

ELK HABITAT SELECTION IN GREAT SMOKY MOUNTAINS NATIONAL PARK

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Abstract.—Great Smoky Mountains National Park (GSMNP) in North Carolina and Tennessee now has an established elk (*Cervus elaphus*) population 10 years after reintroduction. Although elk typically elect more open habitat, elk in GSMNP are showing they are capable of doing well in predominantly forested habitats. Evaluating how the established herd of elk is using forested areas in GSMNP is important for the health and management of the elk, and for the protection of the diverse flora within the park.

We assessed habitat selection of forest cover type, understory density class, disturbance use history, and distance to nonforested areas by using geographic information system (GIS) raster layers and fecal pellet counts. Elk trails were mapped and fecal pellet counts were used to index habitat selection. Plots were established to determine if there were relationships between elk selection and habitat components related to food and cover. In GSMNP elk selected successional and flood plain forest types, ericaceous understory classes of light to medium density, areas with concentrated settlement use history, and forests close to areas of open fields and recent human disturbance. The availability of species-specific woody browse was an important factor driving habitat selection. Successional forests contained the highest percentage of elk-preferred browse species.

Overall, elk in GSMNP are selecting forested areas that have more open canopies maintained by disturbances, and are selecting undisturbed continuous forests less because they do not contain preferred or abundant forage. If future monitoring detects pellets in more closed continuous forests, food sources in preferred younger forests may have become depleted, indicating that more intensive habitat management strategies should be considered. This understanding of resource selection by elk will be used to guide the management, monitoring, and future research of elk habitat management in GSMNP.

The content of this paper reflects the views of the authors(s), who are responsible for the facts and accuracy of the information presented herein.

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