

# Wild at Heart

News from The  
River Otter  
Ecology Project  
December 2015

Learning to swim, dive and hunt is exhausting! Otter pup naps on the bank.  
Photo: Doris Sharrock



## River Otter Ecology Sticks

In 2012, at a National Endowment for the Humanities Lecture Wendell Berry invoked Wallace Stegner, and out of that delightful circumstance came this:

*“Stickers...are motivated by affection, by such love for a place and its life that they want to preserve it and remain in it.*

Central to our mission is supporting restoration and conservation of watersheds, not only as important habitat for river otters, but as an integral part of a web of resilience that we must support in every ecosystem.

This year we've published results, spread the word of our work, celebrated,

consolidated, grown, devised better ways to collect data, sought new ways of financing our work, expanded our research area and attracted a superb new graduate student in conservation biology to build on our genetics work in Fall 2016.

*As we look ahead to our 5th birthday in 2017, and envision our future through 2018, we count on you to continue to support us through documenting your otter sightings on Otter Spotter, volunteering, donations, social media, and the cards and letters you so kindly send us. It may seem like a small thing, but we “stickers,” depend upon the encouragement as well as financial donations from folks interested in our work and otters. After all, that's what community is all about and it's something we humans excel at when we try! THANK YOU for all the ways you work with us.*

Megan Isadore, Founder and Executive Director

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Wishing you an Otterly  
Healthy and Happy  
**2016**



## River Otter Ecology Project Directors

President: Terence Carroll  
Vice President: Barry Deutsch  
Secretary: Ceci Herrmann  
Exec. Director: Megan Isadore  
Education: Christian Naventi  
At large: Craig Nikitas



River otters eat many kinds of fish, shellfish, amphibians, insects and shore birds.  
Photo: Ed Casperson

Terence Carroll is our Data Guru as well as President of our project.

### It's About the Data

Much of our work involves collecting and analyzing data, in the form of photos, video, fecal samples, otter sightings and observations. Between the collection and analysis we categorize, verify, and store the data in a consistent way that allows us to retrieve and understand the information the data represents. We store and catalog more than 4,000 videos and photographs; more than 1,000 scat samples; and many hundreds of records of field surveys, camera placements, and camera checks. We've built databases and systems that allow us to maintain and use what we've collected, and we constantly improve these tools.



Doris Sharrock

Taken together, the data contain a picture of river otter presence and behavior in our study area. In order to see that picture, we study each piece of information to discover what the aggregate can tell us. Videos, for example, tell us generally where and when otters are present. But we also focus on when pups show up at different places year-to-year, family relationships, interactions with other species, and behavior.

Scat contains the individual DNA of an otter. We seek information from specific parts of the DNA that identify which otters have common maternal ancestors, how many males/females there are, where they disperse as young adult otters and population numbers. We are

constructing a finely detailed picture of how river otters live and thrive in the watersheds we share with them. This helps inform how we can best live alongside them in the watersheds that support us all.

### A Nifty New App

In August, funded by a grant from the Onshore Foundation, five field research volunteers began testing a mobile app we created for collecting survey data on river otter habitat features.

We've been collecting this data – the location of latrine sites, wallows, corridors, slides and dens – all along, but the process was cumbersome. In the field, volunteers carried notebooks, pens, and GPS devices. They noted

everything, took pictures with their cell phones, and input the data into spreadsheets when they got home. We use this data to help us understand when, where and how river otters use their habitat. The new, mobile app, works on cell phones or tablets, has its own GPS capability, and allows data input right in the field.

The test went so well that plan to roll it out to the rest this spring. In time, we will collect most of our field data this way. Whenever we can improve our data-gathering functions while improving the experience for our field volunteers, we feel we've won a round!

Terence Carroll, President

## The Year in Accomplishments

### 1. Field Research

We trained and fielded 20 volunteers to survey for otter sign, collect scat and service our remote trail cameras. We increased our research area by 25 km, and added several new sites. Terence Carroll created an app to improve our data collection abilities (see left).

### 2. Getting the Word Out

We were honored to be invited to present at the biennial State of the San Francisco Estuary Conference in Oakland this fall, attended by 800 Federal and State policymakers and agency folks, as well as the environmental, scientific and higher education communities and interested citizens. Please [Click Here](#) for upcoming presentations, and check back often.

### 3. OTTER SPOTTER

With nearly 1500 otter sightings in the past (nearly 4!) years, river otters are certainly back on the Bay Area Map. Please continue to report sightings! This year marks the first sighting in the Santa Cruz mountains. Will river otters return to the West coast of San Mateo and Santa Cruz? If so, we'll be there to encourage and document their return! [Click here](#) to view our Otter Spotter map.

### 4. Education

We welcomed Christian Naventi, a San Rafael high school educator to our Board, to lead our expanding educational efforts (See next page).

### 5. Publication

We published findings from our first two years of research in Northwestern Naturalist, the Journal of the Society for Northwestern Vertebrate Zoology in the March, 2015 issue. The findings detailed were derived from our field cameras and observational records of river otter population, behavior and select health issues. It is available for free download by [clicking here](#).

## Program Updates



Photo: Robin Ellison

### Published!

In Spring 2015, we published findings from our first two years of research in *Northwestern Naturalist*, the journal of the Society for Northwestern Vertebrate Biology. Our findings include:

- River otters, extirpated from the Bay Area for decades, are back in all counties of the Bay Area except San Francisco and San Mateo.
- River otters are breeding successfully around much of the SF Bay and Marin and Sonoma coasts.
- The first-ever census of river otters in Marin County shows about 50 river otters inhabit the stretch of coast from the Golden Gate north into Tomales Bay.
- Car strikes account for the highest mortality discovered through our research.

This matters because:

- River otters are a sentinel species. Their return and continued good health indicate that conservation and restoration efforts around the SF Bay are working.
- Because river otters are a predator species, and may be a top predator in many areas, we need to understand their function in their ecosystem. This is especially important

where conservation efforts are geared toward endangered species.

- Our population studies on river otters provide a basis for determining how their populations are affected by oil spills, and help us with mitigation efforts.

### Genetic Analysis

In Fall 2014, we began genetic analysis of our scat samples. We expect to have results on male/female sex ratios and initial family relationships in late 2016. We're delighted to welcome an additional graduate student, Emily Savage, in Fall 2016 to continue the population demographics work we've begun at San Francisco State University's Genomics & Transcriptomics Analysis Core.

### Education

This year we welcomed Christian Naventi, a high school teacher at Star Academy, as a Director. In partnership with the Las Gallinas Sanitary District, Christian heads up a new educational program we hope will take root and grow, like a fine strong oak tree. Two of Christian's high school classes will monitor a new study site at the Las Gallinas Reclamation Ponds. Just like all our field volunteers, the students will collect non-invasive camera trap data on river otters at the ponds, observe and document behavior, social interactions, family groupings and reproductive success. They will collect scat for genetic analysis. The students will learn hands-on science methods, teamwork and communication skills. They will materially contribute to our project by expanding our study area to the San Francisco Bay. Expect an update on this project early in the year!

Liz Williams, our super environmental educator, led curriculum development and piloting for our fabric watershed mural, which we use to teach watershed basics and relationships to children. The children love making felt pieces and placing them on the mural. They learn that each element in a watershed affects every other element, and the importance of being good watershed stewards. This year we will seek grants and an intern to help us expand curriculum and get the watershed lesson out into more classrooms.

**[Donate Now!](#)**



Photo: Terence Carroll

Citizen Science drives our research and education! Thank you to our terrific volunteers, directors and advisors. You are the River Otter Ecology Project.



## What brings our field volunteers back year after year?

### Hilary Maag

Being in the field, checking one particular area time and again gives one a new appreciation for the space, the way the animals - all of them, not just the otters - use their environment over time and seasons. You begin to see the subtlest of changes, things you would never think to look for if you were just passing through.

### Karen James

I love field work as it is a journey into a different world. There is a story behind everything you see, smell and hear. When doing field work you realize how much life is out there, and how interconnected it really is.

### Pete Barto

Field work has allowed me to build on the tracking methods I learned through my UC Cal Naturalist certification program, as well as the opportunity to enjoy these most excellent local wild spaces we are so fortunate to live within. I've learned so much about local species and the year-round natural rhythms of the Marin watershed. I am honored to be a witness to the return of the North American River Otter to the SF Bay Area!

### Marjorie Cox

As a field volunteer for River Otter Ecology Project, not only am I gaining valuable hands on experience, but I get the opportunity to be awed by the otter. Many surveys are checking cameras and collecting scat, but when you actually get to witness the elusive otter, it's magical!

### Dave Mackenzie

Performing field work on River Otters not only has given me much insight into this fascinating creature, but into a whole

ecosystem in my backyard. Bobcats, coyotes, raccoons, turkeys, deer and even more critters share the same watershed, the same latrines and scent spots, and give great snapshots into all of their lives on the trailcams!

### Julie Litwin

I love being outdoors and looking for clues as to what the otters have been up to. It is a great privilege to get glimpses of their interactions and lives in person or on video. It is also wonderful to compare notes with and learn from the incomparable Megan and fellow volunteers.

### Robert DeLeo

Field work is a new experience for me and has deepened my appreciation for the resilience of all creatures in the natural world and how stewardship seems to be the central theme in the pattern of their lives and their relationship to life around them. Otter families and their fellow travelers in the wild teach us the real meaning of preservation, harmony and balance.

## Special Thanks

### Advisors

Sharon Barnett  
Bob DeLeo  
Nancy Jean  
Mary Ellen King  
Mia Monroe  
Dave Schatzki  
Lori Wynn

### Science Advisors

Dr. Sarah Allen  
Dr. Frank Cipriano  
Dr. John Kelly  
Dr. Thomas Serfass  
Dr. Brian Simison  
Richard Vacha

### Partners

California State Parks  
Golden Gate National Recreation Area  
Las Gallinas Valley Sanitary District  
Marin County Open Space District  
Marin County Parks  
The Marine Mammal Center  
Marin Municipal Water District  
Muir Woods National Monument  
Point Reyes National Seashore

## Our Supporters Make Our Dreams Come True

### Grants

Curiodyssey Conservation Fund  
Carol and Kent Landsberg Foundation  
Norcross Wildlife Fund  
Onshore Foundation  
Rose Foundation for the Community and Environment  
San Francisco Zoo Conservation Fund

### In-Kind Supporters

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Tomales Bay Sailing Adventures  
David Tomb  
The Tree Spirit Project  
Worth a Dam

### Legacy

Rich Cimino

### Star of the Watershed

Andy Feifarek  
Yvonne Provaznik and Dave Schatzki

### Ecologist Elect

Cathy Edgett  
Angela Hsu and Ryan Hilles

### Otter Defender

Karin and Steven Chase  
Barbara and Barry Deutsch  
Richard Ferris  
Virginia Fifield  
Julie Litwin  
Petra Nelson  
The Schneider Foundation  
Diane Valenti  
Julie McDade Whyte and Malcolm Whyte

### Bioluminescence

Jim Carroll  
Peggy Duly  
Nicole Duplaix  
Janet and Tony Isadore-Barreca  
Katherine and Bridger Mitchell

Geoffrey Nelson  
Debra and Ed Pentaleri  
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Rusty Scalf  
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David Watts  
David Weinsoff

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Peter Meyer  
Margaret O'Brien and Chris Boyd  
Carlos Porrata  
Judith Rousseau  
Maggie Rufo  
Alan Tabor  
Jessica Watters

### Donate Now!

## Volunteers

Jordan Arce  
Robert Aston  
Peter Barto  
Hannah Bishop  
Moser  
Collin Bode  
Terence Carroll

Brenden Collett-  
Grether  
Marjorie Cox  
Robert DeLeo  
Barry Deutsch  
Andrea Dougall  
Stefan Gracik  
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Kruijssen  
Julie Litwin

Hilary Maag  
Dave Mackenzie  
Christian Naventi  
Emily Savage  
Suzanne Whitney  
Liz Williams  
Lori Wynn  
Sofia Zieminski

## Photographers

Joshua Asel  
Lee Aurich  
Ian Austin  
Anthony Brewer  
Ed Casperson

Terence Carroll  
Brenden Collett-Grether  
Daniel Dietrich  
Robin Ellison  
Paul Grammens  
Karen James

Jouko van der Kruijssen  
Carlos Porrata  
Cheryl Reynolds  
Tom Reynolds  
Doris Sharrock

## What does your donation mean to us?

We aren't part of a university, nor part of any state, federal or local department and we don't receive state or federal funding. We are completely independent. On one hand, that allows us to choose and tackle the issues we care most deeply about: conservation and restoration of watersheds to ensure a thriving future for river otters, and resilience in the face of environmental challenges. Our research is driven by scientific goals. Our education is driven by demonstrated need.

On the other hand, we must raise every penny of our operating and program costs on our own. Everything from computer data storage to the little bags we use to collect otter

scat, to laboratory costs for otter tissue analysis comes from either grants or donations. We run a tight ship, with only one part-time paid position, and manage to accomplish a great deal. We depend upon your generosity and partnership to help us raise the money we need for the programs you've read about in this newsletter.

Please [click here](#) to discover why our staunch supporters continue to support our programs, as well as specific support levels that cover specific items. We hope you'll consider us in your year-end giving. If you're able to increase your donation this year, we promise to increase our effectiveness in return, and keep you apprised of our progress!



[Donate Now!](#)

Photo: Carlos Porrata

## Cool Facts About North American River Otters



Blood has fast clotting time and many thrombocytes, which enable clotting under water.

Eyes are directed forward for binocular vision.

Thick vibrissae (whiskers) help otters find prey in murky waters.

GI transit time for a fish meal is between 2 and 4 hours.

Forelimbs are highly mobile because river otters lack a clavicle.

The only non-meat item river otters have been reported to eat in the wild is blueberries.....good choice!

Photo Paul Grammens