

An evaluation of transmitter effects on adult and juvenile Common Terns using leg-loop harness attachments – APPENDIX 2 – Model Summaries

Table A2.1. Model summaries describing breeding success metrics for marked Common Terns. All outputs are presented on a logit scale. Each metric was modeled in a separate generalized linear model. In all models, the reference level for treatment group was the full colony (included nests differed across analysis; see Methods), the reference level for sex was females, and the reference level for colony was Colony 1B. Note that the fledging success for juveniles of transmittered adults is not provided as this metric was not suited for analysis with GLM.

Metric	Term	Estimate	Standard Error	Z value	P value
Hatching Success - Low Estimate	(Intercept)	0.383	0.158	2.424	0.153
	BirdType - Control	0.288	0.515	0.559	0.576
	BirdType - Treatment	-0.182	0.490	-0.371	0.711
	Colony - 2C	0.028	0.215	0.130	0.897
Hatching Success - High Estimate	(Intercept)	1.528	0.206	7.433	< 0.001
	BirdType - Control	0.481	1.059	0.454	0.650
	BirdType - Treatment	15.186	908.926	0.017	0.987
	Colony - 2C	1.232	0.374	3.299	< 0.001
Juveniles Banded per Nest	(Intercept)	-0.211	0.086	-2.451	0.014
	BirdType - Control	0.172	0.238	0.720	0.472
	BirdType - Treatment	-0.208	0.285	-0.730	0.466
	Colony - 2C	0.119	0.114	1.043	0.297
Fledging Success of Transmittered Juveniles	(Intercept)	1.426	0.251	5.673	< 0.001
	BirdType - Control	0.564	0.671	0.840	0.401
	BirdType - Treatment	0.256	0.605	0.423	0.672
	Colony - 2C	-0.988	0.420	-2.351	0.019

Table A2.2. Model summaries describing behavioral metrics for marked Common Terns. All outputs are presented on a log scale. Each metric was modeled in a separate multinomial model. The reference level for behavior category varied by model (adult nest behavior = by nest; adult non-nest behavior = flying; juvenile behavior = flying). However, across all models the reference level for treatment group (BirdType) was control, and the reference for sex was females (when included in the model).

Metric	Term	Behavior Category	Coefficient	Standard Error	Z Value	P Value
Adult Nest Behavior	Intercept	Incubating	1.448	0.111	13.063	< 0.001
		No Bird	1.320	0.112	11.764	< 0.001
		Overhead	-3.181	0.479	-6.644	< 0.001
	BirdType - Mate of Control	Incubating	0.185	0.130	1.424	0.155
		No Bird	0.102	0.133	0.771	0.441
		Overhead	-1.260	0.853	-1.477	0.140
	BirdType - Mate of Treatment	Incubating	0.577	0.134	4.311	0.000
		No Bird	0.188	0.138	1.359	0.174
		Overhead	0.581	0.575	1.011	0.312
	BirdType - Treatment	Incubating	0.094	0.136	0.686	0.493
		No Bird	-0.119	0.138	-0.863	0.388
		Overhead	0.787	0.537	1.466	0.143
	Sex - Male	Incubating	-0.894	0.160	-5.591	< 0.001
		No Bird	0.005	0.156	0.029	0.977
		Overhead	-0.830	0.617	-1.345	0.178
Sex - Unknown	Incubating	-0.543	0.139	-3.896	< 0.001	
	No Bird	-0.518	0.142	-3.639	< 0.001	
	Overhead	-0.262	0.560	-0.468	0.640	
Adult Non-nest Behavior	Intercept	No Bird	-1.504	0.782	-1.924	0.054
		Standing	0.938	0.393	2.387	0.017
	BirdType - Treatment	No Bird	-0.106	1.100	-0.096	0.924
Standing		0.784	0.522	1.503	0.133	
Juvenile Behavior	Intercept	Loafing	15.891	2.037	7.800	< 0.001
		No Bird	16.164	1.374	11.760	< 0.001
		Standing	17.720	0.821	21.585	< 0.001
		Swimming	-146.432	0.881	-166.233	< 0.001
		Walking	12.313	1.329	9.266	< 0.001
	BirdType - Treatment	Loafing	-1.856	2.567	-0.723	0.470

	No Bird	-2.822	1.781	-1.584	0.113
	Standing	-1.828	1.204	-1.519	0.129
	Swimming	-4.293	1.716	-2.501	0.012
	Walking	-0.580	1.509	-0.384	0.701
Sex - Male	Loafing	-13.200	1.045	-12.637	< 0.001
	No Bird	-12.397	1.064	-11.649	< 0.001
	Standing	-11.820	0.979	-12.077	< 0.001
	Swimming	151.421	0.881	171.895	< 0.001
	Walking	-9.537	1.214	-7.855	< 0.001
Sex - Unknown	Loafing	-16.345	2.008	-8.139	< 0.001
	No Bird	-14.572	1.333	-10.931	< 0.001
	Standing	-13.886	0.749	-18.530	< 0.001
	Swimming	-294.957	0.000	-2.088E17	< 0.001
	Walking	-11.636	1.243	-9.363	< 0.001

Table A2.3. Model summaries describing the return and subsequent breeding success for marked Common Terns during the breeding season following transmitter deployment. All outputs are presented on a logit scale.

Metric	Term	Estimate	Standard Error	Z value	P value
Return Rate	(Intercept)	0.956	0.526	1.816	0.069
	BirdType	-0.262	0.726	-0.361	0.718
Nesting Rate	(Intercept)	-6.09E-16	0.471	0.000	1.000
	BirdType	-0.693	0.687	-1.009	0.313
Hatching Success - Low Estimate	(Intercept)	0.693	0.707	0.980	0.327
	BirdType	0.693	1.061	0.654	0.513
Hatching Success - High Estimate	(Intercept)	2.079	1.061	1.961	0.050
	BirdType	0.118	1.495	0.079	0.937