



Full Stream Ahead

March/April 2006

News and Highlights of Creeks and Communities: A Continuing Strategy for Accelerating Cooperative Riparian Restoration

Adaptive Management *(It's Not the Destination, It's the Journey)*

Ron Wiley, National Riparian Service Team Leader

We have all heard the old saw, "You can't get there from here." I would like to take this a bit further by asking, "How do you get 'there' if you don't know exactly where 'there' is and aren't even sure exactly where 'here' is?" Sound silly; well unfortunately, in natural resource management this conundrum can often be all too real. However, there is a way out of this maze. Adaptive management, if properly applied, can be the tool we are seeking.

Two essential steps in natural resource management planning are to assess current conditions and then to describe the conditions we want to manage for, i.e., desired conditions. This sounds simple to the uninitiated but anyone who has been involved in developing resource management plans can attest to the difficulties and pitfalls inherent to this process. First, lack of current data, lack of time/money to acquire more data, and even lack of knowledge to interpret the data we do have can be, and more often than not is, problematic. This is just to try to figure out where "here" is! Now let us look at identifying where "there" is, i.e., describing desired conditions. Once again, we run head long into problems. Someone will usually shout out, "Manage conditions to be as good as they can be." Wait a minute, "as good as they can be"...compared to when and under what conditions? Prior to European settlement, prior to human presence, during "cool/wet" climatic patterns, "warm/dry" climatic patterns....let's also not forget that we cannot accurately predict future weather and climate patterns. Furthermore, have past human actions and/or natural events altered the potential of these natural systems (changed potential or perhaps now a capability issue) and if so, how? You can see where I'm going with this. In short, there are too many relatively unpredictable variables and usually too little data and knowledge to definitively state exactly how we can expect natural systems to respond to our manipulations. The situation is not much better when accurately describing and comparing existing condition to what constitutes a healthy, sustainable system - something I have not seen defined to any degree I feel comfortable hanging my

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hat on! Ok, now what are we supposed to do? First, we have to collectively take a deep breath and accept that we will always be working from a position of less information than we would like. There is nothing we can do about this. No matter how much time and money we spend we will never have a “lock” on the answers to the questions we are faced with in designing management and will only delay desired improvement in the resources we’re managing if we engage in the chase for more data – at least that’s my opinion. This has been termed deferred adaptive management. With deferred adaptive management, decisions will be postponed until sufficient information is available to ensure a fairly high degree of certainty in the outcomes. Not very adaptive – or responsive - in my humble opinion, but I digress.

Although we have to accept that there are limitations in our ability to **predict** the results of our management activities, all is not lost. What we can do relatively well is **forecast** the results of our management. Even the most skeptical among us - me for example - will have to admit that weather forecasts, as imprecise as they are, are not only useful but near vital in planning most of our outdoor activities, whether it is farming, ranching, or just taking a hike. The difference relative to predictions and forecasts is in just how precise we need to be in describing “here” and “there” in order to get off the stick and start moving toward “there”. Active adaptive management accommodates this unavoidable imprecision by treating each management practice as an experiment, regularly evaluating and adjusting the activity over the short term. This greatly speeds up the evolution of management, thereby, also accelerating recovery of affected natural resources. Most importantly, active adaptive management allows us to “get started” even in the face of incomplete information, lack of definitive knowledge, etc. In short, the key to successful active adaptive management is not to “get it right the first time every time” but rather to:

- Do the best job possible of assessing the situation with information and knowledge available,
- Set objectives and design a practical management strategy, again using the best information and knowledge available,
- Implement the management strategy,
- Monitor relevant resource parameters,
- Evaluate monitoring results,
- Adjust management as indicated, and
- ***Repeat as necessary to achieve success.***

With this in mind, what information about the condition of a riparian area is adequate to move ahead? First it must be useful and to be useful it must provide insight into whether or not the basic building blocks of a “healthy” riparian system are present and if not which are lacking. The Proper Functioning Condition (PFC) protocol does a very good job of helping to determine this. A correctly executed PFC assessment, through on-the-ground evaluation of the interaction of soil/landform, water, and vegetation, by a knowledgeable, experienced interdisciplinary team, will identify what is lacking to provide the basis for that “healthy” riparian/aquatic system we talk so much about but

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haven't done so well in defining – there's my opinion again! It is also a very good way to effectively involve stakeholders whose participation and commitment is critical to the success of any management strategy.

Once we have this knowledge, we can begin to link effect with cause. For example, if the riparian area is lacking in vigorous and diverse riparian plant communities, which would have the root structure and mass necessary to resist the erosive forces of water and sediments, we can then look at how current activities are contributing to this condition and collectively devise strategies for correcting it. To put this in terms even I can understand, if the old cows are not leaving enough above ground foliage to trap fine sediments from over bank flows and to allow the plants to be vigorous, putting down robust root masses to hold stream banks, then stop them from eating so much or so long in that location! Does, timing, intensity, and duration strike a chord with anyone? How about off-site water, low stress herding? Whether it is anglers or Off Highway Vehicles' impacting the banks, the mechanism may be different but otherwise it's basically the same problem from a plant's perspective.

Now that we have a reasonable, useful idea of what isn't going right with our current management and have used it to design a practical management strategy that seems reasonably likely to produce the desired direction in trend, we need to keep a close eye on actual progress (as opposed to wishful or hopeful) and modify our management strategy as appropriate to maintain the desired direction of trend. If we conscientiously do this, will someone please explain to me how we **can not** help but achieve conditions which are desirable even though at the onset we may have only a relatively hazy idea of what the desired conditions would actually look like?

Riparian Coordination Network Meeting

November 8-10, 2005 – Reno, Nevada

The biennial meetings of the Riparian Coordination Network (RCN) are both developmental and working meetings designed to increase and enhance the ability to be effective in both managing and implementing the Creeks & Communities (C&C) strategy. The aim is to achieve the initiative's objectives and to do so in a way that meets participating agencies' goals. At the previous RCN meeting (November 2003), participants became increasingly aware of the need to understand and incorporate elements of the human and social dimensions into their activities. From presentations covering the results of the 5-year program evaluation that led to the 2002 revision of the strategic plan for this effort, the RCN learned that actual change within groups and on the ground was more likely to occur with a balance of applied social science techniques coupled with foundational principles of riparian function. While raising awareness relative to condition is important, an over reliance on the transfer of technical information was limiting program effectiveness. This led to the request that the 2005 meeting focus on the human and social dimensions of resource management including tools, techniques of riparian and resources available to the RCN. By providing networking opportunities and presentations by agency partnership and community collaboration leaders, university

"When the well is dry, we know the worth of water." Benjamin Franklin

Riparian Coordination Network Meeting continued

specialists, as well as non-governmental organizations, the meeting format and content contributed to finding ways to combine efforts to increase the Network's effectiveness in implementing the C&C Strategy.

The intent of Federal agencies, and the desire of many communities, is to move toward resolving resource problems on the ground through collaboration. Implementation of the C&C strategy is providing a model for integrating technical information and principles of community stewardship into activities of interdisciplinary teams, line officers, community members, etc., as they relate to riparian resources in a watershed context. This meeting provided a forum to familiarize additional partners with this approach and in turn seek help in identifying opportunities to increase effectiveness relative to implementation. A concerted effort was made to introduce attendees to a number of resources that many may not have been aware of, with the intention that they will draw from these in the future.

There is a variety of internal and external efforts underway to provide training opportunities for learning how to do collaboration. However, while these may help raise awareness about the general concept of collaboration, they rarely impart the skills and understanding needed to effectively organize and participate in a collaborative effort. Rather than working through a pre-scripted conflict scenario, investment in participatory approaches that provide for both technical and social training while solving actual problems on the ground is much more effective. The meeting provided encouragement for this type of activity through examples of such efforts, and in seeking support and resources to enable the Network to accomplish this.

Following are some of the primary outcomes of the meeting:

- Because of presentations made by network members and partners, the meeting participants increased their understanding of integrating science into collaborative efforts, using both PFC assessment and collaboration principles and techniques.
- A riparian-wetland technical panel presented information about monitoring and adaptive management, and shared new information sources on grazing management for riparian areas, road/riparian management, and tamarisk.
- A social science panel presented information on collaboration, partnerships, and suggested resources that can provide assistance with conflict management.
- A series of presentations and panels demonstrated examples of the many stages of community based problem solving.
- State Riparian Teams presented their accomplishments from FY2004-2005, and shared what actions and products have helped make them successful.
- State Riparian Teams planned their C&C Strategy implementation activities for FY2006-2007.
- Feedback was received from meeting participants relative to implementing the C&C Strategy and illustrated in the form of collective statements.
- All handouts and presentations were shared with participants on a proceedings CD mailed in January 2006.

*"I have little need to remind you that water has become one of our major national concerns."
Ezra Taft Benson, U.S. Secretary of Agriculture (1955)*

Lotic PFC Database Beta-Tested

Apache-Sitgreaves National Forest
Southwestern Region (3), USDA Forest Service
Written by Tom Subirge

A database for Proper Functioning Condition (PFC) assessments can help utilize valuable riparian PFC information collected over the years, and keep the information organized and easily accessible. The database can be linked to Geographic Information Systems (GIS) to maintain linkage between (tabular) assessment data and (spatial) information showing reach locations. Digital photos with captions can be added to reach assessments for use in later monitoring efforts, publications, data output forms, etc. and for display in GIS (ArchMap). A PFC database can speed routine analyses and report writing, and help to develop thorough management and monitoring recommendations.

Tom and Heidi Subirge have worked to create such a lotic PFC database for the Apache-Sitgreaves National Forest in Arizona. This application has the capability to enter all field information collected on standard paper-copy lotic PFC forms into a database through data entry templates. Information is stored in a MySQL database, including 3-inch digital thumbnail photos (.jpg), and can be queried either directly or through MS Access. Automated report writing is also possible through MS Access. The MySQL database allows adding, editing, and saving information until it is complete, after which it can be sent to an Oracle database for permanent storage in read-only format. An MS Word data output form has been designed to enable printing data sets in hard copy, or incorporating into reports. This report can be viewed, printed, or e-mailed by the click of a button. High-resolution digital photos (.tiff) are automatically archived to an external hard drive in order to maintain full resolution for any future needs.

An Oracle/MySQL geodatabase has been designed to automatically become populated and updated with select lotic PFC information linked to GIS as soon as the Forest gets new complete coverage of the National Hydrographic Database (NHD) layer, scheduled for spring or summer 2006. NHD coverage will enable identification of unique stream reaches, as defined by PFC surveys, and will finally enable display of spatial riparian data in GIS. NHD is slated to become the national standard base map series for GIS, replacing all earlier versions currently used. NHD coverage is also required for all information that is stored in the Water Natural Resource Information System: US Forest Service corporate Oracle database (NRIS) which may eventually house riparian information (In the year 2525, if man is still alive, and woman can survive, they may find...*).

For more information, contact Tom Subirge on the Apache-Sitgreaves National Forest for a copy of his briefing paper. It includes views of the data input templates, and describes the (nationally) unique number assigned each PFC assessment concatenated from the hydrologic unit code (HUC5), stream name, PFC reach number, and date, etc. An example data set printed through the output form is also shown. **Tom's phone number is 928-333-6250, and email: tsubirge@fs.fed.us. Technical questions regarding application programming and database design can be directed to Heidi at the following address: hkrou0@yahoo.com (that's a "zero" before the @, not the letter "o").**

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* Song by Zager and Evans, 1969.

"A river is more than an amenity, it is a treasure." Justice Oliver Wendell Holmes

Grazing Management for Riparian-Wetland Areas Patagonia, Arizona

The NRST held a “Grazing Management for Riparian-Wetland Areas” training course April 3-5 in Patagonia, Arizona. The Redrock Watershed Group, Canelo Hills Coalition, and University of Arizona Cooperative Extension sponsored the session. Jimmy Eisner, Steve Leonard, Mike Lunn, Floyd Reed, and Sandy Wyman provided instruction. Over 40 people participated including individuals from United States Forest Service (USFS), Bureau of Land Management (BLM), Natural Resources Conservation Service (NRCS), and Extension, as well as private consultants and ranchers.. The field exercise was conducted on the Coronado National Forest.

The Canelo Hills Coalition is comprised of local ranchers who are working together to address resource issues, such as threatened and endangered species, and maintain economical and ecologically viable livestock operations.



Richard Collins describes his family’s grazing management rotation on his private and public land allotment to the trainees. Photo by Mike Lunn, Sustainable Solutions.



Students toured the Cott Tank Enclosure during the field session of the course. The discussion included whether there was a need for an enclosure to protect Gila topminnow habitat, potential grazing strategies, and the potential fire hazard that existed due to the large fine fuel load. Photo by Mike Lunn, Sustainable Solutions.

Information Exchange Concerning Identifying Bankfull Elevation

After reading the Jan/Feb 2006 Full Stream Ahead article which included a weblink to John Buffington’s 2/1/2006 paper on Identifying Bankfull Elevation (http://www.pnamp.org/web/workgroups/WM/meetings/2006_0201/IdentifyingBankfullElevation.pdf), members of the Riparian Coordination Network exchanged a series of e-mails. Key points of information from that correspondence include the following:

“High quality water is more than the dream of the conservationists, more than a political slogan; high quality water, in the right quantity at the right place at the right time, is essential to health, recreation, and economic growth.” Edmund S. Muskie, U.S. Senator (1966)

Identifying Bankfull Elevation continued

- When defining bankfull you need to consider the attributes and processes of, and the potential for, the system you are working in. An important aspect of doing PFC assessments is collecting and reviewing existing documentation in order to understand the potential of that particular riparian-wetland area.
- The USDA Forest Service Stream Technology Center (also known as the Stream Team) has created bankfull training products:
 - **Guide to Identification of Bankfull Stage in the Northeastern United States** (4 disks, 2005). While targeted toward some unique aspects of bankfull in the Eastern United States, the CDs also cover fundamental concepts and discussions on bankfull identification for “difficult” and “challenging” situations. The material provides cautions, advice, and suggestions for identifying the correct bankfull surfaces and demonstrates how to do this in the field in short video clips. Copies are available upon request from the Stream Team by e-mailing your name and mailing address in label format to rmrs_stream@fs.fed.us.
 - **A Guide for Field Identification of Bankfull Stage in the Western United States** (31 minutes, closed captioned, 1995) and **Identifying Bankfull Stage in Forested Streams in the Eastern United States** (46 minutes, closed captioned, 2003) are both available on one DVD, or on separate videos. Copies are available upon request from the Stream Team by e-mailing your name and mailing address in label format to rmrs_stream@fs.fed.us.
- Use stream gaging data and regional curves to verify that field indicators of bankfull make sense for your area. Find out if there are regional curves available for your area. More and more, USGS is developing regional curves, usually in cooperation with State Highway Departments.
- It is a good idea to compare several bankfull determination methods. For example: conduct a flood frequency analysis, see if there are large differences between the 1.2, 1.4, 1.5 return interval discharges and ground truth which return interval you are dealing with, consult published regional curves, and use USGS National Flood Frequency software at <http://water.usgs.gov/software.nff.html>.
- When doing PFC assessments, important remarks for PFC item 1 would be describing how you determined where the floodplain is located.
- When doing PFC assessments, there is a real benefit to the discussion between the interdisciplinary team and community around each PFC item, including item 1 about bankfull and floodplain. If you find yourselves arguing about where bankfull is from the existing documentation and visual indicators, it could be a sign that you have either missed something, or have a future problem spot to watch out for. Keep in mind that annual peak discharges can increase in frequency and magnitude over time depending upon watershed conditions, for example in rapidly urbanizing areas.

Watershed Councils and the Creeks & Communities Strategy

If you are involved with a watershed council, you might be wondering how the Creeks & Communities Strategy could be helpful with the work you are doing. The National Riparian Service Team and the State Riparian Teams have worked with watershed councils and other workings groups and based on those experiences, have the following for your consideration:

- Your watershed council is most likely a diverse group of people with different backgrounds, education, and work experiences. Whether newly formed or well established, do you have a common vocabulary to talk to one another about streams and wetlands? If not, a training on riparian function using the PFC assessment method can give you that common vocabulary and common understanding of riparian-wetland attributes and processes needed for physical functionality. This will help with group communication in determining what riparian-wetland projects they take on and why. This can also help in developing monitoring plans to measure their success, which will help the group and watershed residents understand and implement adaptive management.
- Your watershed council may have a five or ten year plan, and would like a review of the overall vision and foundational thinking. Members of the Riparian Coordination Network can provide their insights.
- Your watershed council may want to provide a riparian educational experience for the larger community interested and involved in different aspects of watershed management. You can request riparian function training from your State Riparian Team Coordinator.
- Ever have a disagreement about riparian-wetland condition or management that you need help working through? Again, members of the Riparian Coordination Network can help with that. The common vocabulary and understanding comes into play here again, and by focusing first on riparian-wetland function, you can often come to enough agreement to move forward and identify next steps.
- The Riparian Coordination Network can help provide training on livestock grazing in riparian-wetland areas. Contact Sandy Wyman for more information (541-416-6886).

Keep these ideas in mind as you work with watershed councils to improve relationships between people and the condition of riparian-wetland areas.

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Strategies for Creeks and Communities Activities

Each year as the State Riparian Teams meet to plan their annual activities, ideas and options are discussed relative to increasing the ability to do the outreach and capacity building necessary to meet the objectives of the Creeks and Communities strategy. In an effort to share this information we are including some of them in this issue and would like to hear from anyone who has additional thoughts. While many NRST and State Riparian Team activities have been and continue to be sponsored by the core agencies (FS, BLM, NRCS) and other federal agencies (e.g., FWS), very effective training sessions and service trips are sponsored by other entities, both state and local. Keep in mind that many of these can and do apply for educational grants and can facilitate bringing about collaborative learning opportunities within their community. Another advantage is that many of these organizations can also handle funds from tuition charges when needed. And they are invaluable in terms of the relationships already established.

Learn the agencies and organizations within your state and develop a key contact list. Familiarize them with the C&C strategy and the services you offer. The following represent just some of the opportunities:

University Extension	Non-profit Organizations
State Agencies	Livestock Associations
Soil and Water Conservation Districts	Grazing Lands Conservation Initiative
Resource Conservation Districts	Steering Committees
Resource Conservation and Development Councils	State Riparian Councils or Associations
Professional Societies	Watershed Councils
	Other State or Local Working Groups

Another avenue to consider is working more closely with your agency partnership coordinator to explore any new funding options that may now be available to help support State Team activities. These people may know of opportunities for some sort of cost-sharing arrangement. If you think of others or have some strategies that really work for you, please share them with the NRST so they can be included in future issues of Full Stream Ahead.

Creeks and Communities: A Continuing Strategy for Accelerating Cooperative Riparian Restoration

A Federal level, interagency initiative of the BLM and USFS in partnership with NRCS

The Creeks and Communities approach is a model for incorporating scientific and technical information into collaborative processes. It is based on the belief that since riparian-wetland areas often pass through or are shared by numerous landowners, a collaborative approach, applied at the ground level in a watershed context is the only avenue to successful restoration and management. Designed to foster grass roots action across the landscape, this effort facilitates the ability to confront and resolve the complex and contentious problems surrounding these resources. The overriding goal is to increase awareness and create a shared understanding of riparian-wetland function and the attributes and processes that support the sustainable production of values, and to do this among a large number of diverse people so they can work together more effectively.