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Santoña, Victoria and Joyel Marshes Natural Park
Proceedings

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Stopover sites and migration seasons of Eurasian Spoonbill in the eastern Adriatic region and the Dinaric Karst

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Keywords: Migration; Stopover sites; Phenology; Bosnia-Herzegovina; Croatia; Montenegro.

Introduction

Stopover sites of migrating Eurasian spoonbills Platalea leucorodia in the W Balkans are insufficiently known. According to recoveries and resightings of colour-ringed birds, spoonbills which cross the Balkan Peninsula and the Adriatic Sea during spring and autumn migration belong to the Central European population which winters in North Africa (Smart et al. 2007). Most ringed birds found dead or resighted on both sides of the Adriatic Sea originate from breeding grounds in the Carpathian Basin (Müller 1984, Krajić et al. 2012). On the basis of data compiled by EuroNatur throughout the Adriatic Flyway Project (2000-2012), the present paper aims to identify key stopover sites and the main migration seasons of Eurasian Spoonbill in the W Balkans.

Methods

Our data concern wetland areas situated on the E Adriatic Sea coasts, from Slovenia southwards to N Albania, as well as inland sites in the hinterlands of the Dinaric Karst in Slovenia, Croatia, Montenegro and Bosnia-Herzegovina. A total of 464 records with 8,356 individual birds were compiled. Spoonbills were counted (1) during general field surveys, (2) waterbird counts (International Waterfowl Census, IWC), (3) all-year counts along the delta front of the Neretva River (Croatia), (4) breeding and wintering bird
surveys in Bosnia–Hercegovina, Montenegro and Albania, particularly the Ulcinj salina and Skadar lake, and (5) a study on visible bird migration on Ada Island (Montenegro) in March 2010 (Stumberger and Schneider-Jacoby 2010). Since 2003, bird surveys in key wetlands, i.e. Livansko polje and Buško Jezero (both Bosnia-Hercegovina), the Neretva river delta (Croatia), and the Bojana/Buna delta and Ulcinj salina in Albania and Montenegro, were performed almost annually from mid-January to June, and less frequently between mid-September and late November. Additionally, occasional observations and count data were provided by different observers and Dopps-BirdLife Slovenia. To minimize double counts of spoonbills per site in cases of continuous counts only numbers for the first date (first date individuals) were analysed. This reduced the dataset to 335 records and a respective total of 7,834 individuals (Table 1).

<table>
<thead>
<tr>
<th>Site</th>
<th>Country</th>
<th>n</th>
<th>Min.</th>
<th>Max.</th>
<th>Spring Autumn</th>
<th>Total</th>
<th>Median (Q2/Q3)</th>
</tr>
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<tbody>
<tr>
<td>Čerkiška jezera</td>
<td>Slovenia</td>
<td>4</td>
<td>1</td>
<td>4</td>
<td>26 (0.9%)</td>
<td>2 (1)</td>
<td></td>
</tr>
<tr>
<td>Škojanjski zatok (Koper)</td>
<td>Slovenia</td>
<td>12</td>
<td>1</td>
<td>5</td>
<td>6 (0.7%)</td>
<td>1 (0.5)</td>
<td></td>
</tr>
<tr>
<td>Secovlješke saline</td>
<td>Slovenia</td>
<td>5</td>
<td>1</td>
<td>5</td>
<td>17 (0.2%)</td>
<td>2 (1)</td>
<td></td>
</tr>
<tr>
<td>Holjinci</td>
<td>Bosnia-Hercegovina</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1 (0.0%)</td>
<td>1 (0.1)</td>
<td></td>
</tr>
<tr>
<td>Livansko polje</td>
<td>Bosnia-Hercegovina</td>
<td>17</td>
<td>1</td>
<td>138</td>
<td>506 (6.5%)</td>
<td>18 (5.2)</td>
<td></td>
</tr>
<tr>
<td>Mostarsko blato</td>
<td>Bosnia-Hercegovina</td>
<td>13</td>
<td>2</td>
<td>200</td>
<td>533 (6.9%)</td>
<td>21 (5.2)</td>
<td></td>
</tr>
<tr>
<td>Modrička polje</td>
<td>Bosnia-Hercegovina</td>
<td>3</td>
<td>1</td>
<td>11</td>
<td>21 (0.3%)</td>
<td>9 (1)</td>
<td></td>
</tr>
<tr>
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<td>Bosnia-Hercegovina</td>
<td>5</td>
<td>1</td>
<td>12</td>
<td>20 (0.3%)</td>
<td>2 (1.3)</td>
<td></td>
</tr>
<tr>
<td>Konavsko polje</td>
<td>Croatia</td>
<td>2</td>
<td>2</td>
<td>24</td>
<td>26 (0.3%)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Salina Niv</td>
<td>Croatia</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>5 (0.1%)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Otok Pag</td>
<td>Croatia</td>
<td>12</td>
<td>1</td>
<td>15</td>
<td>55 (0.7%)</td>
<td>3 (1)</td>
<td></td>
</tr>
<tr>
<td>Pulud (Rovinj)</td>
<td>Croatia</td>
<td>2</td>
<td>1</td>
<td>8</td>
<td>9 (0.1%)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Ulisce Mirna (Novigrad)</td>
<td>Croatia</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2 (&lt; 0.1%)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Ulisce Heretve</td>
<td>Croatia</td>
<td>156</td>
<td>1</td>
<td>133</td>
<td>3862 (49.3%)</td>
<td>14 (5.2)</td>
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<tr>
<td>Vransko jezera</td>
<td>Croatia</td>
<td>7</td>
<td>1</td>
<td>3</td>
<td>18 (0.2%)</td>
<td>3 (1)</td>
<td></td>
</tr>
<tr>
<td>Saška Tivat</td>
<td>Montenegro</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>10 (0.1%)</td>
<td>2 (1)</td>
<td></td>
</tr>
<tr>
<td>Skadarsko jezera</td>
<td>Montenegro/Albania</td>
<td>2</td>
<td>9</td>
<td>15</td>
<td>24 (0.3%)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Bojana/Buna Delta 1</td>
<td>Montenegro/Albania</td>
<td>14</td>
<td>1</td>
<td>220</td>
<td>343 (4.4%)</td>
<td>5 (2.0)</td>
<td></td>
</tr>
<tr>
<td>Salina Ulcinj</td>
<td>Montenegro</td>
<td>62</td>
<td>1</td>
<td>147</td>
<td>2284 (29.3%)</td>
<td>25 (12.0)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>335</td>
<td>1</td>
<td>220</td>
<td>7834 (100%)</td>
<td>11.6 (3.2)</td>
<td></td>
</tr>
</tbody>
</table>

Table 1.

Numbers of Eurasian Spoonbill (Platalea leucorodia) at stopover sites in the eastern Adriatic region and in Bosnia–Hercegovina, 2000-2012. Only sites with > 5 visits are shown.

Results and discussion

From a total of 33 sites five supported more than 100 Eurasian spoonbills during migration (Fig. 1). While in Slovenia, Istria and along N Dalmatia coasts numbers did not exceed a maximum of 15 birds on Pag Island in March 2006, significant numbers of at least 200-300 spoonbills per season were found in the Neretva river delta in S Dalmatia and the Bojana/Buna delta on the Monteneigr-Albanian coast. Although field effort was heavily skewed to coastal sites, approximately 18% of spoonbills (i.e. 15% of all records) were registered in karst poljes (i.e. inland wetlands) in Bosnia–Hercegovina (Table 1). On the coast spoonbills stop over at the delta fronts of main rivers, lagoons and salinas (79% of all birds), while they were mainly found in periodically flooded karst poljes which are grazed by cattle, sheep and other domestic animals in the hinterlands of the Dinaric Karst (12% of total birds). Together with coastal sites in Montenegro and S Dalmatia, the freshwater habitats in the hinterlands of the E Adriatic coast indicate a main migration route of the Central European metapopulation across the W Balkans, Adriatic Sea and S Italy (Fig. 1), as pointed out by Smart et al. (2007).

Spoonbill numbers in spring were overall higher than autumn numbers, although field effort was lower in late summer and autumn at both coastal and inland sites. The Neretva Delta held very low numbers in autumn (Fig 2a), while other main stopover areas (i.e. Livansko polje, Mostarsko blato and the Bojana/Buna delta) are used by a maximum of more than 100 spoonbills during spring as well as autumn migration (Table 1) (Fig. 2b,c).

At coastal sites spring migration starts in early to mid-February with peak numbers in March, while inland sites in Bosnia–Hercegovina support large numbers in mid-March till late April (Fig. 2b). Resightings of colour-ringed spoonbills in the Bojana/Buna delta, where a small breeding colony of 18 pairs (2012) exists, also revealed that some birds stay till mid-May. In addition, comparatively large numbers were seen in June and early July in the nearby Ulcinj salina. Waterbird surveys throughout the approximately 220 km² Bojana/Buna river delta in Montenegro and Albania (2003-2004) showed that the Ulcinj salina is the only wetland area that is regularly used for feeding and daytime roosting by adult and juvenile spoonbills of the local breeding population (Schneider-Jacoby et al. 2006). December and January records further indicate that some birds and small flocks may occasionally winter in the area (Fig. 2c).

In autumn peak numbers between early September and October coincided with the departure from main post-breeding gatherings in Kopacki rit in NE Croatia (Schneider-Jacoby et al. 2002, Miškusa et al. 2006). Large autumn numbers at inland sites in Bosnia–Hercegovina and the Ulcinj salina, suggest that they may function as crucial stopover habitats before crossing the Adriatic/Mediterranean Sea during autumn migration (Fig. 2b,c).
Present data showed that river deltas on the E Adriatic coasts and the extensive inland-karst wetlands in Bosnia-Hercegovina were used by a significant fraction of the Central European population during migration. The extension and seasonal duration of flooding of inland karst poljes depends on winter snow conditions in the mountains of the Dinaric Karst and rainfall during late summer and autumn. In contrast, water levels in the Ulcinj salina are artificially managed during the annual cycle of salt production. Therefore, spoonbill stop over and migration patterns in the W Balkans and across the central Mediterranean may largely depend on water conditions.

Although the W Balkans and the Adriatic Sea are placed in the central part of the C Europe/Black Sea/Mediterranean Flyway, this area was largely ignored for waterbird protection in the past. Recently, Euronatur’s Adriatic Flyway Project has shown massive deficiencies in bird and wetland conservation in most E Adriatic countries. Following to historic topographical maps which were compiled by Austro-Hungarian authorities in the late 19th and early 20th centuries, the area occupied by coastal wetland habitats in Croatia, Bosnia-Hercegovina, Montenegro and Albania has been reduced from a total of 1,765 km² to 415 km²; this is 78% of its extent during the last century (Stumberger and Sackl 2010). Additionally, more than 2 million birds are shot annually by legal hunters and poachers. Finally, it is remarkable that all important and potential stop over areas for Eurasian spoonbills on the W Balkans, like Mostarsko blato, the Neretva river delta and Ulcinj salina, are currently under tremendous hunting pressure (Schneider-Jacoby and Spangenberg 2010).

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 Movements of Eurasian Spoonbill based on metal- and colour-ringing recoveries between 1908 and 2012 in Hungary

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Keywords: Hungary; Ringing recovery, Spoonbill.

Introduction

The Spoonbill population of Hungary belongs to the Central European Spoonbill population, which has a subpopulation in the Carpathian Basin (Triplet et al. 2008). The migration route and wintering area of the Central European population is clearly different from that of the East Atlantic Spoonbill population (Pignonczi 2010; Kralj et al. 2012). Although the results of metal ringing recoveries have already been published (Müller 1984; Pignonczi 2010), there are only some preliminary studies on the results of the Hungarian colour-ringing project (Pignonczi and Karca 2006; Pignonczi 2009; Pignonczi 2010).

The main goal of this paper is to provide a general view of Hungarian Spoonbill population movements by analysing their recoveries, spanning 104 years of ringing in Hungary. Furthermore, a review on recoveries of spoonbills in Hungary ringed abroad is given.

Methods

The ringing of the Hungarian Spoonbill population started in 1908 with metal rings, while colour ringing began during 2003 (Pignonczi 2010). Resighting data were collected by different observers in Hungary and abroad. Specifically, we conducted three PVC-ring reading expeditions outside Hungary: one to Serbia (2005), and two to Tunisia (2010, 2012). This paper contains all recoveries obtained until 31st October 2012.