

Polygyny and male parental investment in song sparrows, *Spizella melodia*

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Summary. To determine the effects of male mating status

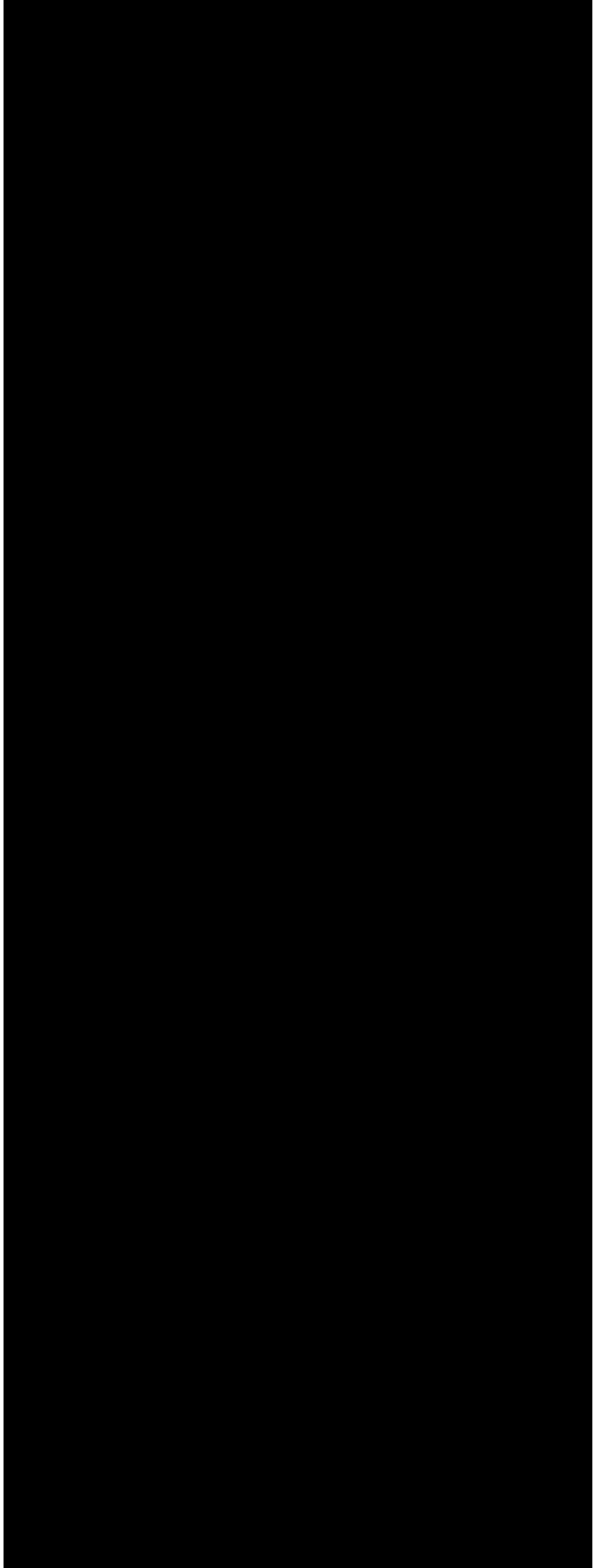
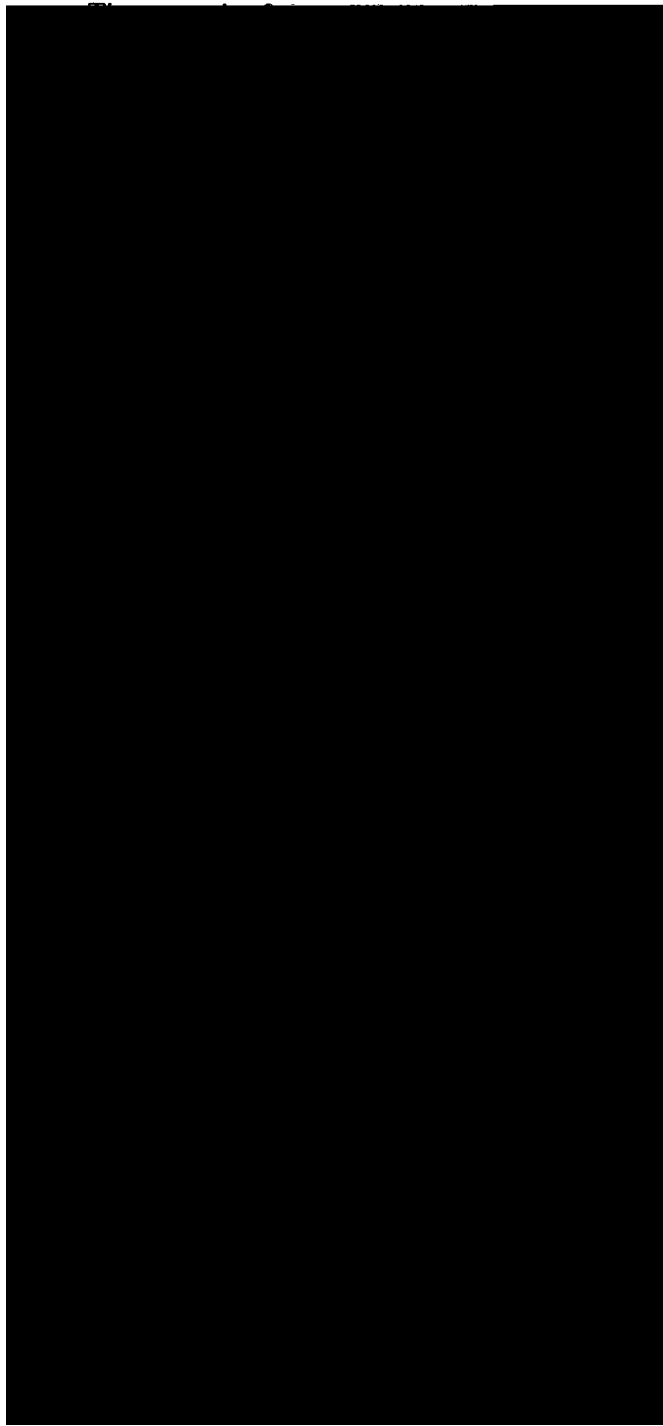
all food deliveries. Unassisted females did not suffer di-

Introduction

It is commonly assumed that polygynous males provide

on female fitness, at least as measured over the short

well as along the shore, in the intertidal zone, and in the branch tips

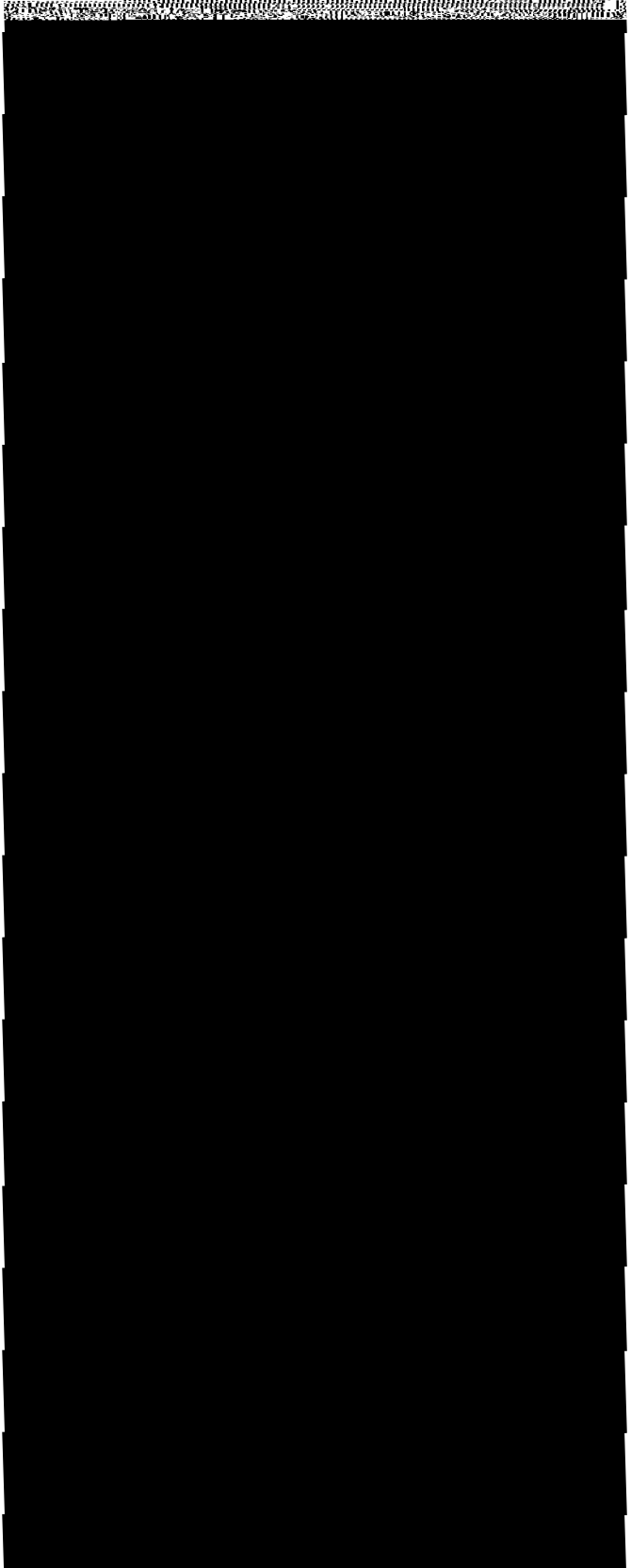


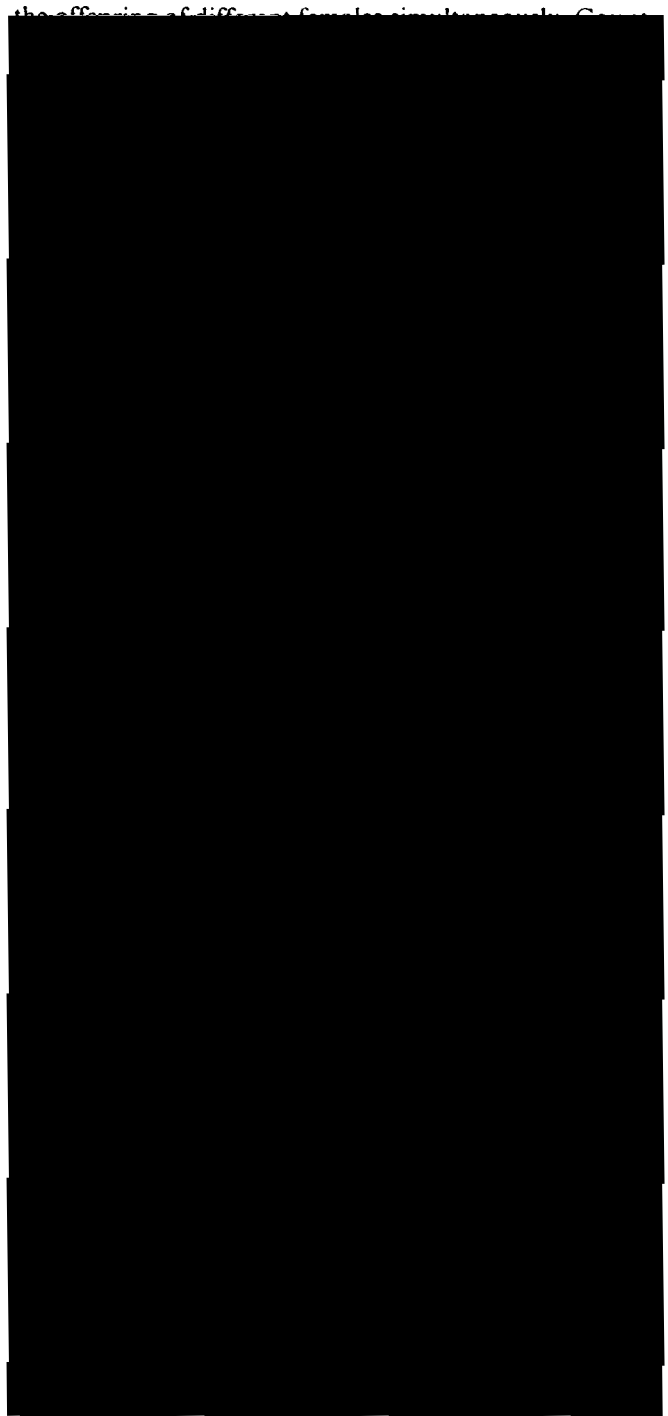
Methods

Study area. Since 1987 we have been studying an isolated popula-



Ross 1980; pers. obs.). When nestlings were 7 days old, their mass was measured with an electronic balance to 0.1 g, their tarsi (prox-





Results

Frequency of polygyny

In the population as a whole the frequency of polygyny



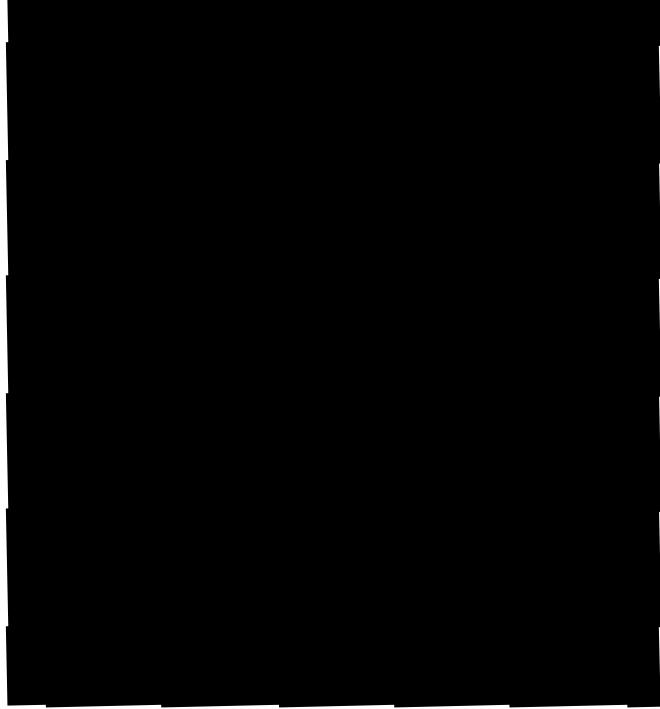
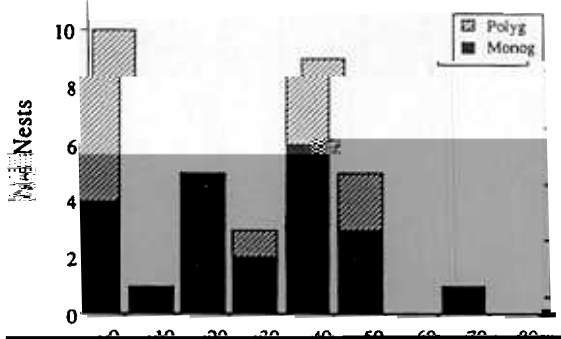
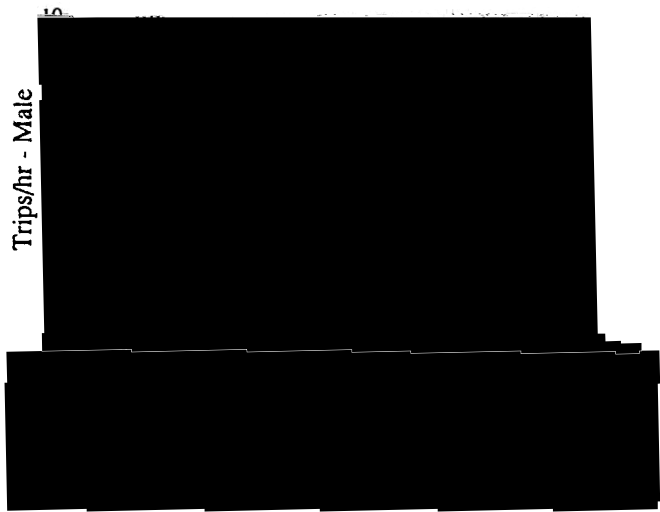
Table 1. Frequency of polygyny of adult sparrows in a population

% of Males with	Year
1 male	1982
2 males	1983
3 males	1984
4 males	1985
5 males	1986
6 males	1987
7 males	1988
8 males	1989
9 males	1990
10 males	1991
11 males	1992
12 males	1993
13 males	1994
14 males	1995
15 males	1996
16 males	1997
17 males	1998
18 males	1999
19 males	2000
20 males	2001
21 males	2002
22 males	2003
23 males	2004
24 males	2005
25 males	2006
26 males	2007
27 males	2008
28 males	2009
29 males	2010
30 males	2011
31 males	2012
32 males	2013
33 males	2014
34 males	2015
35 males	2016
36 males	2017
37 males	2018
38 males	2019
39 males	2020
40 males	2021
41 males	2022
42 males	2023
43 males	2024
44 males	2025
45 males	2026
46 males	2027
47 males	2028
48 males	2029
49 males	2030

Male feeding rate

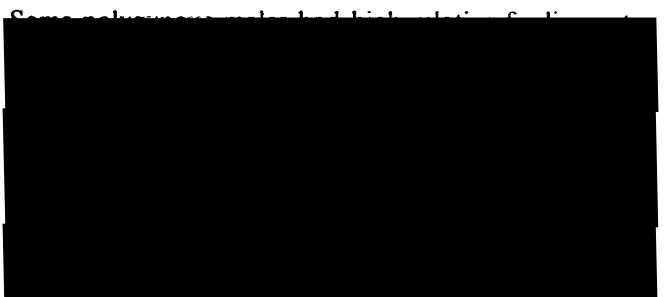
Female Savannah sparrows fed their nestlings at 2.7 times the rate of males (8.0 ± 3.5 deliveries/h vs. 3.0 ± 2.7 deliveries/h, $n = 35$ broods; Wilcoxon Signed-Rank test:





	Biparental feeding rate (deliveries/h)	Relative male feeding rate
Nestling mass	0.22	0.34
ling...		
s ...	0.57	0.61
ling...		
Not fledged	0.50**	0.06
Fledged	0.55**	0.06
Success (fledged/eggs)	0.55**	0.06

day o (1/11/13) Nestling measurements are means of broods. G...
 ... number of broods per series. Broods relative
 ... by both parents. 0.15 by male/total in...



Effect of male feeding rate on nestling size

Effect of polygyny on nestling size

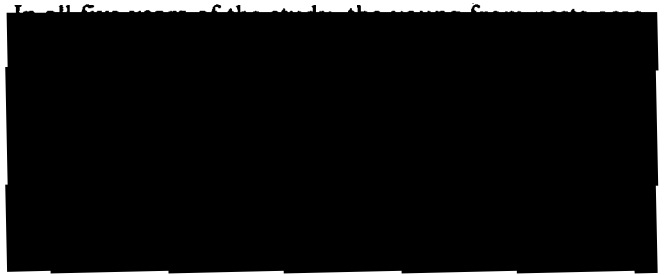
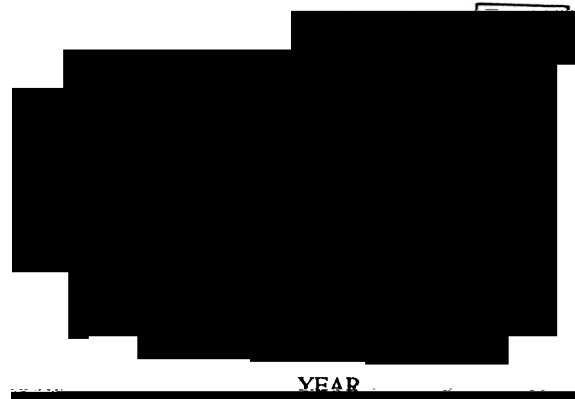


Table 3. Nestling size on day 8, number of fledglings, and overall fledging success (fledglings/egg laid) on the remaining status of the presence of the father

Year	Mating status of father		P
	Monogamous	Polygynous	
Nestling mass (g)		14.8 (1.3), 12	0.60
		14.4 (1.8), 23	0.98
			0.65
			0.16
			0.18
		18.0 (1.2), 12	0.90
			0.78
			0.14
			0.54
			0.77
Fledging success		29.5 (4.4), 24	0.80
			0.30
			0.77
			0.89
		3.4 (1.1), 36	0.14
			0.19
			0.12
			0.48
			0.00
		0.84 (0.27), 35	0.30
	0.83 (0.35), 28	0.23	
		0.18	
		0.57	
		0.03	



male feeding rates (Table 2). Fledging success was no

Effect of polygyny on nestling survival

The nests of monogamous males were not significantly

[Redacted text block]

sure tarsi in different years), brood size ($P = 0.02$) and

[Redacted text block]

Effect of male feeding rate on survival and future fecundity

Females that laid a second clutch in the north field in

Effect of male feeding rate on nestling survival

Nestling success (fledglings/egg laid) nor the

Table 4. Female fecundity as a function of mate-mating status.

	Year	Monogamous mate		
	1987	37.0 (7.4), 4		
	1988	36.8 (6.0), 18		
	1989			
	1990			
	1991			
No. eggs in 2nd	1987			
	1988			
	1989			
	1990			
	1991			
No. successful	1987			
	1988			
	1989			
	1990			
	1991			0.52

Values are means (± 1 SD) of brood means, followed by sample sizes (number of females)

lived less than 5% during the first clutch (Fisher's ex

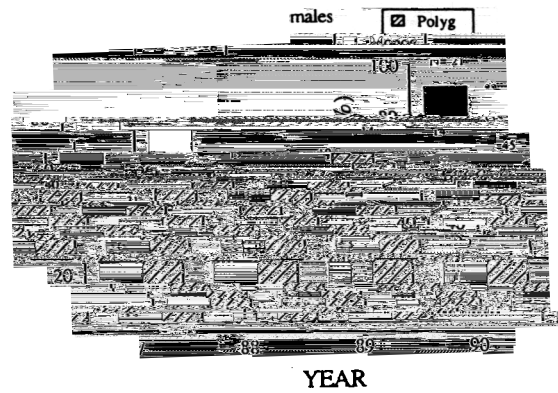


Fig. 4. Survival of females in the following year as inferred from

One might predict that the mates of polygynous males

Males

YEAR

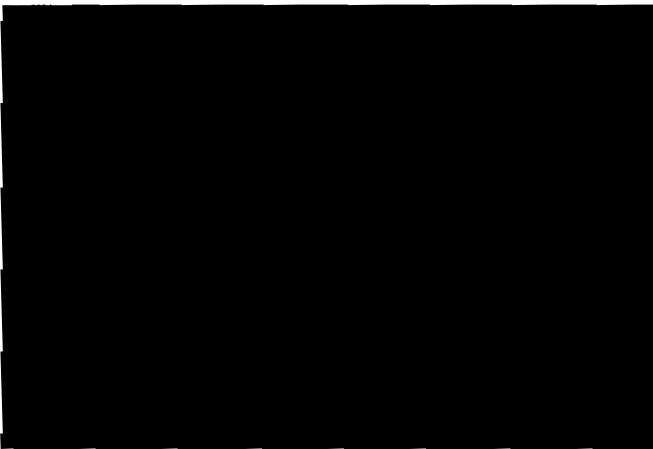
vorship appeared not to be influenced by the number



decline with nesting systems of female birds

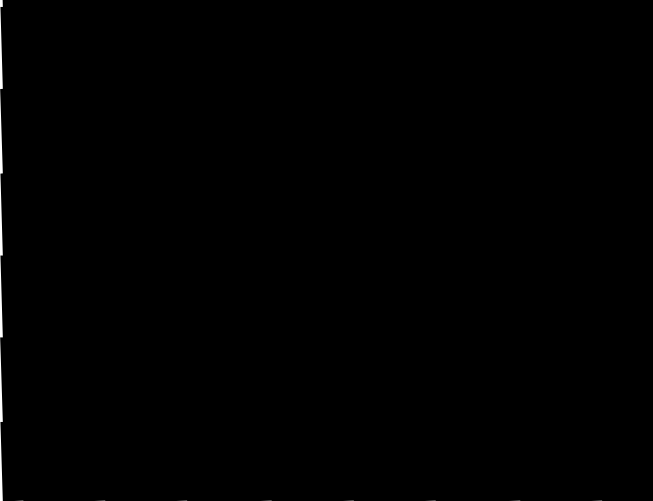


Predictability of feeding rates between clutches



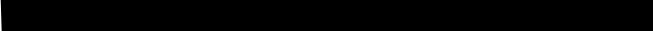
Characteristics of polygynous males and their mates

Like other species in which males provide relatively little



Discussion

Field studies have documented that males of a number of polygynous bird species contribute relatively little pa-



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tions made by a male to a female's first brood were
[REDACTED]

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References

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Krentz DG, Nichols JD, Hines JE (1989) Postfledging survival of European Starlings. *Ecology* 70:646-655

Rising JD (1987a) Geographic variation in testis size in Savannah

