The Pigeon Genetics Newsletter, News, Views & Comments.

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(Founded by Dr. Willard .F. Hollander)

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Topic "Summer Surprise" -

What do we mean by "WILD TYPE"?

Each bird below has at least one mutation that is not typical of 'wild type' , can you spot it? Here is a hint- ALL birds have generally the same BODY CONFORMATION TYPE which is 'field type'., and the same basic size, but that is not what is meant by Wild type in Pigeons. We symbolize wild type as (+). It is basically considered to be a Blue Barred Pigeon that does not express any anomalies in regard to Feather formation, Colour or physical abnormalities of any kind. This indicates that there have been no mutations at the Tyrp-1 locus, from the overall type seen in the wild originally.

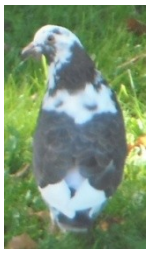












photos - Bob R.

(1) wild type, (2) & (3) wide terminal tail band likely carrying smoky, (4) False pearl eye, (5) spread factor,(6) Ash-Red Barred, (7) & (8) same bird dilute unimproved recessive red with a moult to white gene, (9) Blue Checker , (10) Smoky Blue check plus Dirty, (11) Pied factors Smoky blue checker.

Dr. Lester .P. Gibson gave the following to indicate the possible description of a Male Wild Type Rock Pigeon: AcAc, AlAl, AmAm, BB, bhbh, C+C+, CaCa, ClCl, CrCr, cucu, DD, DsDs, DscDsc, EE, ff, FbFb, FrFr, FsFs, FzFz, gg, GrGr, IcIc, inin, kk, ll, MaMa, MiMi, MyMy, NN, OO, odod, PP, pcpc, PdPd, PyPy, RR, RoRo, RosRos, ss, sbsb, ScSc, SkpySkpy, slsl, soso, stst, SySy, TT, ThTh, TrTr, ugug, VV, WW, WlWl, ZZ.

In the above for example, ss means non-spread, gg means non-grizzle, whereas GrGr indicates pure grizzle., and so on.

Then he explains that this symbolic explanation for Wild Type would be very cumbersome and change as the understanding of genetics of Pigeons progresses over the years.

He then gave (+) as a possible symbol which is generally used today by most genetics enthusiasts. It is used to indicate theorized wild type Pigeon genes.

He said he preferred to use (+) with the former symbols when describing any specific mutation , for example a "blue bar grizzle male " might be written thusly : B+//_ , c+//_ . G//g+ ,.

At some point in the evolution of Pigeons (Columba livia) there was a mutation that caused all pigment to be cut off from expressing in skin and feathers. This was named "recessive white" and it was discovered that birds bred for meat tasted much nicer and were more tender if they were recessive white. Most commercially bred birds were therefore selected for all white feathers or those that had "recessive red" pigment or the dilution gene .

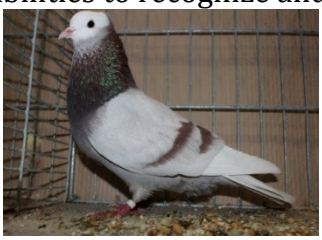


The most famous commercial breeding operation in America was the "Palmeto Pigeon Plant" where white Carneau pigeons and white Utility Kings and Silver Kings in particular were bred. **Wendell Levi** was directly involved and mentioned in the May Issue.


While **Wild Type** denotes everything that genetically culminates into a standard Blue Barred specimen with No ornaments, No Beak or eye anomalies, and a size of approximately 10 Ounces. **Field Type** describes a Dove-like appearance with a long beak that enables the bird to forage in fields and a wing and feather structure that allows it to avoid predation. This involves hardness of the feather to resist climatic changes, colour that is a camouflage to offer protection against predation, and , an unique ability to automatically shed large amounts of feathers when grasped.

The vast majority of the flying /performance breeds and many European Show Breeds in the world are of basic "Field Type". The reason is that they must be able to deal with being exposed to all of the normal dangers that all Birds in the wild encounter as they are often

released to fend for themselves on farm land etc.. We place them at a disadvantage however as we select for colours that predators see as easy targets. Our domesticated breeds also have a tendency to become either complacent about dangers or they lose their inherited innate abilities to recognize and out maneuver predators.



No matter how beautiful we may consider some of the "man-made" Breeds by unnatural selection, the WILD TYPE still has a beauty and endurance that surpasses them. I studied a flock of about 350 Feral pigeons for ten years , and captured some of them for controlled matings. I soon discovered that they had unique traits that we otherwise would not be aware of just by observing them in the wild.

One specific aspect that I noted was that birds with the typical Wild Type Orange Iris colour , could see to fly from one perch to another in the pitch dark loft, when domestic pigeons would either sit tight or attempt to fly and crash into a wall or drop to the floor. Many birds species in the wild, fly at night, but I think they use other senses to navigate whereas Pigeons seem to have good night vision particularly if the eye colour is the rich orange .

 This is as close as I could find but not fully orange.

Another trait I noted was also related to eyesight, and that was their ability to recognize faces of humans even when they were obscured . I did a test by asking a family member to look out of a window at the wild flock on the loft roof. She did and the birds just sat there. Then I took her place and looked out just parting the curtains enough to expose my face and several birds immediately got excited and flew over to land on the roof of the house just above the window. They clearly recognized me as the person who regularly watched and fed them. Crows have also been tested in similar situations and do recognize faces.

They certainly also recognize voices but so do domesticated birds. Females in particular will imprint on their owners voice and strut around in a flirtatious manner when you talk to them. Even after they have chosen a mate and have young, they will still welcome you to stroke them and handle their young, whereas they would not allow a previous pigeon mate to enter the nest box . This indicates that while they seem to have sexually or somehow emotionally imprinted on their owner/ caretaker, they do not accept them in the same manner as a previous or present mate.

I have held old ringnecked Doves moments before they expired and as I stroked them and talked quietly to them , they twitched their flights and bowed their heads in a gesture of friendship then died.

"WILD TYPE the TEST model for determining mutant dominance"

Why do we use specimens of WILD TYPE to mate with any mutant to help figure out the genetics involved? We are comparing the mutant with a specimen that we believe has no mutations at any locus along the Strands of its Chromosomes. That way we can see in the young firstly, which is dominant, the wild type or that mutant , and secondly if something else surfaces in the young to show that the original mutant had other traits that may be dominant to wild type.

We can also use a brown Barless bird if we have one to test, however it must be realized that we then ADD in two traits (colour brown/Chocolate) , and (pattern barless) that are recessive genes and will pop up again in later matings. If the Mutant being tested carries either of those genes , then they will show up in the (f1) generation eventually rather than having to wait for the (f2) or later crosses..

Testing is time consuming and requires good book keeping so that you have records to refer back to and all birds should be banded. Many of these birds will likely be culls unless you also are using just one specific breed to test. Most of us do not expect to ever get our money back as it is a Hobby of other rewards besides cash. Even rewards at shows meant little to me and I gave several 100 pound bags of my trophies to other clubs to dismantle and reuse.

There are two types of genetic dominance to consider. (1) the dominance or recessiveity of a mutant to wild type., and (2) Its dominance or recessivity to any other mutant allele at that same locus. We can look at the Major Colour Locus as an example. Wild Type is at every locus on the Chromosome . However there are two mutant alleles (ash-Red, and brown/Chocolate) that can be at that colour locus. The ash/Red is Dominant over both wild type and brown Chocolate , while the brown/Chocolate is recessive to both ash/Red and wild type. That means that wild type is recessive to ash/Red and dominant to brown/Chocolate., so an ash/Red can carry either blue/Black or brown/Chocolate on the other strand. Blue/Black can carry brown/Chocolate. Brown/Chocolate is pure for its colouration.

Why are there approximately 12 distinct Wild Types around the world? Scientists have identified 11 or 12 distinctly different expressions of a "Blue Barred" Pigeon that were regionally different variations of Columba livia. The birds more or less isolated to a given region of the World experienced slightly different environmental conditions such that the process of 'natural selection' brought about minor differences in overall phenotypes. One feature would be the size of the BARRED Pattern in the wing shield. Birds that nested and perched primarily on Rack face cliffs blended in with the dark and light surfaces of the cracks so that predators could not easily spot them as long as they kept still. The Patterns that blended in the best allowed those birds to survive and breed on thus 'naturally selecting ' for that specific trait. Each region would tend to have its own population of birds that did not come in contact with the neighboring flocks so that they each became uniquely different . Some would have lighter coloured shields while others would become very dark. Some would have a whitish (albescent) back , while others would not. Colour modifiers then became recognized by mankind such as Dirty with symbol (V), Sooty with symbol (So), and smoky (sy)- modifying factors which are well known and understood today.

 Dirty(V)  (V)+(sy)  (So)  (sy).

Throughout my ten years studying a wild feral flock , I was able to recognize a number of domesticated Breeds in the genetic make-up of various specimens. The Racing Homer Pigeon was the most obvious and frequently seen influence but rarely were there ever any Racers flying with the feral flock. Those that expressed racer traits were slightly larger and longer in scope and had just slightly heavier beak wattles. They have a tendency to fly with their necks extended out straight like a goose flies, while ferals normally keep their necks pulled in closer to their bodies. The most unlikely Breed influence was that of the Archangel, but I saw several. I later learned that a nearby Zoo approximately thirty miles away had a large flock of Archangels flying at the Zoo grounds and feral pigeons had joined them and interbreeding had occurred. Other breeds included Rollers and birds that had a shell crest were observed , one is pictured below. . It also sports a white tail referred to as (Body Marked), which is a pied marking typical in some domestic breeds.

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ Fluke or Genetic Marvel ~~~~~~~~~~~~~~~~~~~~~~~~~~~~

One significant deviation from Wild Type comes to us in two distinct forms. One is Somatic "Mosaicism" and the other is "Chimerism " pronounced "Kimareism'. Both create a variable PHENOTYPE that is a Mosaic. The actual Somatic Mosaic mutation is just that , a mutational change in a cell or group of cells in the skin and feathers. Mosaicism actually happens in most if not all forms of life on earth including humans and is how cancers form. However, in Pigeons it may simply cause a small spot or patch of slightly different colour where it is not normally expected.

 An Almond with a Somatic Mosaic patch of unbroken colour at the shoulder. Photo : Bob R.
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Spectacular Chimera by **Lou Alves**.

Chimerism on the other hand is a "FUSION" of either two embryos or of two sperm entering one zygote to create one chick that has traits from two or three different genetic sources. This is sometimes easily seen in Pigeons as it may involve two distinctly different colours or other modifiers expressing on the same bird. These may consist of two different base pigment colours . Sometimes it can happen with two traits that are quite similar so that the two blend well and are not readily noticeable such as two slightly different checker patterns . The fact that it is a 'fusion' of two embryos , or the addition of an extra sperm can also mean that the offspring may share a number of other different characteristics such as : grizzle and non-grizzle., Spread and non-spread., recessive red and non-recessive red., smoky and non-smoky etc. etc.

Below two different GENETIC colour combinations that are neither Somatic nor Chimera. While similar , the first bird is born with these markings but the second bird is born Black with white shields and later moults in the Brander Bronze flecking and patches.

Abdul Wahab

Malik Hamza

Most people consider all of the above to be in one category called 'Mosaics'. They think that they are not caused by genes and therefore cannot be duplicated as they are just **'flukes' of nature**. . This is not so and there is evidence that both types are indeed controlled by genetic activity but in different ways. The Somatic mosaic is as we said above , a genetic mutation that seems to be caused by specific environmental variations that cause something to go wrong with a cell or several cells that then may expand by reproducing themselves. This is frequently seen on but not specific to the Almond phenotype and also in other (St) mutations where there already has been a genetic mutation instability. We are not even aware of how many gene mutations begin but never get to become a reality. The Stipple gene seems to be one such mutation that as Dr. Gibson put it : "Ought not to be , yet is". The instability itself may be the reason why some skin cells may have a tendency to either follow the rest of the mutational changes, or in fact do not .

There may be a single gene also that causes a pair to be predisposed to producing Chimera young. That predisposition seems to be passed on in some families so that breeders have been able to produce quite a number of these unusually mixed traits in each bird. That 'gene' would inadvertently cause a fusion of one type or another to be more likely.

Occasionally we find something that is just slightly different than we normally see in Wild Type that may easily be missed unless we are constantly checking for unique things. Back in 2020 **Tristan Hiestand** noticed that a pair of blue bars were expressing a slightly different tail feather effect. Now I know some of you may say (Undergrizzle) , while others may say that it is a typical frill Stencil effect, however it is neither.

This appears to be albescent marks replacing the very dark areas sometimes seen on birds. Normally those areas may be Black, Red, or chocolate depending upon which base pigment is present.

old photo from the net., note the black areas at the tail base, opposite to above tail.

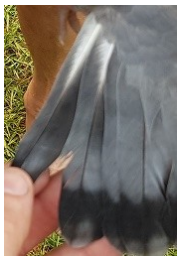

You can see the darker edging near the albescent markings. These match the Albescent strips on the outside edge of each outer tail feather that we are all familiar with. This is quite interesting as it is so similar to markings that I showed all of you several times before that I found in a wild caught feral hen .

I was able to get a son from her and breed him back to get somewhat extended markings but still different than these. Tristan planned to mate the old cock to his daughter, last photo above. but I have not heard anything since.

Below is a photo of the tail of my wild caught hen and another similar tail from Octavian Sarafolean in Romania.


Below two examples of Satinette frill stencil tails with and without the tail basal whitening, and hetero undergrizzle. (1) Tarique Bin Shahid ., (2) Shareef Mohd ., and (3) undergrizzle - Adam Archer.





Tristan also had a bird that had two distinct albescent strip marked tail feathers as pictured below. The feathers are slightly different so not both outside edge feathers. The blackened basal areas are present.

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Below are two unique Chimeras that consist of basically the same traits in two different Breeds. They are both Blue /Black colour series Intense phase and recessive yellow dilution phase. They are both spread factor . They both have shell crests but slightly different development. They also are both foot feathered but again of a slightly different expression. There is no way to tell if they are both hetero or homo for spread factor because of the photos to begin with but also because there is no certain method to make that decision based upon pattern coverage (masking) . The rachis or quill colour is said to be one method and others think that the visible tail band is a method but with spread factor I have not found any of that to be reliable.

Nishu Shikda

Thien Daong Bo Cau


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Now if we return to the original Wild Type blue / Black base colour series , we will discover that relatively recent studies at the University of Utah, indicate there has been only ONE mutation at the 'Pattern Series' locus and it was named "barless" with the symbol (b).

Until now we have long believed that the checker patterns were mutations that also took place at this locus, but the UofU believes from their research that 'checker' pattern was INTRODUCED from another species being crossed into Columba livia. That species being Columba guinea.

n Pigeons.

When Jith Peter and I did the study on Lal Band Ghagra, Jith was relatively certain that this trait was actually a fourth base colour at the Major colour Locus having mutated as an allele to Ash-Red. We were never able to do any further work after we published our paper on the Saffron colour with symbol (Saf).

Now co-Editor Sabbir Hossain (Shoibal) of Bangladesh has some of these birds and perhaps some future work will reveal new findings. The lighting in these photos varies and effects the colour somewhat.

Pure Saffron males may be lighter in body colour than the blue females , and their tails are not unlike those of an ash-Red. Both have the same deep Saffron coloured bars.

Pure Saffron Male - Ghagra. Jith Peter.

Pure Saffron hen - Lal Band. Jith Peter

We have given you some new ideas to chew on , so hope you take the time to read through it all carefully and that you will let us know what you think of the information. We have some very faithful supporters but would love to hear from more of you!

Next Issue Hein Van Grouw will give us his second installment on Ringnecked Dove Colours. Then in August Co-Editor Sabbir Hossain Shoibal will present a bit of a tour through the Bird Markets of Bangladesh to show us some of the colour variations that can be found there., this will include other species than Pigeons and Doves.

Interesting Eye colour with this pure white bird, presented on Facebook by Andre Hattingh of South Africa.

That brings us to the end of another Issue in 2025.

Stay safe , Stay Real , this World needs Good People now more than ever!