APPENDIX 9: Decision matrix tables from San Joaquin and Sacramento Valley Manager Workshops

Table 1. Within site decision matrix developed at the Grasslands Ecological Area / San Joaquin Valley Shorebird Workshop on June 24, 2014.

Decisions[1]	**Uncertainty**	**Data Used / Needed**	**Value / Need of PFSS**	**Data summary Improvements**
Which wetland to flood? When to flood? - Flood up date and rate - Drawdown date and rate How to flood? - Water depth - Plumbing - All at once or gradually? How much habitat needed? Vegetation management - How to manage - Vegetation type - Structure - % cover	Where are the birds and which areas traditionally are productive? How much habitat available elsewhere in the region? Need better info on actual availability to know when and how much to flood. How much water is available?	Used: Recent and historic data on management, flood date. Biological surveys conducted at some refuges (e.g. San Luis NWR) to identify priority units. Water schedule and allocation determined by water district. Needed: Shorebird habitat data on “shorebirds acres” (appropriate depth and vegetation free).	Spatial summaries of distribution and abundance of shorebirds by year at multiple scales. Regular water / habitat tracking including vegetation free wetlands Support additional conservation funds – data are proof of value Show importance of wetland habitat Help guide priority areas for conservation	Add habitat prioritization maps to map-based summary application. Add polygon tool to allow custom summary of data by region. Shorebird survey data from migration and winter period (July – April) Habitat summaries through time at multiple spatial scales would be good data summary application improvement. In other words, summarize more than just the bird data.

[1]key constraints = budget, mosquito abatement, capacity to analyze data

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Table 2. Among site decision matrix at the Grasslands Ecological Area / San Joaquin Valley Shorebird Workshop on June 24, 2014.

Decisions[1]	**Uncertainty**	**Data Needed**	**Value / Need of PFSS**	**Data summary Improvements**
When to flood? How to move water most efficiently? How much water needed to flood? Where to put water; particularly private versus public land?	Water supply Water movement Canal maintenance Surface area flooded on landscape and thus overall habitat availability. Weather Timing of when to flood / manage for shorebirds	Where are the birds and which areas traditionally are productive? Shorebird habitat data on “shorebirds acres” (appropriate depth and vegetation free) particularly relative to timing of water application Shorebird survey data from migration and winter period (July – April) Regular water / habitat tracking including vegetation free wetlands How much habitat available elsewhere in the region? Need better info on actual availability.	Spatial summaries of distribution and abundance of shorebirds by year at multiple scales. Support additional conservation funds – data are proof of value Show importance of wetland habitat and identify high use areas Help guide priority areas for conservation. Track shorebird habitat availability and impact of management actions. More seasonal surveys would improve value to inform when to flood.	Add prioritization maps to map-based summary application. Add polygon tool to allow custom summary of data by region. Habitat summaries through time at multiple spatial scales would be good data summary application improvement. In other words, summarize more than just the bird data.

[1]key constraints = budget, mosquito abatement, capacity to analyze data, coordinating many public and private land owners / managers.

APPENDIX 9: Decision matrix tables from San Joaquin and Sacramento Valley Manager Workshops

Table 3. Within site decision matrix at the Sacramento Valley Shorebird Workshop on June 26, 2014.

Decisions[1]	**Data Used**	**Data Needed**	**Value / Need of PFSS**	**Data summary Improvements**
When do we need habitat? -Flood up date and rate -Drawdown date and rate How much habitat? Vegetation management - How managed? - Vegetation type - Structure - % cover Water depth How to compliment with private lands?	Recent and historic data on management, flood date Biological surveys conducted at some refuges (e.g. Sac Refuge) Water schedule and allocation determined by water district Infrastructure maintenance	Where are the birds and which areas traditionally are productive Shorebird habitat data (appropriate depth and vegetation free) Shorebird survey data from through the migration and winter period (July – April) Regular water / habitat tracking – including water depth and vegetation free wetlands	Compare use in wet versus dry years to guide which years wetland habitat is really needed. More seasonal surveys would improve this. Spatial summaries by year Habitat summaries through time at multiple spatial scales Improve quality vs. quantity vs. need Support additional conservation funds – data are proof of value Show importance of rice Help guide priority areas for conservation (e.g. WHEP)	Add prioritization maps to multimap Add polygon tool

[1]key contraints = budget, legal mandates, topography of wetland, recreation hotspots, staff availability

APPENDIX 9: Decision matrix tables from San Joaquin and Sacramento Valley Manager Workshops

Table 4. Among site decision matrix developed at the Sacramento Valley Shorebird Workshop on June 26, 2014.

Decisions[1]	**Data Used**	**Data Needed**	**Value / Need of PFSS**	**Data summary Improvements**
How many shorebirds do we need to support in the in Sac Valley?	CVJV Implementation Plan 2006	Regular monitoring of shorebird populations and trends coordinated across the Sac Valley	Population estimates to determine progress towards CVJV goals by CVJV planning basin and species composition	Population estimates by wetland complex and CVJV basins Trend and spatial distribution of shorebirds
When do we need habitat?		Shorebird survey data from through the migration and winter period (July – April) Regular water / habitat tracking	Track migration phenology Track water / no-water Track available – vegetation free wetlands Track changes in land cover type Track post-harvest rice practices using citizen scientists?	Trend and spatial distribution of water, vegetation free wetlands, land cover and post-harvest rice practices.
Where do we need habitat?			Track water / no-water Track available – vegetation free wetlands Track changes in land cover type PFSS would be better if surveyed more seasons	Ability to adaptively understand the implications of the distribution and abundance of habitat on shorebirds to optimize habitat management.

[1]key constraints = budget, politics of hunting (flooded by opener), mosquito abatement, water availability (timing and amount uncertain)