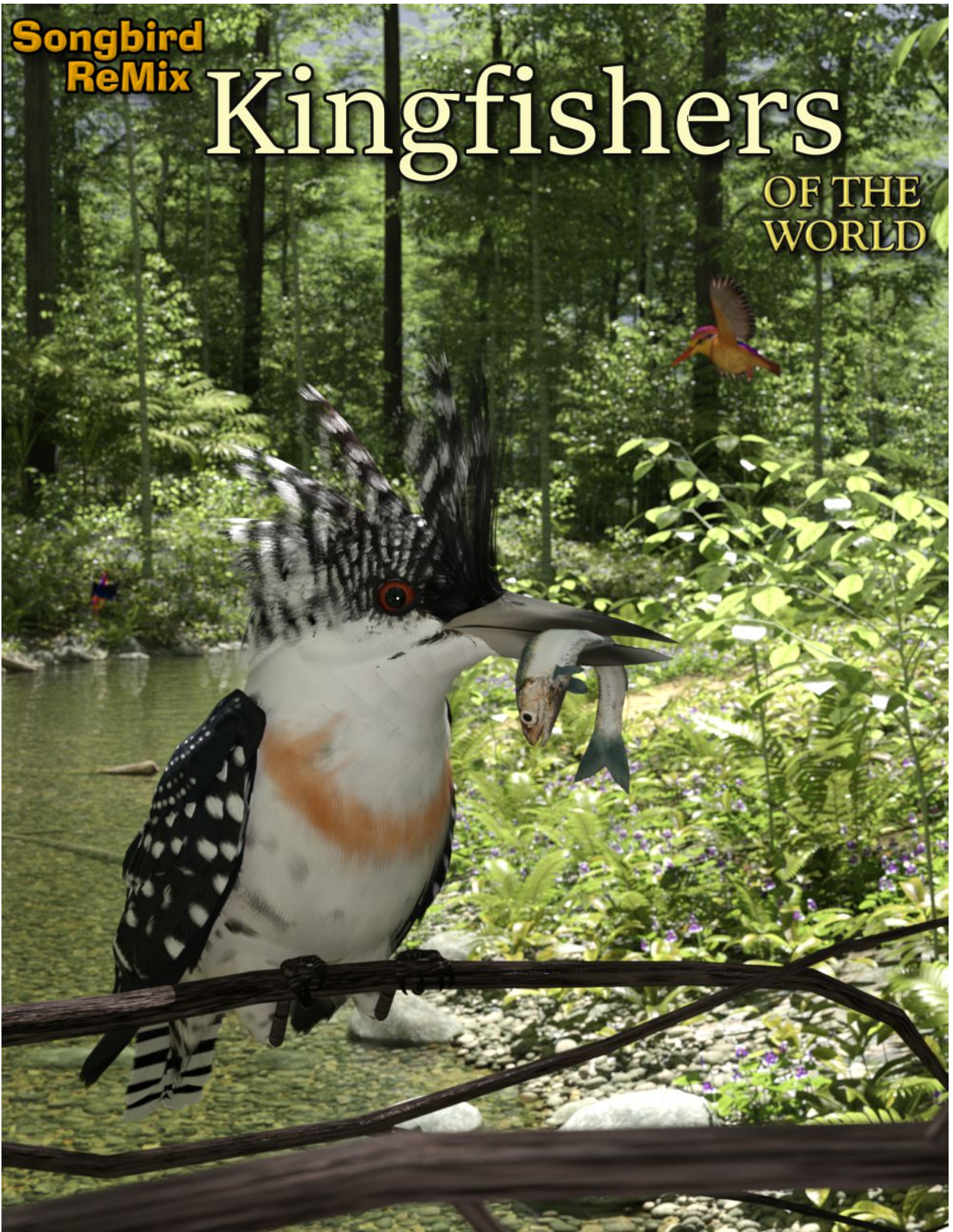


Songbird  
ReMix

# Kingfishers

OF THE  
WORLD



Avian Models for 3D Applications

Characters and Texture Mapping by Ken Gilliland

# Songbird ReMix

## Kingfishers of the World

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## Songbird ReMix

# Kingfishers of the World

## Introduction

Kingfishers are small to medium-sized, brightly colored birds in the order *Coraciiformes*. Most species found in the tropical regions of Africa, Asia, and Oceania, but also can be seen in Europe and the Americas. They can be found in deep forests near calm ponds and small rivers. The family contains 116 species and is divided into three subfamilies and 19 *genera*. The three subfamilies are **Tree Kingfishers** (*Halcyoninae*), **River Kingfishers** (*Alcedininae*), and **Water Kingfishers** (*Cerylinae*).

All kingfishers have large heads, long, sharp, pointed bills, short legs, and stubby tails. Most species have bright plumage with only small differences between the sexes.

They consume a wide range of prey usually caught by swooping down from a perch. While kingfishers are usually thought to live near rivers and eat fish, many species live away from water and eat small invertebrates. Like other members of their order, they nest in cavities, usually tunnels dug into the natural or artificial banks in the ground. Some kingfishers nest in ground and arboreal termite nests.

## Overview and Use

The set is located within the **Animals : Songbird ReMix** folder. Here is where you will find a number of folders, such as **Bird Library**, **Manuals** and **Resources** . Let's look at what is contained in these folders:

- **Bird Library:** This folder holds the actual species and poses for the "premade" birds. Birds are placed into a "type" folder (such as "Birds of Prey (Order Falconiformes)" which for example would hold falcons, hawks and eagles). The birds for this set can be found in the following folder(s):
  - **Kingfishers (Order Coraciiformes)**
    - **Kingfishers**
- **Manuals:** Contains a link to the online manual for the set.
- **Props:** Contains any props that might be included in the set
- **Resources:** Items in this folder are for creating and customizing your birds
  - **Bird Base Models:** This folder has the blank, untextured model(s) used in this set. These models are primarily for users who wish to experiment with poses or customize their own species of bird. When using physical renderers such as Iray and Superfly, SubD should be turned to at least "3".
  -

## Poser Use

Select **Figures** in the **Runtime** Folder and go to the **Animals : Songbird ReMix** folder. Select the bird from the renderer (*Firefly* or *Superfly*) folder you want and simply click it to load. Some birds in the Songbird ReMix series may load with attached parts (*Conformers*) such as tail or crest extensions. Some of these parts have specific morphs. You will need to click on the attached part to access those controls. Associated poses can be found in the same folder- **Bird Library : (Type) : Poses**.



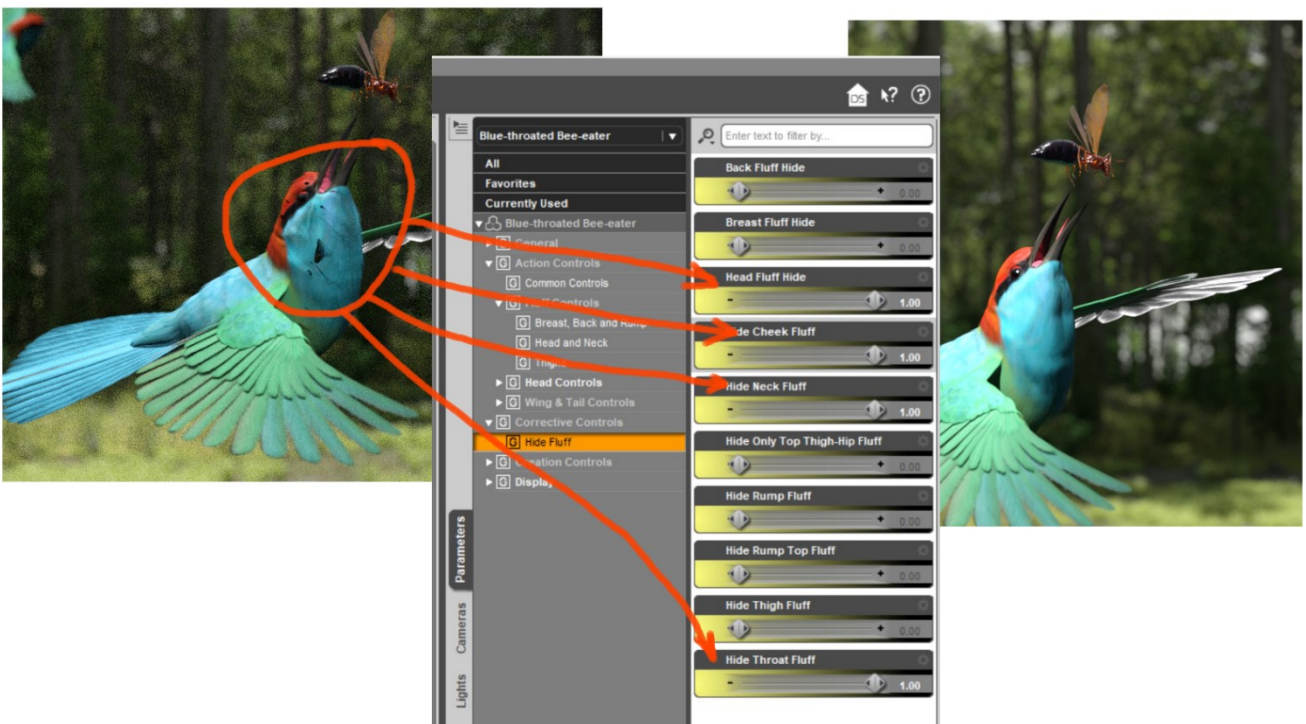
## DAZ Studio Use

Go to the **Animals : Songbird ReMix** folder. Select the bird from the renderer (*3Delight or Iray*) folder you want and simply click it to load. Some birds in the Songbird ReMix series may load with attached parts (*Conformers*) such as tail or crest extensions. Some of these parts have specific morphs. You will need to click on the attached part to access those controls. Associated poses can be found in the same folder- **Bird Library : (Type) : Poses**. **Note:** Using the "Apply this Character to the currently selected Figure(s)" option **will not** properly apply the correct scaling to the bird selected. It is better to delete the existing character first and load the one you want to use.

## Physical-based Rendering

**Iray** and **Superfly** requires more CPU and memory horsepower than the legacy renderers because of ray-trace bounces and higher resolution meshes needed for displacement. Poser's **Superfly** renderer will require that the "Min Transparent Bounces" be set to **at least 16** and that the "Max Transparent Bounces" be set to **at least 32** in render settings. Superfly renders may show artifacts in the head area. The higher the bounce settings, less chance those will be apparent. This is a known Poser issue and may be addressed in the future. Increasing the SubD may minimize this issue.

A good work around solution for Iray or Superfly artifacts is to **HIDE Fluff areas (Correction Controls)**.



## Posing & Shaping Considerations

This volume has various species, so when using generic poses not every pose will work perfectly with every bird. You may find that some minor alteration on the stock poses may be warranted.

Here are some of the most common alterations you may need to make:

- Birds will not be flat on the zero plane due to leg size and overall scale.

- Because of the numerous beak shapes, closing the beak may range from 0.5 to 1. Usually 0.8 is about right.
- **Raise Upper Beak** (*in Action Controls*): This morph is a “one size fits all” control. Because of the variety of beak shapes. It may not work with all birds.
- **Tongue poke-through** (especially when the beak is open). This can be easily solved by using the **Throat-Fuller1 & 2** morphs (*found in Creation Control/Head Shapes*).

**IK Concerns...** Some poses may go askew when IK is turned on. By default, Poser’s IK feature is turned off when loading a bird. To turn it on, select the “Figure” category from the main tool bar and “Use Inverse Kinematics” from the submenu.

By default, DAZ Studio’s IK feature is turned on when loading a bird. This will cause the thigh and shin rotations change when the character is moved. The **CTRL K** keypress will turn IK on and off in DAZ Studio. I usually just remove IK when working in DAZ Studio by selecting the character in the **Scene tab** and simply deleting the two IK body parts.

If you want to use IK in DAZ Studio, here’s how it works...

1. First, go to the Scene Tab, and select the “**IK-...: Left (or Right) Leg**”.
2. On the “Parameters” Tab, select “Inverse Kinematics”.
3. Turn off “Pin Translation” and “Pin Rotation” to pose the feet to a perch and then “ON” when posing the rest of the bird.

## Where to find your birds

Type Folder	Bird Species
<b>Kingfishers (Order Coraciiformes)</b> Kingfishers	<p><b>Water Kingfishers</b>            Crested Kingfisher            Green Kingfisher            Pied Kingfisher            Giant Kingfisher</p> <p><b>River Kingfishers</b>            African Pygmy Kingfisher            Common Kingfisher            Black-backed Dwarf Kingfisher            Javan Blue-banded Kingfisher</p> <p><b>Tree &amp; Wood Kingfishers</b>            Moustached Kingfisher            Woodland Kingfisher            Buff-breasted Paradise Kingfisher            Spangled Kookaburra</p>

## Where to find your poses

Type Folder	For what species?
<b>Kingfishers (Order Coraciiformes)</b> Kingfishers	All Kingfishers

## **Songbird ReMix**

# *Kingfishers of the World*

# **FIELD GUIDE**

### **Water Kingfishers**

Crested Kingfisher

Green Kingfisher

Pied Kingfisher

Giant Kingfisher

### **River Kingfishers**

African Pygmy Kingfisher

Common Kingfisher

Black-backed Dwarf Kingfisher

Javan Blue-banded Kingfisher

### **Tree & Wood Kingfishers**

Moustached Kingfisher

Woodland Kingfisher

Buff-breasted Paradise Kingfisher

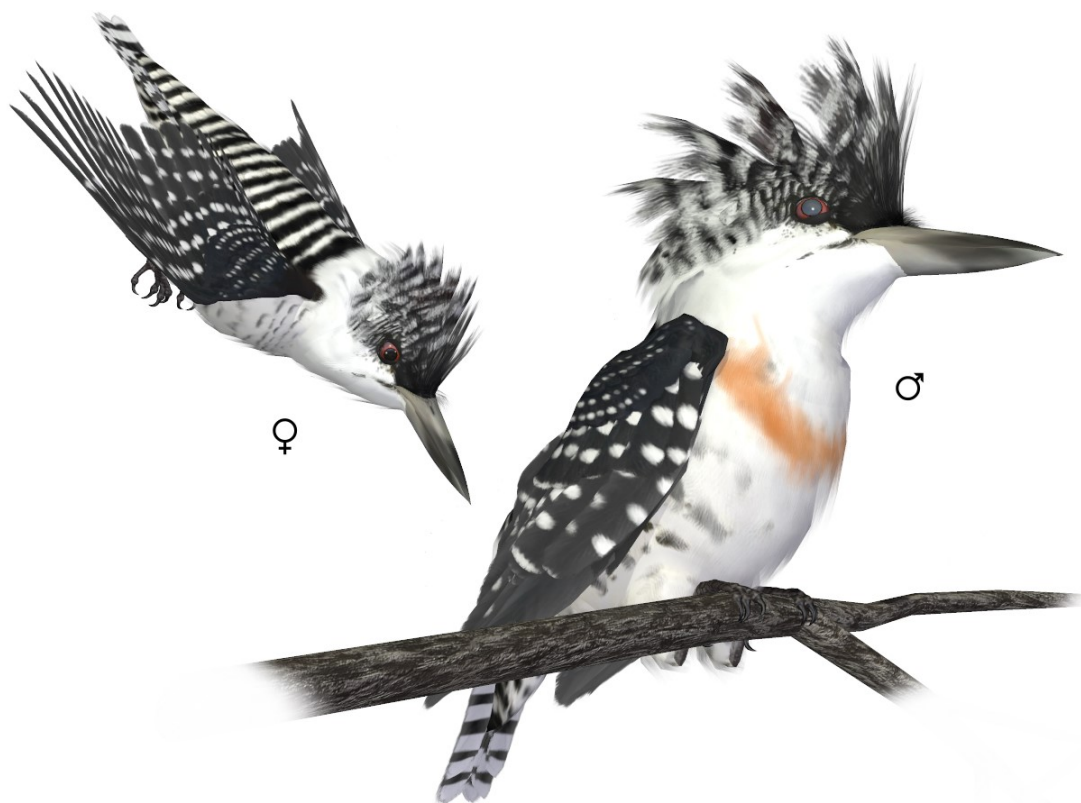
Spangled Kookaburra

**Common Name:** Crested Kingfisher  
**Scientific Name:** *Megaceryle lugubris*

**Size:** 15-17 inches (38–43 cm)

**Habitat:** Asia; it is native to parts of southern Asia, stretching eastwards from the Indian Subcontinent towards Japan.

The typical habitat is smaller, fast-flowing streams and rivers with rock or gravel base, in forested mountains and foothills. It is sometimes found at large rivers and river mouths, but avoids rivers with bare open banks. It is almost always present along turbulent rapids. In Myanmar, it can be found at elevations up to 2800 m.



**Status:** Least Concern. **Global population:** Unknown amount mature individuals with a declining population trend. It is widespread and common in some areas, but numbers have declined sharply during 20th century in Hokkaido, and also in Hong Kong, where no longer breeds in Lam Tsun Valley. Deforestation and human disturbance are likely causes of population declines. In Kashmir, has sometimes been shot for preying on trout. A decline has been noted in northeastern China. Declines have been linked to habitat destruction.

**Diet:** Fish (15–18 cm long) and crayfish.

It perches on an overhanging branch, partly submerged log or rock, occasionally bobbing head, raising crest and flicking tail, then dives obliquely into water for a fish. It favors stretches of river are fished repeatedly. Compared to Common Kingfisher (*Alcedo atthis*), at overlapping areas in Japan present species hunts at sites with faster flowing water, dives from a higher position, taking fish in deeper water and prefers bigger prey.

**Breeding:** A large kingfisher with long crest feathers. The adult male of the nominate race has white loreal spots (space between the bill and eyes). The long feathers on the forehead and crown are black-gray, spotted with white. When the crest is erect, there are two patches of shorter white feathers. It has a white-speckled black malar stripe and white collar. The upper parts are barred black and white and the tail is black with 6–8 white bars. It has white under parts, a black-speckled breast-band with some rufous-orange feathers mixed in and the flanks are barred with gray. The bill black, with the basal half a pale blue and the tip yellowish. The iris is dark brown and the legs and feet are a dark slate gray. The adult female is very close in appearance to the male, but there are no rufous feathers on the breast and it has some bright pink-cinnamon under the wing-coverts. The juvenile looks like the female, except the sides of neck, breast, flanks and under tail-coverts are washed with a pale rufous.

The nest is a burrow excavated into a vertical bank in a forest. It can be by a stream or a ravine or can be up to 1.5 km (0.93 mi) away from water. The burrow is dug by both sexes using their feet and bills. It is 10–15 cm (3.9–5.9 in) wide and 2–3 m (6 ft 7 in – 9 ft 10 in) in length. The clutch of 4-7 eggs is incubated only by the female. The nestlings are fed by both parents for around 40 days before they fledge.

**Cool Facts:** The Crested Kingfisher forms a species complex with the other three *Megaceryle* species.

There are four subspecies:

- *M. l. continentalis*. First reported by Hartert in 1900. This race is found in the foothills from northeastern Afghanistan eastern through Kashmir to western Bhutan. It looks like the nominate race.
- *M. l. guttulata*. First reported by Stejneger in 1892. It is endemic to central Bhutan eastward in the foothills to northeastern India and central, southern and northeastern China and (now rare) in North Korea, and southward to southern Myanmar, northwestern Thailand and central Vietnam. Race *guttulata* is smaller than the nominate (except in the western Himalayas). It has darker upper parts and breast; larger but fewer white spots in crest, back and wings.
- *M. l. pallida*. First reported by Momiyama in 1927. It is endemic to northern Japan (Hokkaido), and possibly also on the southern Kuril Islands. Race *pallida* has paler gray upper parts.
- *M. l. lugubris*. First reported by Temminck in 1834. The nominate subspecies is found in central and southern Japan (Honshu, Shikoku, Kyushu).

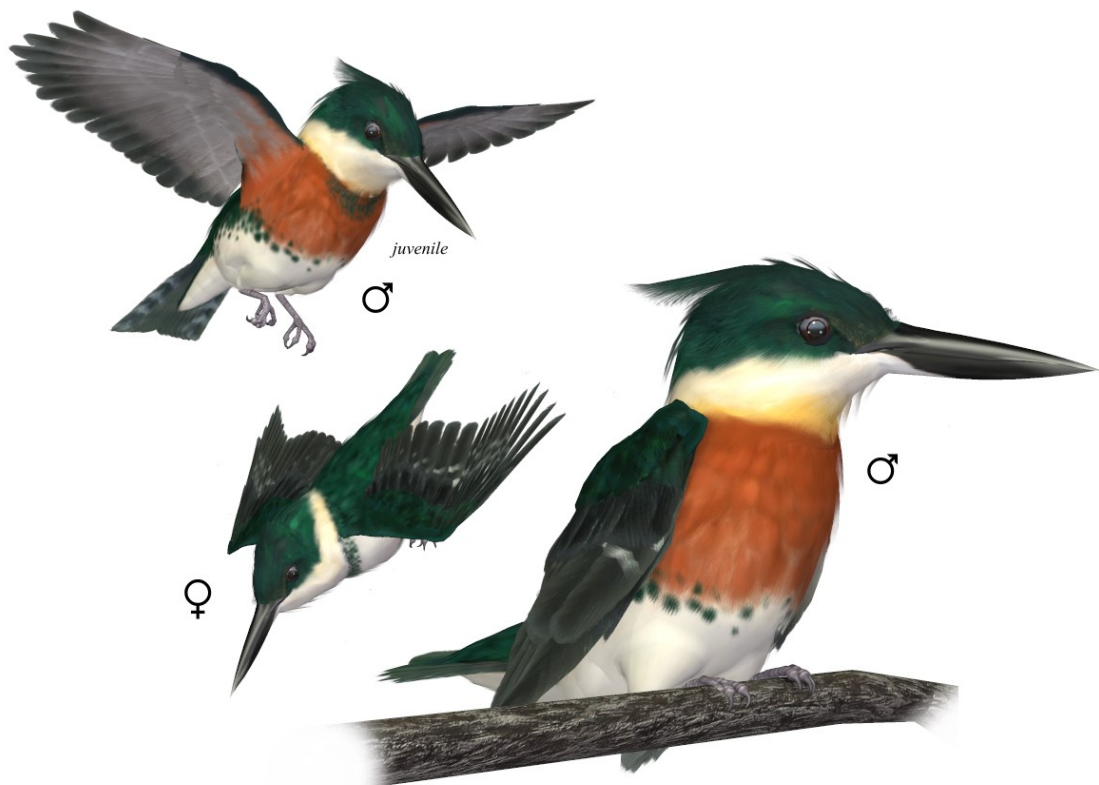


**Common Name:** Green Kingfisher  
**Scientific Name:** *Chloroceryle americana*

**Size:** 11.8 inches (30 cm)

**Habitat:** The Americas; it is widely distributed from the southern United States, where it is found only in south Texas and Arizona, southward through Middle America and South America, as far south as central Argentina. It has never abundant in the United States, the species suffered a decline in and around major cities in Texas in the late 1940s because of urban development—loss of waterways through damming and irrigation. Recent conservation efforts have yielded small increases in the U.S. population of the species. areas.

It frequents the wooded shorelines of streams, freshwater lakes, and ponds. The critical habitat requirement is slow-moving or still fresh water surrounded by low, brushy vegetation for hunting perches. In the United States, this kingfisher is exclusively a freshwater species. In Texas, clear-water rivers, streams, and brooks are preferred but it avoids muddy water.



Although water is always present in habitat, land type occupied varies, reflecting multiplicity of climates inhabited. In Oaxaca, Mexico, resides at edges of open water in Atlantic and Pacific regions, and in interior of state along rivers. In Amazon Basin, individuals found 90% of time in open habitats (59% at open shorelines, 31% at recessed pools) and the remaining 10% in shaded habitats. In Mexico, found in almost dry arroyos in semiarid coastal

plain of Tamaulipas, in flooded scrub forest in Alta Mira, and on very small to large streams in Sonora (but unlike Belted Kingfisher, does not typically use mangroves). In forest streams and mangrove swamps in Trinidad and Tobago, infrequently on the coast. In Suriname, wherever there is water near wooded area with perches; specifically, on rivers surrounded by forests, along forest creeks, and creeks running through coastal mangroves. In Rio Grande do Sul, Brazil, variety of watercourses, including those too small for larger kingfisher species.

**Status:** Least Concern. **Global population:** 20,000,000 mature individuals with a declining population trend. Severe alteration of the habitat in and around large urban areas in Texas (e.g. Austin and San Antonio) after World War II led to disappearance of the species in these places.

**Diet:** Small fishes; more rarely aquatic invertebrates.

It may hover 4–6 m above water surface briefly before diving headfirst into water, capturing prey in bill when it strikes. It will also hunt from a perch; diving from a perch on low twigs or emergent rocks. It will take prey up to 6 m away from its hunting perch.

They are either found alone or in pairs. When perched, it frequently raises its head and jerks its tail tip upward (but scientists are not clear why). It generally is solitary and during non-breeding season, mates appear to be intolerant of each other's presence.

**Breeding:** It is a small to medium-sized kingfisher with an oversized bill (appears disproportionately long and stout relative to body size) and without an obvious crest. The upper parts are green with white spotting ( $\geq 2$  rows of white spots visible on remiges) and the under parts are white with green spots on sides and flanks. The tail has extensive white markings on outer rectrices and the white is conspicuous when tail is spread (as in flight). The adult male has a white collar and rufous breast while the adult female has the white collar, a buffy throat and breast (lack the rufous coloring found in the male), and speckled green bands across breast and uppermost belly (latter bands are often incomplete). The juvenile resembles the adult female but is duller, with small buff spots on the crown and wing coverts.

In Central America, breeding season begins during the dry season (spring and early summer). In Guatemala and Honduras, they begin burrow digging in February, and in Panama, burrowing begins in January. A burrow, approximately 0.7–1 m long, 5 cm high, 5.5 cm wide, located along a river or stream and excavated in steep dirt banks. There is a small chamber at the end of the burrow, where the eggs are laid on the bare ground. Later, the nest area covered with hard surface of regurgitated fish scales and bones and remains of insects compacted by feet of the incubating parents. Both sexes incubate during the 19-21 day incubation period, although female incubates more than male. Both parents take turns incubating during the day; female generally incubates at night. First flight likely occurs 26–27 days after hatching.

**Cool Facts:** This kingfisher will fight over feeding territories. Fighting birds will lock bills and occasionally fall into the water, possibly floating downstream before releasing grip on each other.

There are five subspecies:

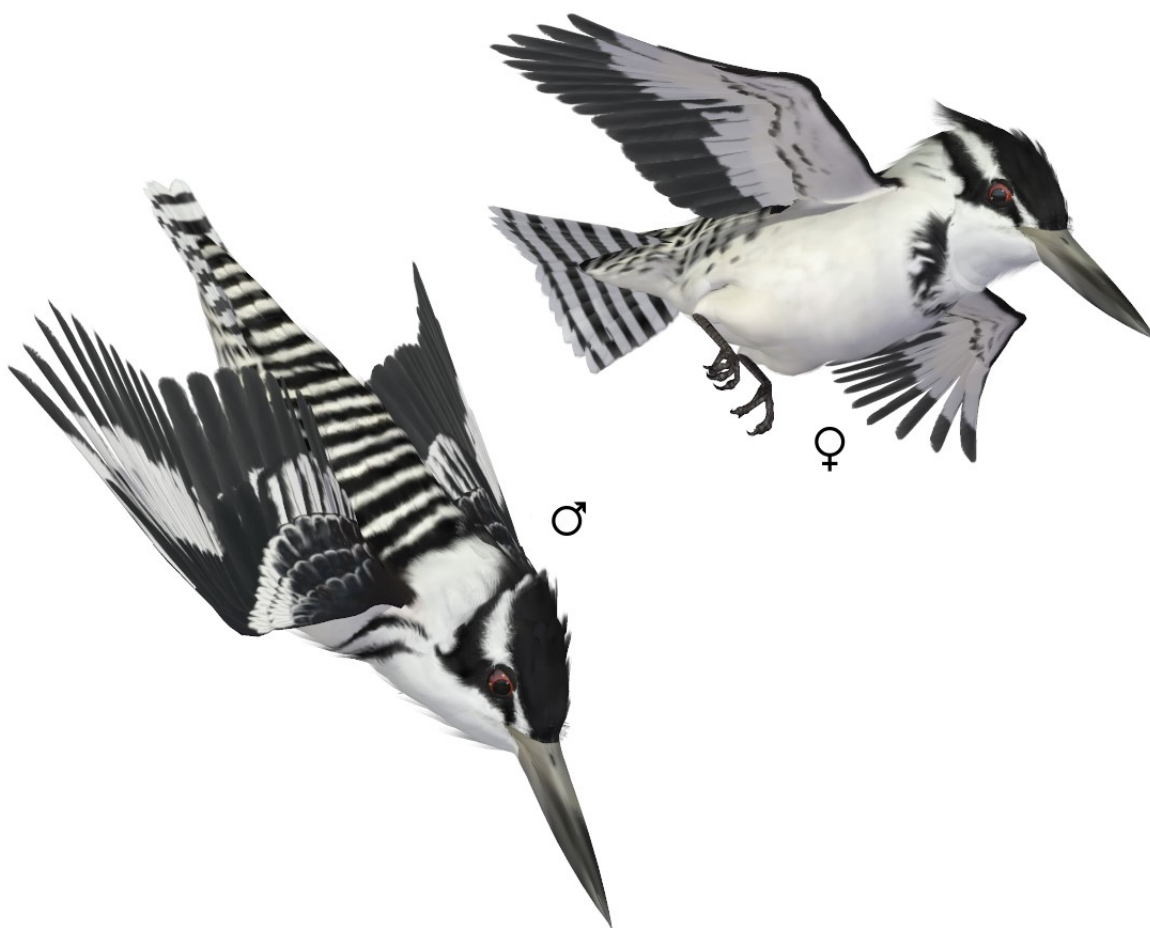
- *C. a. hachisukai*. First reported by Laubmann in 1941. It is a resident from southern Arizona and western Texas south through northwestern Mexico in Sonora, Sinaloa, Nayarit, western Durango, Chihuahua, and Coahuila. It differs from Race *septentrionalis* in having its upper parts more yellowish or brassy green. The wings and wing coverts have more extensive white markings and the forehead more extensively streaked with white. There is some overlap in these characteristics with Race *septentrionalis*.
- *C. a. septentrionalis*. First reported by Sharpe in 1892. It is a resident from south-central Texas and Mexico east and south of the range of Race *hachisukai* from Jalisco, Durango (except west), and Nuevo León south primarily in lowlands through Middle America to Colombia and western Venezuela. It differs from Race *hachisukai* in having white markings less extensive (e.g., white spots on lesser coverts absent or restricted to some but not all feathers), white streaking on the forehead with green mottling and usually not extending to the area above the eyes. The green of the upper parts do not have a yellowish or bronzy tinge.
- *C. a. americana*. First reported by Gmelin in 1788. The nominate subspecies is found in northern South America, east of the Andes from Venezuela and Trinidad and Tobago southward to northeastern Bolivia and across northern Brazil (Roraima, Amazonas, Pará, and Bahia). Birds found on Trinidad and Tobago have slightly heavier bill.
- *C. a. cabanisii*. First reported by Tschudi in 1846. It is a resident from western Colombia southward, west of the Andes, through western Ecuador and Peru to northern Chile. It intergrades with the nominate race in Ecuador and Colombia. It is large (longer wing, tail, and bill) than the nominate with bold white markings in the wings and relatively unmarked lower flanks and under tail coverts.
- *C. a. mathewsii*. First reported by Laubmann in 1927. It is endemic to southern Brazil and southern Bolivia southward, east of the Andes, to northern Argentina (Mendoza and Buenos Aires). It is smaller than the nominate race with lighter green upper parts and less pronounced breast-band in the female.

**Common Name:** Pied Kingfisher  
**Scientific Name:** *Ceryle rudis*

**Size:** 9.8-12 inches (25–30.5 cm)

**Habitat:** Africa and Asia; it is found in sub-Saharan Africa, extending into West Asia; Afghanistan east into India, Thailand and Southeast Asia, the Western Ghats and in Hainan and southeastern China.

It prefers small and large lakes, large rivers, estuaries, coastal lagoons, mangroves and sandy and rocky coasts, dams and reservoirs with either fresh or brackish water. It is also seen at streams and smaller fast-flowing rivers, marshes and paddy fields, and even feeding from roadside ditches. It requires waterside perches such as trees, reeds, fences, posts, huts and other man-



made objects. Areas such as large papyrus swamps in Uganda and the center of open floodplains in Zambia are avoided (muddier waters). It is found from the coast to 2500 m in Rwanda, and the coast to 1800 m in India.

**Status:** Least Concern. **Global population:** Unknown amount of mature individuals with a suspected declining population trend. Numbers have increased with the introduction of fish-stocking and fish-farming in several areas, and populations increased at Kampala, Uganda, by using sandpits for nesting. It has probably benefited from the construction of dams in many



areas. Decreases in populations have been reported from parts of Syria, Israel and Egypt. In Botswana, it survived the spraying of endosulphan to control tsetse flies, but elsewhere has been badly affected by the use of poisons to kill fish and Red-billed Quelea finches (*Quelea quelea*). The use of pesticides in sugar-growing areas of southeastern Zimbabwe may have led to widespread decline.

**Diet:** Fish (preferred size range of fish 25–60 mm). Aquatic insects may supplement this, such as dragonflies, alate termites, grasshoppers, water beetles, water scorpions, water-bugs, frogs, tadpoles and mollusks.

It hunts by scanning from its perch, bobbing its head and flicking its tail, and then diving down, hitting water with a splash, returning with prey carried crosswise in its bill. Small fish may be swallowed in flight; larger ones (over 55 mm) taken back to perch and bashed repeatedly (up to 113 times for a 9-cm Tilapia), before being swallowed head first.

Also it regularly hovers in flight, before plunging down to take prey in water.

**Breeding:** A medium-sized kingfisher with black and white plumage. The adult male in the nominate race has a black crown and crest, a white stripe above eye, a black eye-band that wraps to the hind-neck, a white throat and collar. The black upper parts have white edgings and the rump is barred black and white. There is a white patch on wing-coverts. There is white below with two black breast-bands; the upper is broad and often almost broken in the middle while the lower one is much narrower. The bill almost entirely black. The iris is dark brown and the legs and feet blackish. The adult female only has a single breast-band which is narrower and often broken in center. Juveniles appear like the female, but have a brown fringe to feathers on the lores, chin, throat and breast.

It breeds in pairs, or in family groups consisting of primary helpers (1-year-old son of one or both of nesting pair). A burrow, approximately 1–2.5 m long, located along a river or stream and excavated in steep dirt banks. There is a small chamber at the end of the burrow, where the eggs are laid on the bare ground. A clutch of 4-5 eggs is laid. Nestlings fledge at 23–26 days, and 14 days later can fish for themselves, but stay with parents for several months.

**Cool Facts:** The pied kingfisher is the only member of the genus *Ceryle*.

There are four subspecies:

- *C. r. rudis*. First reported by Linnaeus by 1758. The nominate race is found in central and southern Turkey and Israel to Syria, Iraq and southwestern Iran. It is also found in northern Egypt and the Nile Valley, and sub-Saharan Africa (except arid regions).
- *C. r. leucomelanurus*. First reported by Reichenbach by 1851. It is found in northeastern Afghanistan, western Pakistan and India (except in the southwest) southward to Sri Lanka, and eastward to Thailand and Indochina. It has blacker upper parts, black spots on the flanks and sides of the throat.

- *C. r. travancoreensis*. First reported by Whistler by 1935. This race is found in southwestern India (from northern Kerala southward to Cape Comorin). It is similar to Race *leucomelanurus* but has even blacker upper parts, more black spots on the flanks and the sides of the throat, and a longer bill.
- *C. r. insignis*. First reported by Hartert by 1910. It is endemic to southeastern China, including Hainan. It is very similar to Race *leucomelanurus* but has a longer bill.

**Common Name:** Giant Kingfisher  
**Scientific Name:** *Megaceryle maxima*

**Size:** 16.5–18 inches (42–46 cm)

**Habitat:** Africa; it is a resident breeding bird over most of the continent south of the Sahara Desert, other than the arid southwest.

It is seen near large perennial rivers, dams and lakes with plenty of marginal woody growth. It is almost found in forested and savanna regions, as well as coastal lagoons, mangroves, estuaries, rocky and sandy seashores, sometimes seen fishing up to 100 m from shore. Occasionally it can be seen spotted near stagnant pools along dried-up rivers and near rapids, in flooded woodlands, drainage channels and garden fish ponds. It will frequent elevations up to 1600 m in Tanzania.

**Status:** Least Concern. **Global population:** Unknown amount of mature



individuals with a declining population trend. It may suffer from pesticides draining into rivers from adjoining farmland. It is regarded as a pest and shot at some trout hatcheries.

**Diet:** Mainly fish (*Cichlidae*, *Serranidae*) in Zaire and Zimbabwe, and river crabs in Liberia and South Africa. It will also

go after frogs, clawed toads and occasionally centipedes, small reptiles and insects. Newly fledged young are fed fish up to 18 cm long.

It scans for prey from overhanging branch or sheltered rock. When prey is spotted, it dives in with a steep or shallow dive, usually immersing completely. It only occasionally will hover above open water. Small crabs are eaten whole and larger ones are hit on perch with swinging movements to left and right until pincers and carapace are removed, before being swallowed. Fish usually swallowed head first, occasionally tail first. After a successful capture, it will fly to a new feeding perch, moving 2–5 times an hour. In South Africa, they are

most active in morning, late afternoon and evening, which coincided with the activity patterns of the crabs. After fishing in the sea, it dives in fresh water to clean itself.

**Breeding:** The adult male of nominate race has a black forehead, crown and hind neck with small white spots on the crown. It has black lores and ear-coverts with a small white loreal spot. The back is black with white spots. The tail is black with 6–8 narrow white bars. It has a white chin and throat, a black malar stripe, a breast that is a rich coppery-brown, and the belly is white with large irregular dusky bars. The bill is black and the iris is a dark brown. The legs and feet are gray. The female resembles the male, but its breast is black or densely spotted black and its belly, flanks, under tail and under wing-coverts are all a rich copper-brown. The juvenile male has black speckles on the sides of its breast, with some rufous on the flanks, while the juvenile female is less densely spotted on its breast with some rufous fringing. There is a white band between breast and belly.

Egg laying begins in November through February in Senegambia, in March in Mali, in December and January in Liberia, in December in Cameroon, in January through March in Zaire, in August in Ethiopia, in May–October in East Africa; in March through April and then again in June through August in Zambia, in August–March in Zimbabwe, and in September to January in South Africa.

Kingfishers are monogamous, solitary breeders. The burrow nest located in bank of a river, cliff, sand quarry or dam spillway. The entrance may be concealed behind overhanging vegetation and the tunnel dug over seven days by both sexes, using initially bill and then bill and feet to move loosened soil back. Both sexes incubate, with change-overs happening three to four times a day. The first two chicks hatch together, and the third/fourth one to two days later. The male removes the eggshells, drops them on water and dived to sink them. Chicks fledge after about 35-40 day. Fledglings start diving within a few hours after their first flight, but females will still feed them up to three weeks after that.

**Cool Facts:** It is the largest kingfisher in Africa.

There are two subspecies:

- *M. m. maxima*. First reported by Pallas in 1769. The nominate race is found in open areas from Senegambia eastward to western Ethiopia and southern Kenya, and southward to southern Angola, northern Botswana, and South Africa (mainly in the eastern half, south to Cape Town and southwest, and also the Orange River).
- *M. m. gigantea*. First reported by Swainson in 1837. This race frequents forests from Liberia to southern Nigeria, then eastward to western Tanzania and south to northern Angola. It has also been seen in Bioko. This race is darker with less spotting on the upper parts and heavier barring on the under parts.



**Common Name:** African Pygmy Kingfisher  
**Scientific Name:** *Ispidina picta*

**Size:** 4.7 inches (12 cm)

**Habitat:** Africa; it is distributed widely in Africa south of the Sahara, where it is a common resident and intra-African migrant. It is absent from much of the horn of Africa, and also the drier western regions of Southern Africa.

It is found in thick evergreen forest, riverine forest and swamp-forest, woodland, thickets and trees in dry thornveld and grassland, plantations, arable and pasture land, and large gardens. In Angola and East Africa, resident race (*ferrugineus*) is found in forests, while the migratory race (*natalensis*) is more often found in *Brachystegia* woodland.

**Status:** Least Concern. **Global population:** unknown amount of mature individuals with a declining population trend. It has a wide distribution, and found in a range of habitats. Many are killed in Zimbabwe and South Africa by hitting buildings while migrating at night; more than 20 were killed on one night in Durban. This species has bred successfully in captivity.



**Diet:** Insects; including grasshopper, moths and caterpillars, flies, beetles, spiders, small millipedes, and pill bugs. It will also take some aquatic invertebrates, and small frogs and lizards.

It sits on a low perch about 1 m from ground, scanning for prey, with occasional head-bobbing or tail-flicking. It can take prey in flight, from the

ground or from the surface of water, and then returns to perch, where prey beaten on the branch before being swallowed head first. Sometimes, it may follow columns of driver ants to catch fleeing insects.

**Breeding:** Both sexes are alike. In the nominate adult, have black crowns with glossy blue tips. They have rufous eyebrows and hindnecks with a distinctive lilac wash on the sides of the head. It has a dark purple-blue mantle, back and rump. The wing-coverts are black and blue, while the flight-feathers are mostly black. The tail is also black. The chin and throat are white, with the remaining under parts a rufous tone. The iris is dark brown and the bill, legs and feet are an orange-red. The juvenile is duller, with the blues paler, dusky barring on the breast, and the black bill with yellowish tip.

It lays eggs in September through November in Mauritania and Mali, and in March through October in the southern parts of western Africa. Egg laying occurs in January, March through June and October-November in East Africa; in January through March and August through October in Zaire and Angola; in October to December, occasionally to March, in South Africa. Several broods can be raised in a season.

It nests solitary or in semi-colonial group with more than 20 nests. The nest-tunnel is about 30–60 cm long, dug by the pair into a streambank, erosion gully, termite nest or the side of aardvark burrow. There is a clutch of about three to six eggs. Both sexes incubate and both feed the young. The incubation period is about 18 days, and the young are fed about 8 times per hour. They fledged after 18 days and are independent 5 days later.

**Cool Facts:** There are three subspecies:

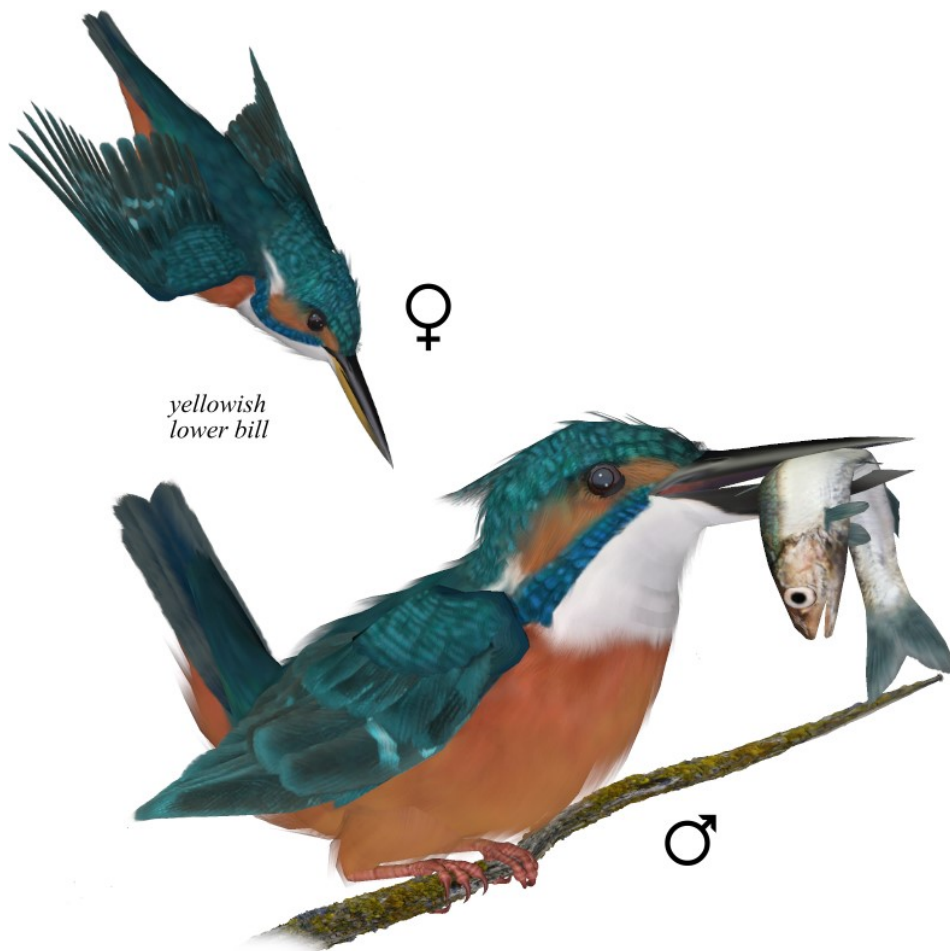
- *I. p. picta*. First reported by Boddaert by 1783. The nominate race is endemic to Senegal eastward to Eritrea, southward to Uganda and Pemba Island (possibly); breeding populations north of 12–13° North are migratory.
- *I. p. ferrugina*. First reported by Clancey by 1984. This race is found in Guinea-Bissau eastward to western Uganda, south to central Angola, northwestern Zambia and northern Tanzania. Race *ferrugina* is darker than nominate.
- *I. p. natalensis*. First reported by A. Smith by 1823. It is found in southern Angola across to central and eastern Tanzania, including Pemba Island (possibly) and Zanzibar, and south to eastern Botswana and northern and eastern South Africa; some migration north to the eastern portion of the Democratic Republic of the Congo, Uganda, Kenya and South Sudan. This race has a broader orange eyebrow and a blue spot on side of neck.

**Common Name:** Common Kingfisher  
**Scientific Name:** *Alcedo atthis*

**Size:** 6.3-7 inches (16-18 cm)

**Habitat:** Eurasia and Africa; widely distributed over Europe, Asia, and North Africa, mainly south of 60°N.

It prefers still or gently flowing water with plentiful small fish, and with reeds, rushes or shrubs on the banks for perches. Streams, small rivers, canals and ditches preferred to open water bodies such as lakes, ponds and flooded gravel pits. Suitable banks for nesting are required in breeding season, but nest-sites can be over 250 m from foraging waters. In winter, this species becomes more coastal, frequenting estuaries, harbors and rocky seashores. In tropical regions, it is found in the lower reaches of rivers, often with densely vegetated banks, in creeks in mangroves, at swamps and wet grasslands, and in large gardens. In the eastern parts of its range, it comes into contact with several other similar species, which may restrict its habitat selection.



**Status:** Least Concern. **Global population:** 600,000 mature individuals with a declining population trend (decreasing by 30-49% in 13.2 years). It is widely distributed and common in many regions, but sensitive to river pollution and

river management. Populations in western Europe estimated to be 10,000–15,000 pairs, and in whole of Europe 100,000 pairs-- twice that number are estimated for Asia and Melanesia. Populations have increased in Sweden and Denmark in 20th century, but elsewhere in Europe, it is noticeably declining due to river pollution. Monitoring Kingfishers from 1963 to 1989 in Britain has shown significant levels of organochlorine pesticides (HEOD, DDE), polychlorinated biphenyls (PCB's) and mercury in their livers. These levels, since then appear to be declining as pollution safeguards are enforced. Northern populations have been greatly reduced in hard winters, which make climate change (severe weather) a concern. Locally, it is persecuted by humans to protect fish stocks.

**Diet:** Mostly fish; including minnows, sticklebacks, bullhead, roach, barbel, grayling, trout, dace and chub, perch, young pike, loach, carp, gudgeon, ruffe, bleak, nase, and many other species up to 125 mm long. It also takes aquatic insects, including water-bugs, water beetles, dragonfly nymphs and occasionally adults, mayflies, lacewings, stoneflies, caddis flies, butterflies and moths, amphibians, crayfish, prawns, shrimps and isopods in winter. It occasionally will feed on berries and stems of reeds. It has been found to consume 50–60% of its body mass daily, requiring around 38 successful dives.

It perches for long periods, usually 1–2 m above the water, periodically turning around and bobbing head and body to gauge distance when food sighted. It dives steeply and catches prey below water to maximum depth of 1 m. Using its buoyancy and flapping the wings, it rises through water bill first and flies back to its perch, where the fish is held near the tail. It is beaten against perch several times, then positioned lengthways in bill and swallowed head first. Larger prey are given longer and more thorough beating, held by tail and head battered against perch. Prey sometimes become impaled on thorns or wire during beating and may be left. Sometimes, it takes prey from water surface, and where no perches available will hover before diving.

**Breeding:** The nominate race male has a rufous loreal spot, black eye stripe, rufous ear-coverts, white neck stripe. The crown and malar stripe are barred blue and black. The upper parts and tail are a brilliant azure-blue, with the wings a dark greenish-blue with paler blue spots. The chin and throat are white and the under parts are rufous. The bill is black and the gape red. The iris is dark brown and the legs and feet are an orange-red. Distinguished from similar small *Alcedo* species by rufous ear-coverts. The female is similar to the male, but the lower mandible is orange-red with a black tip. Juvenile appear duller and greener than adults. They are paler below, with dusky barring on the breast, a whitish tip on the bill and black legs and feet.

Breeding season begins in March through July in Britain, mainly May in Sweden; in March through May in Morocco and Iraq; in April through July in Kashmir, in March through June in northern and central India, in March through April in southern India, and in November to June in Sri Lanka.



Normally, it will have 1 or 2 broods (occasionally 3 or 4) reared successively. It is a monogamous (although there is a record of polygamy in Sweden). It is a solitary breeder. Resident birds pair in autumn but retain separate territories of about 1 km until spring. When they come together in the spring, territories are defended by calling in flight and by displaying from perch, where they sit quietly, crouches and stretches, swaying body from side to side, or sits very upright with neck outstretched, bill agape and wings drooping, before chasing off an intruder. Male courtship involves mate feeding. The nest is constructed usually in sandy, stone-free stream-side bank, quarry, sandpit, peat cutting or earth bank. Occasionally, it can be located in a hole in wall, rotten tree stump, concrete tunnel in canal bank, terrestrial termitarium, or burrow of Sand Martin or water vole. Both sexes excavate, taking 7–12 days. The nest tunnel is straight, inclined to up to 30°, usually 50–90 cm long.

The female lays a clutch 3–10 eggs. Both sexes incubate during day, but only female at night, often 1–2 eggs fail to hatch from the parents inability to cover them. Incubating bird sits motionless, facing tunnel, generally produces a pellet, which is broken up with the bill. The incubation period is 19–21 days, starting with the laying of the last egg. Both adults feed the young, initially bringing small fish 1–2 cm long, later larger fish. Chicks up to 10 days old given fish up to 3 cm long in nest-chamber, while older chicks fed fish 5–8 cm long in nest-tunnel. Each chick is fed every 15–50 minutes, with the younger feed more frequently. The fledging period lasts 23–27 days or more. About 4 days after leaving nest, juveniles start making their first dives, sometimes becoming waterlogged and drowning, but those who do survive soon become independent and are driven from breeding territory by adults. The female sometimes lays second clutch in adjacent nest-hole before previous brood fledged, and final brood may revert to original nest-hole.

**Cool Facts:** Several times each day, kingfishers regurgitates a small pellet of indigestible fish bones and insect parts.

There are seven subspecies in two groups:

#### The Atthis Group

- *A. a. atthis*. First reported by Linnaeus in 1758. The nominate race is found in northwestern Africa and southern and eastern Spain eastward to Bulgaria, Afghanistan and northwestern India, then northward to central Siberia and northwestern China. It winters southward to Egypt, northeastern Sudan, Oman and Pakistan.
- *A. a. ispida*. First reported by Linnaeus in 1758. This subspecies is found in southern Norway, the British Isles and Spain (except in the south and east) eastward to western Russia and Romania. It winters Southward to southern Portugal, northern Africa, Cyprus and Iraq. It is slightly larger, with a bluer crown and darker rufous under parts, when compared to the nominate race.
- *A. a. bengalensis*. First reported by Gmelin in 1788. It is found in central India eastward to southeastern Asia, southern and eastern China (including Hainan providence), northward to southeastern Siberia, eastern Mongolia and Japan. It winters to the south in the Greater Sundas,

northern Sulawesi, Sula Islands, northern Moluccas and the Philippines. It is smaller and brighter than the nominate race.

- *A. a. taprobana*. First reported by Kleinschmidt in 1894. This race is found in southern India (south of the Godavari River) and in Sri Lanka. It is similar in size to race *bengalensis* with the upper parts being bright blue, not green-blue.
- *A. a. floresiana*. First reported by Sharpe in 1892. It is found in Bali and the Lesser Sundas eastward to Wetar and Timor. It has darker blues on the upper parts, some blue feathers on rufous ear-coverts.

#### The Cobalt-eared Group

- *A. a. hispidoides*. First reported by Lesson in 1837. This race is endemic to Sulawesi, the Moluccas and western Papuan Islands, and coastal eastern New Guinea from the Sepik river and Aroa river to Bismarck Archipelago, the D'Entrecasteaux Islands and Louisiade Archipelago. The ear-coverts are blue, with purple tinges on the hind neck and rump.
- *A. a. salomonensis*. First reported by Rothschild and Hartert in 1905. It is found on Nissan Island (off the eastern Bismarcks), and the Solomon Islands from Buka and Bougainvillea southeastern to Makira (San Cristobal). The ear-coverts are blue, with more extensive purple-blue upper parts.

**Common Name:** Black-backed Dwarf Kingfisher  
**Scientific Name:** *Ceyx erithaca*

**Size:** 4.9-5.5 inches (12.5-14 cm)

**Habitat:** Asia; endemic across much of the Indian Subcontinent and Southeast Asia. Populations have been found in Bangladesh, Bhutan, Brunei, Cambodia, China, India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Sri Lanka and Vietnam.

It is most commonly found in deciduous and evergreen primary and secondary forests, but also in alluvial forests, mangroves, overgrown rubber gardens, or in dense aggregations of palms, bamboos, or shrubs. They tend to keep near forest streams and ponds, but their nests are often well away from water.

They keep low to the ground and are known to perch and fly within 1-2 m of the forest floor. Their preferred habitat is densely shaded forest lowlands near small streams or ponds. The lowlands they are present in typically do not exceed 1000-1300m in elevation.



**Status:** Least Concern. **Global population:** Unknown amount of mature individuals with a declining population trend. It is widely distributed, but in the northern parts of the range, it is often reported as scarce. This scarcity could be due to the species being overlooked, and/or a result of its movement patterns. The main threat being faced is the clearing of their forest habitat. Population levels are likely to decrease due to the continued loss of critical breeding habitats due to human activities.

**Diet:** Primarily insects, including mantises, grasshoppers, flies, water beetles, winged ants, mayflies. They will also prey upon spiders, worms, small crabs, small fish, small frogs and small lizards.

Its forages solitarily and perches in low vegetation or on rocks before flying out to capture prey from the ground or from among foliage. They can take spiders from their webs and catch insects in flight. They can also dive into water for prey at or just below the surface, without submerging themselves. Larger prey are typically brought back to a perch, where the bird will strike it repeatedly with its beak before swallowing.

**Breeding:** The two sexes are otherwise alike and sexual dimorphism is not present. Both males and females have a black spot on the forehead, blue and white patches on the sides of the neck. It has a lilac-rufous crown, rump, and tail. It has a dark blue back and wings, a white chin and throat and pale yellow-orange underparts. Its iris is dark brown and the legs, feet, and bill are red. Juveniles are duller and have less lilac coloring, a white chin, throat and belly, a yellow-orange bill with pale tip and blue scapulars and wing-coverts.

This species of kingfisher has three toes, explaining why it is sometimes called the “three-toed kingfisher”, however, there are other kingfishers which also have three toes. The toe-count in these kingfisher species does not appear to be adaptive.

Egg laying occurs from July to September in southwest India, February to July in Sri Lanka, April to May in northeast India, March to July in peninsular Malaysia, March in Sumatra, and from December to May in Java. Nests are built in stream banks, road cuttings, terrestrial termitariums, or in soil near roots of a fallen tree, often well away from water. Together, the male and female excavate a horizontal tunnel that is 15–100 cm long, 3.8-4.5 cm in diameter, and ends in an unlined egg chamber. The unlined chamber is 10–15 cm wide and 5–7 cm high. Both the tunnel and egg chamber are inclined upwards, which is thought to minimize water entry into the chamber and to help the flow of waste material out of the nest. A typical clutch size is 3-7 eggs, averaging to around 5 eggs per clutch. The eggs are laid in the morning with a one day interval in between. Incubation begins after the final egg is laid and the incubation period lasts 17–18 days. Both the male and female incubate the eggs, however, the female has a larger role in the incubation period because she is responsible for incubating the eggs at night. The fledging period is 18–20 days and chicks typically fledge out in the morning.

**Cool Facts:** It is one of the smallest known kingfisher species, no larger than a hummingbird.

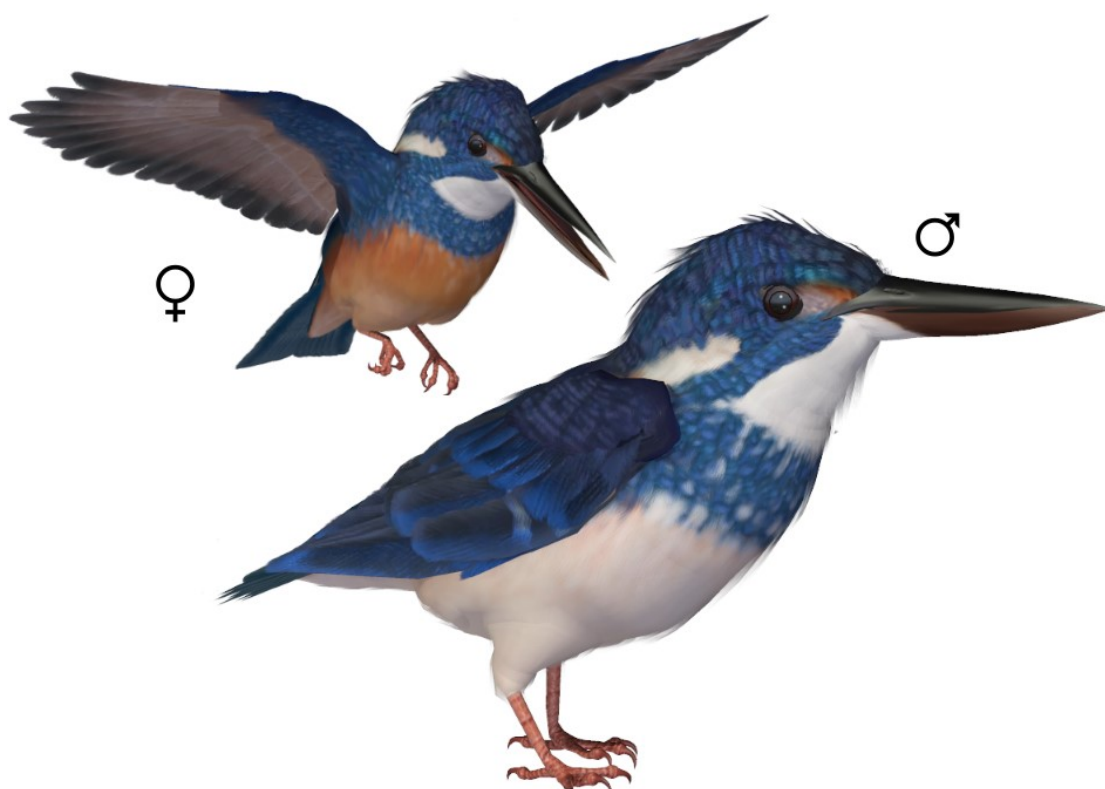


**Common Name:** Javan Blue-banded Kingfisher  
**Scientific Name:** *Alcedo euryzona*

**Size:** 7.9 inches (20 cm)

**Habitat:** Asia; endemic to Java (Indonesia). It may have already been extirpated from the eastern part of Java, Indonesia, where there are no confirmed records since the last specimen was collected in 1937.

It inhabits rocky, flowing streams and rivers in evergreen and semi-evergreen forests. It generally prefers mid-sized, secluded slow-flowing permanent streams in primary and tall secondary forests with banks covered with trees and natural vegetation. Most sightings of this kingfisher have occurred around 100 m elevation.



**Status:** **Critically Endangered.** **Global population:** 50–240 mature individuals with a declining population trend. This species is very rare, with Gunung Halimun–Salak National Park being the only confirmed site where the species has been recorded in recent years. The species is in continuing population decline as a result of habitat loss throughout its range due to logging, conversion to other land-uses (particularly palm oil and rubber plantations), and fires. Deliberate targeting of remaining stands of valuable timber has taken place even inside protected areas. The situation has been worsened due to the rapidly-growing human population and the inevitable intense pressure it will put on the natural resources of the region

**Diet:** Predominantly fish, with relatively small fish such as *Rasbora* being the main prey. Other prey taken includes small reptiles, insects and larvae, and crustaceans (particularly shrimp).

It catches small fish by plunge-diving. Prey items are firmly secured in the bill and stunned with blows on a perch or rock, before being swallowed whole, head first.

It is shy and secretive; usually seen on a low stream-side perch or in flight just above the water surface along the stream with its bright shining pale blue back conspicuous. It frequently moves from perch to perch.

**Breeding:** Adults have a combination of a broad blue breast-band, white throat, extensive white neck-flash connecting with narrow, rufous-tinged hind collar. Their crown, wing, and upper tail coverts are a blackish blue, with fine, bright blue or buff speckling on the crown and scapulars. The back is a pale silvery blue, contrasting with the rest of the upper parts. The species is sexually dimorphic with sexes differing in the coloration of under parts. It is whitish in the male and rufous in the female. Malar stripe is a brighter blue than the crown in both sexes and may be interspersed with rufous in the females. Females also have a more extensive rufous loreal area, and a duller, more brownish-tinged wing and head.

Breeding has been recorded from March to June and nests are usually situated along the bank of small streams in dense forests.

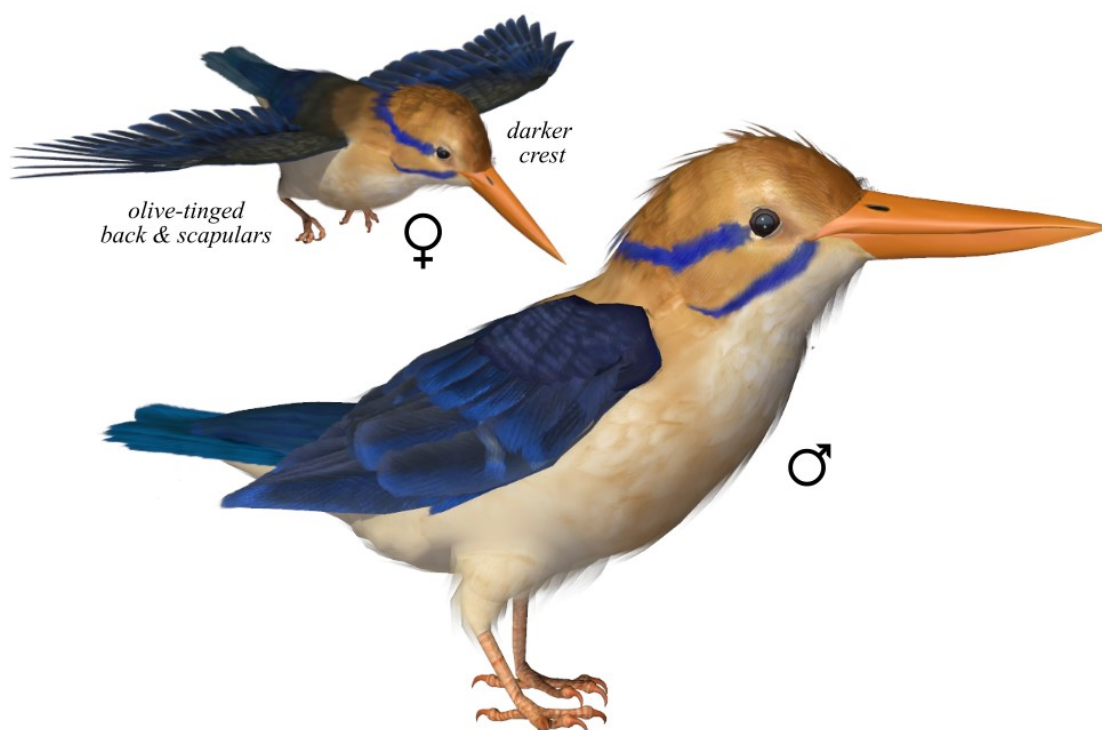
**Cool Facts:** The Javan Blue-banded Kingfisher is unmistakable in good views. It can be confused with the smaller Common Kingfisher (*Alcedo atthis*) and Blue-eared Kingfisher (*Alcedo meninting*) which share the rufous under parts of female, but both species lack the distinctive blue breast-band and have brighter upper parts coloration. The Small Blue Kingfisher (*Alcedo coerulescens*), also known as Cerulean Kingfisher, has broad blue breast-band against white under parts resembling the male, but it is smaller-sized with the wing and head being much paler blue. The much less aquatic Rufous-collared Kingfisher (*Actenoides concretus*) is distinguished in having a complete orange nuchal collar, a yellowish bill, the lack of the blue breast-band and white neck-flash.

**Common Name:** Moustached Kingfisher  
**Scientific Name:** *Actenoides bougainvillei*

**Size:** 10.6-12.6 inches (27–32 cm)

**Habitat:** Oceania; endemic to the islands of Bougainville (in the North Solomons) and Guadalcanal (in the South Solomons).

On Bougainville, it is probably restricted to the interior of montane old-growth forests. On Guadalcanal, the species apparently occurs only in closed-canopy forest at 900–1,100 m. It seems to be absent from patches of more open forest, secondary scrub and bamboo that occur in areas damaged by cyclones and landslides, as well as from mist-forest at the highest altitudes.



**Status:** Endangered. **Global population:** 500 to 2,000 mature individuals with a declining population trend. The nominate race, *bougainvillei*, is endangered. It is considered rare and restricted in both distribution and habitat. The total population is estimated at just 250–1,000 individuals. There are few specimens, with the last taken in 1938, and no records thereafter until 1980s. Calls (believed to be of this species) were heard in 1986 at the edge of lowland swamp-forest near Arawa, and a pair was reportedly watched at a nest-hole in the 1980s. Further corroborative evidence is needed, but the island has been off-limits to ornithologists for many years. The lowlands on Bougainville have been partially logged, and heavy logging is likely to recommence once the island re-opens to commercial exploitation, although the species is thought most likely to inhabit montane forest. As a hole-nesting species, it is potentially threatened by introduced rats and cats.

Race *excelsus* is also endangered. It is considered rare and restricted in both distribution and habitat. The total population is estimated at between 250 and 1,000 mature individuals within an overall range of c. 1,700 km<sup>2</sup>. Only a proportion of this range is expected to be occupied. It is known from one immature male and three female specimens, with the last taken in 1953. There have been no definite records until 1990s. In 1994 and 1997, the species was found to be frequent in montane forest above abandoned Betilonga village, where calls were heard from up to six locations around a camp at 1500 m. The first sound recordings, photographs of a male (and specimen) were obtained on Chupukama ridge in September 2015. No other montane sites have been visited on the island. It occurs at elevations above areas of human activity, although much of its suitable habitat is lost due to natural landslips. As a hole-nesting species, it is potentially threatened by introduced rats and cats.

**Diet:** Fish, stick-insects (*Phasmida*) and frogs.

**Breeding:** It is a large and distinctive kingfisher. Both sexes have an orange-rufous head, mantle and under parts. They have a purple-blue eye-stripe that meets across the nape of the neck and their moustaches, wings and tail are all purple-blue with a pale blue rump and red bill and feet. The males back is the purple-blue like the wings while the females upper back, scapulars, and tertials olive-green, and the head a shade darker rufous, which color merges into that of the mantle more evenly.

They nest in holes in the ground, sometimes in forest, but usually along riverbanks.

**Cool Facts:** There are two subspecies recognized:

- *A. b. bougainvillei*. First reported by Rothchild in 1904. The nominate species is endemic to Bougainville (North Solomons).
- *A. b. excelsus*. First reported by Mayr in 1941. The race is endemic to Guadalcanal (South Solomons). It differs from the nominate in it being smaller (27 vs 30 cm) and in its black moustachial and postocular line, with the latter forming a much broader hind-collar; the shorter rufous 'cape' on the mantle below the hind-collar (15 mm versus 24 mm). It has a black to greenish-black mantle, wing-coverts, and wings; compared to greenish-rufous mantle and tertials, and deep blue wings of the nominate. It has flecks of electric blue-white on blackish rump (versus broad electric turquoise line down royal-blue rump of the nominate) and the under parts are rufous-tinged buff (versus rufous).

**Common Name:** Woodland Kingfisher  
**Scientific Name:** *Halcyon senegalensis*

**Size:** 9 inches (23 cm)

**Habitat:** Africa; widely distributed in tropical Africa south of the Sahara and from Pretoria northwards.

Although it is a "kingfisher", it prefers drier habitats in more traditional woodland and can be far from water. It is found in woodlands, riverine forests, wooded areas around human dwellings, and forest clearings and edges. In



savanna regions, it avoids closed cover, preferring open woodlands, farmlands, parks and large gardens. In South Africa, it is particularly common in riverine woodlands where the grass under-storey is heavily grazed.

**Status:** Least Concern. **Global population:** Unknown amount of mature individuals with a stable population trend. This species is widespread and common in many parts of its range. Is able to breed in cleared areas (provided some large trees still remain). Migrating birds are often killed by window strikes at night. This species has bred successfully in captivity.



**Diet:** Insects (mainly grasshoppers and locusts), some beetles, dragonflies, cicadas, cockroaches, mantises, moths and butterflies, larvae, ants and termites. Other arthropods include scorpions, centipedes and millipedes. It also takes shrimp, crab, fish, frogs, lizards, snakes, small passerine birds, and small mammals. In northern Ghana, grasshoppers comprised 90% of diet, and 59% of dives were successful.

It spends much of its time in semi-shade, with occasional head-bobbing or tail-wagging, scanning for food. The average height of perch above ground 2.6 m. It swoops down to catch item on or near ground, then carries it back to perch. From a high perch gently spirals down until 3 m above ground, then dives on its prey. It will occasionally fly horizontally from perch and briefly hover, before diving on prey. It will also plunge into shallow water for fish. Large food items are always held crossways in the bill, and then bashed on perch before being swallowed head-first. Alate termites are caught in flight.

It is often solitary but can occur in small groups.

**Breeding:** A medium-sized kingfisher. Both sexes are alike in the nominate race and have gray crowns, black lores, a blue hind-neck, upper parts and tail. Their wings are black with blue bases on the flight-feathers. The under parts are a grayish-white. The upper mandible is red while the lower one is black. The iris is a dark brown and the legs and feet are black with a hint of red. The juvenile is a buff wash with fine black barring on the face and under parts with a completely blackish bill.

Egg laying begins in March and goes to September in the northern tropics; in August-February in Zaire; in November-February in Rwanda, in November-December in Zambia, in December-January in Malawi, in November-January in Zimbabwe and Mozambique, and in October-March in South Africa. It will sometimes double-brooded.

It is strongly territorial, chasing off other hole-nesting birds, and raptors and humans. It displays from a tall tree, trilling with bill up and half-open, suddenly opening wings wide and pivoting body from side to side. This display lasts from two to seven seconds and can be repeated up to 15 times. In an intense display, the tail is fanned and cocked as well. Paired birds usually face each other and sing in duet, spreading their wings, sometimes moving to show front and rear of wings alternately. A circling display-flight of 15-20 m above ground with constant trilling calls may be territorial or for courtship. In courtship feeding, the female sits motionless, hunched, while male brings her food, sometimes they touch bills without transferring food.

The nest is about 16 feet high (5 m), generally in tree hole (often old nest of barbet, woodpecker or starling). The clutch two to four eggs, with both sexes incubating during day, but only female at night. The incubation period lasts 13-14 days. The young are fed by both parents, with a peak of feeding in early morning and mid-afternoon. The nestling period lasts for about 15-24 days and juveniles will remain with their parents for up to 5 weeks after that.

**Cool Facts:** While this species is a kingfisher, it prefers grasshoppers and locusts to fish.

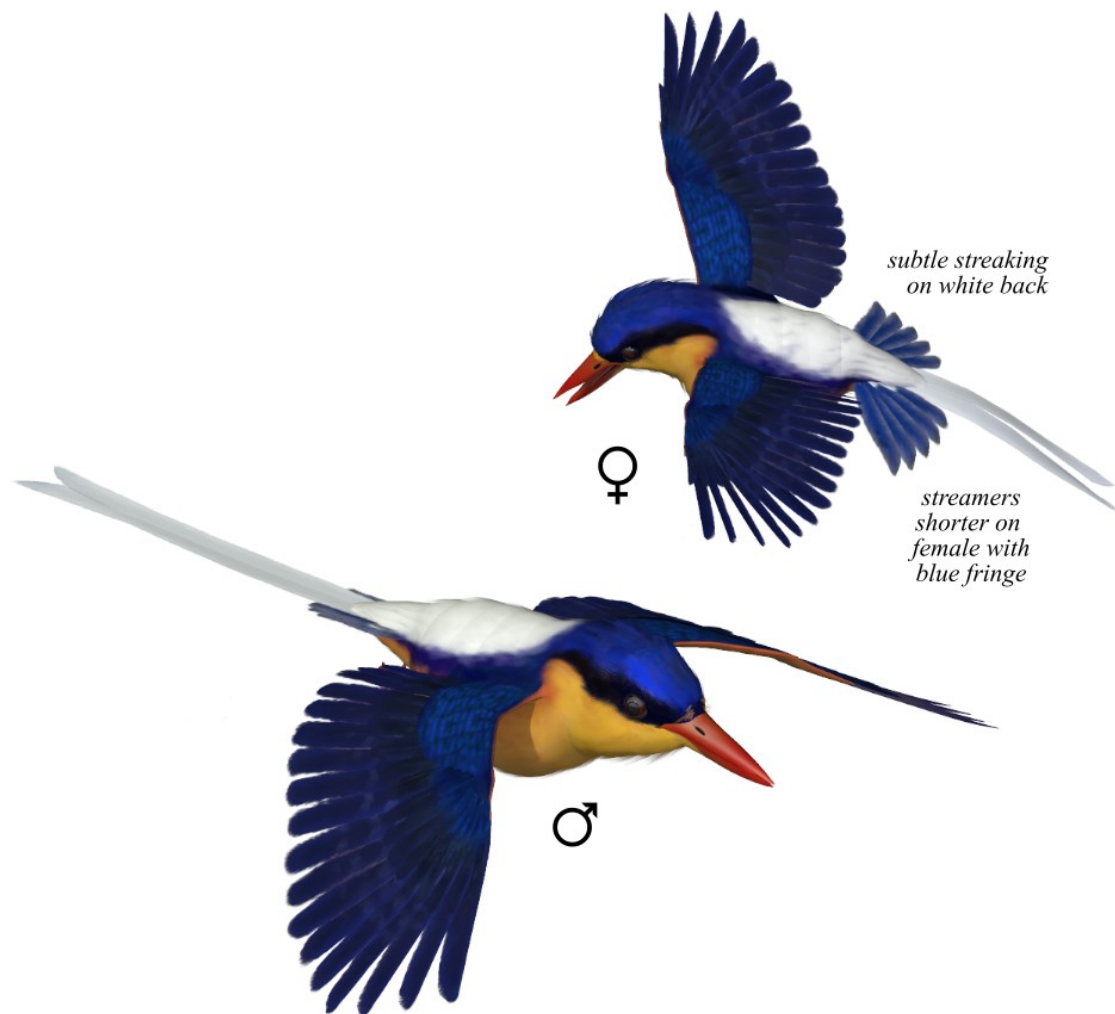
There are three subspecies:

- *H. s. senegalensis*. First reported by Linnaeus in 1766. The nominate race is found in Senegambia east to Ethiopia and south to western Kenya, northwestern Tanzania, Rwanda and Burundi. Birds in the north migrate southward in winter.
- *H. s. fuscopileus*. First reported by Reichenow in 1906. This race is found in Sierra Leone to southern Nigeria, Bioko Island (breeding not confirmed) and the Congo Basin. It is smaller and darker; its crown is a dark brown-gray, and its breast and mantle are grayer.
- *H. s. cyanoleuca*. First reported by Vieillot in 1818. It is endemic to western Tanzania south to Angola, northern Namibia, northern and eastern Botswana and northeastern South Africa. It winters in equatorial Africa north to South Sudan. It is larger than the nominate race with a crown that is paler and a black wedge behind eyes. Some birds in Malawi have red patches on their lower mandibles.

**Common Name:** Buff-breasted Paradise Kingfisher  
**Scientific Name:** *Tanysiptera sylvia*

**Size:** 11.4-14.6 inches (29-37 cm) including tail streamers (tail feathers/streamers are usually 5.1 inches (13 cm) with males and 3.1 (8 cm) with females.

**Habitat:** Oceania; it is endemic to Australia and New Guinea. It migrates in November from New Guinea to its breeding grounds in the rainforest of North Queensland, Australia.



It is found in monsoon forests, and lowlands, notophyll vine and hill forests, usually with tall under-storey and sparse ground cover. It is generally found near watercourses, and can be present in isolated patches of forest, but rarely in wet sclerophyll forest. Termite mounds are an essential part of its breeding habitat. In some areas, it is sympatric with the Common Paradise Kingfisher (*T. galatea*), but occupies higher levels of forest than latter.

**Status:** Least concern. **Global population:** unknown amount of mature individuals with a declining population trend. It is locally common in parts of its range, scarce or absent in others. Natural predators of nest eggs include

snakes and monitor lizards. Butcherbirds (*Cracticus*) have been observed preying on young. Land clearing and habitat loss in New Guinea have the potential to impact on the breeding populations in Australia.

**Diet:** Stick insects, earthworms, beetles, insect larvae, spiders, skinks and small frogs and snails.

This kingfisher hunts on the ground and from the foliage in the middle to lower levels of the forest canopy.

**Breeding:** Both sexes of nominate race have blue heads, blackish eye-bands, dark blue upper parts with white spot on upper back and white rump (on the top side). Their tails are blue with white elongated central feathers. These feathers narrow to tip and are 7–18 cm longer than rest of tail. The under parts are orange-buff and the bill is red. The iris can be dark brown to black and the legs and feet are pink-reddish. The female differs from the male in having a shorter tail with blue fringes to the central rectrices and variable dusky streaks on white back and rump. The juvenile is duller, with buffy forehead, buff-tipped wing-feathers, a blackish back with a buff white patch above it. The white rump feathers have blue fringes and orange-buff feathers of the under parts are fringed and tipped black. The bill is brownish and the legs and feet are yellow.

In Australia, the nests are made in termite mounds on the ground. The breeding season in Australia begins soon after arrival in mid-October to early November. Mounds are typically 16-28 inches (40–70 cm) high and 16-20 inches (40–50 cm) wide. The entrance, usually 1.6 inches (4 cm) across is made in the side about two-thirds the way up the mound. The pair usually spending 3–4 weeks burrowing out a 6 inches (15 cm) tunnel. The floor of the tunnel is flat and smooth with a rounded chamber at the end. No nesting material is used. The nest chamber is very hot and strong smelling. Nests are made in mounds where termites are active, which may be due to termites maintaining a constant temperature suitable for incubating the eggs and that the termites help to keep the tunnel intact by preventing collapse.

This kingfisher normally produces a single clutch of eggs each year, only producing a second clutch when the first fails early in the breeding season. The clutch is 3-4 lustrous, white, rounded eggs and are incubated by both parents. They hatch after about 23 days and chicks fledge after another 25 days.

**Cool Facts:** The buff-breasted paradise kingfisher has been depicted on the 22 cent Australian stamp in 1980 and the 25 toea Papua New Guinea stamp in 1981.

There are two subspecies:

- *T. s. salvadoriana*. First reported by Ramsay in 1878. This race is endemic to the lowlands of southeastern New Guinea from the Angabunga River to Kemp Welch River. Race *salvadoriana* is like

nominate but paler below, with a greenish tinge to blue of the head and wings.

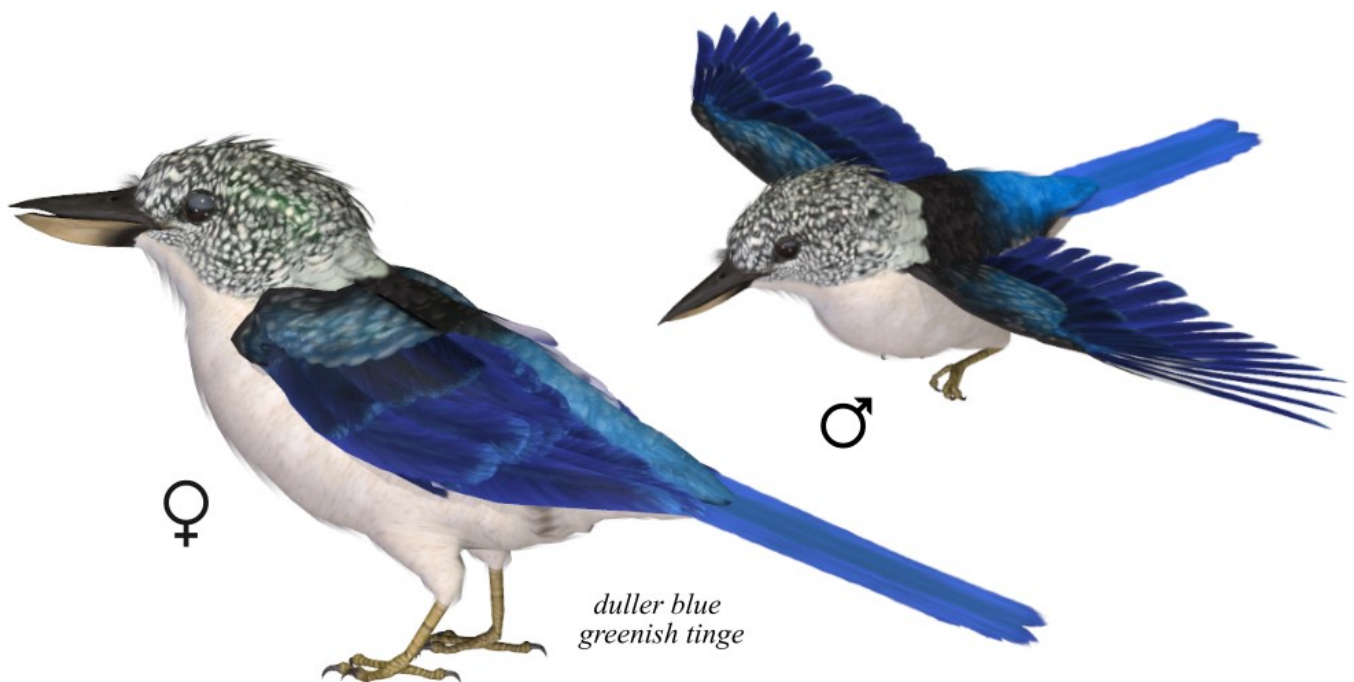
- *T. s. sylvia*. First reported by Gould in 1850. The nominate race is found in northeastern Australia from Cape York southward to Eurimbula (northeastern Queensland). It migrates to the lowlands of southern and northern New Guinea as far west as the Setekwa River and eastward to the Lakekamu Basin.

**Common Name:** Spangled Kookaburra  
**Scientific Name:** *Dacelo tyro*

**Size:** 13 inches (33 cm)

**Habitat:** Oceania; endemic to Papua New Guinea. It is found in southern New Guinea and the Ara Islands.

It prefers well-wooded dry savanna, thickets of red beech at swamp margins, and monsoon forests, thickets and paperbark savanna woodlands. It has been seen in dense monsoon and riverine forests, and found mainly in primary growth on the Ara Islands. It tends to frequent mostly the under-storey (but on the Ara Islands is usually observed in canopy).



**Status:** Least Concern. **Global population:** unknown amount of mature individuals with a suspected declining population trend. It is a restricted-range species. It is reported to be common in suitable habitat on the mainland. It occurs in Wasur National Park, Irian Jaya. There have been no reports of sightings since 1988 from the Ara Islands, but at that time common and widespread there (although absent from outlying islets). There is limited distribution in southern New Guinea could lead to problems for this species in the future.

**Diet:** Insects, including beetles, ants and winged ants, and stick-insects. It usually forages from perch 3-13 feet (1–4 m) high, with a clear view. It patiently scans ground below, then makes a shallow flight down, catching prey in its bill, then flies on to another perch. It also flutters around large trees, catching winged ants in the air and amongst the foliage.



**Breeding:** The male of nominate race has its head, hind-neck and mantle a yellow-buff with black margins to feathers. The back and scapulars are black, and the rump and upper tail-coverts are bright cobalt-blue. The tail and wings are blue-black, while the lesser and median wing-coverts are edged with bright blue. The chin and throat are white, whilst the rest of the under parts are washed buff to pale orange. It has a bi-colored bill with the upper mandible being black and the lower mandible, a pale horn color. The iris is dark brown and the legs and feet are a yellowish gray. Female like male, but the blue markings are duller and with greenish tinge. Juvenile has its head dusker, the throat and breast with narrow black margins, and has more obvious black on mantle.

Females lay their eggs in early March. Nests are excavated in termite mounds.

**Cool Facts:** This kookaburra is distinguished from the Blue-winged Kookaburra (*D. leachii*) by its smaller size, darker head and back, and the lack of white tip to the tail. It also has a dark eye as opposed to the white one on the Blue-winged.

There are two subspecies:

- *D. t. archboldi*. First reported by . This race is found in south-central New Guinea from the Bian River and Habé Island to the Mai Kussa River. It has paler blue wing-coverts, and mainly white under parts. It has buff under tail-coverts and (sometimes) a buff-colored throat.
- *D. t. tyro*. First reported by . The nominate race is endemic to the Aru Islands.

## Special Thanks to my Beta-Testing Team...

*Alisa & FlintHawk*

## Species Accuracy and Reference Materials

The author has tried to make these species as accurate to their real life counterparts as possible. With the use of one generic model to create dozens of unique bird species, some give and take is bound to occur. The texture maps were created in Painter with as much accuracy as possible.

## Field Guide Sources:

- **Handbook of the Birds of the World** <https://www.hbw.com/>
- **Wikipedia** [https://en.wikipedia.org/wiki/Main\\_Page](https://en.wikipedia.org/wiki/Main_Page)
- **BirdLife International** <https://www.birdlife.org/>

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