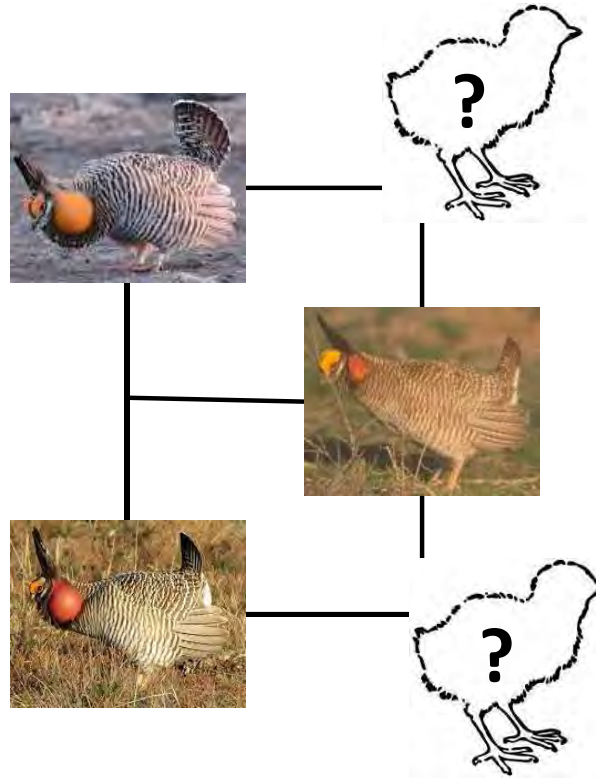


GREATERS, LESSERS, OR GUESSERS:
GENETIC ANALYSIS SUGGESTS LOW
LEVELS OF HYBRIDIZATION AMONG
PRAIRE GROUSE IN WEST-CENTRAL KS

Greater, Lesser or Guessers



- Andrew Gregory; David Haukos; Gabrielle Ysassi

A Tale of 2 Chickens

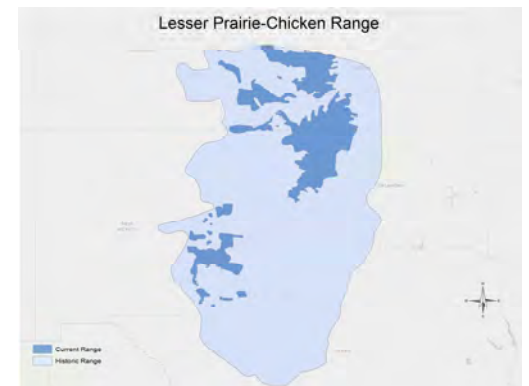
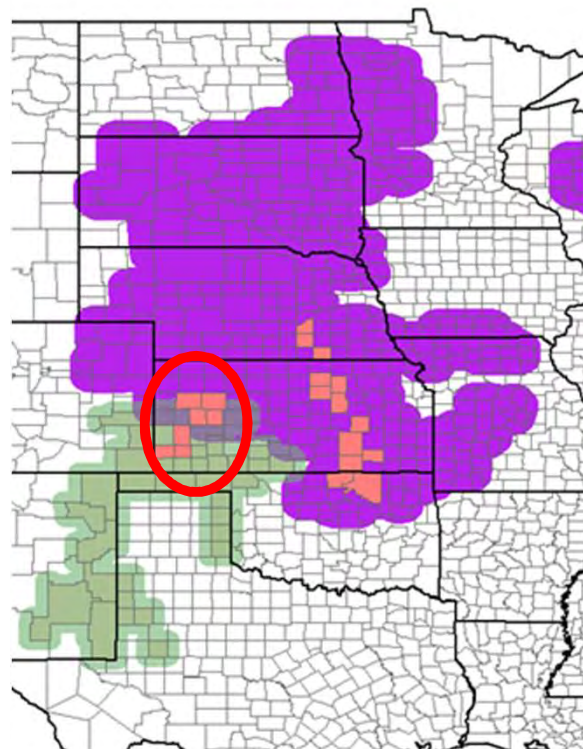
Greater Prairie-Chicken (*T. cupido*)



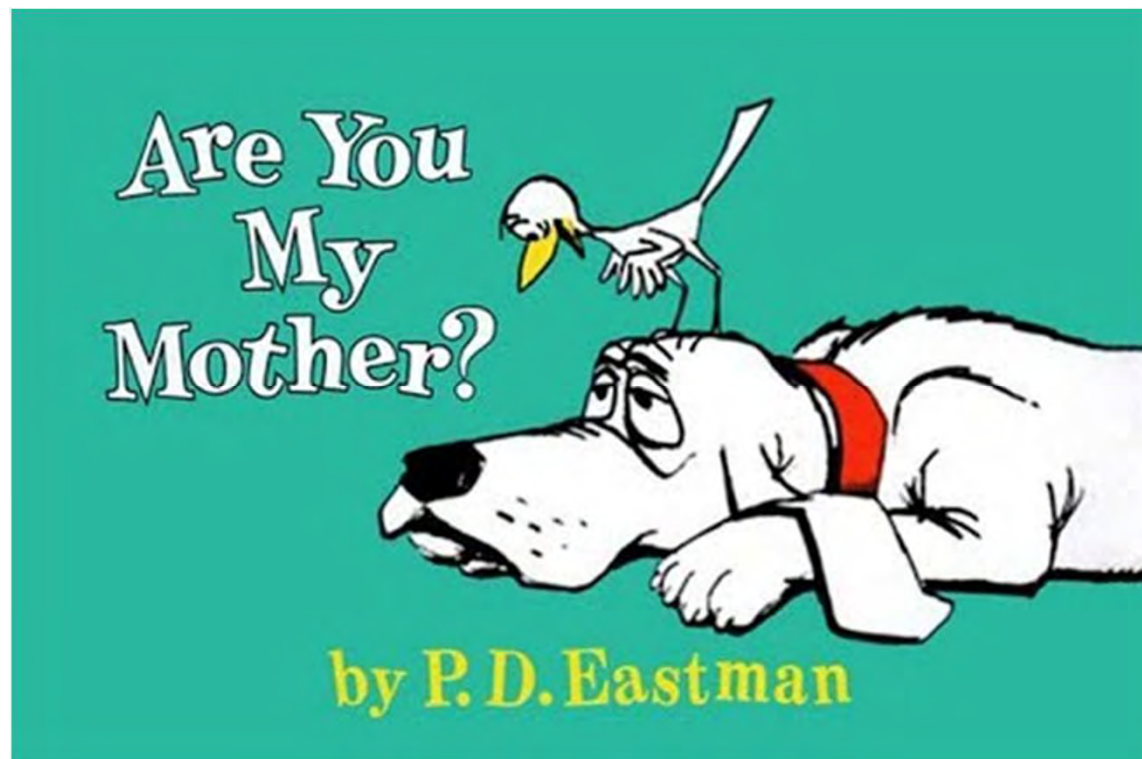
Lesser Prairie-Chicken (*T. pallidicinctus*)



Lesser Prairie-Chicken range has expanded north and is now sympatric with Greater Prairie-Chicken



Q. Do they hybridize? If so, how frequently? Are Hybrids fertile? If so, who do hybrids mate with?



Study Site



Analysis includes 170 total Individuals; 27 Putative GPC; 138 Putative LPC; 5 Putative Hybrids Sampled from 2014-2016 from Gove County, Kansas. Collected ~40 μ L of blood suspended in ~250 μ L of Longmires solution

Lab Methods

- 16 Microsatellites polymorphic in prairie-grouse
- 88 unique alleles $PI < 1.0 \times 10^{-23}$
- Sequenced 2 genes using Minion sequencing platform
- 1 Nuclear and 1 mitochondrial
- *Mitochondrial was uninformative
- 784 base-pair read (coverage ≥ 20)



Microsatellite Summary Results

Lessers:

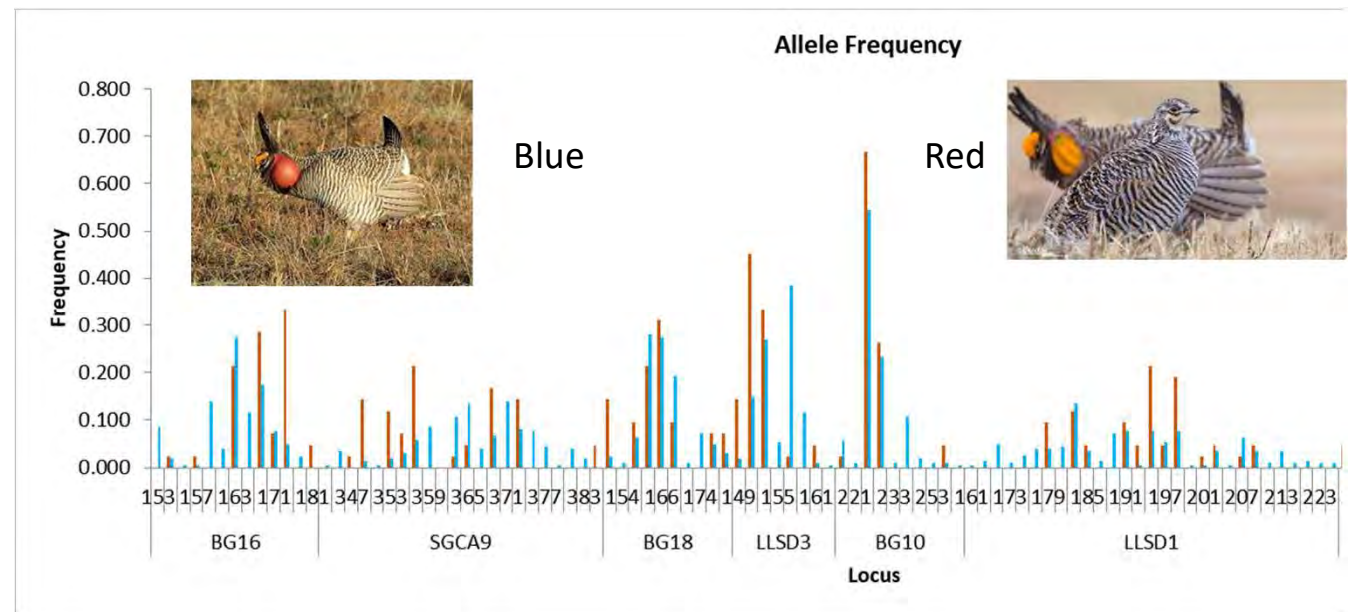
- $H_o = 0.85 \pm 0.05$
- $AR = 7.25 \pm 0.93$
- PA: 46

Greater:

- $H_o = 0.87 \pm 0.04$
- $AR = 13.4 \pm 2.6$
- PA: 4

Guessers:

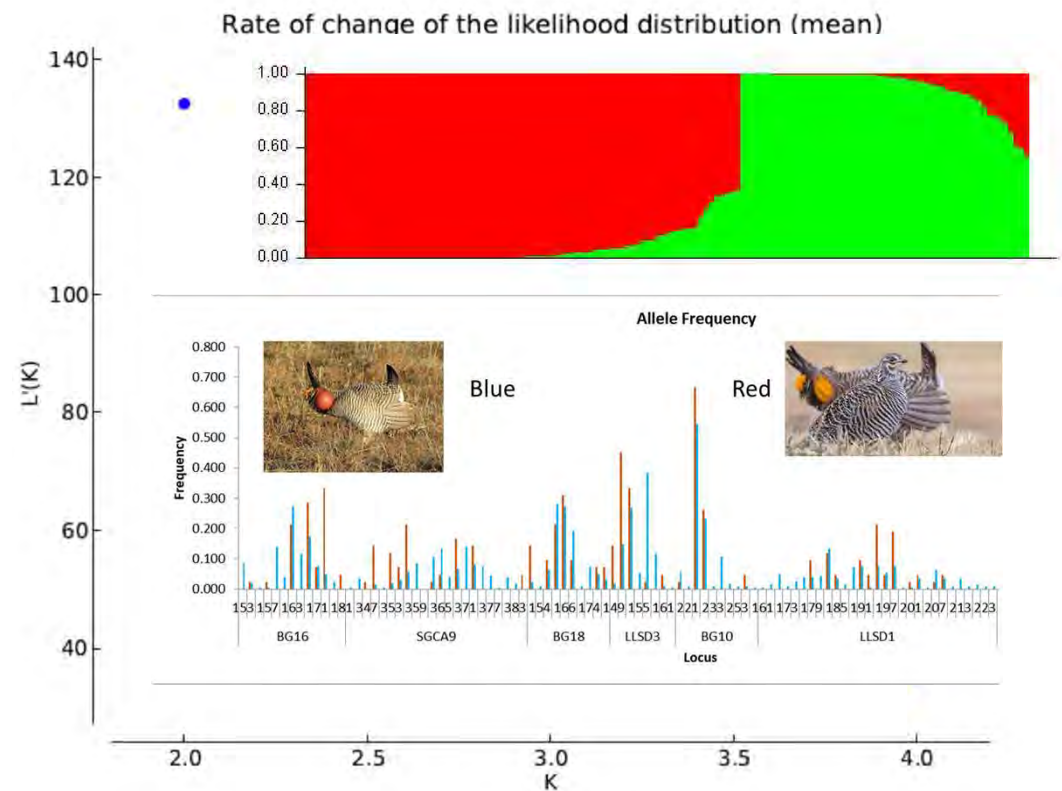
- $H_o = 0.94 \pm 0.05$
- $AR = 3.0 \pm 0.44$



Genetic Analysis

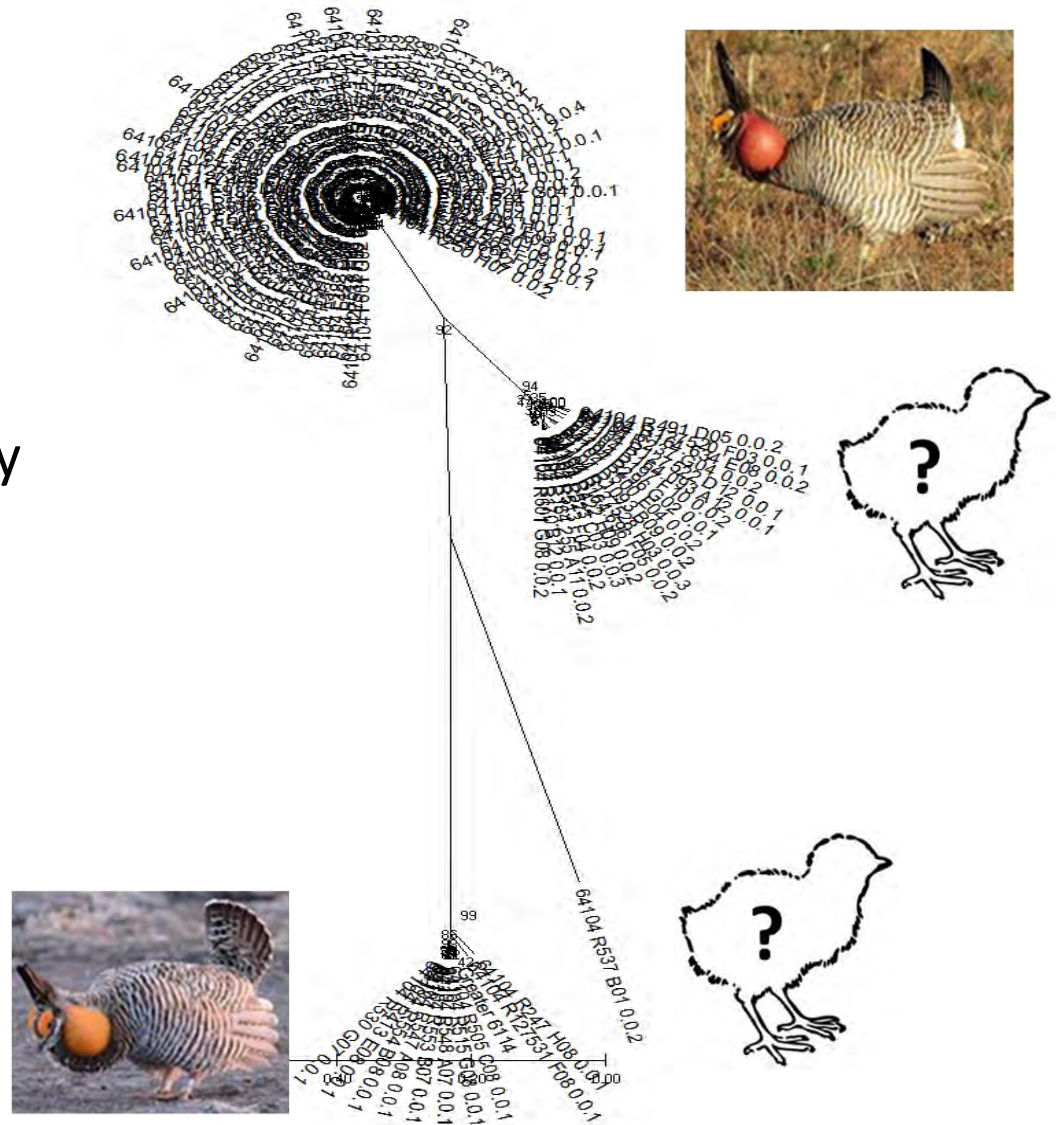
- Used Structure to test K=2-4 populations
- Greatest Support for K = 2
- $-LN(K) = 6,634$
- Indication of possible hybridization for 41 individuals (24%)*

*probably high—this estimate is MS allele freq. based



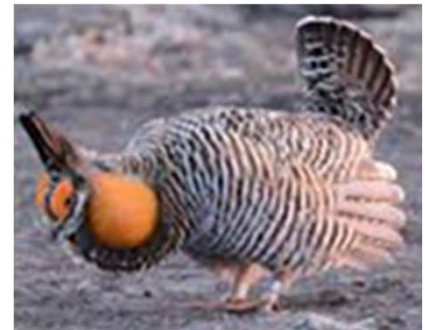
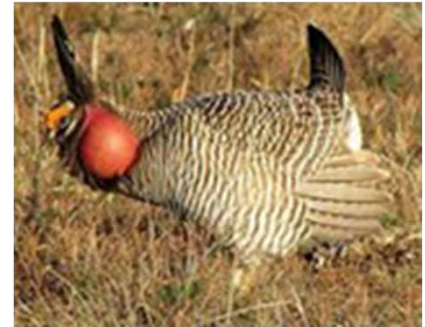
Sequence Results

- F1: ~ 3% (5) samples were morphometric hybrids
- F2+: ~12% (17) Morphometrically Lesser, but genetically Greater
- F2+~4%(1) Morphometrically Greater but genetically Lesser



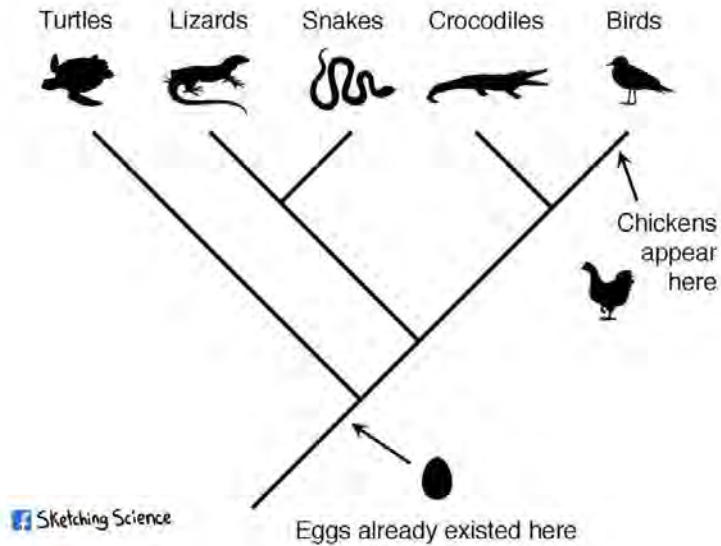
In Summary

- Hybridization Happens ~3-5%
- Hybrids are fertile
- Backcrosses seem to favor Hybrids into Lesser Prairie-Chickens
- Choice or Density Dependent?



Discussion

Which came first, the chicken or the egg?



*“A hen is only
an egg’s way
of making
another egg.”*
Samuel Butler

