

## STATUS REVIEW OF THE PALLID HARRIER *Circus macrourus* IN CROATIA: A NEW WINTERING SPECIES

*Status stepske eye Circus macrourus u Hrvatskoj: nova zimovalica*

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### ABSTRACT

The Pallid Harrier *Circus macrourus* is a long-distance migratory species whose westward expansion into Europe began in the early 21st century. Although historically rare in Croatia, an increase in observations since 2016 has led to its recognition as an irregular species, particularly during spring and autumn migration. Most recorded sightings are of adult males, and recent reports have documented the first wintering individuals in the country. This study compiles and reviews 98 unique records of Pallid Harrier observations in Croatia between 1872 and 2024, revealing a significant increase in sightings, particularly since 2016. Collected data supports the suggested loop migration in this species, with differing sex ratios observed across seasons. The wintering birds have been observed in agricultural fields in the continental region. Given the consistency of records in recent years, we propose that the Pallid Harrier be reclassified from an irregular to a regular passage species and irregular wintering bird in Croatia.

**Keywords:** Pallid Harrier, *Circus macrourus*, Croatia, migration, wintering, distribution

### INTRODUCTION

The Pallid Harrier, *Circus macrourus*, is a long-distance migratory species that has been expanding westward in Europe since the early 21<sup>st</sup> century (HENRY 2018). Its main breeding areas are in the steppes of Russia, Kazakhstan and Mongolia, while it winters mostly in sub-Saharan Africa and south-eastern Asia (BIRDLIFE

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INTERNATIONAL 2024). The populations in Eastern Europe showed a decline at the beginning of the century, both in the breeding and wintering ranges (TUCKER & HEATH 1994, THIOLLAY 2006). Over the last two decades, new breeding areas were established in northern and north-western Europe, establishing breeding in Finland (FORSMAN & ERTERIUS 2012), in the Netherlands in 2017 (VELLINGA & KOKS 2017), Spain in 2019 (BIRGUIDES 2022), and France and the Czech Republic in 2020 (STUDECKÝ 2021). This breeding expansion has been accompanied by an overall increase in population size, leading to a change in the European Red List category in 2021 from Near Threatened (NT) to Least Concern (LC) (BirdLife International 2021).

Following this range expansion, wintering in mainland Europe has also been recorded in several western and central European countries, such as France and Spain (RÉGLADE *et al.* 2015, Ollé *et al.* 2015). CORSO & CARDELLI (2004) mentioned Balkan and SE Europe as wintering grounds for Pallid Harrier. There are only a handful of winter observation records of Pallid Harriers in Croatia in the literature: two records from 1889, one from 1890, one from 1996, and one from 2000 (GRBAC & KRALJ 2008, KRALJ & BARIŠIĆ 2013). In Serbia, Pallid Harrier is considered a rare migrant during both spring and autumn migration (PUZOVIĆ 2000), with only one confirmed wintering record (ŠČIBAN *et al.* 2015), and a report of a possible wintering bird from 2024 (OKANOVIĆ 2021). In Bosnia and Herzegovina, there are occasional sightings during migration, but none to suggest the presence of individuals throughout the winter months. In Hungary, the species is regular but scarce during migration, with a few wintering records in recent years (PAPP *et al.* 2016).

## MATERIAL AND METHODS

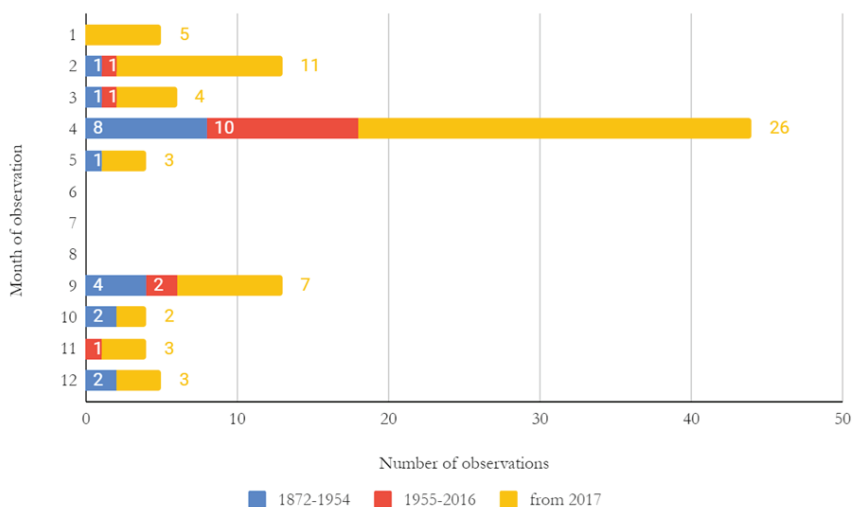
For the status assessment of the Pallid Harrier in Croatia, we collected available records, dating back to 1872, with most data provided by the CBRC (Croatian Bird Rarities Committee), and published in several reports (KRALJ & RADOVIĆ 2002, KRALJ 2005, KRALJ & BARIŠIĆ 2013, BARIŠIĆ *et al.* 2016). However, since 2016, the species is no longer considered rare in Croatia, and its records are no longer assessed by the CBRC. As the last official CBRC report was published in 2016, we gathered all available data via online databases, such as eBird, observation.org, and GBIF.org, as well as unpublished data from CBRC database. Most of the database records, covering the 2016 – 2024 period, are typically supported by photographs and are regularly reviewed by administrators and reviewers. These observations are considered credible, as the reviewers maintain high data quality.

For each observation, we documented the date and location. Where available, we recorded the age and sex of the observed birds from submitted data or by determining these details from photographs, when possible. All records were cross-verified to remove duplicates, such as those cross-posted on multiple data-

bases simultaneously. The records were then organized into three time periods based on the observation date: spring migration (March-May), autumn migration (August-November), and winter (December-February).

## RESULTS

Using all available sources, we identified 19 observations of Pallid Harriers in Croatia from literature, 55 observations from online databases, and 49 observations from the CBRC, totaling 98 unique records after removing the same observations from different observers. Since the last CBRC report, only nine additional observations were submitted to the CBRC that were not also found in online databases. Prior to the CBRC report from 2016, there were 36 unique observations, with 19 observations from 1872 to 1954. There is a gap in reported observations from 1954 until the turn of the 20<sup>th</sup> and 21<sup>st</sup> centuries, after which the number of reports started to increase, coinciding with the start of the range expansion. From 2017, 62 observations have been recorded. Reviewing the data, we found that the peak of Pallid Harrier migration in Croatia is in April during spring migration, and in September during autumn migration, although the number of autumn observations is lower (Fig. 1). Since winter of 2022-2023, observations of Pallid Harriers have increased during the December-February period, with individuals using large fields as wintering grounds during these months. In that period, there were 17 observations, with a total of 20 individuals recorded.

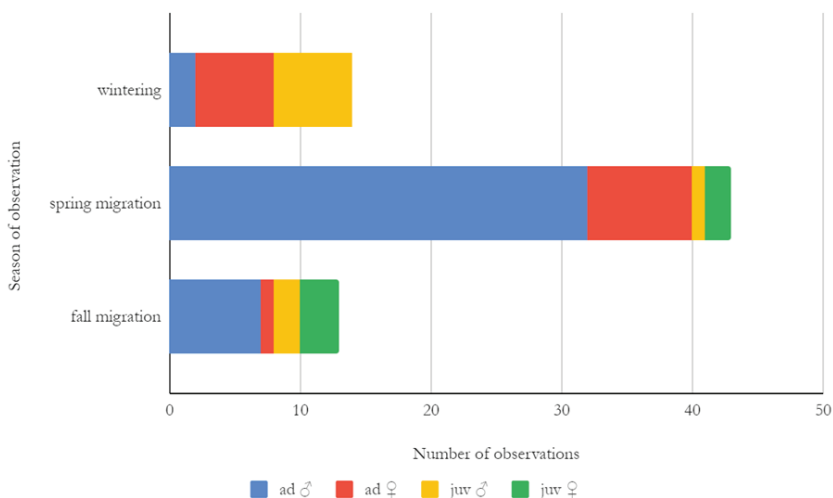


**Figure 1.** Observations of Pallid Harrier in Croatia from 1872 to 2024 (N=98).

*Slika 1.* Promatranja stepske eje u Hrvatskoj od 1872. do 2024. godine (N=98).

Most observations were of adult birds (41 adult males and 15 adult females, 56 individuals in total), with only 13 juvenile individuals (9 juvenile males and 4 juvenile females), as shown in Fig. 2. Records of adult birds were mostly single observations, meaning there were no repeated observations of the same bird on multiple dates, with one possible exception. Juvenile birds showed a tendency to stay in one place for a longer period, especially between December and February, with some individuals presumably being observed multiple times at the same location. Such observations were counted as records of a single individual. Most Pallid Harriers observed in Croatia were adult males, with males representing 71% of observed birds.

Regarding the spatial distribution of the species in Croatia, out of 77 observations between 2000 and 2024, 47 records originated from the continental parts of the country, while 30 were from the coastal area. The recent wintering birds were all recorded in the continental area, specifically in the agricultural fields of East Slavonia and the Kupa river basin.



**Figure 2.** Seasonal Distribution of Pallid Harrier Observations by Sex and Age.

*Slika 2.* Sezonska distribucija opažanja stepske jeje prema spolu i dobi.

## DISCUSSION

With the breeding expansion into Western, Northern, and Central Europe, as well as the establishment of a new migration route (CORSO & CARDELLI 2004), the number of Pallid Harrier observations in Croatia has increased during both

spring and autumn migration. In the last two years, the species has also been observed wintering in continental Croatia. For wintering, it mainly prefers natural grassland plains and dry steppes in flat or undulating terrain, as well as agricultural areas - similar habitats to those used during breeding. A clear difference exists between the phenology of spring and autumn migration in Croatia, as reflected in the number and distribution of records. While spring migration is faster, with more birds seen over a shorter period (mainly in April), autumn migration produces fewer observations but lasts from August to November. This aligns with observations from migration counts in Italy, where the species was found to be more numerous in spring and scarce during autumn passage (CORSO & CARDELLI 2004). This pattern suggests a possible loop migration in parts of its range, with the autumn migration shifting towards the Middle East (TERRAUBE *et al.* 2021). Pallid Harriers migrating through Croatia most likely use the Central Mediterranean route connecting the East European breeding range via the Balkans, the Adriatic Sea, and Italy to North Africa. Since most records were during the spring migration period, this suggests that Pallid Harriers are not using the same migration route in both spring and autumn migration, similar to the migration pattern observed in Italy. In Croatia, male birds were clearly dominant during migration, especially in spring, mirroring the situation in Spain (OLLÉ *et al.* 2015). However, in Italy, males were greatly outnumbered by females (CORSO & CARDELLI 2004). While one might expect more similarity with Italy concerning the sex ratio, this difference could be due to easier identification of males and potential confusion of females with those of the Montagu's Harrier.

In Croatia, the species was considered rare until recently, with only 13 confirmed records between 1966 and 2016. Its status has recently been changed from rare to irregular by the Croatian Bird Rarities Committee (BARIŠIĆ *et al.* 2016) due to an increase in observations. This increase is partially attributable to growing interest in birdwatching worldwide, and particularly in Croatia, as most of the observations were made by local birdwatchers. This period also coincides with the rising popularity of online databases, especially eBird and observation.org, which made these observations more accessible to the local birding community. Since observations were primarily made in or near areas with high birdwatcher activity, these results may reflect only a limited snapshot of a broader biological process occurring across the country.

In light of the fact that Pallid Harriers have been recorded annually in Croatia over the last 10 years, with 71 sightings during this period, and given their regular migration and recent wintering presence, we propose this species should no longer be classified as irregular, but a regular passage species and irregular wintering bird in Croatia.

## References

- BARIŠIĆ, S., KRALJ, J., JURINOVIĆ, L. (2016): Rare birds in Croatia. The fourth report of the Croatian Birds Rarities Committee. *Larus* 51: 38-65.
- BIRGUIDES (2022): Pallid Harrier breeds in Spain for the first time. Available at: <https://www.birdguides.com/articles/pallid-harrier-breeds-in-spain-for-first-time/> (Accessed: 16 August 2024).
- BIRDLIFE INTERNATIONAL (2021): European Red List of Birds. Luxembourg: Publications Office of the European Union.
- BIRDLIFE INTERNATIONAL (2024): Species factsheet: Pallid Harrier *Circus macrourus*. Downloaded from <https://datazone.birdlife.org/species/factsheet/pallid-harrier-circus-macrourus> on 21/07/2024.
- CORSO, A., CARDELLI, C. (2004): The migration of Pallid Harrier across the central Mediterranean with particular reference to the Strait of Messina. *British Birds* 97: 238-246.
- eBIRD (2021): eBird: An online database of bird distribution and abundance [web application]. Cornell Lab of Ornithology, Ithaca, New York. Available at: <http://www.ebird.org> (Accessed 20 July 2024).
- FORSMAN, D., ERTERIUS, D. (2012): Pallid Harriers in northwest Europe and the identification of presumed Pallid Harrier x Hen Harrier hybrids. *Birding World* 25: 68-75.
- GBIF.ORG (2024): GBIF Occurrence Download <https://doi.org/10.15468/dl.dtcme5>. (Assessed: 16 August 2024.)
- GRBAC, I., KRALJ, J. (2008): The catalogue of the bird collection of the Croatian Natural History Museum. Croatian Natural History Museum, Zagreb. *Natura Croatica* 17(Suppl. 1): 1-226.
- HENRY, M. (2018): The changing status of the Pallid Harrier in western Europe. *Br Birds* 111: 744-760.
- KRALJ, J. (2005): Rijetke vrste u Hrvatskoj. II. Izvještaj Hrvatske komisije za rijetke vrste. *Larus* 49: 37-51.
- KRALJ, J., BARIŠIĆ, S. (2013): Rare birds in Croatia. Third report of the Croatian rarities committee. *Natura Croatica* 22: 375-396.
- KRALJ, J., RADOVIĆ, D. (2002): Rijetke vrste u Hrvatskoj. I. izvještaj Hrvatske komisije za rijetke vrste. *Larus* 48: 73-83.
- OKANOVIĆ, B. (2021): eBird Checklist: <https://ebird.org/checklist/S162111860>. eBird: An online database of bird distribution and abundance [web application]. Cornell Lab of Ornithology, Ithaca, New York. Available at: <http://www.ebird.org> (Accessed: 16 August 2024).
- PAPP, G., KOVÁCS, A., TURNY, Z. (2016): Magyarország Ragadozó Madarai / Birds of Prey of Hungary. *Magánkiadás*, Eger.
- PUZOVIĆ, S. (Eds.) (2019): Atlas ptica grabljivica Srbije / Atlas of Birds of Prey of Serbia. Beograd, Zavod za zaštitu prirode Srbije, pp. 177-182
- RÉGLADE, M. A., AUVINEN, A.P., BOUZIN, M., TERRAUB, J. (2015): Les stationnements hivernaux du Busard pâle *Circus macrourus* en France (2006-2015). *Ornithos* 22: 312-325.
- STUDECKÝ, J. (2021): Pallid Harrier breeding near Dobřichov, Czechia, in 2020. *Dutch Birding* 43: 141-144.

- Šćiban, M., Rajković, D., Radišić, D., Vasić, V., Pantović, U. (2015): Birds of Serbia - critical list of species. Institute for Nature Conservation of Vojvodina Province and Bird Protection and Study Society of Serbia, Novi Sad.
- TERRAUBE, J., MOUGEOT, F., AUVINEN, A-P., ARROYO, B. (2021): Pallid Harrier *Circus macrourus*. Pp.146-151 in: PANUCCIO, M., MELLONE, U., AGOSTINI, N. (Eds.): Migration Strategies of Birds of Prey in Western Palearctic. CRC Press, Boca Raton, Florida.
- THIOLLAY, J. (2006): The decline of raptors in West Africa: long-term assessment and the role of protected areas. *Ibis* 148: 240-254.
- TUCKER, G.M., HEATH, M.F. (1994): Birds in Europe: Their Conservation Status. BirdLife Conservation Series No 3. Cambridge: BirdLife International.
- TUTIŠ, V., KRALJ, J., RADOVIĆ, D., ČIKOVIĆ, D., BARIŠIĆ, S. (EDS.) (2013): Crvena knjiga ptica Hrvatske. Ministarstvo zaštite okoliša i prirode, Državni zavod za zaštitu prirode, Zagreb, 258 pp
- VELLINGA, W. P., KOKS, B. J. (2017): The Pallid Harrier, a new breeding species for the Netherlands.

## SAŽETAK

Stepska eja *Circus macrourus* je migratorna vrsta koja se širi prema zapadu Europe, s povećanim brojem opažanja u Hrvatskoj od početka 21. stoljeća. Analizirani su podaci o stepskoj eji koji su prikupljeni pregledavajući literaturne podatke, podaci dostupni hrvatskoj Komisiji za rijetke vrste i podaci o opažanjima na online bazama podataka. Analizirano je 98 jedinstvenih opažanja u Hrvatskoj od 1872. do 2024. godine, s naglaskom na porast opažanja od 2017. godine. Vrsta je prvotno smatrana rijetkom, ali s povećanjem broja zabilježenih opažanja, status je promijenjen u neredovitu. Od 2022. godine, zabilježeni su slučajevi zimovanja vrste u Hrvatskoj, posebno na velikim poljima tijekom prosinca i veljače. Predlaže se da se stepska eja sada smatra redovitom preletnicom i neredovitom zimovalicom u Hrvatskoj.