

Ledwoń, M. and Neubauer, G. 2018. True deception during extra-pair courtship feeding: cheating whiskered tern *Chlidonias hybrida* females perform better. – Journal of Avian Biology doi: 10.1111/jav.01503

Appendix 1

Table A1. Generalized linear additive mixed models used to explain variation in the number of courtship feeding attempts. All the models include an intercept omitted in the table for clarity. Covariate abbreviations: Duration – time female spent at the nest during an observation session, Time.day – time of day (morning, midday, evening), Type – type of courtship feeding (WP or EP: performed by social or non-pair male), Time.to.clutch – time relative to clutch initiation, modelled with a smooth function. ‘×’ is used for an interaction term. ‘+’ denotes the presence of a given effect in the model.

Model						df	AIC	Δ AIC	ω AIC
Fixed effects			Random effects						
Duration	Time.day	Type	Time.day × Type	Time.to.clutch (smooth function)	(Year/Colony/Female)				
+	+	+	+	+	+	12	3583.1	0.0	0.90
+		+		+	+	8	3588.5	5.5	0.06
+	+	+		+	+	10	3589.3	6.2	0.04
	+	+	+	+	+	11	3680.6	97.6	<0.01
	+	+		+	+	9	3686.8	103.8	<0.01
		+		+	+	7	3698.3	115.3	<0.01
+	+	+	+		+	10	4099.5	516.5	<0.01
+	+	+			+	8	4105.7	522.7	<0.01
+		+			+	6	4112.9	529.8	<0.01
	+	+	+		+	9	4501.8	918.7	<0.01
	+	+			+	7	4508.0	924.9	<0.01
		+			+	5	4582.8	999.8	<0.01
+				+	+	7	5485.6	1902.6	<0.01
+	+			+	+	9	5486.4	1903.4	<0.01

	+		+		+	8	5584.0	2001.0	<0.01
			+		+	6	5595.5	2012.4	<0.01
+	+				+	7	6002.9	2419.9	<0.01
+					+	5	6010.1	2427.0	<0.01
	+				+	6	6405.2	2822.1	<0.01
null model					+	4	6480.0	2897.0	<0.01

Table A2. Generalized linear mixed models used to explain variation in the number of extra pair courtship feeding attempts in relation to provisioning rate by a social male and the time male spends at the nest. Covariate abbreviations: Time.male – stands for the time social male spends at the nest, Prov.rate – provisioning rate of a social male. ‘×’ is used for an interaction term.

Model		df	AIC	Δ AIC	ω AIC
Fixed effects	Random effect				
null model	Colony	2	414.9	0.0	0.40
Time.male	Colony	3	416.1	1.2	0.23
Prov.rate	Colony	3	416.6	1.7	0.18
Prov.rate + Time.male	Colony	4	417.3	2.3	0.13
Prov.rate × Time.male	Colony	5	418.5	3.6	0.07

Table A3. Generalized linear models used to explain variation in the female’s behaviour during the extra pair courtship feeding attempts. All the models include an intercept omitted in the table. Covariate abbreviations: Time.to.clutch – time relative to clutch initiation, Prov.rate – provisioning rate of a social male. ‘×’ is used for an interaction term. ‘+’ denotes the presence of a given effect in the model.

Model			df	AIC	Δ AIC	ω AIC
Fixed effects	Random effects					
Time.to.clutch	Prov.rate	Colony/Nest				
+		+	4	227.8	0.0	0.47
+	+	+	5	228.8	0.9	0.30
null model		+	3	229.9	2.1	0.16
	+	+	4	231.6	3.7	0.07

Table A4. Generalized linear models used to explain variation in the female's success in obtaining food from an extrapair male during the extra pair courtship feeding attempts. All the models include an intercept (omitted in the table). Covariate abbreviations: Beh.type – type of female behaviour performed to obtain food from a non-pair male during EPCF (swindling, snatching, Table 1), Time.to.clutch – time relative to clutch initiation, Energy – energy content of the prey item brought by the non-pair male. '×' is used for an interaction term, '+' denotes the presence of a given effect in the model.

Model							Random effect	df	AIC	Δ AIC	ω AIC
Fixed effects											
Beh.type	Time.to.clutch	Energy	Beh.type × Time.to.clutch	Beh.type × Energy	Time.to.clutch × Energy	Beh.type × Time.to.clutch × Energy	Nest				
+							+	3	94.7	0.0	0.29
+	+						+	4	96.0	1.3	0.15
+		+					+	4	96.6	1.9	0.11
+	+	+			+		+	6	96.9	2.2	0.10
+	+		+				+	5	97.5	2.8	0.07
+	+	+					+	5	97.9	3.2	0.06
+	+	+	+		+		+	7	98.3	3.6	0.05
+		+		+			+	5	98.5	3.8	0.04
+	+	+		+	+		+	7	98.6	3.9	0.04
+	+	+	+				+	6	99.4	4.7	0.03
+	+	+		+			+	6	99.9	5.2	0.02
+	+	+	+	+	+		+	8	99.9	5.2	0.02
+	+	+	+	+			+	7	101.4	6.7	0.01
+	+	+	+	+	+	+	+	9	102.0	7.3	0.01
null model							+	2	126.9	32.2	<0.01
	+						+	3	128.9	34.1	<0.01
		+					+	3	128.9	34.2	<0.01
	+	+			+		+	5	129.6	34.8	<0.01
	+	+					+	4	130.8	36.1	<0.01