

First documented case of albinism in the African Chaffinch (*Fringilla spodiogenys*) in Algeria

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Abstract In the wild, it is rare and difficult to see birds with plumage colour abnormalities. In Algeria, despite its vast surface area, sightings of birds with colour aberrations are very rare. The present note concerns the observation of an African Chaffinch albino on 04-10-2022, in Mont Zaccar, Ain Defla (North-West Algeria). In this note, we refer to a bird that has never been observed to be affected by this colour anomaly in this species.

Keywords: Zaccar, Ain Defla, African Chaffinch, albinism, *Fringilla spodiogenys*

Összefoglalás A vadonban csak ritkán fordulnak elő, és nehezen találkozhatunk olyan madarakkal, amelyek tollazata rendellenes színezetű. Algériában, hatalmas területe ellenére, nagyon ritkán lelni színhibás madarakat. Esettanulmányunk egy afrikai pinty albinó egyedének 2022. október 4-én, a Zaccar-hegyen, Ain Deflában (Északnyugat-Algéria) tett megfigyeléséről szól. Tanulmányunkban egy olyan esetet mutatunk be az afrikai pintynél, amit még soha nem figyeltek meg e fajnál.

Kulcsszavak: Zaccar-hegy, Ain Defla, afrikai pinty, albinizmus, *Fringilla spodiogenys*

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Introduction

The Fringillidae is a large family of passerines comprising 240 species in 50 genera (BirdLife International 2024). The genus *Fringilla* includes eight species of finches (Gill *et al.* 2024). Since the early days of ornithology, the chaffinch has been considered as a single species *Fringilla coelebs* with several subspecies, ranging from 10 to 24, depending on the author (Hartert 1912, Gengler 1917, Hartert & Steinbacher 1932). With the advancement of systematics, many authors granted the rank of species to several subspecies (Vaurie 1956, Sudilovskaja 1972, Eck 1975, Krägenow 1981). Subsequently, through genetic studies and analysis of vocal behaviour (Metzmacher 1982, 1995, 2016, Ruelle 1988, Joachim 1996), which have led modern taxonomists to draw up a list of eight species of chaffinches (Gill *et al.* 2024), including one with a North African distribution, *Fringilla spodiogenys*, a sedentary species that generally disperses only over short distances. It is found in North-West Africa, from Morocco in the south to North-West Libya, from the Mediterranean to the Anti-Atlas

in Morocco and the wooded regions of the pre-Saharan Atlas in Algeria (Ottaviani 2008, Mlodinow *et al.* 2024). The African Chaffinch lives in pine forests, particularly the Aleppo pine (*Pinus halepensis*), olive groves (Ruelle 1988) and oak forests, particularly the holm oak (*Quercus ilex*).

The topic of aberrant colouration in birds has been the subject of several studies worldwide (Hanson 1949, Phillips 1954, Fox & Vevers 1960, Warner 1963, Delmotte & Doucet 1981, Bechtel 1991, Thompson *et al.* 1997, Zahn & Rothstein 1999, Brawner *et al.* 2000, van Grouw 2006, van Grouw & De Jong 2009, Frith & Murphy 2012, van Grouw 2012, 2013, Guay *et al.* 2012, Hayashi & Suzuki 2018, Tissier 2020). However, in Algeria, the works that have dealt with this subject are very limited in number and superficial (Chedad *et al.* 2019, Chedad *et al.* 2021, 2022, Haddad 2024), and on the whole, they consist of referring to certain species affected by these colour anomalies without looking deeply into the causes and mechanisms of the effect. This note concerns the subspecies *Fringilla spodiogenys africana*. It is widespread in a variety of environments from the Mediterranean to the northern limits of the Saharan Atlas and from southern Morocco to western Tunisia (Svensson 2015).

Overview of observation and habitat description

During a prospecting trip to the Zaccar mountain, which belongs to the Dahra Range, on 04-10-2022, at around 09:30 on the way to the summit, an albino male African Chaffinch was observed perched on a dying Aleppo pine tree ($36^{\circ}18'26''\text{N}$, $2^{\circ}11'05''\text{E}$), altitude: 765 m (*Figure 1*). The second author immediately took a photo (using Canon EOS 7D) on the individual (*Figure 2a*). This is an albino individual, as the finch has completely lost its

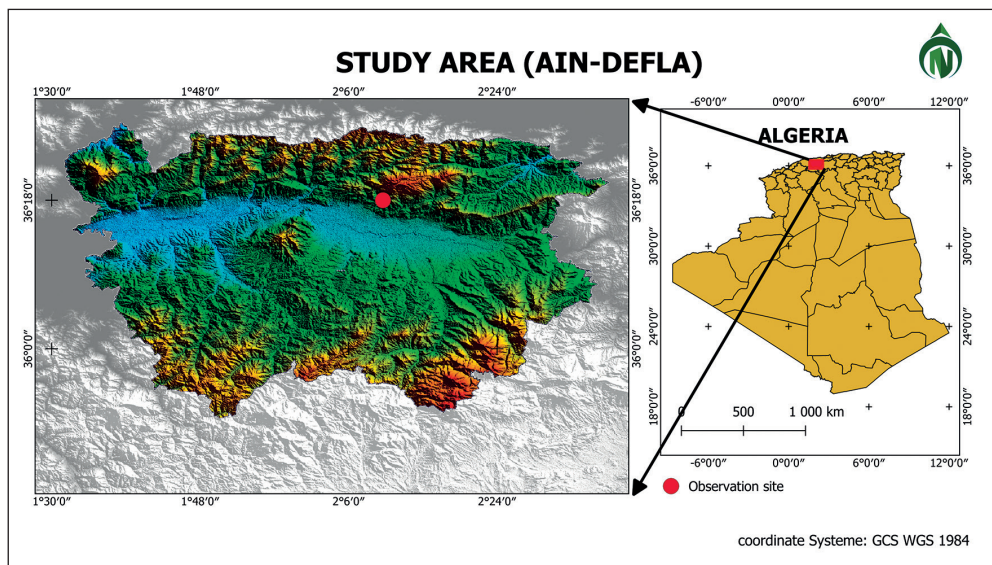


Figure 1. Geolocation of the observation point

1. ábra A megfigyelési pont földrajzi elhelyezkedése

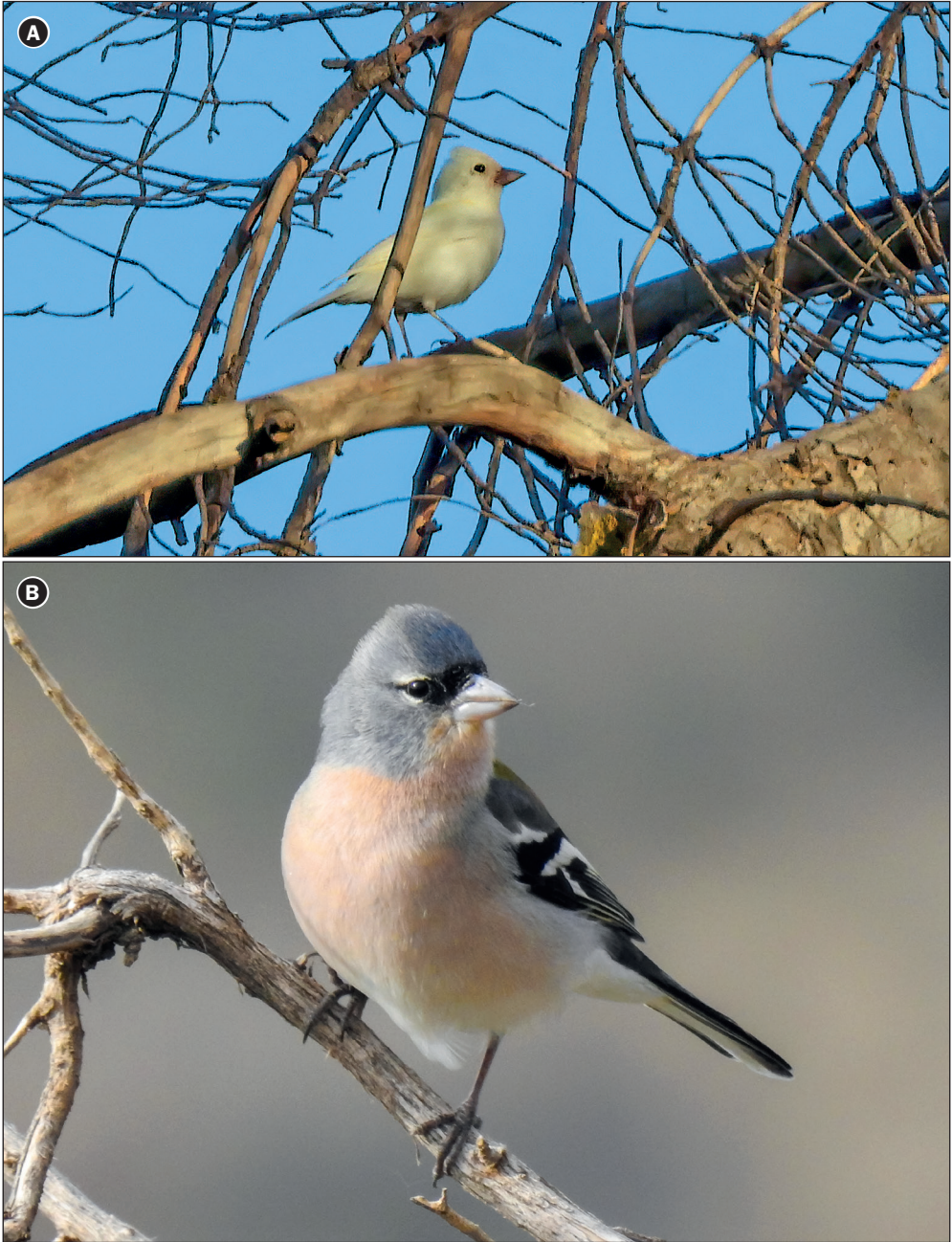


Figure 2. **A:** Albino African Chaffinch in the Zaccar mountains, municipality of Meliana-Ain Defla, Algeria, (04-10-2022). Photo: N.B. **B:** A male of African Chaffinch with natural plumage, municipality of Youssoufia – Tissemsilt, Algeria (13-02-2020). Photo: M.M.

2. ábra **A:** Albinó afrikai pinty a Zaccar-hegységben, Meliana-Ain Defla településen, Algéria (2022. 10. 04.). Fotó: N.B. **B:** természetes tollazatú afrikai pinty hím, Youssoufia – Tissemsilt település, Algéria (2020.02.13.). Fotó: M.M.

colouring and appears entirely white, plus the eyes are red whereas in their natural state they are black, and the beak and legs are devoid of melanin appear whitish-reddish (*Figure 2a*).

The observation zone is located in the north of the province of Ain Defla, approximately 4 km from the town of Meliana and 2 km from the town of Ben Allal (northern Algeria). The area is a forest at the foot of the massif, covered in wild olive, with a few scattered Aleppo pine trees. The soil is of the red fersiallitic type, moderately deep, which explains the high density of vegetation in the area. The province of Ain Defla has a sub-humid climate, with a cold winter (January: 6 °C) and a very hot, humid summer (August: 35 °C). Annual rainfall varies, with an average of around 380 mm/year (Weather Spark 2024).

Discussion

A number of studies have focused on the colour anomalies that occurred in birds in Algeria, notably cases of leucism in *Oenanthe leucopyga* recorded near the Dhayet Oum-Suid naturel wetland, province of Ghardaïa – Saharan Algeria (Chedad *et al.* 2019), albinism in the hybrid sparrow *Passer domesticus* × *P. hispaniolensis* in the region of Ghardaïa (Chedad *et al.* 2021), leucism in *Emberiza sahari* in the city centre of the M'Zab Valley at Ghardaïa (Chedad *et al.* 2022), leucism in *Corvus monedula cirtensis* and *Turdus merula* in the city of Constantine in eastern Algeria (Haddad 2024) and partial leucism in *Lanius excubitor* in Tissemsilt province (Mairif & Hamecha in press). Abroad in Europe, several documented cases of albinos in the European Chaffinch *Fringilla coelebs* were reported by the Association des Naturalistes des Yvelines (2006) in Vésinet, France, the Association Bretagne Vivante (2015) in Finistère, France and Tissier (2020) in Lyon region, France, but for the African Chaffinch, this is the first documented case of this phenomenon in this species in Algeria, including its entire range in North Africa.

These whitish aberrations are classified into different types according to their proximal origin, including leucism, progressive greying, dilution (Guay *et al.* 2012, van Grouw 2021). Albinism resulting from the total absence of melanin pigments not only in feathers, but also in the eyes and skin too, due to the inherited absence of the enzyme tyrosinase in pigment cells leading to defects in melanin synthesis (Fox & Vevers 1960, Hayashi & Suzuki 2018, van Grouw 2021).

The colour and appearance of an albino is determined by the presence or absence of other pigments (e.g. carotenoids/psittacin), so contrary to popular belief, albinos are not necessarily white; they can be creamy or yellowish, golden, pinkish or reddish (van Grouw 2006). There are various causes of the occurrence of abnormal plumage colouration, and many of them, including albinism, can be explained by hereditary abnormalities (Bechtel 1991, van Grouw 2006, 2012, van Grouw & de Jong 2009, Frith & Murphy 2012). Several causes of plumage colour irregularities have non-genetic and congenital origins, such as progressive ageing (Hanson 1949, Warner 1963, Guay *et al.* 2012), diseases like fowl pox (Thompson *et al.* 1997, Zahn & Rothstein 1999), internal and external parasites (Thompson *et al.* 1997, Brawner *et al.* 2000), injuries (Phillips 1954) and nutritional deficiency (van Grouw 2013), and the action of light rays (Delmotte & Doucet 1981).

As a result, individuals with these aberrant colours could have limited probabilities to survive in the wild because they will be more visible, and therefore, more quickly predated (Tissier 2020), unlike natural plumage, which probably allows the animal to blend in with certain elements of the surrounding environment (*Figure 2b*). The same applies to albino predators, which will have less chance of discreetly approaching their prey (Tissier 2020). Some species do not tolerate conspecific individuals that are different, and will be attacked within their group, making it difficult to find a partner to reproduce with (Harris 1983, Withgott & McMahon 1993). In some birds, the white plumage may be a transitory characteristic, specific to a particular phase of their life, and after the subsequent moult, the white feathers are replaced by normal-coloured feathers (Nogueira & Alves 2011).

Conclusion

By reporting this rare observation, we have attempted to shed light on the phenomenon of albinism in the African Chaffinch, which represents a valuable addition for researchers interested in studying of this phenomenon. It is certain that this is not the first case and will not be the last, so in order to increase the chances of encountering these rare species in Algeria, it is necessary to intensify field trips, whether scientific or amateur, and the need to create a coordination network in order to document as many species as possible that are subject to colour aberrations, which is what the Algerian Wildlife Watching Association is seeking to embody.

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