

THE SAN FRANCISCO BAY JOINT VENTURE
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VISITING DON EDWARDS NATIONAL WILDLIFE REFUGE in ALVISO

We are excited to offer guided audio tours of some of the most beautiful locations accessible for travelers, commuters and anyone driving near or around SF Bay. This is our way of letting you know about our partners and their efforts to protect and restore thousands of acres of wetlands in the nine counties surrounding the Bay.

For now our tours take you to four 'learn and listen' locations in the South Bay where you'll find the largest urban wildlife refuge in the US. We also have a tour that is timed for listening while you drive in either direction along Highway 37 in the North Bay which traverses 40,000 acres of both privately and publicly owned protected lands.

Directions to the Refuge can be found on our website at www.yourwetlands.org.

LOCATION ONE

Jerry Kay: Hi, I'm Jerry Kay, and this is the San Francisco Bay Joint Venture Don Edwards Alviso audio tour of the South Bay. When you arrive at the environmental education center in Alviso, we want you to find the bench at the North End of the parking lot. Our guide for this audio tour is Steve Ritchie, Executive Project Manager for the South Bay Salt Pond Project. (at the time of the interview fall 2009)

After we complete this orientation with Steve, our second stop is a short, handicap-accessible stroll along the boardwalk and out into the marsh to learn more about the plants and wildlife here, as well as some of the important habitat values of this changing landscape.

Steve, we want to thank you very much for being our guide. And to orient our listeners again, we're sitting on a bench between buildings at the North End of the parking lot. Steve, what are we seeing right here in front of us?

Steve Ritchie: We're kind of looking out of what we call the backdoor of the refuge out to New Chicago Marsh, which is a sort of a quasi-tidal marsh that is part of the refuge here. And it looks like a tidal wetland with pickleweed and some cord grass; it's good habitat for Salt Marsh Harvest Mouse, but it's kind of an artificial marsh, because the tide can come in here, but it can't get out. And the reason it can't get out is because the ground surface has sunk down here so much for reasons having nothing to do with the refuge.

When Silicon Valley was just farmland and orchards back in the 20s, 30s and 40s, the ground water was extracted heavily for irrigation of those orchards. And that pumping out of the ground water caused the land surface to drop here. So what we're looking at is actually below sea level. But we do artificially maintain it as a tidally influenced marsh, because we have so little of that tidal marsh left.

Jerry Kay: So, we're seeing here some boardwalks, and we see some water, some ponds. The water in those ponds comes from where?

Steve Ritchie: The water in those ponds comes from water that's brought in through a channel on the tide, and also from rainwater that accumulates here, because it is a low spot. In fact, those ponds will just dry out over the summer. In winter, if you get really heavy rains, they actually have to bring in a pump to pump the water out, in case there gets to be too much water in here.

So, what you see out in those ponds actually is a lot of birdlife, there are a lot of invertebrates out there. They get pretty salty, but right now, there are a lot of Avocets and Stilts and other shorebirds out there. The boardwalk runs out through New Chicago Marsh, so you can actually stroll out through it and see it up-close-and-personal without really intruding on it.

Jerry Kay: Let's give people some benchmarks here; as we look west, I can see a large green -- looks like a hangar, what is that?

Steve Ritchie: That's the hangar at Moffett Field, so yeah, as you look off to the west, you can see the Moffett Field hangars. In fact, the dirigible, I guess is the best word for it, is pulling in there right now and getting ready to land. If you look off that way also, you see the hills that are the Sunnyvale landfills, the old Sunnyvale landfills out there. And on a clear day, it's kind of clear; you can see Hoover Tower I think off in the distance there at Stanford. And then just looking around, you can start to see some of the salt ponds and to the northwest there, the Dumbarton Bridge Height in the distance behind the power lines. You see a lot of birds moving through right now too.

And then Coyote Hills off to the northwest as well. And then almost due north, there is another landfill that's an active landfill and that's where a lot of California Gulls feed during the day. And they're one of the species that are kind of a nuisance here in the restoration area. So, we're quite concerned about the Gull populations being artificially kept up by all the garbage dumps that are here.

Jerry Kay: You mentioned where we are is basically subsided; it's below sea level. But as I look north and a bit east, I see a pond that is a bit higher. Could you describe that for us?

Steve Ritchie: Sure. The pond that's a bit higher is one of the salt ponds that was purchased as part of the Restoration Acquisition in 2003. Those salt pond levies are piled up mud that (inaudible) used to put in place to keep the pond separate from the surrounding landscape. After they brought in Bay water, they wanted to start to operate it, of course, they didn't want to let it drain out into the community.

So, they kept those pond levies up; so those levies have stayed higher while the ground level had sunk behind it. So, the ponds, in many cases, are actually elevated above the surrounding landscape.

Oh, and look. There off in the distance is one of our friends. That looks like the Capital Corridor. There's a rail line that runs north-south, right through the refuge here, I can even

hear it off in the distance there. Two commuter lines run on that rail line; one's the Altamont Commuter Express and one is the Capital Corridor. And they run through here, oh god, 20-30 times a day. So, they're kind of an intrusion, on the other hand that's part of what we've got in an urban area like this. That's a vital rail link. And in fact, we've had discussions with the ACE folks and the Capital Corridor folks that is a single-line track, that doesn't work as well as it should for them. So, they'd like to multi-track that.

So, sometime in the future, I think we'll be looking at how to put in an additional track there, but as a trade-off, actually build it up on a trestle so that it doesn't intrude on the wildlife in the marsh.

Jerry Kay: Give us a sense of how this landscape changes during the year.

Steve Ritchie: It looks as green as it's going to get right now; it's green with actually fairly widespread areas of water here. It's April, we've some rains and so they're starting to dry out in some spots, so little patches of mud are starting to appear. Places where burrowing animals might start to show up. But right now, there's a lot of wading birds out there, shore birds that are wading out, feeding on the invertebrates they find in those ponds.

As it gets into summer, those ponds will dry out more. The refuge folks may then try to introduce a little more saltwater in through the tidal channel. It's interesting though, there's a little channel that feeds this area through a little gated culvert, but that channel has been choked by vegetation, so they're trying to come up with other ways to feed water in here. Because they don't want it to get too dry, they'd like to have some water in here. But when you get into winter then though, if you get too much rain here, it actually starts to flood and actually becomes a problem for the salt marsh harvest mouse, they don't swim, so they could drown if there gets to be too much water in here.

It absolutely means different biota, that different times of the year. In the late fall when water fowls start to migrate through, they'll look for these ponded areas to utilize for habitat and to rest in. They won't go into the marsh, per say,

but they'll utilize the ponded areas. When there's less ponded water, those species move on and they're on their way up to Canada. Again, when there's water here that's shallow, shorebirds will wade in. Many of those are migratory as well, and they love this place to hang out feed. And I hope you've enjoyed this overview at the refuge at Alviso. Our next location is a walk along the boardwalk where we actually walk into a wetland habitat.

BOARDWALK STROLL - LOCATION TWO

Jerry Kay: Thank you for continuing to join us on our San Francisco Bay Joint Venture Don Edwards Alviso Audio Tour. This next part is actually not one specific spot, but a walk into the wetland habitat. We begin at the New Chicago Marsh, Mallard and Alviso Slough Trail sign at the beginning of the boardwalk. The trail is only about 300 yards, and it's ADA accessible. The audio lasts about 10 minutes, so depending on your pace, feel free to pause the recording at anytime along the way. Again, here's Steve Ritchie.

Steve Ritchie: Right before us, the boardwalk unfolds walking out through the marsh and around over to pond A-16. This walk is 300 yards, maybe, and it's got a nice ramp, so it is ADA accessible. It's got a little border on the edge as well to make sure that somebody doesn't accidentally step off into the marsh. Not that people would do that, but it does happen from time to time. This is easy to get to, and it's easy to actually get out and see nature like you can't see it anywhere else.

Jerry Kay: Now, we're walking along this boardwalk and I'm seeing grass.

Steve Ritchie: Well, the majority of what we see here is pickleweed, it's kind of a chubby-looking little stems there that look kind of pickle-ish. And those are good habitat for the Salt Marsh Harvest Mouse, that's their favorite kind of habitat. There are also brass buttons in there as well, which are another typical marsh plant like this. But it really is dominated by pickleweed, and like I said, this area is artificially maintained with water coming in the tide that can't really get out.

We're going to try to create tidal marsh other places that pickle weed like this will be naturally maintained by the tide. But here, you have to bring it in and you let it evaporate or pump it out. But the result is you get a lot of pickleweed.

Jerry Kay: And it looks like a terrific habitat for a mouse; they can scurry about, a lot of protection, a lot of cover.

Steve Ritchie: The target species is the Salt Marsh Harvest Mouse, because it's endangered. And so, we have so little Salt Marsh Harvest Mouse habitat left, we have to work really hard to maintain some patches like this. Once we've really gotten through most of this restoration and have wide swaths of this out there that are really naturally functioning, we may actually choose to do something different with this area here. But for right now, preserving the Salt Marsh Harvest Mouse is kind of its most important characteristic.

Jerry Kay: We're seeing water here; is there something about the color of the water that we should be aware of?

Steve Ritchie: The color of the water is driven by the algae that grows within it, which is a factor of how salty the water is, how long it stood in one spot. This looks like slough channel; water doesn't really flow back and forth too much out here, it just resides in these channels like this that are historic channels. But that color means there's lots of life there. There's a lot of plant life there and that's part of the characteristic of the marsh.

There are a couple of Geese resting over there, Avocets and Stilts ... there are goose flying by, they're noisy around here. The birds with the long beaks and long legs, they will wade to these shallow waters and they'll feed on the invertebrates that are on the bottom; the worms and other bugs that are down there, they're quite happy to be here.

Jerry Kay: And they're letting us be here as if we're part of the landscape as well. This is just an incredible vantage point.

Steve Ritchie: Yeah. One of the things that we worry about in the refuge and in the restoration project is how humans and wildlife are going to interact. And we have to be careful about how we structure things so that we have public access facilities that kind of go by wildlife areas instead of intrude directly into them, and aim at them in a threatening way. We've seen studies over time, well, we'll be doing more studies to find out how wildlife uses the habitat and then how they react to human intrusions. And so we may end up changing trails that we thought were good ideas at one point, but maybe it's better if we back it off a little bit, so that the wildlife have room.

Jerry Kay: I love the bird tracks that you see here.

Steve Ritchie: That's right. When you look down in the mud that's around the edge of the boardwalk, anytime you're here, you'll see tracks of different birds that have walked around, they're walking over trying to pick up brine flies or whatever else for lunch. And that area where there's mud and there's interface between the land and the water, that's really biologically productive; that's where the birds like to hang out and feed.

Jerry Kay: Now, we're at a place where the boardwalk meets a road. Is this a levee?

Steve Ritchie: That's right. This is a salt pond levee.

Jerry Kay: Where does this water come from?

Steve Ritchie: The water that's in the pond right in front of us now, this pond A-16, it used to be a salt production pond. And it was one of the ponds that was acquired in 2003. And so water is now circulated through this pond locally here, so that it doesn't produce salt anymore. This pond and one that's beyond here that you can't quite see, water circulates through these two ponds together to keep them biologically sound, but water moves through fast enough that it doesn't evaporate and start to make salt.

So, we've gone through a kind of a stabilization phase with a lot of the ponds like this one. And this particular one has a number of islands built in it. You can see one right in front of us and down to the west there's three more. And these are long, narrow islands that were built by the salt company as windbreaks to keep wind fetch from having waves break against the levee and erode the levee too fast.

One of the things though that they found out and we've observed is that these windbreak islands are loved by birds for nesting and roosting. So, when we look at -- what we're going to do with this pond long-term, which is hopefully in about the next four years, we're going to actually construct in this pond 50 islands that are expressly for bird habitat. We want this to be a place that shorebirds will come to. The birds use this incidental to the salt making operation. Well, we want this to be a bird operation.

For the birds, their protection as well as that they're isolated out in the water, so predators can't get out to them. So, islands like this are something that birds love.

Jerry Kay: What do you see when you're looking east here?

Steve Ritchie: Looking kind of easterly from here, the first thing you see is the Newbie Island Landfill. It's a large landfill area down here in the South Bay, it's the garbage dump that's used by San Jose and I believe Milpitas and other nearby cities. And that landfill is a big thing on the landscape. Beyond it, you see the houses that climb up the hillside into the Mission Peak area, which Mission Peak is right out in front of us here. But you see some nature, but you see human activity right here, right next to the refuge. This is the only place in the country where you have a national wildlife refuge nestled in an urban setting like this.

Jerry Kay: What are the options from this particular point that you might recommend to folks?

Steve Ritchie: From this particular point where we're on this east-west levee on A-16 looking north, if you turn to the left and go west, you can start a loop that I believe here lasts about three miles, it goes around these two ponds here and there's even a spot where it crosses over to another set of ponds that has a nine-mile loop around it. So, you can keep walking on levees for a long, long time. If you go to the east, you can just go around and there is another viewing area and a couple of picnic benches, oh about 100 yards from here where you can relax for awhile.

Or, turn back to the south and go back to the Environmental Education Center where the refuge has a number of displays and some native landscape planting. So boy, there are plenty of options here.

Jerry Kay: For those of you who turned right going east, we're still on this pond here. We're looking at a very small, but nonetheless an actual boat ramp. What is this?

Steve Ritchie: This is a boat ramp that was used by two folks; one by the salt company Cargill to have small boats they could use to go out and do a little work on the windbreak levees out there. But more importantly, it was used by brine shrimp fishermen to launch their little crafts to harvest brine shrimp out of the salt ponds, which was done for many years in this area. And they were used in aquarium food.

Jerry Kay: So we're talking here, obviously, natural history but also human history. And this is a little icon of what was going on in this particular area, starting about when? Through what period of time?

Steve Ritchie: The salt ponds really went through a period from the late 19th century up to -- continues to make salt now on a few of the ponds, but their real hay-day was in the 30s, 40s, and 50s. The brine shrimp operations, I think those tended to be in the 40s, 50s, 60s, and into the 70s.

Now that we're down here, you can see one active landfill, another one that is just used for recycling material. You can

see looking off to the northeast there a little bit, pond A-18 that is owned by the city of San Jose. And actually between where we are and pond A-18, there is a channel that is called Artesian Slough; that is the actual discharge from the San Jose/Santa Clara Water Pollution Control Plant, which is basically the waste water treatment plant for a big chunk of northern Santa Clara County. It's a real big impact here in the Bay. From the fresh water, it's very clean water, but it's an artificial point here that we humans have added to the landscape.

Jerry Kay: As we stand here, the dots of birds moving about us, and we can hear them, I hope, a little bit in the background. I'm really spellbound about how much life is here.

Steve Ritchie: Well, there's a tremendous amount of life; you can't stand here without being stunned by the amount of noise that surrounds you. But it's natural noise, it's Egrets, it's Avocets, it's Gulls, Black-necked Stilts, just all kinds of bird life.

Jerry Kay: Wow. We're headed back to the visitor education center, but on our left is another pond. Water looks very different in this pond, what is going on here?

Steve Ritchie: It's actually not even a pond; it is basically a channel with a little backwater area here and there that is the wastewater discharge from the San Jose/Santa Clara Water Pollution Control Plant where they have provided advanced wastewater treatment or what we used to call tertiary treatment to wastewater from Northern Santa Clara County and they discharged it out through a channel to Coyote Creek. This is the biggest wastewater treatment plant and discharge in the Bay Area, because it serves most of Santa Clara County. But it makes a really different environment here, because it's much fresher water, so we see lots of reeds here, again, you see lots of birdlife out there, lots of fish are in those waters, so it's really a very active ecosystem by itself. It's one that's, of course, because it's treated wastewater, it's a real interface between humans and the natural environment, but that's what all of this is, is really an interface between humans and the natural environment.

Jerry Kay: This concludes our audio tour of the Don Edwards National Wildlife Refuge at the Alviso Environmental Education Center. We offer more tours of the Bay, both north and south, as well as other audio programs on our website yourwetlands.org. The Alviso Environmental Education Center and gates are open to the public from 10:00 to 5:00 on Saturday and Sunday, and from 9:00 to 3:00 Monday through Friday. You can park outside the gate and walk in at other times to enjoy this tour and the boardwalk trail.

We'd like to thank our tour guide, Steve Ritchie and Cargill for their financial support of this project. I'm Jerry --

ADAPTIVE MANAGEMENT

Jerry Kay: There's a term that I've heard used with respect to wetland restoration. And that is adaptive management. What does that mean in this context?

Steve Ritchie: Adaptive management means that you need to learn from what your management activities are. In a case like this where it's a subsided area, water only gets in when you let it in, and it only gets out when you take it out. Except for rainwater. So that control of the water level is something that is totally within our power, so we as managers have to understand what happens when we raise or lower the water level. And we have to observe what happens so that for the next time we've learned from the past series of events.

So, adaptive management is really a learning process of how nature responds to what we do as interveners.