



Olfactory Displays: Manipulation of Scent Cues by Male Lance-tailed Manakins (*Chiroxiphia lanceolata*)



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ABSTRACT

- In this study, male lance-tailed manakins (*Chiroxiphia lanceolata*) were studied and analyzed to form a conclusion as to what factors affect the occurrence of bill swipes on a dancing perch.
- A bill swipe occurs when a bird wipes their bill on the dancing perch. Does experimental manipulation of olfactory, or scent, cues change the manakin behavior of bill swipes?
- This hypothesis was tested by manipulating scent cues at male display perches by wiping them with ethanol or with a dry cloth (control treatment).
- Data was collected on the number of bill swipes. Comparing the experimental treatment with the control treatment will determine if the male lance-tailed manakins are bill swiping more to change the scent cues on the dance perch once manipulated.
- The preliminary findings should favor the reasoning that male lance-tailed manakins perform more bill swipes once the dancing perch is wiped off with ethanol because they are trying to add back their scent cues to attract female lance-tailed manakins.

INTRODUCTION

- Lance-tailed manakins (*Chiroxiphia lanceolata*) are small passerine birds that are found in tropical Central and South America from Costa Rica to northern Venezuela. They are most identifiable by their size, plump shape, orange legs, and short tails. Indicating different plumages of the lance-tailed manakin can tell one their sex and age.
- Bill swiping is when a bird wipes its bill on a perch. It is a common behavior across bird species.
- During mating season, the male lance-tailed manakins perform dance displays and bill swipes to leave olfactory scent cues on the dancing perch to attract the female birds.
- The olfactory display hypothesis for bill swiping purposes predicts that birds may swipe their bill in reproductive contexts to add and release scent cues for potential mates.

METHODS



Figure 1. A definitive male bird sitting on the dance perch. This is where bill swipes are performed.



Figure 2. This is the camera that was used to record the activity of bill swipes that the male birds performed.

- Experimentally manipulated olfactory cues at male display perches by wiping them with ethanol or a dry cloth (control).
- Monitored activity at display perches using video cameras.
- Processed videos to identify activity bouts and recorded the number of bill swipes by males, the number of males present, the type of behavior, and the length of the display (in seconds).
- DFF: Display with a female present.
- DNF: Display with no female present.
- Maintenance: Perch maintenance behavior.

CONCLUSION

- After statistical analysis, it was concluded that the difference of bill swipes between the control and experimental treatment was not enough to determine if the reasoning that male lance-tailed manakins perform more bill swipes once the dancing perch is wiped off with ethanol is because they are trying to add back their scent cues to attract female lance-tailed manakins.
- There was no support for the hypothesis that males bill swipe to add or manipulate olfactory cues at their dance perches.
- Further research is needed to understand the function of bill swiping in lance-tailed manakins.

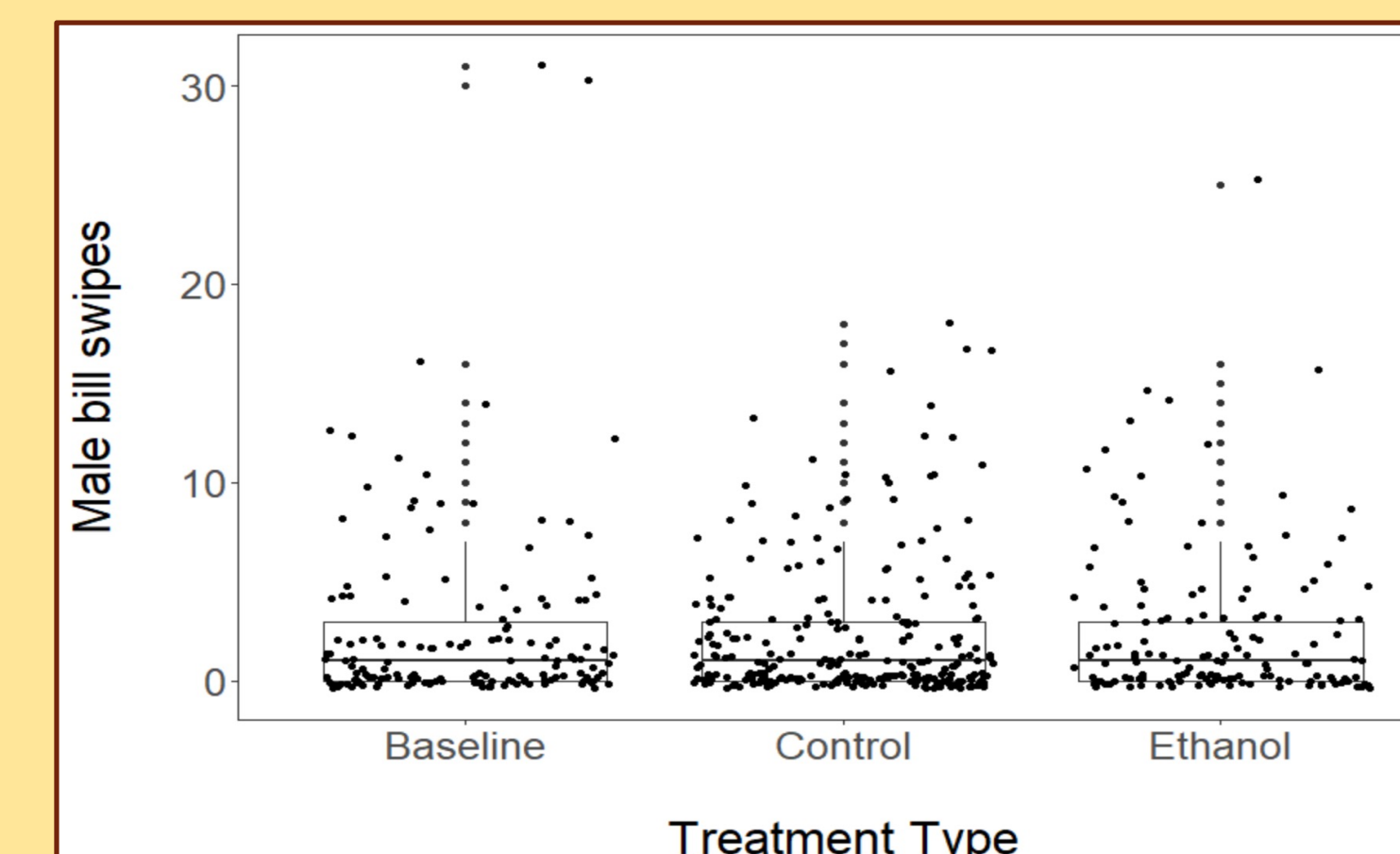
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RESULTS

	Estimate	Std. Error	z value	p-value
(Intercept)	-0.34	3.11	-0.11	0.91
treatment_type - Control	0.69	1.75	0.40	0.69
treatment_type - Ethanol	-0.38	1.82	-0.21	0.83
Dance_type - DNF	-0.28	2.21	-0.13	0.90
Dance_type - Maintenance	-2.96	2.30	-1.29	0.20
Dance_type - Perched	1.71	2.32	0.74	0.46
Nbr_of_males	-6.38	1.44	-4.42	0.00001

Table 1. Sample size = 541 bouts at 11 display areas.



Graph 1. This graph shows the relationship between the treatment type and male bill swipes.

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