

**Anticipated Habitat Restoration
Actions for Tributary Streams below
Iron Gate Dam under the KBRA**

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Summary of Habitat Restoration Actions Anticipated Downstream of Iron Gate Dam

- KBRA provides for about 141.6 million dollars to be spent on restoration of aquatic and upland habitats downstream of Iron Gate Dam through 2020.
- Habitat restoration activities described here are speculative until the Fisheries Phase I Restoration Plan is completed.
- All actions presented at this time were developed and prioritized collaboratively by representatives from the NMFS, USFS, USFWS, CDFG, Yurok Tribe and the Karuk Tribe.

Consideration of KBRA Habitat Restoration Actions

Current Conditions

- Assume current restoration activities supported by state and federal monies continues at same rate into future.

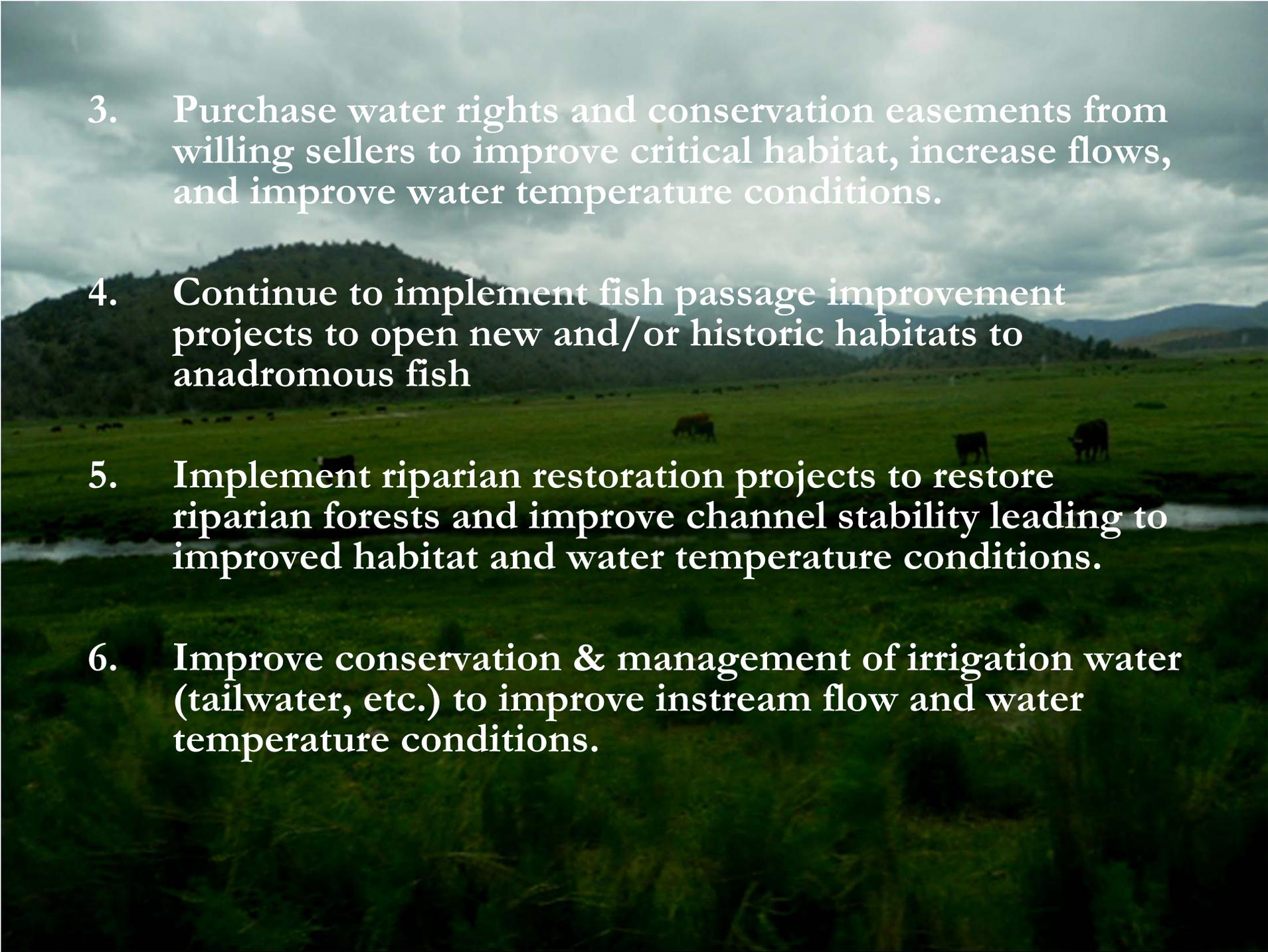
Future Conditions under KBRA

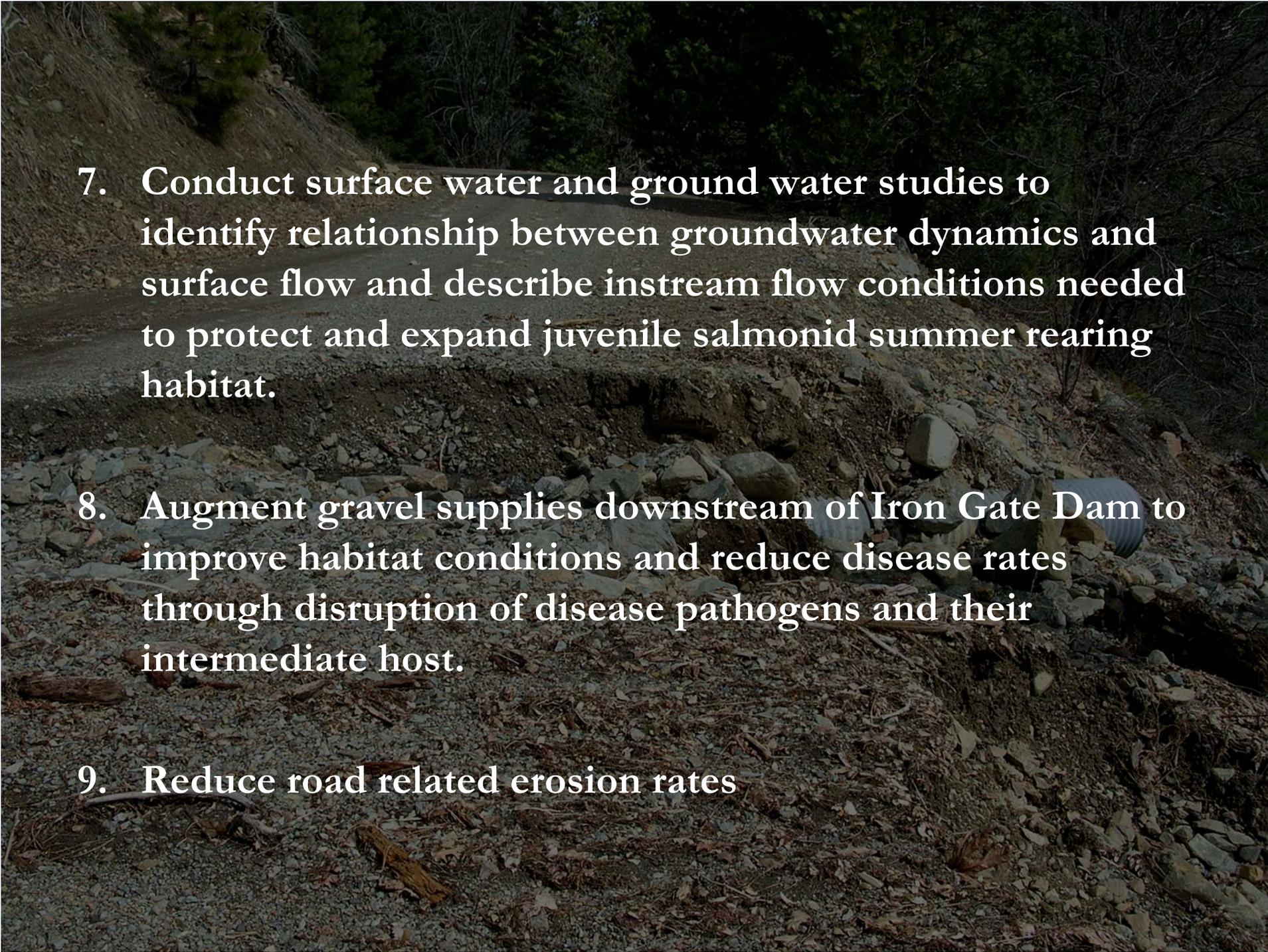
- Work with stakeholders to identify potential restoration actions for specific reaches that may reasonably be expected to occur under funding levels described in Appendix C-2 of the KBRA.

Types of Habitat Restoration Projects Anticipated

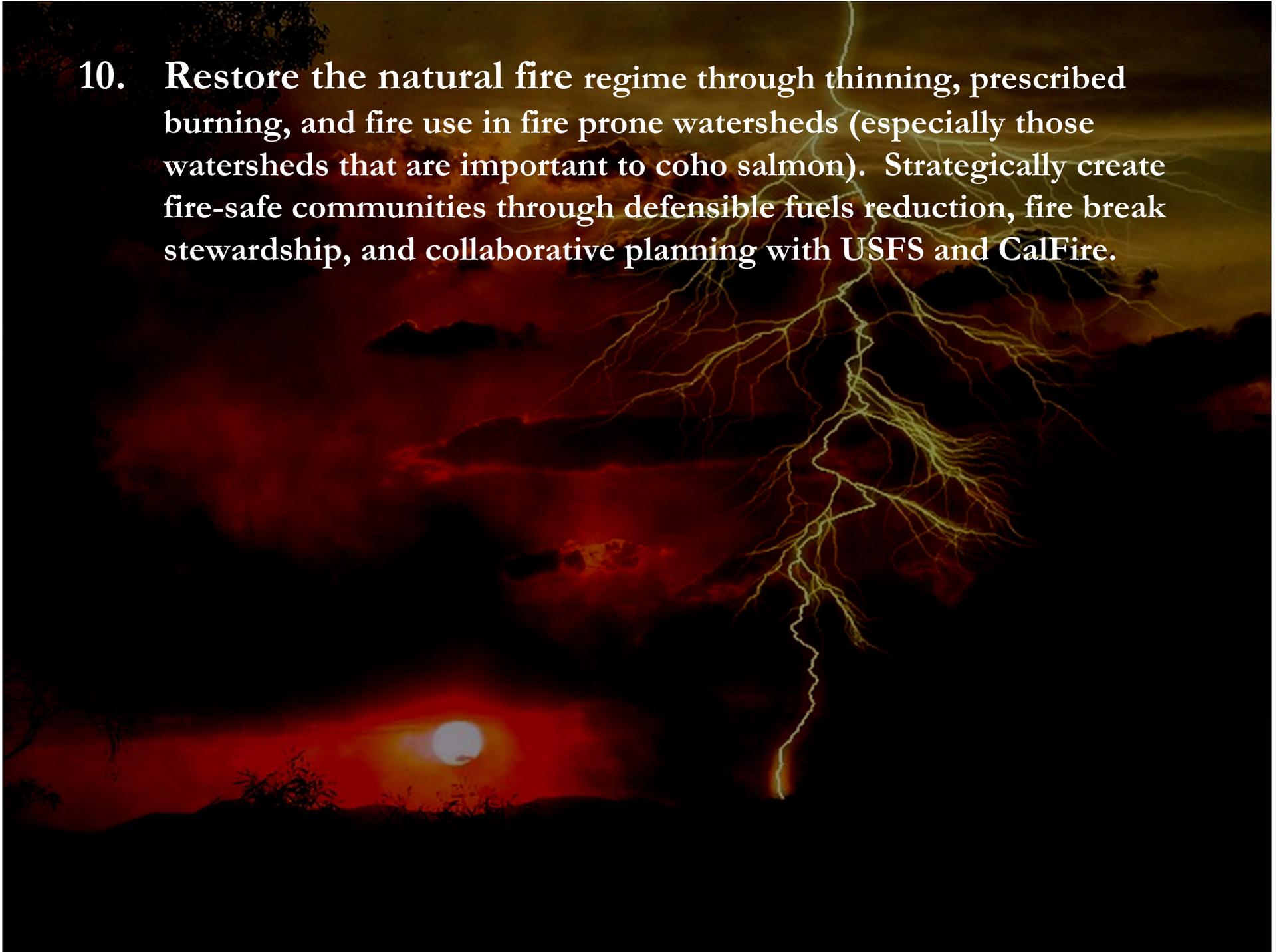
1. Stream Channel and Floodplain Reconfiguration Projects to recreate complex meandering floodplain channels with off-channel ponds and wetlands where possible to promote processes necessary to develop and maintain complex stream and slack water habitats (e.g. anastomosing and/or anabranching channel network), and mature and resilient forested islands and riparian stands.
2. Add Large Wood (e.g. complex wood structures, engineered log jams, mobile wood) to improve instream cover and habitat complexity.

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3. Purchase water rights and conservation easements from willing sellers to improve critical habitat, increase flows, and improve water temperature conditions.
 4. Continue to implement fish passage improvement projects to open new and/or historic habitats to anadromous fish
 5. Implement riparian restoration projects to restore riparian forests and improve channel stability leading to improved habitat and water temperature conditions.
 6. Improve conservation & management of irrigation water (tailwater, etc.) to improve instream flow and water temperature conditions.

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- A photograph of a streambed with gravel and rocks, overlaid with text. The streambed is composed of various sizes of rocks and gravel, with some larger boulders. The background shows a steep, rocky bank with sparse vegetation. The text is overlaid on the image in a white, serif font.
7. Conduct surface water and ground water studies to identify relationship between groundwater dynamics and surface flow and describe instream flow conditions needed to protect and expand juvenile salmonid summer rearing habitat.
 8. Augment gravel supplies downstream of Iron Gate Dam to improve habitat conditions and reduce disease rates through disruption of disease pathogens and their intermediate host.
 9. Reduce road related erosion rates

10. **Restore the natural fire regime through thinning, prescribed burning, and fire use in fire prone watersheds (especially those watersheds that are important to coho salmon). Strategically create fire-safe communities through defensible fuels reduction, fire break stewardship, and collaborative planning with USFS and CalFire.**



Lower Basin Input Nodes

1. Bogus Creek (RM 189)
2. Shasta River (RM 177)
3. Scott River (RM 143)
4. Salmon River (RM 66)
5. Trinity River (RM 44)

KBRA Habitat Restoration Actions

- Improvements in Habitat Quality resulting from KBRA habitat restoration actions are anticipated to increase fry and smolt production (α) in the spawner recruit relationship.
- Providing access to new habitat areas through barrier removal, improved flows, etc., are anticipated to increase habitat capacity (β) in the spawner recruit relationship.

Next Steps

- Identify specific habitat restoration actions for each tributary node
- Estimate how habitat restoration actions might affect production (α) and capacity (β) terms for the spawner recruit relationship.
- Estimate time frame required for habitat restoration projects to reach their full potential and apply accordingly to spawner recruit relationships used for each tributary node.

Acknowledgements

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