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Bay Foundation hopes plants hold the key for dune restoration



Devon Meyers / TMT

Invasive plants are dug up from sand dunes at Zuma and Westward beaches.

An all-natural scientific project to restore local sand dunes in test areas of Zuma and Westward Beach got started at Zuma last week.

By Jimmy Tallal

Special to The Malibu Times

The Malibu Living Shoreline Project, with The Bay Foundation non-profit as lead agency, aims to restore approximately three acres of dune habitat at Zuma Beach and Westward Beach (agencies call it Point Dume Beach). The theory is that Malibu's sand dunes can be brought back from their current degraded condition sim-

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ply by getting rid of all the non-native invasive plants like ice plants, and replacing them with native dune plants that not only help restore the ecology, but also serve as dune builders.

Larger dunes are seen by scientists as perhaps the most natural way to protect the coast in the future from sea level rise, storms and erosion—preferable to putting up sea walls or rock revetments.

“We’re evaluating the potential of restored dunes to grow, keep pace with sea level rise and protect structures from coastal flooding,” Karina Johnston, science director at the foundation, said in a statement from the foundation earlier this year. “Our intention is to replace the dune system to provide protection without affecting beach activities. It’s a very innovative project.”

The foundation is partnering with the City of Malibu, Los Angeles County Department of Beaches & Harbors, California State Coastal Conservancy and the LA Conservation Corps. The project entered the planning stages in early 2018 and was presented to Malibu City Council on July 23, 2018. In 2019, the foundation obtained a coastal development permit and other approvals, and did baseline monitoring of the test areas.

This December, the implementation phase began at the Zuma Beach test site, adjacent to the Zuma Lagoon. Members of The Bay Foundation were on site with the LA Conservation Corps removing all the non-native plants—mostly ice plants but also Bermuda grass, European sea rocket, carnation spurge and myoporum.

“Ice plants are a non-native plant from South Africa with no ecological benefit,” Watershed Programs Manager Chris Enyart said. “It takes over habitat, creates monocultures, and chokes out native plants.” In addition, ice plants do not collect sand to help build the sand dunes and turn the soil acidic.

The group replaced the non-native plants with native plants—both seeding and planting—“the same vegetation that grew there in the past,” Enyart noted.

“The native plants are adapted to the environment,” he continued. “These dune builders used to grow all along the Southern California coast. They increase topography and are used to being buried in the sand, then growing back out. They build and stabilize the dune; and help trap windblown sand.”

Examples of native dune

plants being used in the project include sand verbena, beach bur, beach saltbush and beach evening primrose.

No additional sand is being brought in and no grading will occur for the project. Ongoing beach grooming by LA County will be confined to areas away from the dunes being restored, which will be delineated with “symbolic fencing.” The new plantings and seeds may be watered for a time until they are established.

The project is considered to be a pilot (or demonstration) project for an alternative means of creating larger dunes and protecting the coast from climate change. However, the project is not the very first of its kind—the concept was initially attempted on a dune restoration in Ventura County, where it appeared to be successful. It was then followed up with a project on a Santa Monica beach that is still ongoing but also considered to be a success.

“So far, the dune in Santa Monica has grown vertically as much as one meter in just a few years,” Enyart remarked. “After Malibu, we also have plans for Living Shoreline Projects on Dockweiler Beach and Manhattan Beach.”

Once the native plants take root, the scientists transition to a long-term monitoring phase, where they’ll do site checks at least quarterly and scientific measurements at least twice a year.

Eventually, there will be signage to help visitors learn about the project and help them connect with nature and dune ecology.

The second location of the Malibu Living Shoreline Project—Westward Beach—will undergo its native plant removal and native plantings beginning on Jan. 11 and is expected to take about two weeks.



Work crews from the Santa Monica-based nonprofit Bay Foundation remove invasive plants from sand dunes in Malibu. The plants will be replaced with native flora, which the environmental group hopes will do a better job of maintaining the protective dunes, which in turn will provide a natural barrier to sea level rise.

Photos by Devon Meyers / TMT