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# The Conservation of European Goldfinch in North Algeria

Bara Mouslim

## Abstract

This chapter presents the conservation status and threat of the European goldfinch *Carduelis carduelis* in Algeria. Many selective pressures run into this passerine, mainly human pressure due to keeping and hatching the birds in captivity. Illegal trading is actively carried out between countries of North Africa (mainly the pathway Morocco – Algeria – Tunisia). This situation is clearly expounding a threatened status of this songbird. A scientific survey was done in north center of Algeria to assess the captivity rate of goldfinch. Systematic sampling was done in several houses of Bouira district. Goldfinch breeder's age varies between 20 and 40 years. No income and no fixed job are the main reasons for these breeders. Results exposed serious threat of this species in center of Algeria. Management plan and conservation directions have been proposed for this species.

**Keywords:** Algeria, conservation, status, goldfinch, *Carduelis carduelis*

## 1. Introduction

The human-animal relationship is defined as the degree of proximity or distance between animal and human, this mutual perception which develops is expressed in their mutual behavior [1]. We are currently living in an area marked mainly by a drastic erosion of biological diversity, although we do not know the real number of species inventoried in our planet. Their rate of extinction is estimated to the order of 100 to 1000 times greater than normality. In addition, several thousand endangered wild animals are poached by humans for: furs, tusks, scientific experiments, and domestic collections. Many species are endangered, according to the IUCN report: every day around the world 15% of all species are threatened [2]. There have always been species that have disappeared throughout the history of the earth (such as mammoths, dinosaurs, ammonites or more recently dodos and great penguins) and other current species that are in danger of disappearing like pandas, gorillas, orangutans, tigers, rhinos, and several species of birds. For example, it has been estimated that 50,000 monkeys, 350 million fish, 10 million reptile skins, 15 million mammal skins and 5 million birds are sold each year [2]. 47% of the wildlife captured for illegal trading come from South America, while the United States is the main market for this trade. A scientific report published in 2014 concluded that in 40 last years, more than half of the wild animals of the planet have faced this brutal situation. Alarming findings are well exposed in this report, because of the changes in the method of calculating the LPI (Living Planet Index) which offer a more faithful representation of the global distribution of vertebrate species [2]. The rest of the report is just as alarming, indeed, between 1970 and 2016, the monitoring of 21.000 mammals, birds, reptiles, amphibians, and fish population showing a decline rate of 68% [2].

An endangered species is defined by scientific authorities as: a species whose number of individuals has fallen sharply or will decline in future years if nothing is done to protect it. Depending on the greater or lesser danger in which a species is found, it is classified into one of three categories: critically endangered, endangered, or vulnerable [3]. Throughout ancient history, the evolution in social organization, human race has been articulated around two vital elements: water and food. In contemporary history, biodiversity has taken on a more important dimension in the space of human exchanges, linked to growth and reverse on the availability of biological resources and their sustainability. In contrast, we are currently living a new shift in concepts, and according to the eminent American environmentalist and writer Edward O. Wilson (1975): “The ‘backbone’ of biodiversity is being eroded. A small step up the Red List ladder is a giant leap towards extinction. This is just a snapshot of the ongoing losses globally”.

Several scientists are proposing other regional indices for species conservation for more efficiency and more meaning. Among the animals that are experiencing a decline in their status and population, birds have experienced several forms of extinction and several species are disappearing each year. The European goldfinch *Carduelis carduelis* which was the subject of this study is critically endangered in Algeria and classified in the Bern Convention (Annex 2 - strictly protected species). In the contrast, its global status according to the IUCN red list is least concern “LC” [3].

In Algeria, population size of the European goldfinch has been declining gradually for several years. In East of country (mainly in Guelma and Souk Ahras forests), this passerine was known as a regular breeder [4, 5]. According to Algerian Forest Department report, the goldfinch which attracts by coloring of its plumage and its songs, is threatened by intensive hunting/poaching, and remains captured in cages for human pleasure of the ears and eyes. Poaching (during the breeding season) for domestic breeding of European goldfinches have been the main causes of the collapse of their numbers in the wild and the drop in their nesting success rate [5]. In addition, it is still considered as a cage bird which has caused its regression nationwide [6].

In 1970, need to reverse the trend of biodiversity erosion, many countries legislated creation of national parks. Since 1983, Algerian environment department started the creation of national parks and natural reserves. In 2002, during National parks of North Africa and the Middle East direction meeting, Algeria held first place in terms of the number of protected areas classified in these regions [7]. Indeed, Algeria has created eleven national parks to conserve heritage specimens in variety of ecosystems such as landscapes and forests. The creation of these protected natural environments aims to find sustainable balance between the biotopes and biocenosis that constitute them.

## **2. General view on the European goldfinch**

### **2.1 Geographical distribution of the species**

The geographical distribution of this goldfinch is very wide, it extends from the Atlantic (Ireland) through the Iberian Peninsula, the Madeira Islands and the Canary Islands, North Africa to Lake Baikal in the east of the continent, and this in a band centered on the temperate latitudes. In the north, the species reaches southern Finland and Scandinavia and follows southern Siberia. In the south, this population is fragmented in the extreme northeast of Africa and only becomes continuous from Asia Minor (Turkey). The species bypassing the Caspian Sea from the south linked in

southern Central Asia and then joins Siberia via the Altai. An extension takes place in the western Himalayas. There are 12 subspecies that share this large area. Continental Europe is occupied by the subspecies “*carduelis*”, which is known to be sedentary in most of its range. On the other hand, it has been successfully introduced in Australia, Bermuda, and the Azores [8, 9]. In the United States, its introduction dates to the early 1852s in Greenwood Cemetery (Brooklyn, New York) (**Figure 1**) [6].

## 2.2 Description of the goldfinch

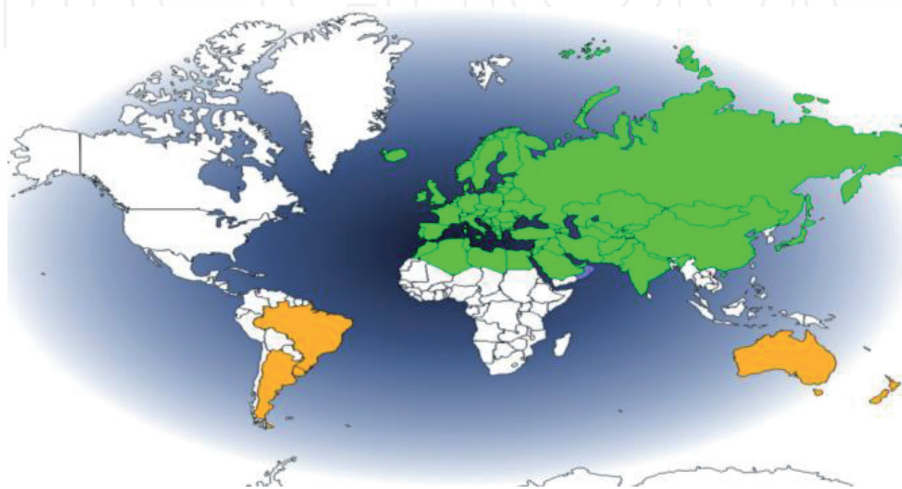
The goldfinch has been raised in cages for an exceptionally long time for its beautiful plumage and remarkable songs. In some places, notably in the Mediterranean Basin (and mainly in Algeria) it is the subject of a real local culture, which has a negative effect on its ecological condition and conservation status. The impulsive attitude and spontaneous behavior, in fact hide some factors that illustrate its vulnerability. The destruction of the laying and the rejection of the chicks also add to the fate of the species in captivity. This songbird is easily suitable to the restricted space, but it is better off in an equipped aviary (trap doors/specific cage) where it can evolve and set up its breeding success.

Breeding is mostly done in pairs, but a triplet (male × female × female) can be attempted for better conservation of the species. The opposite case of breeding (male × male × female) is rejected due to territoriality. On the other hand, a conservation problem within the species arises in the case of informal breeding, in fact, the extrinsic hybridization of the species pairs quite easily, not only with the domestic canary (*Serinus canaria domestica*) but with other native or exotic finches, such as European greenfinch (*Chloris chloris*), European siskin (*Spinus spinus*), Eurasian bullfinch (*Pyrrhula pyrrhula*), common linnet (*Linaria cannabina*), even common chaffinches (*Fringilla coelebs*) and common crossbills (*Loxia curvirostra percna*) [11].

## 2.3 Anthropic pressure and threatened species

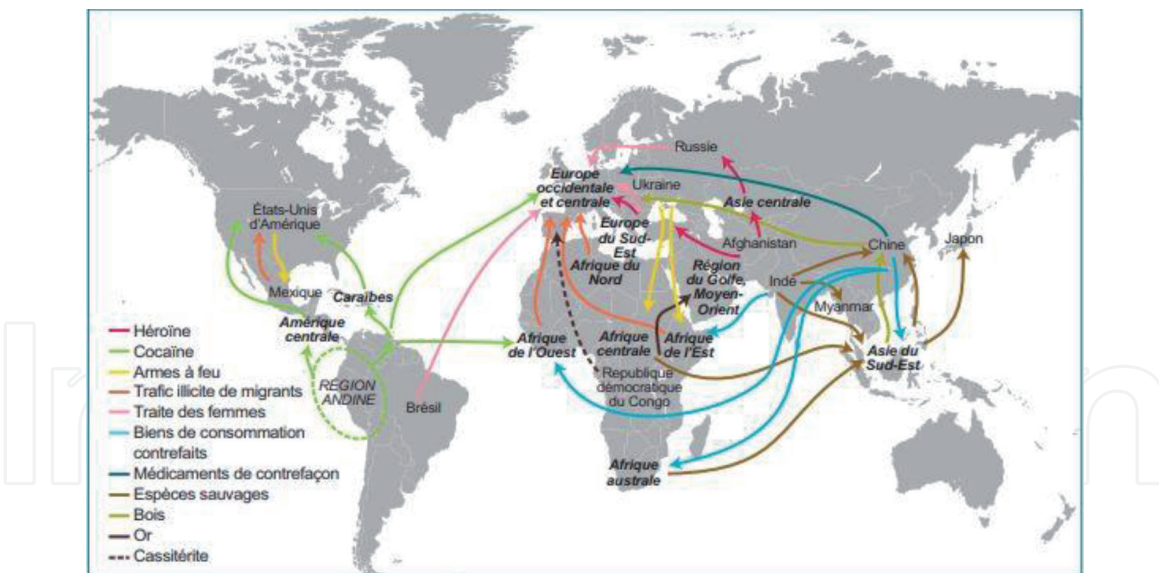
Thousands of species are endangered around the world due to natural habitats destruction, overexploitation, invasive species, climate change and pollution. All activities are linked to human activities. Thus, the main reason for species erosion is the illegal trading (**Figure 2**) [12].

The issue of illegal trading is treated almost systematically as an environmental problem, before being considered as criminal and transnational. It is run by



**Figure 1.** Geographical map of European goldfinch distribution around the world and phenological status. Green part: Breeding species, blue part: Occasional species, Brown part: Introduced species [10].





**Figure 2.**  
*International network of transnational organized crime way [13].*

extremely well-organized networks of poachers, wholesalers, middlemen, smugglers, and retailers. Through these networks, the derivatives of illegal wild species find their way into the commercial chain, with prices increasing from links of this chain [14]. This illegal trade is estimated at 19 billion dollars per year [2]. United States is the first importer of exotic species, and then follows European continent and China [15]. **Figure 2** illustrates a simplified international way taken for various illegal activities, including illegal wildlife trading.

Specialized organizations prevent this illegal trading to conserve species by legal way of trading species (controlled process). This is the main aim of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), signed in 1973. This convention is one of the best known and most important environmental conventions. And often serves as an example, especially given the large number of signatory States. It seems obvious that a transnational problem such as this trading, a global action involved many international community parts is necessary. Non-governmental organizations (NGOs) have also established themselves as key players in CITES and participate in the conference as a part to this convention.

Recently, the United Nations is becoming actor to this process, by adopting a historical resolution on July 30, 2015 (resolution A/RES/69/314), which is related to illegal trade monitoring and taking measures against this [16].

## 2.4 Legal framework

Conservation of birds in Algeria is relatively recent since the first text relating to the protection of non-domestic animal species was dated on August 20, 1983. This action was subsequently consolidated, with laws about environment and hunting, i.e., the framework law of January 17, 1995 relating to non-domestic animal species protected in Algeria and the law n ° 04–07 August 1, 2004 relating to hunting.

## 3. Analysis of poaching and illegal trading of goldfinch

In Algeria, it has been noted that all captive goldfinches are originating from neighboring forests. This conclusion was reported in [17], where 70% of captive goldfinch were poached from TIKAJDA forest. The main species found in this town

are becoming from local forest (Bouira, Boumerdes, Bejaia, Medea and Algiers). On the other hand, few proportions of *Carduelis* in center of country are becoming from West part of Algeria (smuggling network started from Spain and Morocco). Many scientific studies reported that Spanish or Moroccan goldfinch were observed in center and east of Algeria.

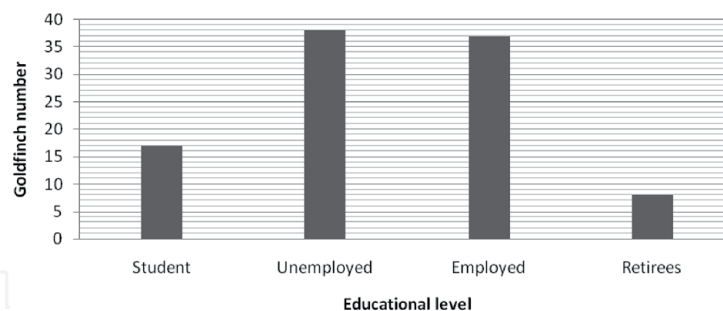
Scientific survey of goldfinch breeder's age shows that the age category interested in this bird varies between 20 and 40 years. Difficulty in social status no income and no fixed job are the main reasons for these breeders (Figure 3).

Many data on social classes of European goldfinch breeders in Algeria shown that unemployed persons are doing this poaching and illegal trading (Figure 4). This activity is less often done by students or retired persons.

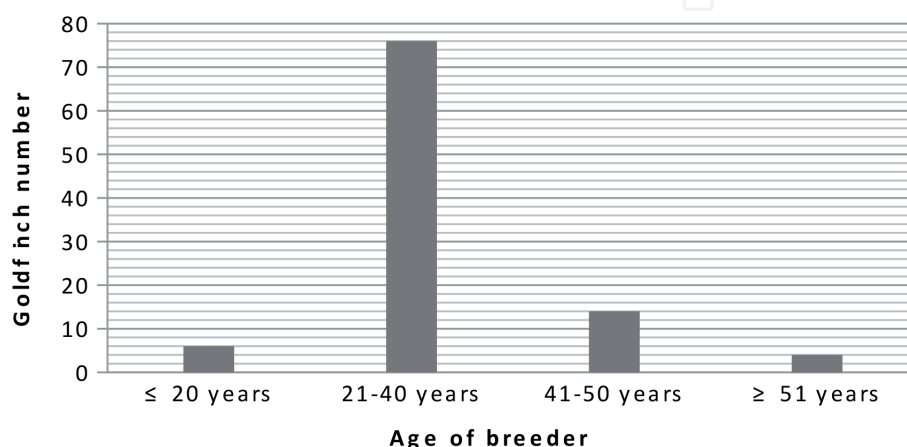
This illegal trading is generating a high turnover. For example, in Bouira the price varies between 5000 DZD and 7500 DZD per individuals. This price never goes below 5000 DZA and in certain cases some individuals are sold at prices going up to 10.000 DZD or more. The European goldfinch trading in Bouira for one day can generate a parallel and informal market which is equal to more than 1.077.500 DZD and does not undergo any form of financial monitoring and control. This sum corresponds to 7000 Euro per day [17].

Social class is a deterministic parameter in the captivity growing of goldfinches in Algeria. The causes are multiple, due to social level of Algerian population and as well as to the intellectual development and responsibility of persons in preserving nature and protect wildlife species.

Algerian forest department said that a young breeder person, could aim to sell 5000 goldfinch individuals at Boumati market (El-Harrach – Algiers) for the price of 4000 DZD, while he acquired them at only 200 DZD from Maghnia market (Tlemcen) situated in Algerian Moroccan border.



**Figure 3.** Age distribution of the European goldfinch breeders in Algeria (Bouira) [17].



**Figure 4.** European goldfinch breeder's educational level in Algeria (Bouira) [17].

The sum of 1.241.000 DZD shows that the trading of this songbird has generated a parallel and informal market which is illegal, and without any form of financial monitoring and control. All bird individuals supplied to the Algerian market are often sold wholesale to less than 20 MAD per unit by the Moroccan smuggler networks who transport them illicitly to Algeria. There the final price can reach up to 15.000 DA (around 1.400 MAD). On the Moroccan market, the single goldfinch is sold between 70 and 100 DH. The cost varies according to the talent of the bird and its age. An adult bird in Oujda market (Morocco) is sold 70–100 MAD, then transported to Algeria for selling between 20.000 DZD (corresponds to 1360 MAD). The young birds' price in Oujda varies between 30 and 50 MAD and selling price in Algeria is around 2.000 DZD (corresponds to 136 MAD) [17].

Warning results on this species and the number of birds in cages approved the causes of its extinction, indeed, during these last ten years the population of this passerine has been under a strong selective pressure and a decline in nature population. Many observations done by ecologists from Guelma university reported that in Guelma, Souk Ahras, Bouira and Algiers forests the European goldfinch is almost missing [18]. According to Algerian forest department, an unemployed young person, had a project, to sell 5000 individuals in illegal market of Boumati (El-Harrach – Algiers) at 4.000 DZD, while he acquired them at 200 DZD only from the markets of Maghnia (Tlemcen) situated in Algerian Moroccan border [17].

Poaching and wild hunting decimated 80% of the goldfinch species in our region (Algeria). This problem is done by different techniques: poachers place a female goldfinch inside a cage to seduce the males who easily fall into the trap, the head dead, this technique allows non-selective capture of no less than 20 birds at a time [19] and the birds are captured also by glue. Bedhief and Kharoubi [20] report that the crossing of goldfinch in captivity is more successful with canary. This cross bird is highly regarded for its beauty and strong voice. The Environmental Protection committee proposed reducing this poaching by authorization certificate during the hunting season. Each breeder is not allowed to hunt more than ten goldfinches per trip which should protect this species [20].

#### **4. Conclusion**

The sum of 1.241.000 DZD shows that the European goldfinch trading generated a parallel and informal market, which is illegal, also without any form of financial monitoring and control. The goldfinch individuals who supply Algerian market are often sold at less than 20 MAD per unit to Moroccan smugglers networks. All birds are transported illicitly to Algeria. Their final price can reach up to 15.000 DZD (around 1.400 MAD). On the Moroccan market, the simple goldfinch is sold between 70 and 100 MAD. The cost varies according to the song and age of the bird. For example, the selling of this species in Oujda market (Morocco) varies between 70 and 100 DH. In Algeria, the selling price is reaching up to 7.000–15.000 DZD. The price of the young goldfinch individuals is between 30 and 50 MAD, then traded around 2.000 DZD (135 MAD) in Algeria.

Globally, annual data compiled by nature conservation authorities and non-governmental organizations estimate that the wildlife trade market (and among them the European goldfinch) generates an annual turnover of over USD 20 billion. Placing this traffic in third place after drug trafficking and arms trafficking [21]. These illegal practices are apprehended by the competent authorities whether it is the elements of the Algerian customs or the agents of Algerian forestry department. These authorities organize each year the release of these birds confiscated from this traffic to maintain the natural population (**Figure 5**). The birds were



**Figure 5.** Thousands of goldfinch individuals resulting from illegal trading apprehended in the north-western region of Algeria near the Moroccan border [22].

observed in 2016 in Djurdjura National Park (TIKJDA sector) when 80 individuals were released [23].

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