Identification of Australian Birds

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Introduction

Veterinarians may be presented with birds at many stages of their development, from nestlings to injured adults. Therefore it is helpful to use physical features that are present at any age, namely their beaks and feet, to identify them.

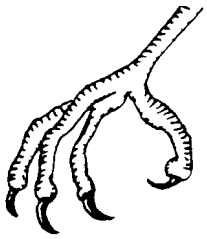
Birds have descended from lizard-like, bi-pedal reptiles that lived in the Jurassic Period 160 million years ago. They still possess many reptilian similarities such as the arrangement of a number of internal structures, the possession of scales on legs and beaks and their habit of egg laying. Birds possess feathers, forelimbs modified into wings, hindlegs adapted to walking, swimming and perching, mandibles with no teeth, a light skeleton, four chambered heart and an extensive air sac system. The foot of a bird has a maximum number of four digits. The hind toe, or hallux, generally points backwards.

AUSTRALIAN BIRDS

There are approximately 650 species of birds commonly found in Australia. Another 50 are irregular visitors. The 700 species fall into two large natural groupings - the passerines (310) and the non-passerines (390).

Passerines

Passerines are perching birds. The foot of a passerine has three toes directed forwards, free of webbing or joining and one toe pointing back. The hind toe joins the foot at the same level as the front toes and is the same length. The toes lock onto the perch when the bird sits.



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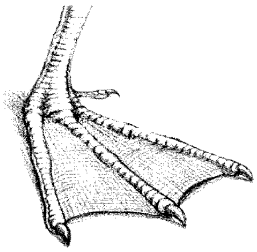
Non-Passerines

In non-passerines the toe arrangement is different. Many have webbing or no hind toe. Others (such as cuckoos) have two toes forward and two back, kookaburras and kingfishers have the front toes joined for part of the length, while wading birds, quail and herons have the hind toe joining higher up than the front toes.



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CATEGORIES OF BIRDS PRESENT IN AUSTRALIA

There are a number of categories of birds present in Australia at any one time:

* Resident breeding birds that nest and live in Australia, e.g. Regent honeyeater, freckled duck;

* Migratory breeding birds that breed in Australia but spend part of the year elsewhere, e.g. koel, dollarbird.

* Migratory non-breeding birds that nest elsewhere but spend part of the year in Australia, e.g. red-necked stint, wandering tattler.

* Casual visitors - birds that occur because of extraordinary conditions, e.g. white-winged black tern.

* Introduced species - birds that have been introduced by man, e.g. Indian mynah, spotted turtle dove.

WHY IS POSITIVE IDENTIFICATION NECESSARY?

There are several reasons why it is necessary to identify birds presented for treatment:-

1. Safety - there are a number of birds capable of inflicting injury and it is necessary that these species are recognised before handling.

2. During treatment and rehabilitation birds must be provided with a suitable diet and appropriate housing.

3. Identification of birds classified as vulnerable, threatened and rare is important so that these can be given priority treatment.

4. To facilitate the keeping of accurate records so that data can be gathered on the species of birds being presented for treatment.

5. Positive identification of a species and sub-species is necessary for responsible release (to ensure birds are not released where they are genetically inappropriate).

6. Identification of a feral species, so that valuable time is not given to raising an exotic bird.

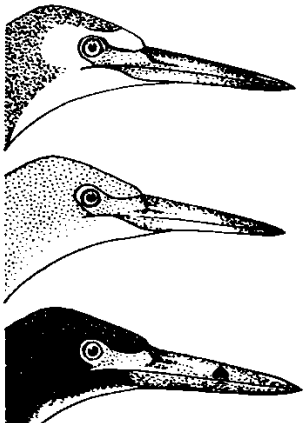
DIETARY GROUPS

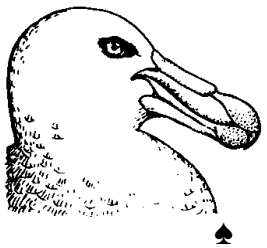
Initially it is beneficial to establish which dietary group the bird belongs to by examining its beak. The bird can then be positively identified with the aid of a field guide and other reference material.

The main dietary groups are:

Fish eaters
(Piscivorous)

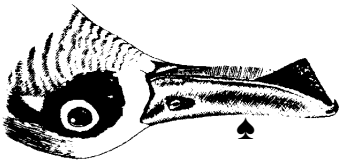
Herons, petrels, albatrosses, gannets, pelicans, cormorants, terns, and gulls





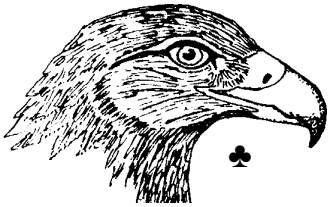
Grazers
(Herbivorous)

Ducks, geese and swans



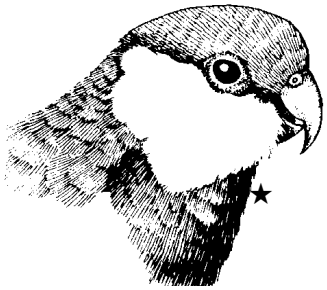
Meat eaters
(Carnivorous)

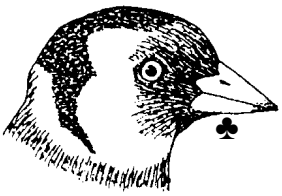
Hawks, eagles, Falcons and owls



Seed eaters
(Granivorous)

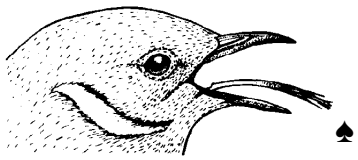
Parrots, pigeons, finches





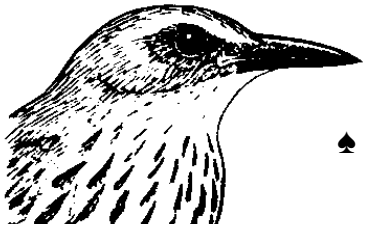
Nectar feeders
(Nectivorous)

Honeyeaters



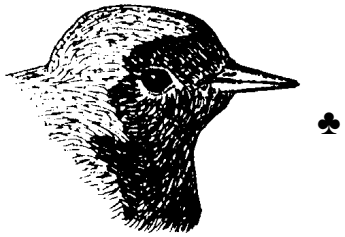
Fruit Eaters
(Frugivorous)

Orioles, figbirds



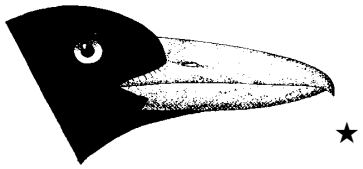
Insect Eaters
(Insectivorous)

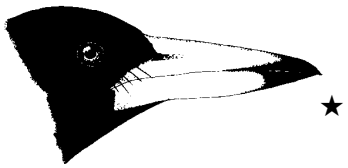
Wrens, robins,
flycatchers, thornbills,
etc.



Plant and Meat Eaters
(Omnivorous)

Currwongs, magpies,
butcherbirds





Other specialised feeders such as waders, spoonbills, stilts, avocets and lorikeets (covered later in this paper).

FIELD GUIDES

There are several good field guides available and some guidelines on the use of these identification books for birds in the hand may be helpful.

1. Decide whether the bird is a passerine or non-passerine by looking at its feet. This will eliminate half of the field guide. The passerines are placed in the second half of the book.

2. If available use the key to families and examine the illustrations and text to establish which family the bird belongs to.

3. If there isn't a key, take into consideration the size of the bird. Look closely at its beak and decide which dietary group the bird falls into. Decide if it is a waterbird or a land bird.

4. Look for distinguishing features such as a crest, coloured breast, striations, etc. Use the Index or flick through until finding a page of birds that resembles the one at hand.

5. Use the distribution map to eliminate birds that are not found in that area.

6. Look at the eye colour, leg and bill colour. Consideration must be given to the possibility that the bird may be a juvenile.

7. Plumage will help to establish the species. If there is still some doubt, utilise a larger reference book such as "The Readers Digest Book of Australian Birds".

Field guides and reference books are usually arranged in systematic order from the birds considered the most primitive to those thought to be more modern. The arrangement (main groups only) is as follows:

Non-passerines

Emus and Cassowaries	Seabirds	Waterbirds (herons)
Ducks and Geese	Eagles and falcons	Waders (Shorebirds)
Pigeons and doves	Parrots	Cuckoos
Owls and Frogmouths	Swifts	

Passerines

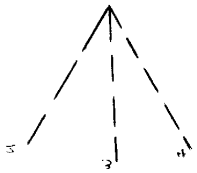
Swallows	Pittas and Ground-Thrushes	Cuckoo-shrikes
Robins	Whistlers	Flycatchers
Thrushes	Wrens	Warblers
Thornbills	Treecreepers	Honeyeaters
Finches	Orioles	Woodswallows
Magpies	Bowerbirds	Lyrebirds
Ravens		

Measurements are often given in field guides and larger reference books. The main measurement listed is total length and this is from bill tip to tail tip.

AUSTRALIAN BIRD ORDERS WITH NOTES FOR IDENTIFICATION

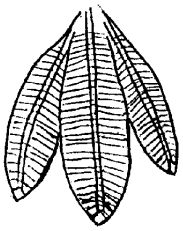
As field guides are of limited use in identifying nestlings and juveniles the bird orders are listed with hints for identification. Wild diets are included and whether the young are precocial (hatched covered in down, able to run about and eat and drink with little assistance) or altricial (hatched naked and unable to eat without assistance). Foot diagrams show a bird's eye view of the right foot.

1. **Struthioniformes**: Flightless birds - emus, cassowarries.
   Stripey emu chicks are easily identifiable.
   Three toes present, no hind toe.
   Precocial young.
   Diet: leaves, grasses, flowers, fruits and insects.



Emu foot

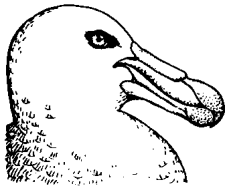
2. **Podicipediformes**: Grebes.
   Feet have well developed paddle-like lobes on the three main toes. Bills slender, not flattened like a duck. Aquatic birds with legs so far to the rear of their bodies that they have difficulty walking. They are easily stressed during handling.
   Altricial young.
   Diet: fish, insects, snails, tadpoles and plant material.



Grebe foot

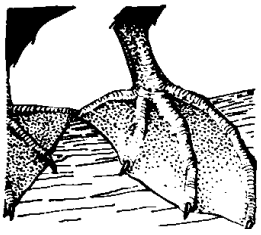
3. **Sphenisciformes**: Penguins.
   Flattened feather shafts and dense waterproof plumage and flippers. Little penguin is the species presented often during the moult.
   Altricial young.
   Diet: fish and squid.

4. **Procellariformes**: Albatrosses, petrels, shearwaters.
   Tube-nosed seabirds with hooked bills, musky odour and webbed feet (3 toes forward with webbing and no hind toe). Most commonly presented are short-tailed shearwaters. Use bill profiles from "Field Guide to the Birds of Australia" (Simpson & Day) to identify and tail shape to distinguish wedge-tailed shearwaters from short-tailed shearwaters. Fleshy footed shearwater has a pale bill.
   Altricial young.
   Diet: squid and fish.



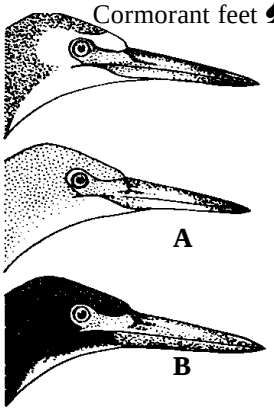
Southern Giant Petrel Bill ♠

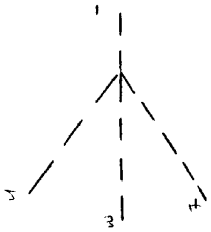
5. **Pelecaniformes**: Australian pelicans, gannets, cormorants, darters. All four toes point forward and are joined by webbing. Gannets breathe through the sides of their bills and pelicans and cormorants prefer to. Darters have long tails and snake-like necks (care should be taken when handling, to protect your eyes).
Altricial young.
Diet: fish.



Cormorant feet ♠

6. **Ciconiformes**: Herons, bitterns, storks, ibis, spoonbills.
Wading birds with long legs, long necks and long bills. Herons have sharp, stabbing bills (protect your eyes). Spoonbills have spatula shaped bills which need sensitive handling. Ibis have downcurved bills. All have three of the four toes pointing forwards and hind toe facing backwards.
Altricial young.
Diet: crustaceans, fish, insects, frogs, snails and worms.





Heron foot

C
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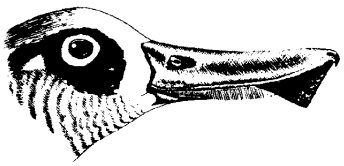
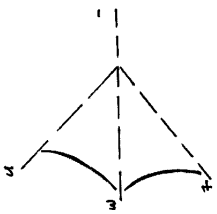
A = Adult white-faced heron
B = Immature white-faced heron
C = Grey phase of reef heron

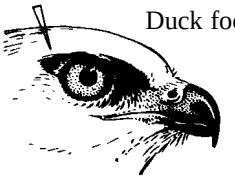
7. **Anseriformes**: Ducks, geese and swans.
All have three of four toes pointing forwards with webbing between them and hind toes reduced and elevated. Magpie goose has partially webbed feet. Flattened bill with characteristic lamellae at an early age. Bill profiles from "Birds of Australia" (J.D. Macdonald) can be useful for identifying adults and "Field Guide to the Birds of Australia" (Simpson & Day) for ducklings.
Precocial young.
Diet: seeds, vegetation, buds and leaves, midges, plankton, shrimps, yabbies.



Pink-eared duck ♠



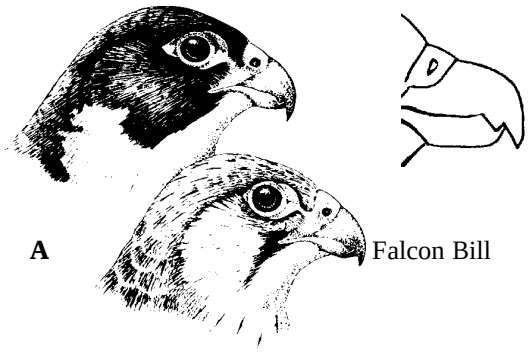
Duck foot



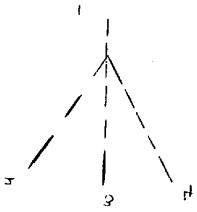
8. **Accipitriformes**: Hawks and eagles.
The talons and hooked bills of a raptor are easily recognisable.
Broad, rounded wings. Use "Field Guide to

9. **Falconiformes**: Falcons.
Short tails and narrow long pointed wings. Bill with 'notch'. Talons lack spasmodic clutching mechanism of hawks and eagles. Australian kestrel most commonly encountered Falconidae.
Altricial young with tear mark through eye.
Diet: birds, rodents, reptiles, insects.

A = Peregrine Falcon
B = Grey Falcon

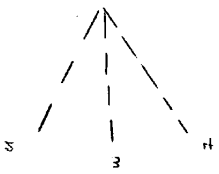


10. **Galliformes**: megapodes malleefowl, brush turkeys, quail.
Fowl-like birds with crops. Wings are short and round. Three toes forward and one back. Not commonly encountered. Precocial young.
Diet: insects, fruits, seeds and buds.



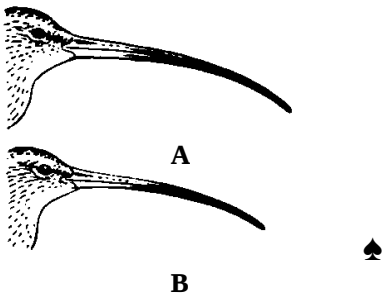
Brown quail foot

11. **Gruiformes**: button quails, rails, crakes, moorhens, swamphens, coots, true cranes.
Button quail have three toes only and no crop. Precocial young. Diet: insects. Reed birds have elongated toes or lobed toes and short tails. Altricial young. Diet: insects, fish, worms, molluscs, aquatic plants, seeds, fruits.



Button-quail foot

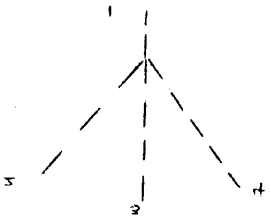
12. **Charadriiformes**: waders or shorebirds.
Diverse order including sandpipers, oystercatchers, thicknees, gulls and terns, and inland birds - avocets, stilts and jacanas. Features common to all waders are long pointed wings and short tails.
Migratory waders present in Australia from September -March (approx.), although some may winter over. Bills, length and shape are diagnostic. **Sandpipers** have bills longer than the head and usually 3 toes forward and a small toe back (the exception to this is the Sanderling, which is in its own genus because it does not have a small hind toe). **Plovers** and **dotterels** have bills shorter than the head and usually 3 forward toes only.



A = Eastern curlew - female
B = Eastern curlew - male

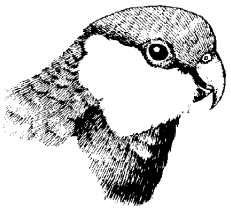
13. **Columbiformes**: pigeons and doves.
Three toes forward and one back.
Bill weak, with nostrils.
Stocky with densely downed plumage and well developed crop.
Altricial young.
Diet: seeds, fruits, vegetable matter.

Squatter pigeon



Pigeon foot

14. **Psittaciformes**: parrots and cockatoos
Two toes forward and two back (4th digit points backwards). Finely scaled feet.
Short, hooked bills, prominent cere. Altricial young.
Diet: lorikeets with brush-like tongues - pollen, nectar, fruits, insects.
Cockatoos, parrots and rosellas - seeds, fruits, vegetable matter.



Red-capped parrot

Parrot foot

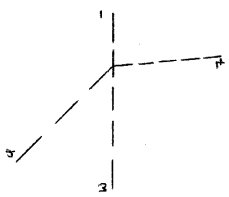
15. **Cuculiformes**: cuckoos
Two toes forward and two back.
Migratory and nest parasites, except pheasant coucal. Altricial young.
Diet: insects. Koel - fruit (nestlings eat insects). Channel bill cuckoos - fruit.
Pheasant coucal - reptiles, frogs, mice, birds, eggs and crabs.

Cuckoo Foot

16. **Strigiformes**: owls
Large, forward pointing eyes and hooked bills. Fourth digit can be moved forward or backwards. Powerful talons. Altricial young.
Diet: birds, mammals, insects.

Owl Foot

17. **Caprimulgiformes**: frogmouths and nightjars.
Broad bill with wide gape.
Weak feet with 3 toes forward, and one back. Fourth toe usually held at right angles.
No talons. Altricial young.
Diet: large nocturnal insects, snails, spiders,

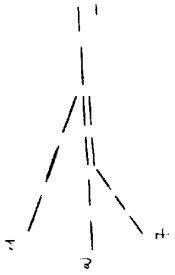


Frogmouth Foot

18. **Apodiformes**: swifts.
Long narrow wings. Feed, drink, mate and sleep on the wing. All migratory (here between October and March) except for one resident, white-rumped swiftlet. Feet have four toes pointing forward for clinging to vertical surfaces. Altricial young.
Diet: insects.

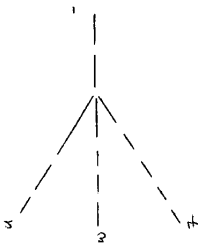
Swift Foot

19. **Coraciiformes**: kookaburra, kingfishers, bee-eaters and dollarbirds.
Front three toes joined for part of their length. Long, stout bills, large heads and short necks.
Altricial young.
Diet: insects, frogs, reptiles, fish (kingfishers).



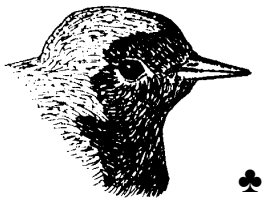
Kookaburra/Kingfisher Foot

20. **Passeriformes**: perching birds or songbirds.
All have three toes forward and one back.
No lobes, webbing or talons.
Generally small birds. Well developed vocally.
All hatchlings are altricial.
Look at bill stucture for identification.



Passerine Foot

Insectivores - usually have tactile feathers around edges of bill,includes pittas, cuckoo shrikes, whistlers, fantails, wrens and swallows, robins.
Diet: insects, i.e. spiders, beetles, flies, moths, ants, worms.



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Nectivores - down curved bills and brush-tipped tongues. Usually have hallux (back toe), claw including honeyeaters, silvereyes and sunbirds.
Diet: pollen, nectar and associated insects.

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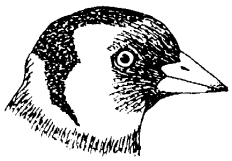
A = New Holland honeyeater
B = White-cheeked honeyeater

Granivores - seed eaters.
Short, conical bills. Grass finches.
Diet: seeds.



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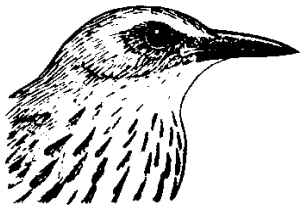
Frugivores - Bills vary but usually have wide gape. Orioles, figbirds, bowerbirds, catbirds.
Diet: berries, fruit and leaves.



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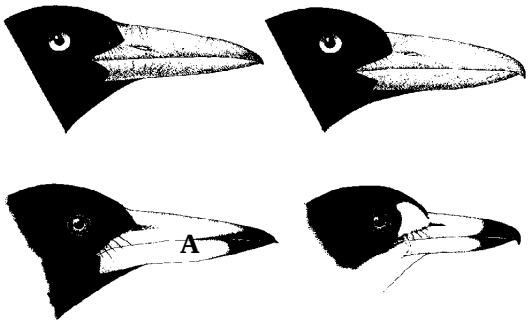
Olive-backed oriole

Omnivores and Carnivores: Magpies, butcherbirds, currawongs, ravens.
Sabre-like bill often with hook or tooth.
Diet: insects, mice, reptiles and nestlings.

A = Grey currawong
B = Pied currawong
C = Australian magpie
D = Grey butcherbird



C **D**

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IDENTIFICATION OF NESTLINGS AND IMMATURES FOR COMMONLY ENCOUNTERED SPECIES

Native Species

Figbird

Nestling: Gape - orange and very wide
Bill - short and triangular, dark brown in colour
Eye - dark brown with prominent naked skin around eye
Legs - light grey (with pinkish tinge in younger birds)
Wing coverts - yellowish green edging

Olive backed oriole

Nestling: Gape - red
Bill - long and very pointed, dusky colour
Legs - leaden grey
Wing coverts - rusty colour (c.f. figbird)

Immature: Bill - upper mandible pinkish black, lower mandible pinkish grey
Palate* - pink
Gape - pink/red
Eye - dark brown with light brown outer ring.
Plumage - Crown is green, streaked black at front and brownish at rear; nape and mantle are olive colour slightly streaked black.
Legs - leaden grey

Crested pigeon

Nestling: Down colour - fawn to cream

Immature: Bill - dark grey with pale grey base
Legs - pink grey with black claws
Gape - mid grey
Palate* - mid grey
Eye - pale tan

Peaceful dove

Nestling: Down colour - silver grey

Emerald ground dove

Nestling: Down colour - sandy yellow

Brown cuckoo-dove

Nestling: Down colour - yellow to fawn

Rose-crowned fruit dove

Nestling: Down colour - white

Noisy Miner
Nestling: Bill - yellow
Feet - brown
Eyes - Brown; small patch of bare yellow skin behind eye (not in front)

Welcome swallow
Immature: Bill - dark grey
Palate* - yellow
Gape - fawn/orange; gape flanges♦ are white
Plumage - some white on back; generally non-glossy plumage but glossy plumage may show in mantle; upper breast off white; throat is rufous
Legs - leaden grey

Tree martin
Immature: Gape - yellow, fading with age.
Plumage - generally dull, no glossy feathers; throat is white streaked brown; flanks are whte
Feet - soles of feet are pink

Eastern yellow robin
Juvenile: Bill - brown, creamy at edge of mandibles
Eye - greyish brown, orange eye ring
Plumage - brown with buff streaking
Feet, Legs and Gape - yellow

Red wattlebird
Immature: Bill - black with brown tip, bare skin at base
Palate* and gape - yellow
Eye - dull brown
Plumage - crown is dull brown
Feet - Sharp claw on 1st toe (halux)

New Holland Honey-eater
Immature: Bill - dark brown to black
Gape - yellow
Eye - dark grey to brown
Plumage - generally brown

Silvereye
Immature: Bill - pale grey with paler base to lower mandible.
Gape - yellow fading to flesh pink
Eye - olive green
Plumage - as adult.

Herons and Egrets
Juveniles: Look at leg and bill colour:
Pacific heron - legs dark grey

White-faced heron - legs yellow

Introduced species

House Sparrow

Nestling: Down - no down present, pinkish skin
Gape - yellow with pale yellow flanges
Bill - Dusky, "Finch"-shaped
Feet - light brown

Immature: Plumage - dull brown
Gape - yellow
Bill - yellow

Starling

Nestling: Down - greyish
Gape - bright yellow with pale yellow flanges.
Bill - grey, long and pointed

Immature: Plumage - dull brown; underparts are paler and unspotted; throate is whitish
Bill - dark grey

Blackbird

Nestling: Down - buffish grey
Gape - yellow with yellowish-white flanges

Indian Mynah

Nestling: Gape - bright yellow
Bill - yellow
Feet - yellow
Eye - yellow with dull yellow patch bare skin all around eye (front and behind)

Red-whiskered bul bul

Nestling: Bill - black
Feet - black
Gape - flanges yellow
Down - naked

Rock Pigeon

Nestling: Down - yellow

Spotted Turtle-dove

Nestling: Down - sand-coloured

Key: * Palate: the underside of the upper mandible (not soft flesh at rear of throat).
♦ Gape flange: soft skin joining the bases of the two mandibles.

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The diagrams in these notes have been taken from the following sources:

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§ Gustafson, A: Some Feet Have Noses. William Morrow & Co. Inc., New York, 1983
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