د دی پر دی د د د د مړد د (Phalaropus lobatus)

Recei ed: 31 Dece be 2013/Re i^{se}d: 21 A g ^{ss} 2014/Acce ed: 25 A g ^{ss} 2014 © S i ge -Ve lag Be li Heidelbe g 2014

s c Fishe 's se ai he edic sha a e age a e »»h Id all ca e e» ce» e all he d c i f ale³³ a d fe ale³³. H e e, he he c ³³/be efi a i f d ci g ales e s fe ales diffe s, he he edic 3 ha a e 🎙 a bia¹³ d c i , icall h gh de d c i f he se i h g ea e a ia i i fi ess. We es ed he e ical edic i » i he ed- ecked hala e, a 1 a d ¹³ ¹³h ebid ih ¹³e - le e e ¹³al. Si ce fe ale¹³a e la ge a d he ef e e iall ee e¤ie d ce ad a haegeae aiai i e dcie» cce»», e edic ed f Fishe "h hesis a ale bias i la i e b ic % e ai, a d f % e all cai he , fe ale biases i he cluches ffe ales all caig e es uces e d c i . We eas) ed eggs a d chicks a d se ed 535 ff³ i g f 163 cl che³ laid e 6 ea ³ a ≫i e≯i

Se all ca i

а.

С

hich is a ailable a h i ed se s.

W. B. E gli³h \cdot D. Scha el \cdot D. B. La k (\boxtimes) Ce ef Wildlife Eclg, Dea e fBilgical Sciece³, Si Fa³e Uie³i, Biab, Bii³h Clibia V5A 186, Ca ada e- ail: dla k@³fica

D. Scha el

The ide³ ead cc) e ce fe al d c i f ale³ a d fe ale³ i di 1TJET.22745.16471.59215998³ cBT0TL9.96259975009.

Alaska. The e b ic se a i f51.1 M:48.9 F did

ae ³² a diffe i hei e ec ed a ff³⁵ f d ci g ale fe ale ff³⁵ i g a³⁵ a e³⁵ l f hei c di i e i e al ³⁶ a i (Ti e ³⁵ a d Willa d 1973). E e he 1:1 lai ³⁶ e ai ³⁶ (" lai i e³⁵ e all cai ai ³⁷, We³⁵ 2009) a e fa ed, i di id al a e ³⁶ ca bai g ea e fi e³³⁵ e · ³⁶ if he a e able ake diffe e iall c e i i e e be³⁶ f e ³⁶ e, a ic la l a ³⁶ e all ³⁶ else a d Wade 2003), , c e ³⁶ el, diffe e iall la ge · be³⁶ f e ³⁶ e e ³⁶ ³⁶ he he.

la i 🎾 i h diff 🎾 e l cal Ve eb a e lai 🦻 c-Jead ela iggeeai sae he slikel laces de ec ⁹e ai ⁹ a egie¹ (F a k 1990; We¹ 2009), a d ig »» die» ih egaie e» 1» hae bee blished (e.g., P > a e al. 2011). N e hele > i i e case ha e bee e ed, i ail i ligidiid alc dii al ³ a egie³ f³e all cai (K de) e al. 1997; Cl) e al. 2002 f bi d¹; We¹ a d Sheld 2002 f \rightarrow g la e¹). Fe e la i -» ecific diffe e ce» i e ilib ia (e.g., Bad ae e al. 2002), hich ide he be³³ e h d f e³³ i g he ³³ a licabili a he secies le el (Wes 2009), ha e bee $f \rightarrow d$.

The a Jal hi f³h ebid³ ake³ he fi e e³ f e⁹ i g edic i ⁹ f ⁹ e a i he . Cl) ch ⁹ i e e hibi ⁹ li le a iai, i h a ³⁰ g de ff). Th ³⁰, adi g ff) be » f ff» i g agai » b d »e c »i i i» a c lica i g fac . Sh ebi d g a e ec cial a d h » »e diffee ce» i ae al cae c » » af e hach ill be ³ alle ha i ³ ecie³ i h al icial ff³ i g, if e³e a all. De¹ i e he¹e c fea 1e¹, he g 1 ha¹ a b ad a ge f ai ga d a e al ca e e e e (Pi elka e al. 1974; S ekel a d Re 1d⁽³⁾ 1995), a d i ha⁽³⁾ ece 1 bee ped ha ad l pe a i p d i e ch f hip a ia i (Like e al. 2013). Biavevi i a vec da ve ai v h ld la i e ilib ia, b h c ib e a d a d a da leadi g diffe e ⁹e all ca i ⁹ a egie⁹ (Pi elka e al. 1974; S ekel a d Re ld⁽³⁾ 1995). I l g धीत्ते ध (Philomach ∮ gna), ih fe ale-1 i c bai, lai se ai sa e gl fe ale-biased a hej e ile sage (35–40 % ale, Jaa i e a d La k 2010); hi^a a igi a e i la ge a f »e a i »a ha ch. B eedi g fe ale» a ea bia³⁶ hei ³⁶e all ca i a d³³ fe ale³³, he le³³³ ³e all Selec ed Se, he i ebd c dii (Th) a e al. 2003). The 3 ciall ga 🎾 a d bi a e al c »a die (Acivi h. pole co) »h » a »ea» al e di cl)ch be ai, iha ale biabi eal b db, hich ab i e eed a^{ss} idig he e i ial ^{ss}e i h he ad a age f ha chi g ea lie i he "ea". I he " ed "a d i e (Acti mac la ia), a fac la i el 1 a d » »i» e » ecie» he e fe ale» a e he e i ial »e, a ≫i e bia≫ a dß d c i f fe ales i ea lie cl ches as edic he e ed. b a e a³² f) d (A de ³³³ e al. 2003). Malebia^{se}d ^{se}e a i ^{se} a hach ha e bee e ed i bi a e al d) li (Calid i alfina a cica) a d dd β e

(A ena ia $in e \not e$), al h gh % a le % i e% e e % all (Re ee ke % e al. 2005).

O → B d i eB iga eB Be a i B i he ed- ecked halae, Phala of loba, a d d e B ha ed life hiB feaeB, e ca c aB a e B i hala eB B di ec l i h he B ecieB e i ed ab e. Fe ale hala eB a e e b igh l c l ed, a i a el 20% la ge ha aleB, a d c e e agg eB i el f a eB (Hild a d V) la
1972; Re ldB 1987; Scha el e al. 2004a, b). Al h gh life i e a ia i e d c i eB cceB haB bee a -1979998038615.5(a)TJ.07451 Y y g a d Bad ae 2004

Nome Bl d %a le% f li e chick% e e % ed file a e a d d ied. Ti% e %a le% f failed e b. % e e ke i e ha la d f e a -40 C. DNA a% i% la ed f bl d %a le% %i g I % age e Ma i (Bi -Rad, He c le%, CA); i% e %a le% e e ea ed i h ei a%e K a d a i) ace a e. All DNA a% e% % e ded i TE b ffe. PCR a%) b h bl d a d i%% e %a le% %i g i e % 2669R a d 2602F. The d c % fPCR e e) aga %e gel, a d i% ali ed i h S b Safe (Life Tech l gie%, CA).

Cafe E fenbe g DNA as e ac ed si g a sal e ac i ced e (dified f Mille e al. 1988), a d clea sed f e cess ei f DNA si g he l/chl f . PCR as si g i e s 2917F a d 3088R (Elleg e 1996). PCR d c s e e aga se gel, s ai ed i h e hidi b ide, a d h g a hed de UV ligh.

A al Ses

We e exp be a i ab he e c49813beTD(a)15.6.3999932()0(h)18.8 h-

70, LR χ^2 =3.90, df=1, p=0.048; 1 · e: n=70, LR χ^2 = 3.06, df=1, p=0.038). This ela i shi be ee se a i a d egg si e as i de e de fi i a i da e. Egg si e i c eased

ha chi g 2 a i =52.6 % ale, n=251), b a 2 ch bias Id bed e 2 all ca i b fe ales, if his is defined as cetter affect i g he i a 2 a i.

P lai 🌬 ai

Ale ai el, (a) i) ab (hec) i fbia) ed) e all cai a eed ee a i ai . The) ge e al) i bili i ha he e al e e ge i c c) i fbia) i g) e ai, hich a e c ! e l (k ,) eigh a e i al be efi. Des i e b) fi di g i f) ke ed) e ai) i) e a i a) ecies, he echa i e g) ible f his cessi i (de) d. O e) al i ha fe ales eab b a ha

I 's ecies' i has ch 's ha chi g, adj si g se i h la i g de ca affec he le el f c e i i be ee chicks, hich a diffe g eal i 's i e (e.g., Ge a e al. 2003; Le al a e al. 2005). P ec cial hala e chicks ha ch i hi 24 h feach he, likel aki g ha chi g as ch a d he si e dis a i be ee chicks ha his ca c ea e less i a c a ed 's ecies' he e chicks ha ch e he c se f se e al da s a d a e fed b hei a e 's. We f i d ela i shi be ee la i g se e ce a d a egg's 's e, b i e e's his as li i ed.

Re-e a i i g a⁽³⁾ i ⁽³⁾ ab) fi e⁽³⁾ a ia ce a d ⁽³⁾e all ca i

highe i f. lk ld ake chick³² le³³³³ l e able ³² a ai , a³² lk i³² a e e g ³²) ce l f he e b , b) a³³⁵ f ec cial chick³². If he a e al c ³² ³² a d be efi ³³ f idi g he c e ³² f a egg diffe i h he ³² e f he e b , he e a be diffe e i al a) ³² f each c e f each ³² e .

Wh igh fe ale hala es be efi f e alb e, a d ale³⁵ f e lk? D e³⁵ ic chicke egg³⁵ i h alb e e e i e all e ed d ced » alle a d lighe chick¹ ha c legg¹ (Hill 1993). La ge i i ial ¹ cal chick is e igh be e i a fe ale chick. hich achie e la ge ad l ³i e, he ea³ ale chick³ a i i i e highe 🎾 i 🥬 hi . Se - le e e 🖓 al ld fa » ch all ca i . Addi i all, he e a be se diffe e ces i he^y i ^yhi babili ie^y f chick^yd e he c ^yi i f he egg. I ba 3° all 3° (Hi ndo ica), ales a ea be e affec ed b he a f alb e i a egg: chick³ f b h ³e e³ e e ³ alle he ha ched f egg³ i h alb) e e ed; h e e, l ale chick³ ³ ffe ed f l eedi) e e % % e (B i % li-Al aie al. 2008). O) e³ 1³ a e c ³ i³ e i h a he ³ d f ³ e -ba³ ed diffe e ial all ca i f egg c e ^(a) i i g-billed g ll^(a) $(La \ dela, a \ en \ i)$. Chi e al. (2012) f \rightarrow d ela i el e