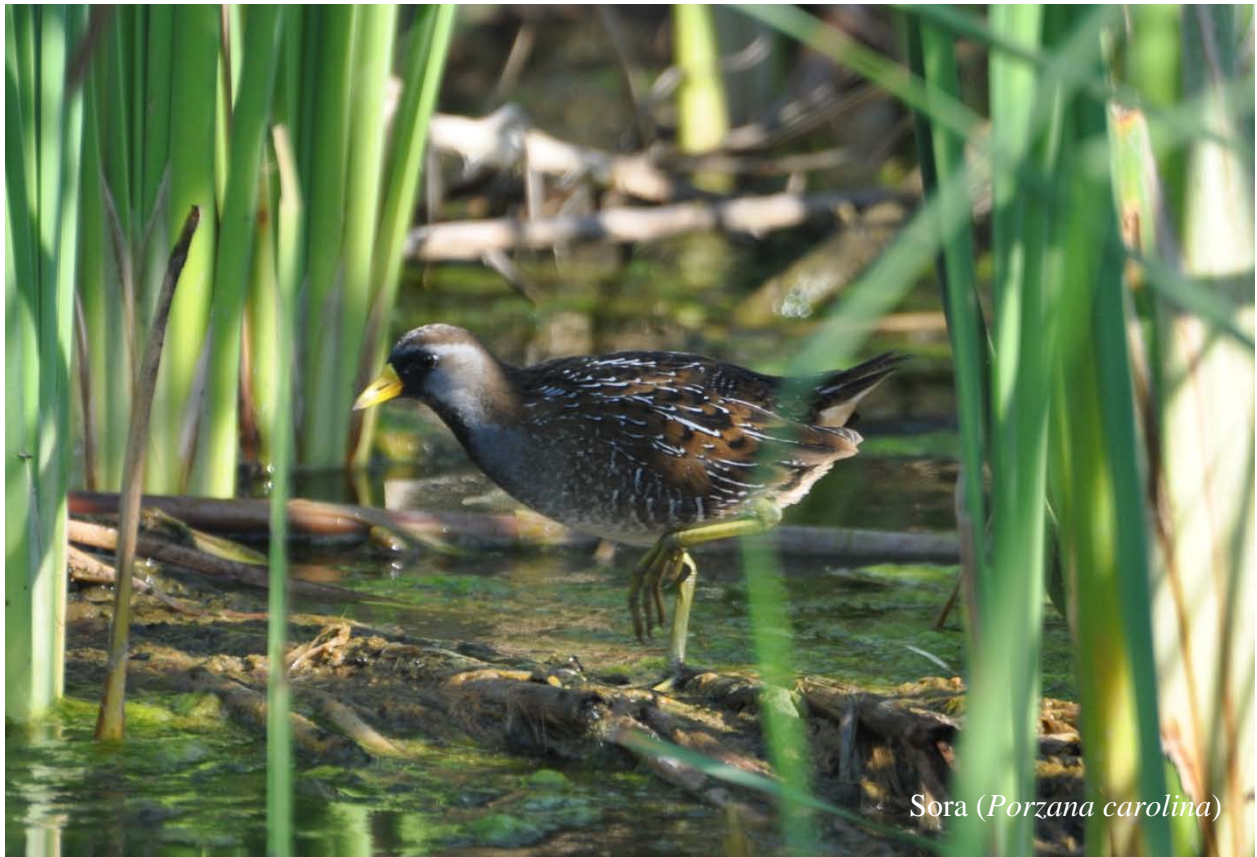


Kern Water Bank Authority

Habitat Conservation Plan/

Natural Community Conservation Plan

2011 Compliance Report and 2012 Management Plan



Sora (Porzana carolina)

May, 2012



Coyote (*Canis Latrans*)



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Executive Summary

The Kern Water Bank (KWB) occupies approximately 20,000 acres in the southern San Joaquin Valley. It is operated under a Habitat Conservation Plan/Natural Community Conservation Plan (HCP) which prescribes reporting and planning requirements, adaptive management methodologies, and avoidance and mitigation measures.

The KWB is well located to provide significant benefits to wildlife in the southern San Joaquin Valley. The water banking activities of the Kern Water Bank have re-established a thriving intermittent wetland habitat along the Pacific Flyway that is ideal for waterfowl, shorebirds, raptors, and other migratory birds. An ornithological study completed during the fall and winter of 2011 indicated 66 different species of water birds were present with populations reaching 35,000 individuals. The study concluded that: “Overall, in terms of bird abundance, species diversity, acreage, location and habitat diversity, [the KWB] is one of the most important freshwater wetlands in California, especially when compared to other privately managed wetlands.”

Upland habitat has also been re-established on lands once farmed using the adaptive management methods prescribed in the HCP. These lands support many special-status species, including Tipton kangaroo rats, burrowing owls, tricolored blackbirds, and San Joaquin woolly threads. The careful implementation of adaptive management techniques has significantly improved upland habitat value, as evidenced by the increasing populations of these species. Overall, the KWB has become a very important wildlife resource of regional significance.

This report documents water banking activities in 2011, provides a management plan for 2012, summarizes Conservation Bank transactions, and describes other HCP compliance measures.



1.0 Introduction

The Kern Water Bank (KWB) occupies approximately 20,000 acres in the southern San Joaquin Valley of California (Figure 1). The Water Bank is operated by the Kern Water Bank Authority (KWBA) under a Habitat Conservation Plan/Natural Community Conservation Plan (HCP) executed on October 2, 1997. The HCP provides for the overall management of Water Bank lands with the stated purpose of “accomplish[ing] both water conservation and environmental objectives. The primary water conservation objective is the storage of water in the aquifer during times of surplus for recovery during times of shortage. The primary environmental objective is to set aside large areas of the KWB for threatened, endangered, and sensitive species and to implement a program to protect and enhance the habitat.” The keystone of the HCP is balanced achievement of both goals, and issuance of “incidental take permits” by USFWS and “management authorizations” by CDFG applied to specific activities and use of the KWB.

Since the implementation of the HCP, KWBA has complied with its’ preservation, construction and operational, monitoring, adaptive management, and reporting requirements. The Implementation Agreement (IA) requires the submittal of an Annual Report of the previous year’s activities and a Management Plan describing the coming year’s activities. Specifically, the Annual Report is to provide the following information:¹

- 1) Summary of all activities that have taken place on the Kern Water Bank in the previous year, including construction, operation and maintenance of water recharge and water extraction facilities;
- 2) Summary of all Take that has occurred within the previous year, including Take of Covered Species and Covered Habitat;
- 3) Summary of all mitigation measures implemented in the previous year;
- 4) Results of completed studies;
- 5) Status of ongoing activities;
- 6) Results from the implementation of monitoring programs;
- 7) Results from the implementation of avoidance and minimization measures;

¹ Implementation Agreement, Section 3.3.4.

- 8) Report regarding the status of the Viability Fund;
- 9) Copy of KWBA’s annual financial report; and
- 10) Certification by KWBA officer that the information in the report is “true, accurate and complete.”

The Management Plan is to describe in detail the operational activities contemplated for the KWB during the next year, including construction, maintenance and repair of the infrastructure, and a description of the adaptive management activities to be carried out.²

In addition to the reporting requirement in the IA, the Conservation Bank Agreement (CBA) requires the submittal of an annual report detailing Conservation Bank transactions.

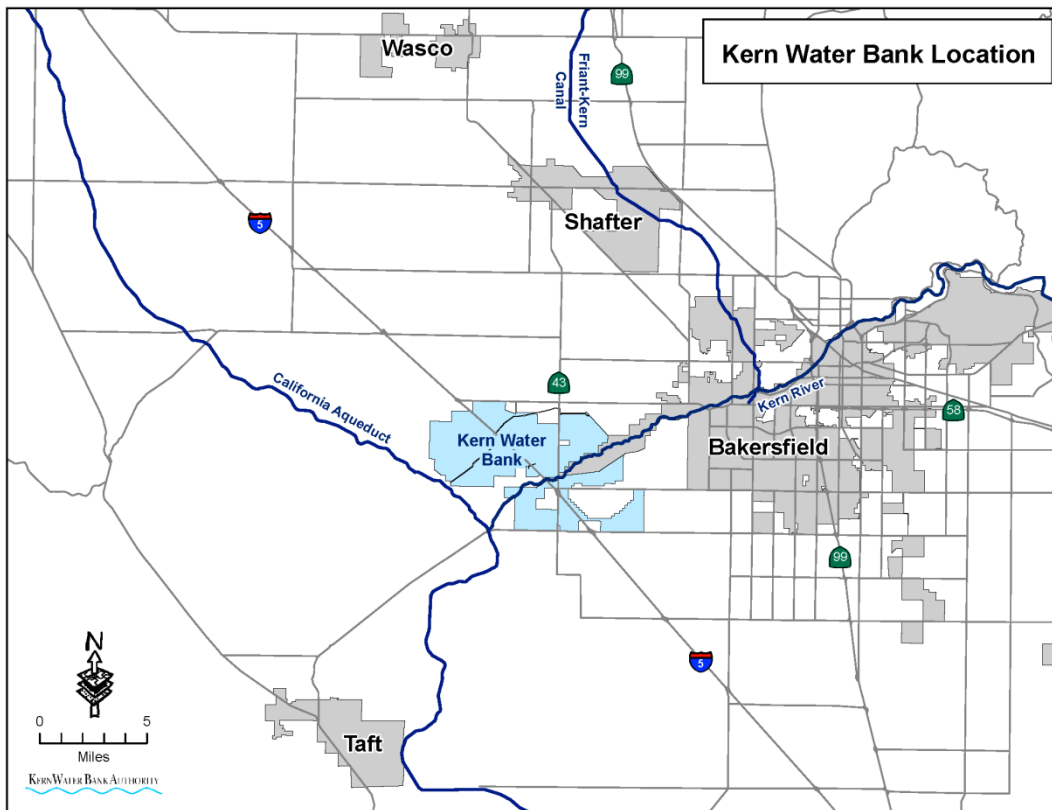


Figure 1. Kern Water Bank Location.

² Implementation Agreement, Section 3.3.5.

This report is intended to meet the reporting requirements of the IA and CBA. It consists of eight sections:

- Section 1 is this introduction, which reviews the objectives of the HCP and describes the basis for the report;
- Section 2 includes a summary of all activities completed in 2011 and the status of ongoing activities;
- Section 3 provides a summary of all take, a summary of mitigation measures implemented during the year, and the results of avoidance and minimization measures;
- Section 4 discusses adaptive management and the results of monitoring programs and completed studies;
- Section 5 is the Conservation Bank Report;
- Section 6 is the Management Plan;
- Section 7 discusses the Viability Fund and the annual financial report; and
- Section 8 is the certification regarding the accuracy of the report.



White-faced Ibis (*Plegadis chihi*)



American White Pelican (*Pelecanus erythrorhynchos*)



American Avocet (*Recurvirostra americana*)

2.0 Summary of 2011 Activities

Activities in 2011 were primarily focused on recharge operations and maintenance. In addition to activities related to water banking, West Kern Water District installed a pipeline across part of the KWB. Security measures included daily patrols. These activities are discussed below.

2.1 Water Banking Operations and Maintenance

Record setting recharge operations dominated activities on the KWB throughout 2011, with over 460,000 acre-feet of water being recharged. Recharge activities actually started in the fall of 2010, and continued unabated until January 2012. Most ponds were full for the entire year (Table 1).

Maintenance activities focused on maximizing recharge during this banner year. Clearing obstructions from conveyance facilities, repairing leaks in pond levees, and repairing and maintaining pumping facilities occurred throughout the year. Leaks in pond levees were especially abundant early in the year as many ponds had not been filled for several years. All of these activities were conducted on existing facilities and none resulted in new habitat disturbance. Other activities included:

- Replacing aging pipelines;
- Improving the P-11 canal;
- Installing piezometers
- Installing weir boxes;
- Installing fencing along the KWB Canal;
- Graveling roads;
- Repairing well pumps; and
- Installing telemetry links.

The first three, replacing pipelines, improving the P-11 canal, and installing piezometers, resulted in habitat disturbance. The rest of the activities were conducted on existing facilities on previously disturbed lands. The amount of additional disturbance is summarized on Table 2.

Table 1. Recharge basin usage.

| Pond | Jan | | | | | Feb | | | | | Mar | | | | | Apr | | | | | May | | | | | Jun | | | | | Jul | | | | | Aug | | | | | Sep | | | | | Oct | | | | | Nov | | | | | Dec | | | | |
|------------------------|-----|---|----|----|----|-----|----|----|----|---|-----|----|----|---|----|-----|----|---|---|----|-----|----|---|----|----|-----|---|----|----|----|-----|---|----|----|----|-----|----|----|----|---|-----|----|----|----|---|-----|----|----|---|----|-----|----|--|--|--|-----|--|--|--|--|
| | 2 | 9 | 16 | 23 | 30 | 6 | 13 | 20 | 27 | 6 | 13 | 20 | 27 | 3 | 10 | 17 | 24 | 1 | 8 | 15 | 22 | 29 | 5 | 12 | 19 | 26 | 3 | 10 | 17 | 24 | 31 | 7 | 14 | 21 | 28 | 4 | 11 | 18 | 25 | 2 | 9 | 16 | 23 | 30 | 6 | 13 | 20 | 27 | 4 | 11 | 18 | 25 | | | | | | | | |
| Recharge Sector | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Enos Ponds | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E-1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E-5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E-6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| North Ponds | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N-1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Strand Ponds | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S-1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| S-6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| S-11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| West Ponds | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W-3 South | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Central Ponds | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C-1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C-4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C-5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C-6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| James Ponds | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| J-5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Main Ponds | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| M-5 North | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M-5 South | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| River Ponds | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Lower Ponds | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Farming Sector | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| West Ponds | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W-1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| W-3 North | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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Table 2. Habitat Disturbance Summary.

| <i>Recharge Basins</i> | | |
|---|---------------------------|------------------------------------|
| | HCP Estimated Disturbance | Actual Disturbance as of 12/31/11 |
| Recharge Basins ¹ | 5,900 | 4,853 |
| <i>Permanently Disturbed Areas</i> | | |
| | HCP Estimated Disturbance | Actual Disturbance as of 12/31/11 |
| Recovery Facilities | 66 | 36 |
| Conveyance Facilities | 397 | 195 |
| Kern River Reverse Flow | 18 | 0 |
| Total | 481 | 231 |
| <i>Temporary Disturbed Areas</i> | | |
| | HCP Estimated Disturbance | Current Disturbance as of 12/31/11 |
| Canal Construction | 73 | 0 |
| Pipelines | 218 | 35 |
| Total | 291 | 35 |

¹ Does not include emergency basins in the farming area.

2.2 Construction Activities

In addition to activities conducted by the KWBA, West Kern Water District installed a pipeline across the western portion of the KWB to connect their new northwest well field with their existing well field. Much of the pipeline alignment is under existing roads and previously disturbed lands in the Farming Sector. Portions of the alignment are within Compatible Habitat. The pipeline provides significant benefits to KWB participants as it helps mitigate pumping impacts in the southern part of the KWB. As such, habitat disturbance is being mitigated with KWBA mitigation credits, also included in Table 2.

2.3 Security

Security patrols are conducted daily on KWB lands. The purpose of the patrols is to protect the property from trespassers, poachers, and thieves. Copper thefts were a significant problem in 2011. Twelve well sites were vandalized with repairs costs averaging about \$4,200 per site. In

response to this escalating problem KWBA has extended patrol times and installed security cameras at key locations. Other more minor security issues included illegal dumping and trespassing.



Mourning Dove (*Zenaida macroura*)



Marsh wren (*Cisothorus palustris*)

3.0 Take, Mitigation Measures, and Avoidance and Minimization

No Take of Covered Species occurred in 2011. As discussed above, some activities resulted in Take of Covered Habitat. These activities included replacing pipelines, improving the P-11 canal, installing piezometers, and installing the West Kern pipeline. The amount of disturbance that occurred is listed in Table 1. Much of this disturbance is temporary, and the land surface is expected to revert back to habitat in the near future.

Mitigation measures for the minimization of impacts are prescribed in the IA³. They include: the use of a biological monitor, specific construction practices, practices for ongoing activities, notification requirements regarding listed animals, and special requirements for actions which might threaten fully protected species. All of the requirements are provided in Appendix A for reference.

The specific measures implemented in 2011 (and more fully described in Appendix A) for the activities described in Section 2.0 included:

- Use of a biological monitor prior to construction and maintenance activities that would disturb habitat;
- Oversight of construction and maintenance activities by KWBA personnel;
- Delineation of disturbance areas prior and during construction;
- Construction site review to ensure that no animals including kit foxes are trapped in pipes, culverts, or other like structures;
- Employee orientation in which endangered species concerns were explained;
- Equipment storage in non-habitat areas;
- Limiting traffic to existing roads and speeds of no more than 25 mph;
- Proper disposal of food-related trash and scraps;
- Prohibiting dogs (except for hunting) from the property; and
- Use of herbicides only in accordance with the Vegetation Management Plan.

³ Implementation Agreement, Exhibit H, Minimization of Impacts Requirements.



Red-shouldered Hawk (*Buteo lineatus*)



California Quail (*Callipepla californica*)

4.0 Adaptive Management, Monitoring Programs and Studies

The HCP's Vegetation Management Plan (VMP) describes vegetation management and restoration practices for the long-term adaptive habitat management and enhancement of Kern Water Bank lands. The priorities of the adaptive management program are protection of sensitive habitat areas and control of exotic pest plants; the primary tools of the program are livestock grazing, mowing, and burning.

Section IV.B.1. of the HCP requires rare plant surveys and monitoring of San Joaquin kit and Tipton kangaroo rat populations. The plant surveys are to be conducted at least every other year; the population monitoring is to be conducted annually. KWBA has also undertaken additional monitoring and surveys, including an ornithological study and the development of an observation monitoring grid. These topics are discussed in more detail below.

4.1 Adaptive Management and Vegetation Monitoring

The primary tools available under the VMP, livestock grazing, mowing, and prescribed burning, are used to varying degrees in response to ever-changing conditions on KWB lands.

Herbicide use for exotic pest plant control is also provided for in the VMP. South Valley Biology Consulting LLC (SVB) oversees much of the adaptive management measures undertaken throughout the year on the KWB and also documents conditions at the Observation Monitoring Sites (see report in Appendix B).

4.1.1 Livestock Grazing

Significant precipitation in 2011 resulted in abundant vegetation in all parts of the KWB, and livestock grazing continued throughout the year with nearly 18,000 acres being grazed at some time (Figure 2). The primary goal of the grazing program is to minimize tumbleweeds and manage excessive growth. Tumbleweeds are an exotic pest which crowd out native species and create significant maintenance problems after wind storms. Cattle will graze on young palatable plants and in some cases trample older plants helping to minimize this problem.

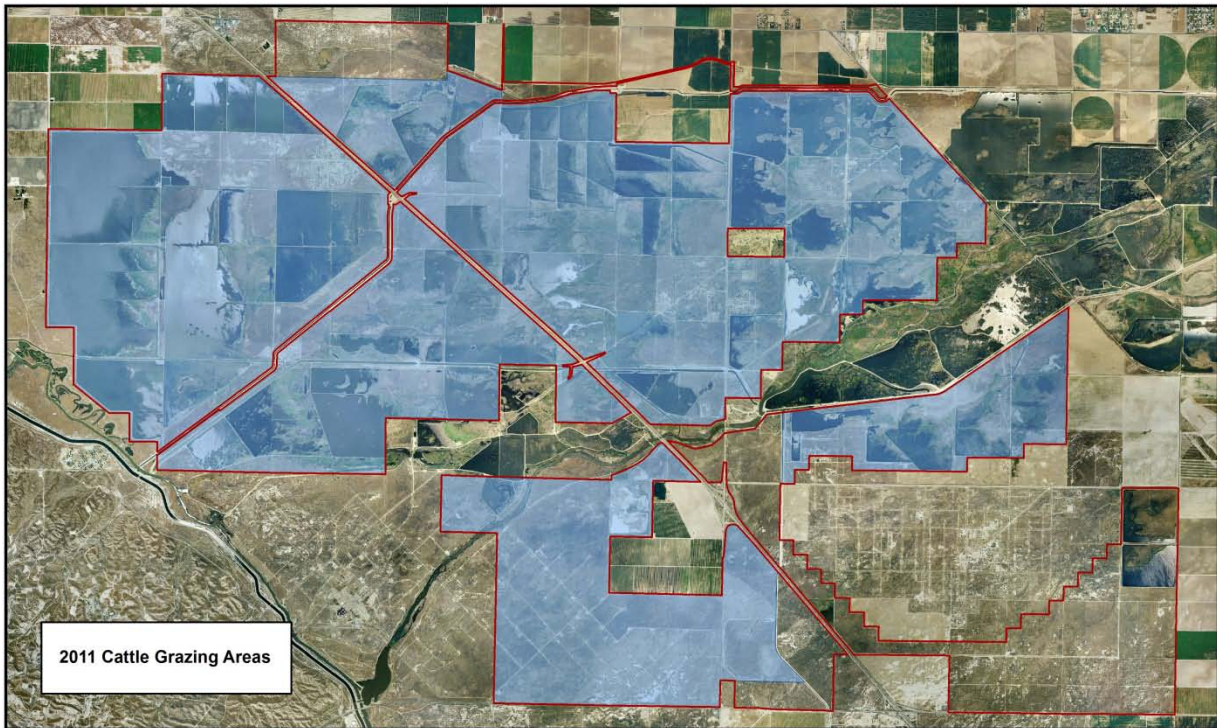


Figure 2. Areas grazed by cattle in 2011.

Excessive growth of other plants can exacerbate mosquito problems and diminish habitat value for some species. Mosquitos prefer to breed in vegetation choked portions of ponds rather than in open water. Heavy vegetation can also make it difficult to reach areas for abatement purposes. Grazing helps to minimize vegetation in ponds both before recharge events and along pond margins during recharge events, thereby diminishing areas favorable to mosquito breeding and providing access for abatement.

Heavy vegetation can also diminish habitat value for many species. Long-term studies of carefully managed grazing programs have indicated reducing herbaceous cover to about 500 lbs per acre Residual Dry Matter (RDM) is beneficial to many native vertebrate species. This RDM value has been an informal goal of the grazing program on the KWB.

4.1.2 Mowing

Mowing was conducted primarily along existing roads and canals to manage plant encroachment (Figure 3). Canal mowing was only used sparingly so that plant cover remained in place during

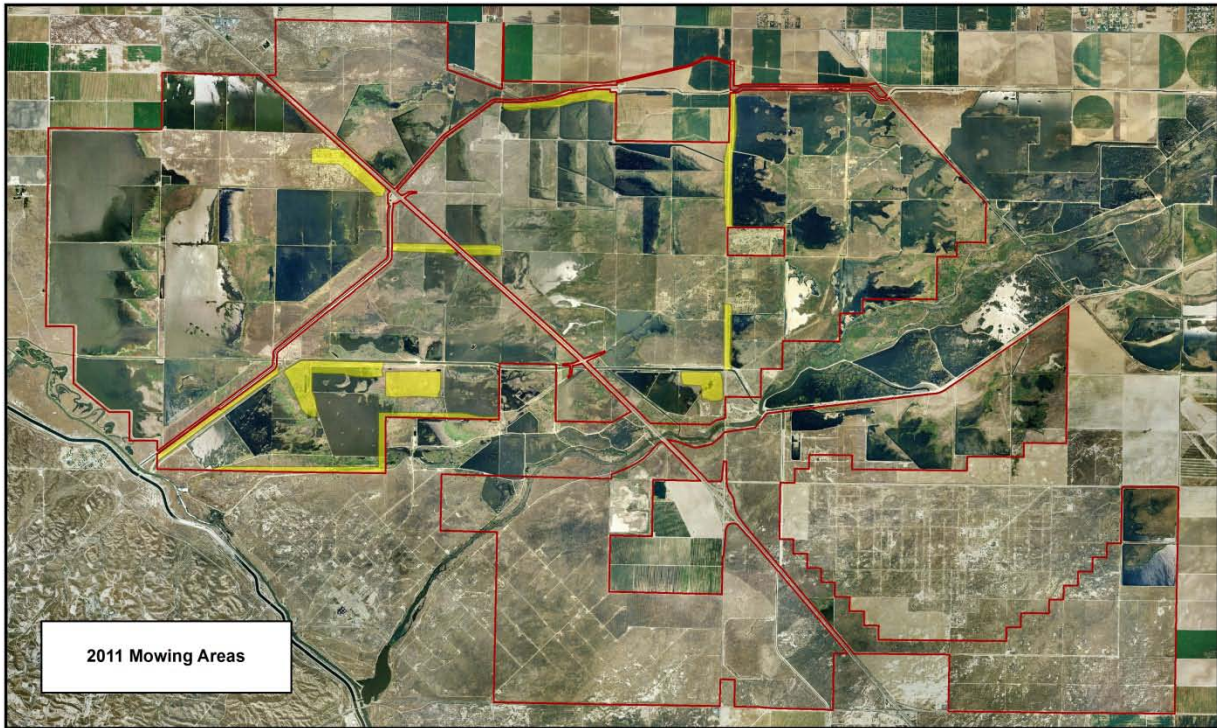


Figure 3. Areas mowed in 2011. Mowing along roads not shown.

nesting seasons and so that cover was available for animals using the canals as a water source. Limited mowing was also conducted in the M9 pond area and in areas impacted by large drifts of dead tumbleweeds. The mowing near the M9 pond was completed to help provide access for mosquito abatement purposes. The drifts of dead tumbleweeds prevent the germination of desirable native plants and can create significant maintenance issues when they blow into canals. Approximately 600 acres were mowed in 2011.

4.1.3 Burning

Burning (under a permit from the San Joaquin Valley Unified Air Pollution Control District) was conducted to eliminate drifts of dead tumbleweeds in the areas shown in Figure 4. As described above, the dead tumbleweeds crowd out desirable native plants and create significant maintenance issues. They can also create fire hazards when they pile up along fences near public highways. Approximately 950 acres were burned in 2011.

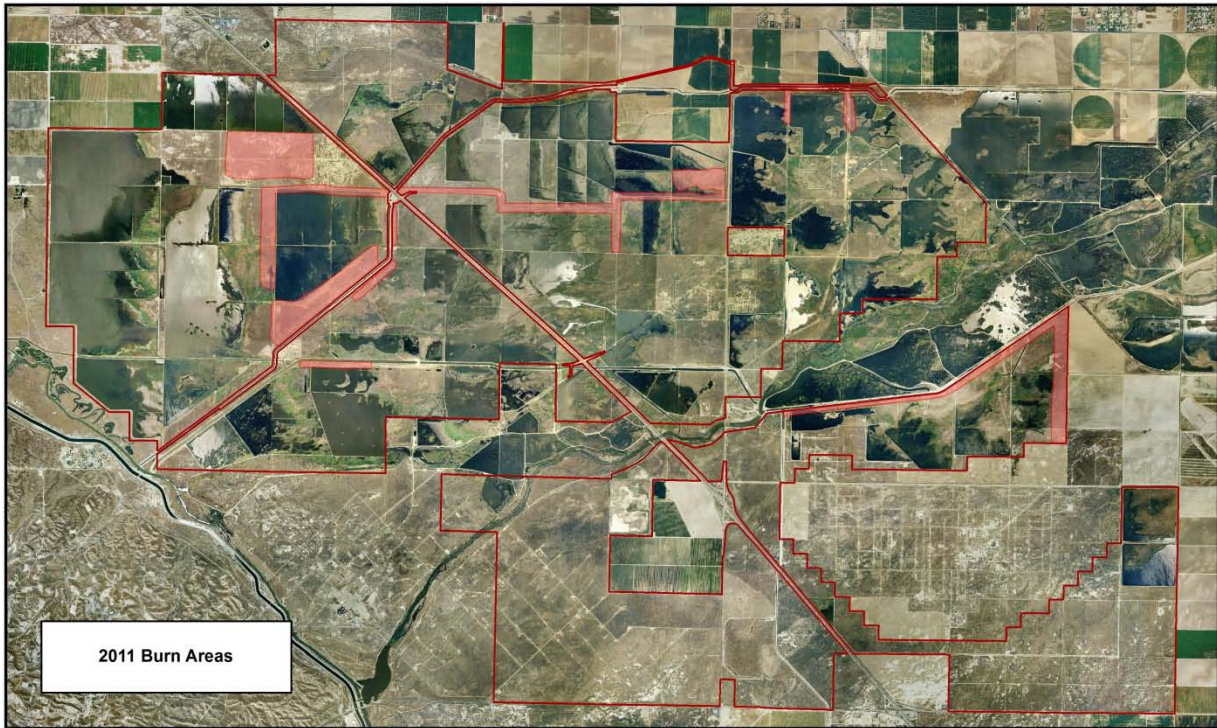


Figure 4. Areas burned in 2011.

4.1.4 Herbicide Use

Herbicides (Diuron and Round-Up) were used to control weeds at well sites, along roads, and at water control structures (Figure 5). In addition, a pilot control program for cattails was conducted in some of the western ponds. Cattails can increase evapotranspiration significantly, negatively impacting recharge efforts. Approximately 530 acres of cattails (of about 2100 total acres) were sprayed in November 2011. Burn down occurred over the next several weeks. Untreated cattails went dormant a few weeks later due to cold weather. The purpose of the program was to determine if spraying would inhibit growth the following year. Unfortunately, the winter and spring of 2012 has been dry, and no recharge has occurred. As such the effectiveness of the program could not be fully evaluated.

4.1.5 Other Control Methods

Yellow starthistle was discovered on a few acres in the northwest corner of Section 12, T30S/R24E. This plant is a rapid colonizer which rapidly depletes soil moisture for desirable

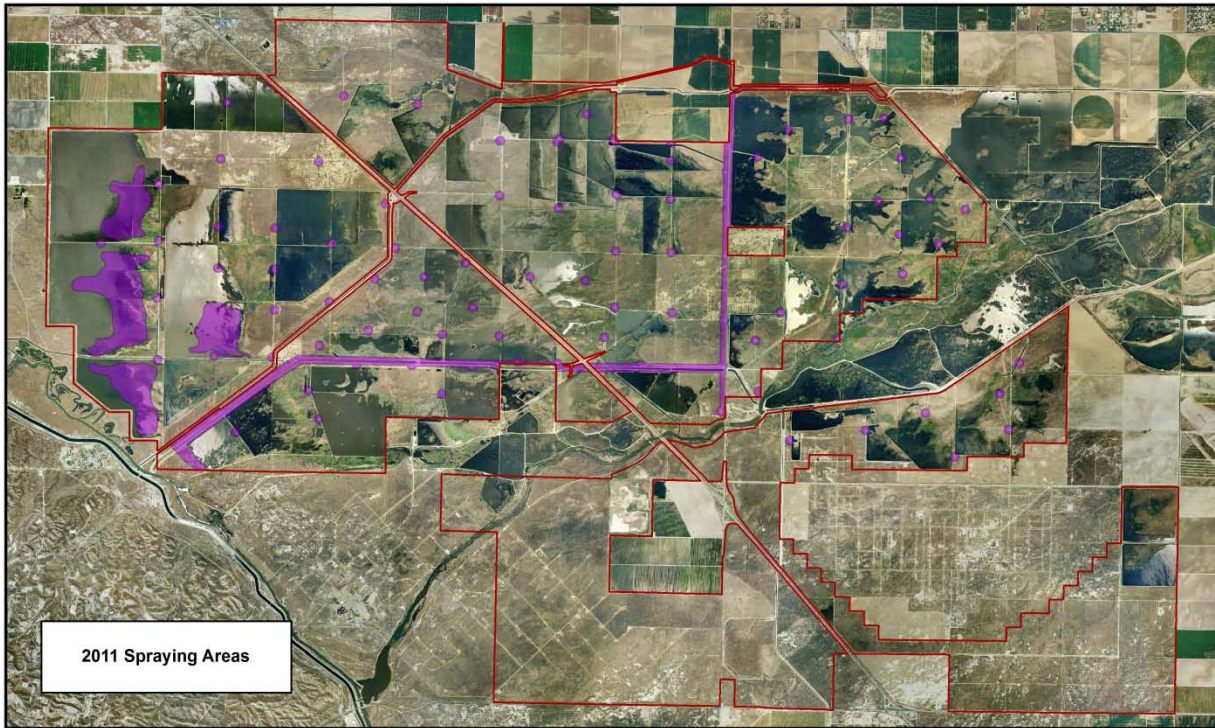


Figure 5. Areas sprayed in 2011.

native species.⁴ Shortly after the plants were discovered, they were removed by hand and burned. This area will be surveyed in the future for continued infestations and treated appropriately.

4.1.6 Observation Monitoring Site Program

In 1999, KWBA implemented an observation monitoring program. Eight sites, referred to as Observation Monitoring Sites (OMS) and representing different aspects of KWB habitat (e.g., canal, ditch, pond, uplands, conservation bank), were selected for surveys and the development of photographic records. Quarterly, staff and/or consultants have observed each site and collected data on weather conditions, general vegetation conditions, and any other pertinent information. Also, photographs were taken, looking north, east, south, and west, to be compared with prior and future images to identify changes. KWBA will continue the quarterly OMS program, building a photographic record and informational data base, which will help provide

⁴ UC ANR Publication 7402.

insight for adaptive management of different sectors of the KWB. The 2011 OMS report is provided in Appendix B.

4.2 Ornithological Study

Recharge operations on the Kern Water Bank provide tremendous benefits to water birds. Prior to the development of Kern County's water infrastructure, much of the area was intermittently flooded by the Kern River and other minor streams. This flooding supported extensive wetlands, marshes, and Kern and Buena Vista Lakes, all along the Pacific Flyway. Numerous canals and Isabella Dam were constructed during the 20th century to capture and regulate waters for beneficial uses. However, this redirection also resulted in a reduction in wetland and marsh habitats by as much as 90%.⁵ The development of the Kern Water Bank (and other banking projects in Kern County) has re-established thousands of acres wetlands in the region and provide much-needed habitat for migrating water birds. The KWBA recognized the importance of this re-introduction of wetlands in the region, and has funded ornithological studies to document this benefit to wildlife.

Sterling Wildlife Biology was contracted to complete bird surveys from October 2011 through mid-April 2012 (see report in Appendix C). The water bird surveys were conducted by observing recharge ponds, upland bird surveys were conducted by walking transects at specific locations, and raptor surveys were conducted by recording sightings along roads. The results can be summarized as follows:

- For the October through February period, overall numbers ranged from approximately 20,000 to 35,000 individuals. Numbers declined after this as recharge operations ceased in early February 2012;
- 66 native water bird species were identified;
- Average species richness (number of species per pond) was 11 for the October through mid-February period;
- At their maximums, the grebe population nearly reached 900 birds, the gull population exceeded 2,100 birds, dabbling ducks nearly reached 15,000 birds, diving ducks

⁵ Hundley, Norris, Jr., *The Great Thirst, Californians and Water, A History*, University of California Press, Berkeley, CA.

exceeded 5,500 birds, herons and egrets exceeded 1,400 birds, and shorebirds reached nearly 10,000 birds;

- For individual species, at their maximums, the American coot population exceeded 12,000 birds, the white-faced ibis population exceeded 3,300 birds, the double-crested cormorant population exceeded 1,000 birds, and the American white pelican population reached nearly 3,000 birds.
- Raptors identified during the surveys include American kestrels, Cooper’s hawks, ferruginous hawks, a golden eagle, northern harriers, osprey, peregrine falcons, prairie falcons, red-tailed hawks, red-shouldered hawks, sharp-shinned hawks, and white-tailed kites. Several Swainson’s hawks were also identified on a late April 2012 survey.
- Rare birds included Barrow’s goldeneye (the third documented sighting in Kern County), Greater Scaup (the only sightings in Kern County for 2011), Cassin’s kingbird, and purple martin.

Sterling concludes that: “Overall, in terms of bird abundance, species diversity, acreage, location and habitat diversity, [the KWB] is one of the most important freshwater wetlands in California, especially when compared to other privately managed wetlands.” The full report is located in Appendix C.



4.3 Sensitive Species Monitoring

As discussed above, the HCP requires rare plant surveys and the monitoring of San Joaquin kit fox and Tipton kangaroo rat populations. South Valley Biology Consulting LLC (SVB) was contracted to conduct these activities in 2011 (see report in Appendix D). Some key points from their report are presented below.

SVB utilized three methods to complete sensitive species monitoring:

- Nighttime spotlighting surveys to determine San Joaquin kit fox populations;
- Small mammal trapping to determine Tipton kangaroo rat populations; and
- Site surveys for special-status plant species.

Although kit foxes are observed occasionally on the KWB, none were identified during the spotlighting surveys. Other mammals identified during the surveys included: 34 coyotes, 409 desert cottontails, 296 black-tailed jackrabbits, and 237 kangaroo rats. Raptors included 99 barn owls, 2 great-horned owls, and 16 burrowing owls. Several other species of upland and water birds were also observed. SVB suggests the abundance of coyotes may be suppressing the kit fox populations.



Burrowing Owl (*Athene cunicularia*)

Small mammal trapping was conducted on two grids. One grid is located north of the Kern River in Sensitive Habitat (the “Strand” grid) and the other is located south of the Kern River in the Conservation Bank Area (the “Southeast” grid). One Tipton kangaroo rat was captured at the northern grid and 12 were captured at the southern grid. Other animals captured during the trapping included Heermann’s kangaroo rats, San Joaquin grasshopper mice, and deer mice. Although the number of individual Tipton kangaroo rats are typically low at the northern grid, captures over many years suggest a small but stable population is present. The southern grid is new, so population trends cannot be deduced. However, the habitat is ideal for Tipton kangaroo rats, so positive captures are expected in future trapping events.



Special-status plants identified on the KWB have included San Joaquin woolly threads (federally endangered), Hoover's woolly star, recurved larkspur, slough thistle, and Horn's milk vetch. Although many San Joaquin woolly threads germinated early due to high levels of precipitation, no flowering plants were identified later in the growing season. SVB suggests other aggressively growing plants may have negatively impacted the continued growth of the woolly threads. Conversely, populations of both recurved larkspur and Hoover's woolly star were vigorous and high. Horn's milk vetch was not observed in 2011, but is expected to be widespread in 2012.

4.4 Miscellaneous Studies

A survey of tri-colored blackbirds was conducted by Dave Hardt of the U.S. Fish and Wildlife Service in March and April, 2011.

He identified a very large colony in March on KWB lands along the Kern River in Section 23, T30S/R25E. By April, this colony relocated eastward to Basin 6 in the 2800 Acres Project. He also identified several smaller-sized colonies of tri-colored blackbird totaling about 400 birds at various locations on the KWB. With respect to the property in general, he noted: "The area looks great and the diversity of habitat that you are providing this year is exceptional." More information regarding his survey is included on Appendix E.



Bobcat (*Lynx rufus*)

The local chapter of the Audubon Society conducted their annual Christmas Bird Count on December 16, 2011. They counted 98 species and 26,930 individuals. Water birds, including coots, ducks, shore birds, egrets, and white pelicans accounted for most of the sightings. Red-winged blackbirds were also abundant. The results of their survey are presented on Appendix F.

5.0 Conservation Bank Report

The Kern Water Bank Authority Conservation Bank was established concurrently with the HCP by the Conservation Bank Agreement (CBA). The CBA provides for 3,267 Conservation Credits (Credits) representing one-acre each. These Credits are provided by the KWBA as mitigation for impacts to Covered Species in the Permit Area as authorized by USFWS and CDFG. The Agreement requires that KWBA file an Annual Report to the Wildlife Agencies each year documenting:

- The number of Credits available, sold, used, eliminated, and suspended, both cumulatively and in the preceding year;
- The name and address of each party purchasing Credits and the number of Credits that were sold, optioned, or transferred in the preceding year;
- A map showing the portion of the KWB Conservation Bank for which KWBA has delivered a Conservation Easement to the Department, and the portion of the KWB Conservation Bank unencumbered by a Conservation Easement; and
- Copies of the annual reports submitted by the Included Parties.

Annual conservation credit transactions as required by the agreement are summarized in Table 3. In 2011, the KWBA provided 51 conservation credits for seven different projects; to date 1,221 of the 3,267 credits have been sold. These transactions provided \$19,125 (\$375 per credit) to the Endowment Fund held by the California Department of Fish and Game.⁶

Figure 6 shows the portions of the Conservation Bank encumbered by Conservation Easements and the proposed Conservation Easement for 2011 transactions. A preliminary title report for the proposed parcel is included in Appendix G. Pertinent correspondence related to Conservation Bank transactions, including the names and addresses of parties purchasing credits, is provided in Appendix H.

⁶ Conservation Bank Agreement, Section 6.

Table 3. Conservation Bank Transaction Summary.

| Certificate Number | Recipient | Project | # of Credits |
|--------------------|----------------------|-----------------------------------|--------------|
| 2011-01 | Caltrans | Kettleman City Rehab. Project | 8 |
| 2011-02 | Griffith Co. | Mendiburu Property Borrow | 9 |
| 2011-03 | Caltrans | SR 33 Oily Wash Project | 1 |
| 2011-04 | Cirque Resources | Tupman 16X-13 Project | 1 |
| 2011-05 | ExxonMobil Prod. Co. | Hill Lease Diatomite Dev. | 1 |
| 2011-06 | Semitropic WSD | Const., Operation and Maintenance | 26 |
| 2011-07 | Buena Vista WSD | BV8 SWP Turnout | 5 |
| Total | | | 51 |

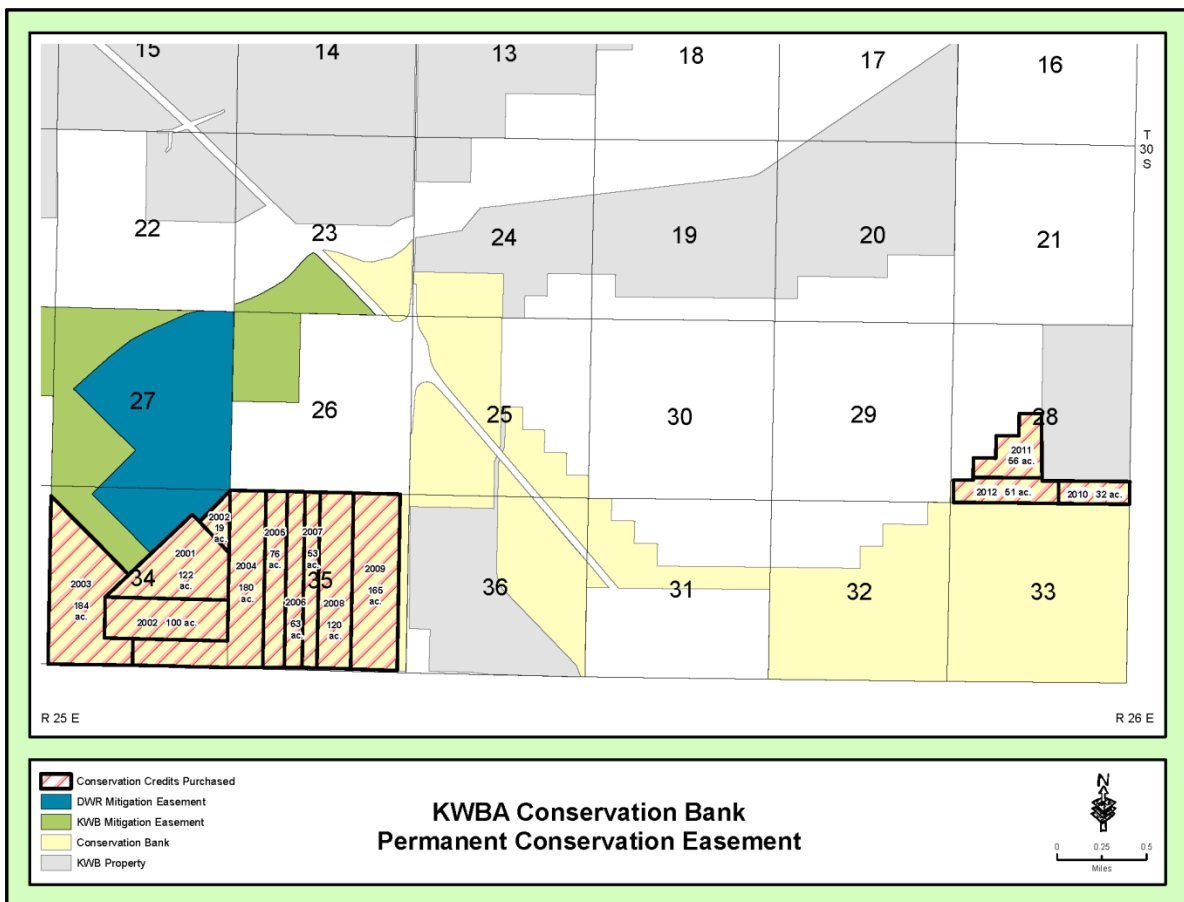


Figure 6. Conservation Bank Easements. The proposed easement for 2012 is in Section 28, T30S/R26E.

6.0 Management Plan

The Management Plan is to describe the operational activities contemplated for the Kern Water Bank during the next year, including construction, maintenance and repair of the infrastructure, and a description of the adaptive management activities to be carried out.⁷

6.1 Water Bank Operations

Unfortunately, 2012 has been a dry year to date. As a result, recovery operations began in February and are expected to continue through June. Recovery operations entail routine well maintenance, canal maintenance, and well repairs as needed. All of these activities are conducted on existing facilities, and no new habitat disturbance is contemplated.

In addition to the activities associated with recovery operations, the KWBA is contemplating several maintenance projects in the near future. They may include:

- East Main Canal Gates and Maintenance;
- Well Replacements; and
- Recharge Basin Maintenance.

In all cases, the appropriate Minimization of Impacts requirements described in detail in Appendix A will be carried out.

In addition to water banking activities, the California Department of Conservation will continue with clean-up at the former Thomas oilfield facilities in Section 12, T30S/R25E. The last part of the project will be the removal of old sumps. Once removed, the habitat value of the area will be significantly enhanced. KWBA is providing biological support for the project and avoidance and minimization protocols will be followed throughout the duration of the project.

6.2 Vegetation Management

The winter of 2011/2012 was very dry and punctuated by several frosts. Precipitation in spring 2012 was late, and not particularly abundant. Experience has shown that these conditions are,

⁷ Implementation Agreement, Section 3.3.5.

unfortunately, very favorable to tumbleweeds. In addition to expected tumbleweed problems, drying pond bottoms have provided for significant vegetation growth. In response, KWBA expects to graze most of the KWB lands again in 2012. Mowing, burning (when permissible), and herbicide applications will also be used where appropriate.



7.0 Viability Fund Status and Financial Report

The IA⁸ establishes the Kern Water Bank Species Viability fund in the amount of \$50,000. The County of Kern Auditor-Controller's Office reported that, as of December 30, 2011, the balance in the Viability Fund was \$52,359.54. This sum represents the principal balance of \$50,000 plus \$2,359.54 in accrued interest.

A copy of the "Kern Water Bank Authority Financial Statements - December 31, 2010 and 2011" is included in Appendix I of this report. The independent accounting firms of Barbich Hooper, King, Dill & Hoffman and Brown Armstrong Accountancy Corporation prepared the financial statements and auditor's report, respectively. Total assets on December 31, 2009 were \$72,040,996, current liabilities were \$10,329,515, long-term liabilities (debt) were \$22,657,825, and net asset value was \$39,053,656. The change in net assets from 2010 was -\$517,270.



⁸ Implementation Agreement, Section 3.3.2



Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*)




Western Rattlesnake (*Crotalus viridis*)

8.0 Certification

Under penalty of law, I certify that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate and complete.

Kern Water Bank Authority

By: 
William D. Phillimore,
Chairman, Board of Directors

Date: July 2, 2012



9.0 Contact Information and Distribution List

The contact person for the KWBA is:

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| 0 | 1 | Wilmar Boschman | Semitropic Water Storage District |
| 0 | 1 | Dennis Atkinson | Tejon-Castac Water District |
| 0 | 1 | William Phillimore | Westside Mutual Water Co. |
| 0 | 1 | Scott Hamilton | Westside Mutual Water Co. |
| 0 | 1 | Robert Kunde | Wheeler-Ridge Maricopa Water Storage District |
| 0 | 1 | William Taube | Wheeler-Ridge Maricopa Water Storage District |
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