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First photographic record of a colour aberrant Spotted Dove *Spilopelia chinensis* from the Brahmaputra valley of Assam, India

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Abstract Colour aberrations are rare conditions in birds that are caused by genetic as well as environmental factors. Among the colour aberrations in birds, albino, leucism, progressive greying, brown, dilution, ino, and melanism are the best known. This report describes an observation of colour aberration in a Spotted Dove *(Spilopelia chinensis suratensis)* from India. It was recorded in the Deobali Jalah (an IBA site) of Nagaon district, Assam. The recorded individual exhibited a pale plumage with normal eyes and some light brown colour in some of the feathers, indicating this to be a form of dilution. The report also represents the first photographic documentation of colour aberration in Spotted Doves from Brahmaputra Valley of Assam, India. Further research is necessary to comprehend the causes of colour aberration in Spotted Doves.

Keywords: colour aberration, Spotted Dove, IBA site, Assam, India

Összefoglalás A madaraknál ritkák a normálistól eltérő színváltozatok, amelyeket genetikai és környezeti tényezők egyaránt okozhatnak. E színezeti aberrációk közt a madaraknál a legismertebbek az albinizmus, a leukizmus, a progresszív szürkülés, a barna, a 'hígulás', az ino és a melanizmus. Tanulmányunk egy a melaninhoz kapcsolódó színeltérés legelső feljegyzését írja le Indiából származó gyöngyösnyakú gerle *(Spilopelia chinensis)* esetében. Az esetet az asszami Nagaon körzet Deobali Jalahjában (egy IBA-terület) észleltük. Az egyed fehéres tollazattal rendelkezett, néhány tollazata világosbarna volt, a szemei viszont normális színűek, vagyis az albinizmustól elkülöníthető volt az eset. Esettanulmányunk a gyöngyösnyakú gerle színeltéréseinek jövőbeli kutatásához szolgálhat alapul. A faj színeltérésének genetikai hátterének feltérképezése további vizsgálatokat igényel.

Kulcsszavak: színaberráció, gyöngyösnyakú gerle, IBA, Asszám, India

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Introduction

Plumage colouration in birds appears to have evolved for a variety of possible purposes, such as camouflage, social and sexual signalling, etc. (LaFountain *et al.* 2015). Birds' plumage coloration is primarily caused by accumulation of pigments in their feathers (e.g. Izquierdo *et al.* 2018). In addition to variations in colour between species, pigment-related colour aberrations are also occasionally observed among different species (van Grouw 2013, Alby *et al.* 2023). Colour aberrations in birds have always fascinated bird watchers and ornithologists. This may be because the bird feathers have distinct colour characteristics that allow for easy species identification, and any deviation from the norm apparently piques people's interest. Typically, plumage coloration comes from biological pigments known as biochromes. Melanin and carotenoids are the main pigments influencing the colour of a bird's plumage (van Grouw *et al.* 2016). Colour aberration in birds is usually caused by genetic mutations that affect the synthesis or distribution of these biochromes (van Grouw *et al.* 2016). However, environmental and dietary factors can also result in aberrant bird colour (Martins-Silva *et al.* 2016). According to van Grouw *et al.* (2021), the different colour aberrations typically observed in birds are albino, leucism, progressive greying, brown, dilution, ino, and melanism. Albino, leucism, progressive greying, brown, and ino are colour aberrations resulting from a reduction or complete lack of melanin pigments, whereas dilution and melanism are caused by abnormal deposition or abnormal production of melanin (van Grouw *et al.* 2021). Typically, albinism, leucism, and progressive greying cause white feathers in birds (van Grouw 2006, van Grouw 2013).

The occurrence of albino is rare in nature. Aberrant white feathers are commonly caused either due to leucism or progressive greying (Martins-Silva *et al.* 2016). Leucism is present at birth. It is the complete or partial absence of both melanin in the entire plumage or selected feathers (van Grouw 2013). Progressive greying is characterised by a gradual loss of pigment cells that accumulates with each moult (van Grouw 2013). Initially scattered randomly across the bird, it is possible the plumage eventually turns white. Although the cause of progressive greying is still unknown, it is the most common reason of white feathers in birds (van Grouw 2016, 2013). Dilution is a quantitative decrease in melanin that gives birds a distinctively paler appearance. In dilution, reduction of one or both melanin (eumelanin and phaeomelanin) is observed. While quantitative reduction of only eumelanin in known as Isabel, quantitative reduction of both phaeomelanin and eumelanin is known as Pastel. In both cases, due to decrease in pigment concentration a diluted colour is observed in the individual (van Grouw 2006).

Van Grouw *et al.* 2016 made a compilation of all colour aberrations in birds from India but did not report any abnormally coloured Spotted Dove from the Brahmaputra valley of Assam, India. Thus, the present study in the first to report colour aberration in a Spotted Dove from Assam's Brahmaputra valley.

Notes and Observation

Spotted Doves *(Spilopelia chinensis suratensis)* are small birds belonging to the Columbidae family that range from the Indian subcontinent to the Indo-Malayan region of southeast Asia. They are not particularly gregarious and are typically observed in pairs or small groups (Garrett *et al.* 2023.). They are easily recognised by their long, square-tipped tail and black and white lacelike pattern of spots (chequered patches) on the sides of the neck (Grimmett *et al.* 2011, Garrett *et al.* 2023).

The colour aberrant Spotted Dove was observed in the Deobali Jalah (26°13'58.42"N 92°35'36.21"E; Elevation 81m MSL) of Nagaon district of Assam, India *(Figure 1)*. Deobali Jalah is an Important Bird and Biodiversity Area (IBA), identified through the BirdLife International IBA programme. The area is mostly composed of tall grasses and wetlands.

On 16th January 2024, while we were surveying water birds in the Deobali Jalah, a white bird flew over by us and perched on a nearby tree branch. At first glance, we thought of it as a Eurasian Collared-Dove, but after close observation with binoculars, we were confirmed that it was an abnormally coloured Spotted Dove. The field observations and notes were made with Nikon Prostaff (10×42) binoculars, and photos were taken with a Nikon P900 point-and-shoot camera. In our case, the size, shape, beak structure, and lace-like spots on the bird's neck all led to the identification of the bird as a Spotted Dove. It was not considered to be leucism or progressive greying as there was no presence of any white

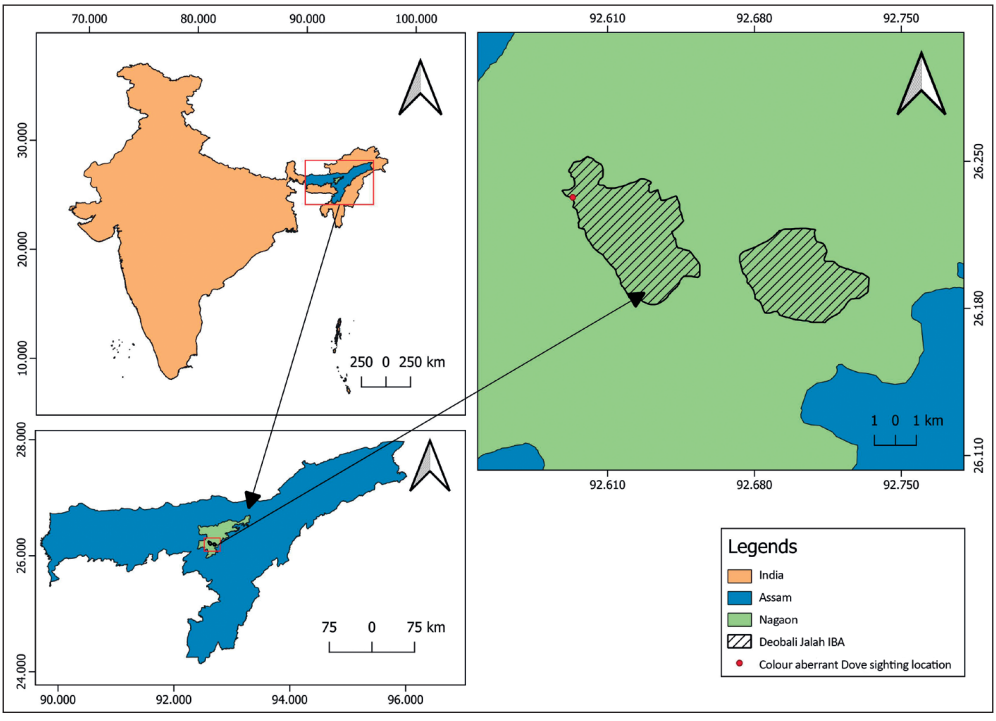

Figure 1. Map representing the recorded location of the colour aberrant Spotted Dove
1. ábra A térkép az abnormális színezetű gyöngyösnyakú gerle észlelési helyét mutatja

Figure 2. The recorded colour aberrant Spotted Dove (left) compared with a normal conspecific (right) (Photo: © Chiranjib Bora)

2. ábra Az észlelt abnormális színezetű gyöngyösnyakú gerle (balra) összehasonlítva egy normális fenotípusú fajtársával (jobbra)

feather. The bird appeared to have a pale plumage, and some brownish colour with normal pattern on its wings was clearly visible *(Figure 2)*. In other words, the colour of the bird appeared to be strongly bleached. Hence, the aberration here may be a form of dilution.

The occurrence of colour aberration in the Spotted Dove is a unique and intriguing observation. Based on available literature, the present study represents the first photographic report of colour aberration in Spotted Dove from the Brahmaputra valley of Assam, India. Further study is necessary to investigate more such cases as well as uncover the causes of colour aberration in Spotted Doves.

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