

**AGENDA**

**Lower Feather River Corridor Management Plan – O&M Funding Sub Committee**

*A collaborative strategy for optimizing management of the river corridor*

The Lower Feather River Corridor Management Plan (CMP) is being developed to establish a vision for future management, restoration, and maintenance of flood control facilities, conveyance channels, and flood plain and related habitat along the Feather River from the Sutter Bypass to the Yuba River confluence (approx. 20 mi.).

The CMP will implement the new collaborative approach for planning, designing and implementing projects within and adjacent to flood control features that DWR is responsible for maintaining and repairing.

**Date: May 27, 2010**

**Time: 10:00 am**

**Location: Three River Levee Improvement Authority (TRLIA) Office; 1114 Yuba Street; Marysville, CA.**

<b>Time</b>	<b>Topics</b>	<b>Lead</b>
10:00 am	<b>Introductions &amp; Purpose</b>	Paul Brunner
10:20	<b>DWR O&amp;M Maintenance Responsibilities &amp; Funding</b> <ul style="list-style-type: none"><li>• Description of Geographic Areas and Duties Performed</li><li>• Funding Sources and Level of Funding</li><li>• Criteria used to Establish level of Maintenance</li></ul>	Karen Hull
10:50	<b>F&amp;G O&amp;M Maintenance Responsibilities &amp; Funding</b> <ul style="list-style-type: none"><li>• Description of Geographic Areas and Duties Performed</li><li>• Funding Sources and Level of Funding</li><li>• Criteria used to Establish level of Maintenance</li></ul>	Gary Hobgood
11:20	<b>Break</b>	
11:30	<b>Issues, Constraints, Opportunities, &amp; Solutions</b>	Paul Brunner
Noon	<b>Next Steps</b>	Paul Brunner
12:30	<b>Adjourn</b>	

## Minutes

### Introductions & Purpose – Paul Brunner

Attendance: Earl Nelson – DWR, Karen Hull – DWR, Gary Hobgood, CDFG, Dale Whitmore – CDFG, Jeff Twitchell – LD1 & Yuba Basin, Tony Danna, DWR, Paul Brunner – TRLIA.

Paul - Maintenance funding sources and sustainability of maintenance on the Feather River remains an issue. There always is some funding for maintenance work on the Feather, but is it “adequate” maintenance for the entire 20 mile length of river in the CMP. The subcommittee needs to discuss the existing maintenance and funding situation and determine if potential changes or alternatives are needed for the channel maintenance.

Earl – The CMP should address the needed maintenance dollars and who can contribute to those dollars.

Gary – We need to address the “appropriate” maintenance and the cost to do that work.

### DWR O&M Maintenance Responsibilities & Funding - Karen Hull

#### Description of geographic areas and duties performed

Karen Hull – The DWR Sutter Maintenance Yard works in Tehama, Glenn, Colusa, Butte, Lake, Sutter, and Yuba Counties. This includes 330 miles of channel and 190 miles of levees. The maintenance work done is under the California Code of regulations Title 23. The Maintenance Yard follows the U.S. ACE Operation and Maintenance Manuals. Terms used in maintenance work defined by the above references:

- Design Flood: a flood against which protection or eventual flood is provided for.
- Designated Floodway: Channel or storm and adjoining flood plain providing passage of the design flood.
- Obstruction: Anything that may impede, retard or change the direction of flow, either in itself or by catching or collecting debris carried by flow water or where flow could carry it downstream to damage or detriment of life or property.
- Maintenance: Any work required to retain or maintain the intended functions of flood control facilities and existing encroachments.
- Maintenance Activities include but are not limited to: mowing, tree and brush trimming and removal, revetment restoration, rodent control, spraying, painting, coating, patching, burning and similar work. Authorized and defined by the code sections 8361, 8370, ad 12642.
- Channels: requirements of the code of Federal Regulations paragraph 208.10.
  1. Clear of debris, weeds, and wild growth.
  2. Not restricted by depositing of waste materials unauthorized structures, or other encouragements.
  3. Capacity of channel or floodway is not reduced by formation of shoals.
  4. Banks not damaged by rain, wave wash, or slough mire.
  5. Rip rap sections in good condition.
  6. Approach and egress channels adjacent to the improved channel – sufficiently clear of obstructions and debris.
- Additional maintenance duties:
  1. Bridges – clear of debris, good condition
  2. Intake/outtake structures - operational and in good condition.
  3. Pipes, culverts, weirs – same thing

- There is not enough vegetation and channel modeling to fully understand the flood flows on all the flood ways. Public perception and the reality of the situation are two different things. The current modeling is showing a 300 to 350,000 cfs. (Jeff felt the river corridor is a little better than is used to be.)
- Subcommittee then had a side discussion on the lack of Bond support efforts to maintain the corridor flood flows through maintenance work. Discussion on a flaw in legislation not to provide for this important effort to support public safety issues. Concern that there are funds to recover from a flood but limited funds to maintain the floodway prior to a flood

**Funding sources and level of funding**

- Funding Source – 100% General Fund
- Currently the Sutter Yard gets approximately \$7.5 million per year.
  - This is \$5 million in general funds – approximately \$2.5 million used on channel maintenance.
  - \$2.5 million in reimbursable funds from the 8 state maintenance areas.
  - Cost to do the channel? maintenance averages about \$100 per hour or about \$5 million per year.
  - (Handout – Channel Maintenance Costs, DWR Sutter Maintenance Yard)

**Criteria used to establish level of maintenance**

- Main criteria is the ability of the channel to pass the design flow
- Other criteria we use to determine maintenance priorities:
  - Existing or newly occurring problem
    - Erosion
    - beaver activity
    - vegetation choke points
  - Timing
    - Access
    - Presence of endangered species and species of concern
    - Nesting and/or wintering birds, waterfowl
  - Availability of resources
    - Crew
    - CDF or CCC
    - Equipment

**Issues**

- Increased Flows due urbanization and weather pattern changes
  - 1907 - 600-650,000 cfs
  - 1986 - Urban areas over \$500 million in damage, 50,000 forced to leave, 12 deaths
- Levees – are the weak line in the flood control system
  - Extended periods of water sitting next to the levees
  - Lack of drainage
  - Drainage and collecting canals used for conveyance, thus already filled with water.
  - Development too close to levees and within the flood area
- Reservoirs currently nearing capacity:
  - Sacramento River                      Shasta 99%

- Feather River Oroville 69%
- Yuba River Bullards 92%
- Englebright 90%
- Snow HOH content 200% of normal & Depth= 7’ to 8’ and up
- A high temperatures and a rain event will cause too much runoff too quickly.

▪ Other items of discussion:

- Allowance of funds to move across fiscal year since this is in the middle of the maintenance work period. CVFPB approves the budget level. If the budget is over spend then the falling year the budget can be cut. CVFPB can ask for an increase in funding the next year.
- The tax assessor establishes the benefit that the levee protection provides to the property owner. This establishes the rate paid to the levee districts and then is sent as a reimbursable to DWR.
- Continued concern with the restrictions on the maintenance work season due to endangered species and Routine Maintenance Agreements (RMA).
- Overall the trend is up for funding over the last 10 years, but the cost and the amount of work is also up. Repair costs are going up. The FY2000 funding was about \$2.5 million, then FY2005 was about \$3.5 million, and this year was about \$5 million.
- Some special funding for replacement of equipment and vehicles. Purchasing more efficient mowers.
- Some maintenance work being done by property owners.

**F&G O&M Maintenance Responsibilities & Funding – (provide names)**

**Description of geographic areas and duties performed**

Feather River has six CDFG land parcels along the CMP reach. Five of these parcels are within the Feather River Wildlife Area (FRWA) of Sutter and Yuba Counties. This area is 2,522 acres of dense riparian over-story of valley oaks and cottonwoods, with an understory of wild grape, pipevine, and California rose.

These five units are:

- |                               |             |                                                   |
|-------------------------------|-------------|---------------------------------------------------|
| 1. Abbott Lake Unit           | (439 acres) | CDFG acquired in 1990’s and recently              |
| 2. Star Bend Unit & boat ramp | (50 acres)  |                                                   |
| 3. O’Connor Lakes Unit        | (471 acres) | CDFG acquired in 1970’s and 1984                  |
| 4. Lake of the Woods Unit     | (698 acres) | acquired from Sac/San Joaquin Irrigation District |
| 5. Nelson Slough Unit         | (750 acres) | Sold to CDFG by insurance company                 |

*(Material from September 15, 2006 DWR Division of Flood Management Memorandum entitled “Preliminary Evaluation for Feather River Vegetation Management Plan”)*

1. **Abbott Lake** - The Abbott Lake Unit of the FRWA is a 439 acre area located on the right bank of the Feather River, 10 miles south of Yuba City. DFG describes the south west section of the site as 146 acres of climax cottonwood forest surrounding and north of Abbott Lake. The other area of the site (approximately 271 acres) contains large weedy vegetation mixed in with some 40 foot tall cottonwoods. DFG manages the area as part of FRWA and DWR maintains the flood-carrying capacity with some vegetation clearing, stacking and burning debris. DWR and DFG have developed a MOU to manage and maintain several areas within the FRWA that contain habitat for the Valley elderberry longhorn beetle (VELB), including Abbott Lake, Star Bend, O’Connor Lakes, and Lake of the woods. This MOU allows planting native riparian vegetation on a 228 acre restoration site within the O’Connor Lakes unit. 69 acres of riparian woodland were planted as part of the restoration. Elderberry shrubs, which provide

habitat for the VELB were included in the species mix in the 69 acres at a density of 20 plants per acre, totaling approximately 1,366 elderberry shrubs. In exchange for allowing elderberries in the river channel DWR will have the right to remove elderberry shrubs in the FRWA which interfere with flood conveyance and capacity and restore the area to a baseline elderberry population reflective of pre-project conditions (130 shrubs). This MOU conforms to a 2005 U.S. Fish and Wildlife Service biological opinion issued for the restoration work within the FRWA and includes several conservation measures to avoid adverse effects to the VELB during flood control and maintenance activities.

2. **Star Bend** - The Star Bend unit of the FRWA is located south of the Abbott Lake unit and is comprised of 50 acres of habitat described by DFG as dense riparian brush with many open areas. This site has not been regularly maintained by DWR in the last 20 years; which is why the vegetation is quite dense. The Reclamation Board owns some of the land, but it is managed by DFG. Sutter Maintenance Yard personnel believe this area should be at least partially cleared soon.
3. **O'Connor Lakes** - The O'Connor Lakes unit of the FRWA is located on the right bank of the Feather River and includes 471 acres of wildlife habitat. The northern half of the site includes the 228 acre restoration site described above. DFG owns the property and River Partners received a grant to restore the area with a variety of habitat types, including 69 acres of riparian woodland, 41 acres of low shrub, 71 acres of native grass, and 47 acres where the grassland/low shrub habitat has been enhanced by removal of nonnative plant species. The southern half of the site (approximately 243 acres) contains primarily dense riparian forest. Approximately 5 acres within the enhancement area was previously used as a borrow site for levee repairs. The area was regraded at a slightly lower elevation and is currently revegetating naturally as part seasonal wetland and part low shrub with scattered small trees. The area includes a drainage ditch that connects to an existing adjacent drainage ditch in order to prevent water from ponding and potential fish stranding within the borrow area. Part of our maintenance responsibility is to keep the ditch clear and prevent ponding. In order to provide flood protection while allowing for the habitat restoration, DWR is authorized to clear a 400-600 foot swath parallel to the flow, which will continue to be maintained as low-lying grassland vegetation.
4. **Lake of the Woods** - The Lake of the Woods unit is on the left bank of the Feather River and is comprised of 698 acres of low-lying brush and grassland habitat, with a large fringe of dense cottonwood and riparian forest along length of the east levee. This area never was agricultural land. This provides for wildlife habitat and serves as a buffer for wave wash. This area is being regularly maintained through use of sheep grazing, some regular clearing with dozers, and some discing.
5. **Nelson Slough** - The Nelson Slough unit is comprised of 750 acres and is located on the right bank of the Feather River. Most of the area is open fields and grasslands, with a few scattered trees. Before this area was purchased by DFG it was managed for rice production. A fringe of dense cottonwood forest is maintained along the west bank adjacent to the levee. The open area is maintained primarily by sheep grazing, through an agreement between the rancher and DFG. Some additional mowing and vegetation clearing is completed by DWR. Model results indicate that this area could support planting of additional riparian and cottonwood forest, without compromising our ability to retain sufficient channel capacity for flood control.

**Additional Maintenance in this area:**

- a) **Shanghai Bend Unit** - This CDFG administrate parcel is a 35 acre area managed by Sutter County for 25 years until 2005. Some funding has come with acquisition of the lands for restoration of agricultural lands into a more natural vegetation condition. The CDFG is determining the proper future administration of this land.
- b) **Bobelaine Audubon Sanctuary** - The Bobelaine Audubon Sanctuary and State Ecological Reserve is about 430 acres of dense riparian habitat located on the right bank of the Feather River just south of the Lake of the Woods. This area is managed as a perpetual example of native riparian and related ecosystems, and use of the site is restricted to hiking through wildlife habitat and wildlife viewing and photography. Very little maintenance is allowed on the site. It is somewhat open on the left bank, but

primarily covered with thick, heavy growth. Audubon site managers have done some modest clearing, most likely for fire management.

- c) **Feather River Levees** - from the confluence with Yuba River to the Sutter by-pass the levees are maintained by levee districts. Levee District 1 is responsible for most of the west (right) levee from the confluence of the Feather and Yuba rivers to approximately five miles north of Sutter Bypass. The remaining five miles is maintained by the state. RD 784 is responsible for the east (left) levee from the junction of the Feather and Yuba rivers downstream about 13.78 miles to its junction with the north levee of the Bear River. RD 1001 is responsible from the south levee of the Bear River to the Sutter By-pass. Ass 13.78 miles of the eastern RD 784 levee has been improved by a TRLIA Project, which includes a 1600 acre expanded floodway created by a levee setback. The channels in this area of the river are relatively open; there is no specific maintenance required within the river channels at this time.

### **Funding Sources and Level of Funding**

DFG receives no funding for maintenance or new maintenance work in wildlife areas. DFG only performs maintenance as required by any other property owner. DWR does channel maintenance.

### **Criteria used to establish level of DWR Maintenance in CDFG areas (are these limited to only DFG areas?)**

The RMA between CDFG and DWR established the normal maintenance procedures.

1. MOU between DFG and DWR for routine maintenance of flood control projects (1986 & 2003)  
In addition, a Feather River Wildlife Area MOU with DWR for maintenance has been in place since 2004.
2. MOU between DFG and DPR, USFWS for riparian restoration and management. (2004)
3. Biological Opinion from USFWS for restoration and work carried out in Elderberry habitat (2004)
4. Revised MOU between DWR and DFG (July 2006)
5. Draft revised MOU between DWR and DFG (January 2010)

### **Issues, Constraints, Opportunities, & Solutions**

- DWR has done the required maintenance work for the CDFG for many years. This maintenance has been satisfactory to the parties involved. In addition, CDFG has allowed some sheep grazing in the last five years in Lake of the Woods and Nelson Slough areas to assist with vegetation maintenance. CDFG has contracted with River Partners to assist with vegetation restoration projects in Abbott Lake and O'Connor Lakes. In addition we have done some willow removal. Abbott Lake is already pretty open and any new plantings will have combination open grass swaths mixed with shrub wind rows.
- CDFG has acquired land in the area when the price was low due to flooding, financial problems and ready sellers.
- Concern for the continued shorting of the maintenance window of operation due to longer wet season and compliance with endangered species season of protection.
- Some concern expressed that if DWR does more CDFG maintenance then DWR has less time to do other maintenance required work. Appropriate maintenance discussion again.
- Ideas for how can the "appropriate" maintenance be done with limited resources in both manpower and equipment.
- O'Connor Lakes discussion on how the flood flow was increased with minimal vegetation removal.
- Flood flow concern was expressed as more native vegetation restoration is done in the river corridor.

- (Tony – I don't remember this conclusion and I wouldn't agree with this conclusion)
- Doing nothing will result in more invasive species invading the Abbott Lake Wildlife Area and causing more channel flow problems. The modeling of the native species restoration work will allow the best corridor flow situations while reducing exotics invading the area.

### **Key Areas Identified by Group**

- The DWR maintenance yard funding does not seem to be an issue as much as management priority setting.
- There is currently Bond money to build new capital improvements, but not increased funding to maintain the investment. Explore new or additional funding maintenance operations; such as Bond funding of maintenance.
- Additional design flow channel modeling is needed to better define level of maintenance that is needed for various amounts of vegetation. Currently perception overly influences channel maintenance decisions. Explore new opportunities for funding from new modeling enhancements versus more maintenance requirements.
- Explore opportunities for using expanded or pooled workforce during shorter timeframes. Such as pooling staff and equipment to a priority areas during the late summer - early fall to concentrate effort during environmental timelines to do work.
- Explore opportunities to pool maintenance workforce from cooperating agencies or volunteer groups.
- Explore ways to get public and flood managers to place more emphasis on the importance of "appropriate" maintenance operations, rather than perceived need or providing money for a new improvement project, but no money for maintenance.
- Determine if vegetation planting could be designed for low maintenance work over the long term.
- Further explore the USACE vegetation requirements and their impact on channel maintenance.
- Explore ways to allow recreation opportunities as we do maintenance projects. A lot of the channel property is public land. Potentially these opportunities could provide some funding for maintenance.
- Determine if goat grazing be used instead of sheep grazing?

### **Next Steps**

- Next Sub-committee will be done via telephone conferencing. Paul will set up time.
- Flesh out options described in the key areas portion of these minutes as individuals and share with rest of sub-committee at next meeting.
- Tony will write-up meeting minutes and distribute for sub-committee review.
- Karen will make copy of her notes and e-mail Tony the Sutter Maintenance Yard Channel Maintenance Chart.
- Look at MOA or MOU's for DWR work on state owned land. Tony will put existing Feather River appropriate maintenance MOU's on web site.

### **Adjourn**

**CHANNEL MAINTENANCE COSTS  
DWR - SUTTER MAINTENANCE YARD**

**May 27, 2010**

Year	SACRAMENTO RIVER		SUTTER BYPASS		TISDALE BYPASS		CHEROKEE CANAL	
	COST	ACTIVITY	COST	ACTIVITY	COST	ACTIVITY	COST	ACTIVITY
2006	\$ 176,643.00		\$ 121,203.00	Veg Rem	\$ 213,782.00	Veg Rem, Deb	\$ 85,885.00	Veg Rem, Sed
2007	\$ 39,721.00		\$ 175,020.00	Veg Rem, Deb			\$ 72,870.00	Veg Rem
2008	\$ 13,058.00		\$ 57,491.00	Veg Rem, Mow	\$ 33,230.00	Mow, Deb	\$ 66,450.00	Veg Rem, Mow
2009			\$ 35,890.00	Erosion	\$ 35,436.00	Veg Rem, Mow	\$ 91,821.00	Veg, Mow, Sed
<b>Total</b>	<b>\$ 229,422.00</b>		<b>\$ 389,604.00</b>		<b>\$ 282,448.00</b>		<b>\$ 317,026.00</b>	

Year	BEAR RIVER		YUBA RIVER		FEATHER RIVER	
	COST	ACTIVITY	COST	ACTIVITY	COST	ACTIVITY
2006	\$ 285,954.00	Veg Rem	\$ 4,000.00	Deb	\$ 35,000.00	Veg Rem
2007	\$ 48,635.00	Veg Rem	\$ 26,000.00	Veg Rem, Deb	\$ 55,832.00	Veg Rem, Deb
2008	\$ 4,800.00	Mow			\$ 57,375.00	Veg Rem
2009			\$ 25,819.00	Veg Rem, Deb	\$ 48,481.00	Mow, Deb
<b>Total</b>	<b>\$ 339,389.00</b>		<b>\$ 55,819.00</b>		<b>\$ 196,688.00</b>	