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ABSTRACTS
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Seasonal Habitat Use and Home Range of Black Bears in the Shenandoah National Park.

Subtopic: Habitat Mapping with Color Infrared Imagery

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ABSTRACT: One objective of the black bear research project is to create a forest cover map for the Central District. The map is designed to aid in determining seasonal habitat use by black bear (*Ursus americanus*). Color infrared (CIR) mapping and sampling techniques used by the Shenandoah National Park (SNP) black bear research project were developed and refined by the Virginia Commission of Game and Inland Fisheries (VCGIF) (Martin 1982) and the U.S. Forest Service (USDA, 1970). Color infrared slides taken in both summer and winter are projected at a 1:12,000 scale for mapping. The District was broken down into 15 compartments which follow major drainage patterns. Forest types are outlined on mylar film using slide color differences to create a number of stands in each compartment.

Field identification or ground-truthing involves doing random 1/10 acre plots within each stand to determine the dominant forest type. The Society of American Foresters 1980 manual is used to assign forest type codes. Percent breakdown to canopy cover is based on Daubenmire cover classes, plots are standardized using periscope plot measurements. Additional measurements taken within each plot include habitat component, hard mast, water availability, elevation, slope, aspect, and stand age. Fifteen to 20 plots are completed each field day.

In some instances, ground-truthing may be eliminated by observing similar color phases and textures on CIR slides. This practice reduces the time that must be spent mapping each compartment.

Mapping began in the Central District in June 1983. To date the area south of Big Meadows has been mapped using the described techniques. Thirty forest types have been identified. Commonly occurring overstory species include oak (*Quercus spp.*), tulip poplar (*Liriodendron tulipifera*), hickory (*Carya spp.*), hemlock (*Tsuga canadensis*), pine (*Pinus spp.*), white ash (*Fraxinus americana*), and locust (*Robinia pseudoacacia*). Acreage values for each species have not yet been determined.

Accuracy will be measured by random plots within stands to determine the proportion of correctly identified cover types. An accuracy level of 90 percent will be acceptable for interpreting habitat utilization data for black bears in SNP.