

Genetic evaluation of reproductive strategies and breeding-site fidelity in the socially monogamous Turquoise-fronted Amazon (*Amazona aestiva*, Psittaciformes: Aves)

Table A1. Description of the nests used by Turquoise-fronted Amazons (*Amazona aestiva*) monitored during this study.

Location		
Distrito Federal/Brazil	Nest ID	Description
Área de Proteção Ambiental Gama Cabeça de Veado - APAGCV (15.9290°, 47.9015°W)	B01	Wooden artificial nest box installed in a <i>Mauritia flexuosa</i> palm
	N02	
	N03	Natural nest found in a dead <i>Mauritia flexuosa</i> palm
	N04	
	N05	Natural nest found in a <i>Pterodon emarginatus</i> tree
	N06	
	N07	
	N08	Natural nest found in a dead <i>Mauritia flexuosa</i> palm
	N09	
	N10	
	N11	
Estação Ecológica de Águas Emendadas - EEAE	N12	

(15.5527°S, 47.5923°W)	N13	
	B14	Wooden artificial nest box installed in a <i>Mauritia flexuosa</i> palm
Provincia del Chaco/Argentina (25.4681°S, 61.8911°W)	N01	
	N02	
	N03	
	N04	Natural nest found in an <i>Aspidosperma quebracho-blanco</i>
	N05	
	N06	
	N07	
	N08	
	N09	Natural nest found in a <i>Schinopsis quebracho-blanco</i>
	N10	
	N11	Natural nest found in an <i>Aspidosperma quebracho-blanco</i>
	N12	
	N13	
	N14	Natural nest found in a <i>Schinopsis quebracho-blanco</i>

Table A2. Number of eggs (Eg) and nestlings (Nt) found in natural (N_) and artificial (B_) cavities of the Turquoise-fronted Amazon during monitoring in the Distrito Federal, Brazil. Cavities used in more than one breeding season are shown in bold. Blood samples were collected from all nestlings except the three marked with an asterisk (*).

Breeding season	Cavity																											
	B01		N02		N03		N04		N05		N06		N07		N08		N09		N10		N11		N12		N13		B14	
	Eg	Nt	Eg	Nt	Eg	Nt	Eg	Nt	Eg	Nt	Eg	Nt	Eg	Nt	Eg	Nt	Eg	Nt	Eg	Nt	Eg	Nt	Eg	Nt	Eg	Nt	Eg	Nt
2004							1	1 [†]			3								2						2	2		
2005				3			1 [†]			1	3 [†]								?			3 [†]			⊖			
2006				3			2 [†]			3 [†]	3								?	1	2		3 [†]		?			
2007		2	3 [†]			2		2	3 [†]		⊗		2 [†]		2				?		?		?		?			3
2008	1 [†]		1	1	1 [†]		3	1	2				?		?		2		?		?		?		?		⊖	
2009	0	0	1	3*	⊗		⊗		⊖				?		?	2 [†]			?		?		?		?		⊗	

Gray cells indicate cavities not yet included in the monitoring period; [†] brood was predated, flooded or poaching; 0 - non occupied nest; ? - nest was not monitoring; ⊗ - nest fell down; ⊖ occupied by other species (toucan, owl or bees).

Table A3. Genetic diversity at six microsatellite loci used to estimate allele frequencies in 28 unrelated nestlings of the Turquoise-fronted Amazon.

Locus	k	H _O	H _E	PIC	P _{ID}	P _{EX}	HWE	F(Null)
AgGT07	15	0.857	0.864	0.837	0.034	0.107	ND	-0.0029
AgGT12	19	0.857	0.942	0.920	0.010	0.038	ND	0.0385
AgGT21	17	0.893	0.931	0.909	0.013	0.047	ND	0.0138
AgGT29	14	0.893	0.901	0.875	0.024	0.082	ND	-0.0028
AgGT72	15	0.964	0.932	0.909	0.014	0.049	ND	-0.0276
AgGT83	21	0.964	0.943	0.921	0.010	0.037	ND	-0.0213
All	16.8	0.905	0.919	0.895	1.578E ⁻¹¹	3.0E ⁻⁸	-	-

K - number of alleles; H_O - observed heterozygosity; H_E - expected heterozygosity; (PIC) - Polymorphic Information Content; P_{ID} - Probability of identity; P_{EX} - non-exclusion probability (parent pair); HWE - Hardy-Weinberg Equilibrium test: ND = no deviation; F(Null) - Null Allele Frequency.

Table A4. Full-sib groups (G_{FS}) inferred by Colony for Turquoise-fronted Amazon nestlings sampled in natural ($N_{_}$) and artificial ($B_{_}$) nests in the Distrito Federal, Brazil, assuming a mating system with female polygamy and male monogamy (see Methods for details). Samples were collected over five breeding seasons (2004–2008), with the collection year indicated below each nestling number. Nestlings likely resulting from extra-pair paternity are shown in bold.

G_{FS}	P (inc)	P (exc)	Nestlings							Nest
1	1.00	0.16	B1-F1 2007							B01
2	0.99	0.30	B1-F2 2007	B14-F1 2007						B01/B14
3	0.32	0.32	N2-F1 2005	N2-F2 2005	N2-F3 2005	N2-F1 2006	N2-F2 2006	N2-F3 2006	N2-F1 2008	N02
4	1.00	0.70	N3-F1 2007							N03
5	0.64	0.62	N3-F2 2007	N8-F2 2007						N03/N08
6	1.00	0.40	N4-F1 2007							N04
7	0.46	0.46	N4-F2 2007	N10-F1 2004						N04/N10
8	0.43	0.43	N4-F1 2004	N4-F1 2008	N4-F2 2008	N4-F3 2008				N04
9	1.00	0.83	N5-F1 2005							N05
10	0.71	0.71	N5-F1 2006	N5-F2 2006	N5-F3 2006	N5-F1 2008	N5-F2 2008			N05
11	0.99	0.99	N6-F1 2004	N6-F2 2004	N6-F3 2004	N6-F1 2006	N6-F2 2006	N6-F3 2006		N06
12	0.48	0.47	N7-F1 2007	N7-F2 2007						N07
13	1.00	0.70	N8-F1 2007							N08

14	1.00	0.72	N9-F1 2008		N09
15	0.99	0.99	N9-F2 2008		N09
16	1.00	0.83	N10-F2 2004		N10
17	1.00	0.70	N11-F1 2006		N11
18	1.00	0.58	N11-F2 2006		N11
19	0.66	0.62	N12-F1 2006	N12-F2 2006	N12
20	1.00	0.56	N12-F3 2006		N12
21	0.97	0.97	N13-F1 2004	N13-F2 2004	N13
22	0.25	0.25	B14-F2 2007	B14-F3 2007	B14

$P_{(inc)}$ - the probability that all nestlings are fullsibs; $P_{(exc)}$ - the probability that all nestlings are fullsibs, and no other nestlings are fullsibs with this group.

Table A5. Full-sib groups (G_{FS}) inferred by Colony for turquoise-fronted amazon nestlings sampled in Provincia del Chaco/Argentina, assuming a mating system with female polygamy and male monogamy (see Methods for details). All samples were collected in the breeding season of 2004. Nestlings likely resulting from extra-pair paternity are shown in bold.

G_{FS}	$P_{(inc)}$	$P_{(exc)}$	Nestlings			Mother	Nest
1	1	1	N1-F1	N1-F2		M1	1
2	0.61	0.61	N2-F1	N2-F2		M2	2
3	0.88	0.88	N3-F1	N3-F2	N3-F3	M3	3
4	1.00	0.95	N4-F1				4
5	1.00	0.97	N5-F1				5
6	0.68	0.68	N6-F1	N6-F2	N6-F3		6
7	1.00	0.31	N7-F1				7
8	0.52	0.27	N7-F2	N7-F3			7
9	0.52	0.52	N8-F1	N8-F2	N8-F3		8
10	0.71	0.71	N9-F1	N9-F2	N9-F3	N9-F4	9
11	0.74	0.74	N10-F1	N10-F2	N10-F3		10
12	0.85	0.82	N11-F1	N11-F2			11
13	1.00	0.57	N11-F3				11
14	0.97	0.97	N12-F1	N12-F3			12
15	1.00	0.49	N12-F2				12
16	0.85	0.85	N13-F1	N13-F2	N13-F3		13
17	1.00	0.34	N14-F1				14
18	0.56	0.44	N14-F2	N14-F3			14

$P_{(inc)}$ - the probability that all nestlings are fullsibs; $P_{(exc)}$ - the probability that all nestlings are fullsibs, and no other nestlings are fullsibs with this group.

Table A6. Summary of sibship reconstruction of Turquoise-fronted Amazon (*Amazona aestiva*) broods from two South American populations based on six microsatellite loci. Singleton nestlings (Sg) were not assigned to any sibship category (FS, HS, or UR), and broods containing both full-sibling and unrelated nestlings were classified as FS and UR (indicated with an asterisk). The distribution of sibship categories did not differ significantly between populations (chi-square test - $\chi^2 = 1.01$, $p = 0.60$; Cramér's V test - $\phi_c = 0.18$).

Location	Year	Broods	FS	HS	UR	Sg
Distrito Federal (DF)/Brazil	2004	4	3	0	0	1
	2005	2	1	0	0	1
	2006	5	3	2	0	0
	2007	6	2	1	3	0
	2008	4	2	1	0	1
	All	21	11	4	3 + 1*	3
Provincia del Chaco (AR) /Argentina	2004	14	9	3	1*	2
Total		35	20	7	3 + 2*	5

FS - Full-siblings; HS - Half-siblings; UR - unrelated.

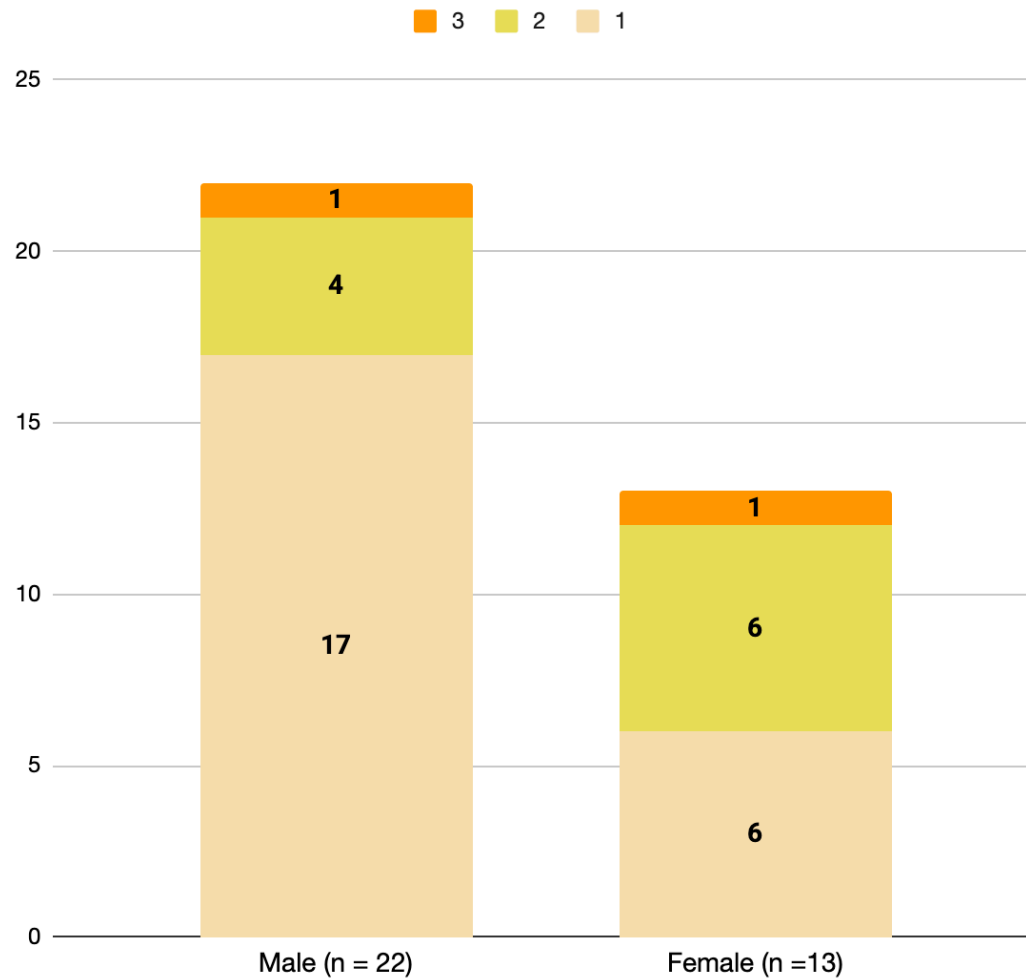


Figure A1. Number of breeding seasons in which genetically inferred males and females using Colony produced offspring over five breeding seasons (2004–2008) in the Distrito Federal (DF), Brazil.