




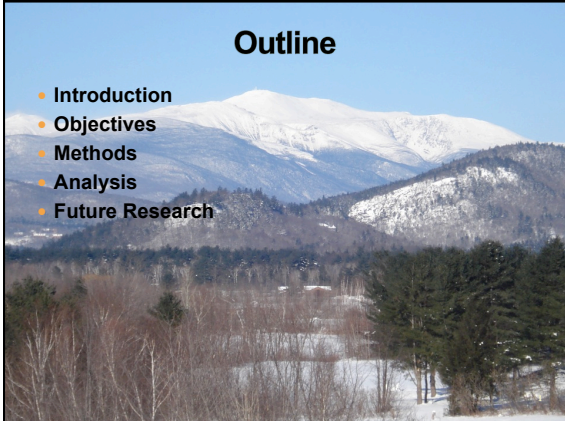
Effects of Baiting on Raccoon Behavior and Movements: Implications for Wildlife Disease Management

Brian Kirby
M.S. Candidate
University Of Tennessee
Department of Forestry, Wildlife and Fisheries
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Outline

- Introduction
- Objectives
- Methods
- Analysis
- Future Research



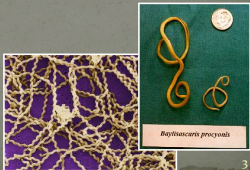
Introduction

- 58% of human pathogens are zoonotic diseases.¹
- Rabies is almost 100% fatal but 100% preventable.
 - >55,000 people die annually.²
- \$300 Million/Year – Rabies prevention and control in U.S.³
- Raccoons thrive in human environments (urban & rural).⁴
 - Highly adaptable, charismatic, abundant species.
 - Primary reservoir for several zoonoses.
 - #1 Carrier of rabies in the U.S.²



Introduction


- 90% of rabies cases in the U.S. involve wildlife (primarily raccoons, bats, skunks).⁵
- Close association between raccoons and humans creates greater risk for exposure.
- >39,000 people each year receive PEP.⁶
- USDA manages raccoon rabies with Oral Rabies Vaccine (ORV) baiting.
- Other Zoonotic Diseases
 - Leptospirosis
 - Raccoon Roundworm
 - Giardia



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Introduction

- ORV baiting currently conducted in 14 eastern states.
- Little known about effects of ORV on raccoon behavior – home range shift, social structure, etc.
- Can the findings from this study provide management implications for other zoonotic diseases?



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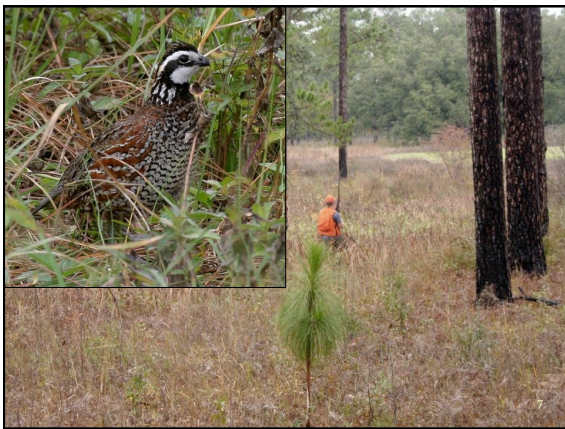
Objectives

- Evaluate whether raccoons will move from their home range to access baits.
 - Other factors
 - Social structure
 - Habitat
- Does 1 animal pick up more than 1 bait packet?
- How do movements, social structure, and habitat in a rural environment affect disease transmission?
 - Model for specific zoonotic diseases?



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UGA Partnership


- Looking at Raccoon Predation on Wild Turkey nests
- Trapping and Collaring of Raccoons – January 2014
- Blood, hair, feces collected



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Methods

- Trap & Collar 30 Raccoons
- Each VHF Collar – RFID tag
- Radio Telemetry \geq 3 week per animal
- 2 Months prior/post baiting




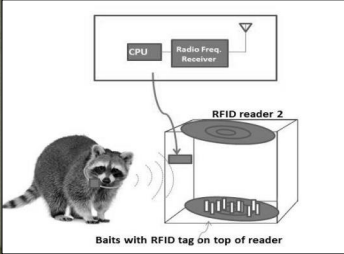
Methods - Bait Stations



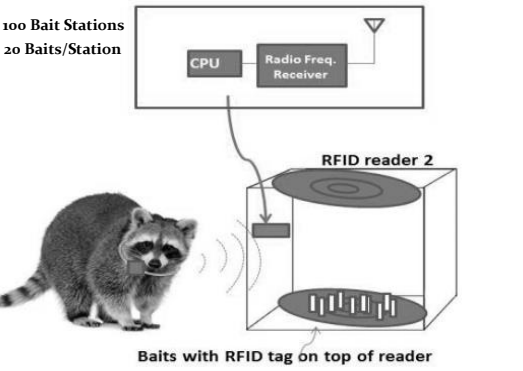
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Methods - RFID

- Radio Frequency Identification Tags
- Redundancy of VHF collars
- Each bait tagged with RFID



100 Bait Stations
20 Baits/Station






Analysis

- Spatially Explicit Mark-Recapture for density estimation
 - Collared animals are marked
 - All animals captured by camera
 - Marked:Unmarked
 - Spatial arrangement of bait stations

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Analysis

- ArcGIS 10.1 and AdeHabitat in Program R for determining home range; home range overlap
- Microsatellite for genetic analysis of relatedness and social structure using Program Cervus
- Home range overlap associated with genetic relatedness



"Data don't make any sense, we will have to resort to statistics."

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Future Research

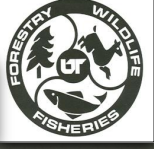


- Bait Study Comparison
- Proximity Collars
 - Social structure
- Disease testing
 - Leptospirosis
 - Raccoon roundworm
 - Canine distemper



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Acknowledgements

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Credit for Photos


- <http://www.whoguides.com/wp-content/uploads/2011/01/Cld-Camera.jpg>
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Questions?

Comparison of Delivery Systems



	ONRAB	V-RG FMP	V-RG CS
Legal Status	Experimental	Raccoons and Coyote	Raccoons and Coyote
Bait Matrix	Vegetable fat, vanilla, sugar, marshmallow	Fishmeal shell	Fish oil, fishmeal crumbles
Cost/Bait	\$ 1.65	\$ 1.46	\$ 1.23
