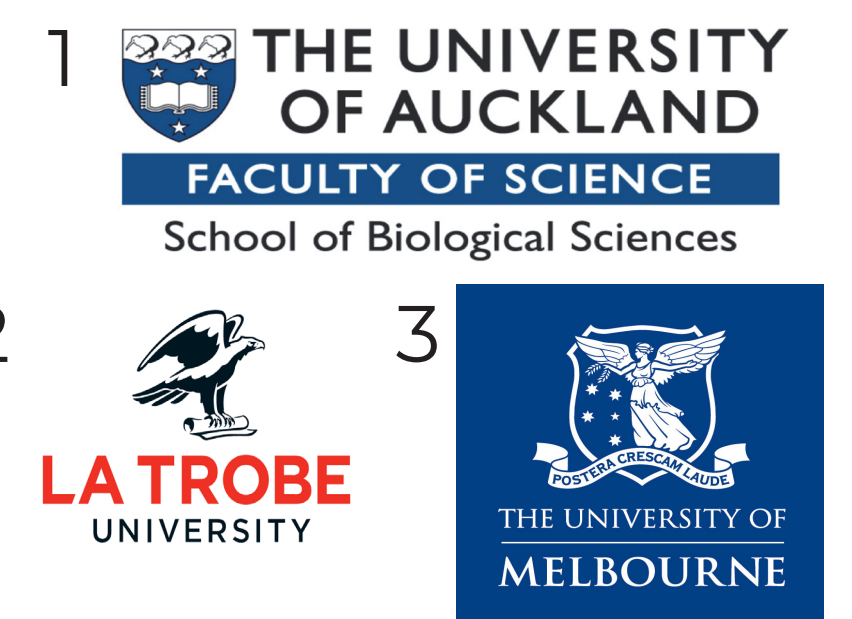


# Effects of sleep deprivation on birdsong performance

Juliane Gaviraghi Mussoi<sup>1</sup>, Robin D. Johnsson<sup>2</sup>, Farley Connelly<sup>2,3</sup>, John A. Lesku<sup>2</sup>, Kristal E. Cain<sup>1</sup>  
 ✉ jgav196@aucklanduni.ac.nz      🐦 @jgmussoi



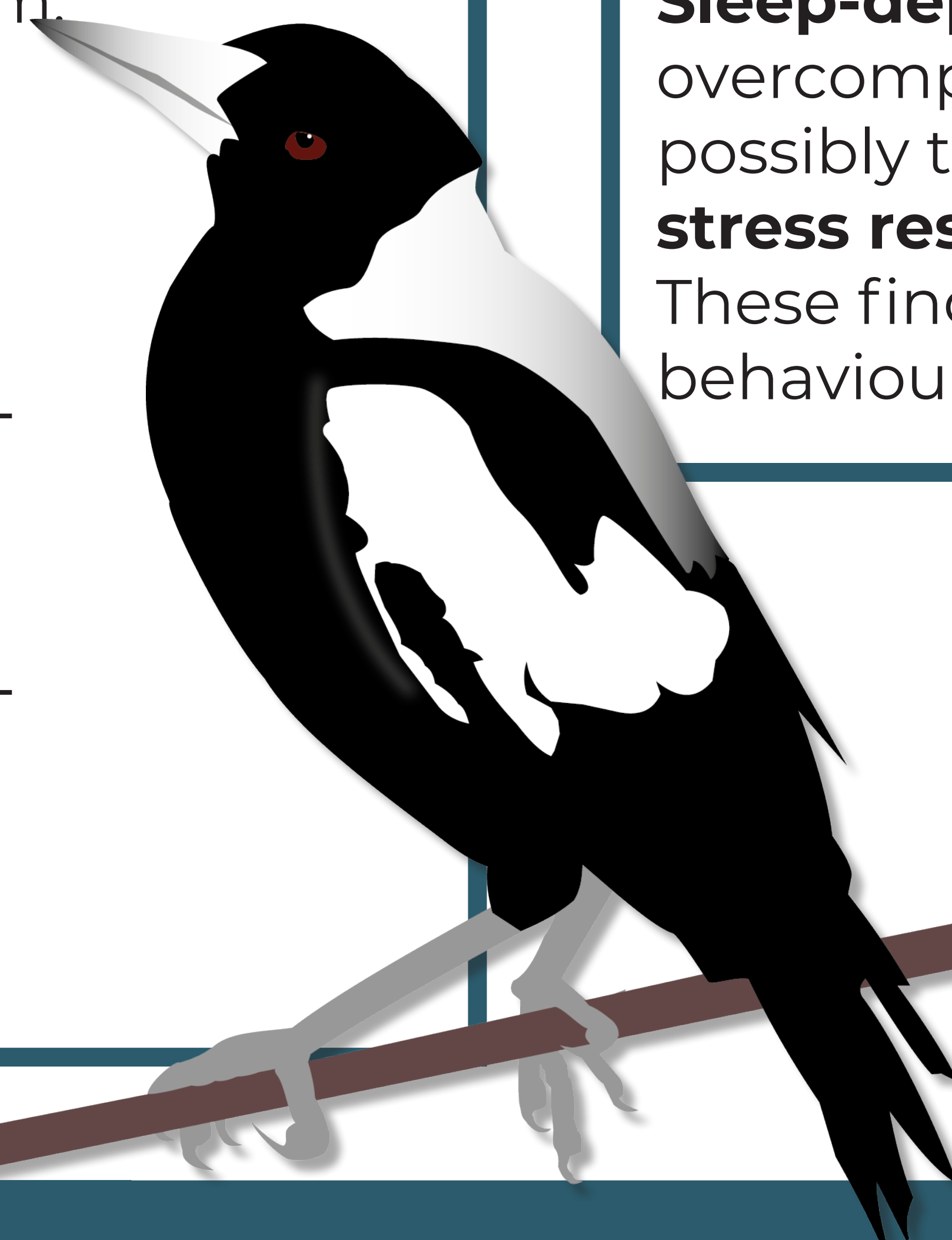
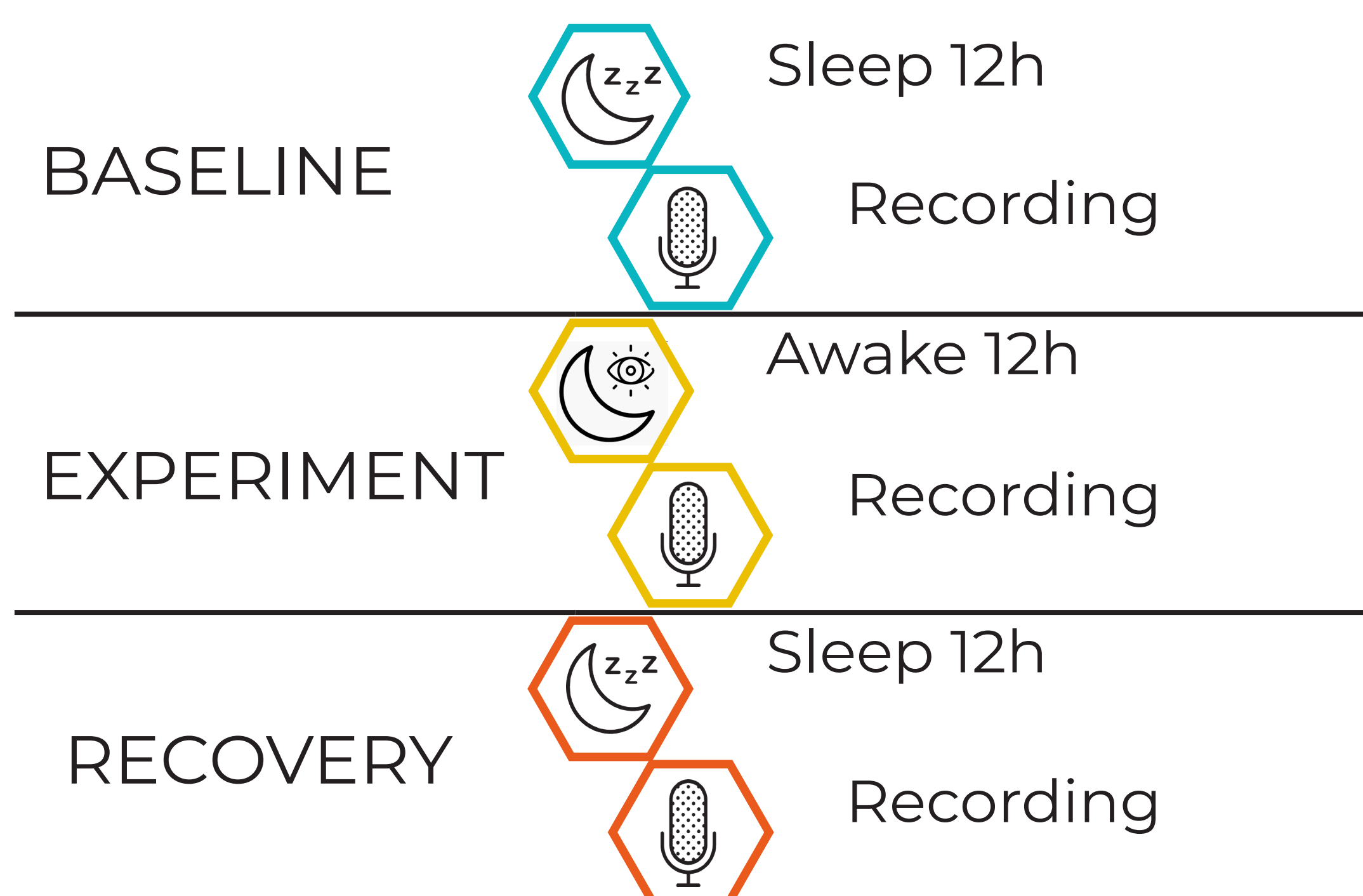
## Background

Birds **sing** to attract mates, defend territories, manage hierarchies, and signal danger or food to conspecifics. Among songbirds, song is learned through **imitation** and **sensorimotor processes**, a complex behaviour very similar to human language. Song learning and maintenance occur through song **repetition** during the **day**, and **consolidation** during **sleep**. However, little is known regarding whether (and how) lack of sleep affects song performance in adult birds.

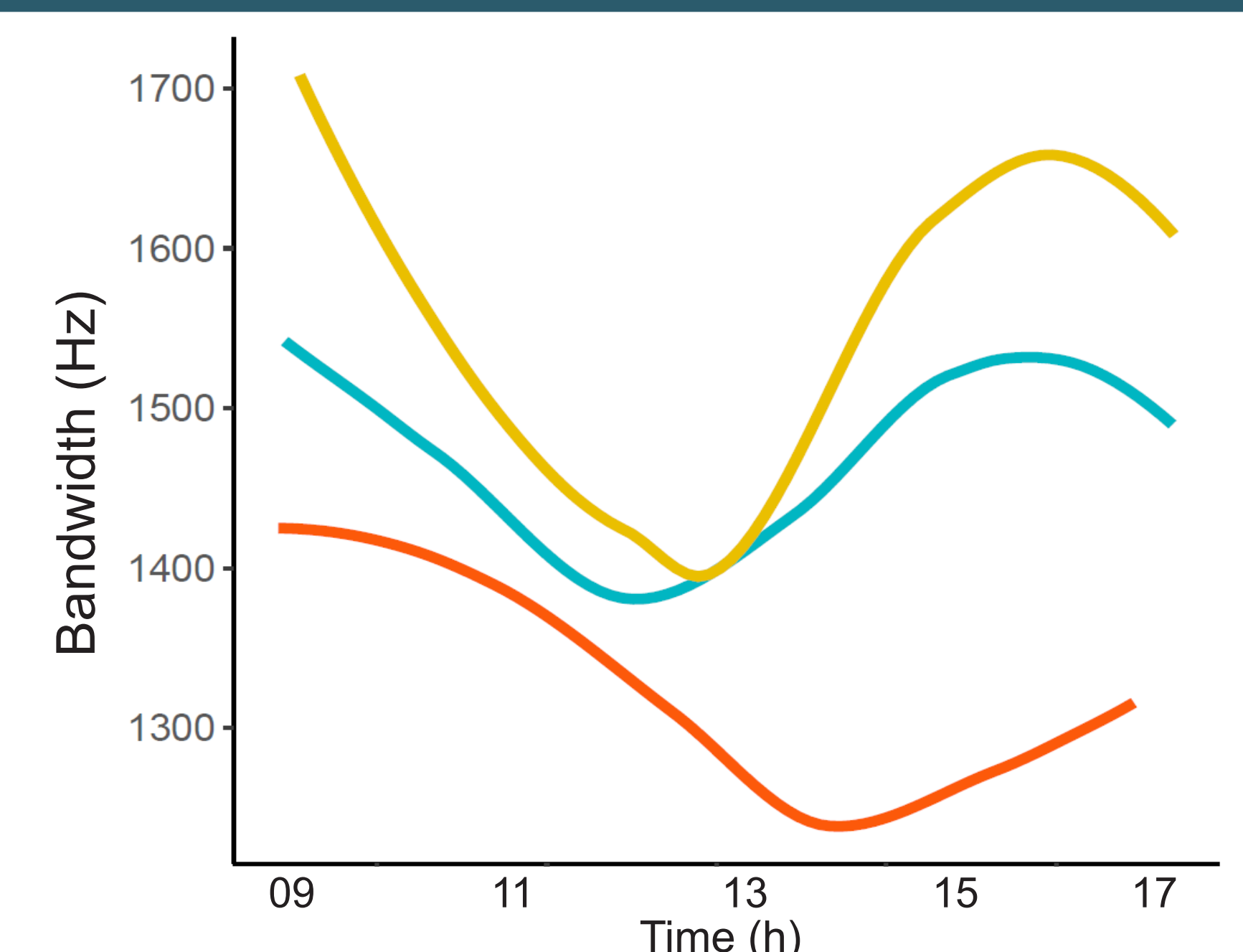
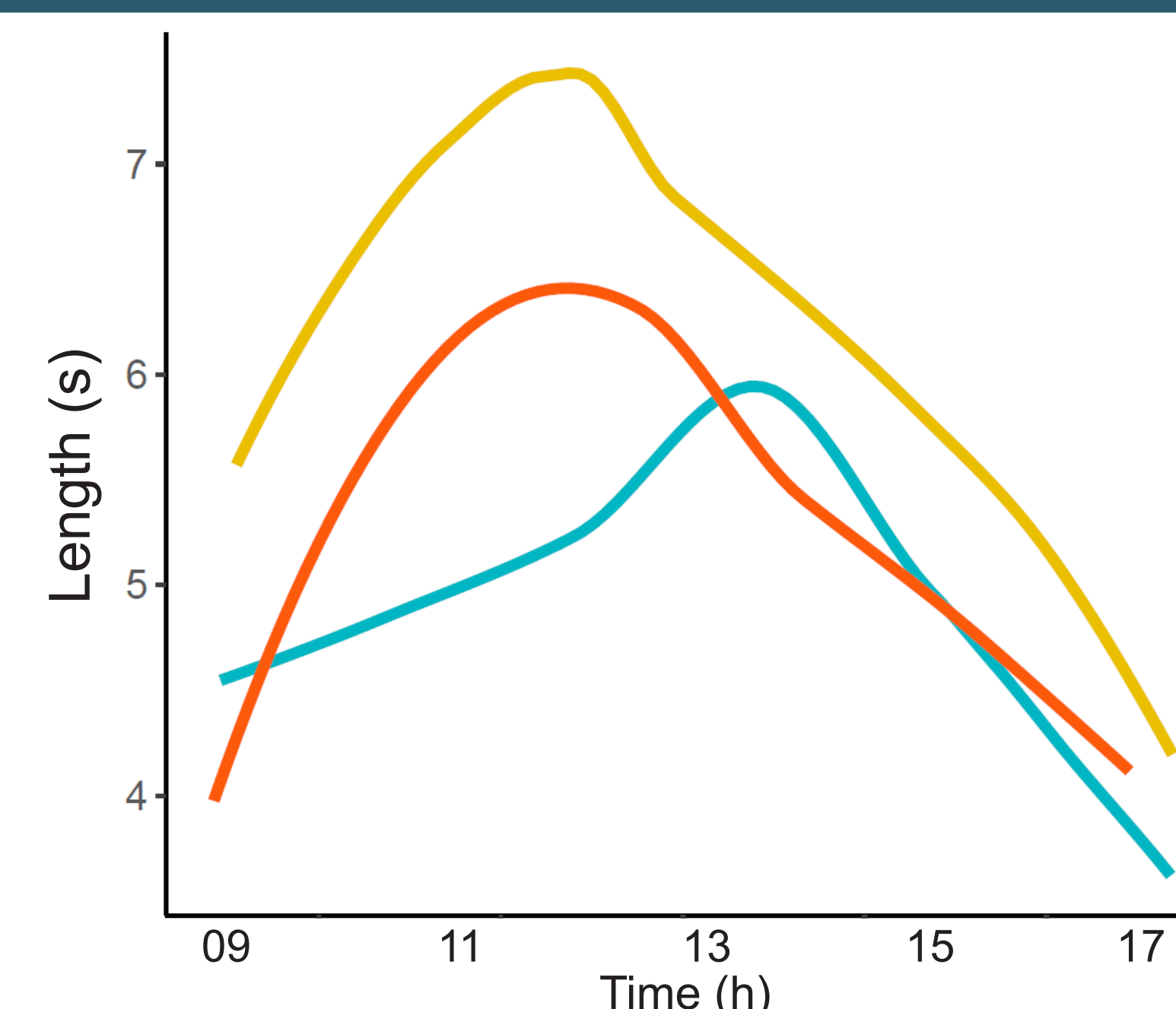
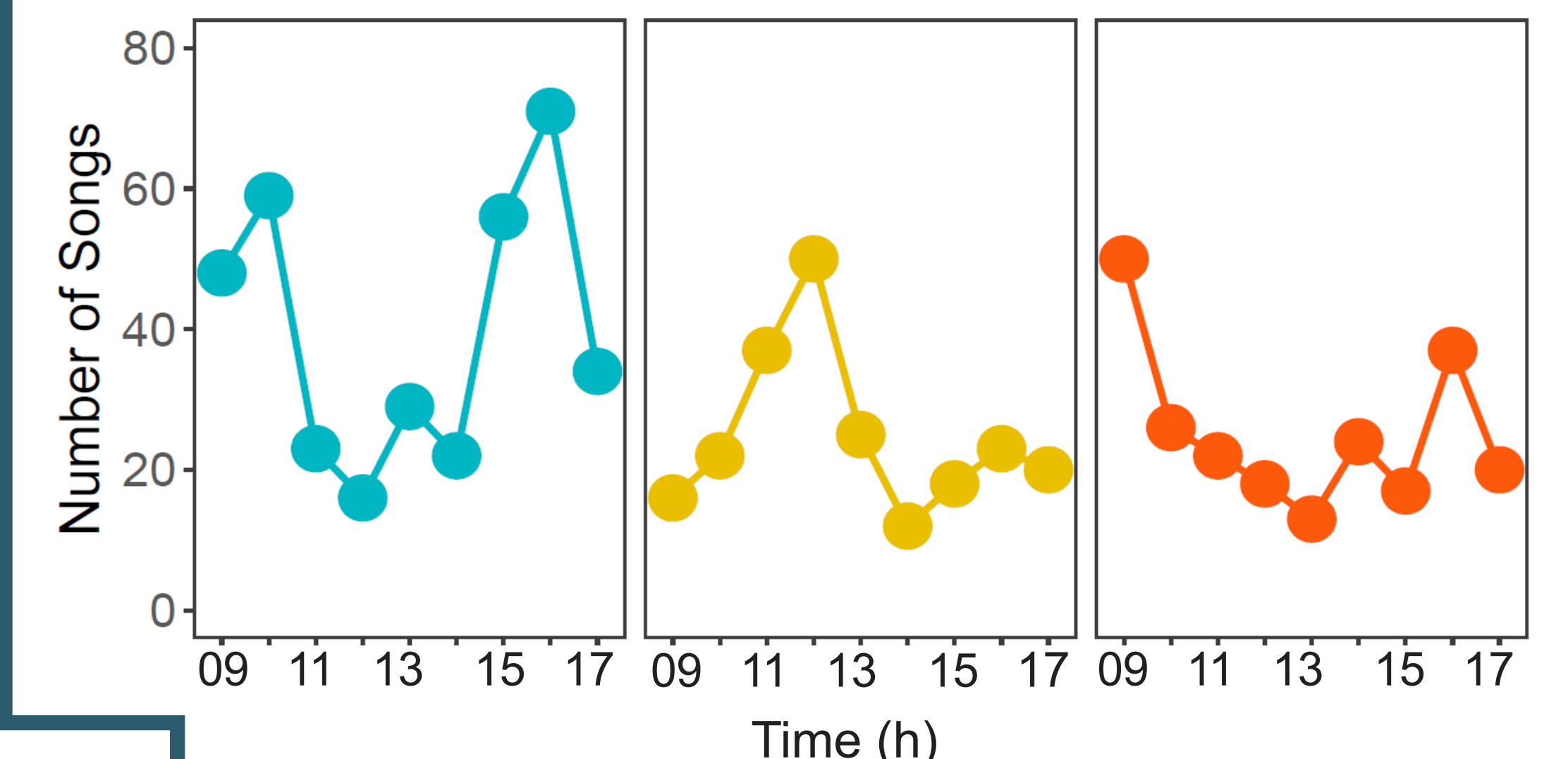
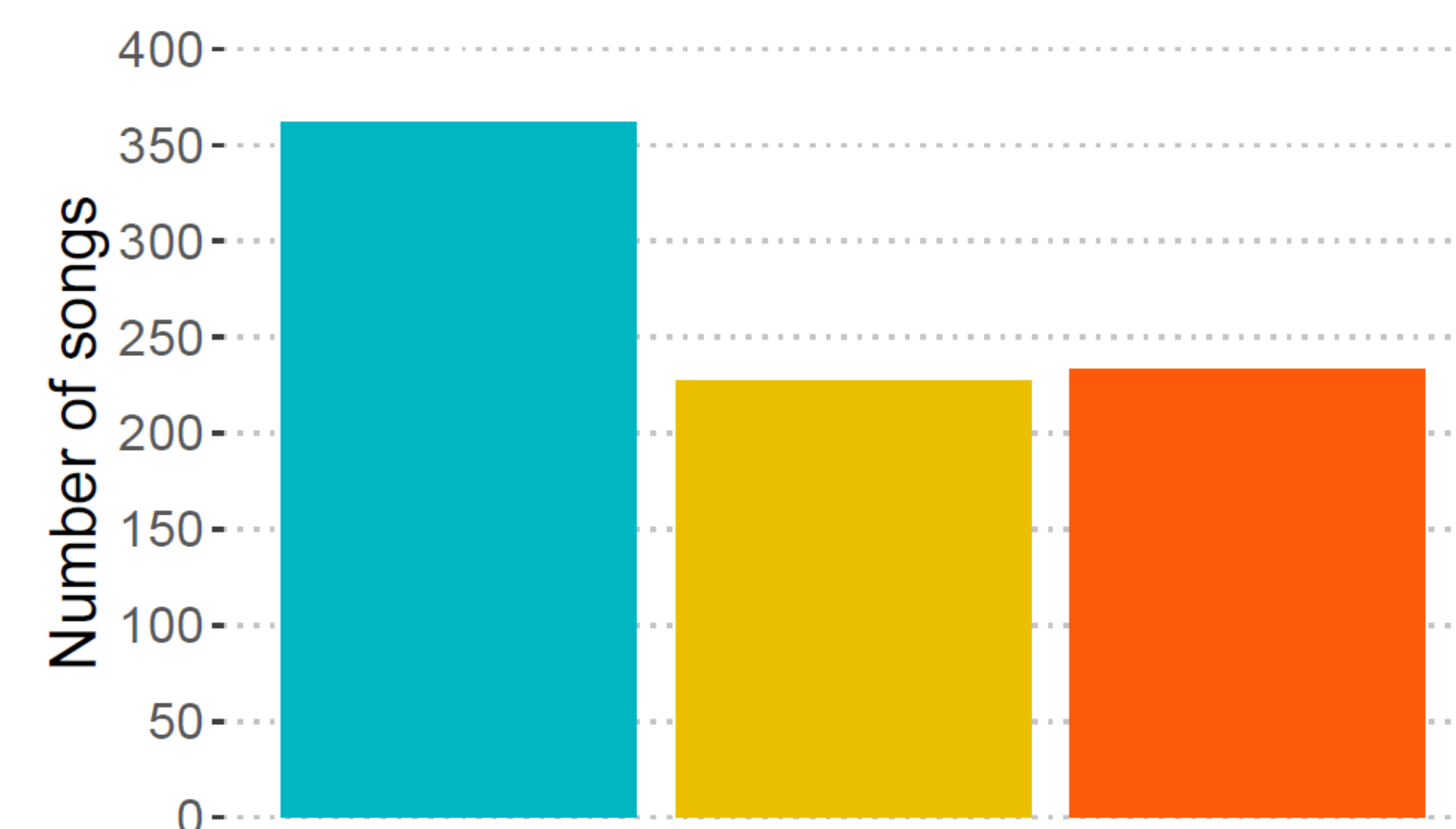
**Does whole-night sleep deprivation alter song performance of adult birds?**

## Methods

- Eight wild-caught Australian magpies were kept in a laboratory with a light regime of 12 hours.
- The test consisted of 3 nights and 3 days, divided into **Baseline**, **Experiment** and **Recovery**.
- Their vocalizations were recorded from 9 am to 6 pm.



## Results and Discussion



**Sleep-deprived** birds may prioritize sleep over singing; however, they could also overcompensate by singing **longer songs** and shifting to **mid-day** vocalizations, possibly to improve **territory** protection and **hierarchy maintenance**, or as a **stress response**.

These findings indicate that sleep can have large effects on ecologically relevant behaviours, including singing in adult songbirds.

## Next Steps

Following this study, we will analyse additional **vocal parameters**, with extended periods of **wakefulness** and **recovery**, while controlling for **stress** and other physiological variables. We will also test whether **light and sound pollution** at night affect birdsong performance.