The Scorpions of Arizona

edited by Richard E. Glinski

with full-color illustrations by Richard Sloan
Gray Hawk
*Buteo nitidus*

Richard L. Glinski

**Description.** Translated from the Latin, *Buteo nitidus* means "shining hawk" or "star buzzard." This striking medium-sized hawk is about 14–18 inches long, has a wingspan of 32–38 inches, and weighs 15–25 ounces (Wheeler and Clark 1995). The male is smaller than the female. In its proportions the Gray Hawk resembles an accipiter more than a buteo, with relatively shorter wings, longer tail, and longer and thinner tarsi and toes than typical buteos. Its alternating flapping and gliding flight is also accipiter-like. The Gray Hawk's resemblance to the Northern Goshawk doubtless is the reason for its other name, "Mexican Goshawk," a misnomer that confused some early ornithologists.

N. K. Johnson and Peeters (1963) placed the Gray Hawk along with the Red-shouldered Hawk and Broad-winged Hawk in a group they termed woodland buteos. The members of this group share accipiter-like adaptations for maneuvering in forests and woodlands. Millsap (1986) agreed with this assessment and, based on measurements and plumages, recommended that the Gray Hawk be placed in a separate genus (*Asturina*) and that the Gray Hawks in the United States and northern Mexico be distinguished as a separate subspecies.

The adult Gray Hawk has a slate gray back, white-fringed upper tail coverts, and a black tail with two or three white bands. The breast, abdomen, and thighs are finely barred gray and white, and the undertail coverts are white (plate 14). The juvenile plumage is typically hawklike, dark brown on the back and buff streaked with brown on the front. The tail is brownish gray with five to nine dark bands. The sides of the face are lighter in color than the crown and neck, and there is usually a distinctive dark stripe running from the base of the bill along the sides of the throat. In both adults and juveniles the bill is dark gray or black, the cere and exposed legs and toes are yellow, and the iris is brown. The juvenile plumage is replaced by adult plumage during the second year.

Gray Hawks are perhaps the most vocal raptors in Arizona, and usually it is their voice that reveals their presence. I have identified two basic calls: the three-note territorial peacock call and the one-note irritation call. The latter call has variations that include a one- or two-note whine. The peacock call is given to proclaim territorial boundaries. It varies from a regular to a rolled, slurred, and exaggerated three-note call, depending on the intensity of the territorial encounter. For nest defense, Gray Hawks blurt an irritated, trailing one-note call. In situations of greater stress, as during an aggressive territorial encounter with another Gray Hawk or nest defense against another raptor, the whine is often followed quickly by a three-note territorial call. The whine is also heard during copulation and food exchanges between adults. A squeal, consisting of a series of slurred three-note calls given rapidly, is given during extreme agitation, as during food exchanges between the male and female at the nest. The female gives the squeals, which resemble the intensive begging calls of older nestlings. The male's voice is generally higher pitched than the female's, and the juvenile's voice is raspy and broken.

The Gray Hawk's erect posture and long, vertically hanging tail are good identification characters, but the best field mark for adults is the bold black-and-white tail contrasting with the slate gray back. This color pattern combined with the accipiter-like flight, distinctive voice, and limited range make the Gray Hawk easy to identify in the field.
DISTRIBUTION. The Gray Hawk occurs from the Amazon Basin through Central America into the southwestern United States. Some of the early Arizona and New Mexico records are dubious because the name “Mexican Goshawk” caused confusion among early ornithologists, who knew the accipiter goshawk and assumed that this same bird near the Mexican border was the “Mexican Goshawk.” For example, Law (1929) claimed to have seen Gray Hawks in the Chiricahua Mountains, but Hubbard’s (1972) scrutiny of this record revealed that Law had seen a Northern Goshawk.

The historical distribution in Arizona was the Santa Cruz River basin, particularly the major tributaries near what now is Tucson (Bendire 1892; Swarth 1905; Bent 1937; Brandt 1951; Phillips et al. 1964; Stensrude 1965). More recently, the San Pedro River has become home to nearly one-third of the Arizona population. Breeding observations outside these two drainages include at least one nest on the San Bernardino National Wildlife Refuge known since the mid-1980s (pers. observ.) and sightings along the Verde River at Dead Horse State Park in Yavapai County, where C. Tomoff (pers. comm.) saw an adult and yearling separately on four different occasions from 16 June through 3 July 1992. C. Stensrude (pers. comm.) reported a nest in 1963 from along Seven Springs Wash in Maricopa County. Pember’s (1892) record of a Gray Hawk nest with three eggs found on 16 April 1892 was discarded by Phillips et al. (1964). However, Edgar A. Mearns’s journal records a single Gray Hawk from the Gila River between Maricopa and Sacaton on 12 May 1885, which when combined with more recent northerly records sustains the possibility of historical occurrence along the Gila River. J. Witzeman (pers. comm.) observed lone Gray Hawks along the lower Santa Cruz River at the Marana pecan grove from late August into October in 1991, 1992, 1994, and 1995, suggesting nesting areas to the north.

Additional observations of Gray Hawks away from the Santa Cruz and San Pedro drainages include lone adults along the Hassayampa River south of Wickenburg on 16 September 1980 (C. Tomoff pers. comm.), 18 July 1995 (S. Miller pers. comm.), and 12 May 1996 (C. Babbitt [fide J. Witzeman]); a single adult along the lower Verde on 15 April 1975 (Monson and Phillips 1981); and an adult at the Salt River in Tempe on 24 April 1995 (D. Hews and B. Terkanian [fide J. Witzeman]).

The best place to observe Gray Hawks now is along Sonoita Creek at the Nature Conservancy’s Patagonia–Sonoita Creek Sanctuary. Be on the mesquite and grassland hillsides bordering the cottonwood forest of Sonoita Creek about midmorning in April, and you will have a streamside seat to one of the most vocally demonstrative raptors in North America in the midst of nest building and courtship. You can follow the birds through the canopy by their sounds, only guessing what all the noise means, and get good looks as one or both break into the sky above the trees. And best of all, you will not be an intruder.
Habitat. Gray Hawks typically inhabit arid deciduous forests and woodlands throughout their range. In the tropics, they prefer xeric second-growth and thorn forests. In Arizona, at the temperate northern extreme of their range, Gray Hawks occur mostly in strands of Sonoran Riparian Deciduous Forest and Woodlands and to a lesser extent in Madrean Evergreen Woodland along the Arizona-Sonora border (vegetation classification after D. E. Brown 1982) amid the diverse herpetofauna of southern Arizona (Gloyd 1937) that constitutes their major food.

Bank cutting, the result of erosion from drought and torrential rainfall in the late 1800s (Bryan 1925), may have increased Gray Hawk habitat in some areas, such as along the San Pedro River. Stream flows cut up to 20 feet into the alluvium, and now ribbons of cottonwoods occur between the bank walls, on which grow woodlands of mesquite and hackberry. Such areas afford good conditions for whiptail lizards, species that characteristically exploit new areas born from catastrophic habitat alteration (Wright and Lowe 1968; Gerritsen 1980; Serena 1980).

The San Pedro River above Fairbank, and especially at the elevations above Hereford, is only marginally suited for the development of mesquite forests. The higher elevation there permits catastrophic freezes, which can kill mesquite or prevent it from growing larger than a shrub (Glinski and Brown 1982). However, the present attraction for the Gray Hawk is the dry erosion benches, the hunting perches of dead standing mesquite, and the whiptails that thrive there.

Life History. Gray Hawks arrive in Arizona about mid-March, and the adults usually return to the previous year's nesting sites. Courtship, which features the three-note peacock call, undulating flights by the male, and nest building, begins immediately. Both pair members construct the nest, but the male performs most of the early work. The female builds most of the bowl, sitting for hours in the nest picking intently at leafy green sprigs. Cottonwood is the favored nest tree, but I have seen nests in ash, willow, and oak as well. Early ornithologists described nests in mesquite (Swarth 1905) and hackberry (Brandt 1951). Nests are usually placed in the upper third of the canopy and are constructed of leafy green twigs from the nest tree or nearby trees that the birds break off with their bills.

Egg laying usually occurs during the first part of May. Incubation, which is performed only by the female, lasts about 33 days. I investigated 119 breeding attempts from 1975 through 1977 and found an average of 2.6 eggs per clutch and 1.2 young per occupied breeding site. B. Bibles (pers. comm.) checked productivity of 25 nesting sites along the San Pedro River and documented a mean of 1.1 young per occupied site in 1995. The hawklets remain in the nest for approximately six weeks and become self-sufficient after an unknown period.

Raptors that I have found nesting within a mile of breeding Gray Hawks include the Zone-tailed Hawk, Common Black-Hawk, White-tailed Kite, Mississippi Kite, Cooper's Hawk, Red-tailed Hawk, Harris' Hawk, and Swainson's Hawk.

The Gray Hawk feeds mainly on reptiles (Amodon and Phillips 1939; West 1975; Glinski and Millsap 1987). Lizards constituted 74 percent of the prey that I observed delivered to nestlings in Arizona. Other prey items included garter snakes (5 percent), nestling and adult birds (11 percent), and mammals (10 percent) (Glinski 1988). Their speed and maneuverability enable Gray Hawks to capture both arboreal and terrestrial lizards, which they spot from low perches in dense woods.

The winter haunts of Gray Hawks include Arizona only on rare occasions. Such an occasion was on 15 December 1978, at Dudleyville, Arizona, the northernmost regularly occupied breeding area known for the species. I had just crawled out of a frosted sleeping bag and mimicked a territorial three-note call, more to elicit the feeling of spring than to detect Gray Hawks. To my surprise, a pair...
Gray Hawk

of adult Gray Hawks bolted from the forest of dormant cottonwoods, calling and displaying with all the zest of April territoriality.

**STATUS.** The Gray Hawk does not have special federal protection under the Endangered Species Act (16 U.S.C. 1531 et seq.). In Arizona, the stronghold for this species in the United States, about 80 Gray Hawk breeding areas are presently known. The nesting sites appear to be regularly occupied, and reproductive output seems adequate to meet the present mortality rate. Because Gray Hawks that fledge from nests in Arizona winter in Mexico, however, the health of the state's population may be tied to conservation efforts there.

Seven Gray Hawks that I banded as nestlings in Arizona were recovered in northern Sinaloa. In that area of Mexico, the native thornscrub habitat that Gray Hawks prefer is being cleared for agriculture, and the living fencerows common to Mexican agriculture (Nabhan and Sheridan 1977) afford refugia of sorts amid massive habitat destruction.

Since reptiles, the major food of Arizona's Gray Hawks, are not migratory, we would not expect them to exhibit chemical contamination in the form of DDT or other pesticides. Five eggs I collected from Arizona nests in the 1970s were of nearly identical thickness (0.341 mm average) as 19 Arizona eggs collected from 1898 to 1930.

Arizona sustained nearly all the known breeding populations of this hawk in the United States during the mid-1980s (Glinski 1988). Since then, however, sightings have increased in Texas along the Rio Grande from the Big Bend to Brownsville, where as many as six pairs regularly nest. Gray Hawks have expanded their range in Arizona, too, but the most important habitats are still in the watersheds of the Santa Cruz and San Pedro Rivers (see distribution map).

In 1965, no Gray Hawk nesting areas were formally protected, but by 1975 the Arizona Nature Conservancy and responsible landowners along Sonoita Creek had secured the future of about 12 nesting sites. The acquisition of 36 miles of the San Pedro River by the U.S. Bureau of Land Management in 1987 protected another 25 occupied nesting territories (Rosenkrance 1988). About eight Gray Hawk breeding sites were protected when breeding habitat along Arivaca Creek was acquired by the U.S. Fish and Wildlife Service for incorporation into Buenos Aires National Wildlife Refuge. Responsible stewardship by private landowners has been assisted by legislation that affords tax incentives for establishing "conservation easements." Thus, the majority of the nearly 80 regularly occupied nesting sites of Gray Hawks known in Arizona will likely survive the wave of human settlement that is predicted to hit the state in the near future.

Responsible land management came just in the nick of time. In the last 25 years, vast areas of mesquite have been cleared for alfalfa pastures. Only by preserving Arizona's mesquite bosques can we prevent extirpation of this raptor from the United States.