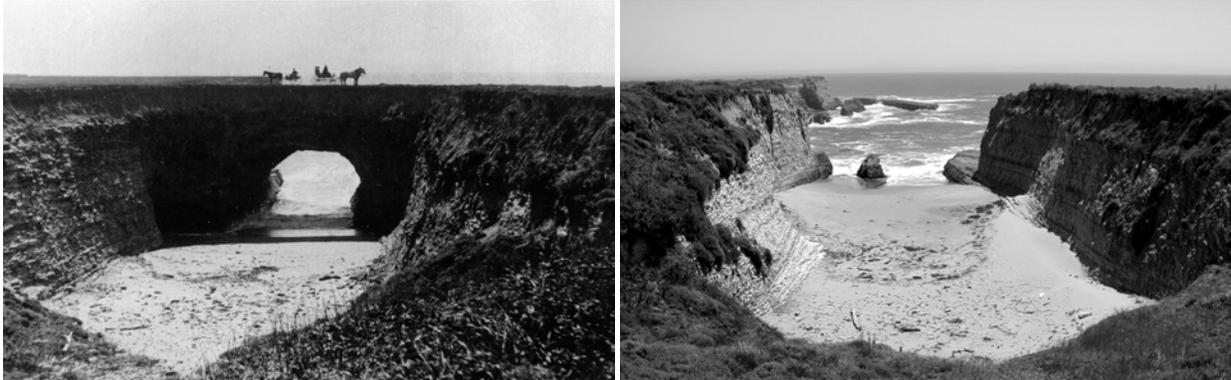


Our Ocean Backyard — *Santa Cruz Sentinel* columns by Gary Griggs, Director, Institute of Marine Sciences, UC Santa Cruz.

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Wilder's Fallen Arch



Natural Bridge at Wilder Ranch about 1900 and in 2008

The coastal trail through Wilder Ranch is a great hike or bike ride, and we're fortunate to have this treasure virtually in our back yard. No matter how crowded Main Beach, Cowells or Natural Bridges may be, you can find solitude out along the cliffs a few miles away, and may see harbor seals hauled out on the rocks, and also a lot of natural history.

A century ago a large natural arch spanned the cove that was the Wilder Ranch dump, and which supplied the beach glass on nearby Fern Grotto Beach I wrote about two weeks ago. This arch was photographed in about 1900 with not one, but two horses and buggies, perched on top of it. This wasn't a delicate arch, but a pretty meaty natural bridge that the buggy drivers clearly had some confidence in.

Based on historic aerial photographs, this grand arch collapsed somewhere between 1928 and 1943. There was also another lower and smaller arch just south of Fern Grotto Beach that survived until around 2000 or so.

Why arches here anyway? If you have looked at any of the old photographs of the coast between the lighthouse and Davenport, or explored many of these beaches, you will have seen a lot of natural bridges, arches, and caves. Natural Bridges State Beach is probably the best known and most visited, but there are and have been

lots of others. Although there is only one bridge left at Natural Bridges today, the name may stick for a long time to come.

The book we did several years ago, *The Santa Cruz Coast-Then and Now*, includes a lot of these old photographs. And a lot of bridges have come and gone over the years. What is needed to create a natural bridge or arch is rock that is strong enough to stand vertically and form cliffs, but which also has internal weaknesses that the waves can selectively erode.

In many cases this may simply be a softer or weaker layer near the base of the cliff, where the waves can attack it often. And you see a lot of undercutting at the base of the cliffs along the Wilder coastal trail, evidence of a weak layer or rock. There are also other sorts of weaknesses in the Santa Cruz Mudstone that makes up the cliffs- joints or fractures are places where the rock is more easily dislodged or removed by wave impact.

There are sandstone intrusions within the mudstone making up the cliffs (which I've written about in earlier articles), and these layers are typically easier to erode and may provide the focus for wave energy to begin to undercut the cliff. Given enough time, and the ocean has plenty of that to spare, over the course of tens or hundreds of year, the cave can be deepened or expanded along a weak zone until some portion of the overlying rock collapses. Sometimes an arch remains, and sometimes it doesn't. The arch may last for decades, as those did at Wilder and Natural Bridges, or only a few years, as was the case of a large arch that formed at the south end of Four-Mile Beach in the 1980s.

A century ago there were arches on either side of Lighthouse Point, one at Bird Rock, the end of Woodrow (the Vue de L'eau) and three at Natural Bridges. Today only one of these remains but there is newer arch at the west end of Its Beach that you can walk through at low tide.