



## Colorado Science and Engineering Fair

## 2025 Individual Project Abstract Form

Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.

Title of Project: Monarch Butterfly Pitstop

Finalist's Name: Kendyl Osborn

School and City: La Junta Junior High School, La Junta, Colorado

Sponsor's Name: James Osborn

Category: Earth & Environmental Sciences

Division: Junior (grades 6 - 8)

Abstract (250 words or less):

Habitat loss and pesticide use has decreased insect numbers and now climate change is compounding the problem. Pollinators need a joint effort from federal, state, and private land managers so our children can see them. In fact, I have never seen a live Monarch butterfly...until now. I was curious how the hotter drier environment could affect the food web for pollinators in southeastern Colorado, especially the Monarch. After conducting research and attending a Xerces Society pollinator training, I predict I can host all four life stages of the migratory Monarch butterfly on my experimental sites. 199 acres of the Osborn ranch was used as a control site and was not enhanced with any additional milkweeds, forbs, water trays, driftwood, or bunch grass. One acre was measured out into five experimental sites "A-E" on two different soil types and enhanced. Native and appropriate seeds were collected or purchased and then planted. 30 seeds of four milkweed species were cold stratified in moist sand at 4 degrees Celsius for 30 days and then planted in pots of native soil. 30 seeds of the same four milkweed species were also dry planted in the same soil, on the same day, in the same size pots, irrigated with the same water, and grown outdoors side-by-side. Forbs and Little Bluestem were also dry planted the same day in pots. Seeds and Showy Milkweed plugs were also directly planted into the experimental sites. After monitoring the cold stratified and dry planted milkweed species planted in the pots and allowing vegetative growth to occur they were also planted in the experimental sites. Site "E" hosted an adult female Monarch! An egg was found on the bottom of a Showy Milkweed leaf the next day! After my experiment I think the hotter drier climate is favoring Broadleaf Milkweed over Showy Milkweed in southeastern Colorado. The Broadleaf was swarmed with predators all season and is not a host milkweed. The Showy hosts the monarch but are only found near water. The Green Comet milkweed which grows in drier soil and is an actual host species with larger leaves may be a solution for monarchs.

*I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.*

Finalist's Signature: *Kendyl Osborn*

Date: *2-14-2025*

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. **A signed copy of this form must be included in your notebook.**