SCENARIO PLANNING

The habitat objectives presented in this chapter reflect the best available science. Yet, this science does not fully inform the broad strategic choices the CVJV will face in pursuit of these habitat objectives. The 16 years that elapsed between the 1990 and 2006 plans were highly favorable for bird habitat conservation in the Central Valley. Many landowners took advantage of new public programs that funded wetland restoration on private lands and more than 65,000 acres of additional managed wetlands were protected during this period. During the same time period, winter flooding of harvested rice fields increased from an estimated 60,000-80,000 acres in the 1980s to more than 350,000 acres by 2006 (CVJV 2006). The 2006 CVJV Implementation Plan assumed that the conservation opportunities that had characterized the 1990s and early 2000s would continue. However, rising commodity prices and increasing land values have reduced wetland restoration opportunities on private lands since 2006. The recent California drought severely limited surface water supplies for managed wetlands and winter-flooded rice and revealed the vulnerability of these habitats to future water shortages (Petrie et al. 2016). This combination of declining wetland restoration opportunities and less water made it more difficult to achieve net gains in bird habitat acreage in recent years.

This 2020 Plan identifies the landscape characteristics (habitat of sufficient quality, quantity and distribution) needed to support bird populations at desired levels, and it establishes integrated habitat objectives aimed at creating these desired landscape conditions. While this approach provides a vision of what the Central Valley would look like from a bird and conservation perspective, future progress toward this desired landscape may be uncertain given the lessons of the past decade. Opportunities for conservation will likely change over the life of this Plan, so planning efforts must anticipate this uncertainty. The challenge is to identify what factors influence conservation opportunities in the Central Valley, recognize when these factors change for better or worse, and adjust or prioritize actions accordingly.

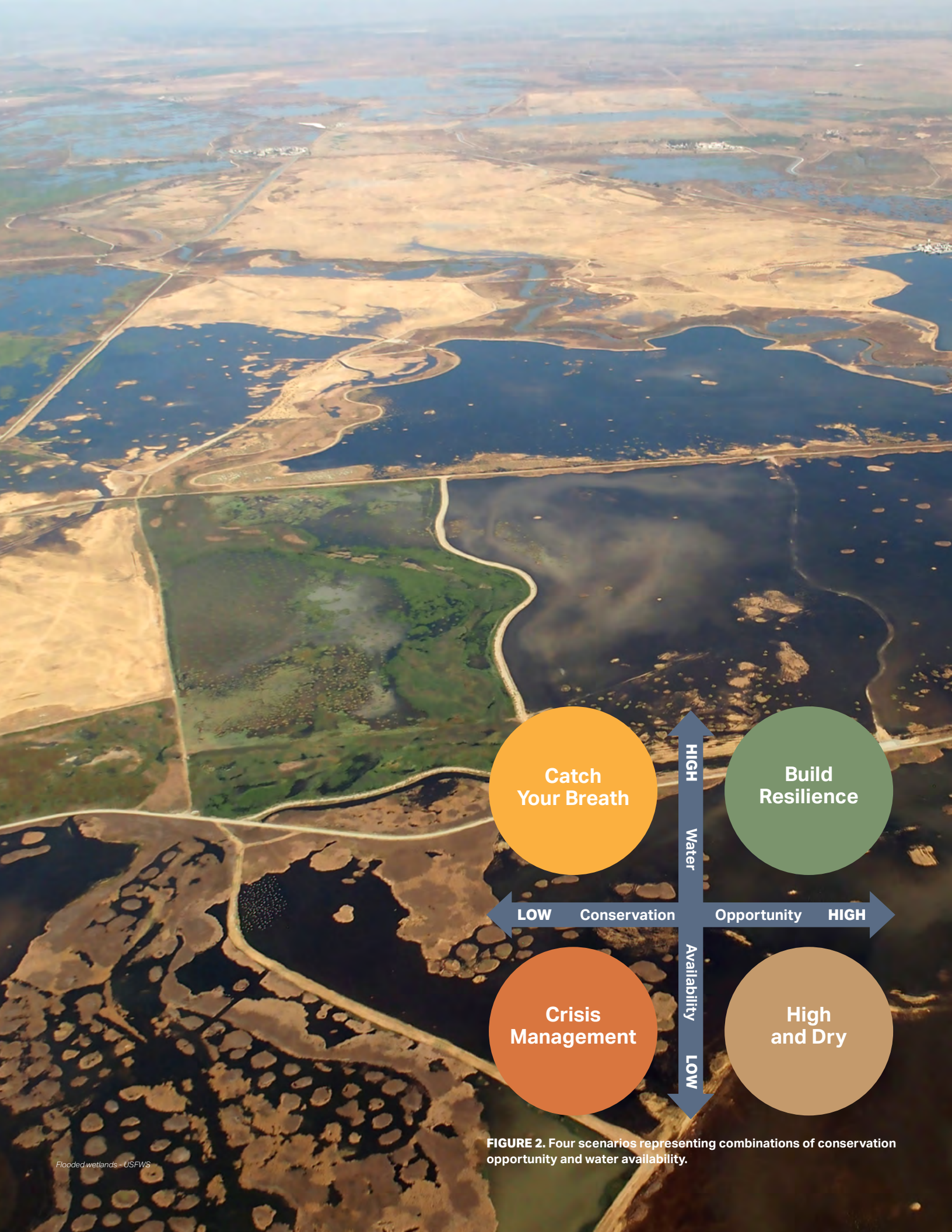
Scenario planning is an excellent tool for acknowledging uncertainty rather than trying to reduce or eliminate it. It can help resource managers generate creative approaches, thinking outside the historical and most obvious trends to incorporate uncertainty as a factor in prioritizing management actions. Scenario planning can help managers identify the most uncertain and most worrisome drivers of change, then enable them to plan around these drivers by putting them into a context of more known (or knowable) drivers (Moore et al. 2013).

CVJV partners participated in scenario planning workshops as part of the development of this Plan. The overarching goal of the workshops was to identify the conservation actions that allow the CVJV to maximize progress toward its integrated bird habitat objectives, regardless of the challenges that are likely to arise over the life of the Plan. Participants identified conservation opportunities and water availability as the two factors most likely to determine the CVJV's progress toward its integrated bird habitat objectives.

Conservation opportunities in the Central Valley are generally a function of three factors: public support of and funding for conservation, the cost of protecting land and implementing conservation actions, and the number of waterfowl hunters. Workshop participants assumed that the cost of protecting land is largely dependent on commodity prices and patterns of urban development, while public support for conservation can be indexed by the public financial resources available for habitat restoration and enhancement. The number of waterfowl hunters is an important component of conservation opportunity because land owned by private duck clubs accounts for two thirds of all managed wetlands in the Central Valley. Without this constituency, the opportunity to increase the quality of managed wetlands or add to the base of existing managed wetlands would be greatly reduced.

Water availability is driven by the annual variation in the water supply available for wetland-dependent bird habitat. Water supply is largely a function of annual precipitation, Sierra Nevada snowpack, existing reservoir storage and the needs of endangered fish species, agricultural producers and urban water users.

After identifying these two key drivers, workshop participants defined four possible scenarios that represent different combinations of conservation opportunity and water availability (Figure 3.2). Each of these scenarios occupy a quadrant on the figure. They are named and described in detail below.



Flooded wetlands - USFWS

FIGURE 2. Four scenarios representing combinations of conservation opportunity and water availability.

IDENTIFYING PRIORITY CONSERVATION ACTIONS FOR EACH SCENARIO

The last task of the scenario planning process was to identify conservation strategies and actions the CVJV can consider under each potential future scenario. Through stakeholder interviews, workshops and facilitated CVJV Management Board discussions, the CVJV identified a suite of high-priority conservation strategies that it will pursue to achieve the Plan's habitat objectives (Table 3.16). The CVJV identified four categories – water management, land management and conservation, funding and budgets, and the human dimension of conservation – and identified key strategies within each category that could be applied, depending on which scenario is in effect. The CVJV also created an extensive list of conservation actions. Through an annual work planning process, the Management Board will determine which scenario the Valley or specific planning regions are in, then working groups will develop a specific set of prioritized conservation actions for partners to undertake.

Below each scenario are simple examples of means to implement the strategies under each scenario. The strategies and actions fall into one of two broad categories: maximizing progress in meeting the CVJV's habitat objectives when the opportunity to do so exists and minimizing the impact on bird populations when the conservation opportunities and general condition of Central Valley habitats are unfavorable. These are broad, high-level actions that help demonstrate how scenario planning could be used by the CVJV; they are far from complete. More specific actions that are tailored to each scenario will need to be developed, including actions that implementers would have no regrets taking in any scenario.

Scenario A: "Building Resilience"

High Conservation Opportunity & High Water Availability

Under this scenario, surface water supplies are sufficient to properly manage all the habitat required by wetland-dependent birds in the Central Valley. All Central Valley Project Improvement Act (CVPIA) refuges have full access to Level 4 CVPIA water supplies (see Water subchapter for an explanation of CVPIA water supplies), while publicly- and privately-managed wetlands also have access to sufficient and affordable surface water supplies, including for summer irrigation treatments. Water supplies do not limit the amount of rice that is traditionally planted, and the cost of water makes winter flooding the most economical means of decomposing rice straw.

Because of the large number of willing agricultural land sellers, the opportunity to acquire land for habitat restoration is high. Moreover, there are adequate public and private financial resources available to fully capitalize on these opportunities. Funding is also available to purchase permanent water rights, and to improve water use efficiency though improvements to water conveyance infrastructure. Government agency conservation budgets are robust, and habitat management staff is available to optimally manage most public lands. Similarly, managers of private wetlands (e.g., waterfowl clubs) are highly motivated to improve their properties, and the supportive funding needed for these improvements is generally available.

Prioritized Strategy

Pursue habitat objectives that relate to restoration and agricultural easements, given the abundance of willing sellers. Enhancing existing bird habitats is a secondary priority in this scenario.

Priority would be placed on purchasing permanent water rights, especially in parts of the Central Valley that are disproportionately affected during periods of drought.

Scenario B: "High and Dry"

High Conservation Opportunity & Low Water Availability

Under this scenario, surface water supplies are insufficient to flood and properly manage all the habitat required by wetland-dependent birds in the Central Valley. Water storage reservoirs are well below average levels and competition among water users is severe. The CVPIA refuges, which include publicly-managed wetlands as well as the private wetlands in the Grassland Resource Conservation District (GRCD), have access to water supplies well below Level 2 CVPIA water supplies (50 percent reduction or more in average water supplies). Private wetlands outside the GRCD face similar water shortages. In general, water supplies are insufficient to flood all wetland units and little or no summer irrigation occurs. Limited water supplies reduce the amount of planted rice below traditional levels. The high cost and low availability of surface water greatly reduces the amount of winter flooding of harvested rice fields.

Despite water shortages, there are substantial public and private funds available for land acquisition and habitat restoration. In addition, there is growing interest by landowners in retiring agricultural lands because of drought-related financial hardships. Because public conservation programs are generally well funded, there is interest in improving the water and habitat management infrastructure and subsequent quality of managed wetlands to help offset the effects of water shortages.

Prioritized Strategy

Focus on habitat objectives that relate to restoration and agricultural easements, given the abundance of willing sellers. Enhancing existing bird habitats should be a secondary priority at this time.

Invest in short-term management actions that would help offset the effects of reduced water supplies for wetland-dependent birds. For example, invest in programs that help increase food production on those public and private wetland habitats that are likely to receive some water during this period of low water availability.

Levee construction for wetland habitat restoration, Gray Lodge Wildlife Area - Ducks Unlimited, Inc.

Scenario C: "Catch Your Breath"

Low Conservation Opportunity & High Water Availability

Under this scenario, surface water supplies are sufficient to flood and properly manage all the habitat required by wetland-dependent birds in the Central Valley. CVPIA refuges have full access to Level 4 CVPIA water supplies, while privately managed wetlands outside the GRCD have access to affordable surface water supplies, including surface water supplies for summer irrigation treatments. Water supplies do not limit the amount of rice that is traditionally planted, and the low cost of water makes winter flooding the most economical means of decomposing rice straw.

Public and private funds available for conservation are reduced. Moreover, there is little interest by landowners in retiring marginal lands because of strong commodity prices. Government agency budgets are weak, and staff and funding are insufficient to improve public lands. Similarly, there is little funding available to improve the wetland and water management infrastructure, or other enhancement cost-sharing actions to offset the annual costs of producing food for waterfowl on these properties.

Prioritized Strategy

Focus limited resources on the enhancement of existing bird habitats, since there is little opportunity to add to the existing habitat base during this scenario.

Work to increase the level of funding for public programs that are important to meeting the CVJV's habitat objectives.

Scenario D: "Crisis Management"

Low Conservation Opportunity & Low Water Availability

Under this scenario, surface water supplies are insufficient to flood and properly manage much of the habitat required by wetland-dependent birds in the Central Valley. Storage reservoirs are well below average levels and competition among water users is severe. CVPIA refuges have access to water supplies well below Level 2 CVPIA water supplies (greater than a 50 percent reduction in average water supplies), while private wetlands outside the GRCD face similar water shortages. In general, water supplies are insufficient to flood all wetland units and little or no summer irrigation occurs. Water supplies reduce the amount of planted rice below traditional levels, and the high cost and low availability of surface water greatly reduces the amount of winter-flooding of harvested rice fields.

Although there may be increased interest by landowners in retiring agricultural lands because of drought-related hardships, there is little public or private funding available to capitalize on these opportunities. Because government agency conservation budgets are weak, staff and funding are unavailable to make improvements on public lands or manage public lands in ways that might help offset the effects of less water. Similarly, there is little funding available to improve the management infrastructure on duck clubs or to offset the annual costs of producing food for waterfowl on these properties.

Prioritized Strategy

Work to increase the level of funding for those public programs that are important to meeting the CVJV's habitat objectives.

Invest in short-term management actions to help offset the effects of reduced water supplies for wetland-dependent birds. For example, invest in programs that help increase food production on those public and private wetland habitats that are likely to receive some water during this period of low water availability.

Focus limited resources on the enhancement of existing bird habitats, since there is little opportunity to add to the existing habitat base during these times.

OPERATIONALIZING SCENARIO PLANNING

Scenario planning can allow CVJV partners to rapidly incorporate new or emerging information, keeping the Plan fresh, relevant and in active use. On a regular basis, the Management Board will assess which scenario the CVJV is in. This assessment will be done for the Central Valley as a whole as well as for individual planning regions if necessary. If the Board finds a shift from one scenario to another has occurred, the Board or working groups will identify and prioritize conservation actions most relevant to the new scenario. These actions are likely to be highly specific, consistent with and expanding upon the broader actions described above.

The prioritized conservation actions will be in alignment with the priority strategies shown in Table 16. The Board will also review existing tools and programs, evaluating their suitability and effectiveness to support the priority actions. If no existing tool or program exists to support an action, the Board will develop a strategy to provide one.

Continue to the next page for Table 3.16

LITERATURE CITED

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CATEGORY	KEY STRATEGIES
WATER MANAGEMENT: Ensure effective management of reliable water supply of sufficient quality and quantity to meet CVJV conservation objectives.	
Water acquisition	Engage in water policy and management actions to promote annual and long-term acquisition – through purchases, transfers or exchanges – of water rights to supply wetland water supplies.
Infrastructure	Promote CVJV priorities in the analysis, planning and implementation of infrastructure programs and projects (including natural infrastructure).
CVPIA	Ensure complete and effective implementation of the environmental provisions of CVPIA, including full delivery of Level 4 water supplies annually.
Groundwater	Ensure that groundwater management addresses habitat water needs and contributions at the local and statewide levels.
Water Supply Insecurity	Predict, prepare and plan for the impacts of long-term water supply insecurities on habitat availability.
Planning	Ensure that local, regional and statewide plans and policies that will potentially affect bird habitat incorporate CVJV water objectives.
LAND MANAGEMENT AND CONSERVATION: Develop, guide and implement land use planning programs and practices to achieve CVJV habitat objectives.	
Protection	Identify important unprotected landscapes and work to permanently protect them through land acquisition and conservation easements.
Restoration and Enhancement	Restore and enhance habitat to meet conservation objectives identified for various bird groups.
Management	Identify, prioritize and implement actions to improve baseline ecological functions and values on existing habitats.
Integrated Planning and Land Use	Integrate CVJV conservation objectives and priorities into local, state and federal land and resource plans.
Agricultural Lands	Develop strategies to maintain sufficient wildlife-friendly agricultural landscapes to meet CVJV conservation objectives.
FUNDING AND BUDGETS: Ensure sufficient, diverse and effectively purposed funding to achieve CVJV conservation objectives.	
Funding Sources	Secure sufficient investments of state, federal and private funding, and safeguard existing funding sources, to fully meet CVJV conservation objectives and needs.
Operations and Maintenance	Regularly assess operation and maintenance needs and gaps on public and private lands; work to establish capacity necessary to meet CVJV conservation objectives.
Financial Sustainability	Regularly assess the scope and financial sustainability of conservation-related funding programs and policies and how they affect achieving CVJV habitat objectives.
HUMAN DIMENSIONS OF CONSERVATION: Identify and engage key partners to help achieve CVJV conservation objectives.	
Key Conservation Partners	Identify key conservation supporters and practitioners who can effectively help the CVJV achieve its conservation objectives.
Actions	Identify actions that will engage conservation supporters and practitioners to achieve CVJV conservation objectives effectively.
Engagement	Engage conservation supporters and practitioners in the work of the CVJV in order to further its conservation objectives.

TABLE 3.16 Priority strategies identified by the CVJV to advance the migratory bird conservation objectives outlined in this Plan.