

NAGOVOR NOVEGA UREDNIKA

The new editor's address



Najprej si nalijmo čistega vina. Težko bo doseči naravovarstveno in strokovno pronicljivost, ki je odlikovala moje predhodnike na uredniškem mestu. Tudi odlični uvodniki, ki so jih napisali denimo Davorin Tome (št. 101), Janez Gregori (št. 121) in Borut Rubinič (št. 122), so tako rekoč neponovljivi. Pri prebiranju teh uvodnikov (priznam, le redko sem jih res zavzeto prebral ob prihodu revije) sem bil obenem navdušen in tudi nekoliko ganjen. Pravi poudarki, prave besede. Ob jubilejih in spominih se namreč še prerado zgodi, da svečane besede poniknejo v plehкости.

Vse to pa seveda ne pomeni (če se znova navežem na prvi stavek), da ne bom naredil vsega, kar je v moji moči, da bo revija še boljša kot doslej in da nimam vizije, ki jo imam namen še oblikovati skupaj s souredniki in uredniškim odborom. Mislim, da bo debata tekla približno v teje smeri: na prvem mestu, delo z mladimi avtorji, na drugem, nadaljnja širitev odličnega sodelovanja z našimi partnerji v jugovzhodni Evropi. In na tretjem, nekatere tehnične podrobnosti, kot so uvrščanje v sistem baz Biosis in izdelava domače strani. Na četrtem, spodbosti prehod objavljanja od čiste favnistike v ekologijo in varstveno biologijo. Na petem, dvigniti raven statistične kulture v člankih. Nemaokrat namreč trditve sicer dobrih raziskav niso podkrepljene z ustrežno analizo. Glavne smernice programa so sicer že bile izdelane in sprejete na uredniškem odboru (Vrezec & Štumberger 2002). Moja poglobljena kratkoročna vizija pa je, če se malce pošalim, da se na naslednji skupščini, ko bom stopil v svečano dvorano, ne bodo zaslišali žvižgi, pa tudi razjarjeni člani mi ne bodo metali zvezkov revije v glavo. Torej, ohraniti sedanji nivo revije, kar je že samo po sebi težavna naloga glede na odlično delo prejšnjih urednikov. Na vsakem koraku in pri vsakem stiku kot novopečeni urednik sem bil deležen spoštovanja do tega, kar stoji za *Acrocephalusom* in kar je delo mnogih ljudi. Dejstvo je, da je revija že sedaj in v tem obsegu in dosegu mednarodno priznana, še posebno veljavo pa ima v regiji, ki jo pokrivamo.

Torej, če ste pričakovali svečan uvodnik, ste verjetno že dodobra razočarani. Besede takšnega kova mi gredo nekoliko težje z jezika. Druga moja naloga pa je vendarle bolj formalne narave, a toliko bolj prijetna, saj bi vam rad predstavil tri nove člane uredniškega odbora. Že doslej so izdatno pripomogli k nastajanju revije. To so dr. Franc Janžekovič, dr. Nikolai Petkov in Marko Tucakov. Francija slovenskim ornitologom verjetno ni treba posebej predstavljati, trenutno pa poučuje splošno in sistematsko zoologijo na Univerzi v Mariboru. Nadaljuje svoje uspešno udejstvovanje na področju morfometrije in ekomorfologije živali, zoarheologije ptic, prehrane sov, favnistike in biodiverzitete vretenčarjev. Nikolai je varstveni direktor na partnerski organizaciji BSPB v Bolgariji in se ukvarja predvsem s preučevanjem rac ter varstvom vodnih ptic. Med drugim je BirdLifov koordinator skupine za varstvo kostanjevke *Aythya nyroca*. Nanj računamo kot na nujno okrepitev, saj število prispevkov iz Bolgarije neprestano narašča, prihajajo pa tudi čedalje bolj kakovostni materiali. Marko je eden najaktivnejših ornitologov v Srbiji in Črni gori, kljub mladosti ima že sedaj impresivno bibliografijo. Tudi on se ukvarja predvsem s preučevanjem in varstvom vodnih ptic. Tako kot iz Bolgarije tudi iz Srbije in Črne gore

dobivamo čedalje več in čedalje kvalitetnejše prispevke. Marko in Nikolai sta že pri pripravi te številke odločilno pomagala in skoraj si ne znam več predstavljati uredniškega dela brez njunih dragocenih nasvetov. Ekipa sourednikov je ostala ista, k sodelovanju sem povabil tudi dosedanjega urednika dr. Ala Vrezca, kar je z veseljem sprejel. Drugi člani uredniškega odbora so me s svojimi spodbudnimi besedami dobrohotno pahnili v delo, za kar sem jim zelo hvaležen. Od starih članov uredniškega odbora se je zaradi družinskih obveznosti poslovil dr. Kajetan Kravos, za dolgoletno sodelovanje v uredniškem odboru se mu ob tej priložnosti toplo zahvaljujem. Na mojo veliko srečo je tudi tehnična ekipa ostala ista, kar je pomenilo pri pripravi prve številke hitro in utečeno delo. Ne smem pozabiti tudi gladke predaje poslov z dosedanjim urednikom, kar bi lahko strnil v ugotovitev, da je bila revija odlično urejena in vodena. Al mi je pri začetnih krčih pomagal tudi z mnogoterimi dragocenimi nasveti.

Na koncu pa bi rad še nagovoril bodoče mlade avtorje, ki morda šele razmišljajo, da bodo rezultate svoje raziskave prvič prelili na papir in objavili v *Acrocephalus*. Deležni boste najboljše možne obravnave, vrhunskih recenzentov in vsak vaš prispevek bomo vzeli zelo resno. Citirani boste v vseh pomembnejših bazah literature in če bo materija prava, bo o vašem članku govorila vsa Evropa. Na misel mi sicer prihajajo besede Winstona Churchilla, po katerih vam lahko obljubim le »kri, pot in solze« in seveda končno zmago. Vendar ni druge poti, vsi, ki smo objavljali, smo šli po njej. Le pogum in na delo!

PRIMOŽ KMECL

Literatura:

VREZEC, A. & ŠTUMBERGER, B. (2002): *Acrocephalus* – short term journal program. – *Acrocephalus* 23 (113/114): 113.

POPULACIJA KOSCA *Crex crex* NA LJUBLJANSKEM BARJU UPADA ZARADI ZGODNJE KOŠNJE IN UNIČEVANJA EKSTENZIVNIH TRAVNIKOV

The population of Corncrake *Crex crex* at Ljubljansko barje (Central Slovenia) is declining due to early mowing and destruction of the extensively farmed meadows

LUKA BOŽIČ

Društvo za opazovanje in proučevanje ptic Slovenije (DOPPS – BirdLife Slovenia), Kamenškova 18, SI-2000 Maribor, Slovenija, e-mail: luka.bozic@dopps-drustvo.si

During the regular monitoring of SPAs, the population of Corncrake *Crex crex* was surveyed in a 140 km² area at Ljubljansko barje (Central Slovenia) in 2002 and 2003. The census was carried out by 40 volunteers. In 2003, the proportion of meadows, fields and other areas unsuitable for the Corncrake was surveyed in a total area of 4,882.5 ha. The author compared these data with those from 1999. Additionally, the proportion of meadows cut before mid June was established in a 1,600 ha area. The author transferred the data on surveyed Corncrakes into a kilometre grid and compared the results with the censuses from 1992 and 1999. The total numbers of singing Corncrakes counted were 170 and 137 for 2002 and 2003, respectively, i.e. a good 40% less than in the 1992 – 99 period. The Corncrake declined or disappeared from 16 of a total of 91 squares, 32 squares were occupied temporarily, in 42 squares the number was stable or fluctuating, while only in a single square its number increased. A comparison between the censuses showed that the number of squares with more than two birds has decreased and that the number of squares with one or no birds has increased. Squares with a larger proportion of meadows hosted a statistically significantly greater number of singing Corncrakes in 2003. In the years 1999 – 2003, the total area of meadows decreased by 7.8%. Two thirds of these losses are due to the increased field areas, one third due to overgrowing and new buildings built in the area. The decrease of intensively farmed meadows was minor, while the extensively farmed meadows decreased by almost 30%. In the squares where Corncrake was in decline or disappeared, the area of fields did not increase, while the area of extensively farmed meadows decreased by 40%. The decline in its numbers is thus due to the decrease of extensively farmed meadows. A statistically significant positive correlation exists between the area of extensive meadows and the number of Corncrakes in these squares. In 2003, 38% of Corncrakes were recorded in the meadows, which do not enable successful breeding as they were mown before mid June. Early mowing is the cause of probably very low Corncrake's productivity and its population is probably a sink population. The increased early mowing is probably the main cause for the substantial and rapid decline of this species' population at Ljubljansko barje.

Key words: Corncrake, *Crex crex*, population decline, extensive meadows, early mowing, Ljubljansko barje, Slovenia

Ključne besede: kosci, *Crex crex*, upad populacije, ekstenzivni travniki, zgodnja košnja, Ljubljansko barje, Slovenija

1. Uvod

Razširjenost in velikost nacionalne gnezdeče populacije kosca sta v primerjavi z razširjenostjo in velikostjo populacij večine drugih gnezdil v Sloveniji dobro znani (BIRDLIFE INTERNATIONAL 2002, POLAK 2000, DOPPS *neobjavljeni podatki*). Popisa, ki sta zajela vsa potencialna bivališča kosca v Sloveniji, sta bila opravljena v letih 1992/93 in 1999. Populacijski oceni, izdelani na podlagi rezultatov popisov, navajata 510 teritorialnih samcev kosca v letih 1992/93 in 590 leta 1999. Največ koscev je bilo v obeh popisnih letih prešteti na Ljubljanskem barju (TRONTELJ 1995 & 2001). Slovenska populacija kosca je bila na podlagi primerjave števila koscev na posameznih lokalitetah v tem obdobju ocenjena kot stabilna z velikimi lokalnimi nihanjem (TRONTELJ 2001).

Kljub navedeni domnevi pa v Sloveniji do nedavna ni bilo dovolj podatkov, ki bi omogočali natančnejši vpogled v populacijske trende kosca na najpomembnejših lokalitetah. Razvoj in redno opravljanje ustreznega monitoringa kosca je ena izmed nalog z najvišjo prioriteto v evropskem akcijskem načrtu za kosca (CROCKFORD *et al.* 1996) in tudi zakonska obveznost držav članic Evropske unije (Direktiva o pticah 79/409/EGS). Posebna območja varstva (SPA), ki so ob vstopu Slovenije v Evropsko unijo postala del mreže območij Natura 2000, so že bila opredeljena in na podlagi Uredbe o posebnih varstvenih območjih (območjih Natura 2000) tudi uradno sprejeta (Uradni list RS 2004). Med njimi je osem območij, na katerih je bilo v letih 1992/93 oziroma 1999 prešteti vsaj 20 teritorialnih samcev kosca (Božič 2003).

Koscu je bila v minulem poldrugem desetletju namenjena velika pozornost ornitologov, ki je bila predvsem posledica uvrstitve kosca med globalno ogrožene vrste (COLLAR & ANDREW 1988, COLLAR *et al.* 1994, TUCKER & HEATH 1994). Rezultat načrtnih popisov v večini evropskih držav in Rusiji je bilo tudi močno povečanje koščeve populacijske ocene (zbrano v SCHÄFFER & MAMMEN 1999). Trenutna ocena velikosti svetovne populacije je 1,7 – 3 milijone teritorialnih samcev, od katerih jih 60 – 70% živi v Evropi (BIRDLIFE INTERNATIONAL 2004), večina (1 – 1,54 milijona) v evropskem delu Rusije (MISCHENKO & SUKHANOVA 1999, BIRDLIFE INTERNATIONAL 2004). Kosci so status globalno ogrožene vrste izgubili po zadnji reviziji statusov ogroženih vrst. Na podlagi ocene, da njegova populacija v naslednjih desetih letih v evropskem delu Rusije ne bo upadla za več kot 10%, je bil kosci na podlagi kriterijev IUCN uvrščen v kategorijo vrst blizu ogroženosti (NT – near

threatened; BIRDLIFE INTERNATIONAL 2004).

Zgodovina več kot stoletnega upadanja številčnosti kosca in krčenja njegovega gnezditvenega areala ter vzroki za tako dramatičen upad so najbolje dokumentirani v Veliki Britaniji (NORRIS 1945 & 1947, CADBURY 1980, HUDSON *et al.* 1990, STOWE *et al.* 1993, GREEN & STOWE 1993, GREEN 1995 & 1996). GREEN (1995) navaja kot najpomembnejši razlog za upadanje populacije kosca spremembe v gospodarjenju s travniki, ki je v prejšnjem stoletju prehodilo pot od ekstenzivne ročne košnje, košnje s pomočjo konjskih vpreg, prek vse bolj zgodnje košnje, ki jo je omogočal večji vnos gnojil, do košnje s sodobno kmetijsko mehanizacijo. Razvoj slednje omogoča čedalje hitrejšo košnjo, s tem pa se povečuje delež gnezd kosca, ki jih košnja neposredno ogroža. V raziskavi, ki je primerjala nekatere kazalce splošne intenzitete kmetijske proizvodnje v vseh evropskih državah, je bilo ugotovljeno, da je populacijska gostota kosca v Evropi v značilni negativni korelaciji s stopnjo intenzitete kmetijstva (GREEN & RAYMENT 1996). To velja za številne vrste ptic, vezane na kmetijski prostor (SCHIFFERLI 1999, DONALD *et al.* 2001). Drugi najpogostejše omenjani vzroki ogrožanja kosca na gnezdiščih so spreminjanje ekstenzivnih travnikov v njive, izguba mokrišč in opuščanje gospodarjenja (GREEN *et al.* 1997). Največja grožnja koscu na selitvi so najrazličnejše oblike lova, razširjene predvsem v Egiptu, vendar je njihov vpliv na upad populacije kosca verjetno zelo majhen (BAHA EL DIN *et al.* 1996).

V članku predstavljam rezultate dveh zaporednih popisov kosca na Ljubljanskem barju v letih 2002 in 2003 ter jih primerjam z rezultati prejšnjih dveh popisov. Razčlenjeni so nekateri vzroki za upad populacije na Ljubljanskem barju v zadnjih desetih letih. Ocenjen je tudi vpliv košnje travnikov na gnezditveno uspešnost kosca in trend populacije.

2. Opis območja in metode

2.1. Opis območja

Oba popisa kosca sta zajela celoten uravnani osrednji del Ljubljanskega barja med Krimskim hribovjem in Menišijo na jugu, avtocesto E – 70 in ljubljansko obvoznico na severu ter magistralno cesto Ljubljana – Škofljica – Pijava Gorica na vzhodu. Leta 2003 je bil poleg tega popisane še del Ljubljanskega barja SZ od avtoceste med Vrhniko, Veliko Ligojno in Drenovim Gričem, v obeh popisnih letih pa tudi predel med Pijavo Gorico in Gorenjim Blatom. V oba popisa smo vključili tudi del doline Želimeljščice med zaselkoma

Rogovila in Trnje, ki geografsko gledano sicer ni del Ljubljanskega barja (PERKO & OROŽEN ADAMIČ 1999). Površina v letu 2003 popisane območja je bila približno 140 km². Prvi popis kosca na Ljubljanskem barju v letih 1992/93 je zajel samo osrednji del Barja, popis leta 1999 pa tudi vse prej naštete predele (P. TRONTELJ *pismo*).

2.2. Metode

2.2.1. Popis

V letih 2002 in 2003 uporabljena metoda popisa je bila podobna tisti iz let 1992/93 in 1999 (TRONTELJ 1995 & 2001). Ta metoda je bila razvita v Veliki Britaniji na osnovi študije gnezdečih koscev, označenih z oddajnikom (HUDSON *et al.* 1990). Nekatere podrobnosti v metodi smo prilagodili terenskim razmeram v Sloveniji in razpoložljivemu številu popisovalcev. Najpomembnejša razlika je bila, da smo popisa v letih 2002 in 2003 opravili v dveh ponovitvah. Enkratna ponovitev popisa v roku največ 14 dni po prvem popisu je najugodnejša varianta metode glede na razmerje med vloženim trudom in natančnostjo rezultatov, saj se z njo bistveno poveča verjetnost registracije samca. Z nadaljnjim povečevanjem števila ponovitev se ta verjetnost le minimalno poveča (PEAKE & MCGREGOR 2001). S ponovitvijo popisa smo se skušali tudi izogniti kratkemu obdobju, ko so samci skupaj s samicami in se ne oglašajo (TYLER & GREEN 1996, SCHÄFFER 1999). Na terenski delavnici, organizirani pred popisom leta 2002, smo večino manj izkušenih popisovalcev opozorili na dosledno spoštovanje popisnih navodil. Popisovalci so bili seznanjeni z vsemi možnimi dejavniki, ki jih omenja TRONTELJ (1995) in lahko vodijo v precenitev ali podcenitev dejanskega števila koscev. Celotno popisno območje je bilo arbitrarno razdeljeno na 43 popisnih ploskev. Površina posamezne popisne ploskve je bila med 1,48 in 5,95 km² (povprečje $3,25 \pm 1,05$ km²). Leta 2002 je sodelovalo 35, leta 2003 pa 30 popisovalcev. Popisov se je v obeh letih udeležilo skupno 40 popisovalcev. Vsak je v enem popisnem letu obdelal 1 – 4 popisne ploskve.

Leta 2002 smo popis koscev opravili med 15.5. in 30.6., leta 2003 pa med 15.5. in 8.6. S skrajšanjem popisnega obdobja na dobre tri tedne smo se skušali izogniti obdobju valjenja (v prvi polovici junija), ko samci zapustijo gnezdečo samico in njen domači okoliš ter zasedejo novo pevsko mesto drugje (SCHÄFFER 1995 & 1999). Prav tako smo želeli popis koscev opraviti v obdobju, ko večji del ekstenzivnih eno- in dvokosnih travnikov še ni pokošen (do 10 oziroma

30% pokošenega; TOME 2001). Na rezultate popisa leta 2002 je na nekaterih delih Ljubljanskega barja domnevno pomembno vplivala zgodnja košnja, za katero je znano, da lahko povzroči prekinitev oglašanja in predčasen odhod koscev (GREEN *et al.* 1997, TOME *et al.* v tisku). Čeprav prvi kosci na Ljubljansko barje priletijo okoli 1.5. poteka selitev vse do srede maja (GROBELNIK & TRONTELJ 1999), kar smo tudi upoštevali pri izbiri obdobja popisa.

Popisovali smo med 23. in 3. uro. V tem času se samci najbolj konstantno oglašajo in so tudi najbolj stacionarni na svojih pevskih mestih (STOWE & HUDSON 1991). Izjemoma smo se lotili dela nekoliko prej, vendar nikakor ne pred 22. uro, kar je v skladu z začetkom teritorialnega oglašanja samcev kosca v izbranem obdobju popisa (SCHÄFFER 1999). Popisovali nismo v nočeh z dežjem ali močnim vetrom, saj lahko ob neugodnih vremenskih razmerah število koscev močno podcenimo (PEAKE & MCGREGOR 2001).

Pred samim popisom so si popisovalci popisne ploskve ogledali podnevi in načrtovali poti, po katerih so nato opravili terenske obhode. Popisne poti so bile speljane tako, da se je popisovalec vsakemu delu popisne ploskve, kjer bi kosci utegnili bivati, približal najmanj na 300 metrov. Kot potencialna koščeva bivališča so bili v grobem določeni vsi tipi travnikov, visoka šašja *Magnocaricion*, površine z brestovolistnim osladom *Filipendula ulmaria* in različne zaraščajoče površine. Za kosce neprimernih delov popisnih ploskev (strnjen gozd, intenzivne kmetijske površine in naselja) v nočnem času nismo obiskali. Po popisnih poteh smo hodili počasi s pogostimi postanki. Če koscev na nekem zanje potencialno primernem delu popisne ploskve nismo slišali takoj, smo počakali 5 do 10 minut in šele nato nadaljevali pot. Položaje registriranih teritorialnih samcev kosca smo vrisali na ortofoto posnetke.

2.2.2. Popis rabe zemljišč in pokošenosti travnikov

Popis rabe zemljišč smo opravili podnevi, pred prvim nočnim štetjem koscev. Med popisom smo vrisovali položaj in velikost aktivnih njivskih površin, pašnikov in travnikov na ortofoto posnetke v merilu 1:6000, ne glede na vrsto kulturne rastline oziroma pašne živali ali način rabe.

Med 9. in 15.6.2003 je vsak popisovalec podnevi popisal še pokošenost travnikov. Večina popisov je bila opravljena 14. ali 15.6.2003. Tudi tu je bilo treba na ortofoto posnetku označiti natančen položaj in velikost pokošenega dela travnikov na celotni popisni ploskvi. Popis pokošenosti je bil opravljen v obdobju, ko se v

povprečni gnezditveni sezoni izlegajo mladiči prvega legla (izračunano po SCHÄFFER 1999 in GROBELNIK & TRONTELJ 1999). Cilj tega popisa je bil evidentirati delež travnikov, ki jih za ohranjanje koščeve populacije kosijo v povsem nesprejemljivem času.

2.2.3. Obdelava in analiza podatkov

Pri določitvi skupnega števila prešteti koscev na Ljubljanskem barju v posameznem letu sem upošteval podatke obeh štetij. Kadar sta bili lokaciji koscev, registriranih v dveh ločenih štetjih popisa, glede na oznako na ortofoto posnetku medsebojno oddaljeni več kot 300 metrov, sem to štel kot dva različna teritorialna samca. V primeru razdalje, manjše od 300 m, sem registraciji pripisal enemu samcu.

Podatke o lokacijah koscev sem prenesel v 1 x 1 km mrežo Ornitološkega atlasa Ljubljanskega barja, tako da sem lahko določil število koscev za vsak 1 km² velik kvadrat. Če sta lokaciji registriranih koscev, ki sta bili pri obdelavi pripisani enemu samcu, ležali v različnih kvadratih, sem podatek uvrstil v kvadrat, v katerem je ležalo razpolovišče daljice, ki povezuje lokaciji. Na podlagi rezultatov štirih popisov (1992/93, 1999, 2002, 2003) sem za vsak kvadrat posebej opredelil trend številčnosti kosca na Ljubljanskem barju v letih 1992 – 2003. Pri tem sem upošteval le kvadrate, ki so bili popisani v vsaj treh letih. Prav tako nisem upošteval kvadratov, za katere je manjkal podatek iz prvega popisa, v enem izmed naslednjih popisov pa kosec ni bil ugotovljen. Kadar je manjkal eden izmed podatkov iz zadnjih dveh zaporednih popisov (v letih 2002 in 2003), sem v eni sezoni neobdelanim kvadratom namesto manjkajočega podatka pripisal vrednost, pridobljeno s pomočjo podatkov iz druge sezone. V teh primerih sem podatke pred pripisom korigiral s sezonsko specifičnim faktorjem, ki upošteva prispevek posameznega kvadrata k skupnemu številu koscev v eni sezoni. Pri opredelitvi trenda številčnosti kosca sem predvidel naslednje možnosti:

(1) kosec je v kvadratu *izginil* oziroma njegova številčnost *upada*:

- kosec, ugotovljen v letih 1992/93 (vsaj 3 osebk) ali 1992 in 1999, v letih 2002 in 2003 pa ne,
- v letih 2002 in 2003 najmanj 50% koscev manj kot leta 1999, leta 1992 pa število koscev ni manjše za 50%,
- ob vsakem popisu prešteti najmanj 25% koscev manj kot ob prejšnjem popisu;

(2) kosec se v kvadratu pojavlja *občasno* (kosec v štirih popisih v kvadratu zabeležen največ dvakrat, izjema je vzorec pojavljanja, pri katerem je bil

kosec ugotovljen v letih 1992 in 1999, v letih 2002 in 2003 pa ne);

(3) številčnost kosca *narašča*:

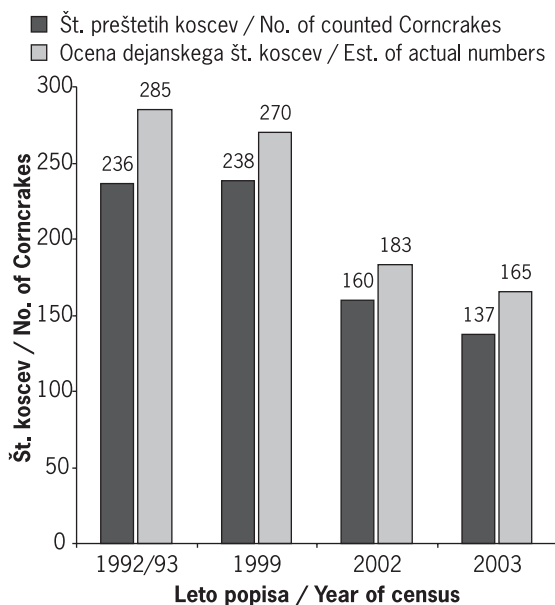
- v letih 2002 in 2003 število zabeleženih koscev za najmanj 50% večje kot leta 1999, leta 1992 pa število koscev ni manjše za 50%,
- ob vsakem naslednjem popisu od leta 1992 naprej prešteti najmanj za 25% koscev več kot ob prejšnjem popisu;

(4) številčnost kosca *niha* oziroma je *stabilna* (kadar ni izpolnjen nobeden od gornjih kriterijev).

Na oceno velikosti populacije kosca ima pomemben vpliv število ponovitev štetja, saj se s povečevanjem števila ponovitev povečuje verjetnost registracije vseh samcev na popisnem območju (HUDSON *et al.* 1990, SCHÄFFER & MAMMEN 2003). Zato sem pri primerjavi števila ugotovljenih koscev v posameznih popisih skupnemu številu prešteti koscev iz let 1992/93 in 1999 (eno štetje) prištel 20%, številu prešteti koscev iz popisov v letih 2002 in 2003 (dve štetji) pa 4%. S tem sem odpravil razlike, ki so nastale zaradi neenakega števila štetij pri popisih v posameznih letih.

Podatki o travnikih, njivah in pašnikih so bili digitalizirani s pomočjo Geografskega informacijskega sistema (GIS) in prenešeni v 1 x 1 km mrežo Ornitološkega atlasa Ljubljanskega barja. Za vsak kvadrat po 1 km² sem izračunal površino travnikov, njiv, pašnikov in drugih za kosca neprimernih površin (gozd, urbane površine). Travnike in pašnike sem združil v enotno kategorijo. Dvomljivo označenih površin pri analizi nisem upošteval. Pri ugotavljanju sprememb v površinah posameznih kategorij rabe zemljišč sem kot referenco uporabil podatke kartiranja habitatnih tipov Ljubljanskega barja (KOTARAC 1999). Za vsako skupino kvadratov z enakim trendom kosca sem posebej izračunal delež travnikov, delež njiv in drugih za kosca neprimernih površin (drugo) v letih 1999 in 2003.

V nadaljevanju sem za vsako skupino kvadratov z enakim trendom populacije kosca posebej izračunal delež travnikov glede na način rabe (intenzivni ali ekstenzivni). Travniških površin, za katere način rabe ni bil opredeljen, pri analizi nisem upošteval. Na podlagi rezultatov popisa leta 2003 sem kot intenzivne travnike obravnaval tiste, ki so bili sredi junija pokošeni, druge sem obravnaval kot ekstenzivne. Pašnike sem obravnaval kot intenzivne travnike. Pri ugotavljanju sprememb v deležih travnikov glede na način rabe sem kot referenco uporabil podatke kartiranja habitatnih tipov Ljubljanskega barja (KOTARAC 1999). Habitatni tip "gojeni travniki" sem obravnaval kot intenzivne travnike, druge traviščne ali podobne habitne tipe (mokrotni ekstenzivni travniki,



Slika 1: Število prešteti koscev *Crex crex* in ocenjeno dejansko število pojočih samcev med štirimi popisi na Ljubljanskem barju. Pri oceni je upoštevan korekcijski faktor 20% (eno štetje) ali 4% (dve štetji).

Figure 1: The number of counted Corncrakes *Crex crex* and number of singing males estimated during the four censuses carried out at Ljubljansko barje. The estimates are corrected by 20% (one count) or 4% (two counts).

mokrotni travniki s stožko, nitrofilna vegetacija visokih steblik, nizkobarjanske površine, zaraščajoče se površine, sestoji z brestovolistnim osladom in visoko šašje) pa kot ekstenzivne travnike.

Za ugotavljanje statistične značilnosti povezav med številčnostjo kosca, trendi in spremembami v rabi zemljišč sem uporabil χ^2 test ter neparametrična Mann – Whitneyev test U in Kruskal – Wallisov test, za ugotavljanje korelacij med številčnostjo koscev in površino travnikov v kvadratih po 1 km² pa Kendallovo korelacijo rangov τ .

3. Rezultati

3.1. Število koscev in trend populacije

V popisu leta 2002 je bilo na Ljubljanskem barju prešteti 160, leta 2003 pa 137 koscev. Ob korigiranem številu zaradi neenakega števila štetij pri popisih v posameznih letih je populacija kosca v obdobju 1992 – 2003 upadla za 42,1%, v obdobju 1999 – 2003 pa za 38,9% (slika 1).

Od skupno 105 kvadratov po 1 km², v katerih je bil koscec v štirih popisih ugotovljen vsaj enkrat, sem

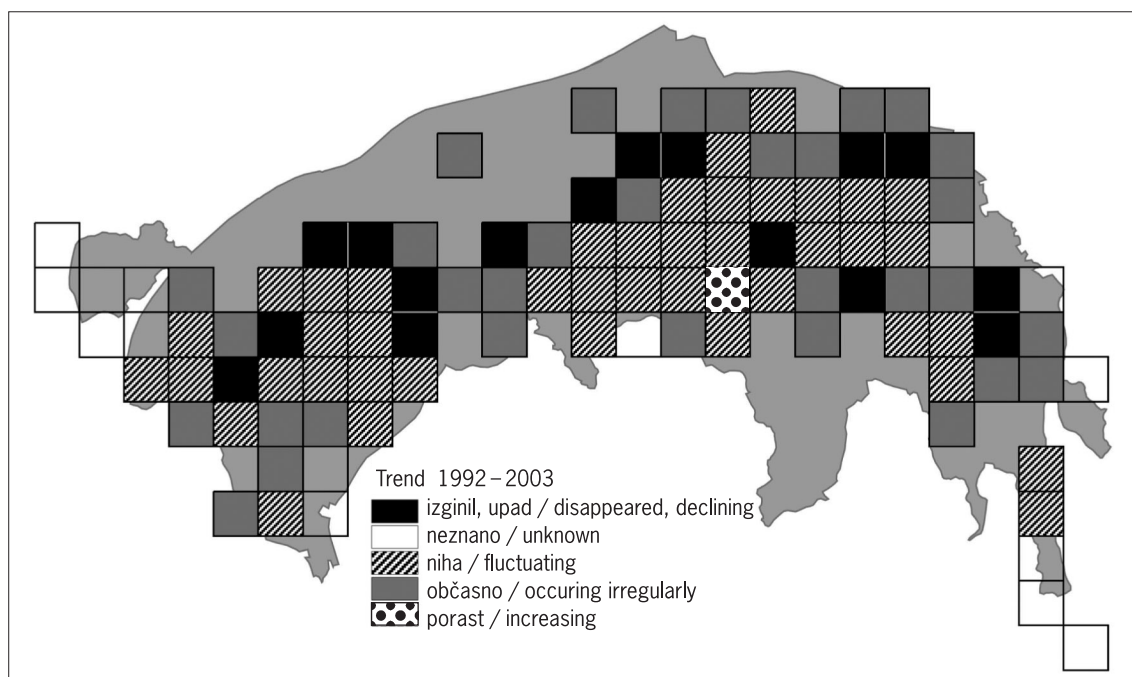
opredelil trend številčnosti kosca v obdobju 1992 – 2003 za 88 kvadratov. Za 17 kvadratov na podlagi zastavljenih kriterijev trenda številčnosti ni bilo mogoče opredeliti. Koscec je v 16 kvadratih izginil oziroma je njegovo število upadlo, v 41 kvadratih pa je to število nihalo oziroma je bilo stabilno. Nadalje je bilo 31 kvadratov zasedenih občasno, medtem ko se je število koscev povečalo v enem samem kvadratu (slika 2). Število koscev, prešteti v vseh štirih popisih v vsakem izmed 105 kvadratov, je podano v prilogi (tabela 5).

Primerjava števila kvadratov po 1 km² z določenim velikostnim razredom števila koscev kaže, da je bilo leta 2003 več kvadratov brez koscev ali z enim samim koscem kot v letih 1992 in 1999. Nasprotno je bilo leta 2003 manj kvadratov z več kot dvema koscema (slika 3). Razlike v številu kvadratov po 1 km² z določenim velikostnim razredom števila koscev med letoma 1999 in 2003 so statistično značilne ($\chi^2 = 9,75$, $df = 4$, $p < 0,05$), med letoma 1992 in 1999 pa ne ($\chi^2 = 1,08$, NS; vsi velikostni razredi skupaj).

3.2. Raba zemljišč

Analiza rabe zemljišč je zajela 58 kvadratov po 1 km² na Ljubljanskem barju, skupna površina obravnavanih zemljišč pa znaša 4882,5 ha. Leta 2003 je bilo tu 2956,1 ha (60,5%) travnikov, 1196,6 ha (24,5%) njiv in 729,8 ha (14,9%) drugih za kosca neprimernih površin. Analiza podatkov iz kartiranja habitatnih tipov leta 1999 je pokazala, da so bile pet let prej te površine naslednje: 3206,5 ha (65,7%) travnikov, 1091,1 ha (22,3%) njiv in 584,9 ha (12,0%) drugih površin. Površina travnikov se je v obdobju 1999 – 2003 zmanjšala za 7,8%, površina njiv povečala za 8,8%, površina drugih za kosca neprimernih površin pa povečala za 19,9%. Razlike med površinami vseh treh tipov rabe tal skupaj med letoma 1999 in 2003 so statistično zelo značilne ($\chi^2 = 31$, $df = 2$, $p < 0,001$).

Primerjava skupin kvadratov z enakim trendom številčnosti kosca v letih 1999 – 2003 kaže na različne spremembe v odstotkih travnikov, njiv in drugih površin. V občasno zasedenih kvadratih je bilo zmanjšanje odstotka travnikov največje (– 16,3%) in hkrati največje povečanje odstotka njiv (+ 26,1%). V kvadratih, kjer je število koscev nihalo oziroma je bilo stabilno, je bilo zmanjšanje odstotka travnikov najmanjše (– 2,8%), v kvadratih, kjer je koscec izginil oziroma je njegovo število upadlo, pa srednje veliko (– 7,2%). V slednjih dveh skupinah kvadratov se je v obdobju 1999 – 2003 nekoliko zmanjšal tudi odstotek njiv (tabela 1). Razlika v spremembah površine travnikov, njiv in drugih zemljišč v obdobju 1999 –



Slika 2: Razširjenost kosca *Crex crex* na Ljubljanskem barju. Vsak izmed prikazanih 105 kvadratov po 1 km² je bil v času štirih popisov (1992/93, 1999, 2002 in 2003) zaseden vsaj enkrat. Trenda za prazne kvadrate zaradi manjkajočih podatkov ni bilo mogoče opredeliti.

Figure 2: The distribution of Corncrake *Crex crex* at Ljubljansko barje. Each of the 105 kilometre squares was occupied at least once during the four counts (1992/93, 1999, 2002 and 2003). The squares, where trends could not be determined due to missing data, are empty.

2003 (vsi tipi rabe tal skupaj) v kvadratih, kjer je koscec izginil oziroma je njegovo število upadlo, in v občasno zasedenih kvadratih je statistično značilna (Kruskal – Wallisov test, $K = 6,98$, $df = 2$, $p < 0,05$ in $K = 14,45$, $df = 2$, $p < 0,01$).

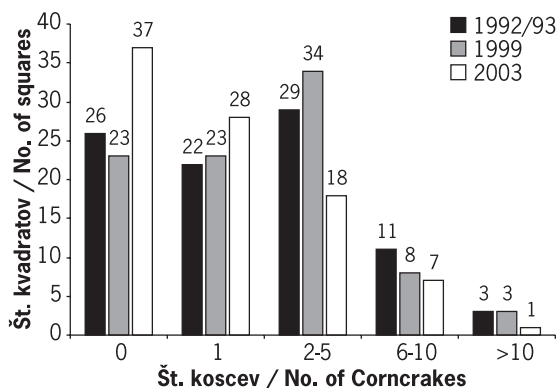
V 20 kvadratih po 1 km² se je delež travnikov v obdobju 1999 – 2003 zmanjšal za več kot 10% na posamezen kvadrat (ne glede na trend), in sicer skupno kar za 30% na posamezen kvadrat. Slika 4 prikazuje površino tipov rabe tal na teh 20 kvadratih. Razvidno je, da gre 2/3 izgube travnikov na račun povečanja površine njiv, 1/3 pa na račun povečanja površine drugih za kosca neprimernih zemljišč.

Število koscev v posameznem kvadratu po 1 km² je odvisno od površine travnikov v kvadratu. Kvadrati z večjo površino travnikov so imeli v letih 1999 in 2003 tudi večje število koscev. Leta 2003 je med tema dvema parametroma obstajala statistično značilna korelacija (slika 5).

Analizo rabe travnikov sem opravil za 43 kvadratov po 1 km². Leta 1999 je bilo v teh kvadratih 1283,2 ha (65,2%) intenzivnih in 684,4 ha (34,8%) ekstenzivnih travnikov. Leta 2003 sta bili površini

1265,2 ha (72,4%) oziroma 483,5 ha (27,6%) v korist intenzivnih travnikov. Površini obeh tipov travnikov sta se zmanjšali; površina intenzivnih travnikov za 1,4%, ekstenzivnih travnikov pa za 29,4%. Razlika v površini ekstenzivnih travnikov med letoma 1999 in 2003 je bila statistično značilna (Mann – Whitneyev test U, $U = 1191$, $p = 0,01$).

Primerjava skupin kvadratov z enakim trendom številčnosti kosca kaže, da se je odstotek ekstenzivnih travnikov najbolj zmanjšal v kvadratih, kjer je koscec izginil oziroma je njegovo število upadlo (– 40,4%), in občasno zasedenih kvadratih (– 54,8%). Zmanjšanje površine ekstenzivnih travnikov v kvadratih, kjer je število koscev nihalo oziroma bilo stabilno, je bilo manjše (– 13,1%). V kvadratih, kjer je koscec izginil oziroma je njegovo število upadlo, se je površina intenzivnih travnikov povečala, drugod pa zmanjšala (tabela 2). Med številom koscev v posameznem kvadratu in površino ekstenzivnih travnikov je v letu 2003 obstajala statistično značilna pozitivna korelacija, med številom koscev in površino intenzivnih travnikov pa šibka negativna povezava, ki ni statistično značilna (slika 6).



Slika 3: Število kvadratov po 1 km² z določenim velikostnim razredom števila koscev *Crex crex* v treh popisih na Ljubljanskem barju

Figure 3: The number of km² squares in separate classes of the number of singing Corncrakes *Crex crex* during the three censuses carried out at Ljubljansko barje

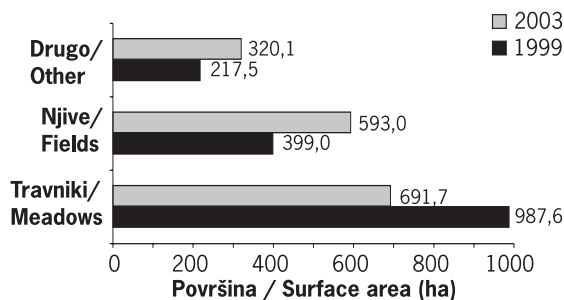
3.3. Košnja travnikov

Popis pokošenosti travnikov sredi junija 2003 je bil v celoti opravljen na 9 popisnih površinah (skupaj 2647,9 ha), s skupno površino travišč 1600 ha. Sredi junija je bilo na teh popisnih površinah 59,7% travnikov pokošenih, nepokošenih je bilo 34,1% travnikov, 6,2% pa je bilo pašnikov. Odstotek za kosca neprimernih travišč (pokošenih travnikov in pašnikov) je bil 65,9% (tabela 3). Razlika med odstotki pokošenih travnikov, nepokošenih travnikov in pašnikov na devetih površinah s pokošenostjo, popisano v celoti, in njihovimi odstotki glede na podatke o rabi travnikov na vseh 43 obravnavanih kvadratih po 1 km² je statistično zelo značilna ($\chi^2 = 9,86$, $p < 0,007$; vsi tipi travišč skupaj). Rezultatov z devetih popisnih površin torej ni mogoče neposredno sploševati na celotno Ljubljansko barje. Na devetih popisnih površinah je bilo med predhodnim štetjem koscev zabeleženih 111 registracij koscev ali 61% vseh registracij na Ljubljanskem barju v letu 2003. 43 oziroma 37,8% vseh registracij je bilo zabeleženih na travniških površinah, ki v letu 2003 niso omogočale uspešnega gnezdenja kosca (tabela 4).

4. Diskusija

4.1. Število koscev in trend populacije

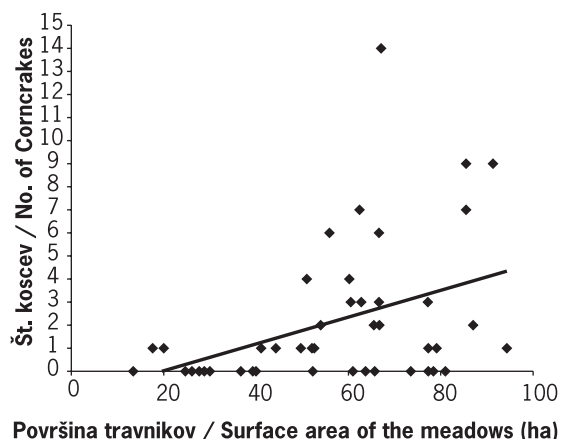
TRONTELJ (2001) je na podlagi rezultatov dveh nacionalnih popisov kosca zaključil, da je slovenska populacija kosca stabilna z velikimi lokalnimi nihanji. Kljub nekaterim lokalnim spremembam je v tem



Slika 4: Primerjava površin travnikov, njiv in drugih za kosca *Crex crex* neprimernih površin v 20 kvadratih po 1 km² na Ljubljanskem barju, kjer se je v obdobju 1999 – 2003 delež travnikov zmanjšal za več kot 10%

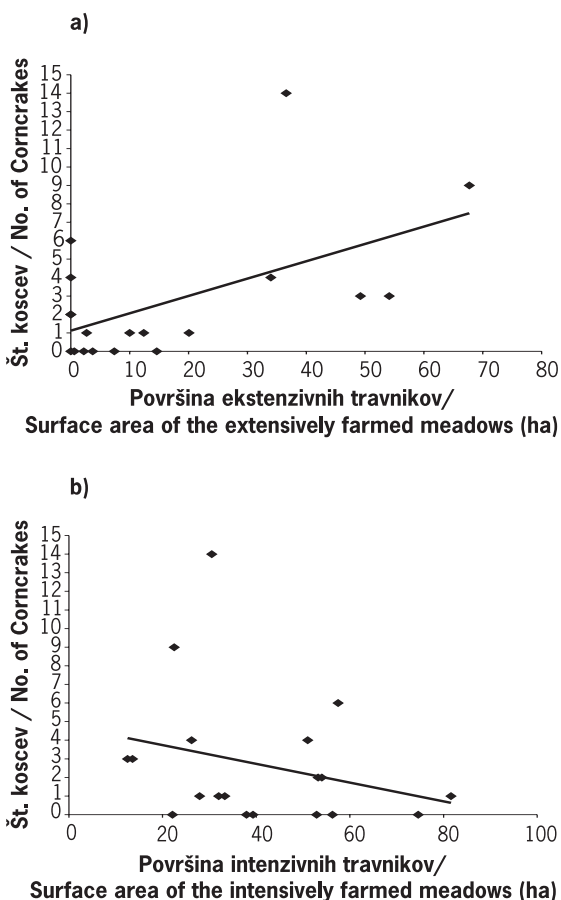
Figure 4: A comparison between total areas of meadows, fields and other habitats (unsuitable for breeding) in 20 one km² squares at Ljubljansko barje, where the proportion of meadows dropped by more than 10% during the 1999 – 2003 period

času ostala skoraj enaka tudi velikost populacije na Ljubljanskem barju. TOME (2002) je na izbranem transektu na eni izmed koščevih zgostitev na Ljubljanskem barju pri Bevkah štel vsako leto v obdobju 1998 – 2002. Po štetju leta 1999 je vsako naslednje leto preštel občutno manj koscev. Isti avtor ocenjuje, da petletni trend na tako majhnem območju ni dokaz za upadanje populacije na celotnem Barju. Vendar je zanimivo, da se upad, ki ga je ugotovil TOME



Slika 5: Korelacija med skupno površino travnikov in številom prešteti koscev *Crex crex* v kvadratih po 1 km² na Ljubljanskem barju v letu 2003 (Kendalova korelacija rangov τ , $\tau = 0,3$, $z = 2,9$, $n = 44$, $p = 0,002$)

Figure 5: Correlation between the total area of meadows and the number of counted Corncrakes *Crex crex* in 1 km² squares at Ljubljansko barje in 2003 (Kendall rank correlation τ , $\tau = 0,3$, $z = 2,9$, $n = 44$, $p = 0,002$)



Slika 6: Korelacija med površino ekstenzivnih travnikov (a) (Kendallova korelacija rangov τ , $\tau = 0,31$, $z = 1,88$, $n = 19$, $p = 0,03$) oziroma površino intenzivnih travnikov (b) (Kendallova korelacija rangov τ , $\tau = -0,13$, NS) in številom prešteti koscev *Crex crex* v kvadratih po 1 km² na Ljubljanskem barju v letu 2003

Figure 6: The correlation between the surface area of the extensively farmed meadows (a) (Kendall rank correlation τ , $\tau = 0.31$, $z = 1.88$, $n = 19$, $p = 0.03$) and the surface area of the intensively farmed meadows (b) (Kendall rank correlation τ , $\tau = -0.13$, NS) and the number of counted Corncrakes *Crex crex* in km² squares at Ljubljansko barje in 2003

(2002) pri Bevkah, časovno ujema z zmanjšanjem števila koscev na celotnem Barju (slika 1). Očitno je, da se je število koscev močno zmanjšalo med letoma 1999 in 2002. Zastavlja se vprašanje, ali gre za dejanski negativni trend populacije kosca ali pa le za naravno populacijsko nihanje. Nihanja velikosti populacij so pri pticah nekaj povsem običajnega (GILL 1995). V stabilnem okolju se pri manjših vrstah normalno pojavljajo nihanja do 100%, pri večjih pa so navadno manjša (NEWTON 1998). Na Cerkniškem

jezeru so bila v trinajstih letih rednega štetja zabeležena nihanja v številčnosti koscev med posameznimi leti, ki presegajo 50% (POLAK *et al.* 2004). Vendar podatkov s Cerkniškega jezera nikakor ne gre posploševati, saj primernost tega območja za kosce v največji meri določa spomladanski nivo poplavne vode, kar ugotavlja že TRONTELJ (2001). POLAK *et al.* (2004) so to tudi dokazali s statistično analizo. Morda boljši primer območja z malo spremembami v zadnjem desetletju je Planinsko polje, kjer je bilo v treh popisih število koscev precej podobno (1992 – 31 samcev, 1999 – 29 samcev, 2002 – 26 samcev). Menim, da je več kot 40 – odstotno zmanjšanje števila prešteti koscev odsev dejanskega negativnega populacijskega trenda. Domnevo potrjujejo tudi podatki iz leta 2004, ko je bilo število prešteti koscev še nižje. Povprečen upad populacije v obdobju 1999 – 2003 je bil 10% na leto, kar je zelo veliko. Za Veliko Britanijo na primer GREEN (1995) navaja povprečen upad za 3,5% na leto v obdobju največjega upada. Največji upad, in sicer 80% v petih letih, je bil zabeležen na Irskem (SHEPPARD & GREEN 1994). Podoben upad kot na Barju, vendar v enkrat daljšem obdobju, je bil ugotovljen v Franciji (BROYER 1994). Na posameznih območjih v Veliki Britaniji in na Irskem, po velikosti primerljivih z Ljubljanskim barjem, je populacija v podobnem časovnem obdobju upadla za 70% (O'MEARA 1986, GREEN & STOWE 1993).

Upad številčnosti kosca na Ljubljanskem barju se kaže na dva načina. Prvi je splošno zmanjšanje številčnosti, ki je najbolj vidno pri 40 – 50% manjšem številu kvadratov z 2 – 5 kosci v letu 2003. Drugi je močno povečanje števila kvadratov brez koscev v omenjenem letu (slika 3).

4.2. Spremembe v rabi zemljišč

V obdobju 1999 – 2003 se je na Ljubljanskem barju precej spremenila raba zemljišč. Za kosca najpomembnejše spremembe so gotovo povezane z zmanjševanjem površine travnikov. Prva pomembna ugotovitev v zvezi s tem je, da je večje število koscev v posameznem kilometrskem kvadratu povezano z večjo površino travnikov. Podobne ugotovitve navaja GREEN (1996) za Veliko Britanijo in Irsko leta 1993. Korelacija med površino travnikov in številom koscev kaže, da le kvadrati z vsaj cca. 20 ha travnikov omogočajo naselitev kosca. STOWE & HUDSON (1991) navajata v svoji raziskavi mediano velikosti domačega okoliša samca kosca 15,7 ha, kar približno ustreza tej vrednosti. Vendar za kosce ni pomembna samo skupna površina travnikov, temveč predvsem površina ekstenzivnih

Table 1: Primerjava površin ter odstotkov travnikov, njiv in drugih za kosca *Crex crex* neprimernih površin med letoma 1999 in 2003 v kvadratih po 1 km² z različnim trendom številčnosti kosca

Table 1: A comparison of the areas and percentages of meadows, fields and other habitats (unsuitable for breeding) between 1999 – 2003 in km² squares with their respective trends of abundance of Corncrake *Crex crex*

Trend številčnosti kosca/ Corncrake's abundance trend		Izginił oz. upadał/ Disappeared or declining		Stabilna oz. nihał/ Stable or fluctuating		Občasno pojavljanje/ Occurring irregularly	
		Površina/ Surface area (ha)	%	Trend (%)	Površina/ Surface area (ha)	%	Trend (%)
Število kvadratov/ No. of squares			10			29	18
1999	Travniki / Meadows	533,2	68,5		1681,1	67,2	60,4
	Njive / Fields	170,9	22,0		550,4	22,0	23,8
	Drugo / Other	74,2	9,5		268,7	10,7	15,7
	Skupaj / Total	778,3	100,0		2500,2	99,9	99,9
2003	Travniki / Meadows	493,5	63,3	- 7,4	1634,4	65,4	- 2,8
	Njive / Fields	166,5	21,4	- 2,6	535,9	21,4	- 2,6
	Drugo / Other	119,8	15,4	+ 38,1	328,2	13,1	+ 18,1
	Skupaj / Total	779,8	100,1		2498,5	99,9	100,0

Tabela 2: Primerjava površin ter odstotkov intenzivnih in ekstenzivnih travnikov med letoma 1999 in 2003 v kvadratih po 1 km² z različnim trendom številčnosti kosca *Crex crex*
Table 2: The comparison of areas and percentages of intensively and extensively farmed meadows between 1999 – 2003 in km² squares with different trends of abundance of Corncrake *Crex crex*

Trend številčnosti kosca/ Corncrake's abundance trend		Izginil oz. upada/ Disappeared or declining		Stabilna oz. niha/ Stable or fluctuating		Občasno pojavljanje/ Occurring irregularly	
		Površina/ Surface area (ha)	%	Trend (%)	Površina/ Surface area (ha)	%	Trend (%)
Število kvadratov/ No. of squares			8			24	11
1999	Intenzivni travniki/ Intens. farmed meadows	161,2	53,8		663,2	64,8	79,9
	Ekstenzivni travniki/ Extens. farmed meadows	138,6	46,2		360,6	35,2	20,1
	Skupaj / Total	299,8	100,0		1023,8	100,0	100,0
	Intenzivni travniki/ Intens. farmed meadows	183,8	69,0	+ 12,3	629,9	66,8	- 5,0
2003	Ekstenzivni travniki/ Extens. farmed meadows	82,6	31,0	- 40,4	313,3	33,2	- 13,1
	Skupaj / Total	266,4	100,0		943,2	100,0	100,0
	Intenzivni travniki/ Intens. farmed meadows				421,0	89,2	- 6,0
	Ekstenzivni travniki/ Extens. farmed meadows				51,0	10,8	- 54,8

travnikov. Z večanjem površine ekstenzivnih travnikov v kvadratih število koscev narašča, kar je potrdila tudi statistična analiza. Vendar pa pri tem ne vemo, kolikšen del intenzivnih travnikov uporabljajo kosci na Ljubljanskem barju.

Povezanost med številom koscev in površino travnikov se kaže tudi v primerjavi skupin kvadratov z enakim trendom. Zmanjšanje površine travnikov je bilo manjše v kvadratih, kjer je število koscev nihalo oziroma je bilo stabilno, kot pa v kvadratih, kjer je kosec izginil oziroma je njegovo število upadlo. Analiza kvadratov z največjim zmanjšanjem površine travnikov (ne glede na način rabe) je pokazala, da gre 2/3 tega zmanjšanja pripisati širjenju njiv, ki je tako najpomembnejši dejavnik pri zmanjševanju površine potencialnega habitata kosca (slika 4). Še večja razlika se pokaže, če pogledamo samo zmanjšanje površine ekstenzivnih travnikov, ključnega dela koščevega habitata. Ta razlika jasno kaže, da je negativni koščev trend povezan predvsem z zmanjševanjem površine ekstenzivnih travnikov. Zaskrbljujoče dejstvo je, vsaj glede na podatke iz obdobja 1999 – 2003, da se skupna površina travnikov zmanjšuje skoraj izključno na račun ekstenzivnih travnikov. Ker povečanja površine njiv v kvadratih, kjer je kosec izginil oziroma je njegovo število upadlo, v obdobju 1999 – 2003 ni bilo, sklepam, da sta pri spremembah rabe zemljišč najpomembnejša razloga za upad številčnosti kosca spreminjanje ekstenzivnih travnikov v intenzivne in povečanje deleža drugih za kosca neprimernih površin (zaraščene in pozidane površine). Ocenjujem sicer, da je pomen zaraščanja in pozidave zaradi napake pri digitalizaciji podatkov pri primerjavi stanja med letoma 1999 in 2003 pretiran. Največje zmanjšanje površine travnikov (tako vseh travnikov kot samo ekstenzivnih) je bilo zabeleženo v občasno zasedenih kvadratih, ki pa so imeli v vseh popisnih letih relativno nizko število koscev (skupaj 7 – 13 koscev). Spremembe v teh kvadratih torej le malo vplivajo na zmanjšanje številčnosti koscev na Ljubljanskem barju. Pogled na karto razširjenosti vseh zasedenih kvadratov v štirih dosedanjih štetjih kaže, da občasno zasedeni kvadrati ležijo na robu razširjenosti kosca na Barju in bližje naseljem.

Pašnike, za katere so bili v letu 2003 podatki zbrani ločeno, sem uvrstil v kategorijo intenzivnih travnikov. Menim, da je z vidika neustreznosti za uspešno gnezdenje kosca takšna uvrstitev pašnikov pravilna. Nekateri pašniki na Ljubljanskem barju pa so celo tako intenzivni, da so za kosca povsem neprimeren habitat in bi bila zanje primernejša uvrstitev med druge za kosca neprimerne površine. Negativni vpliv pašnikov je znan iz Velike Britanije, kjer je povečanje površine

pašnikov z nizko vegetacijo prispevalo k upadu koščeve številčnosti v triletnem obdobju (GREEN & STOWE 1993).

4.3. Košnja travnikov

Mehanizacija košnje in zgodnja košnja sta najpomembnejša vira ogrožanja kosca v Evropi (GREEN *et al.* 1997). V podrobni raziskavi, opravljeni v Veliki Britaniji, je bilo ugotovljeno, da je čas košnje najpomembnejši dejavnik, ki določa produktivnost koščevih lokalnih populacij oziroma njihov trend (TYLER *et al.* 1998). Na izbranih popisnih površinah na Ljubljanskem barju je bilo v letu 2003 uničenih vsaj 40% vseh prvih legel kosca, kar je sicer precej manj, kot je bil odstotek vseh za kosca neprimernih travišč (65%). Čeprav izbrane popisne površine niso reprezentativne za celotno Ljubljansko barje in jih ne kaže posploševati, pa lahko ocenim, da je bil delež uničenih legel na celotnem Barju kvečjemu še večji, saj je odstotek zgodaj košenih intenzivnih travnikov v povprečju nekoliko višji. Glede na znani potek koščevega gnezdenja (npr. NIEMANN 1995, SCHÄFFER 1999), opazovanja zmanjšane aktivnosti oglašanja samcev na Ljubljanskem barju (GROBELNIK & TRONTELJ 1999) in redka opazovanja samic z mladiči (POLAK 2003, TRONTELJ *v tisku*) lahko ocenimo, da se begavci prvega legla koscev v Sloveniji v povprečju izlegajo okoli srede junija. Na travnikih, pokošenih pred sredo junija, je večina prvih legel kosca uničenih še v fazi valjenja ali zelo majhnih mladičev, tako da lahko koscem, gnezdečim na teh travnikih, z veliko verjetnostjo pripišemo popoln gnezditveni neuspeh. SCHÄFFER & WEISSER (1996) celo ugotavljata, da je med košnjo pokončan določen delež odraslih samic, ki valijo in do zadnjega trenutka vztrajajo na gnezdih. Seveda pa sta tako čas izvalitve mladičev kot čas košnje med leti posredno odvisna od vremenskih razmer. Tako obstaja z Ljubljanskega barja celo podatek o opazovanju samice z mladiči konec maja (GROBELNIK 2000), kar pa je verjetno prej izjema kot pravilo. Leto 2003 je bilo precej sušno, košnja pa zaradi tega zgodnejša. Delež pokošenih travnikov sredi junija je bil v tem letu nekoliko nad povprečjem. Na podlagi modela, ki ga je razvil TOME (2001), lahko ocenimo delež pokošenih ekstenzivnih travnikov v tem času v povprečno vlažnem letu na 20 – 50%. Ob izračunu deleža uničenih koščevih legel niso upoštevane izgube, ki nastanejo kot posledica košnje po izvalitvi mladičev. Mladiči kosca še približno 14 dni po izvalitvi zlahka postanejo žrtve košnje (NIEMANN 1995). Preživetje mladičev v tem obdobju je močno odvisno od načina košnje (DECEUNINCK *et al.* 1997, TYLER *et al.*

Tabela 3: Podatki o površini posameznih tipov rabe travšč na devetih popisnih ploskvah Ljubljanskega barja, ki so bile v letu 2003 vsaj delno pokošene pred ocenjeno speljavo mladičev kosca *Crex crex* iz prvega legla

Table 3: Surface areas of differently used meadows in nine census areas of Ljubljansko barje, which were mown at least partially in 2003, before chicks from the first Corncrake's *Crex crex* brood were fledged

Popisna ploskev/ Census plot	Površina popisne ploskev/ Census unit's surface area (ha)	Skupna površina travišč/ Total surface area of the meadows (ha)	Površina travšč/ surface area of the meadows (ha)		% travšč, primernih za uspešno gnezdenje kosca/ % of meadows unsuitable for successful breeding	Datum popisa/ Date of census
			Nekošeni travniki/ Unmown meadows	Košeni travniki/ Mown meadows		
1	382,3	193,1	0,0	120,4	100,0%	21.6.2003
12	396,6	284,7	205,5	63,0	27,8%	16.6.2003
13	332,7	128,2	54,7	73,5	57,3%	16.6.2003
22	286,3	174,9	50,0	124,9	71,4%	16.6.2003
27	288,1	159,7	94,0	65,7	41,1%	14.6.2003
36	248,1	143,0	32,8	109,9	77,1%	15.6.2003
38	183,8	137,7	1,3	136,4	99,1%	12.6.2003
40	178,6	162,8	30,1	132,7	81,5%	11.6.2003
43	351,4	216,3	76,7	128,9	64,5%	14.6.2003
Skupaj/ Total	2647,9	1600,4	545,1	955,4	65,9%	

Table 4: Podatki o številu koscev *Crex crex* na devetih popisnih ploskvah Ljubljanskega barja, ki so bile v letu 2003 vsaj delno pokošene pred ocenjeno speljavo mladičev iz prvega legla

Table 4: The number of Corncrakes *Crex crex* in nine census areas at Ljubljansko barje, which were mown at least partially in 2003, before chicks from the first brood were fledged

Popisna ploskev/ Census plot	Skupno število koscev/ Total No. of Corncrakes	Število registracij/ No. of records			% registracij na traviščih neprimernih za uspešno gnezdenje kosca/ % of records in meadows unsuitable for successful breeding	Datum popisa/ Date of census	
		Nekošeni travniki/ Unmown meadows	Košeni travniki/ Mown meadows	Pašniki/ Pastures		1. obisk/ 1 st visit	2. obisk/ 2 nd visit
1	8	0	11	5	100,0%	24.5.2003	30.5.2003
12	18	22	5	0	18,5%	18.5.2003	29.5.2003
13	3	3	2	0	40,0%	31.5.2003	8.6.2003
22	14	12	11	0	33,3%	29.5.2003	4.6.2003
27	14	19	2	0	9,5%	24.5.2003	8.6.2003
36	1	2	0	0	0,0%	20.5.2003	25.5.2003
38	6	0	7	0	100,0%	30.5.2003	8.6.2003
40	1	2	0	0	0,0%	Ni podatka/No data	
43	5	8	0	0	0,0%	18.5.2003	2.6.2003
Skupaj/ Total	70	68	38	5	38,7%		

1998). Po lastnih opazovanjih na Ljubljanskem barju kosijo travnike skoraj izključno od roba parcele proti notranjosti v obliki spirale, kar glede na podatke različnih avtorjev (BROYER 1996, TYLER *et al.* 1998) pomeni 55 do 86 – odstotno izgubo izvaljenih mladičev. Možnosti za oblikovanje drugih legel in njihova gnezditvena uspešnost so zaradi napredovanja košnje nedvomno še veliko slabše kot pri prvih leglih.

Tu se zastavlja vprašanje, kakšen vpliv ima košnja pod zgoraj opisanimi pogoji na koščevo populacijo na Ljubljanskem barju. V Veliki Britaniji so ocenili, da mora vsaka samica kosca uspešno speljati vsaj tri mladiče iz prvega in štiri iz drugega legla za vzdrževanje velikosti populacije (NIEMANN 1995). Ob 8 – 12 jajcih v leglu in upoštevanju zgornjih ocen vidimo, da ta pogoj na Ljubljanskem barju vsaj v letu 2003, verjetno pa že vrsto let prej, ni bil izpolnjen. V novejši študiji je bila letna stopnja preživetja odraslih koscev ocenjena na samo 0,2 – 0,3, zaradi česar je stopnja rasti koščevih populacij še posebej občutljiva za vplive upravljanja s travniki (GREEN 2004). Območja s habitatom, navidez primernim za gnezdenje, ki pa zaradi določenega dejavnika, na katerega ptice ne reagirajo oziroma še niso reagirale, ni ustrezen, so zanje t.i. pasti. Takšna območja delujejo kot populacijski ponori, kjer je produktivnost zelo nizka (NEWTON 1998). Primer populacijskega ponora kosca je znan s Poljske, kjer je populacija 700 – 900 samcev 30 let vztrajala na travnikih kmetijskega kombinata, čeprav so bila v večini let vsa gnezda uničena med košnjo (SCHÄFFER 1995, SCHÄFFER & WEISSER 1996). Za odrasle samce kosca je značilna velika zvestoba širši okolici gnezdišč (ALNAS 1974, GREEN 1999), kar vpliv populacijskega ponora še poveča. Na Poljskem je zaradi velike nacionalne populacije kosca (GROMADZKI 1999) najverjetneje možno dolgotrajno vzdrževanje stabilnega števila koscev v ponornih populacijah na račun prvotnih populacij, kako pa je s tem v Sloveniji, ni jasno. TRONTELJ (1997) sicer dopušča možnost, da je produktivnost koščevih gorskih populacij v Sloveniji visoka in da obstajajo določene povezave med nižinskimi in gorskimi populacijami. Dejstvo je, da se prav številčnost koscev na južnem obrobju Julijskih Alp zadnja leta povečuje (Božič, *v pripravi*), vprašanje pa je, če to zadostuje za napajanje domnevno ponornih populacij v nižinah. Glede na obseg za kosca časovno neugodne košnje je verjetno prav košnja in z njo povezani nizki gnezditveni uspeh najpomembnejši razlog za tako velik in hiter upad populacije te vrste na Ljubljanskem barju.

Zahvala: Za prostovoljno opravljeno terensko delo v letih 2002 in 2003 ter posredovanje skrbno izpolnjenih

obrazcev in zemljevidov se zahvaljujem naslednjim popisovalcem (abc): Andreju Figlju, Andreji Dremelj, Borutu Mozetiču, Boštjanu Gromu, Boži Majstorovič, Branki Tavzes, Cvetki Marhold, Damijanu Denacu, Daretu Fekonji, Daretu Šeretu, Darji Hüzimec, Davorinu Tometu, Dejanu Bordjanu, Dušanu Sovi, Evi Vukelič, Gorazdu Urbaniču, Igorju Kovšet, Ivanu Kogovšku, Ivici Kogovšku, Joštu Stergaršku, Jožefu Osredkarju, Katarini Aleš, Leonu Kebetu, Luki Korošcu, Maji Cipot, Martinu De Grootu, Mateji Nose, Metki Štok, Mihi Podlogarju, Milanu Kosiju, Nadi Labus, Tanji Benko, Tatjani Škrabec, Tomažu Jančarju, Urši Koce, Valeriji Zakšek, Vojku Havličku, Željku Šalamunu, Žigi Iztoku Remcu in Živi Pipan. Brez njih popis ne bi bil popoln. Vojku Havličku gre posebna zahvala za skrbno organizacijo obeh popisov in spodbujanje sodelujočih. Za pomoč pri tiskanju digitalnih ortofoto posnetkov in delu z orodjem GIS se zahvaljujem Tomažu Miheliču. Dr. Davorin Tome je s svojimi predlogi in kritičnimi pripombami pripomogel k izboljšanju članka v zgodnjih fazah njegovega nastajanja. Za natančno opravljeno delo in številne koristne nasvete se zahvaljujem recenzentoma. Vsem najlepša hvala.

5. Povzetek

V letih 2002 in 2003 je bila v okviru rednega monitoringa izbranih vrst na posebnih območjih varstva (SPA) prešteta populacija kosca *Crex crex* na 140 km² velikem območju Ljubljanskega barja (osrednja Slovenija). Popis je opravilo 40 prostovoljnih popisovalcev. Popis je bil opravljen z uporabo standardizirane metode za popis kosca, ki je bila na podlagi predhodnih izkušenj v letu 2003 nekoliko modificirana. V letu 2003 je bil na skupno 4882,5 ha velikem delu površine Barja popisan delež travnikov, njiv in drugih za kosca neprimernih površin. Ti podatki so bili primerjani s stanjem v letu 1999. Prav tako je bil na skupno 1600 ha površine popisan delež travnikov, pokošenih pred sredo junija. Podatki o koscih so bili prenešeni v kilometrsko mrežo in primerjani s prejšnjima popisoma, opravljenima v letih 1992/93 in 1999. Skupno število prešteti pojočih samcev kosca na Ljubljanskem barju v letih 2002 in 2003 je bilo 170 oziroma 137, kar je dobrih 40% manj kot ob prvih dveh popisih. Koscev je izginil oziroma je njegovo število upadlo v 16 med 91 kvadrati po 1 km² z opredeljenim trendom številčnosti, 32 kvadratov je bilo zasedenih občasno, v 42 je bilo število koscev stabilno ali je nihalo, in le v enem kvadratu je bila zabeležena rast njihovega števila. Pri primerjavi posameznih popisov je opazno

zmanjševanje števila kvadratov z več kot dvema koscema in naraščanja števila kvadratov z enim koscem ali brez njih. Kvadrati z večjo površino travnikov so imeli tako v letu 2003 več koscev. Med površino travnikov v kvadratih po 1 km² in številom prešteti koscev obstaja statistično značilna pozitivna korelacija. Skupna površina travnikov se je v letih 1999 – 2003 zmanjšala za 7,8%. Na splošno gre 2/3 izgub vseh travnikov na račun povečanja površine njiv, 1/3 pa na račun povečanja površine drugih za kosca neprimernih zemljišč (zaraščanje, pozidava itd.). Medtem ko je bilo zmanjšanje površine intenzivnih travnikov majhno, pa se je površina ekstenzivnih travnikov zmanjšala skoraj za 30%. V kvadratih, kjer je kosce izgubil oziroma je njegovo število upadlo, porasta površine njiv ni bilo, površina ekstenzivnih travnikov pa se je zmanjšala za 40%. Upad koščeve številčnosti je torej povezan z zmanjševanjem deleža ekstenzivnih travnikov oziroma njihovim spreminjanjem v intenzivne travnike. Med površino ekstenzivnih travnikov v kvadratih po 1 km² in številom koscev je bila v letu 2003 ugotovljena statistično značilna pozitivna korelacija. V letu 2003 je bilo 38% vseh koscev registriranih na travnikih, ki ne omogočajo uspešnega razmnoževanja, saj so bili pokošeni pred sredo junija. Zaradi zgodnje košnje je produktivnost populacije kosca na Ljubljanskem barju verjetno zelo nizka in predstavlja tako imenovano ponorno populacijo. Obsežna zgodnja košnja je verjetno glavni razlog za veliki in hitri upad koščeve populacije na Ljubljanskem barju.

6. Literatura

- ALNAS, I. (1974): Die Ortstreue der gotländischen Wachtelkönige. – *Ornis Scandinavica* 5: 123 – 129.
- BAHA EL DIN, S.M., W. SALAMA, A. GRIEVE & R.E. GREEN (1996): Trapping and shooting of Corncrakes on the Mediterranean coast of Egypt. – *Bird Conservation International* 6: 213 – 227.
- BIRDLIFE INTERNATIONAL (2002): European bird populations. Estimates and trends. – BirdLife Conservation Series no. 10, Information press, Oxford.
- BIRDLIFE INTERNATIONAL (2004): Threatened Birds of the World 2004. – CD-ROM, BirdLife International, Cambridge.
- BOŽIČ, L. (2003): Mednarodno pomembna območja za ptice v Sloveniji 2. Predlogi Posebnih zaščitnih območij (SPA) v Sloveniji. – DOPPS, Monografija DOPPS št. 2, Ljubljana.
- BROYER, J. (1994): La régression du rôle de genêts *Crex crex* en France et la gestion des *milieux prairiaux*. – *Alauda* 62 (1): 1–7.
- BROYER, J. (1996): »Outward mowing«, as a way of reducing losses of young Corncrakes *Crex crex* and quails *Coturnix coturnix*. – *Revue d'écologie – la terre et la vie* 51 (3): 269 – 276.
- CADBURY, C.J. (1980): The status and habitats of the Corncrake *Crex crex* in Britain 1978 – 79. – *Bird Study* 27 (4): 203 – 218.
- COLLAR, N.J. & ANDREW A. (1988): Birds to watch: the ICBP world check – list of threatened birds. – International Council for Bird Preservation (Techn. Publ. 8), Cambridge.
- COLLAR, N.J., CROSBY M.J. & STATTERSFIELD A.J. (1994): Birds to watch 2: the world list of threatened birds. – BirdLife Conservation Series no. 4. BirdLife International, Cambridge.
- CROCKFORD, N., GREEN R., ROCAMORA G., SCHÄFFER N., STOWE T. & WILLIAMS G. (1996): Action plan for the Corncrake (*Crex crex*) in Europe. V: HEREDIA, B., ROSE L. & PAINTER M. (eds.): Globally threatened birds in Europe – Action plans. – Council of Europe Publishing.
- DECEUNINCK, B., FANTIN P., JOLIVET C., LOIR O., HERMANT D., MOREL F. & SALAMOLARD M. (1997): Chronologie de la reproduction du rôle de genêts *Crex crex* en France. Particularités régionales et évaluation des mesures de conservation. – *Alauda* 65 (1): 91 – 104.
- DONALD, P.F., GREEN R.E. & HEATH M.F. (2001): Agricultural intensification and the collapse of Europe's farmland bird populations. – *Proc. R. Soc. Lond. B* 268: 25 – 29.
- GILL, F.B. (1995): Ornithology. – W.H. Freeman and Company, New York.
- GREEN, R.E. (1995): The decline of the Corncrake *Crex crex* in Britain continues. – *Bird Study* 42: 66 – 75.
- GREEN, R.E. (1996): Factors affecting the population density of the Corncrake *Crex crex* in Britain and Ireland. – *Journal of Applied Ecology* 33 (2): 237 – 248.
- GREEN, R.E. (1999): Survival and dispersal of male Corncrakes *Crex crex* in a threatened population. – *Bird Study* 46 (suppl.): 218 – 229.
- GREEN, R.E. (2004): A new method for estimating the adult survival rate of the Corncrake *Crex crex* and comparison with estimates from ring – recovery and ring – recapture data. – *Ibis* 146: 501 – 508.
- GREEN, R.E. & STOWE T.J. (1993): The decline of the Corncrake *Crex crex* in Britain and Ireland in relation to habitat change. – *Journal of Applied Ecology* 30 (4): 689 – 695.
- GREEN, R.E. & RAYMENT M.D. (1996): Geographical variation in the abundance of the Corncrake *Crex crex* in Europe in relation to the intensity of agriculture. – *Bird Conservation International* 6: 201 – 211.
- GREEN, R.E., ROCAMORA G. & SCHÄFFER N. (1997): Populations, ecology and threats to the Corncrake *Crex crex* in Europe. – *Vogelwelt* 118: 117 – 134.
- GREEN, R.E., TYLER G.A., STOWE T.J. & NEWTON A.V. (1997): A simulation model of the effect of mowing of agricultural grassland on the breeding success of the Corncrake (*Crex crex*). – *Journal of Zoology* 243: 81 – 115.
- GROBELNIK, V. (2000): Oglašanje, ocena številčnosti in izbira mikrohabitata koscev (*Crex crex*, L.1758) na dveh lokacijah Ljubljanskega barja. – Diplomsko naloga, Biotehniška fakulteta, Oddelek za biologijo, Ljubljana.
- GROBELNIK, V. & TRONTELJ P. (1999): The Corncrake *Crex crex* in Slovenia. V: SCHÄFFER, N. & MAMMEN, U. (eds.): Proceedings of the International Corncrake Workshop, Hilpoltstein, Germany. [www.Corncrake.net]

- GROMADZKI, M. (1999): The Corncrake *Crex crex* in Poland. V: SCHÄFFER, N. & MAMMEN, U. (eds.): Proceedings of the International Corncrake Workshop, Hilpoltstein, Germany. [www.Corncrake.net]
- HUDSON, A.V., STOWE T.J. & ASPINALL S.J. (1990): Status and distribution of Corncrakes in Britain in 1988. – British Birds 83 (5): 173 – 187.
- KOTARAC, M. (1999): Kartiranje habitatnih tipov na Ljubljanskem barju. Poročilo za MOP UVN Ljubljana & MOL. – Center za kartografijo favne in flore, Miklavž na Dravskem polju.
- MISCHENKO, A.L. & SUKHANOVA O.V. (1999): Corncrake *Crex crex* in European Russia: methods and results of a large – scale census. – Vogelwelt 120, (suppl.): 323 – 327.
- NEWTON, I. (1998): Population Limitation in Birds. – Academic press, London.
- NIEMANN, S. (1995): Habitat Management for Corncrakes. A Working Draft. – RSPB Scotland.
- NORRIS, C.A. (1945): Summary of a report on the distribution and status of the Corncrake (*Crex crex*). – British Birds 38: 142 – 148, 162 – 168.
- NORRIS, C.A. (1947): Report on the distribution and status of the Corncrake. – British Birds 40: 226 – 224.
- O'MEARA, M. (1986): Corncrake declines in seven areas, 1978 – 85. – Irish Birds 3: 237 – 244.
- PEAKE, T.M. & MCGREGOR P.K. (2001): Corncrake *Crex crex* census estimates: a conservation application of vocal individuality. – Animal Biodiversity and Conservation 24 (1): 81 – 90.
- PERKO, D. & OROŽEN ADAMIČ, M. (1999): Slovenija. Pokrajine in ljudje. – Mladinska knjiga, Ljubljana.
- POLAK, S., ed. (2000): Mednarodno pomembna območja za ptice v Sloveniji. Important Bird Areas (IBA) in Slovenia. – DOPPS, Monografija DOPPS št. 1, Ljubljana.
- POLAK, S. (2003): Mlada kosca Srečko in Živko pripovedujeta... – Svet ptic 9 (2): 18 – 19.
- POLAK, S., KEBE L. & KOREN B. (2004): Trinajst let popisov kosca *Crex crex* na Cerkniškem jezeru (Slovenija). – Acrocephalus 25 (121): 59 – 70.
- SCHÄFFER, N. (1995): Rufverhalten und Funktion des Rufens beim Wachtelkönig *Crex crex*. – Vogelwelt 116: 141 – 151.
- SCHÄFFER, N. (1999): Habitatwahl und Partnerschaftssystem von Tüpfelralle *Porzana porzana* und Wachtelkönig *Crex crex*. – Ökologie der Vögel 21 (1): 1 – 267.
- SCHÄFFER, N. & WEISSER W.W. (1996): Modell für den Schutz des Wachtelkönigs *Crex crex*. – Journal für Ornithologie 137: 53 – 75.
- SCHÄFFER, N. & MAMMEN U. (1999): Proceedings of the International Corncrake Workshop, Hilpoltstein, Germany. [www.Corncrake.net]
- SCHÄFFER, N. & MAMMEN U. (2003): International Corncrake monitoring. Ornis Hungarica 12 – 13: 129 – 133.
- SCHIFFERLI, L. (1999): Changes in agriculture and the status of birds breeding in European farmland. V: AEBISCHER, N.J., EVANS A.D., GRICE P.V. & VICKERY J.A. (eds.): Ecology and Conservation of Lowland Farmland Birds. – Proceedings of the 1999 British Ornithologist's Union Spring Conference.
- SHEPPARD, R. & GREEN R.E. (1994): Status of the Corncrake in Ireland in 1993. – Irish Birds 5 (2).
- STOWE, T.J. & HUDSON A.V. (1991): Radio telemetry studies of Corncrake in Great Britain. – Die Vogelwelt 112 (1 – 2): 10 – 16.
- STOWE, T.J., NEWTON A.V., GREEN R.E. & MAYES E. (1993): The decline of the Corncrake *Crex crex* in Britain and Ireland in relation to habitat. – Journal of Applied Ecology 30 (1): 53 – 62.
- TOME, D. (2001): Pogoji naravovarstveno in/ali ekonomsko sprejemljive košnje travnikov na Ljubljanskem barju. – Nacionalni inštitut za biologijo, Ljubljana.
- TOME, D. (2002): Ali je populacija kosca *Crex crex* na Ljubljanskem barju (še) stabilna? – Acrocephalus 23 (113 – 114): 141 – 143.
- TOME, D., TRONTELJ P. & SOVINČ A. (v tisku): Ornitološki atlas Ljubljanskega barja. – DOPPS, Monografija DOPPS št. 3, Ljubljana.
- TRONTELJ, P. (1995): Popis kosca *Crex crex* v Sloveniji v letih 1992 – 93. – Acrocephalus 16 (73): 174 – 180.
- TRONTELJ, P. (1997): Distribution and habitat of the Corncrake (*Crex crex*) at the Upper Soča basin (Julian Alps, Slovenia). – Annales 11: 65 – 72.
- TRONTELJ, P. (2001): Popis kosca *Crex crex* v Sloveniji leta 1999 kaže na kratkoročno stabilno populacijo. – Acrocephalus 22 (108): 139 – 147.
- TUCKER, G.M. & HEATH M.F. (1994): Birds in Europe: their conservation status. – BirdLife International, Cambridge.
- TYLER, G.A. & GREEN R.E. (1996): The incidence of nocturnal song by male Corncrakes *Crex crex* is reduced during pairing. – Bird Study 43: 214 – 219.
- TYLER, G.A., GREEN R.E. & CASEY C. (1998): Survival and behaviour of Corncrake *Crex crex* chicks during the mowing of agricultural grassland. – Bird Study 45: 35 – 50.
- URADNI LIST RS (2004): Uredba o posebnih varstvenih območjih (območjih Natura 2000), št. 49/04.

Prispelo / Arrived: 19.7.2004
Sprejeto / Accepted: 19.9.2005

PRILOGA / APPENDIX

Tabela 5: Številčni podatki zabeleženih pojočih koscev *Crex crex* po letih, kvadratih po 1 km² in z ocenjenim trendom na Ljubljanskem barju**Table 5:** Numerical data of singing Corncrakes *Crex crex* recorded at Ljubljansko barje per year and per km² squares

UTM	1 km ²	1992	1999	2002	2003	Trend
09/44	G4		1		0	
	H4		3		0	
	H5		5		4	
	H6		2		1	
	H7	0	3	0	0	občasno / irregularly
	H9	0	2	1		
	I5		4		0	
	I7	1	4	1	1	niha / fluctuating
	I8		0	0	1	občasno / irregularly
	I9	7	4	2		upad / declining
	J6	1	7	1	4	niha / fluctuating
	J7	2	12	2	1	niha / fluctuating
	J8	8	3	0	0	izginil / disappeared
	J9	6	3	1	2	niha / fluctuating
08/44	A7	1	0	0	0	občasno / irregularly
	A8	2	1	3	2	niha / fluctuating
	A9	1	0	0	0	občasno / irregularly
	B9	1	0	1	0	občasno / irregularly
	C8	0	0		1	občasno / irregularly
	C9	2	3		1	niha / fluctuating
09/45	D6	0	1	0		občasno / irregularly
	D8	1	0	0	0	občasno / irregularly
	D9	2	0	0	0	občasno / irregularly
	E3	0	0	1	0	občasno / irregularly
	E7	1	1	0	0	izginil / disappeared
	E8	4	3	1	1	upad / declining
	E9	2	3	2	0	niha / fluctuating
	F6	5	0	0	0	izginil / disappeared
	F7	0	0	0	1	občasno / irregularly
	F8	3	2	2	2	niha / fluctuating
	F9	0	2	2	1	niha / fluctuating
	G0	5	2	2	0	upad / declining
	G1	7	6	3	3	upad / declining
	G2	0	1	0	0	občasno / irregularly
	G4	1	2	0	0	izginil / disappeared
	G5	1	0	0		občasno / irregularly

UTM	1 km ²	1992	1999	2002	2003	Trend
	G6	5	3	2	4	niha / fluctuating
	G7	6	3	1	2	niha / fluctuating
	G8	9	5	4	6	niha / fluctuating
	G9	11	6	9	4	niha / fluctuating
	H0	10	2	6	3	niha / fluctuating
	H1	11	14	7	9	niha / fluctuating
	H2	13	11	3	2	upad / declining
	H3	0	2	2	0	občasno / irregularly
	H4	0	2	0	0	občasno / irregularly
	H5	0	2	3	1	niha / fluctuating
	H6	0	4	4	1	niha / fluctuating
	H7	5	5	3	4	niha / fluctuating
	H8	7	8	2	7	niha / fluctuating
	H9	4	2	8	14	porast / increasing
	I0	10	8	10		niha / fluctuating
	I1	8	10	8		niha / fluctuating
	I2	10	5	1	1	upad / declining
	I4	0	2	0	0	občasno / irregularly
	I6	2	1	1	2	niha / fluctuating
	I7		0	1	1	
	I8	0	0	0	1	občasno / irregularly
	I9	1	2	5	1	niha / fluctuating
	J0	4	1	1	2	niha / fluctuating
	J1	3	4	3	3	niha / fluctuating
	J2	1	1	1	0	niha / fluctuating
o8/45	A0	2	0		1	
	A1	1	3	3	1	niha / fluctuating
	B0	1	0		6	
	C0	0	1		1	
o9/46	D0	3	1	2	1	niha / fluctuating
	D2	1	0	0	0	občasno / irregularly
	D3	1	0	0	0	občasno / irregularly
	E0	0	1	0	0	občasno / irregularly
	E1	0	0	1	0	občasno / irregularly
	E2	3	0	0	0	izginil / disappeared
	E3	3	1	0	0	izginil / disappeared
	E4		0	2	0	občasno / irregularly
	F0	3	1	2	1	niha / fluctuating
	F1	2	1	3	1	niha / fluctuating
	F2	1	0	3	1	niha / fluctuating
	F3	3	1	2	1	niha / fluctuating

UTM	1 km ²	1992	1999	2002	2003	Trend
o8/46	F4	0	1	2	0	občasno / irregularly
	G0	3	2	0	1	upad / declining
	G1	4	1	2	0	niha / fluctuating
	G2	3	1	1	0	niha / fluctuating
	G3	3	2	2	1	niha / fluctuating
	G4	0	3	1		
	H0	1	1	1	3	niha / fluctuating
	H1	0	1	0	0	občasno / irregularly
	H2	1	1	0	0	izginil / disappeared
	H3	2	0	0	1	občasno / irregularly
	H4	0	2	4	0	občasno / irregularly
	H5	1	1	0	0	izginil / disappeared
	H6		1	2	0	
	I1	0	0	1	0	občasno / irregularly
	I3	2	1	1	3	niha / fluctuating
	I4	1	3	2	6	niha / fluctuating
	I5	5	9	2	1	upad / declining
	I6	0	4	0	1	občasno / irregularly
	J4	1	6	3	6	niha / fluctuating
	J5	0	0	1	0	občasno / irregularly
	J6	0	0	1	0	občasno / irregularly
	J7			1	0	
	A4	0	1	1	0	občasno / irregularly
	B6	1	0	2	1	niha / fluctuating
	C6		4	2	3	niha / fluctuating
	D6		2	0	0	
	E6		1		0	
	F7				2	
Skupno / Total		236	238	160	137	

FREQUENCY, DENSITY AND NUMBERS OF SOME BREEDING BIRDS IN THE SOUTH PART OF KRESNA GORGE (SW BULGARIA)

Frekvenca, gostota in številčnost nekaterih gnezdilk južnega dela soteske Kresna (JZ Bolgarija)

STOYAN CH. NIKOLOV¹ & SVETOSLAV D. SPASOV²

¹ Central Laboratory of General Ecology, Bulgarian Academy of Sciences, Gagarin 2, Sofia 1113, Bulgaria,
e-mail: snikolov@ecolab.bas.bg

² Bulgarian Society for the Protection of Birds / BirdLife Bulgaria, Sofia 1111, P.O. Box 50, Bulgaria,
e-mail: svetoslav.spasov@bspb.org

A rapid assessment of the frequency, density and numbers of breeding birds was accomplished in the south part of the Kresna Gorge, SW Bulgaria. It was based on 218 counts in 142 point transects during the breeding season of 2003. 74 species were recorded during the study. Most of the species registered have limited distribution within the area. They occupy different types of mosaic habitat where they are abundant (about 90% with relatively low frequency but almost 60% with relatively high or medium density). Local conservation status was established on the basis of frequency and numbers. Lesser Grey Shrike *Lanius minor* and Honey Buzzard *Pernis apivorus*, previously unrecorded in the Tissata natural reserve during the breeding season, were recorded, but Long-legged Buzzard *Buteo rufinus* appears to have been lost since the previous survey. Two species are apparently in decline (Rock Thrush and Olive-tree Warbler *Hippolais olivetorum*) and three (Black-headed Bunting *Emberiza melanocephala*, Rock Partridge *Alectoris graeca* and Blue Rock Thrush *Monticola solitarius*) are increasing in number.

Key words: breeding birds, frequency, density, number, point transect, Kresna Gorge, south-west Bulgaria

Ključne besede: gnezdilke, frekvenca, gostota, številčnost, točkovni transekt, soteska Kresna, jugozahodna Bolgarija

1. Introduction

The Kresna Gorge is one of the regions with the most expressive Mediterranean climatic influence in Bulgaria. The presence of Mediterranean elements in the avifauna of this region has excited the interest of ornithologists and there are a lot of papers dealing with particular observations, separate species or species composition and status (PATEFF 1938, BALAT 1962, BOEV & PASPALEVA – ANDONOVA 1964, MICHEV 1968, SIMEONOV 1970A, VATEV & SIMEONOV 1978, VATEV *et al.* 1980, SIMEONOV & MICHEV 1980 & 1985, VATEV 1981, MICHEV & PETROV 1985, MICHEV *et al.* 1986 & 1988, SPIRIDONOV & SIMEONOV 1988, KOUZMANOV *et al.* 1995, OBUCH & BENDA 1996, SPIRIDONOV 1997,

NANKINOV 2001, STOYANOV 2001, STOYANOV *et al.* 2001). So far there are two papers concerning the breeding bird density in some parts of the study area (SIMEONOV 1970B, NANEV 1988), but both were made on the basis of research carried out more than 15 years ago. In addition, the studies of SIMEONOV (1970B) and NANEV (1988) are more extended or more restricted, respectively, with respect to the study area – a study with recent data of breeding bird frequency, density, numbers and an assessment of their conservation status are missing. The results from such study could be very useful as a basis for future comparisons, for studying bird population trends and for nature conservation management on a local scale.

The goal of the present study is therefore to

determine the frequency, density, number and current conservation status of the diurnal breeding birds in the south part of Kresna Gorge.

2. Study area

The Kresna Gorge is situated in south-west Bulgaria between the mountains Malashevska and Pirin in the Struma River valley (Figure 1). The gorge belongs to the Continental – Mediterranean climatic zone and covers two areas. The lower parts (up to 350 m elevation) belong to the Petrich – Sandanski area and the higher parts to the Malashevski – Pirin low-mountain climatic area (DIMITROV 1966, STANEV



Figure 1: Location of the Kresna Gorge in Bulgaria

Slika 1: Lega soteske Kresna v Bolgariji

1991). The average annual temperature is 12 to 13°C with warm winters (the mean January temperature is 1 to 2°C and the minimal winter temperature is – 20°C) and very dry summers (the mean July temperature is 24°C and the maximal summer temperature is up to 38°C; HUBENOV 2001). The total annual rainfall is 550 mm with a maximum at the end of autumn and the beginning of winter and a minimum at the end of summer. The duration of snow cover is usually 5 – 6 days (with depth 10 – 12 cm), but sometimes up to 15 – 20 days (with depth up to 30 – 40 cm). The rock basis is granite and the soil types are maroon, alluvial, erosive, shallow and skeletal (HUBENOV 2001).

The vegetation cover of Kresna Gorge falls into the Eastern-Mediterranean province, with vegetation predominantly of the Mediterranean type, and into the xerothermal oak forest belt (STOYANOV 1966, BONDEV 1982, 1991 & 1997, VELCHEV 1982, VELCHEV & BONDEV 1982, VELCHEV & TONKOV 1986, STOYANOV D. *et al.* 2001), consisting of plant species such as Greek Juniper *Juniperus excelsa* forests and evergreen shrubs such as Prickly Juniper *Juniperus oxycedrus*,

Phillyrea *Phillyrea latifolia* and other southern species such as Christ's Thorn *Paliurus spina-christi*, Almond-leaved Pear *Pyrus amygdaliformis*, Terebinth *Pistacia terebinthus* and Wild Jasmine *Jasminum fruticans*. There are also Downy Oak forests *Quercus pubescens*, plantations of Austrian Pine *Pinus nigra*, areas under cultivation, with Oriental Plane *Platanus orientalis* and White Poplar *Populus alba* along the rivers; see colour appendix. Communities of tree types with high conservation value and included in Annex I of Directive 92/43/EEC are widely presented in the area: Helleno – Balkanic riparian forests, Grecian juniper woods and Greek juniper arborescent matorrals.

The Kresna Gorge is one of the most abundant regions in Bulgaria in terms of total number of bird species registered (232) and the relative abundance of breeding bird species (135; STOYANOV *et al.* 2001). This fact is partly due to the migrating route Via Aristotelis on which the gorge lays. The Kresna Gorge belongs to the Strumsko – Mestenski zoogeographic region (GEORGIEV 1982 & 2002, GEORGIEV & SIMEONOV 1992). The impact of the Mediterranean climate is much more evident in this area and the percentage of Mediterranean birds species (26.5%) is higher than in the other zoogeographical regions in Bulgaria (GEORGIEV 2002). It is extremely high in the Tissata Natural Reserve (up to 30%; SPIRIDONOV & SIMEONOV 1988). The region is also the northern limit of distribution, on the national level, of some Mediterranean bird species – Blue Rock Thrush *Monticola solitarius*, Sardinian Warbler *Sylvia melanocephala* and Rock Nuthatch *Sitta neumayer* (HAGEMEIJER & BLAIR 1997).

According to BORISOV & MIHAILOV (1965) and SANDANSKI (1978) the Kresna Gorge can be divided into two parts: northern part – narrower, steep and difficult to access – and the southern part – wider and low-pitched. The latter is the subject of the present study. The study area covers 17 km², extending 7 km to the north of the outflow of the Vlahinska River and 1 – 2 km to the west and to the east of the Struma River (Figure 2). The altitude ranges from 188 to 880 m a.s.l. The study area includes the Tissata Nature Reserve (574.5 ha), the Tissata Important Bird Area (KOSTADINOVA 1997) and the Tissata CORINE subsite (SPIRIDONOV 1997).

3. Methods

The study was carried out during the breeding season of 2003 by five experienced observers, for a period of nine days fieldwork, from 15 May to 19 Jun. Days for the fieldwork were selected on the basis of the observers' availability and weather conditions – they were not

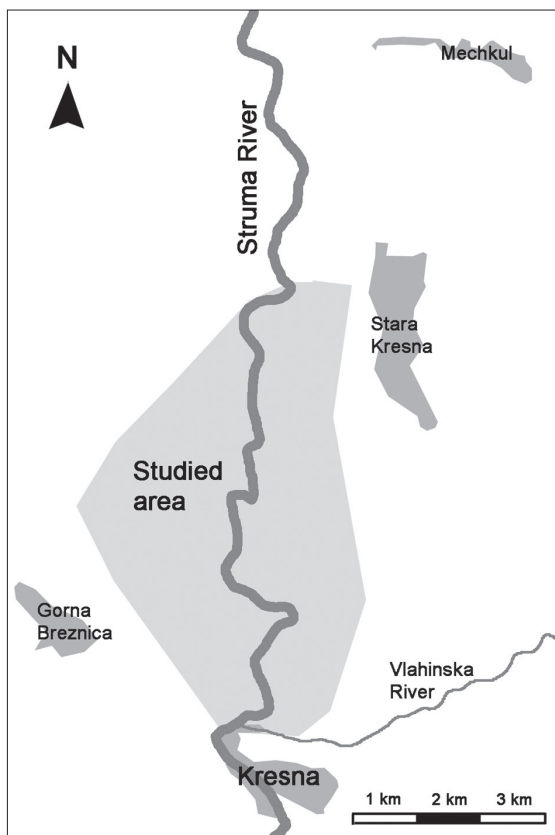


Figure 2: Location of the study area in the southern part of the Kresna Gorge

Slika 2: Lega raziskovanega območja v južnem delu soteske Kresna

chosen randomly. For the purpose of the study the method of point transects with full distance estimation was used (BIBBY *et al.* 1992 & 1998, BUCKLAND *et al.* 1998), a method previously applied in Bulgaria only by BAROV (1999) and SICHANOV (2002). We chose it because of three main reasons according to BIBBY *et al.* (1992 & 1998) and BUCKLAND *et al.* (1993): (1) it is often the preferred one in more fine-grained habitats; (2) in shrub habitats point transects are preferred for allowing concentration on birds without noise and the distraction of avoiding obstacles while walking; (3) it is recommended for areas with difficult access.

A total of 218 counts were made in 142 point transects. Point transect locations were selected at random in different habitat types within the area. The minimal distance between two adjacent point transects was 200 m. Counts were made 3 minutes after reaching the point at 10 minute intervals, between 6.00 and 11.00 local time in good weather conditions only. For a counting unit in the estimation of breeding

bird density we chose one breeding pair, considering each of the following as its equivalent: (1) adult bird observed in a habitat suitable for breeding; (2) singing male; (3) male and female located closely; (4) flock of fledged young birds moving together with or without parents; (5) occupied nest or hollow. Flying birds were not counted. The distance to each counting unit seen or heard was recorded. 76 (53.1%) point transects were visited twice. For each species the higher number of individuals registered from the two counts was used for the density estimation. Data were analyzed by Distance 4.1 Release 2 (THOMAS *et al.* 2003). Multiple covariate distance sampling analysis was applied because in our case the probability of detection was not solely a function of distance from the point, but varied by habitat and we had no stratification by habitat types (THOMAS *et al.* 2003). On the basis of Akaike's Information Criterion (AKAIKE 1973) for minimum value selection the model of half-normal key function with cosine series expansion was used. Right truncation at the largest observed distance was made.

Numbers of breeding birds were obtained by extrapolation to the total surface of the studied area. We assessed separately and directly (without extrapolation) 21 species with limited distribution inhabiting rocks, riverside habitats and settlements.

The formula $F = N \times 100 / S$ (DJAKOV 1971) was applied to calculate the frequency of observed species (F – frequency; N – number of point transects where the species was registered; S – the total number of point transects). We described the breeding frequency using the scale of PETROV & MICHEV (1986) with some modifications: (1) extremely low frequency (ELF): under 4.99%; (2) rather low frequency (RLF): 5.00 – 14.99%; (3) low frequency (LF): 15.00 – 34.99%; (4) intermediate frequency (IF): 35.00 – 64.99%; (5) high frequency (HF): 65.00 – 84.99%; (6) rather high frequency (RHF): 85.00 – 94.99%; (7) extremely high frequency (EHF): 95.00 – 100%. Frequency was not calculated for those species for which direct assessment of numbers was made.

The local conservation status of birds was defined on the basis of juxtaposition of frequency and number. Species with higher frequency and number are considered as having lower conservation status than those with low frequency and number. On the basis of this juxtaposition, the bird species were classified into three groups. The first group consists of species with relatively high frequency and number, the second with intermediate frequency and medium to high number, and the third group with low frequency and number. The present study does not consider Corncrakes *Crex*

crex, Owls Strigiformes and Nightjar *Caprimulgus europaeus*, which involve special methods of count because of their night activity, or certain species with very low abundance, for which special research is required.

4. Results

We registered 74 species in the study area during the breeding season of 2003, constituting 55% of the previously determined breeding avifauna of the Kresna Gorge (STOYANOV *et al.* 2001). Regarding the breeding bird diversity, we registered more than 4 breeding species per square kilometre for the studied area. During the point counts 47 species were recorded and their frequency determined (Table 1). 18 species have extremely low frequency, 11 rather low frequency, 13 low frequency, 5 intermediate frequency and none with high frequency. The most frequent species were Chaffinch *Fringilla coelebs* and Golden Oriole *Oriolus oriolus*, followed by Nightingale *Luscinia megarhynchos*, Blackbird *Turdus merula*, Great Tit *Parus major* and Ortolan Bunting *Emberiza hortulana* (Table 1). We estimated the breeding density for 26 species; there was insufficient data for the rest. The numbers of these species were calculated on the basis of the calculated density. Although there was insufficient data for the rest, we made a rough direct assessment of numbers for some of them.

The most abundant species (density above 20 pairs/km²) were the Olivaceous Warbler *Hippolais pallida*, and Chaffinch followed by Great Tit, Goldfinch *Carduelis carduelis* and Hawfinch *Coccothraustes coccothraustes* (Table 1). 5 more species were observed at comparatively high density (15 – 20 pairs/km²): Rock Bunting *Emberiza cia*, Turtle Dove *Streptopelia turtur*, Nightingale, Sombre Tit *Parus lugubris* and Long-tailed Tit *Aegithalos caudatus*. There were 5 species with intermediate density (10 – 15 pairs/km²), 6 with low density (5 – 10 pairs/km²) and 5 with rather low density ($D < 5$ pairs/km²). We registered a further 28 bird species out of point transects or flying above them. For 17 of these we made a reliable direct estimation of numbers (Table 2). We could not estimate the density or number of breeding pairs for the Alpine Swift *Tachymarptis melba*, Middle Spotted Woodpecker *Dendrocopos medius*, Crested Lark *Galerida cristata*, Short-toed Lark *Calandrella brachydactyla*, Black Redstart *Phoenicurus ochruros*, Lesser Whitethroat *Sylvia curruca*, Sardinian Warbler (P. IANKOV *pers. comm.*), Willow Tit *Parus montanus*, Rock Nuthatch or Tree Sparrow *Passer montanus* because they were observed only once or twice during

our survey, insufficient for reliable estimations.

Regarding European conservation status, we observed 14 species (Honey Buzzard *Pernis apivorus*, Short-toed Eagle *Circus gallicus*, Golden Eagle *Aquila chrysaetos*, Peregrine Falcon *Falco peregrinus*, Kingfisher *Alcedo atthis*, Middle-spotted Woodpecker, Syrian Woodpecker *Dendrocopos syriacus*, Woodlark *Lullula arborea*, Tawny Pipit *Anthus campestris*, Olive-tree Warbler *Hippolais olivetorum*, Red-backed Shrike *Lanius collurio*, Lesser Grey Shrike *L. minor*, Masked Shrike *L. nubicus*, Ortolan Bunting) included in Annex I of Directive 79/409/EEC on the conservation of wild birds.

Regarding local conservation status, three groups of birds were defined using data from breeding frequency and number. The first group consists of Chaffinch, Great Tit and Nightingale. These species inhabit different types of habitats and they are common and abundant, not only in the study area but also on the national level and are not a conservation priority (HAGEMEIJER & BLAIR 1997, BIRDLIFE INTERNATIONAL 2004). The second group comprises Turtle Dove, Olivaceous Warbler, Blackbird, Woodchat Shrike *Lanius senator*, Hawfinch, Rock Bunting, Ortolan Bunting, Black-headed Bunting *Emberiza melanocephala* and Corn Bunting *Miliaria calandra*. Some of these species (Olivaceous Warbler, Woodchat Shrike, Rock and Black-headed Buntings) are important from a conservation point of view because they are not so widespread and numerous on the national level although they are present in high numbers in the studied area. They are also included in Annex II of the Bern Convention. The third group includes the majority of the species observed. This group is of higher conservation importance, particularly regarding some species with limited distribution – the Rock Partridge *Alectoris graeca*, Black-eared Wheatear *Oenanthe hispanica*, Orphee Warbler *Sylvia hortensis* and Blue Rock Thrush, which are included in the Bern Convention. Other species – Chiffchaff *Phylloscopus collybita*, Willow Tit *Parus palustris* and Lesser Grey Shrike are common on the national scale and are important only regarding the local biodiversity because of their low number in the area.

5. Discussion

This study is a rapid assessment of the current status of the local breeding populations and does not claim to be exhaustive, because it does not consider all the breeding bird species in the study area. The results show that all the species registered belong only to the

Table 1: Frequency, density and numbers of some breeding birds in the south part of the Kresna Gorge. Frequency (F) was estimated using the formula of DJAKOV (1971). Frequency categories are described following PETROV & MICHEV (1986) with some modifications. Density and number of breeding pairs with their coefficient of variation and confidence intervals are computed using the program Distance (THOMAS et al. 2003).

Tabela 1: Frekvenc, gostota in številčnost nekaterih gnezdišč v južnem delu soteske Kresna. Frekvenc (F) je bila ocenjena z uporabo formule po DJAKOVU (1971). Kategorije frekvence so z nekaterimi modifikacijami uporabljene po PETROVU & MICHEVU (1986). Gostota in število gnezdečih parov s koeficienti variacije in intervalom gotovosti sta bila izračunana z uporabo programa Distance (THOMAS et al. 2003)

Species / Vrsta	Frequency / Frekvenca		Density / Gostota		No. of breeding pairs/ Št. gnezdečih parov	
	F [%]	Category/ Kategorija	Breeding pairs/ Gnezdečih parov / km ²	Coef. of var. [%]/ Koeff. var. [%]	95% Conf. Int./ 95% interval gotovosti	95% Conf. Int./ 95% interval gotovosti
<i>Alectoris graeca</i>	4.9	ELF				20 – 30
<i>Columba palumbus</i>	2.8	ELF				25 – 35
<i>Streptopelia turtur</i>	29.6	LF	17.6	17.7	12.4 – 24.9	212 – 423
<i>Cuculus canorus</i>	12.7	LF				299
<i>Upupa epops</i>	8.5	RLF				20 – 25
<i>Picus viridis</i>	2.8	ELF				60 – 80
<i>Dendrocopos syriacus</i>	15.5	LF				25 – 35
<i>Lullula arborea</i>	9.2	RLF	5.7	40.1	2.6 – 12.4	100 – 150
<i>Anthus campestris</i>	1.4	ELF				97
<i>Motacilla alba</i>	3.5	ELF				10 – 20
<i>Erithacus rubecula</i>	2.1	ELF				30 – 40
<i>Luscinia megarhynchos</i>	53.5	IF	16.7	10.6	13.5 – 20.5	230 – 349
<i>Oenanthe hispanica</i>	10.6	RLF	4.4	30.9	2.4 – 8.0	41 – 136
<i>Monticola saxatilis</i>	1.4	ELF				75
<i>M. solitarius</i>	5.6	RLF	1.1	49.0	0.4 – 2.8	8 – 48
<i>Turdus merula</i>	40.8	IF	6.3	14.0	4.8 – 8.2	81 – 140
<i>T. viscivorus</i>	2.1	ELF				50 – 70
<i>Hippolais pallida</i>	23.9	LF	49.7	20.1	33.6 – 73.6	571 – 1250
<i>Sylvia cantillans</i>	4.2	ELF				845
<i>S. hortensis</i>	4.9	ELF	6.1	47.0	2.5 – 14.9	42 – 253
<i>S. communis</i>	14.1	RLF	12.2	24.7	7.5 – 19.7	128 – 335
						207

Continuation of Table 1 / nadaljevanje tabele 1

Frequency / Frekvencia			Density / Gostota		No. of breeding pairs/ Št. gnezdečih parov		
Species / Vrsta	F [%]	Category/ Kategorija	breeding pairs km ² /Gnezdečih parov km ²	Coef. of var. [%]/ Koeff. var. [%]	95% Conf. Int. / 95% interval gotovosti	95% Conf. Int. / 95% interval gotovosti	Estimated / Ocena
<i>S. atricapilla</i>	12.7	RLF	2.90	29.1	1.7 – 5.1	28 – 87	50
<i>Phylloscopus collybita</i>	2.1	ELF					13-23
<i>Muscicapa striata</i>	2.8	ELF					50 – 70
<i>Parus palustris</i>	1.4	ELF					15 – 25
<i>P. lugubris</i>	15.5	LF	15.36	23.8	9.7 – 24.4	164 – 415	261
<i>P. caeruleus</i>	3.5	ELF					40 – 60
<i>P. major</i>	40.1	IF	23.86	13.1	18.4 – 30.9	313 – 525	406
<i>Aegithalos caudatus</i>	12.7	RLF	15.20	25.5	9.3 – 25	158 – 425	260
<i>Sitta europaea</i>	7.0	RLF					60 – 80
<i>Oriolus oriolus</i>	61.3	IF	11.05	10.3	9.0 – 13.5	153 – 230	188
<i>Lanius collurio</i>	13.4	RLF	8.50	26.6	5.1 – 14.2	86 – 242	144
<i>L. minor</i>	1.4	ELF					2 – 4
<i>L. senator</i>	20.4	LF	12.20	22.2	7.9 – 18.8	135 – 320	208
<i>L. nubicus</i>	1.4	ELF					
<i>Garrulus glandarius</i>	21.8	LF	5.00	20.6	3.3 – 7.4	56 – 126	84
<i>Sturnus vulgaris</i>	4.2	ELF					
<i>Fringilla coelebs</i>	64.8	IF	43.70	9.6	36.2 – 52.7	615 – 896	743
<i>Carduelis chloris</i>	13.4	RLF	4.00	26.7	2.4 – 6.8	41 – 116	69
<i>C. carduelis</i>	15.5	LF	23.10	22.3	14.9 – 35.7	254 – 606	392
<i>C. cannabina</i>	2.8	ELF					
<i>Coccothraustes coccothraustes</i>	20.4	LF	21.60	19.3	14.8 – 31.6	252 – 536	368
<i>Emberiza cirius</i>	12.7	RLF	4.20	32.0	2.2 – 7.8	38 – 132	71
<i>E. cia</i>	27.5	LF	19.50	17.3	13.9 – 27.3	236 – 464	331
<i>E. hortulana</i>	31.0	LF	8.50	16.7	6.1 – 11.8	104 – 201	145
<i>E. melanocephala</i>	20.4	LF	14.20	20.6	9.5 – 21.3	161 – 361	242
<i>Miliaria calandra</i>	26.8	LF	12.00	16.6	8.6 – 16.6	147 – 281	203

categories of low and intermediate frequency (Table 1). This could be explained by the high diversity of fine-grained habitats and by the fact that point transects were not limited to separated habitats but dispersed randomly in different combinations of the habitats present in the study area.

We could not compare our results for the breeding bird density with those of SIMEONOV (1970) because of the different methods applied. There are only fragmentary data concerning the number of certain rare or endangered species in the study area (SPIRIDONOV 1997) so we could not compare all of our results. However we found some changes in the

Table 2: Directly estimated numbers of bird species observed outside point transects. The number of pairs is the minimal number of breeding pairs found within the study area according to the definition of “breeding pair” (see Methods). The number of estimated pairs is the largest number of pairs that probably breed within the study area according to the authors’ estimate, made on the basis of all individuals observed.

Tabela 2: Ocena številčnosti vrst, najdenih zunaj točkovnega popisa. Število parov je minimalno število parov, najdenih med raziskavo, ki so ustrezali kriterijem za gnezditve. Avtorja sta optimalno število parov ocenila glede na število vseh opazovanih ptic.

Species / Vrsta	No. of breeding pairs/ Št. gnezdečih parov	
	Observed/ Opazovani	Estimated/ Ocena
<i>Pernis apivorus</i>	1	1
<i>Circaetus gallicus</i>	1	0 – 1
<i>Accipiter nisus</i>	2	2 – 4
<i>Buteo buteo</i>	3	2 – 4
<i>Aquila chrysaetos</i>	1	1
<i>Falco tinnunculus</i>	2	1 – 3
<i>F. peregrinus</i>	1	0 – 1
<i>Actitis hypoleucos</i>	4	4 – 6
<i>Alcedo atthis</i>	1	1 – 2
<i>Hirundo rupestris</i>	15	15 – 20
<i>H. rustica</i>	13	13 – 25
<i>H. daurica</i>	50	50 – 70
<i>Delichon urbica</i>	25	25 – 50
<i>Motacilla cinerea</i>	2	2 – 5
<i>Cinclus cinclus</i>	1	1 – 2
<i>Corvus corone</i>	2	1 – 3
<i>C. corax</i>	1	1

species composition and number in the Tissata Nature Reserve and Tissata Important Bird Area over the last seven years. We registered two breeding pairs of Lesser Grey Shrikes in the buffer zone of the Tissata natural reserve and one pair of Honey Buzzards, neither of which were reported by SPIRIDONOV & SIMEONOV (1988). The Long-legged Buzzard *Buteo rufinus*, reported as breeding in the area, (SPIRIDONOV 1997) was not observed during our study. We registered an increase in number of 3 species and decrease of 2 species. SPIRIDONOV (1997) reported 20 breeding pairs of Black-headed Buntings and 4 – 5 breeding pairs of Rock Partridge and Blue Rock Thrush. According to our results the current number of these species is about 200 pairs of Black-headed Buntings and about 20 pairs of Rock Partridges and Blue Rock Thrushes. On the other hand SPIRIDONOV (1997) estimated that the number of Rock Thrushes and Olive-tree Warblers was 10 and 50 pairs respectively, but our estimate indicates half that number at most.

We conclude that most of breeding bird species registered have a limited distribution, inhabiting different types of mosaic habitats where they are relatively abundant. This makes them very sensitive to destruction of their habitat patches and makes the bird diversity of the region very vulnerable in the case of sudden landscape changes in the area.

The present study is the first research to be published using the point count technique (BIBBY *et al.* 1992 & 1998, BUCKLAND *et al.* 1993) and Distance software (THOMAS *et al.* 2003) in Bulgaria. It is also the only one showing quantitative data for the majority of the breeding avifauna in the Kresna gorge that could be used as a basis for tracking population trends in this Important Bird Area / IBA (KOSTADINOVA 1997) and the Tissata nature reserve. We view with apprehension any realization of the idea for enlargement of the highway along the Kresna gorge, since this will have negative effects on the most of the bird species, mainly those belonging to the third group regarding local conservation status (see Results). We would like to recommend quantitative studies on nocturnal birds as Corncrake, Nightjar and Owls that were not estimated during the present study and also on some passerines with high nature conservation status (HAGEMEIJER & BLAIR 1997, BIRDLIFE INTERNATIONAL 2004) and those with low frequency, such as Olive-tree Warbler, Sardinian Warbler and Masked Shrike for which special census methods have to be applied.

Acknowledgements: This study was carried out thanks to the financial support from The Bulgarian Society for the Protection of Birds / BirdLife Bulgaria.

We would like to thank Dr Ventsislav Delov, Atanas Grozdanov and Jordan Hristov for their participation in the data collection and Zoltan Waliczky for his guidance during the preparation of this paper.

Povzetek

Avtorja sta napravila oceno frekvence, gostote in številčnosti gnezdk v južnem delu soteske Kresna, JZ Bolgarija, in sicer na osnovi 218 štetij v 142 točkovnih transektih v gnezditvenem obdobju leta 2003. Popisala sta skupno 74 vrst, ki so na tem območju razširjene večinoma lokalno, a z visoko gostoto (90% vrst ima nizko frekvenco, 60% relativno visoko gostoto). Na podlagi podatkov sta ocenila tudi varstveni status območja. Najdena sta bila črnočeli srakoper *Lanius minor* in sršenar *Pernis apivorus*, ki prej nista bila znana kot gnezdilca rezervata Tissata. Med raziskavo pa ni bila odkrita rjasta kanja *Buteo rufinus*, ki je bila v tem območju znana iz prejšnjih raziskav. Dve vrsti številčno očitno upadata (slegur *Monticola saxatilis* in oljni vrtnik *Hippolais olivetorum*), tri pa se povečujejo (črnohlavi strnad *Emberiza melanocephala*, kotorna *Alectoris graeca* in puščavec *Monticola solitarius*).

References

- AKAIKE, H. (1973): Information theory and an extension of the maximum likelihood principle. pp. 267–281 In: PETRAN, B. & CSÁKAI, F. (eds.) International Symposium on Information Theory, 2nd edn. Akadémiai Kiadó, Budapest, Hungary.
- BALAT, F. (1962): Contribution to the knowledge of the avifauna of Bulgaria. – Prace Brn. Zak. Čav. 34 (10): 445 – 459.
- BAROV, B. (1999): Ecological characteristics of ornithocenosis, inhabiting xerothermous oak forests in the region of the Biala River, Eastern Rodopes. – Sofia Univ. “st. Kl. Ohridski”, Faculty of biology, Section “Ecology and environmental protection”, M. S. thesis. (in Bulgarian)
- BIBBY, C. J., BURGESS N.D. & HILL D.A. (1992): Bird Census Techniques. – Academic Press, London.
- BIBBY, C., JONES, M. & MARSDEN, S. (1998): Expedition Field Techniques. Bird Surveys. – Expedition Advisory Centre, London.
- BIRDLIFE INTERNATIONAL (2004): Birds in Europe: Population estimates, trends and conservation status. Cambridge. BirdLife Conservation Series No. 12. BirdLife International, Cambridge.
- BOEV, N. & PASPALEVA-ANDONOVA, M. (1964): [Contribution for the survey of the Black Stork (*Ciconia nigra* L.) in Bulgaria]. – News of the Inst. of zool. with museum 16: 5 – 16 (in Bulgarian).
- BONDEV, I. (1982): Fitogeographical regions in Bulgaria. pp. 443–451. In: Geography of Bulgaria, Vol 1. Physical geography. – BAS, Sofia.
- BONDEV, I. (1991): The vegetation of Bulgaria. Map 1 : 600 000 with explanatory text. – St Kliment Ohridski University Press, Sofia.
- BONDEV, I. (1997): Geobotanical zoning. pp. 238–304 In: Geography of Bulgaria, Vol. 1. Physical geography. – BAS, Sofia.
- BORISOV, Z. & MIHAILOV, Tz. (1965): Along the Sruma River. – Science and art, Sofia.
- BUCKLAND, S.T. (1987): On the variable circular plot method of estimating density. – Biometrika 43: 363–384.
- BUCKLAND, S.T., ANDERSON, D.R., BURNHAM, K.P. & LAKE, J.L. (1993): Distance Sampling: Estimating abundance of biological populations. – Chapman & Hall, London.
- DIMITROV, D. (1966): Climatic division of Bulgaria. pp. 262–293 In: Geography of Bulgaria, Vol 1. – BAS, Sofia. (in Bulgarian)
- DJAKOV, J. (1971): About identifying bird species abundance according to their frequency. – Scientific Conference, Smolensk: 301–308.
- GEORGIEV, V. (1982): Zoogeographical regions on the basis of the terrestrial fauna. pp. 472–477 In: Geography of Bulgaria, Vol 1. – BAS, Sofia. (in Bulgarian)
- GEORGIEV, V. (2002): Zoogeographic regioning. p.p 373–375, In: KOPRALEV, I. (ed.) Geography of Bulgaria. – ForCom, Sofia. (in Bulgarian)
- GEORGIEV, V. & SIMEONOV, S. (1992): [Zoogeographical characteristic of the breeding birds in Bulgaria] – Annual of Sofia Univ. “St. Kliment Ohridski”, Faculty of Biology, Book 1 – Zoology, 80: 200–210. (in Bulgarian)
- HAGEMEIJER, E. & BLAIR, M. eds. (1997): The EBCC Atlas of European Breeding Birds: Their Distribution and Abundance. – T & A D Poyser, London.
- HUBENOV, Z. (2001): Physicogeographical characteristic of Kresna Gorge (SW Bulgaria). pp. 7–22. In: BERON, P. (ed.): Biodiversity of Kresna Gorge (SW Bulgaria). – National Museum of Natural History, Sofia. (in Bulgarian)
- KOSTADINOVA, I. (1997): Important bird areas in Bulgaria. – BSPB, Conservation Series – Book 1, Sofia. (in Bulgarian)
- KOUZMANOV, G., TODOROV, R. & STOYANOV G. (1995): Information sur la repartition et la situation des rapaces nocturnes en Bulgarie. Newsletter of the World Working Group on Birds of Prey and Owls (WWGBP) 21/22: 14–17.
- MICHEV, T. (1968): About the distribution and breeding biology of the Egyptian Vulture (*Neophron percnopterus* L.) in Bulgaria. – Bull. of the Inst. of zool. with museum 27: 65–79. (in Bulgarian)
- MICHEV, T. & PETROV, Tz. (1985): Distribution and number of the Saker Falcon, *Falco cherrug* Gray, 1834 in Bulgaria. – International symposium “Protection of natural areas and the genetic fund they contain”. Project No. 8 on the programme “Man And Biosphere” (MAB) of UNESCO, Collection of reports, BAS, Sofia. (in Bulgarian)
- MICHEV, T., PETROV, Tz., PROFIROV, L. & SPIRIDONOV, J. (1986): Contribution for the distribution and number of the Raven (*Corvus corax* (L.) in Bulgaria between 1950 and 1984. – Ecology 19: 27–35. (in Bulgarian)

- MICHEV, T., PETROV, Tz., PROFIROV, L. & GAVRAILOV, S. (1988): Distribution and nature defensive status of the Golden Eagle *Aquila chrysaetos* (L.), 1758 in Bulgaria. – Bull. of the museums of south Bulgaria 15: 79–87. (in Bulgarian)
- MILCHEV, B. (1991): Ornithocenological study in the Strandja mountains in Bulgaria. – Sofia University “St. Kl. Ohridski”, Faculty of biology, Section of zoology and antropology, dissertation. (in Bulgarian)
- NANEV, K. (1988): [About the number of some mediterranean bird species in the south part of Kresna Gorge]. – Orn. Inf. Bull. 23/24: 106–108 (in Bulgarian)
- NANKINOV, D. (1982): Ecological review of the birds of “Kastrakli” Natural reserve and Trigradsko – Yagodinski region of the Rodopes. – Ecology 10: 22–34.
- NANKINOV, D. (1997): Composition of the avifauna of the Sylver Pine ecosystems. – Forest science 3/4: 84–95.
- NANKINOV, D. N. (2001): About the first and following observations of the Masked shrike (*Lanius nubicus* Lichtenstein) in Bulgaria. V: Geoecological and bioecological problems of the North Black Sea Coast. Proceeding of International Conference. Tiraspol, March 28–30, 2001. – EPD DSU – ECODNIESTER, Tiraspol.
- NIKOLOV, S. & VASSILEV, V. (2004): Census of breeding birds in the Ponor Mountains, western Bulgaria. – Bird Census News 16(2), *in print*.
- OBUCH, J. & BENDA, P. (1996): Contribution to the feeding ecology of *Strix aluco* and *Bubo bubo* (Aves: strigiformes) in southwestern Bulgaria. – Acta Soc. Zool. Bohem. 60 (1): 43–49.
- PATEFF, P. (1938): Die geographische Verreitung der Vögel in Bulgarien. – IX Congres ornith. intern. Rouen 1983: 257–283.
- PETROV, T. & MICHEV, T. (1986): Upon defining the nature protective status of birds according to their frequency and abundance. – Bull. of the museums of South Bulgaria 12: 43–48.
- SANDANSKI, B. (1978): The Kresna Gorge. – Medicine & Sports, Sofia.
- SICHANOV, D. (2002): Ornithocenological analysis of some habitats with conservational importance in the Rilski Monastery Natural Park. – Sofia Univ. “St. Kl. Ohridski”, Faculty of biology, Section “Ecology and environmental protection”, M.S. thesis. (in Bulgarian)
- SIMEONOV S. (1970A): Über Verbreitung mediterraner Vogelarten in Bulgarien. – Die Vogelwelt 2: 59–67.
- SIMEONOV S. (1970B): Study of breeding avifauna in pseudomaquis plant communities in the Pirin Mountains. – Annual of Sofia Univ. “St. Kl. Ohridski”, Faculty of biology, Book 1 – Zoology, 63: 15–26.
- SIMEONOV, S. (1971): Ornithocenological research in Pirin Mountains. – Sofia University “St. Kl. Ohridski”, Faculty of biology, dissertation. (in Bulgarian)
- SIMEONOV, S. (1986): The birds of Pirin Mountains. pp. 7 – 22 In: Fauna of southwest Bulgaria, Vol 2. – BAS, Sofia. (in Bulgarian)
- SIMEONOV, S. & MICHEV, T. (1980): Investigation of the distribution and number of the Red-rumped Swallow *Hirundo daurica rufula* (Temminck) in Bulgaria. – Ecology 7: 84–93. (in Bulgarian)
- SIMEONOV, S. & MICHEV, T. (1985): On the present distribution and abundance of the Eagle Owl (*Bubo bubo* (L.) in Bulgaria. – Ecology 15: 60–65. (in Bulgarian)
- SPIRIDONOV Z. (1997): Tissata. pp. 49–50 V: KOSTADINOVA, I. (ed.): Important Bird areas in Bulgaria, Conservation Series of BSPB, Vol 1. – BSPB, Sofia.
- SPIRIDONOV, Z. & SIMEONOV, P. (1988): Studies on the nesting ornithofauna of the “Tisata” reserve. pp. 23–29 In: Fauna of Southwestern Bulgaria, Vol 2. – BAS, Sofia. (in Bulgarian)
- STANEV, S. (1991): Climatic zones and areas in Bulgaria. pp. 53– 9 In: The climate of Bulgaria. – BAS, Sofia.
- STOYANOV, N. (1966): Vegetation cover. pp. 445–482 In: Geography of Bulgaria, Vol 1. Physical geography. – BAS, Sofia.
- STOYANOV, G. (2001): Die Maskengrasmücke – eine neue Art für die bulgarische Ornithofauna. – Orn. Mitt. 53 (10): 336–338.
- STOYANOV, G., KOTSAKOV, G., TODOROV N. & BOJILOV, V. (2001): Species composition, occurrence and conservation status of the ornithofauna in Kresna Gorge (SW Bulgaria). pp. 305–323. In: BERON, P. (ed.): Biodiversity of Kresna Gorge (SW Bulgaria). – National Museum of Natural History, Sofia. (in Bulgarian)
- STOYANOV, D., PETROVA, S., PETROVA, L. & KOVATCHEV, A. (2001): Flora and vegetation of Kresna Gorge (SW Bulgaria). pp. 23–30 In: BERON, P. (ed.): Biodiversity of Kresna Gorge (SW Bulgaria). – National Museum of Natural History, Sofia. (in Bulgarian)
- THOMAS, L., LAAKE, J.L., STRINDBERG, S., MARQUES, F.F.C., BUCKLAND, S.T., BORCHERS, D.L., ANDERSON, D.R., BURNHAM, K.P., HEDLEY, S.L., POLLARD, J.H. & BISHOP, J.R.B. (2003): Distance 4.1. Release “2”. Research Unit for Wildlife Population Assessment, University of St. Andrews, UK. <http://www.ruwpa.st-and.ac.uk/distance/>
- VATEV, I. (1981): [Rare birds in Kresna Gorge] . – Nature protection 7: 14–15. (in Bulgarian)
- VATEV, I. & SIMEONOV, P. (1978): [Notes for some birds found in the south part of Kresna Gorge]. – Orn. Inf. Bull. 4: 15–20. (in Bulgarian)
- VATEV, I., SIMEONOV P., MICHEV, T. & IVANOV, B. (1980): The Masked shrike (*Lanius nubicus* Lichtenstein) – a breeding species in Bulgaria. – Acta zool. bulg. 15: 115 – 118. (in Bulgarian)
- VELCHEV, V. (1982): Mediterranean vegetation. Vegetation zones. pp. 434–439 In: Geography of Bulgaria, Vol. 1. Physical geography. – BAS, Sofia. (in Bulgarian)
- VELCHEV, V. & BONDEV, I. (1982): Xerothermous oak forests belth. pp. 439–440 In: Geography of Bulgaria, Vol. 1. Physical geography. – BAS, Sofia. (in Bulgarian)
- VELCHEV, V. & TONKOV, S. (1986): Vegetation and flora of Southwestern Bulgaria. pp. 20–43 In: Fauna of Southwestern Bulgaria, Vol 1. – BAS, Sofia.

Prispelo / Arrived: 22.12.2004

Sprejeto / Accepted: 19.9.2005

A NEW BREEDING SITE OF THE ROOK *Corvus frugilegus* IN SOUTH–EASTERN ANATOLIA (TURKEY)

Novo gnezdišče poljske vrane *Corvus frugilegus* v JV Anatoliji (Turčija)

RECEP KARAKAŞ

University of Dicle, Science & Art Faculty, Department of Biology, 21280 Diyarbakır, Turkey,
e-mail: rkarakas@dicle.edu.tr

1. Introduction

The Rook *Corvus frugilegus* is known as a breeding bird in some parts of Turkey, commonly in the east of the country and also in central Anatolia and Thrace (KASPAREK 1989). It is chiefly resident in Turkey, though some birds from north and inner Anatolia probably migrate to the south of the country, especially in colder winters, and gather into large groups (for example, thousands of individuals could be seen in Nizip, Halfeti, Şanlıurfa, Viranşehir, etc. during winter season according to my personal observations from 2000 onwards). The share of the immigration from other areas outside Turkey to this area is not known. south-eastern Anatolia has steppe vegetation but the use of steppe for arable farming, that is not a suitable habitat for breeding of Rook, is increasing. According to the available literature, there are no breeding records for the Rook from the south-east of Turkey (e.g. BEAMAN 1986, MARTINS 1989, EAMES 1990, AYVAZ 1993, KIRWAN & MARTINS 1994, BIRICIK 1996, KIRWAN & MARTINS 2000, KARAKAŞ & KILIÇ 2002, KIRWAN *et al.* 2003). The Rook has not been known to breed in south-eastern Anatolia, which was originally a steppe region, probably due to the region's greater aridity and extremely hot summers which give too short a period for breeding (KASPAREK 1989). KASPAREK & BILGIN (1996) did not include south-eastern Anatolia in the distribution area of the species.

2. Study Area and Methods

Between 2002 and 2004 a breeding colony of Rook was found at Çöltepe, which is located 65 km east of Diyarbakır, in the Bismil district and Batman province (Figure 1). The area is a large plain with a dry and irrigated agricultural area with grain, tobacco and cotton crops. The colony is situated on trees in the garden of the railway station, which is located parallel to the Bismil – Batman main road (at the 20th km) at the north side, in the Çöltepe Village (UTM: 37S 658943 E / 4190687 N).

Ornithological trips to the Hasankeyf region were conducted from October 2002 to July 2004, regularly once a week, within the scope of an avifaunistic research project. During the project, observations were made of differing duration and using standard ornithological equipment and identification methodology (HARRISON 1975, HEINZEL *ET AL* 1998 & MULLARNEY *et al* 1999).

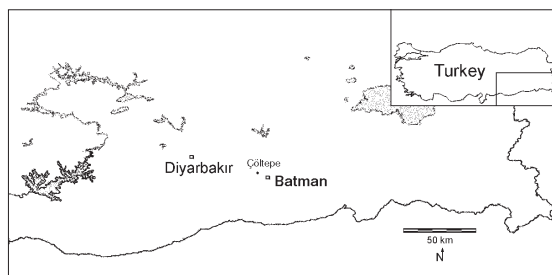


Figure 1: Location of the breeding site in south-eastern Anatolia

Slika 1: Položaj gnezdišča v jugovzhodni Anatoliji Turčije

3. Results and Discussion

There were 29 occupied nests on two trees – a Honey Locust *Gleditsia triacanthos* and a White Mulberry *Morus alba*. Most of the nests (26) were built on the Honey Locust tree. The nests were constructed on high branches in rather isolated groups. The apparently well-built nests consisted mainly of branches and twigs and were as large as 50 – 60 centimetres in diameter, and in the shape of a hemisphere. Both pasture and agricultural areas were used for feeding. Also, the road was frequently visited for feeding on insects, birds, and small mammals killed by traffic. This feeding behaviour (collecting on roads) has been already described (CRAMP 1998). The main feeding grounds were the fields between Batman and Bismil. There are some seasonal scattered pools in the area that Rooks also visited. During the winter period

they use these areas together with Jackdaws *Corvus monedula*, in large groups, until the end of March. We noted that, during the breeding season, Rooks do not go over the mountain pass between Batman and Hasankeyf. Jackdaws also do not pass to the west of the mountain pass during the breeding season. The numbers of breeding Rooks remained constant over the two years. Non-breeding birds formed 15 – 35% of the population. The total number of birds was around 100. Breeding started in mid April. On 28 June 2003, young individuals were observed in a group, with adults, on the ground of pasture area near Çöltepe village. Young individuals were determined by a white fleck at the back of the bill and dark brownish feathers, and were also smaller than adults. The same colony was observed in the study area during 2004.

KASPAREK (1989), in his study, noted 60 – 65 known breeding sites of Rook in Turkey but did not mention any from south-eastern Anatolia. The breeding areas, eastern Anatolia, central Anatolia and Thrace, are isolated from one another. Turkey's Rook population is virtually restricted to steppe and open cultivated valleys. The assumed population size in Turkey is 10.000 – 50.000 pairs (KASPAREK & BILGIN 1996, CRAMP 1998). Due to the climatic changes that occur in south-eastern Turkey, suitable habitats and conditions for this species are appearing.

The region is undergoing climatic changes as a result of the developing South-east Anatolia Project (GAP) which is increasing the percentage of land under water. As a result, many parts of the steppe areas have been converted to arable land by irrigation, which presumably affects climate. There may thus be a relation between climatic change and breeding of the Rook in the region.

The population size of Rook has decreased in parts of central Europe due to changing land-use and agricultural methods, including use of pesticides and probably other factors such as climate and food availability, that are capable of affecting the breeding success of the species (CRAMP 1998).

Acknowledgements: This work is a part of a research study supported by the Research Fund of Dicle – University (DÜAPK-02-FF-24).

Summary

The Rook *Corvus frugilegus* is known as a breeding species in Turkey, but the breeding area is not completely defined. The first known breeding site in south-eastern Anatolia is described in this paper and is situated at Çöltepe (UTM: 37S 658943 E / 4190687

N) near the city of Batman. The nests were located colonially on two trees. The size of colony was about 50 pairs (100 individuals). Some individuals were breeding (29 pairs) while others were non-breeding (approx. 15 – 35% of the population). A hypothesis is put forward that, due to climatic changes that are occurring in south-eastern Turkey, arising from the South-east Anatolia Project (GAP), suitable habitats and conditions are being created that account for the initiation of breeding of this species in the region.

Povzetek

Poljska vrana *Corvus frugilegus* je gnezdilka Turčije, vendar njen areal ni popolnoma znan. Avtor opisuje prvo gnezdišče v JV Anatoliji blizu mesta Batman (UTM: 37S 658943 E / 4190687 N). Gnezdišče je bilo odkrito na dveh drevesih, kjer vrane gnezdiijo kolonijsko. Velikost kolonije je bila približno 50 parov (100 osebkov). Gneznilo je 29 parov, približno 15 – 35% opaženih ptic pa v koloniji ni gneznilo. Avtor je predstavil hipotezo, po kateri naj bi zaradi klimatskih sprememb v tem delu Turčije, nastalih zaradi namakanja obsežnih površin, nastale ustrezne razmere za gnezdenje poljske vrane.

References

- AYVAZ, Y. (1993): The Birds of Elazığ Region. – Doğa – Tr. J. Zool. 17: 1–10.
- BEAMAN, M. (1986): Turkey Bird Report 1976 – 81. – Sandgrouse 8:1–41.
- BIRİCİK, M. (1996): Birds of Kabaklı Reservoir, Diyarbakır. – Tr. J. Zool. 20: 155–160.
- CRAMP, S. (1998): The Complete Birds of the Western Palearctic, on CD – ROM. – Oxford University Press, Oxford.
- EAMES, J. (1990): Selected bird observations from Turkey: Spring and Summer 1987. – OSME Bulletin 23: 6–13.
- HARRISON, C. (1975): Jungvögel Eier und Nester aller Vögel Europas, Nordafrikas und des Mittleren Ostens. – Verlag Paul Parey, Hamburg & Berlin.
- HEINZEL, H., S. R. FITTER & J. PARSLow (1998): Birds of Britain & Europe, with North Africa & The Middle East. – Harper Collins Publishers, London.
- KARAKAŞ, R. & KILIÇ A. (2002): Birds of Göksu Dam (Diyarbakır) and new records in south-east Turkey. – Sandgrouse 24 (1): 38–43.
- KASPAREK, M. (1989) Breeding Distribution of the Rook (*Corvus frugilegus*) in Turkey. – Sandgrouse 11: 89–95.
- KASPAREK, M. & BILGIN C.C. (1996): Kuşlar (Aves). – In: KENCE, A. & BILGIN C.C. (eds.), Türkiye Omurgalıları Tür Listesi. – TÜBİTAK, Ankara.
- KIRWAN, G.M. & MARTINS R.P. (1994): Turkey Bird Report 1987 – 91. – Sandgrouse 16: 76–117.

- KIRWAN, G.M. & MARTINS R.P. (2000): Turkey Bird Report 1992 – 1996. – Sandgrouse 22: 13–35.
- KIRWAN, G.M., ÖZEN M., KURT B. & MARTINS R.P. (2003): Turkey Bird Report 1997 – 2001. – Sandgrouse 25: 8–31.
- R.P. MARTINS, (1989): Turkey Bird Report 1982 – 86. – Sandgrouse 11: 1–41.
- MULLARNEY, K., L.SVENSSON, P.J. GRANT & D.ZETTERSTRÖM. (1999): Collins Bird Guide. – HarperCollins, London.

Prispelo / Arrived: 20.4.2005

Sprejeto / Accepted: 19.9.2005

SIZE AND DISTRIBUTION OF BREEDING COLONIES OF GREY HERON *Ardea cinerea* IN LOWLAND CROATIA

Velikost in razporeditev kolonij sive čaplje *Ardea cinerea* v nižinskih delih Hrvatske

JOZSEF MIKUSKA¹, TOMISLAV BOGDANOVIĆ¹, TIBOR MIKUSKA², ALMA MIKUSKA¹, VLATKA ŠALIĆ¹

¹ Department of Biology, University of Osijek, Lj. Gaja 6, HR-31000 Osijek, Croatia

² Kopački rit Nature Park Management Office, Ul. Petefi Sandora 33, HR-31327 Bilje, Croatia,
e-mail: tmikuska@kopacki-rit.com

1. Introduction

Grey Heron *Ardea cinerea* is the most abundant of the nine species of the Heron family Ardeidae recorded in Croatia (MIKUSKA 1992, KRALJ 1997, LUKAČ 1998). The first national census was carried out in 1991, when 1529 pairs were counted in eight colonies (MIKUSKA 1992). This survey was continued throughout the decade and resulted in the discovery of new colonies, with consequent increase in the national population (MIKUSKA *et al.* 1994, DOLENEC 1997, MIKUSKA & MIKUSKA *unpubl.*). At the beginning of the 21st century the population was estimated at 1500 – 3000 pairs, which was the second largest of the neighbouring central European countries (Hungary 2500 – 3500, Serbia & Montenegro 2200 – 2500, Slovenia 500 – 600, Bosnia & Herzegovina 7 – 10 pairs; BIRDLIFE INTERNATIONAL 2004).

2. Methods

During 2004 we attempted to visit all the known colonies and count the breeding pairs, in order to establish the total national breeding population. Data on Grey Heron colony locations were obtained through communication with other ornithologists and our previous fieldwork. The research area was limited to the lowland areas (below 300 m a.s.l.) of Pannonian and continental Croatia bordered by the rivers Drava on the north, Danube on the east and Kupa and Sava on the south. Of the 22 recently identified Grey Heron breeding sites, we failed to census three smaller colonies that are distributed in the continental part of Croatia south of our research area: at Cvijanović Brdo near Slunj (with 15 pairs in 1998), near Milići village on the Kupa river (with 12 pairs during 1990) and one possible colony in Plitvička jezera national park (LUKAČ 2004).

Most censuses were made during the early breeding season in late March and early April and the numbers

of Apparently Occupied Nests were counted (BIBBY *et al.* 1992). At that time, most herons are incubating or their chicks are just hatching, so that the number of nests correlates with the number of breeding pairs (BIBBY *et al.* 1992). One or two observers entered each colony, and nests on the trees were counted from the ground with the help of binoculars. Since these colonies are built on hardwood trees (predominantly *Quercus robur* or *Fraxinus* sp.) and 20 – 30 metres high, the observer's view of the nests was not obstructed by leaves. From our experience, carrying out a census later in the season would give ambiguous results due to leaf cover on trees that would obstruct the view of nests. Slow and quiet movement through the colony did not create much disturbance to breeding birds who returned to the nest immediately after the observer had left the vicinity of the occupied tree. It took approximately half an hour to count a site holding up to 200 nests, and, even in the case of the largest colonies, the whole census took less than a 1.5 hour per site.

In a few cases, namely colonies at fishponds Donji Miholjac, Grudnjak and Našička Breznica, counts were made later in the season (June), during the execution of a ringing programme. These colonies are built on willow bushes *Salix* sp. and reedbeds *Phragmites communis* and several heron species breed there. For these reasons we avoided entering the colonies during the incubation period of late nesting species – such as Little Egret *Egretta garzetta*, Night Heron *Nycticorax nycticorax*, Great Egret *Ardea alba* and Purple Heron *A. purpurea* – in order to prevent unnecessary disturbance and possible nesting failure of breeding birds. During the census, observers walked through the colony and counted each nest with hatched chicks. At this time it was easy to distinguish between the Grey Heron nests with large or already fledged chicks and similar – sized nests of other heron species, namely Great Egrets and Purple Herons, which had eggs or up to two – week old chicks. The colony at Košutarica was also censused

later in the season because it was not accessible, due to exceptionally high flooding in March and April.

3. Results and discussion

During 2004 we recorded 3674 nests of Grey Herons in 19 colonies (Table 1). The number suggests that the Croatian national breeding population is currently higher than the latest estimates and that the breeding population threshold should be set to 3000 – 4000 pairs. This result is in accordance with the overall trend of the European population, which is stable or increasing (BIRDLIFE INTERNATIONAL 2004). Despite the fact that we lack recent population values for neighbouring countries, our data suggest that Croatia has the largest proportion of breeding Grey Herons in the Pannonian plain.

Given the lack of previous records, we cannot exclude the possibility that a few additional colonies remain

to be discovered along the Drava River, as well as along the Sava river floodplain east of Slavonski Brod. However, breeding of Grey Herons in the mountainous or Mediterranean parts is unlikely. The only mixed species heron colony in the Mediterranean region is situated on Vransko lake near Biograd, but Grey Herons are not breeding there (V. DUMBOVIĆ – RUŽIĆ *pers. comm.*). Further, heron colonies in the delta of the Neretva River have not existed since the seventies of the 20th century (RUCNER (1970), D. KITONIĆ *pers. comm.*).

The colonies are distributed primarily in lowland Croatia bordered by the floodplains of large rivers – Danube, Drava, Sava and Kupa (Figure 1). Based on colony size we can distinguish three categories:

1. Large colonies comprising over 200 pairs (Kopački rit – Čošak šume, Mrsunjski lug, Berek, Piljenice and Košutarica) – these are situated along the large

Table 1: Breeding of Grey Herons *Ardea cinerea* in lowland Croatia during 2004

Tabela 1: Gnezdenje sive čaplje *Ardea cinerea* v nižinski Hrvaški leta 2004

Colonies on hardwood trees, nests 20 – 30 m above the ground/ Kolonije na listavcih, gnezda 20 – 30 m nad tlemi				
	Locality / Lokaliteta	UTM	Date / Datum	No. of nests / Št. gnezd
1	Berek	XL46	07.04.	412
2	Čepin	CR14	05.04.	29
3	Črnc	WL91	01.04.	155
4	Jastrebarsko	WL56	01.04.	168
5	Kopački rit - Čošak šume	CR35	04.04.	885
6	Košutarica	XL51	09.06.	243
7	Kravarso	WL84	01.04.	89
8	Mokrice	WL69	07.04.	41
9	Mrsunjski Lug	YL20	29.04.	479
10	Piljenice	XL43	28.03.	383
11	Razljev	XL25	01.04.	130
12	Slovinci	XL21	01.04.	165
13	Topusko	WL71	01.04.	26
14	Trebovec	XL06	01.04.	157
15	Vrpolje	BR91	07.04.	27
16	Veliki Strug 2	XL60	during April 2004	37
Colonies on willows <i>Salix</i> sp. and reedbeds, nests up to 5 m above the ground/ Kolonije na vrbah <i>Salix</i> sp. in trstju, gnezda do 5 m nad tlemi				
17	Donji Miholjac fishpond	BR77	16.06.	30
18	Grudnjak fishpond	YL35	08.06.	83
19	Našička Breznica fishpond	BR84	02.06.	135
Total / Skupno				3674

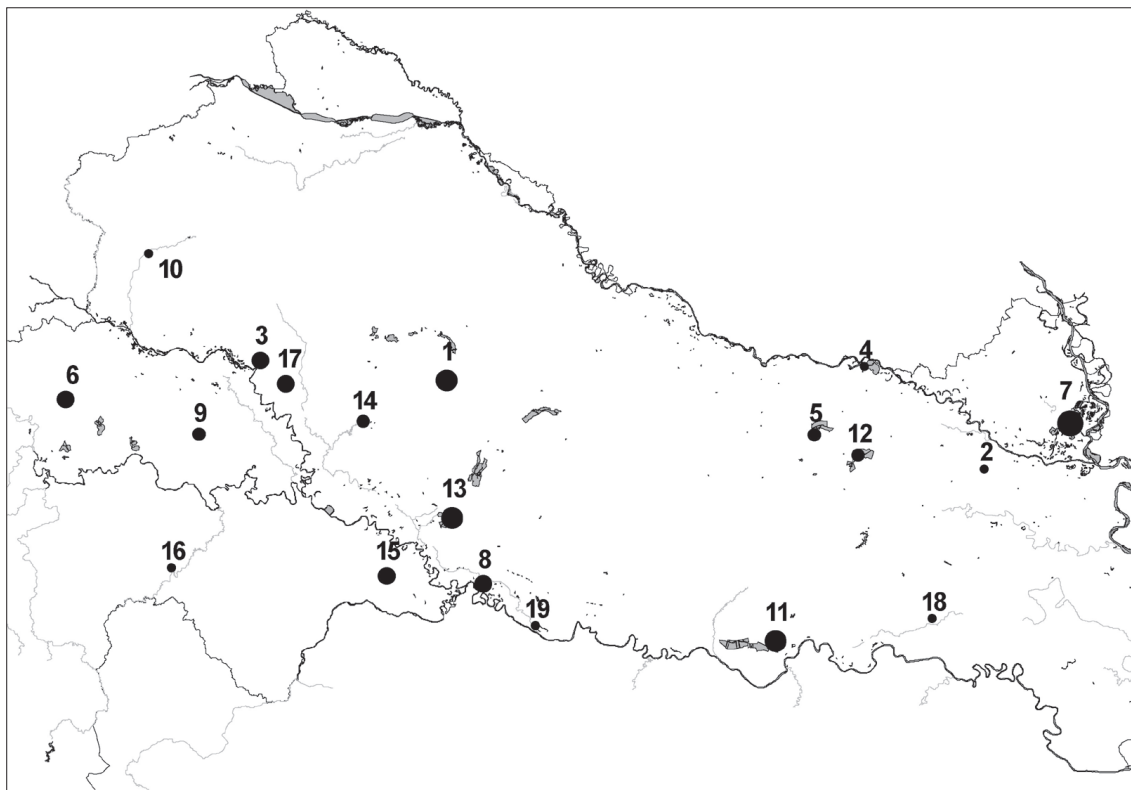


Figure 1: The location of the colonies of Grey Heron *Ardea cinerea* in lowland Croatia in 2004: 1) Berek, 2) Čepin, 3) Črnc, 4) Donji Mihaljac fishponds, 5) Grudnjak fishponds, 6) Jastrebarsko, 7) Kopački rit – Čošak šume, 8) Košutarica, 9) Kravarsko, 10) Mokrice, 11) Mersunjski lug, 12) Našička Breznica fishponds, 13) Piljenice, 14) Razljev, 15) Slovinci, 16) Topusko, 17) Trebovec, 18) Vrpolje, 19) Veliki Strug 2

Slika 1: Kolonije sive čaplje *Ardea cinerea* v nižinski Hrvatski leta 2004

areas of the remaining floodplains of the Danube and Sava rivers. Commercial fishponds that were built on former wetlands (Podunavlje fishponds at Kopački rit, Jelas fishponds near Mersunjski lug, and Lipovljani fishponds near Piljenice) have helped to sustain these colonies, or even increase the number of breeding pairs after part of the wetland was drained and converted to agricultural land. For example, the number of breeding pairs in Kopački rit – Čošak šume increased from 400 during 1991 to over 1000 pairs during 2002. This increase is probably related to the abandoning of fish production on a large 200 ha pond that resulted in decrease in the water level, making a larger area suitable for foraging. An exception to this rule is the colony at Berek, that is situated in a remote forested area, exactly halfway between two commercial fishponds – Narta and Končanica – from where herons make daily foraging flights.

2. Medium sized colonies comprising 50 – 200 pairs – these are situated along the remaining, but much smaller, floodplain areas along the Sava and Kupa rivers (e.g. Črnc, Trebovec, Razljev and Slovinci along Sava, as well as Kravarsko along the Kupa) or are attached to one of the existing commercial fishponds (e.g. Grudnjak, Jastrebarsko or Našička Breznica). The size of the colonies on these fishponds is influenced by the disturbance accompanying the execution of Cormorant culling programmes (mainly by shooting throughout the year) or by water and vegetation management (e.g. the pond with a colony at Grudnjak fishponds was drained and burnt during 2004).
3. Small colonies comprising less than 50 pairs – these are situated at the edge of the Croatian breeding population and in less suitable habitats without larger wetlands (Mokrice in Zagorje or Topusko in the hilly part of the Croatia). As a curiosity, colonies

at Čepin and Vrpolje are situated near large pig – farms. The wetland areas along these colonies are limited to several large melioration ditches, suggesting that the birds take advantage of the large rodent populations that are common at these sites rather than feeding on the aquatic food source. However, further studies are needed to explore this hypothesis.

Summary

Grey Heron *Ardea cinerea* is the most abundant heron species in Croatia, with an estimated population of 1500 – 3000 pairs. We conducted a survey of existing colonies during the 2004 breeding season and counted 3674 pairs in 19 colonies. Based on this data the Grey Heron breeding population thresholds should be increased and set to 3000 – 4000 pairs. The colonies are distributed primarily along the remaining floodplains of the Danube, Drava, Sava and Kupa rivers as well as on commercial cyprinid fishponds.

Povzetek

Siva čaplja *Ardea cinerea* je najštevilčnejša med vsemi vrstami čapelj na Hrvaškem, saj je bila populacija ocenjena na 1500 do 3000 parov. Avtorji so napravili pregled obstoječih kolonij v gnezdilni sezoni leta 2004 in našli 3674 parov v 19 kolonijah. Na osnovi teh podatkov pa se je ocena populacije te vrste povečala na 3000 – 4000 parov. Kolonije so bile razporejene predvsem na poplavnih ravninah Donave, Drave, Save in Kolpe ter na ribnikih s krapovci.

References

- BIBBY, C.J., BURGESS, N.D. & HILL, D.A. (1992): Bird Census Techniques. – Academic Press Ltd., London.
- BIRDLIFE INTERNATIONAL (2004): Birds in Europe: Population estimates, trends and conservation status. – BirdLife International, Cambridge.
- DOLENEC, Z. (1997): Grey Heron (*Ardea cinerea* L.), new breeding species of Hrvatsko Zagorje. – *Larus* 46: 128.
- KRALJ, J. (1997): Croatian ornithofauna in the last 200 years. – *Larus* 46: 1–112.
- LUKAČ, G. (1998): List of Croatian Birds. Spatial and temporal distribution. – *Natura Croatica* Vol. 7, Suppl. 3: 1–60.
- LUKAČ, G. (2004): Ptice nacionalnog parka Plitvička jezera. – *Plitvički bilten* 6: 29–70.
- MIKUSKA, T. (1992): Gniježđenje čaplji (Ardeidae) u Hrvatskoj. – Diplomski rad – Prirodoslovno – matematički fakultet Sveučilišta u Zagrebu, Zagreb.

MIKUSKA, T., MIKUSKA, J. & ŠETINA, M. (1994): Stanje čaplji (Ardeidae) u Hrvatskoj u periodu 1990 – 1993. – Zbornik sažetaka priopćenja Petog kongresa biologa Hrvatske, pp. 379–380. Hrvatsko biološko društvo, Zagreb.

RUCNER, D. (1970): Nadopuna poznavanju ptica doline Neretve III. – *Larus* 21/22: 99–114.

Prispelo / Arrived: 24.3.2005

Sprejeto / Accepted: 19.9.2005

THE PRESENCE OF THE DALMATIAN PELICAN *Pelecanus crispus* ON ULCINJ SALTPANS (MONTENEGRO)

Pojavljanje kodrastega pelikana *Pelecanus crispus* v Ulcinjskih solinah (Črna gora)

DARKO SAVELJIĆ¹ & BORUT RUBINIĆ²

¹ National Institute for Nature Conservation, Trg Bećir bega Osmanagića 16, P.O. Box 2, 81000 Podgorica, Montenegro, e-mail: dasav@cg.yu

² DOPPS-BirdLife International, P.O. box 2990, SI-1001 Ljubljana, Slovenia, e-mail: borut.rubinic@dopps-drustvo.si

1. Introduction

Dalmatian Pelican *Pelecanus crispus* is classified as a globally threatened species by BirdLife International. It is also classified as vulnerable even though the population has increased due to active preservation, particularly at its largest colony of 500 pairs on Mikri Prespa lake in Greece (CRIVELLI *et al.* 2000, BIRDLIFE INTERNATIONAL 2001 & 2004A). The species' nesting population is local and confined to SE Europe, the Middle East and Central Asia. The world population of Dalmatian Pelican is estimated to be stabilised between 15,000 and 20,000 individuals. (BIRDLIFE INTERNATIONAL 2004B). Latest estimates of the nesting population are between 4031 and 5196 pairs (CRIVELLI *et al.* 2000, WETLANDS INTERNATIONAL 2002). Only about 15% of the population breeds in the Mediterranean region: 15 – 20 pairs in Albania, 7 – 11 pairs in Montenegro, 500 pairs in Greece and 120 pairs in Turkey (HOFFMAN *et al.* 1996, WETLANDS INTERNATIONAL 2002, BINO 2004, SAVELJIĆ *et al.* 2004). The Mediterranean population is however considered to be stable (PERENNOU *et al.* 2000).

The first comprehensive data on Dalmatian Pelicans in Montenegro date from the late 19th century (BRUSINA 1891) and further observations were made in the same period (FÜHRER 1894 & 1895, REISER & FÜHRER 1896). After a gap of more than 70 years, during which there was hardly any ornithological research on Montenegrin water bodies, intensive studies were begun in the 70s by Ondrej Vizi (VIZI 1975, 1979A, B, C, 1981A, B, 1991, 1995A, B & 2002). Nevertheless, he was occupied only with the Pelicans of the Skadar Lake. The Ulcinj coastal area thus remained ornithologically unresearched, with the exception of rare and sporadic visits (VASIĆ 1979, HAM 1986). Dalmatian Pelican is a protected species in Montenegro (VIZI 1982) and Skadar Lake is nowadays the species' only nesting area (SAVELJIĆ *et al.* 2004).

In this work, the literature and field data on the presence of Dalmatian Pelicans in Ulcinj salt pans and Zoganj Mud for the period between 1999 and 2004 are reviewed. The historical data are also presented.

2. Study Area and Methods

2.1 Study Area

The Ulcinj salt pans are one of the largest salt pans on the Adriatic coast. They are situated at the very SW end of Montenegro, east of the town of Ulcinj. Together with its surroundings, the Bojana / Buna river mouth complex, the Ulcinj salt pans are, ornithologically, one of the most important areas in Montenegro (PUZOVIĆ & GRUBAČ 2000). Its value is enhanced by the marshy habitats and the vicinity of the sea. It is a completely anthropogenically guided ecosystem, in which all factors significant for the birds are controlled by man. The area has no legal conservation status, but is classified as an IBA (Important Bird Area) by BirdLife International (HEATH & EVANS 2000).

The salt pans originated in the area of the former Zoganj Mud, a 25 km² marshy area with brackish water. The oldest salt pan basins were built between 1926 and 1934. From the mid 20th century they were gradually extended and in the beginning of the 1980s they were enlarged by 60% and today cover 14.5 km². Of the total area some 10 km² are currently active. The average depth of the pans' basins is 30 cm (GAZIVODA 1998).

2.2 Methods

Literature and field data from 1999 to 2004 have been used in this study. During our field research (1999 – 2004) we were visiting the salt pans at irregular intervals for one to three days per month. The fieldwork was carried out mostly during the whole day but, during

Table 1: Historical data on the presence of Dalmatian Pelican *Pelecanus crispus* at Ulcinj salt pans

Tabela 1: Historični podatki o pojavljanju kodrastega pelikana *Pelecanus crispus* v Ulcinjskih solinah

Date / Datum	No. individuals/ Št. osebkov	Behaviour/ Obnašanje	Locality / Lokaliteta	Source / Vir
1.02.1895	6	Swimming	Zogaj Mud	FÜHRER (1895)
29.03.1895	39 pairs	Nesting	Zogaj Mud	FÜHRER (1895)
1895	20 pairs	Nesting	Zogaj Mud	REISER & FÜHRER (1896)
24.07.1975	"few"		Salt pans	VASIĆ (1979)
15.07.1984	1	Resting	Salt pans	HAM (1986)
20.09.1998	1	Flying	Salt pans	SIMIĆ (2003)

the summer months, between 5.00 and 10.00h and from 17.00h until dawn.

3. Results and Discussion

The first data concerning the Dalmatian Pelicans from the Ulcinj salt pans date from the end of the 19th century (FÜHRER 1895). FÜHRER (1895) found 39 Pelican nests, mostly with one egg, in the area of the former Zogaj Mud during March 1894. Two years later more than 20 nesting pairs were found in the same area (REISER & FÜHRER 1896).

From 1924 until 1936 hydro-melioration works were carried out and part of the swamp was transformed into salt pans. There is no data in the literature covering the period from the end of the 19th century (REISER & FÜHRER 1896) to the late seventies (VASIĆ 1979), when, in July of 1975, a 'few' Dalmatian Pelicans were recorded. A further, single young Dalmatian Pelican was observed resting on one of the salt pan basins in 1984 (HAM 1986; Table 1).

The number of Dalmatian Pelicans recently observed in the Ulcinj salt pans has varied from 1 to 56 individuals. They were present mainly from August to February, during the non-breeding period (Figure 1). When feeding in the salt pans, they were observed exclusively in the basins with a salinity equal to that of the sea – around 3.8‰. Salt pans provide an ideal feeding place for ichthyophagic birds, due to the large, shallow water surface and to the fact that strong pumps (3000 lit/sec) bring large amounts of food, predominantly fish (A. HEGEDIŠ *pers. comm.*), from the sea into the salt pans (GAZIVODA 1998). This process starts from the first half of April and lasts until the middle of May. The 29 fish species observed in the salt pan basins (A. HEGEDIŠ *pers. comm.*) cannot survive later than the first half of June, when the water starts to warm up to over 40°C, with the salinity rising

above 12‰.

It is interesting that, in the period from April to June when salt pans are full of food, appearances of the Dalmatian Pelicans are least and the Pelicans were not observed to be actually feeding in the salt pans during this period. This is not the case with the other ichthyophagic species, such as Cormorant *Phalacrocorax carbo*, Pygmy Cormorant *Phalacrocorax pygmeus*, Grey Heron *Ardea cinerea*, and Little Egret *Egretta garzetta*, which are commonly observed feeding in salt pans at this time of year (*personal observations*). The Dalmatian Pelicans in Montenegro (Skadar lake) start nesting in the second half of February (VIZI 1975), and the period of hatching thus overlaps with the process of water inflow in the salt pans. During this period the Pelicans are not usually far from their colonies (VIZI 1975), explaining their absence from the salt pans, which are not the species' breeding site.

The largest numbers of pelicans in the Ulcinj salt pans have been observed in the postbreeding period, between August and November (Figure 1). These are presumably adult and semi – adult birds that have finished nesting in nearby breeding areas and are foraging in the vicinity of these areas. The nearest Dalmatian Pelican breeding area is Skadar Lake, some 40 km away, where the pelicans, with a break from 1993 to 2000, have been regularly observed to breed (SAVELJIĆ *et al.* 2004). Presumably, individuals from the same breeding area are commonly seen also in Velipoja lagunas, on the Albanian side of the Bojana/ Buna river mouth complex (T. BINO *pers. comm.*). The closest Albanian nesting area, Karavasta lagunas (up to 62 pairs; HEATH & EVANS 2000) lies about 110 km to the South. The origin of the birds seen in the Ulcinj salt pans should be investigated.

During the winter months Dalmatian Pelicans have been observed mainly in the empty basins, mostly resting. They were also seen in smaller numbers a few

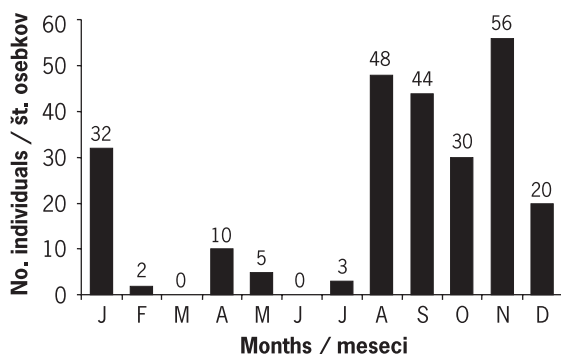


Figure 1: Maximum monthly counts of Dalmatian Pelicans *Pelecanus crispus* observed from 1999 to 2004 in Ulcinj salt pans (authors' data and from SIMIĆ 2003)

Slika 1: Maksimalno število osebkov kodratega pelikana *Pelecanus crispus* po posameznih mesecih med leti 1999 – 2004 v Ulcinjskih solinah (avtorjevi podatki in SIMIĆ 2003)

kilometres from Skadar Lake, at the river Drim delta, Albania (BEGO *et al.* 1998).

Ulcinj salt pans are an important post-breeding area which the Dalmatian Pelicans from the nearby colony at Skadar lake use frequently as a feeding and resting area between August and November. The importance of this area for Dalmatian Pelican, and for many other waterbirds, thus clearly indicates an urgent need for its legal protection. The need for efficient protection is even greater because of constant heavy pressure by local hunters.

Acknowledgements: We thank the EURONATUR research team, with whom we participated in the research on the Ulcinj coastal region during 2003: Dr Martin Schneider – Jacoby, Borut Štumberger, Jakob Smole and Dr Peter Sackl. Meto Zenka contributed to the observation of Dalmatian Pelican from 2002 onwards. We thank Aleksandar Hegediš for observations on fish in the salinas.

Summary

Before the melioration works were carried out, between 1924 and 1936, Dalmatian Pelicans *Pelecanus crispus* were nesting in the Zogaj Mud marshy area, the location of the present Ulcinj salt pans. In this large, marshy area 39 pairs of Dalmatian Pelican were recorded during the nesting period. Since REISER & FÜHRER (1896), there are no data on the birds until the mid-seventies, when “a few” Dalmatian Pelicans were recorded in the salt pan areas. During the last two decades of the 20th century only two records of

Pelicans' presence on the salt pans could be found. As a result of intensified research activity since 1999, significant data have been gathered on the presence of Pelicans on the salt pans. Between 1999 and 2004, Dalmatian Pelicans have been observed in the Ulcinj salt pans throughout the year. The largest numbers are present in the postbreeding period, when birds from the nearby Skadar lake colony are regularly resting and feeding in the salt pans. The area is important for resting and, to a lesser extent, for feeding of the species. Being an IBA and an area of regular presence for Dalmatian Pelican, as well as many other Annex 1 and SPEC 1, SPEC 2 species, and still under extreme hunting pressure, it is our firm belief that the Ulcinj salt pans are in urgent need of effective protection.

Povzetek

Pred melioracijskimi deli v letih 1924 in 1936 so kodrasti pelikani *Pelecanus crispus* gnezдили v močvirnem območju Zogaj, kjer se danes raztezajo Ulcinjske soline. Na tem velikem močvirnem območju je bilo prešteti 39 parov kodrastih pelikanov. Po REISER & FÜHRER (1896) ni podatkov o pticah tega območja vse do sredine 70 – ih let 20. stoletja, ko je bilo opaženih nekaj teh ptic. Iz zadnjih dveh dekad 20. stoletja pa obstajata le dva podatka o pojavljanju kodrastih pelikanov v obravnavanem območju. Pričujoče delo temelji na bolj intenzivnih raziskavah avifavne območja med letoma 1999 in 2004. Kodrasti pelikani so bili opazovani v Ulcinjskih solinah prek celega leta, največ v pognezditvenem obdobju, ko se ptice iz kolonije na Skadarskem jezeru hranijo in klatijo po solinah. Območje je pod hudim pritiskom lova, kljub temu da gre za IBA in se tu poleg pelikanov zadržuje že veliko drugih vrst glede na Annex 1, SPEC 1 in SPEC 2. Avtorja priporočata takojšnjo in učinkovito zaščito Ulcinjskih solin.

References

- BEGO, F., BINO, T & JORGO, G. (1998): Faunistic values of the delta of Drini. – Technical Report, Albania, Medwet.
- BINO, T. (2004): Action plan for the Dalmatian pelican in Albania. – Museum of Natural Sciences, Tirana.
- BIRDLIFE INTERNATIONAL (2001): Threatened birds of Asia: the BirdLife International Red Data Book. – BirdLife International, Cambridge.
- BIRDLIFE INTERNATIONAL (2004A): Threatened Birds of the World 2004. – CD-ROM, BirdLife International, Cambridge.
- BIRDLIFE INTERNATIONAL (2004B): Species factsheet: *Pelecanus crispus*. Downloaded from <http://www.birdlife.org> on 10/15/2004.

- BRUSINA, S. (1891): Beitrag zur Ornithologie von Cattaro und Montenegro. – Ornithol. Jahrb. 2 (1): 1–27.
- CRIVELLI, A., CATSADORAKIS, G., HATZILACOU, D., HULEA, D., MALAKOU, M., MARINOV, M., MICHEV, T., NAZIRIDES, D., PEJA, N., SARIGUL, G. & SIKI, M. (2000): Status and population development of Great White Pelican *Pelecanus onocrotalus* and Dalmatian Pelican *Pelecanus crispus* breeding in the Palearctic. – Monitoring and Conservation of Birds, Mammals and Sea Turtles of the Mediterranean and Black Sea, Proceedings of the 5th Medvaravis Symposium Gozo, Environment Protection Department Malta, Malta.
- GAZIVODA, L. (1998): Proizvodnja kuhinjske soli solarnim putem u Solani Bajo Sekulić. Okrugli sto – Pravci i prioriteti razvoja proizvodnje i prerade morske soli. – Solana "Bajo Sekulić", Ulcinj.
- FÜHRER, L. (1894): Jedna godina ornitološkog izučavanja u Crnoj Gori. – Glasnik Zemaljskog muzeja u Bosni i Hercegovini 6: 543–608.
- FÜHRER, L. (1895): Produžena posmatranja na ornitološkom polju u Crnoj Gori godine 1895. – Glasnik Zemaljskog muzeja u Bosni i Hercegovini 7: 241–258.
- HAM, I. (1986): Naselja ptica Ulcinjske solane u drugoj dekadi jula. – Larus 36/37: 125–142.
- HEATH, M.F. & M.I. EVANS, eds. (2000): Important Bird Areas in Europe, Priority sites for conservation, Volume 2: Southern Europe. – BirdLife Conservation Series No. 8., BirdLife International, Cambridge.
- HOFFMANN, L., HAFNER, H. & SALATHE, T. (1996): The Contribution of Colonial Waterbird Research to Wetland Conservation in the Mediterranean Region. In: Ecology, Conservation and Management of colonial waterbirds in the Mediterranean region. – Colonial Waterbirds (special publication) 19: 12–30.
- PERENNOU, C., SADOUL, N., PINEAU, O., JOHNSON, A. & HAFNER, H. (2000): Management of nest sites for colonial waterbirds. – Conservation of Mediterranean Wetlands, 4. Tour du Valat, Arles.
- PUZOVIĆ, S. & GRUBAČ, B. (2000): Federal Republic of Yugoslavia. pp. 725–745 In: HEATH, M.F. & EVANS, M.I. (eds.): Important Bird Areas in Europe: Priority sites for conservation. 2: Southern Europe. – Birdlife International, Cambridge.
- REISER, O. & FÜHRER, L. (1896): Materialien zu einer Ornithologie der Balcanica. IV Montenegro. – Bosnisch Hercegovinischen Landesmuseum in Sarajevo, Carl Gerold's Sohn, Wien.
- SAVELJIĆ, D., RUBINIĆ, B., SCHNEIDER –JACOBY, M. & VIZI, O. (2004): Breeding of Dalmatian Pelican *Pelecanus crispus* on Skadar Lake. – Acrocephalus 25 (122): 111–118.
- SIMIĆ, D. (2003): Dalmatian Pelican *Pelecanus crispus*. – Acrocephalus 24 (118): 116.
- VASIĆ, V. (1979): Popis faune ptica područja Ulcinja (Južna Crna Gora). – Biosistematika 5 (1): 71–111.
- VIZI, O. (1975): O gnezdjenju pelikana kudravog (*Pelecanus crispus* Bruch 1832) na Skadarskom jezeru i problem njegove zaštite. – Glasnik Republičkog zavoda za zaštitu prirode Prirodnjačkog muzeja 8: 5–13.
- VIZI, O. (1979A): New data on breeding of Dalmatian Pelican (*Pelecanus crispus* Bruch, 1832) on Skadar Lake. – Glasnik Republičkog zavoda za zaštitu prirode Prirodnjačkog muzeja 12: 125–139.
- VIZI, O. (1979B): New data on breeding of Dalmatian Pelican (*Pelecanus crispus* Bruch, 1832) on Lake Skadar. – Glasnik Republičkog zavoda za zaštitu prirode Prirodnjačkog muzeja 12: 125–139.
- VIZI, O. (1979C): Ishrana pelikana kudravog (*Pelecanus crispus* Bruch, 1832) na Skadarskom jezeru i njegov značaj za ribarstvo. – Poljoprivreda i šumarstvo 25 (4): 45–57.
- VIZI, O. (1981A): Ornithology of Skadar Lake. pp. 390–424 – The biota and limnology of Skadar Lake, Titograd.
- VIZI, O. (1981B): The Dalmatian Pelican of Skadar Lake. pp. 419–424 – The biota and limnology of Skadar Lake, Titograd.
- VIZI, O. (1982): Rješenje o stavljanju pod zaštitu rijetkih, prorijedenih, endemičnih i ugroženih biljnih i životinjskih vrsta. – Službeni list SRCG br. 36/82.
- VIZI, O. (1991): Ornitološke odlike ostrvceta Grmožur na Skadarskom jezeru. – Glasnik Republičkog zavoda za zaštitu prirode Prirodnjačkog muzeja 24: 13–28.
- VIZI, O. (1995A): Zaštita Skadarskog jezera od zagađenja. pp. 31 – 37 – Naučni skup "Prirodne vrijednosti i zaštita Skadarskog jezera, CANU 44, Podgorica.
- VIZI, O. (1995B): Uticaj povećanog uznemiravanja na neke ugrožene vrste ptica na Skadarskom jezeru. pp. 321–330 – Naučni skup "Prirodne vrijednosti i zaštita Skadarskog jezera, CANU 44, Podgorica.
- VIZI, O. (2002): O pelikanima Skadarskog jezera. – Natura montenegrina I, I – XI: CD izdanje.
- WETLANDS INTERNATIONAL (2002): Waterbird Population Estimates – Third Edition. – Wetlands International Global series 12, Wageningen, The Netherlands.

Prispelo / Arrived: 2.4.2002

Sprejeto / Accepted: 19.9.2005

POVZETKI DIPLOMSKIH, MAGISTRSKIH IN DOKTORSKIH DEL

Thesis Summaries

PETKOV, N. (2004): Comparative ecological studies on the Ferruginous Duck (*Aythya nyroca* Guldenstaedt, 1879) and Pochard (*Aythya ferina* Linnaeus, 1758) during breeding season in Bulgaria – PhD thesis, Central Laboratory of General Ecology (CLGE), Bulgarian Academy of Sciences, Sofia. Consists of 219 pages, 140 figures, 37 tables and 7 appendixes.

Mentor / Supervisor: Ass. Prof. Tanyu Michev, CLGE
Znanstveni svetovalec / Scientific consultant: Ass. Prof.
Dr. Andy J. Green, Doñana Biological Station
Avtorjev elektronski naslov / Author's e-mail:
nickypetkov@bspb.org

The Pochard *Aythya ferina* and the Ferruginous Duck *A. nyroca* are the only diving ducks of tribe Aythiini regularly breeding in Bulgaria. Both of them are included in the National Red Data Book of 1985 and so far have been poorly studied. In general there are very few complete UTM censuses of breeding birds in Bulgaria, while studies on habitat selection and behaviour are practically lacking in Bulgarian ornithological literature.

The aim of the study was to study the characteristics of the current breeding distribution, numbers and status of the two diving ducks in Bulgaria and to make a comparative analysis of the habitat requirements and ecology of the species within the breeding sites. For this the research study had the following objectives:

1. To study the breeding numbers of the ducks in 10 km UTM grid of the country, to evaluate the short term changes in the distribution and habitats and to evaluate their national conservation status.
2. To describe the main characteristics of the breeding sites and the main types of wetlands they utilize.
3. To study the habitat selection in the two species in two model wetlands using the vegetation and other physical characteristics of the wetlands.
4. To investigate the microhabitat selection of the two diving ducks and how they differ from each other in a selected wetland.
5. To investigate the diurnal activity of the two species to reveal their survival strategy through elaboration of time-activity budgets based on three model wetlands.

Data have been gathered from 2001 to 2003 during the breeding season from April till July. The main detailed research on habitat selection and behavior was done in three wetlands – Srebarna reserve (a wetland on the Danube river) where both species breed, Durankulak lake (wetland on the Black Sea coast) where only Ferruginous Duck breeds, and Poda Lagoon (a wetland on the Black Sea coast) where only Pochard breeds.

The national breeding census was conducted in 2002 between 15 May and 20 Jun, when pairs are most conspicuous. Altogether, over 120 wetlands were visited and assigned to the following categories: lakes, marshes, river mouths, canals, fishponds, ricefields, micro reservoirs and reservoirs. Vegetation coverage, altitude, water depth measurement and surface size were taken.

The habitat selection study was done following Nue *et al.* (1974) and Green (1998). Srebarna reserve was characterized by the following habitat zones: open water, emergent vegetation fringe, dead reed stem area and small pools. Characteristic of the Durankulak Lake complex were open water, mixed *Scirpus* area, reed mosaic area and small pools. In addition a long-term data on the numbers of the Ferruginous Duck in Srebarna and data on wetland limnology were processed to study the possibility of the Ferruginous Duck to serve as indicator species for ecological changes in the wetland.

The statistical analysis of the data was done using Sigma Stat 1.0 Jundel Stat. Package and Statistics for Windows ver. 4.0.

During the breeding mapping of the species, changes in the numbers and distribution of the two species were registered. The Ferruginous duck was registered breeding in 32 wetlands in 2002, 8 of which are new compared to data from 1997, and became extinct at 13 sites in the same period. At some of the main breeding sites a significant reduction of breeding numbers was registered. The data collected during this census and previous mapping data allows evaluating the national population between 150 and 230 pairs. The Pochard has more limited distribution – along the Danube River and Black Sea coast (Burgas wetlands complex). The species was found breeding in 11 wetlands. The national population is evaluated at 100 – 125 breeding pairs.

The predominant part of the breeding Ferruginous Ducks (over 50%) is found in artificial wetlands – fishponds and micro reservoirs, but single most important wetlands are natural marshes. This is a significant change compared to 1997 when fishponds were the single most important wetlands. However, in recent years the breeding populations in fishponds have deteriorated significantly. On the contrary, Pochard is found mostly in natural wetlands – over 65% of the breeding pairs. The average altitude of the breeding sites of the Pochard are well below the average for Europe because most of them are found along the Black Sea and along the Danube River.

The statistical analysis of the data confirmed the preferences of the Ferruginous Duck for well structured more shallow wetlands with rich mosaic vegetation coverage and the presence of some specific microhabitats like floating vegetation, shallow areas with vegetation and shallow mudflats. At the same time, the Pochard does not reveal significant preferences for specific habitat characteristics, beside some weak correlation with availability of flooded mudflats and more open wetlands. Though it is more restricted in its distribution in Bulgaria, which is mostly due to the fact that Bulgaria is on the periphery of the breeding range, the Pochard is on a global scale, more generalist in the wetlands selection and respectively more numerous and widespread than the Ferruginous Duck.

The habitat selection study showed that the Ferruginous Duck selects certain habitats within the Durankulak and Srebarna wetlands. In Srebarna reserve, the Ferruginous Duck selects the “emergent vegetation fringe” zone and the “small pools”. Some changes were observed during the study period, but they were caused by changes in the specific conditions within the habitat zones. Within the Durankulak Lake complex most often selected by the Ferruginous Duck was the “mixed *Scirpus*” zone. In this wetland complex the species was selecting the more shallow marshy areas.

On Srebarna Lake, the Pochard was selecting mostly the “dead reed stem” zone and the “small pool” zone and variably throughout the study period the rest of the habitat zones. The χ^2 test revealed highly significant differences in the habitat selection between the two species. The data analysis revealed that the distribution of the two species among the habitat zones within the wetland depends on the type of the habitat zone, the year of the study and is species specific. Hence due to the succession changes within the habitat zones that occurred during the three years of the study there were some differences between years

and within the year related mostly to the changes in the emergent vegetation and availability of zoobenthic forage resources. The forage availability seems to be important for the Ferruginous Duck distribution as well.

The microhabitat selection by the two species is also species specific. The Ferruginous Duck stays in the close vicinity of emergent vegetation in the more shallow water and closer to the bank. At the same time the Pochard prefers to keep more in–water, further from the bank and emergent vegetation in deeper waters. However, the Pochard shows much more flexibility with the occurring changes in the microhabitats and adapts to them well, while the Ferruginous Duck seems to be more stenotype one and does not adapt to the changes in the microhabitats. This is another specifics of the species ecology, which probably influences the decrease in numbers, and disappearance of the species from certain areas within the breeding range.

The time–activity budgets of the two species are dominated by inactive behaviour and foraging. Both species show tendency of increasing the inactive behaviour towards the second half of the breeding season and decrease of the locomotion. The Ferruginous Duck slightly increases its foraging activity in the second half of the breeding season, while the Pochard decreases its foraging activity. This suggests that perhaps the Ferruginous Duck is more dependent on exogenous energy resources, while the Pochard, which is a larger species, may rely on more endogenous resources. The cluster analysis between the sites shows species specific clustering of the time–activity budgets and show reciprocal similarity between the two species time–activity budgets; the budgets of the Ferruginous Duck of the first half of the breeding season cluster together with the budgets of the Pochard from the second half of the breeding season. In general, the analysis suggests different life strategy for coping with energy demand during breeding season and also shows clearly the existence, in time activity terms, of two separate parts of the breeding season.

Finally, the analysis of correlation of the changes in the numbers of Ferruginous Duck and the limnology parameters of Srebarna Lake revealed that the species as a very good indicator species for ecological changes in the wetlands. A very high correlation was established with the water level, turbidity and chlorophyll level (PETKOV *in print*). It seems that in wetlands with good breeding population of Ferruginous Duck it is quite suitable to correlate changes in the numbers of the species to ecological changes in the wetlands and incorporate data in monitoring schemes.

IZ ORNITOLOŠKE BELEŽNICE

From the ornithological notebook

SLOVENIJA / SLOVENIA

PYGMY CORMORANT *Phalacrocorax pygmeus*

Pritiklavi kormoran – 1 osebek opažen na Cerkniskem jezeru (UTM VL56, osrednja Slovenija) dne 30.5.2005

On 30 May 2005, whilst leading a group of 15 visiting British birdwatchers, I saw a Pygmy Cormorant at Cerknisko jezero (UTM VL56, Central Slovenia) amongst the more common birds. The bird was seen from the east side close to the village of Žerovnica. It was sitting on a stick, apparently beside the river. It was in classic Cormorant pose with wings outstretched but with a long tail. The bird was extremely distant (>1 km) but seen in very good light with a telescope. This kind of news would not cause much of a stir in north – east Italy in this time of year where the bird is ever more common and breeding at many sites, one less than 90 kilometres from the Slovene border. The first record for the karst lake at Doberdob was in April 2005.

Paul Tout, Malchina / Mavhinje 5/A, I-34013 Duino-Aurisina / Devin-Nabrezina, Italy, e-mail: paul_tout@hotmail.com

PLEVICA *Plegadis falcinellus*

Glossy Ibis – one adult individual inhabiting Medvedce reservoir between 5 Aug and 28 Sep 2003 (UTM WM53, NE Slovenia), feeding mostly separately from other water birds and partly moulting

Dne 5.8.2003 sva se z očetom Ivanom odpravila na vodni zadrževalnik Medvedce jugovzhodno od Pragerskega, SV Slovenija. Tam sva med drugim štela rjave lunje *Circus aeruginosus*, ki jih je tega dne bilo dvanajst. Z večjim zanimanjem sem opazoval pobrežnike, ki so zaradi nizke vode, kot posledica suše, množičneje obiskovali ta kraj. Več pozornosti sem namenil velikim škurhom *Numenius arquata*. Bilo jih je dvajset, kar je bila ena večjih jat te vrste na zadrževalniku do tistega trenutka, in spreletavali so se od enega blatnega poloja do drugega. Ob jati sem opazil še en osebek plevice. Ob kasnejših obiskih zadrževalnika sem ob boljši svetlobi prepoznal odrasel osebek. Plevica se je v času, ko se je zadrževala na tem mestu, delno pregolila iz poletnega perja v zimsko.

Zanimivo se mi zdi, da je bila plevica v skupini z drugo vrsto ptic le ob prvem opazovanju. V vseh preostalih opazovanjih se je prehranjevala neodvisno od drugih vodnih ptic. Nazadnje sem jo opazoval 28.9.2003. Po pregledu Acrocephalusov 2000 – 2004 sem opazil, da ni zabeleženega poletnega opazovanja te vrste, prav tako ni podatka o daljšem zadrževanju. V mojem primeru se je osebek zadrževal skoraj dva meseca. Plevica je do leta 1998 veljala za redkost [Božič, L. (2001): Poročilo nacionalne komisije za redkosti o opazovanjih redkih vrst ptic za obdobje 1997 – 2000. – Acrocephalus 22 (106/107): 109 – 113].

Dejan Bordjan, Ulica 8. februarja 50, SI-2204 Miklavž, Slovenija, e-mail: dejanonih@email.si

PLEVICA *Plegadis falcinellus*

Glossy Ibis – 3 individuals observed between 10 and 14 Apr 2005 near the church at Črna vas, Ljubljansko barje (UTM VL69, central Slovenia); Glossy Ibis is rare but regular spring and autumn guest in central Slovenia; see colour appendix

Dne 10.4.2005 sem iz avtomobila opazil 3 plevice, ki so se prehranjevale kakih 100 m vzhodno od Plečnikove cerkve Sv. Mihaela v Črni vasi na Ljubljanskem barju. Vreme je bilo slabo, rahlo je tudi rosilo. Kasneje sem se vrnil in si ptice podrobneje ogledal. Glede na obarvanost perja sem sklepal, da opazujem tri odrasle osebe, pri čemer se eden še ni popolnoma pregolil iz zimskega perja; lahko pa je seveda šlo tudi za drugoletni osebek, česar ne morem z gotovostjo izključiti. Plevice so se na tem mestu zadrževale še najmanj do 14.4.2005, ko so že nemirno dvigovale peruti in se pripravljale na odlet (D. ŠERE *pisno*). Plevica je v osrednji Sloveniji sicer redek, a reden gost, predvsem aprila, maja in septembra. Primerjaj npr.: [ŠERE, D. (1990): Plevica *Plegadis falcinellus*. – Acrocephalus 11 (43/44): 29; SOVINC, A. (1997): Redke vrste ptic v Sloveniji v letu 1995. – Acrocephalus 18 (84): 151 – 156; KEBE, L. (1999): Plevica *Plegadis falcinellus*. – Acrocephalus 20 (92): 31; SMOLE, J. (2002): Plevica *Plegadis falcinellus*. – Acrocephalus 23 (110/111): 50].

Primož Kmecl, Mala čolnarska 4b, SI-1000 Ljubljana, Slovenija, e-mail: primoz.kmecl@guest.arnes.si

VELIKI ŽAGAR *Mergus merganser*

Goosander – a male observed at Lake Ormož (UTM WM94, NE Slovenia) on 28 May 2005, which is quite a late date indicating possible breeding in the near vicinity

Pozimi je veliki žagar pri nas razmeroma številčen. SOVINC [SOVINC, A. (1994): Zimski ornitološki atlas. – Tehniška založba Slovenije, Ljubljana] ocenjuje prezimovajočo populacijo na 50 – 100 osebkov, kasnejša opazovanja pa so pokazala, da jih je danes toliko verjetno samo na Dravi [ŠTUMBERGER, B. (2002): Rezultati štetja vodnih ptic v januarju 2002 v Sloveniji. – *Acrocephalus* 23(110/111): 43 – 47]. V času gnezdenja je v Sloveniji le tu in tam kakšen par. V literaturi večkrat opisano je gnezdišče na Trbojskem in Zbiljskem jezeru, samica z mladiči pa je bila opazovana tudi v Šturmovcih [ŠTUMBERGER, B. (1996): Veliki žagar *Mergus merganser*. – *Acrocephalus* 17(77): 129]. Z Ormoškega jezera je poznano nekaj poznospomladanskih opazovanj odraslih osebkov [GEISTER, I. (1995): Ornitološki atlas Slovenije. – DZS, Ljubljana], ki namigujejo na možnost gnezdenja v bližini. Nekaj podobnega sem na Ormoškem jezeru opazoval dne 28.5.2005. Na deblu podrtega drevesa sredi vode je brezbržno počival samec.

Davorin Tome, Trnovska 8, SI-1000 Ljubljana, Slovenija, e-mail: davorin.tome@nib.si

KAČAR *Circaetus gallicus*

Short-toed Eagle – 1 individual observed on 25 Jun 2005 above the Šmarje ridge (UTM UL93, SW Slovenia) holding prey (Western Whip Snake *Hierophis viridiflavus*) in its claws and eventually moving to a couple of other spots above Slovene Istria

Dne 25.6.2005 sem nad Šmarskim grebenom v Slovenski Istri ob 15.50 uri opazoval kačarja v letu s plenom. S pomočjo teleskopa sem ugotovil, da je bil plen črnica *Hierophis viridiflavus*. Kačar je s plenom najprej preletel Šmarski greben v predelu Zabreg – Kandelca z južne proti severni strani v smeri proti Kopru in v krožni liniji proti vzhodu zavil nazaj na južne, pretežno odprte kmetijske predele Šmarij. Po desetih minutah sem kačarja ponovno opazil nad južnimi predeli Črteže in Prelne skupaj z dvema kanjama *Buteo buteo*, kjer je krožil brez plena in se po približno dvajsetih minutah vnovič prestavil nad travišča v območje Rete pri Križišču Puče, kjer je znano lovišče ujed (T. MIHELIČ *ustno*). Po meni znanih podatkih [GEISTER, I. (1995): Ornitološki atlas

Slovenije. – DZS, Ljubljana] kačar ni prav pogosta vrsta na območju porečja reke Dragonje, zato je bilo opazovanje še toliko bolj zanimivo.

Andrej Medved, Šmarje 13/b, SI- 6274 Šmarje pri Kopru, Slovenija, e-mail: andrej.medved@dopps-drustvo.si

RJAVI ŠKARNIK *Milvus milvus*

Red Kite – 1 individual observed on 19 Jun 2005, circling above the highway near Postojna in the Nanoštica river basin (UTM VL36, S Slovenia); possibly breeding in the vicinity

Rjavi škarnik velja v Sloveniji za zelo skrivnostno možno gnezdilko, saj kljub celi vrsti gnezditveno sumljivih opazovanj v SV Sloveniji gnezditvev ni bila nikoli potrjena [GEISTER, I. (1995): Ornitološki atlas Slovenije. – DZS, Ljubljana]. V sosednji Italiji gnezdi kar nekaj parov [BURFIELD, I. & VAN BOMMEL, F., eds. (2004): Birds in Europe: population estimates, trends and conservation status. – BirdLife Conservation Series No. 12, BirdLife International, Cambridge], na Hrvaškem pa velja za regionalno izumrlo vrsto [RADOVIĆ, D., KRALJ, J., TUTIŠ, V. & ČIKOVIĆ, D. (2003): Crvena knjiga ugroženih ptica Hrvatske. – Ministarstvo zaštite okoliša i prostornog uređenja, Zagreb]. V zadnjem času se je število opazovanj klateških ptic v Sloveniji znatno povečalo [za podrobnosti glej npr. BORDJAN, D. (2003): Rjavi škarnik *Milvus milvus*. – *Acrocephalus* 24 (116): 31]. Večina podatkov se nanaša na območje SV Slovenije, manj pa na južno Slovenijo. Sam sem opazoval odrasel osebek, ki je krožil nad avtocesto blizu izvoza za Postojno 19.6.2005 v dolini Nanoštica (UTM VL36). Ali je bil osebek gnezdilno ali zgolj klateško razporejen, bodo verjetno pokazale nadaljnje ornitološke raziskave na tem zanimivem mednarodno pomembnem območju za ptice (IBA).

Al Vrezec, Pražakova 11, SI-1000 Ljubljana, Slovenija, e-mail: al.vrezec@nib.si

SRŠENAR *Pernis apivorus*

Honey Buzzard – late observation of a single individual on 24 Oct 2004 at Goričko near the village of Neradnovci (UTM WM99, NE Slovenia)

Dne 24.10.2004 smo na Goriškem v Neradnovcih opazovali sršenarja, ki je kakih 5 minut nizko krožil nad dolinico Male Krke. Podatek je zanimiv zaradi kasnega datuma opazovanja, saj je sršenar tipična selivka, ki se seli v ekvatorialno in južno Afriko. Iz srednje Evrope

se glavčina populacije odseli ob koncu avgusta, po 15. oktobru je moč v Evropi opazovati le zelo zapoznele ptice, opazovanja v novembru pa so že izjemno redka [GLUTZ VON BLOTZHEIM, U.N. & BAUER, K.M. (1989): Handbuch der Vögel Mitteleuropas. Band 4: Falconiformes. – Akademische Verlagsgesellschaft, Wiesbaden]. Sršenar je na Goričkem sicer razmeroma pogosta gnezdilka [DENAC, D. (2000): Goričko. pp. 173–182 In: POLAK, S. (ed.), Mednarodno pomembna območja za ptice v Sloveniji; Important Bird Areas (IBA) in Slovenia. – DOPPS, Ljubljana] in je za območje naravovarstveno pomembna vrsta, uvrščena na Prilogo I Direktive o pticah.

Damijan Denac, Gorkičeva 14, SI-1000 Ljubljana, Slovenija, e-mail: damijan.denac@nib.si

KRAGULJ *Accipiter gentilis* & KOZAČA *Strix uralensis*

Goshawk & Ural Owl – observation of a female Goshawk feeding on carrion at the Menišija plateau feeding site on (UTM VL48, Central Slovenia) on 17 Dec 2004 and 25 Mar 2005. On 1 Apr 2005, one Ural Owl was observed at a Roedeer *Capreolus capreolus* cadaver on Menišija plateau, although no actual feeding was confirmed.

Prehranjevanje ujed z mrhovino ni ravno redkost, pa vendar o tem vsaj pri nas ni dosti objavljenih podatkov. Izjema so tipični mrhovinarji, kakršen je beloglavi jastreb *Gyps fulvus* [npr. ŠERE, D. (1998): Beloglavi jastreb *Gyps fulvus*. – Acrocephalus 19 (87/88): 67]. Med drugimi ujedami ob mrhovini najpogostejše opazimo kanjo *Buteo buteo* [BORDJAN, D. (2003): Kanja *Buteo buteo*. – Acrocephalus 24 (117): 75], kar gre verjetno predvsem na račun njene pogostosti in pojavljanja v kulturni krajini. Kot primer navajam kanjo, ki se je dne 10.3.2005 na Logaški planoti prehranjevala na truplu srne *Capreolus capreolus*, ki jo je pet dni prej uplenil ris *Lynx lynx*. Bolj zanimivo je opazovanje z dne 17.12.2004, ko je zvečer na mrhovišču na Menišiji priletela samica kragulja. Nekaj časa je brskala po mrhovini, potem pa odletela, verjetno zaradi giba moje roke proti fotoaparatu. Kasneje se je sicer vrnila, vendar v meso ni zagrizla. Nemara isto samico sem na mrhovišču opazoval tudi dne 25.3.2005. Tokrat je ostala dalj časa in se dodobra najedla, zatem pa si očistila kljun z drgnjenjem ob kos mokrega debla. Največje presenečenje pa sem doživel, ko se je prav tako na Menišiji dne 1.4.2005 ob ogledu risovega plena s srninega kadavra dvignila kozača. Ker sem sovo zagledal šele v zraku, ne morem zanesljivo trditi, da se je z mrhovino tudi dejansko prehranjevala.

Upamo, da bomo prehranjevanje sov z mrhovino lahko potrdili v prihodnje, ko bomo ob plenih nameščali kamere. Iz literature sta doslej o prehranjevanju sov z mrhovino znana podatka za lesno sovo *Strix aluco* [SELVA, N. (2004): Life after death – scavenging on ungulate carcasses. In: JEDRZEJEWSKA, B. & WOJCIK, J. M. (eds.): Essays on Mammals of Białowieża Forest. – Polish Academy of Sciences, Białowieża] in ribjo uharico *Bubo zeylonensis*, ki so jo opazovali pri hranjenju na kadavru krokodila [KÖNIG, C., WEICK, F. & BECKING, J. H. (1999): Owls. A Guide to the Owls of the World. – Pica Press, Sussex].

Miha Krofel, Zavrh pri Borovnici 2, SI-1353 Borovnica, Slovenija, e-mail: mk_lynx@yahoo.co.uk

NAVADNA ČIGRA *Sterna hirundo*

Common Tern – aggressive behaviour (mobbing) against Sparrowhawk *Accipiter nisus* and Kestrel *Falco tinnunculus*, flying 300 and 1000 m respectively from the breeding colony, observed at Lake Ptuj on 3 Jul 2004 (UTM WM74, NE Slovenia)

Med popisovanjem prehranjevalne dinamike navadne čigre v koloniji na Ptujskem jezeru dne 3.7.2004 smo velik del pozornosti posvetili znotrajvrstnim interakcijam [DENAC, D. (2004): Prehranjevalna dinamika in pojav znotrajvrstnega kleptoparazitizma v koloniji navadne čigre na Ptujskem jezeru (SV Slovenija). – Acrocephalus 25(123): 201–205]. Medvrstne interakcije so bile redkejšje od znotrajvrstnih, mednje pa sodita dve opazovanji preganjanja ujed. Ob 5.58 zjutraj je skobec *Accipiter nisus* preletel Ptujsko jezero na razdalji 300 m od kolonije in ni kazal namena, da bi napadel čigre v koloniji. Kljub temu se je ena izmed čiger bliskovito pognala proti njemu in ga silovito napadla ter odgnala. Podoben pregon je doživela postovka *Falco tinnunculus*, ki je ob 8.20 »lebdela« pri Ranci, oddaljena 1000 m od kolonije. Približno 30 sekund kasneje se je čigra dvignila iz kolonije in jo napadla podobno kot skobca. V obeh primerih je bil napad tako silovit, da sta se ujedi nemudoma umaknili. Učinkovita obramba pred plenilci bi naj bila ena izmed prednosti kolonijskega gnezdenja, vendar je ta teorija že precej časa deležna kritikam [RODGERS, J.A. (1987): On the antipredator advantages of coloniality: a word of caution. – Wilson Bull. 99(2): 269–71], saj je po drugi strani ravno za kolonije značilno močno plenjenje, ki se neredko konča s popolnim neuspehom celotne kolonije.

Damijan Denac, Gorkičeva 14, SI-1000 Ljubljana, Slovenija, e-mail: damijan.denac@nib.si

MALA UHARICA *Asio otus*

Long-eared Owl – eggshells, feathers and pellets found on 31 Jul 2004 in Pohorje Mts. along the trail leading from Osankarica to Črno jezero (1200 m a.s.l., UTM WM34, NE Slovenia); the highest altitude breeding record for Slovenia so far

Na poti od Osankarice proti Črnemu jezeru smo 31.7.2004 naleteli na jajčne lupine, večje število izbljuvkov in peresa male uharice. Našteto je ležalo pod bukvijo, ob kateri je rasla smreka v precej strnjenem smrekovem sestoju. Po stanju jajčne lupine smo sklepali, da se je iz jajca izvil mladič. Kljub pozornemu pregledu drevesa nismo našli gnezda ali njegovih ostankov, zato smo sklepali, da je že razpadlo. Za malo uharico je znano, da gnezdi tudi v opuščenih gnezdih, ki so v zelo slabem stanju. Potrjeno gnezdenje male uharice na nadmorski višini 1200 m je zanimivo, saj je, upoštevajoč dosedanje podatke [Božič, L. & VREZEC, A. (2000): Sove Pohorja. – *Acrocephalus* 21 (98/99): 47–53], to najvišje potrjeno gnezdenje pri nas, ki pa je bilo glede na posamezne prejšnje podatke s podobnih nadmorskih višin in podatke iz sosednjih držav [SACKL, P. & SAMWALD, O. (1997): *Atlas der Brutvogel der Steiermark*. – Austria medien service, Graz] pričakovano.

Damijan Denac, Gorkičeva 14, SI-1000 Ljubljana, Slovenija, e-mail: damijan.denac@nib.si

BELOHRBTI DETEL *Dendrocopos leucotos*

White-backed Woodpecker – a male observed in Javorniki Mts. (1140 m a.s.l., UTM VL46, Notranjska, S Slovenia) on 3 Feb 2005; first record for the Notranjska region

Dne 3.2.2005 sem na Javornikih v snegu iskal sledi živali. Potem ko že nekaj časa nisem videl nobene ptice, sem na južnem pobočju, približno 500 m zahodno od vrha Velikega Javornika na nadmorski višini 1140 m opazil detla, ki se je prehranjeval ob bazi debla. K sreči se je tam zadrževal dovolj dolgo, da sem si ga lahko dobro ogledal z daljnogledom. Bil je samec belohrbtega detla balkanske podvrste *D. l. lilfordi*. Belohrbti detel spada med najredkejšje vrste žoln pri nas. Za zimsko obdobje je v Zimskem ornitološkem atlasu Slovenije kot edina lokacija naveden Maribor [SOVINC, A. (1994): *Zimski ornitološki atlas Slovenije*. – Tehniška založba Slovenije, Ljubljana]. Nekoliko pogostejši so podatki za gnezditveno obdobje, ko so

ga našli okoli Laškega, na Goteniški gori [GEISTER, I. (1995): *Ornitološki atlas Slovenije*. – DZS, Ljubljana], v Kočevskem rogu [PERUŠEK, M. (1991): *Balkanski detel *Dendrocopos lilfordi* gnezdi tudi v Sloveniji*. – *Acrocephalus* 12 (47): 14–18], na Gorjancih [GREGORI, J. (1996): *Belohrbti detel *Dendrocopos leucotos* gnezdi na Gorjancih*. – *Acrocephalus* 17 (78/79): 153–155], Pohorju [ŠERE, D. (1985): *Belohrbti detel *Dendrocopos leucotos**. – *Acrocephalus* 6 (23): 11], Kozjaku [MLAKAR, G. (1996): *Belohrbti detel *Dendrocopos leucotos**. – *Acrocephalus* 18 (75/76): 85–86], Menini (H. POTOČNIK ustno) in ob Blejskem jezeru [RUBINIČ, B. (1993): *Belohrbti detel *Dendrocopos leucotos**. – *Acrocephalus* 14 (60): 168]. Opažanje na Javornikih je tako prvi podatek za Notranjsko. Glede na to, da se belohrbti detel vse leto zadržuje v okolici svojega gnezditnega območja [PERUŠEK, M. (2004): *Žolne Slovenije*. – *Svet ptic* 10(1): 6–9], ni izključeno, da na Javornikih tudi gnezdi. Detla sem opazoval v razmeroma mladem bukovem sestoju, kar je nekoliko nenavadno za to vrsto, ki daje prednost gozdovom z obilico starega in trohnečega drevja (GEISTER 1995). Da to ni osamljen primer, kažejo podatki iz Švice, kjer je Bühler prav tako opazoval belohrbtega detla v mlajših bukovih gozdovih [BÜHLER, U. (2001): *Brutvorkommen des Weissrückenspechts *Dendrocopos leucotos* in Nordbünden*. – *Der Ornithologische Beobachter* 98 (1): 1–11].

Miha Krofel, Zavrh pri Borovnici 2, SI-1353 Borovnica, Slovenija, e-mail: mk_lynx@yahoo.co.uk

TRIPRSTI DETEL *Picoides tridactylus*

Three-toed Woodpecker – a female observed on 7 Feb 2005 on Menišija plateau (713 m a.s.l., UTM VL48, Central Slovenia)

Med sledenjem risa *Lynx lynx* dne 7.2.2005 sem na Tolstem vrhu na severozahodnem delu Menišije v mešanem gozdu zaslišal potrkavanje. Odpravil sem se za zvokom in kmalu opazil samico triprstega detla, ki se je prehranjevala na posušeni jelki *Abies alba* na nadmorski višini 713 m. Vnovič se je izkazal neboječi značaj te vrste, kar mi je omogočilo, da sem si jo dodobra ogledal. Glede na literaturo je to tretji podatek za pokrajino Krimskega hribovja in Menišije ter prvi zimski podatek za osrednjo Slovenijo. V gnezditvenem obdobju je bil opažen že na Ljubljanskem vrhu [VREZEC, A. (2001): *Triprsti detel *Picoides tridactylus**.

– Acrocephalus 22 (104/105): 60], v okolici Snežnika pa celo par s speljanim mladičem [KEBE, L. (2001): Triprsti detel *Picoides tridactylus*. – Acrocephalus 22 (104/105): 60].

Miha Krofel, Zavrh pri Borovnici 2, SI-1353 Borovnica, Slovenija, e-mail: mk_lynx@yahoo.co.uk

PLANINSKA PEVKA *Prunella collaris*

Alpine Accentor – a flock of 15 individuals feeding on 18 Dec 2004 on the peak of Mt. Kucelj (1237 m a.s.l., UTM VL08, W Slovenia); first winter observation for the forest complex of Trnovski gozd

Planinska pevka pri nas gnezdi nad drevesno mejo v Julijskih Alpah, Karavankah in Kamniško – Savinjskih Alpah [GEISTER, I. (1995): Ornitološki atlas Slovenije. – DZS, Ljubljana]. Pozimi lahko ostane v gnezditvenem okolišu ali pa se pomakne na nižja pobočja. Doslej so bila za to vrsto pri nas znana tri prezimovalna območja: skalnate stene kraškega roba z Matarskim podoljem in pečinami v dolini Zgornje Pivke, širše gnezditveno območje Alp in tretje v Zasavju [SOVINC, A. (1994): Zimski ornitološki atlas Slovenije. – Tehniška založba Slovenije, Ljubljana]. Zato je dokaj zanimivo moje opazovanje jate 15 planinskih pevk dne 18.12.2004 na vrhu Kucelja (1237 m n.v.). Kucelj sodi v kompleks Trnovskega gozda in doslej še nisem zasledil podatkov o pojavljanju planinske pevke na tem območju. Planinske pevke so intenzivno brskale med skalami in travno rušo ter iskale hrano, pri tem pa niso bile prav nič plašne. Kot se za ornitološki izlet na visoki dinarski Kras spodobi, sem malo naprej od koč na Čavnu uzrl kozačo *Strix uralensis*, v daljavi z vrha Kucelja pa še planinskega orla *Aquila chrysaetos*, oba tukajšnja znana gnezdilca.

Damijan Denac, Gorkičeva 14, SI-1000 Ljubljana, Slovenija, e-mail: damijan.denac@nib.si

POGORELČEK *Phoenicurus phoenicurus*

Redstart – probable breeding on 28 and 30 Jun 2005 approx. 250 m and 350 m outside the villages of Kamno (UTM UM92) and Kozaršče (UTM VM01) respectively in the Soča valley (W Slovenia), where breeding inside villages is common; orchards were used as a breeding ground

Na ornitološkem taboru Most na Soči smo z našo skupino pri popisovanju rjavega srakoperja *Lanius collurio* na dveh območjih potrdili gnezditvev pogorelčka zunaj vasi. Prvi primer je bil zabeležen

28.6.2005 v bližini vasi Kamno. Opazovali smo samca, ki je s hrano v kljunu sedel na enem izmed dreves visokodebelnega sadovnjaka, obdanega z omejkami in ekstenzivnimi travniki. Na podlagi tega sklepamo, da je krmil mladiče v gnezdu. Sadovnjak je bil od vasi oddaljen 250 m. Drugi primer gnezditve je bil potrjen 30.6.2005. Tudi tega dne smo opazovali samca s hrano v kljunu, in sicer v manjšem sadovnjaku kakih 350 m od vasi Kozaršče. V sadovnjaku se je pasla živina, ob njem pa je stal tudi manjši hlev. Drugih stavb v bližini ni bilo. Z navedenima podatkom dopolnjujemo navedbe A. Figlja [FIGELJ, A. (2004): Pogorelček *Phoenicurus phoenicurus*. – Acrocephalus 25 (120): 36–37] o razširjenosti in gnezditvenih navadah pogorelčka v Posočju. FIGELJ (2004) navaja, da pogorelček gnezdi v domala vsaki vasi v dolini Soče, očitno pa posamezni pari gnezdiijo tudi v sadovnjakih zunaj vasi.

Simon Komar, Zrkovska cesta 132, SI-2000 Maribor, Slovenija, e-mail: simon.komar@email.si

REPALJŠČICA *Saxicola rubetra*

Whinchat – probable breeding recorded on 29 Jun 2005 at Podljudinj in the Soča valley (1000 m a.s.l., UTM VM01, W Slovenia)

Na ornitološkem taboru v Mostu na Soči smo v kulturni krajini v dolini Soče popisovali rjave srakoperje *Lanius collurio*. Dne 29.6.2005 smo v Poljudbinju med pretežno intenzivnimi kmetijskimi površinami okoli 7. ure zjutraj na fižolovkah, na višini približno 1,5 metra od tal, opazili samca in samico repaljščice. Obe ptici sta se svarilno oglašali, samica pa je imela v kljunu hrano, zato domnevamo, da sta tam gnezdili. Travniki, na katerem se je zadrževal par repaljščic, je bil dokaj izoliran in edini takega tipa, razprostirajoč se sredi bolj intenzivnih travnikov in koruznih polj. Naše opazovanje potrjuje gnezdenje repaljščice v nižinah alpskega sveta. Repaljščica naj bi po dosedanjih podatkih v tem predelu Slovenije gnezdila le na visokogorskih travnikih in pašnikih na nadmorski višini nad 1000 m.

Maja Slak, Trnovski pristan 10, SI-1000 Ljubljana, Slovenija, e-mail: maja.slak@email.si

ČOPASTA SINICA *Parus cristatus*

Crested Tit – a pair observed on 29 Mar 2004 in a lowland Oak–Hornbeam forest *Quercus–Carpinetum* (known as Orlovšček) near Dolnja Bistrica (UTM XM05, NE Slovenia), while building a nest in a Bird Cherry *Prunus padus* hollow, which was probably

enabled by approx. 0.2 ha large Norway Spruce *Picea abies* plantation in the middle of the forest. This is the second nesting record for this species in the lowland part of Prekmurje.

Med popisom ptic za Novi ornitološki atlas gnezdilk Slovenije sem 29.3.2004 v gozdu Orlovšček pri Dolnji Bistrici (Prekmurje, SV Slovenija) naletel na gnezdeči par čopastih sinic. Na naselitev te vrste v sicer tipičnem nižinskem, hrastovo-gabrovem gozdu *Quercus-Carpinetum* je verjetno odločilno vplival 0,2 ha velik gost nasad smreke *Picea abies*, ki leži sredi omenjenega gozda. Par si je v času mojega opazovanja vneto spletal gnezdo v duplu manjše čremse *Prunus padus*, od smrekovega sestoja oddaljene približno 50 metrov. Kljub dokaj kratkemu času opazovanja je bilo očitno, da sinici gnezditveni material zbirata le v smrekovem nasadu. Podatek je zanimiv zaradi netipičnega gnezditvenega habitata čopaste sinice in potrjenega gnezdenja vrste v Prekmurju. Iz ravninskega dela Prekmurja je bil doslej znan le en podatek iz gnezditvenega obdobja, in sicer iz Črnega loga [GEISTER, I. (1995): Ornitološki atlas Slovenije. – DZS, Ljubljana].

Luka Božič, Kamenškova 18, SI-2000 Maribor, Slovenija, e-mail: luka.bozic@dopps-drustvo.si

ŠČINKAVEC *Fringilla coelebs*

Chaffinch – almost complete leucistic individual observed on 19 Apr 2005 on Mt. Krim near the village of Iška (UTM VL68, central Slovenia) in a Beech forest with Fir *Omphalodo-Fagetum* s.lat.; in Slovenia, albinistic and leucistic individuals have also been found in Cormorant *Phalacrocorax carbo*, Mute Swan *Cygnus olor*, Coot *Fulica atra*, Collared Dove *Streptopelia decaocto*, Scops Owl *Otus scops*, Barn Swallow *Hirundo rustica*, Blackbird *Turdus merula*, Marsh Warbler *Acrocephalus palustris*, Long-tailed Tit *Aegithalos caudatus*, Jackdaw *Corvus monedula*, Raven *Corvus corax*, and House Sparrow *Passer domesticus*

Med redkejšje pojave pri prostoživečih pticah gotovo sodi albinizem in leucizem, torej belo ali rumenkasto obarvani osebkki s pomanjkanjem melanina. Čeprav pojav v obliki delnega albinizma, kjer je belo le posamezno pero, ni tako redek, pa so osebkki s popolnim ali večinskim albinizmom oziroma leucizmom velika redkost. Eno takšnih redkosti sva opazovala 19.4.2005 na Krimu pri Ljubljani, nekoliko višje nad vasjo Iška (VL68) v dinarskem bukovem

gozdu z jelko *Omphalodo-Fagetum* s.lat., na primeru naše najpogostejše gozdne ptice, ščinkavca. Na gozdni cesti nama je pot prekrizal rumenkasto obarvan prtič, podoben kanarčku. Telo je imel rumenkasto, peruti so bile bele, le na glavi je imel nekaj rjavih peres. Po oglašanju in obliki telesa sva ugotovila, da gre za leucistični primerek ščinkavca. Ptica je bila v zelenih krošnjah dreves dobro opazna, a se po vedenju ni kaj dosti razlikovala od drugih istovrstnih osebkov, ki so v raztreseni skupini obirali liste. Tu in tam so se po ščinkavčje tudi malce preganjali, toda ni bilo opaziti, da bi bil bledični osebek kaj bolj preganjan od drugih. Avtorjema tega prispevka ni znano, da bi bil pri nas skoraj popolnoma leucistični ščinkavec že opazovan, bledični osebkki pa so bili v Sloveniji ugotovljeni denimo že pri kormoranu *Phalacrocorax carbo* [ŠORGO, A. (1997): Veliki kormoran *Phalacrocorax carbo*. – *Acrocephalus* 18(80/81): 40; A. VREZEC v SENEČAČNIK, K., SOVINČ, A. & ŠERE, D. (1998): Ornitološka kronika 1994, 1995. – *Acrocephalus* 19(87/88): 77–91], labodu grbcu *Cygnus olor* [VREZEC, A. & HÖNIGSFELD ADAMIČ, M. (2003): Labod grbec *Cygnus olor*. – *Acrocephalus* 24(119): 147–148], liski *Fulica atra* [LIPEJ, L. & MAKOVEC, T. (1997): Prezimovanje črnih lisk *Fulica atra* v Strunjanski laguni. – *Acrocephalus* 18(80/81): 23–26], turški grlici *Streptopelia decaocto* [VREZEC, A. (1999): Turška grlica *Streptopelia decaocto*. – *Acrocephalus* 20(93): 61], kmečki lastovki *Hirundo rustica* [LENARČIČ, L. (1981): Paberki (kmečka lastovka). – *Acrocephalus* 2(7): 15; GOBEC, M. (1996): Kmečka lastovka *Hirundo rustica*. – *Acrocephalus* 17(74): 36–37], kosu *Turdus merula* [KURILLO, A. (1986): Kos *Turdus merula*. – *Acrocephalus* 7(30): 62; L. OSTERMAN, M. BRATUŠ v SOVINČ, A. (1992): Ornitološka kronika 1990. – *Acrocephalus* 13(50): 29–32], dolgorepki *Aegithalos caudatus* [F. BRAČKO v SOVINČ, A. & ŠERE, D. (1993): Ornitološka kronika za leto 1991. – *Acrocephalus* 14(58/59): 140–144], kavki *Corvus monedula* (I.A. BOŽIČ v SOVINČ & ŠERE 1993), krokarju *Corvus corax* [GROŠELJ, P. (1991): Krokar *Corvus corax*. – *Acrocephalus* 12 (49): 165] in domačem vrabcu *Passer domesticus* [KLJUN, I. (2003): Domači vrabec *Passer domesticus*. – *Acrocephalus* 24(117): 78–79]. Poleg tega so nama iz Slovenije belični osebkki znani tudi pri velikem skoviku *Otus scops* in močvirski trstnici *Acrocephalus palustris* (lastni podatki). Sicer pa so denimo v Bolgariji beličnost ugotovili še pri mlakarici *Anas platyrhynchos*, mestni lastovki *Delichon urbica*, kupčarju *Oenanthe oenanthe*, srpični trstnici *Acrocephalus scirpaceus*, rjavoglavam srakoperju *Lanius senator*, poljskem vrabcu *Passer montanus* in velikem strnadu *Miliaria calandra*

[NIKOLOV, S.C., SPASOV, S.D. & MEEÛS, T. (2004): Northern Wheater *Oenanthe oenanthe*. – *Acrocephalus* 25 (122): 175–176].

Al Vrezec, Pražakova 11, SI-1000 Ljubljana, Slovenija, e-mail: al.vrezec@nib.si
Petra Vrh, Grič C. IX/1, SI-1310 Ribnica, Slovenija, e-mail: petravrh@yahoo.com

CROATIA / HRVAŠKA

ČRNA ŠTORKLJA *Ciconia nigra*

Black Stork – one individual seen soaring on 29 May 2004 in particularly strong winds over Bakarski Bay near Rijeka (UTM VL61, W Croatia)

Dne 29.5.2004 sem se mudil v majhnem naselju ob cesti v Bakarskem zalivu pri Reki, ko je pihala izredno močna burja. Med opazovanjem, kako se dviguje voda z morske gladine, sem zagledal jadrajočo črno štorljo, le da ta v nasprotju z mano ni imela težav z burjo. Podatki za to ptico so za Hrvaško primorje redki in vključujejo predvsem klateže zunaj gnezdilnega obdobja [RUCNER, D. (1998): Ptice hrvatske obale Jadrana. – Hrvatski prirodoslovni muzej, Ministarstvo razvitka i obnove, Zagreb]. Ker gre za podatek iz gnezdilnega obdobja, lahko domnevamo, da je ta osebek nekje v bližini tudi gnezdil.

Dejan Bordjan, Ulica 8. februarja 50, 2204 Milklavž, Slovenija, e-mail: dejanonih@email.si

RED-FOOTED FALCON *Falco vespertinus*

Rdečenoga postovka – avtorja navajata podatke o opazovanju 3 osebkov na Vranskem jezeru (UTM WJ46) v dneh 2.5.2005 in 3.5.2005

Between 1 and 8 May 2005, several survey walks were made in the northern part of Lake Vransko (UTM WJ46). Our observations were focused particularly on areas with intensive horticultural activity, with vegetable gardens neighbouring hay meadows reaching out almost to the immediate waterside, i.e. down to the reedbed. Our observation of birds of prey included 3 Marsh Harriers *Circus aeruginosus* seen on 1 May. There were in fact a number of them (1 – 5) flying above the reeds almost during every survey walk. At about 11.00 h on 2 May, 1 female Red-footed Falcon was spotted hunting above the meadow. About 5 – 10 minutes, later a male also showed up above the reedbed, and at 11.20 h yet another male joined the birds already hunting there. At 11.20 h on 3 May, while surveying the same area, the two male and one female Red-footed Falcons were still there.

Red-footed Falcons in the Croatian seaside region are seen most commonly at the time of spring migration, i.e. around late April, early May [RUCNER, D. (1998): Ptice hrvatske obale Jadrana. – Hrvatski prirodoslovni muzej, Ministarstvo razvitka i obnove, Zagreb]. The Red-footed Falcon is listed in the avifauna of Lake Vransko as a migrating species [LUKAČ, G. (2002): Fauna ptica (Aves). pp. In: Prirodoslovne podloge za izradu prostornog plana Parka prirode Vransko jezero, Zagreb.]. However, no exact observation data are known to have been published so far. On 4 May, no birds of prey other than Marsh Harriers were seen. On 5 May, one female and one male Kestrel *Falco tinnunculus* were seen. The female was hunting above a mown area, whereas the male was circling higher up in the air. On 8 May, another male Kestrel, and a male Montagu's Harrier *Circus pygargus* were observed.

Jenő J. Purger, University of Pécs, Institute of Biology, Ifjúság útja 6, H-7624 Pécs, Hungary, e-mail: purger@ttk.pte.hu
Jasmina Mužinić, Institute for Ornithology CASA, Gundulićeva 24, HR-10000 Zagreb, Croatia, e-mail: jasmina@hazu.hr

ZALIVSKI GALEB *Larus genei*

Slender-billed Gull – 2 adults resting on 18 May 2005 at Mlinica Bay (UTM WK11, Pag Island, N Dalmatia) after heavy rainfall

Dne 18.5.2005 sem s švicarskimi ornitologi v zalivu Mlinica nasproti Malega blata na J delu otoka Pag (S Dalmacija) opazoval dva (2) odrasla zalivska galeba. Ptici sta ob 18.30 h počivali tesno druga ob drugi v bibavičnem pasu kar tik ob cesti. Čeprav smo v tednu poprej prekrizarili Pag po dolgem in počez, zlasti vsa mokrišča, zalivskega galeba nismo opazili. Verjetno je, da sta ptici prileteli s ciklonom; še popoldan je močno deževalo, zvečer pa se je povsem zjasnilo. Pojavljanje zalivskega galeba na Hrvaškem je dokumentirano presenetljivo redko, primerjaj npr.: [RUBINIČ, B., BOŽIČ, L. & SACKL, P. (2002): The actual status of Slender-billed Gull *Larus genei* on the southern Dalmatian coast. – *Acrocephalus* 23 (110/111): 35–37].

Borut Štumberger, SI-2282 Cirkulane 41, Slovenija, e-mail: stumberger@siol.net

GULL-BILLED TERN *Gelochelidon nilotica*

Črnonoga čigra – dne 3.5.2005 opažen en osebek na Vranskem jezeru (UTM WJ46), kar je četrti podatek za to območje

Several observations were made at Lake Vransko (UTM WJ46) between 1 – 8 May 2005. Agricultural areas at the northern part of the lake adjoin wet meadows and reedbeds. The lower sections of agricultural fields were inundated. Almost each day, we could observe 3 – 6 individuals of Squacco Heron *Ardeola ralloides*, 2 – 20 Little Egrets *Egretta garzetta*, 2 – 8 Glossy Ibis *Plegadis falcinellus*, 2 – 4 Wigeons *Anas penelope*, 2 – 16 Mallards *Anas platyrhynchos*, 4 – 6 Garganeys *Anas querquedula*, 2 – 50 Coots *Fulica atra*, 1 – 4 Black-winged Stilts *Himantopus himantopus*, 1 – 3 Lapwings *Vanellus vanellus*, 3 – 7 Curlew Sandpipers *Calidris ferruginea*, 1 – 2 Black-tailed Godwits *Limosa limosa*, 1 – 2 Curlews *Numenius arquata*, 1 – 3 Spotted Redshanks *Tringa erythropus*, 1 – 2 Redshanks *Tringa totanus*, 1 – 5 Greenshanks *Tringa nebularia*, 1 – 3 Wood Sandpipers *Tringa glareola*, and 4 – 10 Common Sandpipers *Actitis hypoleucos*. Usually there were 4 – 12 Black-headed Gulls *Larus ridibundus* and 4 – 5 Yellow-legged Gulls *Larus cachinnans* resting in ploughed up areas. Some (1 – 5) Ringed Plovers *Charadrius hiaticula* often ran past them. On 2 May, four Whiskered Terns *Chlidonias hybridus* and one Black Tern *Chlidonias niger* were noticed in the same place. On 3 May, a Gull-billed Tern was seen sitting in the company of Black-headed Gulls and Yellow-legged Gulls. It took wing several times, but soon returned to the ploughland. However, it was no longer seen during the ensuing days. We have found three records on Gull-billed Tern sightings at Lake Vransko: on 10 July 1972 [KRALJ, J. (1997): Ornitofauna Hrvatske tijekom poslednjih dvjesto godina. – *Larus* 46: 1–112], on 27 April 1995, 3 individuals [RADOVIĆ, D., TUTIŠ, V. & KRALJ, J. (2004): Inventarizacija i valorizacija ornitofaune Parka prirode Vransko Jezero. – Zavod za Ornitologiju HAZU, Zagreb] and 6 May 1995, 1 specimen [STIPČEVIĆ, M. (1996): A contribution to the Croatian list of rare and scarce birds recorded from 1985 – 1995. – *Natura Croatica* 5 (1): 53–81].

Jasmina Mužinić, Institute for Ornithology CASA, Gundulićeva 24, HR-10000 Zagreb, Croatia, e-mail: jasmina@hazu.hr
Jenő J. Purger, University of Pécs, Institute of Biology, Ifjúság útja 6, HR-7624 Pécs, Hungary, e-mail: purger@ttk.pte.hu

LONG-EARED OWL *Asio otus*

Mala uharica – 2 mladiča, stara nekaj manj kot mesec dni, najdena 16.1.2005 v vasi Novo Selo Palanječko v bližini Siska (UTM XL03, osrednja Hrvaška)

On 16 Jan 2005, a friend told me about two young Long-eared Owls he had just found at Novo Selo Palanječko near Sisak. I visited the area and found them along the road leading through the village. They were still fully covered with down. As the chicks' primaries were incomplete, I estimated the two young to be 3 to 4 weeks old. Considering that these owls incubate the eggs for about 25 to 30 days [MIKKOLA, H. (1983): Owls of Europe. – T & A D Poyser, Calton], I concluded that they had been laid at the end of November or in early December. In the gardens of the local houses (in a circle with about 100 m in diameter), ten high and thick spruce trees are standing in which the owl's nest was most probably built. This recovery seems interesting to me owing to the highly unusual date of nesting. In the town of Sisak and its vicinity, the Long-eared Owl is a fairly common and regular summer breeder (March – May), where it uses the abandoned magpies' and crows' nests. In the winter months, these owls gather in flocks at few places in the town itself, such as in the central park, on private plots along the town skating rink, and in a group of spruce trees at Badaševo.

Željko Vasilik, S. Bereka 11, HR-44202 Topolovac, Croatia, e-mail: zeljko.vasilik@ina.hr

ČEBELAR *Merops apiaster*

Bee-eater – pair observed during its nesting between 27 Jul and 2 Aug 2005 on the east side of Pašman Island (UTM WJ36, N Dalmatia)

Od 27.7. do 2.8.2005 sem na hrvaškem otoku Pašmanu preživljala dopust. V kampu Sovinje na vzhodnem delu otoka se nad peščeno plažo dviguje približno 7 m visoka peščeno ilovnata stena, v kateri me je že prvi dan pritegnilo večje število lukenj, podobnih vhodom v ptičja gnezda. Naslednji dan (28.7.) sem res opazila par čebelarjev, ki se je spreletaval nad nanosom. Ptici sta izmenično pristajali pri eni izmed lukenj, izginili vanjo in se v času dveh minut vrnili ter spet poleteli na lov. Vsakič sta se tik pred vstopom oglasili s kratkim čivkom. Druge luknje so ostajale brez obiskovalcev, omenjena čebelarja pa smo lahko opazovali vsak dan v njuni skrbi za zarod. Čebelarje so na hrvaških otokih že opazovali, vendar so se pojavljali v večjih skupinah [BORDJAN, D. (2003): Čebelar *Merops apiaster*.

– Acrocephalus 24 (119): 154; BORDJAN, D. (2004): Čebelar *Merops apiaster*. – Acrocephalus 25 (120): 40].

Špela Škrajnar, Privoz 4, SI-1000 Ljubljana, Slovenija, e-mail: spela2xs@yahoo.com

MESTNA LASTOVKA *Delichon urbica*

House Martin – three chicks observed in the same nest with substantial age difference of approx. 5 – 6 days at Stari grad on the island of Hvar between 1 and 5 Aug 2005

Letos sem prvi teden v avgustu preživel poletni dopust na otoku Hvaru v mestecu Stari grad. V starem mestnem jedru gnezdi več sto parov mestnih lastovk. Eno izmed gnezd je bilo pripeto pod kamnit balkon samo približno 3 m visoko, tako da je bilo opazovanje krmljenja mladičev zelo preprosto. Toda potem sem presenečen opazil, da se na vhodni odprtini gnezda izmenično pojavljajo trije mladiči različnih starosti! Najstarejši je bil le nekaj dni pred tem, da zapusti gnezdo. Drugi največji je bil 5 – 6 dni mlajši, tretji pa še 5 – 6 dni mlajši od drugega. Iz gnezda je večino časa zvedavo gledal najstarejši, druga dva mladiča pa sta se ob njem pojavljala izmenično. Kar nekajkrat sem mlajša mladiča opazil skupaj na vhodni odprtini; najstarejši je bil takrat v ozadju. Med njimi ni bilo videti rivalstva. Vhodna odprtina gnezda je bila dovolj velika, da sta se na vhodu lahko pojavljala dva mladiča. Nad tem svojim odkritjem sem bil tako presenečen in navdušen, da sem gnezdo hodil opazovat 5 dni zapored (1. – 5.8.2005). V meni dostopni literaturi [npr. TURNER, A. & ROSE, C. (1989): A Handbook to the Swallows and Martins of the World. – Christopher Helm, London] še nikoli nisem slišal ali prebral, da ima mestna lastovka mladiče tako velikih starostnih razlik. Starost mladičev sem ocenil glede na njihovo velikost in operjenost. Imam zelo veliko izkušenj s kmečkimi lastovkami *Hirundo rustica*. Veliko mladičev kmečkih lastovk sem obročkal na gnezdu, tako da lahko z gotovostjo podajam oceno o njihovi starosti. Po analogiji sem določil tudi starost mladičev mestne lastovke.

Aleksander Pritekelj, Ulica Ivanke Kožuh 6, SI-1210 Ljubljana-Šentvid, Slovenija, e-mail: aleksander.pritekelj@mobitel.si

ČRNOČELI SRAKOPER *Lanius minor*

Lesser Grey Shrike – 1 individual observed in mid July 2000 near the village of Gramače (44° 40' N, 14° 50' E; island Pag, N Dalmatia)

Med 15. in 22.7.2000 sem preživil dopust na hrvaškem otoku Pagu. Med enim izmed številnih izletov sem sredi dopusta obiskal tudi polotok Lun na severnem delu otoka. Tu sem ob glavni cesti pri vasi Gramače opazoval en osebek črnočelega srakoperja. Opazoval sem ga samo enkrat in še takrat čisto na kratko, morda kakšno minuto. To je bilo doslej moje edino opazovanje črnočelega srakoperja na hrvaškem Jadranu, čeprav tam preživljam dopust že desetletja, vsako leto po 1 – 4 tedne. Na samem Pagu sem dopustoval pet let, med letoma 2000 in 2004.

Tomaž Jančar, DOPPS-BirdLife Slovenija, p.p. 2990, SI-1001 Ljubljana, Slovenija, e-mail: tomaz.jancar@dopps-drustvo.si

SRBIJA (SRBIJA IN ČRNA GORA) / SERBIA (SERBIA AND MONTENEGRO)

SHORT-TOED EAGLE *Circus gallicus*

Kačar – opazovan na selitvi blizu vasi Rti (UTM DP44, Z Srbija); prvi podatek za Dragačevsko območje

On 14 Aug 2002, accompanied by Jovan Pantović, we visited Rti village (UTM DP44) in the Dragačevo region (W Serbia). The village is famous for its Rćanska cave, the cliffs above it, and the unique Plato (plateau) on top of the cliffs. As the entire area was ornithologically unknown, we decided to spend an afternoon researching birds around the cliffs. On that perfect summer day we observed, for several times, a family of Peregrine Falcons *Falco peregrinus* in flight around the cliffs, three Goshawks *Accipiter gentilis* and a Common Buzzard *Buteo buteo* in territorial flight, several families of Red-backed Shrikes *Lanius collurio*, Common Swifts *Apus apus* on migration, and a Lesser-spotted Woodpecker *Dendrocopos minor*. We left the cliffs and proceeded to the main road, from where we had a splendid view of the huge limestone blocks. At about 17.10 h, a large raptor showed up gliding at the top of the cliffs and soon landed on a dead tree on the very edge of the cliffs. We clearly saw the brown head, back and wings and whitish belly of an adult Short-toed Eagle. The eagle gave us a wonderful opportunity to look at it for about 10 minutes when it disappeared in low flight over the Plato. This is the first record for the Dragačevo region. The same locality was again surveyed in 2003, 2004, and 2005, but as no data

about the presence of Short-toed Eagles during the breeding season were obtained, we believe that the observed bird was on migration.

Milan Ružić, Ul. 8/8 N. N. Atenica, 32000 Čačak, Serbia and Montenegro, e-mail: milruzic@yahoo.com
Uroš Pantović, Takovska 5, 3200 Čačak, Serbia and Montenegro, e-mail: pantovic_uros@yahoo.co.uk

RED KITE *Milvus milvus*

Rjavi škarnik – opazovanje v gnezditvenem obdobju dne 26.6.2004 v vzhodnem Banatu (UTM DR58, V Banat, Vojvodina) ob reki Tamiš pri vasi Opovo

On 26 Jun 2004, I inspected riverside habitats along both banks of the river Tamiš between Opovo and Sefkerin (E Banat, Voivodina). I walked from Opovo through the alluvial forest towards the south, and after crossing the bridge over the river at Sefkerin I started my way back towards Opovo on the embankment. At this section river is canalized and indigenous forests in remaining narrow inundation area have been mainly replaced by fast-growing poplars. However, the stands are quite old with White Willows *Salix alba* in some places and patches of old White *Populus alba* and Black Poplars *P. nigra*, or just solitary trees. On the opposite side of the embankment, spacious and intensively managed agricultural landscape spreads, intersected by groups of trees or bushes and melioration canals. I did not observe many birds of prey on that day: a Hobby *Falco subbuteo* at Opovo, several Common Buzzards *Buteo buteo* throughout the day, a female Goshawk *Accipiter gentilis* near Opovo and one near Sefkerin, and an adult White-tailed Eagle *Haliaeetus albicilla* in its suspected breeding territory. The only unexpected raptor was an adult Red Kite standing very still on the branch of a large Black Poplar near the left bank of the river, but outside the inundation zone, near the Dunavac Canal, which connects the Tamiš with the Danube (UTM DR58). Immediately next to the bird I noticed an empty crow-type nest. I was able to observe the bird and the nest for almost 15 minutes, but noticed no movements or other Red Kites around the site. After it almost disappeared from the country in the second half of 20th century, observations of this species on migration, wintering and even in the breeding period in Serbia have become more frequent after 1997. It is interesting that all new observations within the breeding period in Voivodina originate from the forested wetlands along the Danube, Bosut and Begej rivers [PUZOVIĆ, S. (2002): Nova posmatranja crvene lunje *Milvus milvus* u Srbiji tokom reproduktivnog perioda. – Ciconia 11: 136–139]. My

observation may suggest that the species breeds there, although I have not visited this place again.

Marko Tucakov, Marka Oreškovića 9, 25275 Bački Breg, Serbia and Montenegro, e-mail: mtucakov@eunet.yu

PINTAIL *Anas acuta*

Dolgorepa raca – dne 9.3.2003 je bila opažena velika jata pribl. 100 osebkov na reki Tisi v bližini Bačkega Gradišta (UTM DR34, V Bačka, Vojvodina); v prvi polovici marca je višek preleta za raco dolgorepko v Vojvodini

On 9 Mar 2003, I observed a flock of around 100 very vocal Pintails flying upstream the Tisa river on Biserno ostrvo near Bačko Gradište (UTM DR34, E Bačka, Voivodina). Eventually, one part of the flock landed on the river surface, while a smaller part flew back downstream. The birds appeared at 11.38 h and were present on or above the river until 12.05 h, when they continued to fly upstream. In this particular locality only a few Pintails have been recorded several times in late winter during the 2000 – 2005 period. Although such numerous flocks are rare (and only present during spring migration) in Voivodina [ŠOTI, J. & DIMITRIJEVIĆ, S. (1974): Prilog poznavanju ornitofaune Vojvodine (Gaviiformes, Podicipediformes, Pelecaniformes, Ciconiformes i Anseriformes zapadnog dela Banata). – Zbornik Matice srpske za prirodne nauke 46: 127–160], a flock was observed on the nearby Bečej fishpond on 1 Mar 1991, when 99 birds were counted [LUKAČ, Š. & LUKAČ, A. (1992): Ornitofauna ribnjaka Bečej. – Ciconia 4: 4–17], and more recently on Lake Mezgarica near the village of Kruševlje, where 150 – 200 individuals were observed on 13 Mar 2004 [ĐAPIĆ, D. (2004): Pintail *Anas acuta*. – Acrocephalus 25 (122): 169]. This makes the first half of March the peak for Pintail migration in northern Serbia.

Marko Šćiban, Bate Brkića 18, 21000 Novi Sad, Serbia and Montenegro, e-mail: sciban@eunet.yu

FERRUGINOUS DUCK *Aythya nyroca*

Kostanjevka – dne 24.3.2003 opazovan par na jezeru Petnica pri Valjevu (UTM DQ11, Z Srbija), dva samca opažena tudi 20. in 21.3.2005; vrsta je redak preletnik v okolici Valjeva

On 24 Mar 2003, a pair of Ferruginous Ducks was observed on artificial Lake Petnica near Petnica Research Centre in the vicinity of Valjevo (UTM

DQ11, W Serbia). The birds were seen feeding and hiding in a small belt of reeds in the lake's western part, together with 3 pairs of Garganey *Anas querquedula*. On 20 and 21 Mar 2005, two males together with a male Wigeon *Anas penelope* were observed in the same part of the lake. In spite of the regular research throughout the years and seasons, the species has not been recorded in other months between 2001 and 2005, which so far makes March the only month for the occurrence of this species on Lake Petnica. Ferruginous Duck is a very rare migrant on the nearby Dokmir fishpond, which at the same time happens to be the only breeding place of the species in west Serbia [RAKOVIĆ, M. & NOVAKOVIĆ, B. (2003): Avifauna of Dokmir fishpond. – Ciconia 12: 121–129].

Marko Šćiban, Bate Brkića 18, 21000 Novi Sad, Serbia and Montenegro, e-mail: sciban@eunet.yu

Dimitrije Radišić, Momčila Tapavice 12, 21000 Novi Sad, Serbia and Montenegro, e-mail: becko@ib.ns.ac.yu

LITTLE RINGED PLOVER *Charadrius dubius*

Mali deževnik – potrjeno gnezdenje na reki Zapadna Morava, 20 km SZ od Kraljeva (UTM DP74, Z Srbija); prvo potrjeno gnezdenje za okolico Kraljeva

On 1 Jul 2005, the Little Ringed Plover's nest containing 3 eggs was found on the gravel bank of the Zapadna Morava river about 20 km NW from Kraljevo, near the village of Bapsko Polje (UTM DP74). On this particular occasion, the eggs were also photographed. On 15 Jul 2005, during our next visit to the Zapadna Morava river, we found 3 nestlings from the same nest running and feeding together with the adults on the same part of the sandbank. This is so far the first evidence of the Little Ringed Plover's successful breeding around Kraljevo. This species has been proved to breed upstream, in the vicinity of Čačak [ŠĆIBAN, M. & RUŽIĆ, M. (2002): Findings of Little Ringed Plover in breeding period in valley of Zapadna Morava. – Ciconia 11: 161 – 162].

Miloš Radaković, Drakčići, 36000 Kraljevo, Serbia and Montenegro, e-mail: maxkv@ptt.yu

Marko Šćiban, Bate Brkića 18, 21000 Novi Sad, Serbia and Montenegro, e-mail: sciban@eunet.yu

WREN *Troglodytes troglodytes*

Stržek – dne 5.5.2005 v skladišču pri Baču (UTM CR53, SV Bačka, Vojvodina) najdeno gnezdo v starem gnezdu kmečke lastovke *Hirundo rustica*



On 25 May 2005, during my inspection of the "Ristovača" pheasant farm and hunting grounds with forest habitats surrounded by agricultural fields and saline meadows situated near Bač (UTM CR53, SE Bačka, Voivodina), I entered the room used as a storehouse for pheasant – transportation boxes. In previous years, I had already found active Barn Swallow *Hirundo rustica* nests in it. This time, three were active. I noticed a pair of Wrens bringing material inside an old Barn Swallow nest, which had been active in 2004. The nest was situated on a wall, supported by electricity cables, some 2.5 m high (see photo). Ten days later, on 6 Jun 2005, when I had a look at the nest for the last time, I found 7 Wren eggs in it.

Nemanja Ristić, Balzakova 67, 21000 Novi Sad, Serbia and Montenegro, e-mail: rile_87@yahoo.com

BLUETHROAT *Luscinia svecica*

Modra taščica – avtor je med 12.8. in 18.9.2004 opazoval jesensko selitev na evtrofne »Jezeru«, severno od vasi Stanišić (UTM CR59, SZ Bačka, Vojvodina)

In autumn 2004, during the intensive bird ringing at the eutrophic pond "Jezero" situated to the north of Stanišić (UTM CR59, NW Bačka, Voivodina), I was able to follow the intensive migration of Bluethroats. On 12 Aug, I ringed one young (1y) individual, on 17 Aug three (out of which two were adult males), on 18

Aug 1 ind., on 1 Sep 3 ind., on 2 Sep seven ind. (three young among them), on 6 Sep five ind. (including one adult male), on 11 Sep one and on 18 Sep two, including one 1y individual. This 20 ha large pond, overgrown by reed throughout the year (contrary to some previous years, when reedbed was dry) was filled with water. Since the area is the only site covered by reed in otherwise agricultural local landscape with just solitary trees or tree – lines, it is possible that “Jezero” is an important stopover site for this species during its migration in northern Serbia. Bluethroat is a breeder at the same site [ŽULJEVIĆ, A. & ĐAPIĆ, D. (2002): Prvi podaci o fauni ptica bare «Jezero» kod Stanišića. – Ciconia 11: 123–126], and has been observed during the spring migration as well.

Dejan Đapić, Vuka Karadžića 134, 25284 Stanišić, Serbia and Montenegro, e-mail: cbraaa@tippnet.co.yu

RED-BREASTED FLYCATCHER *Ficedula parva*

Mali muhar – dne 27.9.2003 ujeta samica v okolici Valjeva (UTM DQ11, Z Srbija); drugi podatek za nižavje v okolici Valjeva



On 27 Sep 2003, a female Red-breasted Flycatcher was caught during the bird ringing camp held in Petnica Research Centre near Valjevo (UTM DQ11, W Serbia; see picture). The bird, which flew into our mist net set in hedges next to the corn field, was identified and photographed in the company of Nikola Stojnić, Vesna Obradović, Čaba Matović and Dimitrije Radišić. So far, this is only the second record of the species in the lowlands surrounding the town of Valjevo. Previously, three birds had been observed and video-taped (on 13 Aug 2001) near the swimming pool about 1 km north of the Centre. Red-breasted Flycatcher is a possible breeder of the neighbouring

Maljen Mt. [GRUBAČ, B. (2001): First recorded nest of Red-breasted Flycatcher in Serbia. – Ciconia 10: 150 – 152; NOVAKOVIĆ, B. & RAKOVIĆ, M. (2004): Status and analyse of the bird fauna of Mt. Maljen. – Ciconia 13: 99–104].

Marko Ščiban, Bate Brkića 18, 21000 Novi Sad, Serbia and Montenegro, e-mail: sciban@eunet.yu
Marko Raković, Radnička 8, 14000 Valjevo, Serbia and Montenegro, e-mail: markorakovic@mail.com

ROCK BUNTING *Emberiza cia*

Skalni strnad – dva osebka opažena dne 16.11.2003 v predmestju Čačka (UTM DP55 Srbija); prvi podatek za dolino zahodne Morave

Rock Bunting is a rare breeder of the mountainous area surrounding the town of Čačak [GRUBAČ, B. (2003): Price područja Ovčarsko–Kablarske klisure. – Beležnik Ovčarsko–Kablarske klisure lit. 2: 81 – 95; *own data*]. There are few data on the local population's winter movements and habits. Around 7.00 on 16 Nov 2003, I stepped out of our family house in Atenica (UTM DP55) in the suburb of Čačak. The temperature was about 0°C and thick fog covered the entire town. I heard an unusual and quiet call from my neighbour's garden. Because of the fog I had to approach the site very close to see what bird was calling, and to my surprise there were two Rock Buntings sitting in a Cultivated Apple *Malus domestica* tree. They let me to approach them to about 3 m and showed no fear at all. One of them, probably 1st year male, was calling quietly virtually in front of me. The other bird was an adult female. I visited the same spot at 9.00 on the same day, but found no sign of them. This is the first record of this species in the Zapadna Morava valley. It is known that in Serbia Rock Buntings spent the winter or migrate through its lowlands [MATVEJEV, S. (1976): Pregled faune ptica Balkanskog poluostrva. I: detliči i ptice pevačice. – SANU, Beograd]. Rare records are also known even from Voivodina [PURGER, J.J. (1990): Pitanje statusa planinske strnadice, *Emberiza cia cia* L., 1766 u Vojvodini. – Glasnik Prirodnjačkog muzeja u Beogradu B45: 169–170].

Milan Ružić Ul. 8/8 N. N. Atenica, 32000 Čačak, Serbia and Montenegro, e-mail: milrusic@yahoo.com

BOLGARIJA / BULGARIA

BOOTED EAGLE *Hieraaetus pennatus*

Mali orel – dva para opažena v primernem okolju med gnezditvenim obdobjem na zahodni Stari Planini (UTM FP32 in 14, Z Bolgarija), prvi 10.7.2005, drugi 28.7.2005

During the 2005 breeding season, Booted Eagles were recorded within two areas of Zapadna Stara Planina Mountain. On 10 Jul 2005, a pair (dark phase) was observed in UTM square FP32. On 28.07.2005, another pair of Booted Eagles (light phase) was observed in UTM square FP14. For the first region we have unconfirmed data that the pair had nested there for a period of about 10 years. The two regions, in which the Booted Eagles were recorded, are rather similar in their natural characteristics. Namely, these are deciduous forest massifs at the foot of Zapadna Stara Mountain, which are in immediate proximity of vast open grasslands. The slopes are mainly facing east, the altitude of the region is about 350 – 500 m a.s.l. For the described regions of Zapadna Stara Planina Mountain, there are some old data regarding the observation of the species during the breeding season [DONCHEV, S. (1970): The Birds of Zapadna Stara Planina Mountain. pp. 45–92 In: DONCHEV, S. (1970): The Birds of Zapadna Stara Planina Mountain. – Periodical of the Museum of Zoology, BAS 21: 45–92]. PUZOVIĆ [PUZOVIĆ, S. (2000): Atlas ptica grabljivica Srbije. – Zavod za zaštitu prirode Srbije, Beograd] also states that he observed single birds of this species during the breeding season, twice in two regions of the Serbian part of Stara Planina Mountain, one of which is adjacent to both Bulgarian zones, where the species was observed.

Georgi P. Stoyanov, Centre for Conservation and Support of the Wild Fauna "Durrell", Golyam Bratan Str. No. 23, BG–1618 Sofia, Bulgaria, e-mail: g.p.stoyanov@mail.bg, georgips@abv.bg
Emil Djuninski, Assen Balkanski Str. No 43, v. Chuprene 3950, Region Vidin, Bulgaria, e-mail: chuprene@abv.bg

ELEONORA'S FALCON *Falco eleonora*

Sredozemski sokol – trije osebkli opaženi v gnezditvenem obdobju v vzhodnih Rodopih (UTM LF48, JV Bolgarija); opazovanja sredozemskega sokola so v Bolgariji v zadnjih letih redna, gnezdenje pa še ni potrjeno

On 25 Aug 2005, I observed three Eleonora's Falcons (dark morph) near Dobromirski village in the Eastern

Rhodopes (UTM LF48, SE Bulgaria). The observation took place between 16.00 and 17.00 hrs. The birds were seen flying over the rocky formations near (1 km) the Vurbitsa River. The landscape is an open country with separate rocks and fields. One of the birds made a successful attack, catching some prey and consuming it. In the Eastern Rhodopes, the species had been previously observed near the villages of Silen (UTM LG91) and Dolna Kula (UTM LF89) in 1984, Egrek (UTM LF87) and Strazhets (UTM MF08) in 1987 [IANKOV, P. (1991): The birds of the Eastern Rhodopes. Time of presence and dynamics of the ornithofauna. – Ecology, Sofia 24: 26 – 43]. It has still not been proved that the species actually breeds in Bulgaria. The observed birds are possibly vagrants, feeding in the area. In recent years, observations of this species have become more regular in Bulgaria.

Nevena Trifonova Kambourova, Central Laboratory of General Ecology–BAS, Gagarin Street no. 2, BG–1113 Sofia, Bulgaria, e-mail: nevena@ecolab.bas.bg, larus@abv.bg

TEREK SANDPIPER *Xenus cinereus*

Sabljasti martinec – opažen dvakrat v SV Bolgariji: v Shabla Tuzli (UTM PJ22) dne 2.6.2001 in na jezeru Durankulak (UTM PJ23) dne 27.6.2002

During the census carried out at Shabla Tuzla, a small brackish to hypersaline wetland on the coast in northeastern Bulgaria (part of IBA BG049; UTM PJ22), an adult Terek Sandpiper was observed on 2 Jun 2001. The bird, which was in breeding plumage, was identified using a telescope. Other observers present there were the BSPB members Viktor Vassilev and Christo Gurdov. Another observation of the species took place on 27 Jun 2002 at the Eagle Marsh of the Lake Durankulak complex (IBA BG050; UTM PJ23; for the map of the area see [PETKOV, N. (2003): Ferruginous Duck *Aythya nyroca* breeding population development and habitat selection at Durankulak lake, Bulgaria. – Acrocephalus 24 (118): 87–96]) on the west bank when I and Valentin Katrandgiev observed a bird in breeding plumage foraging along the shallow grassy bank of the marsh. The bird was observed with binoculars from a distance of 30 m through the car window. Subsequently we approached the bird by the car to a distance of 15 – 20m. The species had been recorded in the 1980s in both wetlands [NANKINOV, D., SIMEONOV, S. & IVANOV, B. (1997): Fauna of Bulgaria, Vol. 26 Aves – part II. – "Prof. M. Drinov" publishing house, Sofia]. In recent years, there have

been more regular observations of the species in Bulgaria mostly around the Burgas wetlands.

Nikolai Petkov, BSPB/BirdLife Bulgaria, PO Box 50, BG-1111 Sofia, Bulgaria, e-mail: nicky.petkov@bspb.org

RED-NECKED PHALAROPE *Phalaropus lobatus*
Ozkokljuni liskonožec – dne 15.5.2002 opažen 1 osebek v zimskem perju; gre za redek podatek za notranjost Bolgarije (UTM FN74)

On 15 May 2002, during the national breeding distribution mapping of Ferruginous Duck *Aythya nyroca*, me and Boris Krustanov observed a Red-necked Phalarope in non-breeding plumage at Peturch fishponds (UTM FN74) to the northwest of Sofia. The species is known to migrate through Bulgaria, mostly along the Black Sea coast [NANKINOV, D., SIMEONOV, S. & IVANOV, B. (1997): Fauna of Bulgaria, Vol. 26 Aves – part II. – “Prof. M. Drinov” publishing house, Sofia]. However, records from inland areas are scarce, and till that day the species had not been recorded in this particular wetland.

Nikolai Petkov, BSPB/BirdLife Bulgaria, PO Box 50, BG-1111 Sofia, Bulgaria, e-mail: nicky.petkov@bspb.org

SYRIAN WOODPECKER *Dendrocopos syriacus*
Sirijski detel – dne 21.5.2001 opažen osebek v rezervatu Srebarna (UTM NJ08, SV Bolgarija) med nenavadnim prehranjevanjem z žuželkami, ki jih je nabiral s starega trstičja, le 50 – 60 cm nad vodo

Unusual foraging behaviour of Syrian Woodpecker was observed on 21 May 2001 in Srebarna Managed Reserve, northeastern Bulgaria (UTM NJ08). The bird was picking insects from the old and dead reed stems (50 – 60 cm above the water). Syrian Woodpecker is more mobile than the Great Spotted Woodpecker *Dendrocopos major* [CRAMP, S., ed. (1985): Birds of Europe the Middle East and North Africa. Vol. 4. – Oxford University Press, Oxford]. This perhaps enables it to search for food not only in trees but also in more unstable substrates such as old reed stems. This may be a single individual behaviour utilizing the new foraging microhabitat.

Nevena Trifonova Kambourova, Central Laboratory of General Ecology-BAS, Gagarin Street no. 2, BG-1113 Sofia, Bulgaria, e-mail: nevena@ecolab.bas.bg, larus@abv.bg

BARN SWALLOW *Hirundo rustica*

Kmečka lastovka – opazovana med nenavadno igro lovljenja peresa, ki je sicer že opisano v literaturi, pri samostanu Lopušanski, dne 16. in 17.6.2005 (UTM FP60, SZ Bolgarija)

On 16 and 17 Jun 2005, an adult Barn Swallow was observed during its aerial play with feathers in the yard of Lopushanski monastery, Montana region, NW Bulgaria (UTM FP60). This unusual behaviour was recorded on two occasions, the second time involving a larger – sized white feather. The bird was continuously circling around, dropping the feather and catching it at lower height after making 1 or 2 circles around it. During the first observation, it was repeated 6 – 7 times (16 Jun), on the next day only 3 – 4 times. The second feather was finally carried away by a male House Sparrow *Passer domesticus*. This Barn Swallow was from a pair having a nest with six 7 – 9 days old young. Although some other Barn Swallow pairs also bred in the monastery, none of them was seen performing the above mentioned tricks. The behaviour of dropping and catching feathers is widely known for the Barn Swallow [BROWN, C.R. & BROWN, M.B. (1999): Barn Swallow (*Hirundo rustica*). In: POOLE, A. & GILL, F. (eds.): The Birds of North America, No. 452. – The Birds of North America, Inc., Philadelphia, PA] and for the Tree Swallow *Tachycineta bicolor* [LINCOLN, C.W. (1956): Tree Swallows playing with a feather. – Wilson Bull. 68 (2): 156–57; ROBERTSON, R.J., STUTCHBURY, B.J. & COHEN, R. R. (1992): Tree Swallow. In: POOLE, A., STETTENHEIM, P. & GILL, F. (eds.): The Birds of North America, No. 11. – The Academy of Natural Sciences, The American Ornithologists' Union, Washington]. Observation of Brown-throated Sand Martin *Riparia paludicola*, which took place in South Africa on 3 Jul 2005, involved about 30 birds fighting for the possession of a relatively large (6 – 8 cm long) white feather, (A. WELZ unpubl.).

Acknowledgements:

We would like to thank Adam Welz for sharing his unpublished observations (posted in South African Bird Net on 10 Aug 2005).

Boris P. Nikolov, Bulgarian Ornithological Centre, Institute of Zoology, Bulgarian Academy of Sciences, 1 Tsar Osoboditel Blvd., BG-1000 Sofia, Bulgaria, e-mail: bnikolov@poshta.net

Iva P. Hristova, Climatch Engineering Ltd., 51 Prof. Kiril Popov Str., BG-1700 Sofia, Bulgaria, e-mail: fotobiota@abv.bg

Rosen L. Aleksov, Regional Inspectorate of the Ministry of Environment and Water-Blagoevgrad, 1 Svoboda Str., BG-2700 Blagoevgrad, Bulgaria, e-mail: rioskata@yahoo.com

Radoslav H. Stanchev, Executive Environmental Agency, 136 Tsar Boris III Blvd., Sofia, Bulgaria, e-mail: radoslav_stanchev@hotmail.com

WAXWING *Bombycilla garrulus*

Pegam – več opazovanj med februarjem in aprilom 2005 v Z Bolgariji (Vratza, UTM GN08; Sofia, FN82/92; Komshtitza, UTM FN67)

On 4 Feb 2005, two Waxwings were registered in a park of Vratza (UTM GN08), the town situated close to the north slopes of Vrachanska Mountain, feeding on seeds from the nuts of Oriental Plane *Platanus orientalis* (I. PETKOV pers. comm.). At about the same time, 5 birds were observed in Sofia near its Festival Hall (UTM FN 82/92), foraging on fruits of Guelder Rose *Viburnum opulus* (D. DIMITROV pers. comm.). On 4 Mar 2005, a flock of about 45 birds was registered 3 km north of Komshtitza town (UTM FN67). On 1 Apr 2005, a flock of 17 waxwings was observed in the park next to the National Palace of Culture in the very centre of Sofia (NDK; UTM FN 82/92). The birds stayed there till 26 Apr 2005. During this period, the maximum number of birds reached 28. The Waxwings in this park fed mainly on the Juniper *Juniperus sabina* fruits (D. DIMITROV pers. comm.). They also pecked blossoms in different decorative orchards, as well as fresh leaves of Canadian Poplar *Populus deltoides*, Ash *Fraxinus excelsior*, Sycamore *Acer pseudoplatanus*, and Lime *Tilia* sp. On separate days, the birds were also seen drinking sap from bark of the Common Silver Birch *Betula pendula*. The birds drank water and bathed in the park's small pool or in puddles formed by rain. A few times during the sunny days, 2 – 4 males were singing, and separate formed couples were observed with males feeding the females. The Waxwings were tame and ignored the huge number of pedestrians passing by. On 17 Apr 2005, an unsuccessful attack by a Sparrowhawk *Accipiter nisus* on a flock of Waxwings near NDK took place. On 17 Apr 2005, about 10 Waxwings were observed in the area of Sofia's "Vassil Levski" National Stadium (UTM FN 82/92) (T. LAZAROVA pers. comm.).

Acknowledgements:

We would like to express our gratitude to Dimitar Dimitrov, Tamara Lazarova and Ivaylo Petkov.

Georgi P. Stoyanov, Centre for Conservation and Support of the Wild Fauna Durrell, Golyam Bratan Str No 23, BG-1618 Sofia, e-mail: g.p.stoyanov@mail.bg, georgips@abv.bg
 Andrey Ralev, Mila Rodina Str 22 B, BG-1408 Sofia, e-mail: andrey@tradel.net
 Lachezar Spasov, Benkovski neighbourhood, Edinstvo Str. No 8, BG-1278 Sofia, e-mail: ares1@abv.bg

WOODCHAT SHRIKE *Lanius senator*

Rjavoglavi srakoper – dne 15.5.2003 je bilo v rezervatu Tissata v soteski Kresna (UTM FM72, SZ Bolgarija) kakih 15 – 17 m visoko najdeno gnezdo v rogovili debela topola *Populus* sp.; gnezdišče je neobičajno, še posebno za sredozemsko regijo, ki ji območje pripada

On 15 May 2003, a female Woodchat Shrike was found lying in its nest situated in a Poplar *Populus* sp., in the trunk's fork near the top of the tree at a height of about 15 – 17 m, in the buffer zone of Tissata Nature Reserve in the Kresna Gorge (UTM FM72, SW Bulgaria). The tree was located near the riverbank and next to the highway. A week later we found that the nest was destroyed and abandoned. In Europe, this species breeds in trees, especially fruit and olive trees [SNOW, D. & PERRINS, C. (1998): The birds of the Western Palearctic. Vol. II. – Oxford Univ. Press, Oxford, New York], most often between 3 and 10 m above the ground [HAGEMEIJER, E.J.W. & BLAIR, M.J., eds. (1997): The EBCC Atlas of European breeding birds: their distribution and abundance. – T & AD Poyser, London; MAKATSCH, W. (1976): Die Eier der Vögel Europas. II. – Radebeul]. In Georgia, the nests are situated lower than at 2.,35 m, as 75% of them are made in Pistachio *Pistacia* sp. and Christ's Thorn *Paliurus spina – christi* [GUSEV, V. & BEDNYI, S. (1961): Trudy Inst. Zool. Akad. Nauk Gruzinskoy SSR, 18: 41–51]. In Europe, their nests are most often situated on thick horizontal branches and only 9% in the trunks' forks [ULRICH, B. (1971): Untersuchungen zur Ethologie und Ökologie des Rotkopfwürers (*Lanius senator*) und Neuntoter (*L. collurio*). – Vogelwarte 26: 1–77]. The Woodchat Shrike's nest we found was not typical of the Mediterranean region to which the Tissata Reserve belongs [DIMITROV, D. (1966): Climatic division of Bulgaria. pp. 262–293 In: Geography of Bulgaria, Vol 1. – BAS, Sofia; STANEV, S. (1991): Climatic zones and areas in Bulgaria. pp. 53–89 In: The climate of Bulgaria. – BAS, Sofia; BONDEV, I. (1997): Geobotanical zoning. pp. 238–304 In: Geography of Bulgaria, Vol. 1. Physical geography. – BAS, Sofia]. Actually, it looked more like the Lesser Grey Shrike's *L. minor* nest that is often situated in fork and generally at good height above the ground (3 – 20 m) and not so rarely in Poplars *Populus* sp. [CRAMP, S. & PERRINS, C.M. eds. (1993): Handbook of the Birds of Europe the Middle East and North Africa. Vol. 7

– Oxford University Press, Oxford]. In the study area, all Woodchat Shrike's nests were in Christ's Thorn or in short Oaks *Quercus* sp. not higher than 7 m above the ground. So far, no similar Woodchat Shrike's nest site has been described in Bulgarian literature.

Stoyan Ch. Nikolov, Central Laboratory of General Ecology (Bulgarian Academy of Sciences), Str. Gagarin 2, BG-1113 Sofia, Bulgaria, e-mail: snikolov@ecolab.bas.bg

Svetoslav D. Spasov, Bulgarian Society for the Protection of Birds / BirdLife Bulgaria, BG-1111 Sofia, P.O. Box 50, Bulgaria, e-mail: svetoslav.spasov@bspb.org

Ventzislav Delov, Faculty of Biology (Sofia University "St. Kl. Ohridski"), e-mail: ventzi@biofac.uni-sofia.bg

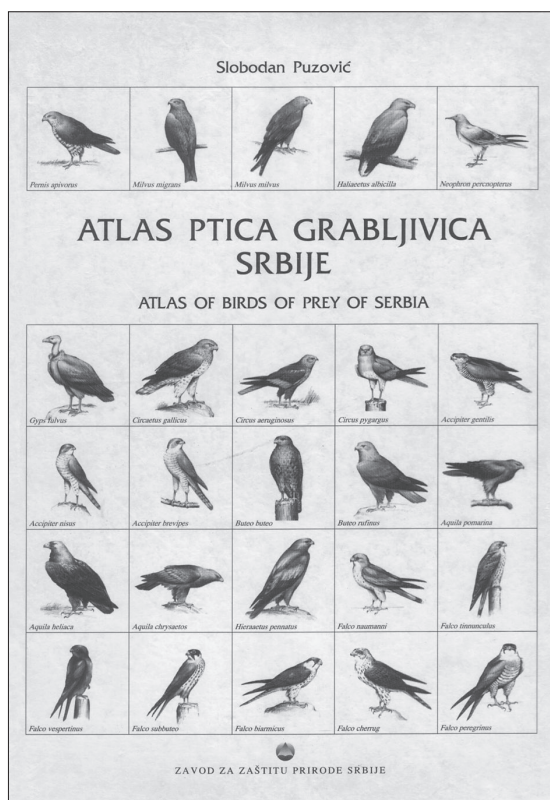
NOVE KNJIGE

New books

Puzović, S. (2000): Atlas ptica grabljivica Srbije – mape rasprostranjenja i procene populacija 1977 – 1996. [Atlas of birds of prey of Serbia – their breeding distribution and abundance]. Institute for Protection of Nature of Serbia, Belgrade. 262 pages. ISBN 86-80877-02-6, price: 35 €. Orders: Slobodan Puzović, Institute for the Nature Conservation of Serbia – Working Unit in Novi Sad, Radnička 20A, 21000 Novi Sad, Serbia and Montenegro

Finally! It is now easy to find, in one place, all the relevant information on the status, distribution and numbers of breeding raptors in Serbia that ornithologists could require. It follows a long period of basic surveys and 20 years of intensive mapping made by the author, his main co-workers (Bratislav Grubač, Ištvan Ham, Saša Marinković and Javor Rašajski) and 54 volunteers. Slobodan Puzović, the editor of this first Serbian bird atlas, explains in the foreword to this book its main function: "It is known that nature in Serbia is very rich and diverse; it is hard to find any other country in Europe with a similar diversity of ecosystems and species. This book is one of the best confirmations of these statements. Birds of prey are definitely among the most important and the most attractive representatives of wildlife in Serbia. By their appearance, strength, speed and other characteristics, birds of prey incite noble emotions and inspiration. Knowledge of species, their distribution and numbers, as well as spatial and temporal dynamics of these parameters is the basis for proper management of their populations." This can be also the most complete dedication of this atlas.

The book comprises four main chapters, excluding bibliography and two indexes. In the introduction, the author explains the significance of the Atlas, describes the history of raptor research in Serbia and presents information on their current legal protection at the national level. Puzović also describes the history of bird mapping work in Serbia from the very start, stating that the unusually long period of data collection is due to the lack of consistent human resources in the Serbian field of ornithology. For this reason, data collection has been made mainly in the frame of institutional work on the study and protection of birds in Serbia, led by the Institute for Nature Conservation of Serbia and



the Natural History Museum in Belgrade. Mapping on a grid of 10x10 km UTM squares was used. In order to determine population sizes as precisely as possible, and even calculate breeding densities, the author has chosen to define nine regions within the country: Bačka, Banat, Srem, west, central, east, south, south-west Serbia and Kosovo, and Metohija.

In its main chapter the book gives a concise biology, data on historical and recent distributions, and numbers (with distribution map), population and range trends, and describes conservation needs for the 25 raptor species breeding in Serbia in the given period. The mapping technique includes twofold marking of the distribution data – for "confirmed breeding" and for "probable/possible breeding". Population size for each breeder is given by region and by country for three different periods: 1977 – 1979, 1986 – 1988 and 1994 – 1996, which allows a better insight into variations of population level. Distribution data are cumulative. An additional 12 raptors that did not breed in the mapping period are also presented, with data on their status. Particular attention is paid to three former breeders; the majority of the data on their occurrence in the second half of the 20th century is presented and analyzed. Finally, six regular migrants,

winter guests and vagrants are noted, as well as three inadequately documented species. The author also presents a thorough analysis of the mapping results, discussing in particular species richness, spatial and temporal abundance, species density and diversity, degree of rareness, range size, population and range trends, importance of raptor populations in Serbia on the European level and specific features of raptor life conditions in Serbia.

The Atlas is certainly a milestone in the development of Serbian ornithology, and its value on the national level, as well as the quality of the presented data is very high. Bird study in this country has finally started to answer the key (but never-ending) questions, very often repeated by the author: which (birds live in Serbia?), where (do they live?), when (do they appear during the year?) and how many (pairs or individuals of particular species live in Serbia?). Serbian bird researchers have clear guidelines now how to proceed with answering these questions. Thanks to the somewhat easier methodology of raptor population research and to the dedicated work of national raptor experts, this bird group is expected to benefit as a result of the better understanding of its needs achieved by this book. However, the book's practical value must be proved through its adequate use by managers of protected areas in Serbia and by development planners, who should have in mind the very clear interpretation of the mapping results, and even identification of "important raptor areas". Even more, it should be an obligatory guide for governmental institutions in the current transitional period in Serbia, faced with numerous environmental and nature conservation challenges.

After the lack of Serbian bird data in most European accounts and monographs published in the late 1990s, the Atlas appears as the first bird book from Serbia which has the capacity to satisfy the needs of international readers, whether they be raptor experts or birders travelling or spending time in Serbia. Although written in Serbian, the Atlas is readily useable by international readers, having in mind that all the chapters (and, in particular, all species mapping data) are summarized in English. International conservation efforts can now be precisely directed to those raptors in Serbia that are in crisis (especially Eastern Imperial Eagle *Aquila heliaca* and all vultures) via careful design of species action plans and projects for active protection. Amateurs and birders would, however, be more satisfied if the quality of the drawings and photos were better. Raptor experts, paying attention to calculations of breeding densities, can ask the author about the accuracy of calculated densities in

areas that include UTM squares with zero breeding raptors, having in mind the author's explanation that this is due to the difficulties in field coverage.

Nevertheless, this is a valuable and recommendable book which will, hopefully, inspire systematic work on mapping other birds in Serbia, which is urgently required! If you want to know more about Serbian natural heritage, Puzović's Atlas of breeding birds of prey of Serbia must be the first choice.

Marko Tucakov

**Ciconia – ornithological journal published by
Bird Protection and Study Society of Vojvodina**

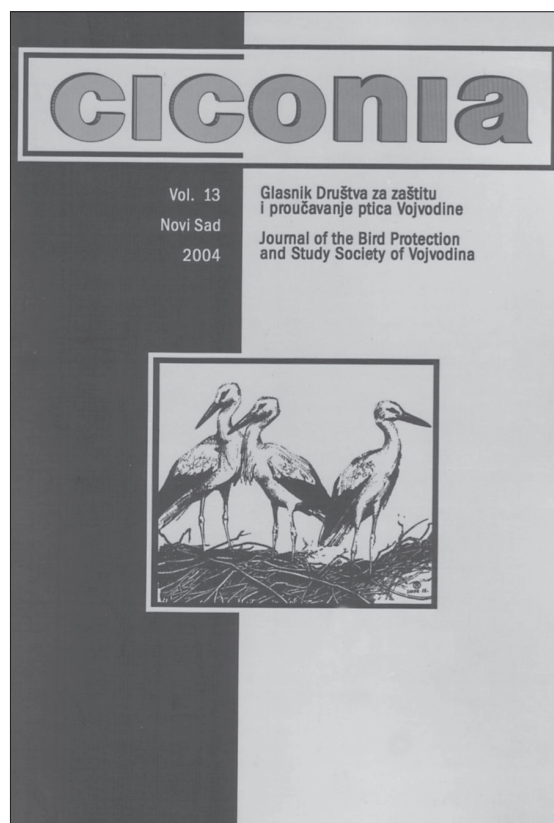
Ciconia, first published in 1989, is the only ornithological journal issued in Serbia and Montenegro. Within its 13 volumes published to date, 130 authors have contributed the results of their ornithological research carried out in Serbia and Montenegro and other countries in the region.

Once a year, the journal publishes papers on all aspects of ornithology, with topics from Serbia and Montenegro (very high publishing priority) and other countries of south-east Europe (limited number of articles per volume). Scientific studies and short notes, interesting faunistic observations of wild birds, bird lists of localities and areas, invitations for cooperation, information on ornithological literature, reviews of published ornithological articles and books, as well as relevant news on ornithology are welcome for submission for publication in Ciconia.

The editorial board of Ciconia accepts articles written in Serbian and English. All articles written in Serbian are thoroughly abstracted and summarized in English. Regular journal exchange programme assures fast information exchange. Our partners are predominantly publishers of ornithological journals in Europe and Asia.

Ciconia has proved to be a valuable source of information about birds in the poorly researched countries from which the majority of papers come. Since these countries contain a very rich and well preserved natural heritage and biodiversity, the Editorial board invites all ornithologists and birders who travel through or spend time in south-eastern Europe (especially in Serbia and Montenegro) to share their observations with the ornithological public by publishing them in Ciconia.

Marko Tucakov, Assistant Editor
Marka Oreškovića 9
25275 Bački Breg
Serbia and Montenegro
e-mail: mtucakov@eunet.yu



Corrigendum

V kratkem prispevku za rubriko Iz ornitološke beležnice za Hrvaško: [MIKUSKA, J. *et al.* (2004): Bewick's Swan *Cygnus columbianus*. – *Acrocephalus* 25(122): 164–165] je prišlo do napačnega navajanja meseca prvega pojavljanja te vrste. Namesto "4.11.2004" mora biti "4.12.2004".

In the short contribution (From the ornithological notebook) for Croatia: [MIKUSKA, J. *et al.* (2004): Bewick's Swan *Cygnus columbianus*. – *Acrocephalus* 25(122): 164–165], the stated month of the first occurrence of this species in Kopački rit is incorrect: "4 Nov 2004" should read "4 Dec 2004".



Figure 1: Typical habitats of the southern part of the Kresna Gorge: rocky slopes and formations of Greek Juniper *Juniperus excelsa* and Christ's Thorn *Paliurus spina-christi* situated above riparian forests of Oriental plane *Platanus orientalis* and White poplar *Populus alba* (photo: S. Spasov) – see page 23–31

Slika 1: Značilni habitati v južnem delu Soteske Kresna: kamnita pobočja in sestoji grškega brina *Juniperus excelsa* in kristusovega trna *Paliurus spina-christi* nad obrežnimi gozdovi vzhodne platane *Platanus orientalis* in belega topola *Populus alba* (foto: S. Spasov) – glej stran 23–31



Figure 2: Glossy Ibises *Plegadis falcinellus* on 14 Apr 2005 near the church at Črna vas, Ljubljansko barje, central Slovenia (photo: D. Šere) – see page 47

Slika 2: Plevica *Plegadis falcinellus* dne 14.4.2005 blizu cerkve v Črni vasi na Ljubljanskem barju (foto: D. Šere) – glej stran 47



Predstavite se
z uverturami!
Različne ob različnem
času, drugačne za
drugačne!



GPGWMJ – Izkaži se s predigro

**Osnovno uverturo nastavite
z SMS zahtevo: ključno
besedo in kodo izbrane
uverture pošljite na številko
1919 (primer: U GPGWMJ ali
UVERTURA GPGWMJ) ali pa
pokličite številko Mobitelove
zabavne postaje – 183 777
in sledite navodilom.**

Uvertura: izkaži se s predigro!

Uporabniki Mobitel GSM/UMTS, nastavite tistim, ki vas kličejo na mobilca, zvočne efekte ali glasbo iz nabora storitve Uvertura. **Odslej se lahko ob različnih urah v dnevu (časovna uvertura) ali različnim klicalcem (uverture skupin) predstavljate različno.**

Za več možnosti (nabor uvertur in pripadajočih kod, nastavitve časovne uverture in uverture skupin) vabljени na mobilni portal Planet/Krneki/Uvertura ali na spletni portal www.planet.si, zavihek Krneki.

Nastavitev/izbor posamezne uverture stane 300 SIT in velja za obdobje 30 dni. Nastavitev »samo zvonjenje« je brezplačna. Brez preklica ali spremembe uverture se obdobje uporabe nastavitve uverture samodejno podaljša za nadaljnjih 30 dni, kar znaša prav tako 300 SIT. Izbor uverture lahko spreminjate večkrat in kadarkoli. Vsaka nastavitev stane 300 SIT in je veljavna 30 dni. Če nastavitve ne boste spremenili, boste pred iztekom obdobja (29. dan) prejeli SMS opomnik, ki vas bo spomnil na možnost podaljšanja, novega izbora ali preklica.

Informacije:

naročniki Mobitel GSM/UMTS: 031/041/051 700 700, Mobiluporabniki: 031/041/051 121, ostali: 080 70 70.



ŽIVLJENJE NISO LE BESEDE

WWW.MOBITEL.SI