

# Tideline



Antioch Dunes / Don Edwards / Ellicott Slough / Farallon Island / Marin Islands / Salinas River / San Pablo Bay

## Momentous Discovery!

By Ariel Ambruster and Steve Martarano

The South Bay Salt Pond Restoration Project set out 12 years ago with an ambitious plan to bring wetlands and their endangered inhabitants back to the San Francisco Bay.

An estimated 85 percent of the historic tidal marshes in the San Francisco Bay-Delta Estuary had been filled or significantly altered over the past two centuries for urban development, agriculture, and salt production. In March 2003, 15,100 acres of South Bay salt ponds were acquired, making the South Bay Salt Pond Restoration Project one of the largest tidal wetland restoration projects on the west coast.

Project managers had expected it would take several years for former industrial salt ponds to develop into a salt marsh that would attract the scarce wildlife. So in July 2015, we were surprised and elated when biologists discovered, for the first time, not only endangered salt marsh harvest mice at our first restored lands, but also a breeding pair of endangered Ridgway's rails (known until recently as California clapper rails). These species are just two of the many sensitive wildlife species the restoration project is aimed at supporting.

"We always anticipated the return of endangered species into these restored marshes. It's part of the reason we are undertaking this work," says John Bourgeois of the California State Coastal Conservancy, project leader for the South Bay Salt Pond Restoration Project. "However, the speed at which the habitat and wildlife is recovering



*The salt marsh harvest mouse is one of the endangered species the South Bay Salt Pond Restoration Project is restoring habitat for. Photo: Scott Whitman*

has been very surprising, even to those of us that do this for a living."

The discoveries were at the Don Edwards San Francisco Bay National Wildlife Refuge's pond A21, in the Coyote Creek delta between Milpitas and San Jose. Project partners had breached the levees of this and former salt pond A20, known collectively as the Island Ponds, in 2006 – it was our first major step to restore salt marsh.

The South Bay Salt Pond Restoration Project is a collaborative undertaking by the Don Edwards Refuge, the Coastal Conservancy, the California Department of

Fish and Wildlife, the Santa Clara Valley Water District and many others. The goal: to restore 15,100 acres of ponds, previously used by Cargill to make salt, and to maximize their benefit to wildlife while providing for wildlife-oriented recreation and maintenance of flood protection.

In those early years, managers focused most of their attention on changing water management in the ponds to support water birds. But the Don Edwards Refuge, in partnership with the Santa Clara Valley Water District, also took steps to bring back salt marsh, sending in steam shovels in 2006

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to rip open levees at the Island Ponds. That work, funded by the Water District, brought San Francisco Bay tides rushing into the formerly isolated pond waters.

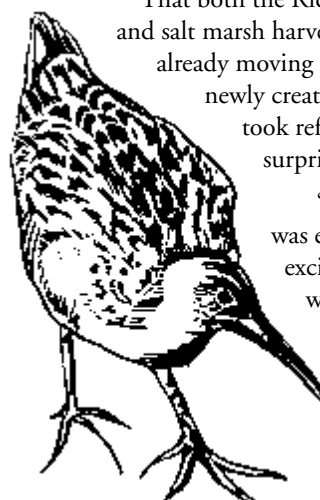
Those Bay tides carried silt, mud and other sediment that layered the pond bottoms. Over the years, enough mud accumulated to support the growth of pickleweed seedlings. In recent years, the stands of salty plants have thrived, becoming thick and extensive enough to shelter and hide furtive creatures such as mice and rails.

Although a breeding Ridgway's rail pair was discovered in July, it was not the first sighting of this species in the area. That happened a little more than year ago, when an employee with the Coastal Conservancy's Invasive Spartina Project noted the presence of a rail. It was thought that the single rail may have been a transient.

Then, in July of this year, Don Edwards Refuge biologists heard a rail mating call – indicating that a breeding pair have claimed the marsh as their home. Three days later they had trapped their first Island Ponds salt marsh harvest mice.

That both the Ridgway's rail and salt marsh harvest mice are already moving into the newly created habitat took refuge staff by surprise. "Everyone was extremely excited; it was well above our expectations for how quickly this would happen, being less than 10 years since the area was breached," said refuge wildlife biologist Rachel Tertés, who heads up the survey efforts for the refuge. "This shows that we're accomplishing what we're trying to accomplish, that if we provide habitat, the species will come."

At the time the restoration was implemented, restoration experts estimated that it would take 15 to 20 years before the habitat would be sufficiently developed to



Pond A21 in 2006 and 2014. Photo: Cris Benton

support the target endangered species. And even once the habitat is established, there is no guarantee in nature that the wildlife will show up on cue.

After setting more than 100 live-traps over three nights, biologists caught four salt marsh harvest mice during those first 2015 surveys. Biologists caught a total of 63 unique small mammals at A21, including salt marsh harvest mice, Western harvest mice, deer mice and house mice. Refuge biologists had not found any mammals at the pond before the breach, only waterfowl and shorebirds.

Tertés estimates there are at least the two Ridgway's rails on A21, and possibly more. The refuge has surveyed the pond during breeding season since 2012, but it wasn't until last summer that detection occurred, even though proper habitat and vegetation were in place.

"We were also pleasantly surprised to find deer mice during the recent surveys," Tertés said. "Though deer mice aren't rare, it was exciting for us to find a new species we generally don't catch during our small mammal trapping efforts."

Project researchers from University of California at Davis have also found a listed fish species at the site: longfin smelt – listed as threatened by the State of California and as candidate for protection by the U.S. Fish & Wildlife Service.

What is so important about a secretive mouse and bird that skulk under bushes, out of public view? One of the key goals

of the restoration is to bring back healthy populations of animals on the brink of extinction. The salt marsh harvest mouse exists nowhere else in the world aside from the edges of the San Francisco, San Pablo and Suisun bays. The rail is a sensitive indicator species of tidal wetland health. The salt marsh harvest mouse and rail are major inhabitants of the small strips of salt marsh that remain here and there around the Bay, remnants of about 15 percent of the wetlands that once surrounded the Bay's open waters.

The presence of these animals is an indication that the restored salt marsh is beginning to function well. These marshes provide many benefits beyond shelter for small animals. They cushion the shorelines from storm tides – a task that will be all the more important if climate change and sea level rise bring higher and more frequent storm surges. In addition, marshes cleanse the stormwater that drains from the uplands, filtering out pollutants. As more uplands around the Bay are paved, more stormwater pours directly down to creeks and culverts and into the Bay, carrying greater levels of pollutants. The cleansing work of marshes can therefore become increasingly important.

These types of services were overlooked in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries when most salt marsh was diked, drained and paved to create buildable land and industrial salt production ponds. Now, the Restoration Project is trying to restore those services.

The Island Ponds were 480 out of

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about 3,000 acres of salt ponds opened to the Bay during the first phase of the restoration. During that time, the project also improved 477 acres of ponds and their islands to benefit shorebirds and water birds that use them for feeding, resting and nesting.

In the next phases of work, restoration managers are looking at launching salt marsh creation on about 3,000 more acres over the next decade on the refuge and nearby state-owned property. Managers hope to jumpstart salt marsh creation, so the wetlands can establish themselves ahead of sea level rise. If wetlands can establish, there is a greater likelihood that the marshes can grow fast enough to stay ahead of rising tides, which would otherwise erode or overflow young marshlands.

Restoration managers also plan in the next phase to begin laying down fill to create gently sloping transitional lands so

mice, rails and other wildlife have routes to escape high tides and storms. A partnership with the U.S. Army Corps of Engineers, called the South San Francisco Bay Shoreline Study, if authorized and funded by Congress, would also add 3,000 acres of wetlands restoration along with levees to protect the San Jose area around Alviso. Currently, around the Bay, salt marsh generally rests against concrete barriers that protect urban areas. These sharp edges leave no refuge for marsh critters.

Efforts along the South Bay shoreline are being duplicated elsewhere, such as in the North Bay at the Cullinan Ranch restoration in the San Pablo Bay National Wildlife Refuge, the Napa wetlands restoration south of the City of Napa, and at the Hamilton restoration near Novato in Marin County.

Bourgeois acknowledges that this restoration is part of a larger regional effort.

“With more wetland restoration projects happening each year, we are definitely on the path toward a healthier San Francisco Bay.”

See *San Jose Mercury News* coverage of the discoveries at <http://bayareanews/1QbQ6Du>

To view 2006 news clips of earthmovers tearing the edge of Pond A21 open, go to <http://www.southbayrestoration.org/videoaudio/> and scroll down to the bottom, under the heading March 2006 Media Clips. You can choose a Quicktime or Windows Media format to watch the video.

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## A Roadmap for Wetlands

By the time this issue goes to print, you will hopefully have seen the new report, *The Baylands and Climate Change: What We Can Do*, released by the California State Coastal Conservancy. This notable report is an update to the 1999 *Baylands Ecosystem Habitat Goals* that set comprehensive targets for protecting 100,000 acres of the San Francisco Bay estuary. Produced by a multi-disciplinary team of 200 scientists and government experts (including refuge staff) on ecological restoration, climate change, watershed systems and urban engineering, the new report synthesizes the latest science and incorporates projected changes through the year 2100 to generate new recommendations for achieving healthy baylands ecosystems.

The Baylands report confronts the threat of climate change, including rising seas, extreme weather events, lowland flooding, and drought, all of which are already altering the baylands ecosystems. In addition to the rich mosaic of wildlife habitat and open space that ring the Bay, critical urban infrastructure - highways, airports, utility services, pipelines, water treatment plants - are located near the Bay's edge and are threatened by rising tides as well.

The take-home message of the Baylands report is clear - if we act quickly, we can save over 80% of our existing wetlands over the

next hundred years. The solution is to work with nature, not against it, by restoring more wetlands. Instead of relying on expensive concrete seawalls and hardened levees, the report highlights the broad consensus that wetlands provide a sustainable and resilient buffer against storms and rising seas. Wetlands knock down large waves, absorb excess water during floods, filter pollutants, as well as sustain fisheries, give sanctuary to wildlife, and provide open space for people to fish, hunt, hike, bike, and enjoy nature.

The Baylands report is a roadmap for decision-makers, communities, and land managers to guide wetlands restoration and watershed management for decades to come, and it will inform our own restoration efforts on the San Francisco Bay National Wildlife Refuge Complex. Whether you live, work, or play on the Bay, you will find information in the report about your area of interest. It has recommendations for action for the whole region, its major subregions - South Bay, Central Bay, North Bay, and Suisun Bay - and local shorelines. For more information and to review the report, visit [www.baylandsgoals.org](http://www.baylandsgoals.org).



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In Memoriam: On October 1, 2015, the Bay Area lost a conservation champion with the passing of former Congressman Don Edwards at the age of 100. In addition to his advocacy for civil and constitutional rights during his three decades in Congress, he was also passionate about the environment. Edwards wrote the legislation that established the San Francisco Bay National Wildlife Refuge in 1972, which was later renamed in his honor in 1995. On behalf of the U.S. Fish and Wildlife Service, I would like to extend our condolences to the Edwards family and express our deep gratitude for his legacy that will live on as part of the National Wildlife Refuge System.

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