The Hot Spots Blitz
What we learned
Should we do it again?

The Idea

- Focus birder attention on finding Rusty Blackbirds during the mid-winter
- Use a special e-bird protocol to collect the data
- Determine features that support the largest concentrations of Rusty Blackbirds

The investment

- E-bird staff designed a temporary button
- E-bird staff down loaded data
- Steering committee determined the time frame, designed materials for publicity, selected state coordinators
- State coordinators helped get the word out
- Birders did the blitz
- Website was used for protocols, id material etc.
- Contractor worked on GIS analysis

THE RUSTY BLACKBIRD HOT SPOT BLITZ
YEAR THREE

Last Year, Birders throughout the country scoured the countryside for wintering Rusty Blackbirds to help us understand their distribution and find important local concentrations (hotspots). We learned a lot (see http://nationalzoo.si.edu/ConservationAndScience/MigratoryBirds/Research/Rusty_Blackbird/blitz_results.cfm).

But there is much more to learn. We want to blitz for several years to both locate more hotspots and determine how stable the already discovered hot spots are from year to year. Already, the information gained is being used to implement research and conservation efforts!

With your help….

The "Rusty Blackbird Third Times a Charm Blitz" will be bigger and better than Blitz One and Two.

Overview

- Two weeks/year for three winters 2009-2011
- 180-211 people reporting RUBL/year
- 9,000-12,000 birds reported per year from about 30 states
- 215-315 separate reports
- Sex data from > 8,000 birds

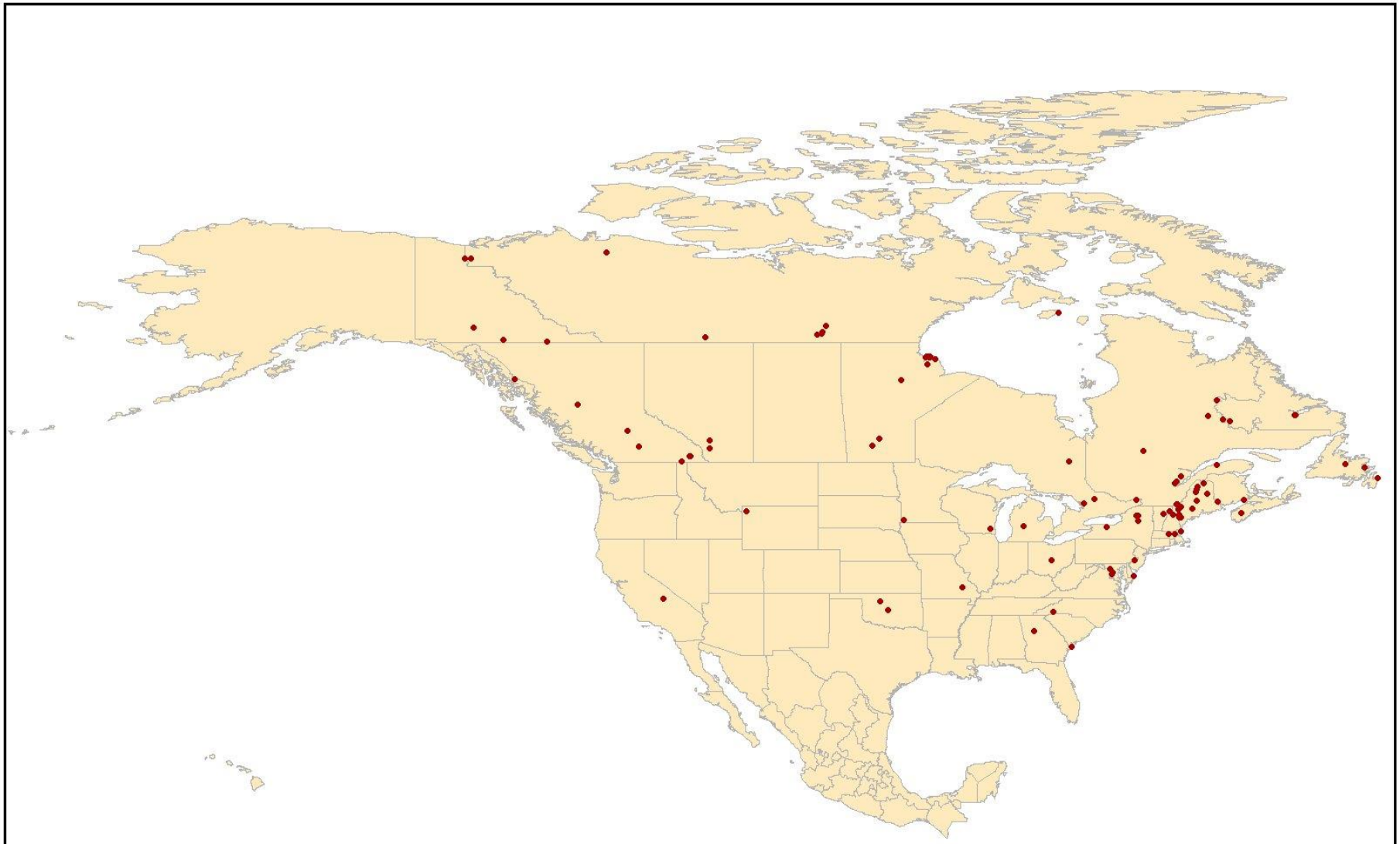
1.

Data to be reported

1. **Flock size (very important)**
2. **Number of males and females**
3. **Habitat: field, lawn, forest, impoundment (with or without trees), creek edge, pecan farm. Other (specify)**
4. **ground wetness: dry, moist, patchy flooding, fully flooded**
5. **Behavior: Feeding on ground, feeding in trees or shrubs, feeding in water, loafing, staging to roost, roosting, flying. If feeding, any information on food items would be good.**
6. **Vocalization: call notes, song, both, neither**

Blitz Versus Overall E-Bird

	BLITZ	**E-BIRD**
Observers	405	1261
Sightings	1122	3263
Birds Counted	53588	88381
Sightings Per Week	561	407
Birds Per Week	8931	3682
Mean birds/sighting	47.8	27.1



N.H. AUDUBON

Rusty blackbird locations
July, (1970 to 2010)

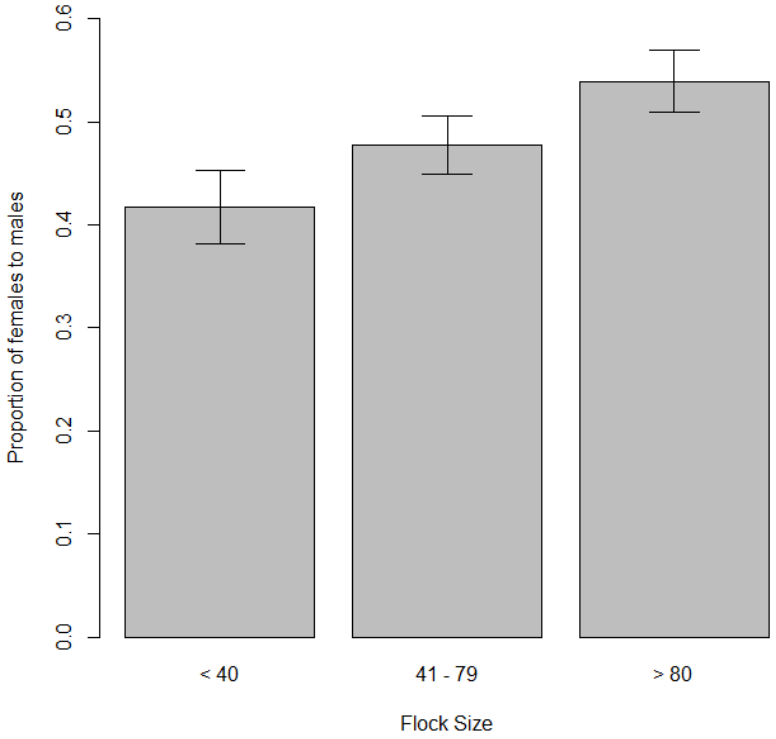
Legend

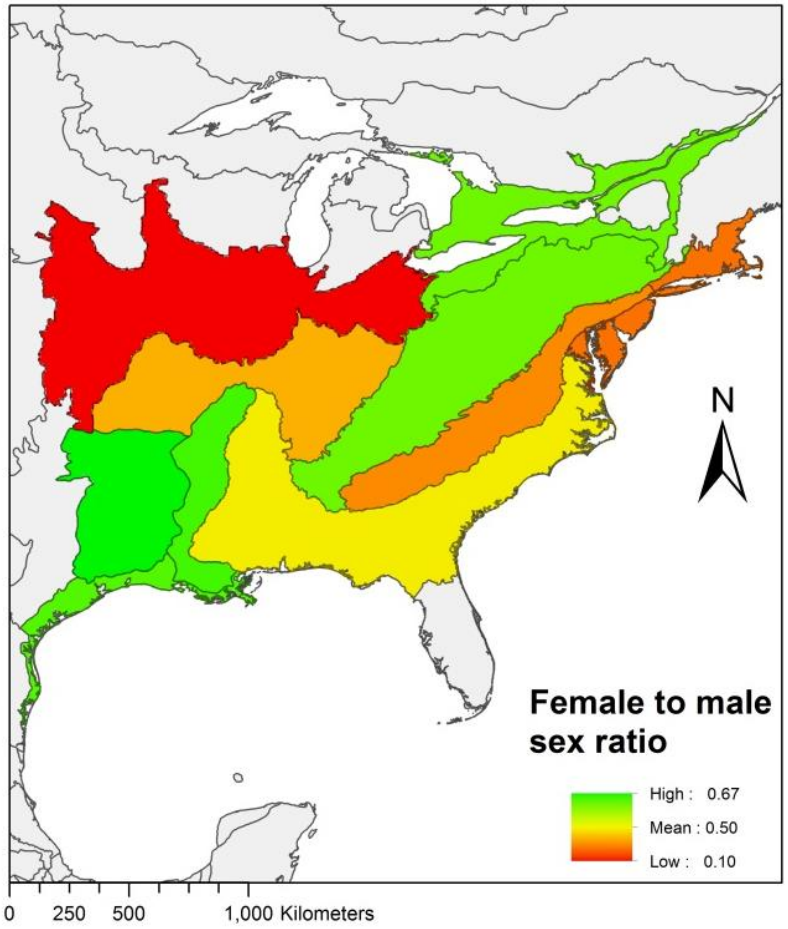
- RUBL Location

Map created by NH Audubon
October 2010

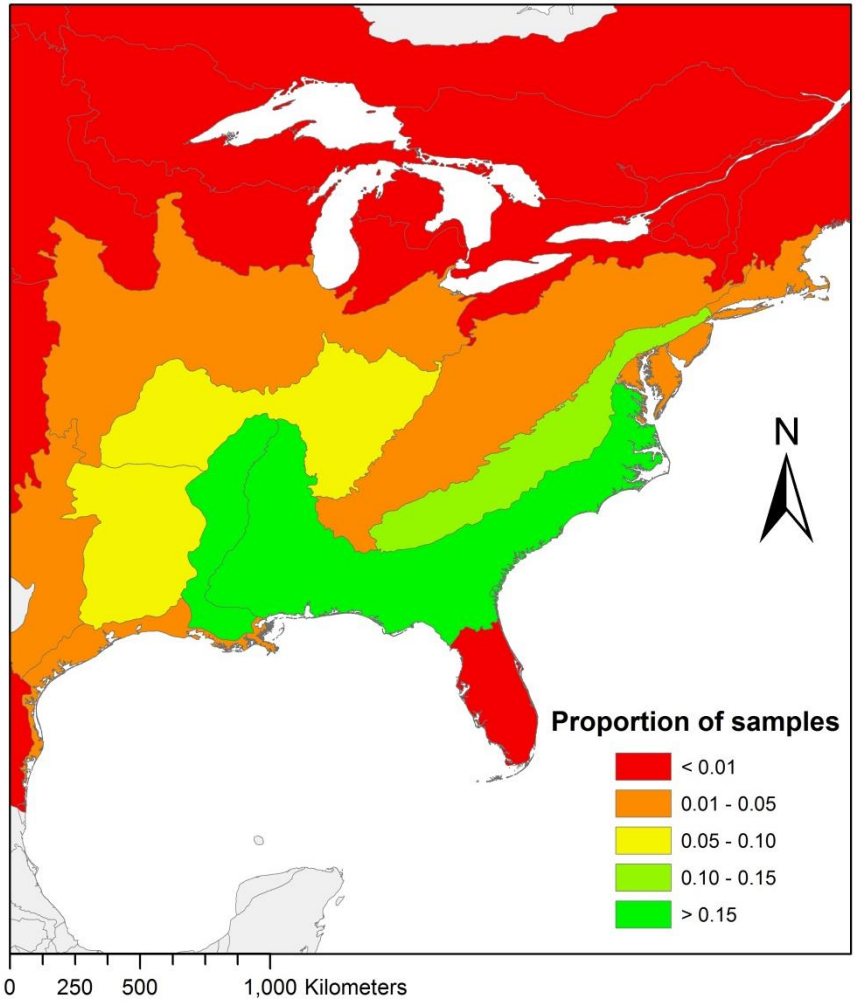
Data provided by ESRI and eBird. ESRI Data & Maps [CD-ROM]. (2002). Redlands, CA: Environmental Systems Research Institute. eBird location data downloaded from the Avian Knowledge Network October, 2010. Cornell Laboratory of Ornithology and National Audubon Society. 2010. eBird: An online database of bird distribution and abundance. Avian Knowledge Network. Ithaca, NY. <www.avianknowledge.net>. Data accessed: [October 12, 2010].

Analysis: Sex-ratios

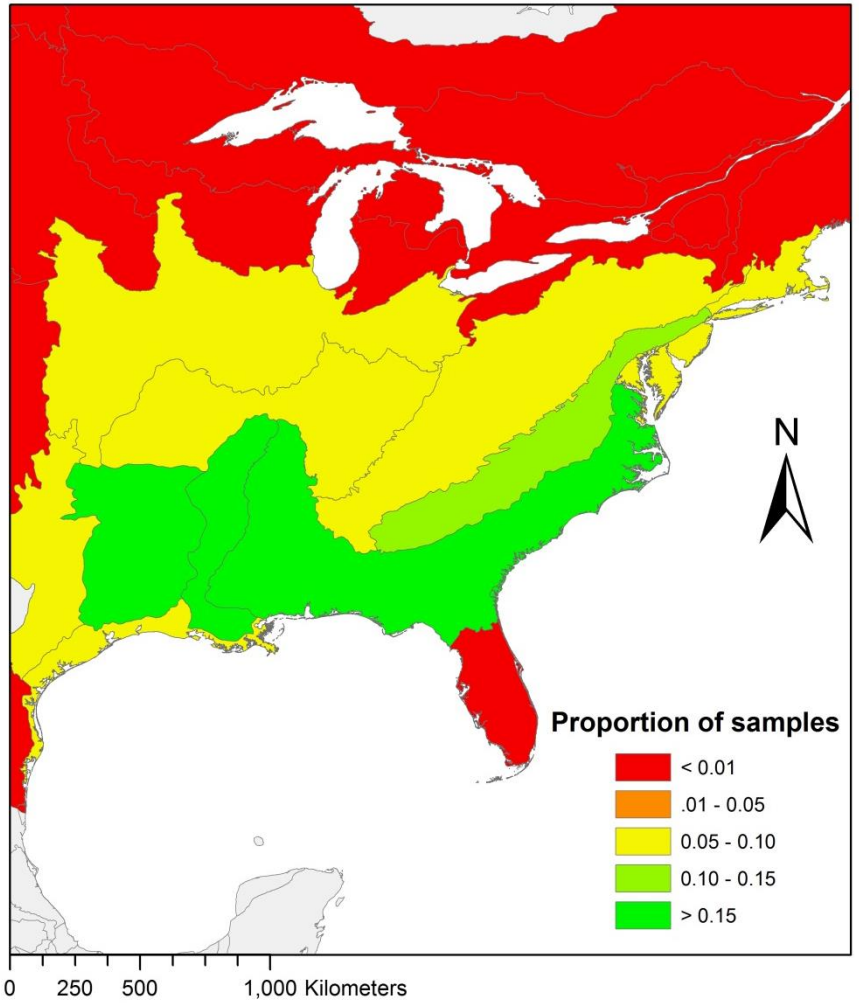




Blitz vs. eBird, Proportion of samples by BCR



Blitz observations

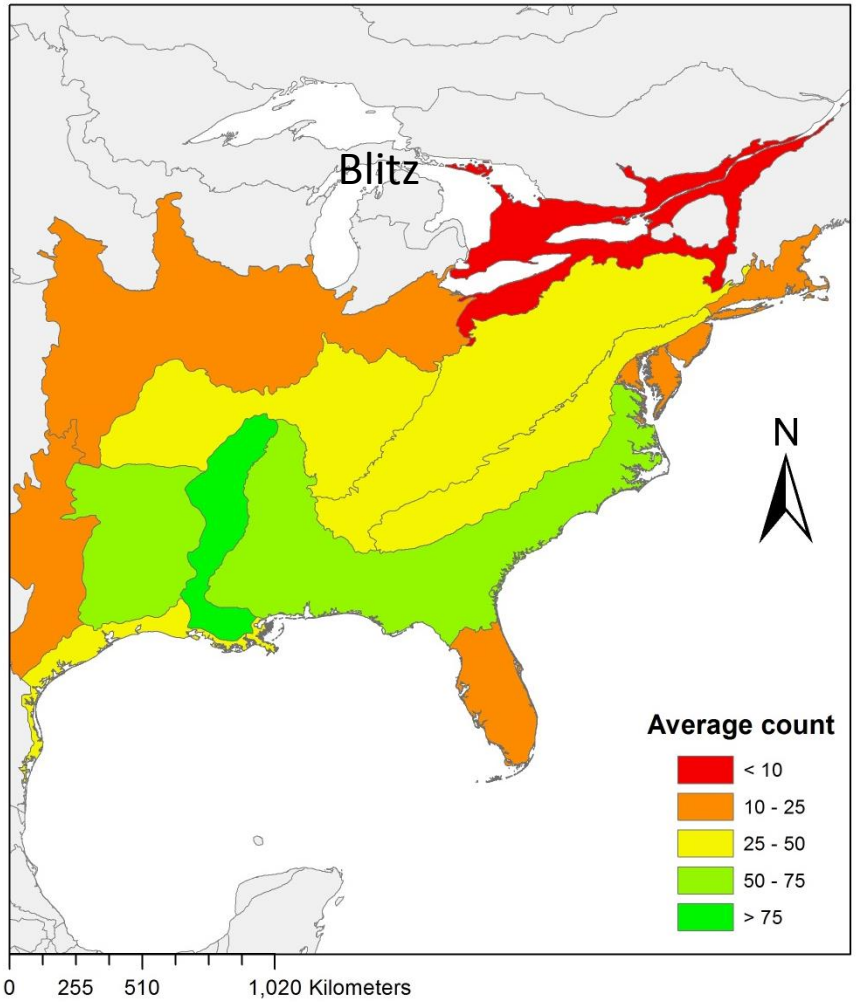


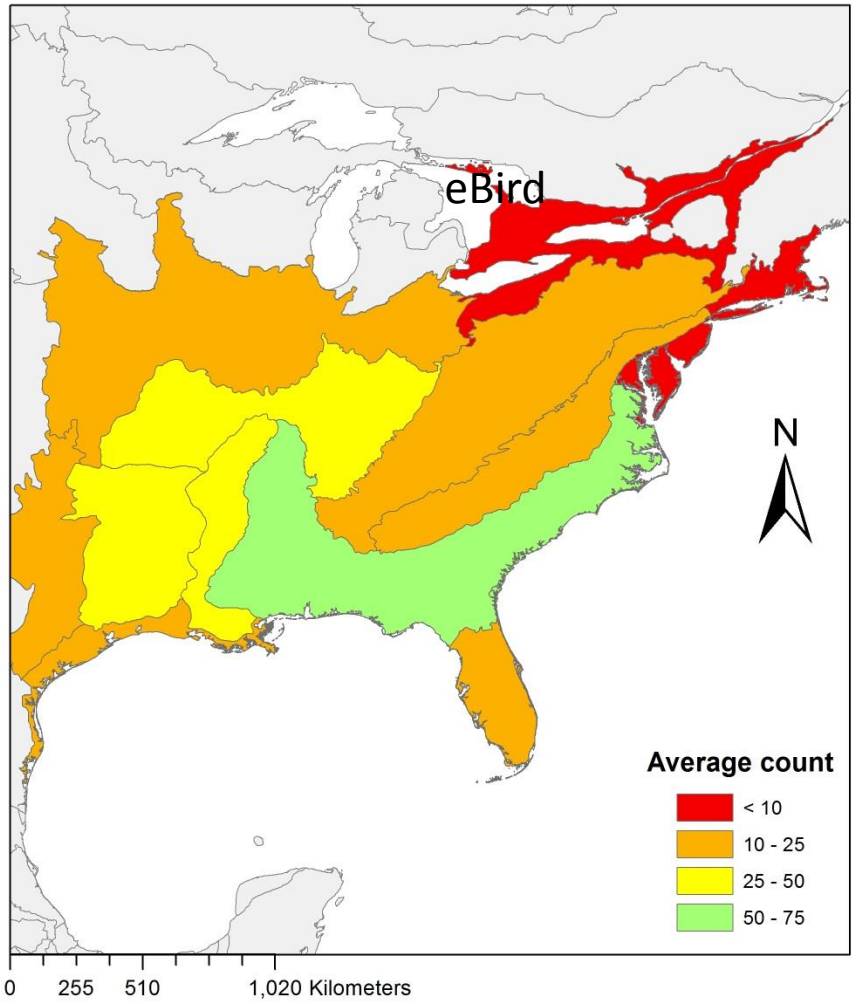
eBird observations

Group Size

- Percent with fewer than 10 52
- Percent with 50 or more 25
- Percent with over 100 11
- Percent with over 500 <<1

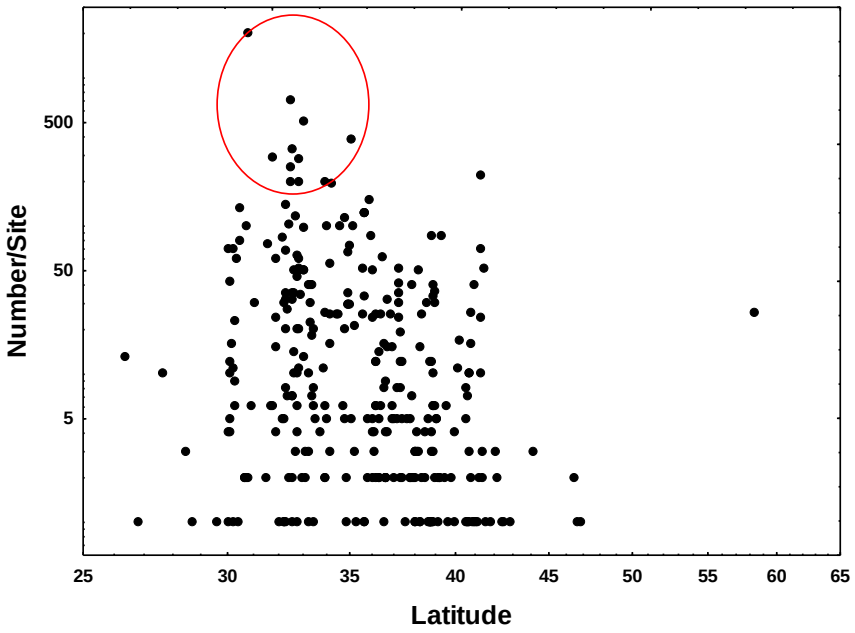
Average count per observation, Blitz vs. eBird

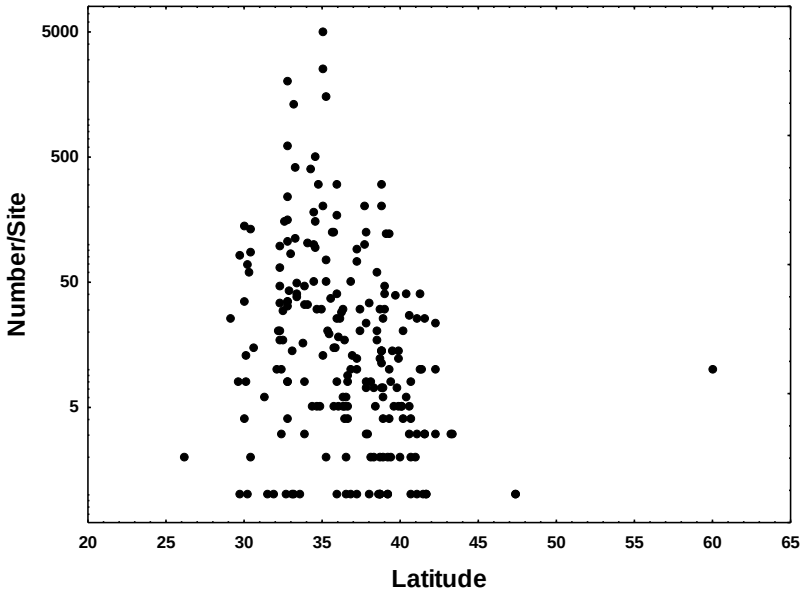


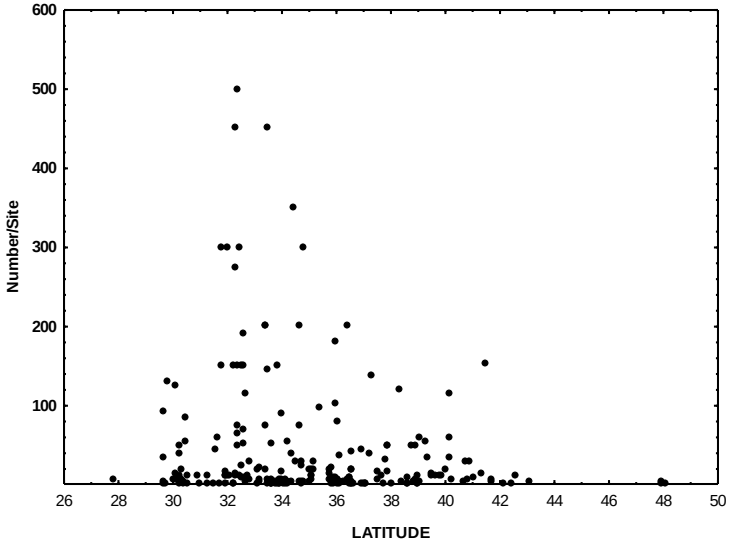


Model	K	ΔAIC	AIC weights
Log(Count)~BCR+LAT	13	-	0.69
Log(Count)~BCR +LAT + LAT^2	15	1.65	0.30
NULL	2	73.6	0.00

Latititude and group size







Hot Spots by State (>100 birds)

- 2009

  Mississippi
  Alabama
  Arkansas, and North Carolina

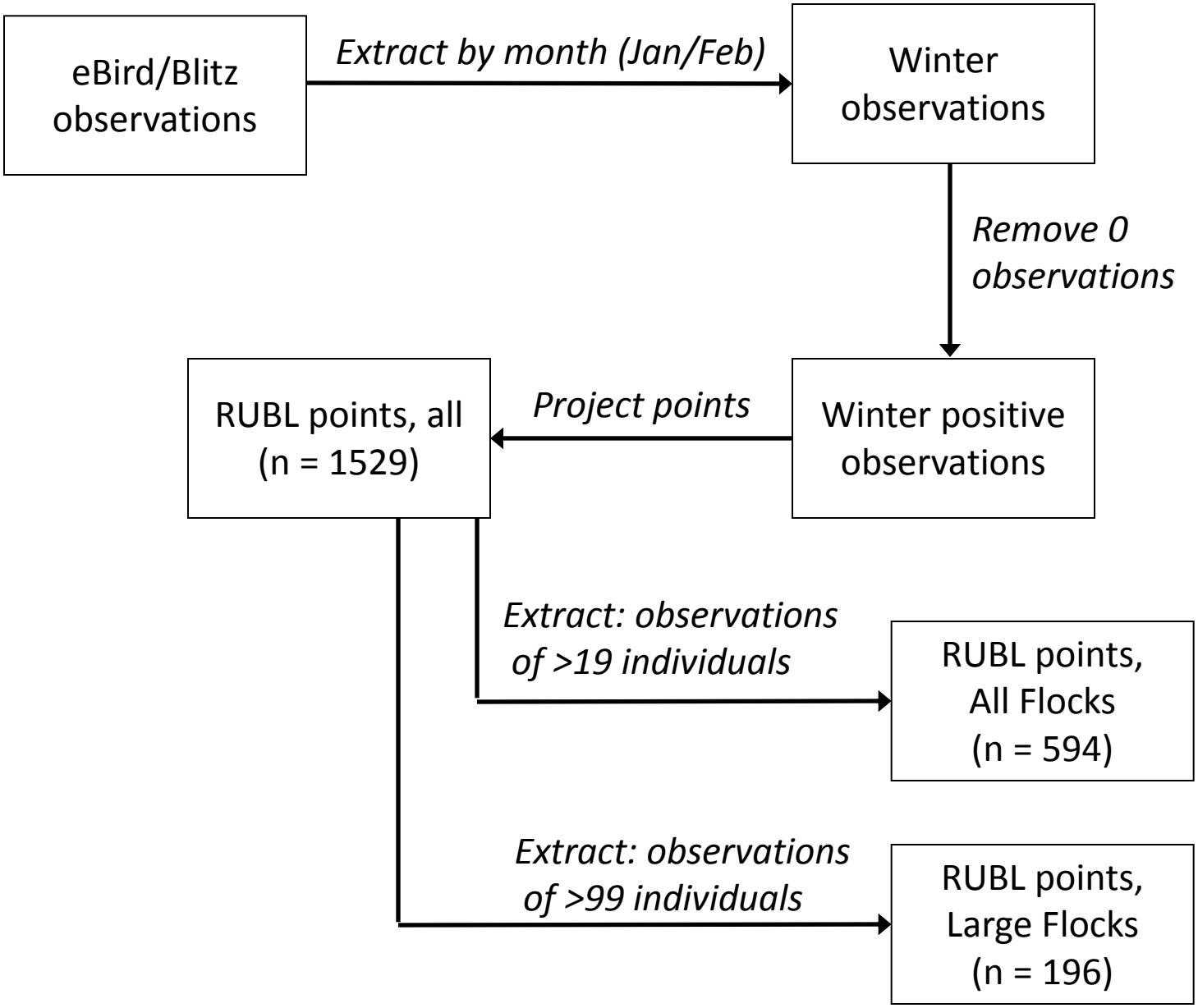
- 2010

  Alabama and Georgia (8)
  South Carolina and North Carolina (6)
  Mississippi and Louisiana (5)

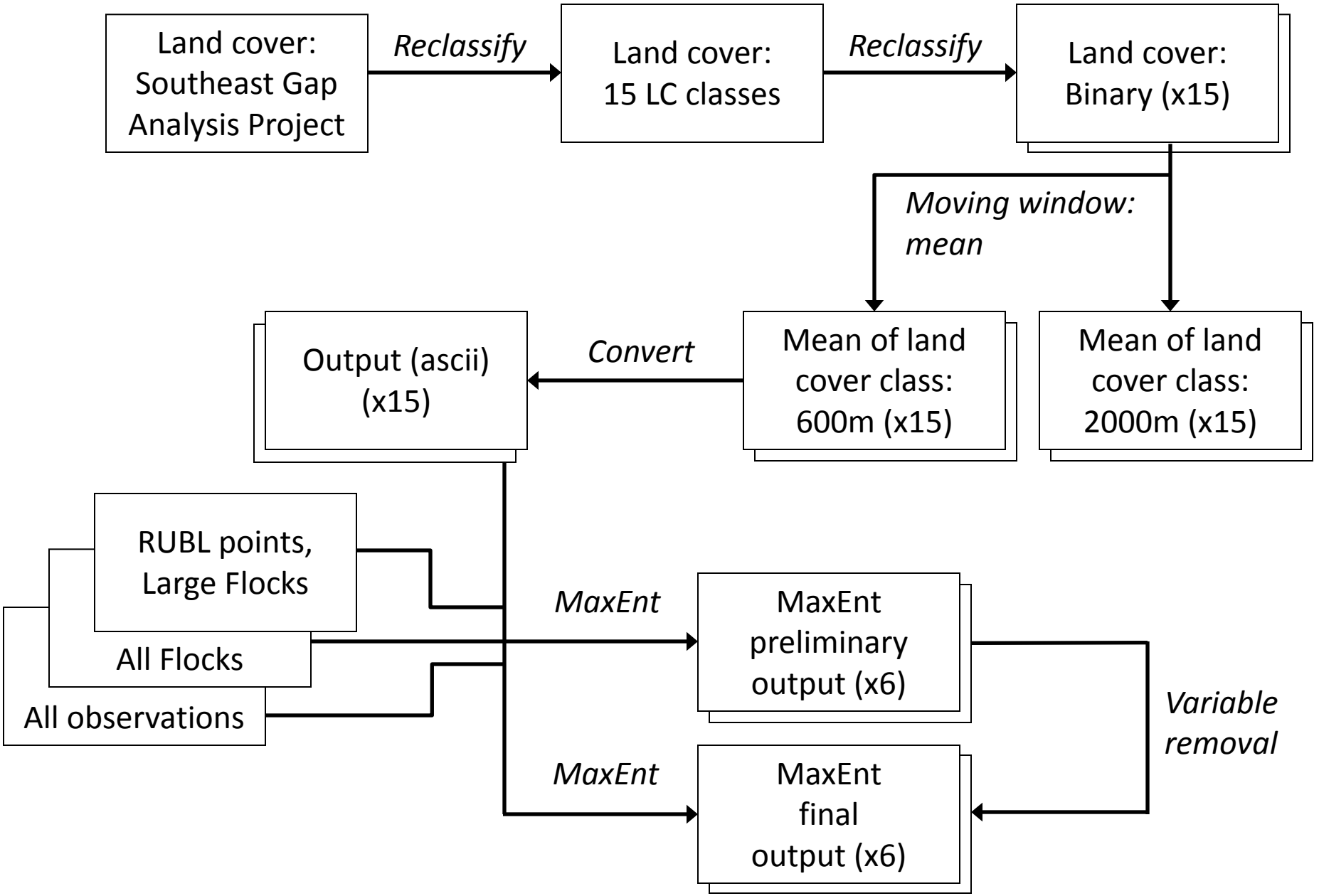
- 2011

  Alabama (9)
  Georgia and Texas (7)
  North Carolina and South Carolina (4)

Point processing

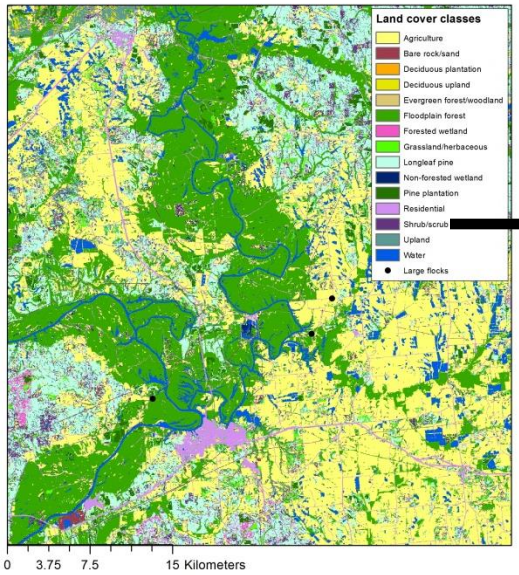


Land cover processing and model building

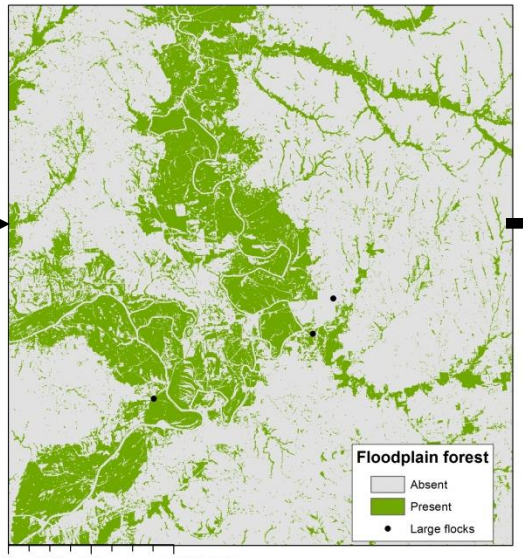


Model building/processing example: Black Belt Alabama

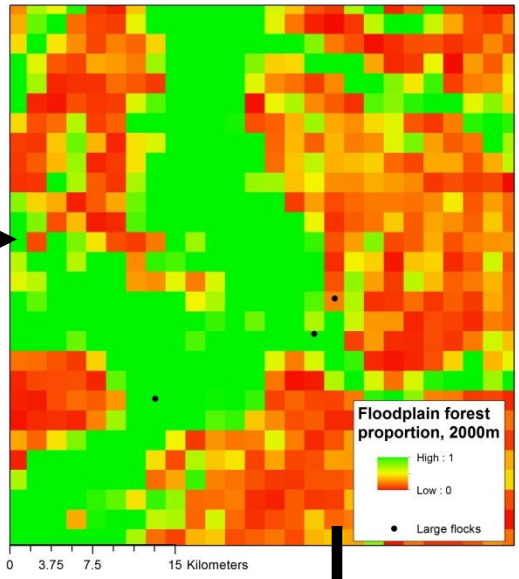
Reclassified land cover



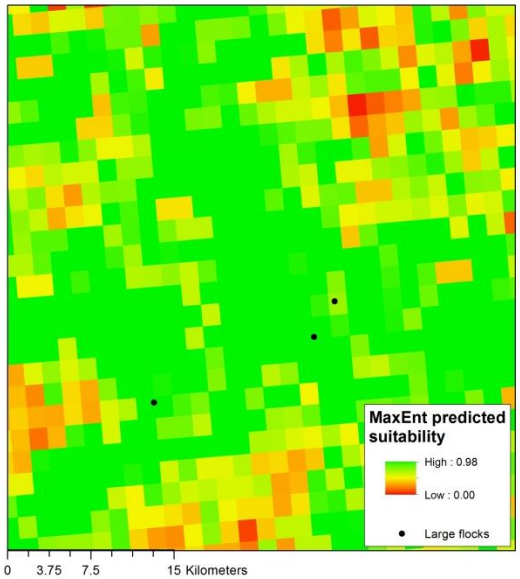
Binary land cover, floodplain



Proportional land cover

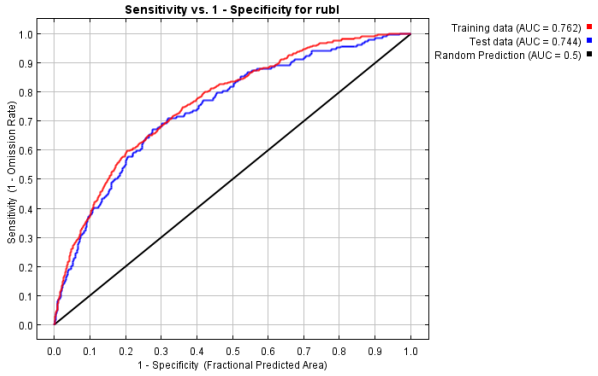


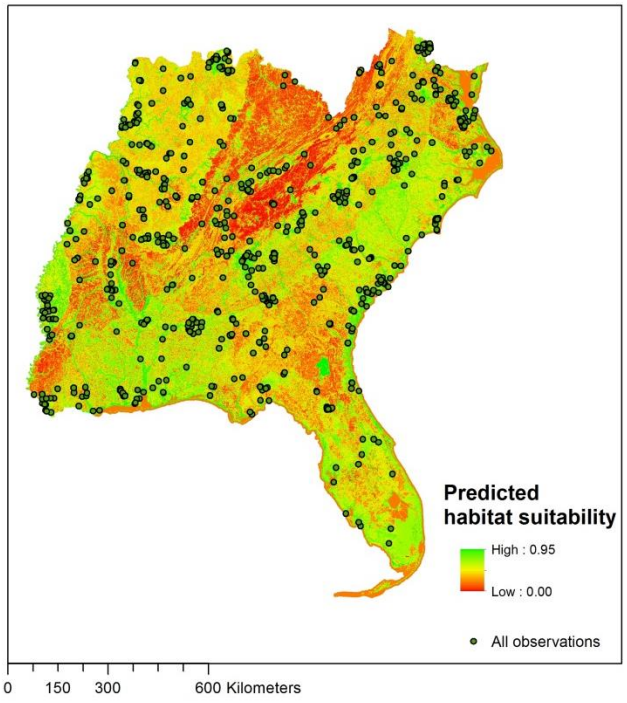
Maximum entropy model output: Probability of habitat suitability



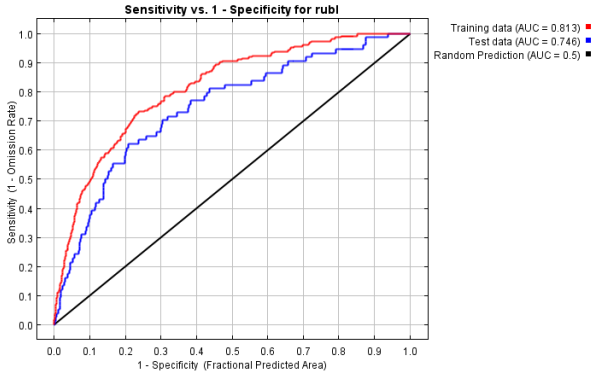
Model predictions vary by flock size: Small spatial grain

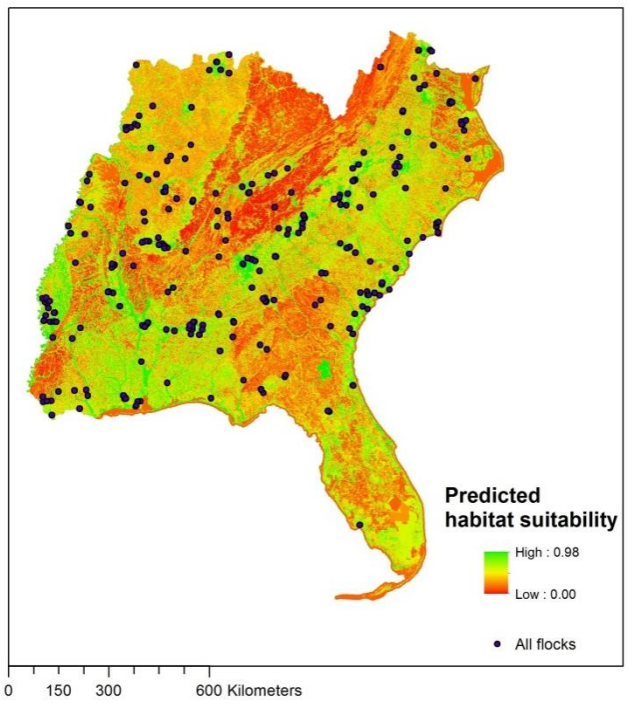
All observations



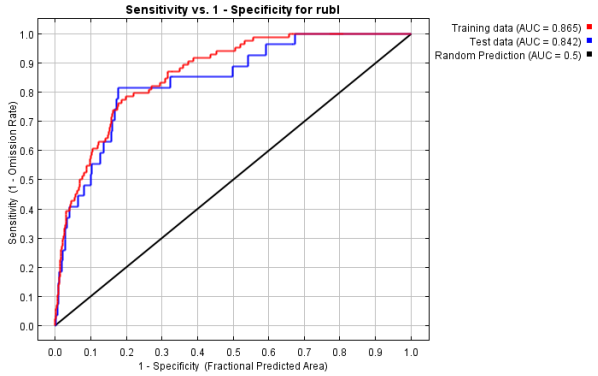


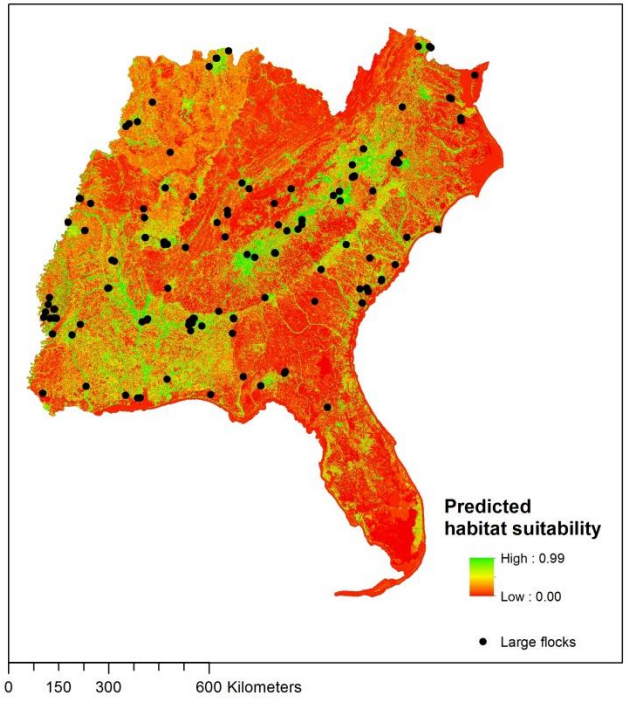
All flocks





Large flocks





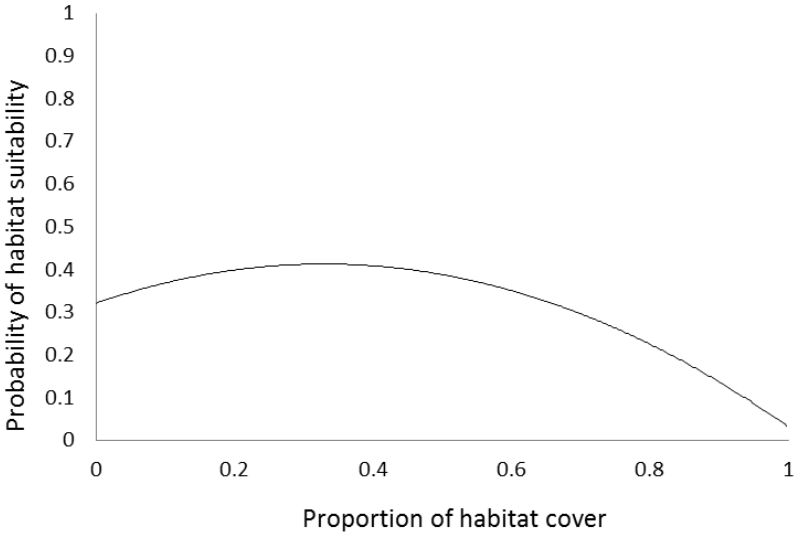
Habitat variable importance: Fine spatial grain

	Variable	Model contribution (%)	Effect	Gain*	Δ Gain**	Δ AUC
All Observations	Water	28.2	+/-	0.115	-0.079	-0.028
	Upland	17.2	-	0.055	-0.145	-0.040
	Deciduous upland	11.5	-	0.014	-0.104	-0.020
	Pine plantation	9.5	-	0.027	-0.077	-0.021
	Floodplain forest	9.0	+	0.050	-0.038	+0.001
Large flock	Floodplain forest	20.2	+	0.139	-0.052	+0.007
	Water	17.7	+/-	0.142	-0.097	-0.037
	Shrub	13.1	+/-	0.067	-0.162	-0.007
	Deciduous upland	12.4	+/-	0.033	-0.114	-0.011
	Agriculture	8.7	+/-	0.057	-0.119	-0.004

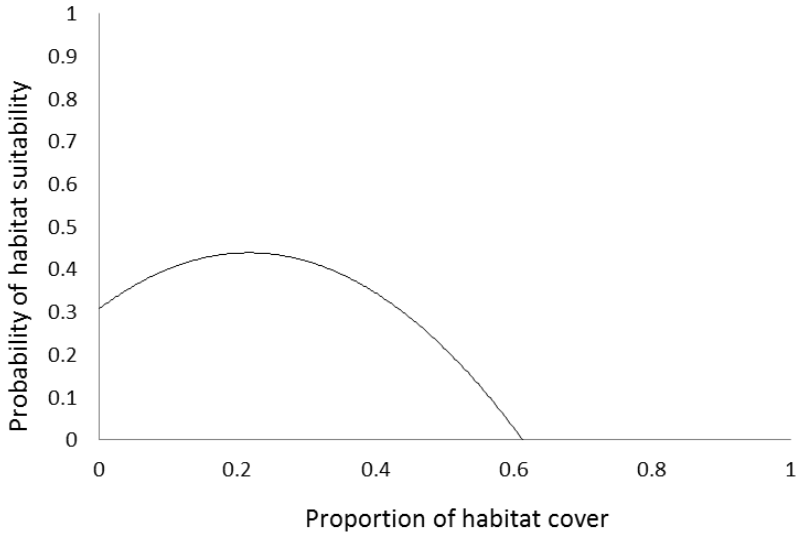
* Represents the training gain when only this variable is used in the model

** Represents the difference in training gain when this variable is removed from the model

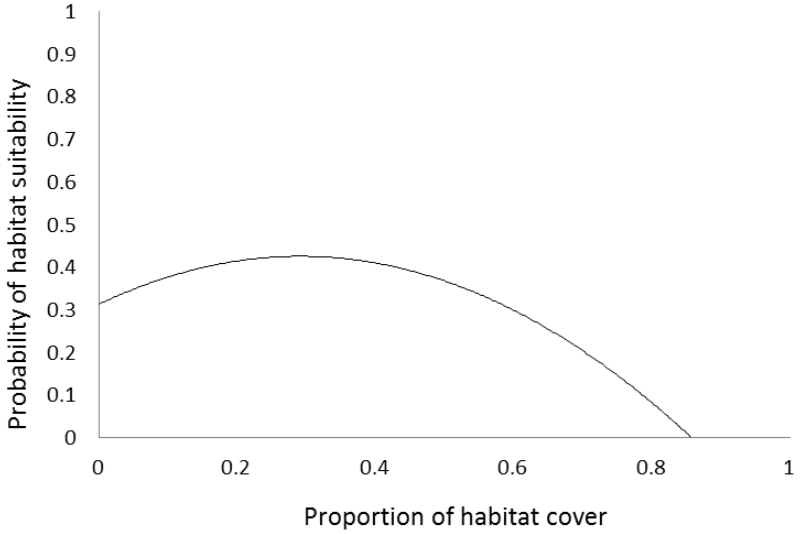
Water



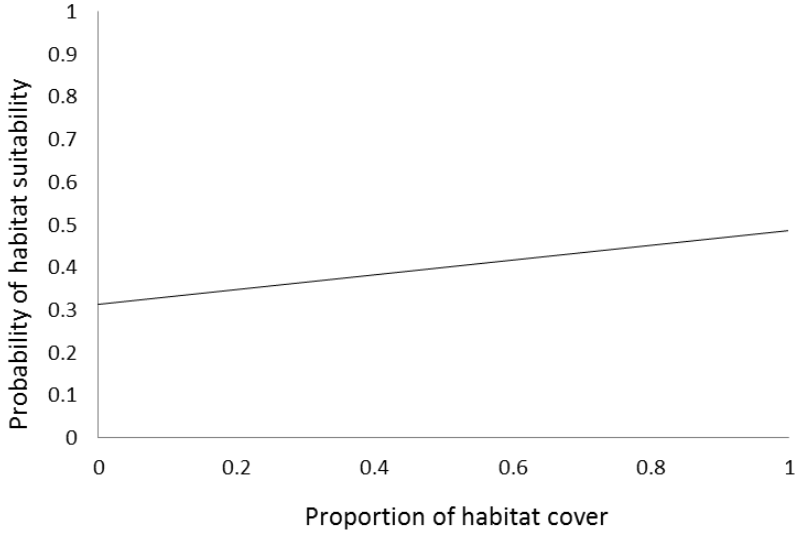
Shrub



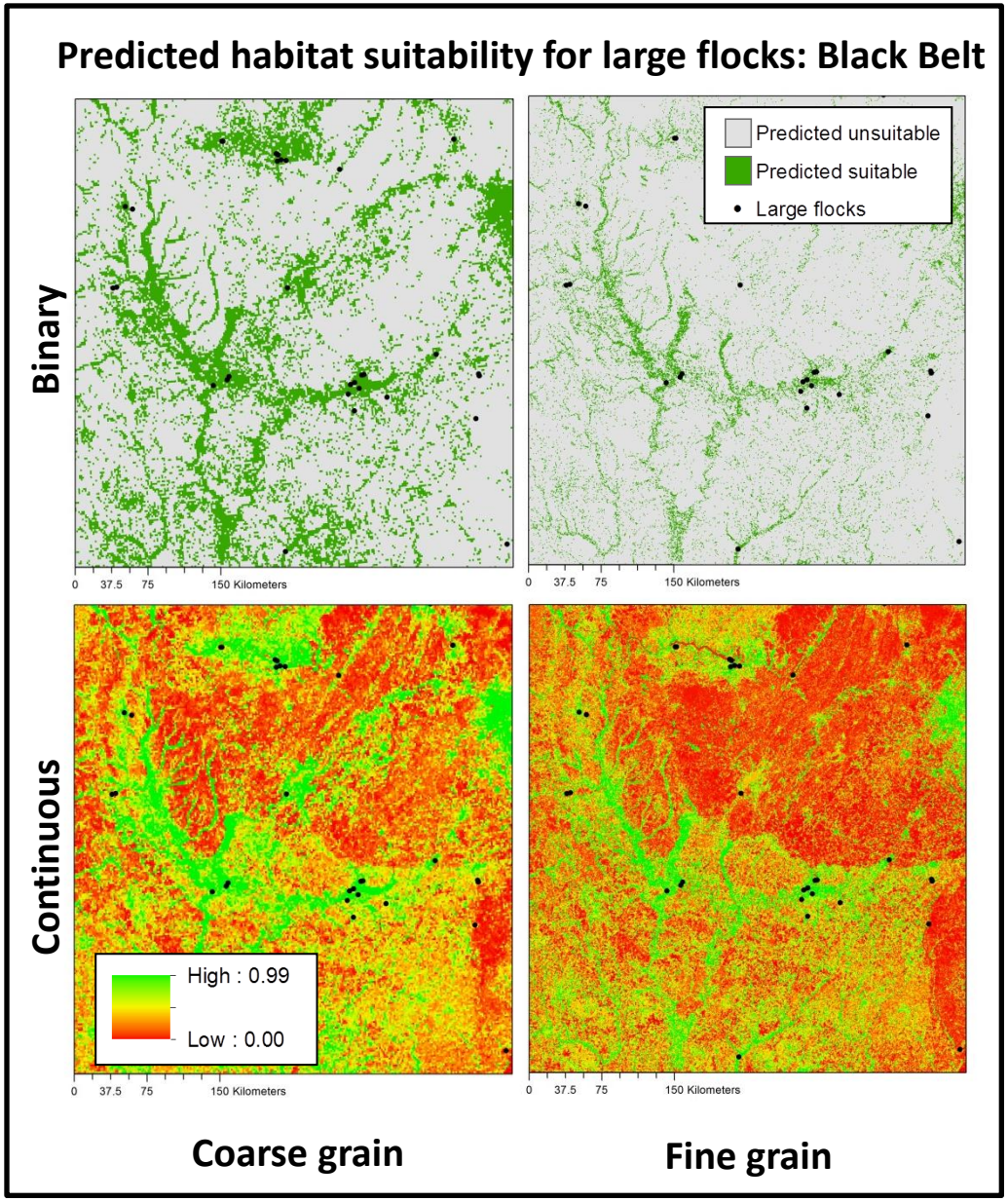
Deciduous upland



Floodplain forest



Predicting Hot Spots



Conclusions

- The Blitz proved to be a cost-effective approach to developing a predictive map of where hot spots occur.

- A more focused effort in regions where hot spots tend to occur would increase the resolution of the models.