

**BULGARIAN SOCIETY FOR THE PROTECTION OF BIRDS**

**Observation of autumn migration of soaring birds in  
Bulgaria in 2004 in terms of identification of bottleneck  
IBAs to be included in the European Ecological  
Network NATURA 2000**

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### ***Purpose of the study***

Bulgaria is expected to join to the European Union in 2007. By the date of accession the country has to identify Special Protection Areas. The latest IBA inventory (Kostadinova, 2000) list 50 IBAs for Bulgaria, however, they were selected only by using criteria A and B. This leaves a number of Annex I species without IBA coverage. In addition the existing IBAs in Bulgaria has no clear boundaries shown on a map and the new proposed IBAs will face the same problem, because of the proper map background is not available. During the first and the second phase of the project “**Application of C criteria for identification of Important Bird Areas in Bulgaria**” significant results were achieved – basic maps for defining of IBA boundaries were ensured, national populations of breeding birds were estimated and preliminary application of C criteria and gap analysis were elaborated in order to plan the further steps for application of C criteria. These analysis showed that boundaries of the proposed IBAs have to be digitised and additional information have to be collected for specific bird species in number of sites and regions. Because of scattered and poor data on migratory populations, the network includes only the sites along the Black Sea Coast, which according to the available data show clear potential to be migratory bottleneck sites. Other sites, included in the network because of other criteria have also potential to be migratory bottlenecks, but it had to be additionally studied. In other hand the big interest to develop wind power generators parks along the Black Sea Coast become the biggest threat for migratory birds, which use the second big migratory route in Europe – Via Pontica

The purpose of the study was the identification of bottleneck sites for migratory birds along the Black Sea Coast, where preliminary data show that the potential importance exist, but it have to be supported be good quality data.

### ***Materials and methods***

The study of soaring migratory birds was carried out through direct observation during the whole light part of the day for the period 9 August - 21 October 2004. The observation was carried out using optics – telescopes and binoculars. For each species data were collected on the number, hour of observation, high of the flight, direction of the flight and the type of the flight. Every day the weather condition, including temperature, wind etc. were recorded. For the purpose of the study 9 observation points were selected in Eastern Bulgaria: Gorichane, Bulgarevo, Balchik, Rogachevo, Madara, Panitzovo, Banya, Ravadinovo and Malko Turnovo (figure1).

#### **Gorichane**

The observation point is situated west of the village Gorichane, 8 km west of the town of Shabla, and about 14 km west of the coastline. There were 50 observation days at this point for the period 15 September – 31 October.

#### **Bulgarevo**

The observation point is situated at Northern Black Sea Coast, south of the village Bulgarevo, 0.6 km north of the coastline, about 5 km northwest of the cape Kaliakra and about 6 km southeast of the town of Kavarna. There were 73 observation days at this point for the period 10 August – 21 October.

#### Balchik,

The observation point is situated at Northern Black Sea Coast, about 5 km southwest of the town of Balchik and 1.3 km NW of the coastline. There were 74 observation days at this point for the period 10 August – 21 October.

#### Rogachevo

The observation point is situated at Northern Black Sea Coast, in Rogachevo village, about 5,2 km west of the Albena Resort and the coastline, and about 6 km west-southwest of the Balchik observation point. There were 74 observation days at this point for the period 10 August – 21 October.

#### Madara

This is the most west observation point, used during the study. It is situated about 80 km west of the coastline and the town of Varna, at the western border of the Provadijsko-Roaksko Plato IBA. There were 26 observation days at this point for the period 10 August – 21 October.

#### Panitzovo

The observation point is situated at the northern part of Dyulino Pass of the Eastern Stara Planina Mountain, north of Panitzovo village, about 17,5 km west of the coastline. There were 75 observation days at this point for the period 9 August – 21 October.

#### Banya

The observation point is situated at the northern part of Obzor Pass of the Eastern Stara Planina Mountain, south of Banya village, about 7 km west of the coastline, and about 14,5 km southeast of the Panitzovo observation point. There were 58 observation days at this point for the period 26 August – 21 October.

#### Ravadinovo

The observation point is situated at South Black Sea coast, north of the Ravadinovo Village, about 3 km southwest of the town of Sozopol. The coastline goes 2,6 km north of the observation point, and also 3,6 km east of it. There were 62 observation days at this point for the period 26 August – 21 October.

#### Malko Turnovo

The observation point is situated in Strandja Mountain (Strandja IBA), northeast of the town of Malko Turnovo and about 40 km west of the coastline. There were 40 observation days at this point for the period 8 September – 21 October.

In total 60 experts and volunteers of BSPB took part in the observation of migration. At Gorichane and Malko Turnovo no white stork migration was followed, because of the late start of the observation at these to points.



## **Results**

### **Gorichane**

In total in the area 1884 raptors, 1212 storks, 730 pelicans and 4 cranes were recorded (table 1). As the observation point was open on 15 September no representative data on White Stork migration and Honey Buzzard were collected. Following the directions of flight of migratory birds in the nearest observation point (Bulgarevo) it could be expected that more than 5800 white storks have passed in the area of Gorichane during the autumn migration 2004.

### **Bulgarevo**

In the area of Bulgarevo point (between the town of Kavarna and Kaliakra cape) in total 31498 soaring birds were recorded during the autumn migration, mainly storks and pelicans (table 1). At this point was recorded also the biggest number of migratory Black Kites – 151. The globally threatened species recorded here were Imperial eagle and Pallid Harrier. Due to the specific geography of the coastline (direction east – west) and the predominant NW wind migratory birds stay in the area longer than usual migrants, trying to avoid sea and to go back again above the mainland. About 46% of birds fly to Southwest, but also significant number of them fly to the West (25%), even to Northwest (2%), following the coastline. More than 5% of the recorded white storks overnight North and Northwest of the village Bulgarevo and used the thermals in the area to soar. 40% of the migratory birds fly through the area up to 150 m high. When the wind is very strong storks and raptors (mainly harriers) land on the fields between Kavarna and Cape Kaliakra. 51% of the birds fly between 160 and 500 m high. Only 9% of the birds pass the area flying higher than 500 m.

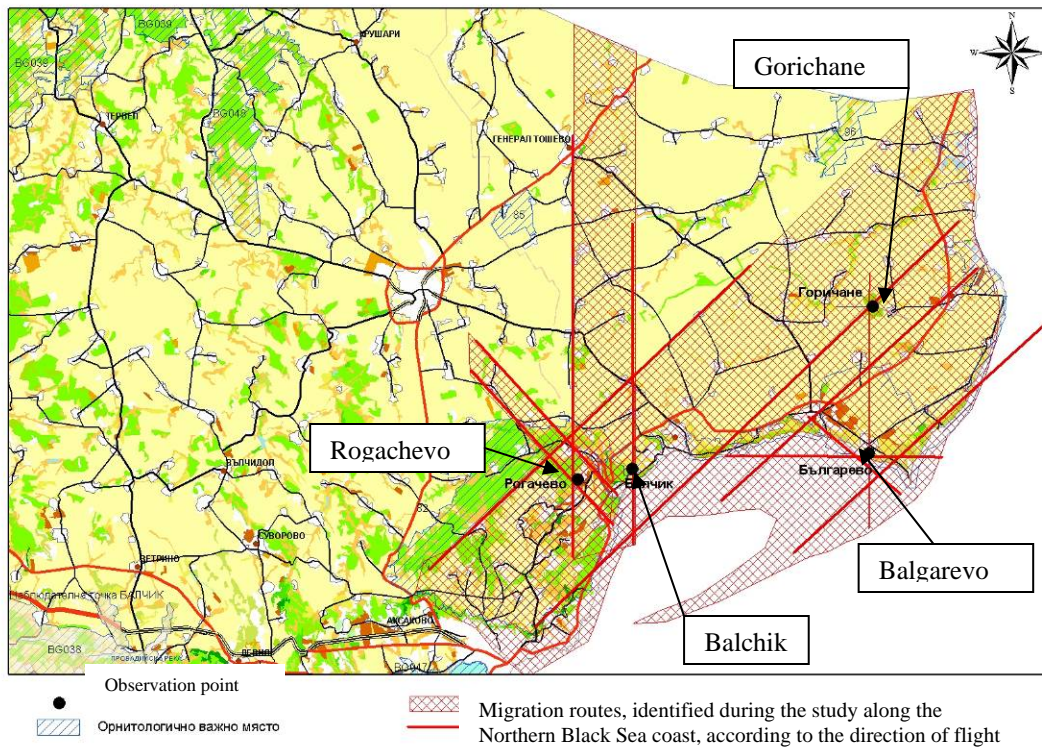
### **Balchik**

In the area of Balchik point in total 100027 soaring birds were recorded during the autumn migration, mainly storks and raptors (table 1). At this point was recorded also the biggest number of the following migratory birds – Red Kite, Griffon Vulture, Marsh Harrier, Montagu`s Harrier, Pallid Harrier, Goshawk, Sparrowhawk, Levant Sparrowhawk, Common Buzzard, Osprey, Kestrel, Red-footed Falcon, Sacker and Peregrine Falcon. 23% of the migratory birds fly not higher than 150 m above land, and 39% of the migratory birds fly between 160 and 500 m. 5292 pelicans and 13716 storks passed the Balchik point were also recorded at Rogachevo point.

### **Rogachevo**

In the area of Rogachevo point in total 149083 soaring birds were recorded during the autumn migration, mainly storks and pelicans (table 1). This is the biggest number of soaring migratory birds observed at one point along the Black Sea Coast during the autumn migration 2004. At this point was recorded also the biggest number of migratory white pelicans and cranes. 11% of the migratory birds fly not higher than 150 m above land, and 35% of the migratory birds fly between 160 and 500 m. 5292 pelicans and 13716 storks passed the Rogachevo point were also recorded at Balchik point.

species	Gorichane	Balgarevo	Balchik	Rogachevo	Madara	Panitzovo	Banya	Ravadinovo	Malko Turnovo
<i>P. apivorus</i>	25	643	1201	1415	1263	3121	1596	1353	685
<i>Milvus migrans</i>	8	151	110	38	2	30	7	5	2
<i>Milvus milvus</i>		4	14	3	2	3	1	1	
<i>Haliaeetus albicilla</i>	1								
<i>N. percnopterus</i>								1	1
<i>Gyps fulvus</i>	4		6				2	2	2
<i>Circaetus gallicus</i>	2	15	75	55	13	84	56	39	175
<i>Circus aeruginosus</i>	62	196	1189	506	33	289	267	94	47
<i>Circus cyaneus</i>	37	15	34	14	14	19	71	6	9
<i>Circus macrourus</i>	3	26	36	10	1	14	9	2	
<i>Circus pygargus</i>	5	68	241	173	16	50	49	184	2
<i>Circus pyg. /macr.</i>	5	34	4	9	3	17		1	2
<i>Circus spp.</i>	11	52	48	100	33	155	29	22	16
<i>Accipites gentilis</i>	32	7	314	70	8	12	18	151	11
<i>Accipiter nisus</i>	171	59	480	242	64	81	478	121	205
<i>Accipiter brevipes</i>	1	65	105	60	1	23	11	18	13
<i>Accipiter nis. /brev.</i>	1	5	7	33	3	27	57	5	39
<i>Buteo buteo</i>	1020	632	13053	6659	248	6339	9222	1224	2278
<i>Buteo rufinus</i>	13	24	94	21	33	10	30	16	2
<i>Buteo lagopus</i>	2		2		1		1		3
<i>Aquila pomarina</i>	29	21	1359	2357	296	5412	2740	141	6472
<i>Aquila clanga</i>					1	1	3	2	
<i>Aquila clan. /pom.</i>	1					1			3
<i>Aquila heliaca</i>		3	2	1		1	3	4	2
<i>Aquila hel. /rap.</i>				12				1	
<i>Aquila chrysaetos</i>	1	1	3	2		3	4	7	4
<i>Hieraaetus pennatus</i>	1	17	30	34	9	30	8	4	44
<i>Pandion haliaetus</i>	2	2	28	15	4	6	5	6	3
<i>Falco naumanni</i>			1				1		
<i>Falco tinnunculus</i>	61	89	151	41	18	26	22	14	12
<i>Falco tinn. /naum.</i>	2	1							
<i>Falco vespertinus</i>	107	141	235	65	3	3	15	22	1
<i>Falco columbarius</i>	6	1			1	2	5	1	2
<i>Falco subbuteo</i>	90	43	215	78	15	26	115	51	62
<i>Falco vesp. /subb.</i>		7	2	3	4	1			2
<i>Falco eleonorae</i>	2	3		3					
<i>Falco cherrug</i>		1	7	2		2			
<i>Falco peregrinus</i>	5	3	10	8	4	5	2	7	
<i>Falco spp.</i>	44	47	139	136	9	52	47	141	29
Non identified raptors	121	174	368	1949	100	850	206	205	639
<b>Total raptors</b>	<b>1884</b>	<b>2549</b>	<b>19556</b>	<b>14114</b>	<b>2202</b>	<b>16708</b>	<b>16638</b>	<b>3878</b>	<b>11335</b>
<i>Ciconia ciconia</i>	1125	26309	67229	117619	1836	101601	86641	123125	333
<i>Ciconia nigra</i>	87	146	1526	966	66	1029	2492	483	1286
<i>Ciconia spp.</i>			1	77					
<i>Grus grus</i>	4	57	41	67	15	27	14	19	5
<i>P. onocrotalus</i>	708	2338	11415	16305		11599	895	276	76
<i>Pelecanus crispus</i>	22	7	17	1		1	27		
<i>P. onocr./crisp</i>		109		1		28			651
<b>Total storks pelicans and cranes</b>	<b>1946</b>	<b>28949</b>	<b>80471</b>	<b>134969</b>	<b>1917</b>	<b>114380</b>	<b>90069</b>	<b>123903</b>	<b>2351</b>
<b>Total soaring birds</b>	<b>3830</b>	<b>31498</b>	<b>100027</b>	<b>149083</b>	<b>4119</b>	<b>131088</b>	<b>106707</b>	<b>127781</b>	<b>13686</b>



### Madara

In the area of Madara point in total 4119 soaring birds were recorded during the autumn migration, mainly raptors (table 1). Due to the fact that the migration was not followed every day during migration period the figures of the raptors are not representative and it is expected that they be underestimated. Migration of white stork in the western part of Provadijsko Royaksko Plateau IBA (at Madara observation point) is not so intensive, as in the Eastern part of the plateau. The area of Madara observation point seems to be the most western part of the main (most intensive and concentrated) Via Pontica migration route.

### Panitzovo

In the area of Panitzovo point in total 131088 soaring birds were recorded during the autumn migration (table 1). At this point was recorded also the biggest number of migratory Honey Buzzards and significant number of pelicans and Lesser spotted eagles. About 10% of migratory birds fly up to 150 above the observation point, including some birds, which fly lower than the observation point as they use the valley of Dvoinitza River. 82% of the migratory birds, which pass the mountain through the Dyulino Pass flying between 160 and 500 m above the observation point altitude. Raptors overnight in the forests of Kamchijska Planina IBA, which is situated north of the observation point. Pelicans were observed to overnight in the valley of Dvoinitza river.

### Banya

In the area of Banya point in total 106707 soaring birds were recorded during the autumn migration (table 1). At this point was recorded also the biggest number of migratory Spotted Eagles, Dalmatian Pelicans and Black Storks. About 42% of migratory birds fly up to 150 above the observation point, and 55% of the migratory birds, which pass the mountain through the Obzor Pass flying between 160 and 500 m above the observation point altitude. Raptors overwinter in the forests of Kamchijska Planina IBA, which is situated north of the observation point. As the observation point was open after the pick numbers of white storks (figure 2), it is expected that the flyway population over the area is much bigger than recorded.

### Ravadinovo

In the area of Ravadinovo point in total 127781 soaring birds were recorded during the autumn migration, mainly storks (table 1). The area is situated south of the Burgas Bay and it has key role for the white storks, which pass the bay. At this observation point was recorded both the biggest number of migratory white storks for the period of migration (123 125) and the biggest number of white storks passed the area in one day (about 73 000). The biggest number of imperial eagle was recorded also at this point. 4% of the migratory birds fly not higher than 150 m above land, and 61% of the migratory birds fly between 160 and 500 m.

### Malko Turnovo

In the area of Malko Turnovo point in total 13686 soaring birds were recorded during the autumn migration, mainly raptors (table 1). As the observation point was open on 8 September no representative data on White Stork migration and Honey Buzzard were collected. At this point was recorded the biggest number of migratory Lesser spotted Eagles, Booted Eagles and Short-toed Eagles. 43% of the migratory birds fly not higher than 150 m above land, and 29% of the migratory birds fly between 160 and 500 m.

For the first time in Bulgaria draft estimation of the White Stork flyway population is made on a base of the observations at the points mention above. Total of about 414000 White Storks were recorded to pass along the Black Sea coast (overlapping was not calculated) over the observation points, which make about 40% of total European population. On a base of these figures it is expected about 70 up to 80% of the European population of White Stork to fly along the Via Pontica migration route.

### ***Conclusions***

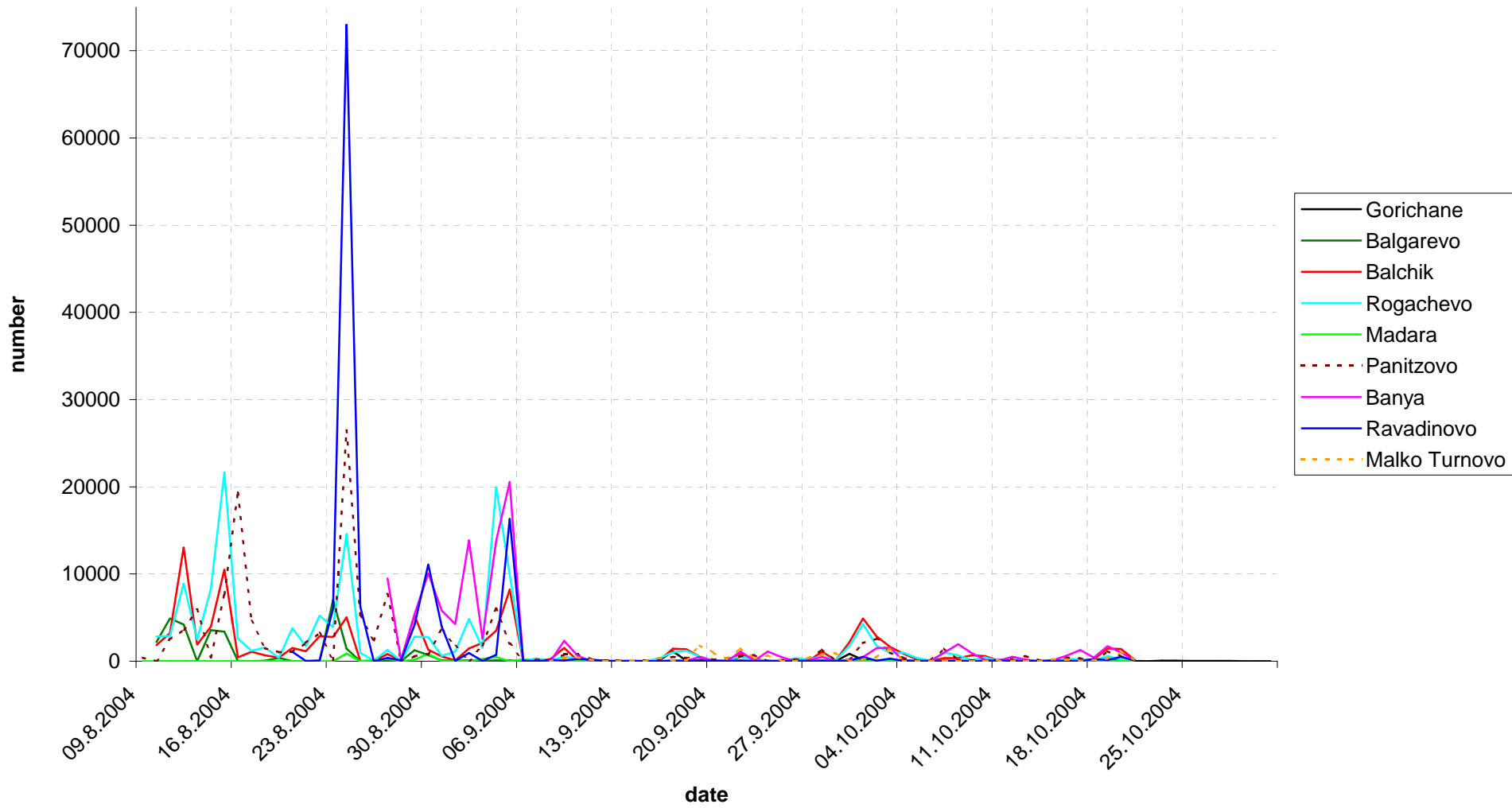
On the base of the results of the autumn migration study in 2004 the following conclusions have been done:

1. All the studied areas showed considerable importance for the migratory soaring birds and can be qualified as bottleneck sites.
2. The area between the town of Kavarna and Kaliakra Cape have to be designated as IBA because of its specific geographic conditions and vulnerability of the

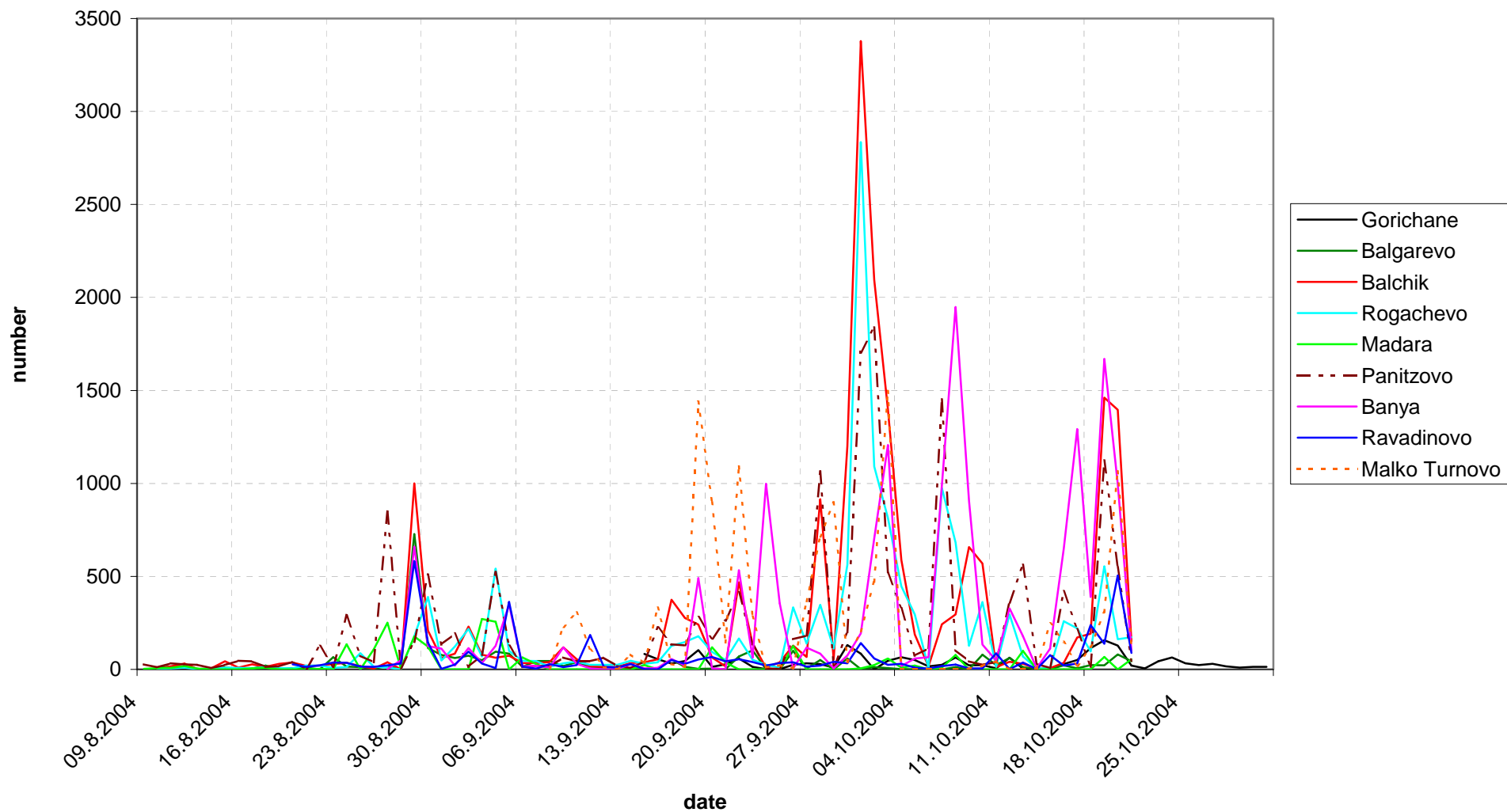


- migratory birds when they pass this area. The land were big flocks of white storks overnight regularly also are included within the IBA.
3. The Balchik area confirm its importance for migratory birds and as more than 3% of birds fly less than 500 m high it could be considered as bottleneck site and designated as IBA
  4. New IBA will be proposed – “Batova”, which includes both the valley of the river Batova and Frangensko Plateau where big flyway populations of storks, pelicans and raptors concentrates. Almost all the migratory birds, which passed the area were recorded both in Rogachevo and Balchik point, and only the birds flying along the Batova valley (mainly raptors) were not recorded, but pass the area.
  5. The IBA Emine will be significantly enlarged to the west and to the south to cover the Obzor pass and Dyulino Pass on Stara Planina Mountain, as well as the plane and the sea next to the south slopes of the mountain.
  6. The importance of Kamchijska Planina IBA as stopover site for raptors during migration is confirmed.
  7. New IBA will be proposed in the area of Ravadinovo – named Bakurluka, which cover the studied area with significant part of sea, as well as the Bakurluka Ridge, which is used mostly by raptors during migration.
  8. Data on migratory birds at two IBAs – Provadijsko Royaksko Plateau and Strandja are improved.
  9. The study gives valuable ornithological argumentation for the significance of coastal and inland territories of East Bulgaria for migratory birds and improve considerably the knowledge on the Via Pontica migration route. It clearly shows the need migratory routes in Dobridja to be additionally studied in order to ensure the key areas with proper protection.

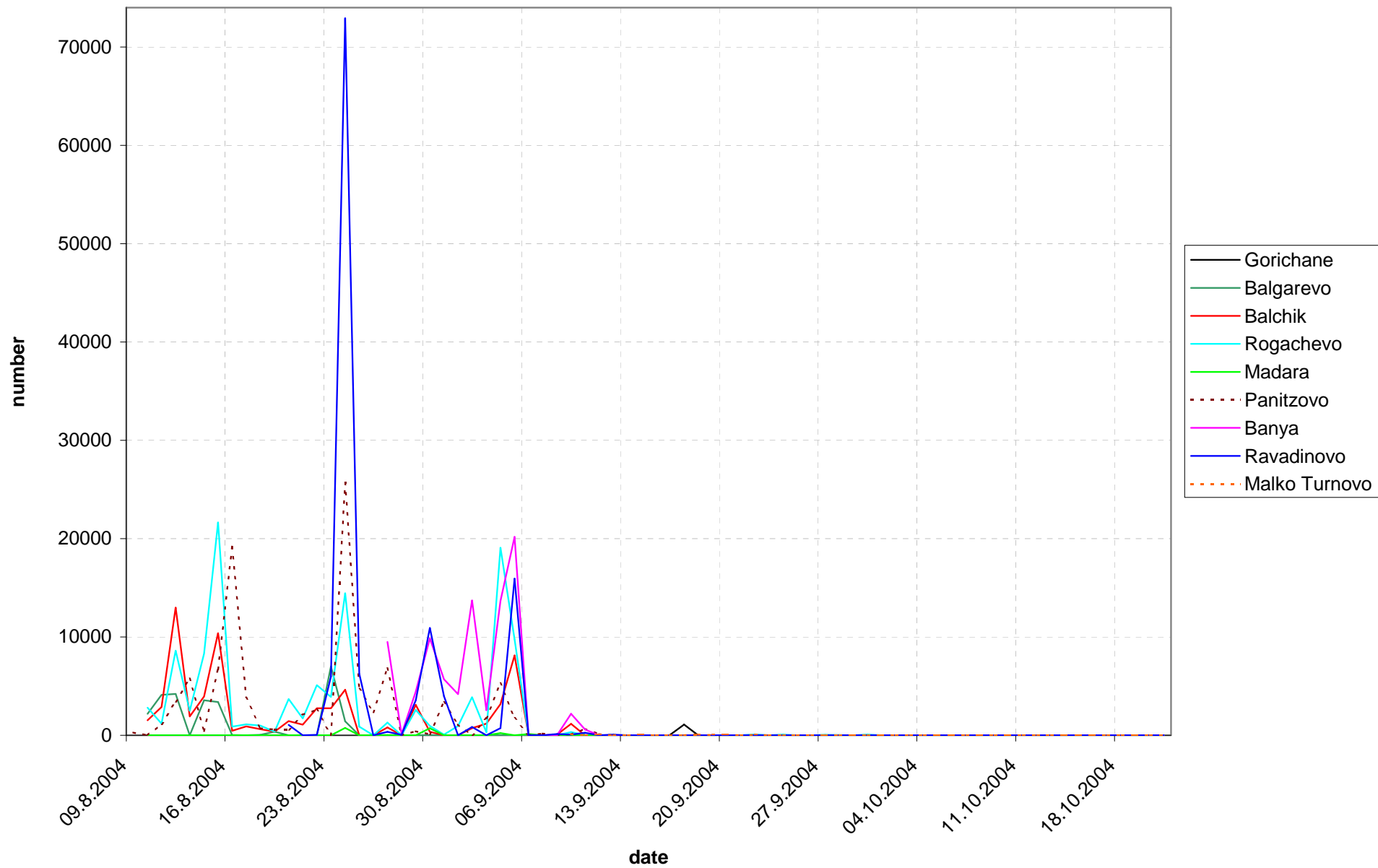
Dynamics of soaring birds along the Black Sea Coast - autumn 2004



### Dynamics of raptors migration along the Black Sea Coast - autumn 2004



Dynamics of White Stork (*Ciconia ciconia*) migration along the Black Sea Coast - autumn 2004



Dynamics of White Pelican (*Pelecanus onocrotalus*) migration along the Black Sea Coast - autumn 2004

