

# Using Stable Isotopes to Assess A Decade of Dietary Resource Use in Two Sympatric Island Endemics: The Island Fox and Island Spotted Skunk



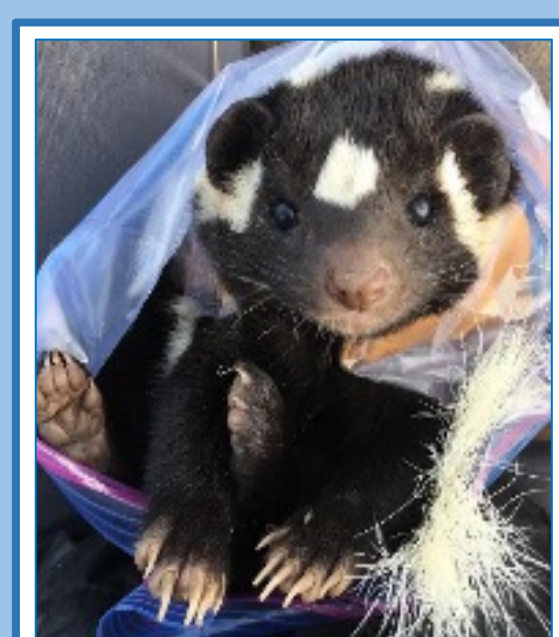
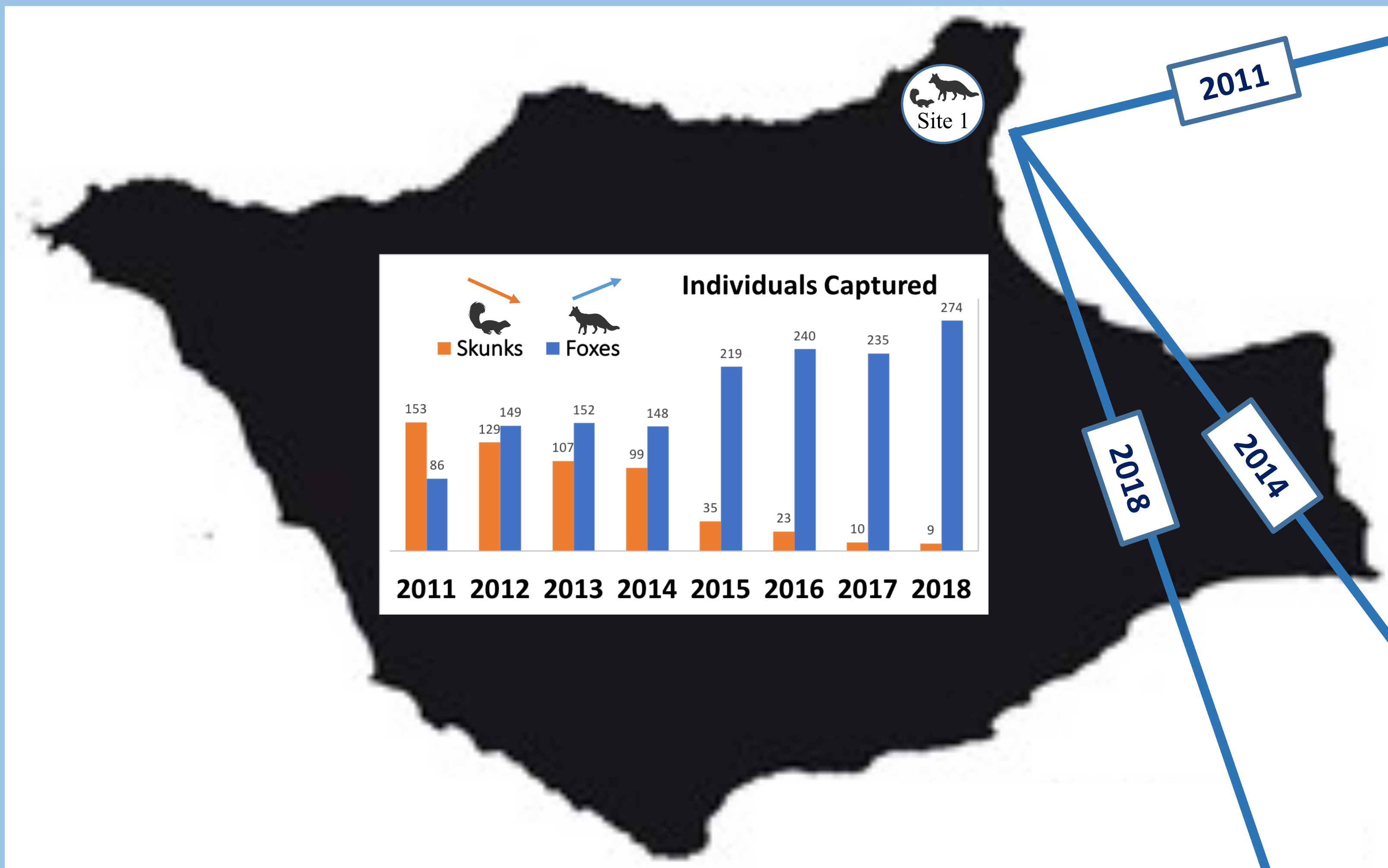
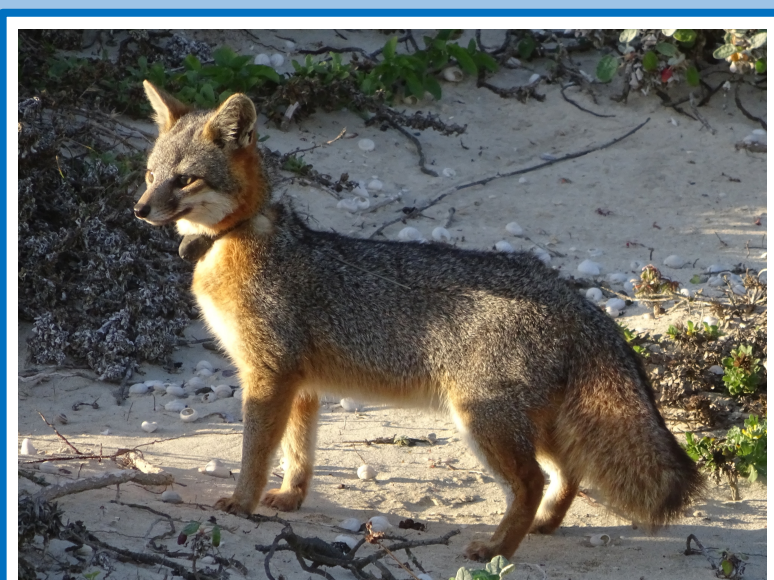
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1. Channel Islands National Park 2. Santa Barbara Zoo 3. Endangered Species Recovery Program 4. UCSB Marine Science Institute  
5. Center for Stable Isotopes, University of New Mexico

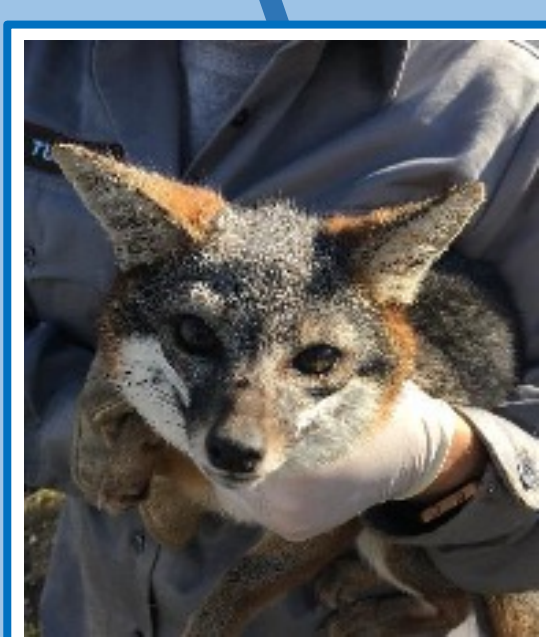
## 1. STUDY SITE & BACKGROUND



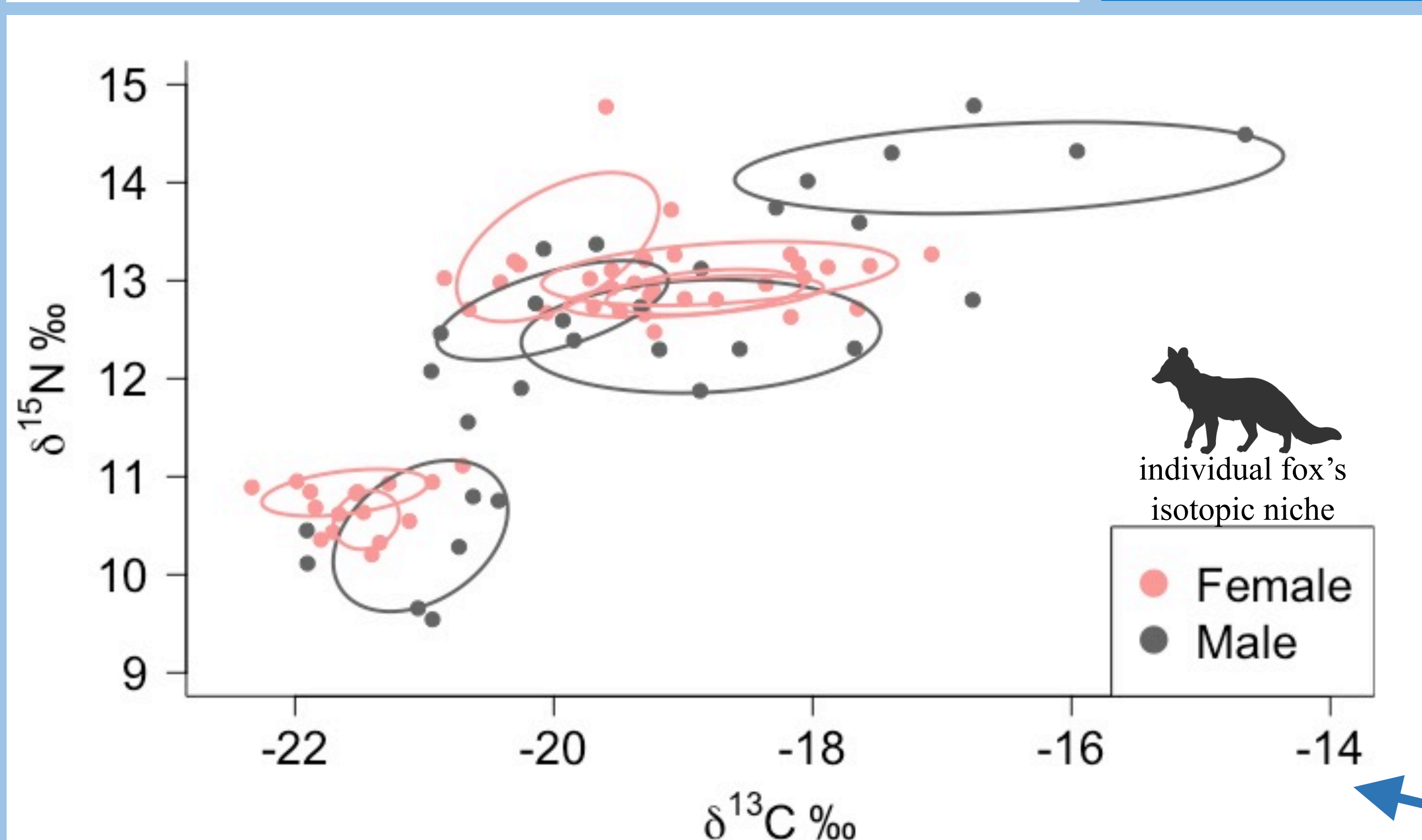
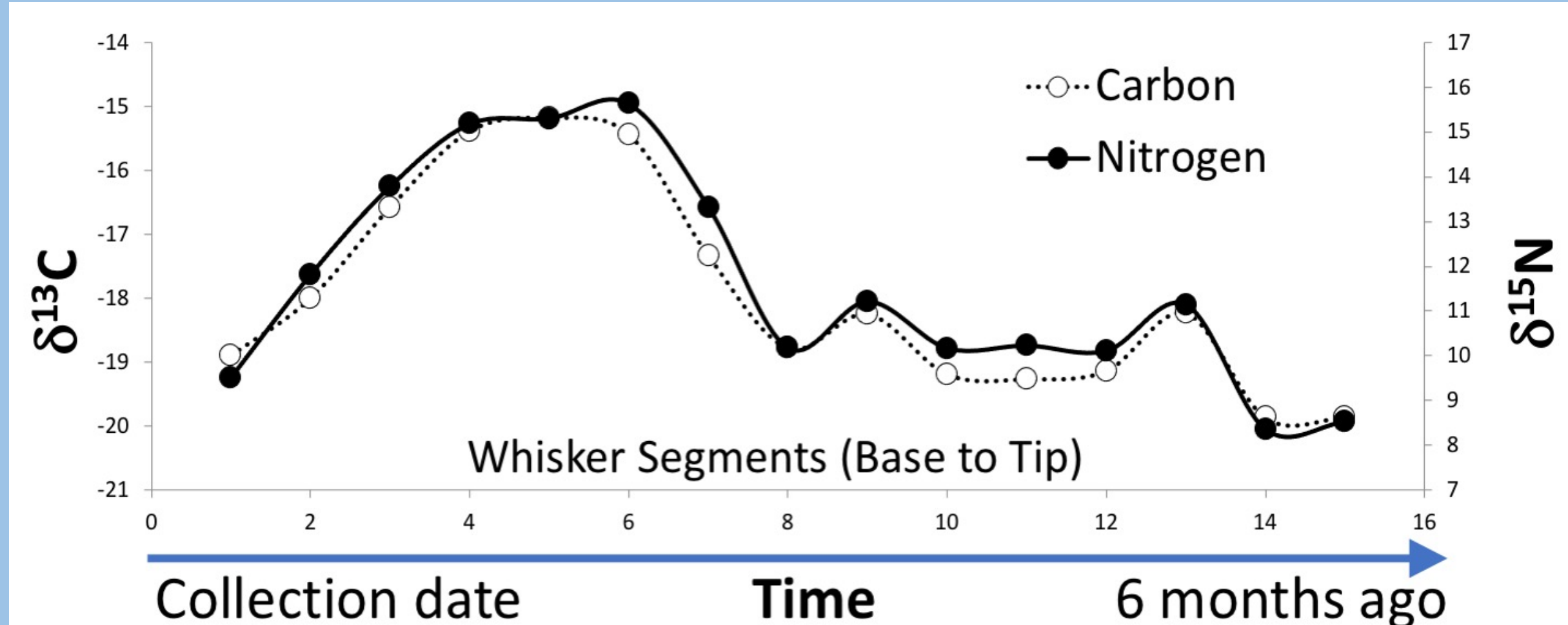
As the island fox population on Santa Rosa Island recovered from near-extinction, long-term monitoring documented an inverse relationship between the abundance of island spotted skunk and island fox.



We used stable isotope analysis of whiskers collected from skunks and foxes in 2011, 2014, and 2018 to assess dietary niche breadth, overlap, and inter- and intra-specific dietary competition as the density of each population changed.

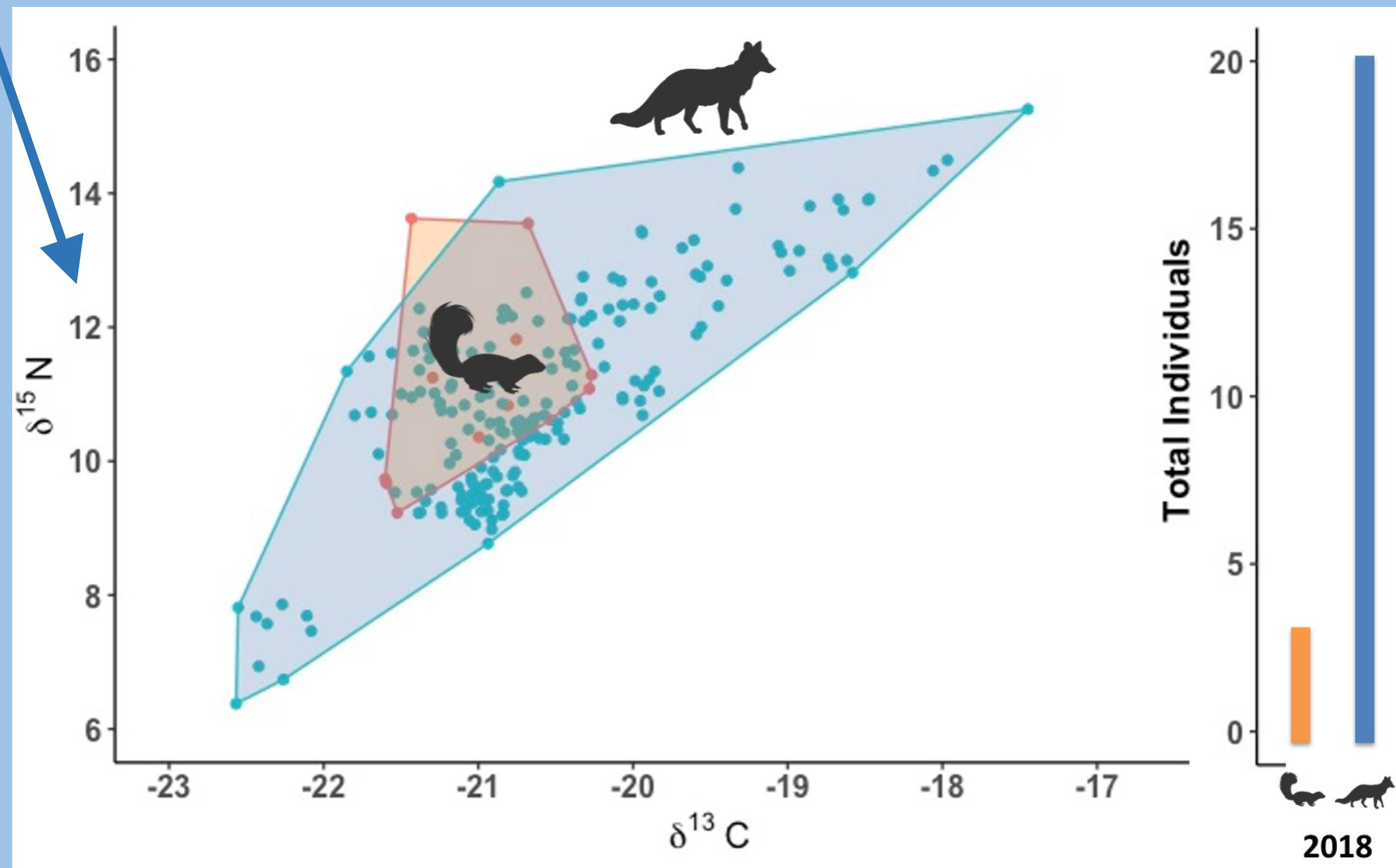
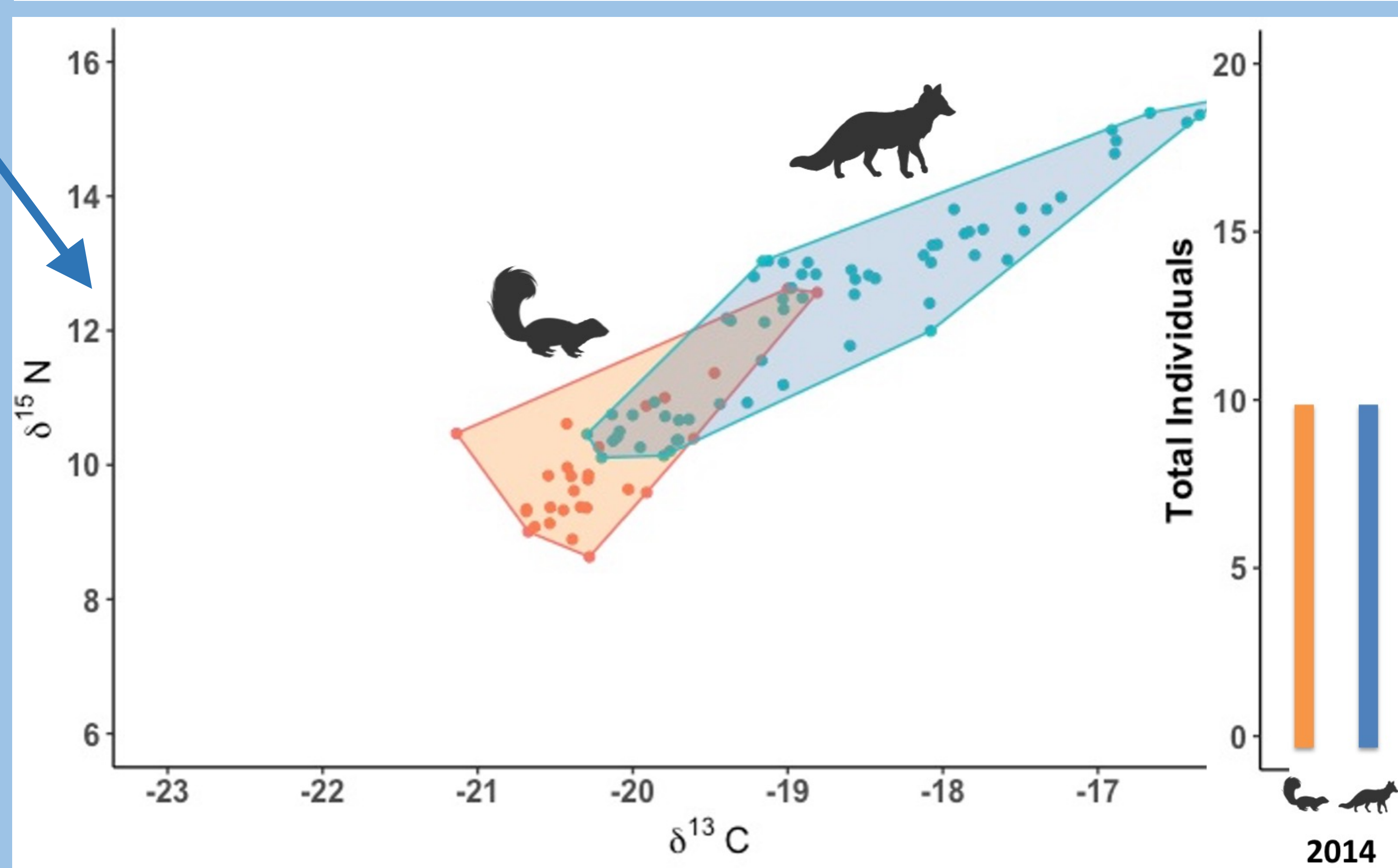
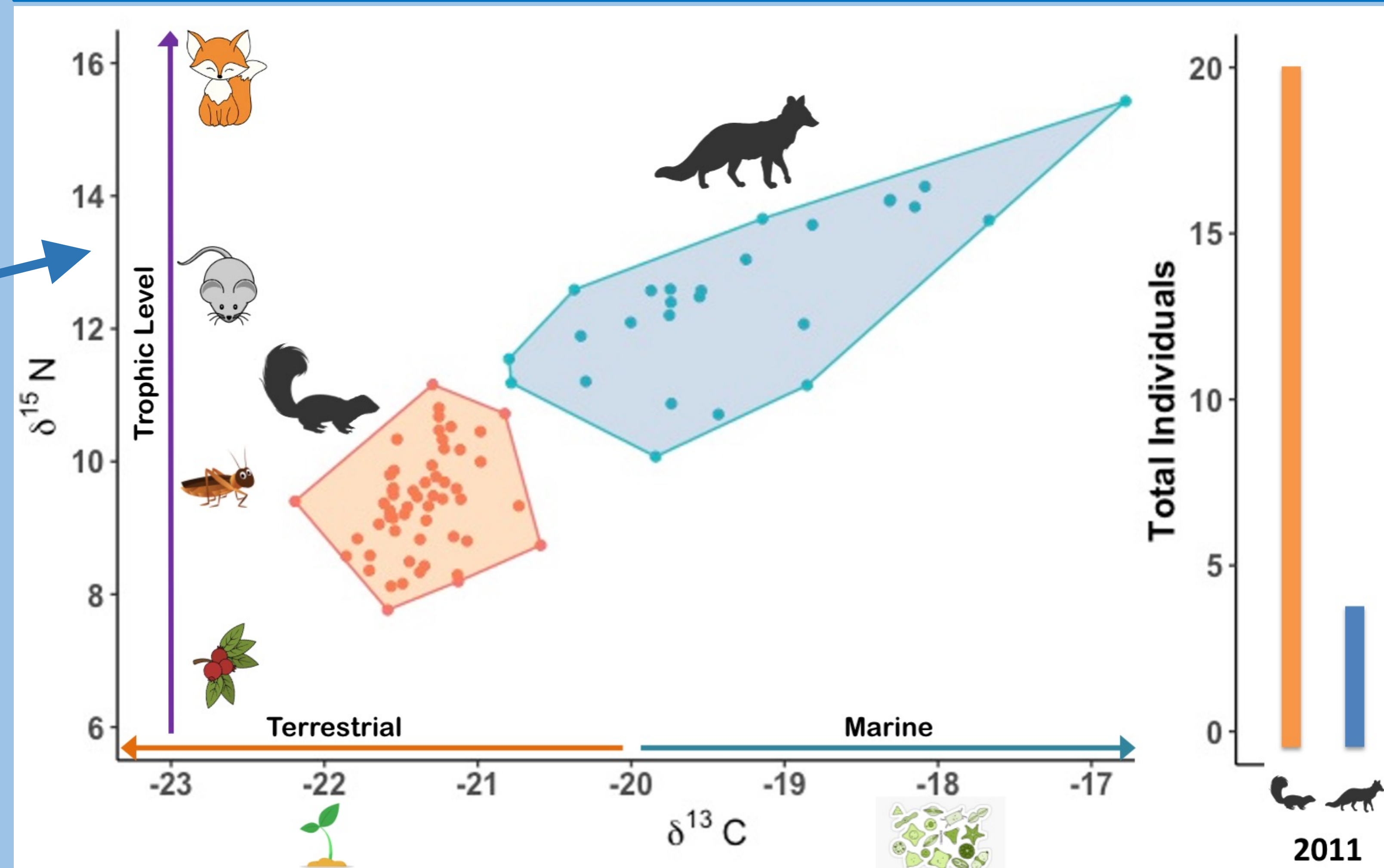


## 3. INDIVIDUAL DIETARY SPECIALIZATION



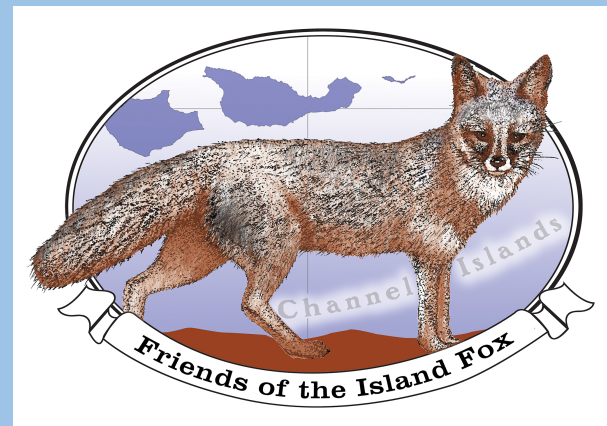
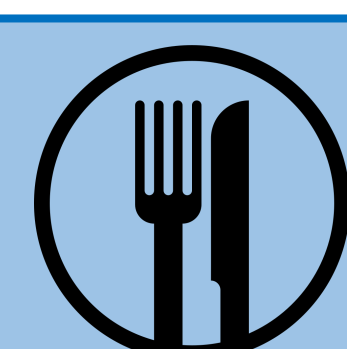
- Island fox displayed a high degree of individual dietary specialization, with Individual Niche Widths (INW) an average of 10% of the local population's Total Niche Width.
- Individuals with INW values below 20% are considered to be dietary specialists.
- As the population recovered, average INW decreased from 44% (+/-25%) to 10% (+/- 7%).

## 2. ISOTOPIC NICHE SIZE & OVERLAP



Island fox may avoid intra-specific competition via individual dietary specialization

- Skunk isotopic niche breadth did not change as the population decreased.
- Fox isotopic niche breadth increased as the population increased.
- Dietary overlap between skunks and foxes increased as the fox population recovered.



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