GUIDELINES FOR PROJECT APPLICATIONS INVOLVING AQUATIC AND TERRESTRIAL RESOURCES, AND PUBLIC RECREATION

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INTRODUCTION

These guidelines contain helpful hints to be used in preparing applications for proposed UCFRB projects that seek to improve aquatic and terrestrial resources and associated recreational services. Such projects could include restoration, replacement, or rehabilitation of upland habitat, riparian habitat, wildlife or fisheries populations, wetlands, streams, or ecological systems, or recreational services such as hunting and fishing. These guidelines are a companion to the Technical Narrative Outline provided in the UCFRB Restoration Grant Long-Form application and provide more specific direction on the type and level of information required. The NRDP developed this guidance in 2003, with consulting assistance from Maxim Technologies, Inc., to help address common inadequacies found in application for such projects in the initial years of the Restoration Grants Program.

HINTS FOR PREPARING YOUR APPLICATION

- Where data are incomplete or missing, it is important to assess the necessity of those data to determine the current condition, the causes of the current condition, and the potential for a project to achieve its objectives cost-effectively. If there are substantial data gaps, it may be more appropriate to apply for a project development grant rather than a restoration project grant.

- Many projects include more than one restoration objective. For instance, a project may propose to improve wildlife habitat, restore riparian habitat, conduct stream restoration, improve fisheries habitat and populations, and improve public recreational opportunity. Each of these objectives will need to be analyzed in the application using the outline for the technical narrative. In other words, if a project's objectives are to improve upland wildlife habitat, increase wildlife populations, and improve riparian habitat, the technical narrative outline will need to be followed for each objective.

- Though generalities are appropriate in introductions and summaries, when the guidelines ask for a description, the detailed description should include quantifiable information, where appropriate and when available. **Table 1** gives examples of adequate and inadequate descriptions of hypothetical projects. **Table 2** lists types of data that may be quantifiable.

- Describe in detail what changes are desired in the current condition and what the condition will be when the project has achieved its objectives (use qualitative as well as quantitative descriptions where possible). Provide the estimated time frame for accomplishing these objectives. Which factors contributing to the current condition will not be addressed by the proposed project, to what degree, and how could these factors affect the desired results of the project?

- Consider the magnitude of change and whether or not a project is worthwhile if it will only address a small part of the problem. Given constraints of time and money, projects will generally only be funded if they make significant improvements and are cost-effective. This applies equally to larger, watershed-scale projects and smaller stream-reach projects. For instance, a project that proposes to reduce instream sedimentation by 15%, and reduce instream organic pollutants by 10%, may not be worth pursuing, unless those reductions can be shown to be effective or meaningful (as part of a multi-phased restoration effort, for example) and the ability to measure them can be demonstrated.

- Consider alternatives. For instance, a project that proposes to improve riparian vegetation by fencing out livestock and planting riparian vegetation may be feasible, but perhaps a simple change in grazing management, or fencing alone, may achieve the same objectives for less expense. Justify your choice of alternatives. This will be considered in the cost-effectiveness criterion (see page 22).

- A monitoring program is essential. The progress of a project toward achieving its objectives, and a plan for modifying the tasks if the project is not achieving the goals, is integral to the design of an effective project.

- Each type of natural resource project may require different sets of data for adequately describing current condition and trend, causes of the current condition, and desired future condition. Suggested data that may be appropriate for each type of project are presented in **Table 2**. [Note: We are suggesting that you consider the applicability of these data to the proposed project. Not all data will be available or necessarily appropriate. For instance, a wetland habitat improvement project may have no need to consider water quality and quantity parameters, but **Table 2** suggests that you consider whether or not the indicated data are appropriate for the proposed project.] **Table 2** also includes references for useful data collection methodologies and guidance. Other references of a professional nature are acceptable for use.

- Although the NRDP does not require a complete watershed analysis for every aquatic/riparian/upland habitat proposal, we do recommend that you become familiar with the framework and methods of watershed analysis, and use them where appropriate. An excellent reference is the "Ecosystem Analysis at the Watershed Scale: Federal Guide for Watershed Analysis." Copies can be ordered from the Regional Ecosystem Office, P.O. Box 3623, Portland, OR 97208-3623. For more information on watershed analysis see "Watershed Analysis in the Federal Arena" and other articles on watershed analysis at http://watershed.org/wmc/news/fall_94/federal.html.

TABLE 1. EXAMPLES OF DETAILED DESCRIPTIONS[1]

TYPE OF PROJECT	INADEQUATE DESCRIPTION	ADEQUATE DESCRIPTION
Upland Wildlife Habitat: Current Condition	"Past studies have shown that most of the area is in poor condition."	"Jones and Johnson (1999) reported that 55% of the uplands in the project area were in poor condition, 30% in fair condition, and 15% in good condition, based on species composition and canopy coverage (NRCS 1995). See **Figure 1** for map of range condition distribution."
Aquatic Habitat: Underlying Causes of Current Condition	"High sediment loads in the stream are caused by overgrazing, timber harvest, roads, and historic mining practices."	"High sediment loads in the stream are caused by a number of factors. Though several activities occurring upstream contribute to the sediment load, including timber harvest, livestock grazing, roads, and historic mining, Johnson and Johnson (1990) calculated that at least 75% of the sediment load in the project area during high water events was caused by unstable banks, lack of riparian vegetation, and overland runoff due to overgrazing within the project area."
Upland and Riparian Habitat: Increase Wildlife Populations	"There is a lack of access on private lands in the area for hunting and fishing."	"Improved upland habitat condition will contribute to additional forage on the elk winter range within the project area. FWP considers elk winter range in this area a limiting factor, and their management goals for his herd call for an increase in population size of 15% FWP 2001). Ground-nesting birds, small mammals, and reptiles will also benefit from the additional over."

[1] These are hypothetical examples, including fictional citations.

TYPE OF PROJECT	INADEQUATE DESCRIPTION	ADEQUATE DESCRIPTION
Recreation: Current Status	"There is a lack of access on private lands in the area for hunting and fishing."	"A recent report by the Montana Department of Fish, Wildlife, and Parks (FWP 2000) stated that 'there is virtually no public recreational access on private property in Silver Bow County.' FWP management objectives are 'to increase public access on private lands so that 50% of private lands will allow some recreational hunting and fishing opportunities by 2010'."
Riparian Habitat: Objectives (DFC)	"The project will raise the Proper Functioning Condition of the stream from Functioning at Risk to Functional."	"The project will restore ½ mile of Shallow Creek riparian area to Proper Functioning Condition (BLM 1993) by increasing large woody debris instream, increasing streambank rootmass, and increasing bank stability."
Wetland Habitat: Underlying Causes of Current Conditions	"The wetland is in poor condition because of overgrazing and irrigation dewatering."	"Wetlands adjacent to streams in the area are in poor condition due to lack of hydrologic recharge caused by a lowering of the water table. Water table lowering is the result of downcutting of the streambed and upstream dewatering for irrigation (USFS 1999).
Aquatic Habitat: Current Conditions	"The stream is classified an E4 in relatively poor condition, with unstable banks and a lack of instream cover."	"The stream is classified as an E4 (Rosgen 1995). The Proper Functioning Condition classification is Functioning at Risk (BLM 1993). Elements contributing to this classification include eroding, unstable banks, a primarily silty streambed, little instream organic debris, and an incised, downcutting channel (Jones and Johnson 1990)."

TYPE OF PROJECT	INADEQUATE DESCRIPTION	ADEQUATE DESCRIPTION
Upland Wildlife Habitat: Monitoring	"Range condition and trend will be monitored annually."	"Range monitoring will consist of establishing transects and photo points to annually monitor vegetation composition and ground cover on representative sites."
Range Condition: Objectives	"Rest rotation grazing will be implemented to improve range condition and to restore vegetation."	"A four-pasture rest rotation grazing system (Hormay 1979) will be implemented to improve range condition to 'good condition' (NRCS 1996). Details, including timing and duration of grazing, desired forage utilization, etc., are described elsewhere in this application."
Fisheries and Aquatic Habitat: Objectives (DFC)	"The goal of the project is to improve the condition of the stream and to increase fish populations and recreational opportunity."	"The goal of the project is to improve fisheries habitat by accomplishing three objectives: 1) increasing the number of pools; 2) increasing future large woody debris recruitment; and 3) restoring riparian vegetation to streambanks (Bailey 1988)."

	Reference	Quantifiable	Wildlife/ Upland Habitat	Wildlife/Wetland Habitat	Riparian Habitat	Fisheries/Aquatic Habitat	Recreation
VEGETATION	* ** 12						
Vegetation composition	1,2	X	X	X	X		
Range condition and trend	1,2,3	X	X	X	X		
Weed composition, density, distribution	6	X	X	X	X		
Community types and distribution	1,2,3		X	X	X		
Canopy cover		X	X	X	X		
Successional state			X	X	X		
Recruitment		X	X	X	X		
Survival		X	X	X	X		
POPULATIONS	* ** 12						
Wildlife population status and trend, occurrence; wildlife habitat	** 4,5	X	X	X		X	
Fisheries population status and trend; fisheries habitat	** 7,8,22	X				X	
Existing management plans	*		X	X	X	X	X
Macroinvertebrate composition	9,10	X				X	
SOILS	* ** 11,12						
Soil type and thickness		X	X	X	X		
Capillarity and infiltration characteristics		X		X	X		
Seasonal soil/water areas				X	X		
Slope and aspect			X				
WATER QUALITY AND QUANTITY	12,13, 14,22						
Temperature		X		X		X	
Salinity		X		X		X	
PH		X		X		X	
Dissolved oxygen		X		X		X	
Sediment/turbidity		X		X		X	
Trace metals		X				X	
Point/nonpoint discharges				X		X	
TMDLs		X				X	
Depth of Groundwater		X		X	X		

	Reference	Quantifiable	Wildlife/ Upland Habitat	Wildlife/Wetland Habitat	Riparian Habitat	Fisheries/Aquatic Habitat	Recreation
Nutrients		X		X		X	
Streamflows		X				X	
Water Rights			X	X	X	X	
HYDROGEOMORPHIC	7,12,15, 16,17, 21,22,						
Rosgen classification	15,16				X	X	
Sinuosity		X				X	
Gradient		X				X	
Bed elevation		X				X	
Bankfull width and depth		X				X	
Width/depth ratio		X				X	
Bankfull discharge		X				X	
Floodplain width		X				X	
Groundwater discharge/recharge		X		X		X	
Basin area drainage		X		X		X	
Bank stability						X	
Bed stability	20					X	
Embeddedness		X				X	
Proper functioning condition and trend	18,19				X		
Migration barriers						X	
RECREATION	* **						
Current status, location, methods of access							X
Agency access goals							X
Public/private access							X
Need for access							X
Project location map			X	X	X	X	X
Map/distribution of upland habitat, range condition, vegetation composition			X				
Map/distribution of important seasonal wildlife ranges			X				
Map/Proper functioning condition classifications	18,19				X	X	

*Existing management plans and objectives of federal and state agencies having jurisdiction or interest in the project area.

**Existing agency data (USFS, BLM, USFWS, NRCS, MFWP). Contact federal district offices, MFWP Regional offices.

1 NRCS range management guidelines.

2 USFS. 1996. Rangeland Analysis and Management Training Guide. USDA Forest Service, Rocky Mountain Region. Denver, CO.

3 BLM/USFS. 1997. Riparian Area Management: Grazing management for riparian/wetland areas. TR 1737-14 1997. USDI Bureau of Land Management. Denver, CO.

4 NRCS Upland Wildlife Habitat Management guidelines. 2000. NRCS Montana, Code 645.

5 Montana Natural Heritage Program, Helena, MT.

6 County and agency weed management plans.

7 Overton, C.K., S.P. Wollrab, B.C. Roberts, and M.A. Radko. 1997. R1/R4 (Northern/Intermountain Regions) Fish and Fish Habitat Standard Inventory Procedures Handbook. Gen. Tech. Rep. INT-GTR-346. USDA Forest Service Intermountain Research Station. Ogden, UT.

8 USFS. 1994. Underwater methods for study of salmonids in the Intermountain West. Gen. Tech. Rep. INT-GTR-307. USDA Forest Service, Intermountain Research Station, Ogden, UT.

9 EPA. Undated. Rapid Bioassessmet Protocol for Use in Streams and Wadeable Rivers. http://www.epa.gov/owow/monitoring/rbp/

10 Rosenberg, D.M., I.J. Davies, D.G. Cobb, and A.P. Weins. 1997. Protocols for Monitoring Biodiversity: Benthic Macroinvertebrates in Fresh Waters. Fisheries and Oceans, Cana. http://www.cciw.ca/nwri-e.html

11 NRCS county soil surveys.

12 Regional Ecosystem Office. 1995. Ecosystem analysis at the watershed scale: Federal guide for watershed analysis. Sections 1 and 2. Vers. 2.2. Portland, OR.

13 USGS Annual water resource data reports; NRIS internet; MBGB reports and internet; MDEQ files and internet; MDNRC files and internet.

14 EPA. 1993. Monitoring Protocols to Evaluate Water Quality Effects of Grazing Management on Western Lands. EPA 910/R-93-017. Environmental Protection Agency. Region 10, Seattle, WA.

15 Rosgen, D. 1996. Applied River Morphology. Wildland Hydrology, Pagosa Springs, CO.

16 Rosgen, D. and Silvey. 1998. Field Guide to Stream Classification. Wildland Hydrology, Pagosa Springs, CO.

17 Harrelson, C.C., C.L. Rawlins, and J.P. Potyondy. 1994. Stream channel reference sites: an illustrated guide to field technique. Gen. Tech. Rep. RM-245. USDA Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO.

18 BLM. 1995 Riparian area management: Process for assessing proper functioning condition. Revised. Bureau of Land Management, Denver. Tech. Ref. 1737-9 1993.

19 BLM/NRCS. 1999. Riparian Area Management: Using aerial photographs to assess proper functioning condition of riparian-wetland areas. TR 1737-12 1996 (Revised 1999). USDI Bureau of Land Management, Denver, CO.

20 Wolman, M.G. 1954. A method of sampling coarse riverbed material. Transactions of the American Geophysical Union. 35(6): 951-956.

21 Pfankuch, D.J. 1975. Stream reach inventory and channel stability evaluation. USDA Forest Service, R-1-75-002. Government Printing Office #696-260/200. Washington, D.C.

22 Montana Rivers Information System (MRIS), Montana State Library, Helena. Also see http://nris.mt.gov/wis/mris1.html.