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Christine Sample* (samplec@emmanuel.edu), **Benjamin Allen**, **Yulia Dementieva**, **Hannah Sullivan** and **Polina Ovchinnikova**. *Fixation probabilities in migratory populations*.

Migration is a complicated process, as changes in one location carry through to other areas due to species movement. Mathematical models offer a way to understand how the migration pattern of a population affects the rate of genetic change. We represent the spatial structure of a population as a network, where nodes represent habitats and edges represent pathways between habitats. We develop a stochastic model for population dynamics from survival and reproduction to migration across habitats and seasons. We then introduce a mutant allele into the population and compute fixation probabilities through simulations. We compare the fixation probabilities to that of a well-mixed population to determine if the migration pattern serves as an amplifier or suppressor of selection. The Eastern monarch butterflies and elk of the Greater Yellowstone Ecosystem are used as case studies. (Received January 24, 2022)