

USE OF SPRING WHISTLE COUNTS TO PREDICT NORTHERN BOBWHITE RELATIVE ABUNDANCE



D. Clay Sisson & Theron M. Terhune II
Tall Timbers Research Station & Land Conservancy

INTRODUCTION

- Previous Studies Include:
Speake and Haugen 1960, Norton et al. 1961, Rosene 1969, Robel 1969, Ellis and Thomas 1972, Wells and Sexon 1982, Curtis et al. 1989, Hansen and Guthery 2001, Terhune et al. 2009, Parent et al. 2012, Reyna et al. 2012
- VARYING RESULTS PREDICTING FALL POPULATIONS

Tall Timbers Studies

- Terhune et al. (2002,2009)
 - Peak whistling coincides with peak incubation
 - Peak occurs more than once during nesting season
 - Peak varies by year and site
 - Most consistent and intense peak in S. GA weeks 7-9
 - Strong relationship ($r^2=.975$) between whistle count and fall density **when peak whistle count used**
- Wellendorf and Palmer (2012) - calling most consistent during this time period
- More research needed on additional sites with a wider range of densities to test technique validity

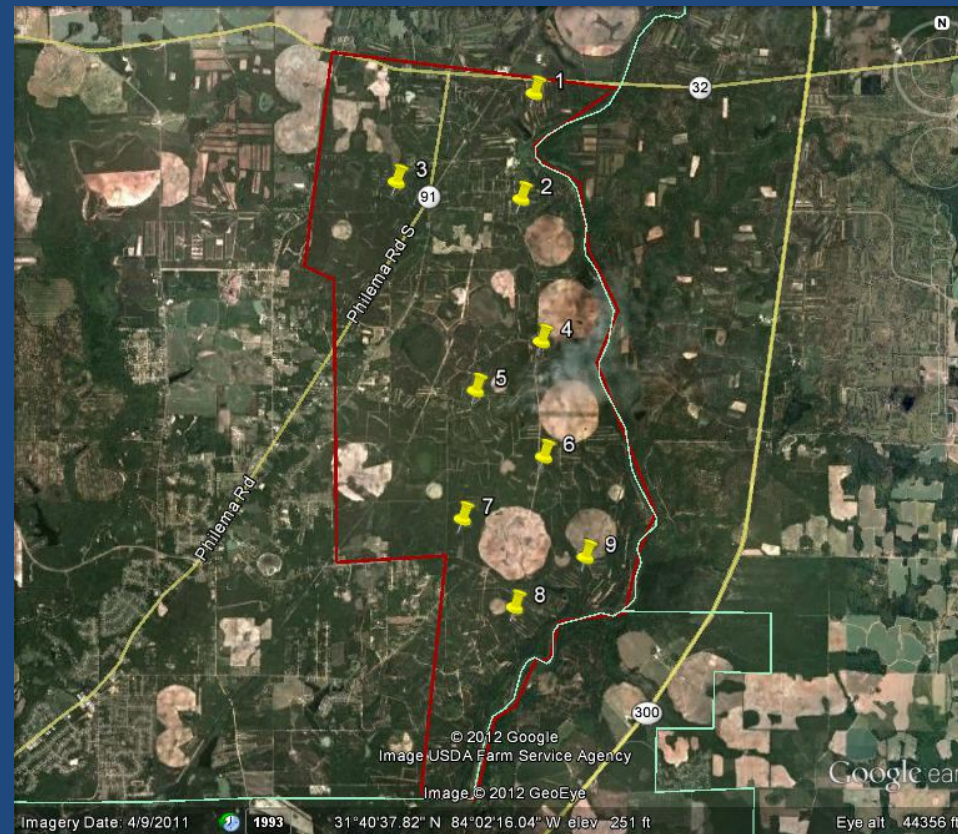
Value of Predicting Quail Populations 6 months Before Hunting Season?

- Set lease hunting prices (Reyna et al. 2012)
- Establish bag limits or quotas
- Potential buyer/purchase evaluation
- Suitability as translocation site

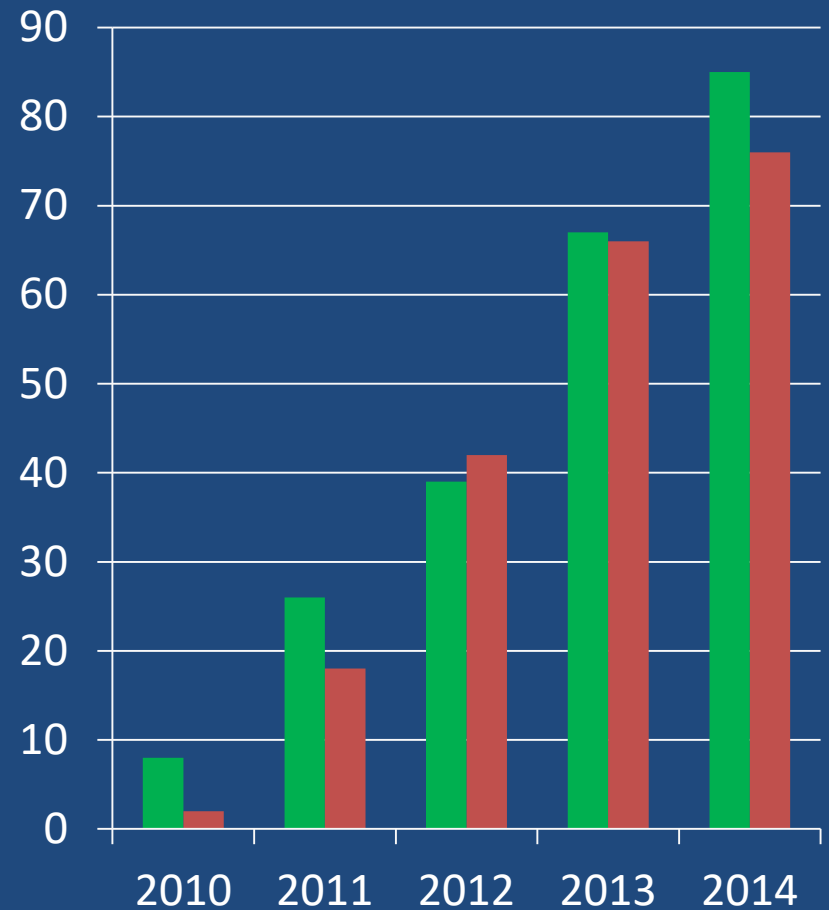
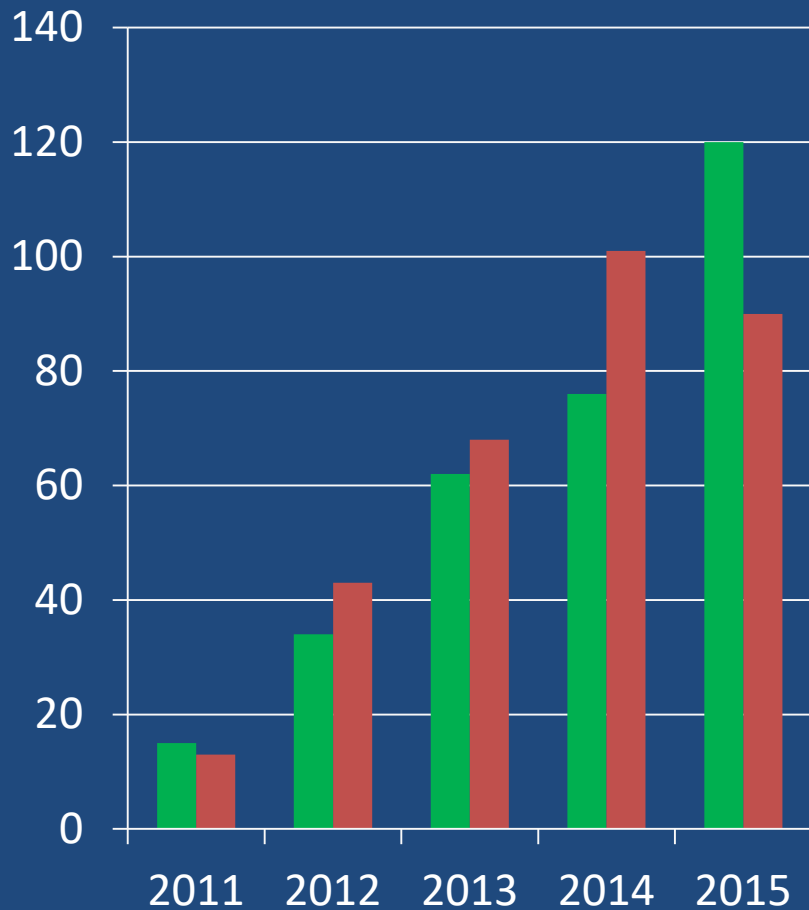
Wild Quail Translocation Monitoring



Spring and Fall Point Counts

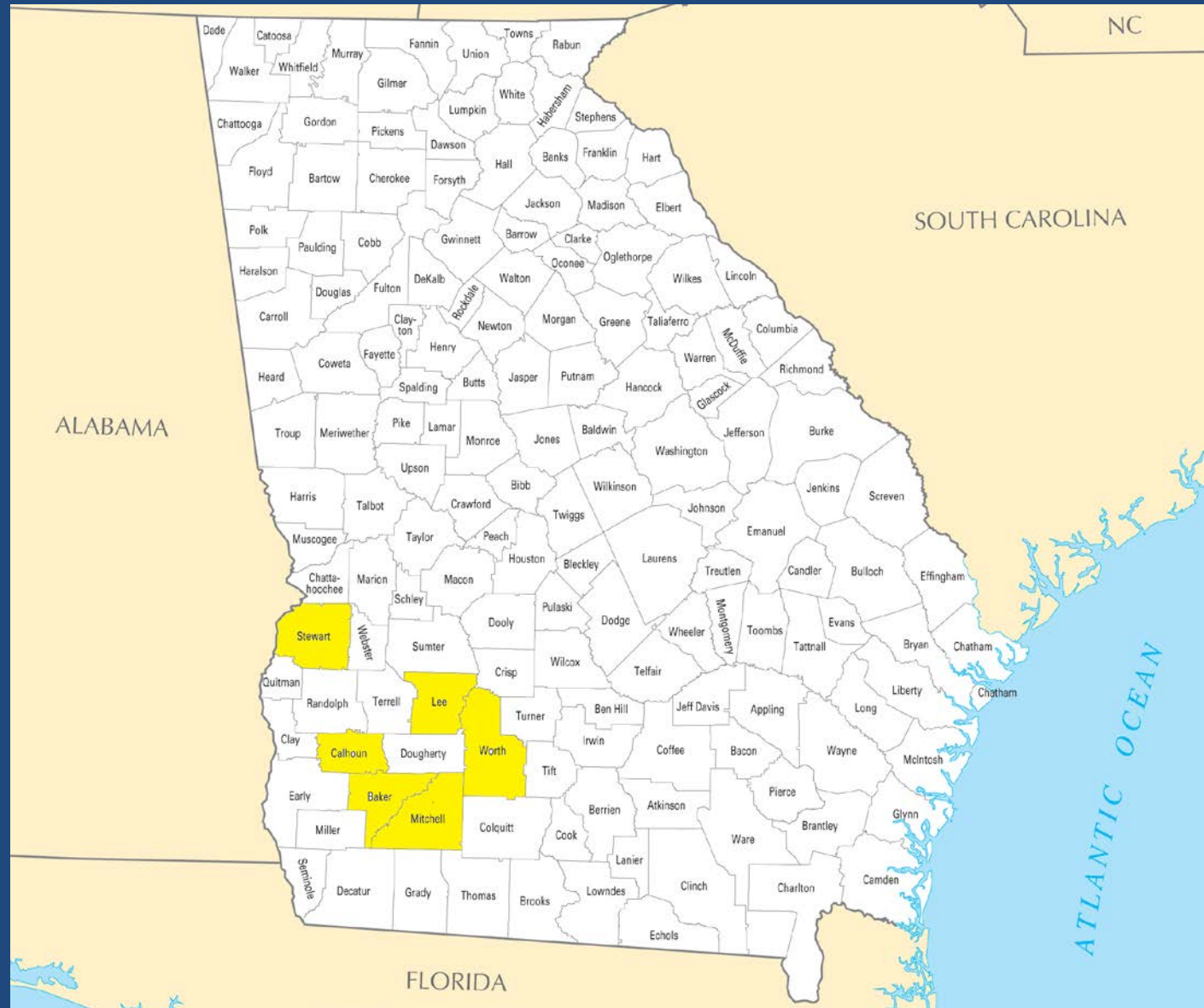


Males (green) vs. Coveys (red)



Study Sites – Six Counties in Southwest GA

Baker
Calhoun
Lee
Mitchell
Stewart
Worth





METHODS

POINT COUNT CENSUS

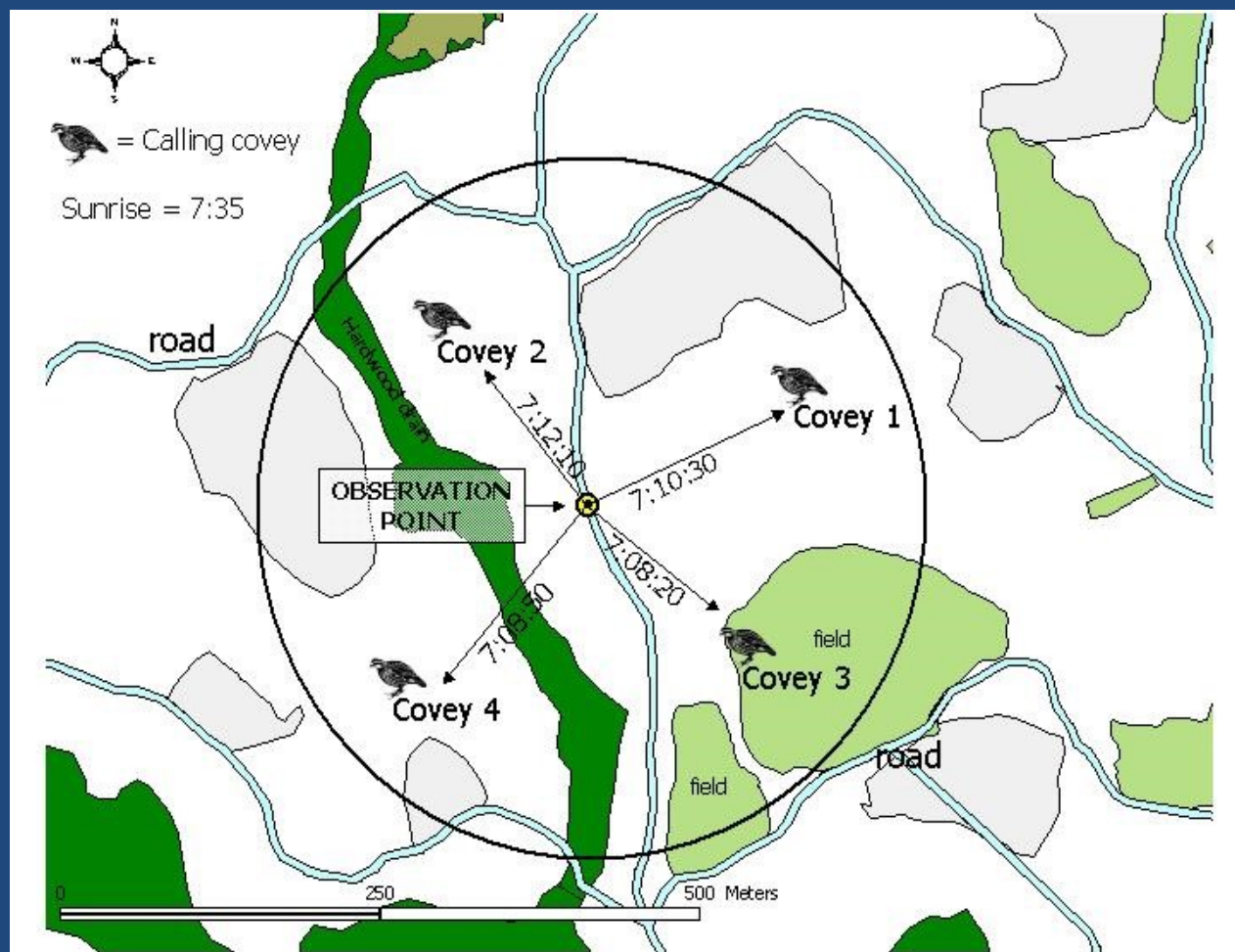
SPRING AND FALL

SINGLE OBSERVER

REPEATED WEEKLY

AVG. 7 POINTS (5-9)

PEAK COUNT USED



STATISTICAL APPROACH

- GLM (R Development Core Team 2015)
- Effect of males, site, year on fall coveys
- AIC evaluation of 7 candidate models
- Model fit assessed by coefficient of multiple determination R^2

RESULTS

Coveys Heard by Study Site

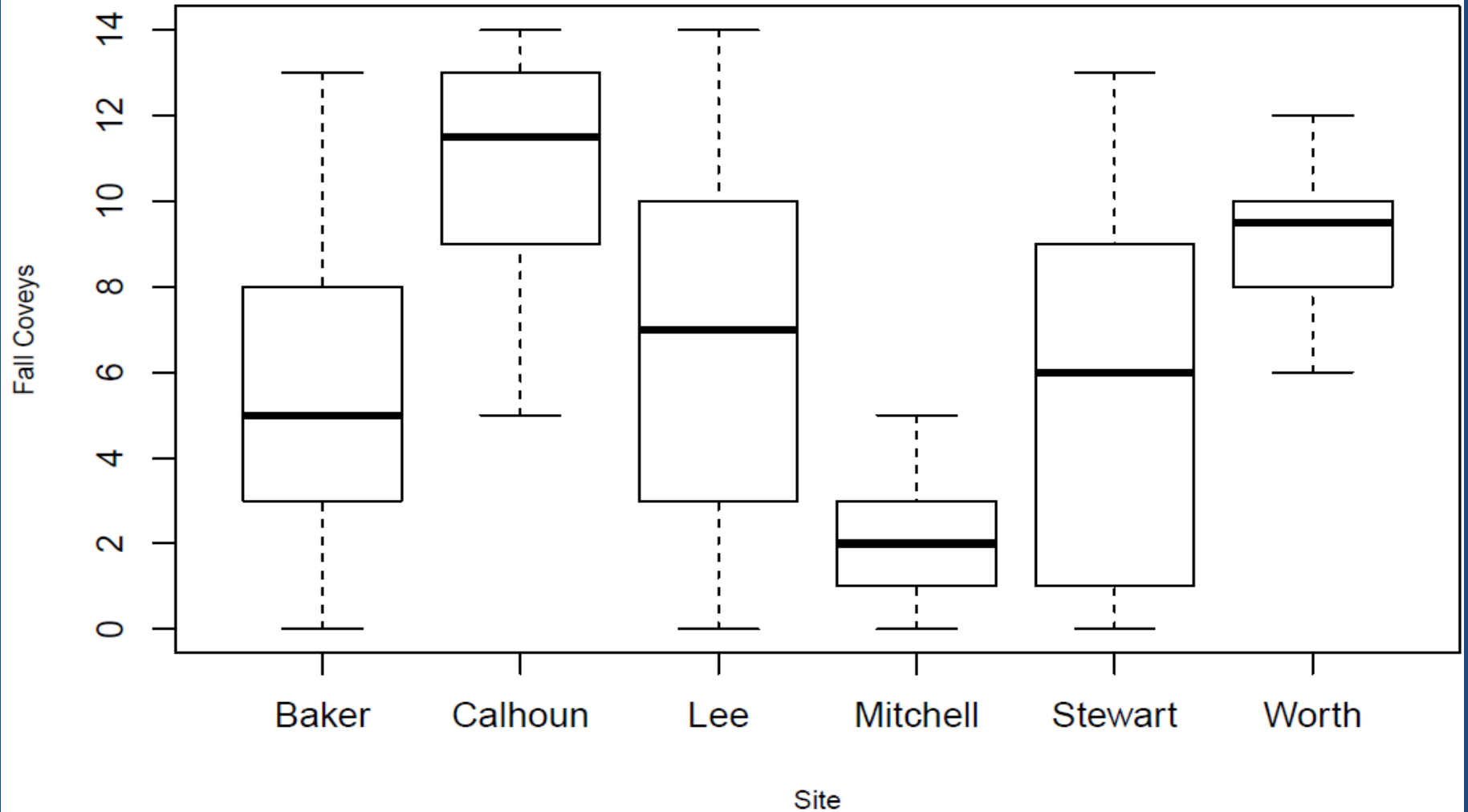
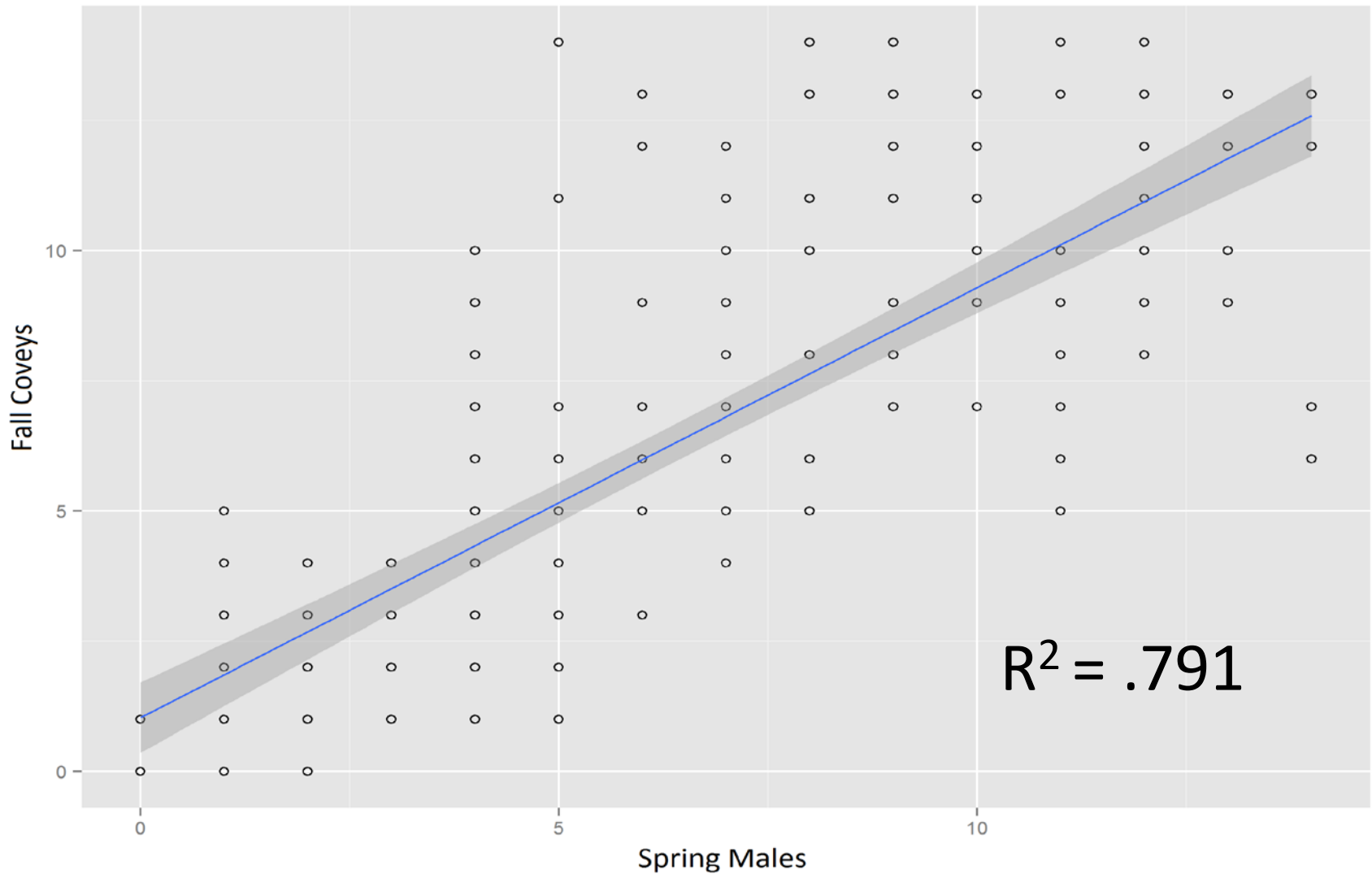


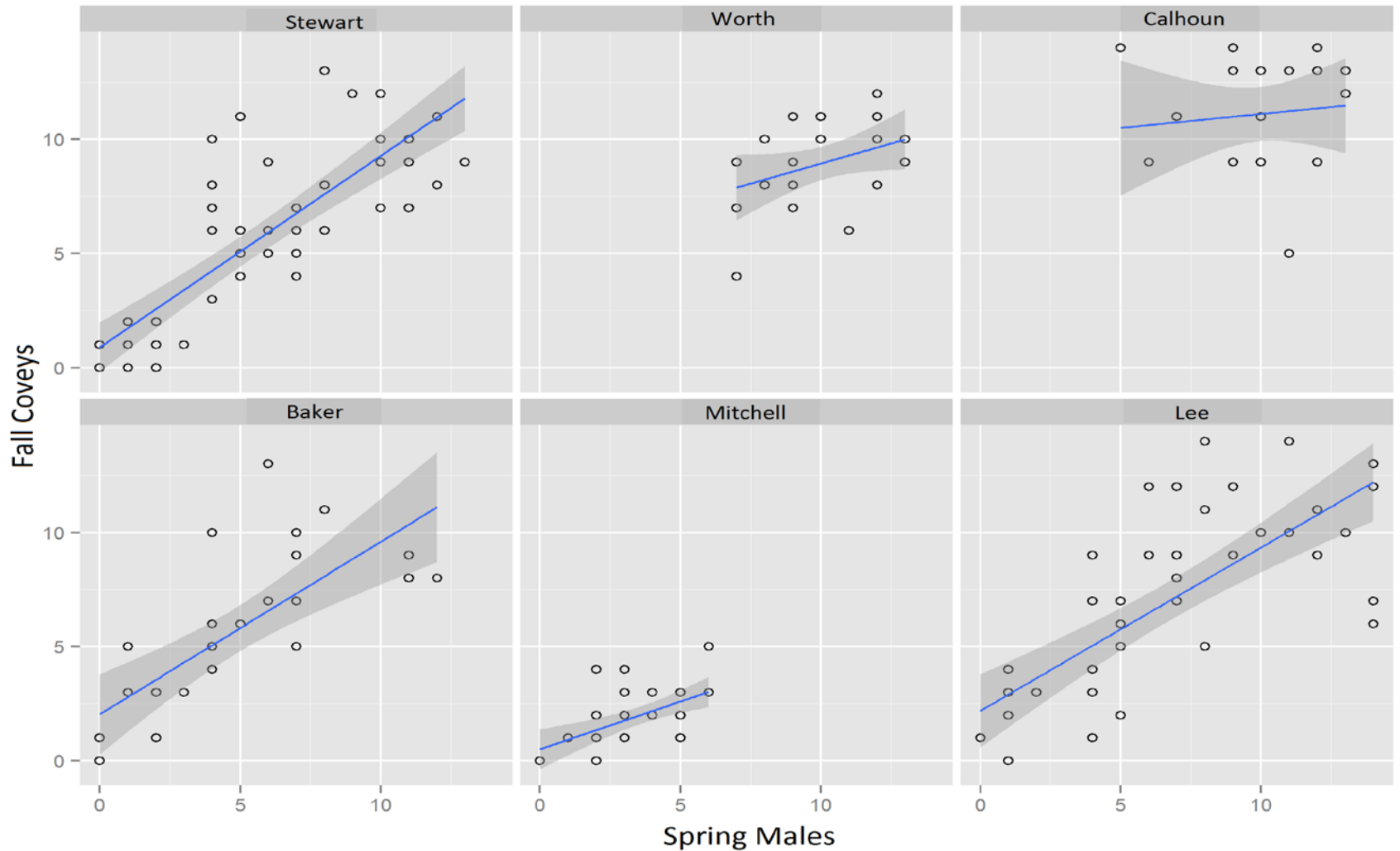
Table 1. Model selection results for examination of factors (year, site, and males calling in the spring) affecting northern bobwhite covey calls heard during the subsequent fall on 6 sites in southwest Georgia 2006 – 2015.

Model	<i>K</i>	<i>Dev</i>	<i>AIC</i>	<i>Δ AIC</i>
MH1 + MH*site2	12	892.7354	908.74	0.00
MH + site	8	879.2602	911.26	2.53
MH + site + year3	16	858.7636	918.77	10.03
MH + site + year + site*year	30	899.1107	921.11	12.38
MH + year	11	896.0564	936.06	27.32
MH + MH*year	20	932.256	936.26	27.52
MH	2	939.3894	939.39	30.65

Whistling Males vs. Fall Coveys



Males vs. Coveys by Site



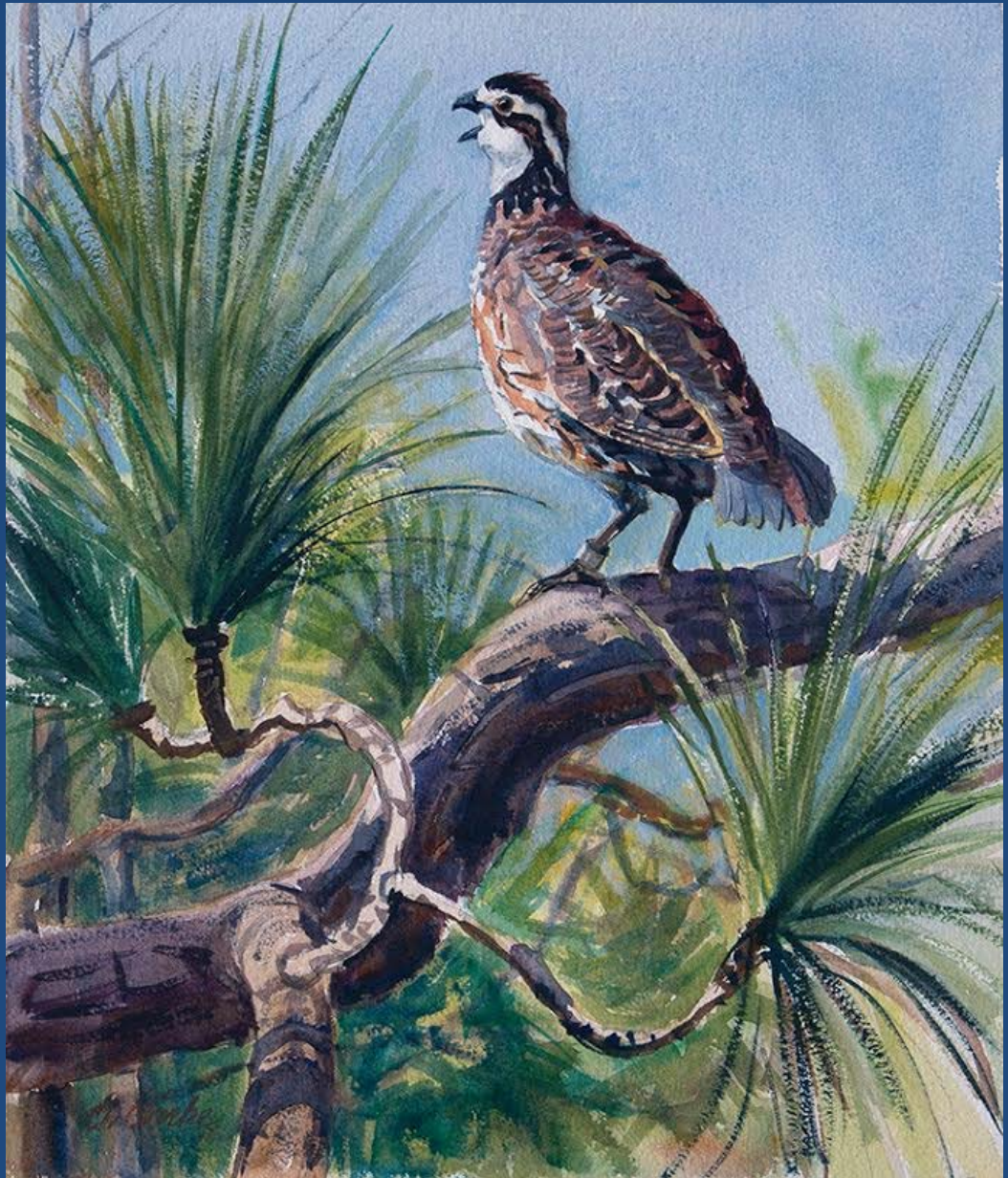
CONCLUSIONS

Reliably predict covey numbers **if done correctly:**
repeated counts, peak of incubation, use peak number

Less accurate at high densities

Relationship may not hold in regions where populations weather driven

Overwinter Survival = Spring Breeders : Whistle Count is a measure of this driver of quail populations





QUESTIONS?