

U.S. Fish & Wildlife Service

# Kern

*National Wildlife  
Refuge Complex*



A large flock of ducks is captured in flight against a clear blue sky. The ducks are in various stages of flight, with wings spread wide, creating a sense of movement and energy. Below the flying ducks, a body of water is visible, with some ducks swimming or standing on the shore. The overall scene is bright and clear, suggesting a sunny day.

*The refuges are a vital resource for wintering waterfowl, colonial-nesting waterbirds, and endangered species.*

**Welcome!**

For thousands of years, California's Central Valley has provided habitat for millions of migratory waterfowl, shorebirds, and other wetland-dependent species.

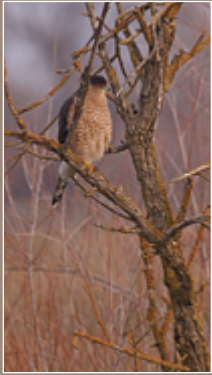
The southern portion of the Central Valley, known as the San Joaquin Valley, once contained numerous lakes comprising over 800,000 acres of natural wetlands, the largest freshwater marsh in the western United States.

In the mid-1800s, hunters harvested the abundant wildlife of this region to supply the markets of San Francisco and the gold mining country. Over time, agriculture and urban use drained the wetlands. Damming projects in the Sierra Nevada mountain range cut off their inflow, resulting in 98% of the wetlands being lost.

On November 18, 1959, Congress approved the establishment of Kern National Wildlife Refuge to replace a portion of the lost wetlands, uplands, and riparian areas.

Kern is one of over 560 refuges in the National Wildlife Refuge System, a network of lands set aside specifically for wildlife, managed by the U.S. Fish & Wildlife Service. This system is a living heritage, conserving wildlife and habitat for people today and generations to come.

## Habitats & Management



*Cooper's Hawk*  
Steve Laymon/USFWS

### *Water*

Water is a critical component of wetland management, including not only quantity but also timing and availability. Early in the history of the refuge, water was supplied by deep wells or purchased annually from local water districts, but eventually both became cost prohibitive. It wasn't until 1992, when Congress passed the Central Valley Project Improvement Act, that the refuge was provided with a reliable annual water supply.

All wetlands on the refuge are seasonal in nature. Fall flood-up begins in mid-August and reaches a peak of nearly 6,500 acres of marsh by January.

### *Wet Habitats*

Habitat is maintained through February, after which a slow draining of the wetlands begins. Selected units are irrigated during the late spring and early summer months to encourage plants to grow to provide food for wintering and migrating birds for the following fall.



*Black-necked Stilt*  
© Bill Majoros



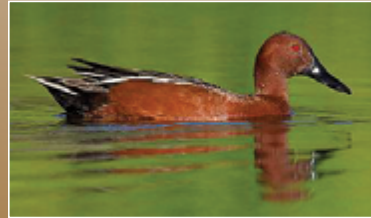
*American Bittern*  
Steve Laymon/USFWS

### *Moist Soil*

Wetland habitats are divided into moist soil and seasonal marsh units. Moist soil areas, which comprise approximately 2,300 acres, are covered by shallow water (less than six inches deep). They are maintained by irrigation in the late spring and summer to encourage food plant growth. Swamp timothy, watergrass, and sprangletop typically grow in moist soil areas.

### *Seasonal Marsh*

Seasonal marsh units generally maintain water depths ranging from four feet to only a few inches and generally do not receive summer irrigation. Cattail, hard-stem bulrush, and burhead grow in seasonal marsh units.



*Shoveler*  
© Mike Peters



*Western Rattlesnake*  
USFWS

### *Riparian*

Riparian areas are lush, filled with plants and trees that provide protective cover and nesting sites for many wildlife species. Willow and cottonwood trees provide shade and feeding areas for migrating birds, as well as year-round habitat for a host of aquatic animals.



*Mallard*  
© Mike Peters

### *Uplands*

The refuge also contains some drier areas. Uplands are not irrigated and primarily get their water from rain. These closed units, which occupy the northeast and northwest portions of the refuge, have been set aside for threatened and endangered species such as the San Joaquin kit fox, Tipton kangaroo rat, and blunt-nosed leopard lizard.

### **Wildlife Viewing Tips**



*Black-tailed  
Jackrabbit*  
Ryan Hagerty/USFWS



*Roadrunner*  
© Gary Kramer

### *Auto Tour*

The auto tour route is a 6.5-mile, all-weather gravel road open daily from sunrise to sunset. Stopping is allowed anywhere along the route with three parking areas provided for viewing scenery and stretching. During the waterfowl hunting season, from October through January, the tour route is closed on Wednesdays and Saturdays. Tour guide leaflets are available at the entrance kiosk and in the refuge complex office.

### *Stay in Your Car*

Your car is an excellent observation and photographic blind. Carry binoculars and spotting scopes to get a closer look without alarming wildlife. Keep in mind that quick movements and loud noises will scare away most wildlife.

### *Wildlife Guides*

Study this booklet and other wildlife guides to know which animals to look for in different habitats. Check bird identification books to know when the various species of birds migrate to the refuge.



*Burrowing Owl*  
© Kevin Cole



*Snowy Egret*  
Dave Menke/USFWS

### *Spring*

Due to the seasonal nature of the refuge wetlands, water levels begin to slowly draw down with most moist soil units reaching mudflat stage in late February or early March. As mudflats are exposed, large concentrations of shorebirds begin probing for food. Cattle and snowy egrets, as well as flocks of red-winged and tri-colored blackbirds, forage on frogs and insects that have been displaced by irrigation water.

### *Summer*

Broods (groups of young ducks) begin to appear in the larger wetland units, along with nesting colonies of white-faced ibis and tri-color blackbirds. During the day, white-faced ibis forage throughout the refuge, returning to feed their chicks in the colony, primarily within Unit 1. Brood water is maintained in selected units until ducklings and ibis have fledged in early July.

### *Fall*

With the arrival of fall, migration begins. Waterfowl, waterbirds, and other species that nested far north during the spring and summer begin moving south for the winter. Waves of waterfowl, primarily ducks, arrive by the thousands to use refuge habitat that management created in anticipation of their arrival. Total waterfowl numbers and species composition fluctuate during the fall as birds moving southward along the Pacific Flyway stop to refuel.

### *Winter*

Waterfowl numbers may peak to 80,000 in late December and early January. "Tule" fog becomes common and greatly reduces visibility. Large concentrations of waterfowl can be found foraging throughout the moist soil and seasonal marsh areas.

## Kern NWR Recreation Activities



### *Auto Tour*

The auto tour route highlights 11 points and objects of interest, as well as wildlife viewing sites. The tour route is closed on Wednesdays and Saturdays during the waterfowl hunting season from October to January. Auto tour guides are available at the entrance kiosk and refuge headquarters.



### *Vehicle Travel*

Motorized vehicles are permitted only on tour route roads. All vehicles must adhere to the posted speed limit and be operated by licensed drivers. All other roads are closed to the public.



### *Hiking*

Hiking is allowed along roads that lead off the tour route. No formal nature trails exist, but visitors may walk on the minor roads and dikes to view wildlife in areas not posted as closed.



### *Wildlife Observation and Photography*

With more than 220 species of birds, the refuge offers prime birding and wildlife viewing. The best opportunities for viewing wildlife are between October and March. Bird lists are available at the entrance kiosk and refuge headquarters.



### *Environmental Education*

The refuge offers opportunities and guidance to teachers and educational groups for outdoor classroom activities. To make a reservation, call the refuge office at least two weeks in advance.



### *Hunting*

Hunting is permitted during waterfowl season October through January. See a current California Department of Fish and Wildlife waterfowl hunting brochure for restrictions. Dogs are encouraged for hunting.



### *Boating*

Non-motorized boats are permitted during waterfowl hunting season only in areas open to hunting. Motorized boats are not permitted for use on the refuge. All other refuge waters are closed to boating.



### *Pets*

Pets must be kept leashed while on the refuge. Hunting dogs must be under strict voice control at all times.



### *Accidents*

Call 9-1-1 for emergencies. During business hours, report injuries or accidents to refuge headquarters immediately.



### *Public Services*

Camping facilities are available at Lost Hills at the intersection of Highway 46 and Interstate 5 (15 miles south). Camping is also available at Colonel Allensworth State Park, located on Highway 43 approximately 20 miles from the refuge. Gasoline, supermarkets, and restaurants are located in the communities of Delano and Lost Hills.



### *Prohibited Activities*

Fires, swimming, camping, fishing, and collecting natural objects such as plants, animals, minerals, and objects of antiquity (including Indian artifacts) is prohibited.



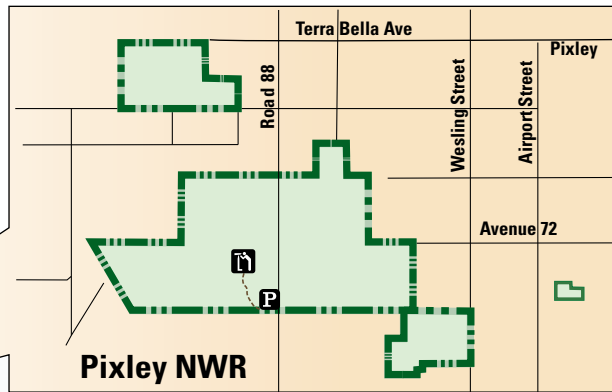
### *Refuge Office*

The refuge office is open 7:00a.m. to 4:30p.m. Monday through Friday. The refuge is open all year, sunrise to sunset.



### *Disabled Visitors*

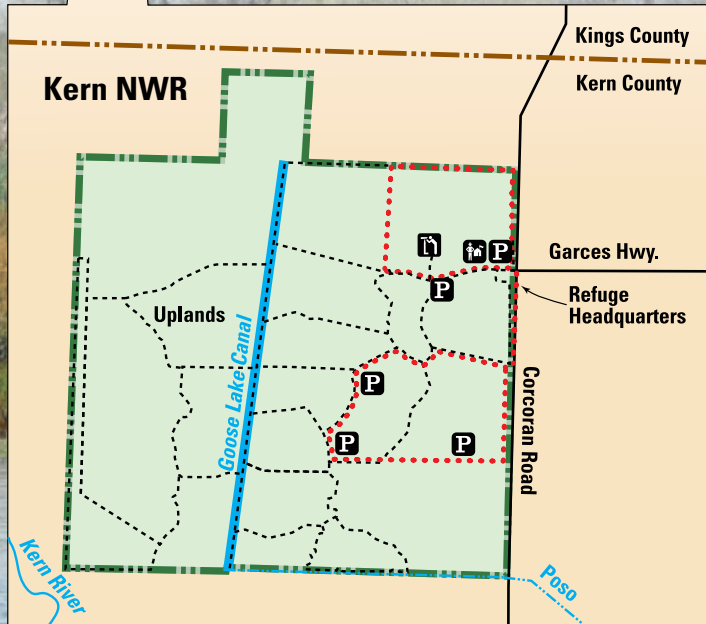
All public buildings in the refuge have disabled access. Access varies by area. Contact the refuge for suggestions on how to use the area safely.



## Kern and Pixley

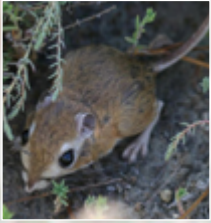
**National Wildlife Refuges**

Paved Roads	Refuge Boundary
Auto Tour Route	Field Office
Trails (walk access only except when posted closed to protect wildlife).	Parking Area
Creek	View Platform



## Pixley NWR

Pixley National Wildlife Refuge was established in 1959 to provide wetland habitat for migratory waterfowl and shorebirds. With the passage of the Endangered Species Act in 1973, additional acreage was acquired to provide habitat for the protection of the endangered blunt-nosed leopard lizard, San Joaquin kit fox, Tipton kangaroo rat, and the federally threatened vernal pool fairy shrimp.



*Tipton Kangaroo Rat*  
USBR

Pixley comprises 6,389 acres of land in Tulare County, approximately eight miles west of the city of Earlimart, 10 miles south of the city of Pixley, and

20 miles northeast of the Kern National Wildlife Refuge Complex headquarters in the San Joaquin Valley. The wildlife habitat

on the refuge is made up of seasonal wetlands, uplands, and riparian areas.

Historically, due to the lack of a dependable water source, the refuge could not provide quality waterfowl habitat. In 1992, the Central Valley Project Improvement Act presented the refuge with a reliable annual water allocation. Additionally, through partnership with Ducks Unlimited in 1994, a deep well was drilled that produces sufficient water for the refuge to flood and maintain approximately 300 acres of seasonal wetlands.

*Kit Fox*  
© Moose Peterson



*Sandhill Crane*  
© Sam Fisher



## Habitats and Management

The habitat types and management cycles for seasonal wetlands at Pixley Refuge are similar to Kern Refuge but on a much smaller scale.



*Green-winged teal*

© Nathan Graff

### *Seasonal Wetland*

Pumping from a well and surface delivery via Deer Creek flood the refuge's seasonal wetlands each year. Water moves through the refuge via a system of ditches and pipelines

with water levels controlled by a series of gates and water control structures.

### *Upland*

Pixley also includes over 5,350 acres of upland habitat, including a wide variety of plant communities such as



*Blunt-nosed leopard lizard*

© Steve Laymon

nonnative annual grass and alkali playas with vernal pools scattered throughout. Management of these areas primarily consists of cattle grazing from November through April to help provide optimum habitat for

blunt-nosed leopard lizards, Tipton kangaroo rats, and San Joaquin kit fox.

Pixley grasslands also provide nesting areas for burrowing owls and horned larks. In very wet years, grasslands provide extra foraging habitat for migratory birds such as sandhill cranes, and vernal pools retain water into late spring supporting colorful displays of annual flowers.

### *Riparian*

Riparian areas make up the smallest portion of the refuge. Dominated by willow and cottonwood trees, they play an important role in providing water to resident wildlife during the late spring and summer months.

## Pixley NWR Recreational Activities



### *Nature Trail*

A 1.5-mile walking trail highlights 13 stops with interpretive panels and wildlife viewing areas. An observation deck at the end of the trail provides a view of areas that cannot be seen from the ground. The trail and observation deck are open seven days a week, sunrise to sunset.



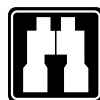
### *Vehicle Travel*

The refuge is closed to all forms of vehicular travel. Refuge visitors are permitted to park only in the designated parking area.



### *Hiking*

Hiking is allowed on the nature trail only; all other areas are closed to the public.



### *Wildlife Observation and Photography*

The refuge is one of very few areas in the southern San Joaquin Valley where the public can enjoy viewing sandhill cranes, which roost here from September through March with numbers peaking to 6,000. The best time to observe sandhill cranes and other wintering birds is during the late winter and early spring.



### *Environmental Education*

Environmental education is offered to groups visiting the refuge. Please contact the Kern National Wildlife Refuge Complex headquarters at least two weeks in advance for all educational opportunities and reservations for Pixley.



### *Hunting*

Pixley is closed to all forms of hunting.

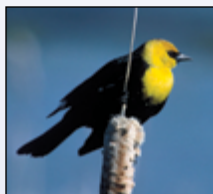


### *Prohibited Activities*

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## Refuge Species

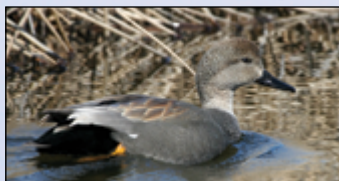
The following are some of the common bird species found at Kern and Pixley National Wildlife Refuges throughout the year or during particular seasons.



*Yellow-headed  
Blackbird*  
USFWS



*Tri-colored  
Blackbird*  
USFWS



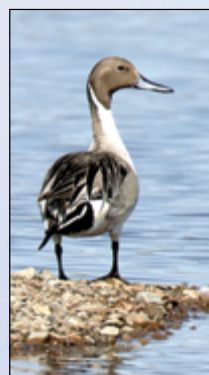
*Gadwall*  
USFWS

Hummingbird  
Black-crowned night-heron  
Black-necked stilt  
Horned lark  
Killdeer  
Long-billed dowitcher  
Loggerhead shrike  
Ring-necked pheasant  
Western meadowlark  
Great blue heron  
Greater roadrunner  
Marsh wren  
Snowy egret  
Burrowing owl  
American avocet

Northern harrier  
American kestrel  
Pied-billed grebe  
Western kingbird  
Tri-colored blackbird  
Cliff swallow



*Sandhill cranes in flight*  
USFWS



*Pintail*  
USFWS

Lesser nighthawk  
Yellow-headed blackbird  
Northern pintail  
Boat-tailed grackle  
Cinnamon teal  
Coopers hawk  
Gadwall  
White-crowned sparrow  
Mallard  
Eared grebe  
Ruddy duck  
Northern shoveler

Kern National Wildlife Refuge  
Pixley National Wildlife Refuge  
P.O. Box 670  
Delano, CA 93216  
Telephone 661/725 2767  
Fax 661/725 6041  
<http://www.fws.gov/refuge/kern>

U.S. Fish & Wildlife Service  
<http://www.fws.gov>

For Refuge Information  
1 800/344 WILD

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50% post-consumer fiber content.*

*Green-winged Teal*  
USFWS