

**Table S2** Details of the initial dataset gathered, and that used for main analyses after data processing.

Columns towards the left give the species and the number of responses initially gathered for each with the current survey. The central columns describe the samples size for each species (also split by sex) featured in the final dataset of 78 parrots after data processing. On the right, ‘Taxonomic group’ shows how species were grouped for analyses assessing whether the proportion of agreement between each rater and the owners might be explained by species identity and/or sex, again giving the sample sizes for each group and split by sex. n = number of animals, F = female, M = males, U = uncertain.

Species name	n initial responses	Details of final dataset of 78 parrots								
		n final dataset	F	M	U	Taxonomic group	n	F	M	U
Blue-fronted amazon <i>Amazona aestiva</i>	2	0				Androglossini	7	5	2	
Blue-headed pionus <i>Pionus menstruus</i>	7	3	3							
Orange-winged amazon <i>Amazona amazonica</i>	2	0								
Red-crowned amazon <i>Amazona viridigenalis</i>	1	0								
Red-lored amazon <i>Amazona autumnalis</i>	1	0								
Scaly-headed parrot <i>Pionus maximiliani</i>	2	0								
Mealy amazon <i>Amazona farinosa</i>	1	1		1						
White-crowned pionus <i>Pionus senilis</i>	1	0								
Yellow-crowned amazon <i>Amazona ochrocephala</i>	1	1	1							
Yellow-naped amazon	3	2	1	1						



<i>Details of final dataset of 78 parrots</i>										
Species name	n initial	n final	F	M	U	Taxonomic	n	F	M	U
	responses	dataset				group				
Sun conure	10	2	1		1					
<i>Aratinga solstitialis</i>										
White-bellied caique	4	1		1						
<i>Pionites leucogaster</i>										
Blue-and-yellow macaw	9	2	1	1		Arini (macaws)	5	2	2	1
<i>Ara ararauna</i>										
Blue-winged macaw	1	0								
<i>Primolius maracana</i>										
Chestnut-fronted macaw	6	0								
<i>Ara severus</i>										
Great green macaw	1	0								
<i>Ara ambiguous</i>										
Hyacinth macaw	1	1		1						
<i>Anodorhynchus hyacinthinus</i>										
Red-and-green macaw	4	1	1							
<i>Ara chloropterus</i>										
Red-shouldered macaw	5	1			1					
<i>Diopsittaca nobilis</i>										
Scarlet macaw	1	0								
<i>Ara macao</i>										
Ducorp's cockatoo	1	0				Cacatuinae	19	8	9	2
<i>Cacatua ducorpsii</i>										
Galah	5	1	1							
<i>Cacatua roseicapilla</i>										
Goffin's cockatoo	8	7	3	3	1					



<i>Details of final dataset of 78 parrots</i>										
Species name	n initial	n final	F	M	U	Taxonomic	n	F	M	U
	responses	dataset				group				
Rose-ringed parakeet	4	0								
<i>Psittacula krameri</i>										
Rosy-faced lovebird	4	1		1						
<i>Agapornis roseicollis</i>										
Brown-necked parrot	1	0				Poicephalus	5	2	3	
<i>Poicephalus fuscicollis</i>										
Meyer's parrot	4	1		1						
<i>Poicephalus meyeri</i>										
Red-bellied parrot	1	0								
<i>Poicephalus rufiventris</i>										
Red-fronted parrot	1	0								
<i>Poicephalus gularis</i>										
Senegal parrot	6	4	2	2						
<i>Poicephalus senegalus</i>										
Grey parrot	42	16	6	8	2	Psittacus	16	6	8	2
<i>Psittacus erithacus</i>										
Species name not specified	13	0				-				
or unclear										
<b>TOTAL</b>	<b>259</b>	<b>78</b>	<b>32</b>	<b>39</b>	<b>7</b>					

\* Budgerigars and cockatiels were each placed into separate groups from their nearest relatives because they, unlike their sister species, are considered to be likely domesticated (Bergman & Reinisch 2006, Kalmar *et al* 2010, Polverino *et al* 2012).

**Table S3 Frequency (with percentages) of scores given to images of pet parrots by two raters regarding the presence/absence of feather damage, and those given by the birds' owners. Note that for the intra- and between-rater inter-observer scores, the raters scored 'Not visible' if a body area and/or feather type was not visible on a given bird's set of images. For the rater to owner inter-observer scores, these cells were re-coded as 'NA' and any survey responses unanswered by owners were likewise scored as such, to allow correct comparisons across the sets of scores. FDB = feather-damaging behaviour.**

<i>Intra-observer</i>	<b>Yes</b>	<b>No</b>	<b>Not visible</b>
Rater 1: first scores	92 (26.1%)	236 (67%)	24 (6.8%)
Rater 1: second scores	83 (23.6%)	242 (68.8%)	27 (7.7%)
Rater 2: first scores	97 (27.6%)	222 (63.1%)	33 (9.4%)
Rater 2: second scores	101 (28.7%)	219 (62.2%)	32 (9.1%)
<i>Inter-observer (between raters)</i>			
Rater 1	429 (24.4%)	1205 (68.5%)	126 (7.2%)
Rater 2	447 (25.4%)	1186 (67.4%)	127 (7.2%)
<i>Inter-observer scores (between raters and owners: all 78 parrots)</i>			<b>NA</b>
Rater 1	374 (30%)	800 (64.1%)	74 (5.9%)
Rater 2	349 (28%)	818 (65.5%)	81 (6.5%)
Owners	229 (18.3%)	895 (71.7%)	124 (9.9%)
<i>Inter-observer scores (between raters and owners: subset of 31 parrots with owner-reported FDB)</i>			
Rater 1	243 (49%)	222 (44.8%)	31 (6.25%)
Rater 2	236 (47.6%)	225 (45.4%)	35 (7.1%)
Owners	193 (38.9%)	239 (48.2%)	64 (12.9%)
<i>Scores for subset of 47 parrots without owner-reported FDB</i>			
Rater 1	131 (17.4%)	578 (76.9%)	43 (5.7%)
Rater 2	113 (15%)	593 (78.9%)	46 (6.1%)
Owners	36 (4.8%)	657 (87.4%)	59 (7.8%)

**Table S4 Frequency (with percentages) of scores given to images of pet parrots by two raters regarding the severity of feather damage present (ranked none – severe, 0 – 3), and those given by the birds’ owners. FDB = feather-damaging behaviour.**

<i>Intra-observer</i>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>
Rater 1: first scores	10 (45.5%)	9 (40.9%)	2 (9.1%)	1 (4.5%)
Rater 1: second scores	11 (50%)	8 (36.4%)	2 (9.1%)	1 (4.5%)
Rater 2: first scores	8 (36.4%)	8 (36.4%)	5 (22.7%)	1 (4.5%)
Rater 2: second scores	8 (36.4%)	9 (40.9%)	4 (18.2%)	1 (4.5%)
<i>Inter-observer (between raters)</i>				
Rater 1	56 (51%)	33 (30%)	13 (11.8%)	8 (7.3%)
Rater 2	52 (47.3%)	38 (34.5%)	13 (11.8%)	7 (6.4%)
<i>Inter-observer scores (between raters and owners: all 78 parrots)</i>				
Rater 1	31 (39.7%)	31 (39.7%)	10 (12.8%)	6 (7.7%)
Rater 2	33 (42.3%)	28 (35.9%)	12 (15.4%)	5 (6.4%)
Owners	40 (51.3%)	20 (25.6%)	14 (17.9%)	4 (5.1%)
<i>Inter-observer scores (between raters and owners: subset of 31 parrots with owner-reported FDB)</i>				
Rater 1	5 (16.1%)	11 (35.5%)	9 (29%)	6 (19.4%)
Rater 2	5 (16.1%)	10 (32.3%)	11 (35.5%)	5 (16.1%)
Owners	0 (0%)	15 (48.4%)	13 (41.7%)	3 (9.7%)

**Table S5 Intra-observer reliability scores calculated for two raters. After scoring all 110 images once, a random 20% of sets (n = 22) were chosen to be re-scored for intra-observer reliability scoring, given as percentage agreement and Cohen's kappa ( $\kappa$ , agreement between two scores after accounting for agreement purely by chance: Cohen 1960, McHugh 2012).  $\kappa$  scores are interpreted as follows: < 0.21 = slight; 0.21 – 0.40 = fair; 0.41 – 0.60 = moderate; 0.61 – 0.80 = substantial; 0.81 – 0.99 = almost perfect; 1 = perfect.  $P < 0.05$  indicates that two sets of scores agree more than would be expected by chance. n = 22 in all cases.**

	Rater 1		Rater 2	
	Agreement	Cohen's kappa	Agreement	Cohen's kappa
Any feather damage?	95.5%	$\kappa = 0.91, Z = 4.28,$ $P < 0.001$	100%	$\kappa = 1, Z = 4.69,$ $P < 0.001$
<i>Specific body parts</i>				
Head	100%	$\kappa = 1, Z = 4.69,$ $P < 0.001$	100%	$\kappa = 1, Z = 5.86,$ $P < 0.001$
Throat/neck	100%	$\kappa = 1, Z = 4.69,$ $P < 0.001$	100%	$\kappa = 1, Z = 5.38,$ $P < 0.001$
Chest	95.5%	$\kappa = 0.89, Z = 4.20,$ $P < 0.001$	100%	$\kappa = 1, Z = 5.28,$ $P < 0.001$
Back	86.4%	$\kappa = 0.60, Z = 3.33,$ $P < 0.01$	95.5%	$\kappa = 0.91, Z = 5.15,$ $P < 0.001$
Wings (dorsal surface)	90.9%	$\kappa = 0.81, Z = 3.88,$ $P < 0.01$	90.9%	$\kappa = 0.82, Z = 4.14,$ $P < 0.001$
Wings (ventral surface)	90.9%	$\kappa = 0.79, Z = 4.91,$ $P < 0.001$	100%	$\kappa = 1, Z = 6.09,$ $P < 0.001$
Tail	90.9%	$\kappa = 0.83, Z = 5.26,$ $P < 0.001$	100%	$\kappa = 1, Z = 6.22,$ $P < 0.001$
Legs	77.3%	$\kappa = 0.55, Z = 2.95,$ $P < 0.01$	95.5%	$\kappa = 0.90, Z = 4.89,$ $P < 0.001$
<i>Feather-types</i>				



Down feathers	90.9%	$\kappa = 0.74, Z = 3.48,$ $P < 0.01$	95.5%	$\kappa = 0.86, Z = 4.09,$ $P < 0.001$
Covert feathers	95.5%	$\kappa = 0.91, Z = 4.28,$ $P < 0.001$	95.5%	$\kappa = 0.91, Z = 4.28,$ $P < 0.001$
Primary/secondary flight feathers	90.9%	$\kappa = 0.71, Z = 4.67,$ $P < 0.001$	86.4%	$\kappa = 0.75, Z = 4.76,$ $P < 0.001$
Tail feathers	90.9%	$\kappa = 0.83, Z = 5.26,$ $P < 0.001$	100%	$\kappa = 1, Z = 6.22,$ $P < 0.001$
Blood feathers	100%	—*	100%	$\kappa = 1, Z = 4.69,$ $P < 0.001$
Mature feathers	95.5%	$\kappa = 0.91, Z = 4.28,$ $P < 0.001$	100%	$\kappa = 1, Z = 4.69,$ $P < 0.001$
<b><i>Other</i></b>				
Skin damage	100%	—*	100%	$\kappa = 1, Z = 4.69,$ $P < 0.001$
Severity (0-3)	95.5%	$\kappa = 0.95, Z = 6.07,$ $P < 0.001$	95.5%	$\kappa = 0.95, Z = 6.24,$ $P < 0.001$
<b><i>Mean agreement</i></b>		<b>93.3%</b>	<b>97%</b>	

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\*Agreement was 100% but because all birds across both sets of scores were scored as having no damage, there was not any variance to enable calculation of K

**Table S6 Inter-observer reliability scores calculated between two raters of the 110 sets of images provided by parrot owners, given as percentage agreement and Cohen's kappa ( $\kappa$ , agreement between two scores after accounting for agreement purely by chance: Cohen 1960, McHugh 2012).  $\kappa$  scores are interpreted as follows:  $< 0.21$  = slight;  $0.21 - 0.40$  = fair;  $0.41 - 0.60$  = moderate;  $0.61 - 0.80$  = substantial;  $0.81 - 0.99$  = almost perfect;  $1$  = perfect.  $P < 0.05$  indicates that the raters' scores agree more than would be expected by chance.  $n = 110$  in all cases.**

	Agreement	Cohen's kappa
Any feather damage?	75.5%	$\kappa = 0.51, Z = 5.39, P < 0.001$
<i>Specific body parts</i>		
Head	94.5%	$\kappa = 0.60, Z = 6.99, P < 0.001$
Throat/neck	89.1%	$\kappa = 0.78, Z = 7.95, P < 0.001$
Chest	90.9%	$\kappa = 0.79, Z = 8.78, P < 0.001$
Back	83.6%	$\kappa = 0.60, Z = 6.62, P < 0.001$
Wings (dorsal surface)	77.3%	$\kappa = 0.54, Z = 5.76, P < 0.001$
Wings (ventral surface)	81.8%	$\kappa = 0.48, Z = 7.37, P < 0.001$
Tail	80.9%	$\kappa = 0.59, Z = 8.19, P < 0.001$
Legs	82.7%	$\kappa = 0.58, Z = 6.88, P < 0.001$
<i>Feather-types</i>		
Down feathers	92.7%	$\kappa = 0.79, Z = 8.27, P < 0.001$
Covert feathers	80%	$\kappa = 0.60, Z = 6.37, P < 0.001$
Primary/secondary flight feathers	85.5%	$\kappa = 0.63, Z = 8.05, P < 0.001$
Tail feathers	82.7%	$\kappa = 0.63, Z = 8.86, P < 0.001$
Blood feathers	91.8%	$\kappa = 0.08, Z = 1.36, P = 0.18$
Mature feathers	75.5%	$\kappa = 0.51, Z = 5.39, P < 0.001$
<i>Other</i>		
Skin damage	97.3%	$\kappa = 0.65, Z = 6.89, P < 0.001$
Severity (0-3)	67.3%	$\kappa = 0.65, Z = 9.36, P < 0.001$
<b>Mean agreement</b>	<b>84.1%</b>	

