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digestible energy (1.42%) did not vary among treatments but varied seasonally. Neutral detergent fiber was highest in uncut tracts during summer (47.43%) and fall 1994 (48.43%). Total phenolics were higher in forages from all harvest techniques (3.74%) compared to uncut tracts (1.42%) across seasons. High-leave harvests may provide suitable regeneration while maintaining a mast source and better habitat for wildlife than clearcuts.

REINBOLD, K., W. GRETHEN, J. DAY, M. STEES, and K. CHARLESTON. Assessment of effects of military fog oil obscurant on red-cockaded woodpecker. U.S. Army Corps of Engineers, Construction Engineering Research Laboratories, P.O. Box 9005, Champaign, IL 61826-9005 USA.

Military field training with smokes and obscurants releases compounds into the environment. Fog oil is 1 of several obscurants heavily used by the military in training. Many military installations are also homes for threatened and endangered (T&E) species. The red-cockaded woodpecker (RCW) is of particular concern in the southeastern region of the U.S. U.S. Army Construction Engineering Research Laboratories has completed a preliminary (Tier 1) ecological risk assessment and is collecting additional data to more fully assess potential impacts of fog oil obscurant on RCW at 2 Army installations. The assessment is consistent with the Framework for Ecological Risk Assessment developed by the U.S. Environmental Protection Agency. The assessment includes distribution of the fog oil obscurant in the atmosphere; physical and chemical characteristics of fog oil; deposition, movement, and fate of fog oil in the environment; and effects of fog oil on RCW as well as its food sources and habitat. Fog oil dispersion and deposition are determined by field measurements and a mathematical model. Literature data, laboratory and field studies using surrogate species, and field observations provide data to assess effects of fog oil obscurant on RCW. Based on preliminary information, fog oil concentrations and exposure durations known to cause acute effects are higher and longer than expected exposures of RCW. We are continuing to investigate the potential for chronic effects, behavioral effects, and effects on habitat and food supply.

RENFREW, ROSALIND B., and C. A. RIBIC. Riparian grazing: impacts on terrestrial wildlife. National Biological Service, Wisconsin Cooperative Wildlife Research Unit, Department of Wildlife Ecology, University of Wisconsin, Madison, WI 53706 USA.

Rotational grazing has been proposed as a best management practice for riparian zones on farmlands in Wisconsin, but effects that such a plan would have on wildlife occurring in these areas have not been studied. Research focusing on impacts of riparian grazing has been conducted primarily on western rangelands, where rivers and streams are important reservoirs of biological diversity. In contrast to western states, the Midwest generally does not have terrestrial wildlife communities that are restricted to riparian zones. Consequently riparian management in the Midwest, while important for water quality may not have the same implications for biodiversity that studies in western riparian areas have documented. Other factors such as habitat fragmentation, vegetation structure on the farm scale due to land-use practices, and surrounding landscape attributes may be more important in determining species composition, richness, and abundance near streams on midwest farms. A study was initiated in 1996 to assess impacts of different riparian management schemes on terrestrial wildlife in southwestern Wisconsin farmlands, as part of a larger interdisciplinary program addressing management strategies for improving and protecting water quality of streams. Species richness and abundance of small mammals, grassland birds, and amphibians were compared between riparian zones and adjacent uplands in rotationally grazed pasture, continuously grazed pasture, and filter strips. The results of our 1st field season will be presented.

REYNOLDS, MICHAEL C., and PAUL R. KRAUSMAN. Short-term effects of winter burning on birds in mesquite-grassland. School of Renewable Natural Resources, University of Arizona, Tucson, AZ 85721 USA.

We investigated effects of winter prescribed burning on relative abundance and species richness of breeding and wintering birds at the Welder Wildlife Foundation Refuge, Texas, from June 1995 to August 1996. We randomly selected 3 20-ha plots to be winter-burned and 3 20-ha controls on mesquite (*Prosopis glandulosa*)-grassland, and 3 20-ha plots to be winter-burned and 3 20-ha controls on mesquite-grassland that had been sprayed with herbicide the previous year. We used fixed-width line transects to survey birds in the breeding and winter seasons. In 1995 (pretreatment), we detected 22 species of breeding birds. Painted buntings (*Passerina ciris*), northern cardinals (*Cardinalis cardinalis*), and scissor-tailed flycatchers (*Tyrannus forficatus*) were the most abundant species on treatments and controls. We detected 30 species of wintering birds. Eastern meadowlarks (*Sturnella magna*), savannah sparrows (*Passerculus sandwichensis*), northern

PROGRAM AND ABSTRACTS

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