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Prioritizing avian conservation areas in China by hotspot scoring, heuristics and optimisation

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Chen Y.-H. 2007. Prioritizing avian conservation areas in China by hotspot scoring, heuristics and optimisation. Acta Ornithol. 42: 119–128.

Abstract. A quantitative process for the conservation analysis of 179 endangered birds of China is presented. At first, for each bird species its conservation priority status was assessed by calculating its conservation priority index (CPI), using six protection attributes (e.g. extinction risk, taxonomic uniqueness, public appeal). Second, based on the birds' conservation status, prioritisation by alternative approaches was performed. A hotspot score, a heuristic and an optimisation approach were used. The territory of China was divided into 583 grid cells (1° x 1°). The efficiency of the current network of protected areas was tested by comparing it with data obtained from prioritization. Analyses indicated that 28 species should be classified as highest conservation priorities, 13 of them were recommended for inclusion to the national wildlife protection list. The optimisation method for area selection was shown to be superior to the heuristic and hotspot approaches, since it selected more currently unreserved high priority areas whilst keeping the total number of sites low. It is proposed that seven Important Bird Areas (IBA's) should be added to the current protected area network. The suggested avian conservation assessment procedure can identify previously overlooked endangered bird species and candidate priority areas for conservation throughout comparative approaches.

Key words: avian conservation priority, area prioritization, complementarity, hotspots, China, biodiversity

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Physiological condition of incubating and brood rearing female Great Tits *Parus major* in two contrasting habitats

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Kilgas P., Tilgar V., Mägi M., Mänd R. 2007. Physiological condition of incubating and brood rearing female Great Tits *Parus major* in two contrasting habitats. Acta Ornithol. 42: 129–136.

Abstract. Little is known about the physiological causes and consequences of habitat choice decisions in birds. We compared size-corrected body mass, hematocrit, plasma albumin, beta- and gamma-globulin and triglyceride concentrations, as well as the albumin/globulin ratio of female Great Tits breeding in deciduous and coniferous forests in Estonia. Females were sampled during incubation and during the chick-rearing period. Whereas the nest box occupation rate and clutch size were higher in the deciduous habitat, the female nutritional condition during incubation was better in the coniferous habitat. This habitat difference in condition was not explained by the differences in the start of egg-laying or clutch size. Females lost more mass from incubation to the chick-rearing stage in the coniferous than in the deciduous forests. Although the values of most blood parameters changed from incubation to the chick-rearing stage, no habitat-related change was observed. There were no habitat differences in the number and quality of fledglings or in female condition during the chick-rearing period. Our results indicate that incubating female Great Tits are in a worse nutritional state in the preferred deciduous habitat fragments than those in the non-preferred coniferous habitat. However, habitat-related differences in condition during incubation seem to be unrelated to habitat-specific reproductive decisions.

Key words: Great Tit, *Parus major*, habitat differences, plasma proteins, triglycerides, hematocrit, breeding cycle

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High incidence of *Yersinia enterocolitica* (Enterobacteriaceae) in Alpine Accentors *Prunella collaris* of the Tatra Mountains

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Novotný M., Fečková M., Janiga M., Lukáň M., Novotná M., Kovalčíková Z. 2007. High incidence of *Yersinia enterocolitica* (Enterobacteriaceae) in Alpine Accentor *Prunella collaris* of the Tatra Mountains. Acta Ornithol. 42: 137–143.

Abstract. Cloacal and pharyngeal swabs were sampled from 33 Alpine Accentors. A total of 32 specimens were *Yersinia* positive, with 73% of birds being positive for *Y. enterocolitica* and 51% for *Yersinia* spp. A comparison of host characters and environmental conditions showed these to be consistent with the different life strategies of *Y. enterocolitica* and other *Yersinia* species. *Y. enterocolitica* is more successful at colonizing the birds' digestive tracts — the occurrence of *Y. enterocolitica* was significantly higher in the cloacal than the pharyngeal swabs. The occurrence of *Y. enterocolitica* was high in summer, especially in the nesting period (July). In juveniles (including nestlings), there was a 100% prevalence of *Y. enterocolitica*, whereas only two out of nine juveniles were *Yersinia* spp. positive. There was no significant difference between the occurrence of *Y. enterocolitica* in anthropogenic and natural habitats, but the occurrence of *Yersinia* spp. was much greater in the former than in the latter habitats. The presence of the *ail* gene associated with pathogenic *Y. enterocolitica* strains was not confirmed in any of the samples examined.

Key words: Alpine Accentor, *Prunella collaris*, yersiniosis, *Yersinia enterocolitica*, PCR, *ail* gene

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Different extinction risks of the breeding colonies of Rooks *Corvus frugilegus* in rural and urban areas of SW Poland

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Orłowski G., Czapulak A. 2007. Different extinction risks of the breeding colonies of Rooks *Corvus frugilegus* in rural and urban areas of SW Poland. Acta Ornithol. 42: 145–155.

Abstract. In 1983–1999 in SW Poland (40 540 km^2, 13% of the total area of Poland) the Rook was reported to nest in at least 270 colonies with a combined total of from ca. 18 to > 20 thousand breeding pairs. Between 1983–1988 and 1992–1999, 105 (39%) colonies were abandoned, i.e., 16–20% of the population as recorded in earlier periods. The largest drop in numbers (34%) occurred in rural populations. The median for abandoned colonies was 16 nests, which was nearly six times lower than that for active rookeries (median = 99). General linear models (GLM) indicate that the abandonment of colonies depends on their location (village, small town, city), the size and number of nests, and the presence of other rookeries in the vicinity of those studied. The best-fit model describing rookery extinction invoked the number of nests and other colonies within a radius of < 10 km from the colony studied. In each of three analyzed radii (10, 20 and 30 km) the numbers of nests and other colonies were decidedly higher around extinct rookeries. Active Rook colonies were farther away from the nearest rookery, and also from large colonies consisting of 50, 100 and 150 nests. The probability that a rookery would be abandoned was strongly negatively correlated with its size.

Key words: extinction risk, population decline, population distribution, Rook, *Corvus frugilegus*, concentric analysis

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Song structure and repertoire sharing in the Tawny Pipit *Anthus campestris* in Poland

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Osiejuk T. S., Grzybek J., Tryjanowski P. 2007. Song structure and repertoire sharing in the Tawny Pipit *Anthus campestris* in Poland. Acta Ornithol. 42: 157–165.

Abstract. The present study characterizes the song of Tawny Pipit males (n = 55) recorded in May 2005 in the Wielkopolska region of Poland. Tawny Pipits sang with a very variable rate of 4-28 songs per minute (mean ± SE 16.0 ± 1.35). Songs were thus short, with an average duration of under 0.5 sec. At the same time, songs were relatively complex in structure and consisted of 2–3 (max. 5) units of frequency between 2.7 and 5.3 kHz. Based on visual inspection of sonograms and further cross-correlation analysis, 20 different song types were distinguished. Each male had only a single song type in his repertoire and the rendition of strophes produced by a male were very stereotypical. The songs of different males exhibited varying levels of similarity, from completely different, through sharing some within-song units, to strongly similar on sonograms. However, even the strongly similar songs of different males demonstrated some individuality in frequency parameters or fine note structure. On average, there were only 0.38 different song types per male within the population studied, and 83% of males sang song types shared with at least one other male. Nine of the 20 song types described were unique, i.e. sung by single males. The results of this study suggest that a highly variable song rate may be a signal of male motivation, whereas individual differences in song structure probably enable individual recognition.

Key words: Tawny Pipit, *Anthus campestris*, song structure, song rate, repertoire sharing, small repertoire size

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Prey size selection of insular lizards by two sympatric predatory bird species

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Padilla D. P., Nogales M., Marrero P. 2007. Prey size selection of insular lizards by two sympatric predatory bird species. Acta Ornithol. 42: 167–172.

Abstract. Size-related selection of insular lizards by two sympatric predatory bird species (Southern Grey Shrike and Eurasian Kestrel) was studied in an arid insular environment. The endemic lizard genus *Gallotia* was a key resource in the diet of both predators, constituting more than 50% of the total biomass. Shrikes captured smaller lizards than kestrels during all seasons (mean snout - vent length (SVL): 7.4 ± 1.9 vs. 9.4 ± 2.1 cm respectively), presenting a sequential use of lizard sizes and avoiding potential competition. On the other hand, shrikes and kestrels showed the same seasonal variation pattern, capturing the largest lizards during their breeding periods (spring). Considering lizard availability, shrikes displayed less selective predation than kestrels in all seasons. Shrikes positively selected the medium lizard size (SVL: 5-10 cm) during the nestling period, but negatively selected the small lizard size (SVL: < 5 cm) in autumn and winter, probably due to an explosion of juvenile lizards. Lastly, kestrels appeared to be more selective, negatively choosing the small lizard size but positively selecting the largest ones all the year round (SVL: > 10 cm).

Key words: Kestrel, *Falco tinnunculus*, Southern Grey Shrike, *Lanius meridionalis*, Tenerife Lizard, *Gallotia galloti*, feeding ecology, prey selection, Canary Islands

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Taxonomic status of eight Asian shrike species (*Lanius*): phylogenetic analysis based on Cyt *b* and CoI gene sequences

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Zhang W., Lei F.-M., Liang G., Yin Z.-H., Zhao H-F., Wang H.-J, Krištín A. 2007. Taxonomic status of eight Asian shrike species (*Lanius*): phylogenetic analysis based on Cyt *b* and CoI gene sequences. Acta Ornithol. 42: 173–180.

Abstract. Complete Cyt *b* gene sequences (1143bp), partial CoI gene sequences (1176bp) and Cyt *b* gene sequences combined with CoI gene sequences (2319bp) from 22 samples of 8 *Lanius* species were analysed using the phylogenetic method. Molecular phylogenetic trees were reconstructed using the Maximum Parsimony (MP), Maximum Likelihood (ML), Neighbour-joining (NJ) and MrBayesV3.1 (BI) methods. 228 and 216 nucleotide sites were found to be substituted in the Cyt *b* gene and CoI gene sequences respectively, accounting for 19.5% and 18.4% of the total nucleotide sites in the Cyt *b* gene and CoI gene sequences. In the phylogenetic trees, *L. minor* and *L. tigrinus* were the first to diverge. Then, a parallel clade diverged: one was clustered with *L. isabellinus* and *L. collurio*, which formed a sister group; the other was clustered with *L. schach* and *L. cristatus*, which was parallel to the cluster of *L. tephronotus* and *L. bucephalus*. Shrikes *L. isabellinus*, *L. collurio*, *L. schach* and *L. tephronotus* were independent species. The melanistic form of *L. schach* is a variation group of *L. schach*.

Key words: *Lanius*, Cyt *b* gene, CoI gene, taxonomy, phylogeny, sequence characteristic

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SHORT NOTES

Nesting and cooperative breeding behaviours of a high-altitude babbler, Tibetan Babax *Babax koslowi*

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Lu X., Ma X., Fan L. 2007. Nesting and cooperative breeding behaviours of a high-altitude babbler, Tibetan Babax *Babax koslowi*. Acta Ornithol. 42: 181–185.

Abstract. The Tibetan Babax is a high-altitude babbler endemic to the NE Tibetan plateau. This is the first report of the species nesting behaviour: the study was based on information gathered during 2005 and 2006 in the upper Mekong River basin (32°N, 96°E, 3700–4300 m.a.s.l.), S Qinghai. The birds nested low (< 2 m) in conifers and laid eggs from early May to late July. The clutch size was 3–4 eggs. Nestlings fledged at 13–14 days, when they reached 52% of the adult female weight. In all four nesting attempts (three nests and one post-fledging social unit), more than two birds (3–6) were observed feeding the young or guarding the nest against conspecific intruders or potential predators. These results indicate that all three member species of the genus *Babax* (the two others are the high-altitude Giant Babax and the lowland Chinese Babax) display a cooperative breeding system. This provides a good example of phylogeny as a component responsible for the evolution of cooperative breeding behaviour.

Key words: Tibetan Babax, *Babax koslowi*, nesting biology, cooperative breeding, phylogeny

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SHORT NOTES

Effects of vocal behaviour on abundance estimates of rainforest galliforms

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Nijman V. 2007. Effects of vocal behaviour on abundance estimateas of rainforest galliforms. Acta Ornithol. 42: 186–190.

Abstract. A comparative study was undertaken to assess the effects of the vocal activity of a target species on its density estimates made using line transect counts and point counts. In Kayan Mentarang National Park (Indonesian Borneo) the Great Argus Pheasant *Argusianus argus* displayed different levels of calling activity. The study was conducted at a period when the birds were highly vocal, and again, at the same site, when the birds were significantly less vocal. Transect counts during periods of low vocal activity resulted in 13–20% lower density estimates compared to periods of high vocal activity, but these differences were not significant. Estimates derived from five-minute point counts during periods of low vocal activity, however, were 52% lower than those from periods of high vocal activity. Comparison of the two methods shows that density estimates derived from the point count method were consistently lower than those from the line transects. The lack of a fixed calling season in Argus Pheasants makes year-round censuses possible, yet the distinct temporal differences in calling rates necessitates that caution be exercised when results obtained in different years or at different times of the year are compared. It is concluded that there is an increased need for understanding the behavioural plasticity of species if census methods are to be improved.

Key words: Great Argus Pheasant, *Argusianus argus*, census methods, Galliformes, Indonesia, line transects, point counts, research methods

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SHORT NOTES

Habitat use by Carrion Crows *Corvus corone corone* and Hooded Crows *C. c. cornix* and their hybrids in eastern Germany

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Randler Ch. 2007. Habitat use by Carrion Crows *Corvus corone corone* and Hooded Crows *C. c. cornix* and their hybrids in eastern Germany. Acta Ornithol. 42: 191–194.

Abstract. The habitat use of crow phenotypes (Carrion Crow, Hooded Crow, hybrids) was studied in the hybrid zone between Magdeburg and Dresden in eastern Germany. 1326 individuals (n = 293 hybrids, 417 Hooded Crows, 616 Carrion Crows) were sampled between 8 April and 12 July 2006. The study area was divided into eleven grid rectangles, 20 geographical minutes latitude by 32 minutes longitude in size. Carrion Crows, Hooded Crows and hybrids differed significantly in their habitat use. Carrion Crows avoided stubble fields with stubble taller than 15 cm, whereas the Hooded Crows were found significantly more frequently on those fields. Even when the stubble field data was pooled into one category, differences remained, with the Hooded Crows preferring maize stubble and the Carrion Crows avoiding it.

Key words: Carrion Crow, Hooded Crow, ecological segregation, habitat choice, hybridization, hybrid zone

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SHORT NOTES

The first case of successful breeding of a Golden Eagle *Aquila chrysaetos* tracked from birth by satellite telemetry

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Urios V., Soutullo A., López-López P., Cadahia L., Limiñana R., Ferrer M. 2007. The first case of successful breeding of a Golden Eagle *Aquila chrysaetos* tracked from birth by satellite telemetry. Acta Ornithol. 42: 205–209.

Abstract. The natal dispersal of a Golden Eagle from its natal eyrie to the site where it reproduced for the first time was monitored. After covering > 16 000 km^2 in its three years of juvenile dispersal, and despite flying > 130 km from its natal site, the eagle finally settled in a vacant territory just 26 km away from the place where it had hatched. Almost 95% of the total dispersal area was visited for the first time during the first year of tracking; less than 40% of the dispersal area was used during the remainder of the dispersal period. During dispersal the eagle regularly visited territories occupied by adult Golden Eagles. Previous records of the occupancy of the territory the eagle currently occupies show an alternation between periods when it remained vacant with periods when subadults occupied it. Although the other member of the breeding pair is also a subadult eagle, the birds managed to raise two fledglings.

Key words: breeding, juvenile dispersal, natal dispersal, raptors, satellite tracking

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