SUPPLEMENTARY MATERIAL TO: Gil, D., Bulmer, E., Celis, P. & López-Rull, I. (2008) Adaptive developmental plasticity in growing nestlings: sibling competition induces differential gape growth. Proceedings Royal Society B

An earlier version of this paper used a different analysis of the data of the cross-fostering experiment. In that analysis, we tested the effect of the manipulation separately for each trait measured. To do this, we corrected measurements for the effect of size at manipulation by calculating residuals, and we compared pair-wise differences between nestlings from the same nest. Although using residuals is not a recommended statistical procedure (García-Berthou 2001), the results of this analysis could be more straightforward to interpret than the MANOVA that we used in the final version of the paper. This is because the use of a single principal component for the two ages that is required in the case of the MANOVA, may seem objectionable on the grounds that PC1 only captures variance due to age. Readers might thus wish to see how the results compare if we used a method based on residuals. The results are qualitatively the same, showing that the effect is robust to the method of analysis used.

ALTERNATIVE ANALYSIS

Since there was variance in mass and size at manipulation day (day 2), and these values significantly affected all measures at later ages, we corrected all measurements by regressing them on the corresponding measurement at age 2 and calculating residuals (Nilsson & Svensson 1996). From these residuals we calculated pair-wise growth contrasts between nestlings of each pair (control – experimental), so that positive values indicate larger growth in control nestlings, and vice versa for negative values.

Four days after manipulation (at day 6), nestlings in experimental broods had smaller increases in mass, wing length, tarsus length and bill length than nestlings in control broods (one sample *t* test on growth contrasts for $H_0 = 0$: body mass: $t = 2.37$, df = 27, $P < 0.05$; wing length: $t = 2.64$, df = 27, $P < 0.05$; tarsus length: $t = 2.1$, df = 27, $P < 0.05$; bill length: $t = 2.1$, df = 27, $P < 0.05$; Fig. 1A). In striking contrast, gape growth was not affected by the experimental treatment, and was identical in the two groups ($t = 0.69$, df = 27, $P = 0.5$; Fig. 1A).

In the second period of growth, between day 6 and day 14, experimental birds compensated this initial handicap, and increases in body mass, wing, tarsus and bill length were not different from those attained by control nestlings (one sample *t* test on

growth contrasts for $H_0 = 0$: all $|t| < 1.49$, df = 26, $P > 0.15$; Fig. 1B). Again in marked contrast to the rest of traits, gape width was larger in experimental than in control birds: $t = -2.1$, df = 26, $P < 0.05$; Fig. 1B.

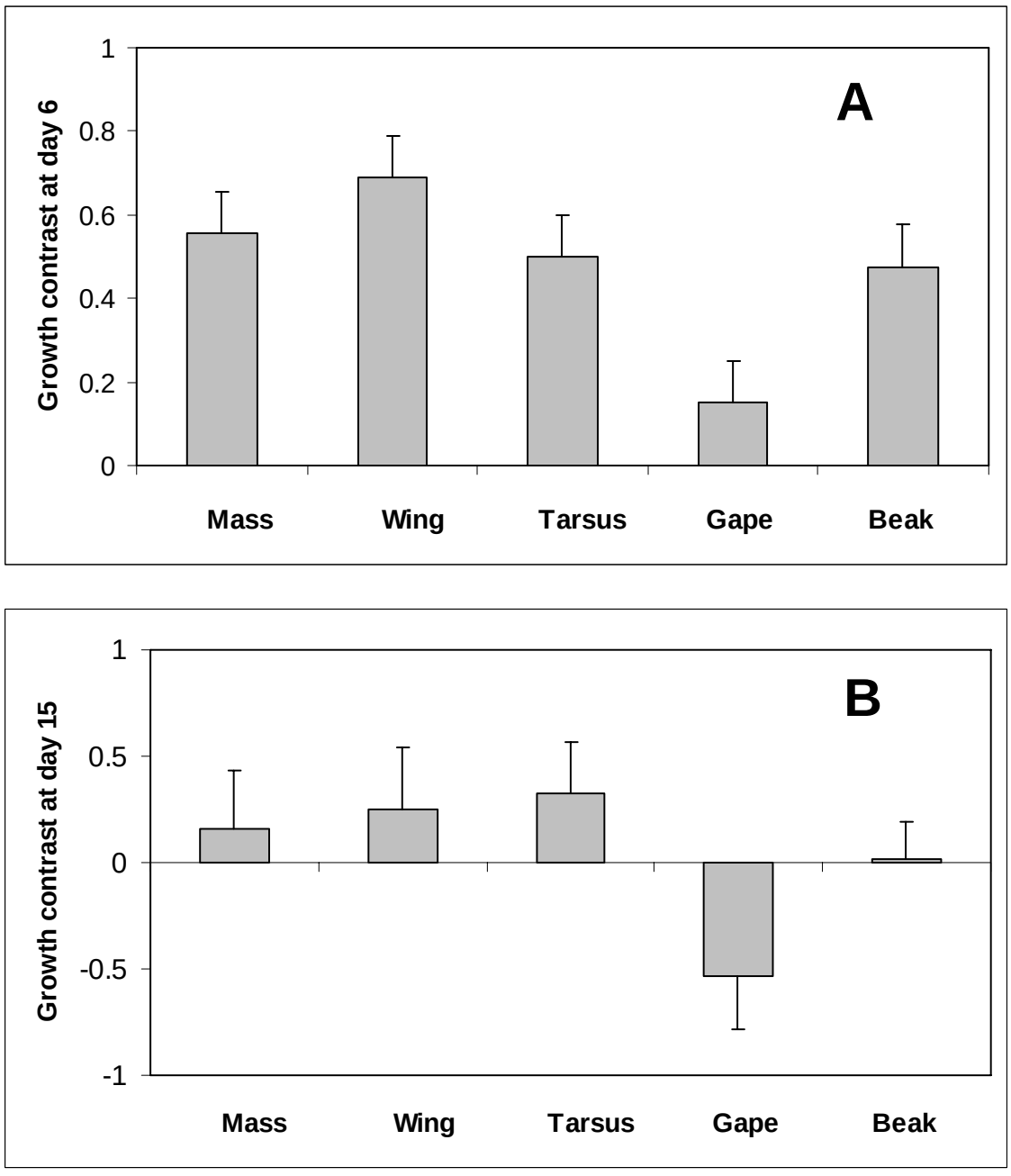

Figure 1.

REFERENCES

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Nilsson, J. Å. & Svensson, M. 1996 Sibling competition affects nestling growth strategies in marsh tits. *Journal of Animal Ecology* **65**, 825-836.