

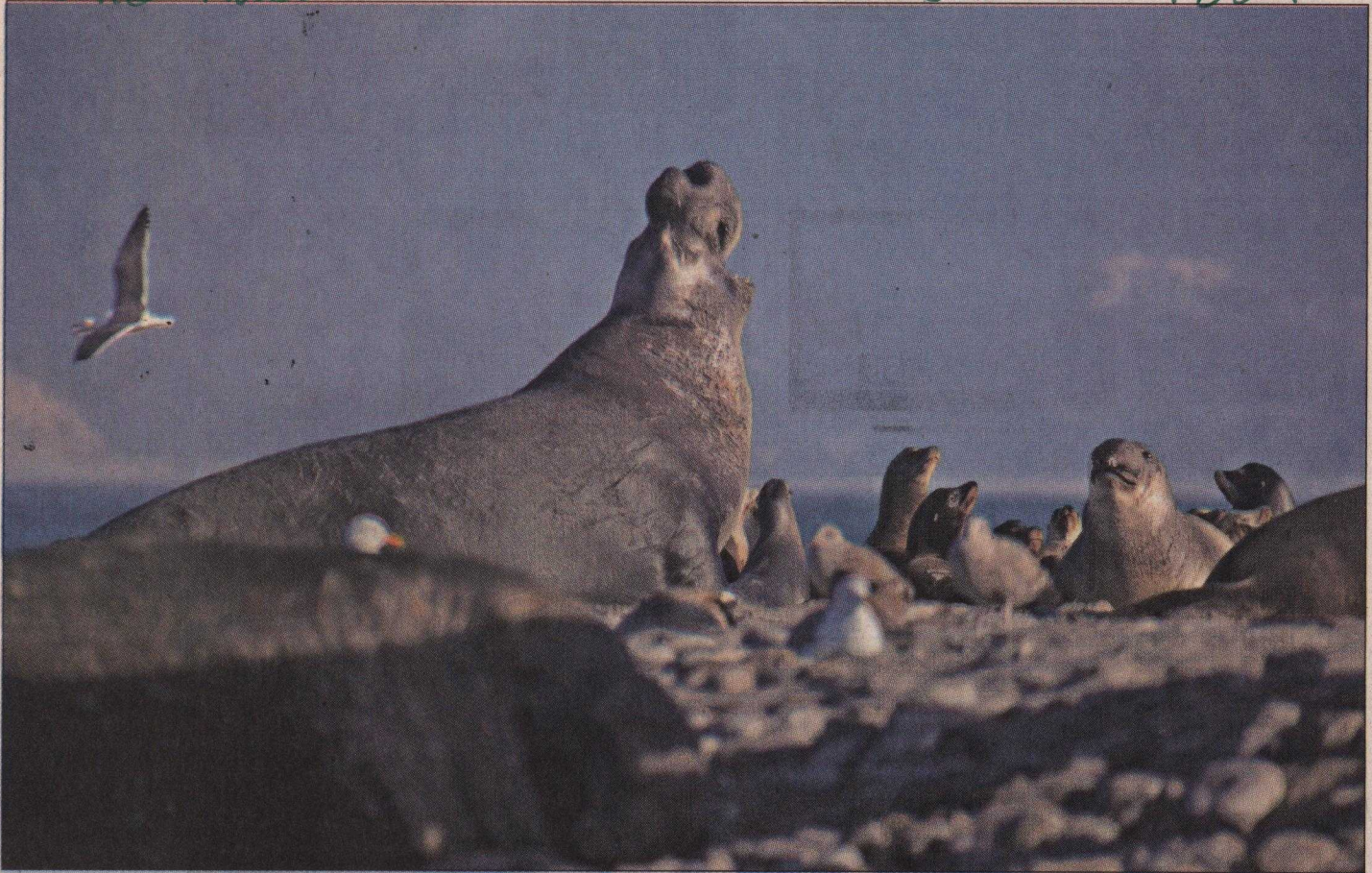
Counting on 'love shacks'

Students help design underground ceramic nests critical for raising seabird chicks

Año Nuevo

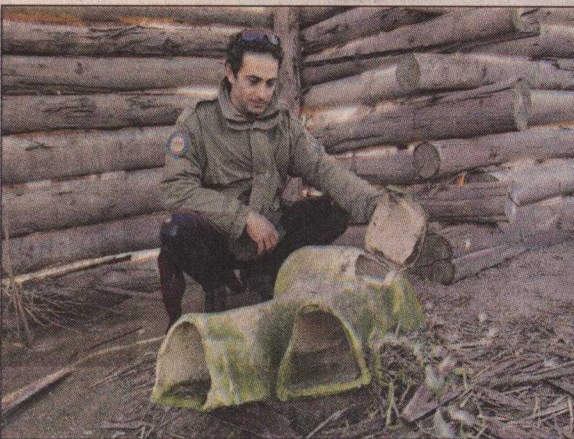
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PATRICK TEHAN/STAFF PHOTOS

Many people visit Año Nuevo State Reserve to see the elephant seals breed, but few notice the tiny island just half a mile offshore.



State Park Ranger Ziad Bawarshi shows a man-made nest for rhinoceros auklet birds on the island.

By Erin Loury
Correspondent

On a tiny, windswept island off the San Mateo County coast, a team of scientists and art designers has engineered a creative solution to give mating seabirds a boost: ceramic "love shacks."

These handcrafted underground nests are one piece of the Año Nuevo Island Restoration Project, a unique collaboration between scientists and artists that hopes to reverse some of the human damage done to the island since the 1800s.

Thousands of people visit Año Nuevo State Reserve at this time of the year to see the elephant seals breed. But most of those visitors barely notice the island half a mile offshore, a wildlife reserve that's been closed to the public for more than half a century. Open only to researchers with permission from State



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See a slideshow featuring Año Nuevo Island wildlife at mercurynews.com.

"It's like the Galapagos of California."

— Ryan Carle, a biologist with Oikonos

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PATRICK TEHAN/STAFF PHOTOS

An elephant seal rests on the beach near the remains of a former Coast Guard light station keepers' home on Año Nuevo Island. The island is the focus of a restoration project.

Reserve

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Parks, it's an imposing place where animals reign supreme.

The nine-acre strip of wave-worn terraces, redolent of bird guano and decay, rings with animal cries. An abandoned Victorian house overrun with sea lions is the largest landmark on the flat, treeless terrain.

Año Nuevo is among only a handful of predator-free islands in California where seabirds can successfully raise their chicks. At least nine species of seabirds lay eggs on the island, including gulls, cormorants and terns, while many others roost there.

One of the breeding birds is the rhinoceros auklet, a stocky black bird the size of a small chicken. These close relatives to puffins get their name from the distinctive horn they grow on their bills in the weeks that they're looking for mates. The auklets share the scarce space on Año Nuevo Island with mating elephant seals, Steller sea lions and harbor seals, as well as vast numbers of visiting California sea lions.

"It's like the Galapagos of California," said Ryan Carle, a biologist with Oikonos, the Bolinas-based conservation nonprofit leading the restoration project. "It's just an incredible density of wildlife on a tiny island."

Yet this small sanctuary faces a huge problem. A combination of human use, drought and storms stripped the island of native vegetation, and the eroding sandy soil is blowing away. This poses particular problems for rhinoceros auklets, which use their claws to dig 6-foot-long tunnels just under the soil surface to lay their eggs.

"If you've ever been to the beach, you dig a hole in the sand and it collapses on you all the time because there's nothing to hold it up," said David Sands, president of Go Native, Inc., a Montara-based habitat restoration group involved in the project. The same thing can happen to a rhinoceros auklet burrow, killing the one and only chick the birds raise each summer.

Oikonos biologists had previously built wooden nest boxes with PVC pipe tunnels to protect the birds, but they wanted a longer-lasting solution that required less maintenance. In 2009, Oikonos president Michelle Hester enlisted the help of her friends Matthew Passmore of the Rebar design studio in San Francisco and Nathan Lynch, the head of ceramics at the California College of the Arts, which has campuses in San Francisco and Oakland.

Passmore and Lynch thought the challenge of constructing a better



PHOTO COURTESY OF DAVID GARDNER

An adult rhinoceros auklet in breeding plumage is held by a biologist for weighing and banding.

burrow made a fitting class for the college's ENGAGE program, which explores how the arts can influence society. "We think about industrial applications for ceramics, like tableware and sinks and toilet bowls," Lynch said, "but we don't usually think about bird condos — bird bunkers, basically."

A dozen students with backgrounds ranging from illustration to industrial design — and little prior knowledge of ceramics — tried their hand at crafting cottages for their feathered clients.

"We went from zero to 60 in terms of ceramics skills," said Kolle Kahle Riggs, who at the time of the class was a junior majoring in jewelry and metal arts.

Riggs said she was excited to create a piece of art that could solve a problem. "It had a life beyond just being an art object in a gallery, or just being treasured by one person," she said. "It had more of a purpose."

That purpose was to help a bird considered a "species of special concern" by the California Department of Fish and Game, because its California breeding spots consist only of Año Nuevo Island and the Farallon Islands. California is the southern extent of the rhinoceros auklet range, which wraps around the Pacific basin to Japan, but the birds disappeared from Año Nuevo for about 100 years.

Part of the trouble arose from the Coast Guard light station that operated on the island from 1872 to 1948. The light keepers built a house and a garden on the island, cleared native vegetation and introduced rabbits, which overran the auklet burrows and drove the birds away.

In 1958, State Parks acquired the island as part of Año Nuevo State Reserve and closed it to the public. After State Parks removed the rabbits in the 1980s, the rhinoceros auklets naturally returned. Yet in the early 2000s, biologists realized the eroding soil could snuff the

birds' breeding success.

That's where the Año Nuevo Island Restoration Project brought some human ingenuity to address the complex problem. With money from the National Pollution Fund Center of the U.S. Coast Guard, and the help of more than 100 volunteers, State Parks engineered a solution with three main components: protection, plants and a little private space for the birds.

After a surge of California sea lions trampled a previous vegetation restoration in 2005, the team knew they needed to take extra steps to give the project a fighting chance. So in the fall of 2010, the team constructed a log wall to fence off a single acre of the island most heavily used by rhinoceros auklets. To minimize the environmental impact, team members used eucalyptus harvested from the San Francisco Peninsula as part of nonnative species removals. Then to stabilize the soil, they planted over 10,000 native plants in their protected patch, including American dune grass, salt grass and the seeds of coastal shrubs.

The final piece of the extreme home makeover involved the ceramic burrow project. Scientists consulted with the California College of the Arts students on the biological and logistical specifications of the bird housing.

The modules needed a tunnel leading to a nest chamber that curved away from the light, similar to a natural burrow. They also had to protect against overheating, flooding and collapse. "They needed to be strong enough to withstand the weight of a sea lion and light enough that we could carry them out there," Lynch said.

After testing six clay burrows of various shapes in the spring of 2010, the team settled on the "love shack," which consisted of a long tunnel leading to a curve like the crook of a pipe.

"It just turned out to be the sim-



Numerous brown pelicans, cormorants, gulls and other shorebirds share the island with elephant seals, sea lions and other wildlife.



California sea lions inhabit part of a tiny, windswept island off the San Mateo County coast considered the "Galapagos of California."

plest solution and the most elegant solution," Passmore said. A pair of rhinoceros auklets showed its approval by nesting and hatching a chick in a shack.

The team produced 90 love-shack replicas in the summer of 2010 and buried them on the island in the fall. Last spring, 33 pairs of rhinoceros auklets moved into the new ceramic digs amid a lush, green oasis. The team members visited the island twice a week last fall to monitor the burrows and pull non-

native weeds. "It's really changed my view of what's the most productive relationship between humans and other inhabitants of the world," Passmore said.

Hester hopes the project will help raise awareness about Año Nuevo Island.

"There's the challenge of just communicating how rare and critical this land is, because it's definitely out of sight, out of mind," she said. "We just want people to recognize that there's this jewel offshore."