

SHORT NOTE

SEA OTTERS (*Enhydra lutris*) FROM THE NORTHERN AND SOUTHERN POPULATIONS MAY FIND EACH OTHER IN HUMBOLDT COUNTY, CALIFORNIA

Maximilian L. ALLEN^{1*}, Shawn M. CRIMMINS²

¹Illinois Natural History Survey, 1816 S. Oak Street, Champaign, IL 61820, U.S.A.

²College of Natural Resources, University of Wisconsin–Stevens Point, 800 Reserve Street, Stevens Point, WI 54481, USA

*Corresponding Author: maxallen@illinois.edu

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Abstract: Sea otters (*Enhydra lutris*) are an apex carnivore and a keystone species, whose range contracted with population declines in last few centuries. But due to direct conservation efforts, both the northern sea otter (*E. lutris kenyoni*) and southern sea otter (*E. lutris nereis*) populations shown increases in the last few decades. The two populations are not connected, however, and southern sea otters in California are still threatened and endangered on the state level. The Humboldt County coast is situated between the southern sea otters in central California and the northern sea otters found between Oregon and Alaska. In 2015 a sea otter was seen in Humboldt Bay, the first sighting in Humboldt County since 2005. Although most sea otters found in Humboldt County are assumed to be from the southern sea otter population, genetic testing of a dead sea otter found in 2014 determined that it was from the northern sea otter population. The continued documentation of southern sea otters and the recent documentation of dead northern sea otter in Humboldt County suggests the Humboldt County coast may be an important area for linking the two populations in the future.

Keywords: *Enhydra lutris*, California, Humboldt County, locality record, population, range expansion, sea otter

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Sea otters (*Enhydra lutris*) are an apex carnivore and a keystone species due to their role in structuring marine ecosystems by maintaining kelp forests through top-down control of their herbivore prey (Estes and Palmisano, 1974; Ripple et al., 2014). In fact, sea otter top-down control is so strong that much of our foundational understanding of trophic cascades comes from early studies in the sea otter-urchin-kelp system (Estes and Palmisano, 1974), although this pattern can be highly variable (Carter et al., 2007, VanBlaricom and Estes, 2012). The range of sea otters formerly extended from Japan through the Aleutian Islands in Alaska down the coast of the Pacific Ocean to the Baja Peninsula in Mexico (Kenyon, 1969). The range of the northern subspecies (*E. lutris kenyoni*) currently extends from Russia through Alaska down the coast of the Pacific Ocean to Oregon. Sea otter populations began a large decline in the 1700s due to overexploitation through the fur trade (Kenyon, 1969; Jameson et al., 1982). Northern sea otter populations began a slow recovery in the 1900s after a halt of hunting in 1911 (Murie, 1940; Kenyon, 1969), with greater increases in the last five decades due to direct conservation efforts, including reintroductions in Washington and Oregon (Jameson et al., 1982; Estes et al., 1996), although the reintroductions in Oregon were unsuccessful.

Sea otters were extirpated from much of California, but a small population persisted in central California centered around Big Sur (Kenyon, 1969; Lafferty and Tinker, 2014). This southern subspecies (*E. lutris nereis*) has expanded in the past few decades and now extends from south of Point Conception northward to Half Moon Bay (Figure 1). The southern sea otters in California are still threatened and endangered on the state level, and potential expansions of their range are therefore of interest to conservation biologists.

On 5 October, 2015 a sea otter was seen by a biologist while birdwatching off the North Jetty at the mouth of Humboldt Bay (Figure 1, Cresswell, 2015). During this observation, the sea otter was spending its time grooming and diving for food. The otter had a dead common murre (*Uria aalge*) in its possession, potentially the result of a large-scale seabird die-off that occurred in 2015 (Gibble et al., 2015). The sea otter appeared to be playing with the murre, and the otter would take the bird with it when it dove for food. Seabirds are a very infrequent part of sea otter diet (Kenyon, 1969; VanWagenen et al., 1981; Riedman and Estes, 1988), but it is unclear if the sea otter was feeding on it.



Figure 1. Map of the current distribution of sea otters (*Enhydra lutris*) in California, based on California Department of Fish and Wildlife (2015). The current distribution is marked in red, while the recent observation in Humboldt County is noted as a green dot.

Sightings of sea otters are made every few years in Humboldt County, but only rarely do these sightings make it into the scientific record (Brown and Elias, 2008). To our knowledge this sighting that we report represents the first documented sighting

of any live sea otter in Humboldt County since 2005. Other recent observations of note include two dead male sea otters that were documented in Humboldt County. Although most sea otters found in Humboldt County are assumed to be from the southern sea otter population, genetic testing of a dead sea otter found in 2014 determined that it was from the northern sea otter population (Miller et al., 2015).

The Humboldt County coast is situated between the southern sea otters in central California and the northern sea otters between Oregon and Alaska. The continued documentation of southern sea otters and the recent documentation of dead northern sea otter in Humboldt County suggests the Humboldt County coast may be an important area for linking the two populations in the future. Recolonizations often take place in fits and starts (Lafferty and Tinker, 2014), and this is especially true of populations in linear habitats such as the coastal habitat along the Pacific Ocean. Although the exact reason for the gap between Humboldt County and established sea otter range is unknown, factors such as shark predation (California Department of Fish and Wildlife, 2015) may contribute to the lack of an established population. The two recent dead sea otters in Humboldt County were males, likely either extralimital wandering or dispersing into a new area. The extralimital wanderings of southern sea otters are generally noted south of the southern population (Tinker and Hatfield, 2016, 2017), and sightings north of the population are rare (Brown and Elias, 2008). In southern California, expansion of the range has been driven by male sea otters expanding into new areas in search of resources during winter and spring before returning to breeding grounds during summer and autumn (Lafferty and Tinker, 2014).

There is a strong professional and amateur biologist community in Humboldt County (e.g., Black et al., 2016), thanks in part to Humboldt State University and its Wildlife program, and this has led to the discovery of live and dead sea otters that may have gone undiscovered in other areas. We encourage biologists and interested citizens to report important sightings of rare wildlife to the California Natural Diversity Database (California Department of Fish and Wildlife, 2015). These reports have helped document potential range expansion and range reoccupation of other wildlife in California (Allen et al., 2015) and are an important step to including observations in the scientific record.

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RÉSUMÉ

LES POPULATIONS DE LOUTRE DE MER (*Enhydra lutris*) DU NORD ET DU SUD PEUVENT SE RETROUVER CHACUNE DANS LE COMTE DE HUMBOLDT EN CALIFORNIE

La loutre de mer (*Enhydra lutris*) est un top carnivore et une espèce clé de voûte dont l'aire de répartition a diminué avec le déclin de la population au cours des derniers siècles. Mais grâce aux efforts de conservation directs, les populations de loutre de mer du Nord (*E. lutris kenyoni*) et du Sud (*E. lutris nereis*) ont toutes deux augmenté au cours des dernières décennies. Les deux populations ne sont pas connectées, et cependant, les loutres de mer du Sud de la Californie sont toujours menacées et en voie de disparition au niveau de l'État. La côte du comté de Humboldt est située entre les loutres de mer du Sud du centre de la Californie et les loutres de mer du Nord qui se trouvent entre l'Oregon et l'Alaska. En 2015, une loutre de mer a été observée dans la baie de Humboldt, la première observation dans le comté de Humboldt depuis 2005. Bien que la plupart des loutres de mer trouvées dans le comté de Humboldt soient présumées appartenir à la population des loutres de mer du Sud, des analyses génétiques, sur une loutre de mer morte découverte en 2014, ont montré qu'il s'agissait d'une loutre de mer de la population du Nord. La recherche continue sur les loutres de mer du Sud et récente sur la loutre de mer morte dans le comté de Humboldt suggèrent que la côte du comté de Humboldt pourrait être une zone importante pour relier les deux populations à l'avenir.

RESUMEN

LAS NUTRIAS MARINAS (*Enhydra lutris*) DE LAS POBLACIONES NORTE Y SUR PUEDEN ENCONTRARSE ENTRE SÍ EL CONDADO DE HUMBOLDT, CALIFORNIA

La nutria marina (*Enhydra lutris*) es un carnívoro tope y una especie clave, cuya distribución se contrajo junto a las declinaciones poblacionales en los últimos siglos. Pero debido a esfuerzos directos de conservación, tanto las poblaciones de la nutria marina del norte (*E. lutris kenyoni*) como de la del sur (*E. lutris nereis*) muestran incrementos en las últimas décadas. Ambas poblaciones, sin embargo, no están conectadas, y las nutrias marinas del sur, en California, están aún amenazadas y en peligro de extinción a nivel del estado. La costa del Condado de Humboldt está situada entre las nutrias marinas del sur (California central) y las del norte que se encuentran entre Oregon y Alaska. En 2015 fue vista una nutria marina en la Bahía Humboldt, el primer avistaje en el Condado de Humboldt desde 2005. Aunque la mayoría de las nutrias marinas que se encuentran en el Condado de Humboldt, se asume que son de la población de nutrias marinas del sur, el examen genético de una nutria marina muerta, encontrada en 2014, determinó que era de la población de nutrias marinas del norte. El registro continuado de nutrias del sur y el reciente registro de una nutria del norte muerta en el Condado de Humboldt, sugiere que su costa puede ser un área de importancia para conectar ambas poblaciones en el futuro.