

INSTITUTION NAME: Colorado Natural Heritage Program a registered 501(c)3 non-profit.

TITLE OF PROJECT: Measuring Habitat Characteristics at Forest Sites Occupied by Pawnee Montane Skipper (*Hesperia leonardus montana*)

NAME OF PROJECT DIRECTOR: John Sovell

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OTHER PRINCIPLE INDIVIDUALS: Mikele Painter, District Wildlife Biologist, USFS, Pike National Forest, South Platte Ranger District; Leslie Ellwood, Fish and Wildlife Biologist, USFWS, Colorado Field Office - Lakewood.

BRIEF SUMMARY OF REQUEST:

This project will sample vegetation where Pawnee montane skippers are observed at control and thinned treatments. The USFS will use this information to determine appropriate thinning prescriptions for the skipper.

Project Background

Years of monitoring have accumulated information on the trends in Pawnee montane skipper (*Hesperia leonardus montana*) populations within different forest thinning prescriptions, but there is an overall need for additional data collection to understand the forest conditions and understory plant characteristics that are important to the Pawnee montane skipper and how nectaring plants and precipitation correlate with skipper densities.

In 2000, the USFS in cooperation with the Colorado State Forest Service, Denver Water, and other entities, proposed the Upper South Platte Watershed Protection and Restoration Project (USP). The project was designed to restore ponderosa pine forest in the South Platte River Valley southwest of Denver, Colorado. The proposed treatments included timber harvest, understory thinning, prescribed burning, revegetation of burned areas, obliteration and reclamation of unnecessary roads, and trail improvements. A major project goal was to reduce the risk of large catastrophic fires that could occur because of the accumulation of surface fuels and dense forest stands that have resulted from past fire management activities. In conjunction with the National Environmental Policy Act review process for this project, the USFS prepared a Biological Assessment to evaluate the potential effects on species listed under the federal Endangered Species Act (ESA) that could be affected by the proposed forest restoration program. Among the species evaluated was the Pawnee montane skipper butterfly because suitable habitat for this species was included within the forest thinning and burning prescription areas proposed by project members. To assist in evaluating project effects over the short- and long-term, the USFS and Denver Water sponsored a pilot skipper monitoring program during the flight season in August 2000 (and subsequent years since then), to evaluate the relative use by skippers of treated and untreated areas (Drummond 2009, Sovell in preparation). Forest thinning treatments in the skipper monitoring area were conducted between 2000 and 2004.

In 2002, the Hayman Fire burned approximately 40% of the suitable habitat for the Pawnee montane skipper butterfly in the South Platte River Valley including portions thinned as part of the USP. Subsequent monitoring has shown that the Pawnee montane skipper was extirpated from moderate to high severity burn areas of the Hayman Fire and that these areas represent fragmented Pawnee montane skipper habitat with low connectivity and subsequently low rates of recolonization (Sovell 2011). In effect, the moderate to high severity burn areas of the Hayman Fire represent marginal Pawnee montane skipper habitat. The loss of such a large portion of the skipper's habitat has compromised the viability of this rare butterfly, listed as threatened under the ESA. Consequently, understanding how the forest thinning currently underway in the South Platte River Valley is impacting the Pawnee montane skipper is of paramount importance.

Objective

The purpose of this project is to detail the forest conditions and understory plant characteristics at the exact locations where Pawnee montane skippers have been observed, an important need that is not being fulfilled by current skipper monitoring activities in the South Platte River Valley. This project will detail forest vegetation characteristics at permanent transects where Pawnee

montane skippers are observed within various forest thinning prescriptions and at control transects within the USP.

Scope of Work

Eight sites where Pawnee montane skippers are observed on 16 permanent transects during the 2012 monitoring effort will be sampled. Sites will be sampled in four treatment areas including two each in a control area; treatment 1, where forest canopy cover was thinned in 2000 to approximately 25 to 30 percent cover and some 3- to 5-acre openings were created; treatment 2, where in 2002 selective thinning created a mixed-age stand similar in appearance to treatment 1; and treatment 3, where tiling was used in 2004 to create a checkerboard pattern of forested and non-forested patches where the non-forested patches are up to 10 acres in size.

Characteristics of vegetation that are expected to affect skipper habitat suitability will be sampled at each skipper observation site, including tree canopy cover, tree density, tree size class distribution, and percent cover of shrubs, herbaceous plants, bare ground, and wood chips. Special consideration will be paid to prairie gayfeather (*Liatris punctata*), golden aster (*Heterotheca* spp.), blue grama (*Bouteloua gracilis*), and side-oats grama (*B. curtipendula*), since these plants are known or thought to be important to skippers either as adult nectar sources or as larval host plants. Data will be collected using common stand exam (CSE) protocols that are standardized by the USFS. Patch size of micro-clearings (approximately 1 ac or less) will also be recorded.

Timeline

Sampling will occur from approximately mid-August through October 2012. Data compilation, analysis, and syntheses will occur during November 2012 – January 2013 with a final report in April of 2013.

Budget

Item	Cost
Personnel	\$1,725
Travel	\$324
F & A (22%)	\$451
TOTAL	\$2,500

The above budget will augment funding supporting current Pawnee montane skipper and Common Branded Skipper (*Hesperia comma*) population monitoring, allowing for collection of more detailed vegetation data at Pawnee montane skipper observation sites. From 2000 to 2011 funding averaging approximately \$10,000 annually has been used by the project collaborators to understand skipper population trends at control and treatment areas. Similar funding is expected for the 2012 monitoring effort.

Biographical Sketches

JOHN SOVELL: Mr. Sovell has a M.S. in Zoology from the University of Alberta and a B.S. in Fisheries and Wildlife Biology from the University of Minnesota. Mr. Sovell has been conducting monitoring of the Pawnee montane skipper in the South Platte River Valley since 2002. John

has 20 years of experience in rare animal field research, animal population biology, ecological modeling, and conservation planning. He has worked for the last 12 years with the Colorado Natural Heritage Program as a field zoologist and researcher. John has a diverse background that has included working with a number of rare vertebrate and invertebrate animals including reptiles, mammals, birds, mollusks, lepidopterans, and orthopterans among others. His diverse career has included work on nesting trumpeter swans in Alaska's Copper River Delta, studying the population dynamics of snowshoe hare populations in Canada's Yukon, and monitoring the population dynamics of Pawnee montane skipper butterflies on the Pike National Forest, South Platte Ranger District in Colorado.

MIKELE PAINTER: Ms. Painter has a M.S. in Forestry from Northern Arizona University, and a B.S. in Wildlife Biology from Colorado State University. She has been the wildlife biologist for the South Platte Ranger District since 2009, and has facilitated and assisted with Pawnee montane skipper monitoring since her arrival on the district. Prior to her current position, she was a wildlife biologist for the Kaibab National Forest in Arizona for six years, and a wildlife research specialist for the Arizona Game and Fish Department for three years. Ms. Painter's research and management experience has varied widely to include uncommon species such as the spotted bat, flat-tailed horned lizard, northern goshawk, and Mexican and California spotted owls. Habitat management and wildlife ecology have been consistent topics of interest throughout Ms. Painter's career.

LESLIE ELWOOD: Leslie Ellwood has a M.A. and B.A. in biology from the University of Colorado – Boulder. Leslie is a fish and wildlife biologist with the Colorado Field Office of Ecological Services, U.S. Fish and Wildlife Service (FWS). She has been with the FWS for 11 years and works primarily with the USFS, BLM, and NPS on section 7 consultations on a variety of federal actions, including fire management, fuels reductions and forest health projects, grazing, recreation, travel, special use permits. Her work involves a number of federally listed threatened and endangered species, including the Pawnee montane skipper, Mexican spotted owl, Canada lynx, greenback cutthroat trout, Preble's meadow jumping mouse, and lesser prairie chicken. Leslie is the lead Pawnee montane skipper biologist for the FWS and has been conducting field monitoring for this species since 2001, both for the Upper South Platte Protection and Restoration Project and for the post-Hayman Fire monitoring study. Prior to working with the FWS, Leslie worked for the private consulting firm, Dames and Moore, for 7 years, preparing NEPA documents and conducting biological field surveys.

References

Drummond, B. A. 2010. Pawnee Montane Skipper Monitoring Study for the Upper South Platte Watershed Protection and Restoration Project August 2009. Unpublished report.

Sovell, J. R. 2011. Pawnee Montane Skipper Post-Fire Assessment Survey – August/September 2010. Colorado Natural Heritage Program, Warner College of Natural Resources. Colorado State University.

Sovell, J. R. In preparation. Pawnee Montane Skipper Monitoring Study for the Upper South Platte Watershed Protection and Restoration Project August 2011. Colorado Natural Heritage Program, Warner College of Natural Resources. Colorado State University.