Priority Actions organized by Objectives of the CVLCP

Working Group A | Objective 1: Reduce the impacts of climate change and other co-occurring stressors to Central Valley ecosystems. **Legend:** **X** = Yes, this action **has potential** to ameliorate the effects of this climate factor **L** = This action has **limited potential** to ameliorate the effects of this climate factor **Blank** = This action has **no potential** to ameliorate the effects of this climate factor **? =** Unknown	**Ameliorates Vulnerability to Climate Factors**							
	Precipitation (timing/amount)	Runoff (timing/amount)	Air Temp	Water Temp	Soil Moisture	Storms	Wildfires	Increases AC
1. Develop off-channel storage (new storage infrastructure). (9) For example: Use agricultural fields and wetlands for storage during high flows, release later in the season.	**X**	**X**		**X**	**L**	**X**		**X**
2. Mimic natural flooding regimes to encourage new groundwater recharge and sustain viable groundwater levels and maintain and restore streamflow.[1](33)	**X**	**X**		**X**	**X**	**L**		**X**
3. Develop and enforce criteria to ensure water release from dams meet species needs. In particular, work with dam operators to shape hydrographs and create pulse flow in winter and spring in support of breeding frogs and to meet life stage requirements (including passage as a life stage) for water flow and water temperature for multiple fish species in existing fish habitat (salmonids, sturgeon, lamprey). (66, 67, 71 72, 154)	**X**	**X**		**X**		**X**		**X**
4. Enhance wildlife habitat quality in riparian areas [25]. In particular, enhance habitat to increase shade and genetic and phenotypic diversity.	**X**	**X**	**X**	**X**	**X**	**X**		**X**
5. Manage riparian corridors to protect water and habitat resources (e.g., install fences as one possible tool). (62)	**X**	**X**	**X**	**X**	**X**	**X**		**X**
6. Develop practices to restore hydrology in local complexes to maintain or augment vernal pool hydro-periods. [10] (141)	**X**	**L**	**X**	**X**		**X**		**X**
7. Protect/restore large vernal pools, including higher elevation pools that attract waterfowl which are important to facilitate dispersal of cysts and eggs. (18, 203, 204)	**X**	**X**	**X**	**X**	**X**	**X**		**X**
8. Restore meadows (both mountain and valley meadows). (32)	**X**	**X**	**X**	**X**	**X**	**X**	**X**	**X**

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9. Coordinate and improve water management across management units to increase water use efficiency in support wildlife and wetland ecosystem; (14) and within wetland management units for better water use efficiency and wildlife support. (3, 42)	**X**	**X**	**X**	**X**	**X**	**X**		**X**
10. Develop, promote, and encourage Best Management Practices for grazing for multiple benefits: restoration of drought and fire resilient native plant communities, vernal pool and grassland conservation, oak woodland regeneration/conservation, riparian corridors, soil water retention, groundwater recharge, bat and burrowing mammal habitat. (213)	**X**		**?**	**X**	**X**		**X**	**X**
11. Experiment with fallowed lands for drought and fire resilient native plant community restoration. (17, 202)	**?**	**?**	**?**	**?**	**X**	**?**	**X**	**X**
12. Improve agricultural and road maintenance practices to reduce water contaminants (heavy metals, fertilizers, pesticides). (45)								**L**
13. Promote habitat in July and August to support non-breeding shorebirds through agricultural lands enhancement (flooding, vegetation management for wintering bird needs). (224)	**X**	**X**	**X**		**X**			**L**
14. Plant variety of native habitats for pollinators (e.g. grasslands & meadows); plant hedgerows/ backyard/parks of native plants in agricultural/urban areas.(19, 200)								
15. Manage invasive plants to reduce impacts on ecosystem processes and restore natural communities. (23, 52, 85, 105)					**L**		**X**	**X**
16. Plant diverse composition of native species to restore drought and fire resilient communities; manage specifically for shrubs as plant refugia (e.g., moderate air temperature) and perennial grasses (food source); Restore perennial grasses and forbs. (20, 201)			**X**				**X**	**X**
17. Plant vegetation buffers to increase soil water retention and groundwater recharge, and improve water quality (conjunctive use, slow-it-spread-it-sink-it).(4, 31)		**X**			**X**	**X**		**X**

Working Group B| Objective 2: Promote landscape-scale connectivity and ecological and physical processes that function within current and future ranges of variability to support a diverse and thriving Central Valley.

1. Identify and prioritize movement corridors for PNR's. (187)
    a. Focus on preserving north-south and east-west gradients of habitat types and associated connectivity.(22, 188)
    b. Identify and protect current & future habitat of large wide-ranging mammals.(12, 148)
2. Identify and prioritize unprotected wetlands in areas important for future resilience. (160)
    a. Implement acquisition with priority to enhance wetland connectivity. (186)
3. Identify and prioritize opportunities to improve adult fish passage into existing, and future habitats;
    a. Create fish access to current/ future suitable habitat by providing passage above dams, and past other impediments.(21, 173, 176)
    b. Remove dams where appropriate (for all reasons including sediment). (8, 60, 104)
4. Identify and prioritize locations of wetlands and riverine habitats with hydrologic connectivity. (184)
    a. Protect, restore and expand (as appropriate) floodplain function/ hydro-geomorphic activity; reconnect rivers with their floodplains; reactivate floodplains and restore habitat that store water to feed riparian systems. (2, 40, 50, 68, 174).
    b. Provide shaded riparian habitat corridors for fish. (14, 26, 154)

Objective 3: Conserve resilient and adaptable ecosystems that sustain future Central Valley biodiversity.

1. Provide open, natural, connected landscapes that are resilient to climate change: Identify climate refugia and suitable habitat, prioritize, and protect linkages to increase size of suitable habitat, protect varied topography, maintain metapopulations, and increase resilience. (167, 180) For example:
    a. Protect and restore natural stream systems to ensure a mix of open and shaded areas (combine with riparian restoration and salmonid strategies where co-benefits). (5, 55)
    b. Buy property that comes with riparian water rights to acquire sufficient water to sustain riparian resources. (3)
2. Easements and acquisitions to maintain/protect/restore existing habitat to reduce fragmentation and create new space for species migration. In particular:
    a. Oak woodland habitat (especially, old growth oaks). (9, 143, 159)
    b. Riparian habitat. (13, 51 ,142)
    c. Floodplain habitat (for early life stages of fish and other wildlife). (11, 164)
    d. Active riverbeds. (59)
    e. Promote and acquire easements or fee title, at market rates, to protect existing and future wetland habitat. (161)
    f. To maintain wildlife-friendly ag and ranching. (144)
3. Continue to promote and support ongoing habitat restoration and enhancement programs to improve existing protected wetland habitat. (225)