

Changes in the Eurasian eagle-owl (*Bubo bubo*) population in Czechia and their association with legal protection

Vývoj populace výra velkého (*Bubo bubo*) a jeho souvislost s právní ochranou

Jan ANDRESKA & Dominik ANDRESKA

Abstract: The article deals with trends in the Eurasian eagle-owl (*Bubo bubo*) population in Czechia and the interplay between legal regulation of hunting and nature protection. In the early 20th century, the eagle-owl population in Bohemia decreased to an estimated 20 nesting pairs, and the population in Moravia and Silesia was subsequently estimated to be similarly low. In previous centuries, eagle-owls had been persecuted as pest animals; additionally, their chicks were picked from nests to be kept by hunters for the eagle-owl lure hunting method (“výrovka” in Czech), where they were used as live bait to attract corvids and birds of prey, which were subsequently killed by shooting. As soon as the state of the eagle-owl population was established in the 1900s, the effort to save the autochthonous eagle-owl population commenced. Nevertheless, when eagle-owls became legally protected from killing in the 1930s, the eagle-owl lure hunting method was not prohibited. The intensified use of this hunting method in the 1950s was accompanied by serious decline in the populations of birds of prey in the Czech countryside, when tens of thousands of Eurasian sparrowhawks (*Accipiter nisus*), northern goshawks (*Accipiter gentilis*), common buzzards (*Buteo buteo*) and rough-legged buzzards (*B. lagopus*) were killed on a yearly basis. The usage of eagle-owl chicks in lure hunting was criticised by ornithologists concerned with the conservation of birds of prey. The eagle-owl thus became a subject of more general debate on the role of predators in nature, and this debate (albeit regarding other predator species) has continued to the present-day. As the eagle-owl population has been growing steadily following the prohibition of its killing in the 1930s, its story may serve as an example of the need for effective legal protection of predators to ensure their survival in the intensively exploited central-European environment. The article examines the successful preserving of the eagle-owl in the Czech countryside, from its low point in the early 20th century towards today’s stable and ever-increasing population, focusing on environmental, conservationist, legal and societal aspects of the issue.

Abstrakt: Předložená práce se zabývá vývojem populace výra velkého (*Bubo bubo*) v Česku a souvislostmi s právní úpravou myslivosti a ochrany přírody. Na počátku 20. století se početnost populace výra velkého v Čechách snížila na odhadovaných 20 hnízdních párů; populace na Moravě a Slezsku byla dodatečně odhadnuta jako srovnatelně malá. V předcházejících staletích byli výři systematicky pronásledováni myslivci jako škůdci myslivosti. Výřata byla zároveň myslivci vybírána z hnízd k chovu pro loveckou metodu zvanou výrovka, při které chovaný výr sloužil jako živé lákadlo pro dravce a krkavcovité pěvce (rovněž vnímané jako myslivosti škodící druhy), které bylo na výra možné nalákat a zastřelit. Proto se na začátku 20. století projevil snahy ornitologů o záchranu české výřá populace. Právní ochrana výrů před přímým usmrcováním však byla zavedena až ve 30. letech; výrovka sama však zakázána nebyla. Masivní používání výrovky v 50. letech bylo doprovázeno významným poklesem početnosti jednotlivých druhů dravců v české přírodě, ze které každoročně odstřelem ubývaly desetitisíce krahujců (*Accipiter nisus*), jestřábů (*Accipiter gentilis*), kání obecných (*Buteo buteo*) a kání rousných (*B. lagopus*). Z tohoto důvodu začala být výrovka kritizována ornitologickou veřejností zabývajícími se ochranou dravců. Výr se tak stal předmětem obecnější diskuze o úloze predátorů v přírodě; debaty, která (ovšem ohledně jiných druhů) trvá dodnes. Vzhledem k tomu, že populace výra od zavedení ochrany ve 30. letech stále roste, může příběh její záchrany posloužit jako příklad nutnosti účinné právní ochrany predátorů v intenzivně využívané středoevropské krajině a přírodě. Předložený článek se zabývá úspěšnou záchranou výra v české přírodě, z pohledu vyhubení až ke dnešní stabilní a stále sílící populaci, a to z environmentálního, ochranného, právního a společenského úhlu pohledu.

Key words: owls, lure hunting, nature conservation, Central Europe

Jan Andreska, Charles University in Prague, Faculty of Education, Magdalény Rettigové 4, 116 39 Praha 1, Czech Republic. Email: jan.andreska@pedf.cuni.cz

Dominik Andreska, Charles University in Prague, Faculty of Law, Nám. Curieových 7, 116 40 Praha 1, Czech Republic

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Introduction

Over the course of the 20th century, the understanding of the role of predators in ecosystems has evolved tremendously. Many species which used to be persecuted or were already exterminated in the territory of Czechia (the area within the borders of today's Czech Republic, divided historically into Bohemia, Moravia and Silesia) by the 1900s have since become protected by law and have started to return to the countryside of both Czechia and the broader central European region (Andreska et al 2007, Andreska & Andreska 2014a, 2014b, 2015, 2016, Andreska 2017a, 2017b). Examples of such species include the white-tailed eagle (*Haliaeetus albicilla*), the great cormorant (*Phalacrocorax carbo*) or the common raven (*Corvus corax*) among the birds, and the beaver (*Castor fiber*), the elk (*Alces alces*) or the grey wolf (*Canis lupus*) among the mammals. This evolution in thinking as well as law can be well demonstrated in the change of human approach towards the Eurasian eagle-owl (*Bubo bubo*) in Czechia (Andreska & Andreska 2018). In the early 20th century, the eagle-owl was perceived solely as a harmful predator and a pest to hunting, and was therefore systematically exterminated, its population reaching its all-time low of only 40 nesting pairs (estimated) (Loos 1906, Hudec 1983; see further). It has however since been acknowledged as a valuable example of living natural heritage, well worthy of strict legal protection (Andreska & Andreska 2018).

Accounts in the literature differ as to when legal protection of the eagle-owl was introduced in Czechia. While Hudec et al. (1983) suggest the year 1929, as does Jirsík (1935), Leiský (1962) proposes the year 1926 and Černý (1958) the year 1928. None of these authors mention the particular legal instrument which introduced the protection by either number or name. An additional topic emerged with deeper research into the work and data of Loos (1906), according to whom the autochthonous eagle-owl population was on the verge of extinction at the beginning of the 20th century. We therefore started wondering how a population which was allegedly almost exterminated by 1904 survived until the introduction of legal protection some 25 (!) years later, what the motivation for the introduction of such protection was, and how the development of legal protection has contributed to trends in the eagle-owl population until today.

To our knowledge, no research into the effects of legal protection on eagle-owl population trends (or of other species in the Czech countryside) covering any extended period of time has ever been conducted.

The size of the eagle-owl population in Czechia, on the other hand, has been surveyed at least ten times. Leav-

ing aside Šír (1892), whose data has been challenged by many authors, it was primarily Loos (1906; only for Bohemia), then Jirsík (1944; only for parts of Czechia – see further), Sekera (1950), and since the 1970s four times by means of square grid mapping of breeding distribution (Šťastný et al. 1996, 2006; data from last mapping not yet published), the 1982–1985 winter mapping (Bejček et al. 1995), and a further three times in monitoring of bird species listed in Annex I of the Birds Directive (Hora et al. 2010, 2015, 2018).

Trends in the eagle-owl population have however not been studied in detail together with the development of the law on species protection in Czechia. Research into the effects of legal protection on bird species population trends was conducted by Voříšek et al (2008), but their study evaluated the population trends for all protected species, and the reference data used were those collected in the second (1985–1989) and third (2001–2003) square grid mapping studies of breeding distribution, so only a relatively short period of time was covered. We, on the other hand, intended to conduct a qualitative study covering a longer period of time (beginning in the late 19th century), and focusing especially on the time period when the eagle-owl was not yet fully protected.

There were two dimensions to historical eagle-owl persecution. Not only were eagle-owls exterminated as perceived pests, but eagle-owl chicks were also systematically picked from the nests to be used for a special hunting method called výrovka (výr = eagle-owl in Czech). The eagle-owl lure hunting method was a traditional method of extermination of birds considered as pests in hunting, primarily corvids (hooded crows *Corvus cornix*, carrion crows *C. corone*, Eurasian magpies *Pica pica*, jackdaws *Coloeus monedula*, jays *Garrulus glandarius*) and birds of prey (notably Euroasian sparrowhawks *Accipiter nisus*, northern goshawks *Accipiter gentilis*, common buzzards *Buteo buteo* and rough-legged buzzards *Buteo lagopus*), while other species were usually targeted indiscriminately (Andreska & Andreska 2017). The eagle-owl lure hunting method took advantage of the natural hostility of daylight birds (especially corvids and birds of prey) towards the eagle-owl as the apex nocturnal predator. If an eagle-owl is discovered in daylight by other birds, they alert the surroundings with screaming and start attacking it. A hunter using the eagle-owl lure method kept an eagle-owl in captivity and used it as bait in the open to lure corvids and birds of prey to attack it, and then shoot them with a shotgun (the term výrovka applies both to the name of the method and the location where such hunting took place, so it is also a common local toponym). This method was

in fact probably used throughout Europe. The first record of it can be found as early as in the 13th century (Willemssen 1979). It was subsequently used in German-speaking countries (Willemssen 1979), and it is also well-known in France (Passerat 1906).

In Czechia, the eagle-owl lure hunting method was very popular among hunters (Komárek 1941). Firstly, it proved to be very effective, especially for killing birds of prey. Using it, a single hunter was able to kill 12 falcons (*Falco peregrinus*), 11 hobbies (*Falco subbuteo*), 25 common buzzards, 27 northern goshawks, 23 Euroasian sparrowhawks, 18 common kestrels (*Falco tinnunculus*), 41 crows and 15 magpies in only two days (!) in autumn 1812, most likely at the time of migration (Andreska & Andresková 1993). However, where the lure method was used repeatedly, smarter corvids soon learned that the eagle-owl regularly appearing in the same place was accompanied by a hunter, so they proceeded with caution, whereas birds of prey, especially the ones only passing by along a migratory route, were often decimated (Andreska & Andreska, 2017). Secondly, one should also bear in mind that shooting at a flying target gives the hunter significant (and different kind of) satisfaction from the hunt, giving the eagle-owl lure method an additional attractiveness among hunters, who were very fond of it (Komárek 1941).

We may summarise people's attitude towards eagle-owls in Czechia in the past as a combination of three semi-opposing interests: to exterminate them as pests, to acquire their chicks to be used as bait in the lure hunting method, and then to give it legal protection as required for its preservation and recuperation of the population.

Material and methods

After compiling and assessing the available literature regarding the human approach towards the eagle-owl, its protection and estimates of its population size (see further), we focused on finding the available regulations and any more specific data on the population size, including data on killed specimens.

As for the literature, we started with Šťastný et al. (2006), Andreska & Andresková (1993) and Hudec (1983), and traced available sources as far back as possible. We then went through the historical issues of specialised “guild” magazines and journals, in order to establish how eagle-owls were perceived by the parties concerned, especially in the hunting and ornithology communities. We went through Myslívost and Stráž myslívosti (the official journals of the Czechoslovak/Czech hunters' association), Sylvia (the research journal of the Czechoslovak Society for Ornithology), and

Ochrana přírody (the leading journal on nature protection). We mostly worked with archived journals stored either at the Antonín Švehla Library in Prague or at the National Museum of Agriculture's library in Ohrada, Hluboká nad Vltavou.

We also endeavoured to identify the legal instruments which set the regulatory basis for human conduct towards the eagle-owl. Prior to the emergence of conservation and nature protection legislation in the 20th century, the legal basis for utilization, protection (and sometimes legally-encouraged extermination) of particular animal species was set by legal instruments on hunting, forestry and agriculture; furthermore, these were often adopted in parallel to each other, rather than creating a unified framework (Andreska & Andreska 2020). Another challenging issue was that the historical regions making up Czechia (the lands of Bohemia, Moravia and Silesia) had different legal regulations on agriculture, forestry and hunting, so the relevant instruments had to be searched for in triplicate. Lastly, legal instruments regulating human conduct towards the eagle-owl were initially often instruments of sub-statutory legislation which were not published in the primary legal gazettes, but often in secondary (regional or theme-specific) and therefore less accessible official publications. We eventually discovered the majority of legal instruments applicable in Czechia in the archive of the Library of the Czech Parliament in Prague; some (see further) we did not find in the original, but they were found fully-transcribed in the Stráž myslívosti journal. After finding the relevant legal instruments and establishing successive series of applicable legislation in all three lands, we compared the regulations both in succession and synchronously in different lands, establishing in the end that the approaches in the different lands were actually very similar, with relevant protective norms being introduced more or less simultaneously (see further).

In the next step, we looked for reference data which would allow us to establish the effect of the adopted legal norms on eagle-owl population dynamics. As the data on eagle-owl population sizes were scarce (see above), we turned to other available sources of data collected more often, namely the hunting (kill) statistics. However, prior to 1918 Czechia was part of the Austro-Hungarian Empire and divided into three administratively independent units (Bohemia, Moravia and Silesia), with official (hunting and agricultural) statistics also being collected independently. We looked for statistics on killed specimens in the Třeboň office of the Czech State Archive, where historical statistics from the vast Schwarzenberg-owned domains in Southern Bohemia are assembled, but the data

found there were incomplete and covered only a small area. We further searched in the Ústav pro hospodářskou úpravu lesů [Forest Management Institute] archive in Brandýs, but to little avail. We eventually discovered the raw statistics purely by chance in the archive of Kojetice village, in the form of yearly statistical sheets listing numbers of killed specimens of various animal and bird species per administrative unit and per specific year, beginning in 1874 (sheets for certain years were missing, though). The data from different yearly sheets were collected and put into charts (see further). We eventually found additional data in Schwenk (1985); there are still blank spots, presumably when the data for a particular species were not sent to Vienna and were therefore not published. We did not succeed in finding any statistics for the period after 1914; we presume that the collection ceased on the eve of WWI and was not resumed afterwards. Therefore, as of October 2020, we still do not have a continuous timeline of all eagle-owls reported killed in Czechia after 1914. The statistics on younglings picked from nests were not centrally collected at all; some incidental data are available from particular hunting domains (Andreska & Andreska 2018), but not at all enough to provide a comprehensive picture.

Results and discussion

Eagle-owls in Czechia in the early 20th century: people's attitudes towards them, the state of the eagle population, and their treatment in law

At the beginning of the 20th century, the autochthonous population of eagle-owls in Czechia was on the verge of extermination. By that time, eagle-owl has been persecuted for centuries as dangerous pest, labelled as such by textbooks and authorities on hunting of the time (see e.g. Rozmara 1912). Descriptions of its diet traditionally highlighted a high proportion of scrub hares (*Lepus europaeus*), common pheasants (*Phasianus colchicus*) and grey partridges (*Perdix perdix*) (Fleming 1724) which were (and still are) considered valuable game; this does not correspond to the scientific data on its diet available today (Havelková 2007, Obuch 2018). Over time, exaggerated assertions about the occasional predation of roes (*Capreolus capreolus*) (Rozmara 1912) were added to the superstitious legends surrounding the eagle-owl, firmly labelling it as an animal to be killed on sight in the eyes of most hunters. The persecution was in accordance with the 19th century perception of hunting and wildlife management, where the animals considered pests to hunting were systematically eliminated from ecosystems by hunters using all available means, and hunters were motivated

by reward money paid per killed specimen (Andreska & Andresková 1993).

Systemic extermination of eagle-owls eventually led to the extinction of the species in most of Czechia, with surviving specimen isolated in handful of refugia (Loos 1906, Maxera 1932). The declining state of the eagle-owl population attracted attention of Kurt Loos who (1906) estimated the number of surviving nesting pairs in Bohemia in 1904 at 16 with others having been exterminated between 1896 and 1904 (he presented his data in the form of a complex table which lists recorded breeding in 32 nesting locations between 1895 and 1904, see also Fig. 1); Černý (1958) interpreted the table as “25 nesting pairs at most” whereas Hudec (1983) interpreted it as “only some 20 occupied nests in Bohemia”, and further himself estimated “similar situation in Moravia” (presumably, as Hudec did not specify it, but most likely including Silesia). Loos's and Hudec's numbers combined together estimate the size of the eagle-owl population in Czechia in 1904 to consist of only some 40 nesting pairs.

At the same time, however, hundreds of specimen were yearly reported as killed in the Czech countryside between 1874 and 1914, per official statistics (Schwenk 1985, see also Fig. 1). Obviously, such high numbers do not correspond to the numbers reported by Loos (1906) – had the population been really so small, it would have not been able to produce enough offspring to be killed and reported in the statistics, even with possible (improbable though) influx of migrant birds from abroad. Either Loos or the statistics (or both) must therefore have been wrong.

As for reliability of Loos's data (his numbers appear to be undervalued), Loos in the foreword to his book describes in detail his method of data collection (general questionnaire published in forestry journals followed by some 300 direct request for reports from local hunting authorities in judicial-administrative districts, most of which were replied to), resulting in an overview he himself considers satisfactory, although he mentions the possibility that certain nests were omitted, too. In our opinion, his method of using data from local observers does not significantly differ from methods used today, and allowed for marginal error only; we conclude that the actual size of the population might have been bigger, but not significantly bigger.

As for the reliability of the statistics, the room for scepticism and criticism is wider. First of all, there was an obvious motivation to boost the numbers of the reported specimen killed, as reward money was paid to the reporting hunters. We speculate that talons (traditional evidence of killing pest birds) of other owls (presumably those of

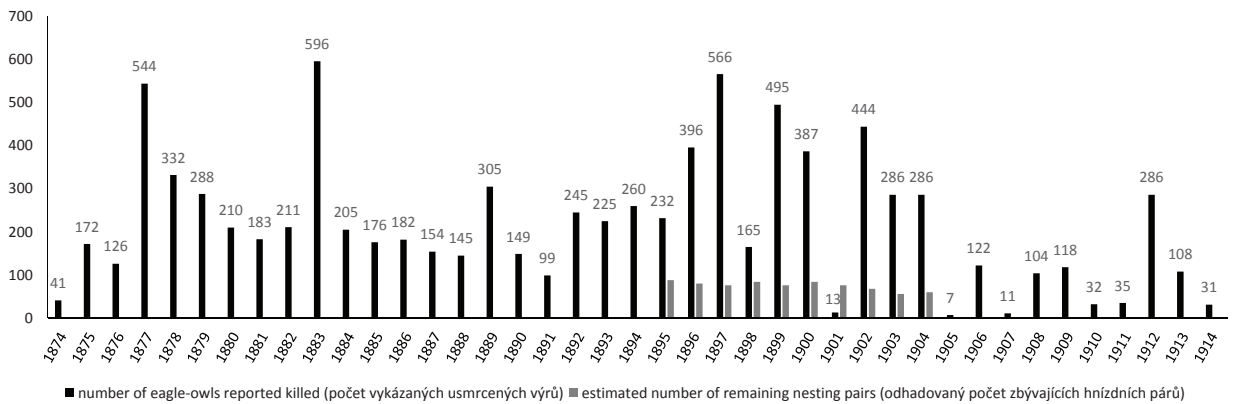


Fig. 1. Number of eagle-owls officially reported to be killed between 1874 and 1914 (Schwenk 1985, black columns) and population size estimates between 1895 and 1904 (Loos 1906, Hudec 1983, grey columns).

Obř. 1. Počet vykázaných usmrcených výřů v letech 1874 až 1914 podle oficiálních statistik (Schwenk 1985, černé sloupce) a odhady velikosti populace v letech 1895 až 1904 (Loos 1906, Hudec 1983, šedivé sloupce).

tawny owls (*Strix aluco*) which were abundant, no reward money was paid for them and since 1870 they were protected (Andreska & Andreska 2020) could have been intentionally presented by shooters when claiming money and accepted by the other side, which may have even coluded; Loos (1906) also suggested that tawny owls were misidentified as eagle-owls. The reliability of the statistics was criticised as early as in 1910 (Kněžourek 1910). A century later, however, it is for us utterly impossible to determine, to what degree the statistics were false (or falsified); it however seems safe to say that the actual number of killed eagle-owls was lower, but still, given the population size, presented a limiting factor to its survival.

Bearing in mind the above-mentioned critical considerations, the number of eagle-owls reported killed shows a steady decline after 1902 (the number reported in 1901 being inexplicably low, and the number in 1912 the only one which does not fit this trend; see Fig.1). This decline cannot in our opinion be explained by the lack of reporting, as the hunters were motivated to report their kills to receive the reward money. In our opinion, the decline was actually caused by the small number of eagle-owls being killed, which supports Loos' claim that the remnants of the eagle-owl population were in fact at the lowest point, although the population was probably bigger than he estimated in 1906.

As for the attitude of the law towards the eagle-owl in the early 20th century, the treatment of this species occurring in the Czech countryside was regulated by the law on hunting and agriculture. Laws on nature protection as we know it today did not yet exist, with only a set of three almost identical laws on protection of animals beneficial

to agriculture adopted in 1870 (Act no. 39/1870 for Bohemia, Act no. 36/1870 for Moravia and Act no. 34/1870 for Silesia), providing protection for a limited number of animal species which were considered worthy of protection as they hunted pests (mice and insects). Among them, all species of owls in Czechia were to be protected (including their nests, eggs and young), with the single exception of the eagle-owl, which was to be further persecuted (Andreska & Andreska 2020).

The actual management of animals in the wild was for the most part entrusted to landowners; the performance of this management was then left to professional hunters employed by the landowners, and amateur hunters in the hunting districts they leased from the landowners on a contractual basis. This approach lasted well into the second half of the 20th century, and created understandable difficulties for nature protection, protection of eagle-owls included (Andreska & Andreska 2017, 2018). The eagle-owl lure hunting method, the other important factor for the survival of eagle-owls in the Czech countryside, had not been regulated by law at all at the time, and neither had the picking of eagle-owl chicks from nests for lure hunting (Andreska & Andreska 2017). In his book on eagle-owls Loos argued for protection and conservation of the species (Loos 1906), and similar concerns were also raised by Kněžourek (1910). Their suggestions, however, were not reflected in the revised Silesian act (no. 41/1909), nor in the revised Moravian act (no. 14/1913) on the protection of animals beneficial to agriculture, nor the revised Moravian hunting act (no. 4/1914).

The question then naturally arises as to how the extremely threatened eagle-owl population survived its low

point. Loos (1906) reports that young eagle-owls were picked (on a yearly basis) from many of the eagle-owl nests he had obtained reports about. Maxera (1932) recalls that (around 1900) the nests with young eagle-owls in the forests of the Křivoklát estate were guarded by the estate owner's foresters so that they would not be picked by poachers (though we suspect that this was intended to ensure they could be picked and sold by the estate itself). Apparently not even the surviving nesting pairs were allowed to reproduce, further limiting the population dynamics of the species. On the other hand, however, we also suspect that it was precisely the demand for eagle-owl chicks to be kept for lure hunting (or more precisely the possibility to pick and sell the chicks to hunters for use in areas where eagle-owls were already exterminated, which made it impossible for local hunters to pick the young from nearby sources) which was the main reason why the last remaining nests were not destroyed and the population was not exterminated entirely. The breeding eagle-owl pairs were simply more valuable as a source of young birds which could be sold on a recurring basis. In this way isolated nesting pairs and sometimes small local populations survived.

Czechoslovakia (1918–1932): legal and societal development and its implications for eagle-owl protection and their population dynamic

Following the dissolution of the Austro-Hungarian Empire after its defeat in WWI, the independent state of Czechoslovakia was established in 1918. The legal system implemented in Czechoslovakia consisted in major part of the old laws applied during imperial times, as the young state was slow in adopting new laws to replace the old ones (Hácha et al. 1932). Because of this, the species protection law remained without any change until 1929, so the legally encouraged persecution of eagle-owls continued as well. We nevertheless do not have the kill statistics from that time to provide hard evidence of how many eagle-owls were (reported) killed after 1914.

During the winter of 1928/1929, extremely cold weather which lasted for two consecutive months took a grave toll on wildlife and also game, which drew attention to the necessity for more stringent legal protection of both (Andreska & Andreska 2018). This resulted in swift adoption of Act no. 98/1929 Coll. (the so-called “Minor hunting act”), which comprehensively amended the four parallel hunting laws still applicable in Czechoslovakia at the time (including the Bohemian, Moravian and Silesian parts [see above]) and prescribed a unified closed season for most of the hunted species throughout

the whole country. Additionally, the 1929 Law allowed for alterations to the closed season as well as establishing protection for additional animal species by sub-statutory ordinances throughout Czechoslovakia (the three lands mentioned above, plus Slovakia).

Protection was soon given to two previously-unprotected bird species, in particular the peregrine falcon (*Falco peregrinus*) and the eagle-owl. The protection of both species was first adopted in Bohemia in 1930 (land-presidential ordinance no. 333.546 ai 1930, 27-942/4 ai 1930 of 11 July 1930) and Moravia-Silesia followed in 1931 (land-presidential ordinance no. 6.784/VI/15-31 of 20 November 1931).

The protection of the eagle-owl was not absolute however. While pursuing, capturing and killing of eagle-owls as well as collecting of their eggs and destroying their nests were expressly prohibited by all three decrees, an obvious (and clearly intentional) loophole remained: the picking of chicks from nests (for lure hunting) was omitted and therefore still allowed, so the practice continued unobstructed. In 1935 alone there were 12 eagle-owl advertisements in the *Stráž myslivosti* journal, with one of the sellers offering a young eagle-owl for 400 crowns (for comparison: one kilogram of bread cost 2 crowns, a litre of milk 1.5 crowns, one kilogram of butter 17 crowns at the time; Czechoslovak Statistical Office 1936).

The first public debate on the eagle-owl lure hunting method (1932)

The decrease in game numbers following the winter of 1928/1929 had another direct consequence. Under the pretence of protecting game (especially partridges and pheasants, which had been worst affected) and to ensure its quick resurgence to pre-1928 numbers, a campaign against all kinds of predators was intensified by hunters. The intensive killing of birds of prey using the eagle-owl lure hunting method especially attracted the attention of conservationists interested in bird protection, who soon opened a public debate on the issue (Musílek 1932, Andreska & Andreska 2018).

The debate was initiated in 1932 by Josef Musílek, the secretary of the Czechoslovak Society for Ornithology. In an open letter in the *Stráž myslivosti* journal (which also had an expert section on ornithology, as ornithologists of the time were often hunters and did not yet have their own journal, since the first scientific ornithological journal, the *Sylvia*, was initially issued in 1936), he called for prohibition of eagle-owl lure hunting and a more responsible attitude towards protection of birds of prey (Musílek 1932). The letter was accompanied by

an editorial plea for readers' experience and opinions on eagle-owl lure hunting by the journal's editor Octavian Farský. Altogether, 17 respondents (experts and laymen alike) shared their views. An extensive answer was provided by Farský himself, in which he consistently criticised the hunting of birds of prey for alleged economic reasons, pointing out their role as predators of small rodents which were the real pests for agriculture (Farský had previously examined the usefulness of birds of prey and corvids for agriculture by analysis of the contents of their stomachs). Analysis of the responses showed that the respondents favoured maintaining the lure hunting method, both as an (allegedly) effective method of elimination of pest birds (especially crows and rough-legged buzzards) and as a traditional source of hunter's pleasure (Komárek 1941, Andreska & Andreska 2017). In a way, the 1932 debate foreshadowed the upcoming decades of clashing opinions on the ecological role of birds of prey (and predators altogether) in the wild, which has in a way continued until today (Andreska & Andreska 2018).

Developments in hunting law in German-occupied Czechia (1939–1945)

A higher level of legal protection, i.e. on the level of a legal regulation with nationwide application, was afforded to the eagle-owl by the governmental regulations on hunting (no. 127/1941 and no. 128/1941) in the later German-occupied Protectorate of Bohemia and Moravia (Böhmen und Mähren). The regulations unified the hunting law in the remnants of Bohemia, Moravia and Silesia, including species protection. The eagle-owl was still considered as game, but as no hunting season was prescribed for it, it was to be protected all year round.

Jirsík (1944) reported 75 nesting pairs of eagle-owls in Czechia. Among others he also used the method of correspondence inquiries, which was usual at that time. He described the state of the population at that time and noted the recent reoccupation of historically-used but abandoned nesting sites. In his research he had to deal with the reduction in the area of interest due to the incorporation of Czechia's borderlands (mainly Sudetenland) into the German Reich following the 1938 Munich Agreement. His data therefore only relate to the area of the remaining Protectorate, and have to be treated accordingly.

Additional strengthening of protection for eagle-owls was introduced by the Regulation of the Supreme Hunting Authority no. 37009-VI/4/1943 on the picking of eagle-owl chicks from nests, published in 1944. The 1944 Regulation was unusual among other hunting regulations of the time due to its extent and thoroughness.

First, in its introduction the 1944 Regulation specified the reasoning behind the stricter protection of the eagle-owl: "It has been pointed out that very often the chicks are picked from nests, that there is an uncontrolled trade in the eagle-owl, and that there is a risk to further preservation of this item of natural heritage. The demand for live eagle-owls is due to the abundant practice of eagle-owl lure hunting (...)" Second, it introduced stricter protection of eagle-owls by providing an authoritative interpretation of the provisions of the 1941 Regulations, which were to be applied further to eagle-owl protection. Primarily, from that time on the picking of chicks from nests required a permit from the Supreme Hunting Authority, and if any chicks were picked without such a permit, the perpetrator, even though otherwise legally entitled to engage in hunting, committed a fineable contravention; those not legally entitled to engage in hunting committed the misdemeanour of poaching, incurring much graver punishment. Furthermore, to prevent attempts to cover up picking without permits and subsequent falsifying of chicks' origins, the 1944 Regulation specified that no eagle-owls could be brought into the Protectorate from abroad.

Interestingly, the 1944 Regulation also addressed the apparent lack of scientific data on the eagle-owls surviving in the Protectorate (presumably to have a basis of data to take into account while issuing permits), by attaching a questionnaire on the presence of eagle-owl in all set hunting districts. These were to be obligatorily filled in by every person legally entitled to hunt in every hunting district, and this inquiry was to be conducted on a yearly basis. Furthermore, a second questionnaire was issued regarding eagle-owls already kept in captivity; the detailed information required about every specimen was to serve as the basis for the owners' permits and certificates. Every eagle-owl kept in captivity was also to be fitted with an individual numbered ring. To ensure compliance, the certificates were to be kept by both the owner and the hunting authorities, and any changes (e.g. in the eagle-owl's condition or in its ownership) were to be reported immediately. Last but not least, the Regulation also explained step-by-step the administrative procedure of applying for the picking permit and added guidelines for the picking itself.

Even though the 1944 Regulation did not intend to prohibit the eagle-owl lure hunting method, its apparent ultimate aims were firstly to ensure sustainable management of the eagle-owl in the wild as a rather peculiar natural resource, and secondly the creation of administratively controllable records of eagle-owls kept in captivity.

However, the data collected in the inquiries (the authors do not doubt it was collected, given the totalitarian nature of the Protectorate regime) was never published or made available in any way, and none of the later researchers (see further) were aware of them, otherwise they would undoubtedly have used them as reference data; the only available data are those from Jirsík (1944).

Post-war Czechoslovakia (1945–1958): societal and legal developments and their effects on eagle-owl protection and their population dynamic

Following the liberation and re-emergence of Czechoslovakia in 1945, unification of the legal systems in both parts of Czechoslovakia became one of the main aims of the new legislature (Kuklík 2009). This applied to all branches of law, including the law on hunting, and a new hunting act no. 225/1947 Coll. entered into force in 1948. Again, the eagle-owl was still considered as game (and a pest), however no hunting season was prescribed for it, and thus it was indirectly given year-round protection. An exception from this protection was granted for hunting inside of pheasantries, where otherwise protected raptor species including eagle-owls could be hunted freely without any special permits. Thus the unconditional prohibition of hunting eagle-owls was broken after just 15 years (Andreska & Andreska 2017). Additionally, the 1947 Act did not include any provisions on either the eagle-owl lure hunting method or on the picking of eagle-owl chicks from nests, thereby allowing both practices to continue without any restriction.

The provisions of the 1947 Act on hunting and their implications for eagle-owls were soon criticised by Slovak ornithologist and environmentalist Turček (1948). His insight was even more important as it came from Slovakia, where the eagle-owl was still abundant. He was especially concerned with the apparent loophole in the new legislation, as it did not explicitly prohibit picking of chicks and subsequent trading with them (Turček 1948). In the early 1950s, Sekera (1950, 1954) collected data on the numbers of eagle-owls by means of a questionnaire for the local hunting associations, and gathered data on 475 individual eagle-owls (not pairs) in Czechia. Influenced by the traditional hunters' approach, Sekera considered the rise in numbers to be an alarming consequence of too stringent protection, and advocated for its reduction. Notably, he was the first author to present figures for the whole territory of the state; still, his data came from the methodologically problematic questionnaire inquiry. Sekera's methods of data collection as well as the data themselves were subjected to hard criticism

by Černý (1958), who dismissed Sekera's approach as naïve and his data as unreliable and exaggerated, especially when compared to data presented by Loos (1906) and Jirsík (1944). However, when put in the chart with the estimates and data collected prior to and after Sekera's inquiry, the latter's data do not seem that much out of line, as they more or less correspond to the overall population dynamic (see Fig. 2)

In 1951, ministerial decree no. 283/1951 implementing the 1947 Hunting Law was adopted. The eagle-owl was given a lot of attention, as the decree addressed both picking of eagle-owl chicks from nests as well as welfare of eagle-owls kept for lure hunting. It essentially followed the approach of the 1944 Regulation, as picking was now conditional upon obtaining a permit from the regional administrative office by a hunting manager who would keep one chick and obligatorily offer any others to the Czechoslovak Hunting Association, which would solely manage their trade, and the eagle-owls kept in captivity were subject to record-keeping and fitted with identification rings. We suggest though that the decree was adopted to regulate one of the last free-market areas in by then Socialist Czechoslovakia, rather than to ensure the sustainable management of eagle-owls in the wild.

The second debate on the eagle-owl lure hunting method and subsequent developments in eagle-owl protection (1958–1975)

The advent of people's hunting, allowed for by the 1947 Hunting Law and more generally also by wider societal changes following the Communists' taking power in February 1948, changed the overall approach towards hunting. Hunting as a free-time activity was now available to more people, especially from the social strata which were previously not eligible to take part, and hunting was classed as a form of agriculture rather than a free-time activity; this was also reflected in the preamble and provisions of the 1947 Hunting Act (Andreska & Andreska 2017). Both changes resulted in increasing demand for game, and by extension also in unrelenting pressure on predators, including birds of prey, which soon became an integral part of hunting management (Čabart 1952). Renewed, more intensive spread of the eagle-owl lure hunting method led both to massive extermination of common and rough-legged buzzards (both species were previously protected, but the 1947 Act abolished that protection) as well as to increased demand for eagle-owl chicks to be used as bait, resulting in turn in additional pressure on the eagle-owl population (Andreska & Andreska 2018).

The debate on lure hunting among the concerned public was reopened in 1958. In an article published in the *Myslivost* journal (the continuation of the original *Stráž myslivosti* under a new name, but with the same readership and impact), Čestmír Folk, Jiří Havlín and Karel Hudec, researchers at the Laboratory for Vertebrate Research of the Czechoslovak Academy of Sciences, criticised the in their opinion excessive elimination of buzzards. According to the data of the State Statistical Office, in 1950 alone some 12,000 common buzzards and 7,000 rough-legged buzzards were killed in Czechia (Folk et al. 1958); as for reliability of these numbers it should be pointed out that not all killed animals were reported to the authorities or appear in the statistics. Additionally, Folk et al. (1958) pointed out plentiful accounts of protected species of birds of prey being killed due to hunters' inability to accurately identify the bird species before taking their shot. In conclusion, the authors argued for redefining the list of pest animals as well for a new understanding of what makes an animal an actual pest in the wild, and further for prohibition of eagle-owl lure hunting as a method generally in conflict with traditional hunters' ethics (Folk et al. 1958).

The editors of the *Myslivost* journal themselves were the first to respond to the article in an attached note signed only as "Department of Hunting, Czechoslovak Hunting Association". In a rather hostile tone, the note defended the lure hunting method and (in response to the allegations of protected birds of prey being shot in error) stated bluntly: "Besides, our ornithologists are partially guilty too. For so long they paid no attention to the work of hunters, and only in some places did they cooperate with the hunters and educate them about birds of prey, their importance and how to identify them." This notion was just as despicable (as it tried to shift the burden of responsibility from the actual perpetrators to those pointing out the problem) as it was untrue, as there were several books which had been published on the topic. Obhlídal (1957) argued for better knowledge of birds of prey among hunters, including testing of their ability to identify birds in flight during the hunting license exams, and Jirsík (1941) highlighted the importance of birds of prey in the wild and argued for their stricter protection; the book also included a detailed manual for identification of birds of prey.

The debate about eagle-owl lure hunting and the protection of birds of prey, as well as more generally their role in the countryside, persisted for two more years on the pages of the *Myslivost* journal (Andreska & Andreska 2018). It was symptomatic for the change in course for subsequent developments in law and policy regarding

this hunting method and the protection of birds of prey and eagle-owls in particular from legally-encouraged elimination towards legally-imposed conservation.

Soon after the conclusion of the debate on eagle-owl lure hunting, a new hunting act, no. 23/1962 Coll., was adopted. It took a strangely inconsistent approach towards the eagle-owl: on the one hand it was still considered as a pest which could be shot in any hunting district by any hunter, but at the same time the implementing decree no. 25/1962 Coll. no longer allowed the killing of eagle-owls in pheasantries and provided them with year-round protection, with the exception of picking chicks from nests to be kept for lure hunting. Thereby the de facto absolute prohibition on killing eagle-owls which had existed between 1930 and 1947 was reinstated. Killing of birds of prey using the lure method was prohibited by decree no. 4/1967 Coll. (though it was still allowed for killing corvids). Finally on 31 January 1975, by decree no. 10/1975 Coll., eagle-owl lure hunting was completely forbidden. The picking of eagle-owl younglings immediately declined (Honcú 1985, see also Fig. 2). The first square grid mapping of breeding bird distribution in Czechia took place only shortly before, providing data on numbers with a reliability never previously achieved. According to the data collected, there were some 400–600 nesting pairs of eagle-owls, based on the 1973–1977 square grid mapping (Šťastný et al 1987).

Development of legal protection for eagle-owls and their population dynamics following the prohibition of the eagle-owl lure hunting method (1975–today)

The prohibition of eagle-owl lure hunting had an immediate impact on the practice of picking eagle-owl chicks from nests (Andreska & Andreska 2018). Even though picking itself was not prohibited, without the possibility of subsequent use for lure hunting, it made no more sense and the practice was abandoned over time (see Fig. no. 2). Whereas in 1973 and 1974 alike 19 eagle-owl chicks were picked, after the prohibition of lure hunting in 1975 the number of picked chicks dropped to two and remained around that figure until the practice was prohibited. Of course, unreported picking along with unreported killing might have been (and today still is) a factor affecting population dynamics, but we assume that the effects of picking have been marginal since the eagle-owl lure hunting method was finally prohibited.

The official statistics (ÚHÚL 2020) operate with the general word "kill" (quarry), but in fact the lost specimens could not have been killed (and reported), as killing was already prohibited at the time. Specimens reported as

killed must therefore actually have been captured, either picked as chicks from nests or captured as adults, rather than killed. The changes in the law as of 1975, 1988 and 1992 are marked in Fig.2.

After the prohibition of eagle-owl lure hunting, the eagle-owl population in Czechia continued to grow steadily, doubling the number of occupied squares in the square grid map (Šťastný et al. 2006), with old abandoned nesting locations being retaken again. In the 1980s and 1990s it grew so big that previously-unknown nesting locations were also occupied (Kunstmüller 1996). According to the data collected in the second square grid mapping (1985–1989), there were some 600–950 nesting pairs in Czechia at that time (Šťastný et al. 2006), a significant rise compared to the 400–600 nesting couples reported from the 1973–1977 square grid mapping.

Finally in 1988, picking of eagle-owl chicks from nests was finally prohibited by another ministerial decree, no. 20/1988 Coll. The same decree on the other hand sparked the last flare-up of the conflict about the eagle-owl's role in nature, as it allowed capturing of eagle-owls present in pheasantries and hunting districts with established presence of capercaillie (*Tetrao urogallus*) and black grouse (*Lyrurus tetrix*; excessive hunting along with steady pressure on their habitats has brought these two species in Czechia to the verge of extinction as well; Šťastný et al. 2006). The captured eagle-owl was

not to be harmed by the capturing mechanism and was to be handed over to a zoo within seven days after capture. The change in the law was readily accepted by the hunting community, with 22 eagle-owls reported captured between 1988 and 1991. The practice was prohibited in any case following the adoption of the new Nature Protection Act, no. 114/1992 Coll., as the eagle-owl was finally included among protected species listed in the implementing decree no. 395/1992 Coll., in the “endangered” category (the lowest level of protection of the three, which does not express how threatened the species is, neither is it derived from the IUCN categorization). That still means, among other things, that since the adoption of the 1992 Decree, it has been strictly forbidden to kill, capture or disturb eagle-owls (particularly during the breeding period), take their eggs in the wild, or destroy, damage or remove their nests. Both legal instruments have ensured the protection of the eagle-owl ever since, together with other instruments of international law (the Berne Convention on the Conservation of European Wildlife and Natural Habitats) and EU law (Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds, and its later versions).

Even though the eagle-owl is still listed as a game species under current hunting act no. 449/2001 Coll., its hunting is prohibited as a species protected under international and domestic law.

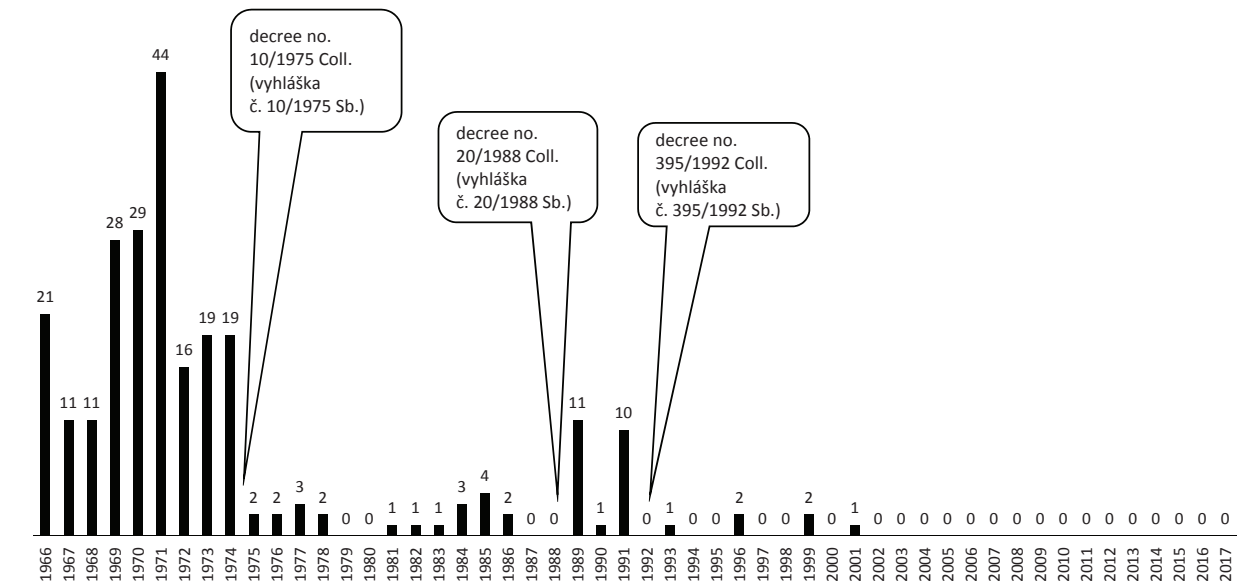


Fig. 2. Number of eagle-owls taken from the Czech countryside between 1966 and 2016 (ÚHÚL statistics sheets 2020).

Obr. 2. Počet výrů odebraných z české přírody v letech 1966 až 2017 (Ústav pro hospodářskou ústavu lesů 2020).

According to the results of the third square grid mapping (2001–2003), the eagle-owl population remained at 600–900 nesting pairs (Šťastný et al. 2006). Subsequent inquiries indicate a slow decline in the eagle-owl population (Hora et al 2010, 2015 a 2018), albeit in the observed areas only. For example, local studies have shown that the eagle-owl population has been declining in the Jeseníky mountains (Suchý 2001), so the population dynamic is differentiated across the observed areas of Czechia. As for the current population (2020), the still unpublished data collected in the 2014–2017 square grid mapping estimated the eagle-owl population to be some 700–1000 nesting pairs (Bejček, 2020, in verb.), indicating a slow increase in overall numbers.

Other factors affecting the population dynamics

In our opinion, the contribution of legal protection to preservation of the Czech autochthonous eagle-owl population and its long-term positive dynamics is undeniable. However uncertain it may be to speculate about the eagle-owl population dynamic in the 20th century, it seems safe to say that without the imperfect protection established in 1930s, the population would not have achieved today's numbers.

At the same time, there were (and are) other factors which may also have influenced the population dynamics of the Czech eagle-owl population. In this subsection, we would like to address them and attempt to assess how they affect the long-term population dynamic.

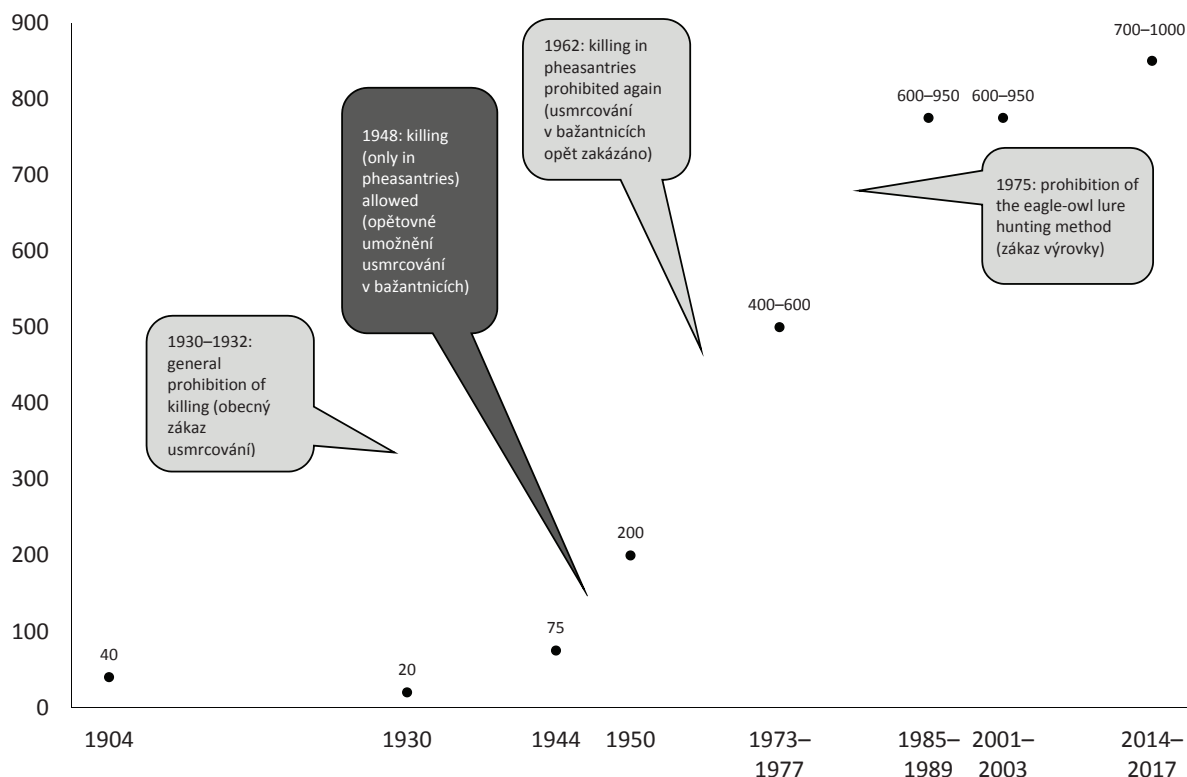


Fig. 3. Eagle-owl population in Czechia. Chart based on estimates for 1904 made by Loos (1906) and Hudec (1983), Jirsík (1930 and 1944) and Sekera (1950), and on data subsequently collected in square grid mapping operations (1973–1977, 1985–1989 and 2001–2003). The 2014–2017 figure represents an estimate of 700–1000 made by Bejček (2020) based on the results of their 4th square grid mapping. Number on y axis = number of breeding pairs.

Obr. 3. Vývoj populace výra velkého v Česku od počátku 20. století. Data v tabulce vychází z odhadů učiněných pro rok 1904 Loosem (1906) a Hudcem (1983) a dále Jirsíkem (1930 a 1944) a Sekerou (1950), a dále z výsledků prvního (1973–1977), druhého (1985–1989) a třetího (2001–2003) čtvercového mapování (Šťastný et al. 1987, 1996, 2006). Údaj pro roky 2014–2017 vychází z odhadu učiněného Bejčkem (2020) na základě dosud nepublikovaných výsledků čtvrtého čtvercového mapování (2014–2017). Číslo na ose y = počet hnízdních párů.

Nesting opportunities and lack thereof; nesting success rate

The eagle-owl prefers rock formations for nesting; usually rock boulders and cliff ledges, but also deserted (but occasionally even operational) mines (Kunstmüller 2013). There is limited availability of such places in the Czech countryside, and there are also parts of the landscape where such places are not available at all. Nevertheless, nesting in alternative places is possible, such as among windthrows or in nests originally built by other birds (e.g. white-tailed eagle or black stork *Ciconia nigra*; Šťastný et al. 2006) or in nestboxes originally meant for other bird species (in particular saker falcon *Falco cherrug*; Horal & Škorpíková 2011). In any case, eagle-owls show strong preference for particular nesting locations, and some nests have been known to be in continuous use for decades, maybe even centuries (Kněžourek 1910, Jirsík 1949, Sekera 1954, Cepák 2008). During the recent repopulating of Czechia, eagle-owl nesting pairs have first turned to old (established) nesting locations and only later, in the 1980s and 1990s, did they turned to previously unknown locations (Honců 1985, Kunstmüller 1996).

Altogether, the eagle-owl distribution area encompasses the whole territory of Czechia, with nesting opportunities throughout the countryside, but also including urban areas (there are at least two eagle-owl nests in Prague, one in the Prokop Valley and another in the Šárka Park). In our opinion, lack of nesting opportunities has never constituted a real limiting factor for growth of the eagle-owl population.

An important related factor, though, is the nesting success rate. In the Vysočina region, for example, the nesting success rate has decreased significantly since 2000, the primary reason being disturbance of nesting pairs in the time of breeding and rearing (Kunstmüller 2013). The same author lists unintentional disturbance by tourists (e.g. rock climbers) or due to forestry work, but also repeated (annual) deliberate destruction of eggs, nestlings and nesting locations as the most important factor for (un)successful breeding. As killing (even mere disturbance) is prohibited by the 1992 Nature Protection Act as well as the EU Birds Directive, we may only conclude that the mere existence of legal protection is insufficient in this context, especially when the law is not properly enforced; but this on the other hand is not an issue limited to nature protection alone. Nevertheless, the 1992 Act provides a basic legal framework allowing for punishment of such conduct by means of administrative or penal law, which can be viewed as a positive develop-

ment. At any rate, disturbance is an increasingly important factor limiting nesting success rates and thereby the population dynamic as a whole, possibly even being the crucial factor behind the current stagnation in population growth. Confirmation of this hypothesis would however require a different kind of research from the kind we present in this article.

Food availability

Numerous food studies have been carried out for the eagle-owl. Obuch (2018) demonstrated that the eagle-owls' diet can vary significantly depending on local circumstances. Common vole (*Microtus arvalis*) and hare usually make up the majority of the diet. Locally, the share of brown rat (*Rattus norvegicus*) or hedgehog (*Eri-naceus* sp.) may increase and become relevant as major food source too. This implies that the availability of food does not necessarily limit the abundance and population dynamics of the eagle-owl. Under optimal conditions, that is, when there is enough or surplus of available food (e.g. vole gradation), there may be a situation where a nesting pair is able to nurture four young (Kunstmüller 1996). We conclude that food availability is presently not a factor limiting the growth of the eagle-owl population in Czechia; however, we stress the need for educating stakeholders, especially hunters, on the composition of its diet, to eventually oust the traditional negative perception of the eagle-owl as a pest, which has unfortunately persisted to the present-day.

Anthropogenic bird mortality

Until it was completely banned, hunting with firearms and other means of persecution (of younglings and adults alike) had been the primary cause of bird mortality. Hunters were initially motivated by reward money paid for each specimen killed and also by the perceived need to eliminate eagle-owls as hunting competition; this need along with the mere power of tradition has resulted in the persecution of eagle-owls continuing even today. Nevertheless, large-scale hunting had to end because of legal restrictions and thus ceased to be a limiting factor for the increase in abundance of these owls (Honců 1985, Andreska & Andreska 2017, 2018). No detailed research into the causes of eagle-owl mortality has been conducted recently for the whole territory of Czechia, presumably due to the generally positive population dynamic. The results of a major study conducted recently (Šálek et al. 2018) into the causes of mortality of other, substantially more endangered owl species, the barn owl (*Tyto alba*) and little owl (*Athene noctua*), suggest that per-

secution, collision with vehicles (cars and trains), electrocution on power lines and confinement in buildings have become increasingly important as causes of mortality among these species. Of these, persecution, collision with vehicles or power lines, and electrocution by sitting on power lines or poles are known causes of mortality among eagle-owls in Czechia (Vaněk, Muláček, Kunstmüller in verb. 2020). Studies conducted in other European countries show that electrocution is the most significant cause of mortality among eagle-owls in Italy (Sergio et al 2004). Based on information shared with us by the National Wild Animal Rescue Stations Network [Národní síť záchranných stanic] (Nezmeškalová in verb. 2020), among the 512 eagle-owls admitted into the rescue stations between 2007 and 2019, the most common cause of injury was electrocution (94 cases), followed by collisions with cars (51) and trains (36); these data are however not absolutely accurate, as the cause of injury is not always determinable, and moreover not all dead or injured eagle-owls are admitted to rescue stations licensed with the Network. As we do not have similar historical data for comparison, we cannot determine the importance of these factors with certainty. Vehicle collisions were in our opinion not a factor until recently, as the amount of road traffic has only significantly increased since 1989; its prevalence as a cause of mortality is however now increasing.

To conclude: whereas intentional persecution (even though it still happens) has ceased to be a limiting factor for increase in the abundance of eagle-owls, the number of these owls killed by other anthropogenic means, especially electrocution and collision with vehicles, has been rising, and may become a limiting factor for eagle-owl population growth.

Conclusion

Comparison of the eagle-owl population in Czechia in the early 20th century (estimated at 40 nesting pairs by Loos 1906, Hudec 1983, but probably bigger in fact) with today's (much more accurate) estimates of 700–1000 nesting pairs (Bejček et al. in verb. 2020) reveals a significant increase in occurrence which has in our opinion been fundamentally promoted by the legal protection of eagle-owls, especially the prohibition of killing introduced in 1930–1931, as the eagle-owl population has grown steadily since then.

We eventually came to the conclusion that it was the (obviously problematic from today's point of view) eagle-owl lure hunting method (výrovka) which actually allowed the autochthonous eagle-owl population to survive

the critical time between the end of the 19th century and the introduction of legal protection in the early 1930s. The opportunity to pick and sell young owls motivated the owners of land with hunting districts where the nests were located and the hunters administering those districts not to exterminate the last remaining nesting pairs. After the prohibition of killing and capturing adult eagle-owls, the issue of picking chicks to be kept for lure hunting (which caused a steady yearly decrease in young which would otherwise have matured and procreated) led to the continued existence of a loophole in the legal protection of eagle-owls, and it took more than 40 years from the first public debate on the eagle-owl lure hunting method until its prohibition in 1975. Even so, the eagle-owl population has nevertheless grown gradually but steadily the whole time. The legal protection of eagle-owls which was initiated in the 1930s was completed with the prohibition firstly of picking young owls from nests in 1988 and secondly of capturing adult owls (without explicit administrative permit, that is) in 1992, after more than 60 years, and more than 80 years since it was first suggested by Loos in 1906.

What is also worth pointing out in our opinion is the immediate temporal concurrence of the 1930s ordinances introducing the protection of eagle-owls from killing and the increase in the growth of the population.

The debate on the role of predators in the densely populated and intensively farmed Czech countryside is far from over (Andreska & Andreska 2014a, Havrlant 2018). Our research into the eagle-owl situation demonstrates (among other things) that the difference of opinions between the more traditionally thinking hunters and more environmentally-conscious conservationists has existed for a very long time. Although it has proved possible to overcome this almost trenchlike division in the specific case of the eagle-owl, it remains deeply rooted in the public debate about the role of predators in the Czech countryside to this day (Havrlant 2018). The recent debate on the presence of wolves in the Czech countryside in particular, and the extremely conservative stance of the hunters' lobby towards it, suggests that the conservationists' struggle to convince the concerned parties about the importance (and legitimacy) of predators' presence will not be easily won. Our case study on the eagle-owl shows in our opinion that through a combination of enforced legal protective measures and longstanding educational efforts by conservationists and environmentalists, such change is eventually possible.

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