Seasonal Home Range and Site Fidelity Patterns of Sympatric Fox Squirrels and Gray Squirrels in Central Georgia

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Abstract: Spatial requirements and resource selection can influence home range size and use patterns. We examined seasonal patterns of home range size in adult fox squirrels *(Sciurus niger)* and gray squirrels *(Scuirus carolinensis)* at Piedmont National Wildlife Refuge in central Georgia. We used radio-telemetry locations ($n = 3442$) and fixed kernel methodology to estimate size of 40 seasonal home ranges of fox squirrels and 42 of gray squirrels. We determined site fidelity of an individual as the percent overlap between home range estimates in successive seasons ($n = 17$ fox, 19 gray). Males of both species had larger home ranges than females in all seasons. Male fox squirrel home ranges were largest in summer (26.5 ha) and smallest in winter (12.7 ha). Male gray squirrel home ranges were largest in winter (26.1 ha) and smallest in fall (4.6 ha). Patterns of female home range size were consistent between both species, with the largest home ranges in winter (6.6 ha for fox, 4.3 ha for gray) and the smallest in summer (3.1 ha and 3.4 ha). Seasonal site fidelity was highest in females for both species, with female fox squirrels having a mean seasonal home range overlap of 56% and female gray squirrels having a mean overlap of 54%. Site fidelity in male gray squirrels (37%) was substantially lower than in male fox squirrels (49%). Although considerable overlap in ecological requirements exists between fox and gray squirrels, observed differences in spatial patterns are attributable to resource selection and seasonal availability.

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