

NOTES ON RECENT DISCOVERIES REGARDING THE PRESENCE OF THE NORTHERN BALD IBIS *Geronticus eremita* IN THE UPPER ADRIATIC REGION

Zapiski o nedavnih odkritjih znamenj o pojavljanju klavžarja *Geronticus eremita* v območju gornjega Jadrana

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The authors outline the evidence in the literature, systematics, local folklore and other sources such as the fresco in the church of Hrastovlje in the Karst in western Slovenia to support the appearance of the Northern Bald Ibis *Geronticus eremita* on a list of birds of the Upper Adriatic Region prepared by Baron Žiga Zois writing around the beginning of the nineteenth century and discuss the possibility that the species was widespread in the Alps and northern Italy until relatively recently. The paper also outlines possible misnomers of currently-occurring species which might at one time in fact have referred to the Northern Bald Ibis and hypothesize on possible reasons for the species' extinction in the face of direct human persecution (the taking of young for food, direct persecution of ugly and frightening birds), climate ("The Little Ice Age") and habitat changes (loss of open grasslands). They draw attention to the fact that the habitat of the area in question is, today, utterly different to that which supported the Bald Ibis in the middle of the last millennium and that losses in human-created and -maintained open grassland habitats, which are evolving into woodland and scrub through vegetational succession, are still causing local extinctions of bird species in the Alps and Karst to this day.

Key words: Northern Bald Ibis, *Geronticus eremita*, Northern Adriatic, Hrastovlje, climate change, vegetational succession, historical ornithology

Ključne besede: klavžar, *Geronticus eremita*, severni Jadran, Hrastovlje, klimatske spremembe, vegetacijska sukcesija, zgodovinska ornitologija

1. Introduction

The recently discovered and published bird checklist of Slovenia, written around the beginning of the nineteenth century by Baron Žiga Zois, put a new light on any existing information on the former presence of Northern Bald Ibis *Geronticus eremita* in the Upper Adriatic region (ŠTUMBERGER 1999, JANČAR 1999). The fact that a local name was attributed to this species - "klavžar" (similar to the German term "Klausrapp" reported by GESNER 1555) - suggests that it was well known, at least to the compiler of the list; a fact of major importance, if we consider that the possible date of extinction was considered to be far earlier by the majority of the authors: "before the end of 18th century" (ROTHSCHILD *et al.* 1897), the 17th century

(BAUER & GLUTZ VON BLOTZHEIM 1966, CRAMP & SIMMONS 1977). Former indications for the existence of this species in the Northern Adriatic Region are essentially two and they are summarized as follows:

— CONRAD GESNER (1555), who first described the species under the Latin name *Corvus sylvaticus*, lists the towns of Pola (or Pula) in Istria and Graz in Styria (in Austria), amongst the then known breeding sites. He lists also many other sites in the Alps, in Austria and Switzerland, including "Lago Maggiore" (*Lacus Verbanus*), in Italy. This allows us to imagine that the species was a regular visitor to many suitable sites in central Europe and the Upper Adriatic area in the period under consideration.

— ULISSE ADROVANDI (or "Aldrovandus", who printed

his three volumes between 1599 and 1603 in Bologna) in his “*Ornithologia, sive Avium historia*”, publishes a nice “*Phalacrocorax ex illirio missus*” (see *Acrocephalus* 20, p 70) which is, without any doubt, a detailed reproduction of an adult Bald Ibis.

In this second case a possible confusion was favoured by the fact that “*Phalacrocorax*”, a word at present internationally used to refer to birds of the cormorant genus, means exactly, if translated from the ancient Greek: “bald crow” or “bald-raven”, as a result of the junction of the two words “falacos” (bald) and “corax” (crow or raven). A very appropriate appellative for Bald Ibis indeed.

E. Arrigoni degli Oddi, the principal Italian ornithologist working at the beginning of the 20th century, following the point of view of many other distinguished ornithologists of the past, was, however, very sceptical of this record. He attributed it to the Mediterranean Shag *Phalacrocorax aristotelis desmarestii*, a well-known breeding species along the cliffs of the Eastern Adriatic coasts (ARRIGONI 1902). This opinion is anyway strongly contradicted by the fact that Gesner himself, making reference to *Turnerus*, *Aristoteles* and *Plinius*, pointed out first that:

“*Sunt qui phalacrocoracem hanc avem interpretentur, quoniam & magnitudine & colore conrefert: & calvelcit, ut vidi cum adultior est.*”

“There are some who call this bird a *Phalacrocorax*, as colour and dimensions coincide and it becomes bald, as I saw, when becoming adult”.



Figure 1: The faint image of a possible Bald Ibis on the northern wall of the Hrastovlje church: it was painted in the year 1490 by Johannes de Kastua

Slika 1: Medla podoba verjetnega klavžarja, ki ga je leta 1490 naslikal Janez iz Kastva na severni steni cerkve v Hrastovljah



Figure 2: The “logo” of local warden at Hrastovlje: Bald Ibis?

Slika 2: “Logotip” hrastovljskega čuvaja: klavžar?

We can surmise therefore that, at least for some people, the real “*Phalacrocorax*” could, in the past, be the object of this article. As a result of its decline and a lack of communication between the first biologists, the name perhaps passed on later to other species, still common and very widely distributed. Several examples of this are well known and documented such as the calling of Grey Herons *Ardea cinerea* “Cranes” *Grus grus* in the west of Ireland where the latter became extinct as a breeding species around 1600.

2. The Hrastovlje “fresco”

Quite recently a friend of ours and a keen ornithologist, Paolo Utmar from Trieste, knowing our interest regarding the topic, told us about the existence of a very old painting which perhaps illustrates a Bald Ibis surviving in an old church near the village of Hrastovlje, in the vicinity of Trieste on the Slovene Karst plateau. As soon as possible we visited this site with my friend and we can confirm that image can be, with some degree of caution, attributed to the species (Figure 1, Colour appendix – Figure 1). The image of the bird is part of a vast *fresco* by “Johannes de Kastua”, a well known local artist of the epoch, and was completed in the year 1490 (ZADNIKAR 1995). The

work is a very complex representation of biblical and evangelical themes, including a “macabre dance”, and completely covers the walls of the small church. The image of the bird, which attracted the attention of my friend being chosen as a “logo” by the local warden (Figure 2), has a bluish plumage and a short raised tail of the same colour, which in former times would have been significantly darker. It has also a long reddish downcurved bill and relatively short red legs, with long toes. The bird is just a detail of a broad scene representing the travel and adoration of the Magi, as usually depicted along the north-facing walls of these kind of small churches (Figures 3 & 4), this wall being normally free of windows and an ideal area to reproduce a vast landscape (ZADNIKAR 1995).

The bird, without much regard for proportions, is between two men, one with bow and arrow, the other with a raised club. If the identity of this bird is accepted as a Northern Bald Ibis, we must argue the painter was probably referring to an immature specimen, as the head appears still covered by feathers without a crest and does not look “bald” at all. As for further possible indications that the painted bird is actually a *Geronticus eremita* it should be borne in mind that the author of the work was from Kastua or Kastav, a still existing village not far from Rijeka (Fiume), where many well known “church painters” of the epoch came from (ZADNIKAR 1995). This village is situated near the Kvarner Gulf, leading to Pula, the town along whose cliffs Gesner reported the existence of breeding colonies of this species during the 16th century, a few decades after Johannes’ artwork.



Figure 3: The ancient church of Hrastovlje (photo: F. Perco)

Slika 3: Starodavna hrastoveljska cerkev (foto: F. Perco)

Gesner’s words (1555) described the traditional taking of Bald Ibis fledglings from nests along southern cliffs of the Istrian Peninsula as follows:

“*Circa lacum Verbanum corvus marinus dicitur, alibi in Italia corvus sylvaticus, ut in Illiria circa promontorium Polae, ubi homine per funem demisso per rupes nidis eximuntur...*”

On the Lago Maggiore it is called “Sea-crow”, elsewhere in Italy “Wood-crow”, as in Illyria, near the Pola promontory, where a man is lowered down on a rope to take it out of its nests...

Gesner also states that it was quite common to catch the young from the nests and instead of eating them as a “delicacy”, the reason for which they were caught, that some of them were raised in a semi-wild state. Therefore young or immature birds of this species would have been a rather familiar sight and this can explain why specimens without long crests or bald faces were usually portrayed, as it is seen in the Hrastovlje *fresco*. It may be interesting to stress that such ancient efforts at domestication are at the root of quite modern efforts for the reintroduction of the species with “hand rearing” method, as experienced first by Ellen Thaler and Karin Pegoraro and, more recently, by Kurt Kotrschal and colleagues in Austria (PEGORARO & FÖGER 1999, THALER *et al.* 1992, KOTRSCHAL 1999, 2001 & pers. comm.).



Figure 4: The wide cliffs near Hrastovlje Church along the upper Rižana Valley, a possible ancient breeding site for the Bald Ibis? (photo: B. Štumberger)

Slika 4: Obsežna ostenja pri hrastoveljski cerkvi v gornji Rižanski dolini – verjetno nekdanje, klavžarjevo gnedišče klavžarja? (foto: B. Štumberger)

3. The reasons for extinction in Europe

The majority of works regarding this species tend to explain its extinction from the Alps and the rest of Europe as a direct consequence of human predation linked to climatic changes, such as the so-called “Little Ice Age”, at its most intense in Europe between 1550 and 1750, and in many cases this might be true (BAUER & GLUTZ 1966, BURTON 1995, CRAMP & SIMMONS 1982, COLLAR & STUART 1985, DEL HOYO 1989, ELLIOTT & SARAGATAL 1992). Extremely cold and prolonged winters would have had an adverse effect on many southern species whose presence in the Alpine region was possible, one would imagine as a result of the influence of human beings and their animals (i.e. sheep, cattle, horses etc.; see below) on habitats. From another perspective it should be pointed out that the few existing reports and studies covering the Northern Bald Ibis in the wild quite often stress the relative confidence and tameness of this bird, whose colonies, when not persecuted, used to be sited within or near towns, more or less in the same manner as the White Stork, although Bald Ibis used to breed in holes and crevices of walls and rock faces. As happened with storks this confidence with man resulted in both its luck and misfortune, according to human culture in different sites and periods.

Since ancient times, the Bald Ibis was considered a “holy” species by many peoples, much praised (along with other related ibises) for its “struggle against vermin”.

In the Islamic tradition, Bald Ibis (or “Abu Mengel”) is nothing but the biblical “crow”, sent first by Noah from the ark and for this or other reasons very highly regarded and sometimes actively protected in a variety of countries in the Middle East. It should also be noted that Abu Mengel is praised in Kurdish and Islamic tales as the indicator of the way to the Mecca, whilst the “crow” or the “Ibis”, depending to the source, can be both considered “impure, uneatable and untouchable”. Along with the Sacred Ibis *Threskiornis aethiopicus* and before it (as reported by COLLAR & STUART 1985) this bird was object of veneration in ancient Egypt, and its mummies were preserved in the tombs as well (UDO HIRSH pers. comm., DEL HOYO 1989).

It is possible that in Europe, particularly in areas dominated by Christian cultures, this “bad looking” bird was sometimes considered by ignorant people as something of a nuisance, as were other animals living in, on, old buildings, or just an opportunity for an unusual meal.

In Italian literature there are many references to the so-called “*Upupa*”, which cannot be the attractive Hoopoe *Upupa epops* of today (which it must be said has a mournful song and unpleasant stinking and filthy nesting habits). The Hoopoe of Italian literature is ugly, nocturnal and a “portent of bad luck”. This “*Upupa*” can easily be identified as Linnaeus’s “*Upupa eremita*” that features in the first editions of his “*Systema naturae*” (1758). This is without doubt the Northern Bald Ibis (“*Upupa viridis, capite flavo, cervice jubata*” Linnaeus 1758”). Ugo Foscolo, living during the nineteenth century, in one of his poems, which are well known in Italy (“*I sepolcri*” or “The graves”), refers to the Hoopoe as a nocturnal bird, clearly considering it somewhat similar to an owl. Asked by at least two different critics (Arrivabene and Ugoni) who knew the real Hoopoe bird as a “solar” diurnal species, he answered he had the information from an “Ornithologia” as belonging to the Class “*Lucifugae*”. This epistular discussion is reported in details by BACCHI DALLA LEGA (1958).

Many other Italian poets and writers evidently thought along the same lines e.g. G. Parini in his “*Notte*”; Sestini in his “*Pia dei Tolomei*” (III, 53); Gregorovius (1872, “*Ricordi storici e pittorici d’Italia*”, in Bacchi dalla Lega 1958) or S. Cammarano, the author of the “libretto” in Giuseppe Verdi’s opera “*Il Trovatore*”, where “the Witch” is said to transform herself sometimes into a Hoopoe, sometimes into an Owl or a Crow.

In the twelfth edition of the same work (1766) *Linnaeus*, as already noted by Rothschild *et al.* (1897),



Figure 5: Extant open grasslands on the Karst plateau: habitat for declining species like *Alectoris graeca*, *Anthus campestris*, *Emberiza hortulana*, and many others

Slika 5: Obstoječa odprta travišča na kraški planoti: bivališče vse redkejših vrst, kot so *Alectoris graeca*, *Anthus campestris*, *Emberiza hortulana* in mnoge druge

corrected himself calling the species again, as Gesner did: “*Corvus eremita*”.

The somewhat frightening aspect of this black-plumaged, “long-haired” red-cheeked bald bird, quite plausibly nourished the widespread popular belief in witches, as the undesired inhabitants of old churches, monasteries etc. For this reason we would tentatively suggest a possible connection between the Northern Bald Ibis and the myth of “*aquane*”, “*sagane*” and “*agane*”, in Italy. It refers to the name of a number of rocky and precipitous places existing in the Alps and Appennines, generally sited near waterfalls or water courses (*aqua* is water in Latin), which quite often represent suitable breeding places for the Bald Ibis. During the inquisition period, popular superstition and the widespread witch persecution might have accelerated the Bald Ibis's fate although any firm evidence for this is lacking.

If this was the case in or around towns, along coasts, rivers or lake cliffs, its striking resemblance to cormorants and shags, once widely persecuted as responsible for fish damage, is very notable when the ibises are in flight. Perhaps this could explain its rapid disappearance from another relevant part of its possible historical Mediterranean range.

Further indications about the common confusion between different species can be found in a lesser known script by Leonardo da Vinci (1452 – 1519) in which a sentence occurs discussing the presence of the so-called “Maragoni” (“Marangone” is Cormorant or Shag in Italian language) in the “very high and inhospitable mountains” of the “Val di Chiavenna”, near the lake of Como. As this site is not far from the Gesner's “*Lacus verbanus*”, the authors consider it highly probable that da Vinci could, yet again, be referring to the Bald Ibis (“Codice Atlantico; carta n. 214”; ETTORE GRIMALDI *in litteris*, 1991).

But all this is probably not enough to explain the species' extinction and a parallel ecological reason must be found.

Contrary to its main German name “Waldrapp” (a “wood-crow”), the Bald Ibis is typically a bird of very open and mostly dry land. GESNER (1582) reported that: “...it nests on high cliffs, or old ruined towers and castles, which places also caused it to be called the Stone-Raven (Steinrapp), or elsewhere in Bavaria and Styria “Klausrapp”, from the rocks and narrow caves and holes in which it builds its nest.” (The translation from the German is by ROTHSCCHILD *et al.* 1897)

Recent studies and observations carried out in Morocco clearly show the species' dependence upon food from the existence of large extensions

of “steppe” grassland, with the grass not higher than 2 cm on average (BOWDEN & HIRSCH, pers. comm., ANONYMOUS 1999, COLLAR & STUART 1985). The bird is, or was, as a rule, linked with intensively-grazed or/and frequently burnt or/and mowed downlands, a type of human-maintained subclimax that became increasingly rare in the Alps and around the Northern Adriatic area, as a result of the abandonment of the traditional way of life by its human inhabitants, worsened still by both planned and natural reforestation (Figures 5 & 6).

Similar subclimax habitats, maintained by grazing, and burning, are still found in the regions occupied by the Southern Bald Ibis *Geronticus calvus* which is a rather less threatened common species of many sites in South - eastern Africa (around 1250 breeding pairs estimated in 1984 by Brooke; 8-10.000 according to more recent counts – Birdlife International 2000), where the bird is advantaged by regularly burnt savanna or “karroo” highlands and where it breeds on cliffs, near water courses (particularly waterfalls), often associated with vultures and other cliff-nesting birds (COLLAR & STUART 1985, MILSTEIN & WOLF 1973, POCOCK & UYS 1967, SIEGFRIED 1971). This association with other cliff-nesting species begs the question whether such associations existed in the case of the Northern Bald Ibis. The Griffon Vulture *Gyps fulvus* still breeds in good numbers not far from Pula on the islands of the Kvarner Archipelago.

Pollen analysis of many places in Europe show that since ancient times large pre-Alpine and Alpine areas were covered by grassland or scrub, clearly

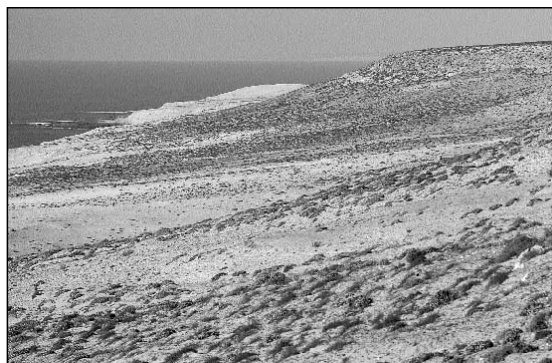


Figure 6: “Steppe-like” open and over-grazed lands of Morocco in the Souss-Massa National Park near Agadir, one of the last foraging resorts for the 200 Bald Ibises surviving in the wild

Slika 6: Pretirano popaseni, stepi podobni svet v maroškem Narodnem parku Souss-Massa v bližini Agadirja, eno zadnjih prehranjevališč za 200 klavžarjev, ki jih je še preživel na svetu

related to human presence and activity. This human-maintained subclimax probably began declining very early in some areas as a result of plague, invasions or wars, all possible consequences of a worsening in climate. More recently the decline is an obvious consequence of a change in human land use and a different perspective on land management. This is the case for the Karst plateau as well, which until recent times consisted of wide open spaces (CRANK *et al.* 1997, PLODDING 1991). Such open areas which still occur at many sites have, however, been rapidly reduced in extent and are disappearing as they are invaded by scrub and bushes. Further declines will continue whilst conservation forestry prevails at the expense of the maintenance of large areas of grassland, endangering many characteristic wildlife species, once common in the area.

4. Conclusions

Recent discoveries strongly support the idea that Northern Bald Ibis was a widespread, although generally localized, breeding species in the Upper Adriatic area, as reported by Gesner.

This is backed up both by recently published checklist of Slovene bird names and an old painting located in the church of Hrastovlje near Trieste.

If we accept such conclusions then the Northern Bald Ibis was probably one of the first species, an opening for which had been created by human customs and activities, to become extinct from the Alps and the Upper Adriatic area, primarily as a result of climatic, cultural and human land use changes; secondarily through targeted persecution and thirdly as a result of the loss of open, grazed and/or frequently burnt grasslands in favour of higher and denser vegetation types.

Whilst not making a case for heavy grazing and uncontrolled burning, such evidence indicates that this vegetational succession, if it occurs throughout an area, should be considered a serious loss from a naturalistic point of view as it has caused, and is still causing, the local extinction not just of the Northern Bald Ibis but of so many plant and animal species.

The authors realise that too much of the information cited consists of simple literary indications and are not truly reliable. What has been attempted is a deductive palaeo-ecology of the Northern Bald Ibis from the available sources. For this reason we cannot conclude without stressing that further research is needed in the Upper Adriatic area with investigations to try to find fossil and subfossil remains of Bald Ibis breeding colonies, as has happened elsewhere in

Central Europe (BAUER & GLUTZ 1966), together with searches of the literature for further clues.

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5. Povzetek

Avtorja sta zbrala vrsto podatkov iz literature, sistematike, lokalnega narodopisja in drugih virov, kot na primer fresk v cerkvi v Hrastovljah na Krasu, da bi potrdila vključitev klavžarja *Geronticus eremita* na seznam ptic gornjega Jadrana, ki ga je v začetku 19. stoletja pripravil baron Žiga Zois, in razpravljata o možnosti, da je bila ta ptica še do nedavna močno razširjena v alpskem svetu in severni Italiji. V članku tudi navajata mogoča napačna imenovanja danes pojavljajočih se vrst, ki so se nekoč morda nanašala na klavžarja, in razmišljata o možnih razlogih za izumrtje te vrste zaradi njenega neposrednega preganjanja s strani človeka (lov mladičev za hrano, neprizanesljivo preganjanje "grdih in strašljivih" odraslih osebkov), klime ("male ledene dobe") in sprememb v klavžarjevem habitatu (izguba odprtih travišč). Avtorja opozarjata, da je ta danes v obravnavanem območju povsem drugačen od tistega, v katerem je klavžar živel sredi prejšnjega tisočletja, in da so izgube habitatov odprtih travišč, ki jih je ustvaril in ohranjal človek, a se z vegetacijsko sukcesijo spreminjajo v gozdove in grmišča, še vedno razlog za lokalno izumiranje ptičjih vrst v Alpah in na Krasu.

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