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OPINION

Conservation of farmland birds faces different challenges in Western and Central-Eastern Europe

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Tryjanowski P., Hartel T., Báldi A., Szymański P., Tobolka M., Herzon I., Goławski A., Konvička M., Hromada M., Jerzak L., Kujawa K., Lenda M., Orłowski M., Panek M., Skórka P., Sparks T. H., Tworek S., Wuczyński A., Żmihorski M. 2011. Conservation of farmland birds faces different challenges in Western and Central-Eastern Europe. Acta Ornithol. 46: 1–12. DOI 10.3161/000164511X589857

Abstract. Birds are commonly used as an example of the strongly declining farmland biodiversity in Europe. The populations of many species have been shown to suffer from intensification of management, reduction of landscape heterogeneity, and habitat loss and fragmentation. These conditions particularly dominate farmland in the economically well developed countries of Western Europe. Currently, the farmland environment in Central-Eastern Europe is generally more extensive than in Western Europe and a larger proportion of people still live in rural areas; thus generating different conditions for birds living in agricultural areas. Furthermore, the quasi-subsistence farming in much of Central-Eastern Europe has resulted in agricultural landscapes that are generally more complex than those in Western Europe. To protect declining bird populations living in farmland, detailed knowledge on both species and communities is necessary. However, due to scientific tradition and availability of funding, the majority of studies have been carried out in Western Europe. In consequence this provokes a question: are findings obtained in western conditions useful to identify the fate of farmland bird biodiversity in Central-Eastern Europe? Therefore, the major goal of this paper is to highlight some local and regional differences in biodiversity patterns within EU farmland by comparing intensive agricultural landscapes with more extensive ones. More specifically, we aim to outline differences in agricultural landscapes and land use history in the two regions, use farmland birds to provide examples of the differences in species dynamics and species-habitat interactions between the two regions, and discuss possible social and ecological drivers of the differences in the context of biodiversity conservation. Factors governing spatio-temporal dynamics of farmland bird populations may differ in intensive and extensive landscapes as illustrated here using the Grey Partridge *Perdix perdix* and the Red-backed Shrike *Lanius collurio* as examples. The unevenness of farmland bird studies distribution across Europe was also presented. We call for more emphasis on pluralism in furthering both pan-European research on farmland bird ecology and conservation strategies. We also highlight some features specific to Central-Eastern Europe that merit consideration for the more efficient conservation of farmland birds and farmland biodiversity across Europe.

Key words: landscape ecology, habitat, matrix, Central and Eastern Europe, Grey Partridge, *Perdix perdix*, Red-backed Shrike, *Lanius collurio,* land use

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OPINION

Reports from nestbox studies: a review of inadequacies

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Wesołowski T. 2011. Reports from nestbox studies: a review of inadequacies. Acta Ornithol. 46: 13–17. DOI 10.3161/000164511X589866

Abstract. Problems in reporting results of nestbox studies, apart from those covered by Lambrechts et al. (2010. Acta Ornithologica 45; 1–26), are discussed. The papers resulting from nestbox studies mostly fail to provide essential data on breeding densities, nest predation rates, nest soaking, ectoparasites, and brood productivity. The fact that the nestbox plots constitute large scale, long lasting field experiments is usually not acknowledged, and the consequences of experimental conditions for the external validity of results are not assessed. Unqualified inferences on the adaptive value of ecological and behavioural characteristics are often made. To remove these shortcomings, every nestbox study should include detailed descriptions of the types, sizes and distribution of breeding boxes used, effectiveness of nest predation and flood prevention, and breeding densities (all in the methods section); and a discussion of (1) how conditions in the study area differed from the reference conditions (with tree holes), (2) what could be the impact of these modified conditions on the outcome of study, and (3) what is external validity of the results.

Key words: methods, experimental design, field experiments, tree holes, fleas, tits, nest predation, density dependence

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Fuel load and potential flight ranges of passerine birds migrating through the western edge of the Pyrenees

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Abstract. The estimation of fuel load and the potential flight ranges of migrant birds are crucial to understanding the ecological and evolutionary significance of bird migration strategies. The movement of migrant birds between Iberia and the rest of Western Europe is thought to be shaped by the Pyrenees and nearby seas. Because of this area's unique geography, the routes of migrants that move to (autumn migration) or from (spring migration) Iberia tend to pass through the western and eastern edges of the Pyrenees. Fuel-load analyses and the assessment of potential flight ranges from these edges can provide insights about the extent of Iberia's use as a consistent stopover and fuelling area. Using data obtained over a period of six years (2004–2009), we calculated fuel load and potential flight ranges for ten common passerines (pre-Saharan, i.e. that overwinter mainly within the circum-Mediterranean region: Robin *Erithacus rubecula*, Bluethroat *Luscinia svecica*, Chiffchaff *Phylloscopus collybita*, Blackcap *Sylvia atricapilla*; sub-Saharan, i.e. that overwinter in tropical Africa: Sedge Warbler *Acrocephalus schoenobaenus*, Reed Warbler *Acrocephalus scirpaceus*, Melodious Warbler *Hippolais polyglotta*, Willow Warbler *Phylloscopus trochilus*, Garden Warbler *Sylvia borin*, Common Whitethroat *Sylvia communis* that stopover at Txingudi marshlands, at the western edge of the Pyrenees. The fuel load for the 25% heaviest fraction of caught birds ranged from 10.6% over lean body mass to 25.5% (mean: 18.3%) in spring and from 6.7% to 39.7% (mean: 25.2%) in autumn. Thus, potential flight ranges tended to be longer during autumn than during spring, particularly for the sub-Saharan species. All pre-Saharan species except one (Bluethroat) had sufficient fuel to arrive in southern Iberia or northern Africa, and three sub-Saharan species (Sedge Warbler, Garden Warbler, Common Whitethroat) had sufficient fuel to reach the north of the Sahara Desert but not its southern border. The potential flight ranges in spring were rather similar among species (ca. 1000 km from Txingudi).

Key words: body mass, fat and muscle scores, flight ranges, fuel load, Iberia, migration, stopover, Txingudi

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Breeding success of Southern Grey Shrikes *Lanius meridionalis* in agricultural areas: the influence of nest site characteristics

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Campos F., Santamaría T., Gutiérrez-Corchero F., Hernández M. Á., Mas P. 2011. Breeding success of Southern Grey Shrikes *Lanius meridionalis* in agricultural areas: the influence of nest site characteristics. Acta Ornithol. 46: 29–36. DOI 10.3161/000164511X589884

Abstract. Three hundred and thirty nests of Southern Grey Shrike *Lanius meridionalis* were located during 1998–2010 in two highly fragmented Mediterranean agricultural areas of Spain (Olite in Northern and Toro in Western part of the country). Most nests (ca. 85%) were built in thorny shrubs (mainly Dog Rose *Rosa* sp. and Blackberry *Rubus ulmifolius*) and thornless shrubs (mainly Holm Oak *Quercus rotundifolia* and Kermes Oak *Quercus coccifera*). Based on a logistic regression, three factors had an influence on breeding success: study area, breeding phenology, and plant cover type. Location of the nest inside the shrub, as well as luminosity inside a shrub varied between studied shrub species, but did not significantly affect breeding success. The percentage of successful nests was significantly higher in Olite than in Toro (64.5% and 37.9% respectively). In Olite, but not in Toro, clutches laid early (first egg laid prior to 1st May) were more successful than clutches laid late. The highest breeding success was recorded in nests located in thorny shrubs and, especially, in those found in Blackberry bushes. Conservation of Blackberry shrubs appears to be an appropriate measure to increase breeding success of the Southern Grey Shrike.

Key words: agricultural areas, breeding success, *Lanius meridionalis*, Southern Grey Shrike, predation

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Advanced autumn migration of the Common Crane *Grus grus* over Western Pyrenean passes

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Filippi-Codaccioni O., Moussus J.-P., Urcun J.-P., Jiguet F. 2011. Advanced autumn migration of the Common Crane *Grus grus* over Western Pyrenean passes. Acta Ornithol. 46: 37–45. DOI 10.3161/000164511X589901

Abstract. We investigated whether a large-bodied migrating bird, the Common Crane, has changed its migration phenology in response to climate change. For this, we used data collected at one of the most important convergence points of western European migration routes, the Western Pyrenees, in France. Phenological shifts were computed separately for three mountain passes, where daily counts of Common Cranes were collected for 29, 23 and 22 years, respectively. We analyzed trends in phenological shifts during each period and tested the influence of local and large-scale meteorological variables both in Pyrenees and on cranes' breeding areas on autumn migration dates. We found a similar and strong advance of phenology (20 days in 30 years) in Common Cranes passing the Western Pyrenees and this despite local variations in meteorological conditions. The increase in spring temperatures at northern latitudes, which could affect both spring migration and timing of breeding, as well as the variations in local winds in the Western Pyrenees were correlated with the phenological shift. We provided evidence that this large-bodied species is able to advance his autumn migration, similarly to small-bodied passerines.

Key words: Climate change, waterbirds, phenological shift, phenology, NAO

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Nest defence intensity in House Sparrows *Passer domesticus* in relation to parental quality and brood value

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Klvaňová A., Hořáková D., Exnerová A. 2011. Nest defence intensity in House Sparrows *Passer domesticus* in relation to parental quality and brood value. Acta Ornithol. 46: 47–54. DOI 10.3161/000164511X589910

Abstract. We investigated whether brood value (laying date, brood size, nestling age and condition) and parental quality (condition, male badge size) affect experimentally provoked nest defence in House Sparrows in the Czech Republic. We included the badge size (a melanin-based throat feather patch) because it serves as a signal of social status, age and condition. We presented a stuffed Black-billed Magpie *Pica pica* to 19 pairs of sparrows. To assess the defence intensity we used the „risk index", increasing with time spent reacting and riskiness of the reaction (number of approaches and attacks), while declining with increasing distance from the predator. Females did not adjust their nest defence to the brood value and males did so only partially, tending to defend the early broods more intensely, which marginally supports the "value of offspring hypothesis". The birds did not adjust their nest defence to quality or defence intensity of their partners, thus the "differential allocation hypothesis" was not supported. Male nest defence was more intense than in females and increased with male badge size. As male contribution to nest defence may affect the breeding success, we hypothesize the badge size could be used as a signal of nest defence intensity used by females.

Key words: Nest defence, House Sparrow, badge size, brood value, Black-billed Magpie

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Nest defense in Blackbirds *Turdus merula*: effect of predator distance and parental sex

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Kryštofková M., Haas M., Exnerová A. 2011. Nest defense in Blackbirds *Turdus merula*: effect of predator distance and parental sex. Acta Ornithol. 46: 55–63. DOI 10.3161/000164511X589938

Abstract. Birds frequently use mobbing as a nest defense strategy and the intensity of reaction depends on various factors, e.g., predator species and its distance from the nest. We tested the dynamic risk assessment hypothesis, that is, whether Blackbirds adjust their nest defense to the distance of a predator, Black-billed Magpie *Pica pica*, from their nest. Responses to a magpie dummy and a Rock Pigeon *Columba livia* dummy were investigated during the breeding period in an urban environment. The dummies were presented at two different distances, near (1.5 m) and far (6–7 m) from the nest. We also tested the relationship between the sex of a parent and the intensity of mobbing in nest defense. The intensity of mobbing reaction in either parent was highest for the magpie dummy near the nest, although the males showed higher overall intensity than females. When the magpie dummy was far from the nest, the birds preferred hiding in vegetation to mobbing. The highest intensity of vocalization was induced by the magpie dummy near the nest and the lowest by the pigeon dummy. Both parents used "chink" calls more frequently with the magpie dummy near the nest compared to the dummy far from the nest. The "seee" calls were used mostly in response to a distant magpie dummy. The reaction to a pigeon dummy was generally weak, which shows that the birds clearly discriminated between the dummies of the predatory magpie and the harmless pigeon.

Key words: nest defense, antipredatory response, parental behavior, predator distance, vocalization, Black-billed Magpie, Blackbird

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Plasma antioxidant capacity and oxidative damage in relation to male plumage ornamental traits in a montane Iberian Pied Flycatcher *Ficedula hypoleuca* population

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Moreno J., Velando A., Ruiz-De-Castañeda R., Cantarero A., González-Braojos S., Redondo A. 2011. Plasma antioxidant capacity and oxidative damage in relation to male plumage ornamental traits in a montane Iberian Pied Flycatcher *Ficedula hypoleuca* population. Acta Ornithol. 46: 65–70. DOI 10.3161/000164511X589929

Abstract. Melanin-based plumage ornaments may express individual quality in the context of social and sexual selection. Oxidative stress and antioxidant defences may be expressed through melanin-based plumage traits. Male Pied Flycatchers *Ficedula hypoleuca* exhibit eumelanic dorsal plumage and white feather patches on forehead and wing feathers. Although these traits have been related to sexual selection in some populations, no physiological correlate of variation in these characters has been previously shown. Here we test if these plumage traits are related to plasma oxidative stress and antioxidant capacity. We captured males while feeding nestlings in a population breeding at high altitude (1200–1400 m) in central Spain and collected blood samples from brachial veins. Percentage black on dorsal plumage and extension of white on folded wing and forehead were obtained from digital photographs. Plasma samples were analysed in the laboratory to obtain lipid peroxidation as a measure of oxidative damage by quantifying malondialdehydes (MDA), and antioxidant capacity. When controlling for male mass, breeding date and brood size, only forehead patch size was negatively associated with plasma lipid peroxidation levels and positively related to antioxidant capacity. There was no association among different plumage traits. Thus forehead patch size in montane Iberian populations may signal male phenotypic quality through plasma oxidative stress and antioxidant capacity possibly due to altitudinal effects on oxidative stress.

Key words: altitude, oxidative stress, ornaments, plumage, sexual selection

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Distribution of Azure-winged Magpies *Cyanopica cooki* in Spain: both local and large-scale factors considered

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Palomino D., Carrascal L. M., Potti J. 2011. Distribution of Azure-winged Magpies *Cyanopica cooki* in Spain: both local and large-scale factors considered. Acta Ornithol. 46: 71–82. DOI 10.3161/000164511X589947

Abstract. Although the main environmental determinants of bird distribution are contingent on the spatial scale of studies, the consistency of species distributional patterns has rarely been considered in large- and local-scale analyses. The competing roles of biotic, abiotic and landscape features in shaping the distribution of Azure-winged Magpies were assessed at two spatial scales: a large-scale analysis of 50x50 km blocks across nearly the whole of the species range (the Iberian Peninsula), and a small-scale assessment based on point counts of 50-m radius located near the northern edge of its distribution. The observed species distribution can be explained mainly by geographic and climatic features whereas the influence of landscape factors is weak. Azure-winged Magpies are more abundant near the core of its range in southwest Iberia and rarify towards the north and the east, in what seems to be a limitation of their ability to tolerate colder and drier climates, respectively. At local level, Azure-winged Magpies are habitat generalists avoiding urban sprawl whose probability of occurrence decreases with elevation, reaching zero above 1,600 m a.s.l. The species prefer wooded environments, although it tends to avoid mature, dense forests. The occurrence of potential competitors (Common Magpie *Pica pica* and Jay *Garrulus glandarius*), whose habitat preferences widely overlap with those of the Azure-winged Magpie, had no influence on either the large-scale or local distribution of Azure-winged Magpies. From a conservationist standpoint, the presence of the species in agricultural, pseudosteppe habitats with thinly forested watercourses highlights the importance of conserving gallery forests in the regions less suitable for the species.

Key words: Azure-winged Magpie, *Cyanopica cooki*, habitat preferences, large-scale distribution, regression and classification trees, Spain

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Habitat and cavity tree selection by White-winged Woodpeckers *Dendrocopos leucopterus* in the walnut-fruit forests of Kyrgyzstan

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Rehnus M., Sorg J-P., Pasinelli G. 2011. Habitat and cavity tree selection by White-winged Woodpeckers *Dendrocopos leucopterus* in the walnut-fruit forests of Kyrgyzstan. Acta Ornithol. 46: 83–95. DOI 10.3161/000164511X589956

Abstract. Several bird species appear to be closely associated with walnut-fruit forests of Kyrgyzstan, but their habitat needs are poorly understood. One of those species is the White-winged Woodpecker, endemic to Central Asia and considered one of the least-studied woodpecker species worldwide. We investigated habitat selection and cavity tree selection of this species in South Kyrgyzstan. Between March and mid-May 2009, we systematically searched for woodpeckers with playbacks on circular plots (n = 63) and subsequently used occupancy models, which account for imperfect detection, to examine relations between woodpecker occurrence and habitat factors. Occupancy rate of the White-winged Woodpecker was 0.50 (95% CI 0.36–0.64) as opposed to the naïve estimate of 0.44 (calculated as occupied plots divided by total plots); detection probability was 0.85 (0.68–0.93). Model selection revealed a preference of the White-winged Woodpecker for walnut forests, with occupancy rate declining with altitude. Cavity trees were positively associated to walnut forests and to the occurrence of damaged trees (living trees with broken and/or dead limbs), had larger diameters at breast height and were more likely damaged than available trees. Future management plans for walnut forests should consider habitat requirements of the White-winged Woodpecker, which may also benefit other species.

Key words: Piciformes, walnut-fruit forests, cavity trees, occupancy models, detection probability

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Increased male singing in response to predator presence may represent reproductive investment in a promiscuous species, the Aquatic Warbler *Acrocephalus paludicola*

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Dyrcz A., Zdunek W., Schulze-Hagen K. 2011. Increased male singing in response to predator presence may represent reproductive investment in a promiscuous species, the Aquatic Warbler *Acrocephalus paludicola.* Acta Ornithol. 46: 97–100. DOI 10.3161/000164511X589965

Abstract. Males of the promiscuous Aquatic Warbler are regarded as emancipated from any parental duties, and in most of the broods nestlings are sired by two or more males. During a long-term study on the reproductive biology of the species on fen mires on the river Biebrza in north-eastern Poland, we frequently heard males singing more intensely or uttering warning calls close to nests. Here we test whether this behaviour is reproducible and therefore constitutes a mate investment or paternal investment. During the incubation periods, hides were erected ca. 30 m from nests. During 30-min periods male song bouts were counted while a test person was either concealed inside or placed outside the tent, hence well visible as a potential predator. The production of song showed a sevenfold increase during the presence of a clearly visible test person. This observation indicates that male song in Aquatic Warbler serves as a warning signal and hence can be regarded as a type of mate or paternal investment.

Key words: Aquatic Warbler, *Acrocephalus paludicola,* promiscuity, song function, predator, male reproductive investment

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Decomposition rate of old nest material in tree holes

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Hebda G., Mitrus S. 2011. Decomposition rate of old nest material in tree holes. Acta Ornithol. 46: 101–103. DOI 10.3161/000164511X589974

Abstract. We experimentally tested whether old nest material could decompose fast enough to clear tree holes between the consecutive seasons. To mimic the nest material we filled litter-bags with either 1 g of cellulose, or with 0.5 g of dog moulted hair. In August 2009 we placed pairs of these bags in 23 tree holes used by breeding birds in a deciduous forest in SW Poland. For reference, we placed the same sets of bags in the litter, at 23 random sites in the forest. The bags were removed in March 2010. After seven months of exposure almost all cellulose (median 92%) and most of hair (median 57%) disappeared from bags in the holes. These values were as high as (for cellulose) or even higher than (for hair) as in the litter samples. Additionally, some bags disappeared from almost every second hole, which suggests their removal by larger animals. The high decomposition rates alone would suffice to clear holes between consecutive seasons but, in the study area, this process was apparently enhanced by mechanical cleaning.

Key words: nest decay, nest material, cavity, hole nesting birds, hole characteristic, decomposition, cleaning behaviour

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