

The Timing of Purple Martin Nesting in Relation to the Availability of Their Aerial Insect Prey

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Introduction

- Birds need to time their nesting to peak prey resources, to increase the survival of young and therefore maximize fitness.
- New conditions with climate change may lead to a mismatch between nesting and prey availability.¹
- Aerial insectivores are showing steep population declines.² The declines may be in part related to a mismatch.³

Objectives

- 1) To investigate the **timing of aerial insect prey** in relation to the timing of **Purple Martin (PUMA) nests**
- 2) To determine whether aerial insect prey abundance is related to **local weather factors**

Methods

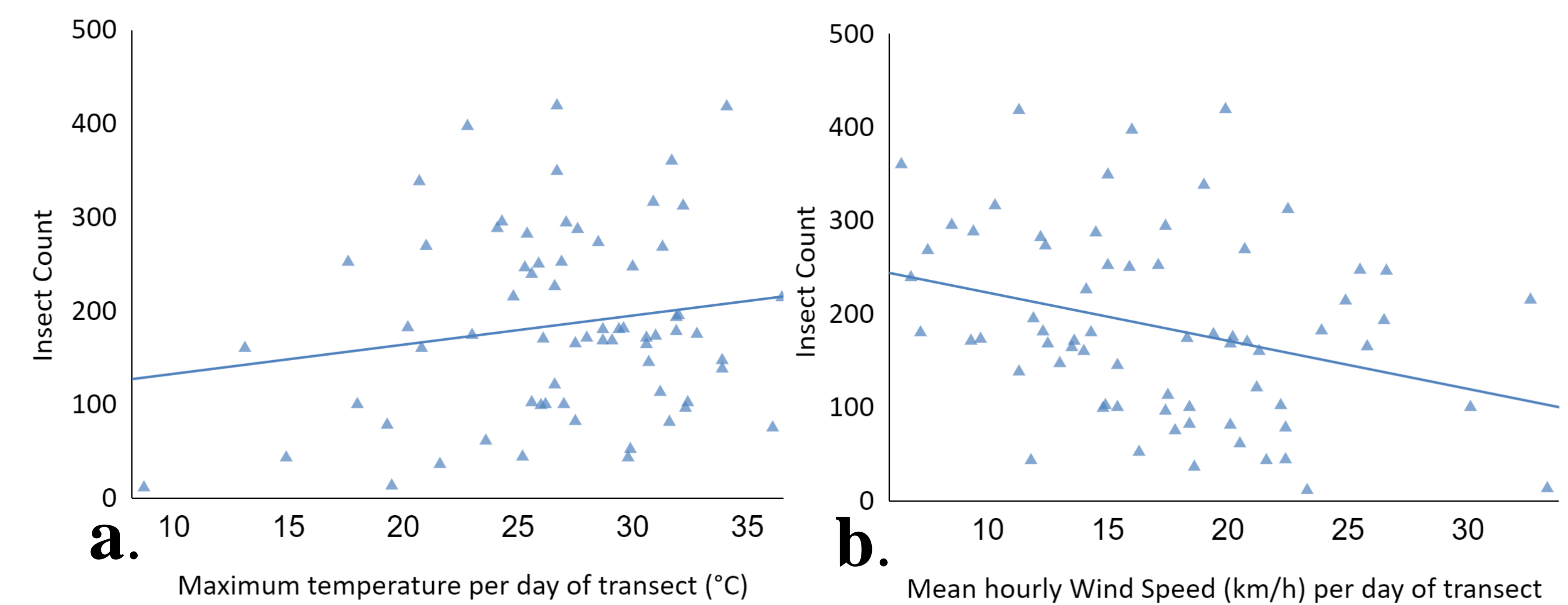
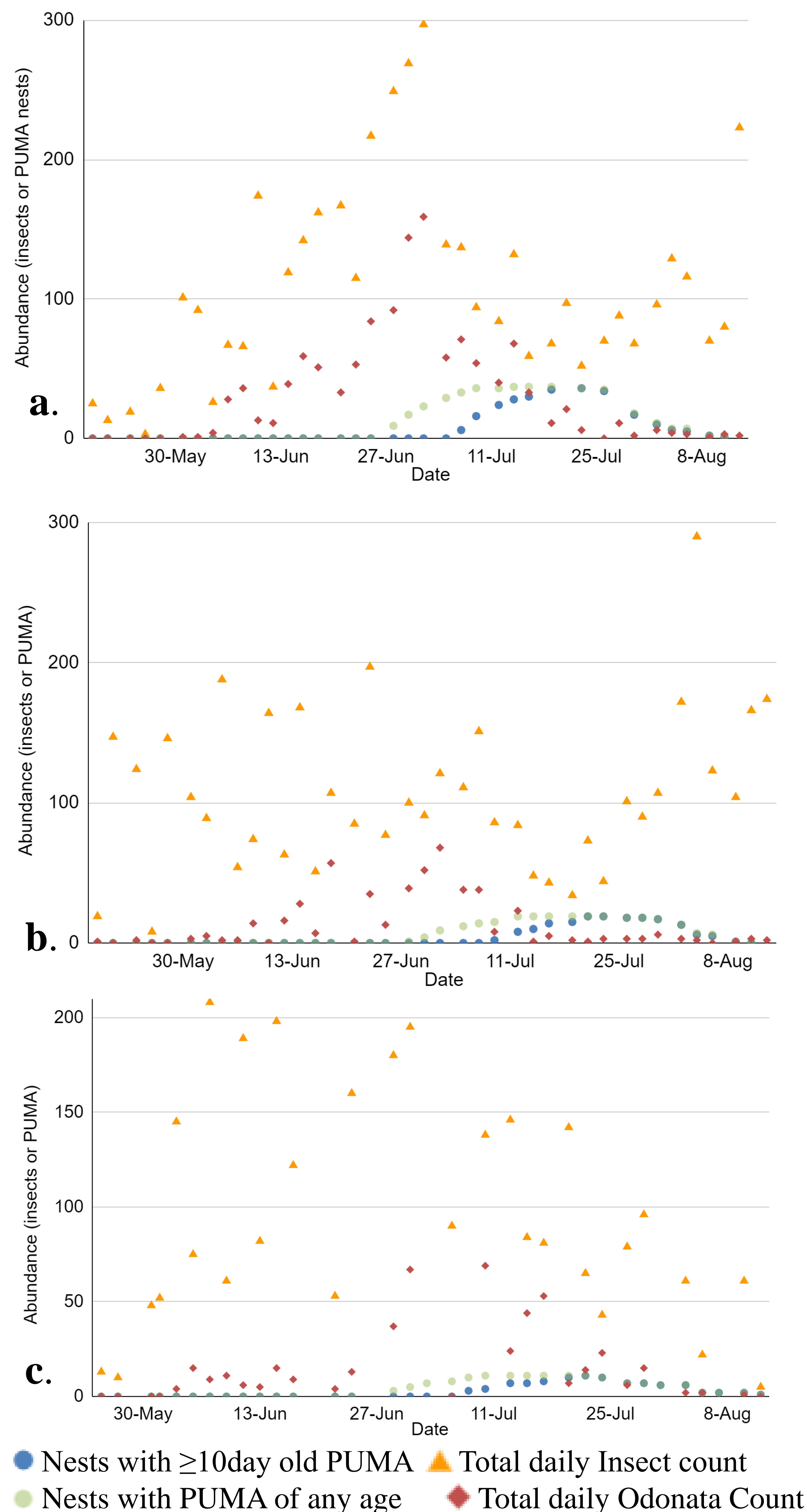
Insect Transects

- Conducted 100m-long observational transects; 15 min. each, 3 times/week, 19 May – 13 Aug
- Total insect and Odonata (dragonfly and damselfly) abundances were recorded along with weather conditions (wind and daily high temperature)
- Insect transects were conducted in Southern Manitoba, at 4 breeding sites: Fort Whyte Alive, Oak Hammock Marsh, Howden, and the University of Manitoba Smart-Park.

Purple Martin Nests:

- We monitored PUMA nests at the same sites as the insect transects, except for the Smart-Park which lacked nests this year.
- Purple Martin nests were checked every 1-3 days from May 21st to August 13th, to age and count nestlings.
- The timing of all active nests, and nests with ≥ 10 day old nestlings, were compared to insect abundance. Young ≥ 10 days old are at their peak energy demand, so this is when parents deliver larger prey (like Odonates).⁴

Results



Discussion

- Aerial insect abundance (both Odonates and all insects) varied strongly over the nesting season. On a daily scale, there were more aerial insects aloft with warmer temperatures and lower winds.
- Overall, peak aerial insect availability and the peak timing of Purple Martin nests were largely mismatched across all of the study sites.
- These results suggest that the timing of Purple Martin nesting may be mismatched with the availability of their prey. The number of cooler or windy days may also impact Purple Martin foraging success. Whether these factors impact nest success and fitness should be investigated in future research.

References

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4. Fraser unpublished data

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