

# Northern Aplomado Falcon

Scientific Name: *Falco femoralis septentrionalis*

Federal Status: Endangered, 2/26/86 • State Status: Endangered

## Description

A boldly-marked, colorful Neotropical falcon that fits into the body size scale of North American falcons between the Merlin and Peregrine Falcon. Measurements are: total length 15 to 18 inches, wingspan 32 to 36 inches, and weight 7.5 to 18 ounces – similar in size to the Cooper’s Hawk or American Crow. Aplomado means “steel-gray” in Spanish in reference to the adult’s dorsal plumage.

Distinguishing adult field marks include bold face markings; contrast-



*Aplomado Falcon*  
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ing breast, belly, and undertail plumage; relatively long wings narrowing at the body; and long tail. The face pattern consists of a blue-gray crown; broad, white eyebrow over a blue-gray eyestripe; a white cheek, and prominent, blue-gray mustache. A dark band or “cumberbund” extends across the belly separating a white breast and rich cinnamon lower belly, flanks, and undertail. Fleeshy eyering and legs are yellow. In flight, the underside shows dark wing linings that are bridged by a darker cumberbund; white breast and throat; cinnamon lower belly and tail coverts;

and dark tail with 6 to 8 narrow, white crossbars. Male and female are similar in appearance except that the female is noticeably larger than the male. Juveniles are similar to adults, but with white facial and breast plumage suffused with buff or cinnamon, other plumage areas not as richly colored, and the white upper breast heavily dark streaked.

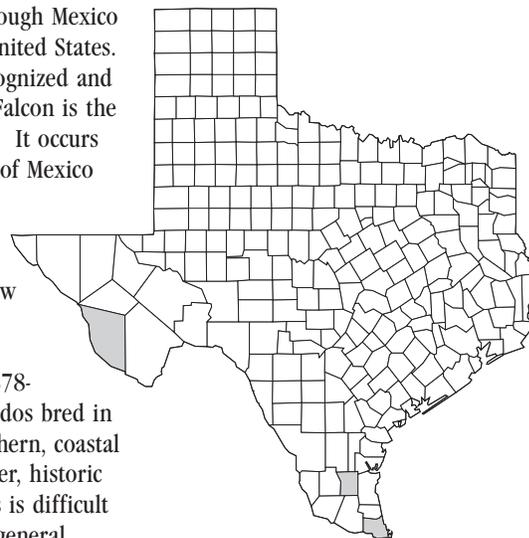
## Distribution and Habitat

The Aplomado Falcon’s Neotropical distribution extends from southern Argentina northward through Mexico in to the southwestern United States. Three subspecies are recognized and the Northern Aplomado Falcon is the northernmost subspecies. It occurs locally throughout much of Mexico and historically reached the northern limits of its range in southeastern Arizona, southern New Mexico, and western and southern Texas.

Early naturalists (1878-1925) noted that Aplomados bred in the Trans-Pecos and southern, coastal regions of Texas. However, historic status and trend in Texas is difficult to assess because of the general nature and the scarcity of historic records. In 1900, J. Strecker observed three (3) active Aplomado nests in the vicinity of Midland and stated that his collecting party “frequently” saw this bird in the Trans-Pecos. It was variously described as “locally common,” “not very common,” and “uncommon” in southern, coastal Texas. Aplomados declined throughout their U.S. range, including Texas, during the first half of the 20th century. The last breeding of wild birds in Texas was reported in 1941. Except for regular sightings on the King Ranch (Kleberg County) as late as the 1950s, reports of the Aplomado Falcon were extremely rare in the U.S. after the 1940s. In Mexico, however, it remains in much of its historic range.

Historically, the Aplomado Falcon occurred in two distinctly different and widely separated ecological

regions in Texas. In western Texas, it was associated with open desert grasslands with scattered yuccas, mesquite, and other shrubs; or oak woodlands and gallery forests surrounded by or intermingled with desert grasslands. In southern Texas, coastal prairie and marsh habitats that supported small islands of trees and shrubs or that interfaced with woodlands along freshwater drainages and estuaries were used. In Mexico, the Aplomado is found in a broad range of semi-open tropical



and subtropical habitat settings, including coastal prairies, wetlands, savannas, and shrublands; cut-over rain forests, cleared pastureland and farmland; dry deciduous woodlands; upland pine woodlands; and open desert grasslands.

Aplomado Falcon habitat almost always contains an open grassland component with either scattered islands of shrubs or trees or woodland and forest borders. Landscapes with these open characteristics probably favor the falcon’s mode of spotting, chasing, and capturing avian prey. Shrubs and trees provide perching and nesting sites and may enhance the diversity and abundance of potential prey species.

Reliable sightings of Aplomados, usually single birds, have been

reported with increasing frequency in southern New Mexico and western Texas (Jeff Davis and Culberson counties) since the 1990s. Two small breeding populations of falcons in north-central Chihuahua, Mexico, also discovered in the 1990s, were probable sources for the birds being reported in the U.S. In 2002, a pair of wild Aplomado Falcons successfully reared young near Deming, New Mexico. These events may represent the beginning of natural recolonization by Aplomados into portions of their former U.S. range. Reintroductions of captive-reared falcons have been ongoing since 1987 in southern Texas and were initiated in western Texas in 2002.

## Life History

The Aplomado is an aggressive predator that feeds mainly on other birds and insects, but also takes bats, small rodents, lizards, and other animals. This falcon locates prey from observation posts or while in flight. Birds and insects may be taken on the wing or ambushed while on the ground. It aggressively chases birds even pursuing them through shrub and tree canopies and on the ground. Often mated pairs hunt cooperatively. In these instances, one bird may flush the potential prey into a position where it can be attacked by its mate. It hunts most often during daylight hours, but also before sunrise and after sunset taking advantage of crepuscular birds, bats, and insects. Aplomados practice “kleptoparasitism” – the act of commandeering prey from other raptors and predatory water birds such as herons and kingfishers. They sometimes “cache” food items for later consumption and will aggressively defend caches.

In eastern and southern Mexico, 43 bird species were preyed on by Aplomados, and birds comprised 97% of the diet by weight. Principal prey species included the Great-tailed Grackle, Mourning Dove, White-winged Dove, Grooved-billed Ani, Yellow-billed Cuckoo, meadowlarks, and Northern Bobwhite. In Chihuahua, Mexico, meadowlarks, Common Nighthawk, Western Kingbird, Brown-headed Cowbird, Mourning Dove, Cactus Wren, Pyrrhuloxia, Ash-throated Flycatcher, Blue Grosbeak, and Canyon Towhee predominated in the avian diet.

Weights of avian prey range from 0.12 ounce (hummingbird) to 19 ounces (Plain Chachalaca), but most birds taken weigh less than 3.5 ounces. Aplomados in coastal and tropical environments are highly insectivorous, but insects contribute <3% by weight to the total diet. Insect prey includes crickets, beetles, dragonflies, butterflies, cicadas, locusts, wasps, moths, bees, and others.

Like most other falcons, Aplomados are swift flyers. In full flight, they are probably slightly faster than Mourning and White-winged doves. They dive and execute aerobic maneuvers in their pursuit of prey, but also frequently hover and soar. They are agile afoot and will chase prey in trees from limb to limb and on the ground.

The vocal repertoire of Aplomado Falcons consists of 4 distinct calls. The “kek” or “ki” call is given almost exclusively in agonistic contexts such as when adults recognize potential predators or when they are being harassed by other birds. The “chip” is given as either a single note or as a 2 to 3 note series in a wide range of contexts. “Wails” consists of a 3 to 4 note series given at the nest by the female to initiate hunting forays by the male, but also by both adults at the nest during courtship. The “chittering” note consists of 7 or more notes and is given by adults and young during feeding sessions.

It is presumed that Aplomados are monogamous. Mated pairs remain together year-round. Pair bonding involves various courtship displays, including joint reconnaissance flights of prospective territories, perching, chasing, soaring, and diving. Males may select the nest platform and solicit the female’s attention by soaring above and then landing at the nest and giving a “chip” call. Once the female joins her mate at the nest, both may give “wail” and “chip” calls, squat, and pick at nest sticks with their bills. Copulation occurs in conjunction with nest platform displays. Some evidence suggests that females are capable of breeding at 11 to 12 months of age, but typically they do not successfully breed until 2 years of age.

There is no evidence that Aplomados build their own nest, instead the pair takes over an old or newly constructed stick nest of another raptor, large jay, or raven. Aplomados



*Aplomado Falcon chicks*  
© Frid Fridrickson



*Male falcon providing food*  
© Noel Snyder

may also nest in arboreal bromeliads or rarely on the ground. Egg laying usually occurs in March and April. Two to 3 eggs are laid and then cooperatively incubated for 31 to 32 days before hatching. Downy hatchlings are closely brooded by the female for the first week and less frequently thereafter. The male does the majority of the hunting for the nestlings, but may be joined by the female in this pursuit. Food items brought to the nest by the male are fed to the young by the female. Young leave the nest at 4 to 5 weeks of age and the adults continue to feed the fledglings away from the nest until their flight feathers are fully grown. Little is known about the dispersal or survival of young; although, one juvenile banded as a nestling in northern Chihuahua, Mexico, was observed approximately 180 miles away in south-central New Mexico. In eastern Mexico, 25 nests produced 38 nestlings from an estimated 66 eggs. Similarly, in Chihuahua, Mexico, 7 nests produced 11 nestlings from 18 eggs.

The population status and trend and geographic distribution of the Aplomado Falcon in the U.S. is difficult to assess because of the sparseness of historical information, the lack of recent, long-term population



*Aplomado Falcon habitat in South Texas*  
© USFWS Marie Fernandez



*Adult Aplomado Falcon*  
© D. P. Keddy-Hector

monitoring efforts, and because of the remoteness and inaccessibility of the bird's habitat. In Chihuahua, Mexico, home ranges for 10 individuals ranged from 1.3 to 8.1 square miles. Causes of mortality in wild adults are not well understood. However, Brown Jays are suspected nest predators in eastern Mexico, and the Harris's Hawk and Great Horned Owl have been known to prey on released, captive-reared fledglings in southern Texas.

## Threats and Reasons for Decline

The Northern Aplomado Falcon was most commonly observed and collected in its U.S. range during the period 1870-1930. The falcon seemingly disappeared in the U.S. after the 1930s for reasons that largely remain a mystery. It is noteworthy to consider that the Aplomado Falcon was at the northern limits of its continental range in southeastern Arizona, southern New Mexico, and western and southern Texas; and, therefore, possibly vulnerable to small changes in habitat quality in this region.

Severe overgrazing by domestic livestock and resultant brush encroachment in the Southwest, including Texas, has been most frequently implicated as the principal cause for the species' decline. Direct adverse effects of livestock grazing on

potential falcon prey species have also been suggested as a possible cause. However, a recent review of the history of livestock trends and practices and other ecological factors in the Southwest in relation to the decline of Aplomados suggests different causes.

In the late-1800s, large numbers of cattle were introduced onto Southwest grasslands occupied by Aplomados and their numbers remained high through the 1920s. Decades of overstocking had degraded desert grasslands by the 1920s. Recognition of this led to reductions in cattle numbers by the late-1920s and 1930s, particularly after passage of the Taylor Grazing Act in 1934. However, cattle stocking rates may have remained comparatively high in western and southern Texas well into the late-1900s, since these ranges were mostly in private ownership and not subject to regulation by the federal act. At least at some Arizona and New Mexico sites where Aplomados occurred, brush did not extensively invade into grasslands until after the 1940s.

There is some evidence from early naturalists to support the notion that prairie dogs greatly expanded in the Southwest after the introduction of large cattle herds. Widespread and intensive grazing by cattle may have stimulated such an expansion, since prairie dogs require low-stature grassland habitats. Regardless of the cause, prairie dog numbers and acreages occupied were extremely high during the late-1800s through about 1920. A U.S. government campaign to control prairie dogs on publicly-owned lands in Arizona and New Mexico by use of strychnine poison began in 1912, and a similar state effort was initiated in Texas in 1915. Prairie dogs were substantially reduced through poisoning by the 1920s, their decline peaked in the 1930s, and they were virtually eliminated from southeastern Arizona and southwestern New Mexico by the 1940s and 1950s, respectively. This pattern of decline was probably mirrored in western Texas, except that prairie dogs were never completely eradicated and some populations have persisted there through the present time.

Historic ranges of the black-tailed prairie dog and the Northern Aplomado Falcon in the Southwest, to include western Texas (prairie dogs

never occurred during historic time in southern Texas), matched closely. This has led to speculation that habitat conditions generated by prairie dogs may have benefited Aplomado Falcons. It is reasoned that overall abundance, biomass, and catchability of avian and small mammal prey were greater inside prairie dog towns than in the surrounding grasslands. At least some potentially important avian prey species, such as meadowlarks, some plovers, Mourning Dove, Horned Lark, and others, seem to respond positively to grazing. Others, like the Borrowing Owl, are directly dependent on prairie dog borrows and other prairie dog habitat features for optimal nesting and rearing of young. Insects, reptiles, birds, and small mammals that used prairie dog colonies were probably easier to detect and catch by Aplomados than in surrounding grasslands, where herbaceous vegetation was denser and higher. In similar ways, cattle grazing may have provided short-term benefits to Aplomados.

The natural coincidence of Aplomado and prairie dog distributions in the Southwest (outside southern Texas) and their simultaneous declines suggest that these events may have been related. Prairie dogs were eradicated by strychnine poisoning. This method of control was non-selective and undoubtedly killed other wildlife in the vicinity of dog towns. Aplomado Falcons could have been adversely affected by feeding on poisoned birds and mammals through relay toxicity. Relay toxicity also could have killed other raptors and ravens that provided nest platforms for Aplomados.

It appears that a majority of historic encounters with Aplomado Falcons and high numbers and acreage of black-tailed prairie dogs coincided with historically high livestock stocking rates on Southwest grasslands (all between 1870 and 1920). Aplomado falcons and black-tailed prairie dogs, with overlapping distributions, disappeared from the Southwest landscape in the 1930s. Although, it is clear that prairie dogs were intentionally eradicated, causes of the Aplomados disappearance remain obscure. In Arizona and New Mexico, large scale mesquite and other shrub invasion into grasslands

appears to have occurred after the demise of the falcon.

Other factors could have affected the decline. Aplomado Falcons disappeared rapidly throughout their U.S. range, which suggest that a widespread phenomenon such as climate change could have been involved. Throughout the U.S. and Mexican range of the Northern Aplomado Falcon, the long-term, cumulative impact of cattle grazing to the recovery of this subspecies probably has been negative, since it eventually contributed to the evident degradation of desert and coastal grasslands. Grazing by cattle increases the spread of mesquite, diminishes water retention on rangelands through soil compaction and loss of herbaceous plant cover, and interrupts natural fire regimes by reducing plant fuel loads. In southern Texas, relatively high numbers of falcon eggs and specimens were collected by professional collectors during the early-1900s and possibly contributed to the disappearance of Aplomados in that region. Particularly in southern Texas and eastern Mexico, but also portions of the Aplomado's former desert range, large tracts of native grassland have been converted to pasturelands and croplands, thereby further reducing the extent and quality of Aplomado Falcon habitat.

The pesticides DDT and DDE were not factors in the Aplomado's disappearance, since they were not introduced into the environment until the late-1940s. Even though these pesticides have been banned in the U.S. for over 30 years, heavy concentrations of DDT and DDE persists in potential prey species in the U.S. and northern Mexico. Furthermore, these pesticides are still in use in Mexico and other parts of Latin America. In eastern Mexico, DDT and DDE contamination has led to severe eggshell thinning in Aplomados. Birds and other organisms collected over the past decade from the lower Rio Grande, Laguna Madre, and other southern Texas locations contained heavy loads of PBCs, heavy metals, and organochlorine pesticides. Organophosphate pesticides are still heavily used throughout the range of the Aplomado Falcon, including in the U.S., and remain a serious threat to Aplomados. This group of pesticides

has been linked directly to the deaths of thousands of songbirds, waterfowl, and raptors in Argentina and parts of the U.S. Other threats include direct loss of habitat from various forms of human development, secondary lead poisoning through ingestion of game birds (doves and quail), electrocution by improperly designed electrical transmission lines, and human disturbance in breeding areas.

## Recovery Efforts

In 1986, the Northern Aplomado Falcon was federally listed as endangered in the U.S. and Mexico based on evidence of population declines in the U.S. and threats to reproduction in eastern Mexico related to pesticide contamination. Subsequently, the northern subspecies was state-listed as endangered in Arizona, New Mexico, and Texas, and in 1990 a federal recovery plan was prepared.

In the years since listing occurred, general awareness of the Aplomado's peril has grown, surveillance of the falcon has increased, consideration of and planning for Aplomado habitat requirements on public lands has improved; and new research, focused on the Aplomado's population ecology and habitat preferences and requirements, has been initiated. In 1992, two small, isolated populations of Aplomados were discovered in north-central Chihuahua, Mexico in close proximity to the U.S. Ongoing monitoring and research efforts at these sites are providing important insights into the desert grassland ecology of this species. Recently, another research-management effort led by U.S. departments of Interior and Defense characterized occupied Aplomado Falcon habitat in northern Mexico and then used that habitat "footprint" to identify potentially suitable falcon habitat in the U.S. The Turner Endangered Species Fund also recently funded a historical review of land use and ecological conditions that surrounded the Aplomado in the Southwest at the time of its decline.

Reintroduction of captive-reared Aplomados into the historic U.S. range was considered an essential step in the 1990 federal recovery plan. As early as 1977, the Chihuahuan Desert Institute at Alpine, Texas had begun a captive breeding program based on wild-captured Aplomado breeding stock from south-



*Aplomado Falcon landing*  
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eastern Mexico. In the 1980s, this program was taken over and expanded by The Peregrine Fund, a private organization focused on the worldwide conservation of birds of prey, with support from the U.S. Fish and Wildlife Service. An initial release of captive-reared young was made on the King Ranch in Kleberg County, Texas in 1985. Additional release sites on the Texas Gulf Coast were evaluated between 1985 and 1987, and the release program was then refocused to Laguna Atascosa National Wildlife Refuge and Matagorda Island. The first breeding in the wild of released captive-reared Aplomados occurred in 1995. Since 1997, over 100 captive-reared young have been released annually along the Texas Gulf Coast. To date, this program has resulted in the establishment of at least 37 Aplomado pairs that have produced over 92 young in the wild. In 2002, reintroductions were expanded to desert grasslands in western Texas with the release of 36 captive-reared young and future releases are being planned for southern New Mexico. The preliminary results of the reintroduction program look promising; ultimately, however, its success will depend on the quality of these environments to support wild Aplomado Falcons over time.

## Where To See Aplomado Falcons

At the present time, the only publicly-accessible location in the U.S. where Aplomado Falcons can be consistently observed is in the vicinity of Laguna Atascosa National Wildlife Refuge near Rio Hondo, Texas. Opportunities to regularly see Aplomados may gradually increase with time in western Texas in the vicinity of Marfa and

Valentine as result of The Peregrine Fund's ongoing reintroduction efforts there. Wild Aplomados, presumably dispersing from Chihuahua, Mexico, also were sporadically reported during the 1990s in western Texas.

Birders who pursue opportunities to view an Aplomado Falcon should be equipped with a good quality binocular, bird identification guide, and lots of patience. Becoming familiar with the different raptor body forms, styles of flight, behaviors, and distinguishing field marks well before going into the field will greatly aid accurate identification of Aplomados and other raptors. Desert grasslands with scattered yuccas and other shrubs in western Texas and coastal grasslands and wetlands in southern Texas are the correct general habitat types for searches. Prime periods of Aplomado activity are two to three hours after sunrise and before sunset. If a visit to Laguna Atascosa National Wildlife Refuge is planned, call ahead to the refuge headquarters to obtain current information concerning viewing and reporting guidelines as well as the whereabouts and habits of this falcon. Nature and birding club web sites, local birding experts, and wildlife agency personnel are excellent sources of information regarding the locations of past and recent rare bird sightings in Texas.

## How You Can Help

Aplomados can be sensitive to human disturbance, especially during the breeding season. Human activity, including close or prolonged intrusion in a bird's territory, or loud and unusual noises, can cause nest abandonment. Human intrusions can also make Aplomados more susceptible to detection and harm from potential predators. A safe viewing distance is 200 yards or more. Suitable viewing at this or greater distance may require a spotting scope with 10 to 15 X or greater magnification. Birders should always respect private property rights in Texas regardless of the species being pursued.

Birders should keep in mind that Aplomados remain extremely rare in Texas and are federally- and state-listed as endangered. Therefore, all reasonable and suspected sightings of this bird should be reported immediately to an expert birder, Texas Parks and Wildlife Department, or the U.S. Fish and Wildlife Service for further

verification. Observations should include a detailed description of the bird's location, appearance, activity, and surroundings. Verification of sightings is extremely important in the context of the Aplomado's scarcity and future conservation.

Ultimately, recovery of Aplomados in Texas will depend on the interest and direct involvement of private land owners since lands within the falcon's former range are mostly in private ownership. Texas land holders interested in promoting Aplomado Falcon conservation measures should consult with experts in the Texas Parks and Wildlife Department, U.S. Fish and Wildlife Service, or The Peregrine Fund for technical guidance and other assistance. Texans can contribute to nongame wildlife resources conservation by supporting the Texas Parks and Wildlife Department's "Special Nongame and Endangered Species Conservation Fund" and by purchases of special nongame decals and stamps issued by the department. A set portion of the revenues generated by these programs is used to purchase endangered species habitats and to support the publication of nongame-wildlife informational materials and other nongame activities.

## For More Information Contact

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or  
Laguna Atascosa National Wildlife  
Refuge  
P.O. Box 450  
Rio Hondo, Texas 78583  
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or  
The Peregrine Fund  
5668 West Flying Hawk Lane  
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