Southern Flying Squirrels (Glaucomys volans), are small mammals that play a vital role in seed distribution and therefore forest health. Their nocturnal behavior leaves much to be discovered about this species. This study outlined the location and estimate the home range of each of the squirrels measured around the site. Sherpa traps were used to capture the squirrels. Radio collars were secured to 9 individuals prior to release. Radio telemetry equipment was used to track the collars over several weeks. Each individual was located and sampled for study. Triangulation was used to estimate the squirrels' locations. A Geographic Information System (GIS) was utilized to map the location and movement of each squirrel located in order to complete a 24 hour period. The data was analyzed in the GIS and results were compared with previous published studies. Seven squirrels were successfully tracked for several weeks. The sample consisted of adult males, adult females and juvenile males. The home range of the squirrels tracked was in the summer of 2011 ranged from 0.08 hectares (ha) to 9.68 ha (average 4.57a). The home range of squirrels successfully (more than a week) tracked ranged from 1.21 ha to 9.68 ha (average 5.59a). The largest movement made was 542.47 meters over two hours and the second largest movement was 245.36 meters in an hour. The average movement ranged from 46.6 meters to 131.11 meters. The average home range of males and females tracked was 6.00 ha and 4.56 ha respectively. No correlation was seen between time tracked and home range size. Males have a larger home range than females. Research will continue in the following years and be compiled with previous studies on site to accumulate a comprehensive estimate. This completed study will then be compared to results from other regions to determine correlations in home range size.

Discussion

The size of the home ranges of squirrels found onsite fell within the range of 2.45 ha for males and 1.95 ha for females reported in previous published studies [1, 3]. Variability of geography, climate and food supply add to the disparity of these results.

Throughout the course of our research, we collared nine re-squirrels, but only successfully tracked seven individuals. The first squirrel we collared was 700, which was tracked for a total of 17 days. It was released in the northern part of the site in early May 2011 to radio telemetry. In 2011, radio telemetry studies were continued with nine different individuals from other areas around the site. The overall movements of each squirrel were analyzed to provide a home range and survival and foraging habits. The Southern Flying Squirrel has two breeding periods, one in winter and one in late summer [5]. The males of each group tend to stay in one area with a large or small group of females. The 6th of November is the official collar was used again, with better tubing. The first squirrel was then referred to as 149.759, since the original collar was to be used again. Squirrel 790 was tracked for a few days before its frequency went missing. It was later found about 800 meters from the squirrel’s original home range, completely on the western side of the property. This could be a result of a leaving a broken and finding an area with less competition. Compared to the adult female on the east side of the property (671), 461 has a home range of 6.12 ha, compared to 3.99 ha. Squirrel 760 was captured in the same area as 461, and their home ranges overlapped nicely, although they both extended away from each other. 760 had a large home range of 8.32 ha throughout different vegetation types. Squirrel 730 was tracked for three weeks before he fell prey to what we assume to be a bear. His collar was placed firmly on a tree and nothing was learned about his home range. It was crossed into three different areas of woods crossing two dirt roads which shows that the roads are not barriers to flying squirrels. The individuals on the east side of the property also had no issue crossing roads, but squirrel 700 and 671 on the west side of the property seemed not to cross the road they foraged near. Unlike 580, the other juvenile male we tracked (700) has a small home range and wasn’t seen leaving his area. He had a home range of 2.21 ha over five weeks. We would assume to see him venturing away from his area to find new territory and avoid competition, but this was not observed. He might be staying in that area because his parent did not have another brood this summer to push him out of the nest, or he may not have left the nest yet and will be venturing out in the weeks to come. It can be assumed that the longer an animal is tracked the bigger its home range will get, but this was not observed. Squirrel 610 which was a juvenile male tracked for about two weeks had a home range of 3.13 ha which is larger than squirrel 700’s home range tracked for five weeks. This suggests that there may not be a correlation between time tracked and home range size. There was also no correlation seen between availability or water intake from its food sources. The results obtained during our 2011 research period are not sufficient enough to make a clear estimate of home range sizes of Southern Flying Squirrels at Brookhaven National Laboratory. Research will continue in the following years and be compiled with previous studies on site to accumulate a comprehensive estimate. This completed study will then be compared to results from other regions to determine if there is a difference between home range size of Southern Flying Squirrels on Long Island compared to Squirrels on the mainland.

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