

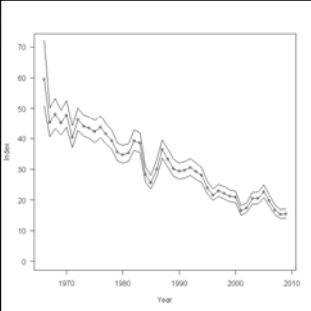
Habitat Selection and Movement of Northern Bobwhite on a Reclaimed Surface Coal Mine



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Population decline



Annual Central Hardwoods region decline of 3.0%

2.6% decline within Kentucky

Sauer et. al 2011


Causes of the population decline

Habitat Loss

- Clean farming practices
- Succession
- Urbanization

Habitat Fragmentation

Decline of native grasslands species diversity



Stoddard 1931, Brennan 1991, Burger 2002



Introduction to reclaimed mines

The Surface Mining Control and Reclamation Act of 1977 states that "...a diverse, effective, and permanent vegetative cover of the same seasonal variety and native to the area and capable of self-regeneration and plant succession..." will be established.

Over 1.5 million acres in the Eastern US and 378,000 acres in KY

Problems on reclaimed mines

SMCRA also states that "...introduced species may be used in the revegetation process where desirable and necessary to achieve the approved postmining land use plan..."

Quail habitat?

Desired structure:
nesting material
bare ground
forb cover
woody cover

Mosaic of vegetation types
(Stoddard 1931)

Peabody structure:
blocks of vegetation
thick growth
limited bare ground

Suboptimal, but usable



Objectives

Study the seasonal habitat selection of northern bobwhite on reclaimed mined land

Determine the effect of continuous habitat management on habitat selection and movement



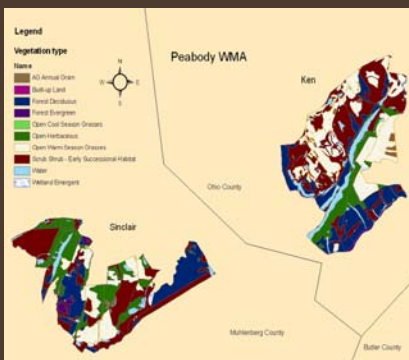
Study Area

Managed under
Kentucky
Department of Fish
and Wildlife

Reclaimed coal
mine released in
1995

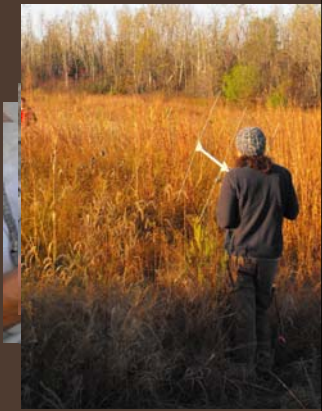
Over 8,200 acres

Four major
vegetation types =
91% of area



Methods

Radio Telemetry Monitoring
 Stoddard Funnel Traps
 Band, age, sex, and weigh
 Necklace-style collars
 Locate 3x per week
 Homing in to at least 50m
 - Record date, time, GPS location, azimuth, distance, and activity




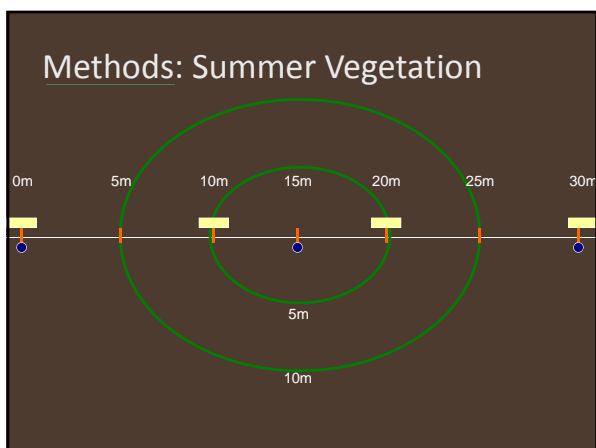
Stoddard 1931

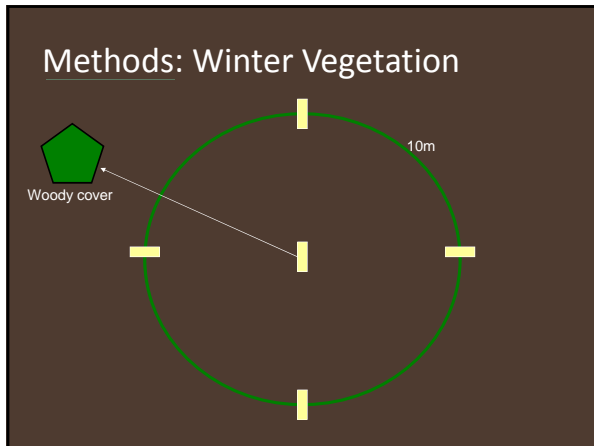
Methods

Parameter	S
Woody density	X
Distance to woody cover	
Distance to bare ground	
Visual obstruction	X
Litter	X
Species composition	X
Ground sighting distance	X

Nudds 1977, Limb et. al 2007









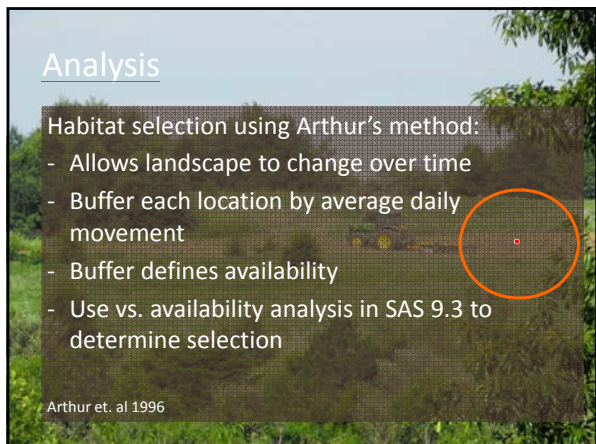
Analysis

- Locations separated by:
 - Breeding: April 1-September 30
 - Subset of confirmed nesting and brooding locations
 - Non-Breeding: October 1-March 30
- Vegetation:
 - Means of each parameter by vegetation type
 - General characterization

Analysis

Habitat selection using Arthur's method:

- Allows landscape to change over time
- Buffer each location by average daily movement
- Buffer defines availability
- Use vs. availability analysis in SAS 9.3 to determine selection



Arthur et. al 1996

Acknowledgements

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