

# Non-lethal hazing can protect gulls from exposure to rodenticide

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Introduced house mice pose a threat to the ash storm-petrel and other native species on the Farallon National Wildlife Refuge. The US Fish and Wildlife Service, which manages the Refuge, is considering mouse eradication to help restore the island ecosystem and conserve native species. Eradication methods being considered include the application of bait pellets containing a rodenticide, which may pose a risk to non-target wildlife such as western gulls.

During a trial conducted on the islands in 2012, Point Blue, Island Conservation and the USFWS assessed the effectiveness of various non-lethal hazing techniques for temporarily keeping gulls off the island, thus reducing the risk to gulls from exposure to rodenticide. Hazing methods

tested included biosonics (devices which broadcast distress or alarm calls), pyrotechnics, lasers, reflective objects, effigies and helicopters.

Coordinated hazing efforts reduced gulls from a few thousand to a few hundred present on the islands, while having relatively minor impacts on other species.

Lasers, effigies and methods that combined auditory and visual stimulus, such as pyrotechnics, were the most effective at reducing gull numbers. Stationary objects such as reflective tape and kites were not effective. Biosonics were intermediate in their effectiveness but worked best in combination with other methods.

These results provide guidance for planning the mouse eradication on the

Farallon Islands while mitigating potential risks to other wildlife species.

## Main Points

Introduced mice threaten the Farallon Island ecosystem.

Western gulls would be at risk of exposure to rodenticide during proposed mouse eradication efforts.

Hazing can reduce gull numbers present on the island and lessen the chances of exposure to rodenticide.

Warzybok, Bradley, Grout, Griffiths, Pott, Vickers, Milsaps and McChesney. 2013. Evaluating the use of non-lethal hazing techniques to minimize potential exposure of western gulls to rodenticide from a proposed rodent eradication on the South Farallon Islands. Unpublished report to the Oiled Wildlife Care Network. Point Blue Contribution Number 1968.

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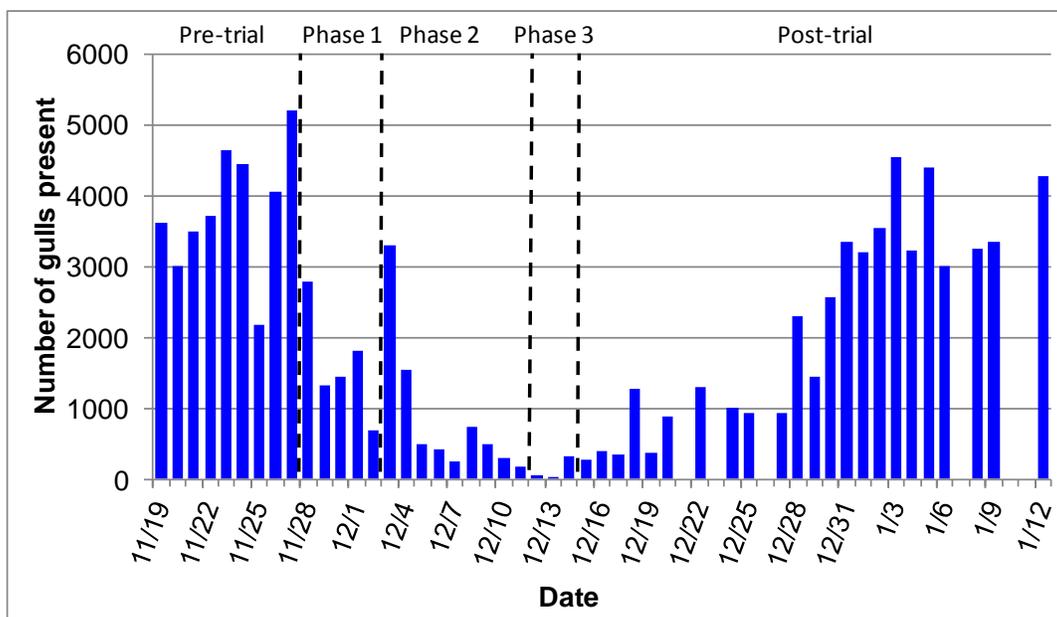


Figure 1. Maximum number of gulls present at dawn throughout the course of the hazing trial. The dashed vertical lines delineate the different phases of the trial. Individual hazing treatments were tested during phase 1. Full island active hazing efforts occurred during phase 2. Phase 3 consisted of reduced efforts to maintain low numbers.

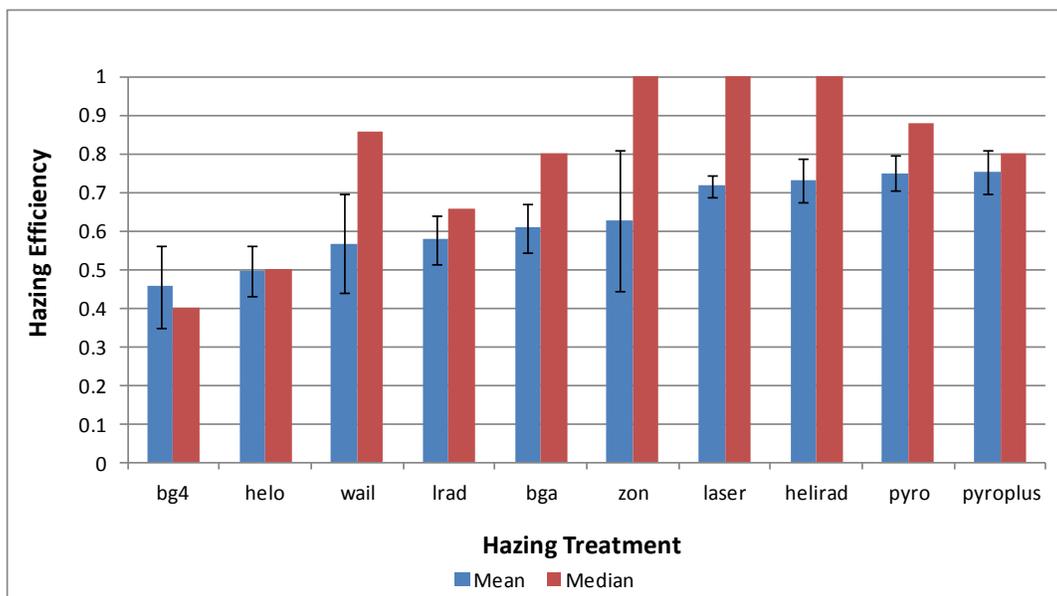


Figure 2. Mean ( $\pm$ standard error) and median hazing efficiency by hazing method. Hazing efficiency is defined as the proportion of gulls that departed the area in response to hazing. Different hazing methods include biosonics (bg4, wail, lrad, bga and zon), pyrotechnics (pyro), laser, helicopter (helo), helicopter in combination with biosonics (helirad) and pyrotechnics in combination with other methods (pyroplus).