

Songbird
ReMix

BIRDS of PREY

Volume 2: Hawks of the Old World



Avian Models for 3D Applications

Characters and Texture Mapping by Ken Gilliland

Songbird ReMix

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Volume II: Hawks of the Old World

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Volume II: Hawks of the Old World

Introduction

This Songbird ReMix Birds of Prey contains species in the Hawk family. Hawks are small to medium-sized diurnal birds of prey, widely distributed around the world and varying greatly in size. This volume contains hawks from the "old world" (Eurasia, Africa and Australia). The next volume in the series contains hawks from the "new world" (the Americas and parts of Oceania).

Hawks are divided into two groups; buteonine hawks and accipitrine hawks. The term "true" hawk is sometimes used for the accipitrine hawks. Generally they take birds as their primary prey. The term "buzzard" is preferred for the buteonine hawks. They prefer mammals.

Throughout history, culture and myth, Hawks are symbols of courage and strength. Hawking, a form of Falconry, can be traced back to at least 2000 B.C.E. in Asia, and it flourished in Europe and the Middle East from 500 to 1600. It was used for both recreation and to provide food.

Overview

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):
 - **Birds of Prey (Order Falconiformes)**
- **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. With 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

Physical-based renderers such as **Iray** and **Superfly** require more CPU and memory horsepower than the legacy renderers for DAZ-Studio and Poser because of ray-trace bounces and higher resolution meshes needed for displacement. Superfly, in particular, may crash *especially* when using the GPU-based options. The best solution is to render using one of the CPU-based options. Limiting the number of ray-trace bounces by setting "Pixel Samples" to "2" or "1" will also reduce crashes and speed renders. Of course, upgrading memory and your CPU will also help.

Where to find your birds

Type Folder	Bird Species
Birds of Prey (Order Falconiformes)	Eurasian Buzzard Western Honey-Buzzard Black Kite Black-shouldered Kite African Harrier Hawk Western Marsh Harrier Shikra African Cuckoo-hawk African Goshawk Grey Goshawk Eurasian Sparrowhawk Chinese Sparrowhawk Long-tailed Hawk

Where to find your poses

Type Folder	For what species?
Birds of Prey (Order Falconiformes)	All Birds of Prey

Morphs and their Use

All Songbird ReMix models have morphs that change the look of the loaded model to achieve additional movements and expressions that joint movements can't achieve. These are referred to in the Songbird ReMix model as "Action Morphs". Other morphs that are included can subtly or sometimes dramatically, alter the model to resemble specific species. These morphs are referred to as "Creation Morphs".

Here is a brief explanation of where the morphs are found and what they do:

BODY section:

- **Action Morphs**

- **Common Controls**

- BeakOpenClose- Controls the opening and closing of the bill
 - EyesFwdBack - Controls the forward and backward movement of the eyes
 - EyesUpDown - Controls the up and down movement of the eyes
 - EyeLidsCloseOpen - Controls the opening and closing of both eyelids. Dialing to -1 will give a rounded eye shape. The individual EyeWink controls should not be used in conjunction with this morph.
 - WingsFold- Puts both Wings into a folded position. Dialing number between 0 and 1 sometimes will give geometry issues (intersections, odd shapes) due to the nature of the complex morph.
 - TailFeathersSpread – Controls the tail feather fanning action.

- **Wing and Tail Controls**

- These controls allow both wings and each individual wing to perform numerous wing actions and also allows the Tail feather action of cupping.

- **Neck Bending**

- These controls allow global bending, twisting and moving side-to-side of the seven neck sections. Partial bending controls can also be found in each individual neck section. There is also a control to scrunch and stretch the neck.

- **Head Controls**

- Exp-Smile- Creates a smile expression.
 - Exp-Frown- Creates a frown expression.
 - **EyeLid Movement Section**- has individual controls for left and right EyeWink. These individual EyeWink controls will not work properly when the master EyeLidsCloseOpen morph is used.
 - **Tongue Movement Section**- various morphs control the movement of the tongue.

- **Feather Fluff Controls**

- CrestFluffUp- Pulls the crest up/out.
- CrestFluffLength- Controls the length of the crest (top of bird's head).
- CrestFluffHide- Hides the crest.
- BackHdFluffUp- Pulls the back head feathers up/out.
- BackHdFluffLength- Controls the length of the back head feathers.
- BackHdFluffHide- Hides the back head feathers.
- JowlFluffOut- Pulls the feathers under the eye area (jowls) out.
- JowlFluffLength- Controls the length of the jowl feathers.
- JowlFluffHide- Hides the jowl feathers.
- ThroatFluffOut- Pulls the feathers on the throat area out.
- ThroatFluffLength- Controls the length of the throat feathers.
- ThroatFluffHide- Hides the throat feathers.
- NeckFluffLength- Controls the length of the neck feathers.
- NeckFluffOut- Pulls the neck feathers up/out.
- NeckFluffDroop- Droops the front facing neck feathers.
- BreastFeathersOut- Pulls the breast feathers out.
- BreastFluffSidesIn- Pulls the breast feathers sides in so they don't intersect with folded wings.
- RaiseBackFeathers- Ruffles the feathers on the back of the bird.
- FlankFluffLength- Controls the length of the flank feathers.
- FlankFluffOut- Pulls the flank feathers out (not recommended when wings are folded).
- ThighFluffBack- Pulls the thigh feathers back on the thighs.
- ThighFluffOut- Pulls the thigh feathers out to be more fluffy.
- ThighFluffLength- Controls the length of the thigh fluff.
- RumpTopFluff- Controls the transparency feathers on the topside rump/tail of the bird.
- RumpBtmFluff- Controls the transparency feathers on the underside rump/tail of the bird.
- RumpFluffSides-Reduces the Fluff on the sides of the rump. Useful when wings are folded.
- **Correction Morphs**
 - lThighIn4Flight and rThighIn4Flight - Reduces the thigh lumps caused when legs are brought fully back for flight or perching.

● **Creation Morphs**

- Sleeker- Thins the trunk of the bird.
- BreastIn-- Reduces/Adds to breast shapes.
- BreastCrease- Creates a center crease on the breast.
- BackFlatter- Reduces the curve on the back.
- RumpAddBulk- Adds bulk to the lower portion of the rump.
- RumpSleeker- Streamlines the Hip-to-Tail Sections.
- RumpShorten- Reduces/adds to the length of the rump and tail sections.
- RumpTaper- Reduces the width of the rump and tail sections.

- RumpTopFluffWidth- Controls the width of the feathers on the topside rump/tail of the bird.
- RumpTopFluffExtend- Controls the length of the feathers on the topside rump/tail of the bird.
- RumpBtmFluffExtend- Controls the length of the feathers on the underside rump/tail of the bird.
- LegLength- Allows lengthening of the legs.
- LegThickness- Increases the girth of the shins.
- FootSize- Controls the size of the Feet.
- **Species Shapes**- These morphs create very specific looks to resemble certain species.
 - Crested Eagle and Shape Morphs- These are used with Crested eagles. Shaping morphs will only work if the CrestedEagleUnhide is active.
 - Harpy Crest Morphs- These are used with Harpy Crested-like eagles. Shaping morphs will only work if the HarpyCrestUnhide is active.
 - AfricanHarrierCrest- For use with the African Harrier Hawk.
 - HawkHead- Shapes the head for Hawks.
- **Head Shaping**
 - **Head Shapes**- These morphs control the shape of the head.
 - Hd-BigHead- Makes the head and neck parts around 30% larger
 - Hd-WedgeHead- Tapers the head from bill to back of head.
 - Hd-Rounder- Adds to the width of the head.
 - Hd-ThickenUpperNeck- Adds bulk to the upper neck.
 - Hd-ThickenNeckSides- Adds bulk to the sides of the neck.
 - Hd-FlattenCrown- Flattens the crown of the head.
 - Hd-RaiseCrown- Raises the crown of the head.
 - Hd-ForeheadLow- Reduces the forehead extending to the beak.
 - Hd-NoForehead- Reduces the forehead portion and expands the beak.
 - Hd-ForeheadOut- Adds to the forehead extending to the beak.
 - Hd-NostrilLump- Adds or subtracts from the forehead/beak area.
 - Hd-BackHeadDown- Reduces/slopes the back of the head to neck.
 - Hd-BackHeadUp- Expands/angles the back of the head to neck.
 - Hd-BigBrows- Expands the eyebrow area out.
 - Hd-BrowDownFront- Angles the front of the eyebrow area down.
 - Hd-BigBrowFwd- Expands the entire brow area forward.
 - Hd-ExpandJowls- Thickens the jowl/cheek area.
 - Hd-ForeheadSplit- Adds a center crease to the forehead area.
 - SuperOrbitalRidges- Makes Super-orbital Ridges (common in many Birds of Prey, especially eagles) more pronounced.
 - **Eye Shapes**- These morphs can change the appearance of the eyes.
 - Ey-Dilate- Controls the pupil size of the eyes.
 - Ey-BiggerEyes- Makes eyes about 20% larger.
 - **Beak Shapes**- These morphs can change the appearance of the bill.

- Bk-Length- Controls the length of the beak.
- Bk-Height- Controls the height of the beak.
- Bk-Width- Controls the width of the beak.
- Bk-SidesIn- Controls the width of the mid-portion of the beak.
- Bk-UpperRounder- Rounds the top of the upper beak.
- Bk-UpperFlatter- Flattens/angles the top of the upper beak.
- Bk-UpperBeakCurve- Adds some curving to the mouth edge of the upper beak.
- Bk-UpperBeakRaiseEnd—Raise the end of the upper beak giving an eagle-like shape.
- Bk-TomialTooth- Adds the tomial tooth found in the falcon family.
- Bk-Notch- Adds a beak notch common in the hawk family.
- Bk-Hook- Extends the hook on the upper beak.
- Bk-CornersBack- Moves the corners of the beak forward or back.
- **Nostril Shapes**
 - Bk-MoveNostrils- Moves the nostrils on the bill forward and back.
 - Bk-ThinNostrils- thins the nostrils.
 - Bk-NostrilLength- makes the nostrils longer.
- **Tongue Shapes**
 - Tng-Length- Controls the length of the tongue.
 - Tng-Width- Controls the width of the tongue.
- **Wing Shapes**- These morphs control the shape of the wings.
 - WingSpan- Allows control of Wing Length.
 - WingWidth- Expands the width of the wings.
 - WingsPoint- Brings the tips of the wings to a point.
 - HawkWingShape1- Controls the shape of the leading primary flight feathers
 - HawkWingShape2- Controls the shape of the secondary flight feathers
- **Tail Shapes**- These morphs control the shape of the tail feathers.
 - TailFanStyle-Creates the shape of the tail spread. 1=Fan, 0=Wedge
 - Length- Controls the length of the tail feathers.
 - Width- Controls the width of the tail feathers.
 - Round- Rounds the tail feathers.
 - SplitTailFeathers- Creates a wedge-shape for the tail feathers.
 - GraduatedTail- Graduates the tail feathers length from short (outside) to long (inside).
 - SquareEnds- Makes tail feathers have square ends.
- **Scale**- Controls the size of the model. The scale is proportional to the standard human characters in Poser and DAZ Studio.

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Field Guide

Eurasian Buzzard
Western Honey-Buzzard
Black Kite
Black-shouldered Kite
African Harrier Hawk
Western Marsh Harrier
Shikra
African Cuckoo-hawk
African Goshawk
Grey Goshawk
Eurasian Sparrowhawk
Chinese Sparrowhawk
Long-tailed Hawk

Common Name: Eurasian Buzzard

Scientific Name: *Buteo buteo*

Size: 16-23 inches (40-58 cm); **Wingspan:** 43-54 inches (109-136 cm)

Habitat: Eurasia and Africa; breeding populations are located on the Atlantic Islands of Cape Verde, the Azores, Canaries and Madeira, also east through most of Europe, northern and central Asia, and as far as Japan. Populations in Britain, southern Europe, Turkey, the Caucasus, Japan, and on the smaller islands are resident throughout the year. Populations from other parts of the Eurasian buzzard's range are either partially or completely migratory, with those breeding in the northernmost regions making extremely long, southward journeys to overwinter in Africa, Israel, the Arabian Peninsula, India, China and Indochina. Migration is strictly diurnal, and also often follows mountain ranges and ridges.



It breeds in woodlands, usually on the fringes, but favors hunting over open land. Birds tend to occur singly or in pairs, sometimes forming small family groups at roosts. During migration, the Eurasian buzzards may form flocks, which utilize thermals to glide for

long distances with minimal effort. When crossing large bodies of water, such as the Gibraltar straits, where thermals are absent, this species climbs as high as possible before gliding over the entire expanse.

Status: Least Concern. **Global population:** 710,000 to 1,200,000 adult individuals, with an increasing population trend. In the U.K., it suffered a significant reduction in available prey in the 1950s when a myxomatosis epidemic killed off 99% of the rabbit population. The most important historical threat though has been from persecution, including through poisoned bait traps, with pesticides and habitat loss also causing some declines. It is highly vulnerable to the impacts of potential wind energy developments.

Diet: In the breeding range in northern, eastern and central Europe, voles are the most important prey, and other small rodents, birds, frogs, and insects are also taken. Buzzards also feed on carrion and invertebrates (including earthworms). In the winter range in southern Africa, prey includes rodents, lizards, and insects. Most prey are captured after a descent from a perch, but this species also soars to locate potential food, and it also hovers like a kestrel.

Nesting: While sexes are alike, females are noticeably larger than males. The plumage can vary from almost pure white to black, but is usually shades of brown, with a pale 'necklace' of feathers. The upperparts are darker than the underparts, and the wingtip and trailing edge of the wing are also noticeably darker than the rest of the wing feathers. Both the tail and flight feathers are barred, and the throat and breast may be streaked.

They are fiercely territorial and dominant displays of aggression will normally push off interlopers. Pairs mate for life. To attract a mate or impress his existing mate, the male performs a ritual aerial display before the beginning of spring. He will rise high up in the sky, then turn and plummet; twisting and turning in a spiral as he descends. He then rises immediately upward to repeat the pattern; this is known as "roller coasting".

Buzzards build a large platform stick nest lined with smaller sticks and green foliage. It is usually placed in a tree, but sometimes is placed on rock ledges or on quarry faces. The clutch size, in most of its range, is 2-4 eggs, which are white with brown markings. The incubation period is 28-30 days.

Cool Facts: The Eurasian Buzzard is also known as the Common or European Buzzard.

There are many subspecies of Buzzards. They fall into two groups; Western and Eastern:

- Western:
 - *B. b. buteo*; Found in most of Europe
 - *B. b. rothschildi*; Found in the Azores

- *B. b. insularum*: Found in the Canary Islands
- *B. b. arrigonii*: Found in Corsica and Sardinia
- *B. b. menetriesi*: Found in Caucasus
- *B. b. harterti*: Found in Madeira
- Eastern:
 - *B. b. vulpinus* (known as the “Steppe buzzard”): Found in Eurasia: migrant breeder
 - *B. b. burmanicus* (known as the “Himalayan buzzard”): Found in the Himalayas and western China
 - *B. b. japonicus*: Found in Japan: resident
 - *B. b. toyoshimai*: Found in the Izu Islands and Bonin Islands
 - *B. b. oshiroi*: Found in the Daito Islands



Common Name: Western Honey-Buzzard

Scientific Name: *Pernis apivorus*

Size: 20.4-23.6 inches (52-60 cm); **Wingspan:** 53-59 inches (135–150 cm)

Habitat: Eurasia and Africa; a highly migratory species, breeding in countries across Europe during the summer months, before migrating south to spend the winter in Africa. During migration, the honey-buzzard makes its way primarily overland, with most migrating individuals crossing into Africa through the Straits of Gibraltar. From there, migration continues into areas throughout sub-Saharan Africa, where the honey-buzzard will overwinter.



Across its summer breeding range, the honey-buzzard prefers mixed deciduous or coniferous lowland forest and woodland, typically where there are open patches and clearings. Its wintering habitat across Africa varies depending on the region, although it most often inhabits equatorial forest edges, clearings and moist woodland. Occasionally it will reside in lowland rainforest.

Status: Least Concern. **Global population:** 350,000 to 1,000,000 adult individuals. The population is suspected to be stable. Many birds are shot on migration, notably in Italy,

Malta and Lebanon. Population declines in northern Europe have resulted from deforestation, forest conversion and shooting. Human disturbance is also a threat. Although pesticide use has not had significant impacts in Europe (due to the species living in woodland and feeding on wasps), it may have an impact in Africa, where there are fewer restrictions on usage of pesticides and the species may be poisoned through its locust prey. It is very highly vulnerable to the effects of potential wind energy development.

Diet: They feed on the larvae, pupae and adults of social insects, such as wasps, bees and hornets. In periods when the main prey items are scarce, the honey-buzzard is capable of feeding on other insect species, as well as on amphibians, small reptiles and mammals, the nestlings and eggs of other birds, and also fruits and berries.

When hunting, the honey-buzzard will perch or fly, watching for foraging insects. Once it has located a suitable prey item, it will follow the insect back to its nest, which it will break apart with its powerful feet, feeding on the larvae content as it digs. The feet of the honey-buzzard are well adapted for walking and digging, with straight claws and a covering of thick scales, which also act to protect the bird against stinging insects.

Nesting: The diversity of coloration and patterning of the honey-buzzard is more extreme than any other bird of prey, with at least ten distinct color morphs in adult birds. The 'typical' honey-buzzard is grey-brown on the upperparts, with a grey crown and face, and a whitish throat with dark streaks. The underbody is most often white or cream, or occasionally pale rufous (reddish) in color, and usually has defined bars in cinnamon, rufous, brown or black. Some individuals may be less heavily barred, and instead have splotches, or spots, in black, brown, or rufous. The tail of the honey-buzzard is usually greyish or pale brown, with a creamy-white tip and contrasting dark bands. The flight feathers tend to be darker above, with a pale tip and a broad black bar, whilst the undersides are most often whitish, with dark tips. The female European honey-buzzard is generally darker and browner than the male, with less defined barring and often appearing more mottled. Females are noticeably larger than males.

Breeding occurs during the summer months, from mid-June onwards, and is timed to correspond with peaks in abundance of bees and wasps. The nest is built in a tree, about 10m to 30m off the ground, and is constructed of twigs and many green, leafy branches and other live plant materials, and lined with leaves. Honey-buzzards may use the foundations of an old squirrel, crow, or buzzard nest.

Following a courtship where the male will perform an undulating flight pattern, swooping, gliding, and quivering in the air, the pair will mate.

The female will produce a clutch of between one and three eggs. Both parents take turns incubating the eggs for 30 to 35 days. After hatching, the chicks are fed by both parents and will fledge in 40 to 44 days. They become independent at 75 to 100 days.

Cool Facts: Contrary to its name, the European honey-buzzard is not related to other species of buzzard (*Buteo spp.*), and is instead considered to be a distinctive species of kite. It gets its name for attacking bee and wasp nests, although its goal is to eat the insects, not the honey.

It is also known as the European honey buzzard, Bondrée apivore or simply the “honey buzzard”.



Common Name: Black Kite
Scientific Name: *Milvus migrans*

Size: 8.7-12.2 inches (22-31 cm); **Wingspan:** 20.1-24 inches (51-61 cm)

Habitat: Eurasia, Africa and Australia. The tropical populations of this kite are resident. The temperate populations, found in Europe and central Asia, tend to be migratory, moving to the tropics in winter. When migrating, kites have a greater propensity to form large flocks than other migratory raptors, particularly prior to making a water crossing. In winter, they also form large communal roosts, where the flock may fly about before settling.

It is found throughout all habitats, although it tends to avoid dense woodlands.

Status: Least Concern. **Global population:** 6,000,000 adult individuals. Despite being possibly the most common raptor in the world, the population has declined owing to poisoning, shooting, pollution of water and over-use of pesticides. Modernization of urban environments and agricultural improvements are also thought to be causing declines locally. However, in Europe, trends since 1982 show that populations have undergone a moderate increase.



Diet: An extremely versatile feeder, it takes carrion as well as live birds, mammals, fish, lizards, amphibians and invertebrates. It is even known to forage on vegetable matter

such as palm oil fruits and human refuse has become a plentiful food source in many areas.

They spend a lot of time soaring and gliding in thermals in search of food.

Nesting: Females are noticeably larger than males. The sexes are alike. The upper plumage is brown but the head and neck tend to be paler. The patch behind the eye appears darker. The outer flight feathers are black and the feathers have dark cross bars and are mottled at the base. The lower parts of the body are pale brown, becoming lighter towards the chin. The body feathers have dark shafts giving it a streaked appearance. The cere and gape are yellow, but the bill is black. The legs are yellow and the claws are black.

The breeding season of black kites in India begins in winter, the young birds fledging before the monsoons. The nest is a rough platform of twigs and rags placed in a tree. Nest sites may be reused in subsequent years. European birds breed in summer. Birds in the Italian Alps tended to build their nest close to water in steep cliffs or tall trees. Nest orientation may be related to wind and rainfall.

After pairing, the male frequently copulates with the female. The reason for this is that unguarded females may be approached by other males and raped. When the paired male returns from a foraging trip, he will copulate with his mate again, thus increasing the chances of his sperm fertilizing the eggs rather than those of a different male. Both the male and female take part in nest building, incubation and the care of chicks. The typical clutch size is 2 - 3 eggs. The incubation period varies from 30–34 days.

Siblings show aggression to each other and often the weaker chick may be killed. In scientific studies parent birds were found to preferentially feed the smaller chicks. The parents guard their nest, diving aggressively at intruders. Humans, who intrude on the nest, appear to be recognized by birds and singled out for dive attacks.

Cool Facts: The red kite has been known to hybridize with the black kite in captivity where both species were kept together, and in the wild on the Cape Verde Islands.

Black Kite nests may sometimes be decorated with bright materials such as white plastic and a study in Spain suggests that they may have a role in signaling to keep away other kites.

There are several subspecies of black kite:

- *Milvus migrans migrans*, first described by Boddaert in 1783. The "European Black Kite" breeds in Central, Southern and Eastern Europe, as well as the Maghreb region of Northwest Africa, to Tien Shan and south to northwest Pakistan. It winters in Sub-Saharan Africa. The head is whitish in color.
- *Milvus migrans lineatus*, first described by J. E. Gray in 1831. The "Black-eared Kite" is found in Siberia to Amurland, the Southern Himalayas to Northern India, Northern Indochina, Southern China and Japan. Northern inland birds migrate to

the Eastern Persian Gulf coast and Southern Asia in winter. It has a larger pale carpal patch.

- *Milvus migrans govinda*, first described by Sykes in 1832. The "Small Indian Kite" is a resident in Eastern Pakistan, east through tropical India and Sri Lanka to Indochina and Malay Peninsula. In urban areas it can be seen circling and soaring. It is easily distinguished by its shallow forked tail.
- *Milvus migrans affinis*, first described by Gould in 1838. The "Fork-tailed Kite" is found in Sulawesi, the Lesser Sunda Islands, Papua New Guinea (except mountainous areas) and in Northeast and Eastern Australia.
- *Milvus migrans formosanus*, first described by Kuroda in 1920. The "Taiwan Kite" is found in Taiwan and Hainan, where it is a resident.



Common Name: Black-shouldered Kite

Scientific Name: *Elanus axillaris*

Size: 13.8-15 inches (35-38 cm); **Wingspan:** 31.5-37.4 inches (80-95 cm)

Habitat: Australia; while reported from almost all parts of Australia, they are most common in the relatively fertile south-east and south-west corners of the mainland, and in south-east Queensland. They are rare in the deep desert and appear to be only accidental visitors to northern Tasmania and the Torres Strait islands. They are sedentary, or nomadic following food sources. Their numbers fluctuate during drought and floods, and can be irruptive in response to sudden increases in mouse populations.



They prefer open areas with scattered clumps of trees, including tree-lined watercourses through open country. In urban environments, they are found on the edge of towns, in open grassy areas, dumps or other areas, where mice may occur. They also hunt over coastal dunes, drier marshland and farmlands.

Status: Least Concern. **Global population:** 4,000,000 adult individuals. Major threats include wetland desiccation and drainage; persecution by shooting; pollution, especially

from excessive pesticide use in and around wetlands (although widespread bans have reduced this threat somewhat), and poisoning by heavy metals, notably the consumption of lead-shot through feeding on contaminated carrion. The species is also highly vulnerable to the effects of potential wind energy development.

Diet: Almost exclusively mice also they will take other suitably sized creatures when available, such as grasshoppers, rats, small reptiles, birds, and even (very rarely) rabbits.

Black-shouldered kites usually hunt singly or in pairs, though when food is plentiful, like during a mouse plague, they occur in small family groups and can be loosely gregarious, with up to seventy birds reported feeding together.

Nesting: Females are noticeably larger and up to 15% heavier than males. Adults are a very pale grey with a white head and white underparts. The leading edge of the inner wing is black. When perched, this gives them their prominent black "shoulders", hence their common name. They have a squared tail and a streamlined aerodynamic body. Their eyes are red, with a black eyebrow that extends behind the eyes. The bill is black, short with a sharp, hooked tip to the upper mandible. Their nostrils and cere are bright yellow. The legs and feet are also yellow.

Aerial courtship displays involve single and mutual high circling flight, and the male may fly around slowly with stiff exaggerated flaps, commonly known as "butterfly-flight". Courting males dive at the female, feeding her in mid-flight. The female grabs food from the male's talons with hers while flipping upside-down. They may lock talons and tumble downwards in a ritualized version of grappling, but release just before landing. All courtship displays are accompanied by constant calling by the pair.

Black-shouldered kites form monogamous pairs. The breeding season is usually August to January, but is responsive to mice populations. Both sexes are involved in building the nest. The nest is a large untidy shallow cup of sticks, lined with green leaves and felted fur. It is usually located in the foliage near the top of trees.

Females perform most of the care of eggs and nestlings, though males take a minor share of incubation and brooding. The clutch consists of 3-4 dull white eggs of a tapered oval shape. Red-brown blotches are often heavier around the larger end of the egg. The female incubates the eggs for 30 days. The nestling period lasts around 36 days, and the post-fledging period at least 36 days with parental feeding for at least 22 days.

Cool Facts: Black-shouldered kites hunt by quartering their grasslands while searching for small creatures. This can be from a perch, but more typically they will hover, 10 to 12 m (30-40 ft) above a particular spot, with their body hanging almost vertically and their head into the wind. They will peer down intently, sometimes for only a few seconds, often for a minute or more, then glide swiftly to a new vantage point and hover again.

When a mouse or other prey is spotted, the kite drops silently onto it, feet-first with wings raised high; sometimes in one long drop to ground level, more often in two or more stages, with hovering pauses at intermediate heights. Prey is seized in the talons and about 75% of attacks are successful. Prey can either be eaten in flight or carried back to a perch. Birds will have a favored feeding perch, beneath which piles of pellets or castings accumulate

When hunting from a perch, a dead tree is the preferred platform. The black-shouldered kite grips a vertical branch with a foot on either side, each one above the other and turned inwards, which enables them to maintain a secure footing on relatively small branches.



Common Name: African Harrier Hawk
Scientific Name: *Polyboroides typus*

Size: 23.6-26 inches (60-66 cm); **Wingspan:** 48-53 inches (120-135 cm)

Habitat: Africa; they are widely distributed throughout sub-Saharan Africa, from Senegal east to Sudan, Eritrea and Ethiopia, and south to South Africa, as well as on the island of Pemba. *P. t. pectoralis* occurs from Senegal to western Sudan, and south to Angola and the Democratic Republic of the Congo, while *P. t. typus* has a more eastern and southerly distribution, from eastern Sudan and Eritrea, south through East Africa, the eastern Democratic Republic of the Congo and Angola, and as far south as South Africa. Although resident in most areas, the African harrier-hawk may make some seasonal movements in parts of West Africa and may be locally nomadic in parts of southern Africa.



It inhabits mainly forest, woodland, wooded savanna, tall riparian vegetation and wooded ravines, up to elevations of around 3,000 m. In large areas of continuous forest, the African harrier-hawk is generally found at the forest edges, in clearings or close to rivers, and also readily adapts to partly deforested areas and to plantations, particularly

stands of eucalyptus trees. In hilly or mountainous terrain the species is often associated with cliff faces, though it also inhabits flat plains.

Status: Least Concern. **Global population:** Unknown amount of adult individuals. Major threats include wetland desiccation and drainage; persecution by shooting; pollution, especially from excessive pesticide use in and around wetlands (although widespread bans have reduced this threat somewhat), and poisoning by heavy metals, notably the consumption of lead-shot through feeding on contaminated carrion. The species is also highly vulnerable to the effects of potential wind energy development.

Diet: Omnivorous. Its diet includes small mammals such as rodents and bats, as well as birds, eggs and nestlings, lizards, amphibians and insects. It may also occasionally take stranded fish or carrion. In West Africa, Harrier-hawks often feed on oil-palm fruits.

Its ability to climb, using wings as well as feet, and its long double-jointed legs, enable this bird to raid the nests of cavity-nesters such as barbets and woodhoopoes for fledglings. It has been known to prey on introduced species such as feral pigeons, house sparrows and eastern gray squirrels.

Nesting: Females are noticeably larger than males. The upperparts, head and breast are pale grey. The belly is white with fine dark barring. The broad wings are pale grey with a black trailing edge fringed with a narrow white line. The tail is black with a single broad white band. There is a bare facial patch of variable color, usually red or yellow. Genders are similar, but young birds have pale brown instead of grey, and dark brown replacing black.

The breeding season of the African harrier-hawk varies with location. During courtship, the male performs a slow, circling display flight, and, upon being joined by the female, the pair may come together, with the female rolling over and the pair sometimes briefly touching claws in mid-air.

Usually the nest is relatively large, built with sticks and lined with sprays of green leaves. It is placed in a tree or on a cliff ledge. One to three eggs are laid. They hatch after an incubation period of about 35 days. Older chicks often kill younger siblings soon after hatching, with usually only one or sometimes two chicks surviving. They fledge after 45 to 55 days.

Cool Facts: An unusual trait of this species is the double-jointed knees it possesses, which enable it to reach into otherwise inaccessible holes and cracks for prey. A comparable leg-structure and behavior can be found in the Neotropical crane hawk which is a case of convergent evolution.

There are two subspecies of African harrier-hawk:

- *Polyboroides typus typus*. The nominate species.
- *Polyboroides typus pectoralis*. This species is smaller and darker than the nominate species with more barring on the underparts.

Common Name: Western Marsh Harrier
Scientific Name: *Circus aeruginosus*

Size: 17-21.2 inches (43 to 54 cm); **Wingspan:** 45-51 inches (115-130 cm)

Habitat: Eurasia and Africa; this species breeds in almost every country of Europe but is absent from mountainous regions and subarctic Scandinavia. It is rare but increasing in Great Britain where it has spread as far as eastern Scotland. In the Middle East, there are populations in Turkey, Iraq, and Iran, while in Central Asia the range extends eastwards as far as north-west China, Mongolia, and the Lake Baikal region of Siberia.

Most populations of the western marsh harrier are migratory or dispersive. Some birds winter in milder regions of southern and western Europe, while others migrate to the Sahel, Nile basin and Great Lakes region in Africa, or to Arabia, the Indian subcontinent, and Myanmar. The all-year resident subspecies *C.a. harterti* inhabits Morocco, Algeria, and Tunisia.



As the common name would suggest, marsh harriers are usually found in wetlands.

Status: Least Concern. **Global population:** 500,000 to 2,000,000 adult individuals. The species underwent a decline in numbers in the 18th and 19th centuries due to the effects of habitat drainage and persecution for predation upon game species. The population declined to just a single pair between 1959 and 1971, mainly as a result of egg-shell thinning caused by organochloride pesticides such as DDT. After 1972 the population began to recover. Current threats include the deliberate disturbance of nesting sites, egg collecting, illegal poisoning and predation by foxes. The small size of reedbed habitats may result in an increased impact of disturbance.

Diet: Small mammals and birds, carrion and sometimes insects, frogs and fish.

Hunting generally occurs over agricultural land or open habitat containing aquatic vegetation and at 2-6 m above ground. When prey is located the bird suddenly drops down with its talons outstretched.

Nesting: The plumage color is variable, but mainly brown. Females and immature individuals have creamy colored crowns and throats; mature males have dark brown bodies and wings, with the underside of the wings being pale-grey. Females are noticeably larger than males.

The start of the breeding season varies from mid-March to early May. Western marsh harrier males often pair with two and occasionally three females. Pair bonds usually last for a single breeding season, but some pairs remain together for several years. The courtship display involves the male flying in circles at a great height over the breeding area, then performing an elaborate sequence of tumbles as it falls toward the ground. Occasionally the female may join him, and the pair lock talons and tumble through the air together. As the season progresses the male may be seen dropping food into the female's talons in mid-air.

The female constructs the nest on the ground. It may measure up to 80 cm in diameter, and is made with grass, reeds and sticks. Three to eight eggs are laid. The eggs are incubated for 31–38 days and the young birds fledge after 35–40 days. Both parents contribute to the feeding of the chicks.

Cool Facts: There are records of marsh harriers in Britain that date from the Iron Age, about 3000 years ago. Excessive pesticide use dropped the population in Britain to extinction levels before pesticide banning and conservation measures were put in place in 1972. The populations stabilized, and by 1994, there were 129 pairs. There are over 200 pairs today.

The western marsh harrier is divided into two subspecies:

- *C. a. aeruginosus*, Widely migratory. It is found across most of its range.
- *C. a. harterti*. A resident all-year in north-west Africa.

Common Name: Shikra
Scientific Name: *Accipiter badius*

Size: 10.2-11.8 inches (26-30 cm); **Wingspan:** 21.5-24 inches (55-61cm)

Habitat: Africa and Asia; breeds from the southern part of Russia, east to South China, south as far as Sri Lanka, and in Africa south of the Sahara from Gambia and Ethiopia to the Cape Province.

Its preferred habitat is savannahs or cultivated areas. It is not found in dense forest or in very dry country. In South Central Asia, India, Burma and parts of South China, it frequents natural savannahs, areas of cultivation and it is also quite common in areas of



housing. In India two pairs may be found breeding within 30 acres, and in savannahs of Africa they may be found at intervals of a mile or less. They are usually seen singly or in pairs. The flight is typical with flaps and glides.

Status: Least Concern. **Global population:** 4,000,000 adult individuals. .

Diet: Rodents (such as the Indian desert jird, *Meriones hurrianae*), squirrels, small birds, small bats, small reptiles (mainly lizards but sometimes small snakes) and large insects.

Nesting: The adult male is clear grey above, with just a hint of rufous forming a half-collar. Primary flight feathers are dark grey, tipped with black, with white bases on the inner webs, and barred with dark brown or black. Below, the chin and throat are white, with a narrow black streak at the center. The sides of face and neck are greyish red; the breast and belly are white, finely barred with chestnut. The under-tail thighs are white. The tail is grey, with five dark bars and a dark tip. Underneath, the wings are rufous to buff. The inner lining of the wing quills is grey, shading to pinkish buff, darker towards the tip. The eyes vary from golden to red, the cere from yellow to orange, and the legs yellow. Females are larger and more slatey above. They are also more clearly barred below than males. Immatures are brownish grey above, with paler edges to the feathers. The tail is grey with four or five clear dark bars, the last of which is quite broad. Below, it is white to buff with drop-shaped spots and streaks of reddish brown. The tail is barred grey and dark brown below. The underside of the wing is similar to the adult, but more rufous generally. The eyes are brown, the cere and feet yellow to greenish yellow.

The nuptial display is a fluttering flight above the treetops, accompanied by frequent calling, the male rising and falling in flight, sometimes joined by the female. Mating takes place on a perch, the male perching first and calling the female, who then alights beside him; the male then flies to a higher perch, where he strokes his beak, before flying down to mount the female. It is a very noisy process, and helps to attract attention to the breeding site, but it ceases during nest-building and after eggs are laid.

The nest is a small structure of thin sticks, eight to twelve inches across and three to six inches deep. A new nest is built each year, although usually in the same general area. It is placed at between twenty and forty feet above ground, well out on a lateral branch. It is lined with green leaves. Only the female builds, while the male stays nearby. Building takes about ten days and is chiefly done during the morning.

From two to four eggs are laid on consecutive days. They are greenish white or pale bluish, normally unmarked, but in some races with a few pale brown or grey flecks and blotches; African eggs are more often marked than Asian. Laying dates vary geographically. The breeding season is in the late spring in the northern part of the range, and in the dry season elsewhere.

The female takes sole responsibility for incubation; she is called off the nest to feed by the male and tears up the prey very quickly. The incubation period is between 30 and 35 days. Both sexes bring food to the nest, but the female stays with the young in the early stages and collects most of the prey from the male, who does not normally feed the young. The fledging period is a little over 30 days.

Cool Facts: The word “shikra” means hunter in the Hindi language. It is also called the Little Banded Goshawk.

The shikra was a favorite among falconers in India and Pakistan due to the ease with which it could be trained and it was frequently used to procure food for the more prized falcons. They were noted for their pluck and ability to take much larger birds including partridges, crows and even young peafowl.



This species shows a good deal of regional variation, generally represented as distinct races:

- *Accipiter badius badius* – Found in South India and Sri Lanka. This is the nominate race.
- *Accipiter badius dussumieri* – Found in India from Kashmir and Sikkim south to Central India. This race is larger, paler grey above and paler rufous barring below than *Accipiter badius badius*.
- *Accipiter badius cenchroides* – Found in Central Asia. This race is paler than *Accipiter badius badius* or *Accipiter badius dussumieri*.
- *Accipiter badius poliopsis* – Found in Assam, east to eastern China, south to Indo-China. Large, similar to *Accipiter badius dussumieri*, but with a greyer head.
- *Accipiter badius sphenurus* – Found in Africa from Gambia to Ethiopia south to Zaire, Tanzania and Saudi Arabia. This race is smaller, darker and duller grey above, with darker wing quills, and more rufous below than the Asiatic races.
- *Accipiter badius polyzonoides* – Found from South Tanzania south to the Cape Province. Again, a smaller bird, similar to *Accipiter badius sphenurus*, but with some white spots on wing coverts and mantle in many individuals

Common Name: African Cuckoo-hawk

Scientific Name: *Aviceda cuculoides*

Size: 15-16.5 inches (38-42 cm); **Wingspan:** 33.5-37.4 inches (85-95 cm)

Habitat: Africa; much of sub-Saharan Africa, from Senegal in the west to Cameroon, extending east across to Kenya, and south as far as Angola on the west coast and south-east South Africa on the east coast.



It is predominately a forest and woodland dwelling species. It is found in trees surrounding rivers, humid savannah woodland, eucalyptus and pine plantations and even suburban gardens.

Status: Least Concern. **Global population:** 10,000 to 100,000 adult individuals. The population is suspected to be stable in the absence of evidence for any declines or

substantial threats. It is affected by the loss of forest habitat and can be the victim of predation by larger raptors.

Diet: Mainly large insects, such as beetles, grasshoppers and termites, and reptiles, such as snakes and lizards, but it has also been known to take small mammals, birds, fish and even crabs.

Nesting: Females are noticeably larger than males. The head, neck and upper chest are mainly grey, with a small, blackish crest at the back of the head and a thin chestnut patch on the nape of the neck. The remaining upperparts are mainly blackish-brown, with short, black tail feathers, marked with three grey bands and ending with grey-white tips. The most striking features of this species are its brightly colored eyes, yellow in the female and orange-red in the male, as well as its white underparts, which are distinctively patterned with a series of dusky bars. The juvenile is mainly brown above, with a white streak running above the eye, and white below, with an irregular patterning of dark blotches on the flanks and breast.

The breeding season coincides with the rainy season in the tropics and varies according to location, with southern African populations breeding from September to March, West African populations from June to August and Kenyan populations from November to June. During courtship, small groups of males form, and engage in soaring flights, turning in the air in order to display their plain or barred wing linings. Once breeding pairs are established, the male and female may also soar and circle around one another. The pair build an untidy nest in the fork of a tree, composed of leafy twigs, with a small, leaf-lined cup in the center into which two to three eggs are laid. These are incubated for around 32 to 33 days, with the chicks brooded for a further 30 to 42 days before fledging.

Cool Facts: The African Cuckoo-hawk is also called the African baza.

There are three subspecies which inhabit different locations and habitats, and can be distinguished by the coloration and markings of the plumage.

- *Aviceda cuculoides batesi* has the darkest upperparts and heavily barred underparts
- *Aviceda cuculoides cuculoides* has solid chestnut wing linings
- *Aviceda cuculoides verreauxi* has distinctive white barred wing linings.

Common Name: African Goshawk
Scientific Name: *Accipiter tachiro*

Size: 13.7-15.7 inches (35-40 cm); **Wingspan:** 26.7-28.7 inches (68-73 cm)

Habitat: Africa; found in Angola, Botswana, Burundi, Central African Republic, Democratic Republic of the Congo, Eritrea, Ethiopia, Kenya, Lesotho, Malawi, Mozambique, Namibia, Rwanda, Somalia, South Africa, South Sudan, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe.

This hawk prefers deep forests, secondary growth, river strips and, in East Africa, the denser savannahs and mountain forests.



Status: Least Concern. **Global population:** Unknown amount of adult individuals. Major threats include wetland desiccation and drainage; persecution by shooting; pollution, especially from excessive pesticide use in and around wetlands (although widespread bans have reduced this threat somewhat), and poisoning by heavy metals, notably the consumption of lead-shot through feeding on contaminated carrion. The species is also highly vulnerable to the effects of potential wind energy development.

Diet: Mostly birds, some mammals, and occasionally lizards, frogs and insects. It is a bold and successful poultry thief in forest villages.

It remains inside heavy growth most of the time, but will cross open spaces, particularly in the early morning and evening when it catches much of its prey. It uses lines of trees or hedges as cover for hunting purposes, flying along them and suddenly over or through them to surprise prey beyond. It frequently perches near a waterhole in the forest, to catch small birds coming to drink. It takes a fair proportion of its food sources from the ground.

Nesting: This is a very variable species, and has been split into several sub-species with regional color variations.

The nominate species is dark slate grey, paler on the cheeks, becoming sooty on the mantle and lower back. The tail is blackish brown, with three large white patches on the central tail feathers, forming broken white bars when spread. The upper-wing coverts are blackish brown. Primaries and secondaries are dark brown, banded with black and white at the base of the inner webs. Chin and throat are white, mottled grey. The underside of the body, under-wing coverts, axillaries and under-tail coverts are white, barred with rufous. The sides and thighs are chestnut, lightly barred with white. The underside of the tail is grey, with three broad black bars. The underside of the wing quills are grey, darker towards tips, with three, four or five dark bars. The eyes are orange-yellow, the cere greenish yellow, and the feet yellow.

The female differs from the male in being 15% larger, browner, and more heavily marked below with the bars being dark brown rather than rufous. The tail bars are less distinct, and greyer.

Immatures are browner still, show whiter on the nape, and some pale edges to the feathers of the upper side. The tail is brown, narrowly tipped with buff, with four black bars, but without the white crossbars of the adult. Under parts are white to buff, heavily spotted on the breast and heavily barred dark brown on the flanks and under-wing coverts, the thighs are closely spotted and barred with sepia. Flight feathers are grey below, shading to pinkish buff basally, broadly barred dark brown. The eyes are brown, the legs and cere greenish. This plumage develops into the adult by becoming more slaty above, the crossbars developing in the tail, and by developing more barring below, with patches of chestnut on thighs and flanks.

At the onset of the breeding season both sexes perform a display flight, a hundred feet above the forest canopy, but sometimes much higher, circling slowly with bursts of wing-flapping interspersed with glides, and calling 'kwit'. This is most often in the early morning. Sometimes the wing flaps are slow and measured, almost harrier-like (chiefly males). They also perch on a branch at treetop level and call, in the morning and evening (if the call comes from thick cover it is likely to be a Robin-chat mimicking the Goshawk).

Nests are constructed annually, both sexes taking part, but sometimes an old nest is refurbished. It is made at any height from twenty to sixty feet above ground, well concealed in a thick-leaved tree. It is a small structure, up to two feet across and three feet deep. The cup, about nine inches across by three inches deep, is lined with finer sticks and green leaves.

Two or three eggs are laid at three-day intervals. They are white or greenish white, sometimes sparsely marked with brown and lilac. The breeding season normally coincides with the latter part of the dry season, but sometimes extends well into the wet season.

Incubation is carried out by the female only, and the period is 28 to 30 days. She sits very tight, and only leaves the nest about twice a day for brief spells. She is fed on the nest by the male.

The young hatch at two, three, or even four-day intervals, resulting in considerable variation in size. Feathers first show through the down at about fourteen days and they are full-feathered by twenty days. They attempt to tear up prey by themselves from six days onwards, but continue to be fed by the female up to 28 days, less frequently towards the end of the fledging period. They make their first flight from the nest tree at about 32 days.

The female broods the young closely in the early stages. and thereafter remains in the vicinity of the nest much of the time. The prey in the early fledging period is brought by the male, and the female consumes what the young do not eat. The male does not stay to feed the young even when he arrives on the nest in the female's absence, and seldom visits the nest when she is there. Several kills may be brought in a day. In the early stages the female will leave the nest to receive prey from the male, and in the later stages she too takes part in killing and bringing prey for the young. The female roosts in the nest with the young in the early fledging period and the male in a tree not far away.

After the young make their first flights they return to roost in the nest or in the canopy of the tree above it, for up to two weeks. Thereafter they will remain in the neighborhood of the nest for up to two months.

Cool Facts: It is often considered conspecific with the Red-chested goshawk of western and central Africa.

Common Name: Grey Goshawk
Scientific Name: *Accipiter novaehollandiae*

Size: 15.7-21.6 inches (40-55 cm); **Wingspan:** 27.5-43.3 inches (70-110 cm)

Habitat: Oceania/Australia; it is found along the coasts of northern, eastern and south-eastern Australia, Tasmania and rarely Western Australia, the Lesser Sunda Islands, Moluccas, New Guinea, and the Solomon Islands.

It is most commonly found throughout its range in forests or woodland. In Australia and Tasmania, it is a bird of wooded country, extending round the continent to the north-west (Kimberley Mountains) and avoiding the desert regions of the interior. It is resident where it occurs and does not migrate. The New Guinea and Island races can be found in dense jungle, both in mountains and near the coast. In heavily forested areas, it favors secondary growth or open clearings, villages and native gardens.

Status: Vulnerable. **Global population:** 2500-9999 mature individuals. The grey goshawk was listed as threatened on the Victorian Flora and Fauna Guarantee Act



1988. In 2007, it was up-listed on the advisory list of threatened vertebrate fauna in Victoria, to vulnerable. The current population trend appears to be again in decline due to ongoing habitat destruction and human persecution of this hawk.

Diet: Diet depends on the subspecies. The larger Australian form takes birds up to the size of a fruit pigeon, small megapodes, mammals up to the size of a rabbit, reptiles, including snakes, and some insects. The smaller island forms eat small birds, small ground mammals, lizards, and large insects, with probably a larger proportion of insects and lizards than the continental race.

Avian prey is taken either on the wing or on the ground; mammalian, reptile and insect prey on the ground or from the branches of trees. The hawk hides in the cover of woodlands or forest, and attacks birds and other prey either in the open or inside the cover. It will plunge into dense vegetation in pursuit of prey on occasion. Sometimes it soars almost with the ease of a buzzard. The larger Australian forms are less agile than some of the small island forms and hunt either from perches within woodland, or by flying low through the trees in the hope of surprising prey. The white morph birds benefit from their similarity to the cockatoo when approaching other birds.

In all races, sexual dimorphism decides prey choice. The smaller males tend to take more birds while the larger females take more mammals and reptiles on the ground.

Nesting: The adult markings in Australia are variable. With the white morph, it is pure white with reddish orange eyes, and yellow cere and feet. White birds predominate in the south-east and in the north-west. In Tasmania all birds are white. Immatures in the white morph are pure white like the adult. The eye color is brown, becoming reddish, at about two months old. The cere and feet are yellow.

With the grey morph, it is clear pale grey above, except for faint white barring on the rump, white edges to inner webs of tail quills, and about eleven dark grey bars on the tail quills. Below, the throat is white, the sides of the face and the neck pale grey. Its breast is barred grey and white; the rest of the underside, including under-wing is white with some faint grey barring on thighs. Tail quills below are silvery, faintly barred grey on inner webs. Primaries are grey and white; secondaries pale grey, barred basally on inner webs with grey and white. The eye is red and the cere and legs are yellow. Grey morph birds predominate in the center portion of the Australian range. Females are much larger than males and, in the grey morph, rather darker and more heavily barred; otherwise alike. Immatures in grey morph differs from the adult in being greyer generally, more heavily barred below, with a grey wash over much of the underside. The cere and feet are yellow.

The New Guinea races, with white morph, form intermediate links between the large Australian birds and the smaller, brightly colored island races. Almost all the island races of this species differ from the nominate race in being grey above and chestnut, rufous, or vinous below, the underside being either plain or more or less barred, the

grey upper side varying greatly in shade from pale slate to almost black, sometimes with a rufous collar. The general trend is for the races inhabiting tropical forests to be darker above and more richly rufous below.

In general, the paler forms among the island races are from the western part of the range, and the darkest forms occur in the Solomon Islands. The adult in white morph is impossible to confuse with anything but a white cockatoo; the same applies to the white New Guinea forms. The pale grey Australian form is likewise much paler than, and easy to distinguish from, the slate-colored and strongly barred Australian Goshawk (*Accipiter fasciatus*). The plain-breasted Island forms, with rufous or vinous under sides and grey or slaty upper sides, are also unmistakable in adult plumage. They appear bulkier in flight than other *Accipiter* species in the same area. The barred island forms are more difficult to distinguish from the forms of the Collared Sparrow-hawk (*Accipiter cirrhocephalus*) and Australian Goshawk with which they share a range, but are much more uniform and brighter rufous below, and less clearly barred.

Grey and white goshawks interbreed freely and partner for life. The breeding season is from August to December. The nest is usually placed in large Eucalyptus, often well out on a horizontal limb, at an average of about 60 feet above the ground. It is a flat structure made of fine sticks and lined with green leaves, built by the birds themselves. Both sexes build, breaking off the twigs from dead branches. Nest repair or the construction of a new nest may occupy from six weeks to two months. Eggs are laid in clutches of three in September and October.

Both sexes are known to incubate, but the female usually incubates alone and the male seldom visits the nest except to bring prey; when females have been shot the male does not necessarily incubate the eggs, but obtains another mate. When the young hatch they are brooded closely by the female; the male then spends little time near the nest, but brings all the prey which is received by the female and fed by her to the young. From egg-laying to fledging young takes a little over two months.

Cool Facts: The white morph is the only bird of prey in the world to be entirely white.

Common Name: Northern or Eurasian Sparrowhawk
Scientific Name: *Accipiter nisus*

Size: 11-16 inches (29–41cm); **Wingspan:** 23-31 inches (59–80 cm)

Habitat: Eurasia and Africa; found throughout the temperate and subtropical parts of Eurasia and Africa. Birds from the northern parts of the range migrate south for winter; their southern counterparts remain resident or make dispersive movements.

Status: Least Concern. **Global population:** 1,500,000 adult individuals. The race *A. n. granti*, is estimated with 100 pairs resident on Madeira and 200 pairs on the Canary Islands, which is threatened by loss of habitat, egg-collecting and illegal hunting, and is listed on Annex I of the European Commission Birds Directive. The Norwegian and Albanian populations are declining and, in many parts of Europe, Eurasian sparrowhawks are still shot. However, this low-level persecution has not affected the populations badly. In the UK, the population increased by 108% from 1970 to 2005, but saw a 1% decline over 1994–2006. In Ireland, it is the most common bird of prey, breeding even near the city center of Dublin.

Diet: Birds (Males tend to take tits, finches, sparrows and buntings; females often take



pigeons, thrushes and starlings). It does on occasions take small rodents and other small land based prey, but birds account for well over 90% of their diet.

Small birds are killed on impact or when squeezed by the sparrowhawk's foot, especially the two long claws. Victims which struggle are "kneaded" by the hawk, using its talons to squeeze and stab. When dealing with large prey species which peck and flap, the hawk's long legs help. It stands on top of its prey to pluck and pull it apart. The feathers are plucked and usually the breast muscles are eaten first. The bones are left, but can be broken using the notch in the bill. Like other birds of prey, Eurasian sparrowhawks produce pellets containing indigestible parts of their prey.

Nesting: The adult male has slate-grey upperparts (sometimes tending to bluish), with finely red-barred underparts, which can look plain orange from a distance. The eyes are orange-yellow or orange-red. The female is 25% larger at 35–41 cm long, with a wingspan of 67–80 cm. She has dark brown or greyish-brown upperparts, and brown-barred underparts, and bright yellow to orange eyes. The juvenile is warm brown above, with rusty fringes to the upperparts; and coarsely barred or spotted brown below, with pale yellow eyes. Its throat has dark streaks and lacks a midline stripe.

Sparrowhawks breed in well-grown, extensive areas of woodland, often coniferous or mixed, preferring forest with a structure neither too dense nor too open, which allows a choice of flight paths. The nest is usually located in the fork of a tree, often near the trunk and where two or three branches begin, on a horizontal branch in the lower canopy, or near the top of a tall shrub. If available, conifers are preferred.

A new nest is built every year, generally close to the nest of the previous year, and sometimes using an old wood pigeon nest as a base. Males do most of the nest building work. The structure is made of loose twigs and when the eggs are laid, a lining of fine twigs or bark chippings is added.

During the breeding season, the adult male loses a small amount of weight while feeding his mate before she lays eggs, and also when the young are large and require more food. The weight of the adult female is highest in May, when laying eggs, and lowest in August after the breeding cycle is complete. A study suggested that the number of eggs and subsequent breeding success are dependent on the female maintaining a high weight while the male is feeding her.

A clutch of four or five pale blue eggs with brown spots is laid. The eggs are generally laid in the morning with an interval of 2-3 days between each one. Incubation lasts an average 39-42 days for complete clutch. The young fledge after 24-30 days, males before females. 34% of juveniles survive their first year.

Cool Facts: The Eurasian sparrowhawk's pale underparts and darker upperparts are an example of countershading, which helps to break up the bird's outline.

During one year, a pair of Eurasian sparrowhawks can take up to 2,200 house sparrows, 600 common blackbirds or 110 wood pigeons.

The Eurasian sparrowhawk's hunting behavior has brought it into conflict with humans for hundreds of years, particularly racing pigeon owners and people rearing poultry and gamebirds. It has also been blamed for decreases in passerine populations although no scientific research has found a link between increased numbers of Sparrowhawks and declines in some farmland and woodland birds after World War II. Studies of racing pigeon deaths found that Eurasian sparrowhawks were responsible for less than 1%.

Falconers have utilized the Eurasian sparrowhawk since at least the 16th century; although the species has a reputation for being difficult to train, it is also praised for its courage.

The species features in Teutonic mythology and is mentioned in works by writers including William Shakespeare, Alfred, Lord Tennyson and Ted Hughes.

In Greek mythology, Nisus, the king of Megara, was turned into a sparrowhawk after his daughter, Scylla, cut off his purple lock of hair to present to her lover (and Nisus' enemy), Minos.

There are 6 subspecies of Sparrowhawk:

- *A. n. nisus*, first described by Linnaeus in 1758. The nominate subspecies; it breeds from Europe and west Asia to western Siberia and Iran; northern populations winter south to the Mediterranean, north-east Africa, Arabia and Pakistan.
- *A. n. nisosimilis*, first described by Samuel Tickell in 1833. It breeds from central and eastern Siberia east to Kamchatka and Japan, and south to northern China. This subspecies is wholly migratory, wintering from Pakistan and India eastwards through South-East Asia and southern China to Korea and Japan; some even reach Africa. It is very similar to, but slightly larger than, the nominate subspecies.
- *A. n. melaschistos*, first described by Allan Octavian Hume in 1869. It breeds in mountains from Afghanistan through the Himalayas and southern Tibet to western China, and winters in the plains of South Asia. It is larger and longer tailed than *A. n. nisosimilis*. It has dark slate-colored upperparts, and more distinct rufous barring on the underparts.
- *A. n. wolterstorffi*, first described by Otto Kleinschmidt in 1900. It is resident in Sardinia and Corsica and is the smallest of all the races. It is darker on the upperparts and more barred below than the nominate subspecies.
- *A. n. granti*, first described by Richard Bowdler Sharpe in 1890. It is confined to Madeira and the Canary Islands. It is smaller and darker than the nominate species.
- *A. n. punicus*, first described by Erlanger in 1897. It is resident in north-west Africa, north of the Sahara desert. It is very similar to the nominate species except for being larger and paler.

Common Name: Chinese Sparrowhawk or Grey Frog Hawk
Scientific Name: *Accipiter soloensis*

Size: 11.8-14.1 inches (30–36 cm); **Wingspan:** 20.4-24.4 inches (52-62 cm)

Habitat: Eurasia; Southeastern Ussuriland (Green Ukraine), Korea, Central and Eastern China and Taiwan. Almost completely migratory, except in Taiwan where it is sedentary. Some birds winter in South East China, in Guangdong and on Hainan; most move farther South, reaching Indochina, peninsular Malaysia, Philippines, Greater and Lesser Sundas, Sulawesi and the West tip of New Guinea. The major migration routes are through Korea, West Kyushu (Japan) and the Ryukyu Islands towards Taiwan; the migration is detected in September and early October, but it is not well known in spring. Considerable movement is also recorded over Bali, where almost 1000 birds were seen from early October to early November 1990; the movement over North Sulawesi is in early March and early October and birds arrive in Ussuriland in early May.

It prefers forests and wooded areas near wetlands or rice paddy fields.



Status: Least Concern. **Global population:** 10,000 to 100,000 adult individuals. The current population trend appears to be stable or in slight decline. Ongoing habitat destruction and human persecution are concerns.

Diet: Frogs, but will take lizards and grasshoppers as well.

They catch prey mostly on the ground in open country, where they scan from perches, then make short stoops. They also take some prey from flight.

Nesting: It is clear dark blue to slate colored above, including the upper side of its tail feathers. The outermost tail feathers are barred with slate and black. The sides of the head and neck are paler grey. The chin and throat are white with black shaft streaks. The upper breast and belly are washed pale rufous on a grey background, sometimes lightly barred with grey. The belly and under-tail coverts are white, the base of thighs grey. The underside of the tail is white at its base, terminating grey with five narrow black bars. The under-wing coverts are pale rufous. The outer primaries are black from below, the inner primaries and secondaries being white with grey tips forming a clearly visible white patch under the wing. The eyes are dark red to brown, the cere and legs yellow. Females are larger than the males but otherwise very similar.

Immature individuals are dark sepia above with pale edges to the feathers; the tail is pale brown with four broad dark bars. Below is white, heavily blotched with dark brown and black with some more rufous barring on the sides. The tail is grey below with four dark bars. The under-wing coverts are pale rufous. The outer primaries are dark brown, the inner primaries and secondaries are grey at the tips and pale pink basally, with dark bars.

During breeding season, the males repeatedly chase the females, often in small groups of up to seven. The males also perform vigorous undulating displays, the downward dives of a hundred feet or more, much more striking than those of most of the genus. The male feeds the female with frogs during this period. Pairs will later soar together over the breeding ground, with short bursts of wing-flapping interspersed with glides. During display, which lasts about two weeks, the birds are very obvious and noisy, but once nest-building has begun they become silent and more secretive.

A new nest is built each year, and is quite quickly constructed. Most building in Korea occurs between the 1st and 10th of June. Nests are built in small clumps of trees near rice fields or marshes, from 6-10 m from the ground. They are loose structures of twigs lined with fresh green leaves, often chestnut leaves, occasionally with sprigs of conifer or pieces of bark. Fresh leaves are added almost daily during the incubation period. 3-4 pale bluish grey eggs are laid in early to mid-June. The female only incubates, and is fed on the nest by the male. The eggs hatch about the first week of July, indicating an incubation period of less than 30 days.

Cool Facts: This bird is also called the "Grey Frog Hawk"

Common Name: Long-tailed Hawk
Scientific Name: *Urotriorchis macrourus*

Size: 22-26 inches (56-65 cm); **Wingspan:** 32-35 inches (81-90 cm)

Habitat: Africa; western and central Africa.

This hawk lives secretively in dense forests, and is only noticeable when it flies into clearings.

Status: Least Concern. **Global population:** Unknown amount of adult individuals. Major threats include wetland desiccation and drainage; persecution by shooting; pollution, especially from excessive pesticide use in and around wetlands (although widespread bans have reduced this threat somewhat), and poisoning by heavy metals, notably the consumption of lead-shot through feeding on contaminated carrion.



Diet: It primarily eats squirrels and small birds; it can also hunt chickens in the villages close to the forest.

They spend most of their time in the treetops looking for quarry. It kills prey by breaking the neck.

Nesting: The adult is dark slate above, paler grey on the cheeks and mantle, and darker on the wings. The rump is smoke grey, sometimes with white spots; the upper tail coverts pure white. The tail is black, graduated, the feathers tipped white and with four irregular crossbars of white. The primaries and secondaries are brown, barred black and notched with white on base of inner webs. The chin and lower throat are grey. The rest of the under parts as far as the thighs are chestnut; with white under-tail coverts. The underside of wings and tail are barred black and white. The eyes are reddish yellow, the cere and feet pale yellow.

Immatures are blackish brown above, including the upper-tail coverts, with tawny markings. The tail is broadly banded black and brown above, black and white below, perhaps shorter than that of the adult. Under parts are white, sometimes almost unmarked, sometimes with large blackish spots on breast and sides.

The mating season occurs in July and August, when the pair build a nest on a high tree. Little is known regarding nesting and incubating the young.

Cool Facts: Since the tail comprises about 56% of this raptor's total length, this species ties with the Cinereous Harrier as the raptor with the longest tail relative to its body size.

Special Thanks to...

....my betatesters (Flinthawk, and Jan Wilson)

...and Nerd3D (for his invaluable help in special Poser coding)

Species Accuracy and Reference Materials

The author-artist has tried to make these species as accurate to their real life counterparts as possible. Birds of the same species vary considerably, just as all others do in nature. The birds were created using the correct field markings and the most common similarities.

With the use of one generic model to create dozens of unique bird species, some give and take is bound to occur. In addition, 3D-models have many technical challenges, which make exact representations difficult, if not impossible. It's best to think of these birds represented as "resembling" the particular species, and they may not, in some cases, be 100% scientifically accurate.

The model and morphs were created using Luxology's Modo. The texture maps were created in Corel's Painter. The model was rigged in Smith-Micro's Poser and adapted for use in DAZ's DAZ Studio.

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