Advances in shrikeology:
the 4th International Shrike Symposium, Chemnitz, Germany

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Unlike many other symposia and/or workshops, this meeting did not focus on one problem or one species, but on a fascinating group of birds – the shrikes (Laniidae). Shrikes are so interesting because they combine features of the passerines and raptors. Therefore, it is not surprising that they have given rise to a dedicated group of researchers – shrikeologists – who focus on every possible aspect of shrike biology – shrikeology.

This year was the 10th anniversary of the first founding meeting of the International Shrike Working Group (ISWG) at Archbold Biological Station, Florida, USA. The ISWG has published all of the proceedings of all the meetings held in Florida, USA (Yosef & Lohrer 1995); Eilat, Israel (Yosef & Lohrer 1998); and Gdańsk, Poland (Yosef et al. 2000). Each meeting has aimed to follow up the questions raised earlier and to standardize methods, so that inter- and intra-specific comparisons can be made.

A considerable number of questions connected with shrike evolution, ecology and behaviour still remain open. The range of many of the species has shrunk significantly in the past century, resulting in a dramatic decrease of their abundance and distribution. This was one of the initial reasons for the creation of the ISWG, in addition to ensuring regular contacts among shrikeologists, who established their own web page and e-mail group, as well as regular meetings (now every 4 years). The latest symposium was held within the framework of the 4th European Ornithologists Union Meeting in Chemnitz, Germany (August 17th–18th, 2003). Contributions dealt with exciting problems of the evolution of feeding strategies, with open questions in breeding biology as well as distribution of food supplies and suitable habitats. Some showed how shrikes act as reliable indicators of environmental change, others elab-
orated on their mating strategies, sexual dimorphism and “monomorphism”, overlapping of ecological demands between sympatric species, population status inside and at the limits of the natural range of distribution.

The introductory lecture of the symposium by Yosef dealt with the possible evolutionary pathway of impaling in True Shrikes. It is especially interesting because this is an example of how shrikeological studies, focused on impaling behaviour, could help to explain even the human nature (cf. Buss 1999). Impaling/wedging of prey has developed independently in three avian groups – the Butcherbirds (Cractacidae) in Australia, the Bush Shrikes (Malaconotidae) in Africa, and the True Shrikes (Laniidae), which are more widely distributed and are found across Europe, Asia, Africa and North America. The evolutionary pathway of impaling appears to result from trial-and-error activity, like most other behavioural processes. A simplistic explanation of impaling is that it was probably learned by the ancestral shrike dragging a heavy prey item, which wedged into a fork or other projection, allowing the individual to learn the use of a tool for dismemberment. Territorial behaviour and use of regular impaling sites allow individuals to store food and communicate with conspecifics, in some species resulting in the caches becoming parameters for sexual selection. Impaling inedible objects (e.g. insects containing toxins) to improve the visual impact may have evolved into the discovery that after some time they become edible (as the toxins are broken down), which opened a new feeding niche. The overall impression is of a behavioural adaptation that evolves quickly in response to local ecological pressures and that allows the True Shrikes to adapt to a wide range of habitats, ranging from the freezing snowfields of Alaska to the burning sands of the Sahara desert.

Recently, impaling theory has been widened, suggesting that this behaviour may function as a ‘language’ and is a method of communication. This was confirmed by a study of temporal-spatial distribution of impaled prey by the Great Grey Shrike (*Lanius excubitor*) in Poland (Antczak, Hromada & Tryjanowski). However, females could evaluate male quality in some other way, not by looking at his cache sites (Yosef & Pins show 1989, Esely & Bollinger 2003). It appears that females pay attention to what the male has to offer during courtship feeding and before copulation. Tryjanowski & Hromada found evidence suggesting that male shrikes buy sex with appropriate food offerings. Moreover, they discovered that these males offer nuptial gifts also to extra-pair females, and the gifts are of a significantly higher energetic value than those offered to the mate. In the Lesser Grey Shrike (*L. minor*), however, males were also found to punish their unfaithful females (Valera et al. 2003).

Another possibility is for females to compare their potential partners’ morphology with neighbouring individuals, as in the Red-backed Shrike (*L. collurio*) (Votypka et al. 2003), wherein the tail pattern is an indicator of melanin management and general health status. However, this was found to be untrue for the Lesser Grey Shrike (Kristin, Valera & Hoi).

Many of the shrikes’ behavioural traits are assumed to be connected with their food supply and foraging. Both are widely adopted by shrikeologists and they pay

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1 Names without date refer to presentations of the symposium held in Chemnitz, which were published as abstracts in the journal „Die Vogelwarte“, vol. 42, 2003.
special attention to prey as the major factor that influences shrike distribution, population size, and behaviour. Therefore, it is not surprising that many of the new studies focused on shrike food and foraging problems, ranging from determination of food content by pellet analysis (NIKOLOV, KODZHABASHEV & POPOV 2004), through influence of food supply on population size and productivity, both on spatial (SACHSLEHNER, SCHMALZER & PROBST 2004) and temporal (LEFRANC) scales, feeding-site geometry and habitat use (FUISZ), to the influence of habitat preferences on diversification of two sympatric shrike species (TAKAGI). Therefore, shrikes are considered an appropriate model for ‘reconciliation ecology’ (ROSENZWEIG 2003). Reconciliation ecology contends that we still have time to save most of the world’s species. But to do it, we must stop trying to put an end to civilization and human enterprise. Instead, we need to work on the overwhelming bulk of the land – the places we humans use. We need to shape them so that they can support both us and other species. Examples of this have been tested in areas inhabited by various shrike species in Florida, Belgium, Germany, Sweden, Japan (eg., YOSEF, VAN NIEUWENHUYSE, SCHON, OLSSON, TAKAGI) and are still being tested in the coastal dune system in the Netherlands, where detailed studies of the Red-backed Shrike are conducted (BEUSINK, GEETSMA, KUPER, NUSSEN, PUSTJENS, PETERS). The above show how shrikes are used as an integrative index of success in nature conservation.

Similarly, some of the presented results link good landscape protection with shrike studies and conservation in Belgium, but recently the situation is deteriorating due to illegal re-allotment projects (VAN NIEUWENHUYSE). Further, to predict population trends we also need data on parameters other than food supply, like those influencing population productivity and its limitations. These parameters include: climatic factors, which are especially important for populations having a limited geographical distribution (REINO, BEJA & SILVA, GIRALT & VALERA), detailed breeding parameters (FUISZ & ZÖLLEI, KNYSH & PERTSOV), availability of suitable habitats (LATUS et al. 2004), social status (VALERA, KRISTIN & HOI), and even numbers of intra- and inter-specific interactions (DIEHL & VAN NIEUWENHUYSE). All of the above parameters can be used to predict changes in population size, including modelling studies based on population viability analysis (TAKACS et al. 2004).

The majority of the presentations focused on the situation on the breeding grounds. This is easy to understand because the situation in local habitats influences population size and the probability of survival in the next generations.

However, there are also researchers looking at shrike migration ecology, strategies and routes, as well as the wintering grounds. YOHANNES, ASH, BAKER, BAKER, NIKOLAUS, PEARSON & BIEBACH conducted a study of migration strategies and body weight variation of the Red-backed Shrike. Combined with TRYJANOWSKI & YOSEF (2002), it shows a picture of well-developed seasonal migration strategies as well as those for crossing ecological barriers.

KUCZYŃSKI, TRYJANOWSKI, GOŁAWSKI & RZEPALA focused on the non-reproductive period and modelled the winter habitat of Great Grey Shrike. They used the relatively new analytical method called Generalized Additive Models (GAM). This method allows not only simple linear relationships to be modelled, but also reveals more complicated shapes of response functions (i.e. non-monotonic, omni- or multimodal, etc.). Similarly to other studies, the habitat used by the Great Grey Shrike
during winter consists of a mosaic of meadows and small villages, with some optimum level of forest edges and moreover also meteorological factors influencing birds’ activity and detectability.

In comparison to previous meetings of the ISWG, not only has the number of mainstream studies grown greatly, but also their geographical range. Reports from areas with little published data on shrike species include: Malaysia (De CANDIDO); a study on territoriality of the Fiscal Shrike (Lanius collaris) in Lesotho mountains (KOPIJ 2004); research on habitat selection of the Grey-backed Shrike (Lanius tephronotus) in Suchuan Province in China (TRYJANOWSKI & REINO 2004); and an overview of the breeding shrike populations in Turkey (PERKTAŞ 2004). We also enlarged the study group to include other shrike-like species, such as the Yellow-breasted Boubou (Laniarius atroflavus) in the Cameroon Highlands (RIEGERT, PŘIBÝLOVÁ & SEDLÁČEK 2004).

We believe that the symposium was an important meeting of people, new ideas and hypotheses representing not only a contribution to our knowledge of the life strategies of this endangered avian group, but also to their effective protection.

In conclusion, even though the meeting is over, the ISWG continues the discussion on the shrikeology discussion list, to collect new papers on shrikes and to continue to update the international shrike bibliography that is housed in the International Birding & Research Centre, Eilat, Israel. We invite other researchers to join us in our efforts to understand the problems better, and through the knowledge, to conserve this very interesting group of birds.

REFERENCES


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