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Oklahoma Native Plant Society
Oklahoma Ornithological Society
Oklahoma Chapter, The Wildlife Society
Oklahoma Section, Society for Range Management**

The Changing Ecology of Oklahoma

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HABITAT CHARACTERISTICS OF SWAINSON'S WARBLER NESTS IN SOUTHEASTERN OKLAHOMA. Michael L. Adams and Mia R. Revels. Department of Biology, Northeastern State University, Tahlequah, OK 74464

Bottomland hardwood forest habitat in Oklahoma has declined dramatically in the past century. Currently, only 1% of the historical range of this habitat type remains in the state. Probable causes for this decline include conversion to agricultural and suburban uses, and flooding of lowland habitats caused by damming of rivers. Habitat specific species, such as the Swainson's Warbler (*Limnothlypis swainsonii*), have experienced population declines and range reduction with the loss of bottomland hardwood forests. During the summer of 2001, habitat characteristics associated with Swainson's Warbler nests were examined in the Little River National Wildlife Refuge, McCurtain County. Vegetation samples were gathered following BBIRD (Breeding Bird Inventory and Research Database) protocols in 5m and 11.3 m radius quadrants surrounding the nest site. Variables collected include: canopy height and cover, ground cover, litter depth, tree species and density, and stem counts. Data collected from this project may have important management implications for identification and maintenance of appropriate nesting habitat for Swainson's Warbler in Oklahoma.

OKLAHOMA GAP ANALYSIS: GEOGRAPHIC INFORMATION FOR EVALUATING OKLAHOMA'S CHANGING ECOLOGY. William L. Fisher¹ and Mark S. Gregory². ¹Oklahoma Cooperative Fish and Wildlife Research Unit, U.S. Geological Survey, Biological Resources Division, and Department of Zoology, Oklahoma State University, Stillwater, OK 74078; ²Department of Plant and Soil Sciences, Oklahoma State University, Stillwater, OK 74078.

The Oklahoma Gap Analysis Project (OK-GAP) created a geographic information system database of land cover types, terrestrial vertebrate species distributions, and land management status for Oklahoma that can be used to evaluate Oklahoma's changing ecology. The land cover map of Oklahoma was developed using 1991-93 satellite thematic-mapper images. The map consists of 46 types, including 16 forest types, 6 woodland types, 3 shrubland types, 11 herbaceous vegetation types, 3 barren land types, and 7 developed and other types. Maps depicting the distributions of 410 terrestrial vertebrate species, including 94 mammals, 184 birds, 81 reptiles, and 51 amphibians, were predicted from species-habitat (land cover type) associations. The land management status map includes 379 public and private land units managed by 14 land stewards, including 8 federal agencies, 5 state and city agencies, and 1 private organization. Each land unit was classified into one of four OK-GAP

classes based on land ownership, land stewardship, and management policy: Status 1—an area with mandated biodiversity management, Status 2—an area with mandated natural management, Status 3—an area with multiple-use management, and Status 4—an area with no management mandate. Intersection of the land management status map with the land cover and animal distribution maps revealed that only 6% of the total land area of Oklahoma consists of status 1-4 lands and only one-third of this is status 1 or 2 lands. Data from OK-GAP provides a benchmark for evaluating the changing ecology of Oklahoma's plant communities and terrestrial animal species.

BIRDS OF OKLAHOMA: ANALYSIS AND SYNTHESIS OF DISTRIBUTIONAL AND PHENOLOGICAL PATTERNS. Joseph A. Grzybowski¹, William A. Carter², Jeffrey A. Cox³, Louis E. McGee⁴, and Gary D. Schnell⁵. ¹College of Mathematics and Science, University of Central Oklahoma, Edmond, OK 73034; ²P.O. Box 804, Ada, OK 74821; ³5363 South Irvington Ave., Tulsa, OK 74135; ⁴1703 N.W. 43rd St., Lawton, OK 73505; ⁵Sam Noble Oklahoma Museum of Natural History, University of Oklahoma, OK 73072.

Oklahoma occupies a mid-continental position lying in a transition between eastern deciduous and western montane faunas, and is part of a vast and diverse central-grasslands and cross-timbers ecosystems. Distributional and phenological works on Oklahoma birds have included Nice and Nice (1924), Nice (1930), Sutton (1967), Wood and Schnell (1984), Grzybowski (1986), and Baumgartner and Baumgartner (1992). The latter was unique among the group in combining a popular and somewhat technical approach. The last technically comprehensive work was that of Sutton (1967). We propose to provide a current, interpretationally comprehensive treatment. Data from at least nine functional sources are being combined to allow analysis and critical interpretation of the patterns of distribution and phenology for Oklahoma birds. This work will strongly support biological sciences in this area, and also provide a structured overview of information on Oklahoma birds for a growing number of amateur and avocational birders.

INTEGRATING FIRE AND GRAZING AT THE TALLGRASS PRAIRIE PRESERVE, OKLAHOMA. Bob Hamilton. The Nature Conservancy, Pawhuska, OK 74056

Grazing by native and domestic herbivores, in concert with controlled fire, are key parts of the ecological management plan at the Tallgrass Prairie Preserve, Oklahoma. The Nature Conservancy's ecological goal at this 38,700-acre preserve is to manage these historical ecological processes to preserve native biodiversity. An expanding resident bison herd of 1,600 animals has year-round free movement across a landscape simulating the original seasonality and frequency of fire. In areas not yet occupied by the growing bison herd, cattle are used to provide the desired grazing influence, utilizing an Intensive Early Stocking system coupled with spring burns. The preserve has proven to be attractive for ecological research, with over 70 publications to date.

CURRENT STATUS OF THE SWAINSON'S WARBLER IN SOUTHEASTERN OKLAHOMA. Mia R. Revels. Department of Biology, Northeastern State University, Tahlequah, OK 74464.

Swainson's Warbler (*Limnothlypis swainsonii*) numbers in Oklahoma have declined dramatically over the past 100 years, most likely due to habitat loss. Currently, what is thought to be the largest remaining population in the state is found in the Little River National Wild-

life Refuge in McCurtain County. During the summer of 2001 this population was studied to determine its current status. Males were surveyed throughout the refuge using taped playbacks to determine the population size. Individual males were mist-netted, color banded, and fitted with radio-transmitters. These males were tracked on a daily basis in order to determine territory size and movement patterns. Known male territories were systematically searched for nests. Four active, and four inactive Swainson's Warbler nests were located – the first documented in the state since 1917. These nests were monitored to determine fate, videotaped to document behavior, and collected once the nest attempt was complete. Collected nests were searched for *Protocalliphora* ectoparasites. 50% (2/4) of the active nests were parasitized by Brown-headed Cowbirds. Finally, vegetation characteristics of nest sites were analyzed using BBIRD protocols. Previously unknown, this information will be used to identify and conserve habitat preferred by breeding Swainson's Warblers.

SERICEA LESPEDEZA, AN INVASIVE WEED IN TALLGRASS PRAIRIES OF OKLAHOMA. Jim F. Stritzke, T. H. Koger, and David M. Engle. Department of Plant and Soil Sciences, Oklahoma State University, Stillwater, OK 74078.

Sericea lespedeza (*Lespedeza cuneata* [Dum.Cours] G. Don) is an introduced, long-lived N-fixing perennial legume that is now considered an invasive weed in tallgrass prairies. Mature plants form a crown of numerous "wood-like stems that are up to 75 cm tall and often persisting into the next growing season. With increased growth and maturity of plants, lignin and tannin contents of sericea increase, resulting in essentially no grazing by cattle. Within several years of invasion into a tallgrass prairie, sericea can become the dominant species. Sericea (a prolific seed producer) is not killed by herbicides like 2,4-D normally used to control undesirable. We have found that the best herbicide treatment currently labeled for control of sericea lespedeza in the tallgrass prairies of Oklahoma is triclopyr applied in June and July. Control of plants after triclopyr applications in June or July is usually good enough that there will be essentially no established plants of sericea for 3 to 4 years after application. Metsulfuron applied in late summer will suppress most of the established sericea stems in the following growing season, but significant stems from established plants will be present by 2 to 3 years after treatment. With both herbicides, it is important that plants are actively growing (adequate soil moisture), plants are not defoliated at time of spraying (grazed), and that other plants not interfere with spray coverage. Forage production of desirable grasses was essentially doubled when sericea was controlled. We have concluded that an integrated approach involving herbicides and follow-up grazing management is going to be required for sericea control. We have documented that significant infestations of sericea lespedeza can be tolerated in a tallgrass ecosystem before yields of desirable grasses are reduced and that sericea will be utilized by cattle if the site is spring-burned and double stocked at initiation of sericea growth in April.

NATURALIZING PLANTS: THE GOOD, THE BAD, AND THE UGLY. Constance E. S. Taylor. Department of Biology (emeritus), Southeastern Oklahoma State University, Durant, OK 74701

Between 1969 and 1994, 312 taxa were reported new to the Oklahoma flora, increasing the known species by 8.1 percent. Of these, 79 or 25.3 %, are of foreign origin. Numerous other species are known to be naturalizing but are not yet reported. Currently the total number of naturalized species in Oklahoma is approaching 14 percent. Plants such as clovers (*Trifolium* spp.), sweet clovers (*Melilotus* spp.), and fragrant mimosa (*Albizia julibrissin* Durazz)

may be considered beneficial additions to the flora for their nitrogen fixation, wildlife food, and beauty. The bad are those species truly deserving of the term invader. These species thrive in native ecosystems or can disrupt succession patterns displacing even dominant native species. Examples include Johnsongrass (*Sorghum halpense* (L.) Pers.), salt cedar (*Tamarix* spp.), and privet (*Ligustrum sinense* Lour.). The ugly constitutes those species generally referred to as weeds by the public which occur in disturbed habitats such as lawns. These nuisance species do not do well in native habitats and do not displace native species. Based on the numbers of new invaders and data from other states such as those in Volume 1 of the *Flora of North America*, numbers of naturalizing plants will continue to increase and will probably exceed one-third of the naturally occurring flora by the end of this century.