DEPARTMENT OF BIOLOGY | UNIVERSITY of WASHINGTON

Biology Seminar

Speaker: Jesse Granger, Ph.D.

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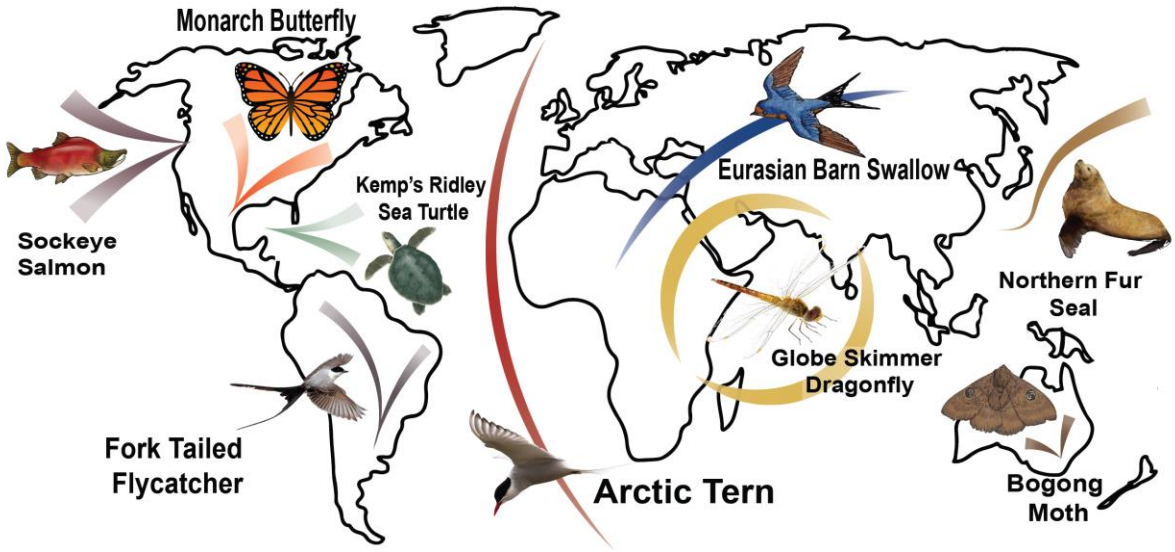
Behavioral and Geophysical Factors Influencing Success in Long Distance Navigation

Monday March 11, 2024 | 11:30AM PST | GNOM S060



Navigation in the open ocean has challenged humans for millennia. Nevertheless, animals around the world regularly accomplish astonishing feats of navigation. My research utilizes quantitative methods to better understand the biological mechanisms that enable such remarkable navigational feats. First, using computational modeling, I explore whether large marine animals, such as the gray whale, use the earth's magnetic field to migrate, and describe natural sources of electromagnetic noise that can disrupt this sensory modality. Then, I investigate the role of collective behavior in enhancing navigational accuracy among migratory animals, and challenge the idea that navigation is done primarily on an individual level. Using agent-based models, I show how collective behavior compares to other navigation strategies and explore the impact of population density on collective navigation, demonstrating that population loss can lead to diminished migration success and eventual collapse. This research illustrates the complex interplay between sensory mechanisms and social dynamics in navigation and offers valuable insights for future interdisciplinary research as well as conservation efforts.

Seminar Speaker Host: Carl Bergstrom