THE





THE NEWSLETTER OF THE GOLDEN GATE AUDUBON SOCIETY // VOL. 100 NO. 1 WINTER 2015

## A SECURE FUTURE FOR ALAMEDA'S LEAST TERNS

BY ILANA DEBARE

The start of 2015 brings the start of a new era for Alameda's nesting colony of endangered California Least Terns—with a new government landlord and a secure home for the future.

The U.S. Veterans Administration assumed ownership of the former Alameda Naval Air Station in November, including 512 acres that will be a permanently-protected home for the tern colony and nearly 200 other bird species.

**CONTINUED** on page 5



A citizen scientist looking for water birds during the 2013 Oakland CBC.

### GGAS IS WELL-POSITIONED TO PROTECT BIRDS FROM CLIMATE CHANGE

#### BY CINDY MARGULIS, EXECUTIVE DIRECTOR

N ational Audubon made headlines this fall with its landmark study on Birds and Climate Change, and the disheartening finding that 50 percent of all North American bird species are imperiled by changing climate.

Two things struck me from the report. First, the baseline historical data were drawn from two primary sources: U.S. Geological Survey spring/summer Breeding Bird Surveys and Audubon's Christmas Bird Counts. All the diligent citizen science that our birders have been doing each December for decades is not only still relevant, it is now essential for understanding the population trend lines of our region's birds and their future.

Golden Gate Audubon's count circles for Oakland and San Francisco have long been noteworthy both for their findings and their participation levels. Kudos are in order for everyone who participated, but most especially for our local count organizers: Bob Lewis and Dave Quady in Oakland, and Alan Hopkins, Dan Murphy, and Siobhan Ruck in San Francisco.

The second thing that struck me while reflecting upon the landmark NAS report

is that Golden Gate Audubon is already engaged in ameliorating adverse effects of changing climate on local birds through vital habitat restoration efforts we lead on both sides of the Bay and at local creeks. Wetland, upland, and riparian habitats sustain resiliency for myriad species. Yes, there's more we can do, but our work is already on course.

This is why our Audubon chapter has persisted for 98 years: We have always kept our eyes on the long-term future for "our" birds. Our work of many decades is still so relevant! Far from being a quaint 19th century "Society," GGAS was a science-driven, community-engaged, learning organization before those terms came into vogue. Our birders were using social media before it was chic. (Remember bird hotlines?) Audubon's CBC pioneered citizen science, which today is a pillar of science education. We have been raising awareness of the crucial relationship between the birds we love and local habitats for nearly a century. How many other environmental organizations can claim such a distinguished heritage?

GGAS represents what's most special about the Bay Area. Truly, we live in a remarkable place where we can roam Pacific beaches, hike in the shadow of redwoods, and contemplate so many fascinating species.

Golden Gate Audubon doesn't take any of this majesty for granted. We know it's incumbent upon us, continually, to survey what we find, protect and enhance habitats, and continue to educate people of every generation so they will steward the legacy we will pass on to them.

#### **NEWS BRIEFS**

#### **Snowy Plovers Get Protection**

Threatened Western Snowy Plovers won some welcome help this fall, when the East Bay Regional Park District installed symbolic protective fencing around a section of Crown Beach in Alameda. GGAS volunteers had monitored the plovers and pushed for protection for their winter roost site.

#### **Recently On Our Blog**

If you haven't been reading our blog, you've missed articles such as "Christmas Bird Count By Boat" by George Peyton and "Why So Many Acorn Woodpeckers?" by Bruce Mast. Go to goldengateaudubon. org/blog. Click on the "follow" box to receive future posts in your email inbox.

#### New Bird Atlas for Solano County

Napa-Solano Audubon recently published a stunning bird atlas for Solano County, with 350 color photos and descriptions of 151 birds that nest in that county, plus detailed range maps by GGAS member Rusty Scalf. You can view and order this beautiful volume at napasolanoaudubon.com/ Monitoring/SolanoAtlas.

#### **Record-setting CBC**

Our 2014 Oakland Christmas Bird Count was the biggest ever, with 287 people registered in advance! That was even more than 2013, when Oakland was the fourth largest count in North America. Final results from both Oakland and San Francisco counts will be available in the spring.



### **FORT MASON BY DAVID ASSMANN**

#### LOCATION

Bay & Franklin Streets San Francisco

The *Community* Garden is home to orioles year-round.

ommunity gardens provide an easily accessible retreat from the concrete jungle of a city. Even more idyllic, they are filled with vibrant bird life. Fort Mason not only has a community garden, but is also one of San Francisco's top birding hotspots, with an eBird list of 180 species.

Situated on a bluff above the Bay, Fort Mason provides refuge for aquatic and land birds as well as migrants. With only 68 acres to the upper section, it is an easy place to bird even if you have only an hour.

It wasn't always a hospitable site for birds. First reserved for the U.S. military in 1850, it was the army's major West Coast shipping port until the late 1950s. What is now the Great Meadow was entirely covered by buildings until the 1970s, when Fort Mason became part of the Golden Gate National Recreation Area.

Since I started birding, Fort Mason has become my guide for the changing of the seasons. It isn't fall for

Have a favorite birding site you'd like to share? Contact idebare@goldengateaudubon.org.



(Left) Great Meadow at Fort Mason; (above) Western Tanager.

me until the Red-Breasted Sapsucker returns from the Sierra to take up residence. Summer begins when the resident Downy Woodpeckers and Pygmy Nuthatches start raising young.

Most birders start in the Community Garden, where you can find orioles all year. It's also a great place for goldfinches, finches, and sparrows: 15 sparrow species have been found in the garden.

North of the garden, the Black Point Battery trees attract flycatchers, warblers, and tanagers during migration. I've seen as many as 15 Western Tanagers in one tree. From the Battery, you can scope Alcatraz and the Bay for water birds. During winter high tide, you can often find Wandering Tattlers on the abandoned pier. Last November I was surprised to find a Rhinoceros Auklet swimming just offshore.

Two other areas of Fort Mason are also worth exploring. The Great Meadow may bring a Say's Phoebe in winter or Western Meadowlarks in fall migration. The General's Residence has a lawn that can host a variety of birds, including a Dickcissel in the fall of 2012. The nearby bottlebrush bushes are magnets for insectivores.

Birding at Fort Mason is best between dawn and 10 a.m. Since the park is popular, afternoon birding is generally not as productive. But no matter when you visit, there are always interesting birds to observe.

For a longer, more detailed version of this article, please see http://goldengateaudubon.org/blog-posts/ fort-mason-birding-hotspot/.

## **GGAS MEMBERS PLAN A LEGACY FOR BAY AREA BIRDS**

BY ILANA DEBARE

o one likes to think about death—not deaths of birds, not deaths of people, certainly not our own deaths. But Jacqui Smalley and Marj Blackwell took the time to think about providing for Golden Gate Audubon in their estates.

And that means they will continue making a positive difference for Bay Area birds long into the future.

"The work that GGAS does is really important and I want to see that sustained, and one way to do that is to leave something on my death," said Jacqui. "It makes me happy to know that an organization I care about is going to get some help."

Jacqui joined Golden Gate Audubon in the late 1990s, fresh out of law school and looking for a way to help protect the environment. She plunged into conservation advocacy and then the board of directors, where she served as vice president. Today she splits her time between the Bay Area and a ranch she helped save from development in southern Utah.

Jacqui and her husband John Austin decided to include GGAS in their estate because of its unique mission.

"What GGAS does is different and special," she said. "We weigh in on issues like Altamont that other groups don't touch. Our work saving habitat is critical because there is so little left. And the Ecoeducation program really gets kids engaged.

"We met with a lawyer and said, 'Here's what we have, and here's how we want the property divided,' "Jacqui recalled. "It was not very complicated."

Marj Blackwell also served on the GGAS board—including two terms as president—after retiring from a career in journalism and corporate and government relations, ending as a public information officer for the Metropolitan Transportation Commission.

Over the past decade, she has worked on a range of GGAS projects, from editing *The Gull* to the 90th anniversary celebration, and has enjoyed numerous GGAS birding classes and field trips.

Marj and her husband Bill decided to include GGAS in their estate because of her personal connection to the Audubon community.



(Top) Jacqui Smalley on her Utah ranch. (Bottom) Marj Blackwell.

"You can give money to save elephants in Africa, but I see firsthand what Audubon does," Marj said. "I know the people and see what they do—the field trip leaders, the birding instructors, the docents, and the staff. They are so impressive and so generous with their knowledge and their time. I want to give back to Audubon a measure of what I've received."

Golden Gate Audubon is deeply grateful to Marj, Jacqui, and other members who have included GGAS in their estate planning. To find out more about including Golden Gate Audubon in your estate, contact GGAS Executive Director Cindy Margulis at cmargulis@ goldengateaudubon.org.

#### **UPCOMING EVENTS**

#### **Birding Classes for All Levels**

Whether you're a beginner, advanced beginner, or an aspiring Master Birder, we've got a class for you. Improve your ID skills, learn about great new birding spots, and make new friends. Classes start in January and then again in spring. See goldengateaudubon.org/education/classes.

#### Great Backyard Bird Count for Kids

Bring your kids to Lake Merritt for a fun introduction to birds and citizen science on Sunday, February 15. We'll be holding a similar kids' event that weekend in San Francisco as part of the national Great Backyard Bird Count. For details, email GGASeducation@ goldengateaudubon.org.

#### Birdathon 2015 is coming

April is Birdathon month...and we will have some amazing new trips such as a behind-the-scenes tour of the Oakland Zoo, a trip to view Burrowing Owls in the South Bay, and a birding-and-winery trip in Sonoma County. See our website in February for details.

#### **CONTINUED** from page 1

Least Terns have been listed as endangered since 1970, when there were fewer than 700 pairs of these 1.6-ounce birds left on the West Coast. In the mid-70s they were found nesting on the tarmac of the air base—a seemingly improbable home, yet one with the same flat, open terrain as the terns' disappearing beach habitat.

Golden Gate Audubon Society began supporting the tern colony more than thirty years ago with some financial assistance for its management. In 1992, when it was announced that the naval base would be closing, GGAS began pressing for permanent protection. GGAS volunteers have monitored the terns and other wildlife at Alameda Point, marshaled scientific evidence, helped clean and maintain the nesting site, and lobbied government officials to ensure the terns' safety and survival.

So it was not just good news but also a testament to GGAS's effective work when the V.A. agreed to a site plan that would safeguard the tern colony and other Alameda wildlife into the future.

"The beauty of this story lies in the cooperation between multiple agencies, government bodies, and citizens: the U.S. Navy, U.S. Fish & Wildlife Service, V.A., City of Alameda, GGAS, and more," said Leora Feeney, co-chair of GGAS's Friends of the Alameda Wildlife Refuge committee. "Two decades of struggle have led to this stellar solution—a much-needed veterans facility for those who serve our country, and



GGAS volunteers prepare the tern nesting site.



California Least Tern and chick at Alameda Wildlife Refuge

### In 2014, the Least Tern colony produced an unprecedented 45 three-egg clutches and more than 350 fledglings.

a 512-acre inner-city wildlife refuge. We appreciate the flexibility and patience of all involved. This shows that open hearts and minds can make good things happen. "

The V.A. plans an outpatient clinic, an office to assist veterans in obtaining benefits, and a national cemetery on 112 acres of the naval base—leaving the rest as a wildlife refuge and park.

The U.S. Fish & Wildlife Service will continue its excellent management of the tern colony. Golden Gate Audubon will be able to continue its very productive partnerships with FWS—the Tern Watch program monitoring colony predation, monthly volunteer work parties to prepare the nesting site, and annual Return of the Terns educational tours of the colony.

Meanwhile, the V.A. will enhance conservation facilities with a new building for park and wildlife managers, including public meeting space for environmental education and volunteer activities.

The transfer to the V.A. in November capped a positive year for Alameda Point

wildlife. Although final numbers are not yet available, 2014 was a good reproductive season for the Least Terns. The terns usually have nests with two eggs; this year, there were an unprecedented 45 three-egg clutches and more than 350 fledglings!

Meanwhile, wetland enhancement that had been started by the Navy paid off with the presence of breeding Caspian Terns for the first time since the 1990s. And as many as 3,200 sandpipers were spotted at high tide near the new wetlands.

GGAS marshaled 168 volunteers who put in 638 hours at Alameda Point in 2014. Tern Watch volunteers spent another 702 hours observing the colony and documenting predation and other challenges.

Building on all these successes, GGAS looks forward to another good year in 2015—including the start of our new stewardship partnership with the V.A.

You can help protect wildlife at Alameda Point! For information on volunteering, please see goldengateaudubon.org/volunteer/ friends-of-the-alameda-wildlife-refuge.



### OSPREYS IN THE BAY AREA

TONY BRAKE AND HARVEY WILSON

#### LOCATION / DATE

Berkeley Thursday, January 15 7:00 p.m. refreshments 7:30 p.m. program

The last decade has seen a remarkably rapid expansion of Osprey nesting into San Francisco Bay tidelands. From a single nest reported in 1990 in Vallejo, numbers have risen to 27 nesting pairs in summer 2014. What's behind this increase? What conservation challenges do nesting Osprey face here, and how can we help them?

Tony Brake and Harvey Wilson have been monitoring nesting Osprey along San Francisco Bay since 2012. Both volunteers with Golden Gate Raptor Observatory, they are among the co-authors of a paper on Bay Area Ospreys that was published this fall in the journal Western Birds.

#### Join our Third Master Birder Class

The first two years were such a success that we're doing it again! Golden Gate Audubon and California Academy of Sciences are co-sponsoring a year-long Master Birder class. This advanced class starts on Wednesday, February 4 and includes 11 classes and 11 weekend field trips throughout 2015. Most classes are held at the Academy to take advantage of its splendid collections. Keep a field journal, monitor a birding "patch," learn about the latest research on taxonomy and bird behavior! Instructors are Jack Dumbacher, Bob Lewis and Eddie Bartley. For details, see goldengateaudubon.org/ education/classes.

### FROM PLASTIC GLOOM, ALBATROSSES BLOOM

#### LOCATION / DATE

San Francisco Thursday, February 19 7:00 p.m. refreshments 7:30 p.m. program

#### SUSAN SCOTT

The 2.4 square miles of Midway Atoll host over a million nesting Laysan Albatrosses each year, along with tons of marine debris. Nets, buoys, and plastic trash wash onto beaches. Albatross parents often swallow plastic pieces and regurgitate them to their young. Yet, amazingly, the albatrosses thrive.

Susan Scott, a volunteer for the U.S. Fish & Wildlife Service

-----

since 1989, will share photos of her work with Midway's albatrosses and explain how she uses the plastics littering their nests to educate people through art. Author of the memoir Call Me Captain, Susan writes a weekly Ocean Watch column for the Honolulu Star-Advertiser.



#### LAWRENCE FORD AND MICHELLE HAMMOND

#### LOCATION / DATE

**Berkeley** Thursday, March 19 7:00 p.m. refreshments 7:30 p.m. program

California's Mediterranean grasslands are a biodiversity hotspot, despite their domination by non-native grasses. Through sciencebased management of these habitats, we can help save birds at risk of extinction. Our speakers will explain how grazing practices affect birds such as the Burrowing Owl, Ferruginous Hawk, Golden Eagle, Western Meadowlark, and Grasshopper Sparrow, and will share examples of positive grasslands management.

Lawrence D. Ford is Principal of LDFord Rangeland Conservation Science and Research Associate in environmental studies at U.C. Santa Cruz. Michele Hammond is Staff Research Associate of the Range Ecology Lab in the Environmental Science Policy and Management Department at U.C. Berkeley.



San Francisco: First Unitarian Universalist Church and Center, 1187 Franklin Street (at Geary). Public transit, street parking, and parking in a lot for a fee are available. Directions: Visit www.uusf.org/visitors\_faq. html, and use the Map It! link on the left.

**Berkeley:** Northbrae Community Church, 941 The Alameda (between Solano and Marin). Directions: www.northbrae.org/directions.html.

#### ROSTER

# Thank you for your generous donations to support our many conservation, education, and member activities!

Donations from September 1 to November 30, 2014

#### **GOLDEN EAGLE**

#### \$1000 or more

Anonymous, Linda and Bob Carloni, Alan B. Harper, Jay & Lisa Pierrepont

#### PEREGRINE FALCON

(\$500 to \$999)

Carol Donohoe, Rebecca Eisen, Bob Lewis, Mary E. Martin, Diane Ross-Leech

#### LEAST TERN

**(\$250 to \$499)** Pei Chen, Kevin Liberg, Mary E. Schaefer

#### **RIDGWAY'S RAIL**

#### (\$100 to \$249)

Karim Al-Khafaji, George F. Bing, Catherine Cocard, Daryl Goldman, Christine Harris, Anne Hoff, Laurel Przybylski, Mary E. Schaefer, Eugene Segre, Stephanie Woods

#### GIFTS

(Up to \$100) Anonymous, Marianne Adkins, Susan Alexander, Patty Ames, Michele M. Amirkhas, Diana Austin, Yvonne Baumeister, Roberta Benton, Michele J. Bernal, Kenneth & Barbara Berniker, Ray Black, Rory Brown, Debbie Buckheim, Adele Bures, Susan Caldwell, Franchesca Callejo, Delma M. Campbell, Jane Carnall, Andrea & Michael Cassidy, Janice & Paul Chaffee, Graham Chisholm, Catherine Cocard, Sheila Collins, Don Couch, Laurie Craise, Eleanor & Per Dahl, Linda De Lucchi, Kris D. S. Diede, Jean Doak, Barbara Doe, Mark T. Doyle, Dan Dumont, Bruce W Fay, Lewis J. Feldman, James Ashley Ferry, Mary I. Foley, .Leah Forbes, William J. Giddens, Lynn E. Goldman, Erica Goode, Pauline Elspeth Grant, Alan Grove, Linda Gustafson, Travis H Hails, Amanda M. Hamilton, John A. Hammond, Margaret Hangan, Rachel Hanson, June Harding, John Harris, Robert Hass, Patricia Hendricks, Henry & Lolan Ho-Wong, Priscilla Hoffnagle, Ingrid Hogle, Elizabeth A. Hook, Rich & Terry Horrigan, George Humphreys, David Jaber, Larry Jones, Ann F. Kadyk, Patricia I. Kale, Sheila Kerr, Melani King, Jim Kovalcik, Edgar & Joyce Lehmann, Susan Lessin, Margaret Leunig, Celine Lielle, William & Toni Link, Saundra Lormand, John L. Luckett, Douglas Macmillan, Beth Matesi, Jean Matsuno, Janet McColl, Helen L. McKinley, Russell & Karen Merritt, Marilyn Miles, Susan Miller, James C. Moyers, Jennifer O'Brien, Betty M. Olds, Ruth S. Omatsu, Sarah

Joanne Paul, Cora Pitcock, Gerri Popper, Beth Pratt-Bergstrom, Sandra Prusiner, Judith Pynn, Nancy B. Ream, David Rice, Daniel J. Richman, Barbara & Joel J. Richmon, William Robbins, III, Mary Roscoe, Lilia Rosenheimer, Anne Roughton, Carolyn Roundey, Grace Ruth, Christy Schauf, Elaine M. Sedlack, Peter Seubert, Joanne Sidwell, Mary W. Small, Patricia Smiley, Oralynn Smith, Franklin Snitz, Ann Stone, Lynn M. Strandberg, Carol Sughrue, Sandra Sullivan, Joan Szarfinski, Laura Trupin, Susan Vutz, Edward Walker, Susan Watson, Rachel Watson-Clark, Alice Webber, Liz Westbrook, Jane Whitley, Diane E. Wilson, Rebekah Wolman, Shirley L. Wong, Allene Zanger, T. G. Zimmerman

#### GIFTS IN HONOR OF

Karen Berger, in honor of David Assmann Erik Bachsmith, in honor of the GGAS staff Laurence Elias, in honor of David Assmann Faith Hershiser, in honor of Beth Pratt Sara McBarnette, in honor of Yvette Fay Francis McBarnette Rosemary Reilly, in honor of Mia Rosati

MEMORIAL GIFTS

#### Sandra Dahlin, in memory of Mark Collins Peter Flessel, in memory of Creig & Marie Flessel

David Kessler, in memory of Theodore Aarons Jane Larkin, in memory of Eleanor Buffa

#### **IN-KIND GIFTS**

Cyndi Bakir, Chris & Gary Bard, Jacqueline Craig, Travis H. Hails, Maureen Lahiff, Bill & Helen Lindqvist, Beth Moseley, Lyrinda Snyderman, Carol Sughrue

#### **EMPLOYEE GIFT MATCHES**

Bank of America Foundation (Katrina & Steven Sherman) Fidelity Investments Charitable Gift Fund (Eugene Segre) Macy's Foundation (Suzanne Murillo)

#### GRANTS

Alliance for Community Trees Britton Fund East Bay Community Foundation Klean Kanteen Marisla Fund of Orange County Community Foundation Stephen M. Silberstein Foundation The Bothin Foundation

### HONOR DR. KING WITH GGAS AND OUTDOOR AFRO

"Never, never be afraid to do what's right, especially if the well-being of a person or animal is at stake."

—The Rev. Martin Luther King Jr.

Celebrate MLK Day with us on Monday, January 19, at the Oakland shoreline park that bears his name. Together with our friends at Outdoor Afro, we'll be restoring habitat for wildlife including endangered Ridgway's Rails. We'll also take time to look for the birds that frequent MLK Jr. Regional Shoreline. Families welcome! For details, see goldengateaudubon.org/volunteer.



#### **BOARD OF DIRECTORS**

**President** Laura Gobbi

Vice President and Treasurer Alan Harper

#### Secretary

#### Linda Vallee

Karim Al-Khafaji, Sarah Peterman Bell, Linda Carloni, Whitney Dotson, Jack Dumbacher, Bill Hudson, Bob Lewis, Jay Pierrepont, Judith Pynn, Diane Ross-Leech, April Rose Sommer

#### STAFF

**Executive Director** Cindy Margulis, 510.843.9912 cmargulis@goldengateaudubon.org

#### Education Director

Anthony DeCicco, 510.843.2222 adecicco@goldengateaudubon.org

Volunteer Coordinator Noreen Weeden, 510.301.0570 nweeden@goldengateaudubon.org

**Communications Director** Ilana DeBare, 510.301.5573 idebare@goldengateaudubon.org

#### **Eco-Education Program Coordinator**

Marissa Ortega-Welch, 510.843.2222 mortegawelch@goldengateaudubon.org

Office Manager Ben Sisson, 510.843.2222

Ben Sisson, 510.843.2222 bsisson@goldengateaudubon.org

#### THE GULL AND WEBSITE

Gull and Web Editor Ilana DeBare, idebare@goldengateaudubon.org

#### Observations

Bruce Mast, observe@goldengateaudubon.org

#### NORTHERN CALIFORNIA BIRD BOX 415.681.7422

The Golden Gate Audubon Society was founded January 25, 1917, and became a chapter of National Audubon in 1948. Golden Gate Audubon Supporting Membership is \$35 per year. Renewals should be sent to the Golden Gate Audubon office. The board of directors meets six times per year (schedule can be obtained from the office).

The Gull is published four times per year. Special third-class postage paid in Oakland, CA. Send address changes to the office promptly. The post office does not forward The Gull.

#### Golden Gate Audubon Society

2530 San Pablo Avenue, Suite G Berkeley, CA 94702 Office hours: Monday, Wednesday and Friday 9 a.m. – noon and 1 p.m. – 5 p.m., and other hours by appointment *Tel* 510.843.2222 www.goldengateaudubon.org ggas@goldengateaudubon.org

#### Nature Store

Visit our online store at goldengateaudubon.org/ store.

Design by e.g. communications/www.egcommunications.com

2530 San Pablo Avenue, Suite G Berkeley, CA 94702

Return service requested

### www.goldengateaudubon.org

#### nthe Gull is printed with soy-based inks on chlorine-free paper, 30% postconsumer waste content

#### 2 Climate Change

The good news is that Golden Gate Audubon is well-positioned to help Bay Area birds survive the coming challenges.

#### **3** Bay Area Hotspot: Fort Mason

Over a million military personnel passed through during World War II. Today's visitors include kingbirds and sapsuckers.

#### 4 A Legacy for Birds

The inspiring story of GGAS members who are making a difference for birds—both today and in the future.

#### **BACKYARD BIRDER**



<sup>3</sup>ob Lewis

Gould's Jewelfront.

### **BIRD TONGUES** BY NANCY JOHNSTON

ave you ever wondered what a bird tongue looks like, or if birds even have one? Like all vertebrates, birds do have tongues, but evolution has given their tongues some interesting features that ours don't have.

A bird's tongue tip can be frayed, barbed, or even look like a paint brush. The root of the tongue may have backward-facing barbs to help move food into the gullet, or the entire tongue may be covered in barbs to help catch slippery fish. A few Bay Area examples:

The Cinnamon Teal's tongue is covered in spiny, hair-like papil-

lae that filter out food particles from mud and water. Many ducks, swans, and geese use tongues in filter feeding, although the number and shape of their papillae vary.

The Anna's Hummingbird, like other hummingbirds and most woodpeckers, has a tongue that extends far outside its bill to gather nectar from flowers. This extra length cannot fit in the mouth cavity, so the tongue and supporting structures wrap around the skull and usually terminate in the left nostril.

When a hummingbird sticks out its tongue, it looks long, thin, and round. In reality, it is tubular and split in two at the tip. It was long thought that these birds drank nectar by capillary action. Recently, though, high-speed photography has shown that they trap the nectar. When the tongue enters the liquid, the split part opens up, and when it exits the nectar, the tongue tip and fringe-like lamellae along the edges close and trap the nectar inside.

Finally, the Double-crested Cormorant has one of the most interesting-looking tongues—resembling a mushroom and sitting in the middle of the lower bill. In cormorants, a large tongue would get in the way of swallowing the large fish that they eat.

In these three examples, the bird's tongue is specialized for its diet. This is not true for most birds, probably because they eat a variety of foods.

This article is excerpted from a paper that Nancy Johnston wrote for Golden Gate Audubon's 2014 Master Birder class. You can read more about bird tongues at goldengateaudubon.org/blog-posts/bird-tongues.