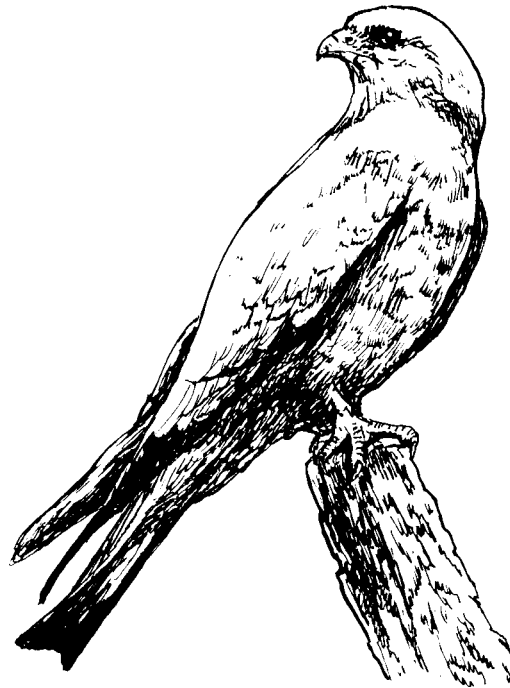


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MISSISSIPPI KITES

Fig. 1. Mississippi kite, *Ictinia mississippiensis*



Damage Prevention and Control Methods

Exclusion and Habitat Modification

Generally not practical.

Nest Avoidance

Avoid nesting sites between incubation and fledging of young.

Frightening

Wave arms or other objects to deter kites from diving close to people.

Life-sized kite models may prevent nesting by kites.

Repellents

None are registered or known to be effective.

Toxicants

None are registered.

Trapping or Shooting

Allowed only under a permit.

Nest Removal

Generally difficult, requires a permit.

Identification

The Mississippi kite (Fig. 1) is a member of the family Accipitridae, a group of diurnal birds of prey. Adult Mississippi kites are falcon-shaped with light gray underparts, a dark gray dorsal surface, and a black unbarred tail. They have orange-red legs and feet, a very pale pearly-gray head, red eyes, a dark gray bill, and black wings tipped with a broad white patch on each rear edge that is visible in flight. Adult kites are approximately 14 inches (36 cm) long, have a wingspan of about 3 feet (0.9 m), and weigh 8 to 11 ounces (227 to 312 g). The male is lighter gray and smaller than the female. The call of an adult is a "phee-phew" whistle. Immature kites have heavy brown streaks below, and a notched black tail that is



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somewhat banded on the ventral surface. Young kites are covered with a fluffy white down that contrasts with their black eyes and bill.

Range and Habitat

Mississippi kites nest in Arizona, New Mexico, Oklahoma, Texas, southeastern Colorado, southern Kansas, and the eastern states from southern Missouri to South Carolina. The southern Great Plains is considered a stronghold for the species. Kites migrate in the fall to their wintering grounds in central South America.

Mississippi kites nest primarily along riparian areas and in mesquite (*Prosopis* spp.) thickets and tree plantings such as shelterbelts, windbreaks, farm woodlots, urban parks, and urban residential woodlots. Kites frequently use large windbreaks that are surrounded by native vegetation and have few nearby roads and homes. Shelterbelts planted in native grassland habitats likely have resulted in the westward expansion of the kite's range. Kites usually perch in the open on bare branches or on television antennas.

Food Habits

Mississippi kites are primarily insectivorous. Their preference for insects that are harmful to crops, such as cicadas and grasshoppers, makes them economically beneficial. Most insects are captured by kites in flight. Kites supplement their diets with lizards, frogs, small turtles, rodents, small rabbits, and occasionally, small birds.

General Biology, Reproduction, and Behavior

Most Mississippi kites probably winter in Argentina and Brazil. They often migrate in groups of 20 to 30, and usually arrive at their nesting sites in mid- to late April or early May. Their southward migration generally begins in early September, a few weeks after the young have fledged.



Fig. 2. During nesting season, Mississippi kites may dive at people who come near their nests.

Mississippi kites generally begin nesting soon after their arrival in spring. They form pair bonds before arriving at nest sites and display little territorial behavior. Kites either repair old nests or construct new ones. Nests usually are concentrated in colonies. Many nests occur in elm (*Ulmus* spp.), cottonwood (*Populus deltoides*), willow (*Salix* spp.), hackberry (*Celtis* spp.), oak (*Quercus* spp.), and mesquite (*Prosopis fuliflora*) trees. Most nests, except for those constructed in elm and cottonwood trees, are usually less than 20 feet (6 m) above the ground. Nests vary in size, ranging from 10 to 18 inches (25 to 46 cm) long and 10 to 14 inches (25 to 36 cm) wide. They usually are composed of small twigs and lined with leaves.

In late May or early June, kites lay 2 white to pale bluish white eggs about 1 1/2 inches (3.8 cm) long and almost oval in shape. Both parents incubate the eggs and feed the young. They usually lay only 1 clutch per year, which hatches after an incubation period of about 30 to 32 days. The young are able to fly and leave the nest 30 to 34 days after hatching.

About half the nesting kites successfully raise young. Major mortality fac-

tors include strong winds, usually associated with summer thunderstorms, that blow out nestlings and destroy nests, and egg and nestling predators, including great horned owls (*Bubo virginianus*) and raccoons (*Procyon lotor*). Mississippi kites produce more young in urban (1.2 fledglings per nesting attempt) than in rural (0.6 fledglings per attempt) areas; the greater success has been related to lower predation. Kites usually live about 8 years.

Damage

Some Mississippi kites create problems by diving at and frightening people who venture near their nests (Fig. 2). The diving behavior is initiated to protect the nest and young, but occurs at less than 20% of the nests. Diving increases as incubation progresses and is most prevalent after hatching. Often both parents dive and emit shrill cries when the nest is threatened. These alarm calls often attract other kites, which also harass the intruder. Although kites may swoop within inches of an individual, only 3% of 903 dives recorded at one golf course resulted in the birds actually hitting humans. These attacks, however, can

be serious if elderly individuals or children riding bicycles are frightened and fall. After the young leave their nests, the diving behavior stops.

Legal Status

Mississippi kites are fully protected under the Federal Migratory Bird Treaty Act (1918) and state regulations. It is illegal to take, possess, transport, sell, or purchase kites or their parts without a permit. These regulations also protect the kite's eggs and nests, even nests that have been abandoned after the breeding season. A special permit may be issued by the US Fish and Wildlife Service that authorizes the permit holder to take, transport, and temporarily possess juvenile kites for relocation to alternate nest sites and to remove the nest.

Damage Prevention and Control Methods

Exclusion and Habitat Modification

Preventing access of the adult kites to the nesting areas, which should deter subsequent diving, is difficult and not practical in most situations. If the nest can be removed in compliance with a US Fish and Wildlife Service permit, further nesting at that site may be deterred by removing one of the branches that supported the nest or by fencing out the nest area with hardware cloth.

Nest Avoidance

Avoiding the area around Mississippi kite nests, from incubation through fledging (mid-June through mid-August), is one of the best methods to prevent kites from diving at people. To reduce conflicts at golf courses, or parks, people can be encouraged to stay away from a nest by placing yellow-plastic tape that says "Do Not Enter" in a 50-yard (50-m) radius around the nest. If the nesting area cannot be avoided, wearing a hat should prevent the rare occurrence of a kite strike but will not prevent diving. Place protective netting in the kites' path of flight to prevent them from diving in certain areas.

Frightening

People who are attacked by kites should wave their arms or other objects to frighten the offending birds.

You may encourage kites to nest elsewhere by placing a life-sized kite effigy in a previously used nest or in a human-made nest before kites arrive in the spring. The greatest average distance that kites ranged from their nest while performing aggressive behavior was 35 yards (32 m) in one study. Decoys should therefore be placed in all potential nest trees within at least 50 yards of the area to be protected.

Repellents

No chemical bird repellents (for example, sticky pastes, sprays) currently registered by EPA have prevented kites from nesting in an area.

Toxicants

No chemical toxicants are currently registered by EPA for Mississippi kite control.

Trapping or Shooting

Trapping or shooting Mississippi kites is seldom warranted. Permits for such activities are required by the US Fish and Wildlife Service and the local state wildlife agency. These permits likely will not be granted in most cases.

Nest Removal

Removal of the adult kite's eggs, young, and nest will usually terminate diving behavior. However, this practice is not legal without a special permit from the US Fish and Wildlife Service. Eggs and young that are removed from an offending kite's nest usually are transferred to another kite's nest located outside the problem area. Choose foster kite nests that have eggs or young at the same developmental stage as in the problem nest. Usually, no more than one chick is added to a nest. Additional material may need to be wired to the foster nest to enlarge it. Occasionally, eggs or young may be incubated and/or reared by humans. Some kites, whose eggs or young have been removed, may reneest nearby and continue their aggressive behavior. In most instances,

the severity of the diving behavior does not warrant removal of the nest, eggs, or young.

Economics of Damage and Control

Few tangible costs can be associated with the harassment of humans by the diving behavior of Mississippi kites. Preventing the diving behavior is generally a matter of avoiding the nesting area or frightening the birds when they are diving.

Acknowledgments

Figure 1 by Jill Sack Johnson.

Figure 2 by Emily Oseas Routman.

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