

Saving Lives Bird by Bird: Nathan Lynch's Ceramic Nest Modules

Written by Nancy Selvin





Año Nuevo Island sits in the rough waters of the Pacific Ocean a half-mile off the coast of California, fifty-five miles south of San Francisco. This small, battered landmass is one of the most densely populated animal refuges on earth.¹ Access to the island is limited to scientific researchers and park personnel. The Año Nuevo State Reserve, as it is called, is owned and operated by the California Park Service. It serves as an important breeding ground for northern elephant seals, threatened Steller sea lions, numbers of harbour seals as well as the nesting locale for various sea birds including Brandt's Cormorants, Western Gulls, Pelagic Cormorants, Rhinoceros Auklets, Pigeon Guillemots, Cassin's Auklets, and Black Oystercatchers.

On the island, the football sized Rhinoceros Auklet nests in underground burrows dug into the soil. In 2009, when Nathan Lynch was first introduced to the Año Nuevo naturalists, they had been striving for more than 20 years to construct strong, protective, nesting units using wood, plastic, or other materials in an attempt to save and extend the lives of this rare species – not from predators, but from death by the massive weight of another protected island species: the 1200 pound Steller Sea Lions who

haul themselves onto the beaches to wrestle, bark and lounge in the sun crushing Auklet nests in the process. In 2009, the Bay Area design team MoreLab was working with 'Oikonos Ecosystem Knowledge' on restoration of Año Nuevo's native habitat. Their premise that "the best scientific solutions come through artistic inquiry: beautiful not just functional" prompted them to approach ceramic artist Nathan Lynch about possible design strategies for successful Auklet nesting modules on Año Nuevo Island. For problem solving, a ceramic sculptor turns naturally to clay.

Lynch, who has made collaboration and experimentation the focus of his work, is chair of the ceramic program at California College of the Arts in Oakland. Lynch studied with the late Ken Price, earning his undergraduate degree at the University of Southern California in Los Angeles. He then went to Mills College in Oakland California where he received his MFA, working closely with the inimitable Ron Nagle. According to his website, Lynch's "work exists in between things: between sculpture and performance, between object and installation, between the strength, beauty and [the] awkwardness to be found at transitions". Responding to MoreLab's request, Lynch, perhaps inspired by his own massive,

Previous page: Cassin's Dome, prototype on site. Above: Modules.

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volumetric, forms, and his collaborative teaching methods, proposed: "Designing Ecology: Año Nuevo Island, an interdisciplinary ceramic course where students would work with the naturalists to solve real world, off-site problems, prototyping, designing and building nest modules to save the habitat and the lives of Rhinoceros Auklets." The Rhinoceros Auklet spends its entire life at sea. The short breeding period on land each year is the only time when naturalists learn more of their habits and how to conserve their habitat. So, an important design component Lynch and his students needed to address was human access to the nests. The Auklet lays only one egg each season. The naturalists must monitor the interior of the module for the health and survival of the chicks. The other, and the most dangerous, problem Lynch's team faced was how they would transport the 270 components that made up their ceramic habitats a half-mile off the coast of California, onto the rocky shores of an uninhabited island guarded by sharks and rough seas.

After much testing and prototyping, in 2010 Lynch and his class collaborated with Oikonos Ecosystems and Park Service naturalists to design, build, and fire 90 multi-part stoneware modules that the students buried in the sands above the shoreline on Año Nuevo. These large, hand-made 'pots' with their detachable extended neck and 'lid' allowed the naturalists a peek inside, even as they formed a strong, crush proof burrow in which the Rhinoceros Auklet could raise their chicks. Hiring a landing craft so they could deliver the 3,600 pounds of stoneware components to the island solved the transport issue.

Once installed, these below-grade condos were immediately 80% occupied, successfully saving nests and baby Auklets from inadvertent squashing by their half-ton neighbours. "By 2015, nesting success was above average for the third consecutive year, with 75% of pairs laying eggs in burrows and [ceramic] modules, raising a chick to the fledging stage."² The initial success with the Rhinoceros Auklets prompted

Oikonos and the Park Service to approach Lynch and a new group of students to collaborate on an effective nesting solution for the endangered Ashy Storm Petrel.

For this ecosystem, on Santa Cruz Island, one of five ecologically rich Channel Islands further down the coast in Southern California, Lynch's 2012 Designing Ecology class was charged with creating a smaller, ceramic, nest module to protect the endangered Ashy Storm Petrel. The tiny, eight-inch Ashy Storm Petrels maintain a restricted range up and down the west coast and have a small global population of around 10,000, but can live to be 34 years old.³

Ashy Storm Petrels tuck their nests into the rock caverns of the islands, where their eggs become prime pickings for the sharp beaks and determination of hungry Ravens and ravenous skunks. Ravens are clever predators: "Ravens have followed researchers as they set up artificial nests, raiding them soon after the researchers left."⁴ For years naturalists had been trying to outwit these ubiquitous, shiny-black-birds by concocting nest boxes of wood, PVC pipe or cement roofing tiles, but adept ravens were never fooled and continued to prey on Storm Petrel nests. Again, fired clay was the answer.

Collaborating with Michele Hester, Executive Director of Oikonos, a team of biologists from the National Park Service and the Fish and Wildlife Service, Lynch and his students prototyped a dormitory-style, three-bird unit of hand-made ceramic, heavy enough to keep the Storm Petrel's main predator, the Raven, from gaining entry, but able to be easily transported and slipped into cracks and crevasses of the Channel Island caves where the Petrels nest.

After testing, ten of these triplex modules (nesting for 30 birds) were installed in the breeding locations. The flattened, hollow-formed stoneware discs, ringed with Storm Petrel sized openings were constructed with deep, segmented interiors so the marauding ravens couldn't reach the nests inside and were heavy enough to foil skunks. Wedged into the ledges of the cave, these spaceship-like units are monitored each breeding season to determine



Opposite: Discussing Cassin's prototypes. Below: Placing Ashy Storm-Petrel modules.

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This group is designing three new prototypes for three new species of seabirds on a variety of islands off the California coast. Once the work is fired, the students will don their wetsuits and brave the cold waters, rough waves and curious seals of the Pacific Ocean, motoring out to the islands in a fifteen-foot rubber Zodiac to work alongside naturalists installing their newly completed modules.

Spring semester 2018 will also find Lynch in Hawai'i, collaborating with students on Oahu to develop new habitat modules for the protected Wedge-tail Shearwater. In recognition of the ecological value and the implications for expanded impact world-wide in restoring seabird habitat, Nathan Lynch was awarded a \$25,000 National Endowment for the Arts Grant enabling him to expand his student collaborations and help rebuild the ecosystem bird by bird. ■

References

1. <http://www.sfgate.com>
2. The Oikonos Foundation: Oikonos is a non-profit 501(c) (3) organization that studies and protects imperilled ecosystems by engaging diverse communities through innovative scientific and artistic collaborations. The development of the Auklet nest modules is part of a larger seabird habitat restoration undertaken by the Oikonos Foundation in conjunction with the National Park Service.
3. <https://www.nps.gov>
4. https://www.allaboutbirds.org/guide/Common_Raven/lifehistory
5. Monitoring and Restoration of Ashy Storm-Petrels at Santa Cruz Island, California, 2012.

Images courtesy of the author.

About the Author

Nancy Selvin is an artist and educator living and working in Berkeley California. She is past president and current member of Watershed's Board of Trustees. For over ten years, Selvin has been on the faculty of California College of the Arts in Oakland California.

their success rate over the coming years.⁵ For seabird colonies plagued by environmental degradation and predation, stoneware nest modules are proving ideal for habitat stability, breeding safety, permanence, strength, and ecologically sound design; they do not degrade into trash. Ceramic provides critical protection and mitigation in remote locations that seabirds need to recover their populations. What began in 2010 with the Rhinoceros Auklet modules continues with new seabird collaborations in clay.

By spring semester 2015, field-testing proceeded on fifteen above-ground prototypes intended to house a smaller variety of Auklet on California's Farallon Islands off the coast of San Francisco. The Cassin's Auklet nests on the ground to the delight of preying gulls. Exposed to the wind and sun, the ceramic units must provide heat mitigation as they shelter individual birds. The successful module is an inverted, hemispherical 'pot' formed with a circular entry and ventilated inner and outer clay shell designed to prevent heat build-up and a safe interior space sited on the surface of the sand. The success of Lynch's ceramic nest modules has exceeded all initial expectations.

Last year Lynch began a collaboration with Professor Ron Rael, at the University

California Berkeley. Professor Rael is an applied architectural researcher, design activist, author, and thought leader in the fields of additive manufacturing and earthen architecture. His company, Emerging Objects, is a creatively driven, 3D Printing 'MAKE-tank' specializing in innovations in 3D printing for architecture, building, environments and products. Results from this 3D collaboration, two of ten 3D printed nest modules, are now undergoing field testing on Año Nuevo. If adopted by the seabirds, the possibilities for 3D ceramic versions of the nest modules could simplify design strategies, and perhaps solve some of the weightiness of the hand built clay forms. Rael and Lynch are continuing to print and test modules for Cassin's Auklets and Stormy Petrels.

The 2017 CCA (California College of the Arts) school year resulted in the development of twenty new ceramic aboveground nest units designed for the Cassin's Auklet. They are now installed and being monitored on the Farallon Islands with another 10 modules added to those on Año Nuevo. The success of Lynch's collaborative course, where students are offered the opportunity to work with naturalists solving world-wide environmental problems, building habitat, prototyping and designing, continues with the excitement of the 2018 spring semester.

