

## Ghost prey and missing conflicts: Reinterpreting the implications of bald eagle diet composition on the California Channel Islands

The study by Newsome et al. (1) presented an approach to evaluating the historic ecological role of bald eagles (*Haliaeetus leucocephalus*) on the California Channel Islands (CI). Unfortunately, they ignore an alternative explanation for some of their data and overinterpret their results, leading to conclusions that are not the most parsimonious (1).

First, Newsome et al. (1) incorrectly dismissed two prehistoric eagles with a stable isotope signature, suggesting “heavy reliance on terrestrial prey” as “migrants from the mainland.” They do so by arguing that large terrestrial prey would not have been available to resident CI eagles when their specimens were preserved. The eagle specimens, however, were radiocarbon dated to 12,000–34,000 BP (1, 2), whereas mammoths persisted on the northern CI until at least 11,050 BP (corresponding to ~13 ka) (3). Although a migratory origin of the terrestrial feeding eagles would support their argument that bald eagles exhibited a broad shift in diet to include terrestrial resources in historic times, an equally parsimonious conclusion would be that bald eagles took advantage of available terrestrial prey on the islands during both historic and prehistoric time periods (1).

Newsome et al. (1) subsequently emphasized that their study reveals a potential conflict between recovering bald eagle and island fox (*Urocyon littoralis*) populations on the northern CI. This conclusion ignores a preponderance of evidence to the contrary. The recent near-extinction of northern CI foxes because of golden eagle predation (4) suggests that island foxes

had evolved in the absence of selective pressure to maintain behavioral mechanisms, such as strict nocturnal activity, that guard against eagle predation (5), despite coexistence with bald eagles for millennia. More recently, breeding bald eagles on Santa Catalina Island have not hindered recovery of island foxes there. Despite intensive monitoring on Santa Catalina Island of both eagle nests since 1987 and fox survival since 2003, there has been no observed eagle predation on Santa Catalina Island foxes. Although bald eagles may occasionally depredate island foxes, we argue that the presence of fox remains in the Ferrello Point nest could reflect the historic role of bald eagles as terrestrial scavengers, rather than predators, on the CI.

In summary, we find that the rich potential of their methods was overshadowed by (i) their improper dismissal of potential prehistoric terrestrial prey and (ii) their conclusion that bald eagle restoration is detrimental to island fox conservation, despite evolutionary and contemporary evidence that bald eagles exert little, if any, pressure on CI fox populations.

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