



Guide to the sex and age of European ducks



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INTRODUCTION

This guide is the third of its kind edited by the French Office national de la chasse et de la faune sauvage (ONCFS), after 'Ailes de canards', translated from English in 1975, and 'Critères de détermination du sexe et de l'âge des canards', published in 1991. Both of these guides are now out-of-print. In line with the two earlier guides, this new guide will help biologists, bird ringers and hunters to determine the sex and age of ducks. It deals with ten species that are among the most commonly observed, ringed and hunted in continental France. As it is generally impossible to tell the age of ducks from a distance, most of the criteria presented in this book are for use with birds in the hand only. Two classes of age are distinguished: (i) those born during the last breeding season, aged one year at most, termed juveniles; (ii) those which have already experienced one full summer moult, hence are aged more than one year, termed adults.

Why age and sex ducks?

Knowing the sex and age of ducks is a prerequisite to any demographic study. Such information allows for instance for survival rates to be estimated separately for different age and sex classes. Age-ratios also allow the assessment of annual breeding output. In North America this statistic is commonly used to determine whether waterfowl management operations have been successful. During cold periods, changes in age and sex ratios are indicative of bird movements, providing information on the severity of the spells and their likely consequences for the birds.

Determination lies on two broad categories of criteria

Two broad categories of criteria will be considered for proper age or sex assessment in ducks. The first set of criteria relies on all parts of the body except the wings (termed "non-wing criteria"). In general these are non-specific, i.e. are applicable to all species or at least to a whole genus. Most of these criteria change during the first months of life or show annual cycles, so that they can only be used to determine the age and sex of a bird during a specific period of the year. These criteria are dealt with in the first part of the guide. The second part deals with wing criteria, which are the most important. Indeed, as opposed to the rest of the body wing examination alone theoretically allows species, age and sex determination at any time of the year. Furthermore, studies using shot birds often rely on wing examination because wings can be easily collected, conserved and transported.

Since wing characteristics are species-specific, each duck species is dealt with in its own detailed technical account, where all criteria are presented and compared among age and sex classes.

With some experience, careful examination of the criteria presented in this guide should help anyone to accurately determine the age and sex of >90% of the handled birds.

NON-WING CRITERIA

All waterfowl species considered in this guide show clear sexual dimorphism, allowing easy determination of sex from September–October through to May–June. Broadly speaking, females are generally dull and monochrome, while the breeding plumage of the males always bears brightly coloured, white or black parts, or has strong contrast. Furthermore, in dabbling ducks only males have vermiculated feathers. When breeding plumage disappears at the end of summer, sex but also age classes look much more similar to each other. However, with birds in the hand, subtle differences can be seen between adult males and females. Males in eclipse plumage generally have a darker back and a more contrasting plumage than females; they often show remains of breeding plumage colour, even if this is much less obvious, or a few vermiculations. In some cases, the first feathers of the nuptial plumage can also be already visible. Besides plumage, sexual dimorphism also exists, depending on species, in bill and iris colour. Very young ducks are far less sexually dimorphic than adults. The most reliable criteria to sex ducks, valid for all ducks from one day of age and throughout the year, is the presence or absence of a penis.

For most species and individuals, there are no non-wing criteria that allow age determination after February–March, and often well before this period. In summer, as long as the moult of body feathers has not started, juveniles can usually be separated from adults by their belly plumage. The belly feathers in juveniles are densely spotted with small brown spots, homogeneously distributed over the whole belly area, and the feathers are dull and often abraded. In adults, depending on species the belly patterns are nonexistent, faded or irregularly distributed; the plumage looks fresh, soft and dense. This criterion, however, has to be used with caution because it is relatively subjective and requires experience to be used accurately. Besides plumage, the other non-wing criteria are, depending on species, the colour of the iris or the bill and, in all ducks, the shape of the rectrices, the presence of a bursa of Fabricius and the size of the penis. The three latter criteria are highly reliable, as long as moult of the rectrices is not completed and sexual maturity has not been reached.

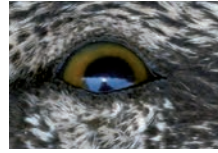
Iris colour

Three of the ten duck species considered here show sexual dimorphism in iris colour: Shoveler, Common Pochard and Red-crested Pochard. Adult males of these species have a brightly coloured iris throughout the year – yellow to red – while that of the females is brown. This difference allows sexing adults easily, which can be useful during summer when males are in eclipse plumage.

These photographs illustrate the difference in iris colour between sex and age classes in Shoveler.



Brown iris of females and very young birds



Juvenile male's iris in August (note the yellow beginning to appear)



Adult male's yellow iris

Final iris colour is gradually acquired during the first winter, therefore a difference can be observed between the eye colour of adult males and that of juvenile males, the latter being brown during the first months of life as in females. Such dimorphism also exists in Tufted Duck, whose adults of both sexes have a bright yellow iris which, during winter, is clearly different from the brown iris of juveniles. A bird with a juvenile-type iris during summer can be safely considered as a juvenile, while from September-October it will be impossible to tell the age of a bird with an adult-type iris.

Bill colour

During some parts of the year the bill of dabbling ducks – except Eurasian Wigeon – looks sufficiently different in males and females, and in adults and juveniles to be used as a complementary criterion for determination. In diving ducks only the red bill of adult male Red-Crested Pochard can be told from that of the other sex and age classes, where it is generally brown.

Female dabbling ducks bear spots on their bill, which males do not have. Such spots are smaller and less numerous in very young females. In males during summer a difference in colours exists between adults and young of the year, the bill of the latter generally being less contrasted and coloured. When birds acquire their breeding plumage it becomes impossible to determine their age only from the examination of the bill. A bird with a juvenile-type bill can therefore be safely identified as a juvenile, while from September or October it is impossible to tell the age of a bird with a bill of the adult or breeding type.

The following plates show the bills of the six dabbling duck species in which this is a valuable criterion. All bills were photographed during summer.

Gadwall

ADULT MALE



In eclipse, bill brown on the above and orangeish on the sides, usually with a clear demarcation. The bill may look mottled when colour changes. Black bill outside of eclipse period.

JUVENILE MALE



During summer, bill brown above and orangeish on the sides, with a blurred delineation. Black bill when in breeding plumage.

ADULT FEMALE



Bill brown above and orangeish on the sides. Black spots, usually large and elongated some of which merge with each other. At the end of the breeding period the orange can completely disappear under the spots.

JUVENILE FEMALE



During summer, bill light brown above, yellow to orange on the sides, with a relatively blurred delineation. A few brown spots, usually rounded, not numerous and separate from each other.

Common Teal

ADULT MALE



In eclipse, bill dark grey to grey-brown, often greenish at the commissure and on the sides. Black bill outside of eclipse period.

JUVENILE MALE



During summer, bill grey-brown above, greenish to yellowish on the sides, yellow to orangeish at the commissure and sides. Black bill when in breeding plumage.

ADULT FEMALE



Bill grey-brown to grey-green spotted on upper mandible, greenish on the sides, sometimes yellow to orangeish at the commissure and the sides. Black spots, often large and elongated, some merging with each others.

JUVENILE FEMALE



During summer, bill grey-brown – sometimes mottled – above, greenish on the sides, yellow to orangeish at the commissures and sides. Some black spots on the sides, generally rounded, in small numbers and separated from each other.

Mallard

ADULT MALE



Throughout the year, bill uniformly olive green or yellow, sometimes vaguely blueish.

JUVENILE MALE



During summer, bill non-uniformly coloured, mainly yellowish-green, sometimes vaguely blueish. Similar to the adult when in breeding plumage.

ADULT FEMALE



Bill colour highly variable. Usually black above and orangeish at the base, tip and sides, the two colours being poorly delineated and in variable proportions. A few rounded or elongated black spots at the commissure and the sides.

JUVENILE FEMALE



Bill colour highly variable. Usually black above and orangeish at the base, tip and sides, the two colours being poorly delineated and in variable proportions. During summer, few or no small spots, but some fine mottling or brown patches on the sides.

Northern Pintail

ADULT MALE



Throughout the year, bi-coloured bill: blue to grey-blue on the sides and black on the above and sides. Delineation between the two colours is clearcut.

JUVENILE MALE



During summer, bill bi-coloured: dark brown above, grey-blue melted with grey-brown on the sides. Delineation between the two colours rather unclear. Resembles adults in breeding plumage.

ADULT FEMALE



Bill entirely dark grey or sparsely marked with dull grey-blue on the sides and at the base. Rounded or elongated black spots, sometimes large, sometimes merging with each other.

JUVENILE FEMALE



Bill entirely dark grey, more or less dull grey blue on the sides and at the base. A few small spots or brown mottling, rather rounded and separated from each other.

Northern Shoveler

ADULT MALE



In eclipse, dark blackish or brownish bill, sometimes with orange, especially at the base and on the sides. Outside eclipse period, bill shiny black.

JUVENILE MALE



During summer, bill grey-brown to green-brown above, orangeish at the commissure and on the sides. In breeding plumage, black bill.

ADULT FEMALE



Bill grey-brown above, orange at the commissure and on the sides. Black spots, generally numerous, are large and elongated, some merging with each other.

JUVENILE FEMALE



During summer, bill grey-brown to green-brown above, orangeish at the commissure and on the sides. In breeding plumage, black bill. Some brown spots, usually rather rounded and small, typically few and separated from each other.

Garganey

ADULT MALE



Throughout the year, bill entirely dark grey to blackish.

JUVENILE MALE



During summer, bill light grey, sometimes with greenish on the sides. In breeding plumage, bill resembles adult.

ADULT FEMALE



Bill dark grey, sometimes paler on the sides. Some brown spots, generally large and elongated, often merging with each other.

JUVENILE FEMALE



During summer, bill light grey, sometimes greenish on the sides. Some brown spots, rounded or elongated, often few and separated from each other.

Rectrices

Before their first breeding moult, juvenile ducks have rectrices which each have a notched tip, although this is sometimes hardly visible. The first rectrices grow on the same rachis as the initial down, so that a notch get created when the down is shed at a few weeks of age, leaving a visible rachis. Conversely, in birds with adult-type plumage, the rectrices are all pointed. Wear on adult-type rectrices usually does not expose the rachis and should not be confused with notched juvenile-type rectrices. Juvenile-type rectrices are also often faded – as if burnt – and worn on the sides, while rectrices of adults or juveniles that have moulted look new, with unabraded sides.

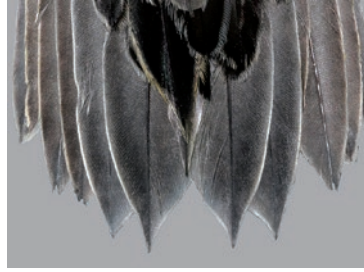
The photographs below show rectrices before, during and after moult in Common Teal.



Tip of a rectrix before (left) and after (right) juvenile moult.



Rectrices of a juvenile bird before moult – all feathers are notched, worn and faded.



Rectrices of a juvenile bird during moult, showing both notched and pointed feathers.



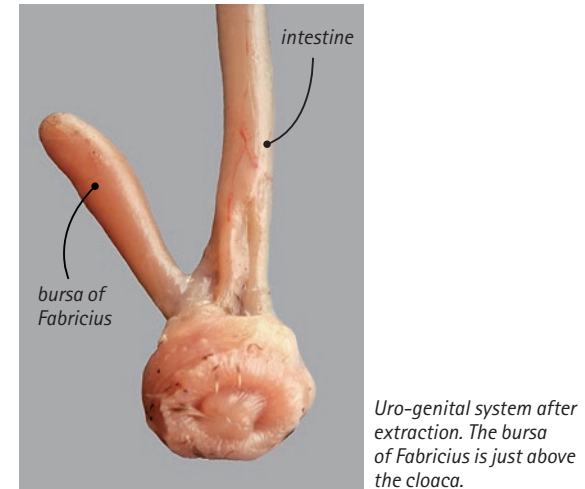
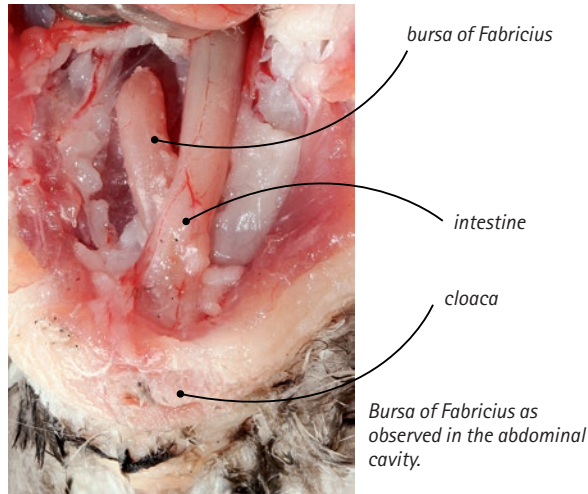
Rectrices of an adult or a juvenile bird after moult: all feathers are pointed, new and unabraded.

The presence of a notch is a highly reliable criterion for distinguishing juvenile from adult ducks, but one that is only valid before the end of the post-juvenile moult. The exact timing of this moult is highly variable among and within species, and is dependent on individual condition. It is initiated early in Mallard, with all rectrices sometimes moulted as early as September, and late in Eurasian Wigeon which can still have only juvenile-type rectrices in January-February or even later. In Common Teal rectrix moult occurs over an extended period. Young males usually moult their rectrices before young females. As rectrix moult is gradual, between August and January it is typical to find individuals with both notched juvenile-type and pointed adult-type feathers. When looking at the tail, it is therefore necessary to carefully examine each feather in turn in order to detect any possible remaining notched feathers, thus indicating a juvenile individual.

The bursa of Fabricius

The bursa of Fabricius is a gland of the avian immune system that produces antibodies. It is located on the back side of the cloaca, into which it opens. It is 1–4 cm long depending on species. The bursa of Fabricius shrinks with maturation of the testes or ovary, hence it disappears during or at the end of the first winter, when birds are 8 to 10 months old. The presence of this organ hence always indicates a juvenile bird. Conversely, its absence after January does not confirm that the bird is an adult.

Age determination using the bursa of Fabricius is usually practiced on dead birds, through an incision of the skin above the cloaca to reach the abdominal cavity. However, with much practice it is possible to detect the presence of the bursa from an examination of the cloaca, where its opening is visible. This opening should not be mistaken with that of the female oviduct, which is also in the cloaca.



Sexual organs

Waterfowl are among the few bird families where males have a penis. This allows sexing of ducks throughout the year, from internal examination of the cloaca. Further, the penis of immature males is 1–2 cm long, while that of adult birds can reach 10–15 cm. This size difference allows juveniles to be separated from adults until approximately December. After this date age can only be identified for late juveniles that still have an immature-type penis. In females the oviduct's opening is visible but it is the absence of a penis that mostly helps sexing the bird.

Cloacal examination is a delicate process requiring training. The bird has to be laid on its back, the sides of the cloaca being opened with the thumbs while pressing on the abdomen and the bottom of the back to expose the penis. In adult males the penis is almost entirely folded in a membrane, so that exposing it fully is more difficult than in immature birds. It often appears small and shiny white.

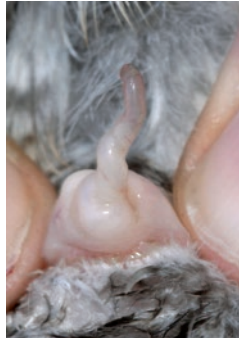
The photographs below show the sexual organs of the different sex and age classes in Common Teal.



Female cloaca



Cloaca with juvenile penis in November



Cloaca with juvenile penis in January



Cloaca with adult penis, the end of the penis is not visible

Dissected sexual organs



Juvenile penis during summer, with bursa of Fabricius

Juvenile penis in January, without a bursa of Fabricius

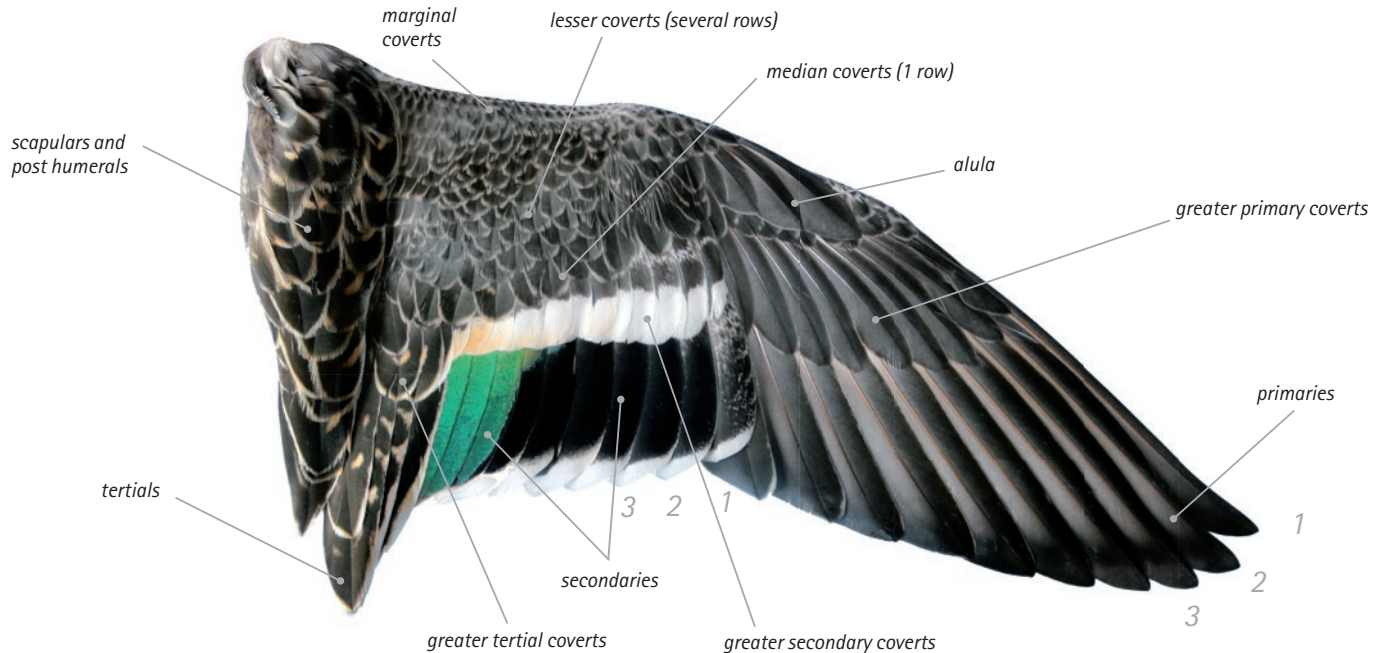
Adult penis, folded in its membrane

WING CRITERIA

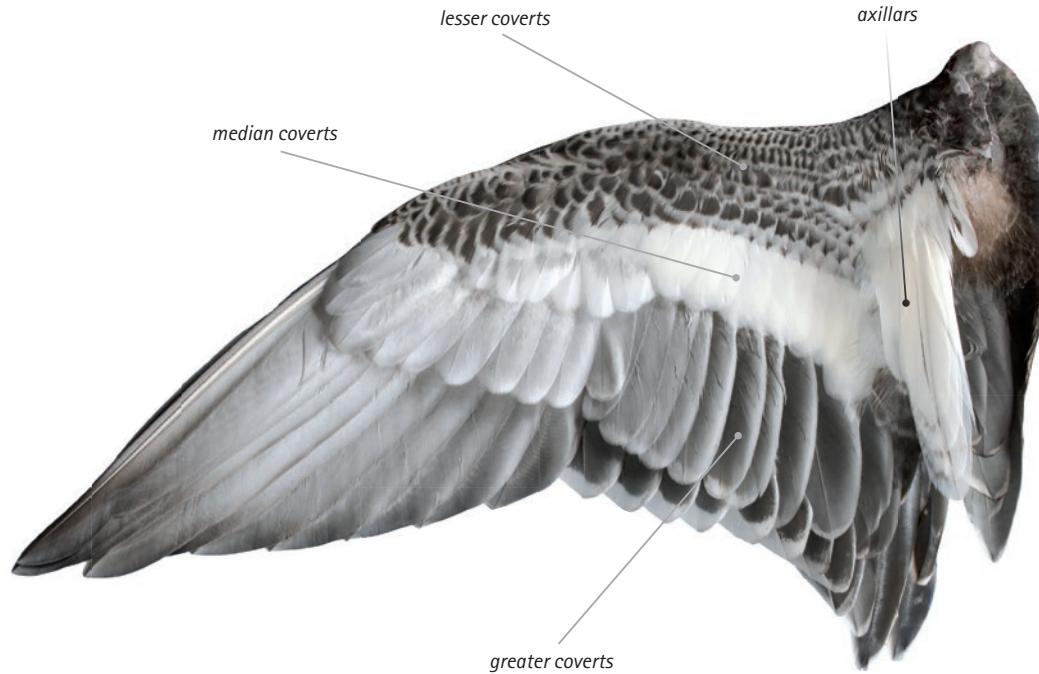
Topography of the upper wing in ducks

- Moving from the outer to the inner side of the wing, the flight feathers are named primaries, secondaries and tertials. From the anterior to the posterior edge of the wing, the coverts are called marginal, lesser, median and greater.

- The duck wing has 10 primaries, 10 secondaries and 4 tertials in most species. There are usually 16 greater coverts: 12 greater secondary coverts and 4 greater tertial coverts. In dabbling ducks – at least in males – the secondaries form an iridescent area called the speculum. In diving ducks this is only a white or pale non-iridescent patch. In this guide feathers are numbered in ascending order from the outer wing to the inner wing.

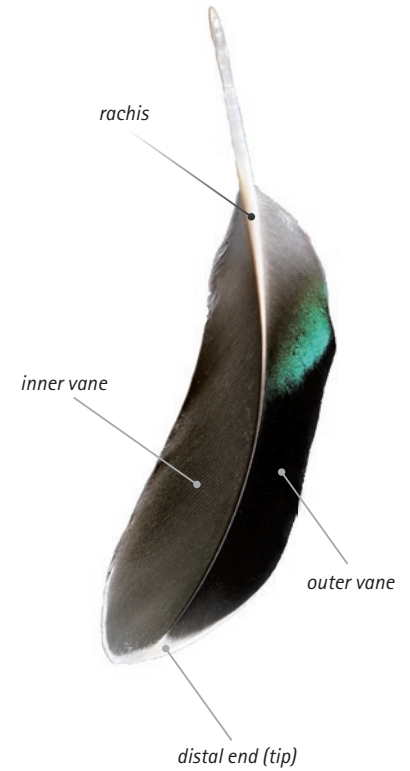


Topography of the underwing in ducks



Feather

(here a secondary from a right wing)



Illustrated glossary

Main patterns on feathers



Illustrated glossary

Main feather shapes



General comments

Wing feathers differ between sex and age classes. Generally speaking, colours are brighter and purer, contrasts are greater, patterns are more visible, iridescent parts are shinier and more extended in males than in females, and in adults than in juveniles. In dabbling ducks, only males have vermiculated feathers. Inter-individual variability is considerable, thus causing overlap between age and sex classes. Moulting also causes seasonal variability, which is an important factor that needs to be taken into account. Any sex or age determination from wing criteria thus requires taking into account moulting phenology and the date when the bird was captured or shot.

Wing moulting phenology

Most juvenile wing feathers are not moulted before the birds are one year old, which allows them to be told apart from adults throughout the year. Lesser and median coverts, greater coverts, primaries and secondaries, alula and all underwing coverts are retained throughout the first year of life: it is therefore from examination of these feathers that an age determination is always theoretically possible. In contrast, the scapulars, post humerals, greater tertial coverts and tertials are moulted from juvenile to breeding-type feathers during the first winter, thus preventing their distinction from adult feathers. The phenology of the partial wing moulting in juveniles shows great variation between species, sexes and among individuals, spanning from early autumn to late winter or even spring. In general, males initiate and complete their moulting before females. It seems that at least in some cases, the fourth greater tertial covert (the most proximal) is not moulted before the first complete summer moulting, when all wing remiges and all coverts are replaced.

In adult birds, scapulars, post humerals and tertials differ according to whether the bird is in eclipse, post-breeding plumage or full breeding plumage. Such differences are clear in males but much less so in females whose feathers look similar throughout the year. The eclipse wing feathers of males of most species are gradually replaced by breeding feathers between the end of the summer and the end of the autumn. Females begin to moulting these feathers 1 or 2 months later than males; sometimes they only replace them during the following spring. The coverts and remiges are moulted simultaneously during the summer, or during the autumn in late breeders. Given such wing moulting phenology, the scapulars, post humerals, remiges and greater tertial coverts are mostly useful for determining the sex of birds once the breeding moulting has begun, or for determining the age before this moulting is completed. The presence of any juvenile feathers always indicates a bird in its first year. If all such feathers have been moulted then they cannot be used to determine age.

Once moulted, the greater tertial coverts of juveniles contrast from non-moulted coverts in terms of shape, size or colour, especially in males. Such contrasts are usually a reliable age criterion.

The photographs below show the gradual acquisition of breeding scapulars and tertials as well as the gradual replacement of the greater tertial coverts in male Common Teal.

Scapulars and tertials



Adult male in eclipse plumage (September). Brown non-vermiculated scapulars, tertials missing



Adult male in breeding plumage (December). Scapulars all vermiculated, breeding tertials fully developed



Male in juvenile plumage (September). Brown non-vermiculated scapulars, tertials worn and short

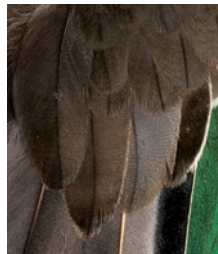


Juvenile male acquiring breeding plumage (December). Many vermiculated scapulars, tertials new and long

Greater tertial coverts



Juvenile male in October. Greater tertial coverts of juvenile type: narrow, worn, and of similar colour to the other coverts



Juvenile male in December. The second greater tertial covert is of adult type: broad and clearly contrasting to the other coverts



Juvenile male in January. The first three greater tertial coverts are of adult type: they clearly contrast with the other coverts



Adult male. The greater tertial coverts are broad, new, and of similar colour to the other coverts

Lesser and median coverts

The lesser and median coverts of adult and juvenile birds often differ in shape. Except in Northern Shoveler, the length/width ratio is generally greater in juveniles than in adults: feathers look narrower in the former. Juvenile feathers are also less rounded: their rather straight edges quickly converge at the feather tip. They are sometimes worn. Such criteria are however sometimes arbitrary, and require experience to correctly determine their age. They are usually easier to use when comparing two birds of different ages than on a single individual. Sometimes young adults at the end of their second summer still have a few juvenile coverts, which are then highly worn, in the middle of their new adult-type feathers.

The photographs below show the differences in shape of median coverts between juvenile and adult Northern Pintail.



juvenile female



juvenile male



adult female



adult male

The feathers of juvenile birds are narrower and less rounded than in adults

Wing length

On average male ducks have longer wings than females, and adults have longer wings than juveniles. Although there is considerable overlap in wing length between age and sex classes, it is sometimes possible to use this criterion with extreme wing lengths. In particular, wing length can be helpful for sex determination when age is known. Wing measurements given in the present guide are those for folded wings, taken from the carpal joint to the tip of the longest primary.

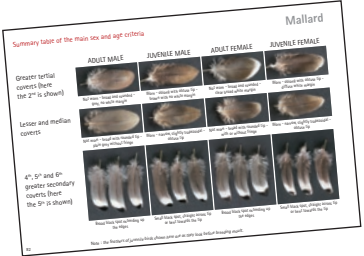
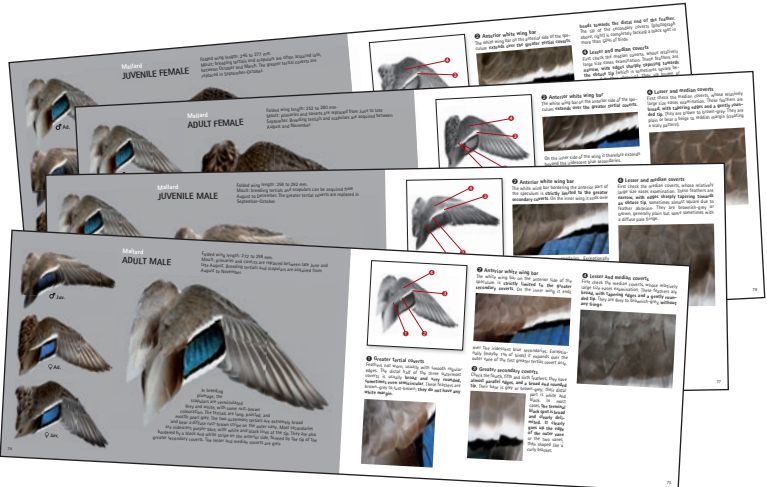
SPECIES ACCOUNTS

Each species account contains ten pages that follow a standard outline and contents. In most cases, photographs show the wings of juveniles (that is, before the post-juvenile moult) and those of adults in breeding plumage. Because it was not possible to illustrate the wide individual variability (except for Eurasian Wigeon, see p. 122), the photographs shown here illustrate individuals with a typical appearance for the particular criterion.

The first page shows the main general characteristics of the species, the wing feathers to examine to determine age and sex, as well as the main potential difficulties.

Four double pages subsequently show in a consistent way the wings of each age and sex class. The left page shows the whole wing, together with smaller images of the other categories. The right page illustrates and describes the various parts of the wing to be examined for age and sex determination.

The last page provides a table of the most important feathers to be used in age and sex determination for each of the four classes.





© Martin Trachsel – Red-crested Pochard. Obersee, Switzerland.

Main criteria

The red-crested Pochard is a large-bodied duck, 53–57 cm long with a 84–88 cm wingspan and a body mass of 900 to 1400 g. This is a chunky bird with wide wings and a relatively long neck for a diving duck. In breeding plumage the head of the males is reddish orange, with a short erectile tuft forming a typical rounded shape. The neck, breast belly and tail area are black. The back is brown, the flanks are white and the tail is dark grey. The anterior edge of the wing bears a pure white area. Females and juveniles are almost entirely brown; the flanks are

often delicately marbled pale brown in adult females. Underwing feathers are whitish. The head shows a wide chocolate-brown cap encompassing the eye and continuing down the neck; the cheeks are grey. The bill and iris of adult males are red in all seasons. In females and juveniles the bill is grey-brown with a yellowish orange border. The iris is red-brown in females older than one year, brown in very young birds. It turns red as early as August in young males. Legs are grey-brown. The wing of the Red-crested Pochard has a characteristic broad white bar bordered in brown, formed by the primaries and

Red-crested Pochard

Netta rufina

secondaries. Lesser and median coverts are brown to grey-brown. In males, the marginal coverts also form a white band along the anterior edge of the wing. The white parts of the wing often turn salmon-pink under the action of carotenoid pigments from the algae on which the ducks forage.

Age and sex determination

Sex determination from wing examination is relatively easy in this species, since only males have white marginal coverts. Conversely, age determination is more difficult, particularly in females. Wing examination should focus on marginal coverts, the inner greater coverts and greater tertial coverts; the latter are only a reliable criterion before breeding moult. In some adult birds, greater tertial coverts are not all of a similar colour and may therefore be mistaken for those of young birds before moult. For these feathers, it is therefore better to consider their shape rather than their colour. Furthermore, these tertial coverts may be moulted from early autumn in juveniles, along with some inner secondary coverts. If in doubt and if the whole bird is not available, non-specific criteria should be examined: colour of iris and bill, presence/absence of a penis and its size, shape of the rectrices, presence/absence of a bursa of Fabricius in dead birds.

Red-crested Pochard ADULT MALE

Folded wing length: 255 to 273 mm.

Moult: primaries and coverts replaced between June and August.

Tertials and scapulars replaced between August and October.



♂ Juv.



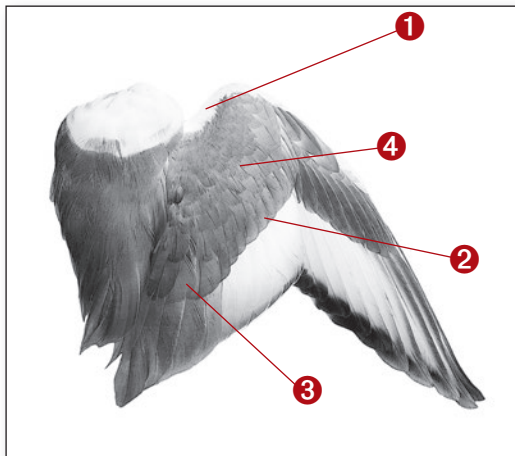
♀ Ad.



♀ Juv.



In breeding plumage, scapulars plain reddish-brown, except at the wing joint where they form a white to salmon-pink patch. Tertials are brownish grey. Primaries and secondaries form a broad white to pinkish wing bar, bordered in brown on the posterior side. This bar is strongly contrasting with the grey-brown coverts. A white to pinkish line also extends over the whole anterior side of the wing.



① Marginal coverts

Check the feathers on the anterior part of the wing. They form a clear line, **pure white to pinkish white**, even sometimes salmon pink.



This line is **relatively broad**; it extends onto the upper wing away from the leading edge.

② Greater secondary coverts

Pay particular attention to the most inner feathers, from the seventh to the eleventh. These feathers are **broad, with an angular to square tip**, the edge of the vanes almost forming a right



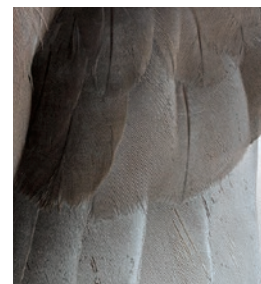
angle with the tip of the feather, at least for the inner vane. The tip of these coverts often looks like a **curly bracket** (see below).



These feathers usually do not show any fringe. They look relatively opaque.

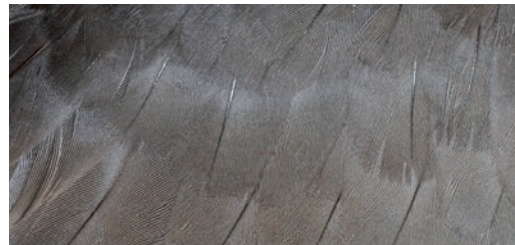
③ Greater tertial coverts

Examination should be limited to the greater coverts right above the tertials. These feathers are **not worn**; their edge is smooth and regular. They are broad, with **edges parallel or getting wider in the distal half**. Their tip is **angular, sometimes even square**. They are grey-brown to dark grey. The colour of these feathers may vary even for a given individual, some being clearly grey and others rather brown (see below).



④ Lesser and median coverts

Feathers not worn, the edges converge towards a **rather broad and square tip**. These feathers are **uniformly grey-brown**.



Red-crested Pochard JUVENILE MALE

Folded wing length: 250 to 264 mm.
Moult: tertials and breeding scapulars acquired between July and October. Greater tertial coverts can be fully replaced as early as September.



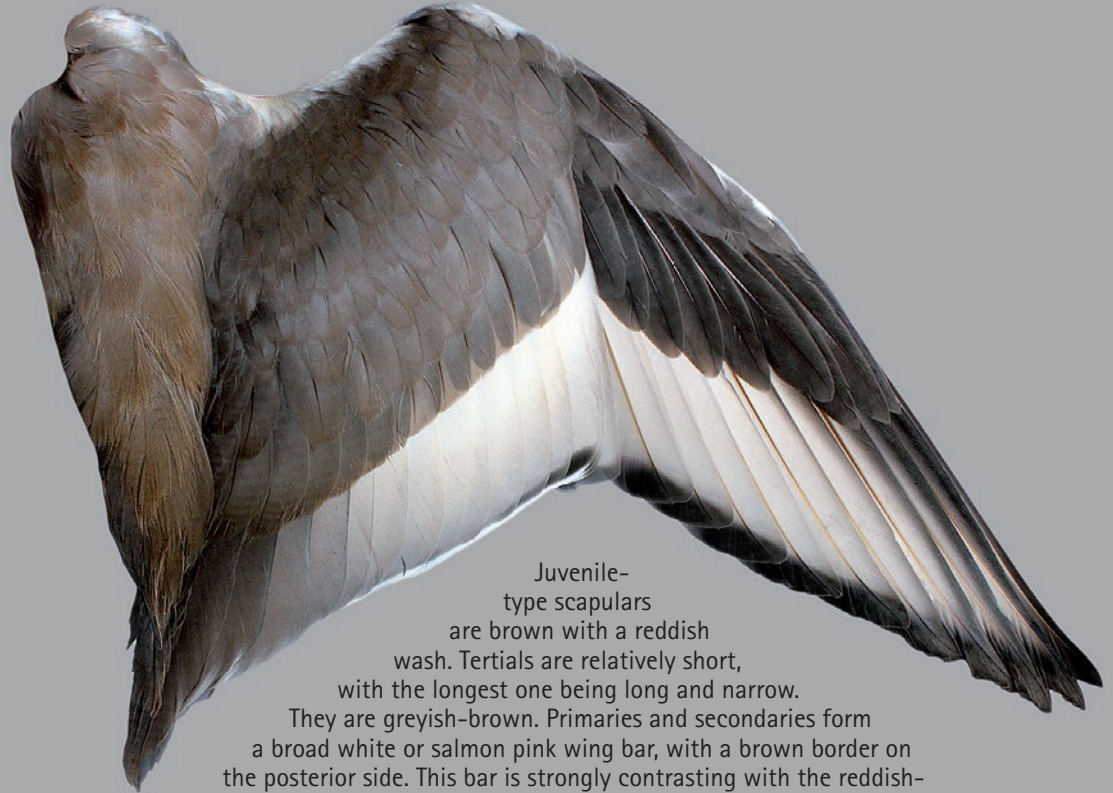
♂ Ad.



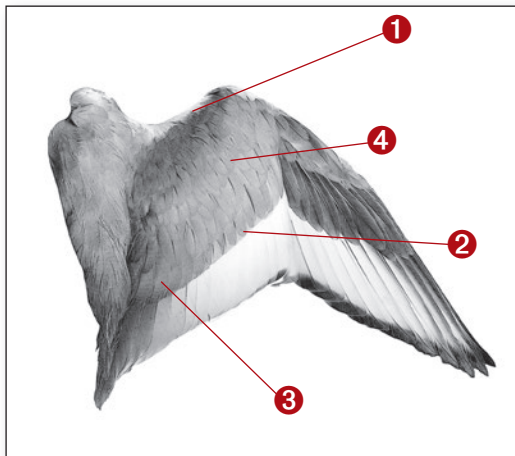
♀ Ad.



♀ Juv.



Juvenile-type scapulars are brown with a reddish wash. Tertials are relatively short, with the longest one being long and narrow. They are greyish-brown. Primaries and secondaries form a broad white or salmon pink wing bar, with a brown border on the posterior side. This bar is strongly contrasting with the reddish-brown coverts. A narrow white to salmon pink line extends over the whole anterior side of the wing.



① Marginal coverts

Check the feathers on the anterior part of the wing. They form a clear **white to whitish line**, less frequently pinkish.



This line is **relatively narrow**; it barely extends beyond the leading edge of the upper wing.

② Greater secondary coverts

Check the most inner ones, feathers seven to twelve. These feathers are **relatively narrow**. The **tips are relatively rounded**, including on the inner vane.



The outer side of these feathers is often **curved**, although without forming a proper curly bracket (see below).



One or several of these coverts often bears a pale fringe. They look relatively transparent.

③ Greater tertial coverts

Only consider the greater coverts directly above the tertials. Before breeding moult, these feathers are worn with irregular edges. They are **relatively narrow with the edges gradually converging towards a rounded or obtuse tip**. They are reddish-brown to grey-brown.



④ Lesser and median coverts



Feathers sometimes worn, with the edges converging towards a **relatively rounded tip**. They are **grey-brown with a reddish wash**.

Red-crested Pochard ADULT FEMALE

Folded wing length: 251 to 275 mm.
Moult: primaries and coverts acquired between July and September-October. Tertials and breeding scapulars acquired between August and November.



♂ Ad.



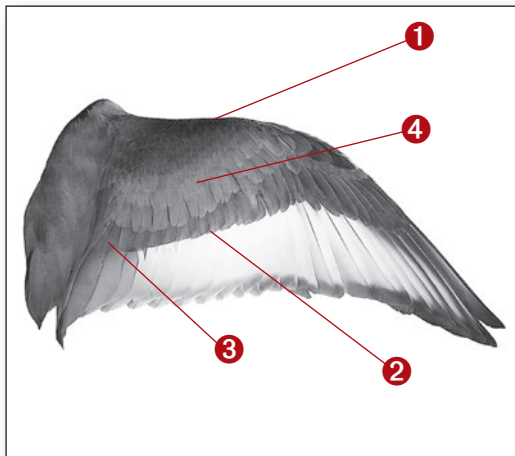
♂ Juv.



♀ Juv.



In breeding plumage, scapulars are plain reddish-brown, except at the wing joint where they form a rounded white to salmon pink patch. Tertials are brownish-grey. Primaries and secondaries form a broad wing bar, white to pink with a brown border on posterior side. This bar is strongly contrasting with the coverts, which are uniformly grey-brown.



① Marginal coverts

Check the feathers on the anterior side of the wing. They form a **diffuse light brown, beige or beige-grey area, paler than the other upper wing coverts.**



This area is narrow; it does not extend beyond the leading edge of the wing.

② Greater secondary coverts

Look specifically at the most inner ones, feathers seven to twelve. These are **broad, with an angular or even square tip**, the edge of the vane almost forming a right angle with the distal end of the feather, at least for the inner vane.



The tip of some of these coverts **often forms like a curly bracket** (see below).



These feathers usually do not show any fringe at their tip. They look relatively opaque.

③ Greater tertial coverts

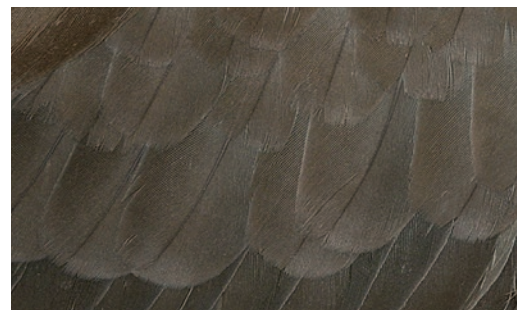
Only consider the greater coverts immediately above the tertials. These feathers are not worn; their edge is smooth and regular.



They are **broad, with edges parallel or even widening towards the distal end. Their tip is angular to square.** They are brown.

④ Lesser and median coverts

Feathers not worn, with edges converging towards a **relatively wide and square end.** They are **plain brown.**



Red-crested Pochard

JUVENILE FEMALE

Folded wing length: 237 to 259 mm.
Moult: breeding tertials and scapulars acquired between July and October. Greater tertial coverts sometimes all replaced as early as in September.



♂ Ad.



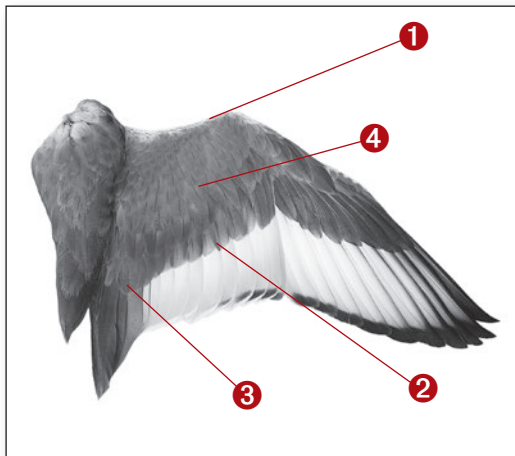
♂ Juv.



♀ Ad.



Juvenile-type scapulars are reddish-brown. Tertials are relatively short, the longest one having a pointed end. They are greyish-brown. Primaries and secondaries form a broad whitish to pinkish-white wing bar, with a brown border on the posterior side. This bar strongly contrasts with the brown to reddish-brown coverts. Feathers on the leading edge of the wing are brown, paler than the other upper wing coverts.



❶ Lesser coverts

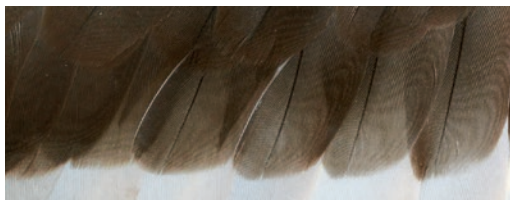
Check the feathers on the leading edge of the wing. They form a **diffuse pale brown, beige or beige-grey area, paler than the upper wing coverts.**



This area is narrow; it does not extend beyond the leading edge of the wing.

❷ Greater secondary coverts

Look specifically at the innermost feathers, from feather seven to twelve. These are relatively narrow. The tips are relatively rounded, including on the inner vane.



The tip of these feathers is often **curved, although without forming a proper curly bracket** (see below).



One or several of these coverts often bears a pale fringe at the tip. They look relatively transparent.

❸ Greater tertial coverts

Only consider the greater coverts immediately above the tertials. Before breeding moult, these feathers are **worn, with irregular edges**. They are **relatively narrow and their edges gradually converge towards a rounded or obtuse tip**. They are reddish-brown.



❹ Lesser and median coverts



Feathers sometimes worn, with edges converging towards a **relatively rounded tip**. They are **brown**.

Summary table of the main sex and age criteria

Red-crested Pochard

Greater tertial
coverts (here
the 2nd is shown)

ADULT MALE



Not worn – broad with angular,
square tip

JUVENILE MALE



Worn – narrow, oblong with rounded
or obtuse tip

ADULT FEMALE



Not worn – broad with angular,
square tip

JUVENILE FEMALE



Worn – narrow, oblong with rounded
or obtuse tip

Lesser and median
coverts



Not worn – broad with squarish tip
– grey



Long with roundish tip– grey-brown



Not worn – broad with squarish
tip – brown



Long with roundish tip – brown

Inner greater
secondary coverts



Very broad – opaque – square tip
at least on inner vane, tip sometimes
the shape of a curly bracket



Relatively narrow – transparent –
roundish tip, even on inner vane, tip
not the shape of a curly bracket



Very wide – opaque – square tip
at least on inner vane, tip sometimes
the shape of a curly bracket



Relatively narrow – transparent –
roundish tip, even on inner vane, tip
not the shape of a curly bracket



©Alain Frémond – Common Pochard. Brenne – France.

Main criteria

The Common Pochard is a medium-sized diving duck, 42 to 49 cm long and with a 72 to 82 cm wingspan. It is a chunky duck with a short tail, a broad neck, a high head with a sloping forehead, and a long, large bill. When on the water, the back seems to be leaning from the anterior to the posterior part of the body. In flight, the wings appear short compared to the body length. Males weigh 750 to 1200 g, females from 650 to 1100 g. In breeding plumage, the male has a red head and neck. The breast, anterior part of the back and the posterior

part of the body are black. The centre of the back and the flanks are vermiculated grey. The head, neck and breast of females are brown, paler around the bill and on the throat. The eye has a fine beige eye-ring extending towards the back as a pale eye stripe. The body plumage is a variable marbled combination of brown and grey. Juveniles resemble adult females although they are less grey and more uniformly brown. Wing coverts are vermiculated grey in males, grey to grey-brown with varying amounts of mottling in females. Legs are grey in all sex and age classes. Iris is

Common Pochard

Aythya ferina

orange to red in males, brown to yellowish-brown in females and very young birds. Young males get a red eye during their first autumn. The bill of adult males is black-grey at its base and tip, blue-grey in the middle with a pale blue subterminal band. In females, the bill is dark grey with a thin pale grey subterminal line and a black nail. The bill of juveniles is blackish during summer.

Age and sex determination

Age and sex determination from wing examination is possible in most cases. In particular, adult males can be easily distinguished by their uniformly vermiculated pale grey wings. Determination generally relies on the fact that, on average, the wings are more densely vermiculated and greyer in adults than in juveniles and in males than in females. Even in adults, the mottled pattern gradually gets denser and the plumage paler with age. Some adult females with limited mottling can be very difficult to tell from densely mottled young males, especially before the period when the latter acquire vermiculated breeding scapulars. It is recommended to determine sex before age. Wing examination mainly concerns the greater tertial coverts, the greater secondary coverts and secondaries, and the lesser and median coverts. If the whole bird is available, non-wing criteria should be examined: presence, absence and size of the penis, shape of the rectrices, and the presence or absence of a bursa of Fabricius in dead birds.

Common Pochard ADULT MALE

Folded wing length: 204 to 223 mm.
Moult: primaries and coverts replaced between late June and early September. Breeding scapulars and tertials usually acquired by October.



♂ Juv.



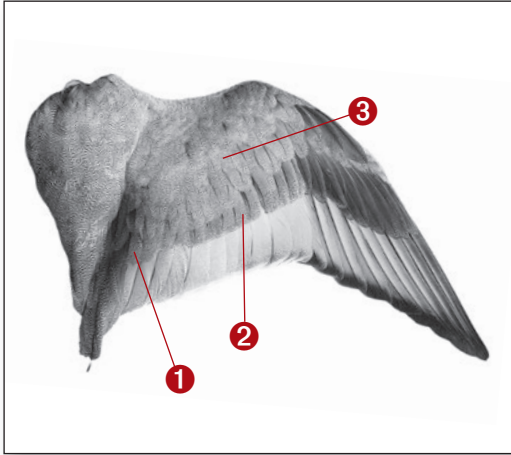
♀ Ad.



♀ Juv.



In breeding plumage, the scapulars and the wing look uniformly pale grey and densely vermiculated. In males aged more than two years, the lesser and median coverts are similar to the feathers on the back. These are often slightly darker grey in adults during their second year of life. Tertials are long, narrow and pointed, clearly vermiculated. Secondaries are vermiculated whitish grey, ending with a wide broad white terminal band. The inner primaries are usually dusted grey-white at the tip.



① Greater tertial coverts

Feathers not worn, with gently rounded tip. They are **pale grey, densely vermiculated in white over all of their visible surface.**



② Greater secondary coverts and secondaries

Check the feathers in the central part of the wing. The greater secondary coverts are wide with a **square tip. They are pale grey, very densely vermiculated in white over all of their visible surface.** The central secondaries (seventh, eighth and ninth feathers) are **pale grey to greyish-white, densely vermiculated/mottled in white over most of their visible surface, until a pure white terminal band.**



③ Lesser and median coverts

Feathers uniformly **pale grey, very densely vermiculated/mottled in white over all of their visible surface.**



Common Pochard JUVENILE MALE

Folded wing length: 202 to 220 mm.

Moult: breeding scapulars appear as early as September and are often fully acquired by November–December. Tertiaries and greater tertiaries are replaced from October; some are kept until the end of the winter.



♂ Ad.



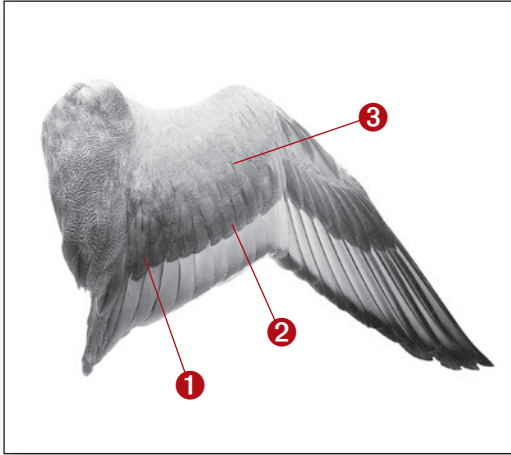
♀ Ad.



♀ Juv.



Juvenile-type scapulars are often worn, dark grey-brown, vermiculated/mottled in beige. Tertiaries are long, narrow and pointed, often abraded. They are faded grey-brown, hardly mottled. Secondaries are ash grey with a narrow white tip. Lesser and median coverts are grey, with varying levels of white dusting. The tip of the inner primaries rarely shows any grey-white mottling. If any breeding plumage is present it clearly contrasts with the rest of the plumage.



① Greater tertial coverts

These feathers show a rounded-obtuse tip, often worn. They are **dark grey to brown-grey, lightly dusted in whitish or beige, especially at the tip.**



② Greater secondary coverts and secondaries

Check the feathers in the central part of the wing. Greater secondary coverts are relatively narrow, with a **rounded tip**. They are dark grey to brown-grey, **lightly dusted in white, especially at the tip but sometimes also higher up the feather.**



The central secondaries (seventh, eighth and ninth feathers) are ash-grey, **lightly vermiculated/mottled at the tip**, mostly on the outer vane. They show a narrow white band at the tip.

③ Lesser and median coverts

Highly variable amount of dusting. Feathers narrow and rounded-obtuse, dark grey to brown-grey. Depending on the individual, they can be



densely to lightly dusted-mottled in white, sometimes over the whole of their visible surface.



Common Pochard ADULT FEMALE

Folded wing length: 200 to 216 mm.

Moult: primaries and coverts are changed from July to late October. Breeding scapulars and tertials are usually acquired by November.



♂ Ad.



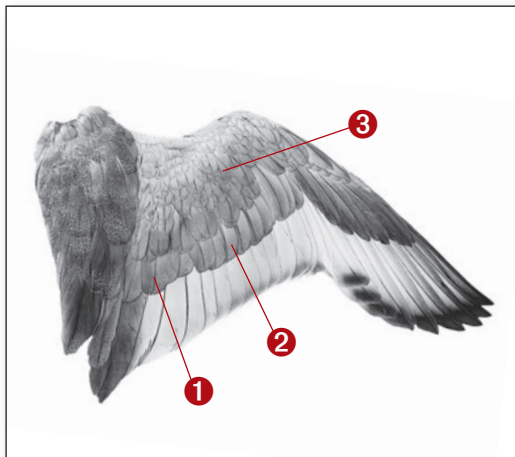
♂ Juv.



♀ Juv.



Scapulars are dark grey-brown, clearly vermiculated-mottled, more densely so at the tip. Tertials are long, dark grey to brown-grey, the tip often dusted in grey-white. Secondaries are ash grey with a narrow white tip. Lesser and median coverts are dark grey with a varying degree of white dusting, always more densely at the tip. Inner primaries are not mottled.



① Greater tertial coverts

Feathers not worn, with gently rounded tip. They are dark grey, with white dusting at the tip.



② Greater secondary coverts and secondaries

Check the feathers in the central part of the wing. Greater secondary coverts have a **square tip**. They are **dark grey with white mottling-dusting at the tip, denser on the edge**. Central secondaries (seventh, eighth and ninth feathers) are ash grey;



they often **lack any dusting or are lightly mottled only on the outer vane**, right before the narrow white tip.

③ Lesser and median coverts

Highly variable amount of dusting. Large dark grey feathers with a rounded or square tip. Depending on the individual, they can be **densely or lightly**



dusted-mottled in white, potentially over the whole visible surface of the feather. However, dusting is **almost always denser at the extreme edge** than elsewhere on the feather.



Common Pochard JUVENILE FEMALE

Folded wing length: 185 to 215 mm.

Moult: moult of scapulars initiated during the autumn. Tertials and greater tertial coverts sometimes moulted in October–November, but usually later.



♂ Ad.



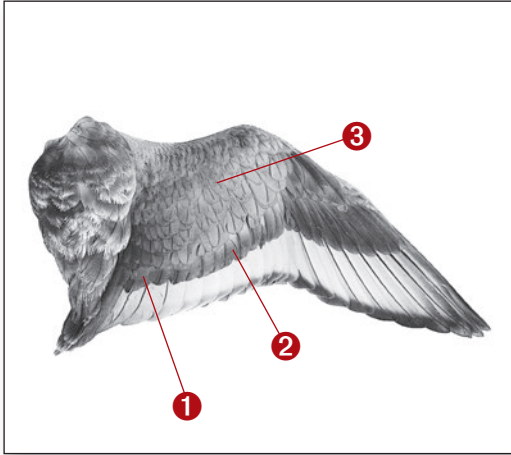
♂ Juv.



♀ Ad.



Juvenile-type scapulars and tertials are brown, faded and worn. They do not show any mottling. Secondaries are brown-grey with a very narrow (sometimes even lacking) whitish band at the tip. Lesser and median coverts are dark grey-brown, with little or no light grey dusting only at the tip.



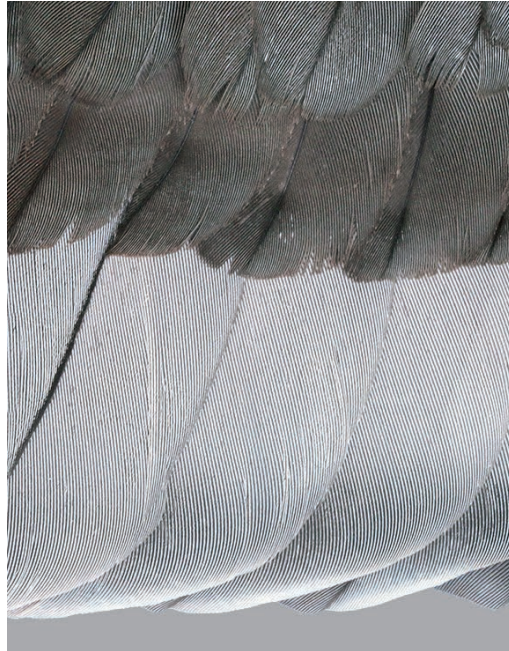
① Greater tertial coverts

Feathers show a rounded-obtuse, sometimes pointed tip, often worn. They are **brown to grey-brown, usually without any dusting.**



② Greater secondary coverts and secondaries

Check the feathers in the central part of the wing. Greater secondary coverts are relatively narrow, with a **rounded tip**. They are **dark grey-brown, usually without dusting or with a light dusting at the tip**. Central secondaries (seventh, eighth



and ninth feathers) are ash grey to brown-grey, **without any dusting**. They show a very limited narrow pale line at the tip.

③ Lesser and median coverts

Narrow feathers with rounded-obtuse tip. They are **dark grey-brown, plain or lightly dusted in white only at the tip**.



Summary table of the main sex and age criteria

Common Pochard

Greater tertial
coverts (here
the 2nd is shown)

ADULT MALE



Pale grey-densely vermiculated
in white

JUVENILE MALE



Brown-grey – light pale dusting
at the tip

ADULT FEMALE



Dark grey – clear white dusting
at the tip

JUVENILE FEMALE



Brown – no dusting

Lesser and median
coverts



Pale grey – very densely vermiculated



Dark grey to brown-grey – variable
but uniform dusting



Dark grey – variable degree of
dusting, denser on extreme edge



Dark grey-brown – plain or lightly
dusted, only at the tip

Greater secondary
coverts



Pale grey – densely vermiculated



Grey to brown-grey – uniform dusting
at the tip

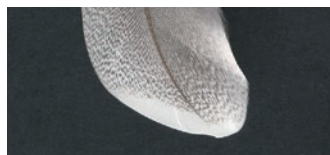


Grey – dusting at the tip, dense
on extreme edge



Grey-brown – no dusting or light
dusting at the tip

7th, 8th and 9th
secondaries



Densely vermiculated-mottled
in white



Lightly vermiculated-mottled,
especially at the tip



Grey – not dusted or lightly dusted
at the tip of the outer vane



Grey to brown-grey – no dusting

Tufted Duck

Aythya fuligula



©Alain Frémond – Tufted Duck. Brenne – France.

Main criteria

The Tufted Duck is a small-bodied duck with short wings. Body length is 40 to 47 cm, wingspan 67 to 73 cm. Males weigh 600 to 1000 g, females 500 to 950 g. This is a short and compact bird with a rounded head and a relatively short bill. In breeding plumage, the head of males is black with a purple sheen, bearing a long tuft down to the nape. The white flanks and belly strongly contrast with the charcoal grey body. At short range the upper part of the body can show some pale grey dusting, although far less marked Scaup (*Aythya marila*).

Females and young have a brown head, usually with some irregular white to yellowish spotting around the bill. Females also have a tuft, shorter than in males but still easily visible. Their breast, back and flanks are brown, the latter often paler than the rest of the body. The belly is whitish, often extending to the undertail. In adult females the edge of the body feathers is usually paler than the centre, leading to a marbled or barred plumage. Tufted ducks have a grey-blue bill with a clearly defined black nail. Legs are blue-grey, with darker webs. The iris is bright yellow in both sexes, yellowish-brown in juveniles until the

beginning of the autumn. The wings are mostly black-brown, with a white wing bar bordered in brown across the primaries and secondaries.

Age and sex determination

Sex determination is generally impossible from wing examination only, especially when age is unknown. The presence and/or density of grey-white dusting on the wings or scapulars are not reliable criteria. For some birds of known age, sex can be determined from the wing measurement (see folded wing length). Wing examination for ageing should consider the greater tertial coverts then the inner greater secondary coverts. If these criteria prove inconclusive, close examination of the tertials as well as the lesser and median coverts can help. The bronze-green iridescence of the wing feathers generally indicates an adult.

If the whole bird is available, non-wing criteria should be examined: presence, absence and size of the penis, shape of the rectrices (juvenile type rectrices can still be present during winter), iris colour (only until the end of the summer), presence or absence of a bursa of Fabricius in dead birds. As opposed to a common belief, the length of the tuft does not provide any indication about the age of the individual.

Tufted Duck ADULT MALE

Folded wing length: 198 to 215 mm.
Moult: primaries and coverts are replaced between June and September. Tertials and breeding scapulars are acquired between the end of summer and mid-autumn.



♂ Juv.



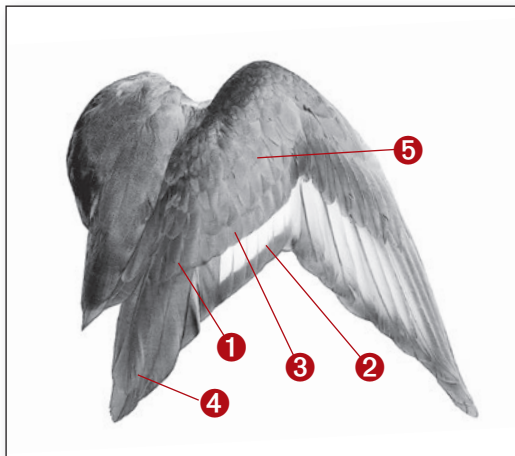
♀ Ad.



♀ Juv.



In breeding plumage, scapulars are long and pointed. The shorter ones look dusted in greyish-white or vermiculated, charcoal grey. Tertials are long and narrow. The secondaries form a clearly visible white wing bar with blurred ending on the primaries. This bar is bordered in black on the posterior side. Coverts are iridescent black, often dusted in greyish-white. The plumage shows some bronze-green iridescence.



① Greater tertial coverts

Feathers not worn, usually with smooth and regular edges. These feathers are **broad** with parallel edges up to the tip, which is **angular** (sometimes almost square). They are **charcoal grey with bronze-green iridescence**, at least on the outer vane.



② Secondaries

There is a **pure white** wing bar across the secondaries. The posterior side of this bar is clearly



defined. The tips of the inner secondaries are **black with a bronze-green iridescence**.

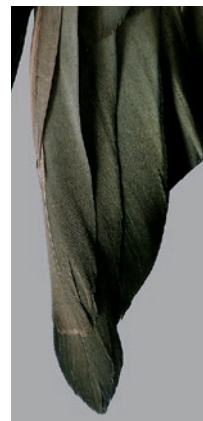
③ Greater secondary coverts

Check the innermost feathers; these are **broad, with an angular to square tip**, the edge of the vanes almost forming a right angle with the tip of the feather, at least on the inner vane.



The tip of some of these coverts often forms a **curly bracket**. These feathers are opaque.

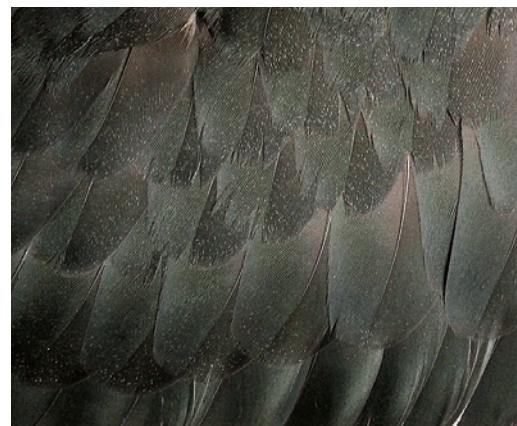
④ Tertiaries



Feathers **rarely abraded, long and fine**. They are black with bronze-green iridescence, usually dusted in greyish-white, especially at the tip. When the wing is folded, the longest tertial is longer than the longest primary.

⑤ Lesser and median coverts

Feathers **not worn and relatively broad**. They are **charcoal grey**, finely dusted in grey-white, more rarely pure black.



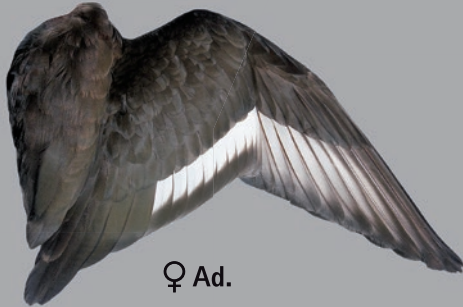
Tufted Duck JUVENILE MALE

Folded wing length: 194 to 210 mm.

Moult: Scapulars and breeding tertials acquired from August or September, some not before January or February.



♂ Ad.



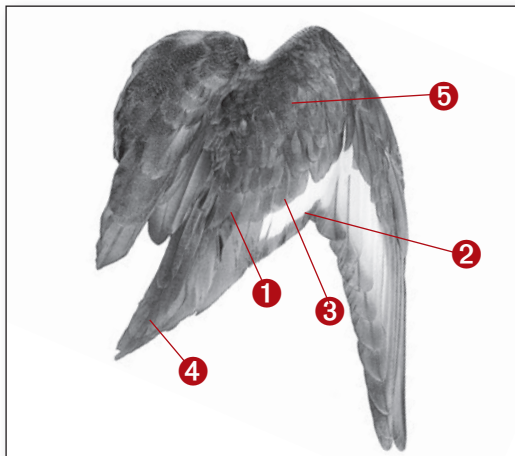
♀ Ad.



♀ Juv.



Juvenile-type scapulars are brown, rounded and worn, often dusted in greyish-white. Tertials are often faded. Secondaries form a clearly visible white wing bar which extends diffusely onto the primaries.. This bar is bordered in black-brown on the posterior side. Coverts are black often dusted in greyish-white, more rarely pure black. The plumage does not show any bronze-green iridescence.



① Greater tertial coverts

Before the breeding moult, these feathers are often **worn**, with **irregular edges**. They are **narrow**, almost lanceolate. Their tip is **obtuse to rounded**. They are **dark brown to dull black**, sometimes faded.



② Secondaries

A **dull white** wing bar stretches across the secondaries. One or two of the most distal secondaries are sometimes greyish.



The posterior limit of this white bar is often **indistinct**. The tips of the inner secondaries are **dull dark brown**.

③ Greater secondary coverts

Check the innermost feathers; they are **narrow**, with a **roundish tip** and often **worn**. The tip of these coverts **never has the shape of a curly**



bracket. It can even be concave in the centre, owing to shaft abrasion. These feathers seem slightly transparent.

④ Tertiaries

Before moult, these feathers are usually **worn and faded**. They are **dull brown**, sometimes dusted in greyish-white spots at their tip. When the wing is folded, the longest tertial is not longer than the longest primary.



⑤ Lesser and median coverts

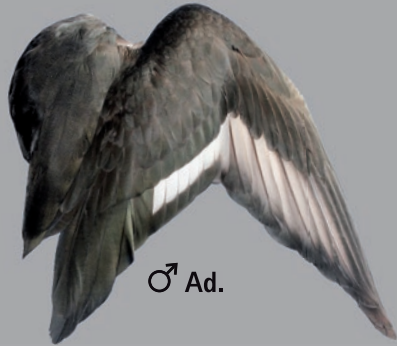
Feathers often **worn and relatively narrow**. They are uniformly **black-brown** or finely dusted in greyish-white.



Tufted Duck ADULT FEMALE

Folded wing length: 193 to 205 mm.

Moult: primaries and coverts are replaced between July–August and October. Tertials and breeding scapulars are acquired between the end of the summer and the end of the autumn.



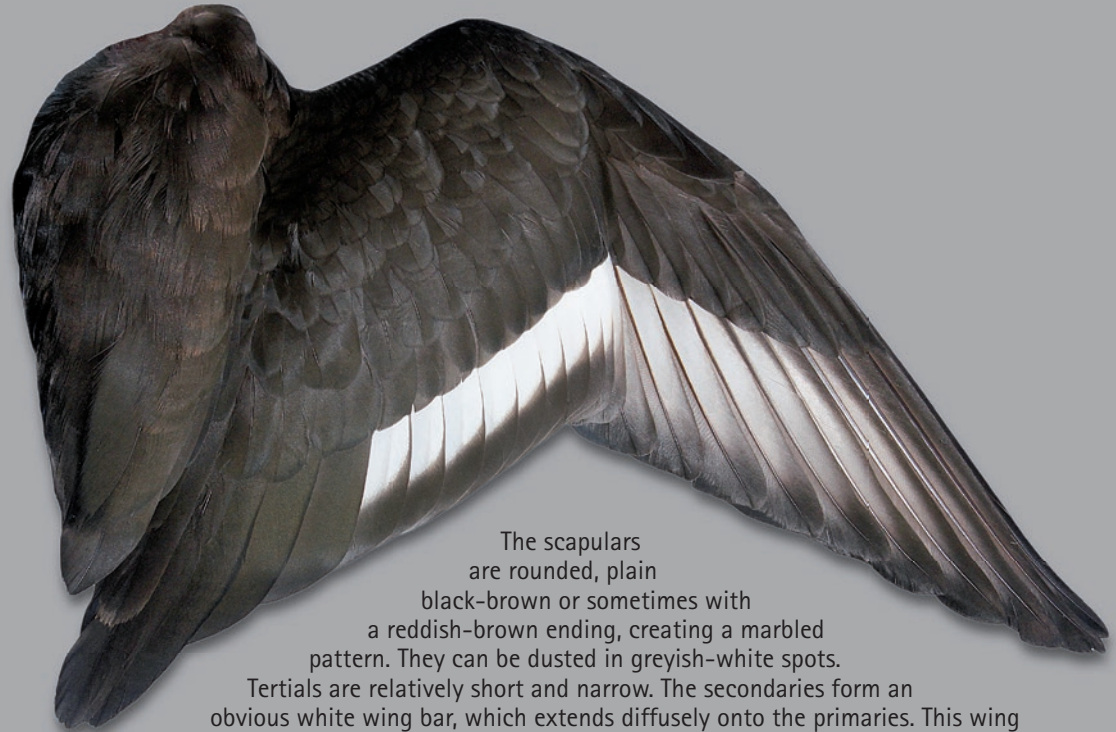
♂ Ad.



♂ Juv.

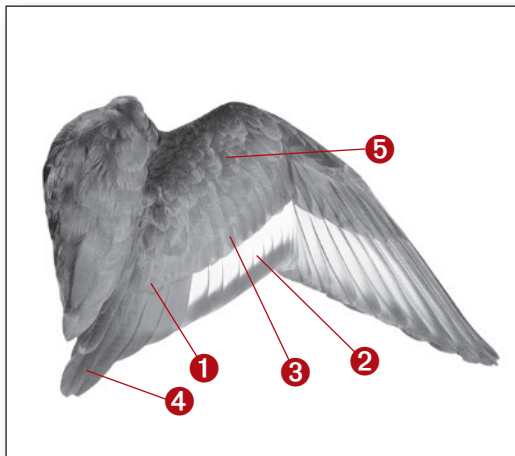


♀ Juv.



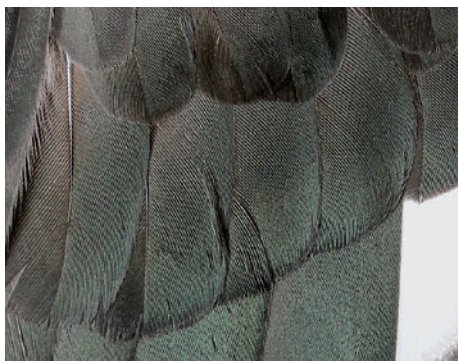
The scapulars are rounded, plain black-brown or sometimes with a reddish-brown ending, creating a marbled pattern. They can be dusted in greyish-white spots.

Tertials are relatively short and narrow. The secondaries form an obvious white wing bar, which extends diffusely onto the primaries. This wing bar is bordered in black on the posterior side. Coverts are black-brown to shiny black, sometimes plain, sometimes dusted in greyish-white spots. The whole plumage shows some bronze-green iridescence.



① Greater tertial coverts

Feathers not worn, usually with smooth regular edges. These feathers are **broad** and their edges are **parallel up to the tip**, which is **angular** and sometimes almost square. They are **charcoal grey with iridescent bronze-green sheen**, at least on the outer vane.



② Secondaries

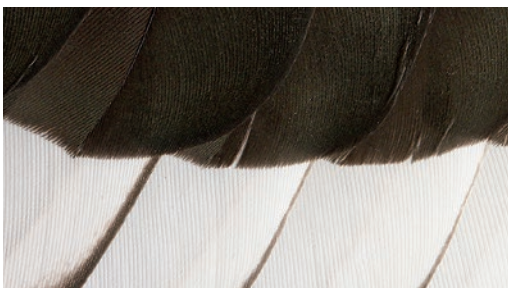
There is a **pure white** wing bar across the secondaries. The posterior edge of this bar is **clearly**



defined. The tips of the inner secondaries are black, **often with a bronze-green iridescence**.

③ Greater secondary coverts

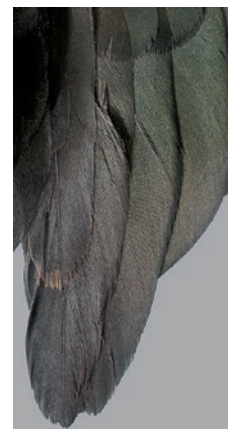
Check the innermost feathers; they are **broad, with an angular to square tip**, the edge of the vanes almost forming a right angle with the distal end of the feather, at least on the inner vane.



The tip of some of these coverts often forms a **curly bracket**. These feathers are opaque.

④ Tertiaries

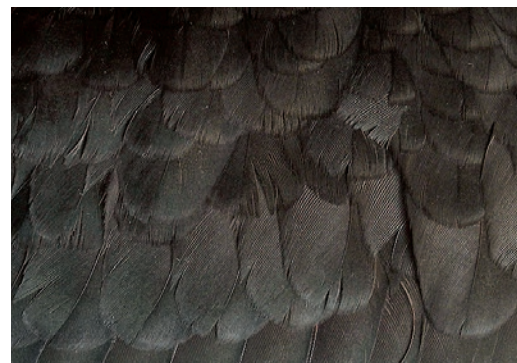
Feathers usually **not abraded, relatively long**.



They are **black-brown or black**, sometimes with bronze-green iridescence. They sometimes show some greyish-white dusting at the tip.

⑤ Lesser and median coverts

Feathers **not abraded and relatively broad**. They are **black-brown to charcoal grey**, plain or dusted in grey-white.



Tufted Duck JUVENILE FEMALE

Folded wing length: 185 to 203 mm.
Moult: scapulars and breeding tertials are acquired from August or September, some not before January or February.



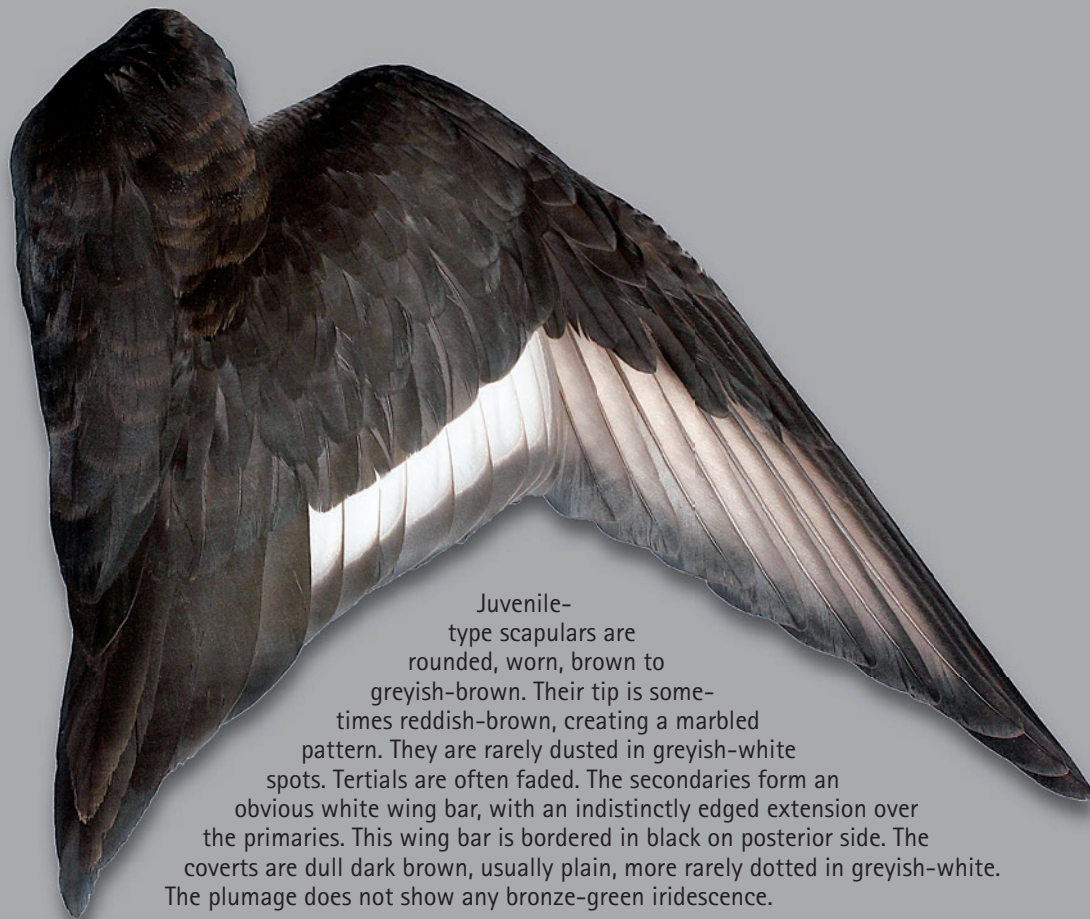
♂ Ad.



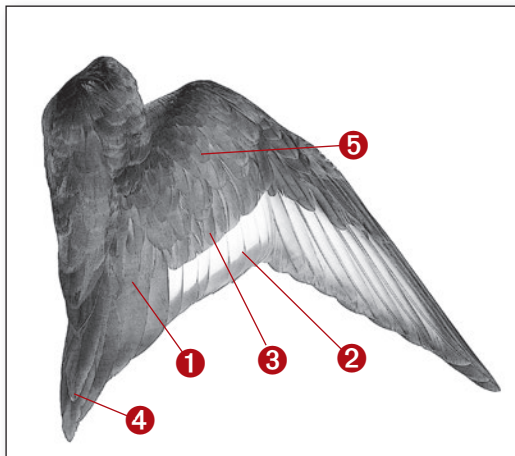
♂ Juv.



♀ Ad.



Juvenile-type scapulars are rounded, worn, brown to greyish-brown. Their tip is sometimes reddish-brown, creating a marbled pattern. They are rarely dusted in greyish-white spots. Tertials are often faded. The secondaries form an obvious white wing bar, with an indistinctly edged extension over the primaries. This wing bar is bordered in black on posterior side. The coverts are dull dark brown, usually plain, more rarely dotted in greyish-white. The plumage does not show any bronze-green iridescence.



① Greater tertial coverts

Before breeding moult, these feathers are often **abraded**, with **irregular edges**. They are narrow, with an almost lanceolate shape. Their tip is **obtuse to rounded**. They are **dark brown**, **dull** and sometimes faded.



② Secondaries

A **dull white** wing bar stretches over the secondaries. The outermost or two most outer secondaries are sometimes greyish.



The posterior edge of this white bar is **indistinct**. The tips of the inner secondaries are dull dark brown.

③ Greater secondary coverts

Check the innermost feathers; they are **narrow**, with a **slightly rounded tip**, often worn. The tip of these coverts **never forms a curly bracket**. It can even have a concave centre due to shaft abrasion. These feathers look slightly transparent.



④ Tertials

Before moult, these feathers are usually **worn and faded**. They are dull brown, sometimes dusted in greyish-white spots at the tip.



⑤ Lesser and median coverts

Feathers **often worn and relatively narrow**. They are uniformly **black brown** or finely dusted in grey-white.



Summary table of the main sex and age criteria

Tufted Duck

Greater tertial
coverts (here
the 2nd is shown)

ADULT MALE



Not worn - broad with angular tip - black with bronze-green iridescence

JUVENILE MALE



Worn - narrow with rounded-obtuse tip - brown and faded

ADULT FEMALE



Not worn - broad with angular tip - black with bronze-green iridescence

JUVENILE FEMALE



Worn - narrow with rounded-obtuse tip - brown and faded

Lesser and median
coverts



Not worn - broad - black with bronze-green iridescence



Often worn - narrow and pointed - brown, sometimes faded



Not worn - broad - black-brown or black with bronze-green iridescence



Often worn - narrow and pointed - brown, sometimes faded

Inner greater
secondary coverts



Not worn - broad, with parallel edges - distal end often forming a curly bracket - black with bronze-green iridescence



Worn - narrow with rather converging edges - distal end not in curly bracket - dark brown, no iridescence



Not worn - broad, with parallel edges - distal end often forming a curly bracket - black with bronze-green iridescence



Worn - narrow, with rather converging edges - distal end not in curly bracket - dark brown, no iridescence

Note : the feathers of juvenile birds shown here are as they look before breeding moult.

Gadwall

Anas strepera



©Rui Costa – Gadwall

Main criteria

The Gadwall is a medium-sized duck, 46-56 cm in length and with a 84-95 cm wingspan. Males weigh 650 to 1000 g, females 550 to 850 g. It is a generally dull and uniformly coloured bird. The head is relatively fine; the bill is narrow and the forehead is fairly steeply sloping. Gadwall wings are pointed.

In breeding plumage, males are mottled grey, with a black back and posterior part of the body, and brown-grey tail feathers. The belly is white. The plumage of females and juveniles is scaled brown, very similar to female Mallard although greyer. The

belly is dirty white after moult, brown-beige in juveniles during summer. The bill of females and juveniles is orangeish on the sides and dark brown on the top, with clear delineation. The bill of females is also more or less spotted (see page 6). The bill of males is black, but becomes similar to that of females when in eclipse plumage. In all sex and age classes legs are yellowish to dull orange, and the iris is brown.

The speculum is white, clearly visible in flight and usually on swimming birds too. The upper wing is brown-grey, with varying amount of reddish and black depending on the age and sex class.

Age and sex determination

Age and sex determination from wing examination alone is difficult in this species. It mostly relies on the extent of reddish and black, as well as the presence of mottling or small bars on the lesser coverts. The reddish and black areas are on average broader in males than in females, and in adults than in juveniles. There are however many exceptions to this rule, making its use difficult. Adult males can generally be told easily, but telling adult females from juvenile males can prove almost impossible when the latter lack breeding feathers. It is sometimes impossible to determine the age of females, especially after the juvenile-type greater tertial coverts have been moulted.

Sex should be determined before age.

Wing examination will consider most feather types: the scapulars, all coverts, secondaries and tertials. When the whole bird is available, non-wing criteria should be examined: presence, absence and size of the penis, presence or absence of mottling, shape of the rectrices, spotting of the bill, presence or absence of a bursa of Fabricius in dead birds.

Gadwall ADULT MALE

Folded wing length: 261 to 282 mm.
Moult: primaries and coverts are replaced from late June to early September. Breeding scapulars and tertials are acquired from September.



♂ Juv.



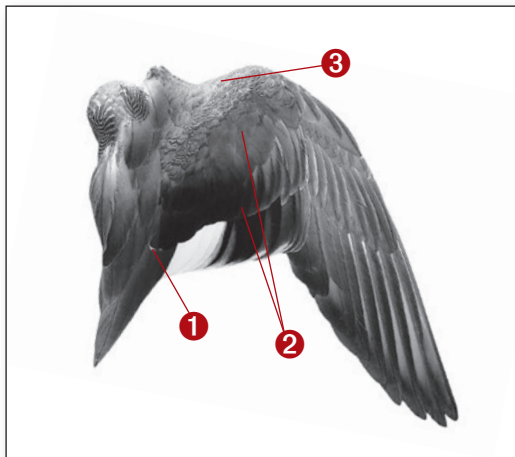
♀ Ad.



♀ Juv.



In breeding plumage, the long scapulars are lanceolate, dark brown with reddish-brown edges. The other scapulars are entirely vermiculated grey. Tertials are long and narrow, silver grey without any fringe. The inner speculum is pure white and the outer part is black and grey. The inner greater secondary coverts form a deep black bar, expanding past both sides of the white secondaries. The lesser and median coverts form a wide rusty-reddish patch on the central part of the wing.



① Greater tertial coverts

Check the two outer coverts. They are **broad, with rounded edges**. Their outer vane is **entirely deep black without fringing**. The inner vane is brown grey, sometimes with black spots. The tip is white with grey dusting; it is **often longer than the outer vane**, so that the feather is **not symmetrical**.

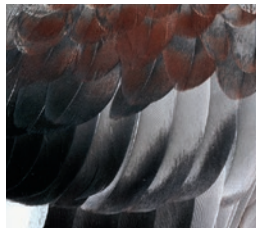


② Lesser, median and greater coverts

Feathers generally broad and rounded, predominantly reddish, black and grey. The **anterior lesser**



coverts are **vermiculated grey with a reddish tip**; the **posterior ones are entirely reddish over 3 to 5 rows**, rarely with a black tip (see above). The **median coverts are usually pure reddish**, sometimes with black washing (see below). The **greater coverts** (look at the fifth, sixth and seventh ones) are **smoky-grey to reddish**, with **pale reddish or black spots** at least on the outer vane. They **sometimes bear a small cream coloured patch at the tip**.



③ Marginal coverts

Check the most anterior ones. They are **grey, without a proper edging**. They **often bear some mottling** or curved grey-white to brown stripes (see below).



They are sometimes plain grey, only slightly dusted with a few small grey white dots (see below).



Gadwall

JUVENILE MALE

Folded wing length: 251 to 274 mm.
Moult: juvenile tertials are replaced from September to December-January. Some breeding scapulars can be acquired as early as October, some greater tertial coverts between October and December.



♂ Ad.



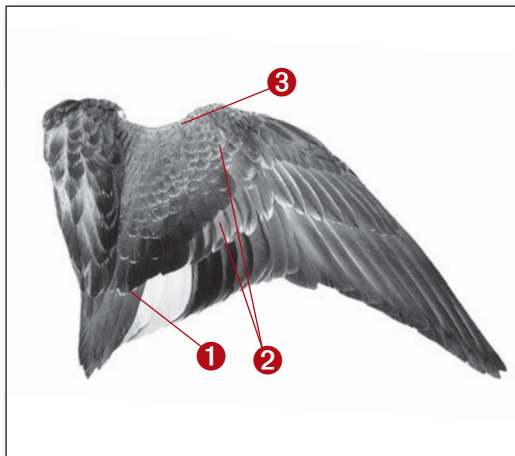
♀ Ad.



♀ Juv.



Juvenile-type scapulars are worn, dark brown with wide brown borders. Tertials are relatively short and worn, brown to greyish brown. The inner part of the speculum is white, the outer part is black and grey. The greater secondary coverts form a black area on both sides of the white secondaries. The coverts form a small more or less pure reddish patch on the central part of the wing.



① Greater tertial coverts

Check the two outermost feathers. Before breeding moult, they are **abraded, with almost parallel edges and often a white tip at the end of the shaft**. Their outer vane is **partly dull black or dark brown**. These feathers have a **narrow dirty white to brown fringe, broader around the tip**.



The fringe is sometimes absent due to feather abrasion.

② Lesser, median and greater coverts

Feathers generally long and obtuse. The **anterior lesser coverts are brown-grey, with narrow beige to brown stripes or irregular bands**; they bear some **beige or brown fringing, sometimes with some reddish**; The **posterior ones are partly reddish on 1 or 2 rows, more broadly so on the outer vane**. Some may have a pale fringe.



The median coverts are reddish over the whole or a part of their visible area, sometimes with a narrow beige fringe at the tip; they are rarely washed in black. The greater coverts (look at the fifth, sixth and seventh feathers) are smoky-grey, with moderate pale reddish or black marks on the outer vane. They have dirty white spots at the tip.

③ Marginal coverts

Check the most anterior feathers. They are **brown-grey, without any proper edging** (see below). They sometimes bear some mottling or narrow curved grey-white to brown stripes.



Some exceptional birds have clear pale fringing, but virtually never on the extreme edge of the wing nor at the wing joint (see below).



Gadwall

ADULT FEMALE

Folded wing length: 243 to 261 mm.
Moult: primaries and coverts are replaced from July to October.
Breeding scapulars and tertials are usually acquired by the autumn.



♂ Ad.



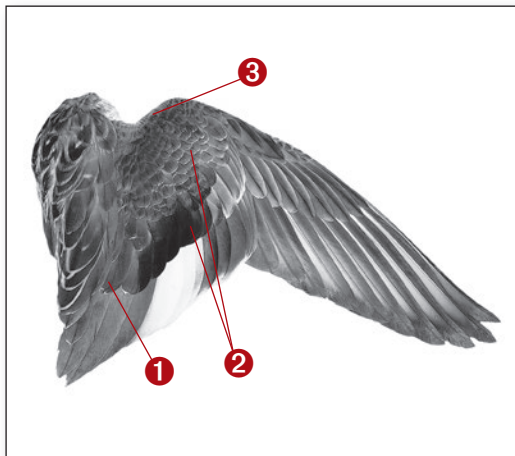
♂ Juv.



♀ Juv.



Scapulars are dark brown, with a wide brown-beige border. The central part of these feathers sometimes bears a pale spot. Tertials are brownish-grey, with a more or less apparent beige-white fringe. The inner part of the speculum is white, the outer part is black and grey. The greater secondary coverts form a black area on both sides of the white secondaries. The coverts are generally brown-grey with a paler fringe, except in the central part of the wing where some have reddish to reddish-black spots.



① Greater tertial coverts

Check the two outermost feathers. They are **broad, with rounded edges**. Their outer vane is **deep black on the whole or a part of the visible feather area**.

It sometimes bears a **narrow white fringe**. The tip of these feathers is white with grey mottling, especially on the inner vane. The inner vane is **sometimes longer** than the outer one, so that the feather is not symmetrical.



② Lesser, median and greater coverts

All feathers broad and rounded. The anterior lesser coverts are **grey-brown, with beige to brown stripes or irregular bands and a beige or brown edging**. The posterior ones are partly reddish on (0) 1 to 2 rows, often washed in black.



The median coverts are **reddish with some black, sometimes almost entirely black**. The greater coverts (fifth, sixth and seventh feathers) are **brown-grey, with little or no pale reddish or blackish spots on the outer vane**. They bear a visible **dirty white fringe at the tip**.

③ Marginal coverts

Check the most anterior feathers. They are **grey-brown, with a visible cream to brown edging** (see below).



The central part of these feathers is usually uniform, rarely crossed by a wide cream to brown stripe (see below), although almost never on the extreme edge of the wing nor close to the wing joint.



Gadwall

JUVENILE FEMALE

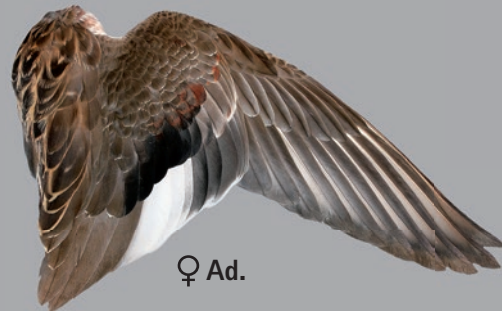
Folded wing length: 233 to 262 mm.
Moult: juvenile tertials and greater tertial coverts are sometimes retained until the end of the winter.



♂ Ad.



♂ Juv.

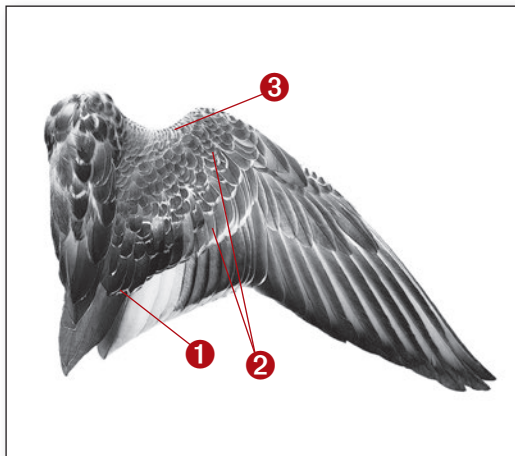


♀ Ad.



Juvenile-type
scapulars are worn, dark
brown with wide brown borders.

Tertials are relatively short and worn, sometimes with a fine pale fringe towards the tip. The inner part of the speculum is dirty white, the outer part is grey. The inner greater secondary coverts form a dull black area that is no wider than the white secondaries. The coverts are uniform brown with a pale fringe, some median coverts sometimes showing a reddish fringe.



① Greater tertial coverts

Check the two outermost feathers. Before breeding moult these are **worn with tapering edges and often a white tip**. Their outer vane is **dark brown, sometimes partly dull black**. These feathers bear a **dirty white to brown fringe, broader towards the tip**. The fringe sometimes fully disappears from the outer vane because of feather abrasion.



② Lesser, median and greater coverts

These feathers are long and obtuse, with **reddish tones almost completely lacking**. The lesser coverts are **brown, with beige to pale brown stripes or curved bands**; they bear beige or brown margins. Some median coverts some-



times have **diffuse reddish margins**, especially on the outer vane. The greater coverts (fifth, sixth and seventh) are **grey-brown with a dirty white margin, especially at the tip**.

③ Marginal coverts

















Check the most anterior feathers. They are **grey-brown, with cream to brown fringe**.



This fringe is not always obvious or wide, but is contrasting with the centre of the feather, which is uniform and much darker.

Summary table of the main sex and age criteria

Gadwall

	ADULT MALE	JUVENILE MALE	ADULT FEMALE	JUVENILE FEMALE
Marginal lesser coverts				
	Grey - no edging - sometimes mottled	Grey to grey-brown - no edging - sometimes striped	Grey-brown, cream/brown fringe - sometimes barred	Brown with indistinct cream or brown fringe
Anterior lesser coverts				
	Some vermiculated grey with large reddish tip	Brown-grey with curved stripes or bars - sometimes a reddish fringe	Grey-brown with beige fringe - spots or bars across	Brown with beige fringe - spots or bars across
Outer median coverts				
	Broad and rounded - reddish on all visible area	Narrow and obtuse - partly reddish on edges and tip	Broad and rounded - grey with dirty white and pale reddish tip	Narrow and obtuse - no reddish colouration - dirty white tip
5 th , 6 th and 7 th greater secondary coverts				
	Smoky-grey with a lot of black or reddish - few cream patches	Smoky-grey with some black or reddish - dirty white patch on tip	Broad - little or no pale reddish or dark grey, dirty white tip	Narrow and pointed - grey-brown with wide dirty white margin

Note : the feathers of juvenile birds shown here are as they look before breeding moult.

Common Teal

Anas crecca



©Alain Frémond - Common Teal, Brenne - France.

Main criteria

With a body length of 34 to 38 cm and a wingspan of 58 to 64 cm, the Common Teal is the smallest European duck species. Males weigh 250 to 450 g, females 200 to 400 g. It is a compact bird with a short neck, a fine head and pointed wings.

In breeding plumage, the head of males is reddish-brown with a broad metallic green stripe from the eye to the nape. This stripe has beige to pale brown margins, extending to the base of the bill. The back and flanks are vermiculated grey and white. Two longitudinal cream-white and

black lines, formed by the scapulars, extend between these. The breast is cream to pale brown with black mottling, the undertail feathers form a yellow triangle with black margins. The belly is dirty white. Females and young birds are brown. Their head bears a dark eye stripe, their body feathers have wide beige or pale brown margins and spots. In breeding plumage, the females have a cream to yellow stripe under the tail feathers.

The bill of males is black (dark during summer), that of females is olive grey, sometimes with an orange-yellow base, and spotted. The bill of juveniles is olive with

an orange margin at its base, spotted in females (see page 7). In all sex and age classes the legs are blue-grey to olive-grey and the iris is brown.

The inner feathers of the speculum are metallic green, the outer ones are black. They have a posterior white and an anterior cream-white to chestnut margin.

Age and sex determination

Age and sex determination from only wing criteria is difficult, especially during the summer when male scapulars are not vermiculated. The main difficulties are in distinguishing adult females from juvenile males and to tell the age of females, which is sometimes impossible. It is better to determine sex before age.

Wing examination will consider the first tertial, which is the most reliable criterion for sex, the greater tertial coverts (before breeding moult in females), the colour and shape of the lesser and median coverts, and the shape of the first five greater coverts. With some experience it is easy to distinguish juvenile from adult males, from the colour of the coverts or, if moult has started, from the contrasting colour and shape of the moulted greater tertial coverts compared to the juvenile-type coverts.

If the whole bird is available, non-wing criteria should be examined: presence, absence and size of the penis, presence or absence of mottling, shape of the rectrices, colour and spotting of the bill, presence or absence of a bursa of Fabricius in dead birds.

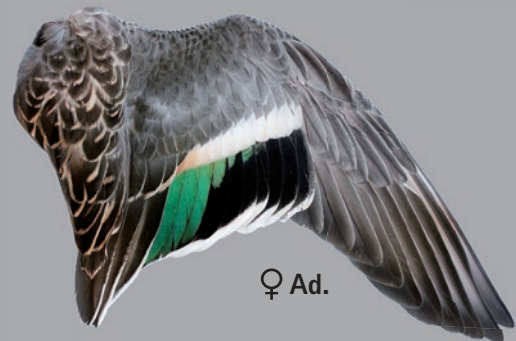
Common Teal ADULT MALE

Folded wing length: 179 to 200 mm.

Moult: primaries and coverts are replaced from early June to late August. Breeding tertials and scapulars are acquired between October and November.



♂ Juv.



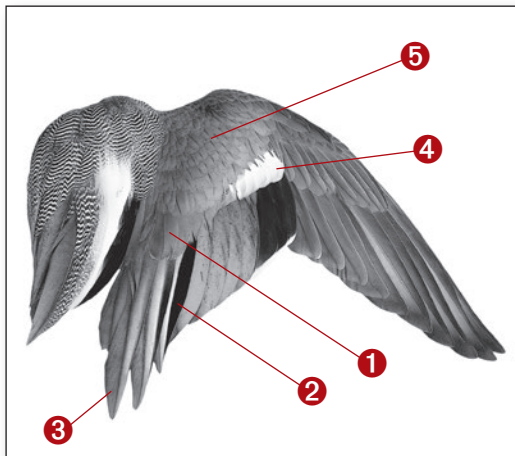
♀ Ad.



♀ Juv.



In breeding plumage, the longest scapulars show two black and cream stripes. The other ones are finely vermiculated in grey and white. The tertials are slightly curved, grey with a black stripe on the two outermost ones. The 4 to 5 innermost secondaries are iridescent green (the bird is certainly a male if it has more than four such feathers whose outer vane is entirely green), the other ones mostly black. These bear a narrow white fringe on the posterior side, and are bordered on the anterior side by a white to chestnut bar formed by the greater coverts. The lesser and median coverts are uniform grey.



① Greater tertial coverts

Broad feathers, often with a rounded tip, more rarely obtuse, not worn and with unabraded edges.



They are **grey** like the lesser and median coverts, sometimes with a very thin cream to beige fringe, usually only around the tip. Very occasionally these feathers can have some marbles or stripes on the outer vane.



② First tertial

Long and pointed, sometimes slightly curved, mostly grey, with a **shiny and well-defined long black stripe** on the outer vane. This stripe is fringed on the inner side by a clear pale grey area that almost extends up to the shaft. The outer vane of this feather often bears a very thin cream white fringe.

③ Relative length of the tertials

When the feather is held folded in a natural position, the **longest tertial is longer than the fifth primary**, sometimes even longer than the fourth one. In breeding plumage, the longest tertials are slightly curved, like a sickle.



④ Greater secondary coverts

Check the first five feathers; they are broad, with almost parallel edges. They have a broad and rounded, sometimes even angular tip. These feathers are cream-white with pale brown, sometimes chestnut, on their distal end. The cream



part is usually broad, so that the grey part of these feathers is mostly hidden by the median coverts. The white and grey areas are typically sharply demarked.

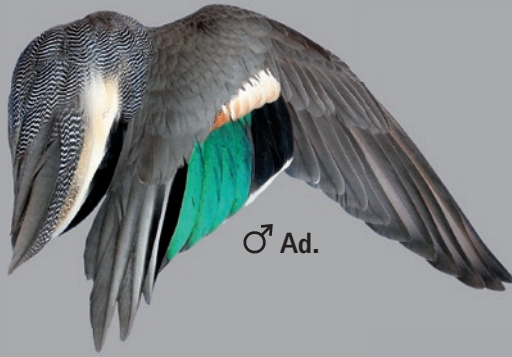
⑤ Lesser and median coverts

Feathers not worn, broad with a rounded to almost square tip. They are **uniform grey** and do not have any contrasting fringe.

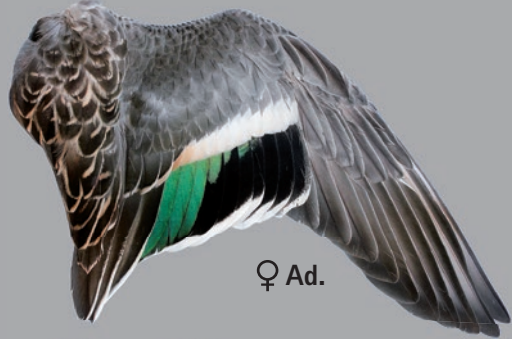


Common Teal JUVENILE MALE

Folded wing length: 173 to 192 mm.
Moult: juvenile-type tertials are often retained until December.
Breeding scapulars and greater tertial coverts are acquired in October–November, sometimes as late as January.



♂ Ad.



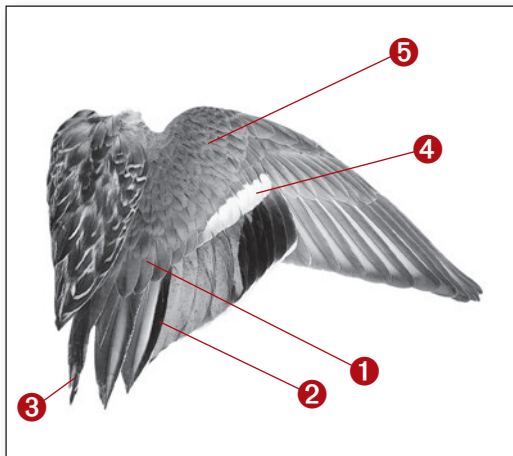
♀ Ad.



♀ Juv.



Juvenile-type scapulars are brown, bordered in cream-white to pale brown, often with stripes or spots at their centre. The 4 to 5 (exceptionally 3) innermost secondaries are iridescent green, the other ones are mostly black. The bird is certainly a male if it has more than four secondaries whose outer vane is entirely green. All remiges have a white posterior margin, and are bordered by a cream to chestnut bar on the anterior side. The lesser and median coverts are brown to greyish-brown.



① Greater tertial coverts

Before breeding moult, these feathers look relatively **narrow, long and lanceolate, with an obtuse or pointed tip**, often worn, sometimes with abraded edges. They are **brown to greyish-brown**, with a dirty white to brown-beige fringe,

often around the whole feather. This sometimes entirely disappears because of feather abrasion. The grey breeding tertials are sometimes present in October, and contrast with the juvenile-type greyish-brown coverts.



② First tertial

Before breeding moult, this feather is straight, relatively broad, lanceolate with a pointed tip. It bears a **long dull black stripe on the outer vane**, often with an indistinct edge on the inside. This stripe is fringed on the inner side by a pearl grey area which does not extend to the shaft. The outer vane has a white to pale brown margin that is broader towards the tip.



③ Relative length of the tertials

This age criterion is only valid on juvenile feather before moult. When the wing is held folded in a natural position **the longest tertial is shorter than the tip of the fifth primary**.



④ Greater secondary coverts

Check the first five feathers; they are relatively **narrow, with tapering edges converging towards an obtuse to rounded tip**. These feathers are cream-white with some pale brown on their distal end. The cream-white of the distal end



is usually moderately wide, so that the grey-brown anterior part of these feathers is largely visible. The demarcation between the cream-white and the brown is usually irregular, especially around the shaft where the brown forms a thorn-like shape as it extends down the shaft.

⑤ Lesser and median coverts

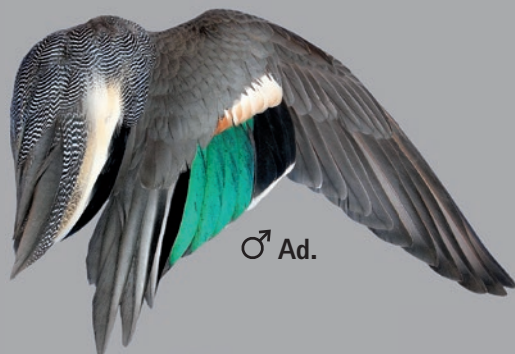
Feathers often worn, relatively **narrow, especially towards the tip which is rounded or obtuse**. They are **brown to greyish-brown**, sometimes with a pale fringe.



Common Teal ADULT FEMALE

Folded wing length: 172 to 184 mm.

Moult: primaries and coverts are replaced from mid-July to late September. Breeding scapulars are acquired in October and November, tertials from October to February.



♂ Ad.



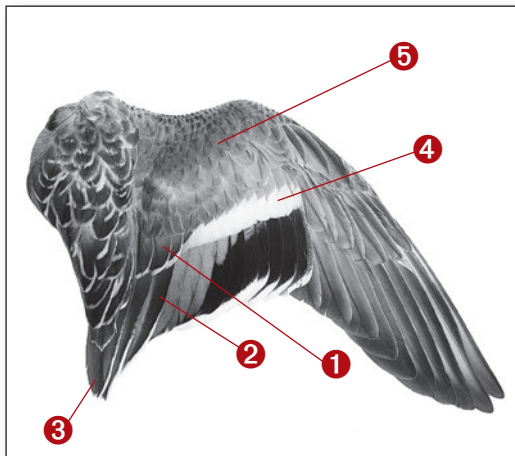
♂ Juv.



♀ Juv.



Breeding scapulars are brown, with a cream to pale brown margin, sometimes spotted at their centre. Tertials are brown, often with a dark stripe. The 2 to 4 innermost secondaries are iridescent green, the other ones are mostly black. The bird is certainly a female if the outer vane of less than four secondaries is entirely green. The secondaries have a white posterior margin, and are bordered by a cream to chestnut bar on the anterior side. The lesser and median coverts are brown to greyish-brown. They can all be fringed cream to pale brown, or seem almost uniform in colour.



① Greater tertial coverts

These feathers are usually **broad, with a rounded tip**, more rarely obtuse, not worn, with straight edges. They are **brown with a broad cream-white to pale brown margin that is clearly defined** and goes around the whole feather. These feathers sometimes bear pale spots or bars at their centre.



② First tertial

Feather long but not pointed, mostly brown, with a **long dark brown stripe on the outer vane, less frequently dull black-brown, with a dull and indistinct margin**. This stripe is fringed on the inside by a narrow pearl-grey stripe that does not extend to the shaft. The outer vane of this tertial is bordered by a broad white margin that goes around the tip.

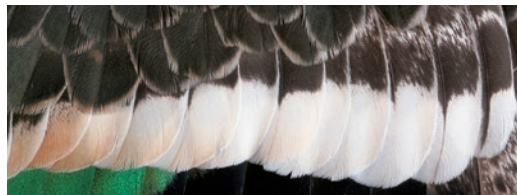
③ Relative length of the tertials

When the wing is held folded like in natural position, the **longest tertial is longer than the sixth primary**, sometimes even the fifth. In breeding plumage, the longest tertials are sometimes slightly curved.



④ Greater secondary coverts

Check the first five feathers; they are **broad, with almost parallel edges. Their tip is broad and rounded, sometimes angular**. These feathers are cream-white, sometimes with some beige on the distal end. The cream-white usually expands over



a large part of the feather. The brown anterior part of the feather is sometimes striped in white, and largely hidden by the median coverts. The delineation between the cream-white and the brown is sometimes irregular, with a thorn-like shape at the shaft.

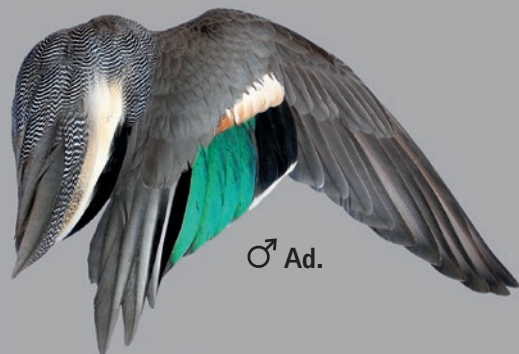
⑤ Lesser and median coverts

Feathers not worn, **broad with a rounded tip**. They are **brown to greyish-brown, with a cream to pale brown fringe** of variable width, at least on some median coverts.



Common Teal JUVENILE FEMALE

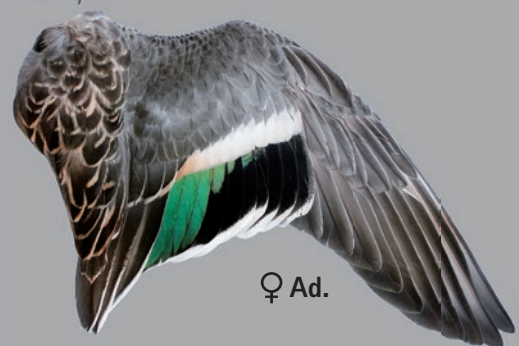
Folded wing length: 166 to 185 mm.
Moult: juvenile-type tertials sometimes retained until spring.
Breeding scapulars and greater tertial coverts acquired between November and February.



♂ Ad.



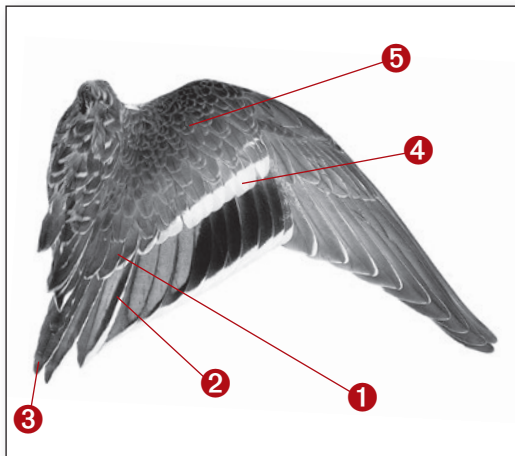
♂ Juv.



♀ Ad.



Juvenile-type scapulars are brown with a cream to pale brown fringe, some with spots at their centre. Tertials are brown, often with a dark stripe. The 2 to 4 innermost secondaries are iridescent green, the outer ones are mostly black. The bird is certainly a female if less than four secondaries have an entirely green outer vane. The secondaries have a white posterior margin and are bordered by a cream to chestnut bar on the anterior side. The lesser and median coverts are brown.



1 Greater tertial coverts

Before breeding moult, these feathers look relatively **narrow, long and lanceolate, with an obtuse or pointed tip**, often worn, sometimes with abraded edges. They are **brown**, with a dirty white to beige fringe that often goes around the tip. This fringe is sometimes absent because of feather abrasion.



2 First tertial

Feather long but not pointed, mostly brown, with a **long dark brown stripe with dull and indistinct edge on the outer vane**, more rarely dull black-brown. This stripe is fringed on the inside by a narrow pearl-grey stripe that does not extend to the shaft. The outer vane of this tertial is bordered by a white margin of variable width that sometimes goes around the tip.

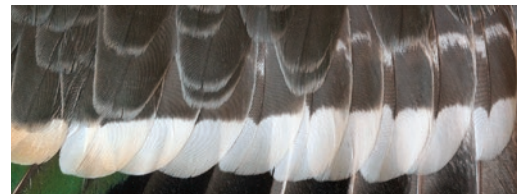
3 Relative length of the tertials

This criterion is only valid for juvenile-type feathers before breeding moult. When the wing is held in a natural position **the longest tertial is shorter than the sixth primary**.



4 Greater secondary coverts

Check the first five feathers; they are relatively **narrow with tapering edges gradually converging towards an obtuse to rounded tip**. The distal part of these feathers is cream-white. The cream-



white area is narrow. The grey anterior part of the feathers sometimes bears white stripes and is largely visible. Delineation between the cream-white and the grey is sometimes irregular, with a thorn-like shape at the shaft.

















5 Lesser and median coverts

Feathers often worn and relatively **narrow, especially towards the tip. The tip is rounded or obtuse**. They are **brown to greyish-brown, with a cream to pale brown fringe** of variable width at least on some of the median coverts.



Summary table of the main sex and age criteria

Common Teal

	ADULT MALE	JUVENILE MALE	ADULT FEMALE	JUVENILE FEMALE
1 st tertial				
	Clear iridescent deep black stripe - very narrow fringe	Dull black stripe - wide pale fringe	Diffuse brown to black-brown stripe - wide pale fringe	
Greater tertial coverts (the 2 nd shown here)				
	Broad, rounded - grey - sometimes a clear narrow fringe	Narrow, lanceolate - greyish-brown with diffuse margin	Broad, rounded - brown with clear wide pale fringe	Narrow, lanceolate - brown with diffuse fringe
Lesser and median coverts				
	Broad, rounded - grey - no fringe	Narrow, lanceolate - greyish brown - rarely a thin pale fringe	Broad, rounded - brown - often a pale fringe	Narrow, lanceolate - brown - often a pale fringe
Greater secondary coverts (the first five)				
	Broad - parallel edges, rounded to angular tip	Narrow, edges converging towards a rounded or obtuse tip	Broad - parallel edges and rounded to angular tip	Narrow - edges converging towards a rounded or obtuse tip

Note : the feathers of juvenile birds shown here are as they look before breeding moult.

Mallard

Anas platyrhynchos



©Alain Frémond - Mallard, Brenne - France.

Main criteria

The Mallard is a large duck, with a 50 to 65 cm long body and an 81 to 98 cm wingspan. Males weigh 850 to 1450 g, females 750 to 1200 g. It is a big chunky bird with relatively long head and neck. In breeding plumage the male has an iridescent dark green head, a thin white collar and a reddish-brown breast. The body is vermiculated grey and white. The back, upper and undertail areas are black. The four central tail feathers are black and curved upwards. The females and juveniles are brown, their body feathers are lined and spotted

in pale or reddish-brown. Their head has a dark cap and a dark eye stripe.

The bill of males is greenish-yellow, that of females is brown and orange with black spots (see page 8). Mallard legs are orange to brick red, the iris is brown.

The speculum is iridescent purple blue, with black and white stripes on both anterior and posterior sides. Male Mallard get their breeding plumage early, from September onwards.

Mallards bred for hunting and domestic forms often show very variable plumage or morphometric aberrations.

Age and sex determination

The abnormal wing plumage of captive-bred Mallard often makes their age or sex impossible to determine from wing examination only. Juvenile females often lack the white margin on their greater tertial coverts, there can be some white in the black tip of greater secondary coverts, pale fringes on the median coverts of adult males, etc.

In birds of presumed wild origin, age and sex determination from wing examination is straightforward for more than 95% of birds. Sex determination of Mallard is usually readily made from the colour of the greater tertial coverts. The main possible confusion is for age determination of females, especially when the greater tertial coverts are moulted or peculiar.

It is safer to determine sex before age. Wing examination will firstly consider the greater tertial coverts, then the 4th, 5th and 6th greater secondary coverts. In cases where age determination is difficult, a close examination of the shape of the lesser and median coverts should be helpful.

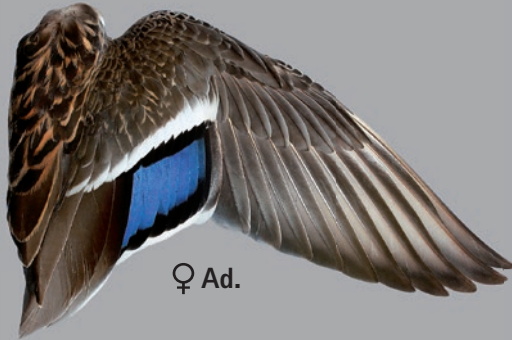
If the whole bird is available, non-wing criteria should be examined: presence, absence and size of the penis, presence or absence of mottling, shape of the rectrices (especially during summer), colour and shape of the spots on the bill, presence or absence of a bursa of Fabricius in dead birds.

Mallard ADULT MALE

Folded wing length: 272 to 298 mm.
Moult: primaries and coverts are replaced between late June and late August. Breeding tertials and scapulars are acquired from August to November.



♂ Juv.



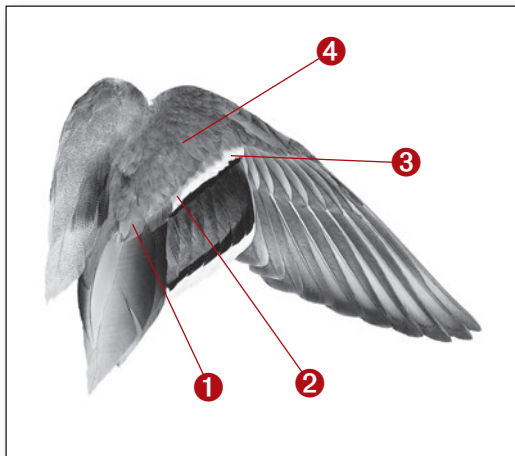
♀ Ad.



♀ Juv.



In breeding plumage, the scapulars are vermiculated grey and white, with some rust-brown colouration. The tertials are long, pointed, and mostly pearl grey. The two outermost tertials are extremely broad and bear a diffuse rust-brown stripe on the outer vane. Most secondaries are iridescent purple-blue, with white and black lines at the tip. They are also bordered by a black and white stripe on the anterior side, formed by the tip of the greater secondary coverts. The lesser and median coverts are grey.



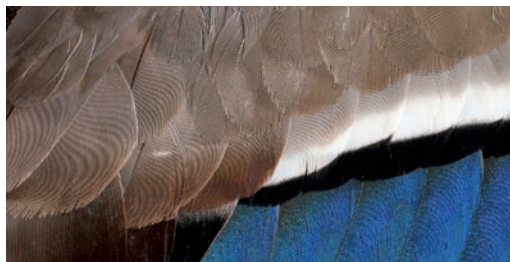
① Greater tertial coverts

Feathers not worn, usually with smooth regular edges. The distal half of the three outermost coverts is usually **broad and very rounded, sometimes even semicircular**. These feathers are brown-grey to rust-brown; **they do not have any white margin**.



② Anterior white wing bar

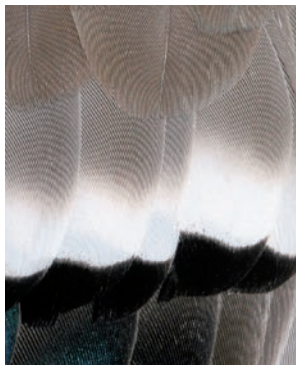
The white wing bar on the anterior side of the speculum is **strictly limited to the greater secondary coverts**. On the inner wing it ends



over the iridescent blue secondaries. Exceptionally (maybe 1% of birds) it expands over the outer vane of the first greater tertial covert only.

③ Greater secondary coverts

Check the fourth, fifth and sixth feathers; they have **almost parallel edges, and a broad and rounded tip**. Their base is grey or brown-grey; their distal part is white and black. In most cases, **the terminal black spot is broad and clearly delimited. It clearly goes up the edge of the outer vane or the two vanes, then shaped like a curly bracket**.



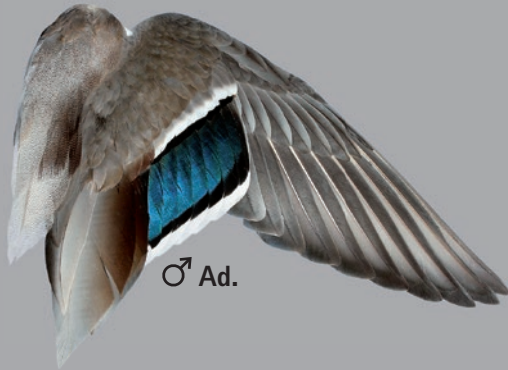
④ Lesser and median coverts

First check the median coverts, whose relatively large size eases examination. These feathers are **broad, with tapering edges and a gently rounded tip**. They are grey to brownish-grey, **without any fringe**.

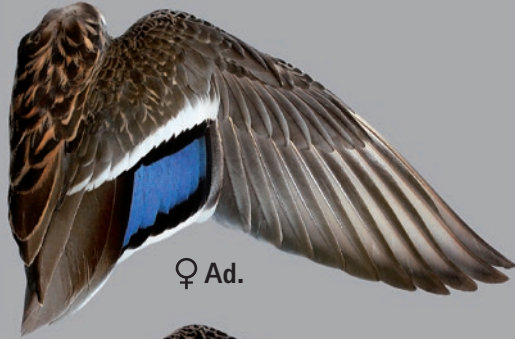


Mallard JUVENILE MALE

Folded wing length: 258 to 292 mm.
Moult: breeding tertials and scapulars can be acquired from August to December. The greater tertial coverts are replaced in September-October.



♂ Ad.



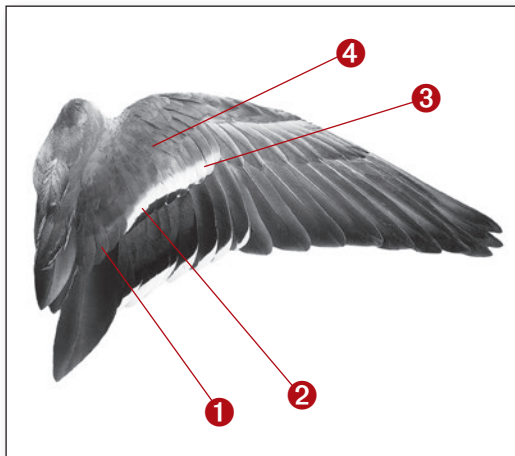
♀ Ad.



♀ Juv.



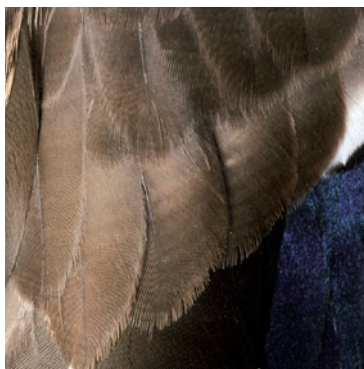
The juvenile-type scapulars are broad and rounded. They are brown, with beige to pale brown spots and margins. The tertials are broad with an obtuse tip. They are dark brown, sometimes with a pale margin. Most secondaries are iridescent purple-blue, with white and black lines at the tip. They are also bordered by a black and white stripe on the anterior side, formed by the tip of the greater secondary coverts. The lesser and median coverts are brownish grey.



① Greater tertial coverts

Before breeding moult, feathers often abraded, scratched, usually with irregular edges. They seem oblong, with the edges tapering towards a rounded, obtuse or slightly squared tip. They

are brown to greyish-brown with no white margin (in 2 to 3% of the birds the outer vane of the first feather has a partial dirty white margin).



② Anterior white wing bar

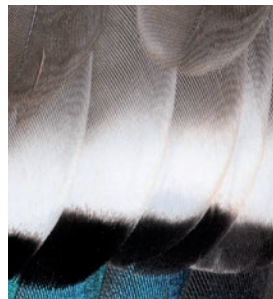
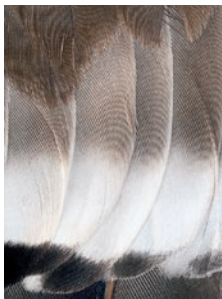
The white wing bar bordering the anterior part of the speculum is **strictly limited to the greater secondary coverts**. On the inner wing it ends over



the iridescent blue secondaries. Exceptionally (2 to 3% of birds) it extends over the outer vane of one or two tertial coverts.

③ Greater secondary coverts

Check the fourth, fifth and sixth feathers; they taper towards a relatively narrow, rounded or obtuse tip. Their base is greyish-brown, their distal part is white and black. In most cases the terminal black spot is relatively small and poorly defined. The anterior limit of this spot is almost linear or bent towards the tip of the feather.



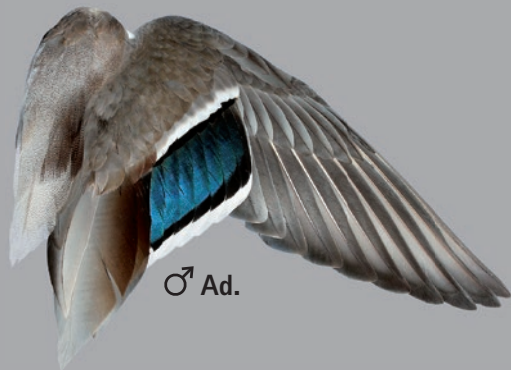
④ Lesser and median coverts

First check the median coverts, whose relatively large size eases examination. These feathers are **narrow, with edges sharply tapering towards an obtuse tip**, sometimes almost square due to feather abrasion. They are brownish-grey or brown, generally plain but some sometimes with a diffuse pale fringe.

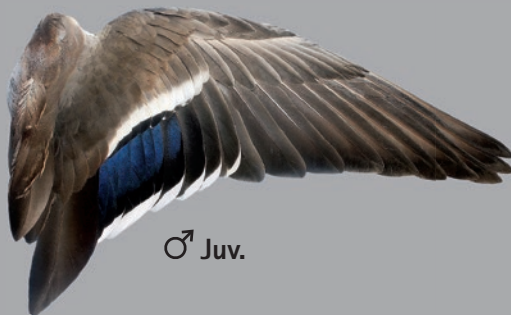


Mallard ADULT FEMALE

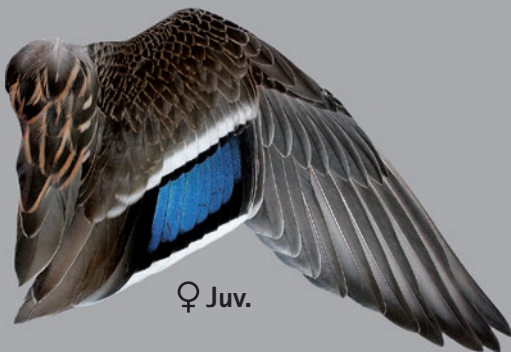
Folded wing length: 252 to 280 mm.
Moult: primaries and coverts are replaced from June to late September. Breeding tertials and scapulars are acquired between August and November.



♂ Ad.



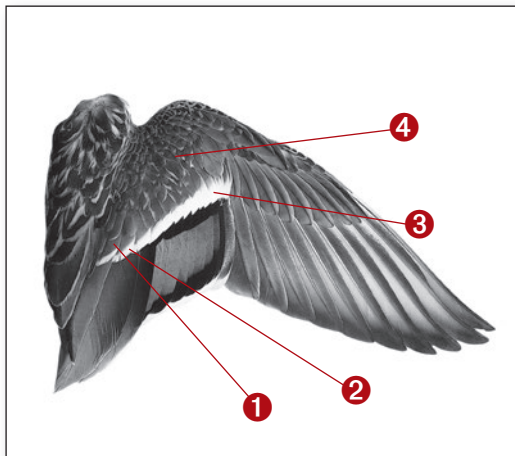
♂ Juv.



♀ Juv.



The scapulars are broad and rounded, brown, with beige or pale brown borders and spots. The tertials are very broad, with an obtuse tip. They are brown, often with some reddish or pearl-grey on the outer vane, and a white margin. Most secondaries are iridescent purple blue, with black and white lines at the tip. They are also bordered by a black and white stripe on the anterior side, formed by the tip of the greater secondary and greater tertial coverts. The lesser and median coverts are grey or brown, with or without a fringe.



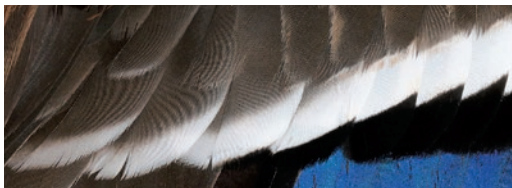
① Greater tertial coverts

Feathers not worn, usually with smooth and regular edges. The distal half of the three outermost coverts is usually **broad and very rounded, sometimes semicircular**. These feathers are brown to greyish-brown, **bordered on the distal third by a wide and clearly delimited white to cream margin** (sometimes white and black on the outer vane).



② Anterior white wing bar

The white wing bar on the anterior side of the speculum **extends over the greater tertial coverts**.



On the inner side of the wing it therefore extends beyond the iridescent blue secondaries.

③ Greater secondary coverts

Check the fourth, fifth and sixth feathers (photograph below, left); they have **almost parallel edges** and a **broad rounded tip**. Their base is brown-grey; their distal part is white and black. In most cases, the **black spot at the tip is wide and clearly delimited**. It goes up the edge of the outer vane or both vanes, forming a curly bracket shape. In more than 90% of cases the tip of the second feather (photograph below, right) has black or dark marks.



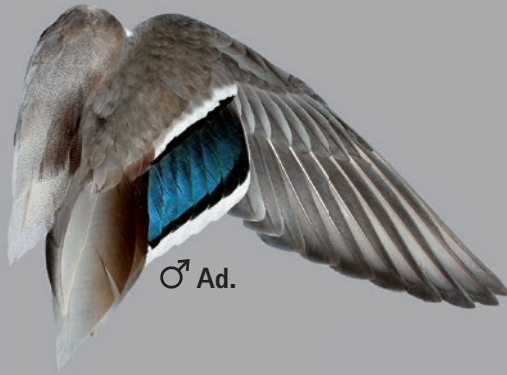
④ Lesser and median coverts

First check the median coverts, whose relatively large size eases examination. These feathers are **broad, with tapering edges and a gently rounded tip**. They are brown to brown-grey. They are plain or bear a beige to reddish margin (creating a scaly pattern).



Mallard JUVENILE FEMALE

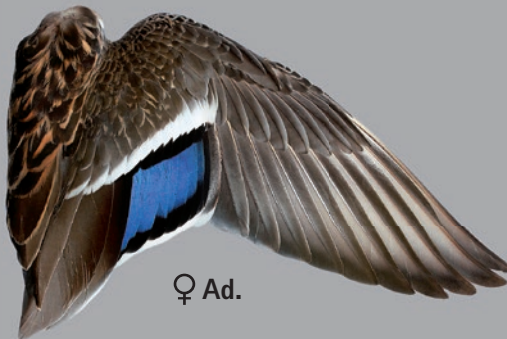
Folded wing length: 245 to 277 mm.
Moult: breeding tertials and scapulars are often acquired late, between October and March. The greater tertial coverts are replaced in September–October.



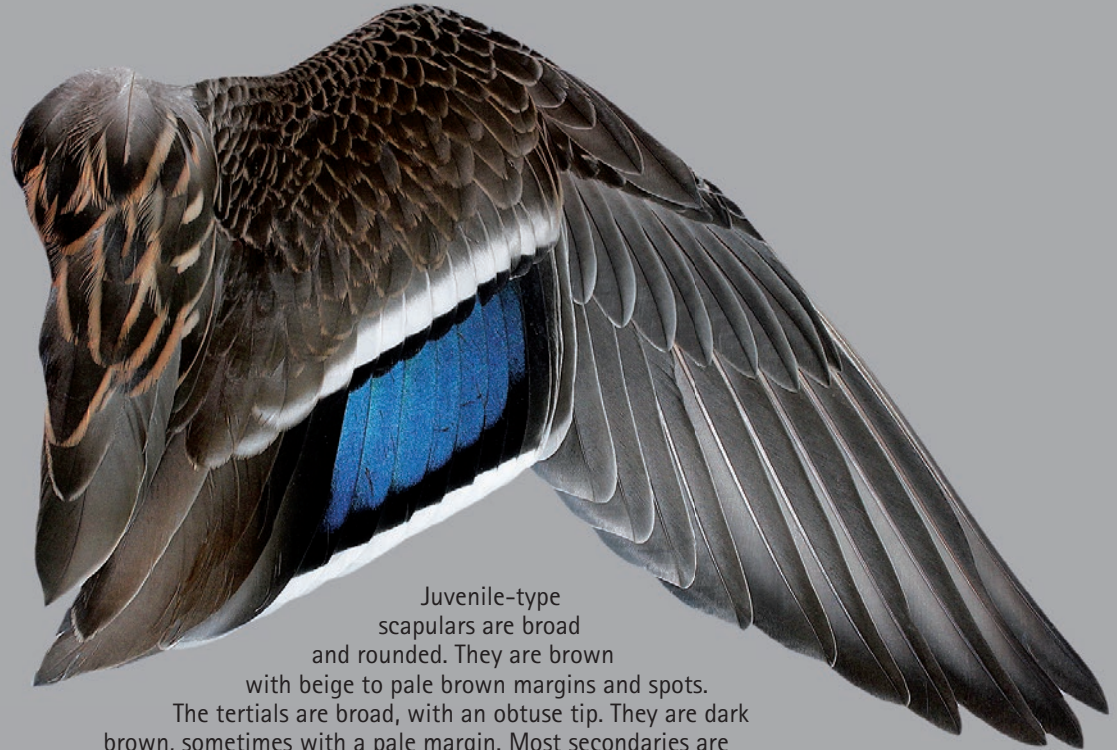
♂ Ad.



♂ Juv.

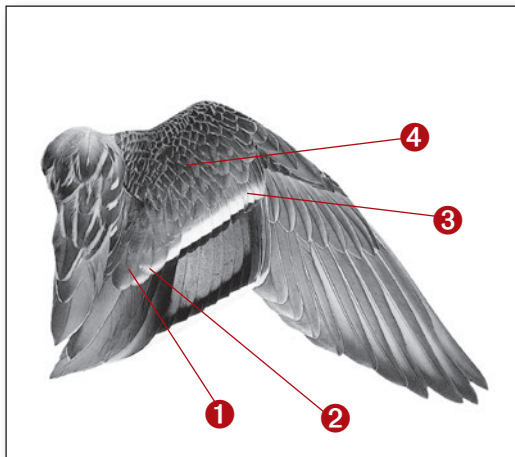


♀ Ad.



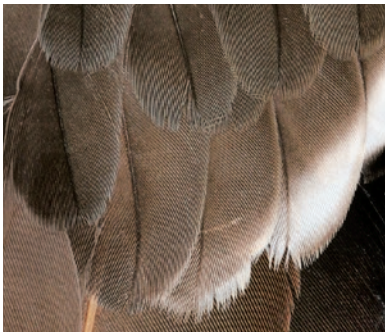
Juvenile-type
scapulars are broad
and rounded. They are brown
with beige to pale brown margins and spots.

The tertials are broad, with an obtuse tip. They are dark brown, sometimes with a pale margin. Most secondaries are iridescent purple blue with black and white lines at the tip. They are also bordered by a black and white stripe on the anterior side, formed by the tip of the greater secondary and greater tertial coverts. The lesser and median coverts are grey or brown, with or without a fringe.



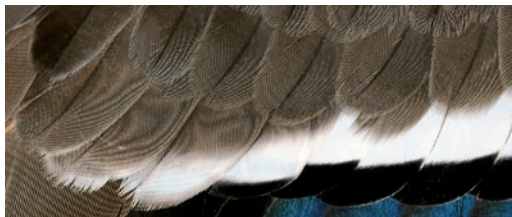
① Greater tertial coverts

Before breeding moult, feathers typically abraded, usually with irregular edges. They seem **oblong**, their edges **tapering towards a rounded, obtuse or slightly square tip**. They are brown, bordered on their distal third by an **indistinct white to cream margin** (sometimes white and black on outer vane).



② Anterior white wing bar

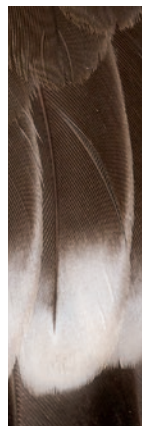
The white wing bar on the anterior side of the speculum **extends over the greater tertial coverts**.



On the inner wing it extends beyond the iridescent blue secondaries.

③ Greater secondary coverts

Check the fourth, fifth and sixth feathers (photograph below, left); their edges **taper towards a relatively narrow, rounded or obtuse tip**. The base of these feathers is greyish-brown, the distal part is white and black. In **most cases the black spot at the tip is small and poorly defined**. The anterior edge of this spot is almost straight or



bends towards the distal end of the feather. The tip of the secondary coverts (photograph above, right) is completely lacking a black spot in more than 50% of birds.

④ Lesser and median coverts

First check the median coverts, whose relatively large size eases examination. These feathers are **narrow, with edges sharply tapering towards the obtuse tip** (which is sometimes square because of feather abrasion). They are brown or greyish-brown, plain or with a beige to reddish margin (creating a scaly pattern).



Summary table of the main sex and age criteria

Mallard

Greater tertial
coverts (here
the 2nd is shown)

ADULT MALE



Not worn – broad and rounded –
grey, no white margin

JUVENILE MALE



Worn – oblong with obtuse tip –
brown with no white margin

ADULT FEMALE



Not worn – broad and rounded –
clear broad white margin

JUVENILE FEMALE



Worn – oblong with obtuse tip –
diffuse white margin

Lesser and median
coverts



Not worn – broad with rounded tip –
plain grey without fringe



Worn – narrow, slightly trapezoidal –
obtuse tip



Not worn – broad with rounded tip –
with or without fringe



Worn – narrow, slightly trapezoidal –
obtuse tip

4th, 5th and 6th
greater secondary
coverts (here
the 5th is shown)



Broad black spot extending up
the edges



Small black spot, straight across tip
or bent towards the tip



Broad black spot extending up
the edges



Small black spot, straight across tip
or bent towards the tip

Note : the feathers of juvenile birds shown here are as they look before breeding moult.

Northern Pintail

Anas acuta



©Trevor White - Northern Pintail. Mistley estuary, Essex - United Kingdom.

Main criteria

The Northern Pintail is a medium-sized duck, 51 to 66 cm long (central rectrices excluded) and with a 80 to 95 cm wingspan. Males weigh 700 to 1100 g, females 500 to 900 g. It is a slender bird with a long neck, head and bill. In males the central rectrices can be 10 cm longer than the rest of the tail. They are also longer in female Northern Pintail than in the females of the other species considered in this guide. In breeding plumage the males have a chocolate brown head and nape with purple gloss and a white line extending up the neck to the posterior side of

the cheeks. The back and flanks are vermiculated grey and white, the breast and belly are white. The uppertail and undertail are black. Females and juveniles are relatively pale brown. Females in adult-type plumage have some reddish on the head, back and scapulars. The eye stripe is non-existent or hardly visible.

The bill of males is black and blue, the two colours being clearly delimited. In females it is grey and dark blue, the two colours diffusely mixed (see page 9). The legs are blue-grey to dark grey. The speculum of males is iridescent green (sometimes purple), with a cinnamon stripe on the

anterior side and a black and white stripe on the posterior side. The speculum of females is bronze-brown, with a cream to cinnamon stripe on the anterior side and a white posterior stripe.

Age and sex determination

It is better to determine sex before age. Wing examination should consider the first tertial, the underwing coverts, the lesser and median coverts, and the greater tertial coverts (this criterion only valid before the breeding moult of females).

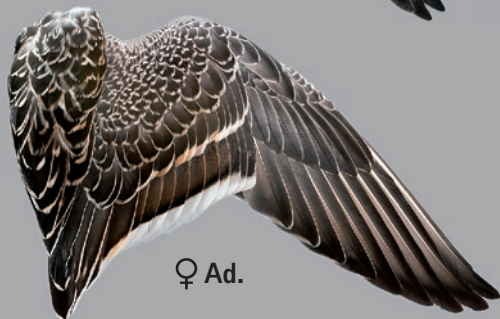
Sex determination is straightforward, from the colour of the lesser and median coverts. It is also very easy to age males from these coverts, although the frequent fading (caused by abrasion) of the margin of lesser and median coverts in adult males should not be confused with the proper pale fringe of the juvenile male coverts. Age determination of females can sometimes be difficult. If the juvenile-type greater tertial coverts have already been replaced by breeding feathers, age should be determined from the shape and pattern of the spots potentially visible on the lesser and median coverts. However, some adult females can bear one or two juvenile-type spots, and vice-versa: age determination then relies on the relative proportion of each type. If in doubt and if the whole bird is available, non-wing criteria should be examined: shape of the rectrices and spots on the bill, presence or absence of a bursa of Fabricius in dead birds.

Northern Pintail ADULT MALE

Folded wing length: 267 to 282 mm.
Moult: remiges and coverts are replaced from July to mid-September. Breeding scapulars and tertials are acquired from November.



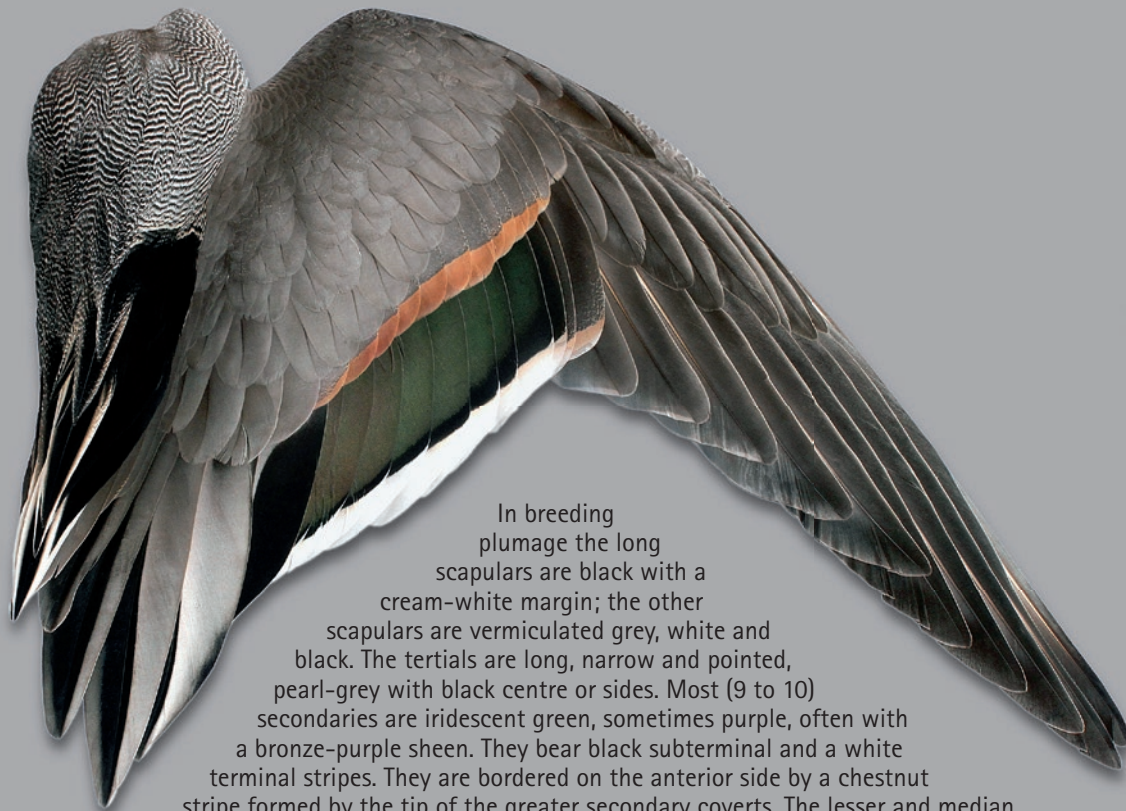
♂ Juv.



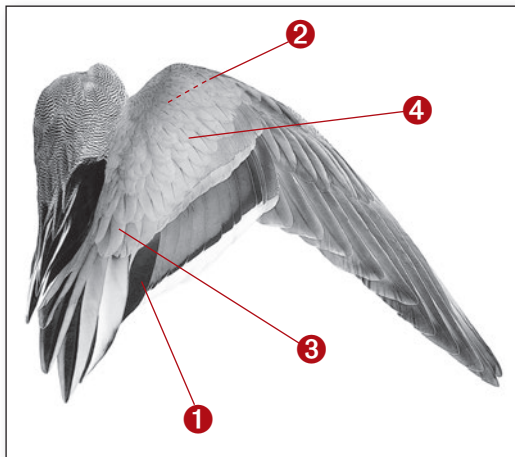
♀ Ad.



♀ Juv.



In breeding plumage the long scapulars are black with a cream-white margin; the other scapulars are vermiculated grey, white and black. The tertials are long, narrow and pointed, pearl-grey with black centre or sides. Most (9 to 10) secondaries are iridescent green, sometimes purple, often with a bronze-purple sheen. They bear black subterminal and a white terminal stripes. They are bordered on the anterior side by a chestnut stripe formed by the tip of the greater secondary coverts. The lesser and median coverts are plain grey.



1 First tertial



This feather bears a **long shiny black stripe** with clearly delimited edges on the outer vane. A bright pearl-grey area extends between this black stripe and the shaft. The distal third of the feather sometimes has a very narrow white margin.

2 Underwing coverts

Feathers **grey** to brown-grey, clearly **dusted or vermiculated in white**, especially on the lesser and median coverts. They bear **no clear fringe**.



3 Greater tertial coverts

Feathers not worn, broad and rounded, with regular edges. They are **entirely grey**. The outer vane sometimes bears an almost invisible, very narrow and diffuse, pale grey to beige fringe.



4 Lesser and median coverts

Feathers not worn, **broad and rounded**. They are uniform **pale grey** or slightly dusted in white,

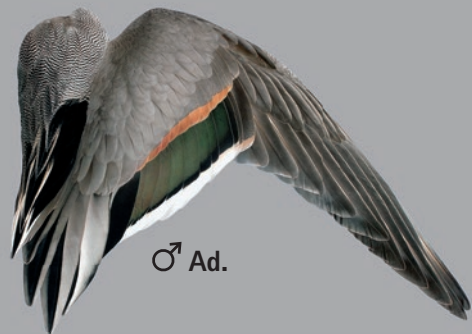


especially on the lesser coverts. These coverts have **no fringe**, but can seem slightly paler on the sides when they are abraded (in ca. 5% of birds).

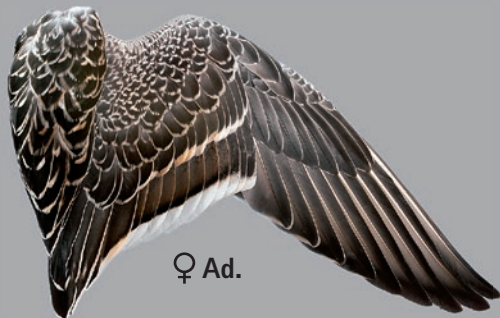


Northern Pintail JUVENILE MALE

Folded wing length: 252 to 286 mm.
Moult: the breeding scapulars appear in September–October.
The greater tertial coverts and tertials are gradually replaced in October–November, sometimes as late as February–March.



♂ Ad.



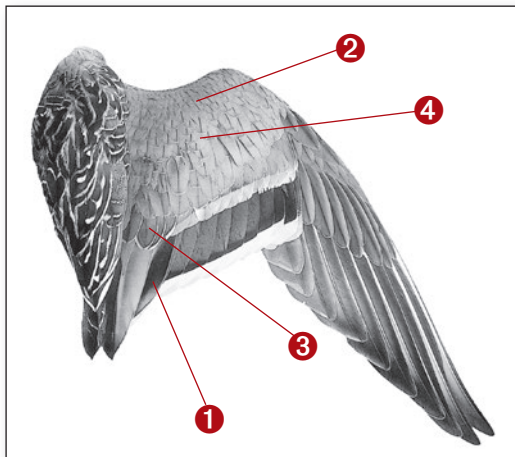
♀ Ad.



♀ Juv.



The juvenile-type scapulars are oblong or rounded. They are brown with pale margins, spotted (rarely striped) on the centre. The tertials are pointed, brown with dull black spots on the centre or the sides. Most (7 to 9) secondaries are iridescent green, sometimes purple, often with a bronze-purple sheen. They bear a sub-terminal black stripe and a terminal white stripe. They are bordered on the anterior side by a cinnamon stripe formed by the tip of the greater secondary coverts. The lesser and median coverts are dull grey with a narrow pale fringe.



① First tertial



Before breeding moult, feather with a **long dull black spot** on the outer vane, with poorly-defined limits. A pearl-grey area extends between this spot and the shaft. This feather is most generally bordered in black on the distal third.

② Underwing coverts

Feathers **grey to brown-grey, dusted or vermiculated in white** (especially the lesser and median coverts).



More rarely these feathers bear pale stripes, as in females.

③ Greater tertial coverts

Before breeding moult, feathers often worn and relatively narrow, especially towards the tip. They are **brown-grey with a poorly defined dirty white to pale brown fringe**. This fringe is sometimes interrupted at the tip.



④ Lesser and median coverts

They often look worn, with irregular edges. They are relatively narrow, some almost **trapezoidal**.

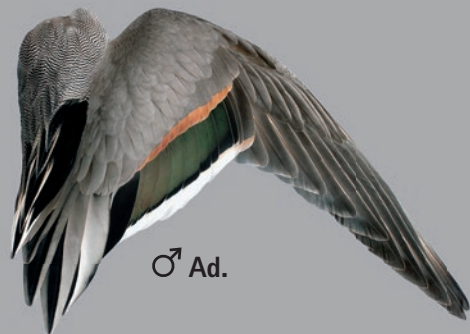


They are **dull grey to brown-grey with a pale fringe** generally clearly visible, especially at the tip. Some coverts, especially the most innermost ones, can bear a fine white dusting.



Northern Pintail ADULT FEMALE

Folded wing length: 247 to 267 mm.
Moult: the remiges and coverts are replaced between early August and mid-October. Breeding tertials and scapulars are acquired in December, sometimes later.



♂ Ad.



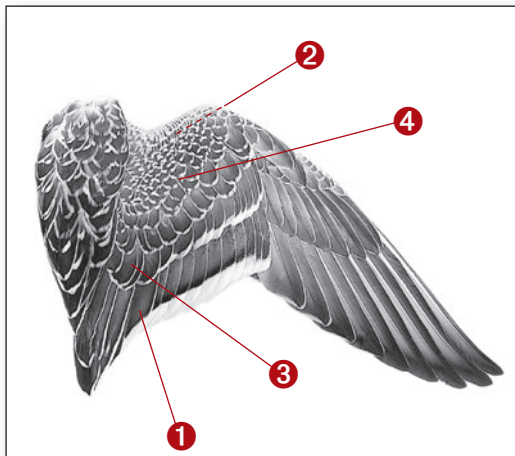
♂ Juv.



♀ Juv.



The scapulars are dark brown with beige to pale brown margins, some bear beige or reddish spots or stripes. The tertials are brown with a pale margin. The secondaries are bronze, brown or dull green, the innermost ones partly iridescent. They show a dark sub-terminal and a white terminal bar. They are bordered by a beige to pale cinnamon stripe on the anterior side, formed by the tip of the greater secondary coverts. The lesser and median coverts are brown with cream to pale brown margins, sometimes spotted.



1 First tertial



Feather mostly brown, sometimes with a greenish-bronze spot. It often bears a **long brown to dark brown stripe** with indistinct limits on the outer vane. A narrow brown-grey area extends between this and the shaft. This feather has a wide beige-white to pale brown margin.

2 Underwing coverts

Feathers **brown with a clear broad pale fringe**, sometimes with beige-white spots or stripes.



3 Greater tertial coverts

Feathers not worn, broad and rounded, with regular edges. They are **brown with a clear continuous beige-white to pale brown margin** around the whole feather.

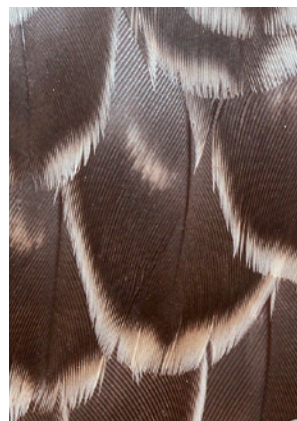


4 Lesser and median coverts

Feathers not worn, broad and rounded, especially the median coverts. They are **brown with a clear wide beige to pale brown margin**, sometimes



interrupted at the shaft. In most adult females most coverts lack stripes or spots in the centre. When such spots exist, they are **mostly long or rounded**. They can extend throughout most of the feather's width, but do not (or very rarely) reach the edges of the feather.

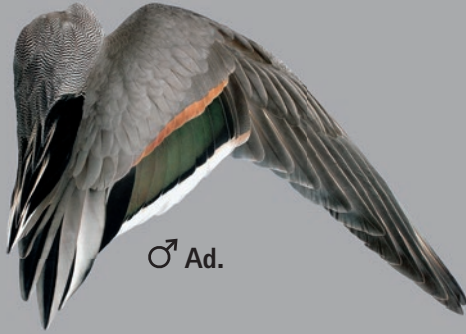


Northern Pintail

JUVENILE FEMALE

Folded wing length: 236 to 273 mm.

Moult: breeding scapulars appear from October. Juvenile-type tertials and greater tertial coverts are gradually replaced from November, sometimes not until spring.



♂ Ad.



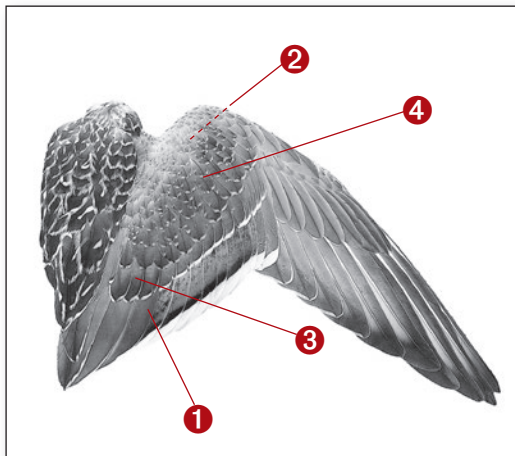
♂ Juv.



♀ Ad.



Juvenile-type scapulars are dark brown with a pale margin, some bear pale spots or stripes. The tertials are brown with a pale margin. The secondaries are bronze, brown or dull green, usually not iridescent. They bear a dark sub-terminal and a white terminal bar. They are bordered by a whitish to beige stripe, formed by the tip of the greater secondary coverts. The lesser and median coverts are brown with narrow pale margins, sometimes spotted.



1 First tertial



Feather mostly brown, sometimes with a greenish-bronze spot. It often bears a **long diffuse brown to dark brown stripe** on the outer vane. A narrow brown-grey stripe extends between this and the shaft. This feather bears a clear beige-white to pale brown margin.

2 Underwing coverts

Feathers **brown with a wide pale margin**, sometimes with beige-white spots or stripes.



3 Greater tertial coverts

Before breeding moult, feathers often worn, relatively narrow especially towards the tip. They are **brown, with a diffuse dirty white to pale brown margin**, sometimes interrupted at the shaft.



4 Lesser and median coverts

Feathers often looking worn, with irregular edges. They are relatively narrow, some clearly trapezoidal. They are brown, with a relatively narrow and



diffuse beige to pale brown **margin, especially towards the tip**, although often interrupted at the shaft. Some of these feathers **bear beige or beige and black-brown spots, often forming a triangle at the outer edge of the feather, not reaching the shaft.**



1st tertial

ADULT MALE



Outer vane with clear deep black stripe

JUVENILE MALE



Outer vane with diffuse black stripe - white margin

ADULT FEMALE



Outer vane with dark (not black) stripe - wide beige-white margin

JUVENILE FEMALE



Greater tertial coverts (here the 2nd is shown)



Broad, rounded - plain pale grey



Narrow and pointed - grey-brown with beige-white margin

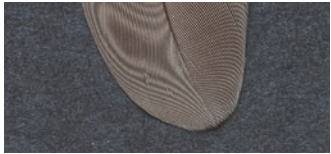


Broad, rounded - brown with wide white to pale brown margin



Narrow and pointed - brown with beige-white margin

Median and lesser coverts



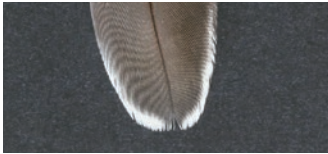
Broad tip - plain pale grey



Narrow tip - dull grey with thin pale margin



Broad tip - brown with clear wide pale margin



Narrow tip - brown with diffuse thin pale margin



Broad, rounded - plain pale grey



Narrow, trapezoidal - dull grey with thin pale margin



Broad - brown with pale margin - long central spots if any



Trapezoidal - brown with pale margin - triangular spots on the edges if any

Note : the feathers of juvenile birds shown here are as they look before breeding moult

Northern Shoveler

Anas clypeata



©Neil Fifer - Northern Shoveler. Hong-Kong - China.

Main criteria

The Northern Shoveler is a small duck, 44 to 52 cm long and with a 70 to 84 cm wingspan. Males weigh 500 to 800 g, females 470 to 750 g. It is a relatively short-bodied bird with a short neck. Its broad, spoon-shaped bill creates a very unique silhouette. Along with Garganey, the Northern Shoveler is the only Palearctic duck with blue wing coverts, the intensity of which varies among sex and age classes.

In breeding plumage, males have an iridescent black-green head, white breast and shoulders, and reddish flanks and

belly. The posterior part of the flanks is white. The back, the uppertail and undertail coverts are black. Females and juveniles are brown, with beige or pale brown margins on the body feathers. Young Shovelers get their breeding plumage late, sometimes not until February. There is an intermediate plumage between the breeding and the eclipse plumage. The bill of males is black, that of females is olive, grey or brown, often spotted and with an orangeish side. Young birds have an oliveish bill, orange at the base, spotted in females (see page 10). The legs of adult males are orange-red, females and

juveniles have orange legs. The eye is typically bright yellow in adult males, brown to yellowish-brown in females and juvenile males.

The speculum is metallic green with a white stripe on the anterior side in males. The speculum of females is charcoal-grey to green, with a white stripe on the anterior side in both age classes, and a posterior white stripe at least in juveniles.

Age and sex determination

Age and sex determination from wing examination is relatively easy. Adult males are readily distinguished by their shiny blue coverts. In the other categories the main difficulty, although rare, is with the age of females.

Wing examination will mostly consider the lesser and median coverts, marginal coverts, the first seven greater secondary coverts and the greater tertial coverts. To sex a bird it is often necessary to check the marginal coverts. In this case, one should look at the feathers slightly behind the leading edge of the wing and carpal joint rather than the outermost coverts, which are sometimes similar in all sex and age classes.

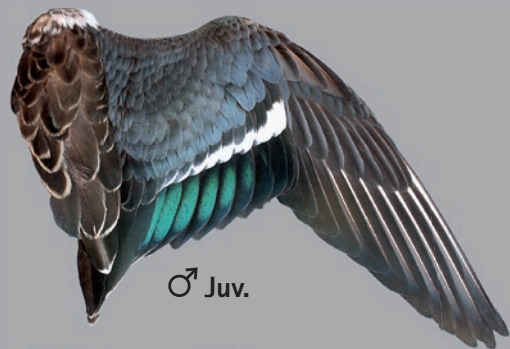
If in doubt, age determination of females will rely on careful examination of the shape of the greater secondary coverts, as well as lesser and median coverts.

If the whole bird is available, non-wing criteria should be examined: iris colour (yellow tones appear as early as September in young males), presence or absence of mottling, shape of the rectrices, spots on the bill, presence or absence of a bursa of Fabricius in dead birds.

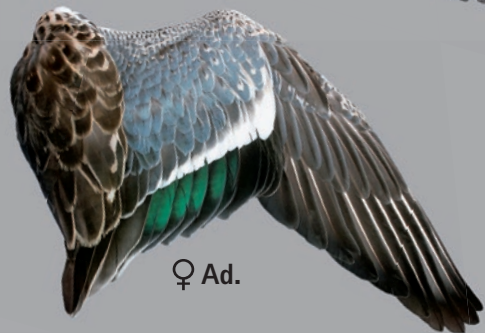
Northern Shoveler ADULT MALE

Folded wing length: 239 to 249 mm.

Moult: Primaries and coverts are replaced between mid-June and mid-August. Breeding scapulars and tertials are acquired between August and December.



♂ Juv.



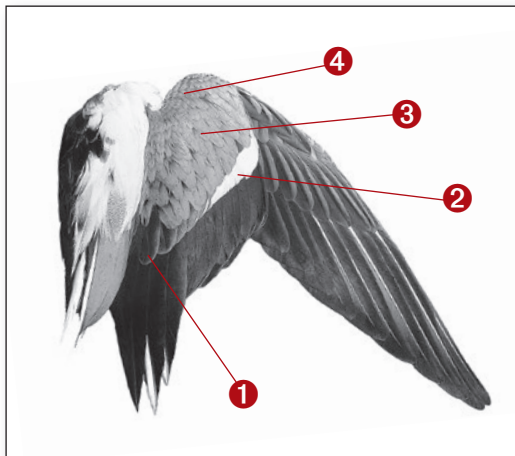
♀ Ad.



♀ Juv.



In breeding plumage, the longest scapulars are pointed, narrow, pale blue with a white stripe along the shaft. The shortest are black, white, or vermiculated. The tertials are long, very pointed, black with an iridescent green sheen and a clear white stripe along the distal third of the shaft on some of them. Most (7 to 9) secondaries are metallic green. They are bordered by a white stripe on the anterior side, formed by the tip of the greater secondary coverts. The lesser and median coverts are pale blue.



① Greater tertial coverts

Feathers not worn, usually with regular edges. They are **dark brown to black, with green or purple-blue sheen**, especially on the outer vane. They **lack a proper margin** but their edges often show a diffuse blueish colour. The first greater tertial covert should not be confused with the twelfth greater



secondary covert, which bears a white fringe on the outer vane.

② Greater secondary coverts

Check the first seven feathers; they have **almost parallel edges, a broad and angular tip**, sometimes square, especially on the outer vane. These



feathers are white and brown. **The distal white part is much extended**, so that the brown base is largely hidden by the blue median coverts. The demarcation between the white and the brown is usually clear and quite linear; **the white is bright and pure**. Exceptionally

(maybe 1% of birds) a small faded brown-blue spot can remain on the tip of the inner vane of one or a few feathers.



③ Lesser and median coverts

Feathers not worn, narrow and tapering. Some feathers are **almost pointed**. They are **shiny pale blue**, the innermost ones sometimes almost with



metallic sheen. These feathers are plain, with **no margin**, except sometimes around wing joint and on the extreme leading edge.

④ Marginal coverts

Check the feathers slightly away from the carpal joint, and behind the leading edge of the wing. These are **plain, with no pale margin**.



Northern Shoveler JUVENILE MALE

Folded wing length: 227 to 251 mm.
Moult: breeding scapulars and tertials are acquired late, between October and January. The greater tertial coverts are replaced from September–October.



♂ Ad.



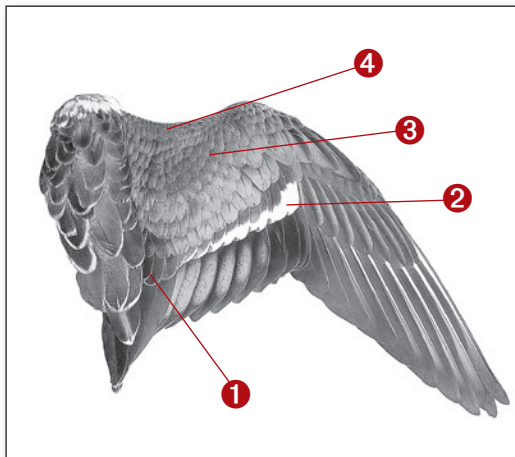
♀ Ad.



♀ Juv.



Juvenile-type scapulars are rounded. They are brown, with beige-white margin. The tertials are relatively short, often worn, with a rounded tip. They are dull brown, often with a cream-white margin at least on the distal third. More than half (sometimes three-quarters) of the secondaries are metallic green. They are bordered by a white stripe, often irregular, formed by the tip of the greater secondary coverts. The lesser and median coverts are dull blue.



① Greater tertial coverts

Before breeding moult, these feathers are often worn, hence have an irregular rounded edge. They are **dull brown, faded, with an indistinct white to cream margin** on the distal third. This margin sometimes partially disappears as a result of feather abrasion.



② Greater secondary coverts

Check the first seven feathers; their edges taper towards a relatively narrow and rounded, **sometimes obtuse, tip**. These feathers are white and



brown. **The white of the distal part is typically fairly restricted**, so that the brown base of the feathers is generally visible and not hidden by the blue coverts. The delineation between the white and the brown is usually imprecise, with a notch at the shaft. **The white is dull, often with a blue -brown spot at the tip of the outer vane.** This spot is sometimes very diffuse and present only on a single feather. It is usually hidden behind the outer vane of the next feather. The secondary coverts can (rarely) lack this spot.



③ Lesser and median coverts

Feathers relatively narrow but overall with a **rounded tip**. They are **dull blue**, some with brown shades.



These feathers are uniform and **do not bear a pale margin**, except at the carpal joint and on the extreme leading edge of the wing.

④ Marginal coverts

Check the feathers slightly behind the leading edge of the wing and away from the carpal joint.



These are **uniform, with no pale margin**.

Northern Shoveler ADULT FEMALE

Folded wing length: 222 to 237 mm.

Moult: the primaries and coverts are replaced between July and early September. The breeding scapulars and tertials are acquired between September and February.



♂ Ad.



♂ Juv.

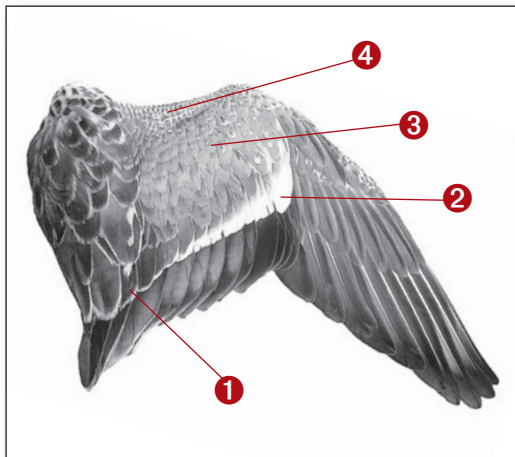


♀ Juv.



The scapulars are brown, with beige to pale brown margin. The shortest ones bear beige to brown spots at the centre.

The tertials are long with an obtuse tip. They are dull brown, often with a cream-white margin on the distal third. The number of metallic green secondaries is highly variable, from 1 to 9. They are bordered by a clearly visible white stripe on the anterior side, formed by the tips of the greater secondary coverts. The lesser and median coverts are pale blue, often with beige spots.



① Greater tertial coverts

Feathers not worn, with edges usually regular, almost parallel, and a well rounded tip. They are **brown, with a clear continuous and wide white to cream margin** on the distal third, strongly contrasting with the rest of the feather.



② Greater secondary coverts

Check the first seven feathers; their **edges are almost parallel** and have a **broad and rather angular tip, especially on the inner vane**. These



feathers are white and brown. **The white distal part extends over most of the feather**, so that the brown base is largely hidden under the blue median coverts. The delineation between the white and the brown is sometimes indistinct. **The white is bright and pure**. A small much faded blueish spot may exceptionally remain on the tip of the outer vane.



③ Lesser and median coverts

Feathers not worn, **narrow** and tapering. They are **pale blue** and a **large proportion of their edge**



bears a **brown-beige margin**. Most adult females also have beige to pale brown spots in the centre of some of these feathers, although these may also be completely lacking.

④ Marginal coverts

These feathers bear a **beige to pale brown margin**.



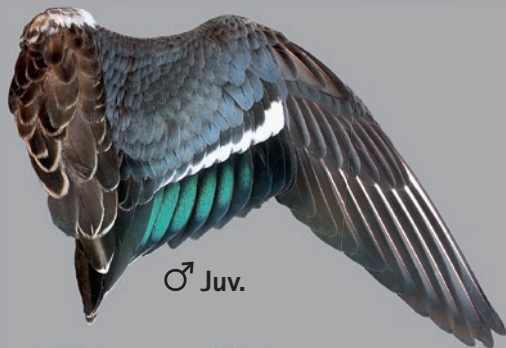
Northern Shoveler JUVENILE FEMALE

Folded wing length: 213 to 229 mm.

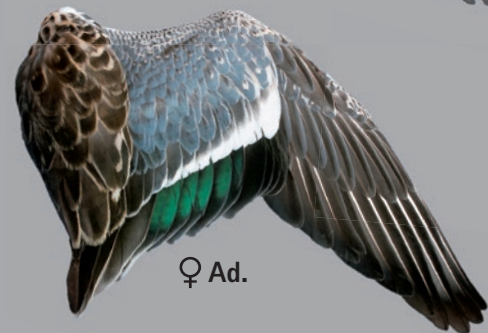
Moult: the breeding scapulars and tertials are often acquired late, between October and March. The greater tertial coverts are replaced in September–October.



♂ Ad.



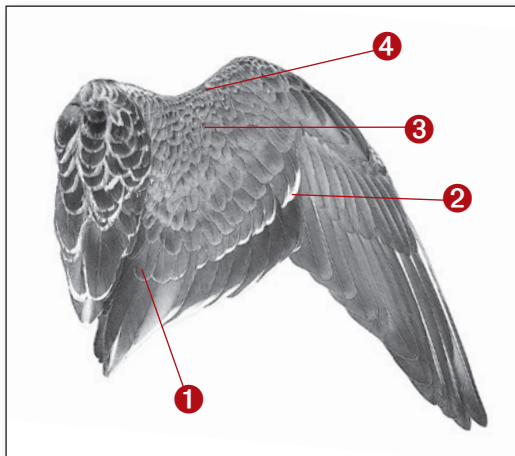
♂ Juv.



♀ Ad.



Juvenile-type scapulars are short, narrow, brown with a beige to pale brown margin. The tertials are usually worn, with an obtuse tip. They are brown with a whitish area at the tip and a diffuse cream-white margin. The secondaries are mostly charcoal grey with a pale tip, the innermost ones (1 to 4) sometimes metallic green. They are bordered by a relatively narrow and irregular white stripe on the anterior side, formed by the tips of the greater secondary coverts. The lesser and median coverts are blueish-brown.



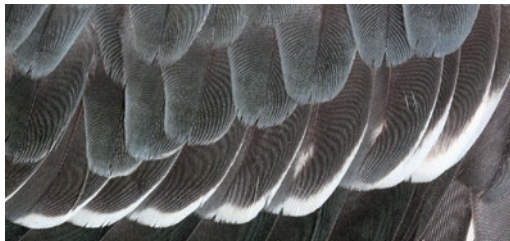
① Greater tertial coverts

Before breeding moult, these feathers are often worn, and hence have irregularly rounded edges. They are dull **brown**, often faded, with a **white to cream margin** often poorly defined on the distal third. This margin sometimes partially disappears as a result of feather abrasion.

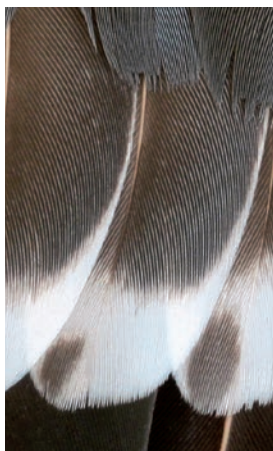


② Greater secondary coverts

Check the first seven feathers; their edges taper towards a relatively narrow and rounded, sometimes obtuse, tip. These feathers are white and



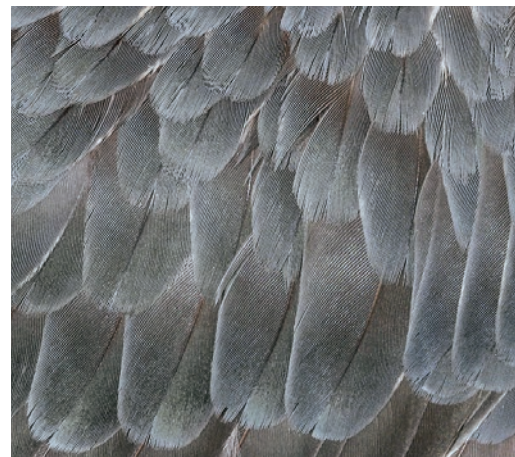
brown. **The white of the distal end is fairly restricted** so that the brown base is clearly visible on most of these feathers. The demarcation between the white and the brown is usually indistinct, with a notch at the shaft. **The white is dull to dirty, usually with a brown spot at the tip of the inner vane.** This spot is sometimes much diffuse



and restricted to only one single feather. It is usually hidden by the outer vane of the next feather. The secondary coverts can (rarely) lack this spot.

③ Lesser and median coverts

Feathers relatively narrow but **overall with a rounded tip**. They are **brownish with dull blue shades**. At least some of these bear a **beige margin, sometimes only partially**. Some females



also bear beige to pale brown spots in the centre of some coverts.

④ Marginal coverts

These feathers bear a **beige to pale brown margin**.



Greater tertial
coverts (here
the 2nd is shown)

Lesser and median
coverts (except
those close to
carpel joint)

Greater secondary
coverts (the first 7)

ADULT MALE



Not worn - black-brown with blue-green shade - no white margin



Narrow and pointed - shiny pale blue - plain with no margin



Broad and angular tip - pure shiny white extended over the feather

JUVENILE MALE



Worn - dull brown with thin white-beige margin often abraded



Rounded - dull blue sometimes with brownish shades - uniform, no margin



Narrow tip - white not extended or with brown spot - indistinct demarcation between white and brown

ADULT FEMALE



Not worn - brown with wide clear white margin



Narrow - pale blue with margin, sometimes beige-brown spot



Broad rounded-angular tip - pure shiny white extended over the feather - sometimes indistinct demarcation between white and brown

JUVENILE FEMALE



Worn - dull brown with thin beige-white margin, often abraded



Rounded - dull blue-grey to brownish - some with thin margin and spot



Narrow tip - white not extended or with brown spot - indistinct demarcation between white and brown

Note : the feathers of juvenile birds shown here are as they look before breeding moult.

Garganey

Anas querquedula



©Neil Fifer - Garganey - Hong-Kong - China.

Main criteria

The Garganey is a small duck, only slightly bigger than a Common Teal. Body length is between 37 and 41 cm, wingspan between 60 and 63 cm. Males weigh 350 to 450 g, females 250 to 450 g. They have a fine neck and a long, flat head. The bill is relatively long and broad, especially in males. Along with Northern Shoveler, Garganey is the only Palearctic duck with blue wing coverts. In breeding plumage, males have brown cheeks mottled with white and a bright white supercilium extending to the nape, strongly contrasting with the brown crown. The pinkish-brown breast with black

stripes is also contrasting with the vermiculated grey flanks and the white belly. The scapulars are black and white, long, and extend along the back. The posterior part of the body is pale brown with black-brown stripes.

Females and juveniles are predominantly brown, the very pale edges of the feathers contrasting strongly with their very dark centre. The belly is dirty white. These birds bear a beige-white supercilium above a brown eyestripe and a pale spot on the lores. The bill of males is dark to blackish-grey, that of females is grey to greenish-grey and spotted (see page 11). The legs are dark grey,

sometimes olive green-grey in females and young birds. The iris is brown. The speculum is metallic green to brown depending on age and sex classes. It is bordered by pure white to dirty white stripes, of varying width and regularity.

Breeding moult occurs mostly on the African wintering grounds. In juveniles, the acquisition of a breeding plumage may only be partial during the first year of life. Birds shot by hunters or trapped by ringers during autumn migration are hence almost always in juvenile or summer adult plumage, the males then lacking their typical vermiculated flank feathers.

Age and sex determination

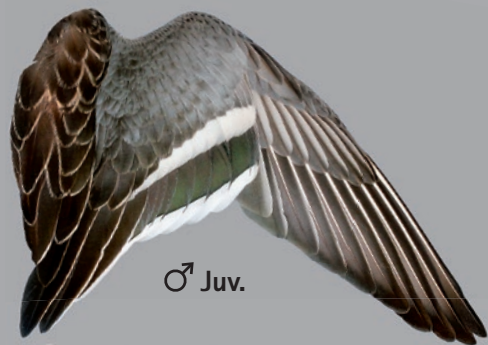
The plain blue colour of the lesser and median coverts in adult males readily allows them to be distinguished from the other age and sex classes. Wing examination also allows easy determination of juveniles males. Conversely, it is impossible to determine the age of around 5-10% of females from their wing plumage only. Wing examination should first consider the lesser and median coverts, as well as the greater secondary and tertial coverts. The width of the white at the tip of the secondaries can also be used as a complementary way to age females.

If the whole bird is available, non-wing criteria should be examined: presence or absence of a penis, shape of the rectrices, presence and density of spots on the bill, presence or absence of a bursa of Fabricius in dead birds.

Garganey ADULT MALE

Folded wing length : 190 to 211 mm.

Moult: primaries and coverts are replaced from June to August.
Breeding scapulars and tertials are acquired from November.



♂ Juv.



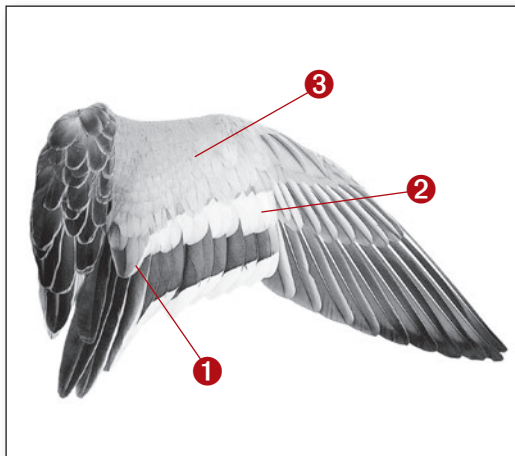
♀ Ad.



♀ Juv.



In summer plumage, the scapulars are dark brown with cream-white margin. In breeding plumage (not shown here), the longest scapulars are narrow and pointed, with a white central stripe, a black inner vane and a blue outer vane. The tertials are long and lanceolated. They are grey-brown with a white outer margin, the first one having a blue outer vane. The secondaries are metallic with a wide pure white terminal stripe. They are bordered by another white stripe on the anterior side, formed by the tips of the secondary coverts. The coverts are uniform pale blue.



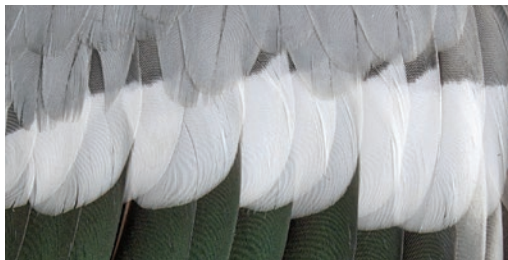
① Greater tertial coverts

Feathers not worn, usually with regular edges. They are broad, with relatively parallel edges and a rounded tip. They are **pale blue with a clear white margin** of variable width.



② Greater secondary coverts

Check the first six feathers; they have **almost parallel edges** and a rounded or square tip. They are grey and white, the **white on the distal end**



covering more than a third of the feather. The delineation between the white and the grey is usually distinct and relatively straight. **The white is pure and shiny.**



③ Lesser and median coverts

Feathers not worn, **pale blue**. These feathers are **uniform with no margin**, except a few median

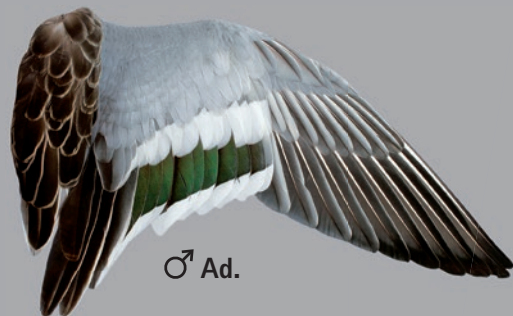


coverts, especially among the outer ones, which bear a narrow dull white fringe.



Garganey JUVENILE MALE

Folded wing length: 187 to 201 mm.
Moult: the breeding scapulars and tertials are acquired late, usually on the wintering grounds. Some lesser coverts can be replaced at the end of the first winter.



♂ Ad.



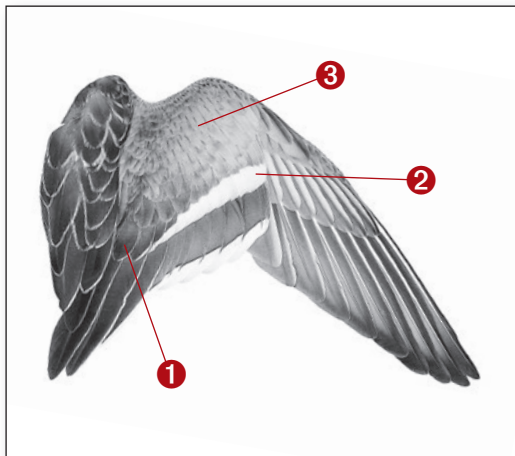
♀ Ad.



♀ Juv.

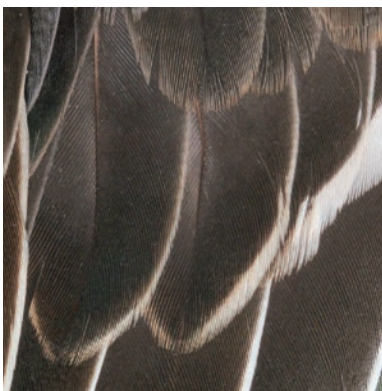


Juvenile-type scapulars are rounded and worn. They are brown, with brown-beige margins. The tertials are long, often worn, brown with white or beige margin only on the outer vane. Most secondaries are dull metallic green with a wide white stripe at the tip. They are bordered by another white stripe on the anterior side, formed by the tips of the secondary coverts. The lesser and median coverts are dirty blue-grey with brownish tones.



① Greater tertial coverts

Before breeding moult, these feathers are typically worn. They are almost lanceolated, their edges sharply tapering towards an **obtuse to pointed tip**. They are **dark brown with a narrow and indistinct dirty white to pale brown margin**.



② Greater secondary coverts

Check the first six feathers; their edges **gently taper towards an obtuse or rounded tip**. They



are brown-grey and white, **the white on the distal part covering no more than one-third of the feather**. The demarcation between the white and the brown-grey is usually indistinct, sometimes with a notch at the shaft. The white usually bears a brown spot at the tip of the inner vane. This spot can be very small, restricted to only one feather, or even be lacking (see photographs below). It is hidden by the outer vane of the next feather.



③ Lesser and median coverts

Feathers sometimes worn, especially at the tip, which then looks frayed. They are **dirty blue-grey with brownish tones**. These feathers **lack any**



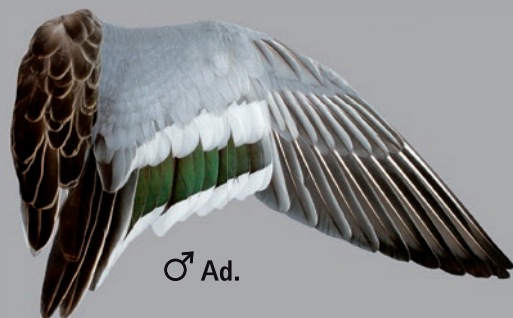
margin, except some median coverts that bear a narrow dull white or pale brown margin. Some breeding coverts can appear in the juvenile plumage at the end of the first winter.



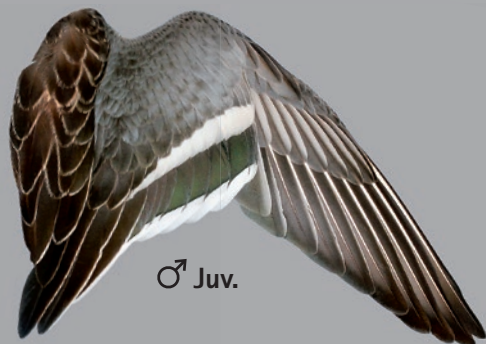
Garganey ADULT FEMALE

Folded wing length: 184 to 196 mm.

Moult: the primaries and coverts are replaced from June to August. The breeding scapulars and tertials are acquired from September.



♂ Ad.



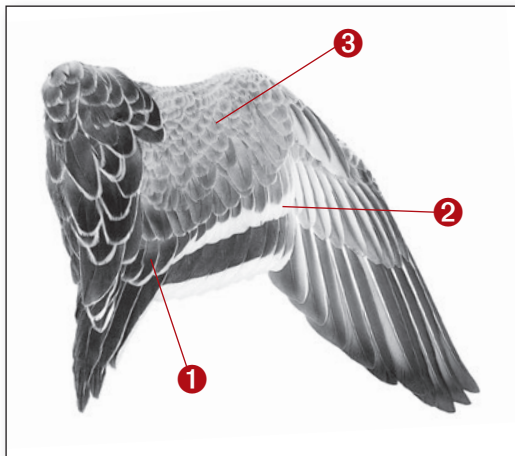
♂ Juv.



♀ Juv.



The scapulars are brown with a beige-brown margin. The tertials are long, with a rounded or obtuse tip, often worn. They are brown with a clear white or beige margin, usually extending around the feather tip. The secondaries are brown-grey to dull green-grey, sometimes metallic green, with a white terminal stripe over both vanes. They are bordered by another white stripe of varying width on the anterior side, formed by the tips of the secondary coverts. The lesser and median coverts are blueish-grey, often with a margin.



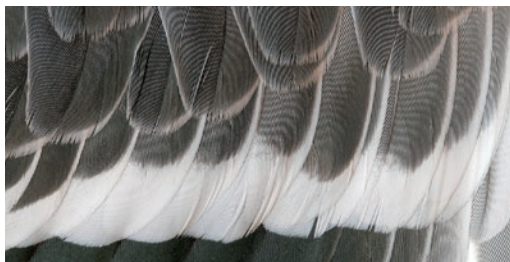
① Greater tertial coverts

Feathers not worn, usually with regular edges. They are broad; their edges are relatively parallel and their tip is rounded. They are **grey-brown, with a broad white to pale brown margin** clearly contrasting with the rest of the feather.



② Greater secondary coverts

Check the first six feathers; they have **almost parallel edges** and a **rounded or square tip**.



They are brown-grey and white. The extent of the white on the distal part is variable, but it covers less than a third of the feather. **The grey-brown does not usually extend into the white area along the shaft.** The white does not bear any brown spot.



③ Lesser and median coverts

Feathers not worn, usually with regular edges. They are **blueish-grey to greyish-brown**, sometimes with a greenish sheen. These feathers frequently have a **clear greyish or cream-white margin**, especially in the posterior half of the wing.

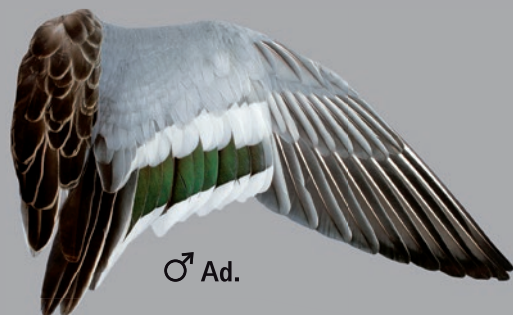


margin, especially in the posterior half of the wing.

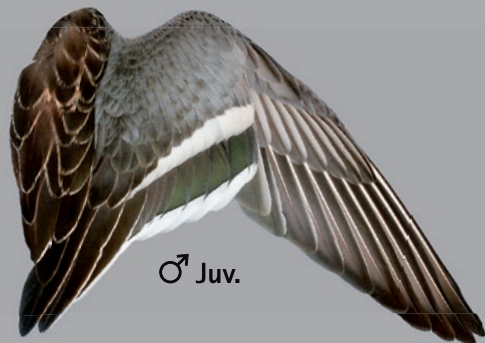


Garganey JUVENILE FEMALE

Folded wing length: 182 to 194 mm.
Moult: the breeding scapulars and tertials are acquired late, usually on the wintering grounds. The lesser coverts can be replaced at the end of the first winter.



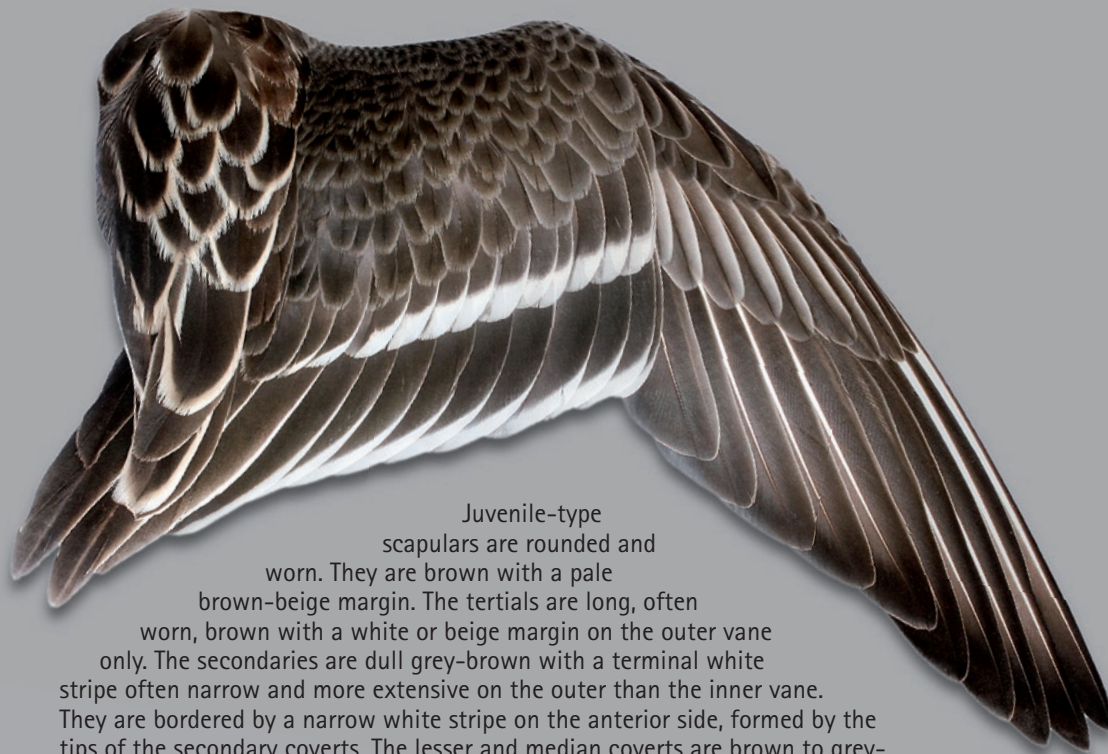
♂ Ad.



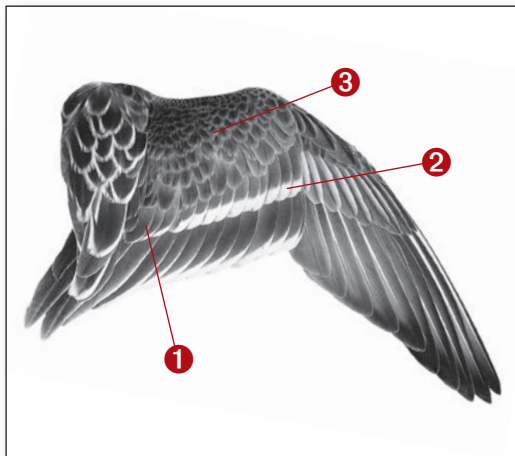
♂ Juv.



♀ Ad.

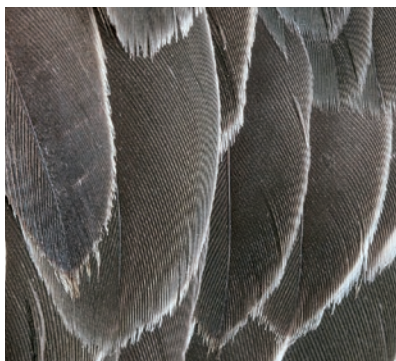


Juvenile-type scapulars are rounded and worn. They are brown with a pale brown-beige margin. The tertials are long, often worn, brown with a white or beige margin on the outer vane only. The secondaries are dull grey-brown with a terminal white stripe often narrow and more extensive on the outer than the inner vane. They are bordered by a narrow white stripe on the anterior side, formed by the tips of the secondary coverts. The lesser and median coverts are brown to grey-brown, sometimes with an indistinct margin.



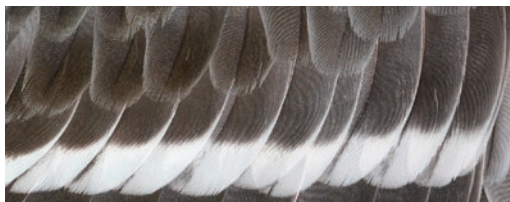
① Greater tertial coverts

Before breeding moult, these feathers are typically abraded. They are almost lanceolate, their edges sharply tapering towards an **obtuse to pointed tip**. They are **brown**, with an **indistinct and narrow dirty white to pale brown margin**.

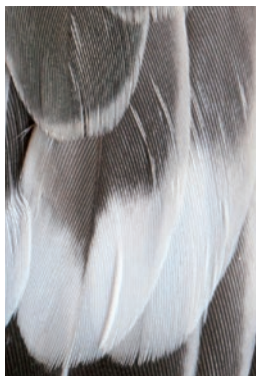


② Greater secondary coverts

Check the first six feathers; they **gradually taper towards an obtuse or rounded tip**. They are

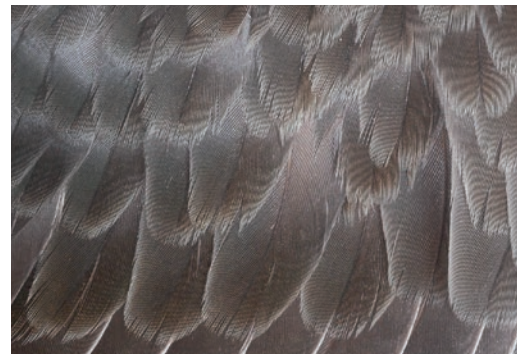


brown and white, the **white on the distal part covering less than a third of the feather**. The demarcation between the white and the brown is indistinct, the brown often extending into the white along the shaft forming a notch shape. **The white usually bears a brown spot** at the tip of the inner vane. This spot may be very small, limited to only one feather, or completely lacking (see photographs below); It is hidden by the outer vane of the next feather.

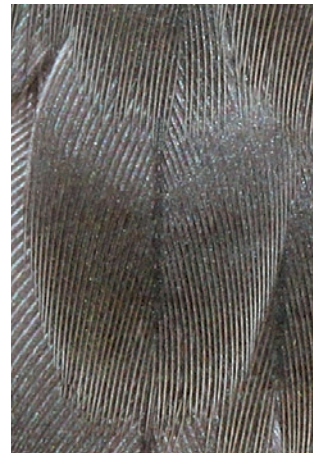


③ Lesser and median coverts

Feathers sometimes worn, especially at the tip which then looks frayed. They are **dull brown**. These feathers are **usually uniform**, rarely bearing a **narrow and poorly demarked greyish to**



dirty white margin. Some breeding coverts may appear in the juvenile plumage at the end of the first winter.



Greater tertial
coverts (here,
the 2nd is shown)

ADULT MALE



Not worn - rounded tip - grey
with clear white margin

JUVENILE MALE



Worn - obtuse tip - dark brown
with narrow dirty white margin

ADULT FEMALE



Not worn - brown with clear broad
white margin

JUVENILE FEMALE



Worn - obtuse tip - dark brown
with narrow dirty white margin

Lesser and median
coverts



Not worn - uniform pale blue
- no margin



Dirty blue-grey with brownish tones
- no margin



Not worn - blueish-grey to greyish-
brown - clear cream margin



Dull brown - no or very narrow
and indistinct dull margin

Greater secondary
coverts (the first 6)



Broad rounded or square tip -
extensive pure white - distinct
demarcation between white and grey



Narrow rounded obtuse tip - white
not extensive, with brown parts or
spot - indistinct demarcation between
brown-grey and white



Broad rounded or square tip - white
tip with no spot



Narrow rounded obtuse tip - white
not extensive, with brown parts or
spot - indistinct demarcation between
brown and white

Note : the feathers of juvenile birds shown here are as they look before breeding moult.

Eurasian Wigeon

Anas penelope



©Rob Hoeben – Eurasian Wigeon. The Netherlands.

Main criteria

The Eurasian Wigeon is a medium-sized duck with a body length of 45 to 51 cm and a 75 to 86 cm wingspan. It is a chunky duck with a short neck and bill, pointed wings and characteristic pointed tail. Males weigh 600 to 1000 g, females 500 to 800 g. In breeding plumage, males have an orange-red head, sometimes with a diffuse green stripe or green sheen; the forehead and the cap bear a cream-yellow stripe. They have a pinkish breast and a pure white belly, contrasting with the silver grey upper tail. In adult males, the wing coverts form a white patch that is clearly visible both in

flight and in resting birds. This patch allows determination of the age of males from a distance.

The plumage of females and juveniles is generally brown, but shows great variation between individuals. Four main colour types are generally distinguished: i) striped grey, ii) plain grey, iii) striped reddish and iv) plain reddish. In contrast to the plumages of other female Eurasian ducks, Wigeon look marbled or uniform instead of scaled. The belly is whitish. The bill is narrow and short, grey-blue with a black nail, and even in females it is without spots. In all sex and age classes the legs are black-grey and the

iris is brown. In adult males the speculum is metallic green, bordered by black stripes on both the anterior and the posterior sides. The speculum is dark and dull in the other age and sex classes.

Age and sex determination

Telling the age and sex of Eurasian Wigeon from wing examination is generally easy. Adult males are readily identified throughout the year from their pure white coverts. In the other classes, the main difficulty is for age determination of some atypical females, especially when juvenile-type greater tertial coverts have been replaced.

Wing examination should mostly consider the underwing coverts, the lesser and median coverts, the greater tertial coverts (before breeding moult in females) and the tenth secondary. For age determination of females, the latter two criteria are crucial in uncertain cases. In some birds the greater secondary coverts may also allow age determination. On average, the tip of these feathers has more black in males than in females and in adults than in juveniles. If the whole bird is available, non-wing criteria should be examined: presence or absence of a penis, presence or absence of mottled feathers, shape of the rectrices, presence or absence of a bursa of Fabricius in dead birds. Young Wigeon sometimes retain juvenile-type rectrices until spring, which greatly helps age determination.

Eurasian Wigeon ADULT MALE

Folded wing length: 252 to 281 mm.

Moult: the primaries and coverts are replaced from late June to early September. The breeding scapulars and tertials are usually acquired by December.



♂ Juv.



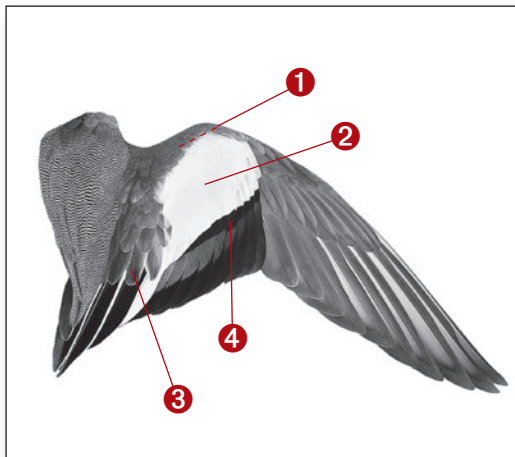
♀ Ad.



♀ Juv.



In breeding plumage, the scapulars are grey, with fine black and white mottling. The tertials are long and lanceolate; their outer vane is black bordered by a pure white margin. The speculum is metallic green, bordered by two black stripes, the anterior one being formed by the tips of the greater secondary coverts. The tenth secondary is pure white. The lesser and median coverts are pure white on most of the wing area that they cover, and vermiculated grey on the anterior part of the wing.



① Underwing coverts

Grey feathers **dusted or vermiculated** with grey-white.



② Lesser and median coverts

Apart from those at the wing's leading edge, the lesser and median coverts are **pure white**.



They form a broad white patch on the central part of the wing.

One or two **grey or brown** feathers may exceptionally remain among the white ones (see below).



③ Greater tertial coverts

Feathers not worn, with regular edges and a rounded tip. They are grey with a white margin, often vermiculated at the tip.



④ Greater secondary coverts

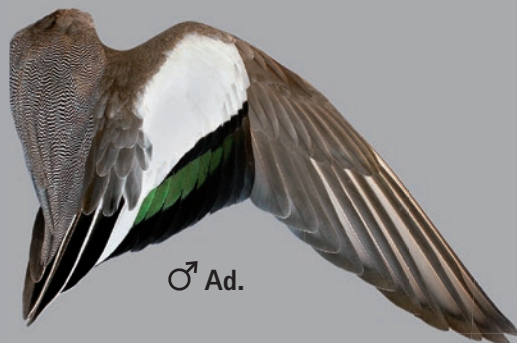
White feathers with **pure black tip**.



Eurasian Wigeon JUVENILE MALE

Folded wing length: 246 to 266 mm.

Moult: the juvenile-type tertials are replaced from September, sometimes not until the end of the winter. Juvenile scapulars may be retained until January and the greater tertial coverts at least until February.



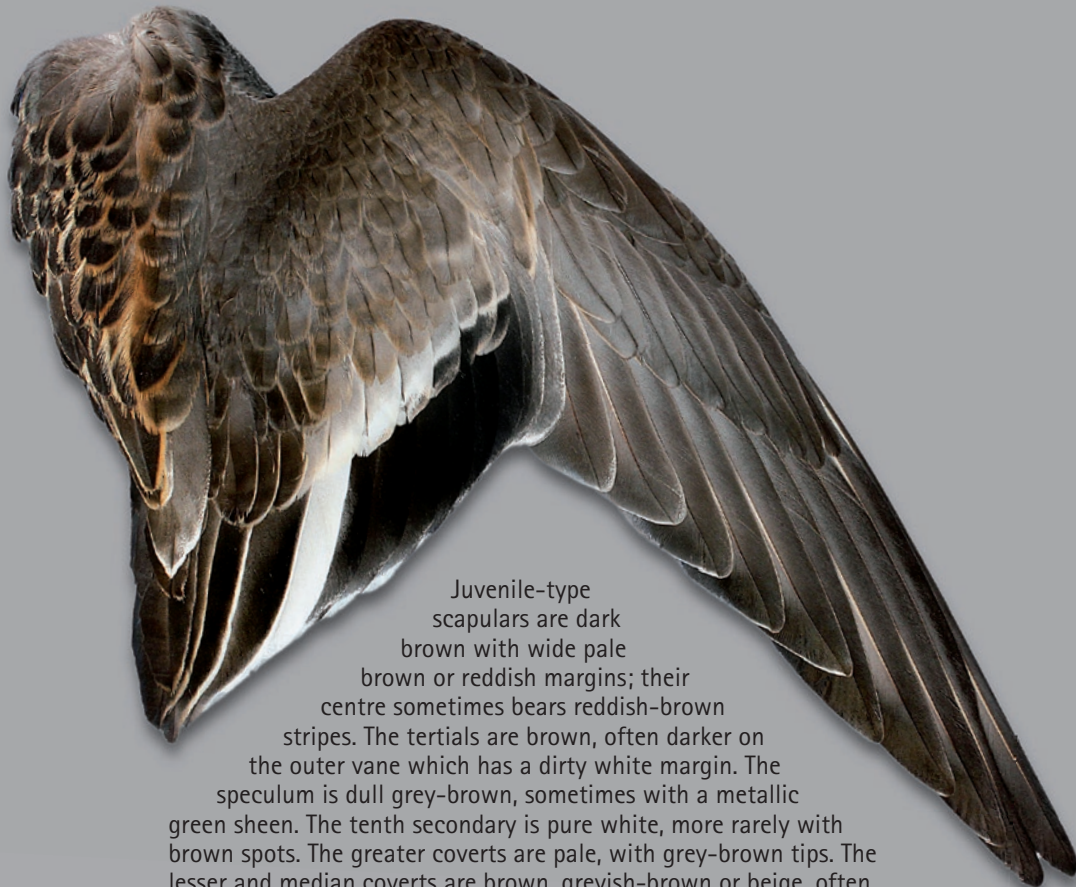
♂ Ad.



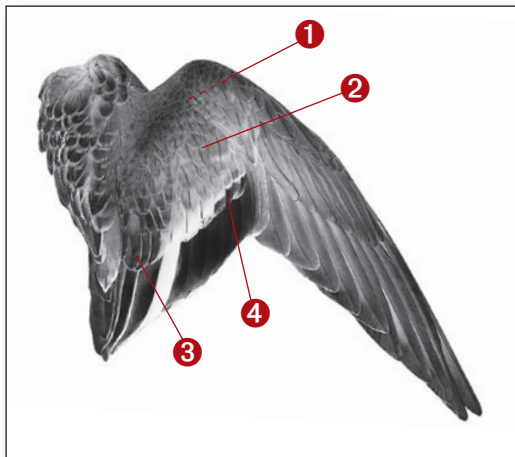
♀ Ad.



♀ Juv.



Juvenile-type scapulars are dark brown with wide pale brown or reddish margins; their centre sometimes bears reddish-brown stripes. The tertials are brown, often darker on the outer vane which has a dirty white margin. The speculum is dull grey-brown, sometimes with a metallic green sheen. The tenth secondary is pure white, more rarely with brown spots. The greater coverts are pale, with grey-brown tips. The lesser and median coverts are brown, greyish-brown or beige, often making the wing look pale, dull and faded.



① Underwing coverts

Mostly check the lesser and median coverts. They are **greyish-brown to grey**; at least some of them are **dusted, striped or vermiculated** grey-white or grey-brown. Some may bear a narrow **diffuse** pale margin.



② Lesser and median coverts

These are highly variable, see the different types on page 122. They are usually **narrow with edges sharply tapering** towards the tip. They are



greyish-brown to beige, sometimes with diffuse dirty white or pale brown stripes. They look faded. The median coverts often bear a **poorly defined** pale margin. Some pure white feathers may appear during the first winter.

③ Greater tertial coverts

Before breeding moult, these feathers are often worn, relatively narrow, with irregular edges. Their tip is rounded, obtuse or pointed. They are **brown, with a dirty white margin** which may disappear as a result of feather abrasion.



④ Greater secondary coverts

These are highly variable. Primarily check those in the central part of the wing. They are often narrow and pointed. They are **dirty white, beige or grey-**

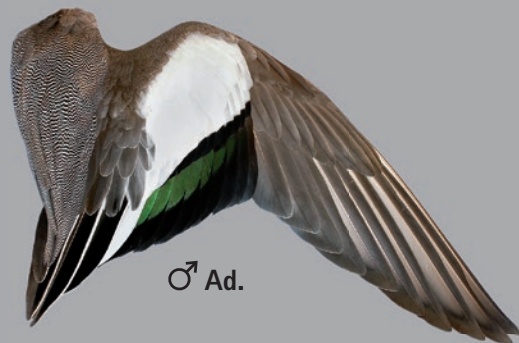


brown with, at least on some of them, a **diffuse dark brown to dull black spot or terminal stripe.**

Eurasian Wigeon ADULT FEMALE

Folded wing length: 242 to 262 mm.

Moult: the primaries and coverts are replaced from late June to early September. The breeding scapulars and tertials are usually acquired by December.



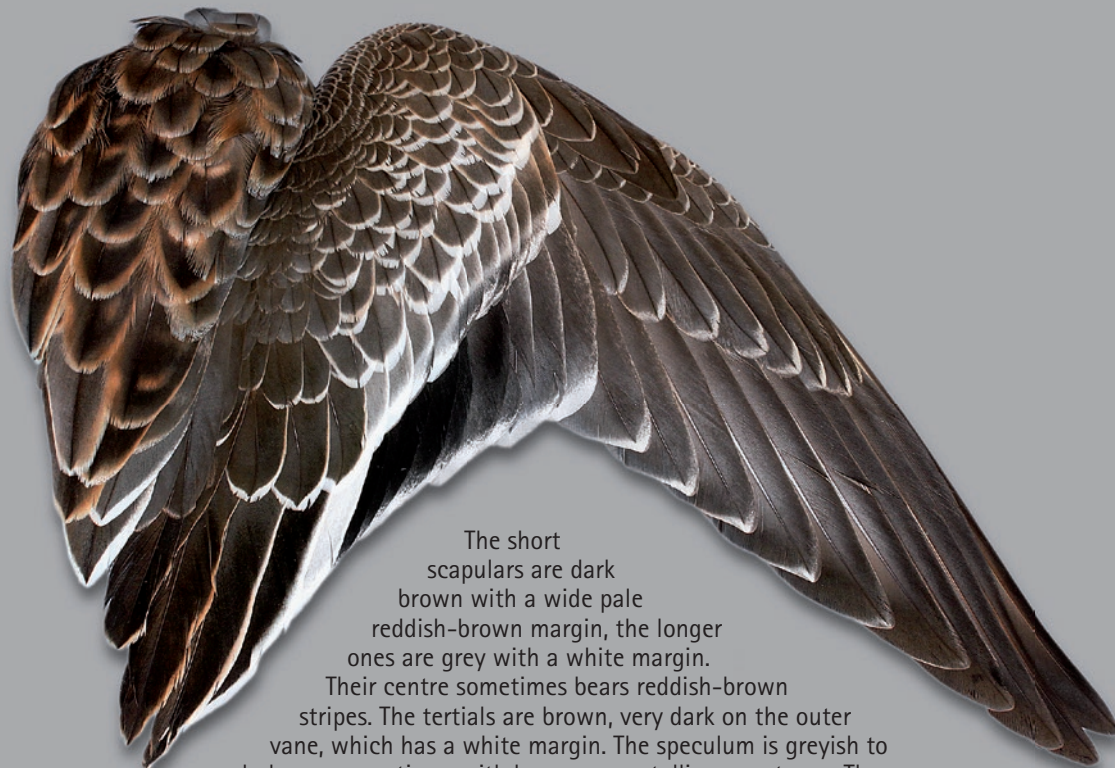
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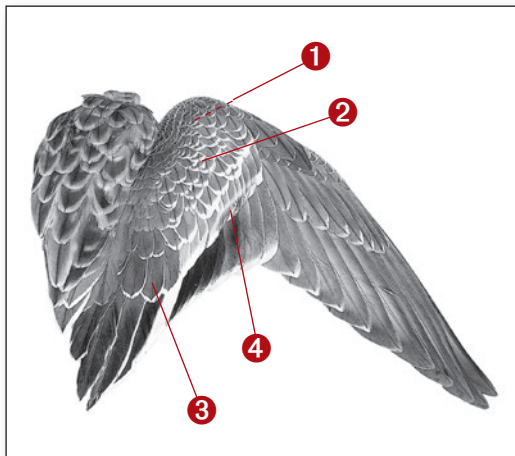
♂ Juv.



♀ Juv.



The short scapulars are dark brown with a wide pale reddish-brown margin, the longer ones are grey with a white margin. Their centre sometimes bears reddish-brown stripes. The tertials are brown, very dark on the outer vane, which has a white margin. The speculum is greyish to dark grey, sometimes with bronze or metallic green tones. The tenth secondary is usually pure white. The greater coverts are grey with a white and dark grey tip. The lesser and median coverts are brown with a clear white margin, so that the whole wing has a scaled appearance.



① Underwing coverts

Mostly check the lesser and median coverts. These feathers are **pale brown with a clearly**



defined pale or white margin. They are not vermiculated but may have a paler centre.

② Lesser and median coverts

These are highly variable, see the different types on page 122. They are **broad, with a gently**



rounded tip. They are brown to greyish-brown with a **clear white or beige margin**, strongly contrasting with the centre of the feather. These white margins get wider and extend over the anterior part of the feather with age. In young adults, they may be very limited on the coverts nearest to the leading edge of the wing.

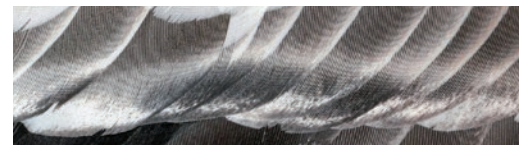
③ Greater tertial coverts

Feathers not worn, broad, with regular edges. Their tip is gently rounded. They are brown, with a **clear wide white or beige margin** strongly contrasting with the centre of the feather.



④ Greater secondary coverts

These are highly variable. Primarily check the coverts from the central part of the wing. They are often **broad**, with a rounded or angular tip.

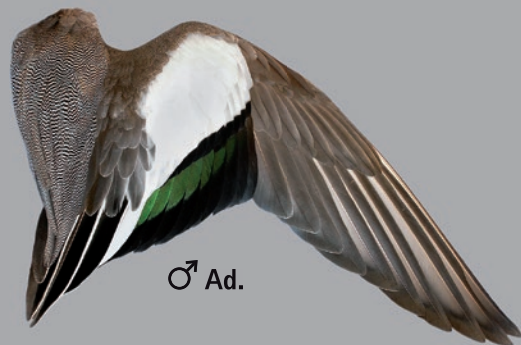


These feathers are **grey with a white and blackish-grey stripe at the tip.**

Eurasian Wigeon JUVENILE FEMALE

Folded wing length: 228 to 261 mm.

Moult: the juvenile tertials are replaced from September, though sometimes not until spring. Some juvenile scapulars may be retained until January, and the greater tertial coverts until at least February.



♂ Ad.



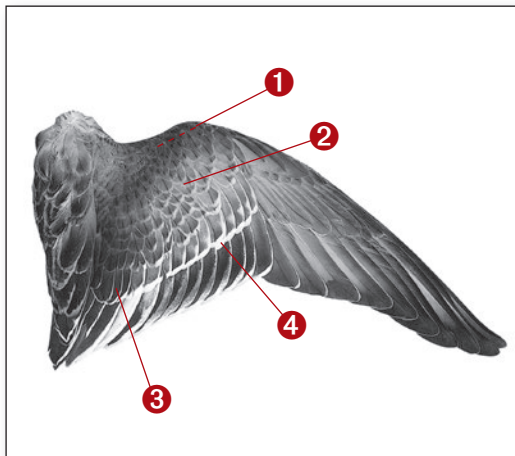
♂ Juv.



♀ Ad.



Juvenile-type scapulars are brown with pale brown or reddish margins; their centre sometimes bears reddish-brown stripes. The tertials are brown, darker on the outer vane which also has a dirty white margin. The speculum is brown-grey. The tenth secondary is dirty white to brown-grey. The greater secondary coverts are brown-grey with a dirty white tip, sometimes with smoky-grey. The lesser and median coverts are brown with a dirty white or beige-brown margin, making the whole wing looking more or less scaled.



① Underwing coverts

Mostly check the lesser and median coverts. These feathers are pale brown with a **relatively well-defined pale margin**.



They are **not vermiculated** but may bear pale spots at their centre.

② Lesser and median coverts

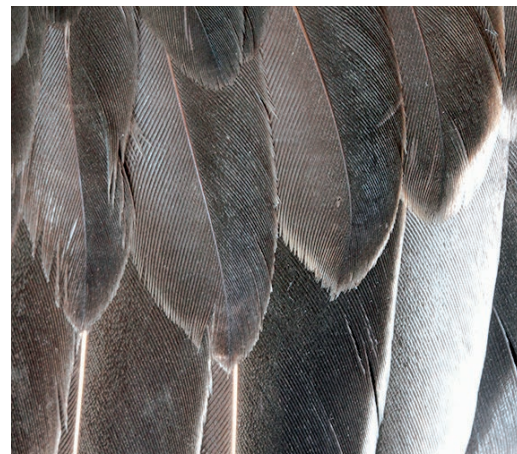
These are highly variable, see the different types on page 122. These feathers are **narrow with their edges sharply tapering** towards the tip.



They are brown with a **diffuse beige-white or pale brown margin**, contrasting with the centre of the feather. In some females, this margin is very thin or even lacking on most lesser coverts, especially those close to the leading edge of the wing.

③ Greater tertial coverts

Before breeding moult, these feathers are often worn, relatively narrow, with irregular edges. Their tip is rounded, obtuse or pointed. They are **brown with a dirty white margin** which may disappear as a result of feather abrasion.



④ Greater secondary coverts

These are highly variable. Primarily check the coverts on the central part of the wing. They are often **narrow and pointed**.



These feathers are **grey-brown to grey** with pale stripes and a **white tip**, exceptionally bearing **black-grey spots**.

Individual variation among wing coverts within a given age and sex class

Eurasian Wigeon

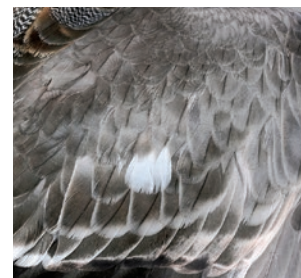
Juvenile males



Brown striped coverts,
some with pale margin



Whitish-grey coverts
without pale margin



Example of a single pure
white lesser covert

Adult females



White margins only on central median
and lesser coverts



White margins
on all coverts

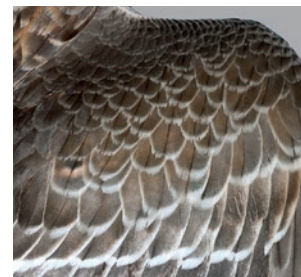
Juvenile females



Pale margins only on median coverts



















Pale margin very diffuse on lesser coverts



Margins almost white on all coverts

Summary table of the main sex and age criteria

Eurasian Wigeon

	ADULT MALE	JUVENILE MALE	ADULT FEMALE	JUVENILE FEMALE
Greater tertial coverts (here the 2 nd is shown)				
	Grey with thin white margin - tip often vermiculated	Worn, obtuse - brown with thin dirty white margin	Not worn, rounded - brown with wide white margin	Worn, obtuse - brown with thin dirty white margin
Underwing coverts				
	Rounded - grey with grey-white dusting or vermiculations	Pointed - grey-brown with dusting or stripes - no clear margin	Rounded - pale brown with clear wide beige-white margin	Pointed - pale brown with clear beige-white margin
Lesser and median coverts				
	Pure white	Narrow with obtuse tip - beige-brown - no clear pale margin	Broad with rounded tip - brown with clear wide pale margin	Narrow with obtuse tip - brown with diffuse pale margin
Central greater secondary coverts				
	Broad - black terminal stripe	Narrow, pointed - some with black terminal spot	Broad - grey with blackish dusted white tip	Narrow, pointed - grey with white tip, rarely spotted

Note : the feathers of juvenile birds shown here are as they look before breeding moult.

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This guide aims to help bird ringers, hunters, and other people interested in waterbirds to sex and age the ten most common freshwater duck species in Europe. Age and sex determination mostly relies on the examination of wing feathers, illustrated here by numerous photographs. The book also provides information on other criteria which may be used during some parts of the year.

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