



Title	Streptopelia risoria and how Linnaeus had the last laugh
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# *Streptopelia risoria* and how Linnaeus had the last laugh

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**SUMMARY.**—The dove known as *Streptopelia risoria* (Linnaeus, 1758) has long confused ornithologists. Linnaeus described a domestic variety of a dove whose wild form was then unknown. Its wild counterpart, African Collared Dove, was subsequently named *Streptopelia roseogrisea* (Sundevall, 1857) but that name's type series was mixed. Despite this, the name *roseogrisea* became commonly accepted and was used for both African Collared Dove and its domestic form in avian taxonomy, whilst the name *risoria* was commonly used by bird-keepers for the domestic form. In 2008 the ICZN ruled that the senior name *risoria* should have priority for both African Collared Dove and its domestic form, Barbary Dove. Although this decision was appropriate, it was based on incomplete information. Here a detailed history of the use of the name *risoria* in the ornithological literature is presented, followed by designation of a neotype for *roseogrisea* to resolve taxonomy.

'Among the Turtle-Doves—now *Streptopelia*, formerly *Turtur*—there is first of all a difficulty about the name "*risoria*"' (Hartert 1916).

The Barbary Dove, also known as Ringed Dove or Ringneck Dove, is the domestic form of African Collared Dove, until recently known as *Streptopelia roseogrisea* (Sundevall, 1857). In many other languages (Dutch, German, French, etc.), the domestic form is referred to as 'Laughing Dove' (e.g. Lachduif, Lachtaube, Tourterelle rieuse) for the typical call it makes when excited. (In contrast, Laughing Dove *S. senegalensis* does not give a laughing call at all!) Throughout this paper, the domestic bird is referred to as Barbary Dove and the wild form as African Collared Dove.

Barbary Dove was already known in the 16th century but details concerning its domestication are unclear. At that time Barbary Dove occurred in two varieties: a pale fawn-coloured form and a nearly white one (two different recessive alleles of the same gene, which is located on the sex chromosome, see Appendix). The original dark colour of the ancestral species was not then known to exist in captivity.

Long before the wild form was known to science, Barbary Dove had been described by Linnaeus (1758) as *Columba risoria* (Latin *risoris*: a laugher), presumably for its 'giggling' call. In his description, Linnaeus also listed *Turtur Indicus* of Aldrovandi (1600a), Willughby (1678), Ray (1713) and Albin (1738) in the synonymy of the same species. The dove was later transferred, via the genus *Turtur* Selby, 1835, to *Streptopelia* Bonaparte, 1855. As Donegan (2008) considered Linnaeus' name to be based on a mixed type series, he established a neotype for *risoria*, based on a pale fawn-coloured specimen from captivity whose specimen label indicated origin in India.

Although the scientific name *S. risoria* is senior to *S. roseogrisea*, the latter was commonly accepted in ornithology and used as the valid name for both African Collared Dove and its domestic form until 2008. However, in medical and bird-keeping literature, use of *risoria* for the domestic form prevailed (Pluis & Stupperich 1986, Donegan 2007). Donegan (2007) officially applied to the ICZN to conserve the junior name *roseogrisea* for the wild species but allow continued use of *risoria* for the domestic form, based on their previous approach to

domestic mammals and their wild forms (ICZN 2003). However, the ICZN (2008) ruled that the valid name for both the wild and domestic forms is *Streptopelia risoria* (Linnaeus, 1758). This change was accepted by many authorities, e.g. the Association of European Records and Rarities Committees (Crochet *et al.* 2011). Dickinson & Remsen (2013), however, ignored the ruling, in the belief that Barbary Dove being the domestic form of African Collared Dove remains to be proven. However, in my opinion, the hypothesis that the two are the same species can no longer be denied (see Appendix).

Donegan (2007, 2008) argued that the nomenclature of *S. risoria* and *S. roseogrisea* is complicated by apparent reference to individuals of other species in the description of *Columba risoria*. This is unlikely, however, as will be demonstrated here. What is true is that many *Streptopelia* species are very similar and the name *risoria* was often used for similar-looking species, notably Eurasian Collared Dove *S. decaocto*. Here I recapitulate the history of the name *risoria* for Barbary Dove and its wild parent species in the ornithological literature (after van Grouw 1999). I offer more detail than the information presented by Donegan (2007) to the ICZN. The data herein confirm that the ICZN decision to maintain priority for *risoria* as the specific name for both African Collared Dove and its domestic form was correct. Whilst some commissioners (ICZN 2008) stated that the case of *risoria* could or should be reconsidered based on additional information, this will not be necessary based on the data and recommendations set out here.

## History

Pre-Linnaeus, the name used for Barbary Dove was *Turtur indicus* which was introduced by Aldrovandi (1600a). Following Aldrovandi, Willughby (1678), Ray (1713) and Albin (1738) mentioned *Turtur Indicus*, the 'Indian Turtle' or 'the Turtle dove from the East Indies', in their works but their descriptions were based on Aldrovandi's without adding anything significant. Aldrovandi (1600a,b) mentioned that the image used in his book (Figs. 1–2) was produced 'from life' and reported that he kept a pair of Barbary Doves himself which came from Alexandria in Egypt. Donegan (2008) considered that Aldrovandi was possibly referring to two different species in his description. However, Aldrovandi stated that males are fawn-coloured and females white. On this basis, it is clear that Aldrovandi was discussing the two colour mutations of Barbary Dove (see Appendix). According to him, the species then occurred in England, Germany, Africa (in enormous cloud-like masses), 'Tartaria' (presumably the Caucasus and parts of Russia) and 'the Orient'. Despite the name *indicus*, Aldrovandi did not mention India specifically as a country of origin. Although one could argue that India formed part of 'the Orient', one might also then wonder why Aldrovandi did not name it *orientalis*. Willughby (1678) added that the species was common in captivity in England, but used a copy of Aldrovandi's plate (Fig. 3), while Albin (1738) added nothing further but did include a new plate (Fig. 4). Donegan (2008) considered it to be a Eurasian Collared Dove *Streptopelia decaocto* but in my opinion, based on the bird's colour and because Eurasian Collared Dove did not yet occur in Europe (Nowak 1965), the bird depicted is a pale, fawn-coloured Barbary Dove.

Linnaeus (1758) named the Barbary Dove *Columba risoria* and described it as 'C[olumba] supra lutescens, lunula cervicali nigraon' (dove with yellowish upperparts and black neck-ring), which is a perfect colour description of Barbary Dove. Presumably based on Aldrovandi's name *Indicus*, Linnaeus further stated that it came from India and that the bird was 'our common Turtle Dove' (nobis communis Turtur), which may suggest that it was commonly kept in Europe.

Latham's (1783) account of *Columba risoria*, 'the Collared turtle', also concerns the pale fawn mutation of Barbary Dove ('The upperparts of the head and neck, the back, and wing

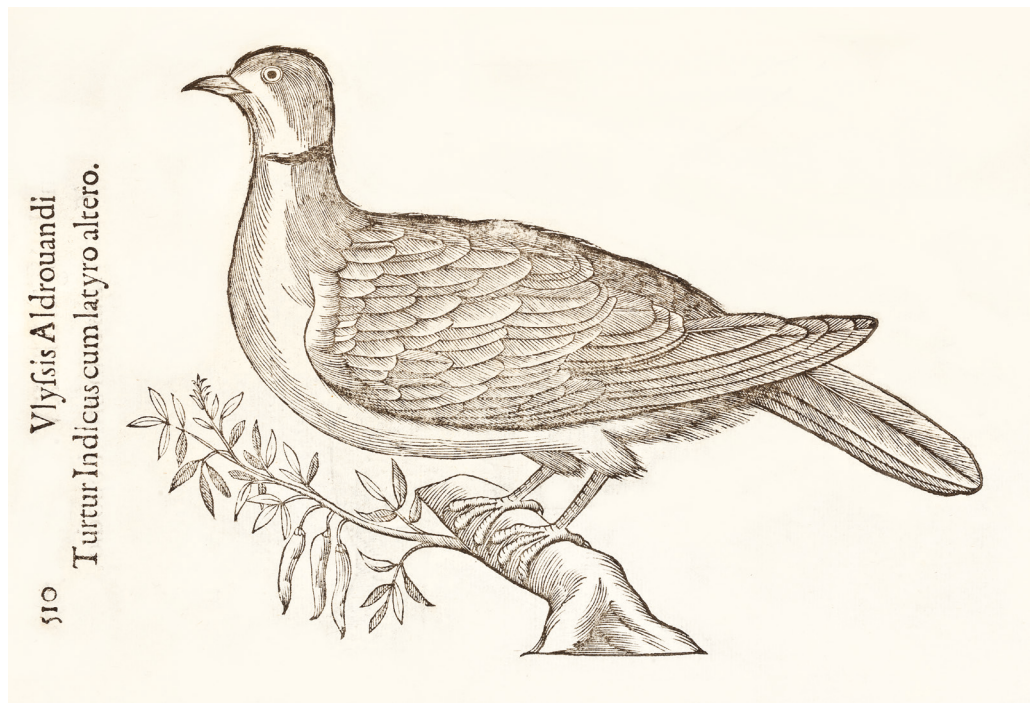


Figure 1. *Turtur Indicus* [Barbary Dove] in Aldrovandi (1600a) (Harry Taylor, © Natural History Museum, London)



Figure 2. *Turtur Indicus* [Barbary Dove] in Aldrovandi (1600b); the coloured version of Aldrovandi’s work is unique (© Library of the University of Bologna)



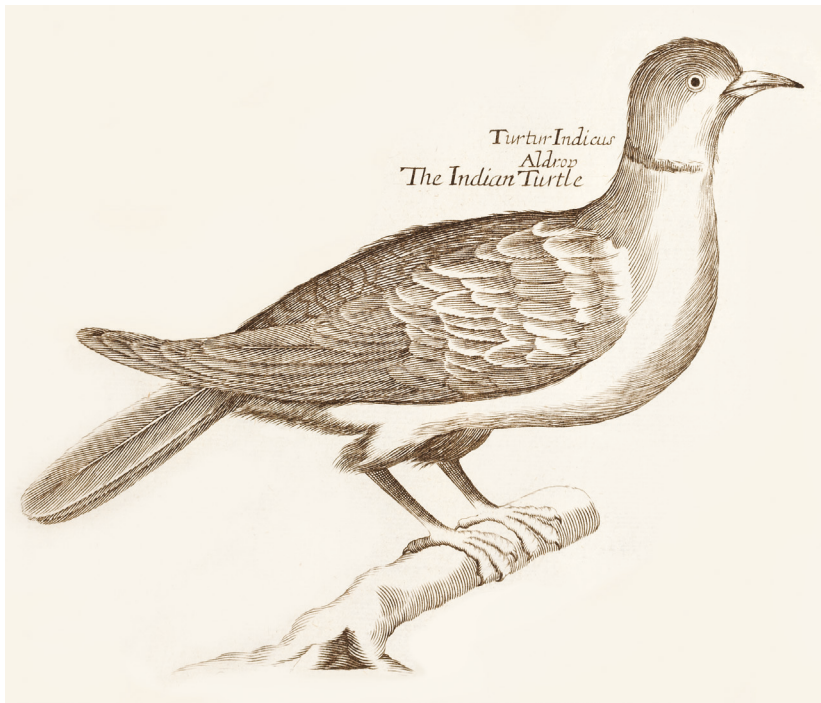


Figure 3. *Turtur Indicus*, the Indian Turtle [Barbary Dove] in Willughby (1678) (Harry Taylor, © Natural History Museum, London)



Figure 4. 'The Turtle Dove from the East Indies' [Barbary Dove], pl. 45 in Albin (1738) (Harry Taylor, © Natural History Museum, London)



Figure 5. *La Tourterelle Blonde* [Ring-necked Dove *Streptopelia capicola damarensis*], pl. 268 in Le Vaillant (1808) (Harry Taylor, © Natural History Museum, London)

coverts, are of a rufous or reddish white, nearly cream-colour...'). According to Latham the species was common in France and elsewhere in continental Europe, although he did not 'hear of it at large in England'. Regarding mainland Europe, he remarked in a footnote: 'some think as far as Sweden, but I think Linnaeus's words do not justify this. He stated "Habitat in India, nobis communis Turtur"; by which I should think he only means, that it is everywhere in cages, as with us in England. It is not mentioned in his *Fauna Suecica*'.

Temminck (1808) knew that *Columba risoria* was a domestic form that had been kept in captivity for a very long time, and he suspected that its wild form was an African species. He referred to earlier authors like Buffon and Brisson who described 'Turtle doves with neck rings' from different parts of Africa, and specifically to *La tourterelle blonde* of Le Vaillant (1808; Fig. 5). This, in his opinion, although somewhat smaller, was the same as Barbary Dove ('...comme le type de nos Tourterelles a collier.'). He therefore called Barbary Dove 'Colombe Blonde' (Fig. 6). *La tourterelle blonde*, however, was a pale-coloured race of Ring-necked Dove *Streptopelia capicola damarensis*, which was discovered by Le Vaillant in what is now Namibia (Finsch & Hartlaub 1870, Shelley 1883). Unfortunately Le Vaillant's illustration failed to indicate the black eyeline; the artist may have missed it, possibly due to the specimen he used being poorly preserved.





Figure 6. Colombe Blonde *Columba risoria* [Barbary Dove], pl. 44 in Temminck (1808) (Harry Taylor, © Natural History Museum, London)

Temminck also quoted Sonnini de Manoncourt (1799) who saw Barbary Doves in Egypt where, according to Sonnini, 'the inhabitants love them very much and take special care of them'. It was unclear to Temminck, however, if Sonnini saw doves in the wild or whether they were found there in captivity, as in Europe.

Based on his observations in north-east Africa, Rüppell (1835) wrote that *Columba risoria* Linnaeus was rather common in the wild in 'Egypt', especially around Massaua (= Massawa), on the Abyssinian (now Eritrean) coast where they even occupied abandoned houses. Almost certainly, the doves that he saw were the wild ancestor of Barbary Dove, the African Collared Dove (Fig. 7). Thus, presumably unconsciously, Rüppell correctly 'linked' the wild and domestic forms as the same species. Ten years later, when he listed *Turtur risorius* Linnaeus as a common bird in north-east Africa, Rüppell (1845), like Temminck, included *La tourterelle blonde* of Le Vaillant (1808), as he too was of the opinion that Le Vaillant's dove was *Turtur risorius*.

Selby (1835; Fig. 8) was highly aware of the history of Barbary Dove and wrote of *Turtur risorius* 'From a very remote period this species appears to have been domesticated, or rather kept in that state of captivity in which it is retained at the present day; ... it is still abundant in Egypt and other parts of the East, where it is fostered and cultivated with care'. According to him, the species occurs in parts of Africa in its wild or natural state, and varies in depth and intensity of colour from the domestic variety. The specimen Selby described as the wild form came from southern Africa and had a narrow streak of black from the bill to the eyes. This specimen, however, was probably a Ring-necked Dove *Streptopelia capicola* and certainly not an African Collared Dove. Although Selby was correct as to the wild form being an African species, he picked the wrong one. Nevertheless, he was closer to the truth than many others, as Eurasian Collared Dove *S. decaocto* was then widely assumed to be the wild form of Barbary Dove.

At the time, Eurasian Collared Dove did not occur in Europe but was abundant in India and was regularly referred to as *Columba risoria*. Frivaldszky (1838), however, described and named it *Columba risoria* var. *decaocto*. Descriptions of varieties from this era are valid as species-group names. Frivaldszky was encouraged in this by J. F. Naumann, who pointed out that Eurasian Collared Dove differed in size, colour and call, and therefore was not the wild form of Barbary Dove.

Probably unaware of Frivaldszky's work, Blyth (1855) used the name *Turtur risorius* for Eurasian Collared Dove, although he too was convinced that it was a different species, as he stated while discussing Barbary Dove 'That our Indian *Turtur risorius* [*S. decaocto*] is not, as currently supposed, the wild type of this domestic breed is indicated ...'. Blyth went on to list differences in voice, size and the shape of the neck-ring. In Barbary Dove this ring, according to Blyth, is broader than in Eurasian Collared Dove, and is more comparable to that of African turtle-dove species. He admitted, however, that he was unaware of any identical African species, but he was convinced that the real species would be discovered soon.

Sundevall (1857), like Rüppell (1845), also opined that the Namibian *La tourterelle blonde* of Le Vaillant (1808) and *Turtur risorius* mentioned by Rüppell were the same species. He also thought that it was 'related' to Vinaceous Dove *Streptopelia vinacea* and he therefore proposed the name *Columba roseogrisea* for it. Both names refer to the pinkish-wine plumage.

So, African Collared Dove was correctly listed by Rüppell (1835, 1845) as *risoria*, and later renamed *roseogrisea* (Sundevall 1857). Subsequent authors, including Heuglin (1859), Hartman (1863) and Marno (1874), all continued using the name *risoria* Linnaeus for African Collared Doves in Ethiopia and Egypt. This may suggest that they considered it to be the wild form of Barbary Dove, but generally this relationship was not recognised. Dresser





Figure 7. Adult male African Collared Dove *Streptopelia risoria* collected by Rüppell in Eritrea and the designated neotype for the junior synonym *roseo-grisea* of Sundevall, SMF 22887 (Sven Tränkner, © Senckenberg Museum, Frankfurt). The species name *albiventris* on the label is a mistake by Finsch & Hartlaub (1870). They thought that the dove collected by Rüppell was the same species as *Turtur albiventris* of Gray (1844). The latter, however, is Vinaceous Dove *Streptopelia vinacea* (J. F. Gmelin, 1789). In their account of ‘*Turtur albiventris*’ Finsch & Hartlaub used this specimen to describe the plumage characters.



Figure 8. Collared Dove *Turtur risorius* [Barbary Dove], pl. 17 in Selby (1835) (Harry Taylor, © Natural History Museum, London)





Figure 9. Neotype of *Streptopelia risoria*, NHMUK 2008.3.1 (Harry Taylor, © Natural History Museum, London). In connection with his application to conserve the name *S. roseogrisea* but, prior to the ICZN's final decision, Donegan (2008) assigned a neotype for *S. risoria*. The neotype designation for *S. risoria* (Linnaeus, 1758) was justified as no name-bearing specimen for *risoria* is believed to exist (and a type was necessary to define the taxon *risoria* objectively). Donegan (2008) selected a specimen of captive origin labelled 'from India' as, according to him, Linnaeus, and all other authors referred to in the latter's description, considered *risoria* to occur in India. However, as the accounts on which Linnaeus was based include more details on the species as a captive bird in Europe, which birds were also the basis of the different illustrations, a better choice might have been a captive bird from Britain, or elsewhere in Europe.

(1877), for example, who still called Eurasian Collared Dove *Turtur risorius*, thought that the species was 'the parent stock of the domestic Turtle Dove'. Shelley (1883) appears to have been first to mention the relationship with *roseogrisea*. In his discussion of *roseogrisea*, he stated 'Our common tame Turtle Dove [Barbary Dove] belongs to this species'. Nevertheless, he still used *Turtur risorius* for Eurasian Collared Dove and this name was even used for the species after 1900 by some commentators (Baker 1913). Hartert (1916) agreed with Shelley regarding the ancestry of Barbary Dove. He presented correct evidence to make his case

and ended his account with 'We must therefore conclude that the Indian species [*S. decaocto*] cannot be the ancestor of the tame dove, while in all probability *S. roseogrisea* is the species from which our domestic birds have come'.

## Conclusions and discussion

Aldrovandi's (1600a) black-and-white figure of *Turtur Indicus* (Fig. 1) could be a Barbary Dove or a Eurasian Collared Dove but, given that Aldrovandi himself kept Barbary Doves, that Eurasian Collared Dove had not yet reached Europe, and that the figure was produced 'from life', it is reasonable to assume that it depicts a Barbary Dove. The fawn colour of the only coloured copy of this figure in existence (Aldrovandi 1600b) confirms that he did indeed portray a Barbary Dove (Fig. 2). Furthermore, he stated that the species occurred in the Orient, Africa, Tartaria, Germany and England, and no explicit mention was made of India. European birds, obviously, were captive Barbary Doves while African birds could have been the wild form or any other African species with a black neck-ring. Birds from the Orient and Tartaria could have been either wild Eurasian Collared Doves or captive Barbary Doves. The further description of the species, however, certainly refers to Barbary Dove alone. Based on the species name *Indicus*, Willughby (1678) and Albin (1738) both called the species 'Indian Turtledove'. Neither author, however, recorded its provenance other than to comment that it was kept in captivity, so they too referred only to Barbary Dove. The pale, fawn-coloured dove depicted by Albin (Fig. 4) confirms this. Linnaeus (1758) described his *Columba risoria* based on the *Turtur Indicus* of Aldrovandi. Apart from the statement 'Habitat in India', the remainder of Linnaeus' brief description leaves no doubt that he was discussing Barbary Dove. Later authors including Latham (1783), Temminck (1808) and Selby (1835) all used the name *risoria* correctly for Barbary Dove.

Thereafter Rüppell (1835) used the name *Columba risoria* of Linnaeus to identify a wild species he saw in Egypt and Eritrea; these doves were actually African Collared Doves, the wild form of Barbary Dove (Fig. 7). Ten years later, Rüppell (1845) still called African Collared Dove *risoria* but was mistaken in presuming that *La tourterelle blonde* of Le Vaillant (1808) was the same species. Sundevall (1857), however, made an even bigger mistake by applying a new name, *Columba roseogrisea*, to a species of which he had only seen descriptions and a plate, but never a specimen. In fact the basis for Sundevall's name was an amalgamation of two species: Ring-necked Dove (*La tourterelle blonde* of Le Vaillant) and African Collared Dove, *Columba risoria* mentioned by Rüppell (1835, 1845)

Donegan's (2007, 2008) proposal to ICZN was designed to meet the conflict in usage between the wild form, widely referred to as *roseogrisea*, and the (introduced) domestic form, widely referred to as *risoria*. As demonstrated here, Barbary Dove is the domestic form of African Collared Dove and they are therefore the same species. In contrast to other taxonomic groups, e.g., mammals and fish (ICZN 2003), most bird species with both a domestic and a wild form have just one scientific name (Gentry *et al.* 2004), and the senior name *risoria* was given to the domestic Barbary Dove. Furthermore, as Rüppell correctly used the name *risoria* of Linnaeus for African Collared Dove, and Sundevall based his *roseogrisea* on Rüppell's information, it is in many ways unfortunate that the junior name gained traction instead of having been recognised as a synonym from the outset.

The decision of the ICZN (2008) to 're-establish' the senior name *risoria* of Linnaeus for the species, although based on less information than is presented here, is thus quite appropriate.

As a result of the above, specifically the mixed type series used by Sundevall (1857), the application of *roseogrisea* should also be clarified to avoid its synonymy with *capicola*. In his description of *La tourterelle blonde*, Le Vaillant mentioned its similarity to Buffon's *La tourterelle à collier*, which was kept in captivity in France, and he referred to a plate of the latter species





Figure 10. *La Tourterelle à collier* [Barbary Dove], pl. 244 in Boddaert & Daubenton (1783) (Hein van Grouw, © Natural History Museum, Tring)

(Boddaert & Daubenton 1783). Buffon's bird, however, was a Barbary Dove (Fig. 10). The specimen from Namibia used for Le Vaillant's plate is believed to be no longer extant. However, Hartlaub & Finsch (1870) described *Streptopelia capicola damarensis*, designated a name-bearing type—a specimen collected on 17 February 1865 by Andersson in Namaqualand and now held in the Uebersee Museum Bremen (UMB 9477)—and listed Le Vaillant's *La tourterelle blonde* in synonymy. The information concerning *risoria* (African Collared Dove) from north-east Africa in Rüppell (1845), in which he listed Le Vaillant's *La Tourterelle* in synonymy, formed the basis

for *roseogrisea* of Sundevall (1857). Given the conflict with *capicola*, a neotype of *roseogrisea* is assigned to clarify the taxonomic status of the junior synonym for African Collared Dove. The specimen satisfies the conditions of Art. 75.3 (ICZN 1999).

Neotype: Senckenberg Museum, Frankfurt (SMF 22887), male, undated, collected by W. P. E. S. Rüppell in 'Abyssinia'.

This results in the following sequence for these birds:

*Streptopelia risoria* (Linnaeus, 1758). Type specimen NHMUK 2008.3.1, based on Donegan (2008). Synonym: *Streptopelia roseogrisea* (Sundevall, 1857). Type specimen SMF 22887 (neotype designation herein).

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### Appendix

Barbary Dove is widely considered to be the long-domesticated form of African Collared Dove. Shelley (1883) was probably first to recognise it as such, but thereafter many authors confirmed its ancestry based on a multitude of further evidence, e.g. sound, behaviour and colour (Hartert 1916, Goodwin 1952, 1970). Although I am unaware of any DNA results that confirm this, based on my observations over more than ten years of behaviour, sound and inheritance in Barbary, African Collared and Eurasian Collared Doves (van Grouw 1999), I consider that there can be no doubt as to the Barbary Dove's ancestry. Eurasian Collared Dove and Barbary Dove readily hybridise, their offspring are fertile (van Grouw 1999) and, in places where both species occur, e.g. North America (Romagosa 2002), hybrid characters are recorded in feral Barbary Doves. However, for many reasons, e.g. voice, behaviour, range and colour (see Fig. 11), Eurasian Collared Dove is unlikely to have contributed to the domestic Barbary Dove. Also Eurasian Collared Dove does not become tame in captivity, even after several generations, whereas wild-caught African Collared Doves quickly settle down in confinement (pers. obs.).

Apart from its ancestry, nothing appears to be known of the early history of domestic Barbary Dove. Despite old common names like Indian Turtledove and, for the 'white' colour form, Java Dove (see below), it is probable that the first domestication occurred in Egypt (Sonnini de Manoncourt 1799). Aldrovandi (1600a) received his birds from Egypt and at that time two colour mutations existed; the original dark colour of the ancestral species (Fig. 12) was not then known in Barbary Dove. These two mutations are both a form of Ino, a qualitative reduction of melanin (van Grouw 2013) in which the quantity of melanin granules in the plumage is unchanged but, due to incomplete melanin synthesis, the pigment granules themselves are lighter in colour, resulting in paler plumage. In the fawn-coloured form, the overall colour is paler, and the original blackish and greyish parts more brownish (Figs. 13–14). Due to the high concentration of melanin in the neck-ring, the change in colour in this tract is not visible to the naked eye. In the 'white' form the melanin is hardly coloured at all, resulting in a very soft, near-white plumage. Again due to the high concentration of melanin, in the 'white' form the neck-ring appears a very pale brown (Fig. 15).

The mutations are caused by two different recessive alleles of the same gene and their inheritance is known among breeders as 'sex-linked' because the gene that harbours the mutation is located on the sex chromosome. In birds, males have two sex chromosomes but females just one, so only males can be heterozygous (i.e. possess two different alleles) for a sex-linked mutation. The fawn-coloured form, also known among cagebird breeders as Blond or Pastel, is dominant in inheritance over the 'white' form, but both mutations are recessive to wild colour. Therefore, from a pair of wild-coloured doves, it is possible only to breed Blond or White offspring if the male is heterozygous for the mutation. The offspring, however, are always female (Fig. 16a). To breed a Blond or White male, it is necessary to pair a female with the mutation to a heterozygous male (Fig. 16b). From paired Blond and / or White doves, however, one can never breed





Figure 11. Comparative ventral and dorsal views of African Collared Dove (left, NHMUK 1965-M.4710) and Eurasian Collared Dove (NHMUK 1940.12.1.2); apart from difference in size, the main difference is that in African Collared Dove (and Barbary Dove) the belly, vent and undertail-coverts are nearly white, while in Eurasian Collared Dove they are dark, bluish grey (Hein van Grouw, © Natural History Museum, Tring)



Figure 12 (left). Wild-coloured Barbary Dove, adult female (Hein van Grouw)

Figure 13 (right). Fawn-coloured Barbary Dove, adult female (Hein van Grouw)



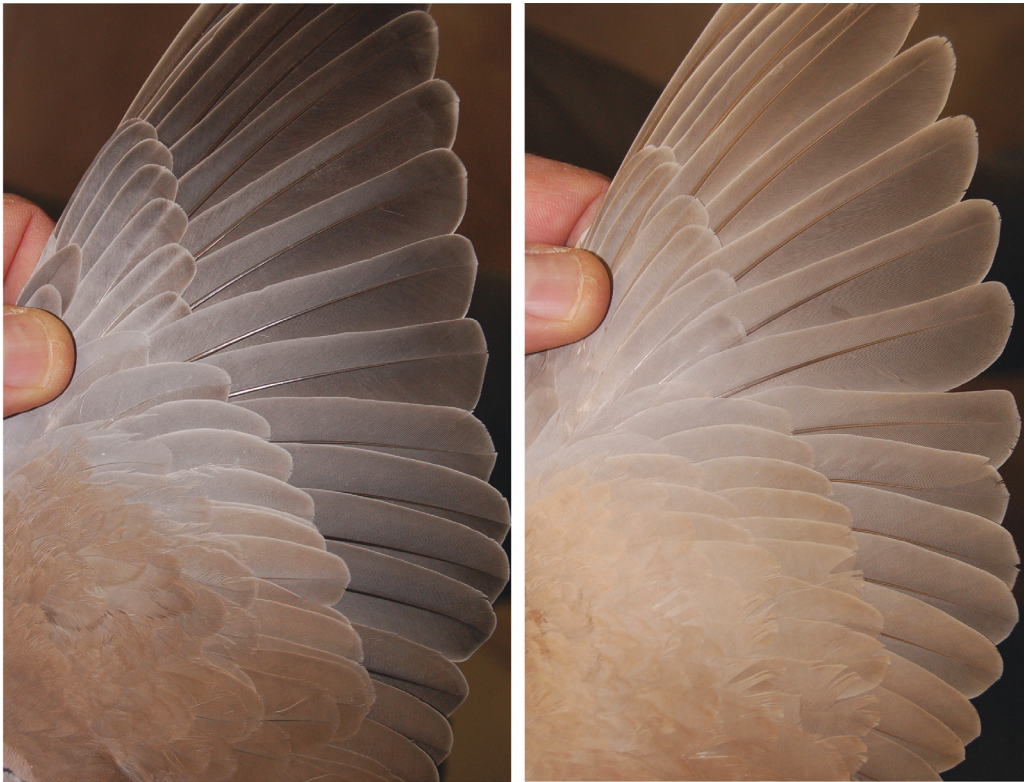


Figure 14. Open wings of wild-coloured and fawn-coloured Barbary Dove to compare the change in pigment colour; due to the Ino mutation the original blackish and greyish colours are paler, with a brownish hue, and the original dark brown is pale brown (Hein van Grouw)



Figure 15. Near-white adult female Barbary Dove (Hein van Grouw)



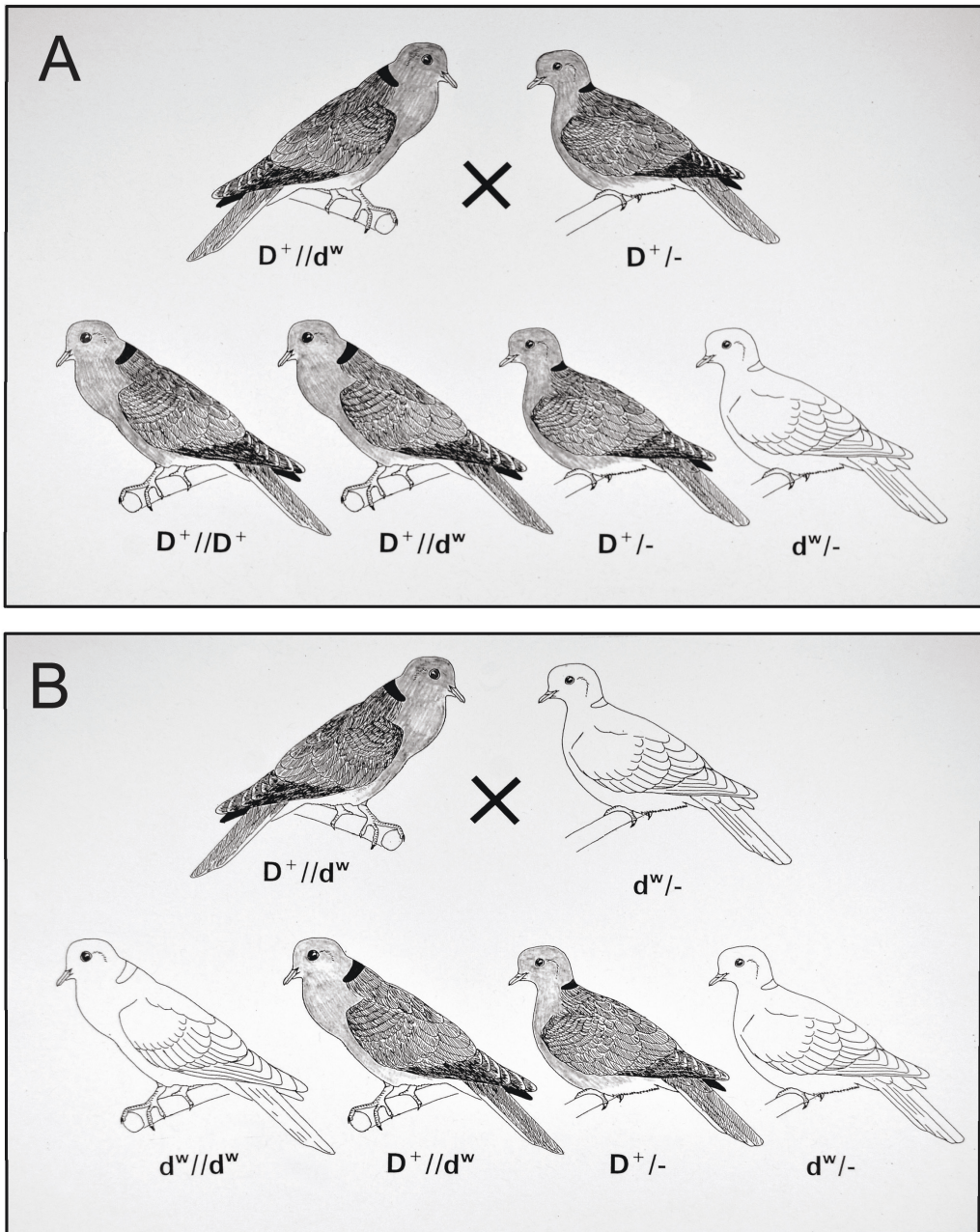


Figure 16. Crossing schemes (from van Grouw 1999) to demonstrate the inheritance of the Ino mutation in Barbary Dove.  $D^+$  = wild colour and  $d^w$  = near-white mutation (the fawn-coloured mutation =  $d^b$ ). Scheme A shows that if both parents are wild-coloured but the male is heterozygous for white ( $D^+//d^w$ ), 25% of the offspring will be white, all of which will be females. The same applies for wild-coloured parents and fawn-coloured offspring (replace  $d^w$  for  $d^b$ ). Scheme B demonstrates that to breed a white (or fawn-coloured) male, it is necessary to pair a white (or fawn-coloured) female with a heterozygous male for the mutation.

a wild-coloured bird again. This may explain why, in the past, the wild colour was lost in Barbary Dove as paler colours were probably favoured for breeding.

Both colour mutations were known in Aldrovandi's time but it was the fawn-coloured form that was described by Linnaeus (1758) as *Columba risoria*, despite the 'white' form being also widespread. Already



Figure 17. Colombe Blanche *Columba alba* (= white form of Barbary Dove), pl. 46 in Temminck (1808) (Harry Taylor, © Natural History Museum, London)

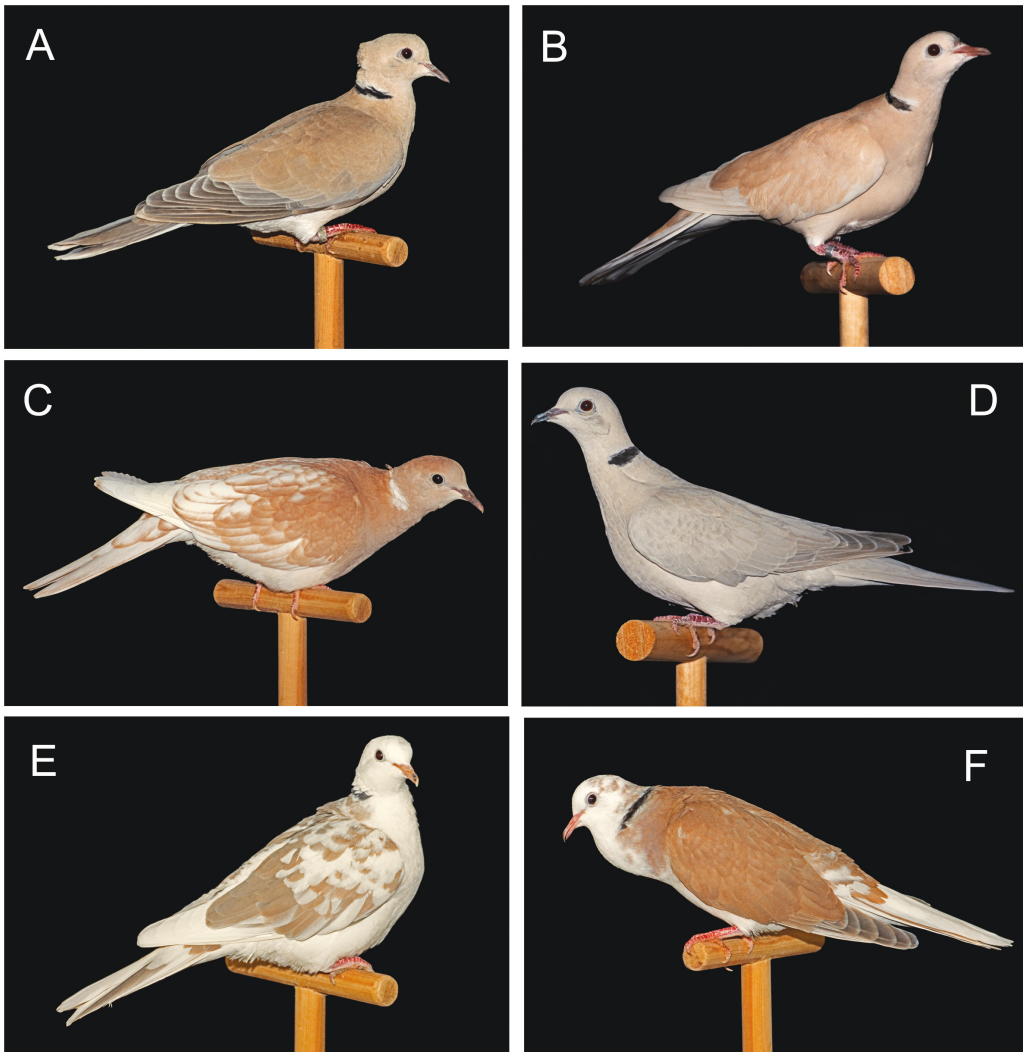


Figure 18. Different mutations of Barbary Dove. A: Crested. B: Isabel, a dilution of eumelanin alone. C: Phaeo, an absence of eumelanin alone. D: Grey, an absence of phaeomelanin alone. E and F: Pied (leucism), absence of all melanin in parts of the plumage (Hein van Grouw)

in the early 17th century the Dutch had brought them to Java and, from there, to the Pescadores (Taiwan) during the Dutch possession (1624–62) of these islands (Swinhoe 1866). In Swinhoe's era white Barbary Doves were known as 'Java Dove' or 'White Pescadore Dove' by Europeans resident in Taiwan and China. Swinhoe (1866), however, knew better, stating 'They seem to me to be simply albinos of the Domestic Dove, which is usually referred to *Turtur risorius*.' Although he was mistaken as to their being 'albinos', Swinhoe was otherwise correct. Temminck (1808) also knew that the white form was a variety of *Columba risoria*, but nevertheless gave it a separate name, *Colombe Blanche Columba alba* (Fig. 17). For centuries only these two mutations were present in Barbary Dove and it was only in the second half of the 20th century that suddenly many more occurred (Fig. 18). Currently >15 distinct mutations are known, giving rise to numerous colour varieties.