



TULARE BASIN WILDLIFE PARTNERS

Creating Opportunities for Nature and People

Tulare Basin Conservation Report Summary: Tulare Basin Riparian and Wildlife Corridors

Introduction

The Tulare Basin, located in California's southern San Joaquin Valley, encompasses portions of Fresno, Tulare, Kings and Kern counties, where the Kings, Kaweah, Tule and Kern rivers, and numerous lesser streams and creeks, flow into the historic Tulare Lakebed. This diverse landscape features excellent representations of most historic habitats, though many are now extremely fragmented.

The Tulare Basin Riparian & Wildlife Corridor Conservation Report, completed by Tulare Basin Wildlife Partners in 2009, focuses on riparian and wildlife corridors that connect the Tulare Basin with the foothills on three sides: the Sierra Nevada to the east, the Transverse Ranges to the south, and the Coast Ranges to the west; as well as the San Joaquin Valley to the north.

Elevation gradient, coupled with a range of soil chemistry and texture, presents a unique juxtaposition of wet- and dry-adapted plant communities. Throughout the region, riparian systems connect the entire habitat continuum from high mountain meadows and forests to low elevation deserts, prairies, woodlands and floodplains.

These diverse riparian and wildlife corridors encompass 39 different habitat types, which support populations of 100 threatened, endangered or special status plant and animal species. This conservation report seeks to conserve or restore movement and migration corridors from the Tulare Basin to protected areas in the foothills and mountains along rivers, streams, creeks and upland corridors.

The Tulare Basin Riparian & Wildlife Corridor Conservation Report recommends the following:

- Protect 350,000 acres of existing upland habitat;
- Protect and restore 185,000 acres of upland habitat;
- Protect and restore 20,000 acres of riparian habitat; and
- Protect and restore 15,000 acres of wetland habitat.

By collaborating with private landowners, businesses and agency partners to conserve important riparian and wildlife corridors, the Tulare Basin Wildlife Partners aims to leave a legacy of protected land and water for our children and grandchildren to enjoy.

Riparian & Wildlife Corridor Facts

Location: 32 corridors in portions of Fresno, Kern, Kings and Tulare counties, which flow into the historic Tulare Lakebed

Area: 629,885 acres; 6.6% conserved

Natural Lands: 39 different habitat types, of which 24 are rare; includes 36% grasses & forbs, 33% shrubs, 26% trees, 5% vernal pools

Special Status Species: 100 threatened, endangered or sensitive plants and animals

Land Use: 28% farmed, 69% native land, and 3% other; 2% wetlands or flood basin and 3% riparian

Conservation Report Goals

The Tulare Basin Riparian & Wildlife Corridor Conservation Report goals include:

1. Preserve and restore riparian corridors and the adjacent uplands that link the Tulare Basin with the San Joaquin Basin and with the Sierra Nevada, Transverse Range and Coast Range mountains.
2. Conserve linkages between existing upland habitat patches for special status species.
3. Restore linkages that have been lost between existing patches of upland special status species habitat.
4. Conserve upland habitat for special status species.
5. Restore upland (including saltbush scrub, alkali sink, and valley grassland), wetland, and riparian habitats along creeks and streams.
6. Protect and restore habitat, such as floodplains, marshes and open water, for wintering and migratory waterfowl.
7. Provide breeding season wetlands for waterfowl, shorebirds, colonial waterbirds, and several wetland special status species, including Buena Vista Lake shrew (*Sorex ornatus relictus*), southwestern pond turtle (*Emmys marmorata pallida*), and California red-legged frog (*Rana aurora draytonii*).
8. Protect cities, farms, and natural areas from flooding by conserving or restoring wetlands to receive or store flood water.
9. Re-create integrated historical southern San Joaquin Valley landscapes.

Evaluating Corridors

During 2007 and 2008, the Tulare Basin Wildlife Partners planning team visited accessible land along the corridors to rank each one according to specific attributes. This process determined which corridors are most important to wildlife and provide the greatest array of conjunctive use opportunities.

The following criteria were used for ranking the corridors:

1. Extent of urban development.
 2. Channel hydrology and morphology, including modification history – diversions, realignments, dams, etc.
 3. Condition of adjacent uplands, including riparian or other complementary upland habitats.
 4. Habitat quality and continuity.
 5. Presence of special status species, including threatened and endangered species and species of special concern.
1. Opportunities for conjunctive use (e.g. degree of groundwater overdraft; opportunities for recharge, recreation, etc.).
 2. Importance to Tulare Basin wildlands.
 3. Community, social and agency considerations.

Tulare Basin Wildlife Partners assigned each corridor a rank from 0 to 3 for each criterion and then selected the highest ranked corridors for detailed analysis.

Corridor Recommendations

Tulare Basin Wildlife Partners selected the 16 highest-ranked riparian and wildlife corridors for detailed analysis. Each corridor features a description, along with attributes, opportunities and recommendations.

Kings River Riparian Corridor

Description: 49,288 acres, 1.3% protected; 71% farmed and 25% native land; 3% wetland or flood basin and 18% riparian. This river corridor flows 77 miles, from just downstream of Pine Flat Dam in Fresno County to two miles south of Stratford in Kings County.

Attributes: Corridor ranking = 20; hosts 35 special status species. A valuable biological, historical, and recreational asset with existing parks. Offers the most riparian habitat found on any corridor in the Tulare Basin; some areas feature a multi-layered forest with a well-developed understory and shrub layer.

Opportunities & Recommendations: Extensive and excellent chances for wetland and riparian habitat conservation and restoration, as well as unique and widespread public education and recreation opportunities.

Cottonwood Creek – Cross Creek Riparian Corridor

Description: 31,913 acres, 2.1% protected; 58% farmed and 38% native land; 2% wetland or flood basin and 3% riparian. Located in Tulare and Kings Counties, this 41-mile-long creek corridor flows from northwest of Woodlake to southwest of Corcoran where the creek ends.

Attributes: Corridor ranking = 20; hosts 32 special status species. Nearly unbroken corridor of relatively unaltered natural lands extending from the Sierra Nevada foothills to the Tulare Lakebed. Important complex of vernal pools, grassland, and alkali sink habitats and associated special status species.

Opportunities & Recommendations: Protect a regionally significant expanse of open space just northwest of Visalia. Opportunity to maintain a portion of the landscape as it looked prior to European settlement. Potential to bank grassland and vernal pool lands as mitigation for development elsewhere in the Tulare Basin.

Oaks to Tules Riparian Corridor

Description: 27,250 acres, 3.7% protected; 58% farmed and 38% native land; 2% wetland or flood basin and 11% riparian. Located in Tulare County, this corridor stretches 40 miles from Terminus Dam in the Sierra Nevada foothills to Creighton Ranch in the Tulare Basin.

Attributes: Corridor ranking = 20; hosts 39 special status species. Protected public land upstream; high-quality riparian habitat valuable for wildlife near Terminus Dam; several nodes of protected land along corridor. Riparian vegetation nearly continuous along entire corridor from Kaweah Reservoir, far out in the Tulare Basin to the Kings County line.

Opportunities & Recommendations: Ideal location for a hiking, bicycling, and equestrian trail that provides a scenic and rural experience close to urban areas; offers diverse natural and cultural tourism. Provide flood control and recharge groundwater while offering wetland and riparian habitat.

Lewis Creek Riparian Corridor

Description: 7,175 acres, 0% protected; 8% farmed and 92% native land; <1% wetland or flood basin and 4% riparian. Located in Tulare County, this creek flows eight miles from headwaters in the Sierra Nevada foothills to the eastern outskirts of Lindsay; the lower four miles contain the most valuable riparian habitat.

Attributes: Corridor ranking = 15; hosts 11 special status species. Very high percentage of native vegetation, extensive riparian understory, and low proportion of invasive weed species. Contains some of the highest quality Fremont cottonwood-willow habitat in Tulare County. Last documented area for nesting endangered yellow-billed cuckoo (*Coccyzus americanus*) in County.

Opportunities & Recommendations: Excellent recreation, education and wildlife viewing potential for residents of Lindsay and regional visitors. Protect riparian habitat; offer public access and areas that can be managed for habitat mitigation for riparian habitat lost elsewhere in the County.

Deer Creek Riparian Corridor

Description: 8,595 acres, 0% protected; 71% farmed and 20% native land; 5% wetland or flood basin and 11% riparian. Located in Tulare County, this floodplain corridor is 20 miles long, from Old Stage Road four miles northeast of Terra Bella downstream to just west of Hwy 99 near Earlimart.

Attributes: Corridor ranking = 23; hosts 47 special status species. Riparian vegetation nearly continuous along entire corridor; no major dams; public lands up- and downstream.

Opportunities & Recommendations: Ideal location for a hiking, bicycling, and equestrian trail; diverse natural and cultural tourism opportunities. Provide flood protection for towns and farmland and recharge groundwater resources while maintaining wetland habitat for waterfowl and riparian habitat for Neotropical migrant birds.

Poso Creek Riparian Corridor

Description: 41,073 acres, 1% protected; 49% farmed and 50% native land; 2% wetland or flood basin and 5% riparian. Located in Kern County, this corridor is 42 miles long, from three miles above Round Mountain Road to west of Highway 43, Delano, and McFarland where it meets the Goose Lake and Sand Ridge – Tulare Lake planning areas.

Attributes: Corridor ranking = 19; hosts 26 special status species. Absence of major dams favorably influences quality and extent of riparian habitat. Variety of public lands at western end of the corridor.

Opportunities & Recommendations: Potential location for a hiking, bicycling, and equestrian trail offering a rural and scenic experience. Control flooding and recharge groundwater while providing wetland habitat. Re-establish historic channel west of Highway 43 so Poso Creek could again flow north into the Ton Tache Basin.

Caliente Creek Riparian & Wildlife Corridor

Description: 19,771 acres, 2.5% protected; 16% farmed and 84% native land; 0% wetland or flood basin and 2% riparian. Located in Kern County, this lowland floodplain corridor is 16 miles long, from the town of Caliente to Comanche Road north of Arvin.

Attributes: Corridor ranking = 17; hosts 21 special status species. Extensive natural habitat; high conservation value for Bakersfield cactus (*Opuntia basilaris* var. *treleasei*) and other special status species.

Goals: Maintain a north-south wildlife corridor in the foothills between Caliente and Tejon creeks to allow wildlife movement between the Tehachapi and Sierra Nevada mountains through the Piute Range.

Opportunities & Recommendations: Add native land to Sand Ridge Preserve to conserve Bakersfield cactus. Levees and check dams could provide flood control, raise water table and recharge groundwater while helping to maintain riparian habitat.

Tejon Creek – El Paso Creek Riparian & Wildlife Corridor

Description: 40,618 acres, 1.2% protected; 39% farmed and 59% native land; 2% wetland or flood basin and 1% riparian. Located in Kern County, this corridor runs 17 miles from the 1,000-foot elevation in the Tehachapi Mountains to the Buena Vista Lake – Kern Lake Planning Area on the valley floor; separated by 10 miles of farmland from the Buena Vista Lake – Kern Lake Planning Area.

Attributes: Corridor ranking = 20; hosts 21 special status species. Conservation agreement in progress will form the basis for upland habitat protection in this region.

Goals: Restore a wildlife movement corridor one-half to two miles wide from Tejon Ranch to Buena Vista Lake – Kern Lake Planning Area to allow wildlife movement between the mountains and the Tulare Basin near Kern and Buena Vista lakes.

Opportunities & Recommendations: Flood control not currently an issue, but if needed, levees and check dams could also help recharge groundwater while offering wetland habitat.

San Emigdio Creek Riparian & Wildlife Corridor

Description: 16,348 acres, 37.8% protected; 50% farmed and 46% native land; 0% wetland or flood basin and 2% riparian. Located in Kern County, this 12-mile-long corridor stretches from Wind Wolves Preserve through four miles of farmland to the boundary of the Buena Vista Lake – Kern Lake Planning Area.

Attributes: Corridor ranking = 18; hosts 22 special status species. Almost half of this area is already protected at Wind Wolves Preserve, forming the basis for upland habitat protection in the region. Riparian habitat is south of Hwy 166.

Goals: Restore a wildlife corridor one-half-mile wide for four miles from Wind Wolves Preserve to protected Bureau of Land Management (BLM) land in the Buena Vista Lake – Kern Lake Planning Area; this allows wildlife movement between the Transverse Ranges and the Tulare Basin in the vicinity of Kern Lake and Buena Vista Lake.

Opportunities & Recommendations: Restore upland and riparian habitat where needed. Potential location for a hiking and bicycling trail connecting public lands. Provide flood control and recharge groundwater while offering wetland habitat.

Bitter Creek Wildlife Corridor

Description: 9,607 acres, 4.7% protected; 38% farmed and 62% native land; 0% wetland or flood basin and 0% riparian. Located in Kern County, this corridor stretches 10 miles from Bitter Creek National Wildlife Refuge through one mile of farmland to the Buena Vista Lake – Kern Lake Planning Area boundary.

Attributes: Corridor ranking = 15; hosts 12 special status species. Extensive native upland habitat; corridor adjacent to protected land upstream.

Goals: Protect upland habitat; protect and restore degraded habitat and unproductive farmland to wetland, riparian and upland habitat. Protect and restore a wildlife corridor one-half-mile wide for seven miles from the wildlife refuge to the Buena Vista Lake - Kern Lake Planning Area; this allows wildlife movement between the Transverse Ranges and the Tulare Basin in the vicinity of Buena Vista Lake.

Opportunities & Recommendations: Restore upland and riparian habitat where needed. Use levees, check dams and ponds to control flooding and recharge groundwater while providing wetland habitat.

Buena Vista Hills – Elk Hills – Lokern Wildlife Corridor

Description: 105,079 acres, 17.7% protected; 1% farmed and 98% native land; 0% wetland or flood basin and 0% riparian. Located in Kern County, this corridor is 14 miles north to south and 21 miles west to east; from Taft, Fellows, Derby Acres and McKittrick east to the boundary of the Buena Vista Lake – Kern Lake Planning Area.

Attributes: Corridor ranking = 17; hosts 32 special status species. High-quality wildlife habitat throughout region. One of only four locations where it is possible to connect the Tulare Basin to the Inner Coast Ranges; offers three potential links within the corridor.

Goals: Protect upland habitat; protect and restore degraded habitat or unproductive farmland to upland habitat. Protect wildlife corridors that link 1) Carrizo Plain National Monument through Telephone Hills south of McKittrick east through Elk Hills and Buena Vista Valley to Buena Vista Hills and the Buena Vista Lake – Kern Lake Planning Area; 2) Lokern south to the Elk Hills; and 3) Lokern west along Lokern Road west of Highway 33 to the Temblor Range.

Opportunities & Recommendations: Provide wildlife crossings over or under the California Aqueduct. Restore broken linkages on western edge of Lokern area. Link new protected lands to existing BLM protected land.

Lost Hills - Bitterwater Creek Wildlife Corridor

Description: 63,662 acres, 3.9% protected; 7% farmed and 90% native land; 0% wetland or flood basin and 0% riparian. Located in Kern County, corridor is 25 miles long from Shale Hills and Bitterwater Canyon east to Interstate 5 and the boundary of the Goose Lake Planning Area.

Attributes: Corridor ranking = 17; hosts 29 special status species. High-quality wildlife habitat throughout region. One of only four locations where it is possible to connect the Tulare Basin to the Inner Coast Ranges. This corridor links the southwestern corner of the Goose Lake Planning Area to the northern edge of the Temblor Range through Lost Hills, Antelope Plain, Antelope Valley, and Bitterwater Valley.

Goals: Protect upland habitat; protect and restore degraded habitat or unproductive farmland to upland habitat. Protect a wildlife corridor from Bitterwater Canyon through Bitterwater Valley, along Highway 46 east to Lost Hills and the Goose Lake Planning Area.

Opportunities & Recommendations: Provide wildlife crossings over or under the California Aqueduct and Interstate 5. Restore broken linkages near Lost Hills. Link new conserved land to existing BLM protected land.

Avenal Gap Wildlife Corridor

Description: 100,429 acres, 1.3% protected; 3% farmed and 97% native land; 0% wetland or flood basin and 0% riparian. Located in Kings County, this corridor is 24 miles west to east from Table Mountain to Interstate 5 and 16 miles north to south; it borders the Sand Ridge – Tulare Lake planning area to the east.

Attributes: Corridor ranking = 18; hosts 37 special status species. Extensive high-quality upland habitat throughout area; corridor nearly intact. One of only four locations where it is possible to connect the Tulare Basin to the Inner Coast Ranges.

Goals: Protect upland habitat; protect and restore degraded habitat and unproductive farmland to native uplands. Protect and restore three wildlife corridors: two across Kettleman Plain and one between the California Aqueduct and Interstate 5.

Opportunities & Recommendations: Potential development along the east side of Interstate 5 should include a wildlife corridor to connect this corridor to the South Wilbur Flood Area and Sand Ridge. Provide wildlife crossings over or under the Aqueduct and Interstate 5. Restore broken corridor linkages where needed.

Arroyo Pasajero Riparian & Wildlife Corridor Complex

Description: 64,911 acres, 10.8% protected; 32% farmed and 66% native land; <1% wetland or flood basin and 6% riparian. Located in Fresno County, this 50-mile-long corridor extends from the crest of the Inner Coast Ranges to the California Aqueduct.

Attributes: Corridor ranking = 20; hosts 30 special status species. Several nodes of protected land along corridor form the basis for upland and riparian habitat protection in the region. Peak flows create major flash flooding along Interstate 5, Lassen Avenue, and the California Aqueduct and impact downstream water quality.

Opportunities & Recommendations: Excellent recreation opportunities already in place: equestrian, hiking and bicycling trails; day use and overnight facilities; picnicking, camping, and fishing. Cooperatively develop flood control solutions with partners. Develop an Integrated Regional Watershed Management Plan. Raise embankments along the existing flood control basin and expand the flood basin right of way south of Gale Avenue to increase flood water storage capacity. Provide wildlife habitat while offering flood control and groundwater recharge capacity. Use reclaimed water, including residential gray water, in wildlife-friendly habitat restoration projects.

Kansas Avenue – Guernsey Wildlife Corridor

Description: 12,910 acres, 0% protected; 58% farmed and 42% native land; 0% wetland or flood basin and 0% riparian. Located in Kings County, this corridor is 11 miles east to west across native land from the southern end of the Cottonwood Creek – Cross Creek Riparian Corridor, across Highway 43, connecting three blocks of existing native habitat, to the Kings River Riparian Corridor north of Stratford. This area is four miles from north to south.

Attributes: Corridor ranking = 16; hosts 29 special status species. Provides a habitat link between the Cottonwood Creek – Cross Creek and Kings River Riparian corridors. Located on the northern rim of historic Tulare Lake, this region hosts high-quality alkali sink and valley grassland habitats on highly alkaline soils.

Goals: Protect upland habitat; protect and restore degraded native habitat and unproductive farmland to native uplands. Protect and restore a wildlife corridor from the Cottonwood Creek – Cross Creek Riparian Corridor to the Kings River Riparian Corridor.

Opportunities & Recommendations: Conserve native lands and the corridors between them. Purchase and restore unproductive farmlands that connect native upland habitats to the riparian corridors. This is a potential site for a mitigation bank.

Fresno Slough Riparian Corridor

Description: 31,206 acres, 5.5% protected; 55% farmed and 24% native land; 21% wetland or flood basin and 1% riparian. Fresno Slough, the main connecting waterway between the Tulare Basin and the San Joaquin Valley, flows 44 miles from the Kings River in Kings County to Mendota Pool on the San Joaquin River in Fresno County.

Attributes: Corridor ranking = 19; hosts 48 special status species. It is an important corridor as a hydrological outlet for the entire Tulare Basin and as a wildlife corridor between the Tulare Basin and the San Joaquin Valley to the north. Recreation opportunities currently limited to two areas.

Opportunities & Recommendations: Potential location for a hiking, bicycling, and equestrian trail along a mosaic of marsh, riparian, grassland, and desert scrub habitats. Provide flood protection for towns and farmland and recharge groundwater resources while offering wetland habitat for waterfowl and riparian habitat for Neotropical migrant birds. Prevent residential encroachment into the flight path of Lemoore Naval Air Station.

Corridors Not Studied

Tulare Basin Wildlife Partners visited 16 additional corridors with value to wildlife and people, but containing attributes that lowered their suitability for a high-quality riparian or wildlife corridor. These corridors also provided fewer conjunctive use opportunities than the 16 highest-ranked riparian or wildlife corridors and are not shown on the map.

Sand Creek, Tulare County: Low elevation stream features excellent grassland and vernal pool habitat in upper portions; lower reaches contain little riparian or upland habitat.

St. Johns River, Tulare County: Part of Kaweah River Delta complex; major floodway with levees protecting northern Visalia. Potential to move levees, widen floodplain, plant riparian vegetation, improve flood control and extend trails.

Kaweah River Forks, Tulare County: Urban streams Deep, Packwood, Mill, Cameron, and Elbow creeks feature valley oaks and recreation. Water District's Habitat Conservation Plan will evaluate habitat and wildlife resources.

Tule River above Elk Bayou, Tulare County: Highly-modified stream flows 30 miles from Lake Success to confluence with Elk Bayou; hosts small stretches of degraded riparian vegetation with several special status wildlife species.

Porter Slough, Tulare County: Located north of Porterville: Part of the braided delta formed by the Tule River. Parks enhance quality of life, but slough is channelized. Restoration would create an urban greenway and wildlife corridor.

White River, Tulare County: Flows 60 miles from Greenhorn Mountains to Ton Tache Basin. Extensive sycamore woodlands at middle elevations; channel modified, little riparian habitat west of Hwy 65. Area between Hwy 99 and Hwy 43 offers important habitat for special status species.

Kern River Wildlife Corridor, Kern County: Most conservation activities completed; can serve as a parkway model.

Devil's Den Wildlife Corridor, Kern County: Wildlife corridor broken by more than four miles of orchards.

Tejon Ranch Sierra Nevada to Tehachapi Mountains Wildlife Corridor, Kern County: South and east of planning area; corridor connects Coast Ranges and Sierra Nevada.

East Side North – South Foothill Wildlife Corridor, Kern, Tulare, & Fresno counties: Used primarily for grazing, native land in the Sierra foothills provides travel corridors for Neotropical migrant birds, deer and other upland wildlife.

West Side North – South Foothill Wildlife Corridor, Kern, Kings, & Fresno counties: Low-elevation, native land used for grazing along Inner Coast Ranges offers travel corridors for Neotropical migrant birds, deer and upland wildlife.

North – South Creighton Ranch to Allensworth Wildlife Corridor, Tulare County: Important north-south wildlife corridor addressed in Sand Ridge – Tulare Lake Conservation Plan; recommends wildlife corridor linking protected lands.

Panoche Creek, Fresno County: Intermittent creek with excellent wildlife habitat does not connect to other important sites. Support partner restoration and flood control efforts.

Cantua Creek, Fresno County: Excellent grassland and desert scrub habitat west of I-5; riparian habitat ends east of California Aqueduct; flows no longer reach Fresno Slough.

Wahtoke Creek, Fresno County: Riparian corridor not well developed in upper watershed; native riparian habitat removed from most of lower watershed; features small riparian, grassland and vernal pool habitats.

Murphy Slough, Fresno County: Connects Cole and Fresno sloughs; carries Kings River flood water; restoring degraded channel would create valuable east – west wildlife corridor.

Corridor Future

The riparian and wildlife corridors connecting the Tulare Basin to the mountains, foothills and San Joaquin Valley provide an opportunity for partners and stakeholders to protect significant natural areas for wildlife and people.

In some places, human practices threaten the integrity of these corridors. Changes in water use, storage, allocation and conveyance; conversion of native land to agriculture that is not wildlife-friendly; as well as other changes in land use and development have the potential to compromise the long-term viability of these riparian and wildlife corridors.

Working together, private landowners, businesses, agencies and non-profit partners can implement innovative solutions that balance conservation, restoration, agriculture, economic development, and quality of life in this unique place.

How will you lead in this effort to leave a legacy of protected land and water for current and future generations to enjoy?

About the Study

The Tulare Basin Riparian & Wildlife Corridor Conservation Report was completed with significant staff support and significant supplemental funding from the U.S. Bureau of Reclamation, Tulare County Association of Governments, Council of Fresno County Governments, and a grant made through the *Preserving Wild California Program* of the Resources Legacy Fund Foundation. Tulare Basin Wildlife Partners is grateful for the support of these agencies and foundations and the Tulare Lake Basin Working Group participants in this regional planning effort.

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