Table 4. ANCOVA tests for effects on number of nestlings surviving to nest leaving, with date of hatching (brood-day 0) and clutch size as covariates.

Season	Year	Model			Treatment			Brood-day 0			Clutch Size		
		F	^{df}model, ^{df}error	P	F	df[1]	P	F	df[1]	P	F	df[1]	P
Early	1990	11.30	3,172	0.0001	7.89	1	0.0005	6.12	1	0.014	12.52	1	0.0005
	1991	11.53	5,47	0.0001	2.38	3	0.082	0.68	1	0.413	29.24	1	0.0001
	1992	6.06	5,58	0.0001	1.69	3	0.178	1.85	1	0.180	24.00	1	0.0001
Late	1990	3.42	4,161	0.0103	1.92	2	0.150	0.06	1	0.799	5.57	1	0.019
	1991	3.88	5,33	0.803	2.31	3	0.094	4.67	1	0.038	14.33	1	0.0006
	1992	8.48	5,51	0.0001	0.35	3	0.788	2.03	1	0.161	17.62	1	0.0001

[1]Error df are the same as model ^{df}error

one jay was displaced by a House Wren parent a second and often a third would routinely take its place at the feeder. I am unable to determine the length of time Blue Jays spent each day feeding from the supplement because only casual observations were made. However, I estimate that it would take an adult jay at least 10-15 min to consume the entire supplement. This is likely an underestimate, since jays were never observed to feed for more than a few minutes before being driven off by wren parents, thus increasing the time Blue Jays spent near the nestbox.

House Wren parents receiving food supplements had similar rates of nest success as controls before and after excluding Blue Jays from the feeders (Table 1). In addition, incubation and nestling stage lengths did not differ between treatments in any season of this study (Table 2).

Parents receiving food supplements during the 1991 early season fledged lighter nestlings then parents not receiving supplements (Figure 1, Table 3). The presence of additional food did not affect mean relative brood mass during either season of 1990 and 1992 or the late season of 1991 (Table 3).

Additional food reduced the number of fledglings produced during the 1990 early season (Figure 2, Table 4). There were no significant effects of food supply on number of fledglings surviving to nest-leaving during the any other season of this study (Table 4).

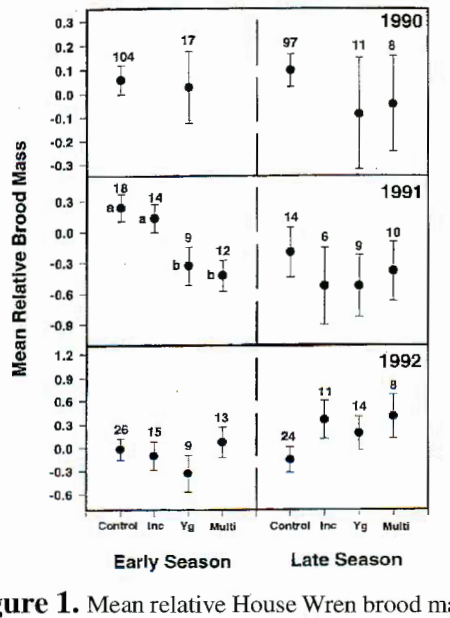

Figure 1. Mean relative House Wren brood mass (least-square adjusted mean +/- standard error)by treatment (see * below). See text for explanation of relative mass. Means with the same letter are not significantly different. Sample sizes are given above each mean.

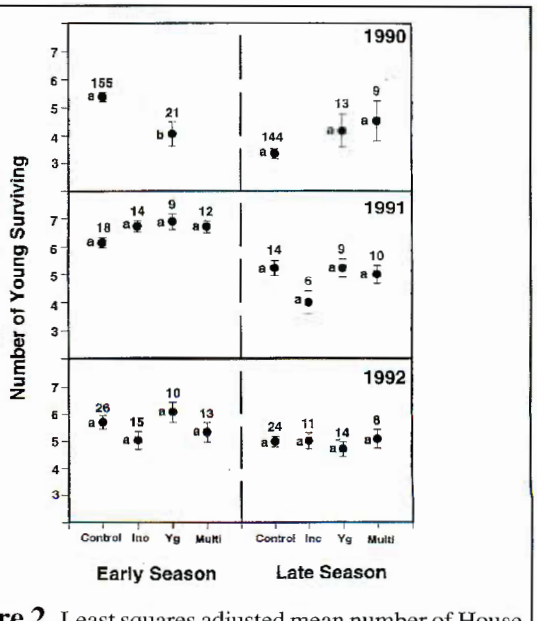

Figure 2. Least squares adjusted mean number of House Wrens fledged (least-square adjusted mean +/- standard error) by treatment (see * below). Means with the same letter are not significantly different. Sample sizes are given above each mean.

*(Control = no food added, Inc = food added during incubation, Yg = food added during nestling stage, Multi = food added during both incubation and nestling stages).