

Elephant seals, once nearly extinct, are finding new places to call home

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Wildlife is vanishing around the world, plummeting at rates unprecedented in human history. Then there are elephant seals.

Once on the brink of extinction, elephant seals are expanding north into new breeding grounds along the California coast, turning long-empty beaches into a ruckus of roars, grunts, chirps and moans.

"It's a conservation success story," said zoology Professor Dawn Goley of Cal Poly Humboldt. "They were in dire trouble."

On Feb. 22, Goley's team hiked 10 miles and crossed a raging river to count and tag pups at the state's newest and northernmost [colony](#) on Humboldt County's Lost Coast, near Punta Gorda. They tallied 265 pups, up from only nine seven years ago.

Scientists attach tiny colored tags on flippers to identify a seal's birthplace: yellow for Santa Barbara's Channel Islands, white for San Luis Obispo's San Simeon, green for San Mateo's Año Nuevo State Park, pink for Marin's Point Reyes National Seashore—and green for members of Humboldt's young colony, in the King Range Conservation Area.

The tags make it possible to trace the origins of a group as they pick a breeding ground. For instance, it's known that newborns on the Humboldt beach descend from animals who ventured north from Point Reyes, but also Año Nuevo and San Simeon.

"As they expand at sites, they fill up the space," said marine ecologist Sarah Allen, former science adviser at Point Reyes. "Then females and juveniles start looking for some other place to get established."

While this year's storms have claimed some young lives, an estimated 200,000 animals are breeding and giving birth this season in the five National Marine Sanctuaries along the Pacific coast, covering nearly 15,000 square miles.

They're all related, descendants of a tiny colony in Mexico—which once numbered fewer than 100 animals—that escaped the violence of 19th century hunters.

Massive and magnificent, elephant seals are famed for their extraordinary physiological abilities, which allow them to endure environmental extremes. They spend most of their lives at sea, migrating twice a year as far north as Alaska before returning to California beaches to molt and reproduce.

Their distant ancestors were wanderers, venturing from warm Caribbean waters through an ancient sea that once separated North and South America.

Hunted for oil-rich blubber in the 1800s, "few or none can be found north of San Diego" by 1868, natural historian Titus Cronise wrote. The species was presumed extinct by the late 1870s.

Remarkably, a small cluster of animals survived in Baja California.

With legal protection from further hunting, six pups were reported in 1911. As the colony grew in the 1920s, animals began to depart for nearby islands.

Experts now estimate more than 40,000 births annually.

Populations of California's other pinniped species, such as harbor seals and sea lions, also have rebounded to healthy levels since passage of the Marine Mammal Protection Act, said Allen. But [elephant seals](#) are the most successful because they are not dependent on the California Current, which is influenced by El Niño conditions, for their food. Instead, they dive deep off the continental shelf into a different ecosystem.

But there are long-term concerns. The species suffered a genetic "bottleneck" at their remnant Mexican colony, due to inbreeding, with worrisome consequences, according to a study published this week by scientists at England's Durham University and UC Santa Cruz. The team's analysis of 270 modern animals discovered reduced [genetic diversity](#) in key genes that are linked to reproductive success and the seals' ability to dive and forage efficiently.

"So far, the species has recovered remarkably well, but these findings call into question how susceptible it might be to environmental stresses in the future," Durham University molecular ecologist Rus Hoelzel wrote in the journal *Nature Ecology & Evolution*.

Currently, there are at least 25 breeding colonies along the Pacific coast. The largest is in Southern California's Channel Islands. The fastest growing colony is at San Simeon near the Piedras Blancas lighthouse, where numbers exploded from only two dozen in 1990 to 17,000 today.

At Año Nuevo off the San Mateo coast, populations have peaked, and stabilized. But numbers at Point Reyes continue a general upward trend. In 1981, the park had one birth. Last year, there were 1,335.

Most animals stay tied to the beach of their birth, according to ecologist and evolutionary biologist Roxanne Beltran at UC Santa Cruz.

But overcrowded colonies can spell trouble for newborns, UCSC research found. With higher population density, there is more adult conflict—fighting females, tumultuous males. Pups, who get lost or waste energy trying to find their mother, tend to be smaller in size.

At Point Reyes, big storms seem to help drive the creation of new colonies, Allen said. The storms of 1982, 1996 and 1998 caused dramatic shifts in the locations of populations at Point Reyes, because

pregnant females were washed off beaches.

"You can't retain the social structure of the colony if you're getting washed out all the time," she said.

Beltran's research has found that some Año Nuevo youngsters, dubbed "prospectors," explore new sites during their annual migration. Monitoring 50 animals, she found that about three or four youngsters returned to a different colony.

"They came up north, and then more north, and more north," she said. In 2009, a pup was born at Canada's Great Race Rock Island, an ecological reserve southwest of Victoria. Since then, another three to five are born on the island every year.

"But how they find those other colonies—when they've never been there in their whole life—is a mystery," she said.

In Humboldt County, where the steep King Range mountains plunge into the sea, the peninsula juts out into the Pacific so it may have been discovered during migrations.

The site is attractive for many reasons, said Goley. It features a wide beach and elevated "terraces." Rocks help protect animals from sharks, [storm surges](#) and high tides. There's a nearby deep sea canyon, for easy feeding. The only human access is along the Lost Coast Trail, a 24-mile beach trek that generally takes three days, requires a permit and is impassable during storms and high tides.

Initially, most of the mothers were newcomers, arriving from southern beaches.

But now Humboldt natives have matured and are returning to the beach

to give birth, completing the cycle.

Protection and conservation "over generations, offers them a way to be successful," said Goley. "It's a real honor to be a part of that journey."

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