Acrocephalus 35 (162/163): 115–123, 2014
10.1515/acro-2014-0006

The first comprehensive estimate of the winter population of the White-tailed Eagle *Haliaeetus albicilla* along the Danube

Prva celostna ocena zimske populacije belorepca *Haliaeetus albicilla* vzdolž Donave

Remo Probst[1], Larisa Bogdea[2], Dan S. Bandacu[3], Mirko Bohuš[4], Svilen Cheshmedzhiev[5], Ákos Gáborik[6], Siegfried Geissler[7], Calin V. Hodor[8], Dan T. Ionescu[9], Veselin Koev[10], Tibor Mikuska[11], Zsolt Nagy[12], Tibor Parrag[6], Vlatko Rožac[13], Matthias Schmidt[14], Thomas Schneider[15], Marko Šćiban[16], Sándor Tatai[17], Emil Todorov[18], Adrian Tomik[11], Marko Tucakov[16], Miklós Váczi[17], Georg Frank[19]

[1] Ornis – Ingenieurbüro für Biologie, Dr. G. H. Neckheimstr. 18/3, AT–9560 Feldkirchen, Austria, e–mail: remo.probst@gmx.at
[2] Institute of Zoology, Academy of Sciences of Moldova, str. Academiei, 1, MD–2028 Chisinau, Republic of Moldova, e–mail: larus421@gmail.com
[3] Danube Delta Biosphere Reserve Administration, str. Portului, no. 34A, RO– 820243, Tulcea, Romania, e–mail: bandacu_dan@yahoo.com
[4] Department of Environmental Ecology, Faculty of Natural Sciences, Comenius University, Mlynska dolina, SK–842 15 Bratislava, Slovakia, e–mail: bohus@fns.uniba.sk
[5] Bulgarian Society for the Protection of Birds (BSPB/BirdLife Bulgaria), Dimitar Anev 16, BG–5250 Svishtov, Bulgaria, e–mail: svilen.cheshmedjiev@bspb.org
[6] Duna-Drava National Park, Tettye tér 9, HU–7625 Pécs, Hungary, e–mail: gaborik@ddnp.kvvm.hu, parrag@ddnp.kvvm.hu
[7] Landratsamt Neuburg-Schrobenhausen, Untere Naturschutzbehörde, Platz der Deutschen Einheit 1, DE–86633 Neuburg a. d. Donau, Germany, e–mail: siegfried.geissler@lra-nd-sob.de
[8] Wildlife Management Consulting, str. Molidului no. 37B, RO–500295 Brasov, Romania, e–mail: wildlife.consulting@gmail.com
[9] Forestry Faculty of Brasov, Wildlife Department, Sirul Beethoven no. 1, RO–500123 Brasov, Romania; e–mail: dionescu@unitbv.ro
[10] Persina Nature Park Directorate, Persin 5, BG–5930 Belene, Bulgaria, e–mail: persina@abv.bg
[11] Croatian Society for Birds and Nature Protection, Gundulićeva 19a, HR–31000 Osijek, Croatia, e–mail: tibor.kopacki.rit@gmail.com, adrian.tomik1@os.htnet.hr
[12] MME/Birdlife Hungary, PO box 286, HU–4401 Nyíregyháza, Hungary, e–mail:nagy.zsolt@mme.hu
[13] Kopacki rit Nature Park Management Office, Titov dvorac 1, HR–31328 Lug, Croatia, e–mail: vlatko.rozac@kopacki-rit.hr
[14] BirdLife Österreich, Museumsplatz 1/10/8, AT–1070 Vienna, Austria, e–mail: matthias.schmidt@birdlife.at
[15] Stadt Ingolstadt, Umweltamt, Rathausplatz 9, DE–85049 Ingolstadt, Germany, e–mail: Thomas.Schneider@Ingolstadt.de
[16] Bird Protection and Study Society of Serbia, Radnička 20a, RS–21000 Novi Sad, Serbia, e–mail: sciban.marko@gmail.com, markotucakov1@gmail.com
[17] Fertő-Hanság National Park Directorate, Rév-Kócsagvár, HU–9435 Sarród, Hungary, e–mail: fhnpititkarsag@fhnp.kvvm.hu
[18] Romanian Ornithological Society, Bd. Hristo Botev, nr. 3, ap. 6, RO–030231, Bucharest, Romania, e–mail: emil.todorov@sor.ro
[19] DANUBEPARKS Project Manager, Donau-Auen National Park, Schloss Orth, AT–2304 Orth an der Donau, Austria, e–mail: g.frank@donauauen.at

In January 2014, the first ever comprehensive winter census of the White-tailed Eagle *Haliaeetus albicilla* along the Danube River was conducted, using mostly point and transect counts. Altogether, 550–700 eagles were counted. The upper range of the estimate may in fact be more realistic because 615 km of the Danube were not surveyed. Birds were observed in every country along the Danube. Hotspots of occurrences were (1) the Central Danube floodplains – the area encompassing the lower Hungarian section (Danube-Drava National Park), Kopački rit Nature Park (Croatia), and the Gornje Podunavlje Special Nature Reserve (Serbia); and (2) the Danube Delta Biosphere Reserve. According to the Action Plan for the conservation of the White-tailed Eagle along the Danube, future winter counts should be made regularly, and lower variation in the resulting eagle numbers achieved by a higher degree of synchronization between individual countries. This study reinforces the importance of protected areas along the Danube as a backbone for the conservation of White-tailed Eagles and biodiversity.

Key words: White-tailed Eagle, *Haliaeetus albicilla*, Danube, joint winter census, population estimate
Ključne besede: belorepec, *Haliaeetus albicilla*, Donava, skupni zimski popis, populacijska ocena

1. Introduction

The White-tailed Eagle *Haliaeetus albicilla* is a large, long-living top predator distributed widely across the Palearctic. It is typically associated with aquatic habitats, where it preys on waterfowl and various fish species, but also feeds regularly on carrion. Most often it nests in trees, but will nest on cliffs and even on the ground in the northern part of its range (Ferguson-Lees & Christie 2001). The White-tailed Eagle is a well-known victim of habitat destruction caused by human intervention (especially large-scale river regulation and drainage activities carried out in the past), illegal persecution (shooting, trapping, etc.), lead poisoning, pesticide and pollutant contamination, and collisions with man-made structures and electrocution (Mizera 1999, Helander *et al.* 2003, Deinet *et al.* 2013). However, due to major conservation efforts across nearly its entire distribution range, the White-tailed Eagle is now recovering from its population low of around 50 years ago and was recently characterized as a species of "Least Concern" globally (BirdLife International 2013).

White-tailed Eagles are still treated as rare and SPEC 1 within Europe (BirdLife International 2004). The population in Europe is divided into the northern and southern sub-populations, the latter being much smaller (less than 700 breeding pairs; see Probst & Gaborik 2012). It is acknowledged as a flagship species for nature conservation activities, and as an umbrella species for riverine habitats.

With its floodplain, the Danube River is an important breeding area, used by a large number of wintering White-tailed Eagles, comprising local breeding birds and their offspring, as well as migrants from farther north and east (Probst & Gaborik 2012). To date, the exact number and distribution of wintering eagles along the Danube is unknown, and the Danube's importance internationally as a wintering area has not been assessed (for national efforts, see Ivanov 2007, Bohuš *et al.* 2009, Hám *et al.* 2009, Horváth 2009, Mikuska 2009, Probst 2009). In accordance with "Objective 12: To conduct joint Danube-wide synchronized winter counts" stipulated by Probst & Gaborik (2012), a survey was conducted within the framework of the DANUBEPARKS STEP 2.0 project. See National Park Donau-Auen (2014) for additional material on this international network of protected areas along the Danube. We report on and discuss the results of this survey.

2. Material and methods

2.1. Study area

The Danube is said to be the most international river system of the world (European Commission 2010). As it flows from its source to its estuary for approximately 2857 km, it passes through ten countries: Germany, Austria, Slovakia, Hungary, Croatia, Serbia, Bulgaria, Romania, Moldova and Ukraine. In this study, we have recorded data from all

these countries except Ukraine.

The geographical scope of this study is identical to that described in Probst & Gaborik (2012); it deals solely with eagles occurring along the Danube River itself, together with oxbows, lakes, ponds, riverine forests and other landscapes in the immediate vicinity. Tributaries like the Morava, Drava, Sava and Tisza were excluded from this analysis, yet some overlap with these rivers occurred (e.g. in the lower reaches of the Drava and the Danube). Organizers and observers were requested to count only those eagles that, in their opinion, were most likely to be ecologically dependent on the Danube. In practice, these were the eagles typically found within 10 kilometres of the main Danube riverbed, although in the coastal region this also included birds found in the Danube Delta area and within the Razim lagoon complex.

2.2. Data collection and analysis

Counts were organized within the respective countries by leading experts. The approach taken to the count in a particular area was often based on extensive on-site experience over many years. Thus, the exact methodology of the field survey could be adjusted to best address regional differences. It included point counts and transect counts. In rare cases, surveys were made from boats (Central Danube floodplain in Hungary, Croatia and Serbia).

Observation days were scheduled to last from 9.00 to 14.00 hrs CET and volunteers were encouraged to stay in contact via mobile phones, which helped minimize the possibility of double counting. To some extent, contact and communication between observers straddled national borders, and transnational surveys were performed. In some areas, data for other surveys were collected, mostly for the International Waterfowl Count (IWC), and incorporated into our data pool.

Data from the survey were entered via a webpage provided by the DANUBEPARKS STEP 2.0 project, and accessible only to the coordinators. The most important data recorded were the location of eagles (either the exact coordinates or within a 10 × 10 km UTM square), the number of eagles, their age classes, and the date of observation. These data were the basis for the map presented in the results. Some countries also prepared separate reports (Hungary: TERRA CAPI 2014, Serbia: Tucakov 2014, Croatia: Mikuska 2014).

Although we aimed at collecting data in a highly synchronized manner on 12 Jan 2014, this was undermined by a variety of factors (number of available observers, weather conditions, etc.). Despite obtaining partial data from nearly all the countries on 12 Jan, other areas were not covered on that date. Thus, the survey period spanned the entire month of January 2014.

Double counts were excluded to the best of our knowledge on the regional level by consultation with and between local experts and observers. The maximum number of eagles was calculated by simple addition of all the birds in all countries, assuming complete independence of sightings. The minimum was calculated using age classes and location of sighting as determinants of the independence of a given sighting. All eagles observed in countries without extensive frontiers created by the Danube (Germany and Austria) were counted as separate sightings.

3. Results

3.1. Coverage

We surveyed about 80% of the River Danube's length. The sections not covered were located in Germany and Upper Austria (215 km in the upper section of Germany and 275 km between Ingolstadt and Linz, respectively), and a 125 km stretch of the Romanian Danube west of the Delta area.

3.2. Distribution

White-tailed Eagles were found not to be evenly distributed along the Danube (Figure 1). They were rare or absent from parts of Germany and Upper Austria. However, they were very common in the area of the Danube Delta (Romania) and there are clusters of observations from the Central Danube floodplains: the lower Hungarian section (Danube-Drava National Park), Kopački rit Nature Park (Croatia), and the Gornje Podunavlje Special Nature Reserve (Serbia). At least 166 eagles used the Danube Delta Biosphere Reserve, including the coastal Razim lagoon complex. The border area of Hungary, Croatia, and Serbia, from the mouth of Sió River downstream to the mouth of the Drava River, held at least 182 White-tailed Eagles.

The presence of large numbers of this species appears to correlate with habitat quality. Although not evaluated in detail during the course of our study, eagles clearly congregated in large non-alpine protected areas with large intact and dynamic wetlands, an abundance of food (waterfowl and fish), and low levels of disturbance. It is exactly these same areas that serve as major sites for wintering waterfowl, and many of them are listed as "wetlands of international importance" under the Ramsar convention and some included in the DANUBEPARKS network (Figure 2).

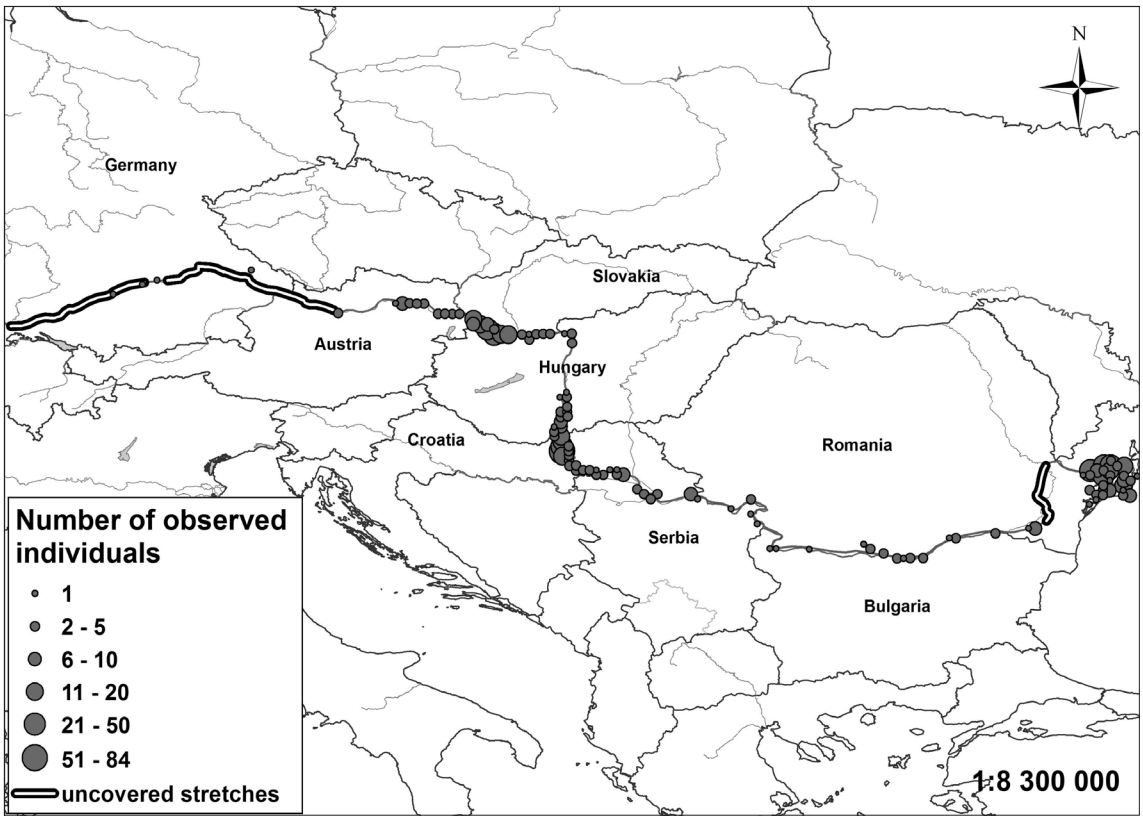

Figure 1: Distribution of White-tailed Eagles *Haliaeetus albicilla* along the Danube in January 2014. Areas not surveyed by a specific eagle count are marked as uncovered stretches. (Map: Z. Nagy)

Slika 1: Razporeditev belorepcev *Haliaeetus albicilla* vzdolž Donave januarja 2014. Number of observed individuals – število opazovanih osebkov, uncovered stretches – odseki, na katerih ni bil opravljen ciljani popis belorepcev. (Zemljevid: Z. Nagy)

Table 1: Number and age structure of White-tailed Eagles *Haliaeetus albicilla* along the Danube River in January 2014. For countries sharing a border along the Danube, estimates are presented together. Abbreviation: indet. – indeterminate.

Tabela 1: Število belorepcev *Haliaeetus albicilla* vzdolž Donave januarja 2014. Za pare držav, med katerimi meja poteka po Donavi, so rezultati podani skupaj. Okrajšave: nedol. – nedoločen.

Country / Država	No. of individuals / Št. osebkov	ad. / subad.	juv. / immat.	indet.
Germany / Nemčija	4	2	2	0
Austria / Avstrija	31	20	9	2
Slovakia / Slovaška	160–199	19	41	16
Hungary / Madžarska		119	1	3
Croatia / Hrvaška	112–211	54	2	43
Serbia / Srbija		73	29	10
Bulgaria / Bolgarija	227–245	16	2	0
Romania / Romunija		163	54	10
Total / Skupaj	534–690	467	141	85

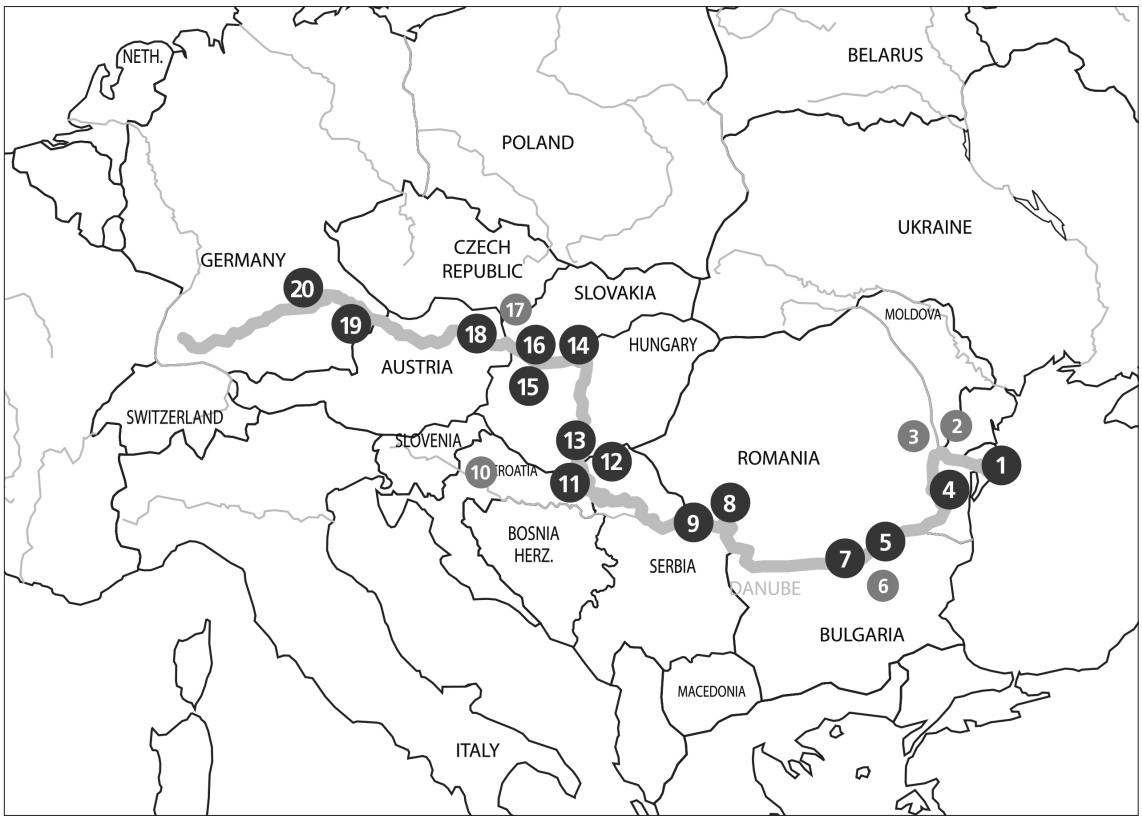

Figure 2 / Slika 2: Distribution of protected areas within the DANUBEPARKS network. Data gathered from the following areas (dark grey) were incorporated in the analysis: / Lega zaščitenih območij v omrežju DANUBEPARKS. Podatki z naslednjih območij (temno siva) so vključeni v analizo: Danube Delta Biosphere Reserve (1), Small Wetlands of Braila (4), Kalimok-Brushlen Protected Site (5), Persina Nature Park (7), Iron Gates Nature Park (8), Đerdap National Park (9), Kopački rit Nature Park (11), Gornje Podunavlje Special Nature Reserve (12), Danube-Drava National Park (13), Danube-Ipoly National Park (14), Fertö-Hánsag National Park (15), Dunajské Luhy Protected Landscape Area (16), Donau-Auen National Park (18), Narrow Valley of the Danube near Passau (19), Danube riparian forest Neuburg-Ingolstadt (20). Additionally, protected areas along tributary rivers (light grey) were surveyed in the census, but their counts are not included as they are not located along the Danube: / Zaščitena območja vzdolž pritokov (svetlo siva) so bila del popisa, vendar njihovi podatki v analizo niso vključeni, saj ne ležijo vzdolž Donave: Lower Prut Nature Reserve (2), Lower Prut Floodplain Natural Park (3), Rusenski lom Nature Park (6), Lonjsko polje Nature Park (10), Záhorie Protected Landscape Area (17).

3.3. Numbers

Keeping in mind the methodological difficulties outlined in Section 2.2, the occurrence of White-tailed Eagles along the Danube in the winter of 2013/2014 suggests a population size of 550 to 700 eagles (Table 1). Although there is a significant percentage of unidentified plumages, subadult and adult birds form more than half of the count (up to a maximum of 470 individuals) (Table 1).

4. Discussion

In our survey, up to 700 White-tailed Eagles were found along the entire Danube in January 2014. The study of White-tailed Eagles along the Danube has a long tradition, including: Hám *et al.* (1990), Ivanov (2007), Bohuš *et al.* (2009), Hám *et al.* (2009), Horváth (2009), Mikuska (2009), Probst (2009), and Radović & Mikuska (2009). However, no attempt has previously been made to survey the whole Danube using a multi-lateral approach. Indeed, in other parts of the White-tailed Eagle's range, counts are typically performed on the national or even smaller scale (Nehls & Struwe-Juhl 1998). The paucity of data is illustrated by the fact that BirdLife International (2004) registered > 4700 overwintering individuals at a time when the European breeding population was known to comprise about 5000 to 6600 pairs. Furthermore, although Danube-wide counts of many bird species are in high demand, they are notoriously

rare due to logistical and manpower constraints; see Schmidt *et al.* (*in prep.*) for the survey of the Little Ringed Plover *Charadrius dubius* and the Sand Martin *Riparia riparia*.

We believe our estimate of 550 to 700 wintering White-tailed Eagles along the Danube constitutes a fair first heuristic approach. The upper range of the count may in fact be more realistic given that eagles can easily be overlooked in vegetation, or when soaring very high in the sky. Additionally, no data were collected on several stretches having a total length of 615 km in Germany, Austria and Romania. Our census results included most of the adults belonging to a minimum of 192 breeding pairs observed along the Danube River (Probst & Gaborik 2012) and are year-round residents in their territories; they also indicate the importance of the Danube River and its wetlands for young and immature eagles. No clear trend is visible along the Danube in terms of age composition, probably because breeding territories are already well established along the major parts of the river course. Even as we acknowledge certain methodological inadequacies and gaps in data collection, we are confident in presenting the results of our 2014 count for the following reasons:

(1) No evidence has been found in the literature of large numbers of eagles performing long-distance dispersals at this time of the year (Glutz von Blotzheim *et al.* 1989). This is especially true for regions rich in prey like the Danube Basin. January lies outside the main spring and autumn migration seasons. Furthermore, breeding eagles and probably many adult northern migrants are territorial at this time of the year (Probst 2009). Near or fully adult birds form a large part of the population in this study; these individuals are thought to be largely sedentary in mid-winter.
(2) Preliminary telemetry data from one eagle tracked along the Bulgarian Danube (O. Krone pers. comm.) suggest that this bird covered at most 57 km in January 2012 (> 100 known geographical positions) and 28 km in the same month in 2013 (only six known coordinates). This individual was a first winter bird in 2012, and thus tracked during its time of dispersal. A second bird of the same age travelled a maximum of 115 km in 2012 (96 GPS fixes), 80 km in 2013 (185 GPS fixes), and 142 km in 2014 (112 GPS fixes) (E. Todorov pers. comm.).
(3) Areas not surveyed in Germany and Austria typically hold very few, if any, White-tailed Eagles (S. Geissler & T. Schneider *pers. comm.*; R. Probst *own data*).
(4) The Ukrainian side of the Danube Delta was partly covered by surveyors from the Romanian side (D. Bandacu *pers. comm.*).
(5) The uncovered 125 km stretch of the Romanian Danube probably hosts no more than 50 eagles (E. Todorov *pers. comm.*).

Future studies should nevertheless make every attempt to close data gaps and improve coordination. First and foremost, count schedules (i. e. the date each census is to take place) should be coordinated among countries to the greatest degree possible. It is essential to strengthen the network of White-tailed Eagle watchers, to reinforce the connection to the IWC, and to better exploit current communication technologies.

Finally, this joint eagle count is not simply of scientific interest. It has empowered the Danube protected areas, where many of these birds were found, within the DANUBEPARKS STEP 2.0 framework, and reaffirmed the positive impact those areas have on nature conservation. The project has connected hundreds of observers and stakeholders and introduced thousands of television viewers to the issue of White-tailed Eagle conservation and protection. Furthermore, the public was informed via numerous reports, publications, and presentations.

We are convinced that the White-tailed Eagle is the ideal flagship species to promote the agenda and needs of national governments and organizations, together with international conservation networks that work across the eagle's distribution to conserve and develop intact riverine forest habitats, not to mention, of course, the Danube itself that is a vital artery for much of southeastern Europe.

Acknowledgements:
We thank the following coordinators and observers in alphabetical order and with country abbreviations (DIN EN ISO 3166-1) in brackets; for the sake of simplicity, we have omitted their academic titles: Nicu Acsentiev (RO), Constantin Achimfiev (RO), Miklós Ádány (HU), Adrienn Adorján (HU), Péter Agócs (HU), Christa Aistleitener (AT), Vitalie Ajder (MD), Vasile Alexe (RO), Angel Angelov (BG), Gyula Antoni (HU), Antal Ásványi (HU), Carl Auer (AT), Mihai Avedic (RO), Kristián Bacsa (SK), Antal Bagdi (HU), Neculai Bahaciu (RO), Bettina Balogh (HU), Juraj Balogh (SK), Dan Bandacu (RO), Violeta Bandacu (RO), Péter Bánhidi (HU), Lőrinc Bărbos (RO), Michaela Bartíková (SK), Gellért Bátky (HU), Kolos Bátky (HU), Johann Bauer (AT), Gyula Bedőcs jr. (HU), Zoltan Benko (RO), Petra Bíliková (SK), Pavol Binder (SK), Erika Binderová (SK), Marian Bîrcă (RO), Larisa Bodega (MD),

Mirko Bohuš (SK), Maftei Benone (RO), Michael Bierbaumer (AT), Flora Bittermann (AT), János Bodó (HU), Ádám Bodor (HU), Tímea Bognár (HU), Boris Bolšec (HR), Gábor Bóné (RO), Katarína Botková (SK), Zsolt Bozsanits (HU), Hubert Bruckner (AT), Veronika Bucz (SK), Sebastian Bugariu (RO), Svilen Cheshmedzhiev (BG), Michael Chiari (AT), Daniel Čižmár (SK), Constantin Cojan (MD), Maria Cojan (MD), Cătălin Condratov (RO), Vasile Costache (RO), Vasile Crudu (MD), Patrícia Cseh (HU), Zoltán Cserna (HU), István Csonka (HU), Péter Csonka (HU), Ivana Czocherová (SK), Dražen Damjanović (RS), Dorin Damoc (RO), Matea Danková (SK), Szilárd J. Daróczi (RO), Sporcics Dean (HR), Tamás Deme (HU), Manuel Denner (AT), Michal Deraj (SK), Jelica Dimitrijević (RS), Ján Dobšovič (SK), Hrvoje Domazetović (HR), Cristian Domşa (RO), Karin Donnerbaum (AT), Alexandru Doroşencu (RO), Dani Dragan (RO),Thomas Drapela (AT), Helmut Eckel (AT), Konrad Edelbacher (AT), Hans Ernst (AT), Dragan Fabijan (RS), Ciprian Fântâna (RO), Ádám Faragó (HU), Tomáš Faragó (SK), Johannes Feichtinger (AT), Éva Fejes (HU), Liviu Filat (RO), Alexandra Filová (SK), Iris Fischer (AT), Elemér Főnyedi (HU), Lisi Forsthuber (AT), Heinz Frötscher (AT), Miklós Frühwirt (HU), Ákos Gáborik (HU), Ede Gábos (RO), Ferenc Gáspár (HU), Siegfried Geißler (DE), Gerda Gerner (HU), Pavel Gheba (RO), Éva Góczán (HU), József Gödöny (HU), Iliuță Goean (RO), Mircea Gogu-Bogdan (RO), Magdalena Grahovac (RS), Katarína Gregušová (SK), József Greiner (HU), Harald Gross (AT), Ágnes Gruber (HU), Ján Gugh (SK), Bojan Guslov (RS), Gertrúd Gyékény (RO), Előd Győrig (HU), Rupert Hafner (AT), Istvan Ham (RS), Karl Hansal (AT), Johanna Hartmann (HU), Máté Havasi (HU), Zoltán Hegyi (HU), Zsolt Hitter (HU), Attila Hódossy (HU), Călin Hodor (RO), Aranka Hollósi (HU), Ľuboš Homola (SK), Gyula Horváth (HU), Andrej Hrabovský (SK), Irena Hribšek (RS), George Iacovici (RO), Marcel Iacovici (RO), Alexandru Ifrim (RO), Eszter Ingola (HU), Dan Traian Ionescu (RO), Călin Ionuț (RO), Iulian Ipate (RO), Gabriel Izsák (SK), Željko Jakovljev (RS), Marko Janković (RS), Zoltán Jóna (HU), Sandra Jovanović (RS), Eike Julius (AT), Serghei Jurminschi (MD), György Kállay (HU), Sándor Kalmár (HU), Béla Kalocsa (HU), Tibor Karafa (SK), Zoran Karić (RS), Ján Kautman (SK), Matej Kautman (SK), Róbert Kazi (HU), Sava Kelčei (RS), Johann Kemle (AT), István Kenéz (HU), Robert Kinnl (AT), László Király (HU), Krasimir Kirov (BG), Zoltán Kis Hegedüs (HU), Botond Kiss (RO), István Kiss (HU), Tamás Kiss (HU), Viktória Kiss (HU), Peter Kleinert (SK), Ivan Kňaze (SK), Veselin Koev (BG), Blanka Kóródi (HU), Vendel Kószás (HU), Šandor Kovač (HR), Gyula Kovács (HU), István Kovács (RO), Péter Kovács (HU), László Kozma (HU), Erhard Kraus (AT), Georg Krieger (AT), Dušan Krivošík (SK), Sonja Kučera (HR), Matúš Kúdela (SK), Péter Kugler (HU), Lukáš Kušík (SK), Matúš Kušík (SK), Tomáš Kušík (SK), Yordan Kutzarov (BG), Richard Kvetko (SK), Jozef Lacko (SK), Dénes Laczik (HU), Petya Lazarova (BG), Csaba László (HU), Gabriella László (HU), Victor Leah (RO), Thomas Lechner (AT), Hermann Leitner (AT), Jozef Lengyel (SK), András Lelkes (HU), Wolfgang Lindinger (AT), Dumitru Lisavencu (RO), Pavol Littera (SK), Andor Lőkkös (HU), Csilla Lőrincz (HU), Gerhard Loupal (AT), Dumitru Lungu (RO), Constantin Lupu (RO), Katalin Madas (HU), Máté Magyari (HU), Zlatko Malić (HR), Oleg Mantorov (MD), Mihai Marinov (RO), Saša Marinković (RS), Éva Márkus (HU), Rita Márkus (HU), Attila Marton (RO), Balog Mate (HR), Róbert Mátics (HU), Mike McGrady (AT), Besim Mehić (HR), Zoltán Meiszterics (HU), Mária Melišková (SK), Klaus Michalek (AT), Marian Mihalcea (RO), Tamás Miholcsa (RO), Peter Miklós (SK), Jaroslav Mikuš (SK), Tibor Mikuška (HR), Zoran Milovanovic (RS), Radislav Mirić (RS), Tomáš Mišek (SK), Norbert Model (DE), Gábor Mónus (HU), Delphine Morin (RS), Attila Mórocz (HU), Yoko Muraoka (AT), László Musicz (HU), Imre Nagy (HU), László Nagy (HU), Csaba Németh (HU), Adrián Novák (HU), Tomáš Novák (SK), Martin Obuch (SK), Zsolt Szilárd Ölvedi (RO), Miklós Ónodi (HU), Viorica Paladi (MD), Slobodan Panjković (RS), Snežana Panjković (RS), László Pandur (HU), Valeri Parvanov (BG), Comârzan Paul (RO), Othmar Peham (AT), Piroska Peimli (HU), Manfred Pendl (AT), László Pénzes (HU), Kata Péterfia (HU), Euegn Petrescu (RO), Daniel Petrescu (RO), Đorđe Petrović (RS), Strahinja Petrović (RS), Christian Pichler (AT), Martina Pisarová (SK), Gábor Platzer (HU), Albert Pócsi (HU), Viktor Prachár (SK), Levente Pribéli (HU), Remo Probst (AT), Slobodan Puzović (RS), Peter Rác (SK), Miloš Radaković (RS), Dimitrije Radišić (RS), Draženko Rajković (RS), Boris Rakočević (RS), Jozef Ridzoň (SK), Regina Riegler (AT), Norbert Riezing (HU), Christoph Roland (AT), Kristina Romanjek (HR), Martin Rosa (SK), Filip Rovný (SK), Vlatko Rožac (HR), Andrea Rózsová (SK), David Rubáč (SK), Milan Ružić (RS), Anna Sarolta Sándor (HU), Melinda Sági (HU), Sándor Sági (HU), József Sánta (HU), Mircea Savencu (RO), Christian Schano (AT), Tobias Schernhammer (AT), Karin Schlechta (AT), Marion Schindlauer (AT), Maria Schindler (AT), Rudolf Schmid (AT), Matthias Schmidt (AT), Stefan Schneeweiß (AT), Thomas Schneider (DE), Christian Schulze (AT), Claudia Schütz (AT), Ágnes Schwarzkopf (HU), Benjamin Seaman (AT), Krisztina Sebe (HU), Ádám Selmeczi Kovács (HU), Josef Semrad (AT), Jakub Sigmund (SK), Dragan Simić (RS), Tibor Sipos (AT), Vatroslav Škrnjug (HR), Katarína Slabeyová (SK), Ivar Smaho (SK), Karolína Sobeková (SK), Andrej Somora (SK), Peter Spakovsky (AT), Péter Spakovszky (HU), Velislava Spasova (BG), Deán Sporcsics (HU), Nenad Spremo (RS), Marko Šćiban (RS), Nikola

Stanojević (RS), István Staudinger (HU), Martina Staufer (AT), Florin Stăvărache (RO), Tihomir Stefanov (BG), Nikola Stojnić (RS), Nándor Stölkler (HU), Pavol Stranovský (SK), Bernadette Strohmeier (AT), Claus Stundner (AT), Elisabeth Süßenbacher (AT), Pavol Surovec (SK), Jenő Szabó (HU), Máté Szabó (HU), János Szatóri (HU), Péter Szeimann (HU), Tibor Szekeres (HU), Zsófia Szekeres (HU), Géza Szentendrey (HU), István Szentirmai (HU), Gábor Szentmihályi (HU), Mátyás Szépligeti (HU), Péter Szinai (HU), Gábor Szitkay (HU), Attila Szűcs (HU), Sándor Tatai (HU), Ádám Tamás (HU), Andrea Tárczy (HU), Goran Tepavac (RS), Norbert Teufelbauer (AT), Lorin Timaeus (AT), Adrian Tomik (HR), Istvan Torizs (RO), Ádám Tóth (HU), Róbert Tóth (HU), Aurel Trăteanu (RO), Alexandra Trefeli (HU), Tamás Treitz (HU), Vladimir Tsurcanu (MD), Marko Tucakov (RS), Áron Tulogdi (HU), Lucia Turčoková (SK), Sergej Ucakar (AT), Ferenc Udvardy (HU), Sebastian Url (AT), Miklós Váczi (HU), Gusztáv Varga (HU), István Vasas (HU), Judit Veres-Szászka (RO), Aurél Viglási (HU), Béla Vincze jr. (HU), Ignác Vincze (SK), Jozef Vlachovič (SK), Ondrej Vlachovič (SK), Miriam Vlachovičová (SK), Mirel Voicu (RO), Dorel Voinea (RO), Sándor Völgyi (HU), Csaba Vörös (HU), Željka Vrebac (HR), László Wágner (HU), Benjamin Watzl (AT), Herwig Weigl (AT), Christian Wende (AT), Gabor Wichmann (AT), Gerd Wichmann (AT), Gerhard Wolf (AT), Günther Wöss (AT), Béla Zalai (HU), Ľubomír Zedníček (SK), Gerd Zeyringer (AT), and Thomas Zuna-Kratky (AT), further the Pilis Nature Conservation Association, the Milvus Group from Romania, and others not named here.

We are grateful to Zsolt Nagy (HU) for providing the distribution map and to Bernd Struwe-Juhl (DE) for additional literature. Oliver Krone (DE) and Emil Todorov (RO) informed us about unpublished White-tailed Eagle radio-tracking results along the Danube.

We are also grateful to the anonymous reviewers who provided valuable comments on the manuscript. Furthermore, in the course of this project we obtained data from the Prut River in the Republic of Moldova, the Sava and Drava Rivers in Croatia, and the Morava River at the borders of Austria, Slovakia, and the Czech Republic (not evaluated here).

5. Povzetek

Januarja 2014 je bil predvsem z uporabo točkovne in transektne metode opravljen prvi celostni zimski popis belorepca vzdolž reke Donave. Skupaj je bilo preštetih 550–700 osebkov. Verjetno je bolj merodajna zgornja meja ocenjenega razpona, saj 615 km reke ni bilo popisanih. Belorepci so bili opazovani v vseh državah z ozemlji vzdolž Donave. Vroče točke njihovega pojavljanja so bile zabeležene na (1) poplavnih ravnicah srednjega toka Donave – v območjih, ki zajemajo spodnji madžarski odsek (Narodni park Donava-Drava), Naravni park Kopački rit (Hrvaška) in Posebni naravni rezervat Zgornje Podonavje (Srbija), in (2) Biosferni rezervat delte Donave. Glede na akcijski načrt za ohranitev belorepca vzdolž Donave bi morali v prihodnosti redno opravljati zimske popise in doseči manjše odklone pri rezultatih, t. j. številu belorepcev, z višjo stopnjo sinhronizacije med posameznimi državami. Opravljena študija povečuje pomen zavarovanih območij vzdolž Donave kot temelj za ohranjanje belorepcev in biotske pestrosti.

6. References

BirdLife International (2004): Birds in Europe. Population estimates, trends and conservation status. – BirdLife Conservation Series No. 12, Cambridge.

BirdLife International (2013): *Haliaeetus albicilla*. The IUCN Red List of Threatened Species. Version 2014.3. – [http://www.iucnredlist.org/details/22695137/0], 16/11/2014.

Bohuš M., Lengyel J., Rác P. (2009): The White-tailed Eagle (*Haliaeetus albicilla*) in Slovakia. – Denisia 27: 79–83.

Deinet S., Ieronymidou C., McRae L., Burfield I. J., Foppen R. P., Collen B., Böhm M. (2013): Wildlife comeback in Europe: The recovery of selected mammal and bird species. – Final report to Rewilding Europe by ZSL, BirdLife International and the European Bird Census Council. – [http://rewildingeurope.com/wp-content/uploads/2013/11/Wildlife-Comeback-in-Europe-the-recovery-of-selected-mammal-and-bird-species.pdf], 16/11/2014.

European Commission (2010): European Union Strategy for Danube Region. – Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Brussels.

Ferguson-Lees J., Christie D. A. (2001): Raptors of the World. – Christopher Helm, London.

Glutz von Blotzheim U. N., Bauer K. M., Bezzel E. (1989): Handbuch der Vögel Mitteleuropas. Band 4. Falconiformes. 2., durchgesehene Auflage. – AULA Verlag, Wiesbaden.

Hám I., Mikuska J., Schneider M., Gec D. (1990): Recoveries and sightings of banded and wing-tagged White-tailed Eagles in Yugoslavia during 1985–1988 – 1st report. – Larus 41/42: 69–86.

Hám I., Skorić S., Tucakov M. (2009): Status and breeding biology of the White-tailed Eagle *Haliaeetus albicilla* in former Yugoslavia and in Serbia. – Denisia 27: 127–138.

Helander B., Marquiss M., Bowerman W. (eds.) (2003): Proceedings from an international conference at Björkö, Sweden, 13-17 September 2000. – Swedish Society for Nature Conservation/SNF & Åtta. 45 Tryckeri AB. Stockholm.

Horváth Z. (2009): White-tailed Eagle *(Haliaeetus albicilla)* populations in Hungary between 1987–2007. – Denisia 27: 85–95.

Ivanov B. (2007): Population development of the White-tailed Eagle *Haliaeetus albicilla* in Bulgaria in the period from 1977 to 2005. – Acrocephalus 28 (132): 17–21.

Mikuska T. (2009): A review of recent knowledge on White-tailed Eagles in Croatia. – Denisia 27: 115–126.

Mikuska T. (2014): Implementation of the Action plan for the conservation of the White-tailed Eagle along the Danube – DANUBEPARKS. Final report. – Croatian Society for Bird and Nature Protection, Osijek.

Mizera T. (1999): Bielik. – Seria Monografie Przyrodnicze Nr. 4, Lubuski Klub Przyrodników, Świebozin.

National Park Donau-Auen (2014): DANUBEPARKS STEP 2.0 – [http://www.danubeparks.org/?story=218], 16/11/2014.

Nehls H. W., Struwe-Juhl B. (1998): Die Wasservogelbestände der deutschen Ostseeküste in den Mildwintern 1991-1995. – Seevögel 19: 105–115.

Probst R. (2009): Der Seeadler *(Haliaeetus albicilla)* in Österreich: Das WWF Österreich Seeadlerprojekt. – Denisia 27: 29–50.

Probst R., Gaborik A. (eds.) (2012): Action Plan for the conservation of the White-tailed Sea Eagle (*Haliaeetus albicilla)* along the Danube. Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention). – [http://www.danubeparks.org/files/840_ActionPlanWTEpublbyCoE.pdf], 16/11/2014.

Radović A., Mikuska T. (2009): Population size, distribution and habitat selection of the white-tailed eagle *Haliaeetus albicilla* in the alluvial wetlands of Croatia. – Biologia 64: 156–164.

Schmidt M., Bandacu D., Bogdea L., Bozhinova S., Costea G., Gáborik A., Grlica I. D., Hima V., Kiss G., Koev V., Kovarik A., Melišková M., Milenkovic-Srbulovic M., Parrag T., Petrova V., Raluca A., Rožac V., Šakić R., Schneider T., Surovec P., Tatai S., Tóth B., Tucakov M., Vasić I., Frank G. (*in prep.*): Riparian bird species (Little Ringed Plover, Sand Martin) as indicators for river dynamics and morphology. – ICPDR – International Commission for the Protection of the Danube River, Vienna.

TERRA CAPI (2014): White Tailed Eagle *(Haliaeetus albicilla)* wintering population survey along the Duna river and in the Szigetköz area. – Research report by Terra Capi, Cultural and Nature Conservation Association, Rábcakapi.

Tucakov M. (2014): Report on the monitoring of White-tailed Eagle *Haliaeetus albicilla* along the Danube between rkm 1433 and rkm 1075. – Bird Protection and Study Society of Serbia, Novi Sad.

Prispelo / Arrived: 24. 9. 2014
Sprejeto / Accepted: 5. 12. 2014