 AND 26: Coco was located at Lower Crystal Springs Reservoir.

FEBRUARY 2: Coco was active, up and circling and apparently hanging out with a number of other Redtails along the coastal ridge just west of Lower Crystal Springs Reservoir. This was the last day anyone checked on Coco. It was very surprising that his transmitter was still working at the three-month mark, since the manufacturer gives the battery life an estimated six to eight weeks!

Lorri Gong divides her free time between GGRO's three research projects: hawkwatch, banding, and radiotelemetry.



TELEMETRY 2011 Phil Capitolo

Diana: My Umpteenth Telemetry Bird

bird, ending up down by the lakes of the San Francisco Peninsula Watershed on November 9, we stationed only two teams to continue tracking him. A third team convened back in the Marin Headlands to (hopefully) initiate the tracking of our second juvenile Red-tailed Hawk of the fall. Mike Hall and I set up shop across from Coco at San Andreas Lake, in a spot with a decent view toward his location and with some sturdy coyote brush for propping up the Yagi antenna.

Through the trees, we even saw a Redtail circling low over the west shoreline, in synch with our signal. Perhaps that was Coco. Before too long though, word arrived that Poison Oak Blind had a big, healthy, female Redtail for telemetrists to track, and it was time to get back into traveling mode.

But, first things first—names that begin with "D" for this next hawk. ("Danny" had taken us well south into the Santa Cruz Mountains many years ago during our first trip through the alphabet.) As names were tossed around in the Headlands and over cell phones, Cheryl Kraywinkel, who had met up with us near San Andreas Lake, uttered in an inspired moment, "Diana," as in the goddess of the hunt. Done.

Since the GGRO tracked its first Redtail in 1990, we've learned lots about the hawks and their habits, and perhaps just as much about how to efficiently track a moving raptor through the Bay Area and beyond. So before Diana was released, teams re-deployed to standard starting locations: Cheryl went to San Pablo Ridge, Mike and I to San Bruno Mountain, with Larry Beard and Ron Parker releasing the bird at Hawk Hill and following her locally.

These high points are often standard Day 2 assignments as well, because many of our tagged birds move only small distances in the afternoon following release, coursing the Headlands before settling down in Kirby Cove or Tennessee Valley, or maybe drifting a bit farther to Ring Mountain like Coco did. For Diana, however, Day 2 team locations were going to be different!

Within about an hour of release, the signal at San Bruno

Mountain became weak and was soon lost. That signal loss was not a cause for alarm by itself, but when considered with the slow but steady northwesterly bearing change Cheryl was detecting, it seemed that Diana was northbound and had already traveled well beyond a typical Day 1 radius. So my years of tracker know-how had to kick in right away! Cheryl suggested a team needed to head for Mount Burdell, another important high point available in our rotation. Mike and I had the key, so off we went!

Now that we had two mobile teams trying to catch up with Diana the Redtail, Cheryl had to stay put. The signal she was detecting also was becoming weak and intermittent, but it was all we had. Her periodic reported bearings, when she was able to detect the signal, reassured us all. Nonetheless, as Mike and I started up the east slope of Mount Burdell, having heard nothing en route, a mild sense of despair prevailed. But then we got some elevation and an exposure to the northwest—and a nice, loud signal!

We don't know exactly where Diana roosted that first night, only that she was somewhere northwest of Mount Burdell in the low, rolling hills west and southwest of Petaluma, about 30 miles from her release point in the Headlands. Teams were shuffled and moved north on Day 2, and soon bearings were being paged from Mount Burdell and Sonoma Mountain Road. Ron Parker and I roughly plotted those bearings, began driving in the direction of their intersection, and—lo and behold—a signal! As we fine-tuned our path based on the strength of the signal we were hearing—warmer, warmer, colder, warmer, colder, warmer, warmer, warmer, hot, hot, hot—we were treated to a visual sighting of the hawk!

At about 9:20 AM, Diana flew right by Ron and me on Valley Ford Road near Two Rock, in a landscape of ranches and eucalyptus groves. Ron followed her with camera and binoculars while I kept the Yagi aimed at her so we didn't lose her as she joined other raptors. But soon she was gone—no signal!

Panic time for our team staying "on the bird," but bearings from teams on high points once again guided us. Just before noon, Ron and I homed in on a steady signal from a narrow, riparian corridor west of Rohnert Park, where Diana was ap-

parently perched, about five and a half miles northeast of our earlier sighting. She eventually took flight, was harassed by a Red-shouldered Hawk, and then flew right by us, again!

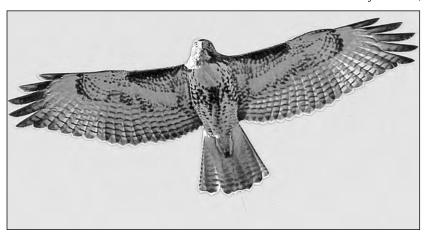
After a repeat of the above steps, a few hours later we caught up with Diana about eight and a half miles to the northwest in the heart of the floodplain of the Laguna de Santa Rosa, not far from the offices of the Laguna de Santa Rosa Foundation. Now a little more than 24 hours after her release, Diana signal. (On a later

Over the years, we've been able to track a few of our Redtails

was about 45 miles north of Hawk Hill, having traveled most

of that distance on the day of her release.

for long periods, until after their directional movements stopped and they occupied areas of just a few square miles or less. Other Redtails have eluded us within the first few days, usually in more remote regions of California with fewer public roads from which to coordinate a search. Once stationary, the birds that we've been able to track into early



Diana the Redtail looks down at her trackers as she soars over Laguna de Santa Rosa. [Photo by Phil Capitolo]

winter haven't soared a lot, certainly not with much altitude gain. So it's easy to imagine why some birds in more remote areas might have gone undetected even from our highest nearby peaks. Some of the hawks may actually have been well within range of listening teams, but since they stayed low in an expansive landscape of hills and valleys, radio waves from their transmitters were unable to reach us.

Like Coco, Diana became one of those birds we'd be able track into early winter, with close-up views of her chosen habitat. After she arrived at the Laguna de Santa Rosa, we continued to station teams "on the bird" and at nearby high points, ready to follow where she led. But her movements over the next few days were only local, and our official tracking period ended with both of this season's birds stationary.

On November 16, GGRO intern Megan Mayo and I (pointed in the right direction by Foundation staff) hiked into the Laguna to get a closer look at Diana's habitat. Several trackers had indicated the signal occasionally sounded abnormal,

and Megan and I soon confirmed this. In fact, the signal completely disappeared, even though we knew Diana was very close.

Megan noticed the remains of several crayfish along the water's edge, and we began to wonder if the antenna of Diana's radio transmitter was becoming submerged when she hunted for prey in the shallow waters, causing attenuation of the signal. (On a later visit, I watched a different juvenile Redtail drop onto the water with a thump of a predation attempt, so the theory was certainly possible.)

But after that momentary silence, Megan and I again had

booming signal. Moving to get a clear view beyond a willow thicket, we glimpsed a Redtail perched on a derelict telephone pole. When that bird later flew, our signal confirmed it was Diana and we were able to track her visually over the next hour. She flew to a large valley oak (oaks are said to have been sacred to the goddess!), where

she stayed for about 15 minutes, before flying to another valley oak about half a mile to the north, circling immediately above us en route, letting out a healthy "keer," and even posing for the cameras.

GGRO trackers made a few more trips to check on Diana, and she was last heard (and seen!) on January 3, 2012, right where she had landed in the oaks 54 days earlier. She did not turn up on subsequent checks on January 16 and 28. The portion of the Laguna she occupied was an active waterfowl hunting area through mid-February. Had she moved on due to increasing use by hunters, or some other factor? Or had her transmitter simply stopped due to the limits of battery life? Regardless, our tracking had been a great success, fully documenting her journey over those two months, and furthering our understanding of what becomes of the raptors we see and band each fall in the Marin Headlands.

Avian ecologist and Common Murre expert Phil Capitolo has been a telemetrist with GGRO since tracking Francisco northward in 1992.

HAWKWATCH 2011 Lewis Cooper

Looking Back and Beyond



Hawkwatcher and Dayleader Lew Cooper gets a fly-by after an adult Red-tailed Hawk is released during a docent program on Hawk Hill. [Photo by Walter Kitundu]

HE YEAR 2011 may be remembered as "the year of many fogs" or "misery-inthe-mists," depending on one's choice of phrases (there were many used last year that were more explicit!). That being said, there were still many great days with plenty of good raptors to go around. August was a "bummer" and September was off and on, with a lot of our peak period fogged out. This probably wrecked our total counts on a few species but not so on Broadwinged Hawks—they staged their flight to give us our third highest total ever!

As a teenager living in Chicago and a budding bird watcher, I heard a recording of Danish folk songs sung by the great Wagnerian tenor, Lauritz Melchior. The title of one song, as I remember, was "Hawks Fly South." A somewhat melancholy song, it told of the changing of the seasons from summer to autumn and the foretelling of winter. The seasonal passage of raptors from the northern reaches of Scandinavia signified this change to the local folk-a mirror image of the Palearctic to my Nearctic experience.

The fact that I still remember this song may mean it had a centering effect in my interest in raptors. In the Midwest, September brought-besides the deluge of Wood Warblers—flights of hawks. I remember seeing occasional circling kettles of Broad-winged Hawks and a scattering of Sharpshinned Hawks in the wooded city parks and the surrounding forest preserves. To the north of Chicago, near Waukegan, is Illinois Beach State Park, a good spot for sighting "Marsh Hawks" (Northern Harriers) and Red-tailed Hawks migrating along the Lake Michigan front.

Many of my friends on Hawk Hill know that I have been around for a long time. In fact, 2011 was my 20th season with the GGRO as a volunteer hawkwatcher. The first time I got up on the Hill, I met Carter Faust, an iconic figure in our pantheon of founders. Carter was handing out his latest charts, which showed in painstaking detail the total counts of raptors by day, month, and year dating back to a time before the GGRO was even officially founded. The expected arrival and peaks for each species was delineated. I still have those old charts, and not much has changed as to the seasonal peaks for the raptor species.

This year the peak migration period

seemed a tad later, with our high counts coming in early October. This may be accounted for by somewhat unusual and persistent weather patterns, a series of low pressure systems off our coast, funneling in all that fog. The sustained fog pattern finally gave way in October, and the rest of the season was rather normal as far as weather. with some higher than normal late-season raptor numbers.

The two most memorable Hawk Hill events for me took place on Monday, September 26 and the next to the last day of our season, Saturday, December 3. September 26 was a perfect day for both

raptor flight and hawkwatcher comfort—a clear, sunny day with gentle breezes from the north (rare for 2011). And they were perfect conditions for a "California"-sized flight of Broad-winged Hawks. Prior to the 1970s, Broadwings were considered rare or accidental on the West Coast. Well, on September 26, we got ourselves our Broadwings and then some. Thirtynine were counted, including a few dark morphs. Non-raptor birds also made a splash this day. Hundreds of Vaux's Swifts came by and 33 Black Swifts were counted among them!

On December 3, I witnessed a rare occurrence. Two unusual raptors appeared almost at the same time. From the south, a sub-adult Bald

Eagle cruised by within 100 meters of Hawk Hill. As this was happening, Tim Behr shouted: "I have a white Redtail at the North Tower!" Sure enough, the almost all-white Red-tailed Hawk circled up to join a kettle of normal Redtails. It was a partially albinistic bird, but the "partially" descriptor does not do this hawk justice, as only a few black streaks lined its feathers. The improbable sometimes happens on Hawk Hill!

To cap off this day, banders Siobhan Ruck and Walter Kitundu brought up a couple of banded Red-tailed Hawks for a short showand-tell in front of some assembled hawkwatchers. As Siobhan was showing off a young Redtail,

a couple of "resident" Ravens waddled up to the proceedings, watching with baleful glares. As soon as she released the hawk, the Ravens were after it. After the escort, the Ravens circled back to the pines, croaking their triumph.

Like the Ravens, I plan to be back next year to watch hawks from Hawk Hill, although the pines will be gone. It will be different, but there will still be raptors.

A thoroughly-addicted hawkwatcher and long-time dayleader of the Monday 1 hawkwatch team, Lew Cooper may be the only GGRO volunteer to have met both Roger Tory Peterson and David Sibley.

RAPTOR SIGHTINGS IN THE MARIN HEADLANDS DURING AUTUMN

	2011 Season		Annual Average 2000-09	
	Sightings	RpH*	Sightings	RpH*
Turkey Vulture	6,447	14.69	9,176	18.25
Osprey	57	0.13	105	0.21
White-tailed Kite	74	0.17	92	0.18
Bald Eagle	9	0.02	5	0.01
Northern Harrier	335	0.76	751	1.49
Sharp-shinned Hawk	2,622	5.98	4,183	8.37
Cooper's Hawk	1,805	4.11	2,427	4.83
Northern Goshawk	0	0.00	1	0.00
Red-shouldered Hawk	248	0.57	464	0.92
Broad-winged Hawk	202	0.46	123	0.25
Swainson's Hawk	13	0.03	6	0.01
Red-tailed Hawk	7,529	17.16	9,410	18.69
Ferruginous Hawk	18	0.04	22	0.04
Rough-legged Hawk	0	0.00	7	0.01
Golden Eagle	9	0.02	20	0.04
American Kestrel	358	0.82	540	1.08
Merlin	166	0.38	172	0.34
Peregrine Falcon	264	0.60	199	0.40
Prairie Falcon	2	0.00	7	0.01
Unidentified	1,011	2.30	1,292	2.57
Total	21,169	48.24	29,001	57.71
Hours		438.78		502.53
*RPH = Raptors Per Hour				

PEREGRINATIONS Robyn Smith and Katie Dunbar

Copperopolis Road: A Central Valley Adventure

THE CENTRAL VALLEY PROVIDES IMPORTANT WINTERING HABITAT for many raptor species, in a season when many grasslands in the Midwest and Great Plains are covered by snow. Unable to reach the abundant rodent prey hibernating under snowbanks, the hawks move on to actual greener pastures. In California's Central Valley, the greenest pastures arise in the winter and spring after the rainy season, and the rodents remain abundant and active! Though raptors such as Ferruginous and Rough-legged hawks do not breed in central California, they consistently go there during the winter to feed.

The 2011 GGRO interns decided to take a trip eastward to Copperopolis Road near Stockton to check out some winter raptors. This road once connected to the town of Copperopolis, at one time the second biggest producer of copper in the country and now a historic small town in the Sierra Foothills. The road now dead-ends after about 13 miles of prime raptor habitat.

Invigorated by the surprisingly sunny January weather, we loaded up the car with binoculars, scopes, extra jackets, good music, and an assortment of sugary treats. Copperopolis is about a two-hour drive from the Marin Headlands, and our trip was full of joking, playing games, singing loudly, and (safely!) birdwatching at 60 miles per hour.

We took 580 eastbound out of the Bay Area, Highway 205 until we hit Route 5, and then got off at the downtown Stockonto Filbert, and then made a left onto East Main Street, which becomes Copperopolis Road after a few miles.

The first stretch of Copperopolis Road consists mostly of fruit tree orchards, and the only raptors we saw were American Kestrels and Red-shouldered Hawks. A particularly beautiful adult Redshoulder, perched on a telephone pole next to the road, gave us a great view. We continued along the road, scanning for high-flying birds as best we could out of the window of the car.

About eight miles down the road, we reached the coppery hills of open ranchland, where there were plenty of Red-tailed Hawks, Turkey Vultures, Northern Harriers, and White-tailed Kites. We particularly enjoyed watching a beautiful adult male harrier as he swept back and forth over the hills and barbed-wire fences.

Katie directed us to the place where she had seen a juvenile Bald Eagle feeding at a cattle carcass on a previous trip, but unfortunately, the bones had been picked over and the eagle was nowhere to be seen. A bit disheartened, we headed to the end of Copperopolis Road to try to find some Ferruginous Hawks.

When we hit Waverly Road where it tees with Copperopolis Road, we turned left and headed north to Flood Road. On Flood, we stopped across from a house with a pond and scanned the horizon for flying raptors. A bird soaring with a



Dark morphs show up commonly among wintering

Redtails in the Sierra Foothills and Central Valley. [Photo by Walter Kitundu]

RAPTORS SEEN OFTEN

Red-tailed Hawk, Ferruginous Hawk, American Kestrel, Northern Harrier, Turkey Vulture, Red-shouldered Hawk

RAPTORS SEEN OCCASIONALLY

Rough-legged Hawk, Bald Eagle, Golden Eagle, White-tailed Kite, Prairie Falcon, Merlin

OTHER NOTABLE BIRDS IN THE AREA

Loggerhead Shrike, Savannah Sparrow, Long-billed Curlew, Killdeer, Horned Lark, Lewis's Woodpecker, Common Merganser, Snowy Egret, Great Egret, Black-necked Stilt, American Avocet, Sandhill Crane, Tundra Swan, Snow Geese, Canada Geese, Greater White-fronted Geese



California's unique subspecies of Red-shouldered Hawk, *Buteo lineatus elegans*, was once known as the Red-bellied Hawk. This juvenile shows its trademark white wing crescent on the dorsal side. [Photos by Walter Kitundu]

and shape convinced us it was a Prairie Falcon! We excitedly watched it circle around the pond and then disappear into the glaze of the dry hills. What a great find!

We continued driving along Flood Road, enjoying a closeup view of a female Northern Harrier on a fence post, and a Redtail enthusiastically pursuing a ground squirrel through the rows of a vineyard. We then drove through a riparian area, where we saw plenty of Redshoulders and a beautiful adult dark morph Redtail who fooled us into thinking he was a Golden Eagle at first.

Still hoping to sight a Ferruginous Hawk, we drove back down to Copperopolis Road. Robyn just happened to glance out the window as we were cruising along Waverly Road and swerved quickly to the side, scaring Megan Mayo and Brittney Wendell, who were dozing in the back. "FERRUG!" she shouted.

A beautiful adult Ferruginous Hawk sat regally in the grass, watching us. We found one at last!

Other exciting birding opportunities exist in the Stockton area. On a previous outing with Bob Power's Saturday I

Hawkwatch Team, we extended the trip from Copperopolis Road to Salt Spring Valley Reservoir. It is about a half-hour from Waverly Road, and has accessible birding all around the water, where we saw eagles and Ferruginous Hawks, as well as several Lewis's Woodpeckers and even a beautiful periwinkle-blue-backed Merlin!

On the opposite side of Interstate 5 is the Woodbridge Ecological Reserve, also known as the Isenberg Crane Reserve. There we found not only plentiful Sandhill Cranes, but also hundreds of Snow Geese, Canada Geese, Greater Whitefronted Geese, Tundra Swans, and a deluge of ducks during the evening fly-in. The skies darkened with waterfowl over the dramatic backdrop of sunset colors behind Mount Diablo.

If you want to hone your raptor identification skills in the offseason, winter hawkwatching along Copperopolis in Stockton is a great way to see some neat raptors you may not see regularly in the Marin Headlands.

Robyn Smith has spent her post-GGRO summer as a nest-finder for PRBO Conservation Science. Katie Dunbar has been focused on California Condors at Big Sur for the Ventana Wilderness Society.

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A special thanks for map assistance to: Michael Norelli (Banding), Bill Prochnow (Banding & Telemetry).

The Pacific Raptor Report (PRR) is the annual newsletter of the Golden Gate Raptor Observatory, but we also welcome any raptorial articles based in the Pacific States and Provinces. The PRR is published by the GGRO, a program of the Golden Gate National Parks Conservancy in cooperation with the National Park Service.

The GGRO Season Summary is published in the winter. Subscriptions to both are \$30 per year with checks made out to "GGRO."



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RAPTOR PLUMAGES Allen Fish Northern Harrier watercolors by Evan Barbour

Ageing Northern Harriers: It's Not Just the Streaks

North American raptor identification problem, I would readily hand it to the brownbacked Northern Harrier (NOHA) conundrum. All NOHAs have a similar shape (long tail, narrow slotted wings), and share the blazing white rump patch. However, the adult male is graybacked with black wingtips, while both the adult female and juvenile (sexes similar) are brownbacked with barred wingtips. So how do you differentiate the latter forms?

Watch for the color and pattern of the underside of the NOHA. A brown NOHA with soft tan to creamy undersides with vertical streaking from throat to feet is an adult female. A brown NOHA with rich orange undersides and only slight streaking near the throat is a juvenile.

But there can be a few complications. First, some juveniles are very streaky. Streaks can fill in the entire upper breast and the sides of the belly. This makes a juvenile look more like an adult female, except that the juv's orange base color should tip you off. Secondly, some spring-time juveniles become so worn in the breast and belly feathers that the orange tone just fades out. But what if it's one of those very streaky juveniles? How would you know whether this is a juvenile or an adult female? What else can you look for?

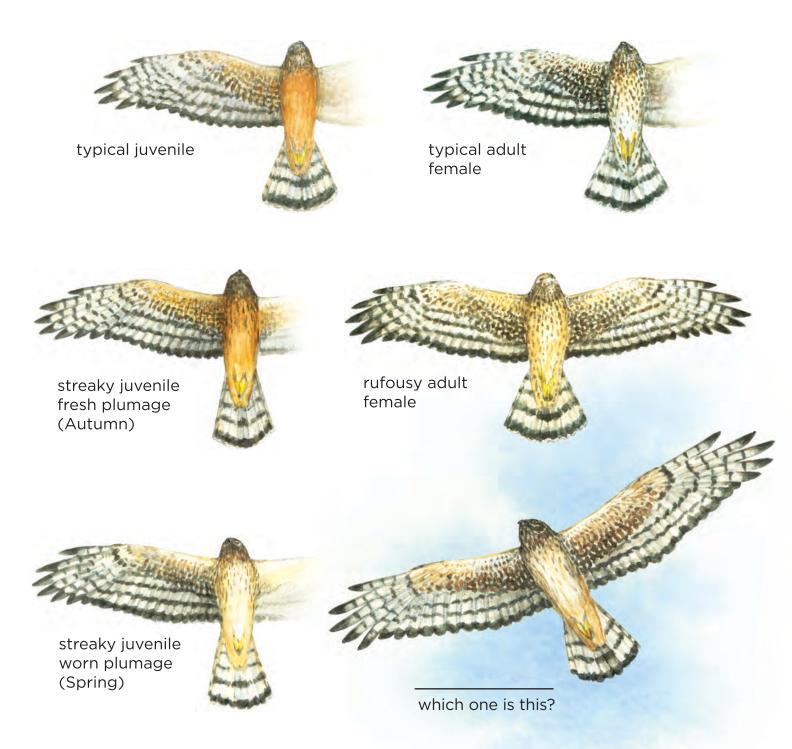
Some field guides advise studying the secondaries. Juvenile NOHA inner secondaries have poorly defined black and gray bands, with a certain sooty quality seen from underneath. Adult female NOHAs tend to show a sharper contrast between dark and light bands on the secondaries. Frankly, this fieldmark has never worked for me; there's just too much variation from individual to individual. As a more reliable mark, I would use the undertail coverts. These

are the feathers on either side of the lower legs and feet. Adult female undertail coverts have distinct dark streaks or spots on a creamy background; juveniles are simply orange or orange faded to tan without streaks or spots.

Many guides mention that eye color changes with age in NOHAs, but eye color changes at different rates in different hawks. Juvenile eye color can be brown, brown-tan, or yellowishtan depending on the sex and the individual. Adult eyes (of both genders) are bright yellow. The snag is that adult eye colors can take four years to become yellow, according to NOHA expert Fran Hamerstrom, therefore it may be best not to use eye color as an age-ing tool, except to verify old adults.

Another close-up fieldmark: all NOHAs show a dark throat and side-collar region circling the head but the juvenile's dark brown throat and collar are fairly even and unbroken, whereas the adult female's is marked with numerous light streaks both in the front and the sides. Small traits such as eye color and throat streaks may be too minute to be useful to a birder in the field, but with the growing practice of taking digital photos and then blowing up the image to study detail, this utility is changing daily. Also keep in mind that the angle and tone of the sunlight can greatly affect whether you see a whitish, creamy, buff, tan, tawny, orange, or even rufous color in the undersides of a NOHA. Author Jerry Liguori puts it simply in Hawks at a Distance that "telling juvenile from adult female harriers when backlit or in poor light can be impossible."

Artist and illustrator Evan Barbour was a GGRO Intern in 2000, then moved south to complete a UC Santa Cruz program in scientific illustration. Evan worked at the Cornell Lab of Ornithology illustrating many newsletters and a book, The Birds of Sapsucker Woods. Also to his credit: Birds of New Caledonia, and an amazing range of zoological paintings. See www.evanbarbour.com.



Northern Harriers	base breast color	streaking	inner secondaries	undertail coverts	eye color
Juveniles	orangey to tan	none, or on throat and flanks only	ashy, sooty bands	unmarked	chocolate brown to yellow/tan
Adult females	tan	past midline of belly, breast, flanks	more contrasty, distinct bands	streaked or spotted	yellow to tan

THE PACIFIC RAPTOR REPORT SUMMER 2012 NUMBER THIRTY-THREE







Published by Golden Gate Raptor Observatory Golden Gate National Parks Conservancy Building 1064, Fort Cronkhite Sausalito, California 94965 NON-PROFIT
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