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Differential migration and the link between winter latitude, timing of migration, and breeding in a songbird

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w

- / - ,

y

(W 2002, 2009, T y N
2010, B 2015) y, w w

y w

y

y y

T K I
y 1987 (W w 1992,
W w M 1998, M 2012, W -
2013) E y M y
J y, w y 10- y
- y y
y N
y w USFWS/ WS
- - - N
K I y
w - -
- U -
w USFWS/ WS -
- - , -
y
y W (±1),
(±0 1), y (±0 1)

R 3.1.1 (R T 2014), W

3. E

y y

Results

B 42 38 -
(14 , 15 , 7 , 2
) w 2012 2014, w
w S (w K I
N (34_), w
F (26_)
P y (41_, F 1) F 16 -
w w y -
y , w
δ^2H w w y y (,
δ^2H ,

S , *rho* = −0 22, 95 % −0 59
0 38) A (03 O ,
n = 14, F 2)
y 6 y (
27 S , *n* = 15, F 2),
(
22 S , *n* = 7, F 2)

Latitudinal distribution during winter

W w δ^2H
w δ^2H w
A w
w δ^2H w ,
w
B w -
38 , w w
(β ± SE) 2 5 ± 1 1 (t_{33} = 2 3, *d* = 0 81,
P = 0 03), w -
y 275 (F 1) W -
w w (β ± SE 0 22 ± 1 3,
t_{33} = 0 2, *d* = 0 07, *P* = 0 87) B
106 , w δ^2H
w (β ± SE) 5 6 ± 2 2
(t_{99} = −2 5, *d* = −0 50, *P* = 0 01) I ,
δ^2H w (β ± SE) 6 2 ± 2 5
(t_{99} = −2 4, *d* = −0 51,
P = 0 02), w
B w δ^2H y ,
y (T 1)
W y ,
w w
w 1 76 ± 1 01 (β ± SE),
t_{16} = 1 7, *r* = 0 40, *P* = 0 10, −1 21 ± 1 15
(β ± SE), t_{12} = −1 1, *r* = −0 29, *P* = 0 31 δ^2H -
−0 70 ± 3 03 (β ± SE), t_{44} = −0 23, *r* = 0 03,
P = 0 82, = 3 34 ± 3 70 (β ± SE), t_{42} = 0 9,
r = 0 14, *P* = 0 37 w w w
0 79 ± 0 53 (β ± SE), t_{16} = 1 5, *r* = 0 35,
P = 0 15, −0 17 ± 0 52 (β ± SE), t_{12} = −0 32,
r = −0 09, *P* = 0 76 δ^2H −1 73 ± 0 99
(β ± SE), t_{46} = −1 7, *r* = −0 25, *P* = 0 09,
0 00 ± 0 98 (β ± SE), t_{43} = 0 0, *r* = 0 00, *P* = 0 99 F
E S y
M T S1

Timing of migration and breeding

A y
(F 2), w -
w w (F 3) A
(*n* = 12) (*n* = 7) K
I y (

w y y-
y .
w H w , . . y,
w y
(, y 2/17 w
), .
y -
A y w
. . y -
w (B H .
1991, L , 1996, A , 1996, S
M 2004) E y- y
y . y
/

w y (H A 2000, ,
D L 2011)
A . w -
. *body*
size y , w -
w y w . δ^2H
. w , S y, D L
(2011

Author contribution statement

M y E, R (2001) P -
w E L 4 663 673
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y w -
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N w S, I (2007) E ,
B R
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T w -
y P R S L B
B S 271 59 64 10 1098/ 2003 2569
P , S M, H , F y M, J H, M M,
S W, T y w P, J-L, J L (2011)
I y
y J A E 80 225 234
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