

Completed Technology Projects



Much wider buffers needed for grassland-dependent birds

A study by the U.S. Geological Survey Wildlife Research Center and the Agricultural Research Service found that buffers do indeed need to be much wider for grassland-dependent birds. Researchers found that birds will use narrower buffers (less than 100 feet), but they do not nest in them. Nesting pairs were found in buffers 130 feet to 200 feet wide.

Conclusion: 150 feet is the minimum buffer width for grasshopper sparrow and eastern meadowlark—two birds of concern.

67-7482-0-585



More songbird diversity in wide filter strips

Iowa State University (ISU) researchers looked at 39 filter strips that ranged from 20 to 450 feet wide and found that songbird use of grassed filter strips increases as buffers become wider. The ISU research found that wide filter strips had more birds and greater diversity of species. Another conclusion was that filter strips planted with native and nonnative mixes produced similar structural characteristics.

Conclusion: Wide filter strips produce more birds and more species diversity.

68-7482-2-51



More butterfly species are found in wide buffer strips

Iowa State University butterfly specialists looked at 49 filter strips with widths varying from 60 feet to 550 feet. Researchers found that habitat-sensitive butterflies, like the great spangled fritillary, liked wider buffer strips and preferred native grasses with forbs.

Conclusion: Butterfly use of buffers is consistent with bird use—even narrow buffers are used by common butterflies—but wider buffers with native grasses and forbs bring more diversity.

68-7482-1-777



No bird preference for cool- or warm-season grasses in the Midwest

An Iowa State University study that compared bird use of 33 grass filter strips found no significant differences in grassland bird response to warm- versus cool-season grasses. Warm-season plantings had more vertical density, more forbs, and more plant species richness, but that did not translate to more grassland birds or nests in warm-season strips.

Conclusion: Bird use of buffers in the Midwest is more dependent on structure and plant diversity than type.

#68-7482-2-27



Naturally vegetated buffers work for wildlife, water

A study by North Carolina State University found that naturally vegetated buffers are an option for cleaning the water and establishing habitat for wildlife. The study found that increasing buffer width removed most nitrate from swine waste effluent in shallow ground water.

Conclusion: Widening buffers by allowing natural revegetation reduces nitrate moving into streams. Natural regeneration of plants from the soil seed bank is adequate to make riparian habitat suitable for wildlife.

68-7482-2-35

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Birds use field borders in the South in winter and breeding season

A study by Mississippi State University in the intensively farmed Mississippi Alluvial Valley found four times as many birds in the winter in fields with wide borders as in those with no borders. In the breeding season, more species were found in fields with established field borders than in fields without established field borders. Nearly all nests were found in wide borders.

Conclusion: Field borders—even narrow ones—are important habitat for grassland birds in intensively farmed landscapes.

68-7482-2-42



Grassed waterways are habitat for birds and snakes

An Iowa State University study in southeastern Iowa of 33 grassed waterways varying in widths from 20 to 80 feet found waterways to be habitat for both birds and snakes. The study found that a third of the 27 bird species found nested. Researchers also found that snakes were present in 80 percent of the waterways and more prevalent in wider waterways.

Conclusion: Grassed waterways, even narrow ones, are habitat for both birds and snakes.

68-7482-2-27



Significantly more birds found in buffered fields than nonbuffered fields

The University of Maryland found 7 times as many birds in the summer in CRP and CREP buffers as in fields without buffers and 13 times more bird density in unmowed buffers. However, most lacked the diversity offered in large grass fields. There was no preference for warm- versus cool-season grasses.

Conclusion: Many generalist birds use buffers in Maryland, but most buffers are too narrow to support a diverse community of grassland-dependent birds.

68-3A75-4-104



Grassland birds will quickly colonize CRP fields as grass begins to grow

A 7-year study at Chino Farms in Maryland by the University of Maryland found that grassland birds began colonizing U.S. Department of Agriculture Conservation Reserve Program (CRP) grass fields as soon as the grasses began growing and that migrating birds returned to breed at unprecedented high rates. Highest densities were found the year after prescribed burns.

Conclusion: Grassland birds will quickly colonize CRP to breed and nest and return to well-managed native coastal grasslands each year.

67-7482-2-22



Surrounding landscape more important to birds than field management

While emphasis has been placed on management techniques and planting mixtures, a study by the U.S. Fish and Wildlife Service on 13 refuges in the Northeast found that nearly all variation in bird density could be explained by where the field was in context with the rest of the landscape.

Conclusion: Habitat features in surrounding landscapes are a more important factor to breeding grassland birds than management treatment in any one field.

67-7482-1-663

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Delay late hay cuttings to allow birds to re-nest and fledge young

A University of Vermont study comparing nesting success of grassland birds for various management techniques on working haylands found that early cut haying caused almost all Savannah sparrow and bobolink nests to fail. But the birds re-nest, and late-hayed fields were found to be high-quality reserves for late-nesting birds.

Conclusion: Waiting 65 days after a May cutting before the next cut allows young to fledge from the nest ahead of the next haying.

68-3A75-2-89



Light disking enhances early successional habitat with negligible erosion

Disking has been widely accepted as an important tool in creating early successional habitat for northern bobwhite, but conservationists had concerns about soil erosion. A study in Missouri by Mississippi State University concluded erosion was negligible with proper techniques, including timing and rotation.

Conclusion: Rotational strip disking enhances habitat for northern bobwhite and can be done with minimal erosive effect.

68-7482-8-375



Control of pasture plants critical in restoring longleaf pines in CRP

A study by the University of Georgia of vegetation and bird use of 41 restored CRP fields found that controlling competing pasture plants was critical to successful reestablishment of longleaf pine on agricultural fields. In addition, researchers recommended larger fields for early successional songbird use.

Conclusion: Control of agricultural pasture plants like bahiagrass and bermudagrass to allow native vegetation to compete is critical in longleaf pine restoration.

68-7482-1-775



Reforest bottomland hardwoods adjacent to existing large forest tracts

In a U.S. Geological Survey and University of Georgia study, isolated reforested tracts attracted grassland birds, but also their predators. Shrub-scrub birds had better nest success than grassland birds in the reforested habitat.

Conclusion: A better plan for reforestation is to select sites adjacent to large forest tracts, and plant a high percentage of fast-growing trees to enhance the habitat for shrub-scrub birds.

68-7482-1-775



Revisiting Zumwalt Prairie to assess wildlife values of grazing practices

More than 25 years ago, Marcy Houle attributed one of the densest concentrations of ferruginous, red-tailed, and Swainson's hawks coexisting in a bunchgrass remnant of the Zumwalt Prairie in Oregon to good range management practices. Oregon State University has documented a stable territory occupancy from 1979 to 2006 for two of these birds of national concern, despite landscape changes and a shift in nesting substrates.

Conclusion: Privately owned grazing lands can provide suitable raptor habitat.

68-7482-3-155

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CRP has significant positive effects on birds

The University of Northern Colorado conducted a study that linked the land use and cover data from the National Resources Inventory to the Breeding Bird Survey conducted by U.S. Geological Survey. When researchers overlaid the data, they found that CRP land had a significant positive effect on grassland bird diversity in 6 of 16 bird regions of the country.

Conclusion: The match up of bird diversity and CRP land cover indicates CRP is being used in areas that benefit birds.

68-3A75-4-106 Mod. 2



CRP/rangeland combination preferred by lesser prairie chickens

The lesser prairie chicken has seen a population decline of about 97 percent over much of its range, but not in western Kansas, where CRP grasslands may be helping it expand its range. Colorado State University scientists found that the females prefer taller, denser CRP vegetation as nesting cover, but broods were found more often in rangeland.

Conclusion: A combination of rangeland and CRP may be needed for lesser prairie chicken nesting and brood rearing.

68-7482-3-116



Restored agricultural wetlands are important in winter for shorebirds

A study by the U.S. Geological Survey of agricultural wetlands in the Willamette River Valley found that shorebird habitat is abundant and evenly distributed in years with average rainfall, but not in dry years. Restored wetlands provide habitat in dry years; shorebirds rely on multiple wetlands in the winter and are attracted to areas where agricultural wetlands are clustered.

Conclusion: Enhanced wetlands, especially those in clusters, benefit shorebirds.

67-7482-3-160



Enhanced wetlands in the Northwest also serve as fish habitat

An Oregon State University Study of the Chehalis River flood plain in Washington State found enhanced wetlands had more Coho salmon. Juvenile Coho salmon prefer enhanced wetlands to feed, but must be able to get back to the river when wetland waters recede.

Conclusion: Salmon and other native fish benefit from water control structures that keep water levels up longer and use outlets that allow fish to leave wetlands for rivers.

68-7482-4-192



Native fishes grow and reproduce in agricultural drainages in the Northwest

Oregon State University researchers found that farm drainages of grass seed production lands in the Upper Willamette River Basin are providing winter refuge for native fish, including Chinook salmon and Oregon chub. They found it is critical to maintain connections from these farm streams to river channels.

Conclusion: Drainage channels and seasonal streams in grass seed fields offer food and habitat some native fish need to grow and reproduce.

68-7482-2-26

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High-intensity, short-duration grazing beats continuous grazing for trout

Colorado State University researchers found that trout densities on high-density, short-duration grazed riparian sites in Wyoming were similar to continuous grazing, but the fish were longer and heavier, producing twice the trout biomass.

Conclusion: Planned, rotational, intensive grazing systems can produce more cover, more food for insects and more insects for trout, resulting in bigger, healthier trout than in continuous grazing systems.

68-7482-3-131



Ranchettes spell trouble for native species

In a first-of-its-kind study of subdivided ranches in the Front Range, Colorado State University researchers comparing plants and wildlife on ranches, nature reserves, and ranchettes found human-adapted wildlife species' populations were up to 15 times higher on ranchettes than ranches.

Conclusion: Ranchettes result in fewer birds of concern, more generalist species, more introduced plant species, and fewer native predators.

68-7482-8-325



Clustered and dispersed housing development similar in wildlife value

It has been assumed that grouping houses close together and leaving the remaining area as open space benefits wildlife. Colorado State University compared songbird and nest density and plant species in large lot developments, clustered developments, and undeveloped land in Boulder County.

Conclusion: Closer proximity to humans and lack of native plants made clustered developments more similar to dispersed developments than undeveloped land.

68-7482-3-158

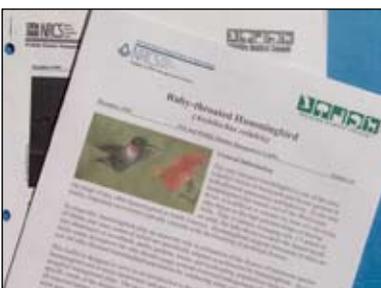


How to design and build dugouts for the Topeka shiner and prairie fish

A South Dakota University study found that dugouts in the flood plain of smaller streams of the Missouri River Basin can function as off-channel habitat for the endangered Topeka shiner and other fishes. To enhance habitat, constructed dugouts should include connection to the ground water, be placed in a frequently flooded zone, and be disconnected from, but located close, to the stream channel.

Conclusion: Properly located dugouts can provide habitat for Topeka shiner.

67-7482-3-101



Multipage leaflets from AWCC offer online food and cover needs

The AWCC worked with the Wildlife Habitat Council to compile and summarize the food, water, and cover needs of 34 fish and wildlife species or groups, as well as habitat value for 12 specific habitats such as wetlands. Concise summaries of the most important information about each species is posted online.

Conclusion: Critical habitat needs of 34 fish and wildlife species from turtles to trout to birds and butterflies is posted on the AWCC Web site.

68-7482-7-260 and # 68-7482-4-165

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Fish and frog response to microtopography development in Wetland Reserve Program (WRP) wetlands in the White River Watershed, Arkansas

Louisiana State University's Cooperative Fish and Wildlife Research Unit sampled frog and fish use of wetlands restored through the WRP and found that while micro- and macrotopography sites may support fewer waterfowl per area, as they mature, they will provide habitats for many species of amphibians and other fish and wildlife species.

Conclusion: Micro- and macrotopography can be rapidly utilized by flood plain fish and amphibians.

68-7482-2-17



Monitoring wildlife use of Farmable Wetlands Program (FWP) wetlands in Iowa and South Dakota

Iowa State University researchers found FWP restorations received high use by wetland and grassland birds, including several species of conservation interest. Numbers of invertebrates were relatively low, and species typically found in temporary wetlands were conspicuously absent.

Conclusion: For greatest benefits, maximize the size of FWP restorations, restore original hydrology, and use seedings that offer diverse structure.

68-7482-2-50



Landscape approach to grassland bird conservation in the Prairie Pot-hole region, developing habitat models for bird species

The University of Montana study identified local and landscape attributes that influence density of grassland songbirds in western Minnesota and northwest Iowa and developed a conservation planning tool to cross-validate the predictive capability of grassland bird models to quantify how well they perform.

Conclusion: Workshop agendas developed from the model illustrate how grassland songbirds avoid woody edges.

68-7482-3-156



Grass buffers: comparing crop yields, pests, insects, and habitat value in fields with Farm Bill programs, Mississippi

Break-even analyses showed that a number of factors influenced whether or not CRP CP33—Upland Wildlife Habitat Buffers were more profitable than cropping field edges. The most important factors included the type of plant community adjacent to the crop, expected yield reduction, county soil rental rates, expected crop yield, and expected commodity prices.

Conclusion: Economics of CP33 are highly variable.

68-7482-1-770



Response of early succession birds to warm-season grasses in the Southern Piedmont, University of Georgia

Twice as many overwintering birds, and more species, were found in fields replanted to native grasses as in exotic pastures in a University of Georgia study.

Conclusion: In the forest-dominated landscape of the Southeast, where early successional habitat is in short supply, patches of native warm-season grasses should be encouraged.

68-7482-1-775

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Develop ecological interpretations of the National Resources Inventory, University of Northern Colorado

A project of the University of Northern Colorado extends the use of the National Resources Inventory (NRI), the most extensive multi-resource inventory of natural resources in the world. This project extends NRI usefulness to help analyze ecological patterns of land use data for correlation with wildlife diversity and abundance.

Conclusion: NRI land use data can be correlated with wildlife data from other sources.

68-7482-2-46



Effects of tile drainage on aquatic habitat, Minnesota

A literature review has been undertaken to extend the known water quality and hydrologic effects of agricultural tile drainage on freshwater aquatic ecosystems.

Conclusion: The results of the literature review are pending.

68-3A75-2-89



Wildlife response to mechanically treated pinyon-juniper

A Colorado State University study is evaluating wildlife and plant response to using the Hydroax to reduce pinyon-juniper that has invaded grasslands. This mechanical treatment has been used on the study area for 6 years.

Conclusion: Results are pending.

68-7482-3-159



Minorities in Natural Resources Conservation (MINRC)

Since 1998, the former WHMI and the AWCC have worked with MINRC, a joint committee of the Southeastern Association of Fish and Wildlife Agencies (SEAFWA), Southeast Section of the Wildlife Society, and Southern Division of the American Fisheries Society to recruit minority students into the natural resources arena.

Conclusion: Young people are interacting with fisheries and wildlife professionals.

68-7482-4-214



East Arkansas Enterprise Community (EAEC) assistance to limited resource farmers

A community development initiative was undertaken by the nonprofit EAEC and AWCC to increase the quality and quantity of wildlife habitat that fit the conservation and economic development needs of small scale and limited resource farmers in the Mississippi River Delta. Strategies include developing farm enterprise systems such as waterfowl fee hunting, deer leases, fishing for a fee, etc.

Conclusion: Limited resource farmers are receiving assistance.

68-7484-6-291

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Support for working with fish and wildlife agencies to develop the Conservation Effects Assessment Project wildlife approach and work plan

The AWCC provided funding to engage State fish and wildlife agencies, the Farm Service Agency, and others in developing regional approaches to document Farm Bill program benefits to wildlife.

Conclusion: The AWCC has directly supported the NRCS Conservation Effects Assessment Project, as well as developed technology that gave indirect support.

67-7482-0-585



Using Natural Heritage data, assess conservation practice benefits to rare and at-risk fish and wildlife species in Missouri

If the Missouri pilot practice-to-species relationship data were to apply nationwide, 89 percent of conservation practices would have a positive, neutral, or mixed effect on most upland wildlife species, and 79 percent of practices would have positive or neutral effects on most aquatic species.

Conclusion: The pilot study holds promise that existing data sets can be used to assess effects of conservation practices on at-risk species.

68-3A75-5-146



Use of NRI and Breeding Bird Survey data to assess grassland bird response to CRP

This project links NRCS National Resources Inventory data on land use and cover with U.S. Geological Survey breeding surveys, to estimate bird response to Conservation Reserve Program grasslands and other USDA programs. This project directly supported the NRCS Conservation Effects Assessment Project (CEAP).

Conclusion: NRI land use and cover data are being linked to wildlife data from other sources to enhance CEAP findings.

68-3A75-4-106



Audubon at Home

Through a partnership with the AWCC, Audubon launched and maintains a Web site through an initiative called Audubon at Home. Online information explains a healthy yard is a habitat, a sanctuary for wildlife that provides a natural haven beneficial to birds, other creatures, and people. Helpful hints are included on managing a backyard for wildlife. The Web site is http://www.audubon.org/bird/at_home/

Conclusion: Cooperative efforts between Audubon and NRCS are producing educational materials.

68-7482-2-29



Use of Doppler weather radar to determine bird use of restored wetlands in California, USGS National Wetlands Research Center

Using archived digital Doppler radar data and land cover data, the U.S. Geological Survey National Wetlands Research Center and NRCS are developing tools to assess use of Wetlands Reserve Program wetlands by migratory birds in the Central Valley of California. This project directly supported the NRCS Conservation Effects Assessment Project.

Conclusion: Results are pending.

67-7482-6-275

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Effects of Conservation Reserve Program seeding mixtures on breeding birds in the Northern Plains, USGS

A study by the U.S. Geological Survey examined the benefits of native grasses in the Conservation Reserve Program to grassland birds in the Northern Plains, partly to see if higher costs of expensive native grasses are justified.

Conclusion: Results are pending.

68-7482-2-28



Grassland birds and CRP: How big is big enough?

A U.S. Geological Survey project attempted to determine minimum buffer size needed for grassland birds near wetland habitats in the Prairie Pothole Region. Of 16 grassland birds observed, seven preferred larger grasslands and four showed no clear preference. Two preferred smaller areas and three varied in sensitivity by region.

Conclusion: The CRP has been extremely important in offsetting some negative effects of grassland habitat loss in the Midwest and the Great Plains in the Prairie Pothole Region.

68-7482-4-197