



A field guide for ageing and sexing Victorian native game birds

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For more information about the Game Management Authority go to www.gma.vic.gov.au

Introduction

The ability to identify age, sex and the stage of moult in harvested gamebirds provides critical data on the demographics and productivity of populations, particularly recruitment from season to season.

In many places throughout the world, the identification of age, sex and moult through evaluating wing and tail feathers is relatively easy due to known breeding sites, flight paths and the predictable behaviour of the birds. However, most native gamebirds in Australia are highly nomadic and less predictable in their movement and timing of breeding. To ascertain whether wing and tail feather samples could be used in an Australian setting to determine the demographics and productivity of gamebirds, the Game Management Authority commissioned a study analysing thousands of samples collected from hunter bags along with museum skins. This is the first time a study like this has been undertaken in Australia.

For duck hunting, bag surveys are routinely conducted at the start of each season and provide game managers with a snapshot of species, location, age and sex of waterfowl being harvested. This is important when determining season lengths and bag limits. To ensure a consistent and robust approach, wing samples and tail feathers of every bird surveyed is collected in-field and evaluated later in a controlled laboratory setting.

This Field Guide equips game managers and gamebird hunters with information to assist them in identifying the age, sex and moulting stages of harvested native gamebirds.

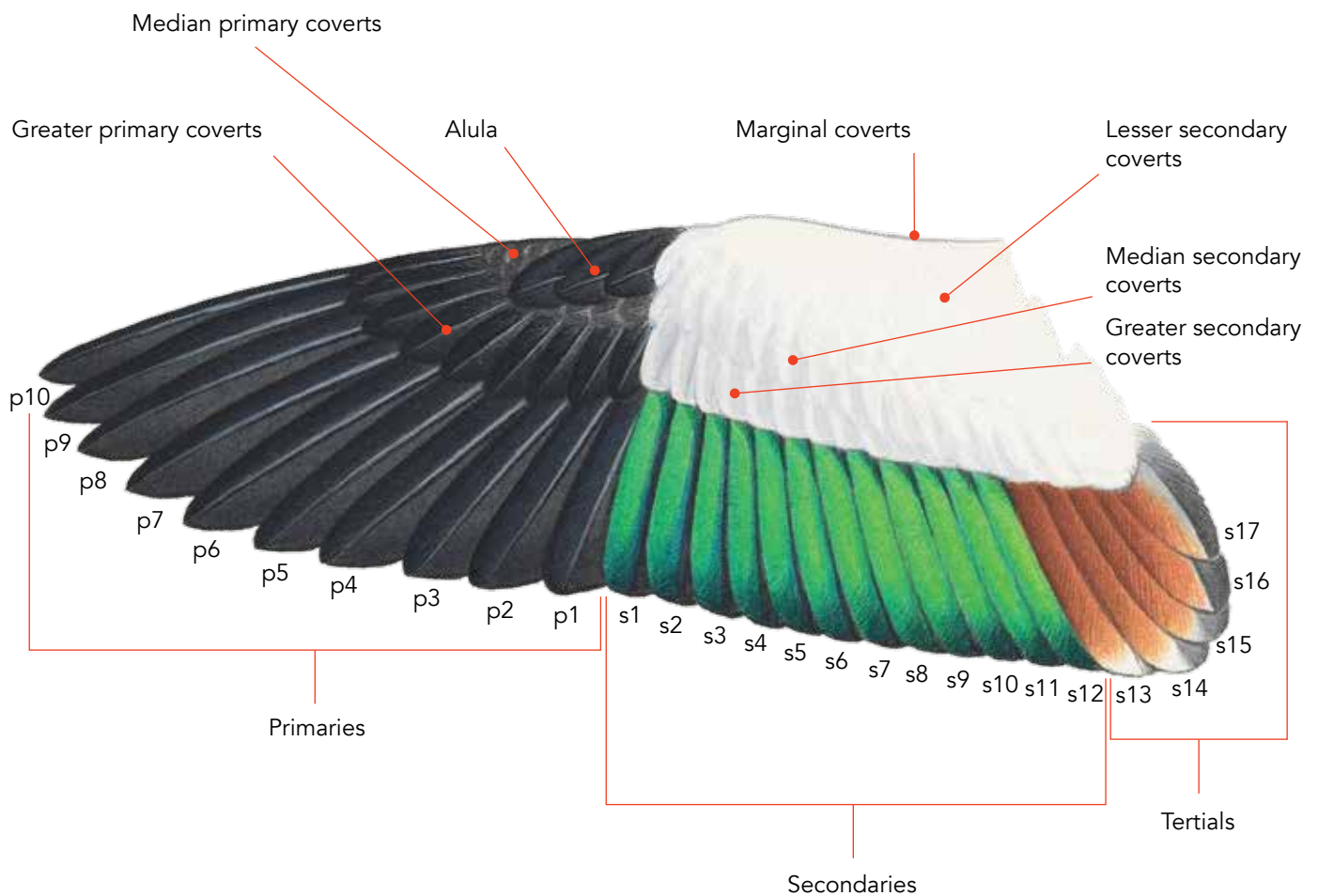
People using this Field Guide are encouraged to read the full report *Ageing and sexing Victorian native game birds using plumage characters*, which can be found at www.gma.vic.gov.au

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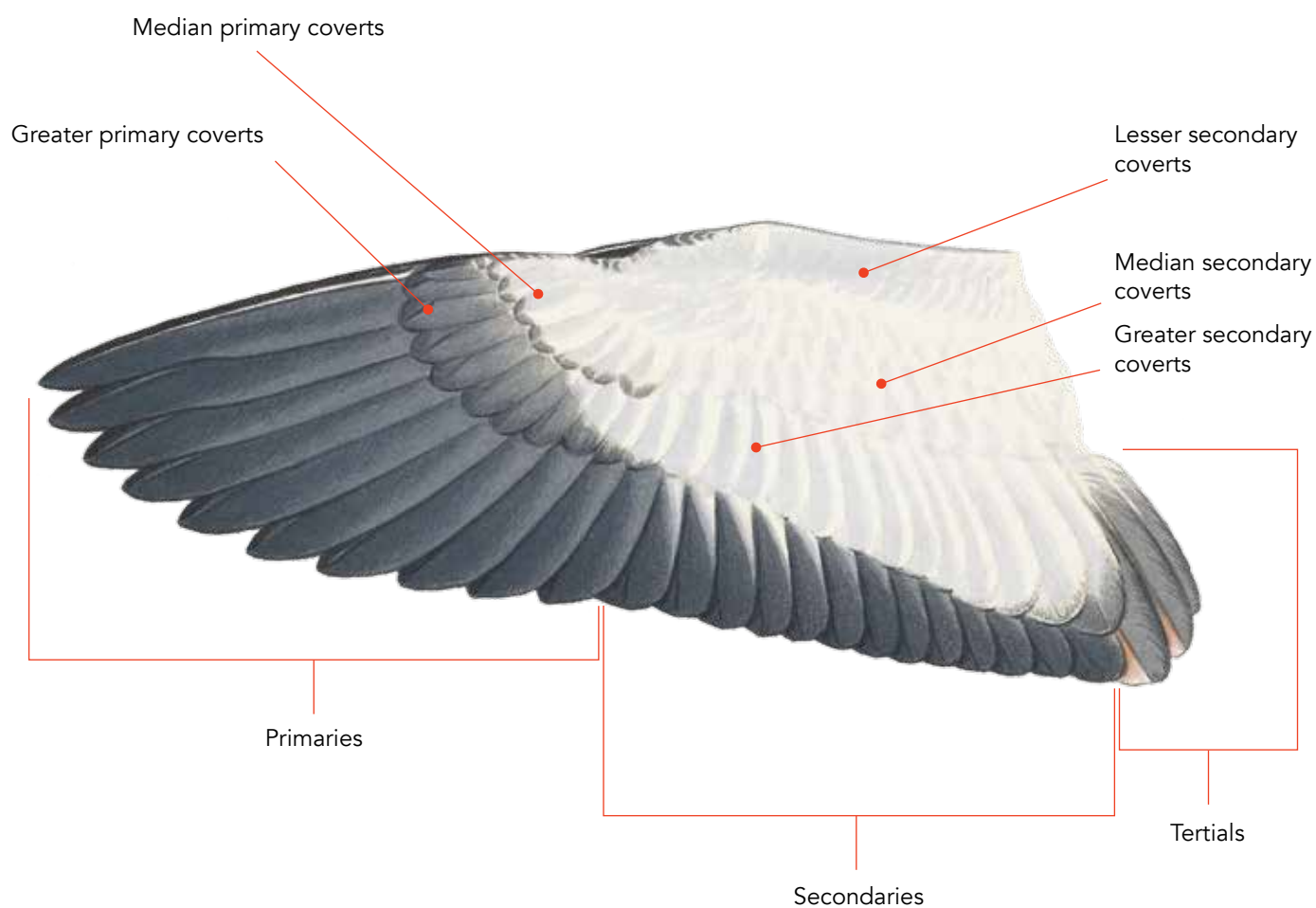
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Wing topography of ducks

Adult male Australian Shelduck upperwing



Adult male Australian Shelduck underwing

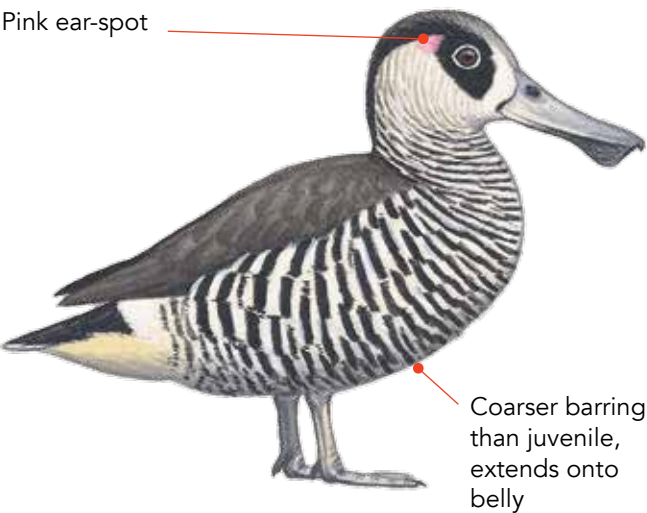


Measuring wing length

The length of a wing is measured from the bend of the wing to the tip of the longest primary feather.

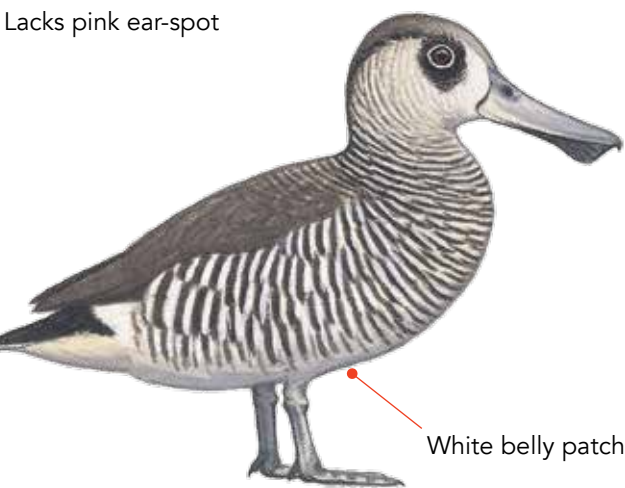
Pink-eared Duck *Malacorhynchus membranaceus*

Adult



Wing (95% CI): ♂ 190–208 mm, ♀ 178–201 mm

Juvenile



Wing: ♂ 191–205 mm, ♀ 171–197 mm

Adult tail feathers



Juvenile tail feathers



Recommended workflow

Ageing

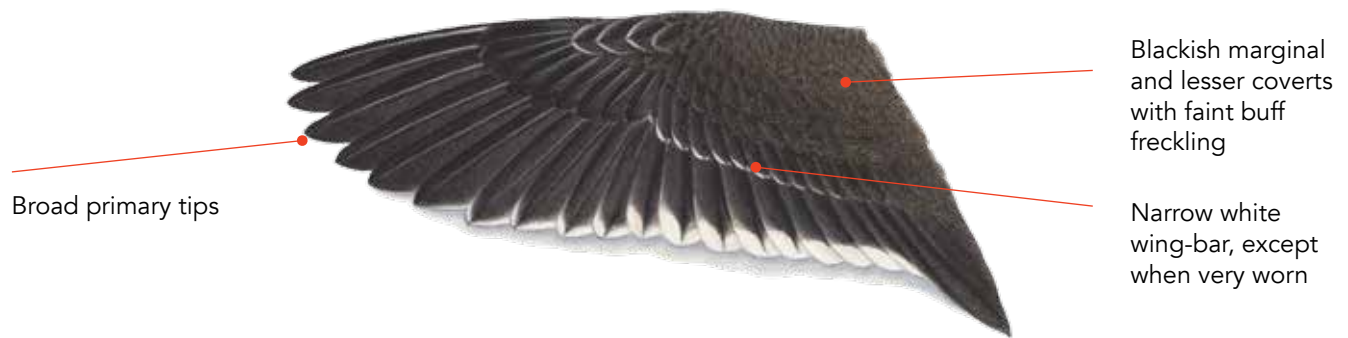
1. Look for juvenile tail feathers; if any are present, the bird is in its first year.
2. Examine wings of birds that lack juvenile tail feathers, seeking retained juvenile coverts (especially in underwing) and narrow primary tips. If either is present, the bird is in its first year; if absent, the bird is probably adult.

Sexing

1. Measure wing length; ~32% of adults can be sexed:

Wing length (mm)	Adult	First year
Male	≥203	≥195
Female	≤183	≤192

Adult male upperwing



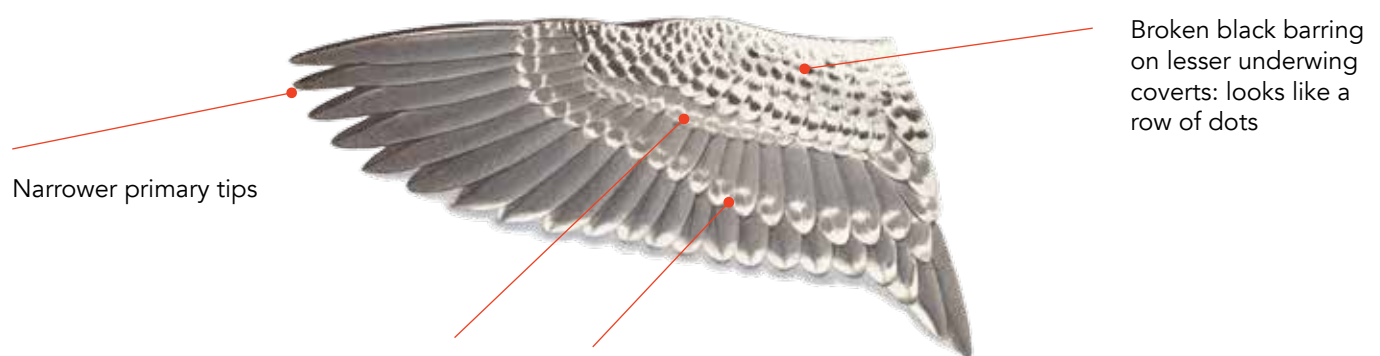
Adult male underwing



Juvenile upperwing



Juvenile underwing



Note: a few first-year birds replace some or all their wing coverts before the onset of the duck hunting season—but they all retain their narrow juvenile primaries

Australian Shelduck *Tadorna tadornoides*

Adult male



- black head
 - yellower breast than ♀
 - bigger than ♀
- Wing (95% CI): 356–397 mm

Adult female



- white eye-ring and front of face
 - chestnut breast
 - smaller than ♂
- Wing: 325–357 mm

Juvenile female



- ♀-like plumage with smaller body feathers, paler vent
- breast foreshadows adult colour—a bit yellower in ♂

Adult male tail feathers



Juvenile tail feathers



Recommended workflow

Ageing

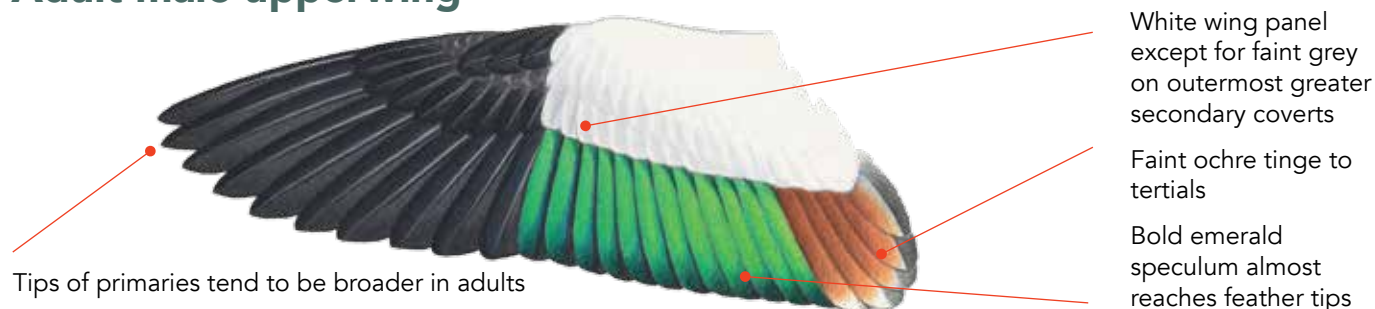
1. Look for juvenile greater secondary coverts: if present, the bird is in its first year.

Sexing

1. Measure wing length; ~90% can be sexed:

Wing length (mm)	Adult	First year
Male	≥364	≥361
Female	≤349	≤348

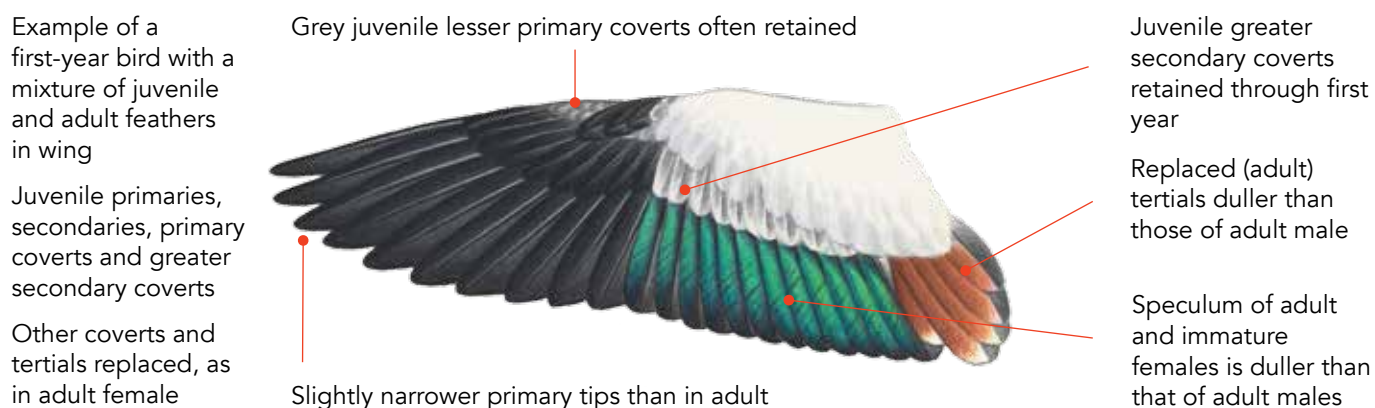
Adult male upperwing



Adult male underwing



Immature female upperwing



Juvenile female upperwing



Juvenile male underwing



Hardhead *Aythya australis*

Adult male



- white eye
- evenly dark head
- clearly demarcated white belly-patch

Wing (95% CI): 212–231 mm

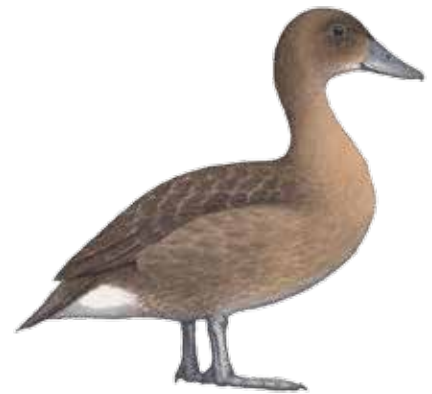
Adult female



- brown eye
- brown head, paler at base of bill
- mottled white belly-patch

Wing: 205–225 mm

Juvenile



- brown eye; in males, it starts getting pale during first year
- paler head than adult female
- mainly brown underparts

Wing: ♂ 203–233 mm, ♀ 199–224 mm

Tail feathers



Adult



Immature

In post-juvenile moult



Juvenile

Recommended workflow

Ageing

1. Look for juvenile tail feathers; if present, the bird is in its first year.
2. First-year birds that have moulted all tail feathers are very difficult to distinguish from adults. Look for retained juvenile lesser underwing coverts at bend of wing.

Sexing

1. Sex according to wing-bar (clean white in males, cloudy in females).

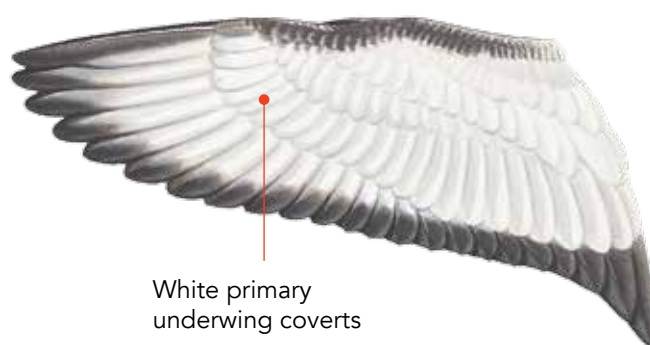
Adult male upperwing



White patch on outer webs extends to p7 or beyond

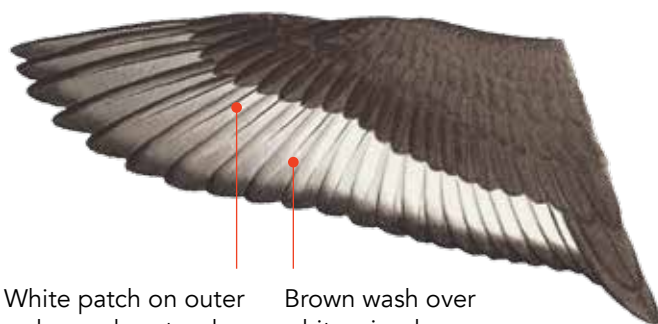
Wing-bar mainly clean white

Adult male underwing



White primary underwing coverts

Adult female upperwing



White patch on outer webs rarely extends beyond p6

Brown wash over white wing-bar on most primaries

Adult female underwing



Grey-brown wash on primary underwing coverts

Narrow white fringes on coverts near bend of wing (narrower still in males)



Juvenile male underwing



Some (not all) first-year birds can be distinguished from adults because they retain small juvenile coverts at bend of underwing, with complete white fringes

Juvenile wing patterns almost identical to wing patterns in respective sexes of adult

Only first-year males combine male wing-bar pattern with brown iris and female-like head and body plumage

Australasian Shoveler *Spatula rhynchotis*

Adult male



Wing (95% CI):
246–263 mm

Adult female



Wing: 220–247 mm

Adult male eclipse



Juvenile female



Juvenile wing:
♂ 238–251 mm,
♀ 216–236 mm

Tail feathers



Rounded tips

Adult male

Tail feathers largely dark brown



Rounded tips

Adult female

Most tail feathers have buff internal markings



Notched tips

Juvenile

Tail feathers smaller and narrower than in adult

Limited buff internal markings in Juv. male (above); extensive buff internal markings in juvenile female

Recommended workflow

Ageing

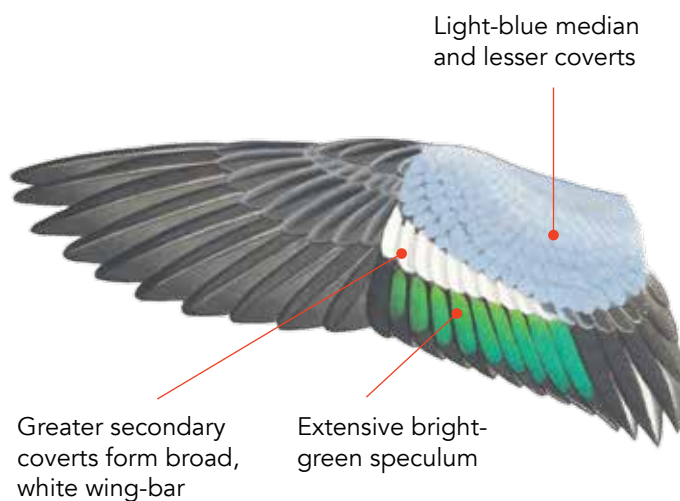
1. Look for juvenile tail feathers; if any are present, the bird is in its first year.
2. Examine wings of birds that lack juvenile tail feathers, seeking
 - juvenile greater coverts (obvious blackish bases in males; narrow white fringes to outer feathers in females)
 - first-year birds also have a small speculum, relatively dull wing panel and pointed primaries.

Sexing

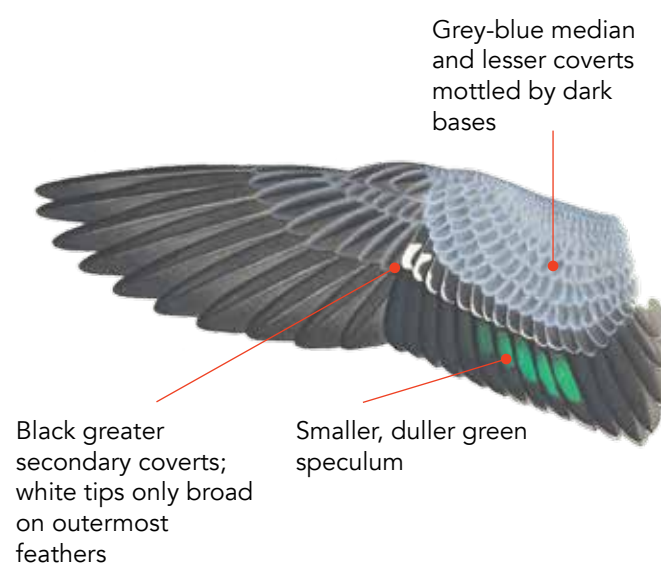
1. Examine greater secondary coverts; bold white wing-bar in males only.
2. Measure wing length; ~90% of adults can be sexed:

Wing length (mm)	Adult	First year
Male	≥249	≥240
Female	≤241	≤234

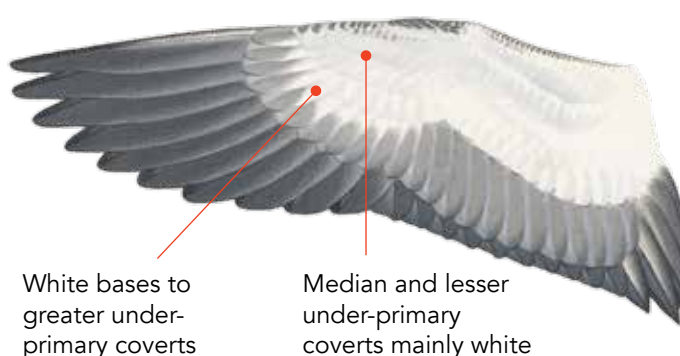
Adult male upperwing



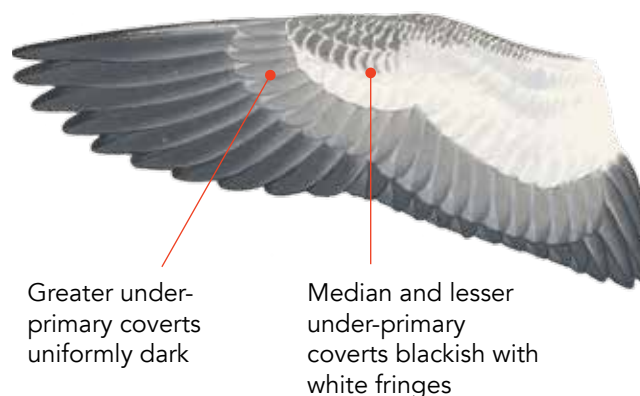
Adult female upperwing



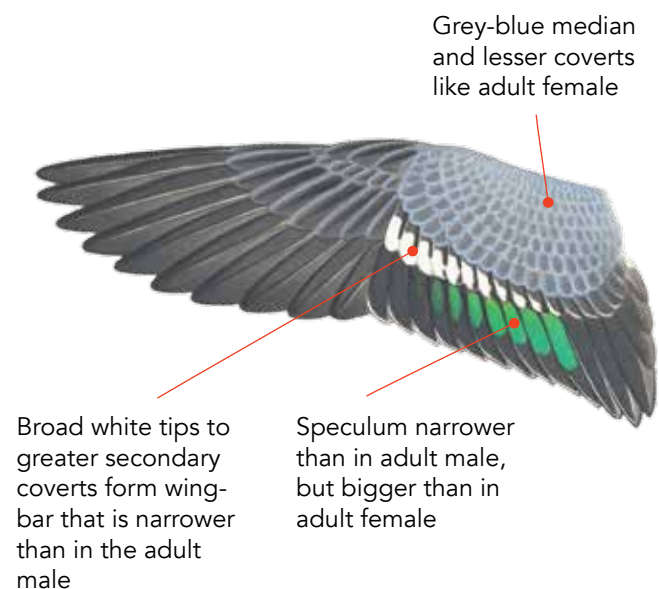
Adult male underwing



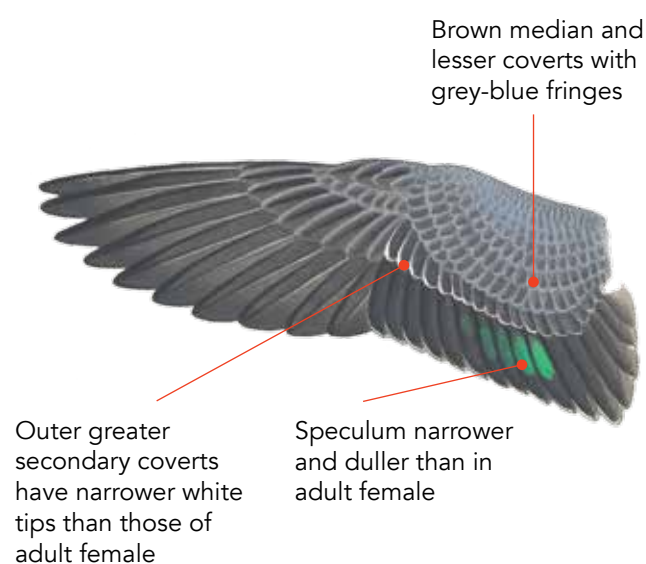
Adult female underwing



Juvenile male upperwing

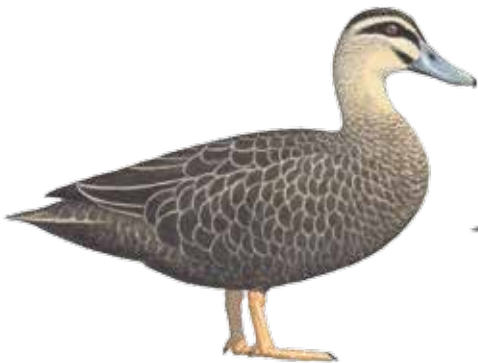


Juvenile female upperwing



Pacific Black Duck *Anas superciliosa*

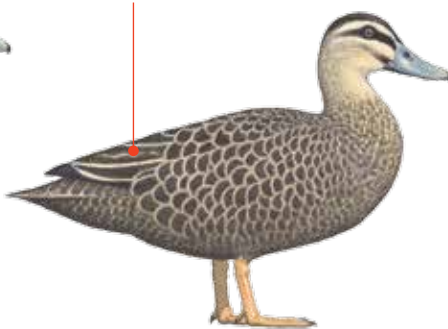
Adult male



Wing (95% CI): 264–287 mm

Adult female

Females often have buff markings within tertials



Wing: 248–271 mm

- broader buff fringes to body feathers than males
- smaller than ♂

Juvenile



Wing: ♂ 259–277 mm, ♀ 238–265 mm

Small body feathers contribute to more streaked appearance

Tail feathers



Adult

Feathers broad with pointed tips



Juvenile

Feathers narrow with notched tips

Recommended workflow

Ageing

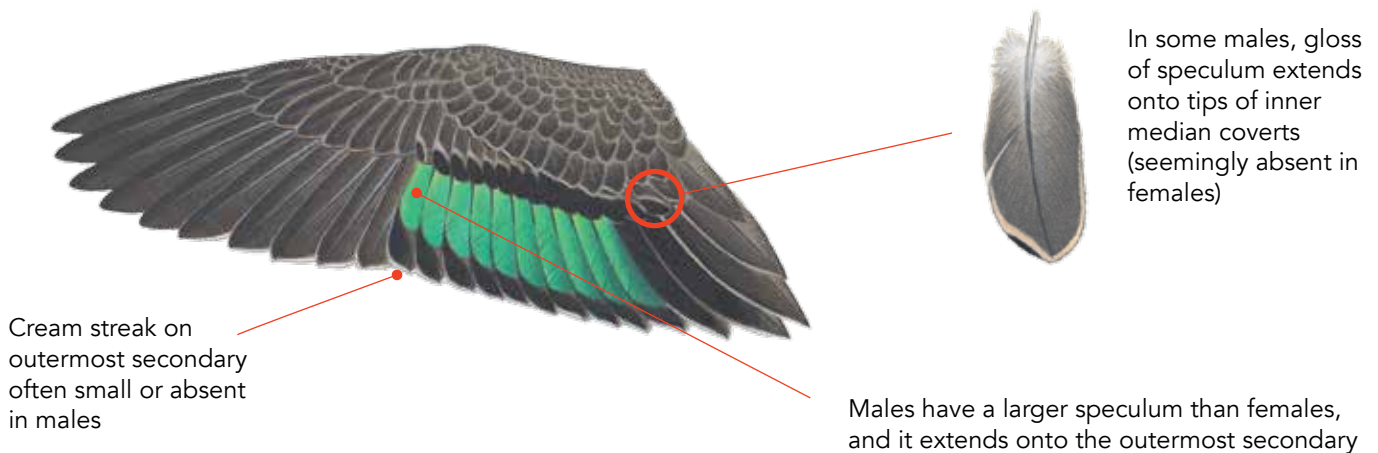
1. Look for juvenile tail feathers; if any are present, the bird is in its first year.
2. Examine wings of birds that lack juvenile tail feathers, seeking relatively narrow primary tips, and retained juvenile coverts (narrower than in adults – a difficult distinction best made with comparative material). If either is present, the bird is in its first year; if absent, the bird is probably adult.

Sexing

1. Sexing: look for female tertials.
2. Measure wing length; ~60% can be sexed:

Wing length (mm)	Adult	First year
Male	≥274	≥268
Female	≤261	≤258

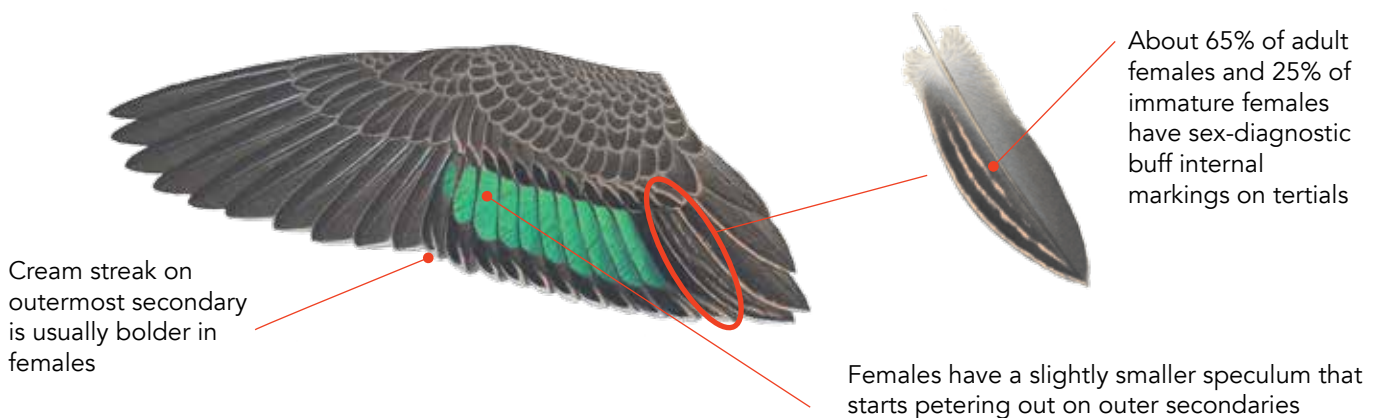
Adult male upperwing



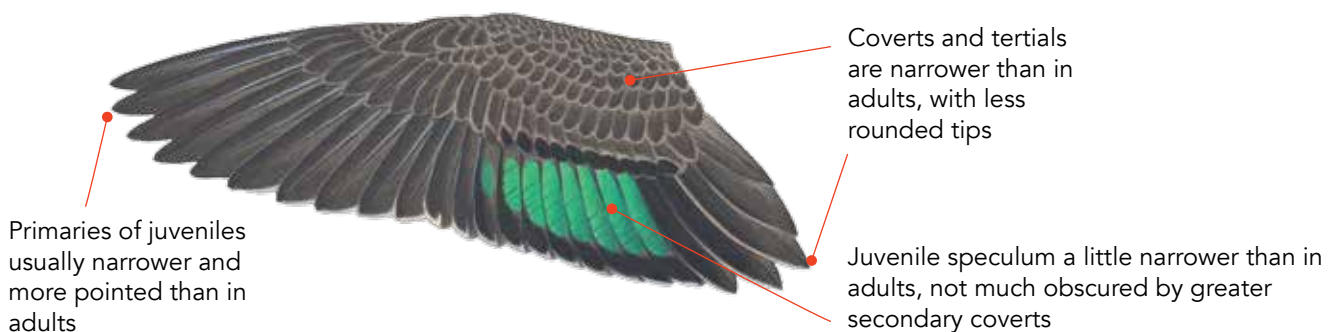
Adult male underwing



Adult female upperwing

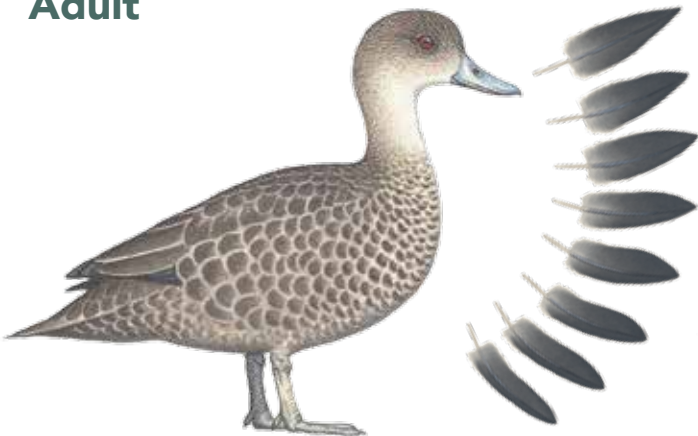


Juvenile female upperwing



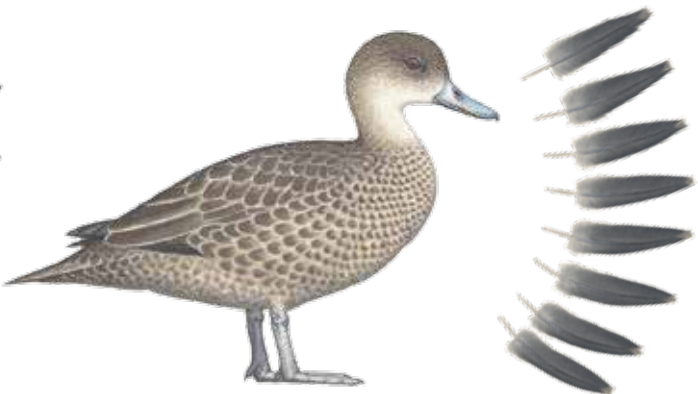
Grey Teal *Anas gracilis*

Adult



Wing: ♂ 200–220 mm, ♀ 187–210 mm
Broad tail feathers with rounded tips in adults

Juvenile

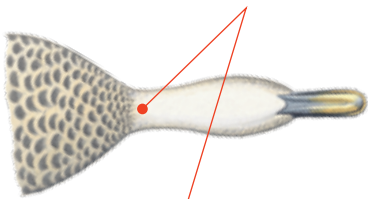


Wing: ♂ 192–216 mm, ♀ 188–202 mm
Finer flank and breast markings than in adult
Narrow, notched tail feathers in juveniles

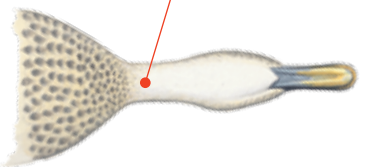
Identification

Grey Teal:

Entire throat white, including lower throat



Adult



Juvenile

Easily confused with ♀ Chestnut Teal

Slightly smaller, paler and greyer than ♀ Chestnut Teal

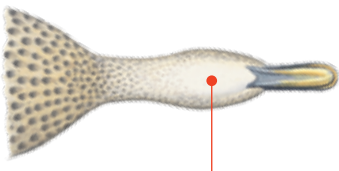
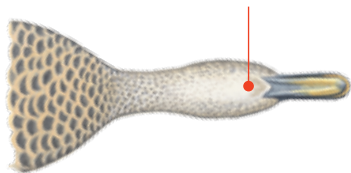
Colour differences difficult to assess if wet or bloodstained, in which case throat pattern is best ID feature:



Chestnut Teal Adult Female

Chestnut Teal:

Adult: Dark patch on chin diagnostic of Chestnut Teal; present in ~70% of adults, but absent in most juveniles



Juvenile: White throat patch smaller than in Grey Teal, with more dark streaking at sides, especially in lower throat

Recommended workflow

Ageing

1. Look for juvenile tail feathers; if any are present, the bird is in its first year.
2. Examine wings of birds that lack juvenile tail feathers, seeking
 - retained juvenile tertials
 - retained juvenile coverts
 - retained juvenile primaries with relatively narrow tips (a difficult distinction best made with comparative material).

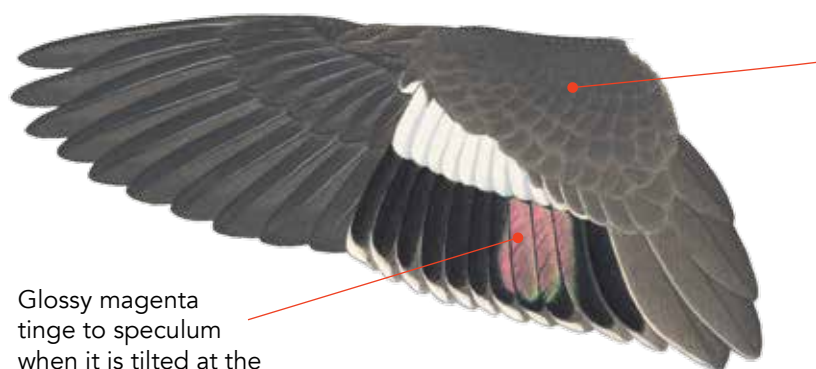
If any of the above are present, the bird is in its first year; if absent, the bird is probably adult.

Sexing

1. Measure wing length; ~60% can be sexed:

Wing length (mm)	Adult	First year
Male	≥212	≥201
Female	≤194	≤195

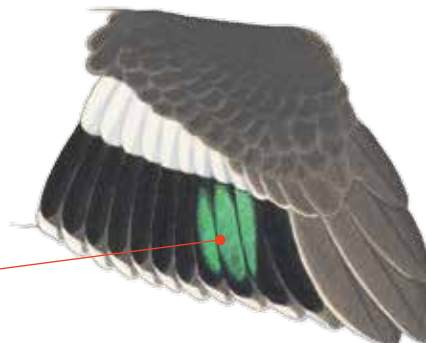
Adult upperwing



Glossy magenta tinge to speculum when it is tilted at the right angle

In other orientations, or when viewed in shade, speculum looks green

Upperwing coverts look slightly lighter than those of Chestnut Teal. Stronger contrast between dark feather centres and paler fringes make Grey Teal look more dappled.



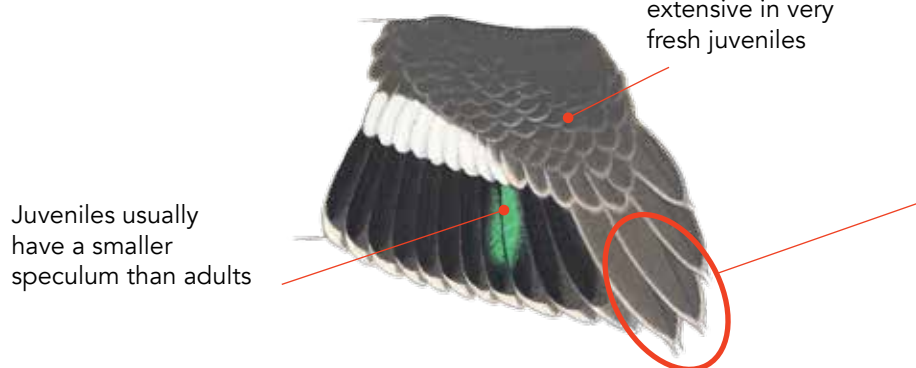
Adult underwing



Broad primaries with rounded tips in most adults

Only traces of white fringing on the lesser underwing coverts

Juvenile upperwing



Juveniles usually have a smaller speculum than adults

Fringing more extensive in very fresh juveniles



Juvenile tertials have buff fringes and tapered tips

Juvenile underwing



Slightly narrower primaries with more pointed tips in most juveniles

Juveniles tend to have broader fringing on lesser underwing coverts, but these feathers can be moulted before one year of age

Chestnut Teal *Anas castanea*

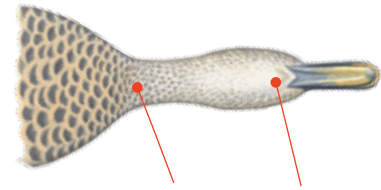
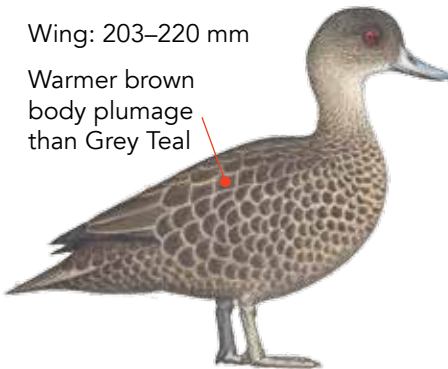
Adult male

Wing (95% CI):
207–238 mm



Adult female

Wing: 203–220 mm
Warmer brown
body plumage
than Grey Teal



Sides and base
of throat streaked
(cleaner white in
Grey Teal)

Diagnostic dark
smudge on chin
of most adults
and some
juveniles

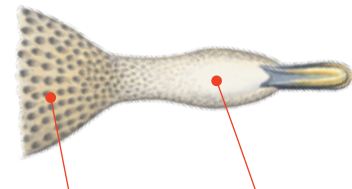
Adult male eclipse

Varies, but usually a
drabber version of
breeding male



Juvenile

Wing: ♂ 210–227 mm,
♀ 191–222 mm



Juvenile has
smaller body
feathers than ♀

Juvenile has
whiter throat:
more likely to be
confused with
Grey Teal

Tail feathers



Adult

Broad, pointed
tail feathers



Immature

In post-juvenile
moult



Juvenile

Small, narrow
tail feathers with
notched tips

Recommended workflow

Ageing

1. Look for juvenile tail feathers; if any are present, the bird is in its first year.
2. Examine wings of birds that lack juvenile tail feathers, seeking retained juvenile tertials and narrow primary tips. If either is present, the bird is in its first year; if absent, the bird is probably adult.

Sexing

1. Sex bird according to head and body plumage if full specimen available. Otherwise ...

2. Check white fringing of lesser underwing coverts: male if absent, unsexed if present.
3. ~30% of adults and ~50% of immatures can be sexed on wing measurement:

Wing length (mm)	Adult	First year
Male	≥224	≥207
Female	≤191	≥195

Adult male upperwing

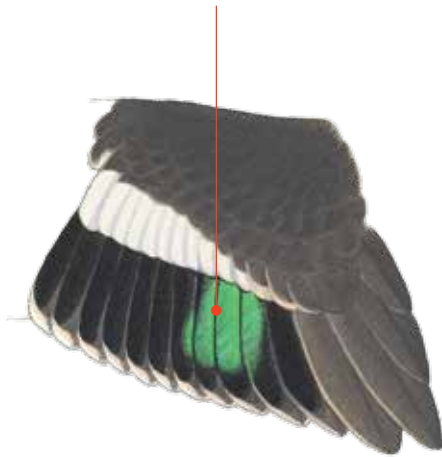


Upperwing coverts look more evenly dark brown than those of Grey Teal, especially in males

Glossy magenta tinge to speculum when viewed from most angles – more obvious than in Grey Teal

Adult female upperwing

In some orientations or in dull light, speculum can look green in both sexes



Adult female underwing

Only traces of white fringing on lesser underwing coverts of most males and some females

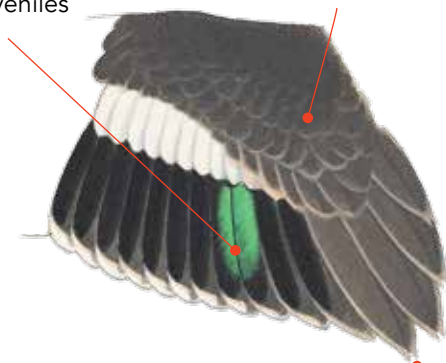


Broad primaries with rounded tips in most adults

Juvenile upperwing

Relatively small speculum can occur in both adults and juveniles

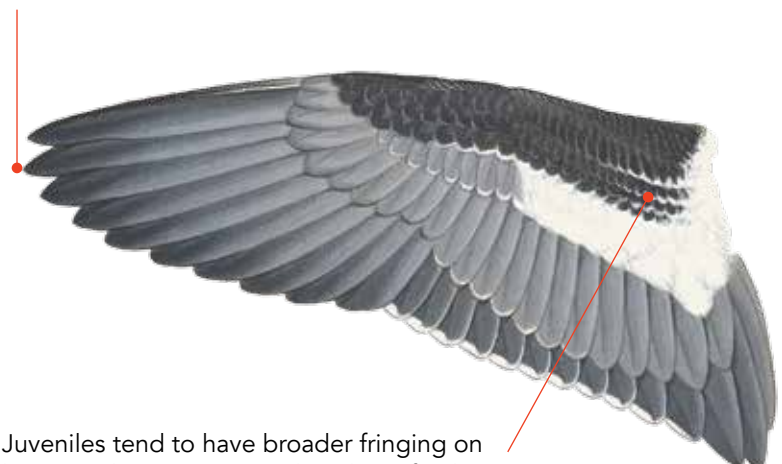
Fringing more extensive in very fresh juveniles



Pointed tips to retained juvenile tertials: age-diagnostic if present, but not retained in all immatures

Juvenile underwing

Slightly narrower primaries with more pointed tips in most juveniles



Juveniles tend to have broader fringing on lesser underwing coverts, but these feathers can be moulted before birds are one year old

Australian Wood Duck *Chenonetta jubata*

Adult male



Wing (95% CI): 266–292 mm

Adult female



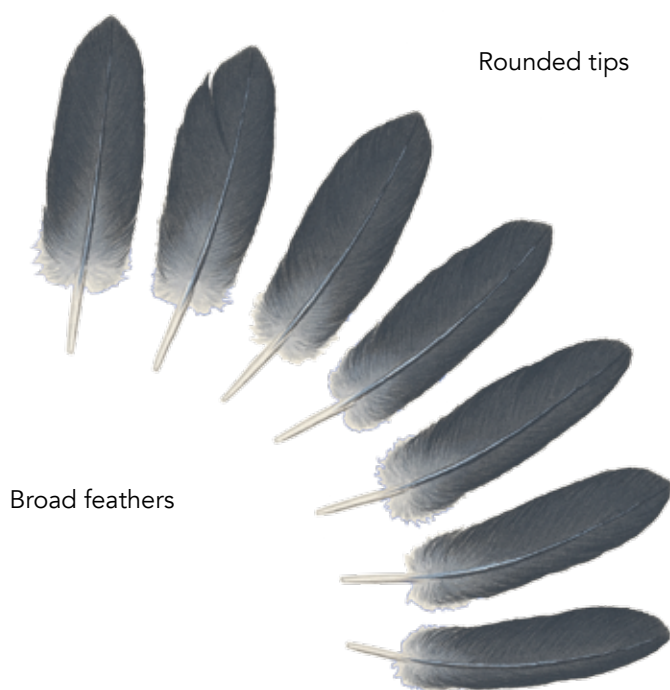
Wing: 259–290 mm

Juvenile



Wing: ♂ 270–291 mm ♀ 267–283 mm

Adult male tail feathers



Rounded tips

Broad feathers

Juvenile tail feathers



Notched tips

Narrow feathers

Recommended workflow

Ageing

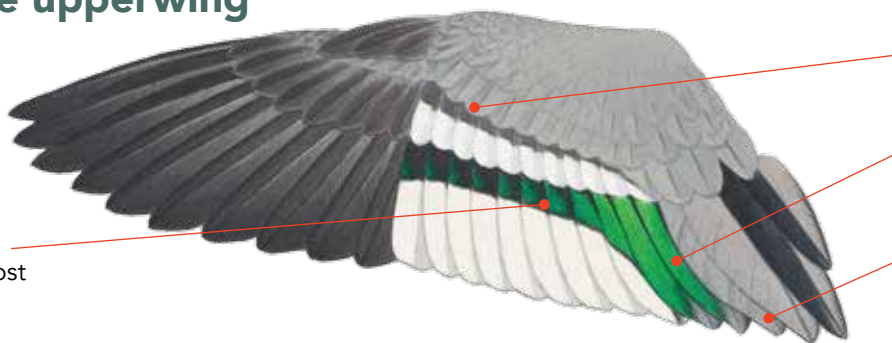
1. Look for juvenile tail feathers; if any are present, the bird is in its first year.
2. Examine underside of inner primaries of birds that lack juvenile tail feathers; white bases are small in adult, large in first year.

Sexing

1. Sex according to head plumage and flanks if full specimen available.
2. If only wing available, sex on speculum (see overleaf).

Adult male upperwing

Bright-green speculum; green iridescence on most or all secondaries



White tips to median coverts lost with wear

Innermost speculum feather has glossy green outer web

Two all-grey tertials between black tertial streaks and speculum

Adult male underwing

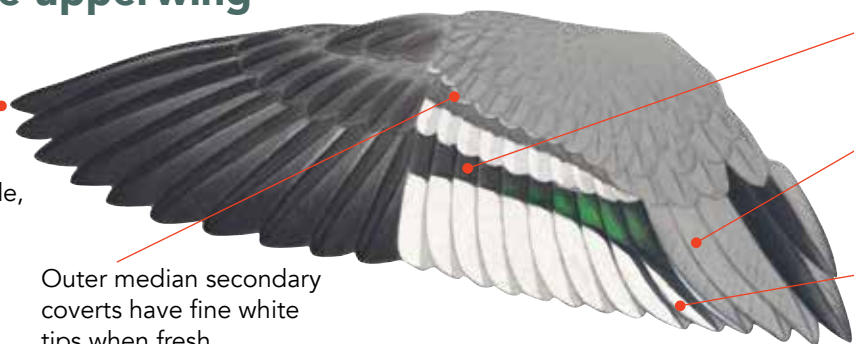
Small white bases to inner webs of primaries cf. juvenile



Adult female upperwing

Primaries slightly broader than in juvenile, but considerable overlap

Outer median secondary coverts have fine white tips when fresh



Duller speculum than in male; iridescence peters out short of outer secondaries

Three all-grey tertials between black tertial streaks and speculum

Innermost speculum feather has restricted glossy green panel, white outer edge

Juvenile male upperwing

Primary tips slightly narrower than in adult

White bases of inner webs often slightly exposed when viewed from above

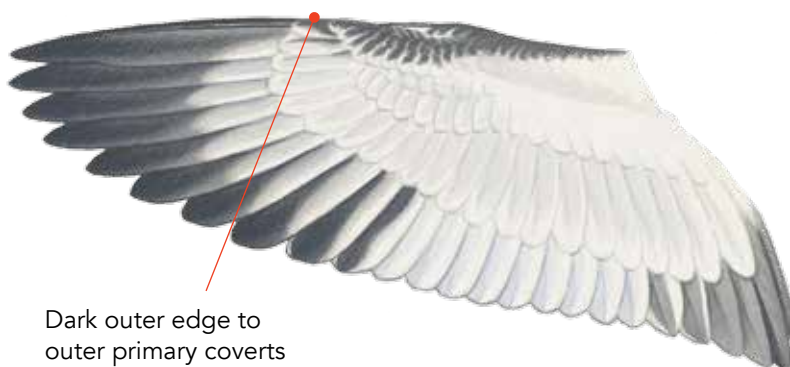


Median secondary coverts have broader white tips than in adult when fresh

Speculum differs between males and females, as in adults. Inner speculum pattern shows this is a male

Juvenile male underwing

Dark outer edge to outer primary coverts



Stubble Quail *Coturnix pectoralis*

Adult male



Wing (95% CI): 100–111 mm
Orange face and throat
Black patch in breast includes some entirely black feathers

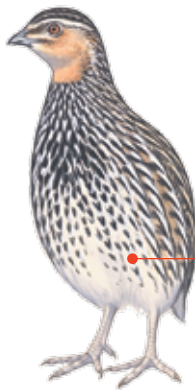
Adult female



Wing: 102–114 mm
Cream-white face and throat; no black central patch in breast



Immature



Wing: ♂ 102–109 mm, ♀ 101–110 mm

Immature male

Similar to adult ♂ but black breast patch has white streaking on all feathers

Both sexes can retain some juvenile feathers in underparts (spotted rather than streaked black)

Immature female

(not illustrated)

Very similar to adult female, only differs in wing pattern (see overleaf)

Juvenile



Juvenile male

Smaller than adult or immature.
Can fly before fully grown

Underparts feathers spotted, not streaked; extensively white belly

Face and throat patterned like adult ♀

In most or all ♂, faint rufous tinge in face foreshadows orange face and throat of adult ♂

Recommended workflow

Ageing

1. If wing is not fully grown, bird is juvenile
2. In fully grown birds, look for moult contrast in primaries. If lacking, bird is adult
3. If moult contrast is present, examine primary coverts: only immature retains juvenile primary coverts, with broad buff shaft-streaks and fringes.

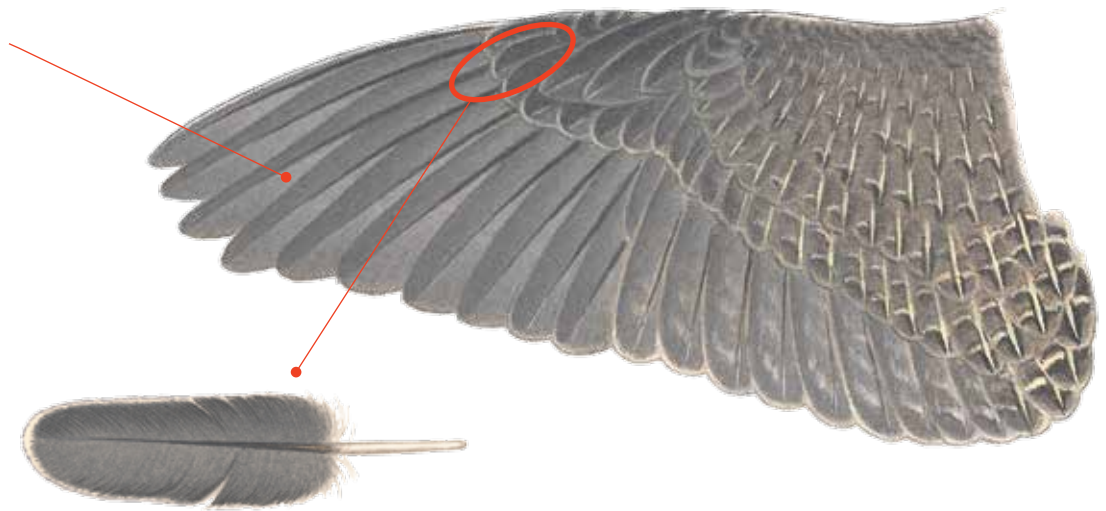
Sexing

1. Sex on head and breast plumage, only possible if full specimen available.

Adult

Usually moults all primaries, so all have similar wear. About 25% have wear pattern similar to immature (below)

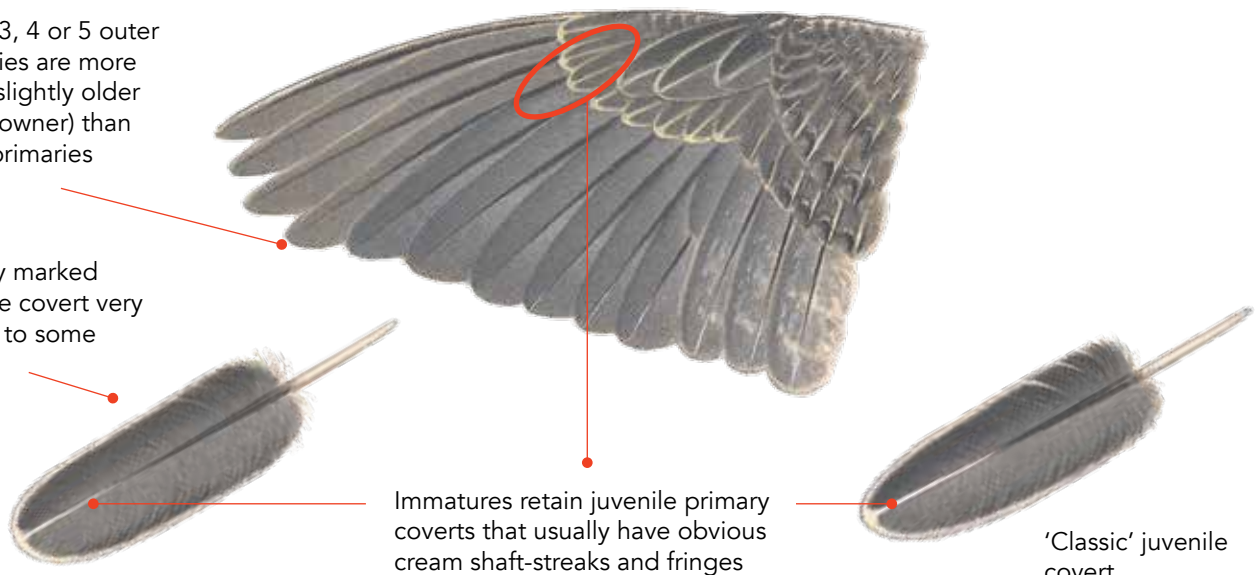
'Classic' adult primary coverts have very narrow cream shaft-streaks and fringes



Immature

Outer 3, 4 or 5 outer primaries are more worn (slightly older and browner) than inner primaries

Weakly marked juvenile covert very similar to some adults



Juvenile

Most are obviously smaller than adult or immature, with most wing feathers still growing

More clear buff streaking on all coverts than older birds

Inner juvenile primaries have more buff speckling than older birds.





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