Environmental Stewardship Challenges
(staff synthesis of ESSD work group meeting #1)

September 16, 2009

I. Challenges in terms of Drivers or Constraints that influence outcomes. *These are ongoing pressures or existing conditions that present challenges to achieving desired goals*.

A. **Environmental** (physical, biological, on the ground)

1. Altered flow regimes that stress species and ecosystem processes
2. *Disruption of dynamic river processes (meander, migration, sediment transport, etc)
3. *Floodplains disconnected from flooding regimes
4. *Impaired water quality
5. *Insufficient groundwater recharge
6. Rapidly changing climate increases stress on environment
7. Constraints of existing flood infrastructure on restoration.
8. *Hard-scaping and rip-rap on river banks
9. Limited floodplain and channel capacity for future changes to hydrology
10. Urban development in floodplain.
11. Barriers to fish passage
12. * Complex aquatic habitat
13. Decreasing long-term viability for sensitive species
14. Fragmentation of habitat; loss of connectivity
15. Increased stress on native species due to invasive species
16. General loss of habitat (amount, quality, diversity, functioning)
17. *Lack of available/appropriate areas for mitigation
18. * Limited public access within flood control system

B. **Human-based** (institutional, social, political, economic, etc)

1. Conflict between floodway maintenance and habitat
2. *_Lack of DWR maintenance plans for specific sites
3. Lack of cohesiveness regarding maintenance throughout system
4. Potential conflicts between flood management and ecosystem objectives
5. *Conflicts between water supply needs and flood control needs
6. *Concerns from private landowner interests
7. Conflict between habitat and other land uses
8. Potential conflicts between agricultural and ecosystem objectives
9. Potential conflicts with cultural resources
10. Levee set back opportunities limited by development, money, property restrictions
11. Potentially conflicting or incompatible biological objectives
12. Insufficient biological information and understanding of ecosystem processes
13. *Lack of integrated environmental permitting
14. Permit processes and requirements are complex, not well integrated, and time consuming
15. Permitting delays can delay maintenance
16. Incompatible, conflicting, or outdated authorities and policies
17. Lack of successful approaches for levee maintenance mitigation
18. Regulations are subject to interpretation by regulators, resulting in subjective policies
19. Rigid, hard-to-change requirements, authorities, and guidance
20. Riparian management practices that do not produce high-quality habitat
21. Fragmented and piecemeal restoration efforts
22. Negative experience with previous planning efforts

23. Seasonal constraints on when maintenance work can occur
24. Concern about effectiveness of new approaches
25. Lack of support for local conservation programs
26. Limited public support for invasive species control
27. Jurisdictional challenges between agencies and with other organizations
28. Lack of shared understanding and vision between and within agencies
29. Poor coordination between and within agencies
30. Economic costs associated with relocating levees
31. Limited funding in general
32. Limited funding for long-term land management

II. **Challenges in terms of potential Actions or Decisions to achieve desired outcomes.** *These may be difficult, or challenging, actions to take or decisions to make.*

A. How to use riparian to store water/replenish groundwater.
B. Addressing potential changes to the system as a result of climate change.
C. Evaluate reservoir re-operation options
D. Develop and use better evaluation and modeling tools
E. Identifying key ecological process and functions that apply in each part of the system.
F. Improve ecological monitoring
G. Improve science-based engineering, evaluation and implementation
H. Provide better and more relevant data and science to guide policy decisions
I. Effective conservation incentives for conservation on private lands
J. Develop more comprehensive permitting approach
K. Anticipate, date, prepare for climate change impacts
L. Develop more comprehensive systems approach
M. Develop wildlife-friendly agriculture
N. Identify priority areas for restoration
O. Implementing science-based adaptive management
P. More input from native American perspective

III. **Challenges in terms of Outcomes (or goals).** *These may be difficult, or challenging outcomes to achieve, for various reasons.*

A. Create more floodplains
B. Reconnect rivers with floodplains and rural basins
C. Expand channel capacity to accommodate sediment transport processes
D. Provide adequate water supply for wildlife
E. Agricultural land as habitat
F. Preserving ag production capacity
G. Expanding, restoring and/or improving the amount and quality of riparian, shallow floodplain, and shaded riverine habitat
H. Improved restoration and protection of sensitive species populations
I. Improved spawning and rearing habitat for fisheries
J. Maintain adequate flow regimes to support all life stages of fisheries (migration, rearing, spawning)
K. Maintain and improve terrestrial habitat connectivity
L. Providing for sustainability of human communities in deep floodplains.
M. Establish improved trust and partnerships for conservation (among whom?)
N. Increase access for river recreation