

## White-tailed Kite

*(Elanus leucurus)*

### Legal Status

*Federal:* None

*State:* Fully Protected



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*Global and State Conservation Status:* G5S3: Global Rank, G5 = Secure: Common; widespread and abundant; State Rank, S3 = Vulnerable: Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

*Recovery Plan:* None.

### Species Description and Life History

The white-tailed kite (*Elanus leucurus*) is a medium-sized (32-38 cm) raptor of open grasslands, savannahs, and agricultural areas. It is identified by its unique plumage and habit of hovering while hunting. It has long, narrow, and pointed wings and a long brightly-white tail, face, and underside that contrast with distinctive black patches on the inner wings. Adults also have gray backs and red eyes. The sexes are similar, but the female has a slightly darker back (Dunk 1995).

### Seasonal Patterns

Although apparently a resident bird throughout most of its breeding range, dispersal occurs during the non-breeding season resulting in some range expansion during the winter. Stendell (1972) believed it to be resident, becoming nomadic during periods of low prey abundance. While population changes and local and regional movements appear to be somewhat predictable based on vole and other rodent cycles, it remains unknown whether in northern California this constitutes a migration movement or nomadic response to changes in the prey populations (Dunk and Cooper 1994).

### Reproduction

The breeding season from pair bonding to juvenile independence occurs from approximately January to October with peak activity occurring from May through August (Dunk 1995). Nests are constructed of loosely piled sticks and twigs that are lined with grass, straw, or rootlets. The nest is placed near the top of a dense oak, willow, or other tree; usually 6 to 20 m above ground in trees that vary from 3 to 50 m in height (Dixon et al. 1957). Females typically lay a clutch of 4 eggs, with a range of 3 to 6. The female

incubates exclusively and performs most brooding while the male provisions the female and nestlings. Eggs are incubated for about 28 days. Young fledge in 35 – 40 days following hatching, with the peak fledging period occurring in May – June (Erichsen 1995).

#### *Home Range/Territory Size*

Territory size is variable and regulated primarily by prey abundance and vegetation structure (i.e., accessibility of prey); however, this species also responds to the abundance of interspecific and intraspecific competitors (Dunk 1995, Erichsen 1995). Reported average territory sizes include 1.6 – 21.5 ha (Dunk and Cooper 1994), 19 - 52 ha with a mean of 29 ha (Waian 1973), and 17 - 120 ha (Henry 1983). As with other raptors species, particularly those occurring in agricultural habitats, home ranges may overlap and foraging may be limited to a small portion of the total area. This may be a result of competition or fluctuating prey accessibility due to changes in vegetation structure (Henry 1983). Communal roosts are used during the non-breeding season (Waian and Stendell 1970). Home ranges for non-breeders is more difficult to determine since communal roosts may be tens of kilometers away (Dunk 1995).

#### *Foraging Behavior and Diet*

White-tailed kites generally hunt from a central perch over areas as large as 3 square km (Warner and Rudd 1975), but foraging usually occurs within 0.8 km from the nest during the breeding season (Hawbecker 1942). Kites are not particularly territorial. The nest site and the immediate surrounding area are defended against crows and other raptors (Pickwell 1930, Dixon et al. 1957). Small wintering territories of about 0.10 square km have been documented to be defended as well (Bammann 1975).

The white-tailed kite preys mostly on voles, but also takes other small, diurnal mammals, and occasionally birds, insects, reptiles, and amphibians. Small mammal prey comprises 95 percent of the kite diet (Dunk 1995). It forages in undisturbed, open grasslands, meadows, farmlands and emergent wetlands, ungrazed grasslands, fence rows and irrigation ditches adjacent to grazed lands (Dunk 1995). It soars, glides, and hovers less than 30 m above the ground in search of prey. It hunts almost exclusively by hovering from 5 to 25 m in height, with hovering bouts lasting up to 60 seconds. During this time, kites scan the ground searching for prey and watching for potential competitors or predators. The hovering bout ends in a dive to the ground for prey; flight to another location; soaring or interacting with another bird; or flight to the perch (Warner and Rudd 1975).

#### *Predation*

The primary cause of egg mortality is inclement weather and predation (Stendell 1972). Circumstantial evidence suggests red-tailed hawks may take adults (Pinkston and Caraviotis 1980). Skeletons of immature white-tailed kites with feathers on wings have

been found beneath perches used by larger raptors, also suggesting predation (Dunk 1995).

## Habitat Requirements and Ecology

### *Nesting*

The white-tailed kite inhabits low elevation, open grasslands, savannah-like habitats, agricultural areas, wetlands, and oak woodlands (Dunk 1995). Habitat elements that influence nest site selection and nesting distribution include habitat structure (usually trees with a dense canopy) and prey abundance and availability (primarily the association with meadow vole), while the association with specific vegetation types (e.g., riparian, oak woodland, etc.) appears less important (Erichsen 1995, Dunk 1995). White-tailed kite nests have been documented in a variety of tree species, including valley oak (*Quercus lobata*), Fremont cottonwood (*Populus fremontii*), willow (*Salix* spp.), live oak (*Quercus wislizenii*), boxelder (*Acer negundo*), ornamental trees including olive and pine trees, and occasionally in tall shrubs (Dixon et al 1957, Dunk 1995).

Nest trees appear to be selected on the basis of structure and security, and thus typically have a dense canopy or are within a dense group of trees, such as riparian forest or oak woodland. Kites will occasionally use isolated trees, but this is relatively rare. Most nests in the Sacramento Valley are found in oak/cottonwood riparian forests, valley oak woodlands, or other groups of trees and are usually associated with compatible agricultural foraging habitat, such as pasture and hay crops, compatible row and grain crops, or natural vegetation such as seasonal wetlands and annual grasslands (Erichsen 1995).

Kites often nest in close association with other nesting kites and with several other raptors. These include the Swainson's hawk (*Buteo swainsoni*), red-tailed hawk (*Buteo jamaicensis*), and red-shouldered hawk (*Buteo lineatus*) (particularly in riparian habitats of the Sacramento Valley).

### *Foraging*

A variety of foraging habitat types are used, but those that support larger and more accessible prey populations are more suitable. The presence and abundance of white-tailed kites is strongly correlated with the presence of meadow voles (Stendell 1972). As a result, population cycles of meadow voles can also influence nesting and wintering abundance of white-tailed kites. Cover types that appear to be preferred include alfalfa and other hay crops, irrigated pastures, and some cultivated habitats, particularly sugar beets and tomatoes, both of which can support relatively large populations of voles (Estep 1989) and which have been highly correlated with kite nest site densities (Erichsen et al. 1994). Kites also forage in dry pastures, annual grasslands, rice stubble fields, and occasionally in orchards (Erichsen 1995).

Winter foraging habitat is similar to breeding season foraging habitat (particularly the association with agricultural habitats and vole populations); however, there is less association with riparian forests and woodlands.

## **Species Distribution and Population Trends**

### *Distribution*

The white-tailed kite was threatened with extinction in North America during the early twentieth century (Eisenmann 1971). Until the 1960s, the species was considered declining throughout its North American range, but since then has recovered in some areas. Currently, the distribution of the species includes the east coast and southeast United States, the southwest United States from Texas to California, and north to Washington State, and from Mexico to South America (Dunk 1995). Relatively stable resident populations occur in California, portions of coastal Oregon and Washington, southern Florida, southern Texas, and portions of northern Mexico. The species is considered rare in remaining portions of its North American range. Range expansion has also been noted in some Central American locales (Eisenmann 1971).

### *Population Trends*

California populations were also thought to be seriously declining prior to the 1960s likely due to habitat loss, shooting, and possible egg collecting (Pickwell 1930, Waian and Stendell 1970). From the 1940s to the 1970s, populations and distribution increased (Fry 1966, Waian and Stendall 1970, Eisenmann 1971) due to protection from shooting and possibly due to increasing agricultural development, which may have increased rodent habitat and expanded the foraging range of white-tailed kite (Eisenmann 1971, Small 1994). In the Sacramento Valley, the kite has increased predominantly in irrigated agricultural areas where meadow vole (*Microtus californicus*) populations are found (Warner and Rudd 1975).

California is currently considered the breeding range stronghold for white-tailed kite in North America, with nearly all areas up to the western Sierra Nevada foothills and southeast deserts occupied (Small 1994; Dunk 1995). It is common to uncommon and a year round resident in the Central Valley, other lowland valleys, and along the entire length of the coast (Dunk 1995).

Although white-tailed kite is probably resident through most of its breeding range, dispersal occurs during the non-breeding season, leading to a winter range expansion that includes most of California (Small 1994, Dunk 1995).

### *Distribution and Population Trends in the Plan Area*

White-tailed kite has been reported from most of the open, lowland habitats in Yolo County. The species is underreported in CNDDDB with only 6 nest sites reported, all in the vicinity of Davis. A total of 13 nest sites were reported during a survey of the lowland portion of Yolo County conducted in 2007 (Estep 2008). Most were found in

riparian areas, including three along Putah Creek, three along Willow Slough, two along Dry Slough, one along the Sacramento River, one along the Willow Slough Bypass, and one along the Knights Landing Ridge Cut. Two non-riparian sites included one in West Sacramento and one near Dunnigan. No trend information for Yolo County is available.

While white-tailed kite populations may have recovered to some extent since the 1960s as a result of agricultural crop conversions in Yolo County, the species is also subject to interspecific competition with nesting great-horned owls, Swainson's hawks, red-tailed hawks, and red-shouldered hawks that can result in territory abandonment or nest failure. Erichsen (1995) reported 6 of 13 kite nest failures in riparian areas due to displacement by nesting Swainson's hawks.

### **Threats to the Species and Other Conservation Issues**

#### *Urbanization/Fragmentation*

Urbanization, including residential and commercial development and infrastructure development (roads and oil, water, gas, and electrical conveyance facilities) is one of the principal causes of continuing habitat loss for white-tailed kite and is a continuing threat to remaining populations, particularly in rapidly urbanizing areas in the Sacramento Valley. Urbanization permanently removes habitat and results in permanent abandonment of nesting territories. Proximity to urban areas also influences kite occurrence. While there are examples of kites nesting and roosting in urban areas, in general, the species is intolerant of noise and human activities and will abandon nesting areas that are subject to increasing levels of human disturbances. Kites are also sensitive to habitat fragmentation. Low density urbanization or isolation of habitats, even if relatively large patches remain undisturbed, also leads to territory abandonment.

#### *Agricultural Crop Conversion*

As noted above, white-tailed kite populations are closely associated with rodent abundance and accessibility, which can be influenced by crop patterns. Kite populations have recovered to some extent in California due in part to the expansion of compatible agricultural types. The conversion to crop patterns that do not support sufficient rodent prey or that restrict accessibility to prey can result in the abandonment of traditionally active territories.

### **Contributors to this species account:**

Jim Estep, Independent Biological Consultant

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