

## **Exhibit B-2 Narrative Descriptions of the Bank's Service Areas**

### **Clean Water Act § 404**

#### **Covered Section 404**

The Bank will be eligible to offset impacts to riparian habitat regulated by the U.S. Army Corps of Engineers (USACE) and the United States Environmental Protection Agency (USEPA) as “other waters of the United States.” These impacts would typically occur within the proposed 404 Service Area for the Bank.

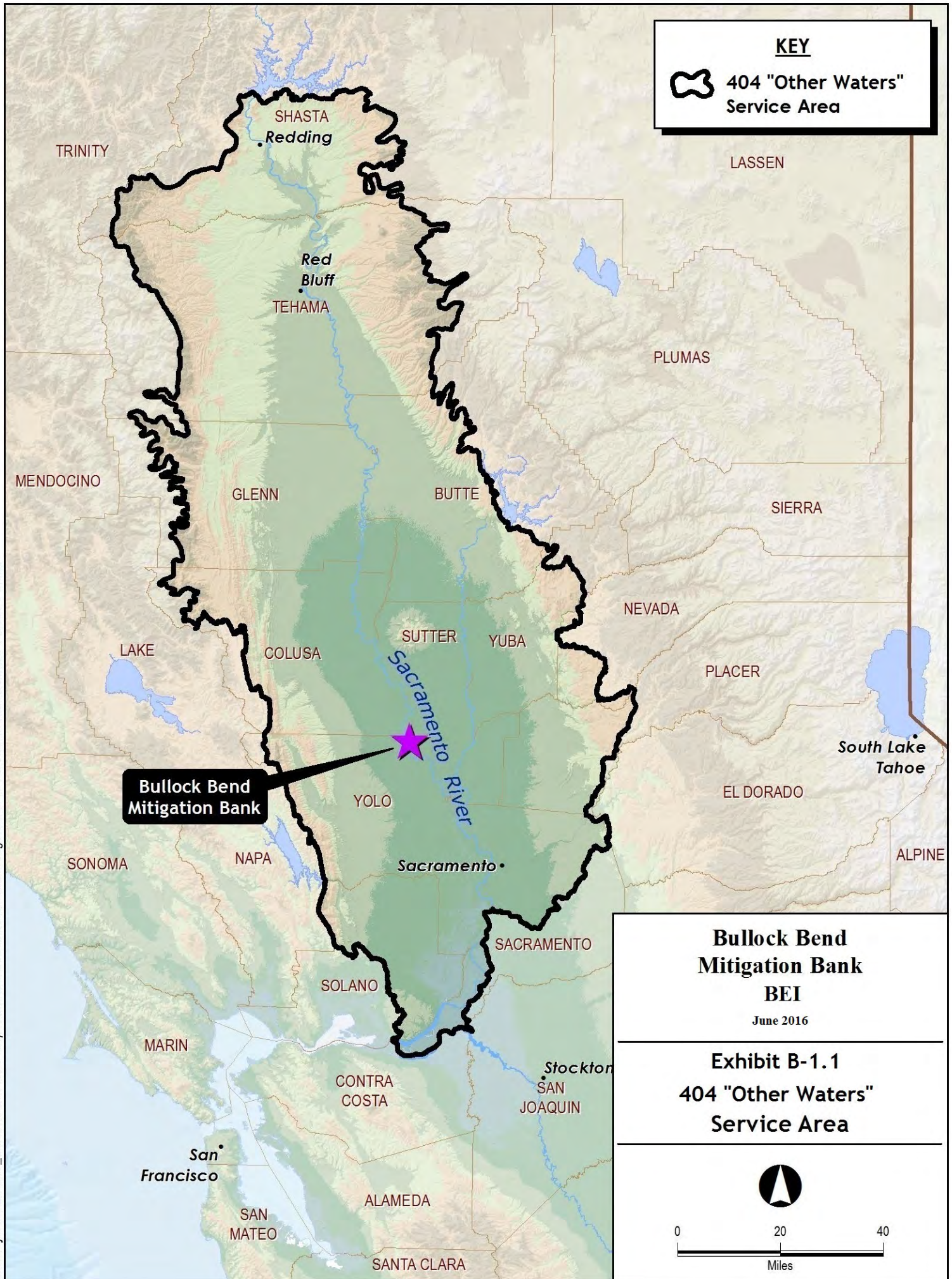
#### **Boundary Definition of the Section 404 Service Area**

As the impact areas for the Section 404 ‘Other Waters’ Service Area are anticipated to be along the dendritic network of rivers and streams, including the associated floodplains, the proposed Service Area would be in the contributing ten-digit hydrological unit code (HUC) watersheds that connect to the main stem of the Sacramento River, then truncated on both the easterly and westerly extent of the applicable EPA Level III ecoregions (California Central Valley and Central California Foothills) and on the northerly and southerly extent of the Lower Sacramento River six-digit HUC (**Figure B-2.1**).

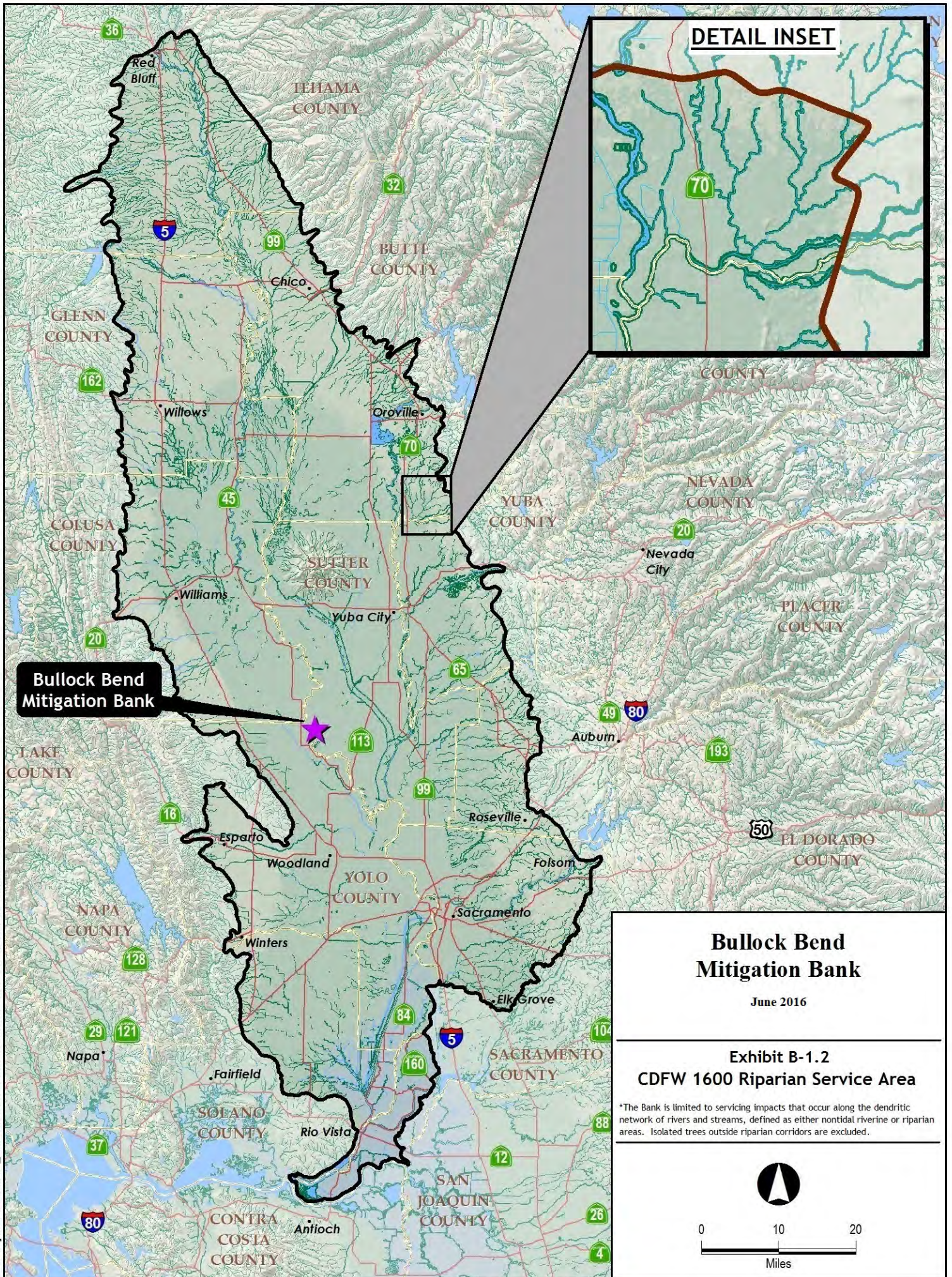
#### **Rationale for the Section 404**

The Bank's Riparian Credits are intended to mitigate impacts that occur along the network of rivers and streams within the Sacramento River Basin (**Figure B-2.2**). However, the Bank is located in a unique Sacramento River ten-digit HUC, 1802010412 (**Figure B-2.3**), which, for the most part, runs along the main stem of the Sacramento River from Verona (approximately river mile 80) to the confluence of Stony Creek (approximately river mile 190). This narrow, artificial designation is primarily shaped by the contiguous Sacramento Flood Control Project levees and natural berms. Therefore, the Service Area was expanded to include the adjacent and adjoining ten-digit HUCs along the main stem of the Sacramento River, where there are active stream channels and floodplain riparian environments and linear riparian habitats (**Figure B-2.4** and **Figure B-2.5**). The Service Area was further refined to the upper limits of similar ecological features areas found on the USEPA Level III Ecoregion map. This means that portions of the contributing ten-digit boundaries not in similar ecoregions to the Bank's and were excluded. These excluded areas are the higher elevation stream corridors and watersheds in the Sierra, Cascade, and Coast Range ecoregions. In addition, the Service Area does not go beyond the upstream and downstream limits of the Lower Sacramento River (below Shasta Dam) six-digit HUC boundary on the main stem of the Sacramento River as the riparian / river characteristics change from those found at the Bank (**Figure B-2.6**).

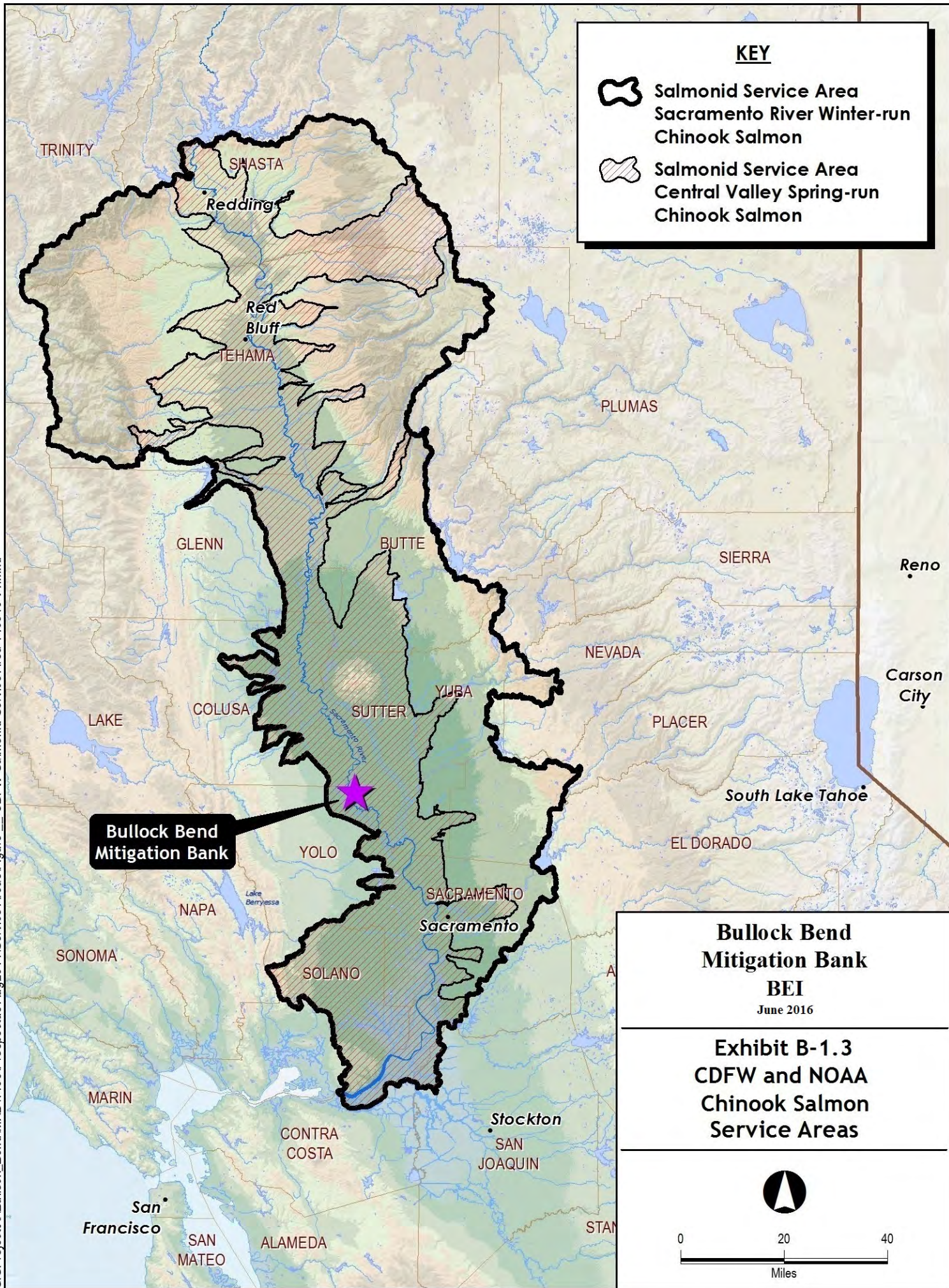
Most of the naturally functioning riparian floodplain found within the Service Area has been lost or degraded and many of the “other waters of the United States” impacts that occur across the Service Area are in river or stream corridors, floodplains, and overflows that depend on rainfall,



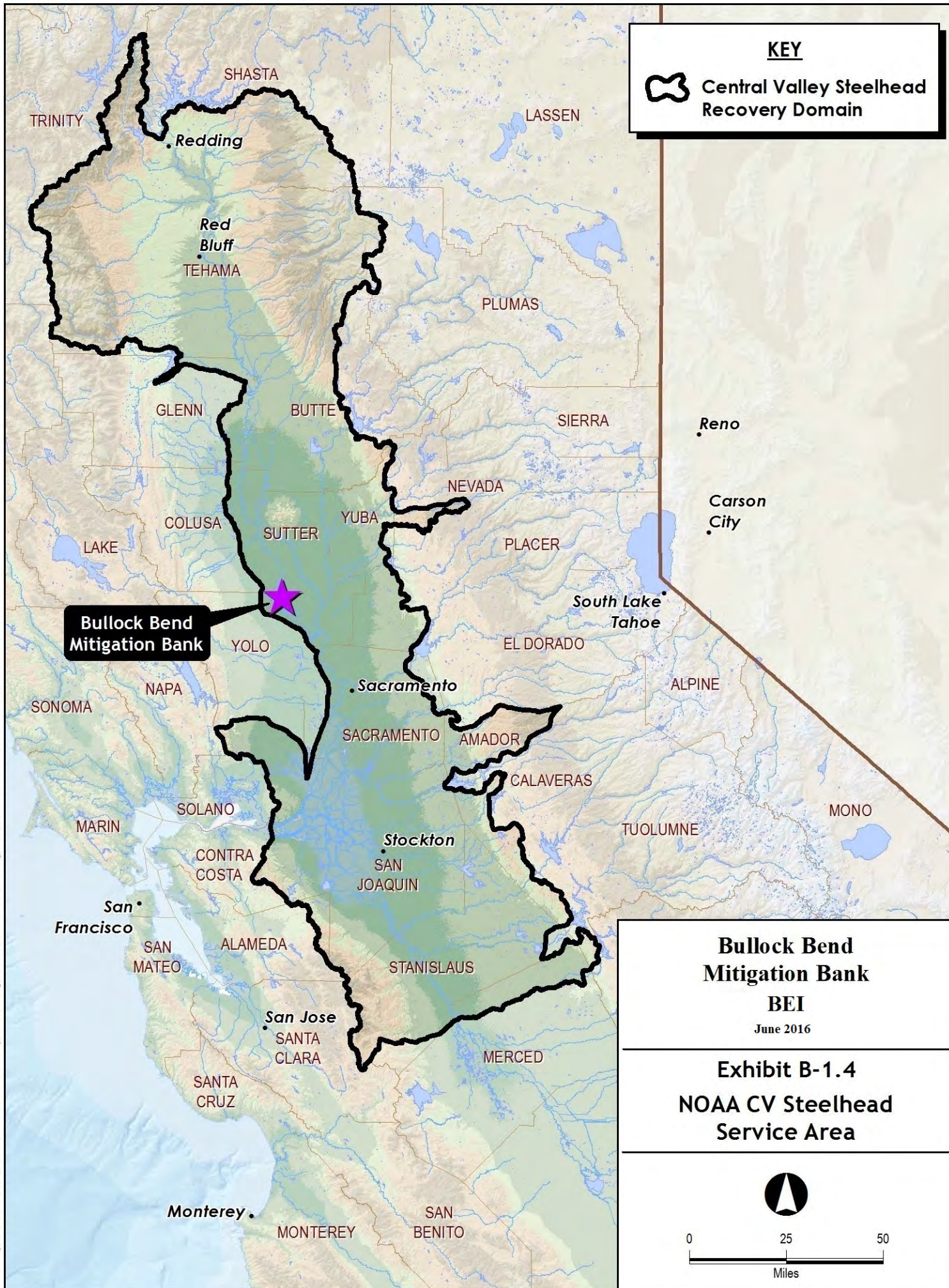




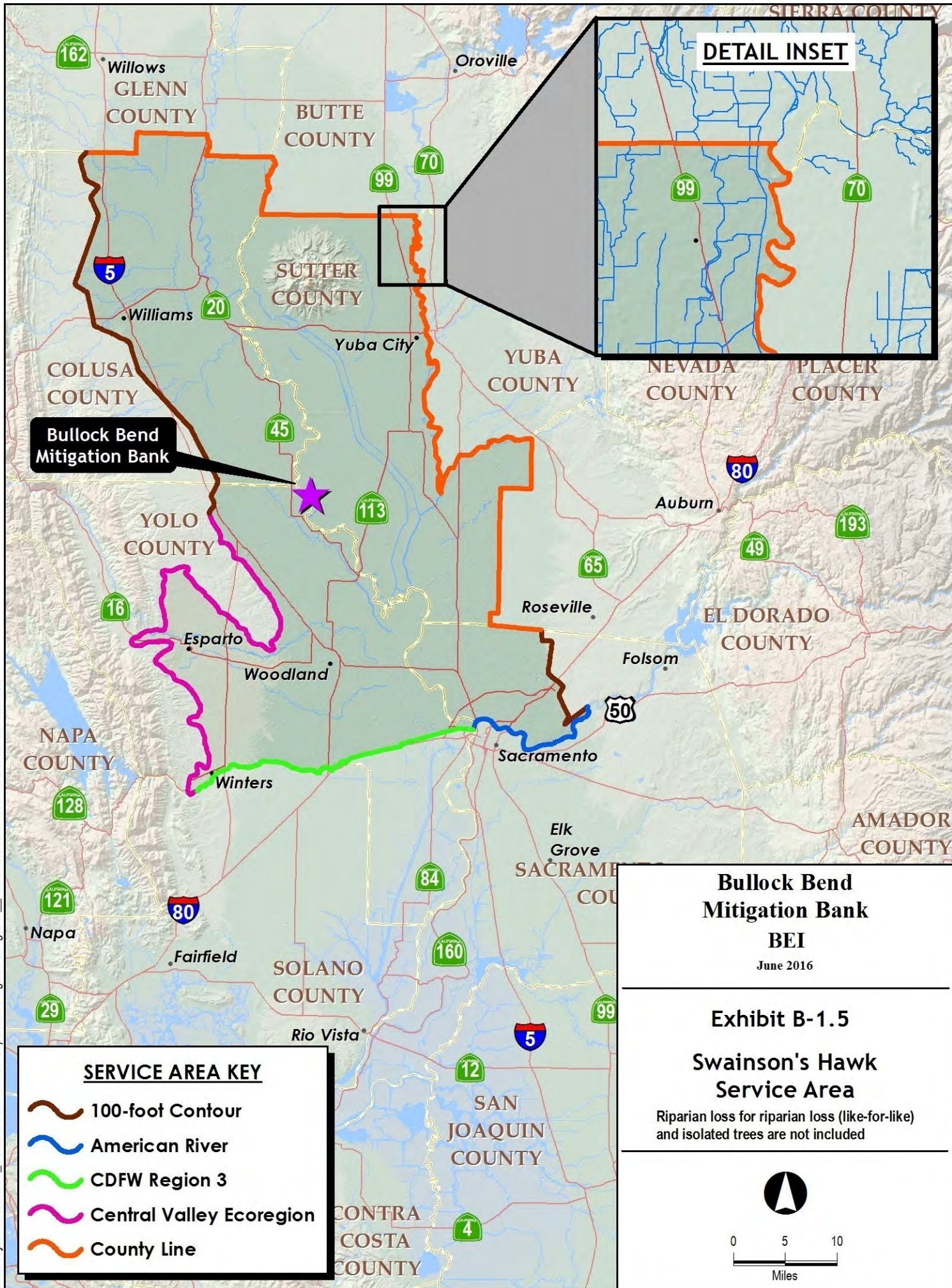














flood flows, or managed water for their hydrology. It makes sense to compensate for these impacts at a location that was a historic riparian area and is in an area of compatible land uses. Additionally, the Bank is located within the Sacramento River corridor and is an ideal place to reestablish the floodplain character of the habitat. A Service Area of the contributing ten-digit HUCs truncated by the ecoregions is justified by its largely main stem location on the Sacramento River. The widespread distribution of the remaining habitat, the limited amount of streamside habitat with potential to be impacted within the adjacent watersheds, and the corresponding low rate of demand for nonjurisdictional associated riparian mitigation necessitates the proposed Service Area for economic reasons (i.e., the financial viability of the bank). This habitat will benefit listed salmonid species which migrate through the Banks adjacent, adjoining and contributing watersheds. The aquatic functions provided by the Bank and hydrologic connectivity of the project also support the proposed Service Area.

There are currently no existing wetlands, “other waters of the United States,” or riparian functions on the site within the proposed Bank’s section 404 and section 1600 Crediting area. The Bank will would result in a net increase in hydrologic, bio-geo-chemical and biotic-habitat functions that would extend along the main stem of the Sacramento River and immediate tributaries throughout the proposed Service Area (**Table B-2.1**).

**Table B-2.1: Wetland Functional Types and Benefit Areas**

Function	Benefit Areas
<b>Hydrological</b>	<ul style="list-style-type: none"> <li>• Dynamic surface water storage</li> <li>• Energy dissipation</li> <li>• Subsurface water storage</li> </ul>
<b>Bio-geo-chemical</b>	<ul style="list-style-type: none"> <li>• Nutrient cycling</li> <li>• Removal of elements and compounds</li> <li>• Retention of particulates</li> <li>• Organic carbon exports</li> </ul>
<b>Biotic and habitat</b>	<ul style="list-style-type: none"> <li>• Maintenance of characteristic plant communities</li> <li>• Maintenance of characteristic detrital biomass</li> <li>• Maintenance of spatial structure of habitats</li> <li>• Maintenance of interspersions and connectivity (riverine and floodplain)</li> <li>• Maintenance of invertebrate fauna</li> <li>• Maintenance of vertebrate fauna</li> </ul>

### **Economic Viability of the Section 404 Service Area**

The proposed Bank is located in a part of the state that has an extensive network of river and stream corridors, but it is not geographically adjacent to major urban-growth areas, which means there is a relatively low rate of past riverine or riparian impacts; the area is not served by other mitigation banks that provide Clean Water Act (CWA) compensation for riverine or riparian waters of the United States. Yet there is a need for riverine other waters of the United States and riparian compensation as described above.

In order to support the type of higher functioning (i.e., reintroduced floodplain and salmonid flood-refugia) Riparian Credits proposed by the Bank within the context of this largely agricultural region, the Section 404 Service Area needs to include those parts of the ecoregion outside of the expanded ten-digit HUCs that still have an ecological nexus to the Bank habitats (as described in the above section). In addition, the Bank is limited to servicing impacts that occur along the network of rivers and streams, defined as either nontidal riverine or riparian areas. Also, as the Bank is located within a predominantly agricultural landscape, which has mostly completed conversion of natural wetland and riparian features to farming, the demand for future mitigation is unlikely to come from this sector.

A stepwise approach was conducted to evaluate the size of the Section 404 Service Area. Impacts from large, self-mitigating, and restoration projects were subtracted from this step analysis as these types of future projects would unlikely be directed to a Bank by permitting agencies or the economic needs of the area. These were the steps taken:

- 1) Start with the ten-digit HUC where the Bank is located.
- 2) Add adjacent ten-digit HUCs.
- 3) Add ten-digit HUCs adjoining the adjacent ten-digit HUCs.
- 4) Add contributing ten-digit HUCs.
- 5) Subtract noncompatible ecoregions and areas with noncompatible watershed conditions.

In order to understand the level of permitting activity in the region following the stepwise approach, WES utilized USACE records of section 404 impacts from 2006 through mid-2012 for the ten-digit HUC that contains the Bank (Sacramento River 1802010412) as step 1 (**Figure B-2.3**). There were three records of riverine or riparian impacts documented as having occurred during this period, totaling 0.39 acres of impacts. The numbers of impacts within the 10-digit HUC are so minimal, that reliance on these impacts alone would render the Bank financially infeasible.

Step 2 of the search for impacts occurred within the adjacent ten-digit HUCs (**Figure B-2.4**) of the one that contains the Bank. There were 61 records of riverine or riparian impacts documented through the USACE records as having occurred during this period, totaling 8.14 acres of impacts.

Step 3 of the search for impacts occurred within the ten-digit HUCs (**Figure B-2.5**) adjoining those adjacent to the one that contains the Bank. There were 82 records of riverine or riparian impacts documented through the USACE records as having occurred during this period, totaling 46.27 acres of impacts.

For steps 4 and 5, WES widened its search for impacts occurring among the contributing ten-digit HUCs (**Figure B-2.6**) within the California Central Valley and Foothills ecoregion. There were 114 records of riverine or riparian impacts appearing the USACE records as having occurred during this period, accounting for roughly 55.61 acres of impacts or approximately 9.20 acres per year. Some of the areas within the proposed Service Area may be served by other approved mitigation banks. The Bank will need to sell more than eight credits a year for the first



seven years of its existence in order to make investment in the Bank viable. Therefore, a service area of this size would be required to make the Bank viable.

**Table B-2.2: 10-Digit HUC Watershed Inclusion Areas, Analysis of Data from 2006–12 USACE Fill Permits**

10-Digit HUC Watershed Inclusion Areas					
HUC-10	HUC-10 Name	Step 1 Bank	Step 2 Adjacent	Step 3 Adjoining	Step 4 Contributing
1802010401	South Fork Willow Creek				X
1802010402	Walker Creek			X	
1802010403	Willow Creek				X
1802010404	Colusa Drain		X		
1802010405	Logan Creek				X
1802010406	Stone Corral Creek				X
1802010407	Freshwater Creek				X
1802010408	Colusa Trough		X		
1802010409	Sycamore Slough		X		
1802010410	Colusa Basin Drainage Canal			X	
1802010411	Sutter Basin		X		
1802010412	Sacramento River	X			
1802011101	Dry Creek			X	
1802011102	American River			X	
1802011103	Steelhead Creek			X	
1802011501	Little Stony Creek				X
1802011502	Upper Stony Creek				X
1802011503	Grindstone Creek				X
1802011504	Middle Stony Creek				X
1802011505	North Fork Stony Creek				X
1802011506	Lower Stony Creek				X



1802011607	Lower Cache Creek			X	
1802012509	Dry Creek				X
1802012510	Yuba River			X	
1802012603	Middle Bear River				X
1802012604	Dry Creek			X	
1802012605	Lower Bear River			X	
1802015101	Clear Creek			X	
1802015102	Stillwater Creek			X	
1802015103	Churn Creek-Sacramento River		X		
1802015201	Old Cow Creek				X
1802015202	South Cow Creek				X
1802015203	Little Cow Creek				X
1802015204	Cow Creek			X	
1802015301	Beegum Creek				X
1802015302	Middle Fork Cottonwood Creek				X
1802015303	North Fork Cottonwood Creek				X
1802015304	Upper South Fork Cottonwood Creek				X
1802015305	Cold Fork				X
1802015306	Dry Creek				X
1802015307	Lower South Fork Cottonwood Creek			X	
1802015308	Cottonwood Creek		X		
1802015401	Bear Creek			X	
1802015402	North Fork Battle Creek			X	
1802015403	South Fork Battle Creek			X	
1802015404	Battle Creek		X		
1802015405	Ash Creek-Sacramento River		X		
1802015401	Paynes Creek			X	



180201550 2	Reeds Creek			X	
180201550 3	Red Bank Creek			X	
180201550 4	Dibble Creek-Sacramento River		X		
180201560 1	Antelope Creek			X	
180201560 2	Elder Creek			X	
180201560 3	Mill Creek			X	
180201560 4	Upper Thomas Creek				X
180201560 5	Lower Thomes Creek			X	
180201560 6	Oat Creek-Sacramento River		X		
180201570 1	Toomes Creek			X	
180201570 2	Deer Creek			X	
180201570 3	Burch Creek		X		
180201570 4	Pine Creek		X		
180201570 5	Big Chico Creek				X
180201570 6	Mud Creek		X		
180201570 7	Jewett Creek-Sacramento River		X		
180201580 1	Upper Butte Creek				X
180201580 2	Middle Butte Creek				X
180201580 3	Angel Slough		X		
180201580 4	Lower Butte Creek		X		
180201590 1	Honcut Creek				X
180201590 2	Upper Feather River				X
180201590 3	Hutchinson Creek-Reeds Creek				X
180201590 4	Gilsizer Slough-Snake River				X
180201590 5	Lower Feather River			X	
180201610 1	Auburn Ravine				X
180201610 2	Coon Creek				X



180201610 3	Pleasant Grove Creek-Cross Canal		X		
180201610 4	Curry Creek-Sacramento River		X		
180201620 5	Lower Putah Creek			X	
180201630 1	South Fork Willow Slough				X
180201630 2	Willow Slough				X
180201630 3	Knights Landing Ridge Cut-Tule Canal		X		
180201630 4	Morrison Creek			X	
180201630 5	Ulatis Creek				X
180201630 6	Cache Slough		X		
180201630 7	Sherman Lake-Sacramento River		X		
<b>TOTAL RIVERINE - RIPARIAN IMPACT ACRES<sup>1</sup></b>		0.39	8.13	46.15	55.61

<sup>1</sup> Previous impact acre totals are cumulative from step to step

## California Fish and Game Code § 1600

### Section 1600 Riparian Habitats

Riverine and floodplain riparian habitats restored at the Bank will be eligible to offset impacts to riparian habitat regulated by the California Department of Fish and Wildlife (CDFW) in its “Lake or Streambed Alteration Agreements.” These impacts would occur within the proposed 1600 Riparian Service Area for the Bank.

### Boundary Definition of the Section 1600 Riparian Service Area

As the impact areas for the Section 1600 Riparian Service Area are anticipated to be along the dendritic network of rivers and streams, including the associated floodplains, and existing riparian habitat along the Sacramento River, the proposed Service Area would be all the contributing ten-digit hydrological unit code (HUC) watersheds that flow to the main stem of the Sacramento River, as referred to in the 404 Service Area description. However, the upper limits of the Service Area of the watersheds are then truncated by the EPA Level III California Central Valley Ecoregion on the northerly, easterly and westerly sides and do not include areas within the Legal Delta on the southerly side (**Figure B-2.6**).

### Rationale for the Section 1600 Riparian Service Area



The Bank's 1600 Riparian Credits are intended to mitigate impacts that occur along the dendritic network of rivers and streams within the Sacramento River Basin (**Figure B-2.7**). However, the Bank is located in a unique Sacramento River ten-digit HUC, 1802010412 (**Figure B-2.3**), which, for the most part, runs along the main stem of the Sacramento River from Verona (approximately river mile 80) to the confluence of Stony Creek (approximately river mile 190). This narrow, artificial designation is primarily shaped by the contiguous Sacramento Flood Control Project levees and farm berms. Therefore, the Service Area was expanded to include the adjacent and adjoining ten-digit HUCs along the main stem of the Sacramento River, where there are active stream channels and floodplain riparian environments and linear riparian habitats (**Figure B-2.4** and **Figure B-2.5**). The Service Area was further refined to limits areas found on the USEPA Level III Ecoregion map only for the Central Valley Ecoregion. This means that portions of the contributing ten-digit boundaries not in similar ecoregions to the Bank's were excluded. These excluded areas are the higher elevation stream corridors and watersheds in the Foothills, Sierra, Cascade, and Coast Range ecoregions. In addition, the Service Area does not go beyond the upstream and downstream limits of the Lower Sacramento River (below Shasta Dam) six-digit HUC boundary on the main stem of the Sacramento River as the riparian / river characteristics change in elevation, soils and plant species from those found at the Bank (**Figure B-2.6**).

Most of the naturally functioning riparian floodplain found within the Service Area has been lost or degraded and many of the riparian impacts that occur across the Service Area are in river or stream corridors, floodplains, and overflows that depend on rainfall, flood flows, or managed water for their hydrology. It makes sense to compensate for these impacts at a location that was a historic riparian area and is in an area of compatible land uses. Additionally, the Bank is **Figure B-2.7**



located within the Sacramento River corridor and is an ideal place to reestablish the floodplain character of the habitat. A Service Area of the contributing ten-digit HUCs tempered by the ecoregions is justified by its largely main stem location on the Sacramento River. The widespread distribution of the remaining habitat, the limited amount of streamside habitat with potential to be impacted within the adjacent watersheds, and the corresponding low rate of demand for nonjurisdictional associated riparian mitigation necessitates the proposed Service Area for economic reasons (i.e., the financial viability of the bank). The aquatic functions provided by the Bank and hydrologic connectivity of the project also support the proposed Service Area.

There are currently no existing wetlands or riparian functions on the site within in the proposed Bank's section 1600 Crediting area. The Bank will would result in a net increase in hydrologic, bio-geo-chemical and biotic-habitat functions that would extend along the main stem of the Sacramento River and immediate tributaries throughout the proposed Service Area (**Table B-2.1**).

### **Economic Viability of the Section 1600 Riparian Service Area**

The proposed Bank is located in a part of the state that has an extensive network of river and stream corridors, but it is not geographically adjacent to major urban-growth areas, which means there is a relatively low rate of past riverine or riparian impacts. However, because of the extensive levee system along this section of the Sacramento River, the need for mitigation of unavoidable riparian impacts for these infrastructure projects is needed.

In order to support the type of higher functioning (i.e., reintroduced floodplain and salmonid flood-refugia) 1600 Riparian Credits proposed by the Bank within the context of this largely agricultural region, the Section 1600 Riparian Service Area needs to include those parts of the ecoregion outside of the expanded ten-digit HUCs that still have an ecological nexus to the Bank habitats (as described in the above section). In addition, the Bank is limited to servicing impacts that occur along the network of rivers and streams, defined as either nontidal riverine or riparian areas. Also, as the Bank is located within a predominantly agricultural landscape, which has mostly completed conversion of natural wetland and riparian features to farming, the demand for future mitigation is unlikely to come from this sector.

A stepwise approach was conducted to evaluate the size of the Section 1600 Riparian Service Area. Impacts from large, self-mitigating, and restoration projects were subtracted from this step analysis as these types of future projects would unlikely be directed to a Bank by permitting agencies or economics. These were the steps taken:

- 1) Start with the ten-digit HUC where the Bank is located.
- 2) Add adjacent ten-digit HUCs.
- 3) Add ten-digit HUCs adjoining the adjacent ten-digit HUCs.
- 4) Add contributing ten-digit HUCs.
- 5) Confine to the Central Valley ecoregion.
- 6) Exclude Solano County



### Covered Salmonid Habitats

All covered “Salmonid” species (Chinook and steelhead) and riverine and floodplain riparian habitat restoration and enhancement Credits (Salmonid Credits) from the Bank will be eligible to offset direct and indirect impacts regulated by the National Oceanic and Atmospheric Administration Fisheries (NOAA) through the Endangered Species Act § 7, CWA § 404, and the National Environmental Policy Act (NEPA), and restoration and enhancement Credits by CDFW through the California Environmental Quality Act (CEQA) and Section 1600 permitting processes. These impacts would typically occur within the proposed Salmonid Service Area for the Bank on relevant life-stage components (**Table B-2.3**) and to offset direct and indirect impacts regulated through California Endangered Species Act (CESA).

**Table B-2.3: Species and Impact Areas or Mitigation Types Served by Bank**

		Regulatory Purview		Salmonid Use During Life Stages		
		Federal Status	California Status	Juvenile Rearing & Movement	High Flow Refugia	Adult Migration
Biological Name	Common Name					
<i>Oncorhynchus mykiss irideus</i>	Steelhead - Central Valley DPS	Threatened	None	X	X	X
<i>Oncorhynchus tshawytscha</i>	Chinook salmon - Central Valley fall- & late-fall-run ESU	None	Species of Special Concern	X	X	X
<i>Oncorhynchus tshawytscha</i>	Chinook salmon - Central Valley spring-run ESU	Threatened	Threatened	X	X	X
<i>Oncorhynchus tshawytscha</i>	Chinook salmon - Sacramento River winter-run ESU	Endangered	Endangered	X	X	X

DPS = Distinct Population Segment

ESU = Evolutionarily Significant Unit

### Boundary Definitions of the Species Service Areas

The Chinook Salmon and Steelhead Service Areas for NOAA and CDFW consist of the boundaries of the Central Valley Recovery Domain as outlined in the Recovery Plan (**Figure B-2.8**). There are two distinct Service areas for the Central Valley spring-run evolutionary significant unit (ESU), and the Sacramento River winter-run ESU. The Salmonid Service Areas consist of the boundaries of the Chinook salmon Central Valley spring-run ESU and the Sacramento River winter-run ESU. These areas exclude the lower section of the Delta (NMFS 2014) for the steelhead salmon Central Valley distinct populations segment (DPS). The NOAA Central Valley Steelhead Service Area contains the Central Valley Steelhead Recovery Domain (**Figure B-2.9**). The Salmonid Service Areas cover much of the main stem of the Sacramento River and its tributaries, and these areas are documented as current and historic salmonid migration, spawning, and rearing habitats.

### **Rationale for the Species Service Areas**

The Salmonid Service Areas are bisected by the Sacramento River Valley, and contain numerous hydroelectric dams and facilities with attendant diversions and canal systems, flood control levees, and other support facilities. The Salmonid Service Areas include significantly growing urban areas that would likely need new or improved public infrastructure, such as bridges and levee repairs along the riparian corridors, and therefore there is a high likelihood of salmonid impacts arising from projects permitted within these Service Areas. The use of a preapproved mitigation bank, which provides a net increase in essential fish habitat (EFH), would provide the surest compensation with the greatest level of advanced planning, implementation, and assurances.

The proposed Salmonid Service Areas are consistent with and similar to the Service Area approved by NOAA on a conservation-only bank along the main stem of the Sacramento River.

### **Economic Viability of the Species Service Areas**

The economic viability of the Bank depends on Credit sales closely matching the pace of Credit releases, which would likely span a six-year time period after Bank signature. Creating a match between Credit sales and Credit releases is dependent on three factors: 1) the total number of Credits in the Bank, 2) the size of the Service Area, and 3) the pace and type of economic activity occurring in that Service Area. For this Bank, at least two of these three economic viability factors are of concern: 1) the number of credits in the Bank is relatively small, and 2) the impact areas would be limited to the network of river and streams corridors that occur within the respective Salmonid Service Areas.

Partially offsetting the lack of significant urban areas, the Service Areas are bisected by roads and highways, several power transmission lines, oil and gas facilities with attendant pipelines and support facilities, and project (flood control) levees. The Species Service Areas contain the dendritic patterns of rivers, streams, and associated floodplains, irrigation water delivery, and drain facilities, and supporting riparian habitat that could be impacted by projects. As described above, the Salmonid Service Area is for the entire recovery unit to accommodate potential impacts from future road improvements, energy infrastructure, levee repairs, and development projects.

As there are currently no existing salmonid banks approved by both NOAA and CDFW serving the Sacramento River and its tributaries, this Bank would provide an important mitigation option for applicants. There are infrastructure projects currently in the planning stages as part of the Central Valley Flood Projection Plan (CVFPP 2012) and future projects identified in the California Department of Water Resources (DWR) working draft *Mid and Upper Sacramento River Regional Flood Management Plan* (MUSRRFMP 2014). While the DWR is encouraging many of these projects to self-mitigate (e.g., multibenefit projects), some may not be able to fully self-mitigate and would be able to use credits at the Bank.

### **Covered Swainson's Hawk Nesting Buffer Habitats**



SWHA nesting buffer, floodplain riparian and appropriate riverine riparian habitat restoration and enhancement credits from the Bank will be eligible to offset direct and indirect impacts regulated by the CDFW through the CEQA and the CESA. These impacts would typically occur within the proposed SWHA Service Area for the Bank on impacts to nesting buffer habitat (riparian areas around a nest tree) and take of individual nest trees that occur along riparian corridors. Compensation will be provided for 'riparian loss' for 'riparian loss' (i.e., like-for-like, as individual, isolated trees are not included in these credits), but will fall under a separate crediting category and methodology as SWHA Nesting Buffer. Nesting Buffer includes areas of riparian habitat that are typically used by adult SWHA for perching and refugia while migrating (Table B-2.4).

**Table B-2.4 Swainson's Hawk Use of Bank Habitats**

		Regulatory Purview	Swainson's Hawk Use During Life Stages			
		California Status	Nesting Tree or Nesting Buffer	Fledgling Tree or Nesting Buffer	Adult Perching Nesting Buffer or FP Riparian	Adult Migration Route Resting Nesting Buffer or FP and Riverine Riparian
Biological Name	Common Name <sup>1</sup>					
<i>Buteo swainsoni</i>	Swainson's Hawk	Threatened	X	X	X	X

FP- Floodplain

\*Isolated trees away from riparian corridors are excluded from the Service Area.

SWHA Nesting Buffer crediting category includes areas above the ordinary high water mark (OHWM). Nesting Buffer habitat is considered to consist of tall mature riparian vegetation and trees within the elevations above the OHWM such as described in the Development Plan as Great Valley Oak Riparian Forest, Great Valley Mixed Riparian Forest and Great Valley Cottonwood Riparian Forest (Holland 1986). The categories that include SWHA Nesting Buffer are shown in Table B-2.5. Riverine Riparian Enhancement category lies below the OHWM and consists of more shrubby and herbaceous vegetation, this habitat is beneficial for fish, however, has been excluded to act as SHWA Nesting Buffer Credits.

**Table B-2.5 Swainson's Hawk Credit Category Use**

Credit Types	Riverine Riparian	Floodplain Riparian	Riverine Riparian	Floodplain Riparian
	Re-establishment/ Restoration	Enhancement	Re- establishment/ Restoration	Enhancement
SWHA Nesting Buffer	X	X		X
SWHA Tree Nesting Use	Only 1-2 Credits will be allowed based on documented presence of SWHA nests within the Bank at Bank signature. Additional Credits will be released based upon number of trees documented onsite nest presence during the Success Monitoring period.			

\*Isolated trees away from riparian corridors are excluded from the Service Area.

### Boundary Definitions of the Species Service Areas

The SWHA Service Area for CDFW focuses on the core nesting area for the hawk. The Service Area is shaped by a number of boundary edges defined by: 1) the 100-foot contour line, 2) the Central Valley ecoregion, 3) the 6-digit HUC, 4) the exclusion of Glenn, Butte, Yuba, and Placer Counties, but including both banks of the Feather and Bear Rivers, 5) the exclusion of the legal Delta and CDFW Region 3 (i.e., roughly the Interstate 80 corridor), and 6) the exclusion of lands south of the American River riparian corridor (near the State Highway 50 corridor, CDFW 2004). The 100-foot contour line was chosen because of the concentration of Swainson's hawk nesting occurrences along the Central Valley floor and within this contour elevation (Gifford et.al. 2012). This Service Area follows the Central Valley ecoregion boundary to the northwest to include the Cache and Putah Creek riparian corridors. The Service Area consists of only the riparian corridors along the dendritic pattern of the rivers, tributaries, and streams within this defined area, including much of the riparian corridor along both sides of the Sacramento, Feather, and Bear Rivers and their tributaries and excluding any areas outside the EPA Level III Central Valley Ecoregion (**Figure B-2.10**). Isolated trees away from these riparian corridors are excluded from the Service Area.

### Rationale for the Species Service Areas

The SWHA Service Area is bisected by the Sacramento River Valley, and contains numerous tributaries, streams, creeks, canal systems, flood control levees, and other support facilities. The SWHA Service Area includes hundreds of miles of maintained project levees with riparian vegetation that supports SWHA nesting and surrounding buffer; therefore there is a good likelihood that SWHA impacts will arise from projects being permitted within the Service Area. A preapproved mitigation bank will provide a method of compensation for direct and indirect impacts to nesting buffer habitat and removal of individual nesting trees within these riparian corridors with the greatest level of advanced planning, implementation, and assurances of the various options.

### Economic Viability of the Species Service Areas

The economic viability of the Bank depends on Credit sales closely matching the pace of Credit releases, which would likely span a six-year time period after Bank signature. Creating a match between Credit sales and Credit releases is dependent on four factors: 1) the total number of Credits in the Bank, 2) the size of the Service Area, and 3) the pace and type of economic activity occurring in that Service Area, and 4) Agency required mitigation measures for this type of habitat. For this Bank, at least two of these three economic viability factors are of concern: 1) the number of credits in the Bank is relatively small, and 2) the impact areas would be limited to the network of river and streams corridors that occur within the respective Salmonid and SWHA Service Areas and 3) Agency required mitigation measures for this type of habitat.

Partially offsetting the lack of significant urban areas in the existing riparian corridors, the Service Areas are bisected by roads and highways, several power transmission lines, oil and gas



facilities with attendant pipelines and support facilities, and project (flood control) levees. The Species Service Areas contain the dendritic patterns of rivers, streams, and associated

**Figure B-2.10**

floodplains, irrigation water delivery, and drain facilities, and supporting riparian habitat that could be impacted by projects. As described above, the SWHA Service Area focuses on the core nesting range within the Sacramento River Valley.

As there are currently no existing CDFW approved banks that support SWHA Nesting Buffer Credits serving the Sacramento River and its tributaries, therefore, this Bank would provide an important mitigation option for applicants. There are infrastructure projects currently in the planning stages as part of the Central Valley Flood Projection Plan (CVFPP 2012) and future projects identified in the California Department of Water Resources (DWR) working draft *Mid and Upper Sacramento River Regional Flood Management Plan* (MUSRRFMP 2014). While the DWR is encouraging many of these projects to self-mitigate (e.g., multi-benefit projects), some may not be able to fully self-mitigate and would be able to use credits at the Bank.

## Compatibility with Local Habitat Conservation Plan/Natural Community Conservation Plan Programs

### Section 404 and Section 1600 Permits Service Area Overlap

There are seven proposed and one approved Habitat Conservation Plan/Natural Community Conservation Plans (HCP/NCCPs) within the Bank's Riparian Service Area (**Figure B-2.11**). The one approved plan is the Natomas Basin HCP. The remaining are still in the planning stages.

- 1) The approved Natomas Basin Habitat Conservation Plan (NBHCP) is an HCP that is limited to authorized development projects and other approved activities within the Natomas Basin. This HCP does not currently cover impacts to wetlands, other waters of the United States, or riverine habitats. Applicants with other waters of the United States impacts could utilize credits at the Bullock Bend Mitigation Bank.
- 2) The proposed Yolo Natural Heritage Program (YNHP) Plan falls within the Service Area. The YNHP, a HCP/NCCP that is under development, does not include a Regional General Permit that would provide section 404 coverage of impacts to other waters of the United States.
- 3) The eastern half of the Solano Multi-Species Plan (SMSP) is within the Bank's Riparian Service Area. The SMSP, which is still in development, proposes coverage of impacts to other waters of the United States as part of the SMSP. Purchase of credits from mitigation banks located within the SMSP area would be allowed.
- 4) The Placer County Conservation Plan (PCCP) is planned as an HCP/NCCP in the western portion of Placer County. The PCCP proposes coverage for jurisdictional wetland impacts. The PCCP allows for compensation for impacts at mitigation banks "outside the Plan area when their Service Area covers portions or all of the Plan area" (Chapter 5, pages 37–38). Applicants with other waters of the United States impacts could utilize credits at the Bullock Bend Mitigation Bank. Riparian impacts would likely be required to be mitigated within the PCCP boundary.
- 5) The proposed Butte Regional Conservation Plan (BRCP) is almost entirely within the Bank's Riparian Service Area and would include coverage of impacts to other waters or riparian impacts through a Regional General Permit issued by the USACE. The plan



includes use of mitigation banks in the plan area to offset wetland impacts. However, the Bank itself is not located in the plan area and therefore would not be able to compensate for 404 impacts for the BRCP.

- 6) The Yuba-Sutter Regional Conservation Plan (YSRCP) proposes to cover wetland and riparian impacts, but it is in the very early stages of development. Currently no plan for utilizing existing banks to meet the plan's conservation goals has been proposed.
- 7) The northern portions of the Bay Delta Conservation Plan (BDCP) Area and the Legal Delta overlap the Bank's Riparian Service Area, but the BDCP covers only activities associated with water conveyance, infrastructure, and restoration associated with the federal and state water project operations within the Delta. Other impacts to waters of the United States within the BDCP area are not covered by the BDCP. Those other waters of the United States impacts lying within the Bank's Service Area could utilize the Bullock Bend Mitigation Bank for compensation.
- 8) A portion of the South Sacramento [County] Habitat Conservation Plan (SSHCP) overlaps the Bank's Riparian Service Area. The SSHCP would likely include coverage of impacts to other waters of the United States or riparian impacts through a Regional General Permit issued by the USACE. Mitigation banks located within the SSHCP boundary would be allowed to sell credits. As the Bullock Bend Mitigation Bank is located outside to the SSHCP limits, the potential for use of these Bank Credits to offset impacts has not been determined.

### Salmonid and SWHA Service Areas Overlap

Seven proposed and three approved HCP/NCCPs within the Salmonid Service Areas (**Figures B-2.12 and B-2.13**). The three approved plans are the Natomas Basin HCP, San Joaquin County Multi-Species HCP, and the East Contra Costa County HCP/NCCP. The others are still in the planning stages. The Salmonid Service Area overlaps most of the completed and proposed HCP/NCCP areas. The SWHA Service Area overlaps one completed and two proposed HCP/NCCP areas (**Figure B-2.14**).

- 1) The approved NBHCP is limited to authorized development projects and other approved activities within the Natomas Basin. The NBHCP is entirely within the Salmonid Service Area. This HCP does not currently cover impacts to salmonid or riverine habitats. Applicants with salmonid impacts could utilize credits at the Bullock Bend Mitigation Bank. The plan includes SWHA as a covered species and would mitigate impacts under the NBHCP.
- 2) The approved San Joaquin County Multi-Species HCP is almost entirely within the Salmonid Service Area. This HCP does not currently cover impacts to salmonid or riverine habitats. Applicants with salmonid impacts could utilize credits at the Bullock Bend Mitigation Bank. The Bank SWHA Service Area does not fall within the San Joaquin County Multi-Species HCP boundary.
- 3) The approved East Contra Costa County HCP/NCCP is almost entirely within the Salmonid Service Area. This plan does not currently cover impacts to salmonids. Applicants with salmonid impacts could utilize credits at the Bullock Bend Mitigation Bank. The Bank SWHA Service Area does not fall within the East Contra Costa County HCP/NCCP boundary.

- 4) The boundary of the YNHP encompasses the Bank location. To date, there has been no impact analysis for the YNHP or conservation strategy proposed for salmonids, and there is no indication of whether impacts within their area will be precluded from mitigating outside their plan area. When adopted, the YNHP will likely cover SWHA nesting buffer impacts and SWHA Credits may be used as part of the HCP/NCCP.
- 5) The eastern half of the SMSP is within the Bank's Salmonid Service Area. The SMSP, which is still in development, proposes coverage for salmonids. Currently, there is no plan for utilizing existing banks to meet the conservation goals under the plan. For conservation purposes, a bank would likely need to be within the SMSP boundary to sell species credits. The Bank SWHA Service Area does not fall within the SMSP boundary.
- 6) The PCCP is within the Salmonid Service Area, but proposes coverage for salmonid and associated riparian / EFH impacts. Impacts would need to be mitigated within the PCCP boundary and would unlikely be able to use the Bullock Bend Mitigation Bank. The Bank SWHA Service Area does not fall within the PCCP boundary.
- 7) The proposed BRCP is almost entirely within the Salmonid Service Area and would include coverage of impacts to salmonids that occur *off* of the main stem of the Sacramento River. These impacts would need to be mitigated within the BRCP boundary. The Bank SWHA Service Area does not fall within the SMSP boundary.
- 8) The YSRCP is entirely within the Salmon Service Area. While the plan is in the early planning stages, it currently does not include conservation for specific salmonid impacts, but will likely include mitigation measures for natural river-stream community systems. The plan includes SWHA as a covered species. Currently, no plan for utilizing existing banks to meet the YSRCP's conservation goals has been proposed.
- 9) A portion of the BDCP boundary is also overlapped by the Salmonid Service Area. This portion of the boundary exceeds the boundary of the Legal Delta in the southeastern most portion of the Salmonid Service Area. The BDCP proposes to restore an array of tidal, nontidal, grasslands, and vernal pool natural communities over 11 conservation zones within the plan area boundary. Of the roughly 84,000 acres planned for restoration, similar habitat types to those found at the Bank include 10,000 acres of seasonally inundated floodplains, 5,000 acres of riparian area, and 20 miles of enhanced channel margins. A Bank outside of the plan boundary would be unlikely to be able to mitigate impacts within the BDCP area. The Bank SWHA Service Area does not fall within the BDCP boundary.
- 10) A portion of the SSHCP overlaps the Bank's Riparian Service Area. The SSHCP does not currently include coverage for salmonid or riverine habitats. Applicants with salmonid impacts could utilize credits at the Bullock Bend Mitigation Bank. The Bank's SWHA Service Area does not fall within the SSHCP boundary.



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