Short- and Long-Term Management, Stewardship, and Education/Outreach Needs for Fossil Creek

Fossil Creek Stewardship Meeting October 26, 2005 Southwestern Academy Rimrock, AZ

Compiled by

Dr. Marty Lee Paul Hancock Alexis Mullen

School of Forestry
Box 15018
Northern Arizona University
Flagstaff, AZ 86011

December 2005



Fossil Creek Stewardship Meeting

Introduction and Methods

The Fossil Creek dam decommissioning in July 2005 was the beginning of a new chapter for the Fossil Creek ecosystem. The Fossil Creek Stewardship meeting held on October 26, 2005 was designed to bring together managers, researchers, environmentalists, tribal leaders, and interested citizens to talk about future management of Fossil Creek, specifically the short- and long-term management, stewardship, and education/outreach needs for Fossil Creek.

Forty-two people were invited to attend the meeting organized by the NAU Fossil Creek Ecosystem Studies Group. Attendees were sent an e-mail inviting them to participate in a discussion of Fossil Creek short- (1-3 years) and long-term needs for Fossil Creek. We asked them to think about three questions we would discuss at the meeting:

- What are the short- and long-term management needs for Fossil Creek?
 Management in this context has to do with actions by agencies responsible for managing Fossil Creek and its resources.
- 2. What are the short- and long-term stewardship needs for Fossil Creek? Stewardship has to do with broadly defined actions and commitments to care for and protect Fossil Creek that include individuals and communities.
- 3. What are the short- and long-term education and outreach needs for Fossil Creek?

Invitees were subsequently sent a letter reminding them of the meeting along with a map and directions to the Southwestern Academy where the meeting was held. Those that responded that they were not able to come to the meeting were asked to provide written responses to the questions. One individual sent written responses to the questions and those are included at the end of the meeting responses.

Twenty-four people participated in the discussion groups. A list of participants is presented in Appendix A. We used a facilitated nominal group process to identify and rank responses to the questions. We broke participants into three groups with each having a mix of researchers and managers from the various land and wildlife management agencies, non-profit group members, tribal leaders, and interested citizens. Each group included a facilitator and a recorder. Facilitators included Marty Lee, Martha Hahn, and Shelley Silbert. Recorders included Paul Hancock, Alexis Mullen, and Nathan Schott.

The nominal group process included the following steps:

Step One: Ask the Question

- each group began with a different question
- groups began with approximately 4 minutes of "quiet time" to reflect on the question and to write down their ideas. Pads of paper and pencils were provided to participants if needed

Step Two: Collecting Ideas

- each group had two flip charts where short- and long-term needs were recorded separately
- an item could be listed as both a short- and long-term need
- ideas were gathered but no critiquing of others' ideas was allowed in this step
- approximately 30 minutes was allowed for this step

Step Three: Clarify Ideas and Vote

- items were clarified and combined if the entire group agreed
- group members were asked to vote for the items they felt were the most important. Participants were given colored dots—3 to 8 depending on the number of items generated. Short- and long-term needs were voted on separately.
- votes were tallied for each item

Each group worked independently through the three questions. Breaks were taken between questions. Two of the groups spent time discussing "The next step" after completing discussion of the three questions. The meeting ended after approximately three hours.

Results

A complete listing of the short- and long-term needs for Fossil Creek identified by the meeting participants are presented in the following sections. Short- and long-term needs for management, stewardship, and education/outreach are presented separately. A brief summary of needs identified by the groups as being most important are presented below.

Notable Highlights

Short-Term Management Needs

- recreation management to enhance experiences and reduce impacts
- collaborative, interagency management and monitoring
- protection of native fish (e.g., crayfish control, enforcing regulations, developing a monitoring plan)

Long-Term Management Needs

- maintain native fisheries (control of crayfish, non-natives)
- management of recreation infrastructure, including roads, trails, motorized access
- acquiring funding and additional human resources
- management presence/law enforcement

Short-Term Stewardship Needs

- formation of a stewardship group Friends of Fossil Creek
- form relationships with other existing stewardship groups
- collaborative planning
- keep the area clean
- provide stewardship information to users

Long-Term Stewardship Needs

- Friends of Fossil Creek and agency interaction
- keep the area clean
- consider user fees
- law enforcement
- increase volunteerism (e.g., in local communities, school groups)

Short-Term Education/Outreach Needs

- On-site information sharing targeting users
 - o media kiosks, on-site hosts, displays
 - topics Leave No Trace, stewardship, Fossil Creek story, preserving native fish
- Off-site information sharing schools, communities, seek volunteers
- Share information within and among agencies

Long-Term Education/Outreach Needs

- education of visitors and locals about stewardship, ethics, Leave No Trace
- education on native fish to prevent reintroduction of non-natives
- gathering and sharing information on Fossil Creek research and management with the public via symposia, liaison, surveys

All items generated in the discussion groups, including the number of "importance" votes for each item, are presented in the tables below.

The Next Step

While the results of this meeting are largely intended to serve as recommendations—a proposal—to land managers responsible for the short- and long-term management of Fossil Creek, it was evident from the meeting that there are many other individuals and groups who would like to be part of the future of Fossil Creek. Collaboration and

partnerships are strong elements of the Fossil Creek restoration effort and will undoubtedly continue as that future develops. A core working group, a "Friends of Fossil Creek" group are only two formal collaborations suggested at the meeting. Communication, sharing knowledge, partnering on projects were suggestions for less formalized collaboration. The message was clear—working together is critical.

Acknowledgements

We gratefully acknowledge the hospitality of the Southwestern Academy in hosting the meeting. They were extremely accommodating in helping set up for the meeting, providing refreshments, and helping clean up following the meeting. We were pleased to have several of their students sit in on the meeting.

Funding for the Stewardship Meeting is part of a grant from the Nina Mason Pulliam Charitable Trust. We appreciate their support of Fossil Creek research, particularly that of Bob Berger who attended the Stewardship Meeting.

SHORT-TERM MANAGEMENT NEEDS FOR FOSSIL CREEK

Group 1 (n=9)	Group 2 (n=8)	Group 2 (n=8) Group 3 (n=7)	
Recreation management to enhance	1. Engineering to reduce impacts, e.g.,	Recreation plan, interim. (3 votes)	
recreation experience. (6 votes)	parking lots, designated use areas,	Form a core working group to share	
2. Establish inter-agency management team	erosion control. (4 votes)	information and coordinate monitoring	
involving tribes, stakeholders, and the	2. Official presence – law enforcement,	research and management – lead	
public. (6 votes)	personnel. (3 votes)	agencies. (3 votes)	
3. Apply for scenic status through DOI. (4	3. Active crayfish control program. (3 votes)	3. Develop partnerships. (3 votes)	
votes)	4. Finish Fossil Creek watershed plan. (3	Identify areas that are most threatened	
4. Look at infrastructure – access, trails,	votes)	and form emergency response –	
road maintenance, and location. (4	5. Security implementation of: illegal	inventory, USFS, APS. (2 votes)	
votes)	stockings, fish regulations, fire security,	Enforce existing fishing regulations –	
5. Maintain native fisheries. (3 votes)	sampling pressure – do not duplicate,	USFS, Game and Fish. (2 votes)	
6. Maintaining water quality – phosphates	undue pressure and permits. (2 votes)	6. Management plan for OHV – USFS. (2	
and nitrates. (3 votes)	6. Develop financial and human resources.	votes)	
7. Apply for outstanding water status from	(2 votes)	7. Implement dedicated monitoring plan for	
ADEQ. (3 votes)	7. Current check of access points and	fish, frogs, non-natives, and water quality.	
8. Consider user fees. (3 votes)	facilities – trail markers, improvements.	(2 votes)	
9. Support Forest Service in-stream flow. (2	· · · · · · · · · · · · · · · · · · ·	8. Comprehensive watershed plan. (1 vote)	
votes)	Research and review existing	9. Adequate presence in area – USFS, AZ	
10. Source of funding? (2 votes)	management plans – wilderness	Game and Fish. (1 vote)	
11. Volunteer program for management. (2	implementation, wild and scenic river,	10. Defer grazing until A.M.P. revision –	
votes)	forest plan, recreation management plan.	USFS. (1 vote)	
12. Management of non-native fish species.	(1 vote)	11. Wild and scenic designation, determine	
(2 votes)	Implementation of education and	suitability – USFS. (1 vote)	
13. Management presence – safety and	outreach needs. (1 vote)	12. Provide opportunities for public input into	
health, public safety. (1 vote)	10. Repatriation of other native fish to Fossil	management plans especially to local	
14. Manage traffic to Childs. (1 vote)	Creek. (1 vote)	public.	
15. Protection of cultural resources. (1 vote)	11. Support research needs – financial,	13. Develop and implement interim plan,	
16. Identify and protect (prehistoric)	people.	educational and interpretive.	
traditional cultural resources. (1 vote)	12. Support deconstruction.		
17. Protect historic structures. (1 vote)			
18. Ethnographic and ethnobotanic studies.			
19. Fish rescue plan.			

LONG-TERM MANAGEMENT NEEDS FOR FOSSIL CREEK

SHORT-TERM STEWARDSHIP NEEDS FOR FOSSIL CREEK

Group 1 (n=9)	Group 2 (n=8)**	Group 3 (n=7)	
 Group 1 (n=9) Form a planning committee like Friends of Fossil Creek, including a neighborhood watch group. (7 votes) Information bulletin boards to make the public aware of their responsibilities. (5 votes) Coordinate law enforcement with funding. (4 votes) User fees? Explore and design concepts. (3 votes) Quantify visitor use. (3 votes) How to deal with the impacts of trash and human waste? (3 votes) Establish baseline monitoring data across resources, i.e., photos. (1 vote) Establish baseline water quality data. (1 vote) Restrictions on glass bottles, etc. 	1. Formation of a Friends of Fossil Creek – education, information on Fossil Creek, presence, grant seeking, advocate, time and labor, interface with agencies regarding conservation teams and recovery teams. 2. Find a champion(s) to form Friends group. 3. Involvement in stewardship by multiple groups, including agencies. 4. Outreach to other interest groups. 5. Learn the interests of local communities to understand the expectations for Fossil Creek. 6. Involve the public in planning. 7. Educate the existing users to reduce impacts to the land.	 Group 3 (n=7) Keep clean. (6 votes) Prevention of non-native nuisance species – pathogens, parasites, weeds. (4 votes) Law enforcement support. (3 votes) Work with APS on restoration of facility sites. (2 votes) Money – financial contributions, donations. (2 votes) Involvement in agency planning – local, state governments, and federal. (1 vote Participate in active volunteer groups. (1 vote) Respect and protect natural resources and ethics. (1 vote) Protect designated wilderness areas. (1 vote) Native fish protection. 	
or recentlements on glace settles, etc.	** All are of equal importance.	 11. Crayfish control – monitoring, research. 12. Protection of cultural resources – cultural and prehistoric. 	

LONG-TERM STEWARDSHIP NEEDS FOR FOSSIL CREEK

Group 1 (n=9)	Group 2 (n=8)	Group 3 (n=7)
Croup 1 (n=9) Interaction between agencies responsible – like Friends of Fossil Creek. (7 votes) Implement user fees. (5 votes) Continue university research. (5 votes) Involve school classes and community organizations within general vicinity. (4 votes) Tribes' expertise for long-term stewardship. (4 votes) Law enforcement. (2 votes) Continuing restrictions of glass, etc. Use citizens to help monitor water quality. Recognize all stakeholders on information boards.	Group 2 (n=8) 1. Formation of a Friends of Fossil Creek – education, information on Fossil Creek, presence, grant seeking, advocate, time and labor, interface with agencies regarding conservation teams and recovery teams. (Group members all agreed this was the important long-term stewardship need)	 Group 3 (n=7) Keep clean – trash, human waste, cars. (6 votes) Law enforcement support – public involvement. (3 votes) Involvement in agency planning – local, state governments, and federal. (3 votes) Participate in active volunteer groups. (3 votes) Respect and protect ethics, natural resources. (3 votes) Find funding for stewardship. (2 votes) Water quantity – legal rights, groundwater, in-stream flow. (2 votes) Adoption of areas – sites, trails. (2 votes) Monitoring success of stewardship efforts – limits of acceptable change. (2 votes) Native fish protection. (1 vote) Crayfish control – regular treatment organized, monitoring and research. (1 vote) Community buy-in and participation. (1 vote) Protect designated wilderness. (1 vote) Water quality – what are issues, number of visitors, monitoring. (1 vote) Surveys – fish, frogs, etc. (1 vote) Educational, bring and linking together – synthesis and distribution of information. (1 vote) Control ATVs, pack animals, camping and day use – management plans to keep numbers down. (1 vote) Committee of stakeholders – adaptive management. (1 vote) Understanding of the resource by recreationists.

20. Travertine – research, management, education, communication. 21. Active advocacy of voter legislation. 22. Watershed restoration and identification, and soil erosion – grazing, roads, trails, fire regimes. 23. Private development – conservation, purchasing, planning, easement. 24. Money – financial contributions, donations. 25. Complimentary ecological designations – wild and scenic rivers, botanical, bird areas, tribe designations
areas, tribe designations. 26. Prevention of non-native nuisance species.

SHORT-TERM EDUCATION AND OUTREACH NEEDS FOR FOSSIL CREEK

	Group 2 (n=8)	Group 3 (n=7)
share information and tell the unique Fossil Creek story without attracting people. (7 votes) 2. Share knowledge within, before educating outside. (5 votes) 3. Invest in interpretive displays at hardened sites. (3 votes) 4. Expand current Fossil Creek curriculum in schools. (2 votes) 5. Have on-site/off-site hosts for visitor interaction. (2 votes) 6. Educate political leaders. (2 votes) 7. Create liaison with involved environmental groups. (1 vote) 8. Resource etiquette/information on-site. (1 vote) 9. Community website for Fossil Creek, including chat. proces: the futu 2. Outrea manag 3. Outrea respon 4. Need to how to 5. Connec science 6. Need fo (2 votes) 7. Getting native a species 9. Identify visiting 10. Securit fishing 11. Commit decom case st 12. Volunte educat 13. Outrea	ation kiosks on: decommissioning s, recreation opportunities, what's are? (4 votes) ch for additional resources for ang Fossil Creek. (4 votes) ch to local communities and se from them. (3 votes) check their impacts. (2 votes) check their impacts. (3 votes) check their impacts. (4 votes) check their impacts. (5 votes) check their impacts. (6 votes) check their impacts. (1 votes) check their impacts. (2 votes) check their impacts. (1 vote) check their impacts. (2 votes) check their impacts. (3 votes) check their impacts. (4 vote) check their impacts. (5 votes) check their impacts. (6 votes) check their impacts. (1 vote) check their impacts. (1 vote) check their impacts. (1 vote) check their impacts. (2 votes) check their impacts. (3 votes) check their impacts. (4 votes) check their impacts. (5 votes) check their impacts. (6 votes) check their impacts. (6 votes) check their impacts. (8 votes) check their impacts. (9 votes) check their impacts. (1 vote) check their impacts. (1 vote) check their impacts. (1 vote) check their impacts. (2 votes) check their impacts. (3 votes) check their impacts. (4 votes) check their impacts. (6 votes) check their impacts. (8 votes) check their impacts. (1 votes) check their impacts. (2 votes) check their impacts. (3 votes) check their impacts. (4 votes) check their impacts. (4 votes) check their impacts. (5 votes) check their impacts. (6 votes) check their impacts. (8 votes) check their impacts. (9 votes) check their impacts. (1 votes) check their impacts. (1 votes) check their impacts. (2 votes) check their impacts. (2 votes) check their impacts. (3 votes) check their impacts. (4 votes) check their impacts. (5 votes) check their impacts. (6 votes) check their impacts. (6 votes	1. Leave No Trace ethics – wilderness definition, low impact camping. (5 votes) 2. Prevention of non-native and nuisance species to local residents. (4 votes) 3. Unique values of Fossil Creek communicate to users – history, geology, cultural, biological. (4 votes) 4. On-site signage and kiosks. (3 votes) 5. Outreach to local residents – volunteering and agency process. (2 votes) 6. Native fisheries signage. (1 vote) 7. Learn about user values. (1 vote) 8. Educational messages for OHV users. (1 vote) 9. Identify available educational materials. 10. Definition of wilderness and interpretation of wilderness. 11. Law enforcement reporting mechanism – vandalism, etc. 12. Effectively communicating legal restrictions/regulations.

LONG-TERM EDUCATION AND OUTREACH NEEDS FOR FOSSIL CREEK

Group 1 (n=9)	Group 2 (n=8)	Group 3 (n=7)
Focus on Fossil Creek as a native fish	Volunteer efforts in form of	Leave No Trace ethics/wilderness
refuge with emphasis on user education.	education/stewardship group. (4 votes)	definition. (4 votes)
(6 votes)	Outreach for additional resources for	2. Prevention of non-natives to new users,
2. Have on-site/off-site hosts for visitor	managing Fossil Creek. (4 votes)	youth, Chamber of Commerce, and
interaction. (5 votes)	3. Need for a facilitator/catalyst for outreach.	tourists – education on how to and why.
3. Periodic symposia on Fossil Creek. (5	(3 votes)	(2 votes)
votes)	4. Need to educate public on stewardship –	3. Native species – media outreach,
4. Resource etiquette/information on-site. (3	how to reduce their impacts. (2 votes)	ecosystem approach. (2 votes)
votes)	5. Themes for types of education for visitors	4. Data on users – what they expect,
5. Education components using lessons	and the people living there – wilderness,	surveys, how to give appropriate
learned from research. (2 votes)	archaeological, native fish, riparian	information. (2 votes)
6. Add Fossil Creek curriculum in schools.	habitat. (2 votes)	5. Develop interpretive plan. (2 votes)
(2 votes) 7. Recognize Fossil Creek in Arizona	Liaison between researchers and public educators. (2 votes)	Promoting/reporting mechanism to law enforcement. (2 votes)
Wildlife Viewing Guide.	7. Educate through programs – Leave No	7. Communicate to users the values of
8. Work with local communities.	Trace. (2 votes)	Fossil Creek—on-site and off-site—
o. Work with local communities.	8. Benefits to conservation and recovery of	interpretation of history/prehistory,
	natives – especially fish and aquatic	geology, and culture. (2 votes)
	species. (1 vote)	8. Local school programs and field trips. (2
	9. Central entity responsible for education	votes)
	and stewardship, e.g., River Keeper. (1	9. Feedback to convey success of programs
	vote)	 monitoring, press-releases, internet
	10. Getting information out to the public –	postings, and presentations. (2 votes)
	native and non-native species.	10. Education messages for OHV users. (1
	11. Volunteer efforts involved in long-term	vote)
	monitoring of crayfish.	11. On-site signage and kiosks.
	12. Connect researchers with local science	12. Effectively communicate legal regulations.
	teachers.	13. Helping other organization undergoing
	13. Outreach to Boy Scouts.	similar processes.
		14. Working with other universities.
		15. Funding.

THE NEXT STEP

Two of the three groups talked briefly about what the next step should be for Fossil Creek. There was no formal discussion or voting.

Group 2 (n=8)	Group 3 (n=7)
 Proceed at a pace that the Forest Service can live with. Let USFS wrestle with the suggestions – Forest Service will provide feedback re: timing, support. Outline a timeline for priorities. Agencies put suggestions in context – they talk about what can move forward, defer, etc. Product equals proposed action plan – time, who. 	 Wild and scenic designation would provide framework under which this could all work. Strategic plan for management of Fossil Creek. Inter-agency or at least an agency plan. Form a core working group, with formal partnerships. Realistically state and federal budgets are inadequate – volunteer groups should be formed. Biggest threat is influx of people. Need management now, before it is too late. Before patterns of use are established.

These are responses made by a land manager who could not attend the meeting.

1. What are the short and long term stewardship needs for Fossil Creek?

To provide care and protection of soil, vegetation, wildlife, cultural resources and primitive recreation opportunities. This includes a balanced program of properly engineered facilities, an education program through signs and other means and the enforcement of regulations intended to protect resources and people.

Long term stewardship depends on a balanced program of engineering, education and enforcement. If any one of these is reduced the efficiency and effectiveness of the protection of resources and recreation opportunity is also reduced.

2. What are the short and long term management needs for Fossil Creek?

Short term management needs include: initiating management presence without the APS presence that has existed in the past; establishing an effective Leave No Trace Program including the seven principles of Plan Ahead and Prepare, Travel and Camp on Durable Surfaces, Dispose of Waste Properly, Leave what you Find, Minimize Campfire Impacts, Respect Wildlife and Be Considerate of Other Visitors. Short term needs for trash pickup, protection of riparian resources and aquatic species, reduction in damage from OHV's to soil and vegetation resources must be provided. Forest Service presence must be continuous at regular intervals to show visitors who manages the property and who is concerned about it. Too often recreationists just see a piece of land to have their way without attaching a purpose, value and identity of who the land management agency is.

Long term management needs are a sustainable ecosystem which has in place regular management. Long Term needs include sustainable resources to manage the Fossil Creek Mgt. Unit. This includes a model for the future for the area similar to the Sedona Ecosystem where only 29% of our budget comes from congressional funding. The remainder comes from grants, in-kind volunteer labor and fees (O/G retained fees or other fees). With congressional funding falling we need to look for other ways to get on the ground engineering (const.), education and enforcement (both preventative and actual law enforcement). Partnerships will make that happen, also. The long term desired condition for Fossil Creek should be that the Fossil Creek Area becomes a site where recreation activities, transportation facilities and their impacts work to enhance the wildlife/fisheries/wild and scenic river outstanding resource values/scenery mgt. system and human recreational benefits over the "Long Run".

APPENDIX A

Fossil Creek Steward	dship Meeting Attendees	
25-Oct-05		
Name	Title	Agency
Janie Agyagos	District Wildlife Biologist	Red Rock Ranger District
Cecilia Overby	Forest Biologist	Coconino National Forest
Ken Anderson	District Ranger	Red Rock Ranger District
Ed Armenta	District Ranger	Payson Ranger District
Shaula Hedwall	Fish and Wildlife Biologist	U.S. Fish & Wildlife Service
Scott Reger		Arizona Game & Fish
Dave Weedman	Fish Biologist	Arizona Game & Fish
Susie MacVean	Non-game Specialist	Arizona Game & Fish
Dan Campbell		The Nature Conservancy
Tim Flood		
Jim Walters		
Allen Haden		NAU
Russell Vallelunga	Text Manager	Textbook Source of AZ
Chris Coder	Archaeologist	Yavapai-Apache Tribe
Vincent Randall		Yavapai-Apache Tribe
Heidi Kloepel	Biologist	Grand Canyon Wildlands Council
Chris Cantrell	Native Fish Biologist	Arizona Game & Fish Dept.
	Native Fish and Invertebrates	
Jeff A. Sorensen	Program Manager	Arizona Game & Fish Dept.
Chuck Jenkins	President	Friends of the Forest
Walt Thole	Recreation Staff	Payson Ranger District
Amy Unthank	Regional Fish Biologist	U.S. Forest Service
Delvin Lopez	Group Leader for Public Service	Tonto National Forest
Mark Sensibaugh	Public Services Staff Officer	Coconino National Forest
Julie Meke		Arizona Game & Fish Dept.
Bob Berger		Nina Mason Pulliam Charitable Trust
Martha Hahn	Group Facilitator	The Sage Project
Shelley Silbert	Group Facilitator	Northern Arizona University
Marty Lee	Group Facilitator	Northern Arizona University
Paul Hancock	Group Recorder	Northern Arizona University
Alexis Mullen	Group Recorder	Northern Arizona University
Nathan Schott	Group Recorder	Northern Arizona University