

The first records of roof-top nesting by Caspian Gulls *Larus cachinnans* in Poland with reference to other cases in Europe

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Roof-nesting by large gulls has been known since the end of 19th century (Nankinov 1992). The phenomenon has grown rapidly and some roof-top nesting gull populations have now reached high numbers and densities – they are relatively common in coastal but also inland areas of Europe and North America (Monaghan 1979, Vermeer et al. 1988, Bzoma 2001, Rock 2005, Kajzer 2012, Rösler 2015, Perlut et al. 2016, Samusenko et al. 2019). Roof-top nesting represents not only a fascinating ecological phenomenon, but also nuisance to the city dwellers, especially during gull breeding season (because of noise and excrements), and a management problem for municipal administrations. Roof-nesting is extensively widespread among such species like the Glaucous-winged Gull *Larus glaucescens*, Herring Gull *L. argentatus*, Lesser Black-backed Gull *L. fuscus*, Slaty-backed Gull *L. schistisagus*, Western Gull *L. occidentalis* and Yellow-legged Gull *L. michahellis* (Cramp 1971, Monaghan & Coulson 1977, Vermeer et al. 1988, Kajzer 2012, Rösler 2015, Zelenskaya 2019, Coccon & Fano 2020).

According to the most common hypothesis explaining the selection of roof-tops for breeding by gulls, population growth rates are higher than territory vacancy rates in traditional (near water) habitats (Dolbeer et al. 1990) forcing gulls to seek for alternative breeding sites. Thus, roof-top nesting is usually a trend created by population growth, when dispersing adults in the breeding age are not able to nest in optimal island habitats (Dolbeer et al. 1990). However, some authors have suggested that the roof-top habitat may actually be of higher quality than the island habitat (Belant 1993) and presented the factors that may make urban nesting easy: relatively low nest density resulting in lower intraspecific predation (Monaghan 1979, Vermeer et al. 1988, Perlut et al. 2016), avoiding predation by ground mammals or humans (Patton & Southern 1978, Monaghan 1979, Southern et al. 1985) and increased local availability of anthropogenic food (Monaghan 1979, Belant 1993). On the other hand, Annett & Pierotti (1999) found that anthropogenic food is of lower quality and can result in reduced reproductive success.

The Caspian Gull *Larus cachinnans* is a relatively poorly known species – many aspects of its breeding biology, migration or colonization are understudied. The original breeding range of the species was restricted to basins of the Azov, Black and Caspian Seas, but nowadays its range extends from the Caspian Sea basin in the east to the North Sea shores in the west (Neubauer et al. 2007, Litwiniak et al. 2021). This is partly caused by the fact that the species has recently colonized many central and western European countries (this process started in the 1980th), where gull studies began usually earlier. The phenomenon of roof-top nesting in the Caspian Gull is also understudied. In this note we describe the first records of nesting of the species both on roof-tops, but also in cities of Poland. We also present observations of Caspian Gulls nesting on roof-tops in other parts of Europe.

The first roof-top nesting by Caspian Gulls was observed in Warsaw (Masovian Province) in 2018 (Fig. 1), although large gulls have been nesting there since at least 2013. This colony is located in Mokotów district. There are also Herring Gulls, Yellow-legged Gulls and Lesser Black-backed Gulls breeding in conspecific, heterospecific and mixed (i.e. including probable hybrid individuals) pairs (Table 1). Gulls nest there on roof-tops of 6-floor apartment blocks (Phot. 1). The roof is covered by small gravel stones.

In 2018 another roof-top colony with breeding Caspian Gulls was discovered in Warsaw, in Targówek district. We do not know the exact number of Caspian Gulls breeding there but the colony hosts about 30 gull pairs. The most likely the Caspian Gulls makes 1/3 of the whole number, while the most abundant are Herring Gulls. There are a few pairs of Common Gulls, too. They nest on a roof-top of the hall covered by a roofing felt. In 2019, 2020 and 2021 gulls bred there, and the species composition did not change.

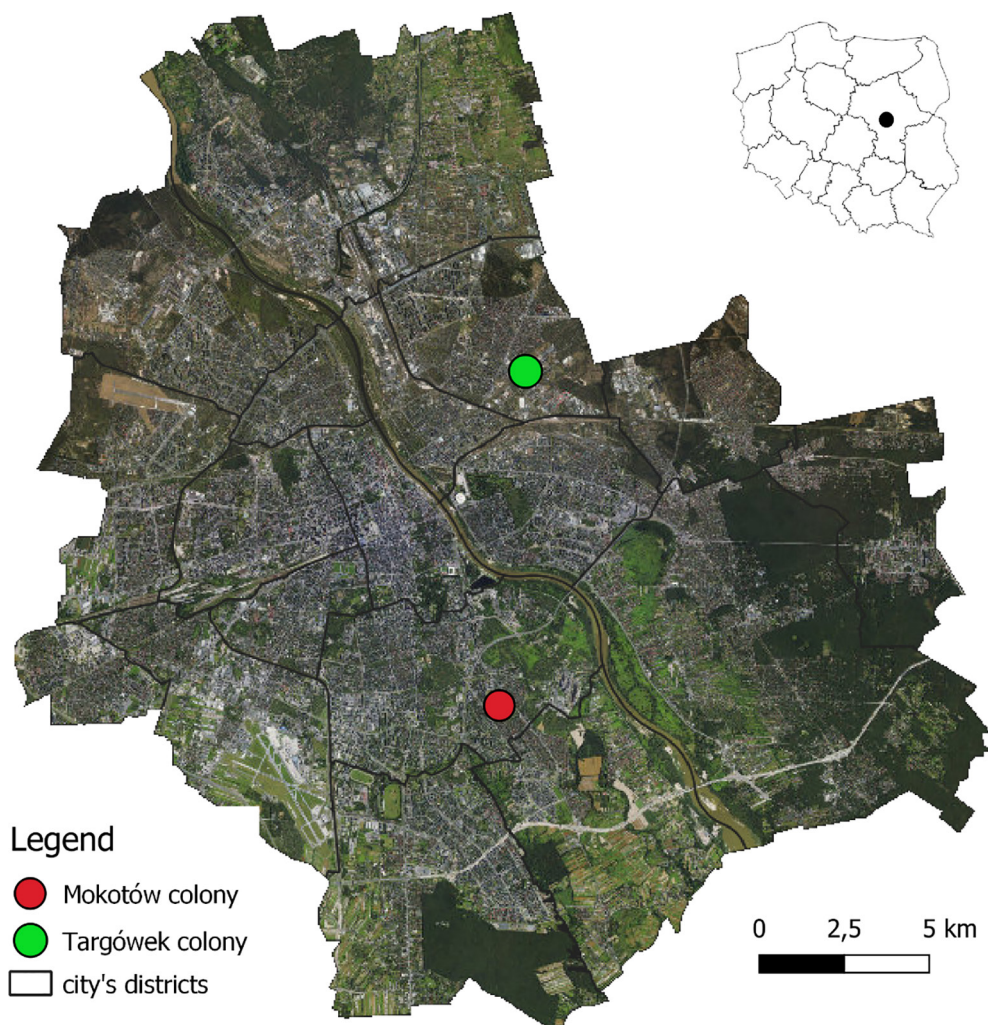


Fig. 1. Location of roof-top colonies of gulls in the city of Warsaw in 2018–2021
Rys. 1. Lokalizacja kolonii mew na dachach budynków w Warszawie w latach 2018–2021

Table 1. Species composition of Warsaw Mokotów roof-top colony during surveys in 2018–2021 (*presumed breeding, a bird was attacking people visiting the colony and was present during the whole season, but the nest was not found)

Tabela 1. Skład gatunkowy mew gniazdujących w kolonii w Warszawie Mokotów w latach 2018–2021 (*gniazdowanie prawdopodobne, osobnik atakował osoby znajdujące się w kolonii i był obserwowany w trakcie całego sezonu, ale gniazdo nie zostało odnalezione). (1) – gatunki w parach lęgowych, (2) – rok

Species in breeding pairs (1)	Year (2)			
	2018	2019	2020	2021
<i>L. cachinnans</i> × <i>L. cachinnans</i>	2	2	1	3
<i>L. argentatus</i> × <i>L. argentatus</i>	6	6	6	6
<i>L. cachinnans</i> × <i>L. argentatus</i>	–	–	1	1
<i>L. cachinnans</i> × <i>L. michahellis</i>	1	1	–	–
<i>L. fuscus</i> × hybrid <i>L. argentatus</i> × <i>L. fuscus</i> ?	–	–	1	1
<i>L. fuscus</i> × unknown	1*	–	–	–

The next possible case of Caspian Gulls breeding on roof-tops was observed in Włocławek (Kuyavian-Pomeranian Province) in 2020 (P. Zieliński – pers. comm.). In this city large gulls (mostly Herring; Caspians Gulls make ~20% of pairs there, J. Pietrasik – unpublished data) had bred on an artificial peninsula on a big dam reservoir on the Vistula river. Due to the presence of a ground predator in the colony in 2020, gulls moved to



Phot. 1. Caspian Gulls nesting in a mixed colony with other large gull species on 6-story apartment building in Mokotów – Mewy białogłowe gniazdujące w mieszanej kolonii z innymi gatunkami dużych mew na dachu 6-pietrowego budynku w dzielnicy Mokotów w Warszawie

Table 2. Documented cases of roof-top nesting of Caspian Gulls in Europe. We present only known and confirmed cases

Tabela 2. Udokumentowane przypadki gniazdowania mew białogłowych na dachach budynków w Europie. Przedstawiamy tylko znane i potwierdzone przypadki. (1) – państwo, (2) – miasto, (3) – liczba par, (4) – inne gatunki w okolicy miejsca gniazdowania, (5) – źródło

Country (1)	City (2)	Number of pairs (3)	Other species near breeding site (4)	Reference (5)
Belarus	Gatovo	>2000	<i>L. argentatus</i> , <i>L. fuscus</i>	Samusenko et al. 2019
Bulgaria	Ruse	>70	<i>L. michahellis</i>	S. Peev pers. comm.
France	Paris	1	<i>L. michahellis</i>	Litwiniak et al. 2021
Germany	Berlin	1	<i>L. argentatus</i> , <i>L. michahellis</i>	Kormannshaus & Steiof 2015
Germany	Frankfurt am Main	3	<i>L. fuscus</i> , <i>L. michahellis</i> , <i>L. marinus</i>	Rösler 2015, Litwiniak et al. 2021
Germany	Greifswald	2	<i>L. argentatus</i>	Litwiniak et al. 2021
Germany	Waren (Müritz)	>1	<i>L. argentatus</i> , <i>L. michahellis</i>	R. Klein pers. comm.
Lithuania	Kaunas	20–30	<i>L. argentatus</i>	Litwiniak et al. 2021

a roof-top of a hall about 2,2 km away. Although gulls nested there, breeding of Caspian Gulls was not confirmed.

To our knowledge the described cases are the first records of roof-top nesting of Caspian Gulls in Poland. In other countries this phenomenon is also uncommon. Below we summarize the data from other countries based on Litwiniak et al. (2021) and personal communications (Table 2).

The biggest roof-top colony is located in Gatovo (the suburb of Minsk, Belarus) on production halls. In 2018 there were more than 2000 breeding pairs of Caspian Gulls and ca. 2100 pairs of Herring Gulls, hybrids and a few Lesser Black-backed Gulls (Samusenko et al. 2019). In Minsk and surroundings there are also some colonies on roof-tops, but due to many hybrids the exact number of Caspians is unknown (I. Samusenko – pers. comm.).

The first roof-top nesting case of Caspian Gulls in Bulgaria was found in 2015 in the city of Ruse in the Danube valley. The exact number of nesting pairs is not known, but a minimum of 70 pairs breed there every year on one roof with Yellow-legged Gulls (S. Peev – pers. comm.). Caspian Gulls are probably present in most nesting sites in the city but they are confused with Yellow-legged Gulls. Similar situation can be found in other cities along the Danube river. In Paris a mixed pair of Caspian and Yellow-legged Gull breeding on a roof-top was observed in 2018 (Litwiniak et al. 2021). The first breeding record in Berlin was confirmed in 2015: gulls nested on a roof of a cinema in the city centre (Kormannshaus & Steiof 2015). Both sexes were phenotypically pure Caspian Gulls and they raised two chicks. It was near the colony of Herring and Yellow-legged Gulls. Next case in Germany was noticed in Frankfurt am Main in 2015 and 2016 (Rösler 2015, Litwiniak et al. 2021). In 2019 a mixed pair of Caspian and Lesser Black-Backed Gull was also observed in this place. In the same year a ‘pure’ pair nested on a roof-top in the city of Greifswald at the Baltic coast (Litwiniak et al. 2021). In 2021 the first breeding case of Caspians for Mecklenburg-Vorpommern was found in the town of Waren/Müritz (R. Klein – pers. comm.). Then one ‘pure’ pair and one mixed with Herring Gull were observed at

one roof-top. Nesting of ca. 20–30 pairs on roof-tops in Kaunas (Lithuania) was observed in 2019 (Litwiniak et al. 2021). We decided not to present presumed or not confirmed cases, especially from Eastern Europe.

The roof-top nesting in urban areas appears to be a successful strategy for gulls. Buildings in towns resemble man-made islands within a ‘sea’ of concrete, and have many of the attributes of natural breeding habitats (Coulson & Coulson 2009). The main advantage of nesting on roofs of buildings in towns and cities is that humans and other mammalian predators rarely visit such places. This results in a high breeding success, for instance in Herring Gulls (Monaghan 1979). In Portland, Maine (United States), Herring Gulls nesting in the roof-top colonies had a lower hatching success but a higher fledging success per a hatched chick compared to birds nesting in a natural habitat (Perlut et al. 2016). The proximity of food sources, such as nearby refuse dumps and other anthropogenic food, may be a contributory factor. Although Caspian Gulls forage mainly on fish (Gwiazda et al. 2011, 2015) and birds (Litwiniak et al. 2020) anthropogenic food seems to make an important part of the diet of the species (Meissner & Betleja 2007, Ledwoń & Betleja 2018). Because nesting on roof-tops is still a rare phenomenon in the Caspian Gull, it is difficult to discuss advantages and disadvantages of urban nesting in the species.

As mentioned before, gull urbanization concerns several species of Laridae and many cities around the world. In European cities Yellow-legged Gulls and Herring Gulls have been more successful in this process (Monaghan & Coulson 1977, Kajzer 2012, Coccon & Fano 2020). The urbanization of gulls has led to a series of problems, from acoustic nuisance, especially in the breeding period, soiling and destroying of the architectural and monumental inheritance, the aggression of adults defending their chicks (Dwyer et al. 1996, Soldatini et al. 2008) to conflicts with commercial premises such as fish markets, butchers, bars or street food vendors (Belant 1997, Serra et al. 2016). Sometimes gulls are treated as pests. This conflict between humans and birds may lead to destroying eggs and nests, intentional killing of adults and chicks and in consequence to unfavourable view of nature and bird conservation. Some measures have already been undertaken to reduce their abundance, e.g. in the UK (Monaghan 1979). Nowadays many urban municipalities have to face the consequences of gull breeding and work out compromise policies balancing the welfare of birds and the comfort of people. Given the range expansion of Caspian Gulls (Litwiniak et al. 2021), and its more and more frequent nesting within cities, one may expect a growing number of wildlife-citizens conflicts, especially in new breeding sites.

We believe that our short note contributes to a better understanding of the biology of the Caspian Gull, in particular its range expansion, and will pay attention to the importance of monitoring of this process.

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Abstrakt: Pierwsze stwierdzenia lęgów mew białogłowych *Larus cachinnans* na dachach w Polsce z odniesieniem do innych przypadków w Europie. Choć gniazdowanie na dachach jest powszechne u niektórych gatunków dużych mew, to u mewy białogłowej *Larus cachinnans* wciąż pozostaje zjawiskiem rzadkim. Znane są tylko pojedyncze przypadki takiego gniazdowania tego gatunku w Europie. Pierwsze stwierdzenie lęgów na dachach w Polsce miało miejsce w Warsza-

wie w roku 2018. Mewy białogłowe gniazdowały tam na 6-piętrowym budynku mieszkalnym w kolonii mieszanej razem z mewami srebrzystą *L. argentatus*, romańską *L. michahellis* i żółtonogą *L. fuscus*. Inna kolonia na dachu, gdzie gniazdowały mewy białogłowe, została znaleziona w tym samym roku w Warszawie na hali produkcyjnej. W artykule opisujemy osiem innych, znanych nam przypadków z Europy, gdzie potwierdzono gniazdowanie tego gatunku na dachach. Wybieranie tego typu siedliska do gniazdowania wydaje się być efektywną strategią dla mew. Przewidujemy, że zjawisko zasiedlania dachów budynków będzie coraz częstsze, nie tylko w Polsce, ale też w Europie.

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Liczebność lelka *Caprimulgus europaeus* w Mazowieckim Parku Krajobrazowym

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Lelak *Caprimulgus europaeus* zasiedla suche i prześwietlone siedliska borowe obfitujące w przestrzenie otwarte i częściowo zalesione, wrzosowiska, przesuszone torfowiska, wiatrolomy, pożarzyska lub wydmy (Alexander & Cresswell 1990, Dombrowski 2013). Wykazuje także tendencję do zasiedlania obszarów zmienionych antropogenicznie, jak młodniki lub poligony, gdzie może osiągać wysokie zagęszczenia (Polakowski et al. 2020, Wilk & Bobrek 2020). Zasięg występowania lelka obejmuje większość kontynentu europejskiego, wyłączając z tego obszary najbardziej wysunięte na północ i słabo zalesione, jak N Szkocja lub Islandia, oraz najwyższe partie gór (Hagemeyer & Blair 1997). Na całym kontynencie Europejskim lęgi odbywa od 614 000 do 1 100 000 par (BirdLife International 2015). W Polsce lelek gniazduje na większości obszaru kraju, a jego populacja jest nieliczna, lokalnie średnio liczna lub liczna (Grzywaczewski et al. 2015). Najwyższe zagęszczenia lelek osiąga w centralnej i wschodniej Polsce oraz na niżu, z wyjątkiem