

PREDATOR EXCLUSION FENCING AND HABITAT RESTORATION

JAMES CAMPBELL NWR PREDATOR EXCLUSION FENCE BACKGROUND

The James Campbell NWR predator exclusion fence was built in 2016 and is 3,690 feet (1,125 meters) long and encloses 16.2 acres (6.6 hectares). All mammalian predators (cats, mongooses, rats, and mice) have been removed from the inside. The fence is tall enough to prevent animals from jumping over, has a curved hood to prevent them from climbing over, mesh that is small enough to prevent even mice from squeezing through, and a skirt that extends underground to prevent them from digging under it. All materials are marine grade stainless steel.

FENCE INFORMATION	
Length	3,690 feet; 1,125 m
Area enclosed	16.2 acres; 6.56 ha
Project manager	Pacific Rim Conservation
Builder	Pono Pacific LLC
Date completed	October 2016
Cost/foot	\$91.46
Total cost	\$337,500

Predator exclusion fence at JCNWR



WHAT IS A PREDATOR EXCLUSION FENCE?

A predator exclusion fence is a special type of fence that can keep out all mammalian predators, including cats, dogs, pigs, mongooses, rats, and mice. It is taller than a typical farm fence, has several design features that keep out pests, and is made from more durable materials (more on that below).

WHY AND WHERE ARE THEY USED?

Predator exclusion fences are used primarily on islands where mammalian predators have been introduced and are damaging native species. They are used to create predator-free sanctuaries for vulnerable island species. They were developed in New Zealand and have been used in Hawaii since 2011 and more recently in Australia and Mexico.

HOW DO THEY KEEP OUT THE SMALL ANIMALS LIKE RATS AND MICE?

The mesh is small enough that even mice cannot squeeze through it, and there is a skirt buried underground that prevents them from digging under it.

HOW DO THEY KEEP OUT LARGE ANIMALS LIKE DOGS, CATS, AND PIGS?

They are tall enough (6-7 feet) that a dog or cat cannot jump over, and have a curved hood on which climbing animals cannot get traction. There are several gates to allow people and vehicles in and out.

HOW MANY BIRDS COULD NEST INSIDE THIS FENCE?

The JCNWR predator fence encloses 16 acres, more than 75% of the seabird nesting area on Tern Island in Papahānaumokuākea Marine National Monument. Tern Island currently supports more than 240,000 nesting pairs of seabirds (i.e. more than a half a million birds). So tens of thousands of birds could nest inside. Seabirds only need the fenced area for nesting, they find all their food in the ocean.

HABITAT RESTORATION

The field in which the fence was built used to be full of weeds, primarily thorny kiawe trees. Several years ago, JCNWR staff cleared the area using heavy machinery to open up new seabird habitat. Some native plants inside the fence have recovered naturally after the non-native brush was removed. In collaboration with refuge staff, we are actively outplanting additional species and continuing to remove invasive non-native plants. Plant species being restored were sourced and grown locally and thus are adapted for the harsh coastal environment. These plants will help stabilize the soil, provide cover for nesting seabirds, and food for native insects. To encourage burrowing seabirds to nest in the area, artificial burrows will be installed to provide nesting sites.



Lindsay Young, Pacific Rim Conservation