

Ecography

E7002

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variation in salt marsh sparrows. – *Ecography* 34: xxx–
xxx.

Supplementary material

Appendix 1. Mean, standard deviation, and sample size of bill surface area (mm³) and mass (g) of salt marsh sparrow taxa.

Taxon	Male Breeding Bill Surface Area (X, SD, N)	Male Winter Bill Area	Male Mass ^a	Female Breeding Bill Area	Female Winter Bill Area	Female Mass ^a
Belding's savannah sparrow <i>Passerculus beldingi</i>	73.2 (6.0, 53)	68.8 (4.9, 77)	19.1 (0.8, 8)	64.7 (4.9, 22)	65.6 (4.5, 45)	17.0 (0.83, 6)
Large-billed savannah sparrow <i>Passerculus rostratus</i>	108.1 (6.0, 10)	102.6 (6.3, 101)	21.2 (1.7, 25) ^b	95.5 (6.1, 12)	94.1 (6.7, 126)	19.4 (1.9, 28) ^b
Nelson's sparrow <i>Ammodramus nelson subvirgatus</i>	63.2 (8.2, 32)	63.9 (3.2, 23)	18.0 (1.22, 80)	64.7 (5.5, 18)	64.6 (3.1, 7)	17.7 (0.72, 35)
saltmarsh sparrow <i>A. caudacutus</i>	72.0 (5.1, 50)	71.2 (3.0, 21)	20.1 (1.0, 33)	66.7 (4.7, 23)	68.4 (4.0, 22)	17.2 (1.5, 14)
Atlantic seaside sparrow <i>Ammodramus maritimus maritimus</i>	96.2 (7.4, 148)	95.4 (6.5, 53)	24.3 (1.4, 33)	88.0 (7.9, 58)	93.5 (5.8, 48)	22.2 (1.6, 14)
Gulf Coast seaside sparrow <i>A. m. fisheri</i>	99.0 (6.1, 32)	98.2 (8.4, 13)	21.1 (1.1, 52) ^c	98.2 (6.5, 14)	89.1 (4.3, 11)	19.7 (1.5, 31) ^c
Susuin song sparrow <i>Melospiza melodia maxillaris</i>	104.1 (9.1, 28)	96.4 (6.3, 14)	19.6 (1.3, 109)	91.7 (8.9, 21)	90.4 (6.7, 13)	19.5 (1.6, 41)

San Pablo song sparrow <i>M. m. samuelis</i>	90.8 (7.8, 21)	73.1 (4.4, 15)	18.2 (1.0, 202)	77.2 (7.4, 28)	69.8 (4.8, 15)	18.2 (1.5, 74)
Alameda song sparrow <i>M. m. pusillula</i>	79.7 (7.5, 32)	70.3 (4.7, 32)	19.03 (1.15, 48)	69.1 (6.8, 22)	66.0 (5.4, 18)	18.8 (1.29, 45)
Atlantic song sparrow <i>M. m. atlantica</i>	99.9 (7.1, 17)	93.6 (8.5, 13)	21.3 (1.2, 41) ^d	92.0 (8.9, 15)	93.5 (5.2, 6)	20.4 (0.7, 5) ^d

^a Source of data is Greenberg and Olsen (2010 Electronic Archive Appendix D) unless otherwise stated.

^b Weight data for Large-billed Sparrow is from specimen records of the Museum of Vertebrate Zoology

^c Weight data for Gulf Coast Seaside Sparrow is from birds captured in coastal Louisiana in summer (S. Gabrey, unpubl.)

^d Weight data for Atlantic Song Sparrow from birds netted in Delaware and Virginia during the breeding season of 2010 (Greenberg unpubl.).

Appendix 2. Temperatures and latitudes used for analyses.

Taxon	Migratory Behavior	Mean High Daily Temp (July) C°	Mean Breeding Latitude N°	Mean Low Daily Temp (Jan) C°	Mean Winter Latitude N°
Belding's savannah sparrow <i>Passerculus beldingi</i>	Resident	23.1	33.6	8.3	33.2
Large-billed savannah sparrow <i>Passerculus rostratus</i>	Partial Migrant	33	28	8.4	30.5
Nelson's sparrow <i>Ammodramus nelson subvirgatus</i>	Migrant	24.2	45.5	6.6	32.0
saltmarsh sparrow <i>A. caudacutus</i>	Migrant	28.1	41	4.4	34.0
Atlantic seaside sparrow <i>Ammodramus maritimus maritimus</i>	Partial Migrant	30.0	39.5	5.5	32.7
Gulf Coast seaside sparrow <i>A. m. fisheri</i>	Resident	33	30.6	6.3	30.1
Susuin song sparrow <i>Melospiza melodia maxillaris</i>	Resident	31.5	38.1	3.3	38.1
San Pablo song sparrow <i>M. m. samuelis</i>	Resident	27.1	38.2	4.5	38.2

Alameda song sparrow <i>M. m. pusillula</i>	Resident	25.0	35.7	5.3	37.6
Atlantic song sparrow <i>M. m. atlantica</i>	Partial Migrant	29.2	39.5	-1.7	37

Appendix 3. Mean, standard deviation, and sample size of bill size and mass of salt marsh sparrow taxa.

Table A1. Statistics associated with the information-theoretic analysis of regression models for summer bill size in males of ten salt marsh sparrow taxa.

Model	logL	Parameters	AIC _C	ΔAIC _C	Model Weight
temperature (temp)	-8.74	3	27.48	0	0.7439
temp + genus	-2.59	5	30.19	2.71	0.1917
temp + mass	-8.70	5	33.40	5.92	0.038
intercept	-15.42	2	36.56	9.08	0.0079
latitude (lat)	-13.61	3	37.22	9.74	0.0057
mass	-13.62	3	37.24	9.76	0.0056
temp + mass + genus	1.29	6	37.42	9.94	0.0052
lat + mass	-11.96	4	39.91	12.44	0.0015
genus	-14.80	4	45.59	18.12	0.0001
lat + genus	12.06	5	49.11529	21.638958	0.0000
lat + mass + genus	8.25	6	56.50772	29.031384	0.0000

Table A2. Statistics associated with the information theoretic analysis of regression models for summer bill surface area in females of ten salt marsh sparrow taxa.

Model	logL	Parameters	AIC _C	ΔAIC _C	Model Weight
temp	-5.29	3	20.58	0	0.6785
temp + mass	-3.07	4	22.15	1.57	0.3102
lat + mass	-7.13	4	30.25	9.67	0.0054
mass	-10.39	3	30.77	10.19	0.0042
temp + genus	-4.27	5	33.55	12.97	0.0010
intercept	-14.75	2	35.21	14.624558	0.0004
lat	-13.25	3	36.50	15.91	0.0002
temp + mass + genus	0.16	6	39.69	19.10	0.0000
genus	-14.72	4	45.44	24.86	0.0000
lat + genus	-12.11	5	49.22	28.63	0.0000
lat+ mass +genus	-7.00	6	54.04	33.42	0.0000

Table A3. Statistics associated with the information theoretical analysis of regression models for winter bill surface area in males of ten salt marsh sparrow taxa.

Model	logL	Parameters	AIC _C	ΔAIC _C	Model Weight
mass	-11.50	3	33.00	0	0.7164
intercept	-15.11	2	35.93	2.93	0.1655
lat + mass	-11.43	4	38.86	5.86	0.0382
temp + mass	-11.49	4	38.97	5.98	0.0361
lat	-14.95	3	39.90	6.91	0.0227
temp	-15.07	3	40.14	7.15	0.0201
genus	-15.07	4	46.13	13.13	0.0010
lat + genus	-13.38	5	51.75	18.75	0.0001
temp + genus	-14.90	5	54.79	21.80	0.0000
lat + mass + genus	-7.98	6	55.96	22.96	0.0000
temp + mass + genus	-10.35	6	60.70	27.71	0.0000

Table A4. Statistics associated with the information theoretical analysis of regression models for winter bill surface areas in females of ten salt marsh sparrow taxa.

Model	logL	Parameters	AIC _C	ΔAIC _C	Model Weight
mass	-8.15	3	26.29	0	0.9245
mass + temp	-8.14	4	32.28	6.00	0.0461
intercept	-14.03	2	33.77	7.48	0.0220
temp	-13.63	3	37.25	10.96	0.0039
latitude	-13.93	3	37.87	11.57	0.0028
latitude + mass	-12.60	4	41.20	14.91	0.0005
genus	-14.02	4	44.02	17.48	0.0001
lat + genus	-12.60	5	50.20	23.91	0.0000
temp + genus	-13.03	5	51.06	24.77	0.0000
temp + mass + genus	-5.88	6	51.75	25.46	0.000
lat + mass + genus	-5.89	6	51.77	25.48	0.000

References

Greenberg, R. and Olsen, B. 2010. Bill size and dimorphism in tidal-marsh sparrows: island-like processes in a continental habitat. *Ecology* **91**:224–226.