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VISITING MUIR BEACH
THE REDWOOD CREEK RESTORATION PROJECT: 2009 - …

Our newest addition to a series of audio 'stop, listen and learn' tours that surround the Bay, is this one at Muir Beach, one of California's most beautiful National Parks and the site of a long-term restoration project of Redwood Creek.

Directions to Muir Beach and the Redwood Creek Restoration project can be found at **http://www.yourwetlands.org/audio_tours.php.**

This interview was recorded in February of 2010 with our host, Jerry Kay.

RESTORING REDWOOD CREEK AT MUIR BEACH

Jerry You've probably heard of, or maybe visited, the Muir Woods National Monument which is located in Southern Marin County. Well, just down the road from Muir Woods is another amazing jewel—Muir Beach. And that is the site of an exciting restoration project. This *is* "your wetlands."

Carolyn You know, this is a national park and I think a lot of people who come here don't really know that Muir Beach is part of a national park.

Jerry Carolyn Shoulders is the project manager for the Redwood Creek Restoration at Muir Beach. The National Park Service is also partnering with the nonprofit Golden Gate National Park Conservancy.

Carolyn Until now, people would arrive at the parking lot. It was lined with non-native trees. You couldn't see the beach. You didn't have an experience of a full landscape. You felt fairly enclosed. And the parking lot itself is rather ugly. And you kind of find your way to a little bridge, knowing that the beach is over there somewhere.

Jerry For many years, people who have visited Muir Beach, people who live near it and certainly, the National Park Service have recognized that Muir Beach is connected to a much larger landscape. And connecting the elements of that landscape together is part of the objectives of the Redwood Creek Restoration.

Carolyn And with all the plans that we have right now, once they're completed, a visitor is going to arrive at the parking lot and finally experience, really for the first time, this whole wetland system that's connected to the creek and the dunes and the tidal lagoon and the beach and the ocean, and how all that is integrated. It's going to be really beautiful.

You're going to walk over a long boardwalk from the parking lot, over the creek and then out through the dunes to get to the beach. And I think that it'll be a really expanded experience.

Jerry And in many ways, Carolyn says this will be a transformative experience.

Carolyn All the science of restoration really comes together in this kind of project—what we can do, at this point in time, what geomorphologists know and fish biologists know and the frog and the wetland ecologists and the engineers, you know, what we can do with modeling flows to understand how to make it natural, where the parking lot needs to be and where it shouldn't be, even understanding what makes a pleasurable visitor experience. There's so much that comes together. It gives people something that we really need at this point in time.

There's something that speaks to a deep need that we all have when we restore something in a way where it will have the integrity it's capable of having.

And in the end, that's what this is about. It's hydrological integrity. The plant composition has integrity. The species have the habitat that they need. It's just natural.

What I really like about doing restoration is that it almost looks like you didn't do anything. It's deceptive almost as soon as you see a natural contour emerge before your eyes. You'll scrape away earth that was sort of placed there artificially and it just looks natural. And you can hardly even remember the very next day what it looked like. And to me, it's really exciting. But it really just speaks to the fact that there's an integrity to it when it's natural.

Jerry You can certainly visit Muir Beach right now. You can also follow along on this restoration project which is estimated to take about four years. And there are many volunteer opportunities so you can participate directly. We'll be doing several reports on the restoration effort, as well.

We have a link for you on our website, yourwetlands.org.

Thanks to Carolyn Shoulders. I'm Jerry Kay.

EXPANDED TRAILS AND PUBLIC ACCESS

Jerry: Muir Beach is just down the road from Muir Woods National Monument in Southern Marin County. We're filing a number of reports about Muir Beach because it is a beautiful place to visit, but also because the National Park Service—yes, Muir Beach is part of our national park system—is

working to restore the creek, lagoon and surrounding landscape.

In addition to the restoration work, the park service is also working on trails and other opportunities for you to enjoy. So the message here - when you visit Muir Beach, bring your hiking shoes. This is your wetlands.

Carolyn: You can cross the footbridge from the parking lot and if you go to your right, you go to the beach and you'd walk through the dune system. If you turn to your left, it'll take you up to the coastal trail up to the top of the ridge up there and all the way over to Tennessee Valley. It's a beautiful walk and has beautiful views.

Jerry: Carolyn Shoulders is the project manager for the Redwood Creek Restoration at Muir Beach.

Carolyn: You can hike around the perimeter of the wetlands and the Green Gulch Farm. And there's a new trail on the east side over there up to Dias Ridge. And the park service has actually just connected the trail right across from the Pelican Inn so you can hike up that trail and it can be used by bikes. It'll make it possible to actually take your bike from panoramic all the way down here.

Part of our visitor access planning integrates the trail system at Muir Beach with the coastal hills around it and with Muir Woods so that you can come here and then have a really easily identifiable trail system to get to all these other really beautiful places. And you would feel like you're part of a whole integrated landscape.

Jerry: And to make all of these trail connections a reality, the National Park Service is also working with its nonprofit partner, the Golden Gate National Parks Conservancy.

Carolyn: The details are that there's going to be a trail along Pacific Way. It'll be tied into the new bridge and link out to the parking lot. And that will actually link with the new Dias Ridge trail up on the other side. And there'll be a perimeter trail along the outer edge of the pasture that will take you up to the coastal trail.

Jerry: And the coastal trail is an interesting story. It's an old ranch road and it goes straight up the grade. It erodes often and is challenging to navigate so the Redwood Creek Restoration Project will help address these issues.

Carolyn: We plan to use some of the fill from our project here to basically rebuild the natural hillside there and then reroute the trail at a better place on the grade so it won't be so steep and it'll be easier for both bikes and equestrians to use it. *And* it will look better.

So there'll be a loop around the parking lot, easy integration with Dias Ridge, and

the coastal trail access to Tennessee Valley.

Jerry: The Redwood Creek Restoration Project is expected to take about four years. But it's something you might want to stay in touch with. We'll provide links at our website, yourwetlands.org.

Now personally, I hadn't visited Muir Beach in a few years and I found what the Park Service is doing to be absolutely incredible. It is a very special and beautiful place.

The park service will also have a number of opportunities for you to help out. Again, to learn more about the Redwood Creek Restoration Project at Muir Beach, visit our website, yourwetlands.org.

My thanks to Carolyn Shoulders. I'm Jerry Kay.

FREQUENTLY ASKED QUESTIONS:

WHY DOES THIS AREA NEED TO BE RESTORED?

Carolyn: The landscape has been altered for so long over the past hundred years. We just adapted to the image of it which is basically a carry over from an agricultural history and how the landscape was modified. And it was very common. I think it probably still is that if you're going to ranch or farm, you generally need to make sure that the land stays dry enough for your purposes. So it's very common to re-route a drainage, re-route a creek to a place fill where you want it to be placed and basically create the kind of pasturelands that you need, without it being subject to flooding.

Over time, all of that has really contributed to having a dysfunctional creek system that doesn't support Coho salmon and steelhead with the sort of habitat that they most need. And the things that have made it so dysfunctional are actually correctable. We actually can go in and remove a levy. We can allow the creek to move back to its natural location. We actually can scrape off this nonnative grass that has taken over. We can move the parking lot out of the way. We can put in a bigger bridge that won't obstruct the flows and the sediment transport. So it's all basically there to be done. We don't need those land modifications anymore that helped the land support ranching.

Basically, what we most need is a landscape that can adjust to different sizes of hydrological events that can accommodate that. If there's a huge amount of water, there's room for it. It would function naturally. And the fish would be able to move with it naturally. If it's a drier year, it has the kinds of species that would naturally adapt there. And actually, for Coho salmon habitat, one of the ways of thinking about good habitat is that, in fact, it would be very messy-looking. It has a lot of downed wood in there. There are trees. There are trees that have fallen over. It's wooded and complex. The creek system itself is complex with little back channels and fallen wood. It's just going to be more diverse and complex.

We've worked with a panel of really skilled engineers and hydrologists to identify what we think is good alignment for the new channel starting out

and good sinuosity and channel width. But we fully plan to allow the channel to adapt after that. And it will.

HOW LONG WILL THE PROJECT TAKE TO BE COMPLETED?

Carolyn: This project will take a total of probably as much as five years to implement and here's why. We can only do work in the dry months after bird-nesting season is completed and before salmon spawning season begins. So generally, most of our work is going to be done between about August 1st and October 15th or October 30th.

But even more than that, we have to construct this in phases so that the ecological system functions as we implement the phases. So we have to be fairly gradual about that. For instance, one of our permits requires that we build part of the new channel before we connect it at the upstream end. And they want us to make sure that we have good riparian vegetation established on the channel banks before we connect it as the main creek. They want to make sure that there's shade for the fish, that the roots of the trees are actually giving some stability to the creek channel before it becomes functional. So that means we really have to work carefully at how we phase it.

In addition, we're still raising funds for the project. So we are implementing basically also as we have funds and that prolongs it also. We've just completed the first phase of implementation in the fall of 2009. From here, I think that we probably have another four years of implementation.

HOW WILL THE PROJECT HELP COHO SALMON?

Carolyn: This project will help Coho salmon mostly by improving their habitat during the winter. Basically, what it will do is create more of the type of habitat where the little guys, the juvenile salmon who are trying to survive these really high velocities of winter flows, by giving them refuge areas and giving them areas where they can easily escape to more slow-moving water. When we talk about connecting the creek with its floodplain, what that means is that, as the waters gradually rise, a fish can move with it. It can move with the edges of that flow to where it's more slow-moving and they're not getting knocked around. If you have a creek that's highly disconnected from its floodplain, it's containing all the water that's rapidly moving and a fish just is going to get knocked around and won't survive. We'll help them survive that way.

We're also going to have a lot of woody debris. It'll help them actually with a lot of cover in the creek system. In all the analyses of the loss of Coho up and down the California coast and even further north, this is the type of habitat condition that's been lost as creeks are channelized or dammed or rerouted. This is the type of thing that's actually lost. You kind of have to know Coho, which are extremely sensitive, to know that it matters.

Our analyses have shown that we will more than double that type of habitat for juvenile Coho in this lower part of the watershed. And it's

critical in the lower part of the watershed especially. It's where the out migration occurs. The spawners have to move through this area.

We know that salmon are hitting difficult conditions in the ocean. I have personally actually raised the question of whether it still makes sense to be doing the inland terrestrial work to support their habitat if they're just going to encounter such difficult conditions there. And all the fish biologists who are working on this on a regional level will tell you absolutely yes. We need the inland enhancements in the habitat even more. It's so important that they survive inland. If they don't arrive at the ocean as good, fat little salmon, they're never going to survive out there. So we really need to make sure that when they do make it back to spawn, that we've improved their chances of survival in the inland system.

WHY IS THE PARKING LOT BEING CHANGED?

Carolyn: It's really not apparent at all to you when you go to Muir Beach just to go on a walk or take a hike. 'Cause you drive up, you walk from the parking lot and cross a little bridge to get to the beach and there's no apparent problem. You really have to kind of look at it from a landscape view. And when you actually look at it on a map, you can start to get a sense of what's wrong.

The parking lot currently has originally been about 500 feet long, extending across the floodplain. It has left basically about 50 feet, as it was first constructed, for water from the creek to get around it, to move downstream, to get out to the beach. And this is water that's coming from the top of Mount Tamalpais, 8-1/2 square mile watershed. You take this 500 foot long parking lot. It's all fill. It was brought in from a Caltrans landslide where they built up this parking lot three to four feet above the natural elevation of the floodplain and then left 50 feet of width for the creek and its floodplain for all the water to get by, where it needs hundreds of feet of width.

So in essence, the parking lot is kind of a dam. It's had an effect on how the water moves. And it's affected flood elevations. It's had an effect on the creek itself because the creek fills up with sediment. It's had an effect on the channels that fish would use for fish passage. In essence, it's a dysfunctional creek system.

And you don't see it from the parking lot. You don't see all of that. Next to the parking lot, all of that problem is hidden under the willows. The locals know that the flooding on their road has gotten worse since the parking lot was built up. They've actually seen part of the effect of that. But it takes more analysis to really look at how the elevations have changed, how the width is way too small, to look at what would happen if the parking lot weren't here, to really make a strong case that it just can't stay the way that it is.

So whereas right now, when you come up to Muir Beach, you drive into Muir Beach and there's this long parking lot that runs basically north-south, we're going to take it and rotate it so that it runs more or less east-

west right next to the main road. And what that will do is free up and add in like 400 feet of width on the floodplain. And instead of the parking lot occupying the floodplain, you'll walk across a raised boardwalk to get out to the beach. That, of course, will allow flood waters to flow under that area. It allows pedestrians to get out there. It doesn't obstruct the flow conveyance. It doesn't obstruct fish passage. It doesn't obstruct sediment transport. It lets all the natural processes function and we can still have full visitation.