GREATERs, LESSERs, OR GUESSERs: GENETIC ANALYSIS SUGGESTS LOW LEVELS OF HYBRIDIZATION AMONG PRAIRE GROUSE IN WEST-CENTRAL KS
Greaters, Lessers or Guessers

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

- 16 Microsatellites polymorphic in prairie-grouse
- 88 unique alleles PI <1.0x 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:**
- $H_0=0.85\pm0.05$
- $AR=7.25\pm0.93$
- $PA: 46$

**Greaters:**
- $H_0=0.87\pm0.04$
- $AR=13.4\pm2.6$
- $PA: 4$

**Guessers:**
- $H_0=0.94\pm0.05$
- $AR=3.0\pm0.44$
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

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

*Samuel Butler*