Survival, habitat use, and home range size of ruffed grouse broods in the southern Appalachians.


Ruffed grouse (*Bonasa umbellus*) chick survival is a critical factor in the species’ population ecology. The ability of broods to survive the first few weeks after hatch is related to habitat characteristics and quality brood habitat is limiting in some areas. We examined survival, habitat use, and home range size of ruffed grouse from 2000 – 2003 in the southern Appalachians of North Carolina. Radio-tagged grouse (n=219) were tracked throughout the year. During the reproductive seasons, brood hens (n=33) were monitored intensively to determine home range size, habitat use, and brood survival. Kernel home ranges (95% home range and 50% core area) were calculated for brood hens located ≥25 times from hatch to 5 weeks post-hatch. Weekly homing on radio-tagged hens provided visual locations necessary to confirm brood survival and sites for vegetation sampling. A brood “survived” if ≥1 chick was alive at 5 weeks post-hatch. Mean home range size was 64.61 ha (SE 12.43) and mean core area size was 11.22 ha (SE 2.64). Brood survival varied among years with a mean of 57%. Home range and core areas of broods that survived past 5 weeks post-hatch consisted primarily of subxeric, mixed oak forests in age classes 0-20 years and ≥75 years. Vegetation measurements showed greater midstory stem density and vegetative ground cover at brood sites than at paired random sites. Invertebrate sampling showed greater invertebrate biomass at brood sites than at paired random sites. By presenting information on habitat use at microhabitat and macrohabitat scales, we provide managers with valuable information that will prove helpful in managing ruffed grouse habitat.