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Vagrancy in Antarctic and sub-Antarctic pinnipeds

In ecology, vagrancy refers to a species traveling beyond its typical distribution. Individual pinnipeds (seals) are known to venture far beyond their normal habitats, but records of such nomads are scarce, as they often go unreported. In November and December 2018, we observed considerable vagrancy in members of two pinniped species, both of which were injured. The first was a leopard seal (*Hydrurga leptonyx*; top), an Antarctic species, in Port Phillip Bay, Australia. This individual had very worn teeth and what we suspect was a healed propeller wound near its hind flippers. The second was a southern elephant seal (*Mirounga leonina*; bottom), a sub-Antarctic species, in Cape Bridgewater, Australia. This seal had damage to its left eye, but otherwise appeared to be healthy.

Leopard seals are solitary animals that live and breed on Antarctic pack ice, the outermost extent of which is located more than 3000 km from where we observed this individual. Likewise, the closest "colony" (defined here as more than 500 individuals) of southern elephant seals is on Macquarie Island, Tasmania (~60,000 individuals), which is more than 2200 km away from the individual we observed. However, small groups of southern elephant seals can also be found on islands closer to the Australian mainland, including Antipodes Island (New Zealand; ~250 individuals) and Maatsuyker Island (Tasmania; ~4 individuals).

Some researchers have posited that the rare observations of these species from the Australian mainland are examples not of vagrancy, but rather of seasonal transience, where the aberrant individual's presence recurs over time. Perhaps the animals are exploiting an abundant food source? Perhaps these occurrences are in response to changing environmental conditions, or signal the beginning of a colonization event? Perhaps injured individuals cannot compete with healthy adults and wander farther afield to feed and survive?

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