Control of Invasive Exotic Mayweed Chamomile and Its Positive Effects on Nesting California Least Terns

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Abstract

Invasive exotic species are a major threat to many wild birds. The rapid expansion of numerous weeds can result in substandard nesting habitat. This Howard Regional Reference is located along the eastern shoreline of San Francisco Bay, which supports the second largest California Least Tern (Endangered) population in the United States. This colony is situated on 0.14 (0.97 ha) of land that was specifically prepared for its use by providing natural habitats and protected nesting areas. However, the rapid spread of Mayweed Chamomile (achilea millefolium) created crowded and nesting conditions (Figure 1). In an effort to reduce the crowded tern nesting conditions and improve their reproductive success, we evaluated an effective means for controlling Mayweed Chamomile. Limited past studies have provided herbicides that have been proven to be “practically nontoxic” to bird resources. In addition, the water management is designed to control the invasive vegetation. This paper contributes a combination of Mikado™, Captain™, Redekop, and Stratego™ specifically herbicides that were applied using the technical expertise and equipment of Galveston School District. During the 2012 tern breeding season, the vegetation cover was less than 15% and a record number of 349 terns were banded on the site producing 528 chicks. The present study highlights the success of this partnership that brought together skills on invasive species for an endangered species.

Introduction

The California Least Tern (Sternus antillarum) is a migratory species nesting along the West Coast of North America from Baja California north to the San Francisco Bay. They select nesting colonies on sandy soils with little vegetation along Pacific Ocean beaches, bluffs, and dunes. Least Terns are generally present at nesting areas between mid-April through late September. The California Least Tern was listed as a Federally endangered species in 1979 and as a state endangered species in 1971 due to a population decline resulting from loss of habitat disturbance of nesting areas, and predation by domestic and wild predators.

Invasive exotic species are a major threat to many wild birds. The rapid expansion of numerous weeds can result in substandard nesting habitat. Due to California Least Tern nesting preferences, they are vulnerable to the spread of invasive vegetation that can quickly colonize their habitat. From 2009-2011, Mayweed Chamomile (Achillea millefolium) became the dominant plant cover, creating a microenvironment and nesting to suboptimal conditions (Figure 1).

Methods

A partnership between East Bay Regional Park District, Calif., and Bog AgriScience in 2012 helped mitigate the rapid vegetation growth and enhance ideal nesting habitat for the least tern. Bog AgriScience contributed a combination of Mikado™, Captain™, Redekop, and Stratego™ specifically herbicides to inhibit the growth of vegetation at the site. The combination of herbicides was used at the recommendation of local control advisers and has been proven to be “practically nontoxic” in dozens of laboratory tests and field studies. The herbicides were applied by California volunteers during the tern nesting period.

In the two breeding seasons since the herbicide treatment was applied, the terns were nesting positively to the increase in vegetation. During the 2013 breeding season, there were 193 nesting pairs at the site, producing a total of 228 chicks (Figure 2). In the 2014 season, the colony experienced an amazing 55% nesting success rate and produced upwards of 118 fledglings (Figure 3). The site is now the second largest California Least Tern colony in the United States. Thanks to the unique partnerships and potentially reached through these partnerships to reduce Mayweed Chamomile, the Howard Regional Reference is now a prime nesting site for this endangered species.

Acknowledgments

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