

**Supplementary material**

## **Appendix 1**

### **Construction of the hybrid index**

Table A1-1. Description of raw scores for each of the five characters included in the hybrid index and the scheme for conversion of raw scores to character scores (CS).

Back		Wingtips		Beak		Orbital Ring		Iris	
Kodak	CS	Kodak	CS	Color	CS	Color	CS	Color	CS
4.00	1.00	5.00	1.00	1 - Pale yellow	1.00	1 - Entirely pink	1.00	1 - Very dark brown	1.00
5.00	2.29	6.00	1.64	2 - Medium yellow	3.25	2 - Mostly pink	3.25	2 - Darkish brown	3.25
6.00	3.57	7.00	2.29	3 - Bright yellow	5.5	3 - Pink and yellow	5.5	3 - Medium brown	5.5
7.00	4.86	8.00	2.93	4 - Yellow-orange	7.75	4 - Mostly yellow	7.75	4 - Light yellowish	7.75
8.00	6.14	9.00	3.57	5 - Orange	10.00	5 - Entirely yellow	10.00	5 - Very pale yellowish	10.00
9.00	7.43	10.00	4.21						
10.00	8.71	11.00	4.86						
11.00	10.00	12.00	5.50						
		13.00	6.14						
		14.00	6.79						
		15.00	7.43						
		16.00	8.07						
		17.00	8.71						
		18.00	9.36						
		19.00	10.00						

## **Appendix 2**

### **Complete ordinal logistic regression results**

We used proportional odds model ordinal logistic regression (*mnrfit* in MATLAB) to test whether hatching success or nest success was correlated with hybrid index or IDM or pair difference, clutch size, and an interaction term between clutch size and hybrid index or IDM. Ordinal logistic regression assumes a linear relationship between the independent variable and the transformed response variable. Thus, ordinal logistic regression of success outcomes on hybrid indices allowed us to determine whether either parental type had significantly different success than the other, whereas the ordinal logistic regression of success outcomes on IDMs allowed us to determine whether intermediate types had significantly different success than parental types. Regression of hatching success (or nest success) on the interaction term allowed us to determine whether hybrid index or IDM were correlated with hatching success (or nest success) for a given clutch size.

Table A2-1. Coefficients ( $\beta$ ) and their standard errors (SE) and p-values for ordinal logistic regression of hatching success against hybrid index (or IDM or pair difference), clutch size, and an interaction term between clutch size and the index (or IDM or pair difference).

	$\beta$	SE	p	n
Male index	0.188	0.136	0.167	159
Clutch size	3.976	1.648	0.016	
Interaction	-0.065	0.048	0.178	
Female index	0.213	0.176	0.227	175
Clutch size	3.988	2.031	0.050	
Interaction	-0.065	0.060	0.281	
Pair index	0.119	0.116	0.306	146
Clutch size	4.272	2.603	0.101	
Interaction	-0.038	0.040	0.340	
Male IDM	-0.267	0.201	0.185	159
Clutch size	1.060	0.632	0.094	
Interaction	0.107	0.072	0.140	
Female IDM	-0.308	0.214	0.151	175
Clutch size	1.071	0.603	0.076	
Interaction	0.119	0.075	0.116	

Pair IDM	-0.199	0.132	0.132	146
Clutch size	0.822	0.746	0.271	
Interaction	0.080	0.046	0.088	
Pair				
difference	0.223	0.212	0.294	146
Clutch size	2.435	0.625	< 0.001	
Interaction	-0.092	0.076	0.226	

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<sup>a</sup> Reversed signs on the betas outputted from MATLAB

so that  $OR > 1$  corresponds to increasing success as the index increases.

<sup>b</sup> Dispersion estimated.

Table A2-2. Coefficients ( $\beta$ ) and their standard errors (SE) and p-values for ordinal logistic regression of nest success against hybrid index (or IDM or pair difference), clutch size, and an interaction term between clutch size and the index (or IDM or pair difference).

	$\beta$	SE	p	n
Male index	0.499	0.252	0.049	159
Clutch size	7.528	2.884	0.010	
Interaction	-0.187	0.089	0.036	
Female index	0.164	0.265	0.536	175
Clutch size	2.889	3.121	0.356	
Interaction	-0.047	0.096	0.622	
Pair index	0.226	0.180	0.212	146
Clutch size	6.360	3.912	0.106	
Interaction	-0.082	0.062	0.193	
Male IDM	-0.420	0.319	0.190	159
Clutch size	0.193	1.059	0.855	
Interaction	0.160	0.127	0.210	
Female IDM	-0.340	0.326	0.298	175
Clutch size	0.456	0.984	0.643	
Interaction	0.143	0.127	0.262	

Pair IDM	-0.457	0.204	0.026	146
Clutch size	-0.907	1.055	0.391	
Interaction	0.204	0.084	0.016	

Pair

difference	0.205	0.332	0.538	146
Clutch size	1.871	1.029	0.071	
Interaction	-0.096	0.122	0.432	

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<sup>a</sup> Reversed signs on the betas outputted from MATLAB

so that  $OR > 1$  corresponds to increasing success as the index increases.

<sup>b</sup> Dispersion estimated.