

# DO EARLY BREEDING BLACKBIRDS PRODUCE MORE YOUNG MALES, A SUNFLOWER PEST?

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Photo: Morgan Donaldson



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## Introduction

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

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

- Males make up a majority of these flocks and bioenergetics and other diet studies show males consume more sunflower seeds. (Peer et al., 2003).

- In other bird species, offspring sex ratio varies across the breeding season. Thus, timing of breeding may influence production of young of year male crop pests.

- Male-biased broods occur earlier in the season in some species, like the common grackle and great tit (Velando et al., 2002).



Fig. 1 Nest of red-winged blackbird nestlings. Photo by Tim Greives

## Methods

### Field Work

- During the summers of 2018, 2019, and 2020 red-winged blackbird nests were found and number of eggs were recorded.

- Nests were monitored every 2-3 days until the chicks hatched, and on day 6 blood samples were taken.

### Lab Work

- DNA was extracted from blood samples, followed by polymerase chain reactions (PCR) using sex specific primers.

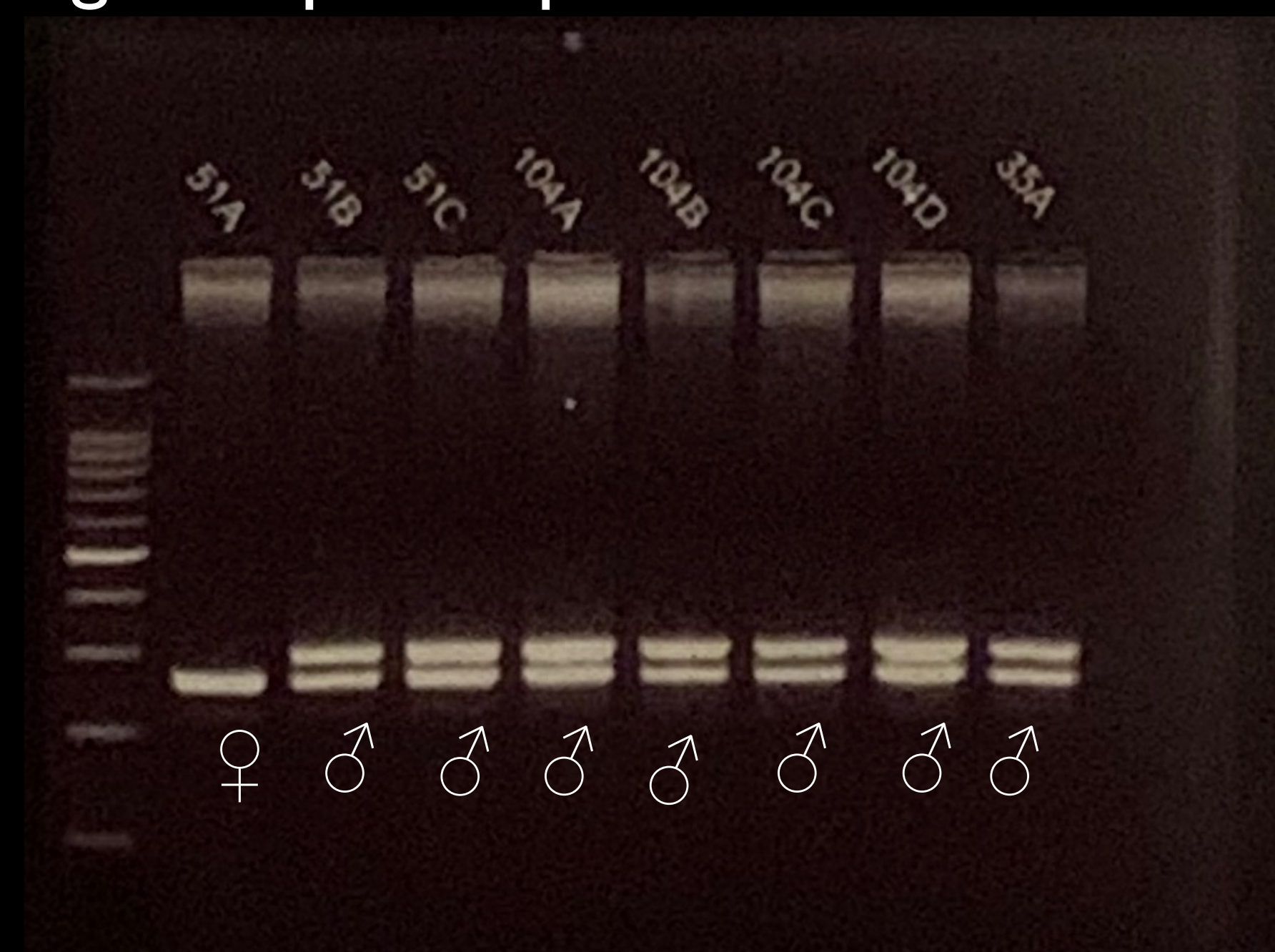
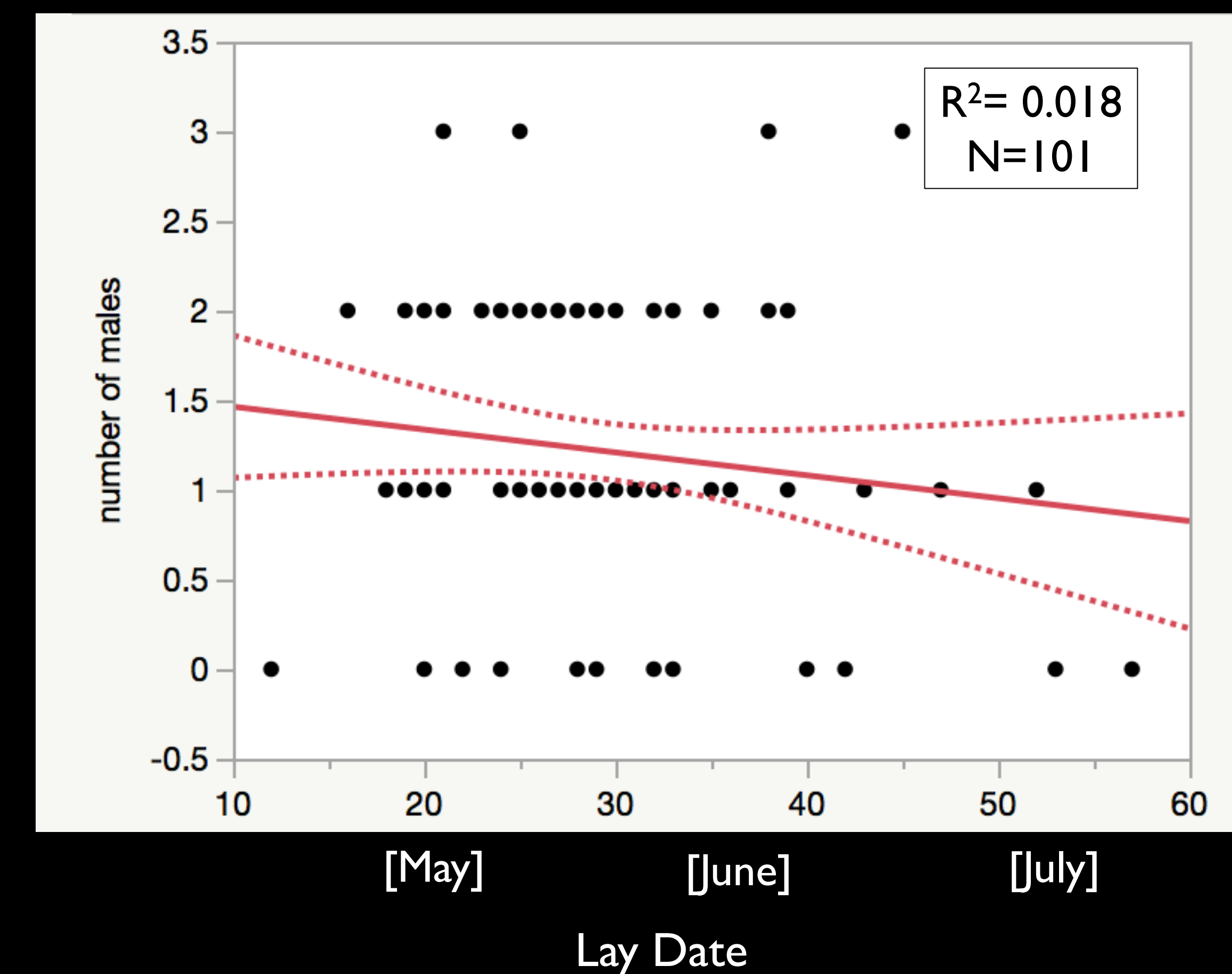
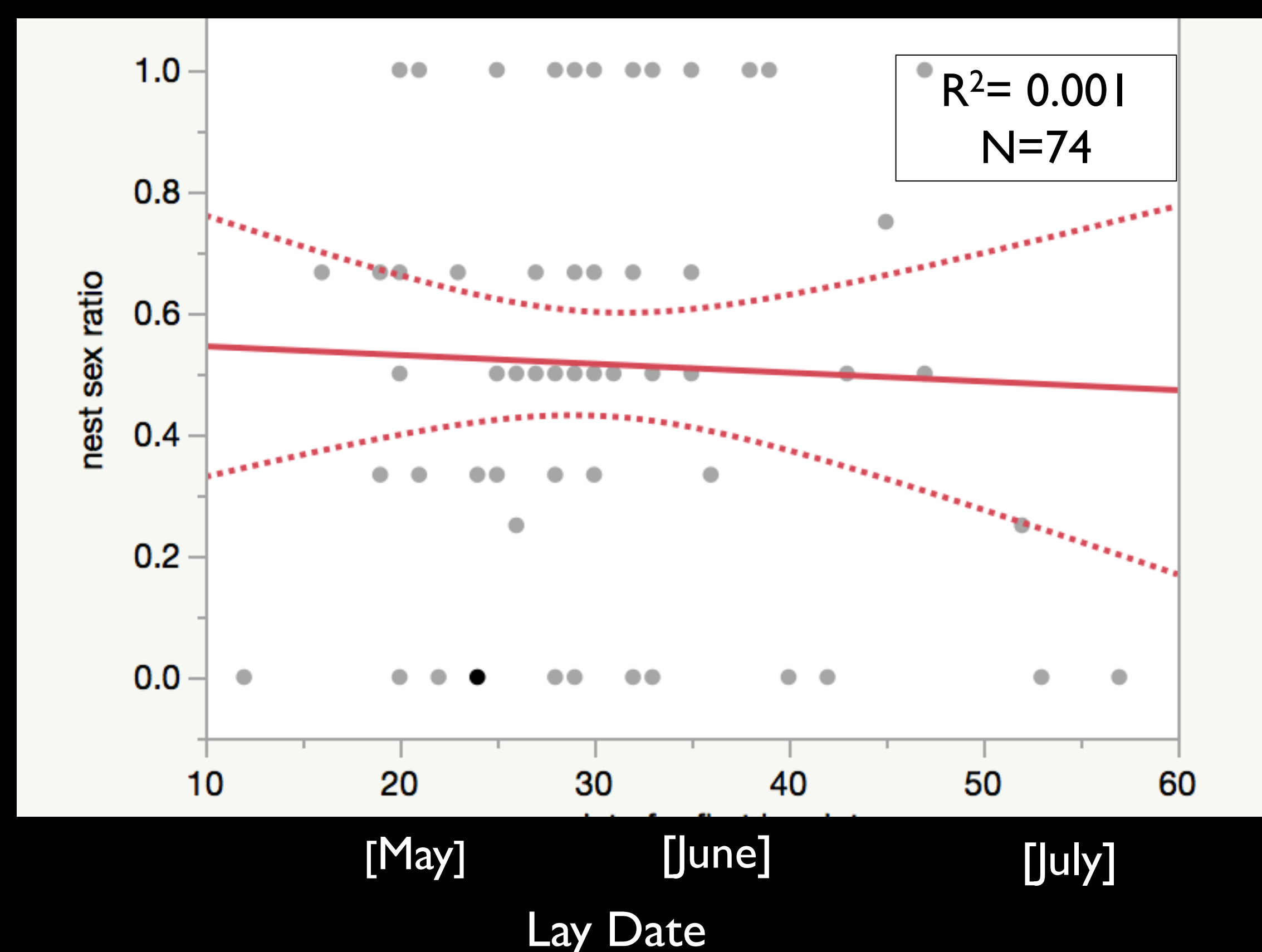


Fig. 2 Agarose gel electrophoresis of PCR amplification of sex genes. One band signifies a female and two bands signify a male.

## Q2: Females do not produce more males earlier in the breeding season



## Q1: Nest sex ratio does not vary across the breeding season, but all male nests exist



## Summary

- Sex ratio does not vary across a breeding season for blackbirds in this North Dakota wetland.

### Future Directions

- Some red-winged blackbird nests were all male while some were all female throughout the breeding season (Q1).
- Further research is needed to elucidate the parental traits leading to sex-biased nests.

## Research Questions

Q1. Does nestling sex ratio vary across a breeding season?

Q2. Do females produce more males early in the breeding season?

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