

Available Feral Pigeons in Rock-Pigeons in Some Parts of Bangladesh

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ABSTRACT

Feral pigeons are domesticated rock-pigeons or homer pigeons, so it has genomic diversity. In this sense, this paper could carry a significance to the geneticists. A survey method was helped to sort out feral pigeons from the rock-pigeons group. Out of 18 feral pigeons, blue colors with bar, checkers, grouse-legged, peak crest and white irises were the highest 7 (38.89%), then ash-red, grizzle, and white each were 2 (11.11%) (Table 1; Figures 1-2). Based on some references, fully dominants were 9 (50%) and recessive 4 (22.22) in feral individuals (Figure 2). Some characteristics were double or triple, so colors and patterns of feral pigeons, both sex-linked and autosomal genes were involved in 10 (55.56%) cases, fully sex-linked was only 1 (5.56%), and autosomal 7 (38.89%) respectively (Table 1; Figure 2).

Keywords: Feral Pigeon, Wild Rock-Pigeon, Colors, Patterns, Genetics, Kushtia, Poradah, Bheramara, Ishwardi, Bangladesh

INTRODUCTION

BBC Nature [1] mentioned that feral pigeons are descended from the domesticated rock-pigeons which are got back into wild or semi-wild conditions, and some domestic wild rock-pigeons finally reared by people for food, homing, and fancy birds through selective breeding. In Britain, lost homing pigeons have been the main progenitors of this pigeon. Pigeons have a longer-range dispersal potential compared to other urban birds, and limited research has been conducted on population genetics [2,3]. Feral pigeons occur worldwide as a result of transportation of domestic pigeons by people [4]. These pigeons are intermediate than the domestic and wild pigeons in certain important ways—size of thyroid, gizzard, liver, kidney, heart, and relative to body weight [5]. Mate choice of feral pigeons is non-random and based on plumage color and pattern [6]. To compare with rock-pigeons, feral pigeons have narrower body, longer tail, larger cere, and broader bill [7]. Feral pigeons have a drastic effect on the population of wild rock-pigeons in Britain [8]. Its plumage is widely variable, from pure white to almost black, and many combinations between. Plumage color variation is more attractive to the biologists and ecologists for its crypsis, adaptation, sexual selection, and speciation [9]. Within species, plumage color variation is also an interesting example to study selective mechanisms for maintaining polymorphism [10,11]. There are two major colorations in feral pigeons—black for eumelanin

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and less frequent ash-red due to deposition of pheomelanin [12]. Crosses have shown that the amount of melanin pigment in feathers is mainly controlled by one autosome with numerous alleles [6]. Inheritance of color is completely independent than the inheritance of pattern [13]. There are 12 subspecies of rock-pigeons are found in the world [14,15], and are found with various shades of black, blue, silver, and white with patterns. These feral pigeons are adapted well and is now abundant in many towns and cities, generally being extremely tame [16]. The objective of this study is simply to observe the colors and patterns of feral pigeons in rock-pigeons group without any genetic investigation.

MATERIALS AND METHODS

Railway stations of Kushtia, Poradah, Bheramara, and Ishwardi were the study area on these pigeons. These stations were focused with huge rock-pigeons with their feral allies. On the way of Kushtia town from railway station (so called boro rail station) to pourashava played a role to identify ferals within the rock-pigeons group at dawn and evening. Some pigeon lovers of Kushtia town, have built some wooden boxes for the breeding of rock-pigeons. In addition, Poradah station was significant with rock-pigeons and feral pigeons too. The railway authority provided plastic baskets for their protection as well as breeding. Bheramara station was small with low density of these pigeons. Among these, Ishwardi railway was the most significant to observe many individuals with desirable colors and patterns of feral pigeons. This survey or observation method was carried out from January 2020 to July 2024.

RESULTS AND DISCUSSION

Blue bar: This is widely common color and pattern in wild rock-pigeons as well as feral pigeons. Actually, this is not blue, this is black but due to light pigments it looks blue. Black or blue is second dominant over white color and bar is third dominant on barless. Very few peak crest, white irises, and grouse-legged blue bar ferals were seen in this study period.

Blue checker: Like bars of blue feral pigeons, this is also black but called blue with various types of checks. T-checker is the dense checker than check, and there are other types of higher dense than T-checker and lighter checker than checker. Since, darker check is dominant over lighter, so this check is the most dominant on other checks. Sometimes only grizzled throat is found in this blue checker bird.

Silver bar: Scattered few black pigments sometimes create silver plumage at all.

Spread black: When the black pigments will be scattered throughout the body then it looks black and is called spread black. Self or solid black is only found in fancy pigeons but slaty-black in feral pigeons [7].

Ash-red: The old word is 'mealy' for this ash-red and this is a dominant color over all of the plumage colors. This ash-red is common in feral pigeons with bar and check patterns. Heterozygous ash-red (+//BA) shows black tip of the beak and flecks (ink spots) in wings. Feral blue pigeons have traces of red (kite) in the inner vanes of the remiges; reds are more subdued, described by chestnut, plum, vinaceous (wine-red), and bronze [17].

Rusty: Rusty was detected by Andreas Leiss [18] in a population of street pigeons in Vienna, with bleached flights, brown-reddish pattern, small dark stripes at the light gray tail bar. This trait is considered autosomal recessive with the symbol 'ry' (Leiss, 1998). Spread rusty are poor black with striped tail feathers. This rusty happens due to serious deficiency of black pigments [19].

Recessive red: This masks the pattern and has epistatic gene. Recessive red (ee) exhibits 'red tip' of the beak of squab instead of 'black tip'. This color is uncommon in feral pigeons.

Pied/Piebald: This pattern is very interesting, and is shown partly colored and partly white [20]. There are at least 50 different pied markings in pigeons. Colored spots can be found any parts of the pigeons most commonly on head, breast, and wings. Toe nails, beak, and eyes also can be affected by pied factors. Piebald is believed to be related to leucism and is often called partial leucism. Dominant piebald (Pi//Pi) expresses with bald-head of pigeons. Often splashes are combinations of two or more factors for this pied. The base color of pied is black or white. Breast pigeons are not an example for pied, this is actually pencil-like trait. Pied factor always cuts out pigment coloration.

Grizzle: Grizzle pattern is difficult to describe. It has many types. Grizzles are common in feral pigeons especially tiger and white grizzles. Sometimes, this makes a confusion with the pied. Flights and tail are always less grizzled. Probably there are several allelic forms of this mutant. Tiger grizzle (G^T) is little grizzle of juvenile but molts in white feather; grizzles are known as tortoise, mottle, print, etc. [17].

White: In case of dominant white—white flights, beard, magpie marking, white tail, orange or pearl eyes can be found and in recessive white—different pied genes exist side by side with bull eyes. These whites are common in feral pigeons. White is an epistatic gene that can control other genes. Keratin protein of feather looks white; if colored feather plucks up then melanocytes for white color could get chance to express. Certain nutritional and hormonal deficiencies could exhibit white feathers in pigeons [17].

Source: [8, 19]

Table 1. Genetic information on feral pigeons

Observed Feral Pigeons	Phenotype with Symbol	Inheritance	Genes
Blue bar	Blue: +	Dominant	Sex-linked
	Bar: +		Autosomal
Blue T-checker	Blue: +	Dominant	Sex-linked
	T-checker: C ^T		Autosomal
Blue checker	Blue: +	Dominant	Sex-linked
	Checker: C		Autosomal
Blue light checker	Blue: +	Dominant	Sex-linked
	Light checker: C ^L		Autosomal
Blue bar grouse	Blue: +	Dominant	Sex-linked
	Bar: +	Dominant	Autosomal
	Grouse: Gr (gr)	Partial dominant	Autosomal
Blue bar peak crest	Blue: +	Dominant	Sex-linked
	Bar: +	Dominant	Autosomal
	Peak crest: cr	Recessive	Autosomal
Blue bar pearl irises	Blue: +	Dominant	Sex-linked
	Bar: +	Dominant	Autosomal
	Pearl irises: tr	Recessive	Autosomal
Silver bar	Silver: d	Recessive	Sex-linked
	Bar: +	Dominant	Autosomal
Black (spread)	Black: +	Dominant	Sex-linked
Ash red bar	Ash red: B ^A	Dominant	Sex-linked
	Bar: +		Autosomal
Ash red checker	Ash red: B ^A	Dominant	Sex-linked
	Checker: C		Autosomal
Rusty	ry	Recessive	Autosomal
Recessive red	e	Recessive	Autosomal
Pied/Piebald	pi	Recessive	Autosomal
Tiger grizzle	G ^T	Dominant (intermediate)	Autosomal
White grizzle	G ^W	Dominant	Autosomal
Dominant white	Wh	Dominant	Autosomal
Recessive white	z ^{wh}	Recessive	Autosomal

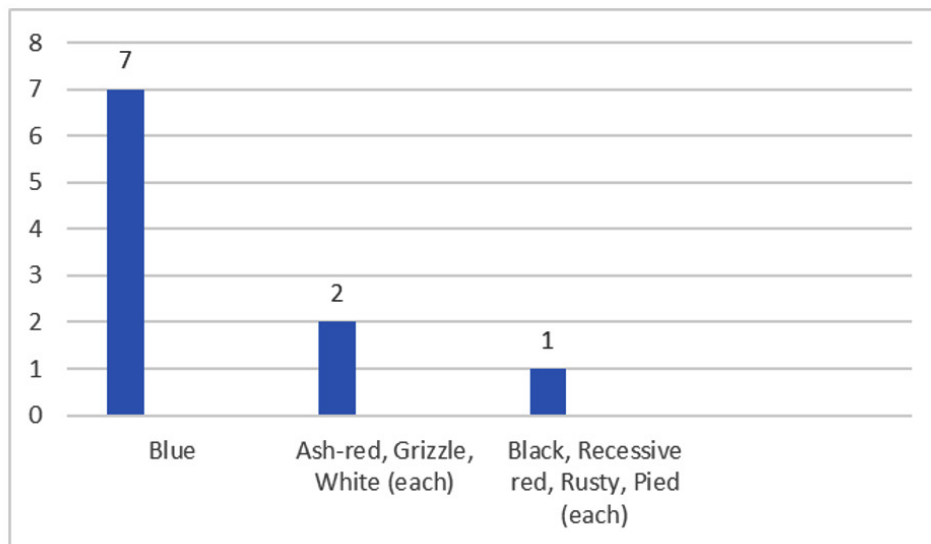


Figure 1. Available colors in feral pigeons.

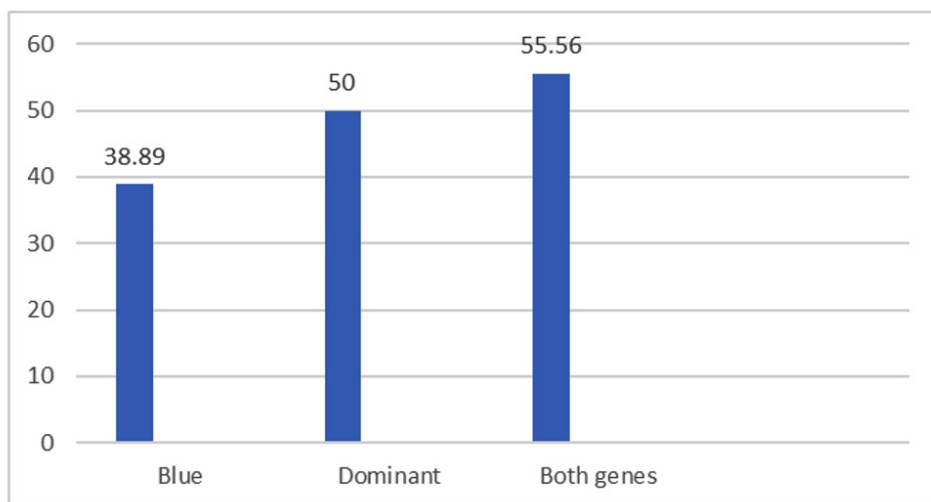


Figure 2. Percentages of incidents in feral pigeons.

SUMMARY

This bird is excellent to know the basic colors and patterns (Table 1). In any rock-pigeons group, these are resource bird for studying genetics. From domesticated rock-pigeons or homer pigeons, this bird evolved, so it has gained huge genetic diversity within their cells. Asian and European feral pigeons are different on the basis of their body structure. Feral pigeons show appreciable Inter-locality size variation with 30% larger than the smallest ones [6]. These pigeons are significantly disrupted in urban ecosystem [21]. Feral pigeons could be an excellent laboratory bird for understanding many colors and patterns (Table 1; Figures 1-2) those are available in all fancy pigeons of the world, and without genetic studies

this is not possible to differentiate these feral pigeons from the rock-pigeon group. To accumulate these ideas from this paper (Table 1), molecular genetic studies need to be implemented to solve limitations in this issue.

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