

The Pigeon Genetics Newsletter, News, Views & Comments.
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(Founded by Dr. Willard .F. Hollander)
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This Month we take you to where it all began. The Wild "TYPES" of Columba livia and related Species and Sub-Species. This article is written and presented by Dr. Ashraful Kabir, Bangladesh.

Last Month we also began a separate feature of Show Reports from around the World which drew the following responses:

Dear Bob - I really appreciate this innovative step of publishing show reports around the world apart from colour genetics . Looking forward to more such new topics through your e-magazine.

Robert Warry - Thanks for the show review Bob loved it. It is good to see our sport still prospering.

Mike Vito - Thanks Bob, It's great to see the hobby as it exists in other countries around the world. I don't know how you find the time for all of this work but I am sure that I speak for many breeders when I say that I really appreciate it. I am thinking more about the background work that goes into this, what we see is simply the finished product. In the world that we live in now, with the hobby seemingly becoming smaller with the passing of each long time breeder, these reports bring enthusiasm and maybe even hope for the continuation of the hobby. Best regards, Mike.

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Below a bit about the (Stipple Gene) and its given Symbol (St) 1925.

You may have been watching a discussion on one of the Groups on Facebook devoted to the Almond colouration in Pigeons. I and some of you are members in that Group and I have seen the need to correct the Administrators on numerous occasions due to information that has been incorrect.

One subject in particular was regarding the 'Symbol' for the Almond phenotype. In fact there is no such thing as a symbol for Almond, because Almond is a man-made phenotype made for show purposes that is a combination of numerous colour genes. Almond is NOT a mutation.

Back in 1925 Christie and Wriedt analysed the gene mutation that is responsible for the "STIPPER" effect of the Danish Tumbler. This Sprinkled or Stippled effect caused by the "stipple gene" was given the prefix (St). I stated that it has never been nor will it ever be the symbol prefix for 'Almond' which drew an angry response from one of the administrators who insisted I was wrong. He then asked Axel Sell who is the Author of some of the above information in his book 'Pigeon Genetics'. Axel told this fellow that NO (St) was not the symbol for Almond and that he (Axel) was also guilty of copying Hollander who stated at one point that it was. Many writers copied from one another to create a false belief.

The fact is folks, I was 100% correct, and if I had not brought it to the attention of the masses, these fellows would still be saying that (St) was the symbol for Almond, which of course it simply cannot be! Murray Gaskins told me that he thinks this revelation is significant, VERY significant, and of course I agree! Much of what has been written in the past was not correct in accordance with the information that we have nowadays in the field of Pigeon Genetics.

It is nice to collect old Books and it is fun to read them, but it is extremely questionable if we try to apply that old literature to the present breeding programs. The terminology is also often totally wrong.

I have put together a second edition on the Topic of the Almond Colouration, also the Stipple gene and all of its alleles. I hope to have it ready to mail out with the July Issue of this Newsletter.

Here is a light blue checker and what happens when the Stipple gene (St) occurs with it. Note that it does NOT produce an Almond. It produces a 'Sprinkle'. White BREAK throughout the original phenotype. No knowledgeable Breeder or Geneticist would think or state otherwise!



**Couceiro Mario**



**Chris Northern Lights Loft.**

When Stipple (St) is mated with blue/Black patterns or spread the above photos show what happens.

## Colours and patterns in the subspecies of rock-pigeons (*Columba livia* spp) (Columbiformes: Columbidae)

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**Abstract:** For understanding the genetics of all modern fancy pigeon breeds, it is urgent to know the colour and patterns of rock-pigeons. Now, it has 12 subspecies in the world. There are few outputs on subspecies of this rock-pigeons except *livia*, *intermedia*, and *neglecta*. All images of the subspecies of rock-pigeons were collected from Google image except *neglecta* and *intermedia*. Through the minute plumage observation, the blue rock-pigeons had mostly blue feathers, black bars on the wings and tail, some brown feathers on the neck of juveniles, orange iris, and purple-red legs; and some were chequer pattern. Lighter-paler and larger-smaller variations are common in all subspecies of rock-pigeons (Table 1). The races of the rock-pigeons have differed in size, shade of grey body plumage, and colour of the back. When some of these rock-pigeons were domesticated and crossed with domestic racing homer pigeons, they focused as feral pigeons with diversified colours. Finally, selective breeding between ferals and homer pigeons produced all fancy pigeons of the world.

**Keywords:** Rock-pigeons, Feral pigeons, Subspecies, Racing homer pigeons, Patterns

### Introduction

Wild forms of the species and then those aspects of its domestic and feral descendants are of interest to the ornithologist and bird-watcher rather than the pigeon fancier (Goodwin, 1970). Rock-pigeons are native to Asia, Europe, and Africa where it prefers open agricultural areas. In some lights, the sheen on the neck cannot be seen, life-size indicates- black, gray, white, red, orange, and yellow (Collins, 2016). The rock-pigeons introduced to North America by the English and French were likely a form of the common utility and flying breeds (Rackowski, 2022). On railway platforms, rock-pigeons are available in Bangladesh (Kabir, 2016). The rock-

pigeon *Columba livia* has a large Afro-Eurasian distribution throughout which shows significant variation in size. Individuals from the British Isles are of intermediate size, and south and eastern Mediterranean localities are smaller. East of Iraq, Pakistan to the Himalayas, sizes average from intermediate to decidedly large. Interior populations of the North African desert have small individuals. Current infraspecific taxonomy does not accurately reflect size variation (Johnston, 1992). Rock-pigeons *Columba livia* had an extensive primordial distribution in Eurasia and North Africa before the human development of domesticated strains and their feral offshoots (Vaurie, 1965; Long, 1981; Goodwin, 1983). Feral pigeons (*Columba livia*) have proportionally narrower bodies, longer tails, broader bills, and larger ceres. From the lost or strayed racing homer pigeons, the feral pigeon has evolved. There are blue, blue chequer, velvet, mealy, red-chequered, and reds, grizzle, black, and pids available in feral pigeons but pure white is uncommon in this group (Goodwin, 1970). The blue-chequer plumage of the London pigeon (feral rock-pigeon) occurs as a separate wild variant in some colonies of rock and does not necessarily indicate an admixture of semi-domesticated birds. Blue rock type of London cannot be distinguished from wild rock, but London nearly always occurs in extremely mixed flocks, so there is likely to be little doubt about the identity of any individual plumage pattern. In Scotland and Ireland, there is a good deal of semi-domesticated blood in the wild colonies. Feral London pigeons, originating from escaped domestic stock. Most racing pigeons were a special numbered ring, and if captured or found dead the inscription should be sent with details to the National Homing Union (Fitter and Richardson, 1973). Wild and domestic pigeons interbreed with the greatest freedom. All over India and surrounding countries the natives keep domestic pigeons, and there is a possible taint of a cross with a tame bird could be ruled out of consideration (Baker, 1913). The objective of this study is to know the phenotypic colours and patterns among 12 subspecies of rock-pigeons of the world after compiling the information on them.

## Classification

|                 |                   |
|-----------------|-------------------|
| Phylum—         | Chordata          |
| Subphylum—      | Vertebrata        |
| Class—          | Aves              |
| Order—          | Columbiformes     |
| Family—         | Columbidae        |
| Genus—          | <i>Columba</i>    |
| Species—        | <i>livia</i>      |
| Trinomial name— | <i>C. l. sspp</i> |

## Observations (Table1; Table 2; Figure 1; Plate 1)



**Plate 1.** Rock-pigeons (*Columba livia intermedia*) on railway station of Poradah, Bangladesh

Subspecies *Columba livia livia* is more compact than feral one. From the above view, its body is resembled heart-shaped. This is more muscular and shorter than many feral pigeons. Slender bill and smaller cere than any other feral and domestic forms. Neck and upper breast iridescent green and purple. Iris is orange in colour, red-orange, or golden-orange. Legs and feet are red or purplish red. In many females from Shetland and Hebrides, the iridescent feathers are confined to the sides of the neck (Rando, 1999). The eye of some birds may look yellow, bill greyish-black with a conspicuous off-white cere, females are almost identical to the male but the iridescence on the neck is less intense. Juveniles are similar to female but with generally browner plumage, neck and breast feathers are mixed with brown unmetallic feathers. Iris pale grey, dull brown or yellow, bill grey more or less pale on the tip. Legs more or less grey (Gibbs *et al.*, 2015).



*C. l. atlantis* found with 'chequered' and 'velvet' and a considerable amount of 'bronze' form a large percentage of the population and probably derived from feral domestic pigeons (Goodwin, 1970). The upper part is chequered and obscuring black wing-bars.



***C. l. nigricans*** populations tend to be rather variable and are of uncertain origin. It is probable that these birds are derived from feral domestic stock (Gibbs *et al.*, 2015).



***C. l. canariensis*** likely colonized islands around 1,30,000 years ago when islands become habitable for large Columbiformes due to complex soils, grasses, and small caves and ledges for nesting (Rando, 1999). This subspecies is smaller than the *livia* and averages darker and usually grey (rather than white) back (Gibbs *et al.*, 2015).



***C. l. targia*** is smaller than nominate subspecies *livia*. Plumage very similar but rather darker on the mantle and lacks of white back, slightly paler birds from Sudan have been separated as *butleri* but are best included with *targia* (Gibbs *et al.*, 2015).



***C. l. dakhlae*** is very clever bird at all, small and much paler than *livia* (Goodwin, 1970). Head is pale grey. Back is extensively white. Breast is lead-grey shading into a pale whitish-grey belly (Gibbs *et al.*, 2015).



***C. l. schimperi*** is somewhat *targia* but distinctly paler mantle. In some individuals the back is almost as white as the nominate (Gibbs *et al.*, 2015).

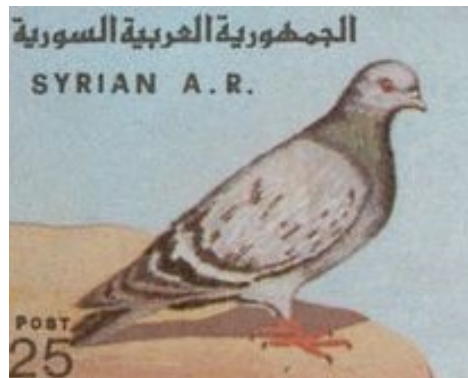




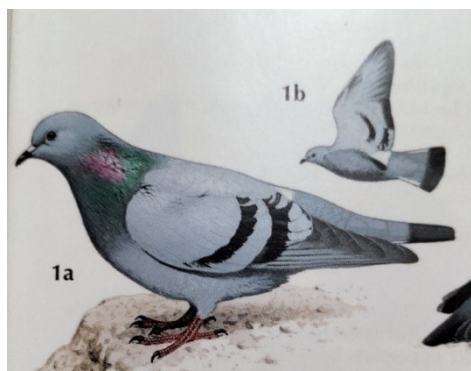
*C. l. palestinae* is larger than *schimperi* and has darker plumage. Back is usually darker and contrasts little with the rump (Gibbs *et al.*, 2015).



*C. l. gaddi* is very similar to *palestinae* but rather larger and often paler on the back (Gibbs *et al.*, 2015).



*C. l. neglecta* is paler and somewhat larger than *intermedia*, with a rump varying from pure white to pale blue-gray. But the difference seems clinal, and no boundary between the northwest. Indian and peninsular birds can be fixed (Ali and Ripley, 2001). Grimmett *et al.*, 2007 have focused very clear hand-sketch photograph of this subspecies.



***C. l. intermedia*** is a familiar bluish-grey pigeon with a glistening metallic green-purple and magenta sheen on the upper breast and around the neck, and two dark bars on the wings. They interbreed freely with domesticated varieties, producing a chaotic mixture of races. In many parts of India and Pakistan, pigeons enjoy a certain amount of protection based on religious sentiment (Ali and Ripley, 2001). Similar to *neglecta* but tends to be darker, especially in southern parts of the range. Usually, lacks of pale back contrasting with the mantle (Gibbs *et al.*, 2015). *C. l. intermedia*, in some places it would seem a partially migratory bird. This Indian blue rock-pigeon is, like its European cousin (Baker, 1913).



***C. l. gymnocyclus*** is a dark race found in tropical West Africa and has a white lower back (Goodwin, 1970). Smaller and very much darker than the nominate. Sooty-grey, almost blackish on the head. Rump and underparts, back contrastingly white but slightly narrower than the *livia*. Orbital skin is bright scarlet and much more extensive than nominate. Birds from Mali have been separated as race *lividor* based on their smaller size and paler plumage but are best treated as a synonym (Gibbs *et al.*, 2015).

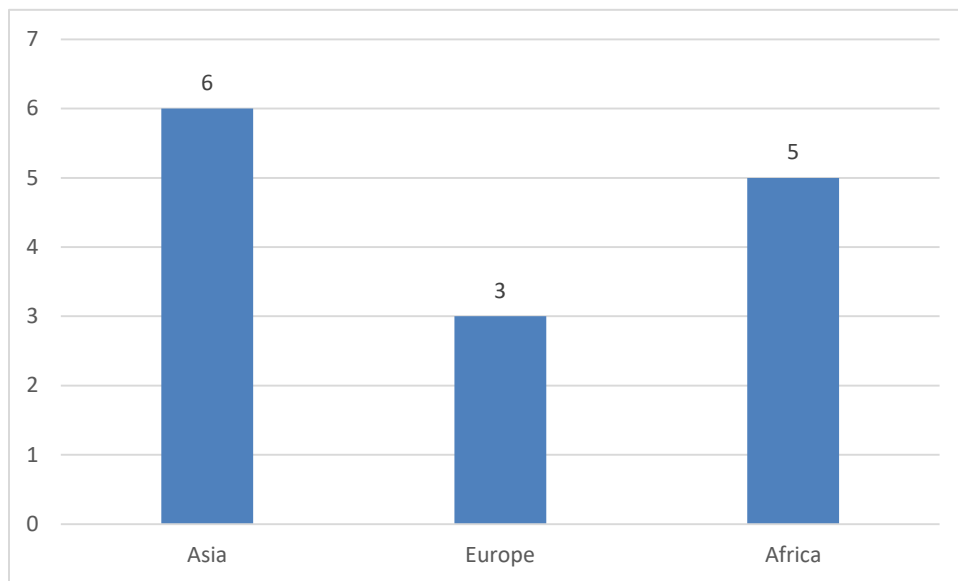


**Table 1.** Details of the subspecies of rock-pigeons in the world

| Sl. | English name                 | Scientific name                                  | Distribution                                                                                                                   |
|-----|------------------------------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| 1   | European rock-pigeon         | <i>Columba livia livia</i> Gmelin, 1789          | Western and Southern Europe, Northern Africa, Asia, Western Kazakhstan, Northern Caucasus, Georgia, Cyprus, Turkey, Iraq, Iran |
| 2   | Cape Verde rock-pigeon       | <i>C. l. atlantis</i> Bannerman, 1931            | Medeira, Azores, Cape Verde                                                                                                    |
| 3   | Mongolian rock-pigeon        | <i>C. l. nigricans</i> Buturlin, 1908            | Mongolia, China                                                                                                                |
| 4   | Canary Islands rock-pigeon   | <i>C. l. canariensis</i> Bannerman, 1914         | Canary Islands                                                                                                                 |
| 5   | Algerian/Saharan rock-pigeon | <i>C. l. targia</i> Geyr von Schweppenburg, 1916 | Sahara, Sudan                                                                                                                  |
| 6   | Oasis rock-pigeon            | <i>C. l. dakhlae</i> Meinertzhagen, 1928         | Central Egypt                                                                                                                  |
| 7   | Egyptian rock-pigeon         | <i>C. l. schimperi</i> Bonaparte, 1854           | Nile Delta south to Northern Sudan                                                                                             |
| 8   | Arabian rock-pigeon          | <i>C. l. palestinae</i> Zedlitz, 1912            | Syria, Sinai, Arabia                                                                                                           |
| 9   | Iranian rock-pigeon          | <i>C. l. gaddi</i> Zarudny & Loudon, 1906        | Azerbaijan, Iran, Uzbekistan                                                                                                   |
| 10  | Hume's rock-pigeon           | <i>C. l. neglecta</i> Hume, 1873                 | Eastern central Asia                                                                                                           |
| 11  | Indian rock-pigeon           | <i>C. l. intermedia</i> Strickland, 1844         | Bangladesh, India, Sri Lanka, South of Himalay                                                                                 |
| 12  | Senegal rock-pigeon          | <i>C. l. gymnocyclus</i> Gray, 1856              | Senegal, Guinea, Ghana, Benin, Nigeria                                                                                         |

**Table 2.** Available subspecies based on continents

| Continents | Subspecies                                                       | Numbers |
|------------|------------------------------------------------------------------|---------|
| Asia       | <i>livia, palestinae, gaddi, neglecta, intermedia, nigricans</i> | 6       |
| Europe     | <i>livia, atlantis, canariensis</i>                              | 3       |
| Africa     | <i>livia, gymnocyclus, targia, dakhlae, schimperi</i>            | 5       |



**Figure 1.** Number of subspecies according to the continents

### Discussion

Geographic variations may exist as a result of genetic variation, environmental induction, or some combination of the two. Size variation in domestic pigeons, responsive to artificial selection, is a known consequence of genetic variation, with multiple alleles at many loci (Wexelsen, 1937). Subspecies have little potential evolutionary novelty in the absence of geographic isolation of other populations in the size cline (Johnston, 1992). Wild rock-pigeons could well become extinct within the next century, partly through hunting pressure, habitat modification, and genetic assimilations by ferals (Johnston *et al.*, 1988).

## Conclusions

In broad senses, all subspecies of rock-pigeons differ only in the colour of lighter and darker. In addition, with the black bar, some chequer patterns are common in some other subspecies of rock-pigeons. A natural nominate population of wild rock-pigeons (*Columba livia livia*) was found in most parts of the world. Since it has very few colour but after its domestication and crossing with homer pigeons at home then all fancy pigeons of the world got many colours and patterns instead of bar and chequer. There are few scientific studies on the colouration of rock-pigeons, so need more studies on the subspecies level of rock-pigeons in all areas.

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Here are North American 'FERAL ' Pigeons of the wild-type colour and pattern which were part of my 350 bird study flock for about ten years. (Bob R.)



The University of Utah U.S.A. study found that the checker pattern was introduced from another species

That is it for this Month as I like to try to keep the Newsletters to 12 pages , and have been going over that to be able to include the Articles by Dr. Kabir.

In the near future We will be featuring an article by Hein Van Grouw on the domestic Ring Necked Dove and its many colour mutations.