

HOW MANY BIRDS MIGRATE OVER THE ADRIATIC SEA?

Koliko ptic se seli preko Jadranskega morja?



Bird migration between Europe and Africa follows three main flyways or corridors: two around and one over the central part of the Mediterranean Sea. As early as 1987, the bottleneck sites for the migratory birds in the Mediterranean Region were described by BIJLSMA (1987). In his ICBP report 18 sites or countries were listed as bottleneck sites. Most of them are impressive points, where the daylight migration of raptors, pelicans and storks takes place in impressive numbers e.g. Gibraltar, Bosphorus or Eilat. In the Central European Flyway special focus is given to Malta and the Straits of Messina, where birds concentrate on the island or at the tip of the Italian Peninsula. Interestingly, no bottleneck site on the Balkan Peninsula is mentioned in this publication, only Greece as a country. No large concentrations of migrating birds are described along the Eastern Adriatic Coast or in Greece. On many maps, the corridor of the Central European Flyway follows the Italian Peninsula [www.lipu-uk.org/Flyway.jpg], although the main direction of the bird migration is from northeast to southwest. It could be true that some species follow the mainland of Italy, but isn't it more likely that most birds coming from northeast and Central Europe just cross over the Adriatic Sea and jump over Apulia, South Italy, Malta and Sicily to North and Central Africa?

Wetlands International has identified three important flyways for water birds, in addition to the West Asian–East African [www.wingsoverwetlands.org]: the East Atlantic, the Black Sea and the Mediterranean. Only the Black Sea and Mediterranean Flyway crosses the Mediterranean Sea in a NW–SE direction, while the other two corridors follow the coastal zones of West and East Africa. While the water birds flying along the Eastern and Western African Flyways use mainly the coastal wetlands and follow the coast line, the European water birds cross the Mediterranean Sea after their flight over the European continent and winter in North Africa, e.g. Tunisia and the Niger Basin. Their resting sites throughout the journey are limited. Typical bird species are the Crane *Grus grus* (compare the great poster on [www.UNEP-AEWA.com]) and the Spoonbill *Platalea leucorodia*. Until recently hardly any resting sites of these species between the Pannonian Plain and North Africa were known. Only a few waterfowl species, such as the White Stork *Ciconia ciconia*, do not use the Central European Flyway to Africa.

For bird protection in Central Europe, Scandinavia and large areas of East Europe, it is essential to understand the direction of migration through the central part of the Mediterranean Sea and to North and Central Africa. Where are the key bottleneck sites here? Or why is so little known about the migration along the Eastern Adriatic Coast and in the Western Balkans?

In my opinion there are four reasons:

- (1) Since the Adriatic coastline is nearly at right angles to the general migration direction of the Central European or Black Sea and Mediterranean Flyways over the Mediterranean Sea, and is a 900 km long barrier between the Balkan Peninsula and the Italian Peninsula, birds heading for Africa have to

decide if they want to follow the main direction or leave it, flying towards the SE in the direction of Greece. Although there are observations that some birds, especially during bad weather and cold spells, follow the coastline, the majority appear just to fly over the Adriatic Sea, as the distance of 80–200 km is not too difficult to cross (SCHNEIDER-JACOBY 2001). As the coast is long and there are several potential sites for crossing the Adriatic, the concentration of birds is not as large as in the other bottleneck sites at both sides of the Mediterranean. During autumn migrations, birds leave the Eastern Adriatic Coast from different sites, such as the southern tip of Istria and the islands Cres and Lošinj, the archipelago between Split and Apulia, with Lastovo and Paragruža islands far out to sea, or further south from the Bojana-Buna Delta. Along the whole coast, there is not a single site that has been used for monitoring of day migration. It would be good to know how many birds migrate over the island of Lastovo or similar places each autumn or in spring. For example, the Karaburun Peninsula near Vlora appears to be an ideal point for bird watching.

- (2) In autumn the high mountains along the whole Eastern Adriatic Coast offer ideal conditions for soaring. The birds get height at the coasts and can cross the sea easily. In many places the day migration can be much too high to see the birds.
- (3) Thirdly, reports are lacking on concentrations of resting birds along most of the coast, which would indicate that large flocks of birds migrate over the Adriatic Sea. Only two sites, the Vransko Jezero Nature Park and the Lake Skadar National Park, are known to hold larger flocks of waterbirds during recent years. At Lake Skadar the number went up again after a hunting ban in the National Park (VESOVIĆ DUBAK 2007). Hunting is forbidden in Vransko Jezero Nature Park. Very few data have been published on resting sites, particularly for ducks, waders, herons, spoonbills and birds of prey. Potential habitats are shrinking due to tourism and infrastructure development, but land reclamation for fruit production and drainage is also a problem. The key problem of all sites, except the two mentioned along the whole coast, is disturbance, as there are no strictly protected core areas, and hunting – legal and illegal – has a huge impact. For example, only in spring 2006 did the value of the Bojana-Buna Delta become evident – because the hunters were afraid of bird flu! More than 40,000 birds rested and suddenly large flocks of Garganey *Anas querquedula*, Black-tailed Godwits *Limosa limosa* and Shelduck *Tadorna tadorna* were seen on their way to Northeast and Central Europe (B. ŠTUMBERGER *pers. comm.*). Where do these birds rest in other years?
- (4) A fourth reason why so little is known about the bird migration over the Adriatic Sea could be that the flyway is depleted. This is the case, at least for one species. The Slender-billed Curlew *Numenius tenuirostris* migrates after the breeding season to the Southwest, through the Central Mediterranean, to its wintering areas in West Africa (GRETTON 1996). Historical data indicate that the species was quite numerous at the Eastern Adriatic Coast. As it depends on a few wetlands as resting sites, all of which are now heavily impacted by hunting, like the Neretva Delta and the Bojana-Buna Delta, the dramatic decrease can be explained as a result of hunting activities. For example in 2007 and 2008, Italian hunters used Curlew and wader calls and decoys to attract the arriving migrants in March at Velika Plaža near

Ulcinj in the Bojana-Buna Delta (SCHNEIDER-JACOBY 2007, *own data*). Other species, such as the White Stork populations in the Western Balkans and Italy, are also depleted.

In a few documents, however, the great importance of the Eastern Adriatic Coast for bird migration becomes evident. For example Croatia and Serbia & Montenegro (today two countries) host the largest number (eight species) of globally threatened and near threatened african-urasian migratory raptors, of all countries in Europe, the Middle-East and Africa (TUCKER & GORIUP 2005). In the Bojana-Buna Delta, the EuroNatur team observed 25 species of raptors and six species of owls (SCHNEIDER-JACOBY *et al.* 2006). Satellite tracking shows that even individual birds of the same species of birds of prey use different strategies during the migration at the Eastern Adriatic Coast [www.sakerlife.mme.hu].

To improve the protection of the key sites and to stop the decrease of the many birds species that need the Central European Flyway, more information and cooperation is needed. Flagship species are Spotted Eagle *Aquila clanga*, Spoonbill, Ferruginous Duck *Aythya nyroca*, Garganey, Black-tailed Godwit, Slender-billed Curlew, Curlew Sandpiper *Calidris ferruginea* and Crane. But the protection will be only improved if, for tourism and regional development, the value of the resting sites is understood by the responsible authorities in the governments. The Adriatic Flyway Conference 14–17 Apr 2009 is a platform to exchange information and promote solutions. It is supported by the MAVA Foundations and will hopefully lead to better protection of the resting sites at the Eastern Adriatic Coast [www.adriaticflyway.com].

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