Heterospecific Disruption and Display Success in Lance Tailed Manakins

Emma Abel, Pearl Rivers, Emily DuVal

Florida State University, Department of Biology

ABSTRACT

A part of interspecific interactions is interspecific competition. Although it is difficult to measure, an instance in which interspecific competition can be shown is when the presence of one species decreases the dispersion and/or competition of another (Dhont 2012). The migratory bird, Swainson's Thrush (*Catharus ustulatus*), tends to breed in northern boreal forests in the summer, wintering in South America, and migrating between the two during fall and spring. While stopping in the Republic of Panama during migration in April/May, videos have been taken of Swainson's Thrushes on the mating perch of a breeding, resident bird - the Lance-tailed Manakin (*Chiroxiphia lanceolata*). A previous study on the interspecific competition for food in breeding Blue and Great Tits found that the breeding success in Great Tits was negatively correlated with the density of Blue Tits (Minot 1981). This raised the question: Does the presence of Swainson's Thrushes affect the display success of Lance-tailed Manakins? With my research, I am predicting that breeding success in Lance-tailed Manakins will be negatively correlated to the density of Swainson's Thrushes. While previous research has investigated space and food competition, here I will study how the presence of a non-breeding species affects the success of a breeding species, providing new insight into how migratory species interact with and influence the lives of resident birds.

Does the presence of Swainson's Thrushes affect the display success of Lance-tailed Manakins?

OBJECTIVES

1) Characterize how often Swainson's Thrushes use Lance Tailed Manakin display perches as resting sites.

2) Assess the relationship between Swainson's Thrush presence and Lance Tailed Manakin display outcomes.

MATERIALS & METHODS

The 2019 research team captured videos of lance-tailed manakin display sites during the lance tailed manakin breeding season, which includes a time of peak Swainson's thrush activity.

Scanned videos for Swainson's Thrush presence, quantified time on LTM mating perch, SWT bill swipes, and recorded LTM presence and copulation.

To test whether the prior presence of Swainson's Thrushes predicted the likelihood of Lance-tailed Manakin bill swipes and Lance-tailed Manakin bouts of activity we used a Negative Binomial generalized linear model. To test whether the presence of Swainson's Thrushes on the display perch predicted Lance-tailed Manakin display success, we used Fisher's Exact test.

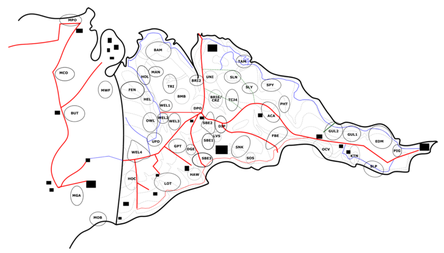

Fig. 1) A map of the Lance-Tailed Manakin display sites in which videos were captured.

RESULTS

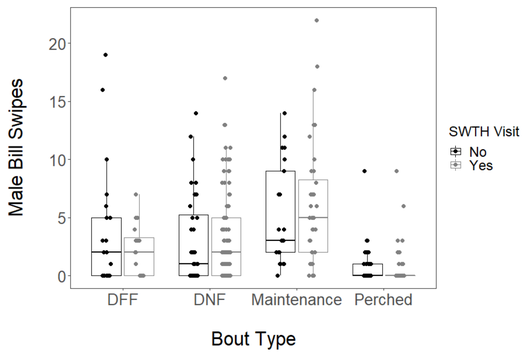

Fig. 2) The presence of Swainson's Thrush on the display perch was not a significant predictor of the number of bill swipes by lance-tailed manakins (Negative Binomial GLMM: estimate = 0.10 ±0.21, z-value = 0.46, p-value = 0.64; N = 304 bouts of activity at 4 display areas).

RESULTS CONTINUED

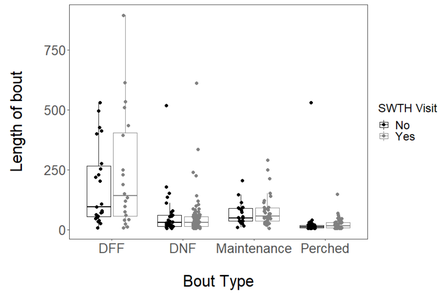

Fig. 3) The presence of Swainson's Thrush on the display perch was not a significant predictor of the length of bouts of activity by lance-tailed manakins (Negative Binomial GLMM: estimate = 0.10 ± 0.15, z-value = 0.64, p-value = 0.52; N = 304 bouts of activity at 4 display areas).

		Copulation?	
		No	Yes
Any Swainson's Thrush that day?	No	16	3
	Yes	15	0

Fisher's Exact Test for Count Data

p-value = 0.24 95% CI = 0 - 2.99

Fig. 4) The presence of Swainson's Thrush on the display perch was not a significant predictor of lance-tailed manakin display success (Fisher's Exact Test: p-value = 0.24 95% CI = 0 - 2.99; N = 34 observations).

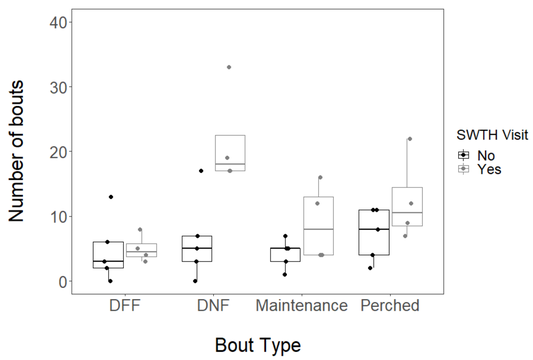

Fig. 5) The presence of Swainson's Thrush on the display perch was not a significant predictor of the number of bouts of Lance Tailed Manakin activity recorded (Negative Binomial GLM: estimate = 0.04 ± 0.44, z-value, = 0.09, p-value = 0.93; N = 36 observations).

CONCLUSIONS

To conclude, the data that I analyzed showed that presence of Swainson's Thrushes did not have an effect on the display success of a Lance Tailed Manakin. Even if the Swainson's Thrush bill swiped on the Lance Tailed Manakin perch, it did not predict the behavior of a Lance Tailed Manakin. The presence of a Swainson's Thrush on a Lance Tailed Manakin display perch did not predict whether or not a Lance Tailed Manakin was successful in his display, although the three times a Lance Tailed Manakin copulated, no Swainson's Thrushes visited the perch that day. We found no evidence that there is interspecific competitions for space. This research is still ongoing, and these conclusions are preliminary.

Fig. 6) An adult Swainson's Thrush

Fig. 7) An adult male Lance-Tailed Manakin

REFERENCES

Dhondt, A. A. (2012). *Interspecific competition in birds*. Oxford University Press, Incorporated.

Minot, E. O., & Perrins, C. M. (1986). Interspecific Interference Competition--Nest Sites for Blue and Great Tits. *Journal of Animal Ecology*, *55*(1), 331-350. https://doi.org/10.2307/4712

ACKNOWLEDGEMENTS

I would like to thank Pearl Rivers and Emily DuVal, along with my peers in the DuVal lab this year.