

Biology Seminar



Western
UNIVERSITY · CANADA

12:30 - 1:30 pm
Friday, October 7, 2022
Via ZOOM



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Geographic variation in monarch butterfly migration success

The breeding range of the eastern monarch butterfly population extends from the NE edge of the Rockies (105W) to the Canadian Maritimes (65W) with most breeding during the summer occurring north of 40 N. Colonization of this range begins each March as monarchs migrate north from overwintering sites in Mexico. After two-three generations, depending on latitude, monarchs undertake a fall migration with a return to Mexico. This dynamic gives rise to a number of questions; do monarchs from all parts of the range return to Mexico, are monarchs equally successful in reaching Mexico irrespective of their origin, does the timing of colonization in the spring and early summer affect the timing of the fall migration and migratory success and lastly do environmental conditions during the breeding season and migration influence population size and the numbers overwintering in Mexico? To address these questions, we analyzed data from the fall monarch tagging program administered by Monarch Watch in combination with other data sets.

Monarchs appear to be able to return to Mexico from all parts of the breeding range with the exception of peninsular Florida. However, the proportions recovered for each latitudinal swath declined from west to east. Possible reasons for this pattern involve distances and time migrating, timing of the migration from each region along with wind and geography that may or may not favor migratory success. A comparison of the tagging and recoveries for each longitude range shows that the tagging within 100-85W (52.2% of the total) accounted for 80.4% of the recoveries. These data also indicate that breeding success, along with recovery rates, vary regionally and among years. Factors that appear to account for these differences include the numbers of colonizing butterflies along with their time of arrival, and reproductive success related to summer temperatures and precipitation.

Overall, these results support the assessment that sustaining the monarch migration will require habitat protection and extensive restoration in the central monarch flyway.

