WGFD

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State Wildlife Action Plan E-Newsletter

Funding for State Wildlife Action Plans Reduced

Funding for the State and Tribal Wildlife Grants (SWG) program which supports the development and implementation of State Wildlife Actions Plans (SWAP) was reduced in the recently passed FY 2011 federal budget. Sixty-two million dollars was allocated for SWG which is the lowest since 2001 and $28 million below 2010 funding levels.

Previously, the continuing resolution passed by the House of Representatives completely eliminated funding for SWG. Through considerable efforts of the Teaming for Wildlife coalition, representing 6,300 organizations and businesses and millions of birders, hunters, anglers, boaters and other outdoor enthusiasts, funding for SWG was reinstated in the 2011 budget passed in April. The President's proposed 2012 budget has allocated $95 million for SWG.

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Great Basin Spadefoot Toad

Evaluating the Long-term Impacts of Pine Beetle Epidemics

Lodgepole pine (*Pinus contorta*) forests of the Intermountain West are currently undergoing an unprecedented mountain pine beetle (*Dendroctonus ponderosae*; MPB) epidemic. The MPB is native to forests of North America, typically killing trees already weakened by disease or old age.

The beetle attacks pines in late summer, dispersing pheromones to attract other beetles to mass-attack the tree. When the beetles bore through the bark of the tree, they introduce blue-stain fungus, which hastens the death of the tree. One of the tree's defenses is to "pitch" out the beetles with sap, creating "pitch tubes". Trees stressed by drought and old-age are not able to produce sufficient defenses such as pitch tubes to fend off beetle attacks.

After overtaking the tree's defenses, the beetles form tunnels and lay eggs underneath the bark, which hatch into larvae. The larvae spend the winter underneath the bark and emerge as adults in the summer, beginning the cycle again.

Preparing to check traps in a young lodgepole pine stand in the Medicine Bow National Forest

In recent decades, warmer winter temperatures and aging forests have created favorable conditions for MPB to infest forests at a higher rate than ever before. In 1996, MPB began to spread throughout northern Colorado, eventually infesting forests throughout Colorado and southeastern Wyoming. USDA Forest Service estimates that by 2012, all mature lodgepole in northern Colorado and southern Wyoming will be killed by the MPB (http://www.fs.usda.gov). Lodgepole pine forests dominate forested ecosystems of western North America and provide breeding and foraging habitat for many coniferous wildlife species. Major habitat and landscape changes will occur during and after the death of lodgepole pine, altering the original habitat to the point that viable populations of wildlife species may no longer be sustained.

Research is being conducted in the Medicine Bow National Forest of southeastern Wyoming to examine the relative value of two alternate stand types (young lodgepole pine and spruce-fir) adjacent to beetle-killed lodgepole stands as interim habitat for birds (woodpeckers and songbirds) and small mammals (rodents and shrews) prior to mature lodgepole regeneration. In collaboration with the Wyoming Game and Fish Department (WGFD), M.S. student Joslin Heyward and her advisor Dr. Anna Chalfoun with the Wyoming Cooperative Fish and Wildlife Research Unit are responsible for the project. They are also examining how the size of each stand type may determine the extent to which the stand can provide sufficient habitat for these species. Spruce/fir (dominated by Engelmann spruce and subalpine fir) are not impacted by MPB due to MPB's preference for pine trees. Young lodgepole pines (previously logged) aren't favored by MPB due to their smaller size. These stand types likely differentially support the needs of different assemblages of species, depending upon their specific life history requirements. The specific challenge is to delineate among the alternate stand types to determine which are most valuable for maintaining the greatest diversity of species and densities of Species of Greatest Conservation Need (SGCN).

View of the Medicine Bow National Forest from a young lodgepole pine stand

Field work was conducted during spring/ summer 2010, and will be (continued page 3)

Evaluating the Long-term Impacts of Pine Beetle Epidemics (cont)

repeated during 2011. To assess species diversity and abundance, diurnal rodent/avian point counts and live trapping of nocturnal small mammals were conducted. Captured small mammals were injected with passive integrated transponder (PIT) tags so that recaptured individuals could be identified and small mammal densities could be estimated.

The stand types supported very different assemblages. Greater structural diversity within spruce-fir stands may support more interior or specialist species, whereas young lodgepole stands, which have been disturbed by logging practices, may support more common or generalist species. Greater avian diversity was found in spruce-fir stands, as well as greater abundances of southern red-backed voles and shrews. Young lodgepole pine stands may support greater small mammal diversity. Within both stand types, avian diversity increased with patch size; however, patch size had mixed effects on small mammals. As patch size increased, red squirrel abundance decreased and southern red-backed voles increased.

Final analyses and results will be completed during spring 2012. Results from this study will inform management efforts geared towards the conservation of lodgepole pine SGCN, and the extent to which alternative forest stand types will buffer populations against declines prior to mature lodgepole regeneration.

Increasing Understanding of the Potential Impacts of Energy Development

To better understand the potential impacts of energy development, the Wyoming Natural Diversity Database (WYNDD), Wyoming Cooperative Research Unit, and Nature Conservancy are currently collaborating to evaluate the vulnerability of Wyoming terrestrial SGCN to oil, gas, and wind-energy development. In this context, vulnerability is being evaluated by assessing each species' potential sensitivity and exposure to development. Sensitivity is assessed by evaluating each species life history and habitat needs, including reviewing information from existing energy impact studies.

Exposure is determined through a GIS analysis that overlays distribution maps for Wyoming SGCN with areas of known and projected energy development. The distribution maps used for this purpose were created by WYNDD and used in the 2010 revision of Wyoming's SWAP. Distribution maps identify areas of potentially suitable habitat for SGCN within known geographic ranges. Suitable habitat is predicted by modeling landscape features, such as climate, landcover, and topography that are associated with species' habitat requirements. Distribution maps for all Wyoming SGCN have been incorporated into individual SWAP species accounts (http://gf.state.wy.us/SWAP2010/Plan/index.asp.) Electronic copies of SGCN distribution maps can be obtained from WYNDD using an online request form (https://survey.uwyo.edu/TakeSurvey.aspx?SurveyID=l20Klp4K).

The project is expected to be completed in late 2012 and will not only give an indication of which species and taxonomic groups are potentially vulnerable to development, but also help direct future research to address information gaps. The project is being funded jointly by the United States Geological Survey, Wyoming Landscape Conservation Initiative, and WGFD.

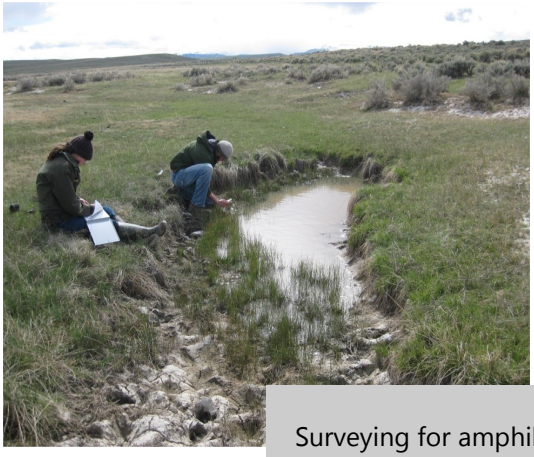
Surveys Increase Understanding of Wyoming Reptiles and Amphibians

In the past, amphibians and reptiles often received less attention in wildlife conservation efforts when compared to mammals, fish, and bird. Wyoming is home to thirty eight species of amphibians and reptiles, of which 8 amphibians and 20 reptiles are considered SGCN. More than half of these designations are due to a lack of information to adequately assess the species conservation status. In order to change this, Charlotte Matthews and Zack Walker, Herpetologists for the WGFD, have begun survey efforts for amphibians and reptiles in a number of regions of Wyoming.

In April through September 2009 and 2010, surveys were conducted in the Bear River drainage, Calpet area, White Mountain area, and the Savery Creek drainage in southwestern Wyoming. Surveys techniques included dipnet, driving transects, funnel traps, quadrat transects, and visual encounter surveys. Habitat characteristics were recorded for all species observed.

Great Basin Skink. Recently documented for the first time in Wyoming

Fifteen species of reptiles and amphibians were recorded on surveys. Species included the Great Basin Skink (*Plestiodon skiltonianus utahensis*), which was observed in Wyoming for the first time. Additionally, the ranges for Valley Gartersnakes (*Thamnophis sirtalis fitchi*) and for Northern Tree Lizards (*Urosaurus ornatus*) were modified based on survey results.



Surveying for amphibians and reptiles, including the Great Basin Spadefoot toad, in southwestern Wyoming

Two locations within study sites tested positive for chytrid fungus (*Batrachochytrium dendrobatidis*), one in the Bear River drainage and one in the Savery Creek drainage. Chyrid fungus is a lethal disease for amphibians that has caused dramatic declines in amphibian numbers world-wide and is believed to be the primary cause for a number of local population extinctions.

The Great Basin Spadefoot (*Spea intermontana*) was a species of particular interest for surveys. The Great Basin Spadefoot is a species of toad adapted to live in the sagebrush flats and semidesert shrublands in Wyoming The species is hard to observe outside of its breeding habitats. There is additionally little information available for the Great Basin Spadefoot in Wyoming. In order to help gain more information about Wyoming's spadefoot populations, surveys were conducted in southwestern Wyoming. Great Basin Spadefoots were detected in 46 sites in Sweetwater, Uinta, and Sublette Counties through both auditory and visual surveys. Several locations where Great Basin Spadefoots were observed were outside of its previously documented range.

Similar surveys are planned in southeast Wyoming. In addition to surveying for reptile and amphibian species and recording habitat associations, the project will investigate if there is overlap for the ranges for the Great Basin and Plains Spadefoot toads.

Obtaining a greater understanding of the abundance, distribution, and habitat needs of Wyoming reptiles and amphibians will aid in future conservation efforts to avoid population declines including identifying options to reduce land use and development conflicts.

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We're on the web:

http://gf.state.wy.us/SWAP2010/Plan/index.asp

Questions or Comments?

Questions or comments about the SWAP or this newsletter can be forwarded to:

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