Appendix 1. Supplementary tables.

Table A1. List of recordings used in the experimental playback protocol extracted from Xeno-canto library.

Author	Year	Code	Web link
Andrew Spencer	2007	XC13772	www.xeno-canto.org/13772
	2007	XC13773	www.xeno-canto.org/13773
	2010	XC55177	www.xeno-canto.org/55177
	2010	XC51468	www.xeno-canto.org/51468
	2011	XC79614	www.xeno-canto.org/79614
Gary Harbour	2018	XC421000	www.xeno-canto.org/421000
Jonathon Jongsma	2011	XC78875	www.xeno-canto.org/78875
	2013	XC142582	www.xeno-canto.org/142582
Todd Wilson	2012	XC151971	www.xeno-canto.org/151971

Table A2. Vegetation species more common in Canada Warbler sites. Species are arranged in order of dominance.

Structure	**Species**	**Common name**
Canopy trees (>5m height)	*Betula papyrifera*	Paper Birch
	Picea glauca	White Spruce
	Populus tremuloides	Trembling Aspen
	Abies balsamea	Balsam Fir
Understory shrubs and regenerating trees (<5m height)	*Acer spicatum*	Mountain Maple
	Corylus cornuta	Beaked Hazel
	Betula papyrifera	Paper birch
	Abies balsamea	Balsam Fir
	Cornus sericea	Red-oiser Dogwood
	Sorbus americana	American Mountain Ash
	Sambucus racemosa	Black Elder
	Diervilla lonicera	Bush Honeysuckle
	Rhamnus alnifolia	Alder Buckthorn

Table A3. Correlation matrix of numerical variables from playback experiment.

Variables	**Shrub**	**Canopy cover**	**Canopy tree height**
Shrub cover	1		
Canopy cover	-0.60	1	
Canopy tree height	-0.09	0.25	1

Table A4. Correlation matrix of numerical variables from occurrence observations

Variables	**Shrub**	**Canopy cover**	**Canopy tree height**
Shrub cover	1		
Canopy cover	-0.43	1	
Canopy tree height	-0.08	0.45	1

Table A5. Set of models of Canada Warbler (CAWA) occurrence, social aggregation and pre-breeding settlement during the bird surveys and playback experiment in the breeding season. Models are shown with their AIC values and Akaike weight (ωi). Marked in bold are the best set of models as those having ΔAIC ≤ 2 (Burnham and Anderson 2002). $\Delta AIC = AIC_i - AIC_{min}$ values. Shr=shrub cover, yr= year of study, cancov=canopy cover, can_h= canopy height, for_type= forest type (coniferous, deciduous, mixewood), landsc= landscape disturbance level (low, mid, high), sitedisturb= disturbance condition in surveyed site, (disturbed/undisturbed), timeharv=time since harvest (early, mid, late, unharvest), treat= treatment (speakers/control).

Model	AIC	ΔAIC	ωi
A) CAWA occurrence			
Shr+yr+cancov+for_type	**125.97**	**0.00**	**0.37**
Shr+yr+cancov+can_h+for_type	**126.08**	**0.11**	**0.35**
Shr+yr+cancov+can_h+for_type+sitedisturb	**127.65**	**1.68**	0.16
Shr+yr+cancov+can_h+for_type+landsc	128.97	3.00	0.08
Shr+yr+cancov+can_h+for_type+timeharv	131.42	5.45	0.02
Shr+yr	141.02	15.05	0.00
Shr	146.87	20.90	0.00
Null	193.47	67.5	0.00
B) Social aggregation			
Shr+yr+cancov+can_h+timeharv	**73.28**	**0.00**	**0.54**
Shr+yr+cancov+can_h+forest_type+timeharv	**74.77**	**1.49**	**0.26**
Shr+yr+cancov+timeharv	75.59	2.31	0.17
Shr+yr+cancov+can_h+forest_type+sitedisturb	80.06	7.32	0.01
Shr+yr+cancov+can_h+forest_type	81.41	8.13	0.01
Shr+yr+cancov+can_h+forest_type+landsc	83.44	10.16	0.00
Shr+yr	87.43	14.15	0.00
Shr	92.96	19.68	0.00
Null	121.51	48.23	0.00

Model	AIC	ΔAIC	ωi
C) CAWA pre-breeding settlement			
Treat+shr+sitedisturb	**29.56**	**0.00**	**0.33**
Treat+shr+cancov+sitedisturb	**29.61**	**0.05**	**0.32**
Treat+shr+cancov+timeharv	**30.35**	**0.79**	**0.22**
Treat+shr+cancov	33.57	4.01	0.04
Treat+shr+cancov+can_h	33.62	4.06	0.04
Treat+shr+cancov+can_h+for_type	33.89	4.33	0.04
Treat+shr+cancov+landsc	36.96	7.40	0.00
Shr+treat	39.43	9.87	0.00
Shr+treat+yr	41.34	11.78	0.00
Shr+can_h+for_type	45.95	16.39	0.00
Shr+can_h	46.13	16.57	0.00
Shr+cancov+can_h	46.14	16.58	0.00
Shr+cancov	46.42	16.86	0.00
Shr+can_h+for_type+landsc	49.03	19.47	0.00
Shr+can_h+for_type+timeharv	49.07	19.51	0.00
Shr	49.32	19.76	0.00
Treat	70.65	41.09	0.00
Null	77.25	47.69	0.00