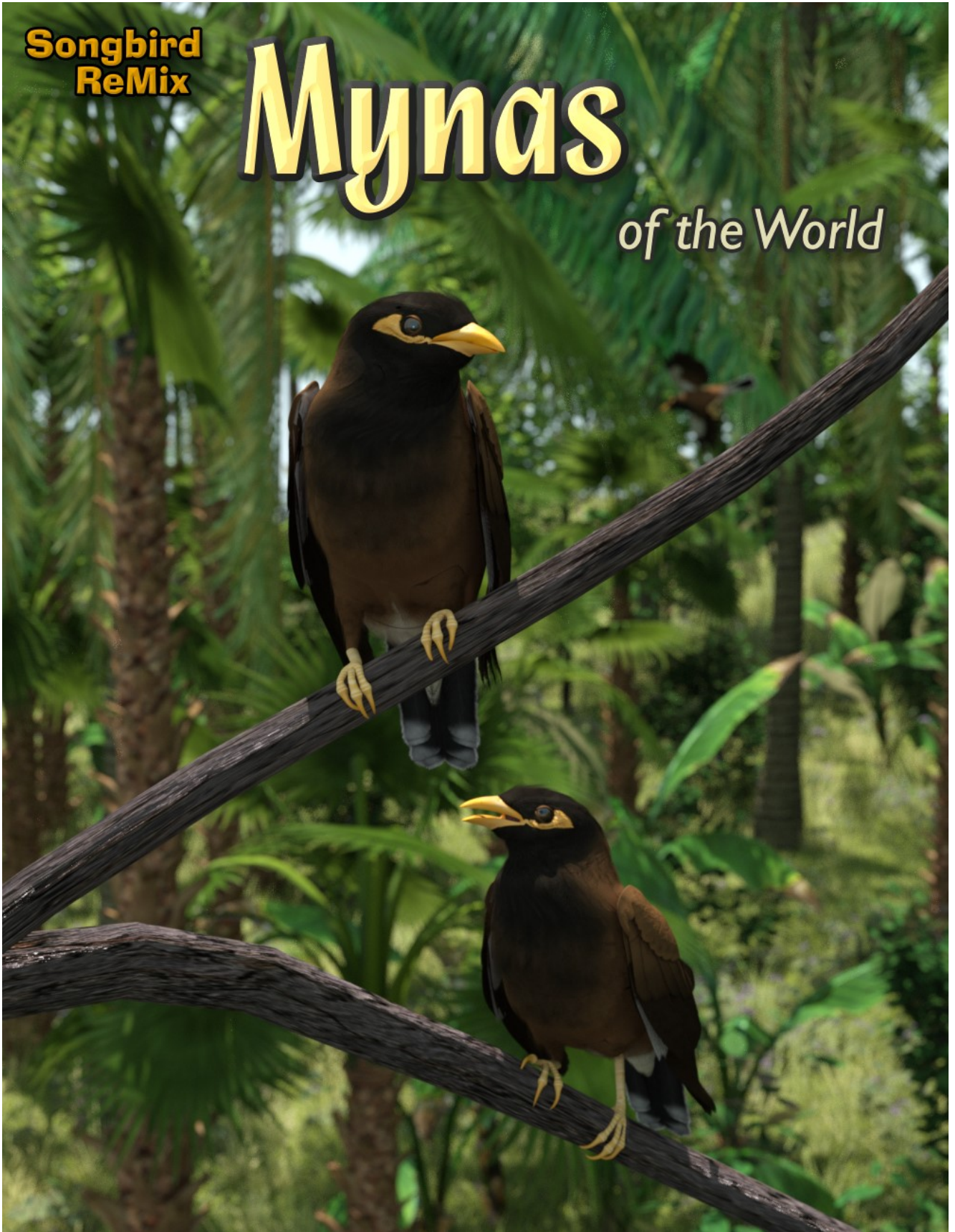


**Songbird
ReMix**

Mynas

of the World



Avian Models for 3D Applications
Characters and Texture Mapping by Ken Gilliland

Songbird ReMix

Mynas of the World

Manual

Introduction	3
Overview and Use	3
One Folder to Rule them All	4
Posing & Shaping Considerations	4
Physical-Based Rendering and Other Rendering Tips	5
Where to Find Your Birds & Poses	6

Field Guide

List of Species	7
Jungle and Hill Mynas	
Common Hill Myna	8
Yellow-faced Myna	12
White-necked Myna	14
Fiery-browed Myna	16
Golden Myna	18
Helmeted Myna	20
Finch-billed Myna	22
True Mynas	
Great Myna	24
Common Myna	26
Bali Myna	29
Gracupia Mynas	
Indian Pied Myna	31
Javan Pied Myna	33
Siamese Pied Myna	35
 Resources, Credits and Thanks	 37

Copyrighted 2024 by Ken Gilliland (www.songbirdremix.com)
Opinions expressed on this booklet are solely that of the author, Ken Gilliland, and may or may not reflect the opinions of the publisher.

Songbird ReMix

Mynas of the World

Introduction

Mynas are a group of birds in the starling family (*Sturnidae*). They are native to southern Asia, especially India, Pakistan, Bangladesh, Nepal and Sri Lanka. Many are renown for their ability to reproduce sounds, including human speech, when in captivity. The word "mynah" derives from the Sanskrit "madana" meaning joyful or delightful, which is derived from the root meaning "bubbles." So the derived word "mynah" means "bubbling with joy."

This set includes most of the species of mynas found throughout the world. They are divided into three categories; Jungle and Hill Mynas, "True" Mynas and "Gracupica" Mynas.

There are two versions of this set for native support in Poser and DAZ Studio. Materials have been tuned to support Iray, 3Delight, Superfly and Firefly renderers.

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):
 - **Perching Birds (Order Passeriformes)**
 - **Thrushes, Oxpeckers & their Allies**
- **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.

One Folder to Rule Them All

When I reworked the entire Songbird ReMix library starting in 2018, I decided to abandon the way the birds were sorted (by product name) and choose an Ornithological approach. All birds are found in the Bird Library folder and are arranged by type of bird. This approach is hopefully easier for most to find what bird they are looking for. Admittedly, it will take some getting use to for some longtime users, but I've always approached the Songbird ReMix series as a learning tool as well as a graphics tool, so hopefully some knowledge will rub off by seeing how birds are grouped.

Probably the most deceiving subfolder in the **Bird Library** is "**Perching Birds (Order Passeriformes)**". This is folder you probably will end up "favoriting" because this one folder (Passeriformes) **holds more than 50% of all birds**. Perching birds range from cardinals and jays to chickadees, crow and swallows.



Finding the bird you want within the "**Perching Birds (Order Passeriformes)**" folder can be daunting, even for an experienced birder (such as myself), so I've included an online reference tool within this folder that helps to make your search easier. Click the "**Perching Birds Finder**" icon and when loaded, look at the first column and search for the type of bird you want. For example, I want a "manakin" (a bird common to Central and South America). Scroll down the first column alphabetically and stop on "manakin". Looking across to the second column, you will now know that manakins can be found in the "Tyrant Flycatchers & their Allies" subfolder.

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.

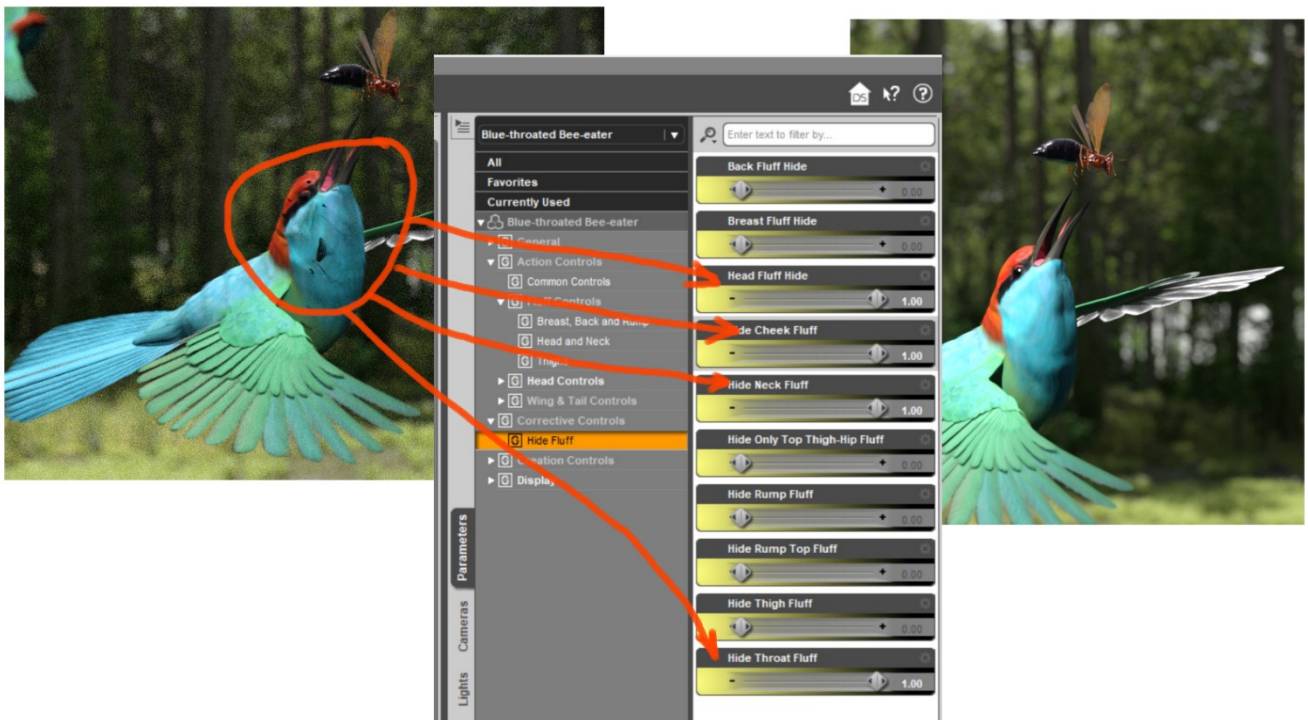
If you want to use IK in DAZ Studio, here's how it works...

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.

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)**.



Conforming/ Fit To... Parts

Two bird species in this set are saved as compound figure (meaning they have extra model parts attached to them). They are the Great Myna and Helmeted Myna. Both birds have extra parts attached to their heads. While both these “conforming/fit to” attachments have separate morphs on them, they are already pre-dialed to make the species look as it should and should not be touched.

When posing either of these birds, select the main bird and not it's conforming part.

Where to find your birds

Type Folder	Bird Species
<input type="checkbox"/> Perching Birds (Order Passeriformes) <input type="checkbox"/> Thrushes, Oxpeckers & their Allies	Common Hill Myna Yellow-faced Myna White-necked Myna Fiery-browed Myna Golden Myna Helmeted Myna Finch-billed Myna Great Myna Common Myna Bali Myna Indian Pied Myna Javan Pied Myna Siamese Pied Myna

Where to find your poses

Type Folder	For what species?
Perching Birds (Order Passeriformes) <input type="checkbox"/> ! Universal Poses & Thrushes, Oxpeckers & their Allies Poses	All Mynas

Songbird ReMix

Mynas of the World

FIELD GUIDE

Jungle and Hill Mynas

Common Hill Myna
Yellow-faced Myna
White-necked Myna
Fiery-browed Myna
Golden Myna
Helmeted Myna
Finch-billed Myna

True Mynas

Great Myna
Common Myna
Bali Myna

Gracupia Mynas

Indian Pied Myna
Javan Pied Myna
Siamese Pied Myna

Common Name: Common Hill Myna
Scientific Name: *Gracula religiosa*

Size: 9.8-13.8 inches (25-35 cm)

Habitat: Asia; found from the Eastern Ghats and Himalayan foothills from Uttar Pradesh east through northern India, Bangladesh, southern China (including Hainan), to south-eastern Asia encompassing Myanmar, Thailand, Laos, Vietnam, Cambodia, Malaysia, Palawan (the Philippines), Andaman and Nicobar Islands, both the Greater and western Lesser Sunda Islands, including Borneo, Sumatra, Nias, Enggano, Java, and Bali .

They are usually perched high up on exposed tops of tall trees or dead branches in broadleaved evergreen, humid deciduous, freshwater swamp, mangrove forests, peat-swamp forests, wooded areas, forest edges, clearings and plantations near forests or where tall trees remain.



Status: Least Concern to Near Threatened. **Global population:** Unknown mature individuals with an decreasing population trend. It is listed as globally “Least Concern” despite numerous local populations in decline and even local extinctions. It is considered at risk nationally in many countries; Near-threatened in Thailand, Vulnerable in Red List of China’s Biodiversity (RCB) and the Philippines. It is also classified as Vulnerable in the Thai-Malay Peninsula. The species is one of the most popular avian pets throughout Asia due to their ability to mimic human speech, but they are scarcely sustainably bred in captivity, thus wild-caught nestlings have always been in large demand and over-exploitation for the pet bird trade has long been the major

threat that contributes to the decline or even local extinction throughout its wide range.

Diet: Omnivorous; most fruit and nectar. It will take lizards, termites, ants, grasshoppers and geckos.

Small fruits up to 2 cm in diameter are plucked and usually swallowed whole, with several being gulped in rapid succession into the very elastic oesophagus/gullet. The species is able to take in a large quantity of fruit in a short time period. Larger fruits are mashed between the mandibles before swallowing. The species also feeds on nectar in flowering trees. It opportunistically feeds on swarming ants and termites by circling and catching them in flight. Lizards and large invertebrate prey items are mainly caught on tree trunks, and then thwacked violently and repeatedly against the perch before being swallowed whole or taken into the nest to feed young.

It occurs in pairs or groups. Flocks outside of the breeding season may travel a great distance for food sources. It is commonly seen congregating with other bird species in fruiting trees or flowering trees, and is presumed to play an important role in seed dispersion and the cross-pollination of trees. Largely arboreal; it often descends to ground to drink or to capture animal prey items to feed its young.

Breeding: Sexes are similar. It is a large, thickset bird with unique, bright yellow lappet from just behind the eye to backwards around nape and a pendulous wattle below the eye. These wattles and lappets are joined together as a single piece in northern birds but are clearly separate in the southern individuals. Plumage is entirely glossy black, except the white wing-patches which are clearly visible in during their relatively broad wing in flight. The tail is rather short. Its heavy bill with curved culmen is bright orange and typically tipped yellowish. The feet and legs are relatively thick and yellowish in coloration.

Cool Facts: It has long been popular in the cagebird trade, owing largely to its remarkable ability to mimic a wide range of vocalizations, including human speech. Its popularity has lead to over-exploitation of wild-caught nestlings, and has resulted in rapid declines and local extinctions in many areas, particularly the various islands of Indonesia.

Subspecies are separable mainly by the shape of the head-wattles and bill. The only sympatric subspecies are the wide-ranging Race *intermedia* and the nominate race which overlap extensively in southern Thailand south to around the latitude 8°N in Trang province. There appears to be clinal variation in body size being gradually larger from north to south and the connectedness of head-wattles being narrowly joined in most birds in this zone

“Common” Group

- *G. r. peninsularis*. First reported by Whistler & Kinnear in 1933. this race is confined to the eastern Ghats in peninsular India. It is characterized by having bare skin under eye and nape joined.

- *G. r. intermedia*. First reported by Hay in 1845. This race is widespread from northern India through southern China, Myanmar, Laos, Vietnam, Cambodia, and Thailand south to around Trang province. It resembles Race *peninsularis* but is larger with a thicker bill.
- *G. r. andamanensis*. First reported by Beavan in 1867. This race is endemic to Andaman and Nicobar islands. It has more extensive white patches in wing. Bare skin below eye often narrowly separated. Provisionally includes the race *halibrecta* proposed based on birds from Nicobars with large white wing-flash.
- *G. r. religiosa*. First reported by Linnaeus in 1758. The nominate subspecies occurs in the Thai-Malay Peninsula, Sumatra, Bangka Island, Java, Bali, and Borneo. Birds on Simeulue Island have been proven to merit separate taxonomic rank. It is larger than Race *intermedia*, with head-wattles longer on the nape and well separated below the eye. The bill also thicker and maxilla less curved. The coloration on the breast and upper mantle is less bronzy. It has a shorter, more curved bill than Race *andamanensis*.
- *G. r. batuensis*. First reported by Finsch in 1899. It is endemic to Batu and the Mentawi islands, off northwestern Sumatra. It is similar to the nominate race, but larger in size.
- *G. r. palawanensis*. First reported by Sharpe in 1890. It is endemic to Palawan in the southwestern Philippines. It is smaller and shorter-billed than the nominate race, with an overall body coloration that is more bluish and bronzy.

“Simeulue” Group

- *G. r. miotera*. First reported by Oberholser in 1912. It is endemic to Simeulue (off the west coast of Sumatra); probably extinct in the wild. The hind-wattle reaches to the eye just short of the front wattle, and a spur-like extension near the posterior mid-point of the front wattle

“Nias” Group

- *G. r. robusta*. First reported by Salvadori in 1887. It is endemic to the Banyak Islands (Babi, Bangkaru, and Tuangku) and Nias Island, off northwestern Sumatra. It is a large black myna with heavy and strongly curved bill, and feathers in front of eye directed inwards and upwards, on crown flattened on central line; large patch of bare skin below eye, a separate post-orbital patch forming large wattles on nape which meet in mid-line. The plumage is mostly black, glossed purple on the forehead and crown. The body has a purple gloss, tinged turquoise on the rump and belly. The wing and tail are brownish-black with very large white patches in the primaries extending almost to the feather bases. There is some white also on the secondaries.

“Enggano” Group

- *G. r. enganensis*. First reported by Salvadori in 1892. It is endemic to Enggano Island, west of southern tip of Sumatra. It is a rather large black myna (27 cm) with a small patch of bare skin below the eye. There is bare postorbital skin leading to large wattles which almost join on the nape, but no bare skin on the crown. Feathers of the sides of the head are

directed upwards to form tuft. The plumage is mostly black with the head, neck and mantle strongly glossed purple and the rump glossed turquoise. The under-parts are duller and less glossy. The wing and tail are brownish-black with white patches on the inner web of the outer primary (P9) and both webs of all other primaries, forming large window. The iris is dark brown and the bare facial skin and wattles are yellow. The bill is deeper and shorter than that of Race *congeners*, orange to red with a yellow tip;. The legs are yellow.

Common Name: Yellow-faced Myna
Scientific Name: *Mino dumontii*

Size: 9-10 inches (23-26 cm)

Habitat: Asia; It is endemic to New Guinea and nearby smaller islands.

It is found in subtropical or tropical moist lowland forests, including rainforests, swamp-forests and monsoon forests. It also seen found at forest edges and partly cleared areas, and it will venture into the savanna. It is generally seen in lowlands and hills below 800 m, but in the eastern half of New Guinea, it has been seen up to 1800 m elevations.

Status: Least Concern. **Global population:** Unknown mature individuals. The population trend is difficult to determine because of uncertainty over the impacts of habitat modification on population sizes. This species has been exploited to some degree by the pet trade.



Diet: Omnivorous; mainly fruit, but also insects. It is often seen feeding on fruit and berries in company of the Golden Myna (*M. anais*) or other frugivores. It gleans caterpillars from branches and hawks insects from high perches.

This bird is usually found high in the canopy feeding mainly on berries and fruit. It is sometimes seen in small groups but is more often found in pairs. It occasionally forms larger flocks, and communal roosts in tall trees have been described, containing over two hundred birds.

Breeding: Sexes are alike in plumage. The head has short black feathers glossed bluish-purple on the forehead and at the base of the upper mandible, but most of the head is bare yellowish-orange skin. This forms a wide patch around and behind the eye and includes a bib on the chin and the sides of the throat. The neck, central throat and mantle are black glossed with purple while the back, wings, breast and belly are black glossed with green. The rump is white, the lower belly is golden-yellow and the under-tail coverts are white. The short, squarish tail is black. The iris is usually yellow, but in some parts of New Guinea may be brown. The bill and legs are yellow.

This species appears to be monogamous and pairs for life. It breeds in holes and crevices in trees well above the ground. The nests are formed of twigs and one or two pale blue eggs speckled with gray and rust are laid. Three birds have been observed carrying nesting material into a single hole, so it is possible that there is some degree of cooperation from the extended family.

Cool Facts: This bird was named after Charles Dumont de Sainte-Croix, the French zoologist who first described it.

It is a noisy bird, emitting a variety of "nasal, growling, and croaking calls with a sometimes human-like conversational quality". It often perches in an elevated position, calling loudly. It has a quick wing-beat and a direct flight, and pairs of birds are often seen flying together.

Common Name: White-necked Myna
Scientific Name: *Streptocitta albigollis*

Size: 20 inches (50 cm); including a tail of 11-12 inches (28-30 cm)

Habitat: Asia; it is endemic to forests on Sulawesi and adjacent smaller islands in Indonesia.

It is found in primary and secondary forests of various types. It very infrequently is seen in modified habitats and plantations.

Status: Least Concern. **Global population:** Unknown mature individuals with a declining trend. Both subspecies are considered uncommon and rare in some areas. Their population is believed to be in decline as a result of continuing destruction and fragmentation of their habitat.



Diet: Omnivorous; primarily fruit with occasional invertebrates, and small vertebrates (lizards).

It forages mainly in middle canopy; favors dead isolated trees as perches. Strong flier, readily crossing open areas. It is usually seen in twos or threes, occasionally in small groups of up to five individuals. It may join mixed-species flocks.

Breeding: Sexes are alike in plumage. A large myna with very long, graduated tail. Its elongated head feathers have a waxy appearance. The upward-pointing feathers of the lores and nostril region produce a short crest

effect on the forehead. The head is black, glossed with purple and blue while the mantle and breast are pure white, producing a broad collar. The rest of the body plumage is black with a steel-blue and green iridescence, especially on the rump and belly. The wings are black with a purple sheen. The tail is black with a slight gloss, and cross-barring visible from certain angles. The iris is brown and the bare circumorbital skin is dark. The bill is black basally with the distal half being yellow. The legs are black. The juvenile differs from the adult in having a smaller crest, shorter tail, and less yellow on the bill.

Mynas are believed to be monogamous and breeding occurs in September through October. They nest in tree cavities.

Cool Facts: There are two subspecies.

- *S. a. torquata*. First reported by Vieillot in 1818. The “Northern” White-necked Myna is endemic to northern and eastern Sulawesi, including Lembeh and Togian Islands. The white on the breast extends on to the belly, almost to the thighs on this subspecies.
- *S. a. albicollis*. First reported by Vieillot in 1818. The nominate race is known as the “Southern” White-necked Myna is endemic to southern and southeastern Sulawesi, Muna and Butung.

Common Name: Fiery-browed Myna
Scientific Name: *Enodes erythrophris*

Size: 10.6–11.4 inches (27-29 cm)

Habitat: Asia; endemic to the island of Sulawesi in Indonesia.

It is found at elevations of 1,600–7,500 ft (500–2,300 m), living mainly in montane rainforests and lowland forests, elfin forests and forest edges.

Status: Least Concern. **Global population:** Unknown mature individuals with a declining trend. It is considered common and fairly widespread and it occurs in Dumoga Bone and Lore Lindu National Parks. Their population is believed to be in decline as a result of continuing destruction and fragmentation of their habitat.



Diet: Omnivorous; Fruits and some invertebrates, and small vertebrates (lizards).

It is often seen climbing tree trunks to search for food. This starling usually occurs in pairs or groups, and sometimes large and mixed flocks. Mixed flocks include the Sulawesi myna (*Basilornis celebensis*) and Grosbeak Starling (*Scissirostrum dubium*).

Breeding: Sexes are alike in plumage. The crown, back, throat, breast and belly are dark gray. A bright reddish-orange supercilium starts from the base of the beak and extends over the eye, the feathers behind the eye being black.

The flight feathers are brown, their outer webs and the wing coverts covering them being olive-yellow. The rump is golden, and the graduated tail is olive-yellow, with a cream tip. The beak is black, and the legs are yellow.

Mynas are believed to be monogamous and breeding occurs in August. They nest in tree cavities.

Cool Facts: Coenraad Jacob Temminck described this species by the name *Lamprotornis erythrophris* in 1824, and then moved it to the genus *Enodes* in 1839.

Common Name: Golden Myna
Scientific Name: *Mino anais*

Size: 9.8 inches (25 cm)

Habitat: Asia; endemic to New Guinea.

Its natural habitat is subtropical or tropical moist lowland forest.

Status: Least Concern. **Global population:** Unknown mature individuals with a decreasing population trend. The population is suspected to be in decline owing to ongoing habitat destruction and fragmentation.

Diet: Apparently, only fruit.

It forages primarily in the upper canopy. It occurs typically in pairs and occasionally in small flocks. It may join groups of Yellow-faced Mynas (*M. dumontii*).



Breeding: Sexes are alike in plumage. It is a medium-sized, distinctively patterned myna with patch of bare circumorbital skin extending to form a blue wedge behind the eye. The nominate race has its head, mantle and upper back black. The head feathers are broadly tipped with glossy oily green. It has a broad collar on hind neck and the sides of the neck are creamy orange. The feathers of the lower back to upper tail-coverts are elongated and degraded, with deep orange tips. The wing is dark brown with a white patch on the inner webs of outer and innermost primaries (P1 and P9) and on both

webs of the other primaries, forming conspicuous wingbar in flight. The tail is black with slight green gloss. Its chin, throat and belly are black with oily-green gloss while the breast feathers are black with broad orange-yellow tips. The lower belly and vent are yellow while the under tail coverts are creamy white. The iris is yellow and the bare circumorbital skin is a dark blue. The bill and legs are yellow. The juvenile has yellow areas of plumage duller than the adult and mottled with black; also the under-parts are black with yellow scaling.

Mynas are believed to be monogamous. Breeding season believed long, from end of wet season through dry season. There has been activity at nest-holes February through October, but holes may be used for roosting as well as for nesting. They nest in tree cavities. The clutch size is not known, but one nest contained two young. The young are fed by both adults, perhaps entirely with fruit, and long nestling period is likely.

Cool Facts: .

There are three subspecies and races differ in plumage pattern on the head and nape.

- *M. a. anais*. First reported by Lesson in 1839. The nominate race is found in the West Papuan Islands (Salawati) and northwestern New Guinea.
- *M. a. orientalis*. First reported by Lesson in 1839. This race is found in coastal northern New Guinea eastward to the Huon Peninsula. It has its forehead and crown a glossy-yellow orange, with orange-yellow stripes extending down on each side of the hind crown to join a glossy orange-yellow collar
- *M. a. robertsonii*. First reported by Lesson in 1839. This race is found in southern New Guinea eastward to Milne Bay. It has its entire crown and nape a glossy orange.

Common Name: Helmeted Myna
Scientific Name: *Basilornis galeatus*

Size: 9.8 inches (25 cm)

Habitat: Asia; endemic to the Banggai Islands (Peleng and Banggai) and Sula Islands (Taliabu, Seho, Mangole), off eastern Sulawesi in Indonesia.

Its natural habitats are subtropical or tropical moist lowland forest, subtropical or tropical moist montane forest and swamps.

Status: Near Threatened. **Global population:** Unknown mature individuals with a declining population trend. It is a restricted range species that is present in Banggai and Sula Islands. It is considered scarce to moderately common and has a small and fragmented range. It is becoming uncommon in Sula lowlands, where loss of the least disturbed forest, which is its preferred habitat, is a threat. Suitable habitat, particularly in the Sula lowlands, should be protected.



Diet: Omnivorous; mostly fruits and berries.

It usually forages in the upper levels of trees, occasionally coming lower. It is seen generally in pairs and occasionally flocks (22 individuals once reported).

Breeding: Sexes are alike in plumage. It's a very distinctive myna, with feathers of forehead, crown and nape directed inwards towards mid-line and central feathers elongated to form tall crest. The forehead to nape and

hindneck are black with purple sheen. Its upper-parts and under-parts are black with green iridescence. There is a white patch on lower ear-coverts and sides of the neck more or less adjoining to white patches at the sides of the breast. The posterior feathers of the neck patch and ventral feathers of the breast patch tipped with ochre. The wing and tail are dark brown. The iris is brown and the bill is cream-colored. The legs are yellow. The juvenile has a shorter crest than the adult with less glossy plumage. It also has a brown chin and dark upper mandible.

There is no information available on its breeding behaviors.

Cool Facts: A deep booming "*poo poo poop*" calls the only vocalization reported.

Common Name: Finch-billed Myna
Scientific Name: *Scissirostrum dubium*

Size: 7.9 inches (20 cm)

Habitat: Asia; endemic to Sulawesi and nearby islands of Bangka, Lembah, Togian Islands, Butung, and Banggai Islands (Peleng and Banggai) in Indonesia.

It is generally at forest edges and in lightly wooded areas. It is more common in modified habitats, and most frequently encountered in plantations. It is relatively uncommon in primary forests and evidently absent in secondary forests. It is found at sea-level to 1000 m elevations (occasionally to 1100 m).

Status: Least Concern. **Global population:** Unknown mature individuals with a declining population trend. The species may be affected by some levels of trapping pressure. A 2018 survey of bird ownership involving over 3,000 households in all six of Java's provinces for example estimated that over 50,000 individuals are currently kept in Java alone. This species is also threatened by ongoing degradation and loss of its forest habitats.



Diet: Omnivorous; fruit, seeds and insects. The fruits taken include those of figs and Albizzia, and Bird's-eye Chilli. It also feeds on the nectar of Erythrina flowers.

It spends most time in upper canopy. It will descend to ground infrequently for food or water. It is highly gregarious and lives in medium-sized to large flocks of up to 150 individuals. Foraging often occurs in association with the Short-tailed Starling (*Aplonis minor*).

Breeding: Sexes are alike in plumage. A small starling with massive finch-like bill. The plumage is mostly dark gray which is darker on wing and tail. The rump and upper tail covert feathers, and some feathers on flanks, are elongated, with stiff, waxy tips which are bright red (sometimes faded to orange). The iris is dark brown and the bill and legs are orange-yellow. The juvenile is a mouse-brown, with red or orange feather tips on rump and the upper tail coverts and flanks. The iris is blackish. The bill is more slender and paler than that of the adult. Newly fledged individuals have a yellow bill and pink legs.

This species nests in colonies, which frequently contain hundreds of pairs. Its nests are bored in rotting or dying tree trunks in woodpecker-like style.

Cool Facts: This myna is sometimes also called the “Grosbeak Starling” or “Scissor-billed Starling”.

Common Name: Great Myna
Scientific Name: *Acridotheres grandis*

Size: 9.6-10.8 inches (24.5-27.5 cm)

Habitat: Asia; found in Northeast India (southern Assam, Nagaland and Manipur), through southeastern Bangladesh east to Myanmar and southern China (western and southern Yunnan, southwestern Guangxi), southward to northern peninsular Thailand and Indochina.

It is found in open country, such as grasslands and marshes, including cultivated areas and rice paddies, also parks and gardens. It can also be seen in lowlands and foothills, up to 1520 m.

Status: Least Concern. **Global population:** Unknown mature individuals with a stable population trend. The population is suspected to be stable in the absence of evidence for any declines or substantial threats. It is generally widespread in modified habitats and tolerant of people. It may also be expanding southward in Malay Peninsula.



Diet: Mainly insects, including alate termites and other invertebrates. It will also take seeds (rice) and berries.

It forages on the ground, extracting insects from grass sward by open-bill probing and will glean insects from leaves. It uses both cattle and buffalo as beaters, catching insects disturbed by the mammals. It will also remove insects and ticks from buffalo. It forages mostly in pairs and will sometimes appear in flocks.

Breeding: Sexes are alike in plumage. A black myna with forehead feathers elongated, forming frontal crest that may curl backwards. The feathers of crown and nape elongate and are hackled. The plumage is black, with some gloss on back and wings. There are white bases of the primaries and most of the exposed primary-coverts, forming a distinctive wing patch. The white tips of the rectrices are broadest on the outer feathers. There is white on the under tail coverts. The iris is reddish brown and the bill is chrome yellow. The legs are yellow. The juvenile is duller and browner than the adult, with a very short frontal crest, buff-white bases of the chin and throat feathers producing a spotted appearance. It has some buff on the under tail coverts with the wing patches smaller and white tips of the rectrices narrower.

Breeding season occurs April through August. The nest is an untidy structure of grass and similar material, placed in hole about 5 m or higher in tree, or in crown of coconut palm, in house roof or in drainage hole in wall. They will use abandoned bee-eater burrows on the Malay Peninsula. The egg clutch is 4–6 deep blue eggs.

Cool Facts: This species is also known as the White-vented Myna. The Great Myna has been known to hybridize with Black-collared Starling (*Gracupica nigricollis*), the Common Myna (*Acridotheres tristis*), the Jungle Myna (*Acridotheres fuscus*), and the Javan Myna (*Acridotheres javanicus*).

Common Name: Common Myna
Scientific Name: *Acridotheres tristis*

Size: 9.1-10.2 inches (23-26 cm)

Habitat: Asia; the native range covers a large swath of southern and central Asia, from Turkmenistan (part of former USSR), south to southeastern Iran and Afghanistan, eastward through Uzbekistan, southern Kazakhstan, and northwestern China, all countries of Indian subcontinent (India, Pakistan, Nepal, Bangladesh, Bhutan, Sri Lanka, Maldives) and much of southeastern Asia (Myanmar, southern China, Thailand, Indochina, Malay Peninsula), and south to Singapore.



It has been introduced and established in many other parts of the world. These areas include the Hawaiian Island chain from Ni'ihau eastward (from sea level to at least 2,424 m) and in southern Florida since 1983, with reports from at least 12 counties (Brevard, Broward, Collier, Dade, Hendry, Indian River, Lee, Martin, Monroe, Palm Beach, Seminole, St. Lucie Cos.) and its range expanding.

It can be found in open country in the neighborhood of human habitations and cultivation. It is found in the outskirts of villages, towns, and cities, and also outlying homesteads in the desert or forest, from plains to foothills up to 3,000 m in Indian Subcontinent, and to 1,525 in southeastern Asia. It tends to avoid dense forests.

Status: Least Concern. **Global population:** Unknown mature individuals with an increasing population trend. The population is suspected to be increasing as ongoing habitat degradation is creating new areas of suitable habitat. This species is described as common. National population sizes have been estimated at 10,000-100,000 introduced breeding pairs in Taiwan and 100-10,000 introduced breeding pairs in Japan.

Diet: Omnivorous; mainly fruits, grain, insects, and grubs. Also, it will feed on kitchen scraps, tidbits from refuse dumps, bird eggs, small animals (baby mice, frogs, lizards, crabs), and flower nectar.

It feeds while on ground and in trees. Occasionally, it will hawk insects from perch. On the ground, it captures invertebrate food by bill-probing.

Breeding: Sexes identical, except males have slightly longer feathers on the crown and nape. The crown, nape, sides of the neck, and below the eye are black. It has glossy, long, narrow pointed feathers, becoming progressively longer, narrower and more sharply pointed from the forehead through the nape. Tufts covering the nostrils extending onto the forehead and lores and at the base of lower mandible are the same color but short, bristle tipped, projecting upward. The rim of the eyelid is black, formed by single row of tiny feathers. The mantle and rump are shades of brown in different specimens, from the darker Vandyke brown to lighter Prout's brown. The feathers with light dusky tips that wear away by spring, producing brighter plumage. The chin, throat, and upper breast are black like the crown but are not glossy, and feathers are blunt-ended. The lower breast and flanks are brown. The legs are grayer brown. The under tail coverts and most of the belly is white. Secondaries are slightly duller brown than the mantle with thin, dark edging and often with narrow light line at tip; white at the extreme base but hidden above by brown coverts in a folded and extended wing. The distal half of primaries is black, grading distally to dark brownish and ends with narrow pale tips and glossy brownish underneath. The proximal half of the primaries are white above and below forming conspicuous wing-patch in flight. The patch is enhanced by white upper primary coverts plus white under-wing coverts and axillaries. The alular-feathers are black, except the outer web of the middle feather are white. The rectrices are the same dark brownish as ends of primaries but with terminal white bands-- the bands progressively grow broader outward from central pair.

Cool Facts: The Common Myna was introduced into the Hawaiian Islands in 1865 by William Hillebrand to control a plague of cutworms and army worms (Lepidoptera). By as early as 1879, this bird was abundant; today, it is one of the most common and most widespread avian species in all of the human-inhabited islands.

George Laycock, naturalist and author, wrote "To some Hawaiians the myna bird is amusing, to some he is of no concern one way or the other, but to some he is a threat to the mental health of the human race."

Two subspecies are recognized:

- *A. t. tristis*. First reported by Linnaeus in 1766. The nominate, known as the “Indian myna” is found from southern Kazakhstan, Turkmenistan and eastern Iran to southern China, Indochina, the Malay Peninsula and southern India. It has also been introduced to Hawaii and North America. Populations from the northwest of its range have sometimes been separated as a distinct subspecies.
- *A. t. melanosternus*. First reported by Legge in 1879. This race known as the “Sri Lankan myna”. It is endemic to Sri Lanka. It differs from the nominate in having a darker brown mantle and rump and has much darker under parts because of the black on the chin, throat and upper breast extending to the lower breast and grading to dark brown on the flanks. The legs are dark brown.

Common Name: Bali Myna
Scientific Name: *Leucopsar rothschildi*

Size: 9.8 inches (25 cm)

Habitat: Asia; endemic to northwestern Bali (Bali Barat National Park). It has been introduced for conservation purposes on Nusa Penida Island (off southeastern Bali, apparently not part of native range).

It prefers open woodland with a grassy under-storey. It apparently avoids closed forests.



Status: **Critically Endangered.** **Global population:** <50 mature individuals with a declining population trend. This is a restricted-range species and considered rare. It has been protected under Indonesian law since 1970 and has been apparently always been restricted to a limited strip across the northwestern third of Bali. It was first discovered in early decades of 20th century and from there its population has since declined drastically, and range contracted greatly. Habitat destruction, with woodlands converted to coconut and kapok plantations and human settlement, has eroded its original range, but capture for the local pet trade has been, and remains, its primary threat. From 200 individuals in early 1980s, illegal poaching reduced numbers to an estimated 15 birds in 1990 and an all-time low of six birds in 2001. BirdLife International in 2008 reported that this had increased to 24 birds, which was mostly the result of release of captive-bred individuals as part of the Bali Starling Recovery Plan. There are more than 1000 in captivity worldwide. The releases of captive-bred birds on small island of Nusa Penida (off southeastern Bali) have led to establishment there of a second population. By

2008, 49 individuals had been released in the Nusa Penida Bird Sanctuary and these have bred, producing total of 16 young. By 2014, there were about 40 wild birds in the vicinity of West Bali National Park and 13 breeding pairs on Nusa Penida. The wild population is still thought to number fewer than 50 mature individuals according BirdLife International.

Until the species' security within the West Bali National Park can be guaranteed, however, there appears to be little prospect of re-establishing a wild population on Bali. This is considered one of only two starling species which breeds readily enough in captivity to supply the pet trade in Europe and North America; there are plans to legalize the breeding and trading of the species in order to open up the market and undermine illegal trade.

Diet: Omnivorous; seeds of *Sterculia foetida*, small fruits of *Lantana camara*, *Deeringia amaranthoides*, *Strychnus ligustrum*, *Passiflora foetida* and *Manilkara kauki*, large fruits such as figs, *Morus* and papayaas well as nectar from *Erythrina*. It will also take insects, such as caterpillars, ants, termites, dragonflies and grasshoppers. Occasionally, it may consume worms and small reptiles.

It is mostly arboreal when foraging, though it will occasionally forage on the ground (particularly when feeding young). Formerly noted as perching on ungulates and foraging for insects in association with the mammals. Anting observed in a bird re-introduced to the wild.

Breeding: Sexes are alike in plumage but the male has a longer crest than the female. It is a fairly large, white starling with forehead feathers that are bristly. The feathers on the crown and nape are hackled and greatly elongate, forming an erectile crest. The plumage is white, except for a black terminal band on the tail and black tips on the primaries. The iris is gray. The bare skin around the eye and extending to the point behind the eye is bright cobalt-blue. The bill is gray or brown, becoming paler horn or yellowish towards the tip. The legs are leaden blue. The juvenile has much shorter crest than the adult and may also have a smoky tinge on back and cinnamon tinge on the wings.

It is monogamous and forms a long-term pair-bond. Partners preen and perform other mutual displays with each other. It breeds during the rainy season, January through April. The nest is a lining of dry twigs, placed by both sexes in natural tree hole, particularly abandoned woodpecker nests. It will use nestboxes in captivity. A clutch 2–3 eggs is laid that are pale blue, rarely with faint brown spots. The incubation is performed mainly by the female for a period of 12–15 days. The chicks brooded by the female, but fed by both parents. The nestling period lasts generally 22–24 days. Hatching success in captivity is 68% with normally only one chick survives to fledging stage. Captive females more than 11 years old will no longer lay eggs.

Cool Facts: The Bali myna is also known as Rothschild's mynah, Curik Bali, the Bali starling, or the Bali mynah. Locally, it is known as jalak Bali.

Common Name: Indian Pied Myna

Scientific Name: *Gracupica contra*

Size: 8.7-9.8 inches (22-25 cm)

Habitat: Asia; it Ranges from northeastern Pakistan and much of India east through Nepal, Bangladesh and Myanmar. Despite being considered a mostly resident species, seasonal movement has been noted in the Indian Subcontinent where it is regarded as a vagrant in Sri Lanka, Jamnagar and south Gujarat. There is an established feral populations in Japan that is thought to be as numerous as 10,000 breeding pairs. There are also “escapees” in Taiwan which are estimated to number below 100 breeding pairs.

It is found in a wide variety of open areas with scattered trees, grasslands, cultivated and urban areas, including garbage dumps, sewage works, parks and gardens, mainly in lowlands. It also inhabits marshy areas, coastal flats, landward edge of mangroves and lightly wooded areas.

Status: Least Concern. **Global population:** Unknown mature individuals. Population trends vary with populations and subspecies, with some suspected to be increasing due to the adaptability to degraded habitats. The population increase is evident in parts of Haryana, Uttar Pradesh, and West Bengal in India. Range expansions have also been noted in Pakistan.



Diet: Omnivorous; this species feeds mainly on terrestrial invertebrates, fruits and nectar, and also takes seeds and flower parts. It is known to play a role in controlling insect pests.

It is an opportunistic forager, feeding largely by using its long, pointed bill to probe in mud and soil in grasslands for invertebrate prey. The beak is frequently opened wide while probing soft substrate. Fruits are taken both on the ground and from trees. It frequently visits flowering trees to feed on nectar, and also takes arthropod prey in fruiting and flowering trees. Like other terrestrial starlings, it follows cattle to catch insects disturbed by them and

follows ploughs on fields. It has been documented searching for prey by flicking over bits of dried mud crust and prying its bill beneath.

Breeding: Sexes are alike in plumage. A medium-sized starling with largely black and whitish plumage, and glossy black hood with prominent white cheeks producing a distinctive head pattern; some subspecies have white streaking in the forecrown. It has the unique combination of orange-red bare skin around the eye and a yellowish bill which is pointed and longer proportionately than most of its relatives. The inner half of the bill is a bright orange, concolorous with the facial skin. The tail is shortish. The white rump-patch contrasting with glossy black mantle and upper-tail feathers is conspicuous, especially in flight. The wings appear more rounded than smaller starling species.

Breeding may take place year-round; primarily late February to late August in India, possibly between April to September in the Middle East. Occasionally, this species will double-brood. Both sexes contribute to nest-building and it takes 11–22 days to complete. The nest is a massive, domed and coarsely globular or shapeless structure, loosely constructed mainly of straw on the outer part with an entrance on the side. The egg clutch size varies from 2 to 6 eggs and incubation lasts 14–16 days. While chicks are fed by both parents, the female is usually the main provider. Nestlings fledge at 20–25 days.

Cool Facts: This myna is regarded as an effective biocontrol agent against agricultural insect pests such as caterpillars of Black Looper in tea plantations and grasshoppers in cultivated areas of sorghum, mustard, wheat, and rice.

There are three recognized subspecies:

- *G. c. contra*. First reported by Linnaeus in 1758. The nominate race is found in northern and central India and adjacent areas in eastern Pakistan, southern Nepal, and Bangladesh. It is characterized by the combination of off-white underparts, blackish mantle contrasting slightly with the darker hood and wing, and reddish facial skin reduced to eye-ring.
- *G. c. sordida*. First reported by Ripley in 1950. This race is restricted to northern Assam region in India. It is said to differ from the very similar nominate race in having darker upper-parts and grayer under-parts, much reduced white streaks on shoulders, and black-streaked thighs rather than brown
- *G. c. supercilialis*. First reported by Blyth in 1863. This race is found from Manipur in northeastern India, to Myanmar and southwestern China. It is very similar to the other two subspecies but differs in having white streaking on the forecrown and a whiter belly.

Common Name: Javan Pied Myna
Scientific Name: *Gracupica jalla*

Size: 8.7-9.8 inches (22-25 cm)

Habitat: Asia; endemic to Java. It was formerly common in eastern Sumatra (Lampung province), Java and Bali, but is now considered virtually extirpated. It was common in Lampung in 1975–1977, but there are no recent Sumatran records. Likewise, it was common on Java and Bali in the 1990s, but has not been recorded in the wild for several years. There are reports of sightings in Pulau Dua Nature Reserve, west Java, in 2005–2006 and 2013, and others were trapped in central Java in 2010.

It is found in a variety of open areas with scattered trees, grasslands, cultivated and urban areas, but mainly in lowlands. Formerly it has been recorded up to 1,600 m above sea level in Indonesia.



Status: **Critically Endangered**. **Global population:** <50 individuals in the wild with a declining population trend. This species may be extinct in the wild however hundreds are still reported in bird markets in Indonesia, but are probably captive-bred rather than of wild origin. Fortunately, a sizable population exists in captivity, particularly in central Java. Any remaining wild population is estimated to be very small (fewer than 50 mature individuals), and interbreeding in captivity of this subspecies with its close relatives, Indian Pied Starling (*Gracupica contra*) and Siamese Pied Starling (*Gracupica floweri*), leaves considerable doubt over the survival of true wild populations of Javan Pied Starling on Java.

Their increasing popularity as cagebirds has caused wild populations to plummet, and it may have been driven extinct in the wild from capture for the pet trade. In Indonesia, trapping wild Javan Pied Starling was declared illegal in 1999, however it has not deterred poachers. Elsewhere, Javan Pied

Starling is listed as a protected species in Thailand under Wildlife Preservation and Protection Act, B.E. 2535 (1992) and is listed as a relatively low priority species in India under Schedule IV of Indian Wildlife Protection Act (1971).

Diet: Mainly terrestrial invertebrates or their larvae, such as earthworms, small crabs, centipedes, beetles, flies, snails, termites, caterpillars, water bugs, and grasshoppers and crickets. Also takes blind snakes (*Indotyphlops braminus*), and human food scraps. Also, the fruits of figs, *Glochidion obscurum*, Wild-sage, *Muntingia calabura*, *Manilkara zapota*, *Roystonea regia*, Syzygium, Ziziphus; nectar or flowers of Bombax, Butea, Erythrina, Grevillea, and Spathodea; and cereals, seeds of trees and weeds in agricultural areas.

It feeds largely by using its long, pointed bill to probe in mud and soil in marshy grasslands, on lawns and fields, mainly for invertebrate prey. The beak is frequently opened wide while probing soft substrate. It often probes dung of large mammals. Fruits are taken both on the ground and from trees. It frequently visits flowering trees to feed on nectar, and also takes arthropod prey in fruiting and flowering trees. Like other terrestrial starlings, it follows cattle to catch insects disturbed by them and follows ploughs on fields. It has been documented searching for prey by flicking over bits of dried mud crust and prying its bill beneath.

Breeding: Sexes are alike in plumage. A medium-sized starling with largely black and whitish plumage, and glossy black hood with prominent white cheeks producing a distinctive head pattern. It has the unique combination of orange-red bare skin around the eye and a yellowish bill which is pointed and longer proportionately than most of its relatives. The tail is shortish. The white rump-patch contrasting with glossy black mantle and upper tail feathers is conspicuous, especially in flight. The wings appear more rounded than smaller starling species.

Breeding takes place year-round. It is thought to be chiefly in response to rains. The peak breeding periods are January and May in West Java and April in East Java, with breeding recorded also in September and October on the island. Occasionally, it will double-brood.

Cool Facts: It previously was considered a subspecies of the Pied Myna, which has now been split into three species; the Siamese and Indian Myna being the other two.

Common Name: Siamese or Thai Pied Myna
Scientific Name: *Gracupica floweri*

Size: 8.7-9.8 inches (22-25 cm)

Habitat: Asia; Myanmar and China to Thailand, Laos, and Cambodia.

It is found in a wide variety of open areas with scattered trees, grasslands, cultivated and urban areas.

Status: Least Concern. **Global population:** Unknown mature individuals with a declining population trend. Despite being an adaptable species, and expanding its distribution locally in the south, this myna is precautionarily suspected of being in decline. In northern Thailand, the conversion of moist grazing areas to dry croplands and orchards is likely to be causing a decline. Elsewhere, in urban areas, it is thought to be adversely affected competitors like the Common Myna (*Acridotheres tristis*) and Great Myna (*Acridotheres grandis*). Nonetheless, the species remains common throughout much of its range and any decline is likely to be slow.



Diet: Mainly terrestrial invertebrates, fruits and nectar, and will also take seeds and flower parts.

It feeds largely by using its long, pointed bill to probe in mud and soil in marshy grasslands, on lawns and fields, mainly for invertebrate prey. The beak is frequently opened wide while probing soft substrate. Fruits are taken both on the ground and from trees. It frequently visits flowering trees to feed on nectar, and also takes arthropod prey in fruiting and flowering trees. Like other terrestrial starlings, it follows cattle to catch insects disturbed by them and follows ploughs on fields.

Breeding: Sexes are alike in plumage. The adult has a large, clean white oval patch on the ear coverts surrounded by a black hood that is glossed greenish extending from the throat onto the upper breast. The feathers of the crown are hackled, and the feathers of the hindcrown and nape are elongated. The forecrown is buffy white, with elongated white streaking extending back along the crown past the eye. The loreal area is off-white. The back is glossy black like the hood. A broad white bar, formed by the white outer edges to the scapulars and inner median coverts, contrasting with black wing is conspicuous at rest. The triangular white patch on the carpal area and wing coverts is conspicuous in flight. A black mantle and tail are separated by the well-defined white patch across the upper tail coverts. The black plumage becomes unglossed and more brownish, with white parts stained, in worn plumage. The lower breast and belly are plain white, with variably blackish smudges on the lower flanks and thighs.

Breeding takes place year-round. In Thailand and the mainland Southeast Asia, breeding season spans from the first week of February to August. This species nests in the crowns of trees and scrub from 1–18 m above ground. It also nests on lamppost, telegraph and electricity poles, or occasionally in the top of a bamboo stalk. It often builds nests in loose colonies, sometimes with two nests 10–12 m apart in a single tree, but generally they maintain a large territory around the nest. Both sexes contribute to nest-building and it takes 11–22 days to complete. The nest is a massive, domed and coarsely globular or shapeless structure, loosely constructed mainly of straw on the outer part with an entrance on the side. Dead grasses are used as linings. Other nesting materials frequently used include twigs, rootlets, leaves, and feathers. It tends to use rubbish materials such as plastics and polythene, wood, string, plastic bags, clothing fragments, cellophane and wire. Interestingly, animal components such as mammal bones, fish heads, fragments of fish skin, and shed snake skin are also incorporated into the nest. The clutch size varies from 2 to 6 eggs, with 4 being the typical number laid. Incubation last 14-16 days with the female on the nest most of the time. Chicks are fed by both parents, but chiefly by the female. Nestlings fledge at 20–25 days with the survival rate at about 55% after five years.

Cool Facts: It previously was considered a subspecies of the pied myna, which has now been split into three species. It can be distinguished from the Indian pied myna (*G. contra*) and Javan pied myna (*G. jalla*) by more extensive white streaking on its forehead from both and a wider extent of bare red-orange facial skin around the eye compared to *G. contra*, but much less compared to *G. jalla*.

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
- **BirdLife International** <https://www.birdlife.org/>

**Shirts, jerseys, sweatshirts,
prints, cards, posters, pillows,
coffee cups, calendars & more**

