THE COLORADO BASIN ROUNDTABLE
C/O P.O. BOX 1120
GLENWOOD SPRINGS, COLORADO
81602

July 26, 2012

Greg Johnson
COLORADO WATER CONSERVATION BOARD
1580 Logan Street, Suite 600
Denver, CO 80203

Dear Greg:

The Colorado Basin Roundtable voted at its July 23, 2012, meeting to approve six grant requests and forward them to the CWCB staff and board for consideration.

Five of the grants address the Roundtable initiative to implement short-term projects and methods to address nonconsumptive needs. Earlier this year, the CBRT set up a workshop to recruit interest in nonconsumptive projects. Five applications emerged for Water Supply Reserve Account potential funding. They are:

- **Grand County RICD Project.** The vote was 18-0 in favor with two abstentions. The abstentions related to conflicts of interest. The request is for $100,000 in Basin Funds and $400,000 in Statewide Funds. The CBRT believes this project on the Colorado River will solidify the recreational values enjoyed at the Pumphouse segment of the Colorado River, a benefit to the Basin and all of Colorado. Our funding would be directed at in-river work.

- **Grand Valley Riparian Restoration Collaborative Project/Tamarisk Coalition.** The vote was 20-0. The request is for $42,726 in Basin Funds and $207,274 in Statewide Funds. Funding would assist in tamarisk and Russian olive removal as well as work on invasive weeds. Money would also be directed at revegetation. Phreatophyte control is a local and statewide priority in water management and in restoring environmental integrity in important riparian zones.

- **Tenmile Creek Restoration Project/Blue River Watershed Group**. The vote was 19-1 in favor. The dissent questioned a "clear need" for the project. The request is $17,500 in Basin Funds and $332,500 in Statewide Funds. The targeted work on the creek will occur in the vicinity of the Copper Mountain Ski Area, a segment impacted over the decades by mining, timbering, ski area development, railroad and highway construction. The beauty of this project is that it is shovel-

ready and this money, along with cash and in-kind services, allows it to proceed to completion.

- **Colorado River Restoration and Conservation Projects/Eagle River Watershed Council.** The vote was 19-1 in favor. Dissent cited the fact that while this paves the way for projects, it is still a study. The request is for $20,000 in Basin Funds and $90,000 in Statewide Funds. This initiative seeks to create baseline information about a stretch of the Colorado River that has been little studied. It will prioritize strategies regarding rehabilitation projects and assess recreational impacts with an eye toward directing recreation to the most suitable sites on the river.

- **Crystal River Watershed Assessment and Design of Restoration Projects/Roaring Fork Conservancy.** The vote was 20-0 in favor. The request is for $15,854 in Basin Funds and $301,219 in Statewide Funds. This is a proposal to study a heavily impacted area of historical coal mining in drainage of the Crystal River. It will lead to projects, and includes a pilot project on road restoration.

As well, we approved one grant request addressed at consumptive uses. **The Robinson Ditch Company** that serves the Basalt-El Jebel area in the Roaring Fork Valley is seeking assistance for ditch piping. The request from the CBRT is for $60,000 from Basin Funds. The vote was 19-1. Please note that the application asks for $120,000. The dissent cited the lack of a revegetation plan, a need to engage the neighbors, impacts to wells and the fact that no ag was involved in this ditch that has seen uses migrate to urban uses. In halving the request, the applicants were also encouraged to apply for a low-interest CWCB loan to complete the work. The CBRT agreed overall that there are many benefits to piping this ditch that include safety to neighbors and the more efficient movement of water that enjoys about half its flow under pre-Colorado Compact water rights.

Sincerely yours,

Jim Pokrandt
Chair, Colorado Basin Roundtable

Attachment: CFWE grant applications

COLORADO WATER CONSERVATION BOARD

WATER SUPPLY RESERVE ACCOUNT APPLICATION FORM

CRYSTAL RIVER WATERSHED – ASSESSMENT AND DESIGN OF RESTORATION PROJECTS

Name of Water Activity/Project

ROARING FORK CONSERVANCY

Name of Applicant

COLORADO BASIN ROUNDTABLE

Approving Basin Roundtable(s)
(If multiple basins specify amounts in parentheses.)

Amount from Statewide Account: $ 301,219

Amount from Basin Account(s): $ 15,854

Total WSRA Funds Requested: $ 317,073

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Water Supply Reserve Account – Application Form
Revised December 2011

Part I. - Description of the Applicant (Project Sponsor or Owner);

1.	Applicant Name(s):	Roaring Fork Conservancy		
	Mailing address:	P.O. Box 3349, Basalt, Colorado 81621		
	Taxpayer ID#:	IRS #84-1375379		
	Primary Contact:	Sharon Clarke	Position/Title:	Land & Water Con. Specialist
	Email:	sharon@roaringfork.org		
	Phone Numbers:	Cell: 970.319.0994	Office:	970.927.1290
	Alternate Contact:	Rick Lofaro	Position/Title:	Executive Director
	Email:	rick@roaringfork.org		
	Phone Numbers:	Cell: 970.379.9844	Office:	970.927.1290

2. Eligible entities for WSRA funds include the following. What type of entity is the Applicant?

	Public (Government) – municipalities, enterprises, counties, and State of Colorado agencies. Federal agencies are encouraged to work with local entities and the local entity should be the grant recipient. Federal agencies are eligible, but only if they can make a compelling case for why a local partner cannot be the grant recipient.
	Public (Districts) – authorities, Title 32/special districts, (conservancy, conservation, and irrigation districts), and water activity enterprises.
X	Private Incorporated – mutual ditch companies, homeowners associations, corporations.
	Private individuals, partnerships, and sole proprietors are eligible for funding from the Basin Accounts but not for funding from the Statewide Account.
	Non-governmental organizations – broadly defined as any organization that is not part of the government.

3. Provide a brief description of your organization.

Founded in 1996, Roaring Fork Conservancy (RFC) is the premier watershed conservation organization in the Roaring Fork Valley and has become one of the most respected watershed conservation organizations in Colorado. It is an organization with the demonstrated ability to build consensus on complex water issues by bridging the gaps between hard science, local and regional land use and energy policies, recreational interests, the requirements of a rural agricultural community, and the varied interests of both full and part-time residents in the Valley. RFC's ongoing activities and recent accomplishments include:

- Spearheading development of the multi-jurisdictional *Roaring Fork Watershed Plan* and the *State of the Roaring Fork Watershed Report 2008* and serving as lead consultant on both projects;
- Organizing and facilitating the two-day *Coal Basin & Crystal River Area Restoration Workshop* that brought nearly 50 resource experts together to develop a strategy for completion of critical restoration work in Coal Basin and the Coal Creek/Crystal River confluence area. The workshop brought hydrologists, soils scientists, geomorphologists, fish biologists, water quality analysts, plant ecologists and other technical experts together with highway engineers, mining reclamation experts, recreational planners, and other key stakeholders from multiple federal, state and local government entities, as well as local nonprofits and private interests. At the conclusion of the workshop, RFC was selected to coordinate the site assessments, restoration projects, and funding for this long-term, comprehensive restoration initiative.
- Completing 17 scientific studies on water resource issues in the watershed;
- Bringing county and municipal planners from multiple jurisdictions together to address land use issues affecting groundwater and surface waters;
- Regularly informing elected officials and other regional decision makers on complex watershed issues, and helping citizens address their concerns about rivers, streams and groundwater;
- Reaching 45,700 students and 17,500 adults with hands-on, in-the-field education programs;
- Protecting 280 acres of riparian habitat *forever*; and
- Maintaining a user-friendly website and Facebook page, and issuing regular newsletters with information on critical and noteworthy watershed issues.

RFC has been an active participant in the Colorado Basin Roundtable's (CBRT) Nonconsumptive Needs Assessment (NCNA) Subcommittee's work over the last few years and provided much of the information used to build the NCNA Matrix for the Roaring Fork Watershed.

RFC regularly works with 8 staff members, 2 interns and 3 associates, as well as a strong network of partners and volunteers to fulfill its mission: *To inspire people to explore, value and protect the Roaring Fork Watershed.* Its partners include local, regional, state and federal governments, private interests, universities and individuals.

RFC is a Colorado nonprofit corporation in good standing with §501(c)(3) status. A copy of its Articles of Incorporation and By-laws are attached as Appendices 2 and 3. It has an Operating Budget of nearly $700,000 for 2012 (*see* Appendix 4).

4. If the Contracting Entity is different then the Applicant (Project Sponsor or Owner) please describe the Contracting Entity here. N/A.

5. Successful applicants will have to execute a contract with the CWCB prior to beginning work on the portion of the project funded by the WSRA grant. In order to expedite the contracting process the CWCB has established a standard contract with provisions the applicant must adhere to. A link to this standard contract is included in Appendix 3. Please review this contract and check the appropriate box.

   [X] The Applicant will be able to contract with the CWCB using the Standard Contract

   [ ] The Applicant has reviewed the standard contract and has some questions/issues/concerns. Please be aware that any deviation from the standard contract could result in a significant delay between grant approval and the funds being available.

6. The Tax Payer Bill of Rights (TABOR) may limit the amount of grant money an entity can receive. Please describe any relevant TABOR issues that may affect the applicant. None.

Part II. - Description of the Water Activity/Project

1. What is the primary purpose of this grant application? (Please check only one)

x	Nonconsumptive (Environmental or Recreational)
	Agricultural
	Municipal/Industrial
	Needs Assessment
	Education
	Other Explain:

2. If you feel this project addresses multiple purposes please explain.

Education: This project implements a number of specific recommendations made in the *Roaring Fork Watershed Plan*. The project will provide a highly-visible example of how a comprehensive "watershed approach" can successfully address complex non-consumptive stream flow issues, and will provide a very valuable "kick-start" for implementation of other *Roaring Fork Watershed Plan* recommendations targeted at meeting the Colorado Basin's consumptive and non-consumptive needs.

Education/Economic Benefits/Greenhouse Gas Reduction: The project's road reclamation work in Coal Basin will yield important information on the efficacy and utility of biochar (which can be produced from beetle-killed timber) as a soil amendment. Results from this prototype project will be presented in peer-reviewed publications and academic presentations. This is particularly significant, given the growing interest in biochar as a multipurpose reclamation material and the widespread call for long-term field studies.

A successful pilot project may also have economic implications - indicating the need for increased and local biochar production capabilities to make landscape-scale applications feasible.

The project will also provide the ancillary benefit of carbon sequestration (approximately 4 tons of biomass makes 1 ton of biochar + energy and approx. 1 ton of biochar = 3.67 tons of CO_2).

Enhanced Public Safety: The elimination of Coal Creek's historical alluvial fan at the confluence with the Crystal River not only degrades the Crystal River, it increases flood risk in the Town of Redstone. This project will provide information essential for designing ways to reduce the risk of this flooding.

3. Is this project primarily a study or implementation of a water activity/project? (Please check only one)

x	Study		Implementation

4. To catalog measurable results achieved with WSRA funds can you provide any of the following numbers?

	New Storage Created (acre-feet)
	New Annual Water Supplies Developed, Consumptive or Nonconsumptive (acre-feet)
	Existing Storage Preserved or Enhanced (acre-feet)
	Length of Stream Restored or Protected (linear feet)
	Length of Pipe/Canal Built or Improved (linear feet)
	Efficiency Savings (acre-feet/year OR dollars/year – circle one)
10.88	Area of Restored or Preserved Habitat (acres)
	Other -- Explain:

5. To help us map WSRA projects please include a map (Exhibit B) and provide the general coordinates below:

Latitude: 39° 10.960' N Longitude: 107° 14.340' W

6. Please provide an overview/summary of the proposed water activity (no more than one page). Include a description of the overall water activity and specifically what the WSRA funding will be used for. A full Statement of Work with a detailed budget and schedule is required as Exhibit A of this application.

Fifty years of large-scale coal mining occurred in Coal Basin, a watershed characterized by naturally steep, unstable and eroding slopes. Erosion from partially-reclaimed mining areas, as well as sedimentation from naturally-occurring soil erosion and debris flows, are degrading water quality and stream habitat in Coal Basin and contributing to sedimentation issues in the Crystal River. Additionally, the Coal Creek Road corridor frequently impinges upon extremely active tributaries to Coal Creek, causing stream bank instability and resultant sedimentation that also impacts the Crystal River. Although the Colorado Division of Reclamation, Mining & Safety (CDRMS) completed a series of restoration projects in Coal Basin from 1994-2004, *nearly 650 acres of disturbed area directly connected to the Coal Creek stream system remains*.

A two-day *Coal Basin & Crystal River Area Restoration Workshop*, organized by RFC in partnership with the U.S. Forest Service (USFS), was held earlier this year. The workshop gathered nearly 50 resource experts and stakeholders together to analyze "what-we-know," to review "what-we've-learned" from prior CDRMS mining activity restoration efforts, and to develop a strategy for continuing critical restoration work in Coal Basin, and to identify opportunities for improving the downstream confluence area where Coal Creek enters the Crystal River (the Coal Creek/Crystal River confluence area). *This project is the first major step in implementing the strategies developed by the workshop participants.*

WSRA funding is being sought to engage private consultants and a USFS-Rocky Mountain Research Station research geomorphologist to work on high-level, sub-watershed and site-specific land use and geomorphic assessments (Tasks #1 and #2) to provide the data necessary to design a comprehensive restoration plan for Coal Basin, the Coal Creek road corridor, and the highly-altered Coal Creek/Crystal River confluence area. The restoration plan will include the design and prioritization of site- and process-specific projects to achieve multiple non-consumptive objectives: (1) attenuate the Crystal River hydrograph (to improve the connection of the channel to the floodplain by reducing channel downcutting and recovering geomorphic function), (2) contribute to the restoration of floodplain function at the Coal Creek/Crystal River confluence area (improving geomorphic function and riparian/wetlands ecological function), (3) improve overall riparian and instream habitat (enhancing aquatic ecological function), and (4) reduce sediment and total iron delivery to the Crystal River from Coal Creek (improving water quality). This part of the project will use the *Watershed Assessment of River Stability and Sediment Supply (WARSSS)* as a guide, and be similar to work performed in the Horse Creek Watershed after the Hayman Fire (*see* http://www.uppersouthplatte.org/pdf/Horse%20Creek%20Watershed%20RLA%20and%20RRISSC%20Report.pdf).

WSRA funding will also be used to cover the cost of equipment and the labor costs associated with installing a permanent stream gage and companion meteorological station in Coal Basin to collect basic hydrologic/meteorologic information. One year of operation and maintenance (O&M) costs for the stream gage, suspended sediment sample processing and sampler maintenance, as well as coarse sample processing will also be covered by WSRA funds. (Task #3)

In Task #4 of the project, RFC will be collecting, analyzing and reporting water quality and macroinvertebrate data in Coal Basin and the Crystal River. These efforts are necessary to support the design of site- and process-specific mitigation measures, and to determine the effectiveness of restoration efforts in the Coal Creek watershed. WSRA funds primarily will be used to cover a portion of the costs associated with macroinvertebrate analysis and water quality data analysis and interpretation.

RFC will be completing a 10.88 decommissioned mining road reclamation effort in Coal Basin (Task #5). The reclamation project will use biochar mixed with compost applied to constructed alluvial fans in some areas. The upper portion of the old mining haul road at the project site will be reclaimed by recontouring the land surface to restore a more natural drainage pattern, applying compost. Erosion control materials (waddles, silt fencing, logs, and geotextile fabric) will be used on some of the fill slopes and treated with compost tea. Reclaimed areas will be revegetated with native grasses and trees, and fenced to prevent cattle grazing. WSRA funding is being sought to cover the cost of fencing, labor and materials costs associated with tree planting, some of the heavy equipment costs, and some of the personnel costs for a biogeochemist to monitor and report on soil conditions.

RFC was selected by participants in the *Coal Basin & Crystal River Area Restoration Workshop* to coordinate future restoration efforts for Coal Basin and the Coal Creek/Crystal River confluence area, including this project. WSRA funding will help cover RFC's costs for coordinating and overseeing implementation of this project, as well as its ongoing education and outreach efforts related to this project.

Part III. – Threshold and Evaluation Criteria

1. Describe how the water activity meets these **Threshold Criteria.** (Detailed in Part 3 of the Water Supply Reserve Account Criteria and Guidelines.)

   a) The water activity is consistent with Section 37-75-102 Colorado Revised Statutes.

   The project is consistent with CRS §37-75-102. It will not involve the State's water rights adjudication system, will not in any way restrict or otherwise affect the use or disposal of any water right, and will not affect any property, contractual, or similar right related to the allocation or use of water.

   b) The water activity underwent an evaluation and approval process and was approved by the Basin Roundtable (BRT) and the application includes a description of the results of the BRTs evaluation and approval of the activity. At a minimum, the description must include the level of agreement reached by the roundtable, including any minority opinion(s) if there was not general agreement for the activity. The description must also include reasons why general agreement was not reached (if it was not), including who opposed the activity and why they opposed it. Note- If this information is included in the letter from the roundtable chair simply reference that letter.

   Please see the attached letter from the Colorado Basin Roundtable Chair for this information (Exhibit C).

   c) The water activity meets the provisions of Section 37-75-104(2), Colorado Revised Statutes. The Basin Roundtable Chairs shall include in their approval letters for particular WSRA grant applications a description of how the water activity will assist in meeting the water supply needs identified in the basin roundtable's consumptive and/or non-consumptive needs assessments.

   The CBRT developed a map and associated NCNA Matrix that identified stream segments with "environmental and recreational features at risk". The important environmental and recreational features selected by the Colorado Basin's representatives were: (1) water quality, (2) geomorphic function, (3) aquatic ecological function, (4) riparian/wetland ecological function, and (5) recreational boating. Stream segments with features at risk were those that had important environmental and/or recreational features that were in some way threatened.

   The Crystal River, from Thompson Creek to the confluence with the Roaring Fork River, has been identified in the CBRT's NCNA Matrix (at #52) as a stream reach "of special concern" with all four of the following functional attributes at risk: (1) water quality, (2) geomorphic function, (3) aquatic ecological function, and (4) riparian/wetland ecological function. Natural and anthropogenic conditions in the upper Crystal River Watershed (which includes Coal Basin) are major contributors to these issues, and the *Crystal River Watershed – Assessment and Design of Restoration Projects* effort has been designed to address all four of the attributes at risk.

   The restoration plan developed as part of this initiative will include the design and prioritization of site- and process-specific projects to achieve multiple non-consumptive objectives: (1) attenuate the Crystal River hydrograph (to improve the connection of the channel to the floodplain by reducing channel downcutting and recovering geomorphic function), (2) contribute to the restoration of floodplain function at the Coal Creek/Crystal River confluence area (improving geomorphic function and

riparian/wetlands ecological function), (3) improve overall riparian and instream habitat (enhancing aquatic ecological function), and (4) reduce sediment and total iron delivery to the Crystal River from Coal Creek (improving water quality).

The nearly 11-acre decommissioned mining road reclamation effort included in this project (Task #5) will improve water quality and riparian and instream habitat in Coal Creek and the Crystal River by rehabilitating a portion of the highest sediment-producing, mining-related disturbed areas in Coal Basin. This effort will also contribute to improvement of the fisheries in the Crystal River, as a result of higher water quality and improved riparian and instream habitat.

(Additionally, please see the attached letter from the Colorado Basin Roundtable Chair (Exhibit C)).

d) Matching Requirement: Please describe the source(s) of matching funds.

As demonstrated by the chart below, the matching requirement has been met (dollars have been rounded-off; please refer to the spreadsheet in Appendix E for budget details):

Task #		Total Cost	Basin Request	State Request	Match (In-kind and Cash)
1.	Conduct a High-Level Crystal River Watershed Land Use and Geomorphic Assessment	$ 18,750	$ 939	$ 17,812	$ 0
2.	Conduct a Targeted Land Use and Geomorphic Assessment of Coal Basin	$ 210,000	$ 10,500	$ 199,500	$ 0
3.	Collect Stream Flow and Meteorologic Data, and Conduct Sediment Sampling in Coal Basin	$ 35,740	$ 1,235	$ 23,465	$ 11,040
4.	Conduct Water Quality and Macroinvertebrate Sampling in Coal Basin and the Crystal River	$ 36,789	$ 596	$ 11,323	$ 24,870
5.	Conduct a Road Reclamation Pilot Project in Coal Basin	$ 161,716	$ 1,220	$ 23,175	$ 137,321
6.	Manage Project; Education & Outreach	$ 49,039	$ 1,365	$ 25,944	$ 21,730
	Totals:	$512,034	$15,854	$301,219	$ 194,961

A substantial amount of funding is being provided "in-kind" by the U.S. Forest Service (USFS) and others:

- $73,236 of in-kind services and equipment will be provided by the USFS - White River National Forest and USFS-Rocky Mountain Research Station. The following types of USFS resource experts will be available to participate in this project: hydrologists, fish biologists, geomorphologists, soil scientists, botanists and ecologists.
- RFC will be providing $9,344 of in-kind services related to the water quality monitoring activities included in Task #4.

The following cash grants have been received by RFC and are being applied to the project:

- RFC has received a Watershed Restoration cash grant in the amount of $39,579 from the CWCB which is being applied toward Tasks #5 ($32,649) and #6 ($6,930) in this project.
- A $13,227 cash grant from the Pitkin County Healthy Rivers & Streams Citizens Advisory Board for the Coal Basin project is being applied to cover equipment and materials costs associated with the Task #5 road reclamation effort. An additional cash grant of $9,686 is being used to cover costs associated with the water quality data analysis and interpretation work to be conducted by Colorado Mesa University

(part of Task #4). The Pitkin County Healthy Rivers & Streams Citizens Advisory Board previously provided $12,000 to cover additional costs directly related to this project, including costs associated with the *Coal Basin & Crystal River Area Restoration Workshop*, preparation of the *Coal Basin & Crystal River Area Restoration Workshop* report, as well as education and outreach efforts previously conducted by RFC (such as the Coal Basin public tour conducted by the RFC on June 22, 2012).

Thus, RFC has a total of $147,386 in cash and in-kind services already committed to the project. This is more than sufficient to meet the 20% match requirement for the $317,073 being sought from the WSRA.

RFC has the following additional funding requests pending for portions of this project:

- Conservation Alliance Grant - If approved, $29,250 of the $32,050 in requested funding would be allocated to Task #5 and $2,800 allocated to Task #6. Funding would be available in October, 2012.
- Colorado Healthy Rivers Fund - if approved, $5,840 from the award will be used to cover costs associated with macroinvertebrate collection, analysis and reporting (part of Task #4). Funding would be available in October, 2012.

While these amounts have been included in the matching funds shown in the table above, they are not required to meet the 20% match requirement for WSRA funding

2. For Applications that include a request for funds from the Statewide Account, describe how the water activity/project meets all applicable Evaluation Criteria. (Detailed in Part 3 of the Water Supply Reserve Account Criteria and Guidelines and repeated below.) Projects will be assessed on how well they meet the Evaluation Criteria. Please attach additional pages as necessary.

Evaluation Criteria

Tier 1: Promoting Collaboration/Cooperation and Meeting Water Management Goals and Identified Water Needs

a. The water activity addresses multiple needs or issues, including consumptive and/or non-consumptive needs, or the needs and issues of multiple interests or multiple basins.

The Crystal River Watershed provides essential habitat for fish and wildlife and delights fisherman, kayakers and sightseers from around the world. The river system is home to cutthroat trout, Bald Eagles, Lewis's Woodpeckers, and rare plant species. Because of these unique values, the USFS has found the Crystal River eligible for federal Wild and Scenic River designation. Additionally, the free-flowing Crystal River was just named as one of *America's Most Endangered Rivers* by American Rivers. The *Crystal River Watershed – Assessment and Design of Restoration Projects* effort is timely. The project will ultimately enhance environmental and recreational non-consumptive needs that are now receiving national, if not international, attention.

As discussed above, the project addresses non-consumptive needs in the Crystal River specifically identified by the CBRT: (1) water quality, (2) geomorphic function, (3) aquatic ecological function, and (4) riparian/wetland ecological function. The restoration plan developed as part of this initiative will include the design and prioritization of site- and process-specific projects that will: (1) attenuate the

Crystal River hydrograph (to improve the connection of the channel to the floodplain by reducing channel downcutting and recovering geomorphic function), (2) contribute to the restoration of floodplain function at the Coal Creek/Crystal River confluence area (improving geomorphic function and riparian/wetlands ecological function), (3) improve overall riparian and instream habitat (enhancing aquatic ecological function), and (4) reduce sediment and total iron delivery to the Crystal River from Coal Creek (improving water quality).

The nearly 11-acre decommissioned mining road reclamation effort included in this project (Task #5) will improve water quality and riparian and instream habitat in Coal Creek and the Crystal River by rehabilitating a portion of the highest sediment-producing, mining-related disturbed areas in Coal Basin, as identified by the USFS. This effort will also contribute to improvement of the fisheries in the Crystal River, as a result of higher water quality and improved riparian and instream habitat.

The project also addresses the issues of multiple stakeholders – not just those who are interested in enhancing traditional environmental/recreational non-consumptive opportunities. The series of land use and geomorphic assessments, and information obtained from the new stream gage/climate station and from sediment sampling will:

i. Provide information that can be used for specific projects designed to address flooding issues in the historic Town of Redstone; and
ii. Provide data that can be used by entities such as Pitkin County (for its Open Space & Trails' Elk Park project and Public Works projects) and the Colorado Department of Transportation (CDOT) (for future bridge replacements) in the Coal Creek/Crystal River confluence area.

The road reclamation effort in Coal Basin (Task #5) will also yield important information on the efficacy and utility of biochar (which can be produced from beetle-killed timber) as a soil amendment. This is particularly significant, given the growing interest in biochar as a multipurpose reclamation material and the need for long-term field studies. This part of the project may also have economic implications - indicating the need for increased and local biochar production capabilities in Colorado to make landscape-scale applications feasible. The use of biochar for road reclamation will also provide the ancillary benefit of carbon sequestration – addressing an issue of importance for the entire planet.

b. The number and types of entities represented in the application and the degree to which the activity will promote cooperation and collaboration among traditional consumptive water interests and/or non-consumptive interests, and if applicable, the degree to which the water activity is effective in addressing intrabasin or interbasin needs or issues.

As described in the Statement of Work (*see* Exhibit A), the project's series of tasks will draw upon the expertise of both private and governmental entities. Additionally, many more entities (including but not limited to Pitkin County, the Town of Redstone, Crystal Valley Environmental Protection Association (CVEPA), Crystal River Caucus, Redstone Community Association, CDOT, CDRMS, Colorado Division of Parks and Wildlife (CDPW), U.S. Army Corps of Engineers, Coal Creek Cattlemen's Association, and several private landowners need to be directly involved with, or cooperate on the overall project. These entities include parties with traditional consumptive water interests (e.g., the Town of Redstone), and parties with non-consumptive interests (e.g., CVEPA). Many of the aforementioned parties participated in the *Coal Basin & Crystal River Area Restoration Workshop* that initiated this

project. Many of these entities are also part of the Working Group that has been formed to support RFC in this and other Coal Basin & Coal Creek/Crystal River confluence area restoration efforts (*see* Tier 3(i) discussion below).

This project will play a significant role in addressing intrabasin non-consumptive needs in the Crystal River Watershed.

Coal Creek drains a nearly 27-square mile watershed. Fifty years of large-scale coal mining in this watershed, which is characterized by extremely unstable, steep slopes, has resulted in widespread erosion, mass-wasting and debris flows in Coal Basin that are not only degrading water quality and damaging instream and riparian habitat, but also contributing to sedimentation issues downstream in the Crystal River. *See* Exhibit D, Figure 1. CDRMS completed a series of restoration/reclamation projects in Coal Basin from 1994-2004. However, *nearly 650 acres of disturbed area directly connected to the stream system remain*. *See* Exhibit D, Figure 2.

The narrow Crystal River Valley has few large floodplains, and while they all have some degree of alteration reducing their function, the floodplain for Coal Creek and the Crystal River by the Town of Redstone is the most altered. *See* Exhibit D, Figure 3. Historically, Coal Creek and the Crystal River comingled during high spring flows, and Coal Creek had multiple connections to the Crystal River for a mile-long stretch during low flows. What was once a complex riverine system has been channelized and straightened, its wetlands drained and filled.

Floodplains are "alluvial hot spots" because they provide food, refuge and habitat for both terrestrial and aquatic organisms. Their scarcity in a steep mountain valley, such as the Crystal River Watershed, increases their biological significance. While returning the Coal Creek/Crystal River confluence area to a pristine, natural condition is not possible, it is possible to achieve dramatic improvements in the functionality of the floodplain and all of its associated benefits.

The *Crystal River Watershed – Assessment and Design of Restoration Projects* effort will provide the information needed to design and prioritize a series of site- and process-specific mitigation projects to: (a) attenuate the Crystal River hydrograph, (b) contribute to the restoration of floodplain function at the Coal Creek/Crystal River confluence area, (c) improve overall riparian and instream habitat in Coal Basin and the Crystal River, and (d) reduce sediment and total iron delivery to the Crystal River from Coal Creek. The nearly 11-acre decommissioned mining road restoration project included in this effort will improve water quality and riparian and instream habitat in Coal Creek and the Crystal River by rehabilitating a portion of the highest sediment-producing, mining-related disturbed areas in Coal Basin. It will also set the stage for implementation of the larger group of site- and process-specific restoration projects.

c. The water activity helps implement projects and processes identified as helping meet Colorado's future water needs, and/or addresses the gap areas between available water supply and future need as identified in SWSI or a roundtable's basin-wide water needs assessment.

The SWSI 2010 report recognized that protection and enhancement of environmental and recreational values in Colorado's high country is important for both local and statewide economies. The free-flowing Crystal River, the largest tributary to the Roaring Fork River, possesses important

environmental/recreational values. As previously noted, the Crystal River Watershed provides essential habitat for fish and wildlife and delights fisherman, kayakers and sightseers from around the world. The river system is home to cutthroat trout, Bald Eagles, Lewis's Woodpeckers, and rare plant species. This project will ultimately preserve and enhance these non-consumptive environmental/recreational values by providing information needed to design a series of cost-effective site- and process-specific mitigation projects to reduce sediment-loading to Coal Creek and, ultimately, the Crystal River, and by implementing an initial reclamation effort on some of the highest sediment-producing, mining-related disturbed areas in Coal Basin. These projects will: (1) attenuate the Crystal River hydrograph (to improve the connection of the channel to the floodplain by reducing channel downcutting and recovering geomorphic function), (2) contribute to the restoration of floodplain function at the Coal Creek/Crystal River confluence area (improving geomorphic function and riparian/wetlands ecological function), (3) improve overall riparian and instream habitat (enhancing aquatic ecological function), and (4) reduce sediment and total iron delivery to the Crystal River from Coal Creek (improving water quality).

Tier 2: Facilitating Water Activity Implementation

d. Funding from this Account will reduce the uncertainty that the water activity will be implemented. For this criterion the applicant should discuss how receiving funding from the Account will make a significant difference in the implementation of the water activity (i.e., how will receiving funding enable the water activity to move forward or the inability obtaining funding elsewhere).

WSRA funding is critical to this restoration effort. It will be particularly difficult, if not impossible, to secure funding for the land use and geomorphic assessments (Tasks #1 and #2) necessary to move the larger restoration effort forward. Most grantors are only interested in funding "boots-on-the-ground," "shovel-ready" projects, and will not fund the projects' planning and design.

Without a better understanding of upstream processes and disturbances (natural and mining- and road-related) and expected sediment loads, site-specific projects in the Coal Creek watershed will be hard to identify and prioritize, and virtually any project planned and designed for the Coal Creek/Crystal River confluence area risks failure without benefit of this information. Having technically sound, well-vetted, "shovel-ready" projects already planned and designed – as a result of WSRA funding for Tasks #1-#5 - will allow RFC and its partners to quickly seize additional funding and partnership opportunities for specific restoration projects in the future.

As noted above, RFC has already secured some funds specifically targeted for implementation of the road reclamation project (Task #5), however much more funding is needed. The relatively small amount of funding RFC is requesting in this application ($24,395) will not only contribute to the actual on-the-ground effort, it will be available as "matching funds" to help RFC and its partners secure additional grants in the future.

e. The amount of matching funds provided by the applicant via direct contributions, demonstrable in-kind contributions, and/or other sources demonstrates a significant & appropriate commitment to the project.

RFC will be providing $9,344 of in-kind services related to the water quality monitoring activities included in the project. This is a significant contribution for a nonprofit entity. Additionally, thousands

of dollars in cash and in-kind services and equipment are being contributed to this project by RFC's partners and other stakeholders:

- $73,236 of in-kind services and equipment will be provided by the USFS - White River National Forest and USFS-Rocky Mountain Research Station. Multiple USFS resource experts will be engaged in this project, including hydrologists, fish biologists, geomorphologists, soil scientists, botanists and ecologists.
- CWCB itself has provided $39,579 from its Watershed Restoration program for Task #5 in this project.
- Pitkin County has been a supporter of the Coal Basin and Coal Creek/Crystal River confluence area restoration initiative since early 2012. $34,912 in cash grants authorized by the Pitkin County Healthy Rivers & Streams Citizens Advisory Board are already supporting this project.

RFC will continue to seek additional sources of funding to support all of the restoration efforts identified by participants in the *Coal Basin & Crystal River Area Restoration Workshop*. It currently has the following additional funding requests pending for portions of *Crystal River Watershed – Assessment and Design of Restoration Projects* effort:

- Conservation Alliance Grant - $32,050 requested.
- Colorado Healthy Rivers Fund - $5,840 requested.

Tier 3: The Water Activity Addresses Other Issues of Statewide Value and Maximizes Benefits

f. The water activity helps sustain agriculture & open space, or meets environmental or recreational needs.

As previously noted, the Crystal River, from Thompson Creek to the confluence with the Roaring Fork River, has been identified in the CBRT's NCNA Matrix (at #52) as a stream reach "of special concern" with multiple functional attributes at risk. This project will help meet the environmental/recreational non-consumptive need in the Crystal River by providing the information that is not available today and is needed to design a series of cost-effective site- and process-specific mitigation projects to reduce sediment-loading to Coal Creek (*see* Exhibit D, Figure 4) and, ultimately, the Crystal River, and by immediately implementing an initial reclamation effort on some of the highest sediment-producing, mining-related disturbed areas in Coal Basin. This multi-task project, in the long-term, will: (1) attenuate the Crystal River hydrograph (to improve the connection of the channel to the floodplain by reducing channel downcutting and recovering geomorphic function), (2) contribute to the restoration of floodplain function at the Coal Creek/Crystal River confluence area (improving geomorphic function and riparian/wetlands ecological function), (3) improve overall riparian and instream habitat (enhancing aquatic ecological function), and (4) reduce sediment and total iron delivery to the Crystal River from Coal Creek (improving water quality).

g. The water activity assists in the administration of compact-entitled waters or addresses problems related to compact entitled waters and compact compliance and the degree to which the activity promotes maximum utilization of state waters.

As discussed above, the project promotes maximum utilization of state waters by addressing non-consumptive needs in the Crystal River Watershed that have not been met in years. It will provide the

foundation for site- and process-specific projects that will: (1) attenuate the Crystal River hydrograph (to improve the connection of the channel to the floodplain by reducing channel downcutting and recovering geomorphic function), (2) contribute to the restoration of floodplain function at the Coal Creek/Crystal River confluence area (improving geomorphic function and riparian/wetlands ecological function), (3) improve overall riparian and instream habitat (enhancing aquatic ecological function), and (4) reduce sediment and total iron delivery to the Crystal River from Coal Creek (improving water quality). Near-term, it will reclaim nearly 11 acres of some of the highest sediment-producing, mining-related disturbed areas in Coal Basin.

h. The water activity assists in the recovery of threatened and endangered wildlife species or Colorado State species of concern.

The *State of the Roaring Fork Watershed Report 2008* (at Appendix 1.3) has identified the Canada lynx (Lynx Canadensis) as resident in the Crystal River Watershed. The lynx is listed as both Federally-threatened and State–endangered. Improvement of the overall riparian and instream habitat in the Crystal River Watershed could be expected to benefit the lynx, as well as other large and small mammals.

i. The water activity provides a high level of benefit to Colorado in relationship to the amount of funds requested.

This project will provide the foundation for what will ultimately be a multi-phase, multi-project, multi-year restoration effort in Coal Basin and the Coal Creek/Crystal River confluence area. These WSRA dollars will be well spent, because *the infrastructure is already in place to move forward with the broader initiative*.

As noted above, at the conclusion of the *Coal Basin & Crystal River Area Restoration Workshop*, participants selected RFC as the coordinator for the overall Coal Basin and Coal Creek/Crystal River confluence area restoration project. A Working Group has already been formed and is assisting RFC with project planning, providing technical resources to support the phased restoration effort, and is ensuring that the restoration plan is widely-communicated. The Working Group will also be helping to identify and secure funding for the site- and process-specific restoration projects that will be designed as part of Task #2. The initial members of the Working Group include both public and private entities, including representatives of private landowners, the Town of Redstone, Pitkin County, U.S. Army Corps of Engineers, CDOT, USFS, CDPW, CVEPA and the Coal Creek Cattlemen's Association. Smaller Technical Groups will form out of the Working Group to support individual projects, as required. Finally, a Focus Group comprised of members of the general public and stakeholders will be formed for vetting specific projects as they are being developed

j. The water activity is complimentary to or assists in the implementation of other CWCB programs.

The project's watershed assessments, new permanent stream gage and meteorological station, data collection activities, and nearly 11-acre reclamation effort support the following CWCB programs/interests:

- Watershed Protection and Restoration (e.g., Colorado Watershed Restoration Program,

Colorado Healthy Rivers Fund);

- Meeting Colorado's Non-consumptive Needs (Environmental and Recreational);
- Maintenance of Colorado's Decision Support Systems (CDSS); and
- Flood protection for Colorado cities and towns.

Part IV. – Required Supporting Material

1. **Water Rights, Availability, and Sustainability** – Please provide a description of the water supply source to be utilized, or the water body to be affected by, the water activity. This should include a description of applicable water rights, and water rights issues, and the name/location of water bodies affected by the water activity.

   No water rights will be affected by the project. No water supply source will be utilized. Successful completion of the nearly 11- acre pilot road reclamation project (Task #5) will affect Coal Creek and the Crystal River in the Roaring Fork Watershed by reducing sedimentation and improving their overall water quality.

2. **Related Studies -** Please provide a brief narrative of any related studies or permitting issues.

   - This project is the first major initiative developed under the 2012 *Roaring Fork Watershed Plan* umbrella. The Watershed Plan took over four years of effort by more than 100 people, representing dozens of agencies, governments, and interests throughout the Roaring Fork Valley and beyond, as well as countless public meetings, conversations, and debates to create. One of the *"Urgent Actions"* identified in the Watershed Plan is the need to "[work] with landowners, resource experts, and other interested parties, [to] plan and implement riparian/ instream protection and restoration projects." Coal Basin, which has often been characterized as a "gaping wound" in the Crystal River Watershed, is at the top of the restoration project list.

   - As noted above, a two-day *Coal Basin & Crystal River Area Restoration Workshop* was held in May, 2012 to develop strategies for continuing the critical restoration work conducted by CDRMS in Coal Basin, and to discuss opportunities for improving the Coal Creek/Crystal River confluence area. The workshop brought nearly 50 hydrologists, soils scientists, geomorphologists, fish biologists, water quality analysts, plant ecologists and other technical experts together with highway engineers, mining reclamation experts, recreational planners, and other key stakeholders from multiple federal, state and local government entities, as well as local nonprofits and private interests. The project tasks included in the *Crystal River Watershed - Assessment and Design of Restoration Projects* initiative directly relate to five of the near-term projects recommended by workshop participants, as summarized in the *Coal Basin & Crystal River Area Restoration Workshop* report. They build upon the "lessons learned" in the prior restoration efforts and utilize all available information on the area's land use history, natural resources, and geomorphology (as summarized in the workshop report).

   - Available water quality data for the Crystal River Watershed, including Coal Creek, were reviewed by Dr. Russ Walker, Head of the Department of Physics & Environmental Sciences at Colorado Mesa University (CMU) for the *Coal Basin & Crystal River Area Restoration Workshop*. He found the historical datasets inconsistent, as well as small in number of samples obtained at any one site. The water quality monitoring to be conducted as part of Task #4 reflects specific recommendations for water quality sampling provided by Dr. Walker.

   - This project will also be informed by the extensive data and land use information collected during development of the *State of the Roaring Fork Watershed Report 2008*. The Crystal River Watershed is the subject of Chapter 4.8 of that report.

The above statements are true to the best of my knowledge:

Signature of Applicant: _____
Rick Lofaro, Executive Director

Print Applicant's Name: Roaring Fork Conservancy

Project Title: Crystal River Watershed – Assessment and Design of Restoration Projects

Exhibit A
Statement of Work, Budget and Schedule

WATER ACTIVITY NAME: CRYSTAL RIVER WATERSHED – ASSESSMENT AND DESIGN OF RESTORATION PROJECTS

GRANT RECIPIENT: ROARING FORK CONSERVANCY

FUNDING SOURCE: WATER SUPPLY RESERVE ACCOUNT

INTRODUCTION AND BACKGROUND: The Crystal River was recently named one of *America's Most Endangered Rivers*. This project will apply a logical, scientifically-sound "watershed approach" to the prioritization and design of a series of restoration projects in the Crystal River Watershed which, when implemented, will enhance the ability to satisfy non-consumptive water needs that have not been met for years.

A series of assessments will be conducted to identify the sources of sediment loading and the geomorphic processes that are degrading water quality and damaging instream and riparian habitat in the Coal Basin sub-watershed and contributing to sedimentation issues in the Crystal River. This information will be supplemented with new stream flow, sediment, water quality, macroinvertebrate and meteorological data, and used to prioritize and design a series of site- and process-specific restoration projects for the Crystal River Watershed - with emphasis on Coal Basin and the Coal Creek/Crystal River confluence area.

Decommissioned mining road reclamation work will be conducted on 10.88 acres in Coal Basin. This pilot effort will also assess the cost-effectiveness and utility of using biochar, coupled with drainage improvements, to reduce the toxicity of surface runoff, improve the water and nutrient-holding capacity of soils, and enhance the growth of native vegetation.

OBJECTIVES:

1. Complete a series of land use and geomorphic assessments and obtain the information necessary to identify the primary natural and anthropogenic sources of sediment-loading in the Crystal River Watershed – with an emphasis on Coal Basin.
2. Design and prioritize a series of site- and process-specific mitigation projects to: (a) attenuate the Crystal River hydrograph, (b) contribute to the restoration of floodplain function at the Coal Creek/Crystal River confluence area, (c) improve overall riparian and instream habitat in Coal Basin and the Crystal River, and (d) reduce sediment and total iron delivery to the Crystal River from Coal Creek.
3. Establish a permanent stream gage and companion meteorological station in Coal Basin.
4. Obtain stream flow, meteorological data and sediment information for Coal Basin, and obtain water quality and macroinvertebrate data for both Coal Basin and the Crystal River to support

the land use and geomorphic assessments and the design and prioritization of site- and process-specific mitigation projects, as well as to provide a baseline for measurement of overall project success.

5. Successfully reclaim and reduce sediment-loading from nearly 11 acres of the decommissioned road network in the former mining areas of Coal Basin.
6. Assess the cost-effectiveness and utility of using biochar in future large scale reclamation efforts in Coal Basin and other similar locations.
7. Promote and encourage implementation of other *Roaring Fork Watershed Plan* recommendations for meeting the Colorado Basin's consumptive and non-consumptive needs.

TASKS:

TASK #1 – Conduct a High-Level Crystal River Watershed Land Use and Geomorphic Assessment

Description of Task: Using the *Watershed Assessment of River Stability and Sediment Supply* (WARSSS) *Reconnaissance Level Assessment* (RLA) as a guide, conduct a high-level ("Level I") Geographic Information System (GIS) and limited field assessment of the twenty-four 12-Level Hydrologic Units (HUs) in the Crystal River Watershed to obtain a better understanding of the existing natural conditions, human-induced changes to those conditions, and the dynamic geomorphic processes in the watershed. *See* Exhibit D, Figure 5. The specific contribution of Coal Basin (especially above the Coal Creek confluence with Dutch Creek) will be a priority in this assessment. The assessment will identify obvious sediment supply sources and processes affecting sediment supply and channel stability, as well as sources and causes of problems not intuitively obvious. This initial screening will eliminate stable, low-risk slopes, sub-watersheds and river reaches from further analysis. The Level I assessment will determine the sub-watersheds and reaches to be included in subsequent targeted assessments (Task #2) and will guide future near-term projects in Coal Basin, as well as the Coal Creek/Crystal River confluence area.

Method/Procedure:

1. Compile and analyze existing GIS resource data.
2. Conduct limited field campaigns for additional data collection and ground-truthing.
3. Review the landscape history and summarize those activities that potentially affect sediment supply and channel stability. Identify specific process relations.
4. Review the landscape overview and map the watershed, identifying/analyzing hillslope, hydrologic and channel processes. Document surface and mass erosion, identify streamflow changes and direct impacts to streambanks and channels.
5. Eliminate areas, sub-watersheds and/or reaches that are not contributing to impairment and select those areas, sub-watersheds and/or reaches that require targeted assessment.

Deliverable: Level I assessment report, including worksheets, maps and figures documenting surface erosion, mass erosion, streamflow changes, channel processes, and channel impacts for the twenty-four 12-Level HUs.

TASK #2 – Conduct a Targeted Land Use and Geomorphic Assessment of Coal Basin

Description of Task: Based on the results of the Level I assessment for the Crystal River Watershed (Task #1), conduct a more detailed resource assessment (modeled after the WARSSS's *Rapid Resource Inventory for Sediment and Stability Consequence* (RRISSC) and *Prediction-Level Assessment* (PLA)) for Coal Basin. This targeted assessment (a "Level II-III" assessment) of land use impacts, geomorphic processes and sediment dynamics will elucidate important drivers of stream channel change and identify the primary natural and anthropogenic sediment sources in the watershed. The results of this targeted assessment will guide recommendations for specific restoration/reclamation actions throughout the Coal Creek watershed.

Method/Procedure:

1. Perform a landscape and river inventory and determine the variables (e.g., loss of stream buffers, floodplain encroachment, changes in riparian vegetation, excess sediment supply) influenced by existing conditions.
2. Establish and survey monitoring reaches within Coal Basin to document changes in channel form over time.
3. Compile data necessary to rate level of resource management risk, including hillslope processes (including mass and surface erosion and roads), hydrologic processes (including an assessment of the potential for streamflow changes), and channel processes (including a general stability assessment (e.g., streambank erosion potential, aggradation, in-channel mining, etc.). This work will include an assessment of bedload transport processes, with specific protocols to be determined based on peak flow predictions from snowpack, site selection, and safety concerns.
4. Calculate total potential sediment supply and channel stability resource management risk and consequences (High/Medium/Low) of implementing or failing to implement mitigation measures.
5. Recommend site-specific mitigation measures and methodologies for monitoring for success (both channel and sediment load response).
6. Additional analysis and reporting.
7. Report preparation.

Deliverables: A map, table and narrative summary identifying the severity of land use changes, departure from reference conditions, long- versus short-term potential impacts associated with these changes, sources and causes of impairment, and the consequences of continued impairment to beneficial uses. Results of modeling of sediment loads in each of the watersheds, verified using coarse sediment sampling protocols. Summary of site- and process-specific recommendations for mitigation of causes of impairment in each of the watersheds, and recommendations for monitoring for success of mitigation measures.

TASK #3 – Collect Stream Flow and Meteorological Data and Conduct Sediment Sampling in Coal Basin

Description of Task: Establish a permanent stream gage and companion meteorological station in Coal Basin to collect the basic hydrologic/meteorologic information necessary to support the design of site- and process-specific mitigation measures and to determine the effectiveness of restoration efforts in the Coal Creek watershed. Conduct in-stream sediment sampling in Coal Basin to support the Task #2 assessment.

Method/Procedure:

1. Evaluate and select one of the three alternative stream discharge gaging locations near the bottom of Coal Basin recommended in *Site Recommendations for Stream Discharge Gaging on Top Tier Priority Reaches in the Roaring Fork Watershed.*
2. Obtain supporting infrastructure for a year-round, real-time streamflow measurement gage, pH sensor, turbidity/total suspended solids (TSS) sensor, and specific conductivity sensor. Obtain companion meteorological gaging equipment for the station.
3. Install and set-up the gaging station in Coal Creek at the location selected under #1 above.
4. Operate and maintain (O&M) the gaging station on an ongoing basis. The O&M schedule will include monthly site visits for data collection, any necessary cleaning, sensor calibration, and/or troubleshooting. Calibration of the suspended sediment and turbidity probe will include collection and analysis of suspended load sediment samples. Barrel samples will be collected for subsurface sediment analysis. Calibration of the pressure transducer will include collection of discharge data and creation of a stage/discharge rating curve. The relatively unstable nature of the streambed may require frequent discharge data collection and ongoing modification of the stage/discharge rating curve. (Costs associated with twelve (12) months of O&M and laboratory analysis are included in this project).
5. Collect and analyze sediment size distribution data at eight (8) locations across Coal Basin and on the Crystal River during baseflow conditions on an annual basis.
6. Collect Wolman pebble counts to characterize the channel surface at sites determined to be safe for wading. Coordinate with the collection of macroinvertebrate data (Task #4) .

Deliverables: An installed and calibrated water quality, water quantity and meteorological gaging station and initial data obtained from same, and from in-stream sediment sampling.

TASK #4 – Conduct Water Quality and Macroinvertebrate Sampling in Coal Basin and the Crystal River

Description of Task: Collect and analyze water quality and macroinvertebrate data in Coal Basin and the Crystal River.

Method/Procedure:

1. Collect and analyze macroinvertebrates at eight (8) locations across Coal Basin and on the Crystal River on an annual basis.
2. At the eight (8) sites identified in #1 above, conduct water quality monitoring for parameters that reveal basic aspects of water quality and those that are of the most concern, based on a review of historical data (e.g., temperature, pH, dissolved oxygen, ammonia, nitrate, nitrite,

dissolved iron, total recoverable iron, and selenium). Include measurement of specific conductance (an easy, indirect way to monitor changes in total dissolved solids). Additionally, collect quarterly samples at the mouth of Coal Creek and at two (2) sites on the Crystal River (above and below the confluence with Coal Creek).

Deliverable: Annual report summarizing water quality and macroinvertebrate data and trends.

TASK #5 – Conduct a Road Reclamation Pilot Project in Coal Basin

Description of Task: Reclaim some of the highest sediment-producing portions of the decommissioned road network in the former mining areas of Coal Basin and assess the cost-effectiveness and utility of using biochar in this type of reclamation effort.

Method/Procedure:

1. Route drainage and place boulders and wood for grade control in strategic locations over a 10.88 acre reclamation area (pre-selected using the USFS analysis of Connected Disturbed Areas (CDAs) in Coal Basin). Create sediment traps (using waddles, silt fencing, logs, and geotextile fabric) in depositional areas, with berms constructed on contour and energy dissipaters throughout the project area. Construct alluvial fans in strategic locations.
2. Procure biochar and local landfill compost and haul to site.
3. Amend soils in portions of the area to be reclaimed by incorporating a mix of biochar and compost obtained from locally-available sources of supply. Treat other portions of the area targeted for reclamation with compost tea.
4. Conduct site revegetation using USFS-supplied native tree and seed stock.
5. Fence portions of the reclaimed areas to prevent cattle-grazing.
6. Conduct soil testing in the project area to determine the efficacy of the biochar/compost mix. Four monitoring events will occur, two each summer for two years. On-site measurements of vegetation cover (%) and soil moisture (%) will be made – for "before" and "after" comparisons.

Deliverables: Road restoration and an assessment of the effectiveness of several restoration techniques which can be applied on a broader scale in Coal Basin and other locations.

TASK #6 – Manage Project; Education & Outreach

Description of Task: Manage the overall project, including preparation of CWCB reports. Conduct public education and outreach related to the project.

Method/Procedure: Coordinate and oversee implementation of the overall project (including the work of all partners and subcontractors), ensure fiscal accountability and prepare and submit invoices. Conduct public education and outreach related to the project (e.g., site visits for stakeholders and interested members of the public, articles on specific restoration initiatives, etc.). Prepare and deliver progress reports to CWCB every six (6) months. Prepare and deliver a final report to CWCB at the conclusion of the project.

Deliverables: Progress reports describing the completion or partial completion of Task #1 - #5, including a description of any major issues and any corrective action taken to address the issues. Final report summarizing the project and documenting how the project was completed – to include all products, data and information developed as a result of CWCB funding (in hard copy and electronic format).

LIST OF ADDITIONAL PARTICIPANTS & QUALIFICATIONS: In addition to Roaring Fork Conservancy, the following entities will be participating in this project:

Entity	Task					
	#1	#2	#3	#4	#5	#6
USFS – White River National Forest	X	X	X	X	X	
USFS - Rocky Mountain Research Station	X	X	X			
Friends of Rivers and Renewables			X			
S.K. Mason Environmental, LLC			X	X		
Colorado Mesa University				X		
Timberline Aquatics, LLC				X		
Biochar Reclamation Labs, LLC					X	
Kootenay Resources, LLC		X				X

Roaring Fork Conservancy is currently evaluating proposals from multiple consultants for additional assistance with respect to completion of Tasks #1 and #2.

A brief summary of the qualifications and expertise being provided by each of the additional project participants is provided below.

USFS – White River National Forest: The following USFS personnel will be among the USFS staff representing the USFS – White River National Forest on this project:

- Mark Lacy **–** West Zone Fish Biologist. Before joining the White River National Forest, Mr. Lacy worked for the U.S. Fish and Wildlife Service as a Federal Projects and ESA biologist. He worked for the Oregon Department of Fish and Wildlife as its Western Oregon Habitat Enhancement Coordinator and as an Assistant District Fisheries Biologist. He has also worked for the Bureau of Land Management as a District Biologist in Oregon.
  Education: B.S., Fisheries Biology, Oregon State University, Corvallis, OR.

- Brian McMullen **–** Soil Scientist.
  Education: B.S., Environmental Soil Science Pennsylvania State University; M.S., Soil Science, Utah State University (in progress).

- Justin Anderson - Hydrologist. Mr. Anderson began work in forest hydrology with the Montana Forest Management Bureau in 1999, and went on to study stream geomorphology and its control on stream water and groundwater exchange out of Oregon State University from 2000 to 2002. He then worked as a hydrological technician and hydrologist in interior and southeast

Alaska for the USGS and the Tongass National Forest before moving to the White River National Forest in 2006.
Education: B.S., Forestry, University of Montana, Missoula, MT; M.S., Forest Science, Minor Water Resources, Oregon State University, Corvallis, OR.

USFS - Rocky Mountain Research Station: Dr. Sandra E. Ryan, Research Geomorphologist, will be representing the Rocky Mountain Research Station on this project (Task #1 - #3). Dr. Ryan holds a Ph.D. in Geography from the University of Colorado at Boulder, an M.S. in Physical Geography from Oregon State University, and a B.A., *magna cum laude,* in Geography/Environmental Studies from the State University of New York at Plattsburgh. Her primary research interests are on the geomorphology and sedimentation processes in steep mountain streams. She works mainly in the subalpine environments of Colorado and Wyoming where streamflow is generated primarily by snowmelt. A complete statement of her qualifications and significant publications is available online.

Friends of Rivers and Renewables (FORR): Located in Aspen, Colorado, FORR supports continued community involvement in the development of regional smart water and clean energy projects. It is currently coordinating a Roaring Fork Watershed stream gaging initiative and will be providing information for completion of Task #3.

S.K. Mason Environmental, LLC: Seth Mason, the company's Principal, will be engaged on Tasks #3 and #4 of the project. Mr. Mason received a B.A. in Environmental Sciences from the University of Colorado and an M.S. in Land Resources and Environmental Sciences from the University of Montana. He is currently the Program Coordinator for the Eagle River Watershed Monitoring and Assessment Program. A complete statement of his qualifications and significant publications is available online.

Colorado Mesa University (CMU): CMU will be analyzing the water quality data collected during performance of the project's Task #4. Dr. Russ Walker, Professor of Environmental Science and the head of the school's Department of Environmental Science, will be overseeing the work.

Timberline Aquatics, LLC: David Rees will be representing Timberline Aquatics, LLC on Task #4. His responsibilities will include, macroinvertebrate identification, data analysis and report preparation. He will also be responsible for quality control of the sorting process. Mr. Rees received his B.S. and M.S. degrees at Colorado State University where he studied fishery biology and ecotoxicology, respectively. Mr. Rees' graduate work relied (in part) on benthic macroinvertebrate sampling and analysis to determine the direct and indirect effects of heavy metals on the aquatic environment in the Arkansas River, Colorado. Since then, Mr. Rees has supervised and assisted with numerous projects using fish, aquatic macroinvertebrates, and periphyton to assess the ecological integrity of aquatic environments at many western U.S. locations. Mr. Rees has more than 25 years of experience in collecting, identification and analysis of benthic macroinvertebrate data from a wide range of areas in the U.S. (including much of Colorado). Mr. Rees has conducted benthic macroinvertebrate studies on more than 50 streams and rivers in Colorado alone.

Biochar Reclamation Labs, LLC (BRL): BRL will be providing the services of Dr. Andrew Harley, its VP and founder. Dr. Harley has 25 years experience in soil science-related research and project implementation at agricultural, industrial, landfill and resource facilities. His experience in soil

geochemistry and mineralogy has been used to evaluate reactions within soil and groundwater systems that control the movement of nutrients and contaminants allowing for the development of effective solutions. Dr. Harley is currently developing biochar markets based on the nexus between biomass management and land management issues. Projects being developed to adapt biochar derived from the forest management biomass for a range of local soil problems include improved soil moisture regimes and vegetative cover in high-altitude mine reclamation, metal stabilization in abandoned mine land reclamation, general soil improvement in oil and gas reclamation, reduced water needs in agricultural irrigation, water treatment applications and reduction of feedlot odors. Issues related to materials handling and application of biochar to soils are also being addressed through these projects. Dr. Harley holds a Ph.D. in Soil Science and Plant Nutrition from the University of Western Australia, Nedlands, WA, Australia, and a B.S. (*Hons*) in Physical Geography/Geology from the University of New South Wales, Kensington, NSW, Australia**.**

Kootenay Resources, LLC: Kootenay Resources, LLC, will be engaged to assist with the drafting and editing of the final report contemplated under Task #2, and the CWCB reports required as part of Task #6. Since 2005, the company's Principal, Rose Ann Sullivan, has worked with Roaring Fork Conservancy on a variety of projects and programs, including the development of the *State of the Roaring Fork Watershed Report 2008*, the *Roaring Fork Watershed Plan*, and the *Coal Basin & Crystal River Area Restoration Workshop* report. Ms. Sullivan graduated *cum laude* from the University of Michigan's Law School in 1984. She also holds a B.S. degree in Natural Resources and a Master's degree in Regional Planning (Water Resources Policy & Management) from the University of Michigan. She is an author on multiple reports addressing water resource management issues prepared for the U.S. EPA and others, and has published a number of legal articles. A complete statement of her qualifications and significant publications is available online.

BUDGET

A spreadsheet with a detailed project budget by task, including number of hours and rates for labor and unit costs for other direct costs is attached as Appendix E.

SCHEDULE

A project schedule with key milestones for each task and the time periods for completion of the tasks follows.

TASK	TIME PERIODS FOR COMPLETION OF TASKS (KEY MILESTONES INDICATED)									
	Fall 2012	Winter 2012/2013	Spring 2013	Summer 2013	Fall 2013	Winter 2013/2014	Spring 2014	Summer 2014	Fall 2014	Winter 2014/2015
TASK #1 – Conduct a High-Level Crystal River Watershed Land Use and Geomorphic Assessment			Level I Assessment Draft Report		Level I Assessment Final Report					
TASK #2 – Conduct a Targeted Land Use and Geomorphic Assessment of Coal Basin										Targeted Assessment Final Report
TASK #3 – Collect Stream Flow and Meteorological Data for Coal Basin	Gage Installation	Flow and Precipitation Monitoring	Flow and Precipitation Monitoring	Flow and Precipitation Monitoring	Flow and Precipitation Monitoring	Flow and Precipitation Monitoring	Flow and Precipitation Monitoring	Flow and Precipitation Monitoring	Flow and Precipitation Monitoring	Flow and Precipitation Monitoring
TASK #4 – Conduct Water Quality, Macroinvertebrate and Sediment Sampling in Coal Basin and the Crystal River	Quarterly Monitoring	Quarterly Monitoring	Quarterly Monitoring	Quarterly Monitoring	Quarterly Monitoring	WQ Interim Report (Quarterly Monitoring)	Quarterly Monitoring	Quarterly Monitoring	Quarterly Monitoring	WQ Final Report (Quarterly Monitoring)
TASK #5 – Conduct a Road Reclamation Pilot Project in Coal Basin	2.9 Acre Project Implementation			7.98 Acre Project Implementation						
TASK #6 – Manage Project; Education & Outreach			6-Month CWCB report		6-Month CWCB report		6-Month CWCB report			CWCB Final Report

Exhibit B

Project Map

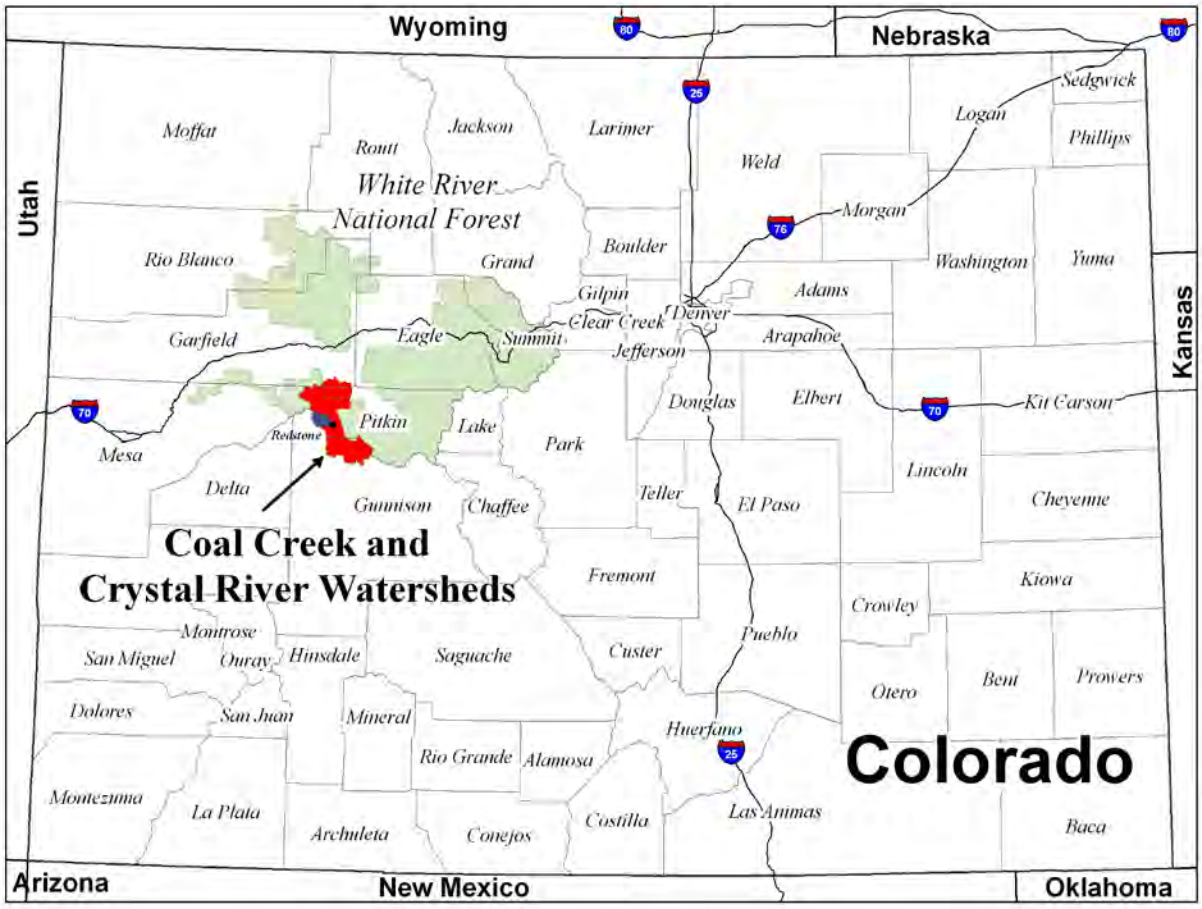

Exhibit C

Letters of Support

The following letters of support are provided for this project:

- Colorado Basin Roundtable Letter of Approval and Support (Attached)
- Letter of Support from the Pitkin County Healthy Rivers & Streams Citizens Advisory Board (Attached)
- Letter of Support from Dr. Sandra Ryan, USFS – Rocky Mountain Research Station (Attached)
- Letter of Support from USFS – White River National Forest (Attached)
- Letter of Support from Dr. Andrew Harley, Biochar Reclamation Labs, LLC (Attached)
- Letter of Support from Ruedi Water & Power Authority (Attached)
- Letter of Support from Colorado Mesa University (Attached)
- Letter of Support from Crystal Valley Environmental Protection Association(Attached)
- Letter of Support from Friends of Rivers and Renewables (Attached)
- Letter of Support from Pitkin County Open Space & Trails (Attached)

June 21, 2012

To Whom It May Concern:

This letter is provided in support of applications for grant funding by federal, state and local governmental entities, for-profit and non-profit entities, as well as individuals, which are submitted by Roaring Fork Conservancy (as the sponsoring entity) for projects and programs to restore the areas known as Coal Basin and the Coal Creek/Crystal River Confluence Area, near the Town of Redstone, Colorado. Specifically, the Pitkin County Healthy Rivers & Streams Citizen Advisory Board wishes to express its strong support for the funding of all or any portion of the following types of projects and programs recommended by the resources experts who participated in the May 2012 Coal Basin & Crystal River Area Restoration Workshop:

- Conduct of a high-level ("Level I") GIS and limited field assessment of the Crystal River Watershed to obtain a better understanding of the dynamic natural and human-induced geomorphic processes in the watershed and the specific contribution of Coal Basin. Conduct of a more detailed resource assessment ("Level II" – "Level III") for Coal Basin and/or other areas of concern and the design of specific restoration projects.
- Development and implementation of a baseline water quality monitoring program for Coal Basin and the Crystal River.
- Development and implementation of a stream flow monitoring program for Coal Basin and the Crystal River.
- Development and implementation of a macroinvertebrate sampling program for Coal Basin and the Crystal River.
- Development and implementation of a program for the collection of climate data in Coal Basin.
- Development and implementation of an in-channel sediment monitoring program for Coal Basin and the Crystal River.
- Initiatives (on both U.S. Forest Service land and private lands) to rehabilitate mining-related disturbed areas in Coal Basin with native plants and soil-enhancing amendments, and studies to evaluate the efficacy of these initiatives.

Our strong support for this project is demonstrated by the $48,269 grant to Roaring Fork Conservancy for project coordination, assessing water quality, fish and macroinvertebrate data, project outreach and planning (including the May technical workshop). We would greatly appreciate your funding of any of these projects/programs. They are all important components of a collaborative multi-year, multi-project initiative to improve the degraded water quality and riparian and instream habitat which exist today throughout Coal Basin, and to reduce the sediment-loading from Coal Basin which is, in turn, degrading water quality and riparian and instream habitat in the Crystal River.

Sincerely,

Greg Poschman
Chair

United States Department of Agriculture | **Forest Service** | **Rocky Mountain Research Station** | **240 West Prospect Road Ft. Collins, CO 80526-2098 Telephone: 970-498-1015**

July 5, 2012

To Whom It May Concern:

I am writing this letter in support of grant funding by federal, state and local governmental entities, for-profit and non-profit entities, as well as individuals, which is submitted by Roaring Fork Conservancy (as the sponsoring entity) for projects and programs to restore the areas known as Coal Basin and the Coal Creek/Crystal River Confluence Area, located near the Town of Redstone, Colorado. These types of planning and pilot projects are sorely needed to provide necessary information prior to undertaking complex and multi-faceted restoration activities and to advance discussions and inform decision making regarding complex restoration needs for ecological sustainability of stream-riparian corridors.

In May, 2012, I gave a presentation, co-led a working group, and participated in discussions at the Coal Basin and Crystal River Area Restoration Workshop. I want to express strong support for the funding of all or any portion of the following types of projects and programs recommended by the workshop participants:

- Conduct of a high-level ("Level I") GIS and limited field assessment of the Crystal River Watershed to obtain a better understanding of the dynamic natural and human-induced geomorphic processes in the watershed and the specific contribution of Coal Basin. Conduct of a more detailed resource assessment ("Level II" – "Level III") for Coal Basin and/or other areas of concern and the design of specific restoration projects.
- Development and implementation of a baseline water quality monitoring program for Coal Basin and the Crystal River.
- Development and implementation of a stream flow monitoring program for Coal Basin and the Crystal River.
- Development and implementation of a macroinvertebrate sampling program for Coal Basin and the Crystal River.
- Development and implementation of a program for the collection of meteorological data in Coal Basin.
- Development and implementation of an in-channel sediment monitoring program for Coal Basin and the Crystal River.
- Initiatives (on both U.S. Forest Service land and private lands) to rehabilitate mining-related disturbed areas in Coal Basin with native plants and soil-enhancing amendments, and studies to evaluate the efficacy of these initiatives.

I look forward to working on this project.

Sincerely,
/s/ Sandra E. Ryan

Sandra Ryan, Ph.D.
Research Geomorphologist
USDA Forest Service, RMRS
240 West Prospect
Fort Collins, CO 80526-2098
970-489-1015
e-mail:sryanburkett@fs.fed.us

United States Department of Agriculture **Forest Service** **White River National Forest**

Aspen-Sopris Ranger District
PO Box 309/620 Main St.
Carbondale, CO 81623
(970) 963-2266
Fax: (970) 963-1012

File Code: 2520
Date: July 9, 2012

To Whom It May Concern:

The White River National Forest is committed to this project and fully supports Roaring Fork Conservancy's application entitled: "*Crystal River Watershed-Assessment and Design of Restoration Projects.*" This project is supported by both the White River National Forest Supervisor and the Aspen-Sopris District Ranger. Our resource expects have spent significant time on this project. We are committed to contributing more than $62,000 in in-kind time to the pilot project in 2012 and out-year planning. Our breadth of resource expertise includes hydrology, civil engineering, geomorphology, fish biology, range, soil science, botany, and GIS.

The significant impacts to water quality and quantity and to the uplands, riparian areas and the channel from mining activities are obvious. These impacts have been identifies in "*The State of the Roaring Fork Watershed Report 2008"* which we contributed to. We also provided technical assistance to the development of the Roaring Fork Watershed Plan. The proposed project falls under several water quality, water quantity, riparian and in stream areas recommended actions and specifically addresses one of the Plan's ten identified "*Urgent Actions"*.

- ❖ Working with landowners, resource experts, and other interested parties, plan and implement riparian/ in stream protection and restoration projects.

Four areas have been identified that have high visibility and are ecologically significant. To varying degrees they provide opportunities for collaboration/partnerships, take advantage of ongoing projects/program support, and offer relatively uncomplicated access to the riparian and in stream area. The four areas are: Upstream and downstream of the Town of Basalt, the Northstar area of the Roaring Fork River, the Cattle Creek confluence with the Roaring Fork River, and the **Coal and East Creeks confluence with the Crystal River.**

In May, 2012, we gave several presentations, co-led a working group, and participated in discussions at the Coal Basin and Crystal River Area Restoration Workshop. We have strong support for the funding of all or any portion of the following types of projects and programs recommended by the workshop participants:

- Conduct of a high-level ("Level I") GIS and limited field assessment of the Crystal River Watershed to obtain a better understanding of the dynamic natural and human-induced geomorphic processes in the watershed and the specific contribution of Coal Basin. Conduct of a more detailed resource assessment ("Level II" – "Level III") for Coal Basin and/or other areas of concern and the design of specific restoration projects.

- Development and implementation of a baseline water quality monitoring program for Coal Basin and the Crystal River.
- Development and implementation of a stream flow monitoring program for Coal Basin and the Crystal River.
- Development and implementation of a macroinvertebrate sampling program for Coal Basin and the Crystal River.
- Development and implementation of a program for the collection of meteorological data in Coal Basin.
- Development and implementation of an in-channel sediment monitoring program for Coal Basin and the Crystal River.
- Initiatives (on both U.S. Forest Service land and private lands) to rehabilitate mining-related disturbed areas in Coal Basin with native plants and soil-enhancing amendments, and studies to evaluate the efficacy of these initiatives.

We have invested resource expertise regarding different restoration activities in Coal Basin such as:

- Connected Disturbed Area Inventory and reclamation
- Soil Amendments using biochar and compost applications and rates
- Macroinvertebrate sampling and analysis
- Fish surveys in Coal and the Crystal River
- Identifying riparian, stream, and wetland restoration reaches throughout the watershed
- Established a native grass and forb study plot in Coal Basin
- Utilizing the Wyden Amendment to expand the project on all ownerships
- Landslide stabilization project to improve instream, wetland, and riparian habitat

No one can do this work alone. The resource challenges and complexity of the project are too great. We have very limited funding for project implementation and need to rely on project partners for funding. We fully support this proposal. We have the resource expertise and on-the ground project implementation skills to successfully collaborate and complete different restoration activities for upland, riparian, wetland, and instream restoration projects. We are excited to partner with other resource experts to develop an innovative restoration plan grounded in science that will address the major resources challenges this area provides.

Sincerely,

/s/ Scott Snelson

SCOTT SNELSON
District Ranger

July 6, 2012

To Whom It May Concern:

I am working with resource experts on the White River National Forest (Mark Lacy, Fish Biologist; Justin Anderson, Hydrologist; Brian McMullen, Soil Scientist, and Jan Burke, Silviculturalist) to design, implement, and monitor a road rehabilitation demonstration project. The project will reclaim portions of the extensive road network in the former mining areas of Coal Basin and improve the health of the associated watershed through the use of organic soil amendments (biochar/compost), earthen construction, and native vegetation. A corollary goal is carbon sequestration. My role is to work in an advisory capacity with the National Forest and Roaring Fork Conservancy to help obtain biochar, formulate the organic soil amendment, advise on application, and to monitor the results of the project. The results of this project will be used to inform and plan larger landscape-scale restoration projects.

In May, 2012, I gave a presentation on biochar and participated in the Coal Basin and Crystal River Area restoration Workshop discussions.

I urge your support for the Coal Basin restoration project.

Sincerely,

Andrew Harley, Ph. D.
Biochar Reclamation Labs (a Biochar Solutions Inc Company)

RUEDI WATER & POWER AUTHORITY

0238 Fawn Drive
Carbondale, CO 81623
970 963-4959 (ph & fax)

July 5, 2012

To Whom It May Concern:

The Ruedi Water and Power Authority (RWAPA) supports applications for grant funding by federal, state and local governmental entities, for-profit and non-profit entities, as well as individuals, which are submitted by Roaring Fork Conservancy (as the sponsoring entity) for projects and programs to restore the areas known as Coal Basin and the Coal Creek/Crystal River Confluence Area, near the Town of Redstone, Colorado. A custom restoration plan is needed to mend this unraveled and complicated area. Roaring Fork Conservancy is poised to do what we do best-bring people together to address the significant challenges in Coal Basin and the Crystal River Watershed.

This work is identified in the Roaring Fork Watershed Plan. RWAPA is the lead sponsor of the Plan. RWAPA and Roaring Fork Conservancy, the lead consultant on the Plan, worked together to complete the comprehensive first phase of the Plan: "*The State of the Roaring Fork Watershed Report 2008*". This report clearly identifies the significant water quality and riparian and instream habitat degradation in this area and the flood risk to the community of Redstone. The proposed planning project addresses the following recommended actions including the highlighted "*Urgent Action*":

- Restore major wetlands areas in the watershed.
- Address and regulate runoff from hazardous sites, including mines, landfills, junkyards and similar locations.
- Identify human-based sediment sources; develop and implement strategies for reducing sediment from those sources.
- Identify reclamation sites and work with responsible parties to assure that reclamation of mining sites is adequate and sustainable to mitigate impacts on water quality. Perform additional reclamation work as necessary.
- *Implement riparian/instream protection and restoration projects*.
- Restore riparian and instream areas impacted by historical mining activities.
- Where feasible, restore the natural function of floodplains.

In May, 2012, I participated in the Coal Basin and Crystal River Area restoration Workshop and express strong support for the funding of all or any portion of the following types of projects and programs recommended by the workshop participants:

- Conduct of a high-level ("Level I") GIS and limited field assessment of the Crystal River Watershed to obtain a better understanding of the dynamic natural and human-induced geomorphic processes in the watershed and the specific contribution of Coal Basin. Conduct of a more detailed resource assessment

("Level II" – "Level III") for Coal Basin and/or other areas of concern and the design of specific restoration projects.

- Development and implementation of a baseline water quality monitoring program for Coal Basin and the Crystal River.
- Development and implementation of a stream flow monitoring program for Coal Basin and the Crystal River.
- Development and implementation of a macroinvertebrate sampling program for Coal Basin and the Crystal River.
- Development and implementation of a program for the collection of climate data in Coal Basin.
- Development and implementation of an in-channel sediment monitoring program for Coal Basin and the Crystal River.
- Initiatives (on both U.S. Forest Service land and private lands) to rehabilitate mining-related disturbed areas in Coal Basin with native plants and soil-enhancing amendments, and studies to evaluate the efficacy of these initiatives.
-

RWAPA greatly appreciates your funding of any of these projects/programs. They are all important components of a collaborative multi-year, multi-project initiative to improve the degraded water quality and riparian and instream habitat which exist today throughout Coal Basin, and to reduce the sediment-loading from Coal Basin which is, in turn, degrading water quality and riparian and instream habitat in the Crystal River.

RWAPA has worked closely with Roaring Fork Conservancy for a number of years and they have a proven track record of completing projects. We encourage you to fully fund their grant request to enable them to plan this valuable and complex project.

Sincerely,

Mark Fuller, Director
Ruedi Water and Power Authority

COLORADO MESA UNIVERSITY
Department of Physical & Environmental Sciences
1100 North Avenue • Grand Junction, CO 81501-3122
Phone (970) 248-1993 • FAX (970) 248-1700

July 5, 2012

To Whom It May Concern:

I am pleased to be working with Roaring Fork Conservancy on the effort to understand and improve conditions in Coal Basin and the Crystal River watershed.

I presented results of my analysis of water quality at the 2-day Coal Basin Restoration Workshop in May and am working on a written report of this analysis. This work used historical water quality data to quantify status and trends (such as seasonality) for many parameters at several locations. At the workshop we discussed additional water quality data needs, the utility of these data to focus restoration efforts, and identified data needed to determine if restoration was successful.

I have agreed to extend my water quality analysis for Coal Basin and the Crystal River Project by including data that will be collected by the Roaring Fork Conservancy in 2012-2014 in accord with recommendations made at the workshop. I look forward to my future work on this project.

Sincerely,

Russ Walker

Russ Walker, Ph. D.
Head, Department of Physical and Environmental Sciences
Professor, Environmental Science and Technology

The Crystal Valley Environmental Protection Association
PO Box 921, Carbondale, CO 81623

July 9, 2012

To Whom It May Concern:

The Crystal Valley Environmental Protection Association Inc. (CVEPA) is an organization more than 40 years old, has approximately 150 members throughout the Crystal River and Roaring Fork Valleys, and is governed by a nine member board of directors.

We fully support any Roaring Fork Conservancy efforts to obtain grant funding by federal, state and local governmental entities, as well as from other sources for projects and programs to restore the areas known as Coal Basin and the Coal Creek/Crystal River Confluence Area, near the Town of Redstone, Colorado. Our Board of Directors are intimately familiar with this area, its history and its many environmental issues. Many of our members grew up here and have witnessed the unmanaged destruction of upper Coal Basin by the mining operation and have used Highway 133 before it was rerouted across Coal Creek. We often see the sediment plume in the Crystal River from Coal Creek and its devastating effect on the river. We have worked with Steve Renner from the Colorado Department of Reclamation Mining and Safety over the past 15 years on the restoration work that has been done and we are very aware that much still needs to be done to stabilize the badly damaged watershed in Coal Basin.

Last summer we organized a field trip to Coal Basin and invited Mr. Renner to discuss the history of this area, the restoration work that has been accomplished to-date and to generate ideas for its future restoration. Roaring Fork Conservancy and the USFS also participated in this field trip. This past May, we participated in the Coal Basin and Crystal River Area Workshop held in Redstone and also in the Roaring Fork Conservancy Watershed Exploration education tour to this area on June 22, 2012 to talk about the area's history, the issues and what had been done.

The Roaring Fork Conservancy has thus taken significant steps toward increasing public awareness and developing a program, in coordination with the USFS and other public and private entities, to address the problems posed by Coal Basin and Coal Creek. We have had a long-standing interest in the restoration of Coal Basin and strongly support continued efforts to heal the effects of previous mining in the Crystal River Watershed.

Sincerely,

Chuck Downey
President, Crystal Valley Environmental Protection Association

Friends of rivers and renewables

An initiative of Public Counsel of the Rockies

1280 Ute Avenue

Aspen, CO 81611

July 6, 2012

To Whom It May Concern,

On behalf of Friends of Rivers and Renewables (FORR), I am pleased to provide this letter of support for the Roaring Fork Conservancy, singly and as a sponsoring entity with agencies, contractors and other non-profits, in its efforts to restore the areas known as Coal Basin and the Coal Creek/Crystal River Confluence Area, near the Town of Redstone, Colorado. This work is an important contribution to our understanding and restoring the health of our local rivers.

Friends of Rivers and Renewables is a group of citizens working to engage and educate residents of the Roaring Fork Valley around the issues related to healthy rivers conservation and clean energy solutions. Ensuring healthy functioning stream ecosystems is one of our core principles. One of our projects is working with stream ecology experts, including Roaring Fork Conservancy, to develop a "net" of stream gauges as a basis for determining the health of rivers and streams in the Roaring Fork Watershed. Coal Basin and the Crystal River have been identified as high priority locations for stream gages. FORR looks forward to a continued partnership with Roaring Fork Conservancy as we work on this project.

Sincerely,

Chelsea C. Brundige
Director
Friends of Rivers and Renewables
(970) 927-1667
(970) 319-6395 - cell

July 9, 2012

To Whom It May Concern;

Pitkin County Open Space and Trails (OST) fully supports Roaring Fork Conservancy's (RFC) applications for grant funding by federal, state and local governmental entities, for-profit and non-profit entities, as well as individuals, in order to fund projects and programs to restore the areas known as Coal Basin and the Coal Creek/Crystal River Confluence Area.

These RFC projects will complement the work we plan to do in this area. In December, 2010 Pitkin County Open Space and Trails adopted the: *REDSTONE PARKS AND OPEN SPACE MANAGEMENT PLAN.* Two of the properties covered under this plan, Elk Park and Redstone Park are located at the confluence of Coal Creek with the Crystal River. The floodplain and riparian and instream issues in this area were discussed at length during the planning process. Both a short and long term priority of the Plan was: Work on solving the floodplain issues on Coal Creek. Sharon Clarke, the project coordinator for the Coal Basin Restoration Project actively participated in this planning effort. With funding from a Scenic Byway Grant we have reconvened the planning group to complete a final plan for Elk Park. We attended the Coal Basin Restoration Workshop in May and will coordinate our effort with the larger restoration projects in the Coal Basin.

Pitkin County Open Space and Trails has worked closely with Roaring Fork Conservancy for a number of years and they have a proven track record of completing projects. We encourage you to fully fund their grant request to enable them to continue planning, education and outreach efforts for this important project.

Sincerely,

Lindsey Utter
Pitkin County Open Space and Trails Recreation Planner

Exhibit D

Figures and Photos

Figure 1. Confluence of Coal and Dutch Creeks in Coal Basin - May 30, 2012. (Courtesy of Bruce Gordon, EcoFlight).

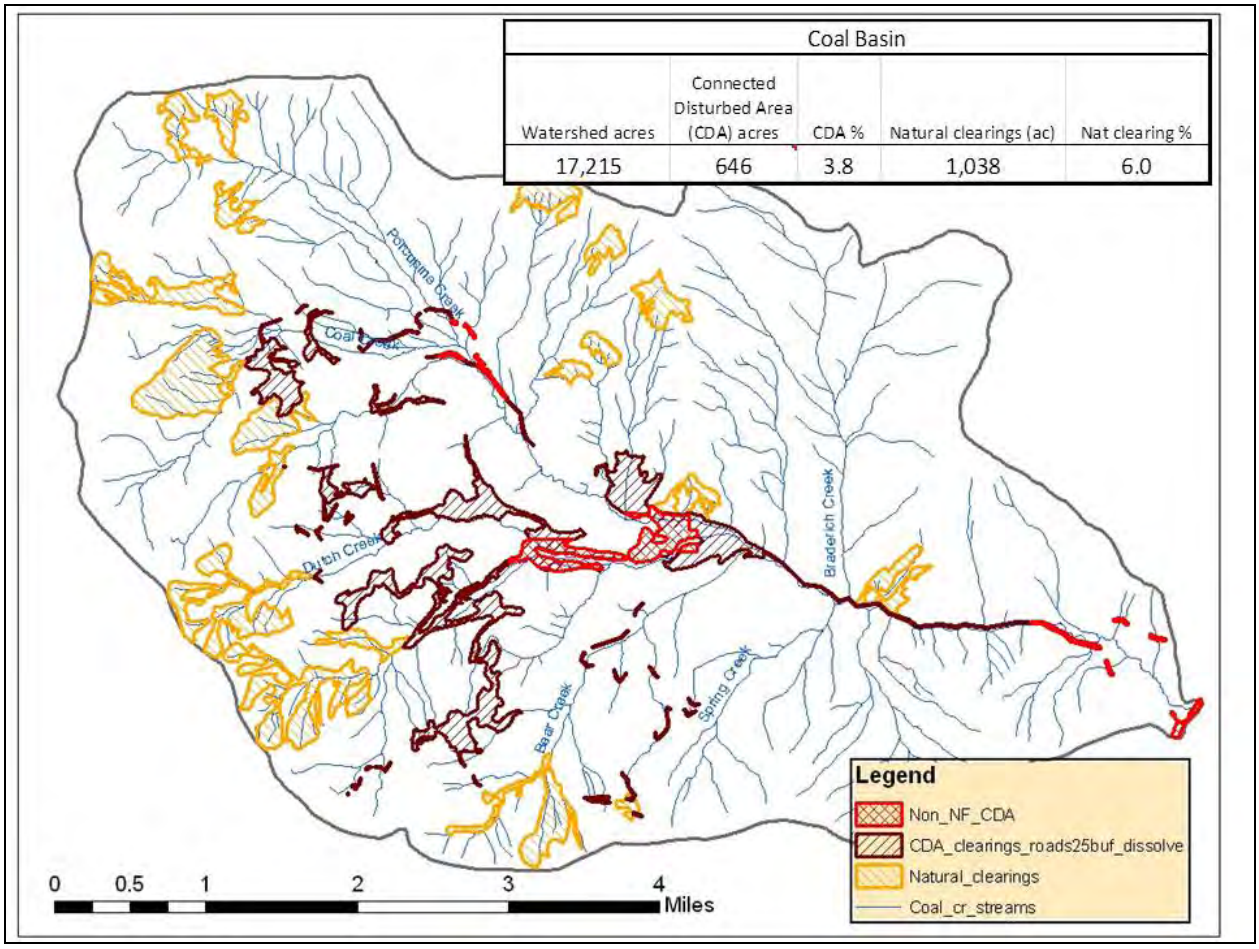

Figure 2. Coal Basin Connected Disturbed Areas (CDAs). (Courtesy of USFS).

Figure 3.
Town of Redstone area – Crystal River/Coal Creek confluence.

Figure 4. Coal Creek, summer monsoon.

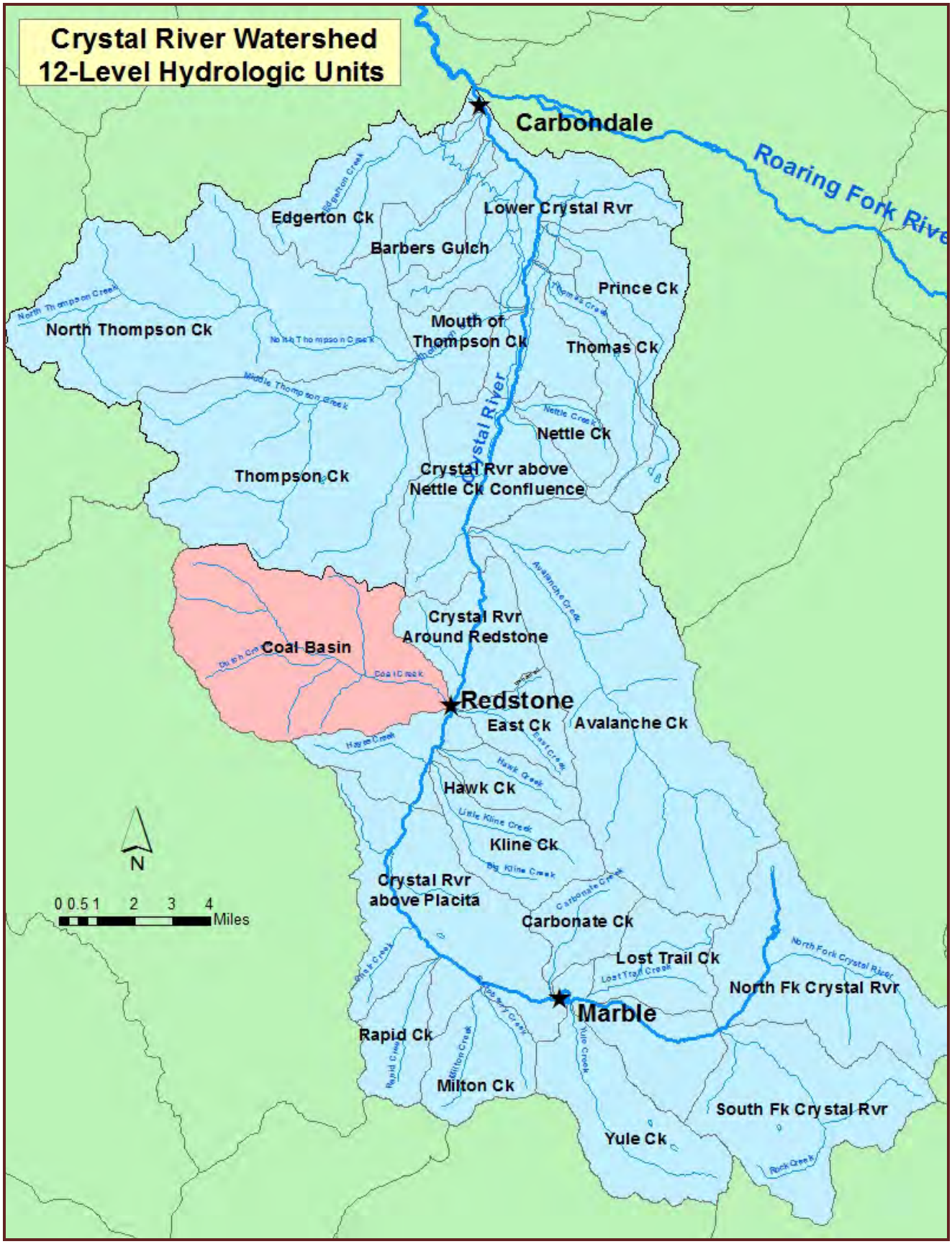

Figure 5. Crystal River Watershed Hydrologic Units.

Appendices

Appendix A: W-9 Form for Roaring Fork Conservancy (Attached)

Appendix B: Roaring Fork Conservancy Articles of Incorporation (Attached)

Appendix C: Roaring Fork Conservancy Bylaws (Attached)

Appendix D: Roaring Fork Conservancy Operating Budget for 2012 (Attached)

Appendix E: Project Budget Spreadsheet (Attached)

Form **W-9**
Substitute Form
State of Colorado 8-2007

Request for Taxpayer Identification Number and Certification

Give form to the requester. Do not send to the IRS.

Print or Type
See Specific Instructions on page 3.

Name Roaring Fork Conservancy

Business name, if different from above

Check appropriate box:

☐ Individual/ Sole Proprietor ☑ Corporation ☐ Partnership ☐ Other ▶ ..... ☐ Exempt from backup withholding

Address (number, street, and apt. or suite no.)	Requester:
200 Basalt Center Cir, Ste. 120	
City, state, and ZIP code.	
Basalt, CO 81621	
List Account number(s) here (optional)	Phone Number:
	(970) 379-9844

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. For individuals, this is your social security number (SSN) **However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3.** For other entities, it is your employer identification number (EIN). If you do not have a number, see **How to get a TIN on page 3.**

Note: *If the account is in more than one name, see the chart on page 3 for guidelines on whose number to enter.*

Social Security number								

Employer identification number								
8	4	1	3	7	5	3	7	9

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), **and**
2. I am not subject to backup withholding because. **(a)** I am exempt from backup withholding, or **(b)** I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or **(c)** the IRS has notified me that I am no longer subject to backup withholding, **and**
3. I am a U.S. person (including a U.S. resident alien).

Certification instructions. You must cross out item **2** above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item **2** does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the Certification, but you must provide your correct TIN. (See the instructions on page 3.)

Sign Here | Signature of U.S. person ▶ [signature] Date ▶ 7/2/12

Minority and Women-owned Businesses (M/WBEs) Self Certification (Please check all boxes that apply)

In an effort to track levels of participation by women and minorities doing business with the State of Colorado, the following information is requested. Please indicate the appropriate category of ownership for your company. "Owned" in this context means a business that is at least 51 percent owned by an individual(s) who also control(s) and operate(s) it. "Control" in this context means exercising the power to make policy decisions. "Operate" means actively involved in the day-to-day management. If you business is jointly owned by both men and women or is a large publicly held corporation, please check the box labeled "Not Applicable."

Gender Information:

☐ Female-Owned ☐ Male-Owned X Not Applicable

Owner Ethnicity Information

☐ African American ☐ Asian/Pacific American ☐ White (non-Hispanic) ☐ Not Applicable

☐ Hispanic American ☐ Native American ☐ Other: _____

Small Business Information

Small Business (a business that is organized for profit, is independently owned and operated, and has 25 or fewer full time equivalent employees.)

☐ Yes ☐ No

NONPROFIT

ARTICLES OF INCORPORATION
OF
ROARING FORK CONSERVANCY

The undersigned person, acting as the incorporator of a corporation pursuant to the Colorado Non-Profit Corporation Act and being 21 years of age or older, hereby signs and acknowledges the following Articles of Incorporation:

ARTICLE I
Name

961154391 C $50.00
SECRETARY OF STATE
11-26-96 16:58

The name of the corporation is Roaring Fork Conservancy.

ARTICLE II
Duration

The period of duration of the corporation is perpetual.

ARTICLE III
Charitable Purposes, Objectives and Powers

1. This corporation is organized exclusively for charitable purposes within the meaning of Section 501(c)(3) of the Internal Revenue Code. The corporation shall be operated exclusively as a non-profit, tax-exempt organization dedicated:

(a) To promote for the benefit of the general public the conservation, preservation and restoration of the natural riparian corridors of the Roaring Fork and Frying Pan Rivers in the Roaring Fork Valley of Colorado, including land and water resources, wildlife habitat, fishing and recreational access, and the unique scenic, natural and historic features of these river corridors;

(b) To provide educational and artistic opportunities for children and adults relating to the preservation and restoration of these river corridors including the identification and use of suitable sites for environmental education;

(c) To work with individual landowners to further their conservation, preservation and restoration goals when those goals are consistent with the charitable purposes and functions of the corporation; and

(d) To receive and accept property, including but not limited to real property and conservation easements, by way of gift, bequest, devise or purchase, from any person, firm, trust, corporation or other entity, to be held and administered in accordance with the goals of the corporation.

2. In furtherance of the foregoing purposes and objectives and subject to the restrictions set forth in Article IV, the corporation shall have and may exercise all of the powers now or hereafter conferred upon non-profit corporations organized under the Colorado Non-Profit Corporation Act.

ARTICLE IV
Tax-Exempt Nonprofit Corporation

The corporation shall be a tax-exempt non-profit public benefit corporation and shall neither be organized nor operated for private pecuniary gain or profit. In addition to any other restrictions provided by Colorado law or by the Internal Revenue Code applicable to non- profit and tax-exempt corporations, the following provisions shall in all events apply:

(a) No part of the net earnings of the corporation shall inure to the benefit of, or be distributable to, any member, director, trustee or officer of the corporation, or any other private individual (except that reasonable compensation may be paid for services rendered to or for the benefit of the corporation affecting one or more of its charitable purposes) and no member, director, trustee or officer of the corporation, or any other private individual, shall be entitled to share in any distribution of any of the corporation's assets on dissolution of the corporation or otherwise;

(b) No substantial part of the activities of the corporation shall consist of carrying on propaganda or otherwise attempting to influence legislation, and the corporation shall not participate or intervene in any political campaign on behalf of any candidate for public office;

(c) No part of the assets of the corporation shall be contributed to any organization whose net earnings or any part thereof inure to the benefit of any private shareholder or individual or any substantial part of the activities of which consists of carrying on propaganda or otherwise attempting to influence legislation;

(d) The corporation shall not conduct or carry on any activities not permitted to be conducted or carried on by an organization which is qualified as a tax-exempt organization under Section 501(c)(3) of the Internal Revenue Code of 1954 and its regulations, as the same now exist or may hereafter be amended;

(e) The corporation shall distribute its income for each taxable year at such time and in such manner as not to subject the corporation to tax under Section 4942 of the Internal Revenue Code of 1954 and its regulations; shall not engage in any act of self-dealing, as defined in Section 4941(d) of the Internal Revenue Code of 1954 and its regulations; shall not retain any excess business holdings, as defined in Section 4943(c) of the Internal Revenue Code of 1954 and its regulations; shall not make any investments in such manner as to subject the corporation to tax under Section 4944 of the Internal Revenue Code of 1954 and its regulations; and shall not make any taxable expenditures, as defined in Section 4945(d) of the Internal Revenue Code of 1954 and its regulations, all as said Internal Revenue Code and the regulations thereunder now exist or may hereafter be amended.

(f) Upon dissolution of the corporation, all of the corporation's assets remaining after payment of or provision for all of its liabilities shall be paid over and distributed only for the purposes set forth in Article III to one or more organizations qualified as tax-exempt under Section 501(c)(3) of the Internal Revenue Code of 1954 and its regulations. The organizations to receive such assets and property shall be designated by the Board of Directors.

ARTICLE V
Registered Office and Agent

The address of the initial registered office of the corporation is 320 W. Main Street, Aspen, CO 81611. The name of its initial registered agent at such address is Timothy McFlynn.

ARTICLE VI
Members

The corporation shall have no members with voting and other rights and powers under the provisions of the Colorado Non-Profit Corporation Act. The Board of Directors may establish honorary non-voting classes of "members" for fundraising purposes as it deems appropriate from time to time. The corporation shall have no capital stock.

ARTICLE VII
Board of Directors

The management of the affairs of the corporation shall be vested in a Board of Directors, except as otherwise provided in the Colorado Non-Profit Corporation Act, these articles of incorporation, or the bylaws of the corporation. The Board of Directors shall consist of not less than three (3) nor more than twenty-one (21) directors, the number of directors, their classification, if any, their terms of office, and the manner of their election or appointment to be determined according to the Bylaws of the corporation then in force.

The number of Directors constituting the initial Board of Directors is five (5). The names and addresses of the persons who shall serve as the initial Board of Directors are as follows:

James W. Light
Box 5000
Snowmass Village, CO 81615

Christopher R. Myers
Rising Sun Enterprises
0040 Sunset Dr., #1
Basalt, CO 81621

David A. Wilhelm
Roaring Fork Club
PO Box 1669
Basalt, CO 81621

Shane J. Harvey
P.O. Box 677
Aspen, CO 81612

William D. Browning
Rocky Mountain Institute
1739 Snowmass Creek Road
Snowmass, CO 81654

The number of Incorporators shall be one, and the name and address of the person who shall serve as the incorporator is as follows:

Timothy McFlynn, Esq.
McFlynn Pickett Doremus & Whitsitt, P.C.
320 West Main Street
Aspen, Colorado 81611

ARTICLE VIII
Indemnity and Insurance

The corporation shall indemnify any director or former director of the corporation against any claim by the corporation or its members for any monetary damages for breach of fiduciary duty as a director. Such limit of personal liability shall not extend to a director for monetary damages for any breach of the director's duty of loyalty to the corporation or its members; acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law; acts specified in Section 7-24-111, CRS; or any transaction from which the director derived an improper personal benefit. The corporation shall maintain such officers' and director's liability insurance as may from time to time be required in the bylaws of the corporation or by resolution of its Board of Directors.

ARTICLE IX
Distribution of Assets Upon Dissolution

In the event of dissolution, the assets of the corporation shall be distributed as follows:

(a) All liabilities and obligations of the corporation shall be paid and discharged, or adequate provisions shall be made therefor;

(b) Assets held by the corporation on condition requiring return, transfer or conveyance, which condition occurs by reason of the dissolution, shall be returned, transferred or conveyed in accordance with such requirement.

(c) Assets received and held by the corporation, subject to limitations permitting their use only for specified purposes, but not held upon a condition requiring return, transfer or conveyance by reason of the dissolution shall be transferred or conveyed to one or more domestic or foreign corporations, societies, or organizations engaged in activities similar to those of the corporation, pursuant to a plan of distribution adopted as provided in Section 77-26-104, CRS.

(d) Remaining assets, if any, shall be distributed to another non-profit tax-exempt organization with conservation and education goals similar to the Roaring Fork Conservancy.

IN WITNESS WHEREOF, the undersigned incorporator of the corporation as designated in Article VII has executed these Articles of Incorporation this 25th day of November, 1996.

Timothy McFlynn, Incorporator

STATE OF COLORADO)
) ss.
COUNTY OF PITKIN)

Subscribed and sworn to before me this 25th day of November, 1996, by Timothy McFlynn, as the Incorporator of Roaring Fork Conservancy.

Witness my hand and official seal.
My Commission expires:
10-6-98

Notary Public

rft\articles.inc

BY-LAWS

OF THE

ROARING FORK CONSERVANCY

ARTICLE I

Offices

1. **Business Office**. The principal office of the corporation shall be in Basalt, Colorado. The corporation may also have one or more offices at such other places or places within or without the State of Colorado as the Board of Directors may from time to time determine or as the business of the corporation may require.

2. **Registered Office**. The registered office of the corporation shall be as set forth in the Articles of Incorporation, unless changed as provided by the Colorado Non-Profit Corporation Act.

ARTICLE II

Members

The corporation shall have no members with voting or other rights and powers under the provisions of the Colorado Non-Profit Corporation Act. The corporation may have non-

voting associate memberships for general public support and other fund-raising purposes, in such categories and with such a fee schedule as the Board may from time to time adopt by Resolution.

ARTICLE III

Board of Directors

1. Management. The affairs of the corporation shall be managed by the Board of Directors.

2. Number and Qualification. The Board of Directors shall consist of not less than three (3) nor more than (15) Directors, as shall be determined from time to time by Resolution of the Board of Directors. Directors need not be residents of the State of Colorado.

3. Election and Tenure. The Directors constituting the first Board of Directors as named in the Articles of Incorporation shall hold office until the dates set forth below or until their successors are elected and shall qualify:

Name and address	**Expiration of Term**
James W. Light	2 years

Box 5000 (December 31, 1998)

Snowmass Village, CO 81615

David A. Wilhelm 2 years

Roaring Fork Club (December 31, 1998)

PO Box 1669

Basalt, CO 81621

William D. Browning 2 years

Rocky Mountain Institute (December 31, 1998)

1739 Snowmass Creek Road

Snowmass, CO 81654

Shane J. Harvey 2 years

PO Box 677 (December 31, 1998)

Aspen, CO 81612

Christopher R. Meyers 2 years

Rising Sun Enterprises (December 31, 1998)

0040 Sunset Drive, #1

Basalt, CO 81621

Each new Director shall thereafter be elected to three (3) year terms by the vote of the existing Directors at the annual meeting of Directors or at a special meeting called and notices for this purpose. Each Director so elected shall serve until his or her successor shall be elected and shall qualify, except that any Director may resign by tendering written notice of resignation to the President at least thirty (30) days prior to the effective date of such resignation.

4. **Annual Meeting of the Board of Directors**. The annual meeting of the Board of Directors for the election of new Directors and for the transaction of such other business as may come before the meeting shall be held during the third month after the close of each fiscal year of the corporation.

5. **Regular Meetings of Directors**. The first regular meeting of the Board of Directors shall be as soon as practical following the date of incorporation at such time and place as may be mutually agreed upon by the first Board of Directors. Other regular meetings of the Board of Directors may be held at such regular intervals (e.g., quarterly, monthly, etc.) and at such times and places as shall be determined from time to time by the Board of Directors.

6. **Special Meeting of Directors**. Special meetings of the Board of Directors may be called by the President or by any two (2) Directors.

7. **Place of Meetings**. Meetings of the Board of Directors, whether annual, regular or special, shall be held at the principal office of the corporation or at such other place, within or outside the State of Colorado, as may from time to time be determined by the Board of Directors and specified in the notice of the meeting.

8. **Quorum**. Fifty (50%) percent or more of the Directors then in office shall constitute a quorum for the transaction of business at any meeting of the Board of Directors which has been duly called and notices or as to which notice has been waived. The act of a majority of the Directors present at such a meeting shall constitute the act of the Board of Directors.

9. **Vacancies**. Any vacancy occurring in the Board of Directors may be filled by the affirmative vote of a majority of the remaining Directors. A Director elected to fill a vacancy shall be elected for the unexpired term of his predecessor in office. Any Directorship to be filled by reason of an increase in the number of Directors shall be filled by the affirmative vote of a majority of the Directors then in office. A Director chosen to fill a position resulting from an increase in the number of Directors shall hold office until the next annual meeting of Directors.

10. **Executive Committee**. The Board of Directors, by resolution adopted by a majority of the Directors, may designate three (3) or more Directors to constitute an executive committee, which committee, to the extent provided in such resolution and subject to the limitations of the Colorado Nonprofit Corporation Act, shall have and may

exercise all of the authority of the Board of Directors in the management of the corporation.

11. Compensation. The Directors may be paid their out-of-pocket expenses, if any, of attendance at each meeting of the Board of Directors and shall not otherwise be compensated for attendance of meetings of the Board of Directors or of its Committees or for other activities as a Director. No such payment shall preclude any Director from serving the Corporation in any other capacity and receiving compensation therefor.

12. Conflict of Interest. When a real or seeming incompatibility between a Director's private or professional interests and the interests of the Conservancy exists, Director is disqualified from representing both interests if the dual representation adversely affects either interest or if interest does not consent.

ARTICLE IV

Notices, Waiver and Action Without Meeting

1. Annual Meeting of Directors. Notice of each annual meeting of Directors shall be given not less than ten (10) nor more than fifty (50) days prior thereto to each Director by delivering written notice thereof to such Director personally or by mailing the same to such Director at his or her address as shown on the books of the corporation.

2. **Regular Meeting of Directors**. Notice of regular meeting of Directors shall be given not less than ten (10) nor more than thirty (30) days prior thereto to each Director by delivering written notice thereof to such Director personally or by mailing the same to such Director at his or her address as shown on the books of the corporation.

3. **Special Meeting of Directors**. Notice of such special meeting of Directors shall be given to each Director by delivering written notice thereof to such Director personally, or by verbal telephonic communication to such Director personally, not less than two (2) days prior to the date of such meting, or by mailing or telefaxing such written notice thereof to such Director at his or her address as shown on the books of the corporation, not less than seven (7) days prior to the date of such meeting.

4. **Time of Notice**. Any notice given by personal delivery or personal telephonic communication shall be deemed given at the time of such personal delivery or personal telephonic communication. Any notice given by mail shall be deemed given at the time the same is deposited in the mail; and any notice given by telefax shall be deemed given at the time when the telefax is transmitted.

5. **Contents of Notice**. The notice required for any meeting of Directors shall state the place, date and hour thereof. Neither the business to be transacted at, nor the purpose of, any meeting of Directors need be specified in the notice of the meeting,

except, in the case of the election of Directors, and/or officers and in the case of any amendment of these By-Laws which shall be set forth in the notice and except as may be otherwise provided for by law.

6. Waiver of Notice. Whenever any notice of a meeting of Directors is required to be given by these By-Laws or by law, a Waiver thereof in writing, signed by the person entitled to said notice, whether signed before, at, or after the time of such meeting, shall be deemed equivalent to the proper giving of such notice. The attendance of a Director at a meeting shall constitute a Waiver of notice of such meeting, except where a Director attends a meeting for the express purpose of objecting to the transaction of any business because of the meeting has not been lawfully called on convened.

7. Action Without Meeting. Any action of the Board of Directors or Members of the Executive Committee of the corporation may be taken without a meeting if a consent in writing, setting forth the action so taken, shall be signed by all of the Directors or members of the executive committee, as the case may be, entitled to vote with respect to the subject matter thereof.

8. Voting. Members of the Board of Directors may cast a vote on any action of the Board of Directors or Members of the Executive Committee via writing, email, or telephone, when entitled to vote with respect to the subject matter thereof.

ARTICLE V

Officers

1. **Appointment**. The officers shall be a President, one or more Vice-Presidents, a Secretary and a Treasurer, and such other officers as the Directors may deem necessary who shall each be elected by the Board of Directors at its annual or any regular meeting. Each officer shall hold office at the pleasure of the Board. Any two (2) of the above offices, except those of President and Secretary, may be held by the same person. The President, and Vice-President(s), the Secretary and the Treasurer shall be known as executive officers and shall constitute the Executive Committee. A board member may be allowed to leave the Board of Directors for a period of no less than one year unless by the unanimous vote of the Board their continuance is critical to the operation of the Conservancy, in which case they may be elected to an additional term. Up to two (2) Board members may be appointed to the Conservancy's Board of Directors by the Town of Basalt Trustees with the consent and approval of the Conservancy Board.

2. **President**. The President shall be the chief executive officer of the corporation; shall have general and active management of the business of the corporation; shall see that all orders and resolutions of the Board of Directors are carried into effect; and shall, in the absence of the Chairman of the Board or if there be no Chairman, preside at all meetings of the Board of Directors. The President shall have authority to employ and dismiss such employees and agents (other than officers to be appointed by the Board) as the business of the corporation may require and to fix their compensation, duties and responsibilities.

3. **Vice-President**. The Vice-President shall, in the absence of disability of the President, perform the duties and exercise the powers of the President and shall perform such other duties and have such other powers as the President or the Board of Directors may prescribe from time to time. If there shall be more than one Vice-President, then the Vice-Presidents shall act in the order in which they are elected.

4. **Secretary**. The Secretary shall keep the minutes of all Executive Committee meetings in one or more books prescribed for tat purpose and, in general, shall perform all duties incidental to the office of Secretary and such other duties as may be assigned by the President of the Board of Directors from time to time. The Secretary shall keep the seal of the corporation in safe custody and, when authorized by the Board of Directors, shall affix the same to any instrument requiring it and, when so affixed, it shall be attested by his or her signature. The Conservancy staff shall keep the minutes of regular Board of Directors' meetings.

5. **Treasurer**. The Treasurer shall have the responsibility for the funds of the corporation, shall keep full and accurate accounts of receipts and disbursements in books belonging to the corporation, and shall deposit al monies and other valuable effects n the name and to the credit of the corporation in such depositaries as may be designated by the Board of Directors from time to time. The Treasurer shall perform such other duties and have such other powers as the President or the Board of Directors may prescribe from time to time.

ARTICLE VI

Execution of Instruments

1. Execution of Instruments. The President and Executive Director shall have power, upon authorization by the Board, to execute on behalf and in the name of the corporation any deed, contract, bond, debenture, note or other instrument requiring the signature of an officer of the corporation, except when the signing and execution thereof shall be expressly delegated by the Board of Directors to some other officer or agent of the corporation. Unless so authorized, no other officer, agent or employee shall have any power or authority to bind the corporation in any way, to pledge its credit, or to render it liable pecuniarily for any purpose or in any amount, except as provided in Section 2 of this Article VI.

2. Checks and Endorsements. All checks and drafts upon the funds of the corporation in any of its depositories shall be signed by such of its officers, employees or agents as shall from time to time be determined by resolution of the Board of Directors and all notes, bills, receivables, trade acceptances, drafts and other evidences of indebtedness payable to the corporation shall for the purpose of the deposit, discount or collection be endorsed by such officers, employees or agents of the corporation as shall from time to time be determined by resolution of the Board of Directors.

3. Conservation Easements. The President and Executive Director shall have the power to execute in the name of the corporation any conservation easement with approval by a quorum vote of the Board of Directors.

ARTICLE VII

Corporate Seal

The corporate seal shall be in such form as shall be approved by resolution of the Board of Directors. Said seal may be used by causing it or a facsimile thereof to be impressed on or affixed to any document.

ARTICLE VIII

Fiscal Year

The fiscal year of the corporation shall be January 1 through December 31 unless and until a different fiscal year shall be adopted by the Board of Directors.

ARTICLE IX

Corporate Books and Records

Except as otherwise required by statute, the books and records of the corporation may be kept at such place or places as may be from time to time designated by the Board of Directors.

ARTICLE XI

Sexual Harassment Policy

It is not the Roaring Fork Conservancy's intention to regulate social relationships among employees. The Conservancy will, however, take disciplinary action if warranted and necessary, against any employee who engages in conduct that constitutes sexual harassment or physical, emotional, or verbal abuse.

Complaints should be reported immediately to the Executive Director or our supervisor and will remain confidential.

ARTICLE X

Amendment

The By-Laws of the corporation shall be subject to amendment or repeal, and new By-Laws may be added, by an affirmative quorum vote of the members of the Board of Directors at any annual, regular or special meeting duly noticed for purposes of consideration of said amendment.

CERTIFICATE

The undersigned hereby certifies that she is the duly elected, qualified and acting Secretary of the aforesaid corporation and that the foregoing By-Laws constitute a true and complete copy of the By-Laws of said corporation presently in force and effect.

Roaring Fork Conservancy
2012 Operating Budget

	General Admin.	Fundraising & Development	Land Conservation	River Stewardship	Education	Water Quality	Water Res. Research	2012 Budget	2011 Budget	2011 Actual
Income										
Donations	-	90,000 [1]	-	15,000 [2]	30,000 [3]	-	-	**135,000**	90,000	92,051
Grants	-	-	-	20,300	10,000	-	48,000	**78,300**	76,300	88,702
RETA	-	85,000	-	-	-	-	-	**85,000**	51,000	83,938
Events	-	275,000 [4]	-	-	18,000	-	-	**293,000**	312,000	269,565
Earned Income:	-	-	-	-	-	-	-	**-**		
Easements	-	-	46,250	-	-	-	-	**46,250**	44,991	50,466
Interest Income	1,000	-	-	-	-	-	-	**1,000**	700	630
Program	-	5,000	-	-	28,000	2,000	-	**35,000**	79,500	41,188
Income Totals	**1,000**	**455,000**	**46,250**	**35,300**	**86,000**	**2,000**	**48,000**	**673,550**	**651,500**	**631,454**
Expenses										
Payroll Wages	39,080	-	12,000 [5]	66,000	85,852	35,376	49,530	**287,838**	270,500	268,562
Payroll Taxes	3,224	-	1,116	5,247	7,000	2,900	3,987	**23,474**	21,845	21,907
IRA Contribution	750	-	-	1,320	1,717	710	991	**5,488**	5,382	5,331
Health Insurance	5,737	-	-	6,358	4,961	5,737	42	**22,835**	23,741	23,206
Accounting	23,000	-	-	-	-	-	-	**23,000**	27,000	23,351
Bank Charges	1,100	-	-	-	-	-	-	**1,100**	1,500	1,096
Cleaning	1,200	-	-	-	-	-	-	**1,200**	1,200	1,211
Computers/Database	8,000	4,000	-	-	-	-	-	**12,000**	12,000	12,048
Consultants	-	80,000	-	-	-	-	15,000 [6]	**95,000**	90,000	87,809
Equipment/Supplies	6,000	-	-	300	2,000	1,000	300	**9,600**	9,300	9,678
Events	-	75,000	-	2,000 [7]	6,000	-	-	**83,000**	93,000	70,259
Program	-	-	5,000	-	750	3,500		**9,250**	8,750	9,143
Liability/Work Comp.	6,000	-	-	-	-	-	-	**6,000**	5,700	6,066
Marketing	-	12,000	-	8,000	-	-	-	**20,000**	15,000	20,615
Meals	-	1,200	-	1,200	300	100	400	**3,200**	2,400	3,149
Memberships	-	-	-	400	500	200	500	**1,600**	1,300	1,685
Mileage	100	-	300	400	3,000	1,700	800	**6,300**	5,440	6,200
Miscellaneous	-	-	-	250	-	-	-	**250**	1,000	249
Postage	3,200	-	-	-	-	-	-	**3,200**	3,500	3,173
Prof. Development	-	-	500	250	750	250	250	**2,000**	2,000	2,029
Rent/Storage	42,000	-	-	-	-	-	-	**42,000**	43,000	41,077
Telephone/Utilities	5,500	-	-	1,000	650	-	500	**7,650**	8,250	7,461
Expense Totals	**144,891**	**172,200**	**18,916**	**92,725**	**113,480**	**51,473**	**72,300** [7]	**665,985**	**650,808**	**626,041**

Income Total	**673,550**	**651,500**	
Expense Total	**665,985**	**650,808**	
Net Difference	**7,565**	**692**	**5,413**

BUDGET							
TASK NUMBER	**CATEGORY**	**DETAILS**	**HOURS /RATES**	**TOTAL COST**	**CBRT REQUEST**	**STATE REQUEST**	**MATCH (IN-KIND AND CASH)**
TASK #1 – Conduct a High-Level Crystal River Watershed Land Use and Geomorphic Assessment							
	PERSONNEL COSTS	1. Compile and analyze existing GIS resource data (hydrologist, geomorphologist, and GIS analyst).	60 hrs @ 62.50/hr	3,750.00			
		2. Conduct limited field campaigns for additional data collection and ground-truthing (hydrologist and geomorphologist).	80 hrs @ 62.50/hr	5,000.00			
		3. Review the landscape history and summarize those activities that potentially affect sediment supply and channel stability. Identify specific process relations (hydrologist and geomorphologist).	60 hrs @ 62.50/hr	3,750.00			
		4. Review the landscape overview and map the watershed, identifying/analyzing hillslope, hydrologic and channel processes. Document surface and mass erosion, identify streamflow changes and direct impacts to streambanks and channels (hydrologist and geomorphologist).	80 hrs @ 62.50/hr	5,000.00			
		5. Eliminate areas, sub-watersheds and/or reaches that are not contributing to impairment and select those areas, sub-watersheds and/or reaches that require targeted assessment (hydrologist and geomorphologist).	20 hrs @ 62.50/hr	1,250.00			
TASK SUB-TOTAL				**18,750.00**	**937.50**	**17,812.50**	

TASK #2 – Conduct a Targeted Land Use and Geomorphic Assessment of Coal Basin							
	PERSONNEL COSTS	1. Perform a landscape and river inventory and determine the variables (e.g., loss of stream buffers, floodplain encroachment, changes in riparian vegetation, excess sediment supply) influenced by existing conditions (hydrologist and geomorphologist).	640 hrs@62.50/hr	40,000.00	2,000.00	38,000.00	
		2. Establish and survey monitoring reaches within Coal Basin to document changes in channel form over time (hydrologist and geomorphologist).	400 hrs@62.50 hr	25,000.00	1,250.00	23,750.00	
		3. Compile data necessary to rate level of resource management risk, including hillslope processes (including mass and surface erosion and roads), hydrologic processes (including an assessment of the potential for streamflow changes), and channel processes (including a general stability assessment (e.g., streambank erosion potential, aggradation, in-channel mining, etc.). This work will include an assessment of bedload transport processes, with specific protocols to be determined based on peak flow predictions from snowpack, site selection, and safety concerns (hydrologist and geomorphologist).	1,440 hrs@62.50/hr	90,000.00	4,500.00	85,500.00	
		4. Calculate total potential sediment supply and channel stability resource management risk and consequences (High/Medium/Low) of implementing or failing to implement mitigation measures (hydrologist and geomorphologist).	240 hrs@62.50/hr	15,000.00	750.00	14,250.00	
		5. Recommend site-specific mitigation measures and methodologies for monitoring for success (both channel and sediment load response) (hydrologist and geomorphologist).	320 hrs@62.50/hr	20,000.00	1,000.00	19,000.00	
		6. Additional analysis and reporting (hydrologist and geomorphologist).	240 hrs@62.50.hr	15,000.00	750.00	14,250.00	
		7. Report preparation	50 hrs@100/hr	5,000.00	250.00	4750.00	
TASK SUB-TOTAL				**210,000.00**	**10,500.00**	**199,500.00**	

TASK #3 – Collect Stream Flow and Meteorological Data and Conduct Sedeiment Sampling in Coal Basin							
	PERSONNEL COSTS	Hydrologist (installation of stream gage)	25 hrs @ 60/hr	1,500.00	75.00	1,425.00	
		Hydrologist(annual operation and maintenance of stream gage)	70 hrs @$60/hr	4,200.00	210.00	3,990.00	
		Suspended sediment sample processing and sampler maintenance	128 hrs @ 62.50/hr	8,000.00	400.00	7,600.00	
		Coarse sample processing	48 hrs @ 62.50/hr	3,000.00	150.00	2,850.00	
	EQUIPMENT	Streamflow gage with sensors		8,000.00	400.00	7,600.00	
		ISCO water sampler and data loggers		11,040.00	0.00	0.00	11,040.00
TASK SUB-TOTAL				35,740.00	1,235.00	23,465.00	11,040.00
TASK #4 – Conduct Water Quality and Macroinvertebrate Sampling in Coal Basin and the Crystal River (2 years)							
	PERSONNEL COSTS	Macroinvertebrate data collection (8 sites/annually)	96 hrs @40/hr	3,840.00	0.00	0.00	3,840.00
		Macroinvertebrate sorting, identification, analysis, interpretation, and reporting	128 hrs @65/hr	8,320.00	316.00	6,004.00	2,000.00
		Water Quality data collection (4 sites/quarterly)	128 hrs @ 60/hr	7,680.00	0.00	0.00	7,680.00
		Water Quality data analysis and interpretation	185 hrs @78/hr	14,430.00	237.20	4,506.80	9,686.00
		River Watch support and lab analysis (4 sites/quarterly)	$46/site	1,472.00	0.00	0.00	1,472.00
	MILEAGE	WQ and macroinvertebrate sampling	1540 miles @.555 per mile	854.70	42.74	811.97	0.00
	SUPPLIES and SHIPPING	WQ sampling	$6/site	192.00	0.00	0.00	192.00
TASK SUB-TOTAL				36,788.70	595.94	11,322.77	24,870.00

TASK #5 – Conduct a Road Reclamation Pilot Project in Coal Basin							
	PERSONNEL COSTS	Project Planning/on-site project supervision	240 hrs@50/hr	12,000.00	0.00	0.00	12,000.00
		Biogeochemist (Soil Monitoring and Reporting-4 site visits)	133.3 hrs @ 75/hr	10,000.00	200.00	3,800.00	6,000.00
		Soil Scientist (Soil Monitoring)	80 hrs@50/hr	4,000.00	0.00	0.00	4,000.00
		Vegetation Monitoring	40 hrs @50/hr	2,000.00	0.00	0.00	2,000.00
		Tree Planting	500/ac for 3 ac	1,500.00	75.00	1,425.00	0.00
		Trackhoe Operator	200 hrs@50/hr	10,000.00	100.00	1,900.00	8,000.00
		D-5 Bulldozer Operator	160 hrs@50/hr	8,000.00	0.00	0.00	8,000.00
		Front End Loader Operator	80 hrs@50/hr	4,000.00	0.00	0.00	4,000.00
		Dump Truck Operator	120 hrs@50/hr	6,000.00	100.00	1,900.00	4,000.00
		Fence Building	10.88 acres @ 450/acre (3 days @ 150/day)	4,896.00	0.00	0.00	4,896.00
	EQUIPMENT /SUPPLIES	Trackhoe 315 with thumb Time	5 wks @ 2905/wk	14,525.00	145.25	2,759.75	11,620.00
		D-5 Bulldozer Time	4 wks @ 2500/wk	10,000.00	0.00	0.00	10,000.00
		3 yd Front End Loader	2 wks@ 2630/wk	5,260.00	0.00	0.00	5,260.00
		Dump Truck	3wks@1600/wk	4,800.00	0.00	0.00	4,800.00
		Compost Tea, Erosion Control Materials	10.88 ac@459.55/ac	5,000.00	0.00	0.00	5,000.00
		Compost Cost	$20/yd^3 200 yd^3/ac	20,720.00	0.00	0.00	20,720.00
		Compost Haul	31 miles	9,500.00	0.00	0.00	9,500.00
		Biochar Cost	$275/yd^3 5 tons per acre	14,025.00	0.00	0.00	14,025.00
		Biochar Haul to South Canyon	269 miles	3,000.00	0.00	0.00	3,000.00
		Spruce Trees	200 trees @ 8 each	1,600.00	80.00	1,520.00	0.00
		Grass Seed		500.00	0.00	0.00	500.00
		Fencing Supplies	10.88 ac @955/ac	10,390.00	519.50	9,870.50	0.00
TASK SUB-TOTAL				161,716.00	1,219.75	23,175.25	137,321.00

TASKS 1-5 SUB-TOTAL				462,994.70			
TASK #6 – Manage Project; Education and Outreach							
	PERSONNEL COSTS	Education and Outreach, Workshop	160 hrs@75/hr	12,000.00			12,000.00
		Coordinate and oversee implementation of the overall project, ensure fiscal accountability and prepare and submit invoices.	294 hrs@75/hr	22,050.00	616.00	11,704.00	9,730.00
		Prepare and deliver progress reports to CWCB every 6 months. Prepare and deliver a final report to CWCB at the conclusion of the project.	150 hrs@100/hr	15,000.00	750.00	14,250.00	0
TASK SUB-TOTAL				49,050.00	1,366.00	25,954.00	21,730.00
TOTALS				**512,044.70**	**15,854.19**	**301,229.52**	**194,961.00**

TASK NUMBER	CATEGORY	DETAILS	HOURS /RATES	TOTAL COST	CBRT REQUEST	STATE REQUEST	MATCH (in-kind and cash)	Pitkin Rivers Fund Cash Match	CWCB Watershed Restoration Grant Cash Match	Conservation Alliance Cash Match	USFS In-kind	RFC In-kind
TASK #1 – Conduct a High-Level Crystal River Watershed Land Use and Geomorphic Assessment												
	PERSONEL COSTS	1. Compile and analyze existing GIS resource data (hydrologist, geomorphologist, and GIS analyst).	60 hrs @ 62.50/hr	3,750.00								
		2. Conduct limited field campaigns for additional data collection and ground-truthing (hydrologist and geomorphologist).	80 hrs @ 62.50/hr	5,000.00								
		3. Review the landscape history and summarize those activities that potentially affect sediment supply and channel stability. Identify specific process relations (hydrologist and geomorphologist).	60 hrs @ 62.50/hr	3,750.00								
		4. Review the landscape overview and map the watershed, identifying/analyzing hillslope, hydrologic and channel processes. Document surface and mass erosion, identify streamflow changes and direct impacts to streambanks and channels (hydrologist and geomorphologist).	80 hrs @ 62.50/hr	5,000.00								
		5. Eliminate areas, sub-watersheds and/or reaches that are not contributing to impairment and select those areas, sub-watersheds and/or reaches that require targeted assessment (hydrologist and geomorphologist).	20 hrs @ 62.50/hr	1,250.00								
TASK SUB-TOTAL				18,750.00	937.50	17,812.50						
TASK #2 – Conduct a Targeted Land Use and Geomorphic Assessment of Coal Basin												
	PERSONEL COSTS	1. Perform a landscape and river inventory and determine the variables (e.g., loss of stream buffers, floodplain encroachment, changes in riparian vegetation, excess sediment supply) influenced by existing conditions (hydrologist and geomorphologist).	640 hr@62.50/hr	40,000.00	2,000.00	38,000.00						
		2. Establish and survey monitoring reaches within Coal Basin to document changes in channel form over time (hydrologist and geomorphologist).	400 hrs@62.50 hr	25,000.00	1,250.00	23,750.00						

		3. Compile data necessary to rate level of resource management risk, including hillslope processes (including mass and surface erosion and roads), hydrologic processes (including an assessment of the potential for streamflow changes), and channel processes (including a general stability assessment (e.g., streambank erosion potential, aggradation, in-channel mining, etc.). This work will include an assessment of bedload transport processes, with specific protocols to be determined based on peak flow predictions from snowpack, site selection, and safety concerns (hydrologist and geomorphologist).	1,440 hrs@62.50/hr	90,000.00	4,500.00	85,500.00						
		4. Calculate total potential sediment supply and channel stability resource management risk and consequences (High/Medium/Low) of implementing or failing to implement mitigation measures (hydrologist and geomorphologist).	240 hrs@62.50/hr	15,000.00	750.00	14,250.00						
		5. Recommend site-specific mitigation measures and methodologies for monitoring for success (both channel and sediment load response) (hydrologist and geomorphologist).	320 hrs@62.50/hr	20,000.00	1,000.00	19,000.00						
		6. Additional analysis and reporting (hydrologist and geomorphologist).	240 hrs@62.50.hr	15,000.00	750.00	14,250.00						
		7. Report preparation.	50 hr @100/hr	5,000.00	250.00	4,750.00						
TASK SUB-TOTAL				210,000.00	10,500.00	199,500.00						
TASK #3 – Collect Stream Flow and Meteorological Data and Conduct Sedeiment Sampling in Coal Basin												
	PERSONEL COSTS	Hydrologist (installation of stream gage)	25 hrs @ 60/hr	1,500.00	75.00	1,425.00						
		Hydrologist(annual operation and maintenance of stream gage)	70 hrs @$60/hr	4,200.00	210.00	3,990.00						
		Suspended sediment sample processing and sampler maintenance	128 hrs @ 62.50/hr	8,000.00	400.00	7,600.00						
		Coarse sample processing	48 hrs @ 62.50/hr	3,000.00	150.00	2,850.00						
	EQUIPMENT	Streamflow gage with sensors		8,000.00	400.00	7,600.00						
		ISCO water sampler and data loggers		11,040.00	0.00	0.00	11,040.00				11,040.00	
TASK SUB-TOTAL				35,740.00	1,235.00	23,465.00	11,040.00				11,040.00	
TASK #4 – Conduct Water Quality and Macroinvertebrate Sampling in Coal Basin and the Crystal River (2 years)												
	PERSONEL COSTS	Macroinvertebrate data collection (8 sites/annually)	96 hrs @40/hr	3,840.00	0.00	0.00	3,840.00				3,840.00	
		Macroinvertebrate sorting, identification, analysis, interpretation, and reporting	128 hrs @65/hr	8,320.00	316.00	6,004.00	2,000.00					2,000.00
		Water Quality data collection (4 sites/quarterly)	128 hrs @ 60/hr	7,680.00	0.00	0.00	7,680.00					7,680.00
		Water Quality data analysis and interpretation	185 hrs @78/hr	14,430.00	237.20	4,506.80	9,686.00	9,686.00				
		River Watch support and lab analysis (4 sites/quarterly)	$46/site	1,472.00	0.00	0.00	1,472.00					1,472.00
	MILEAGE	WQ and macroinvertebrate sampling	1540 miles @.555 per mile	854.70	42.74	811.97						
	SUPPLIES and SHIPPING	WQ sampling	$6/site	192.00	0.00	0.00	192.00					192.00
TASK SUB-TOTAL				36,788.70	595.94	11,322.77	24,870.00	9,686.00			3,840.00	11,344.00

TASK #5 – Conduct a Road Reclamation Pilot Project in Coal Basin												
	PERSONEL COSTS	Project Planning/on-site project supervision	240 hrs@50/hr	12,000.00	0.00	0.00	12,000.00				12,000.00	
		Biogeochemist (Soil Monitoring and Reporting-4 site visits)	133.3 hrs @ 75/hr	10,000.00	200.00	3,800.00	6,000.00		6,000.00			
		Soil Scientist (Soil Monitoring)	80 hrs@50/hr	4,000.00	0.00	0.00	4,000.00				4,000.00	
		Vegetation Monitoring	40 hrs @50/hr	2,000.00	0.00	0.00	2,000.00		0.00		2,000.00	
		Tree Planting	500/ac for 3 ac	1,500.00	75.00	1,425.00	0.00		0.00			
		Trackhoe Operator	200 hrs@50/hr	10,000.00	100.00	1,900.00	8,000.00		0.00		8,000.00	
		D-5 Bulldozer Operator	160 hrs@50/hr	8,000.00	0.00	0.00	8,000.00		0.00		8,000.00	
		Front End Loader Operator	80 hrs@50/hr	4,000.00	0.00	0.00	4,000.00		0.00		4,000.00	
		Dump Truck Operator	120 hrs@50/hr	6,000.00	100.00	1,900.00	4,000.00		0.00		4,000.00	
		Fence Building	10.88 acres @ 450/acre (3 days @ 150/day)	4,896.00	0.00	0.00	4,896.00				4,896.00	
	EQUIPMENT /SUPPLIES	Trackhoe 315 with thumb Time	5 wks @ 2905/wk	14,525.00	145.25	2,759.75	11,620.00		5,620.00	6,000.00		
		D-5 Bulldozer Time	2500/wk	10,000.00	0.00	0.00	10,000.00		0.00		10,000.00	
		3 yd Front End Loader	2630/wk	5,260.00	0.00	0.00	5,260.00	2,630.00	0.00	2,630.00		
		Dump Truck	3wks@1600/wk	4,800.00	0.00	0.00	4,800.00				4,800.00	
		Compost Tea, Erosion Control Materials	ac@459.55/ac	5,000.00	0.00	0.00	5,000.00			5,000.00		
		Compost Cost	yd^3/ac	20,720.00	0.00	0.00	20,720.00	5,784.00	8,216.00	6,720.00		
		Compost Haul	31 miles	9,500.00	0.00	0.00	9,500.00		6,000.00	3,500.00		
		Biochar Cost	$275/$yd^3$ 5 tons per acre	14,025.00	0.00	0.00	14,025.00	4,813.00	4,812.00	4,400.00		
		Biochar Haul to South Canyon	269 miles	3,000.00	0.00	0.00	3,000.00		2,000.00	1,000.00		
		Spruce Trees	each	1,600.00	80.00	1,520.00	0.00					
		Grass Seed		500.00	0.00	0.00	500.00				500.00	
		Fencing Supplies	10.88 ac @955/ac	10,390.00	519.50	9,870.50	0.00					
TASK SUB-TOTAL				161,716.00	1,219.75	23,175.25	137,321.00	13,227.00	32,648.00	29,250.00	62,196.00	
TASKS 1-5 SUB-TOTAL				462,994.70								
TASK #6 – Manage Project; Education and Outreach												
	PERSONEL COSTS	Education and Outreach, Workshop	160 hrs@75/hr	12,000.00			12,000.00	12,000.00				
		Coordinate and oversee implementation of the overall project, ensure fiscal accountability and prepare and submit invoices.	294 hrs@75/hr	22,050.00	616.00	11,704.00	9,730.00	0.00	6,930.00	2,800.00		
		Prepare and deliver progress reports to CWCB every 6 months. Prepare and deliver a final report to CWCB at the conclusion of the project.	150 hrs @100/hr	15,000.00	750.00	14,250.00	0.00					
TASK SUB-TOTAL				49,050.00	1,366.00	25,954.00	21,730.00	12,000.00	6,930.00	2,800.00		
TOTALS				**512,044.70**	**15,854.19**	**301,229.52**	**194,961.00**	**34,913.00**	**39,578.00**	**32,050.00**	**77,076.00**	**11,344.00**