Supplementary Materials

Bioacoustics 2020

Characterising the flight song: repeatable variation of song features among and within Ovenbirds

Nadine Paul, Megan J. Thompson, and Jennifer R. Foote

Department of Biology, Algoma University, Sault Ste. Marie, ON, Canada

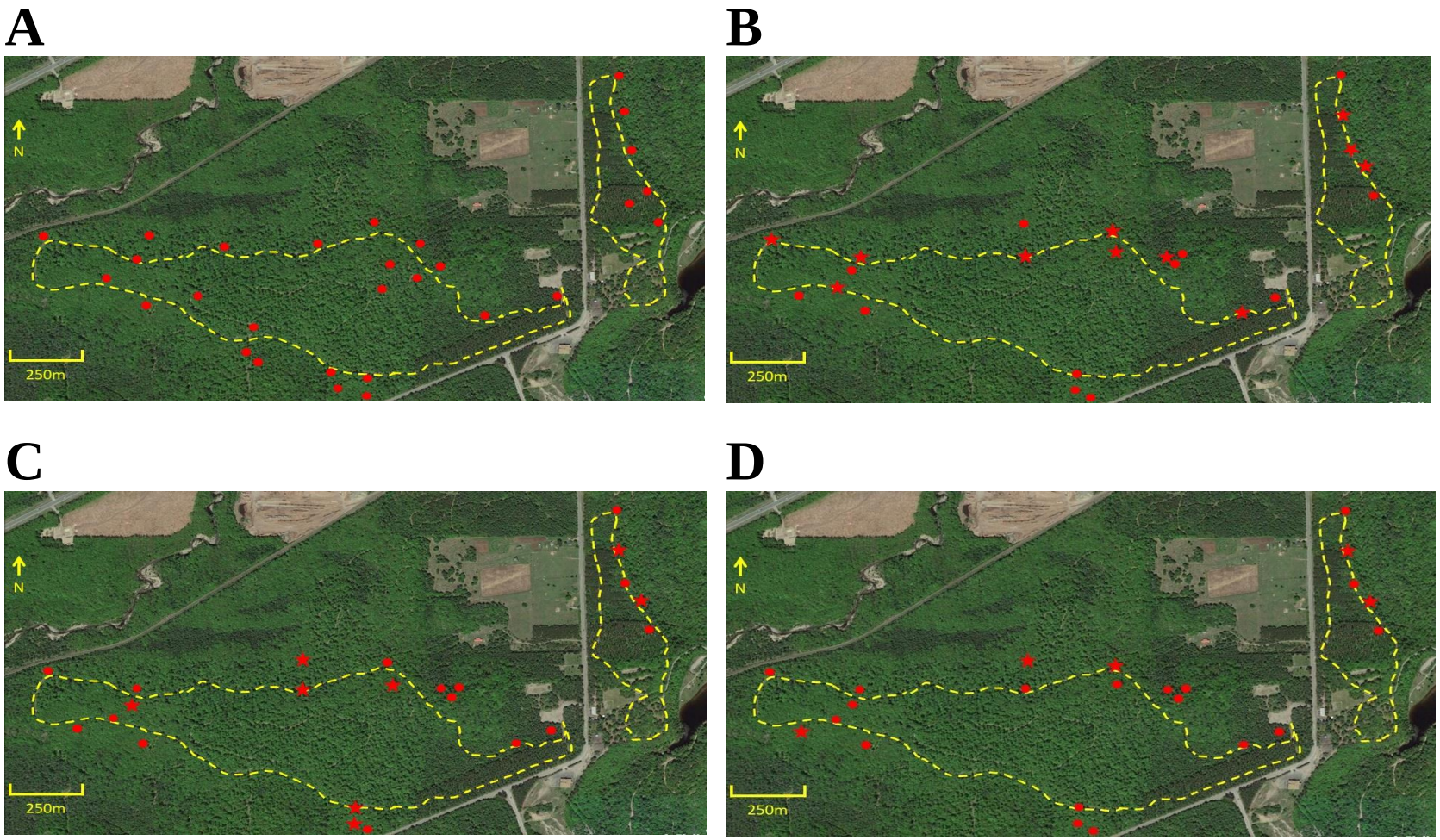

Figure S1 Map of study site showing A) location of the 29 Song Meters used in the study and distribution of 23 birds (B-D) that sang syllables I, K and AN respectively. Birds singing each syllable type are indicated with a star while those that do not sing that syllable type are indicated with a circle. Locations of birds were approximated from the combination of recorders they were detected at.

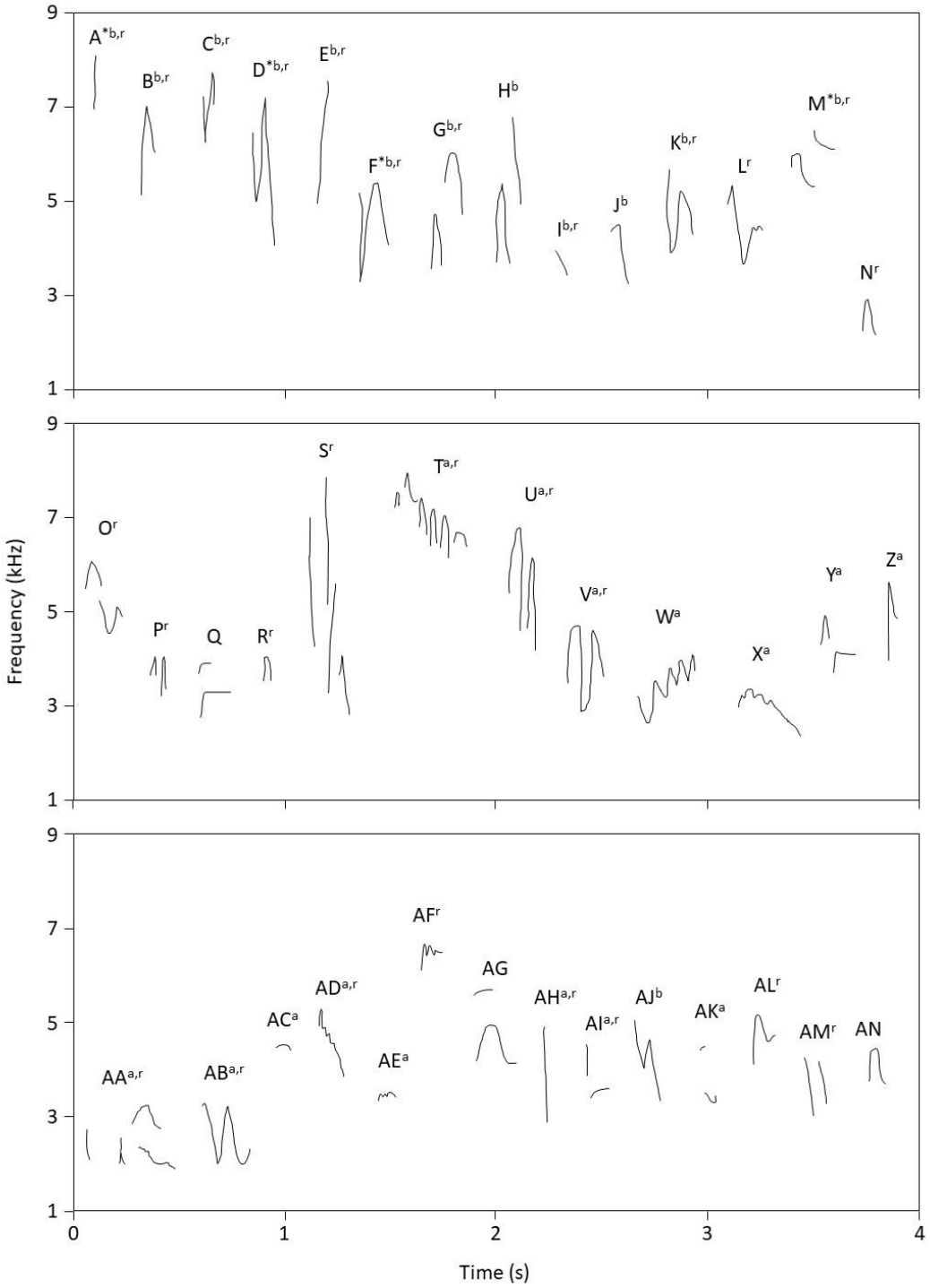

Figure S2 Spectrogram of syllables found in ovenbird flight songs. Each syllable is identified with a letter code (see Figure 2 for note transitions and Figure 3 for syllable communities) while [b] indicates song is 3 times more likely to be found before primary syllables (S), [a] indicates song is 3 times more likely to be found after primary note segment, [*]indicates syllable is exclusively found before or after primary syllables, and [r] indicates syllable is repeated with a transition probability of >0.10

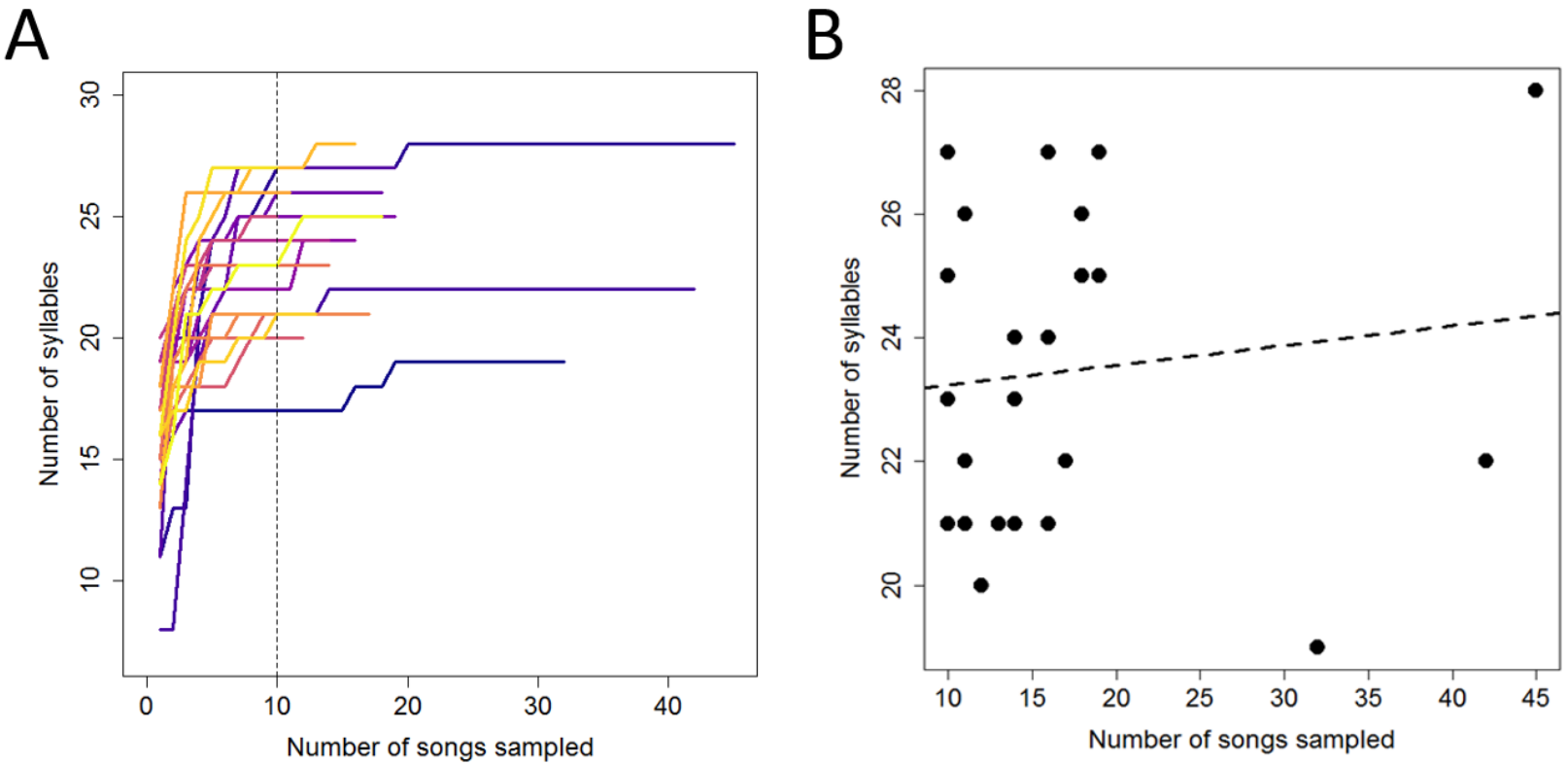

Figure S3 A) Repertoire accumulation curves for 23 individuals showing the number of syllables in the repertoire vs. the number of songs sampled, and B) relationship between the number of syllables an individual was recorded to sing and the number of songs sampled for each individual.

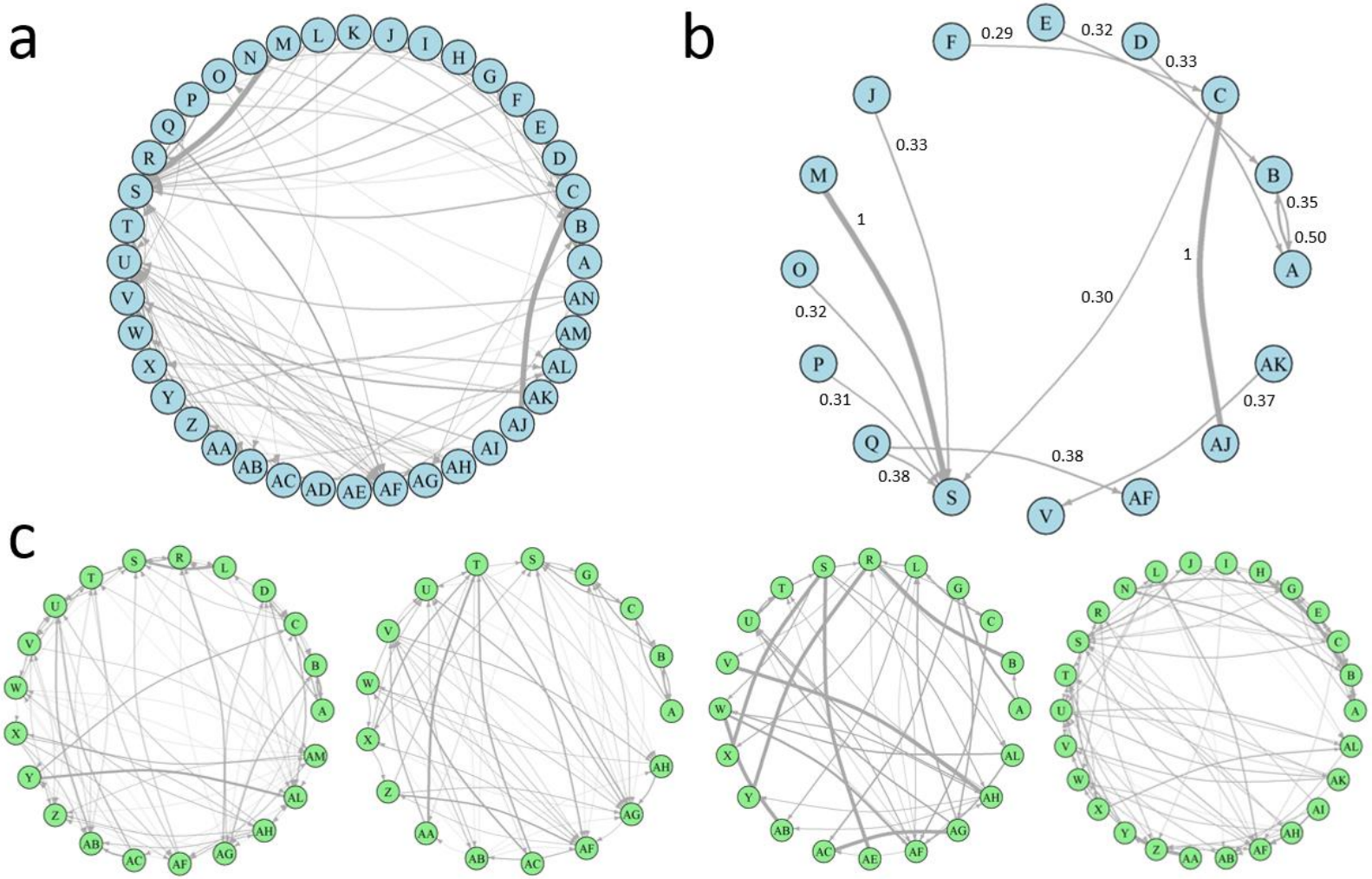

Figure S4. Ovenbird flight song syllable transition sequences (modified) when removing syllable repetitions for (a) all individuals sampled in the population where transition edges >0.1 probability are shown, (b) all individuals sampled in the population where transition edges >0.25 probability are shown and labeled, and (c) four randomly selected individuals where transitions >0.1 probability are shown for comparison with the population sequence in A. Node letter codes (A-AN) represent unique song syllables described in the Figure S2 and line thickness represents the probability of transitioning (thicker lines = higher probability).

Table S1. Variance components for the calculation of repeatability and correlation estimates (n = 23 individuals) for (A) song length and (B) song versatility (SVI = number of syllables regressed onto number of unique syllables) generated in a bivariate mixed-effects model that controls for the number of songs included for each individual. Variance (V) of both traits and the covariance (COV) between traits were used to calculate repeatability (R) for each trait and the correlation between traits at the among- ($_{ind}$) and within-individual ($_{e}$) levels. Our conclusions are unchanged when controlling for the number of songs included for each individual (mean = 17.22, range = 10 – 41).

	A. Song length		B. Song versatility (SVI)	
Source	Estimate	95% CI	Estimate	95% CI
V_{ind}	0.45	0.20 – 0.79	0.17	0.066 – 0.32
V_{e}	0.65	0.56 – 0.74	0.35	0.31 – 0.41
$COV_{ind1,ind2}$	-0.10	-0.26 – 0.043		
$COV_{e1,e2}$	-0.078	-0.16 – -0.0065		
R	0.40	0.24 – 0.56	0.33	0.17 – 0.49
$r_{ind1,ind2}$	-0.35	-0.73 – 0.078		
$r_{e1,e2}$	-0.16	-0.32 – -0.011		