

Identifying Threatened Western Snowy Plover Critical Habitat

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Introduction

The western snowy plover (*Charadrius nivosus nivosus*) is a federally threatened shorebird species and is considered a Bird Species of Special Concern in California (U.S. Fish & Wildlife Service 2014). These shorebirds nest on beaches in depressions in the sand. The Pacific Coast population is being threatened by human and animal disturbances, particularly on public beaches where disturbances are reported to be 16 times higher than on protected beaches (Lafferty 2001). Beach goers that aren't aware of nesting birds may unintentionally trample nests or otherwise disrupt the birds, especially when they bring dogs and let them run free on the beach (Lafferty 2001). Trash and other human caused sources of food may also attract predators such as ravens to the area that will eat plover eggs and chicks (Colwell et al. 2005).

Our goal was to identify the critical snowy plover habitat in Humboldt County and show where it overlaps with public lands. Some of the sites where plover use intersects with public beach use include Gold Bluffs Beach, Clam Beach, and Big Lagoon.



Figure 1. Map of Humboldt County, California.

Methods

Data for public lands in Humboldt County and roads were downloaded from the Humboldt County GIS website. Critical Western snowy plover habitat data was obtained from the Carlsbad branch of the U.S. Fish and Wildlife service.

First, public land data was clipped to critical habitat areas only. This was followed by creating a buffer of 300 feet around roads in Humboldt County. The plover data was then further clipped to areas within the road buffer zone to identify the critical habitat that may be most accessible to and therefore most easily damaged by human activity.

We then calculated the total area of critical WSP habitat on public land in Humboldt County, as well as the total area of the regions we identified as especially vulnerable for comparison.

Results

We identified 3,364 acres of sensitive plover habitat on public land. 117 of those acres was in the 300 ft buffer zone against the roads surrounding the habitat.

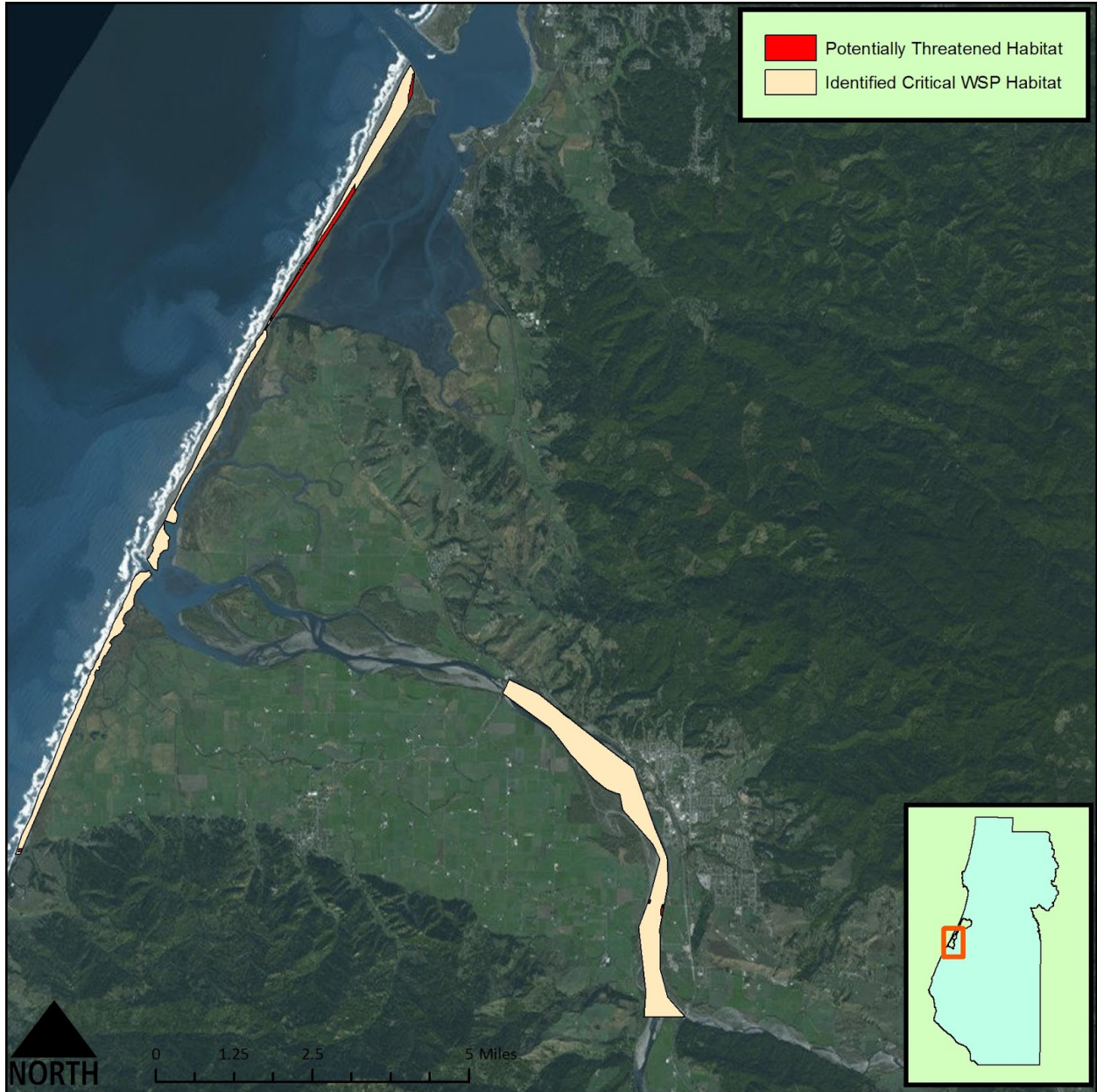


Figure 2. Snowy plover habitat located south of Humboldt Bay.

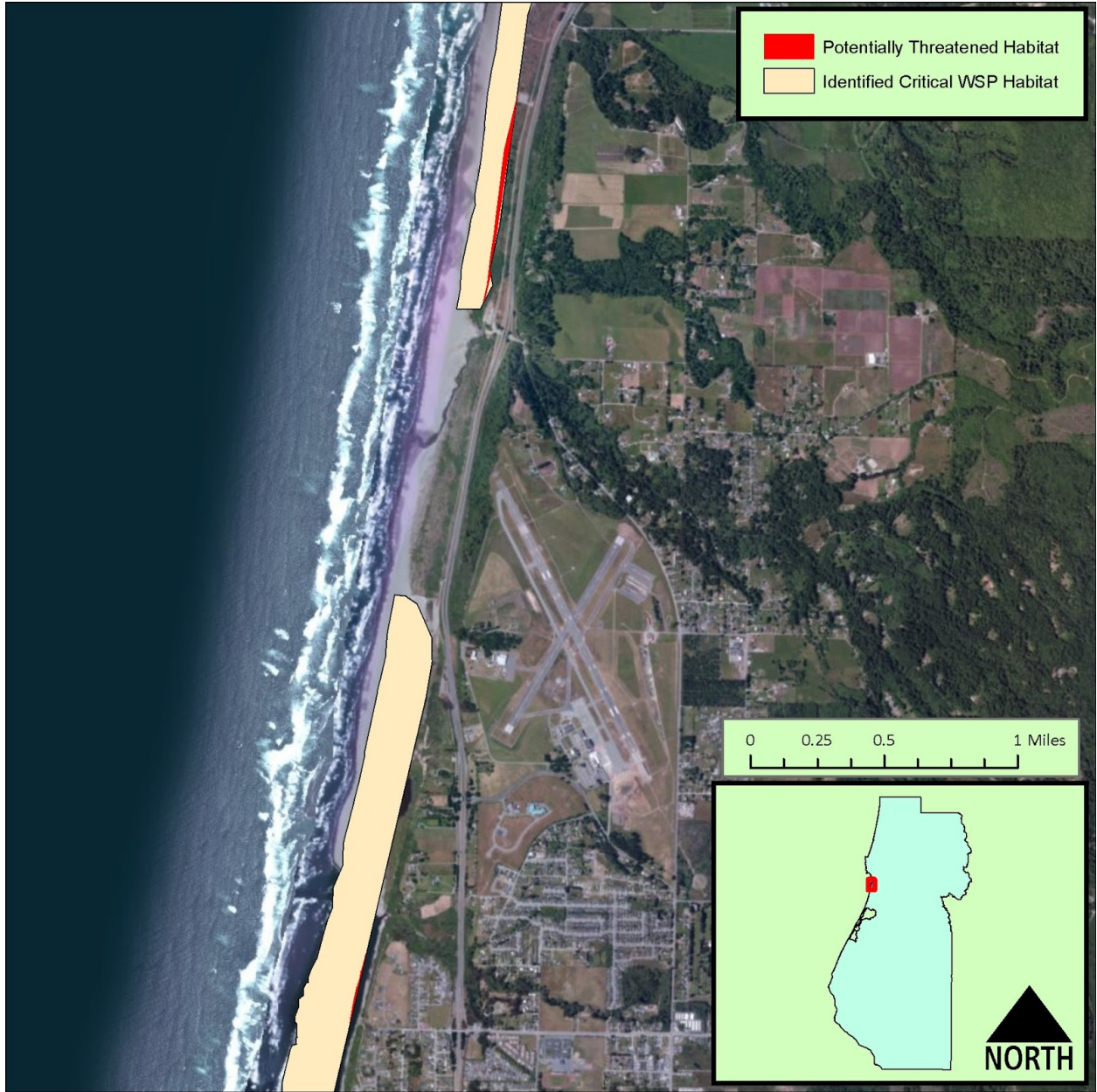


Figure 3. Snowy plover habitat near the town of McKinleyville.

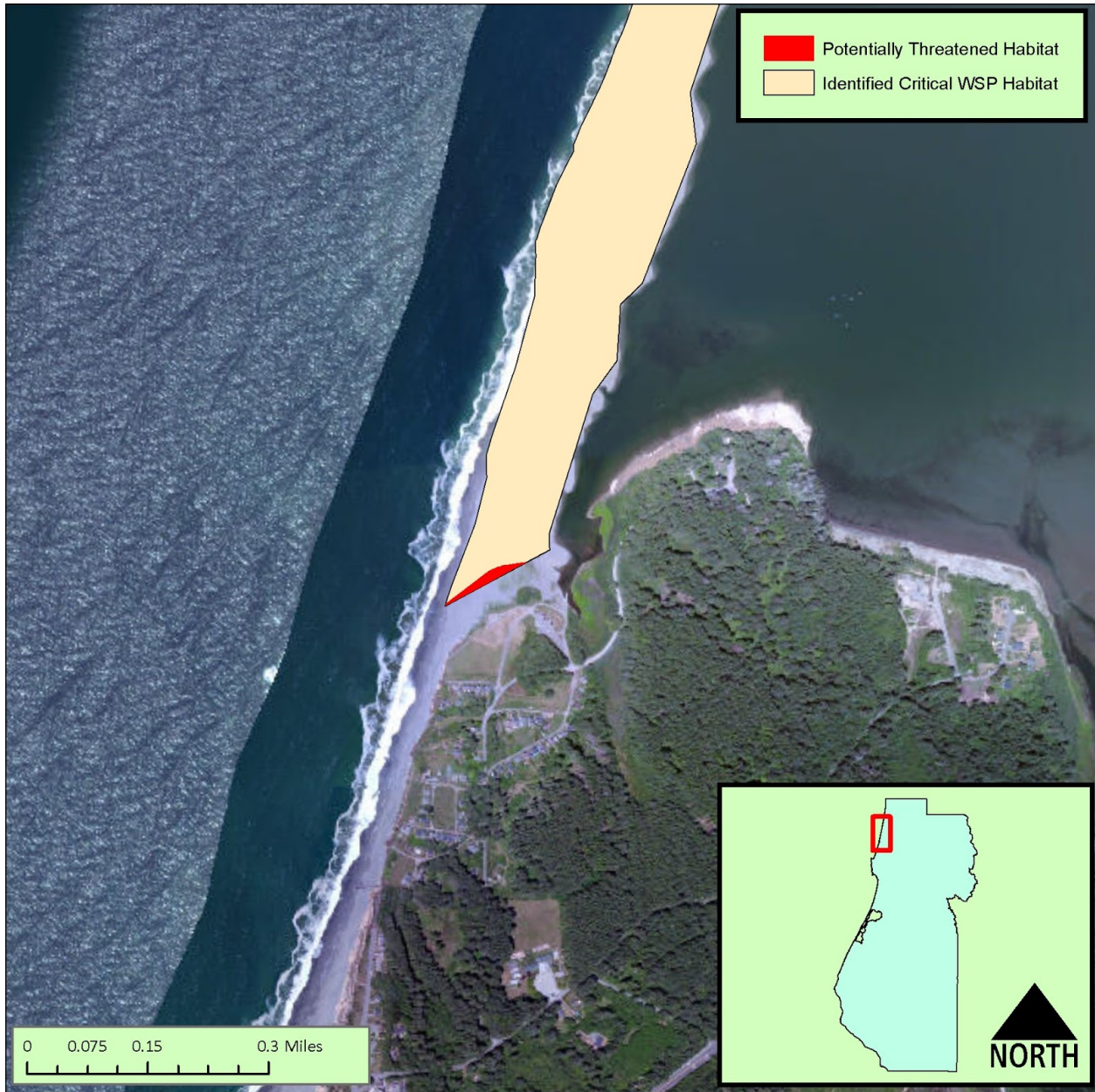


Figure 4. Snowy plover habitat located near Stone Lagoon.

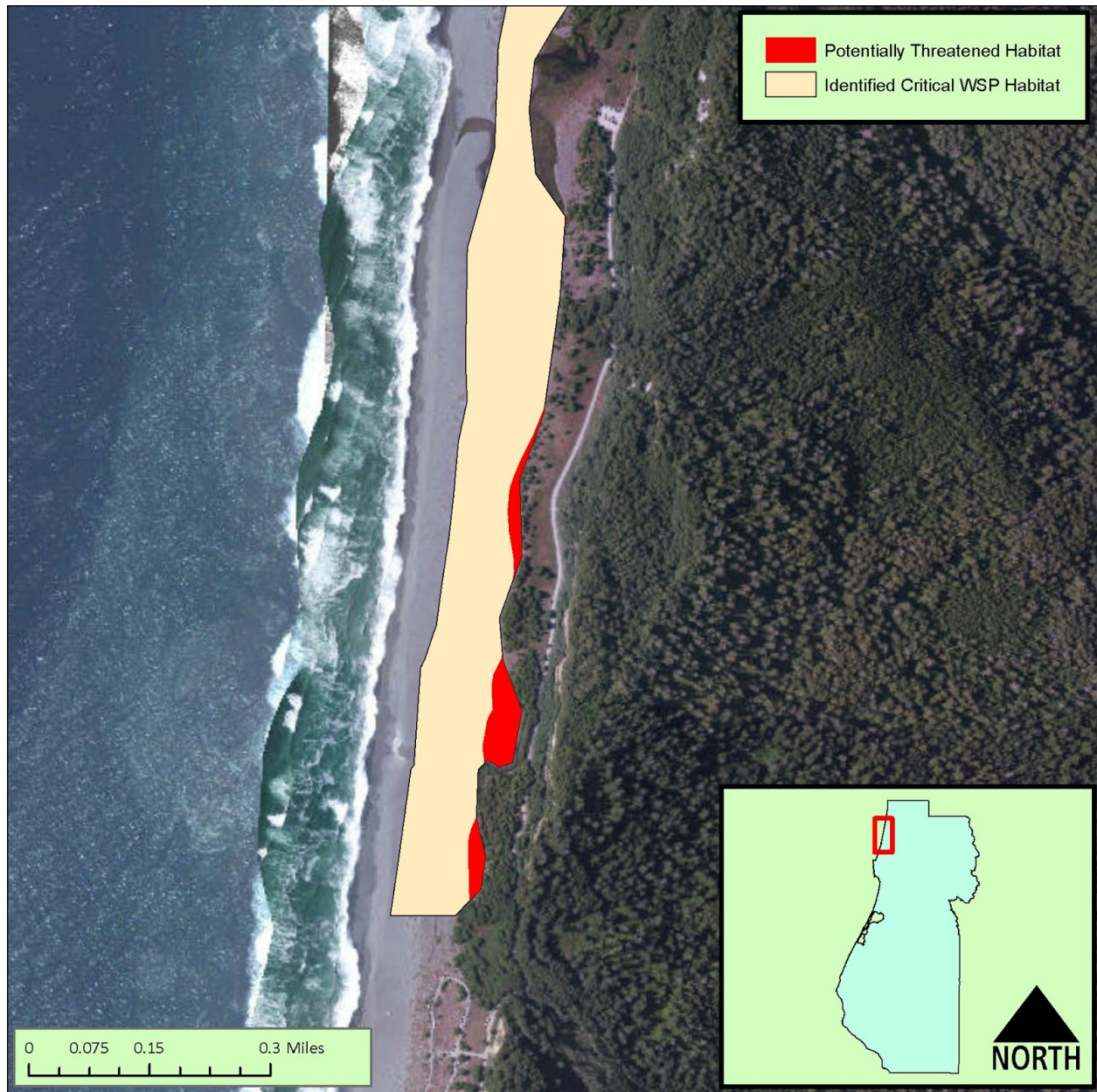


Figure 5. Snowy plover habitat in northern Humboldt County.

Conclusion

Our findings show there are many areas where public lands, human usage, and critical plover habitat overlap. This information may be used to target areas for further research of potential ecological damage and help guide management decisions.

While it is possible restricted access may be required for some of these areas, the proximity to roads opens the possibility for other unique considerations. Interpretive

signage, designated accessible trails, or partnerships with local businesses to assist in public education may also help to protect these critical habitat areas.

Acknowledgements

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Bibliography

Colwell, M. A., Millett, C. B., Meyer, J. J., Hall, J. N., Hurley, S. J., McAllister, S. E., Transou, A. N., and LeValley, R. R. 2005. Snowy plover reproductive success in beach and river habitats. *Journal of Field Ecology* 76(4):373-382.

HumboldtCounty. 2013. GIS Data Download.

<<http://humboldt.gov/276/GIS-Data-Download>>. Accessed 10 December 2014.

Lafferty, K. D. 2001. Disturbance to wintering western snowy plovers. *Biological Conservation* 101:315-325.

U.S. Fish & Wildlife Service. 2014. Arcata Fish and Wildlife Office. Western snowy plover. <<http://www.fws.gov/Arcata/es/birds/WSP/plover.html>>. Accessed 10 December 2014.

U.S. Fish & Wildlife Service. 2014. Carlsbad Fish & Wildlife Office. GIS Division. <<http://www.fws.gov/carlsbad/gis/cfwogis.html>>. Accessed 10 December 2014.