Vegetation Preferences of Southern Flying Squirrels at Brookhaven National Labs

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Introduction

When people hear the name flying squirrel they think of some exotic animal. Yet they can be found all along the east coast in or near various hardwood forests. The lack of sightings can be attributed to their nocturnal nature which allows them to elude the eyes of the casual observer.

The name "flying" squirrel is actually a misnomer since instead of flying, their main form of travel is gliding. Gliding is accomplished through the use of patagium, prominent folds of skin that extend from the wrists to the ankles, and their flat tail, that when stretched greatly increases the surface area of the squirrel. This allows the flying squirrel to glide up to a range of 50 yards.

Similar to other species of squirrels, a flying squirrel's diet consists of numerous nuts and seeds; hickory nuts and acorns being the preferred food. Yet flying squirrels will also indulge them selves in various berries, fungi, bark, green buds and even consume insects, spiders, slugs and other invertebrates.

Purpose

This project was a branch off of a study that would be used to determine the population density of southern flying squirrels located throughout Brookhaven National Laboratory (BNL). Since no studies have been conducted on the flying squirrels located at the Lab, any information obtained would be useful. This study was established to learn the vegetation preferences of flying squirrels at BNL.

Night Camera Picture

Coring a Tree for a Sample

Methods and Materials

To capture the southern flying squirrels for study, six locations per week were selected to have thirty traps installed. On Monday, five Sherman traps would then be placed at each location on randomly selected trees at a height of approximately 1.6 meters. This was achieved by securing rectangular brackets to the selected trees and then using zip ties to secure the trap to the bracket. The tree's species, understory, overstory, and circumference were noted along with trap height and facing. Each trap then would have bait, consisting of a ball of peanut butter and oats, placed inside.

Each week would consist of four trap nights. The traps were promptly checked the following morning for flying squirrels. If a flying squirrel was captured, it would be tagged, weighed and the body, tail, and hind foot length measured. When flying squirrels were recaptured, the tag was noted and the squirrel was weighed. The traps and brackets were then collected after the fourth trap night to be set again the following week. Two motion sensitive cameras were also placed near two traps each week to record the squirrels reactions to the traps. Multiple trees were also cored at each site and then the rings of the sample were counted to find an approximate age.

References

A. Godin, *Wild Mammals of New England*, Baltimore, MD: the Johns Hopkins University Press, 1977

J. Whitaker Jr. and W. Hamilton, *Mammals of the Eastern United States*, 3rd ed. Ithaca, NY: Cornell University Press, 1998, pp. 249-254

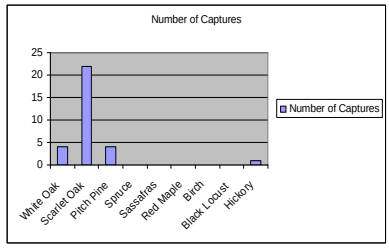
Results

The spreadsheet is the vegetation data for traps that had successful captures. By the end of the experiment there was a total of thirty-one captures, including eight recaptures. 71% of captures occurred in traps secured to scarlet oaks, 13% of captures occurred in traps on white oak and pitch pine and 3% of captures occurred occurred on hickory trees. Understory may have had some impact on the rate of capture; 47% of the total traps lacked any kind of understory yet 87% of the squirrels were captured on trees with an understory. Unfortunately no patterns were apparent between the capture rate and overstory/tree measurements.

Vegetation Data

Trap #:	Tree Species:	Overstory	Understory	Height (m)	Facing	Circumference	DBH (m)	Captures	Recaptures	Age
208	Scarlet Oak	Oak / Pine	Blueberry / Huckleberry	1.73	ESE	1.07	0.34	3	0	N/A
210	White Oak	Pine / Oak	Blueberry / Huckleberry	1.68	SW	0.72	0.23	1	0	N/A
211	Scarlet Oak	Spruce / Pine / Oak	Little to None (BB / HB)	1.76	SSE	1.11	0.35	1	0	N/A
212	Pitch Pine	Pine / Oak	Huckleberry / Blueberry / Fern	1.67	NW	0.86	0.27	1	0	N/A
213	Scarlet Oak	Pine / Oak	Huckleberry / Blueberry / Fern	1.68	NW	1.3	0.41	1	0	N/A
233	White Oak	Pine / Oak	Green Briar / Huckleberry / Blueberry	1.5	NW	0.55	0.17	2	0	N/A
236	Scarlet Oak	Pine / Oak	Blueberry / Huckleberry	1.74	NNE	1.03	0.33	1	0	N/A
243	Scarlet Oak	Oak / Maple	Fern / Greenbriar / Grass	1.64	E	1.52	0.48	1	1	N/A
253	White Oak	Maple / Oak	Grass / Fern / Blueberrry / Huckleberry	1.76	NW	2.25	0.72	1	0	N/A
256	Scarlet Oak	Maple / Oak	Little to None (Grass / BB / HB)	1.7	S	1.43	0.45	1	1	N/A
260	Pitch Pine	Maple / Birch	Little to None (Grass / BB / HB)	1.66	SW	1.53	0.49	1	0	N/A
261	Scarlet Oak	Maple / Pine	Blueberry / Huckleberry	1.56	NW	1.75	0.56	2	0	N/A
264	Scarlet Oak	Maple / Oak	Green Briar / Huckleberry / Blueberry	1.65	ENE	1.38	0.44	2	0	N/A
266	Red Maple	Maple	Grass / Greenbriar	1.6	NW	1.19	0.38	1	0	N/A
267	Scarlet Oak	Oak / Maple	Grass / Fern / Blueberrry / Huckleberry	1.68	WSW	1.25	0.40	1	1	N/A
268	Scarlet Oak	Oak / Maple	Grass / Fern / Blueberrry / Huckleberry	1.7	E	1.7	0.54	3	1	N/A
270	Scarlet Oak	Oak / Maple	Grass / Greenbriar	1.6	SSW	1	0.32	1	0	N/A
273	Scarlet Oak	Oak	Blueberry / Huckleberry	1.71	N	1.12	0.36	1	0	N/A
276	Scarlet Oak	Oak / Hardw ood	Blueberry / Huckleberry	1.74	NE	1.57	0.50	1	1	N/A
278	Scarlet Oak	Oak / ? / Maple	Grass / Blueberry / Huckleberry	1.63	WSW	1.12	0.36	1	0	N/a
302	Scarlet Oak	Oak	Blueberry / Huckleberry	1.71	E	1.94	0.62	1	0	64
304	Scarlet Oak	Oak	Little to None (Greenbriar)	1.69	WNW	1.26	0.40	1	0	N/A
311	Hickory	Hickory / Maple	Grass / Greenbriar	1.72		1.01	0.32	1	1	67
327	Pitch Pine	Oak / Dead trees	Blueberry / Huckleberry	1.61	E	1.33	0.42	1	0	N/A

Map of Tree Locations/Species



Captures by Tree Species

Discussion

From the data it can be determined that southern flying squirrels prefer scarlet oaks above all other tree species. This may be to the fact that scarlet oak's acorns have just recently finished developing, so the squirrels would be attracted to a source of food. Which explains why the traps on other tree species had little success.

The understory of the trees also seemed to have played an impact on capture success. A majority of the squirrels caught were on trees that had an understory consisting of blueberry and huckleberry. There is no evidence that shows that flying squirrels forage these plants but they may have been attracted to these trees by a possibility of food in the understory. The ones that were caught on trees with no understory may have just been passing the tree and were only attracted by the bait.

Unfortunately coring did not begin until the later half of the study which is when the number of captures went down significantly. Some samples were also rendered unreadable due to problems encountered with the drill. So no conclusions can be drawn to relate the age of a tree to the capture rate of squirrels.

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