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Birds of the Great Plains (Revised edition 2009)
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Birds of the Great Plains: Family Accipitridae (Hawks, Eagles, and Harriers)

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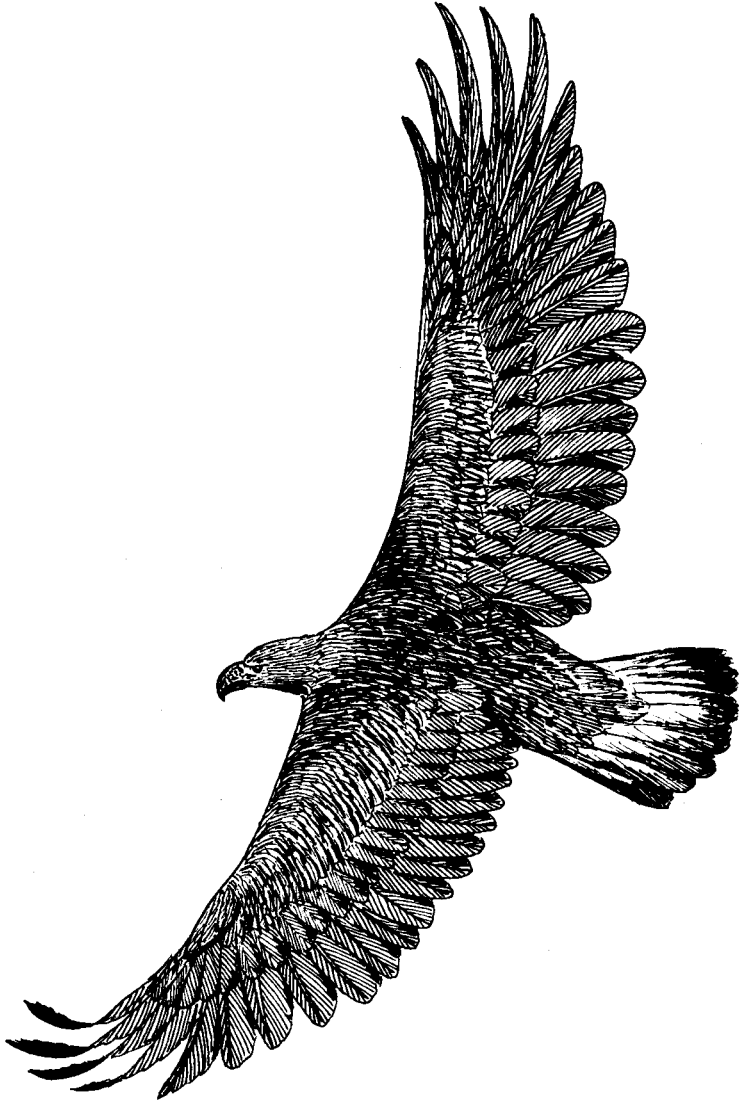


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FAMILY ACCIPITRIDAE (HAWKS, EAGLES, AND HARRIERS)



Golden Eagle

White-tailed Kite

Elanus leucurus

Breeding Status: Extirpated. Probably once bred in eastern and central Oklahoma, but apparently never common. One breeding record, from near the present location of Davis, Murray County. The nearest current breeding area is coastal Texas.

Breeding Habitat: Open and fairly dry country, such as savanna or agricultural lands with scattered trees and a permanent source of water provides the preferred habitat for this subtropical to tropical species.

Nest Location: Nests are built in trees, often near marshes. The trees may be almost any species but must be moderate in height and near a food source, often mice. The nest is a platform of twigs, about 20 inches in diameter and lined with grasses.

Clutch Size and Incubation Period: From 3 to 6 eggs, typically 4. Eggs vary from pure white to heavily marked with reddish purple blotches. The incubation period is 30-32 days, starting with the first egg. Frequently double-brooded.

Time of Breeding: In Texas, egg records are from March 18 to August 21. The single Oklahoma record of eggs is for May 9.

Breeding Biology: These kites are very social, even during the breeding season. At the onset of the breeding season the male establishes a perching place where he regularly sits and soon attracts a female, but pairs evidently do not establish exclusive territories. Males soon attempt to copulate and select a nesting site and at times may even begin building a nest. However, females invariably choose their own sites and do all or nearly all of the nest construction, which requires 7-28 days. During this phase the male performs distinctive "flutter-flights" while uttering a chittering sound. The nest itself is primarily defended by the female, and unlike most raptors, the female does all the incubation. During this time the male does the hunting and transfers food to her while in the air near the nest. Females also do all the feeding of the young, which fledge in 35-40 days. The young often return to the nest to roost at night, but eventually they are driven from the nest area by the adults, which often begin to renest even before the first brood has fledged. This is done by the male initiating copulations and nest-construction attempts.

Suggested Reading: Dixon, Dixon, and Dixon 1957; Brown and Amadon 1968.

Swallow-tailed Kite

Elanoides forficatus

Breeding Status: Extirpated. Formerly bred in eastern Nebraska, Kansas, Oklahoma, and the adjacent Red River Valley of Texas. Also once bred in Iowa and Minnesota, apparently north to Itasca Park, Clearwater County. Still found in Texas, but extremely rare.

Breeding Habitat: The species is now largely confined to lowland cypress and mangrove swamps, but it also occurs in pine forests, near freshwater marshes, and along river-bottom forests with adjacent grasslands. The presence of very tall trees for nesting and adjacent relatively wet open land for hunting is probably crucial.

Nest Location: The nests are 60-130 feet above the ground in the tops of tall trees, often pines. Trees at the edges of clearings are typically used, and the nests are 15-20 inches in diameter, constructed mostly of twigs and lined with Spanish moss and lichens.

Clutch Size and Incubation Period: Two eggs, occasionally 3, and rarely 4. The eggs are whitish with large blotches of bright brown. Incubation period is 28 days, probably starting with the first egg. Single-brooded.

Time of Breeding: Texas records of eggs extend from March 10 to June 7. In Kansas the eggs are probably laid in May. Egg dates in Minnesota are from May 15 to June 16.

Breeding Biology: One of the most graceful fliers of all birds, these kites prey on animals they catch in flight, ranging in size from large insects to nestling birds and arboreal snakes. In Florida the birds arrive already paired and frequently soar over their nesting area, at times performing swoop-flight displays. Nest-building begins soon after arrival, with the female doing most of the building, and both birds gather material by breaking off twigs of dead branches while in flight. Copulation is mostly limited to the nest-building period and occurs on horizontal tree branches. The male sometimes feeds the female during this time as well as during incubation. Most of the incubation is done by the female, and when males take over they usually bring in Spanish moss to line the nest. After hatching, the female does most brooding while the male brings in food, including frogs, lizards, and nestling birds. The young fledge in 36-39 days and do not return to the nest.

Suggested Reading: Snyder 1974; Brown and Amadon 1968.

Mississippi Kite *Ictinia mississippiensis*

Breeding Status: Nests in south-central and southwestern Kansas southward through the western half of Oklahoma and the Texas panhandle. There also are recent nesting records for Otero County, Colorado (*Colorado Field Ornithologist* 11:5), and the species is now resident along the Arkansas and Cimarron rivers. Formerly ranged to northwestern Kansas and possibly to Iowa.

Breeding Habitat: Studies in Kansas indicate that this species prefers open barren terrain, although in the southeastern states it inhabits forests. In such open and dry country, groves of cottonwoods provide perching and nesting sites, and water is supplied by wells and small reservoirs.

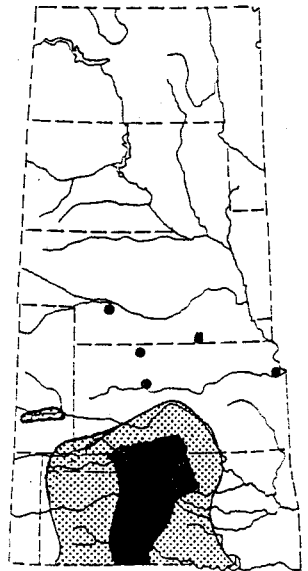
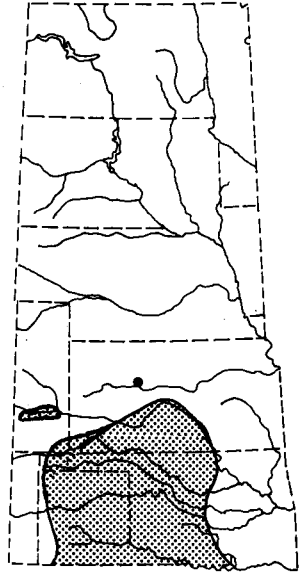
Nest Location: Nests are usually at moderate heights (25–50 feet), in a variety of tree species such as cottonwood, willow, elm, and black locust in Kansas. The nests are rather small, only 10–18 inches across, and are placed in forks or crotches or branches that vary from 1 to 10 inches in diameter. The nests are made of twigs about the size of pencils and are lined with fresh green leaves.

Clutch Size and Incubation Period: Usually 2, sometimes 1 or 3 eggs, which are bluish white. The incubation period is about 30 days. Single-brooded, but renesting occurs if the first clutch fails.

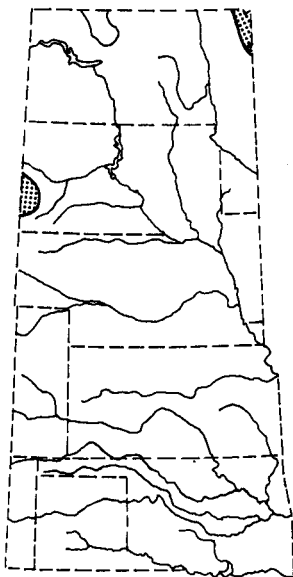
Time of Breeding: Egg records in Kansas are April 20 to June 10, with a probable peak of laying during the first week of May. Egg records in Oklahoma are from May 19 to June 24, and dependent young have been seen from July 24 to September 8 (barely fledged). Texas egg records are from May 3 to July 12, and young in the nest are reported from May 23 to August 27.

Breeding Biology: Mississippi kites are highly social, and the flocks arriving in the Great Plains in spring consist of already mated birds. The birds apparently do not establish territories and often nest close to one another. Sometimes the previous year's nest is used again, but even then nest-building is a protracted and leisurely process. The male gathers most of the material, by snipping twigs off branches while perched or breaking them off with the talons while in flight. He brings these twigs to the female, who incorporates them into the nest. Nesting activities in a colony are usually well synchronized, with incubation starting about the same time. Both sexes incubate, and both gather food for the young when they hatch. The young leave the nest after 34 days but continue to follow their parents and may be fed by them for some time.

Suggested Reading: Fitch 1963; Parker 1975.



Goshawk *Accipiter gentilis*



Breeding Status: A rare breeder in the Black Hills of South Dakota and in northern Minnesota, with breeding records for Clearwater and Roseau counties.

Breeding Habitat: Goshawks are limited to wilderness or near-wilderness areas of forest, especially montane forest. They breed in both coniferous and deciduous forests but seem to prefer nesting in broad-leaved trees.

Nest Location: Nests are usually at least 30 feet above the ground and sometimes up to 75 feet and are placed in a crotch or at the base of limb against the tree trunk. Pines, beeches, birches, and poplars seem to be preferred, and nests are relatively large, up to 3 or 4 feet in diameter. They are rather flat platform structures, usually lined with bark or sprigs of coniferous vegetation. There may also be some down and feathers in the nest.

Clutch Size and Incubation Period: From 2 to 5 eggs, usually 3. Eggs are dirty white to pale bluish with a rough surface. They are laid at about 3-day intervals. The incubation period is generally reported as 36-38 days, but about 41 days elapse between the laying of the first egg and the nearly simultaneous hatching of the young, so not all eggs develop at the same rate. Single-brooded.

Time of Breeding: There are apparently only a few actual nest records for the Black Hills, with building observed in late March and young seen in late July. Minnesota egg dates are from April 12 to May 10, and a young bird a few days old was collected in Roseau County on May 23.

Breeding Biology: Goshawks are believed to pair for life, even though they may spend the winter period in somewhat different areas. As the nesting season approaches, the female returns to her old nest site and begins calling to attract her mate. She may also attract the male by performing aerial displays. The male is likewise known to display in flight, by flying in an undulating fashion with alternating dives and swoops, perhaps as a territorial advertisement. The pair occupies a large home range from 6 to 15 miles in diameter, encompassing the nesting tree. Often the birds use an old nest, with the female simply helping the male refurbish it, but if a new nest is built the male constructs it entirely alone, while the female watches from a nearby perch. Copulation occurs through the nest-building and egg-laying period, which may take 2 months. The female does most of the incubation, with the male periodically bringing her food. By the time the young are 35 days old they move out of the nest onto nearby branches, and they fledge when they are about 45 days of age. However, they are not

completely independent of their parents until they are about 70 days old.

Suggested Reading: Schnell 1958; Brown and Amadon 1968.

Sharp-shinned Hawk *Accipiter striatus*

Breeding Status: Breeding status somewhat uncertain, but uncommon to rare in North Dakota, with most records for the Turtle Mountains and Little Missouri drainage. Rare in western Minnesota, with an early (1921) nesting record for Murray County. Fairly common in the Black Hills of South Dakota, but generally rare elsewhere in the state. The only nesting records for Nebraska are for Sioux County, but the species probably also nests in the Missouri River floodplain forest. It is an uncommon breeder in northwestern Missouri (Squaw Creek N.W.R.) and probably is a rare breeder in northeastern Kansas, but there are only two breeding records (Cloud and Pottawatomie counties). There is a single old nesting record for Oklahoma, in Cimarron County. No nesting records exist for the Texas panhandle or adjacent New Mexico, but it may breed locally in east-central Colorado (Kingery and Graul, 1978).

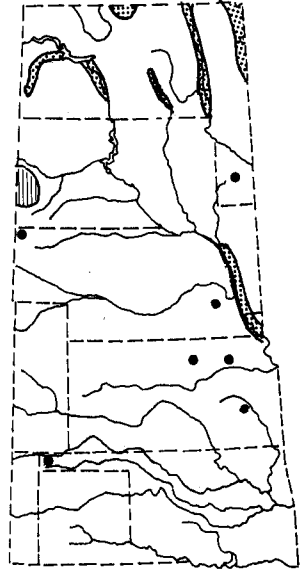
Breeding Habitat: During the breeding season this species is associated with fairly dense forests, particularly mixed woods with some coniferous trees.

Nest Location: Nesting usually occurs in a dense grove of trees, and the nest is 20–60 feet above the ground on a large limb against the tree trunk. It is about 2 feet in diameter, and usually a new nest is constructed each year. At least in Utah, nests are typically in stands of trees with dense foliage, and foliage density appears to be the reason the birds choose conifers over broad-leaved trees. The nest may be unlined or lined with pieces of bark.

Clutch Size and Incubation Period: From 3 to 5 eggs (34 Utah nests averaged 4.3). Eggs are white to bluish white with bright brown blotches. Eggs are laid on alternate days, but incubation does not begin until the clutch is complete, so that hatching occurs 30 days after the last egg is laid. Single-brooded.

Time of Breeding: Little information is available, but the birds in Kansas probably lay in April and May, and in the Black Hills the nesting season probably is from May through July. The only egg date for northern Texas is April 30, and for Oklahoma, July 1.

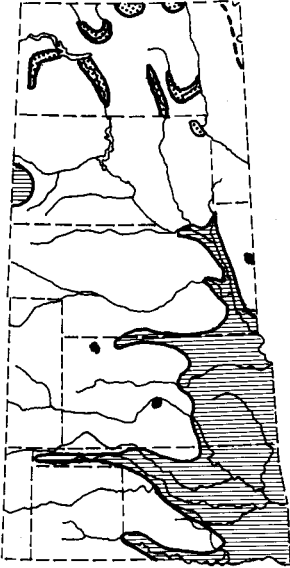
Breeding Biology: Like other hawks, these are monogamous, and the female is appreciably larger than her mate, foraging on some-



what larger prey, primarily birds. In Utah the birds appear at their nest sites as much as a month before egg-laying and probably spend much of that time constructing new nests, since old ones are rarely used even if they are still intact. However, a crow nest or squirrel nest is sometimes modified for use. After the clutch is complete both sexes assist in incubation, and the young hatch almost simultaneously. They grow rapidly, with the males fledging at 24 days of age and the somewhat larger females at 27 days.

Suggested Reading: Platt 1976; Brown and Amadon 1968.

Cooper Hawk *Accipiter cooperii*



Breeding Status: Occupies a range similar to that of the sharp-shinned hawk, but more common in the southern part of the region, occurring uncommonly over the eastern halves of Kansas and Oklahoma. Rarer and more local toward the west. In the northern part of the region generally uncommon to rare and restricted to wooded river valleys and wooded uplands such as the Black Hills and the Turtle Mountains and Pembina Hills in northern North Dakota. It may also breed in southeastern Colorado (Kingery and Graul, 1978).

Breeding Habitat: The Cooper hawk breeds in mature forests, particularly hardwood forests. It rarely if ever breeds in the same areas as sharp-shinned hawks or goshawks.

Nest Location: Nests are in large trees, 20–60 feet above the ground, usually in the crotch of a deciduous tree or against the trunk of a conifer. The nest is normally about 2 feet across and is constructed of twigs with a lining of bark. Sometimes an old crow or squirrel nest is used for a nest base, but the previous year's nest is rarely used.

Clutch Size and Incubation Period: From 3 to 6 eggs, usually 4 or 5. Eggs are pale blue to dirty white, sometimes with a few pale spots. The eggs are laid on alternate days. Incubation begins with the third egg, and the first three eggs hatch after 34 days, with the rest hatching by the 36th day. Single-brooded, but renests regularly.

Time of Breeding: North Dakota egg dates range from May 5 to May 28, and young have been seen from June 29 to August 22 (recently fledged). In Kansas, egg dates are from March 21 to May 30, with a peak about April 25. Oklahoma egg dates are from April 16 to June 30, and in Texas eggs have been reported from April 1 to May 30.

Breeding Biology: In New York, Cooper hawks arrive in their nesting areas in March, and the male establishes a territory about 100 yards in diameter. From this area he calls and feeds any female that might appear. As a pair is being formed they perform courtship flights, either alone or together. Such flights may be seen for a month or more. During that time the male selects a nest site; rarely he uses an old nest, but more frequently a new location is chosen. The male gathers most of the material and does most of the actual nest building, and he also continues to feed his mate during this period. The female incubates while the male provides food for her and guards the nest briefly while she is eating. At the time of hatching the female carries the eggshells away from the nest and drops them and may even help the young birds out of the shell. For the first 3 weeks after hatching the female rarely leaves the nest, and thus all foraging is done by the male. The young birds fledge at slightly more than a month of age, the females about 4 days later than males, but they remain dependent on their parents for food until they are about 2 months old.

Suggested Reading: Meng 1951; Bent 1937.

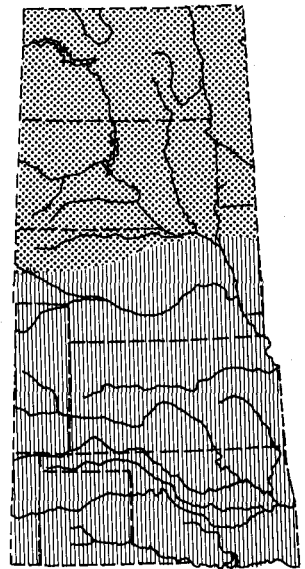
Red-tailed Hawk *Buteo jamaicensis*

Breeding Status: Pandemic throughout the region. This species is a common resident throughout the eastern half of the region, especially in more wooded areas, but occurs uncommonly and locally elsewhere in western areas where woodlands are scarce.

Breeding Habitat: A combination of extensive open habitat for visual hunting and clumps or groves of tall trees for nesting are the general need of this species. It occupies both coniferous and hardwood forest areas, but especially the latter.

Nest Location: Nests are 15-70 feet high in tall trees. In North Dakota, cottonwoods, elms, and oaks are commonly used, while in Kansas, cottonwoods, honey locusts, Osage oranges, sycamores, and walnuts serve. Nests have also been seen on rock pinnacles in the Black Hills. The platform-like nests are about 30 inches in diameter, constructed of sticks and twigs, and sometimes old nests are used again. They are usually lined with bark and sprigs of green vegetation.

Clutch Size and Incubation Period: From 2 to 4 eggs (28 North Dakota nests averaged 2.8, and 20 Kansas nests averaged 2.6). Eggs are bluish white to dirty white with varying amounts of brown spotting. The eggs are laid at intervals of several days, and



incubation begins almost immediately. The incubation period is 28-32 days, usually about 30. Single-brooded.

Time of Breeding: North Dakota egg dates range from April 19 to June 11, and nestling records are from June 23 to July 22. Kansas egg records are from February 21 to April 11, with a peak of egg-laying about March 5. Oklahoma egg records extend from March 16 to April 17, and unfledged young have been reported from May 2 to June 15.

Breeding Biology: Red-tailed hawks pair monogamously and arrive at their nesting areas already mated. Nonetheless, courtship flights are common in early nesting phases, with the birds dramatically soaring and swooping together and occasionally locking talons in flight. Copulation often follows such flights. The nest is built by both birds well before egg-laying, and after it is completed the female stays near it while the male feeds her and brings nest-lining materials. Both sexes help incubate, but the female assumes most of the responsibility and is fed by her mate during this period. The young are hatched at intervals of several days and grow rapidly. By the time they are a month old they may climb out onto adjoining branches, and they can fly at about 45 days. After leaving the nest they are fed progressively less by their parents and become relatively independent in about a month.

Suggested Reading: Austin 1964; Brown and Amadon 1968.



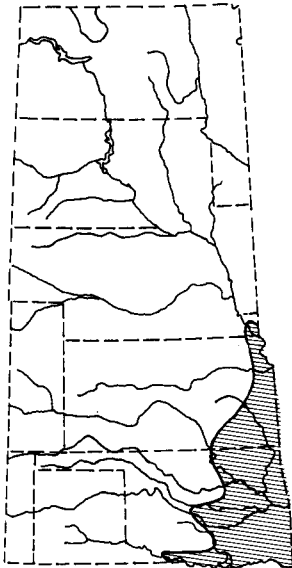
Red-shouldered Hawk

Buteo lineatus

Breeding Status: Breeds from the eastern half of Oklahoma northward to the eastern third of Kansas. It breeds occasionally in northwestern Missouri (Squaw Creek N.W.R.), which is probably close to the northwestern limit of its present range in our region, though there are early records of its breeding in the Missouri Valley of Nebraska. It also breeds in southeastern Minnesota; stragglers sometimes occur in western Minnesota, but with no evidence of breeding.

Breeding Habitat: Relatively moist woodlands, especially floodplain forests, and adjacent open country for foraging, are needed by this species. It is usually not found where the larger red-tailed hawk is common. Like most other raptors, its range is now contracting and its numbers are declining.

Nest Location: Nests are in tall trees, 20-60 feet above the ground, usually close to the trunk. A variety of hardwood trees are used, including elms, sycamores, and oaks in our region, and occasionally coniferous trees such as pines. The platform of twigs

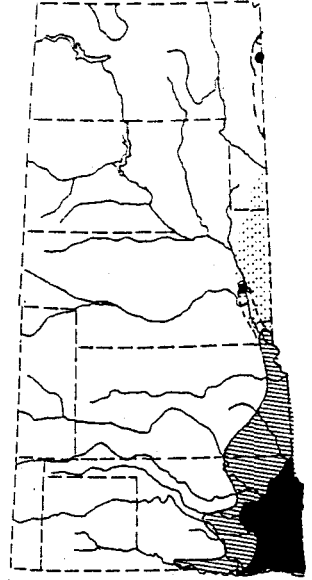


is about 2 feet in diameter, and the same nest is occasionally used more than once. The nest is well lined with small twigs, sprigs of vegetation, and usually down.

Clutch Size and Incubation Period: From 2 to 4 eggs (normally 3). Eggs are white to pale bluish with variable brown spotting. They are laid at 2- or 3-day intervals. The incubation period is about 28 days, probably starting with the first egg. Single-brooded, but renesting attempts may be made if the first clutch or two fails.

Breeding Biology: These monogamous birds arrive at their nesting territory already paired. One or both birds spend considerable time in aerial display, performing a series of soaring and diving gyrations that presumably serves as a territorial advertisement and perhaps as a stimulus to mating. The nest is built in a leisurely manner and may be lined with the nests of tent caterpillars as well as with vegetation and down. Both sexes incubate, but the female probably does most, since she is regularly fed by the male. The young begin to leave the nest when about 5 or 6 weeks old, and soon thereafter they are fully fledged.

Suggested Reading: Stewart 1949; Brown and Amadon 1968.



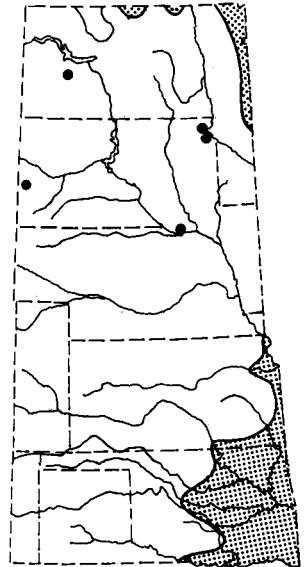
Broad-winged Hawk

Buteo platypterus

Breeding Status: Breeds in moist woodlands in the eastern half of Oklahoma, the extreme eastern portions of Kansas, and in west-central and northwestern Minnesota. Also breeds locally in North Dakota, particularly in the Pembina Hills and the Turtle Mountains, and recently bred in Dunn County. It is uncommon in northwestern Missouri and has bred in the Missouri Valley of eastern Nebraska, but the present northern limits of its breeding range in this area are not clear. There is a notable record of nesting in the Black Hills in 1977 (*South Dakota Bird Notes* 29:72).

Breeding Habitat: Mature deciduous forests, especially those near water, are the habitat of this species. It forages within the confines of the woods to a greater extent than most other *Buteo* species and is thus seldom seen.

Nest Location: Nests are 20-40 feet above the ground in large trees of a variety of species, usually hardwoods growing near water and having large crotches. They are normally placed in the main crotch, but in pines they are placed against the trunk. Nests are about 15 inches in diameter, poorly constructed of twigs and leaves and lined with bark and sprigs of leaves.

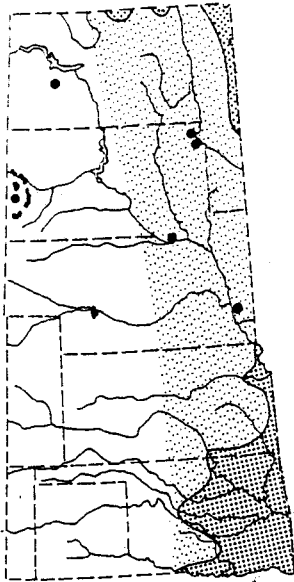


Clutch Size and Incubation Period: From 1 to 4 eggs, usually 2. Eggs are white to bluish white with variable brown spotting. They are probably incubated as soon as they are laid, and the incubation period is probably at least 28 days. Single-brooded.

Time of Breeding: In Minnesota, eggs have been reported from May 9 to June 13, and young from June 17 to July 4. Egg records in Kansas are for the period April 21 to May 30, and in Oklahoma eggs have been seen in late April and dependent young from June 19 to early July. Texas egg dates are for March and April.

Breeding Biology: Broad-winged hawks usually arrive on their nesting grounds about a month before egg-laying, which seems to be timed to coincide with the leafing-out of the trees. They are monogamous, and courtship or territorial display consists of soaring and swooping in the vicinity of the nest. Both sexes build the nest, the female bringing most of the materials and apparently all of the bark lining. During the nestling stage many sprigs of vegetation are also brought. During incubation, males cover the eggs only while the female eats the food her mate brings, and thus they rarely incubate for more than 15 minutes at a time. Only the females brood the young, but males continue to provide food for both their mates and the developing brood. After a week or two the female also begins to hunt for food, but she broods the young at night until they are 3 weeks old. The young begin to leave the nest when about 30 days old and are able fliers during their 6th week of life.

Suggested Reading: Matray 1974; Brown and Amadon 1968.

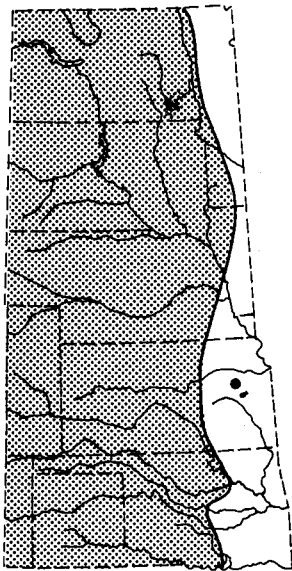


Swainson Hawk *Buteo swainsoni*

Breeding Status: Breeds from western Minnesota and virtually all of North Dakota southward to eastern New Mexico, the Texas panhandle, and western Oklahoma, becoming more uncommon eastwardly and rare to absent in Iowa and northwestern Missouri.

Breeding Habitat: This species occupies a habitat approximately complementary to that of the broad-winged hawk, being absent from dense and moist woodlands and most abundant on the open plains. It overlaps in range and habitat with the red-tailed hawk and the ferruginous hawk and probably competes with both these species.

Nest Location: Nests are in isolated trees or bushes or, rarely, on the ground. In any case they usually have a commanding view. Typically they are about 20 feet above the ground, but they may be as high as 60 feet. In North Dakota, they have been found frequently in elms, oaks, willows, cottonwoods, and shrubs, and



less frequently in pines, aspens, box elders, ashes, hawthorn, wild plum, and balsam poplars. Other species such as walnut, hackberries, and honey locusts are used farther south. The nest is about 2 feet in diameter, constructed of large sticks and typically lined with bark and fresh green leaves. Normally a new nest is built each year, sometimes near the old one.

Clutch Size and Incubation Period: From 2 to 4 eggs (16 North Dakota nests averaged 3.0 eggs, and five Kansas nests averaged 2.4). Eggs are white to pale bluish white, sometimes unmarked but usually with brown spots. They are apparently incubated from the time they are laid, and incubation lasts about 28 days. Single-brooded, but a new nest may be built and a second clutch laid if the first one fails.

Time of Breeding: North Dakota egg dates range from April 29 to July 15, and nestling records are from July 1 to August 15. In Kansas, egg records are for the period April 11 to June 10, with many clutches completed in late April. Oklahoma egg records are from May 6 to June 27, and young have been recorded between June 11 and August 3 (barely fledged).

Breeding Biology: Swainson hawks are monogamous and arrive on their breeding ground in eastern Wyoming about a month before egg-laying begins. They soon begin nest-building and sometimes use old magpie nests for a base, but infrequently they use their own old nests. Although males rarely assist in incubation they do bring prey to the incubating female. The female also broods the young during the first 20 days after hatching but thereafter spends considerable time hunting. The young fledge in 28 to 35 days.

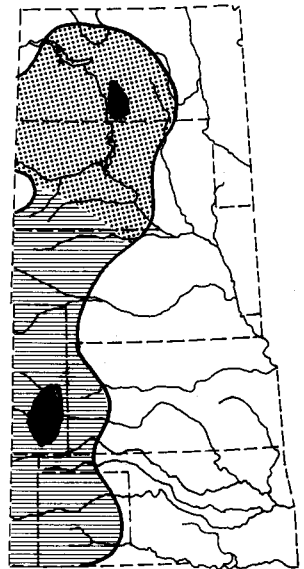
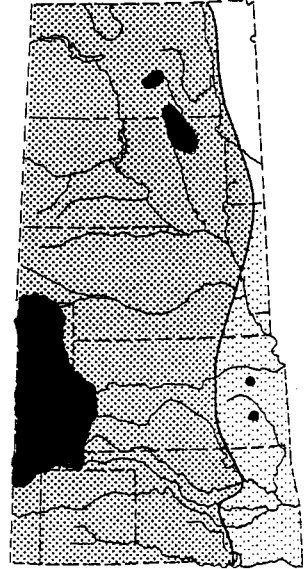
Suggested Reading: Dunkle 1977; Brown and Amadon 1968.

Ferruginous Hawk *Buteo regalis*

Breeding Status: Breeds throughout most of the western half of the region from the Missouri Coteau of central North Dakota southward through western Nebraska, eastern Colorado, western Kansas, the Oklahoma and Texas panhandles, and eastern New Mexico.

Breeding Habitat: Grasslands with scattered trees, or with clay buttes or bluffs for nesting sites, provide the favored habitat of this distinctive plains-adapted hawk.

Nest Location: In North Dakota, about half of 61 nests were on the ground in prairie vegetation, about a third were in trees, and the rest were on boulders, piles of rocks, haystacks, strawstacks,



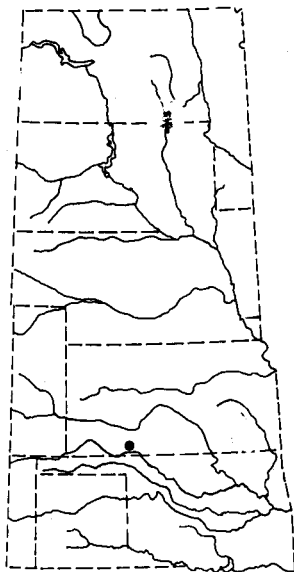
and miscellaneous locations. Most of the ground nests were on slopes near hillcrests or ridgetops, while the tree nests were in single trees or groves and involved a variety of hardwood species. The tree nests ranged from 10 to 45 feet above the ground and averaged 26 feet. Nests are often 3 feet in diameter and are constructed of large sticks, lined with bark or dried grasses and typically also with chunks of dry dung.

Clutch Size and Incubation Period: From 2 to 6 eggs (35 North Dakota nests averaged 3.9). Eggs are white to bluish white with variable amounts of brown spotting. Incubation lasts 28 days, and probably begins with the first egg, since the young hatch at about 2-day intervals. Single-brooded.

Time of Breeding: North Dakota egg dates range from May 27 to July 16, and dependent young out of the nest have been reported from June 15 to July 27. Kansas egg records are for the period March 11 to April 30. Oklahoma egg dates are from May 9 to June 9, and Texas egg records are from May 6 to June 2.

Breeding Biology: Pairs return to their breeding territory each year and usually use the same nest, so it gradually increases in size. Both sexes bring nesting material in the form of sticks and nest lining, which the female molds to fit her body. Evidently the female does most of the incubation, while the male takes over for a part of the afternoon. After hatching, the male did most of the brooding in a nest observed in Washington, while the female brought in prey, primarily jackrabbits. The adults defended their nest ferociously and were observed attacking a coyote as well as evicting a red-tailed hawk from the area. The young may leave the nest when only about a month old but do not fledge until they are about 44-48 days of age. They start catching live prey only a few days after fledging.

Suggested Reading: Angell 1969; Ohlendorf 1975.



Harris Hawk *Parabuteo unicinctus*

Breeding Status: Accidental. There is a single nesting record for the region, for Meade County State Park, Kansas, in 1963. Central Texas is the nearest regular breeding area.

Breeding Habitat: In Texas, the prime habitat of this species is mesquite woodlands containing prickly pear. The birds are also found in the yucca, cactus, and creosote-bush deserts of Trans-Pecos Texas and occur in limited numbers in juniper-oak habitats of Edwards Plateau.

Nest Location: Nests are in a variety of trees, including mesquite, hackberry, and chaparral oaks, and also in yucca and cactus. They are usually less than 30 feet from the ground and are of flimsy construction. The nest is a platform of twigs, sticks, and roots, lined with softer materials such as leaves and grass.

Clutch Size and Incubation Period: From 2 to 4 eggs (50 Arizona nests averaged 2.96). Eggs are white, sometimes slightly spotted with pale brown. The incubation period averages 35 days and ranges from 33 to 36 days. Double-brooded, at least in some areas.

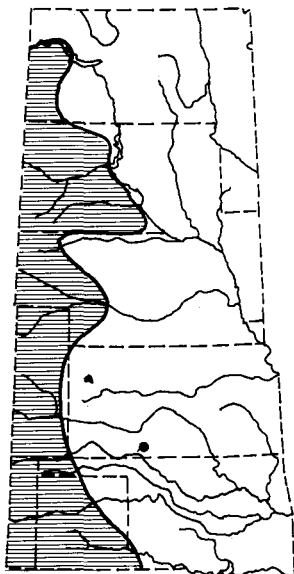
Time of Breeding: The single Kansas nest was built in late March; eggs were seen in late April, and a small chick was seen in late May. Texas egg records are from March 8 to November 14, but young have been seen as early as February 17. This long nesting period in Texas suggests that multiple brooding might occur there, as it does in southern Arizona.

Breeding Biology: Harris hawks are apparently monogamous, but at least in some areas they breed as trios, with a second male present that serves as a nest "helper" and at times even copulates with the female. Courtship flights by a single male, the pair, or even all three birds of a trio occur and involve a swooping dive from a height of more than 100 yards. Nest-building is performed mainly by the female, though sometimes she is assisted by the male, and begins up to a month before egg-laying. Often several nests are built or old nests repaired; these surplus nests may be used as feeding platforms. Incubation may begin with the first egg or be delayed until the last is laid. It is performed by the female and by at least one of the males when trios participate in breeding. After hatching, the female does most of the brooding, while the male (or males) does the hunting. Apparently the excess male does not feed the young directly, but passes food to the bird on the nest, which then feeds it to the young. By the time they are 40 days old, the young begin to perch on branches, and they fledge a few days later. Pairs regularly reneest in new sites when their first clutch fails, and in four of five observed cases of double-brooding, a new nest was constructed or an old nest was refurbished for the second clutch.

Suggested Reading: Mader 1975; Brown and Amadon 1968.

Golden Eagle *Aquila chrysaetos*

Breeding Status: Breeds in the badlands area of the Dakotas, the South Dakota Black Hills, western Nebraska, and the high plains



and Rocky Mountain piedmont of eastern Colorado, eastern New Mexico, and the Texas panhandle. In Oklahoma limited to the rough parts of Cimarron County, and now extirpated from Kansas, with a single probable nesting record before 1891.

Breeding Habitat: Golden eagles are found in arid, open country, often with associated buttes, mountains, or canyons that offer remote nesting sites and large areas of natural vegetation for foraging.

Nest Location: Eleven nest sites in North Dakota included 8 on cliff ledges or crevices and 3 in large trees, including 2 cottonwoods. The cliff nests were mostly 20-100 feet above level ground, while the tree nests were 30-75 feet high. The nests are large, often more than 10 feet across, constructed of sticks up to 2 inches in diameter, and lined with various soft materials. Frequently a pair will have several nest sites, sometimes rotating them in different years.

Clutch Size and Incubation Period: From 2 to 3 eggs (8 North Dakota nests averaged 2.4). Eggs are white with brown to reddish brown spotting. The incubation period is generally believed to be 43-45 days, but there are some questionable estimates of 35 days. Single-brooded, but renesting has been reported.

Time of Breeding: Egg dates in North Dakota are from April 29 to May 14, and nestlings have been seen from April 29 to July 22. In the Black Hills the nesting season probably extends from May through August, and young have been seen in July and August. Completed nests or nests with eggs have been seen in Oklahoma between March 12 and April 12, and young have been reported from May 1 to June 8. Texas egg records span the period February 16 to October 11.

Breeding Biology: Golden eagles are monogamous, and pairs occupy large home ranges (averaging about 35 square miles in California) that provide them and their young with an adequate food supply. Aerial displays are most common before the nesting season but may occur at other times too. They consist of soaring and swooping by one or both members of the pair. Both members of the pair work on the massive nests, and up to 12 alternate nests may be maintained. The eggs are laid at intervals of 3-4 days, and incubation begins almost immediately. The female does most of the incubation, but the male begins to assist in brooding soon after the young have hatched, especially during the afternoon. By about 50 days of age the young are feathered, and they fledge at about 65-70 days. However, they remain dependent upon their parents for at least some food for as much as 3 months after fledging.

Suggested Reading: Beecham and Kochert 1975; Ohlendorf 1975.

Bald Eagle

Haliaeetus leucocephalus

Breeding Status: Now limited as a regular breeding bird to north-western Minnesota, with nesting records for Becker, Clearwater, and Marshall counties. There are two single recent nesting records for North Dakota (McLean County, 1975) and Nebraska (Cedar County, 1973). There are also some old nesting records for the Texas panhandle (Potter and Armstrong counties), and the birds still breed rarely in southern Texas. There was an Oklahoma nesting attempt in 1976 on the R. S. Kerr Reservoir (Bulletin of the Oklahoma Ornithological Society 11:4).

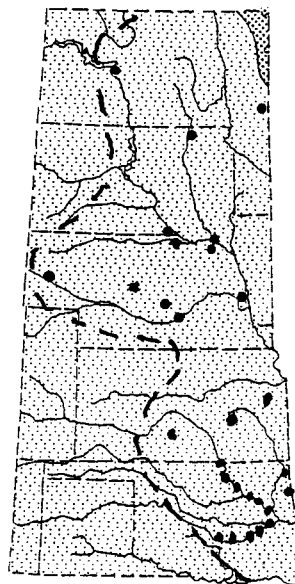
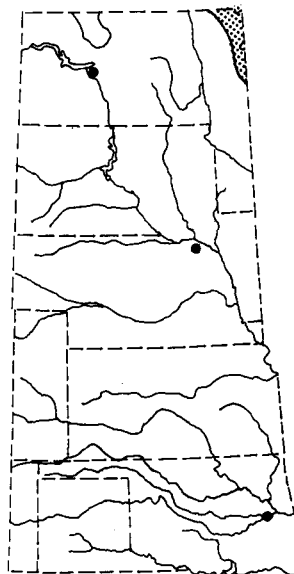
Breeding Habitat: Breeding is largely confined to forested regions in the vicinity of lakes or larger rivers that support a good supply of fish.

Nest Location: In Minnesota, bald eagle nests are usually in upland areas, high in the crowns of living red pines or white pines. The recent nests in North Dakota and Nebraska were in large cottonwoods. They are built of large branches picked up from the ground or broken off dead trees. The nest gradually increases in size with each year's use and is generally about 4-7 feet in diameter and up to 10 feet thick in old nests. It is lined with aquatic vegetation such as cattails and bulrushes, or with other soft, leafy materials.

Clutch Size and Incubation Period: From 1 to 3 eggs, usually 2 (3 North Dakota nests averaged 1.7). Eggs are dull white with a rough surface. The incubation period is probably 34-45 days; published estimates vary widely. Single-brooded.

Time of Breeding: In Minnesota, eggs are laid from about March 16 to April 3. They hatch about April 22 to May 10, and young may be seen in the nest from about July 16 to August 12. In Texas, eggs have been reported from November 6 to June 20, and well-grown young from March 1 to June 17.

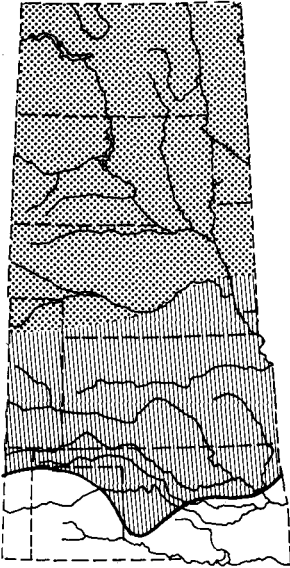
Breeding Biology: After maturing and acquiring the adult plumage at 4 or 5 years of age, eagles pair monogamously and remain paired permanently. They perform aerial displays, one of which involves locking talons and tumbling downward through the sky for several hundred feet. In Minnesota these flights occur in March, or during the nest-building period. Copulation occurs at the same time, and egg-laying soon follows. Both sexes assist in incubation, and the young hatch at intervals of several days. The female and young are brought food by the male, which in Minnesota consists primarily of bullheads and suckers rather than important game fish. As the birds grow, both parents gather food for them, but rarely do more than two eaglets survive to fledg-



ing. This occurs at about 70 days of age, but the young birds follow their parents for some time afterward, until they are evicted from the area by the adults.

Suggested Reading: Dunstan, Mathisen, and Harper 1975; Sherrod, White, and Williamson 1976.

Marsh Hawk *Circus cyaneus hudsonius*



Breeding Status: Breeds nearly through the region, but rare or absent in the Black Hills of South Dakota, and also virtually absent from the Staked Plain of Texas and adjacent New Mexico, probably breeding along the northern tier of Texas counties and also at Muleshoe N.W.R. Widespread in Oklahoma, but no breeding records exist for the southeastern parts of that state.

Breeding Habitat: This species inhabits open country habitat, particularly native grasslands, prairie marshes, and wet meadows, and croplands that are close to natural grasslands.

Nest Location: Nests are in grassy vegetation, ranging from upland situations to wetland habitats including emergent plants such as cattails, bulrushes, and whitetop standing in water up to 2½ feet deep. North Dakota nest sites also include locations in shrubby willows along wet meadows or swamps and in patches of upland shrubs such as wolfberry, silverberry, and rose. The nest is constructed of sticks, twigs, and grasses and is up to 30 inches in diameter, without specific lining materials.

Clutch Size and Incubation Period: From 4 to 6 eggs (39 North Dakota nests averaged 5.0). Eggs are white to pale bluish white, usually unmarked, but sometimes with pale brown spots. The incubation period is 24–30 days, usually beginning before the clutch is complete. Single-brooded, but renesting is frequent.

Time of Breeding: North Dakota egg dates range from April 26 to June 25, and nestlings have been recorded from June 15 to July 15. Kansas egg dates are from April 11 to May 20, with a peak of egg-laying about May 5. Oklahoma egg dates are from April 26 to June 9, and nestling dates range from June 4 to June 30.

Breeding Biology: Males migrate separately from females and arrive on the nesting grounds first. They display aerially by performing a series of spectacular dives and swoops, especially in the presence of females. Later the pair may display in this way and also by locking talons in flight. The nest is constructed mainly by the female, though the male may help gather materials. Frequently the birds are semicolonial, with up to six nests concen-

trated in a square mile. The eggs are laid at intervals of several days, and the female may begin to incubate at almost any time during the prolonged egg-laying period. Males feed their incubating mates, and on the basis of a group of six nests studied in Manitoba, sometimes provide food for two females. The young hatch at staggered intervals and while they are very small are brooded continuously by the female while the male brings in food. Later the female also hunts, but she usually receives by aerial transfer the food the male brings in. She is the only parent to feed the young directly. Where males are tending two nests the females must do more hunting by themselves, and starvation of young nestlings is frequent. The young fledge at about 5 weeks, males a few days sooner than females.

Suggested Reading: Watson 1977; Brown and Amadon 1968.

