

IS FLIGHT RESPONSE DURING HAZING INDICATIVE OF NEST SURVIVAL IN THE RED-WINGED BLACKBIRD, A SUNFLOWER PEST?

Maniago M.¹, Klug P.E.², Morales-Vega E.¹, Greives T.¹,

¹Department of Biological Sciences, North Dakota State University, Fargo, ND, USA.

² USDA-APHIS-WS NWRC, North Dakota Field Station, Fargo, ND, USA



Introduction

- Blackbirds (Icteridae) cause ~\$3.5 million dollars of damage annually to sunflower crops in North Dakota (Klosterman et al., 2013).

- Of blackbird species, 52% of sunflower damage is caused by red-winged blackbirds (Peer et al., 2003).

- Young of the year cause a 92% population increase in the fall during the sunflower damage season (Dolbeer, 2017).

- Understanding potential nonlethal techniques during the nesting season that can decrease or limit the production of young, could be important in limiting the damage inflicted on sunflower fields at harvest



Fig. 2 Nest of red-winged blackbird nestlings. Photo by Tim Greives

Methods

Flight Initiation Distance (FID) Methods

- Approached nests in direct movement
- Used range finder and counting steps to track distances
- If females were not present, hid 20 m away or came back later

Hazing - nest trap placed, and females were actively trying to be caught

Trial Schedule

- Incubation day 3 → Perform FID and behavioral assay
- Incubation day 5-6 → Hazing
- Incubation day 9-10 → Perform FID and behavioral assay



Figures 3 and 4. Handling/hazing a nesting female RWBL (left). A nest trap placed over a nest of female that was hazed (right).

Q1: Hazing does not change female fear response to predator intrusion

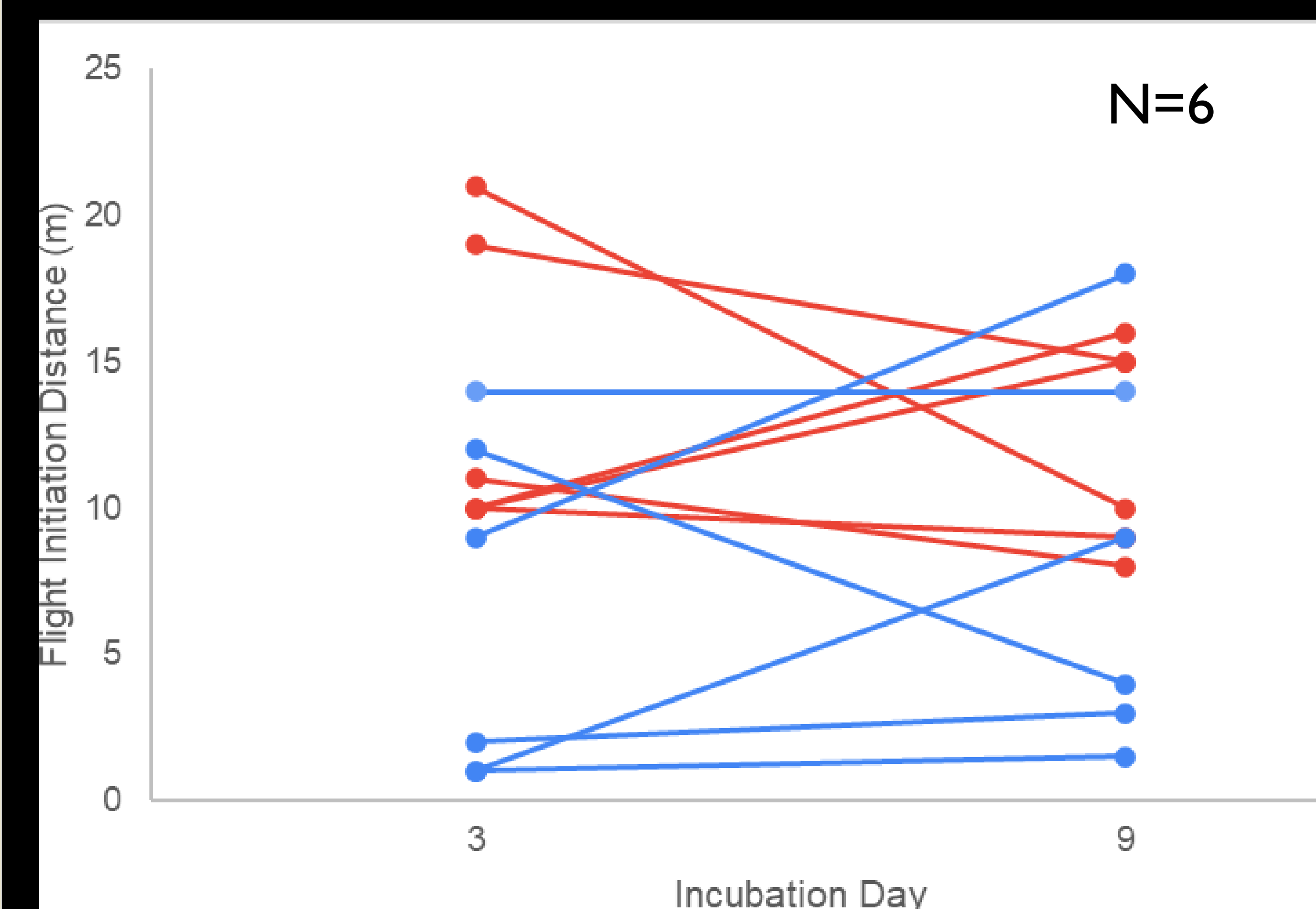


Figure 5. X-axis defines the Incubation day that FID was conducted, and y-axis indicates the FID in meters. The red lines represent the non-hazing group of females, and the blue lines represent the hazing group of females.

Q2: Hazing does not reduce reproductive success

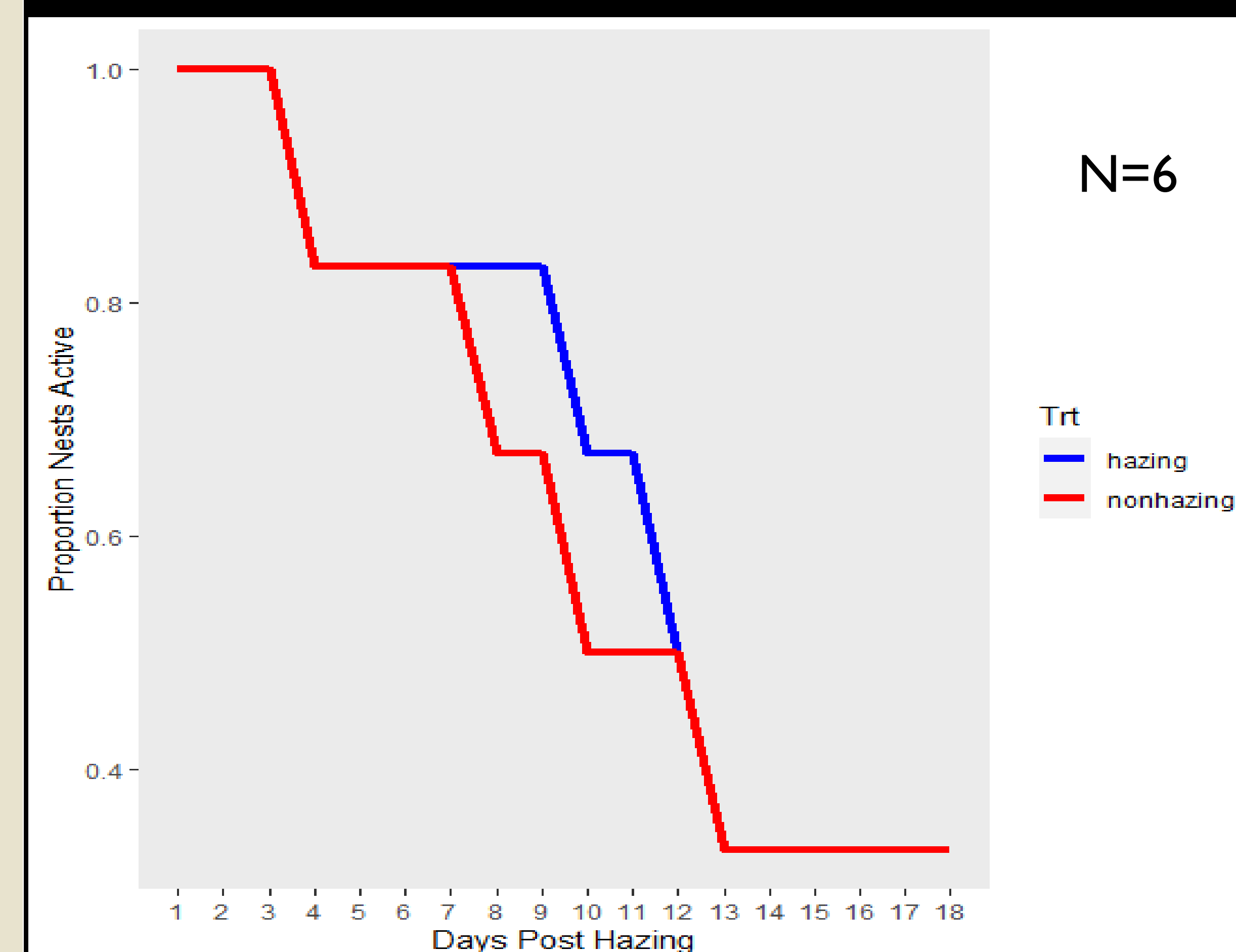


Figure 6. The x-axis represents days post hazing treatment, while the y-axis indicates the proportion of nests active out of total nests per group. The blue line represents the hazing group, and the red line represents the non-hazing group.

Summary

- Females that are hazed may increase or have similar FID's, but we need a larger sample size to see if this trend persists (repeated measures, $p=0.06$).
- Hazed females have similar number of active nests as non-hazed females and have more active nests on days 9-12 post hazing than the non-hazed females.

Future Directions

- Increase sample size to fully understand relationship of hazing on reproductive success and FID
- This could potentially provide a nonlethal way to mitigate the number of sunflower pests

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Questions

Q1. Does Hazing Alter a Fear Response?

Q2. Does Hazing Reduce Reproductive Success?