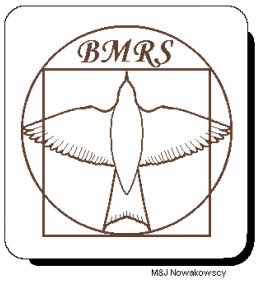
Ringing with Poles

at Barberspan, NWP, 28 Nov to 3rd Dec 2013

presented by SAfring in conjunction with Bird Migration Research Station,

University of Gdańsk



Bird Migration
Research Station

Programme

Day	Time	Daily Plan
Thurs 28th	4:30h - 11:00h	Ringing
	11:00h - 13:00h	Siesta & Lunch break
	13:00h - 19:00h	Ringing, Duck & Wader trapping
	19:00h - …	Dinner - own catering
Fri 29th	04:30h - 11:00h	Ringing
	11:00h - 14:00h	Siesta & Lunch break
	14:00h - 15:00h	Trade Exhibition of snap traps, raptor traps, zap nets etc
	15:00h - 15:10h	Housekeeping rules - Dieter Oschadleus
	15:10h - 15:20h	Welcomes from NWP&TB – Piet Nel
	15:20h - 15:50h	Welcome & SABAP 2 Results - Les Underhill
	15:50h - 16:10h	Tea
	16:10h - 16:50h	ID of short-tailed Cisticolas -Kobie Raijmakers
	16:50h - 17:10h	Testing directional preferences of nocturnal migrants - Krzysztof Mus
	17:10h - 17:30h	The functions of birds' tails in flight - Steven Evans
	17:30h - 17:50h	Little stint *Callidrus minuta* strategy for pre-breeding body moult in South Africa - Aleksandra Niemc
	17:50h - 18:10h	Use of camera traps in avian research - Derek Engelbrecht
	18:10h - 18:50h	Family life of waders - Magda Remisiewicz
	18:50h - …	Dinner - own catering

Sat 30th	04:30h - 11:00h	Ringing - Kobie Cisticolas hands-on
	11:00h - 11:30h	Tea
	11:30h - 11:50h	Wing morphology: a trade-off between selective pressures - Justyna Szulc
	11:50h - 12:10h	What can measuring wings teach us about evolution & ecology of birds? - Krzysztof Stepniewski
	12:10h - 12:40h	ID of Reedbed Warblers - Kobie Raijmakers
	12:40h - 13:00h	Moult and pre-migratory fattening in the Curlew sandpiper- Yahkat Barshep
	13:00h - 14:10h	Siesta & Lunch break
	14:10h - 14:30h	Migration Strategies of Reed & Sedge Warblers (*Acrocephalus scirpaeceous* & *schoenobaenus* from Eastern Europe) - Katarzyna Stepniewska
	14:30h - 14:50h	Butterfly Atlas -Justin Bode
	14:50h - 15:10h	Ectoparasites of birds - how to collect and keep them, & what to do with them - Ali Halajian
	15:10h - 15:30h	Barn Swallows responding to climate change: trends in timing of moult - Marc Burman
	15:30h - 16:00h	Value of archival data in the moult story of Greenshanks in Africa - Magda Remisiewicz
	16:00h - 16:20h	Tea
	16:20h - 18:00h	Calibration Workshop - Krzyś, Kasia, Justyna, Zephne
	18:00h - …	Communal Braai
Sun 1st	04:30h - 10:30h	Ringing - Kobie Warblers hands-on
	10:30h - 11:00h	Tea
	11:00h - 11:20h	Volunteering for Akcja Baltycka - Herman Bernitz
	11:20h - 11:40h	Moult patterns of White-browed Sparrow Weavers in southern Africa as shown by SAFRING moult records - Dieter Oschadleus & Magda Remisiewicz
	11:40h - 12:00h	No place to hide: tracking birds with small electronic tags - Joel Avni
	12:00h - 14:00	Siesta and Lunch Break
	14:00h - 19:00h	Ringing, Duck & Wader trapping Magda/ Calibration Krzys
	19h:00 - ...	Dinner - own catering
Mon 2nd	04:30h - 11:00hh	Ringing
	11:00h - 14:00h	Siesta & Lunch break
	14:00h - 19:00h	Ringing, Duck & Wader trapping
	19:00h - …	Dinner - own catering
Tues 3rd	04:30h-11:00h	Ringing
	11:00h	Departure

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Abstracts: Oral presentations

What have we learnt from the Atlas and Virtual Museum projects?

Les Underhill

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Keynote speaker: ID of short-tailed Cisticolas

Kobie Raijmakers

Testing directional preferences of nocturnal migrants - great potential and versatility for bird migration studies

Agnieszka Ożarowska[1], Krzysztof Muś[2]

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Introduction of orientation cages in the studies on orientation/navigation of migrating birds was a milestone in development of this branch of ornithology. The method proved to be very successful. Several authors showed results consistent with the analyses of species migration directions. Despite all its advantages, the method still is not commonly used. This is a great pity as the number of methods applied in such studies, especially on small Passerines, is very limited. It could be that the technique of the method itself was a limiting factor – usually it required sophisticated equipment that was very difficult to use in the field conditions and/or birds had to be kept in aviaries at least for some time for the tests. The method/technique proposed by Busse in 1995 has no such limitations.

The method of studying of nocturnal migrants' direction preferences provides a good estimation of migration directions showed by tested individuals. After only one migration season we were able to show migration directions of small Passerines at a given site, which is short compared with ringing recovery analyses that need constant ringing during decades of migration seasons. Moreover the results are not biased by the differentiated detection coefficient as in the case of ringing recoveries. Range of application of results of orientation cage tests in bird migration studies is encouraging – from spatio-temporal distribution to differentiation of migration directions at population level.

The results obtained with this method not only support knowledge on bird migration systems but most of all give new information on the regions not well studied until now. The results support some migration routes that were given as hypothetical. Moreover it is possible to estimate significance of these flyways compared to whole Palaearctic Passerine migration system. The results of local tests are consistent with well known global migration patterns and routes as well as with the local topography like mountain barriers, shore lines etc. Finally, some space-time coincidences between distant places for selected seasons and bird species were detected.

Studies on the Robin (*Erithacus rubecula*) (*N* = 1759) during autumn migration at the Polish Baltic coast proved the hypotheses on SE migration direction of this species given by several authors, e.g. Pettersson and Lindholm 1983, Pettersson *et al.* 1990, Remisiewicz *et al.* 1997, Remisiewicz 2001, 2002. The researchers were not able to show strong evidence of their hypotheses as this route to the wintering grounds yielded very scarce ringing recoveries. Moreover large scale analysis of tests conducted at several ringing sites in Europe showed highly differentiated migration pattern of the species and gave strong evidence for large barriers' influence on this pattern.

The functions of birds' tails in flight

Steven W. Evans

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Compared to their wings, less has been done with regards to the functions of birds' tails in flight. The shapes of the tails of the 846 birds - in breeding plumage, that can fly, and that regularly occur in southern Africa - can be divided into seven shapes when held closed (rounded, squared, notched, pointed, forked, graduated and lyre) and into four shapes (rounded, forked, graduated and lyre) when the tails are spread ≥ 30°. It is useful describing the shapes of birds' tails when they are spread as birds' spread their tails, to varying extents, during taking-off, landing and banking manoeuvres. In addition, three of the four tail shapes exhibit either none or some form of secondary modification (pins, spines, ornate, streamers and rackets) due to aerodynamic considerations or sexual selection. Only the lyre shaped tails exhibit no secondary modification. A rounded tail shape is significantly more prevalent amongst male ($X^2_3 = 1730.5$, $p < 0.01$) and female ($X^2_3 = 1749.8$, $p < 0.01$) Southern African birds (n = 846) than any other tail shape. There are significantly more male ($X^2_9 = 167.1$, $p < 0.01$) and female ($X^2_9 = 167.3$, $p < 0.01$) birds with forked tails that spend 50 – 74% and > 75% of their time per day flying compared to those that spend <50% of the day flying. Short and forked tails have smaller surface areas compared to notched and unforked tails of the same width. The following two hypotheses are currently guiding continued research:

1) Birds with faster horizontal flight speeds may have either short or forked tails compared to slower flying birds. This is because parasite drag is reduced by the smaller surface area of a short or forked tail at higher flight speeds.
2) Birds that need to maintain as much flight speed as possible when banking have either shorter or forked tails. The smaller surface area of a short or forked tail reduces parasite drag and consequently reduces the extent to which a birds flight speed is reduced when its tail is spread during banking.
In order to test these hypotheses the following are being determined for birds of different sizes, and wing and tail shapes. The surface area of the wings and tails of the birds are being determined. These measurements are in addition to the standard (e.g. maximum length of the tail) and some non-standard measurements (e.g. length of the first, third and sixth rectrix) being taken during bird ringing sessions. In addition, the air and ground speed at which the birds fly are being determined.

Little Stint *Calidris minuta* strategy for pre-breeding body moult in South Africa

Aleksandra Niemc[1], Magdalena Remisiewicz[1], Joel Avni[2]

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We set out to determine if male and female Little Stints *Calidris minuta* use different pre-breeding body moult strategies in South Africa before they depart to the breeding grounds. We analysed moult records of 123 females and 109 males captured from December to April, in 2007 near Pietermaritzburg (KZN) and in 2008-2012 in Barberspan (NW Province). The proportion of new breeding plumage on the head, back and scapulars was scored in 20%-wide intervals for each bird and then summed as a body moult index. Scores for lesser, median and greater coverts were summed as a wing index. We treated immature and adult Little Stints jointly because from January they cannot be distinguished by plumage. Little Stints show no sexual dimorphism, so we sexed them by DNA (PCR, P2/P8 primers) from blood samples collected in the field. We found equal proportions of males and females between mid-December and mid-March, but then the proportion of males declined and by mid-April only females remained at the study sites. The pre-breeding moult progressed between December and April as indicated by the body moult index (ANCOVA: $F=134.54$, $p<0.001$). From mid-February female body moult advanced faster than males' (ANCOVA: $F=10.99$, $p<0.05$). The wing covert moult advanced between December and April in both sexes as indicated by the wing moult index (ANCOVA: $F=80.93$, $p<0.001$) and did not differ between the sexes (ANCOVA: $F=1.50$, p – ns). The body feathers on the head, back and scapulars might be more important for the appearance of the breeding plumage than the wing coverts. The differences between the sexes might be connected with the males' earlier departure towards the breeding grounds so as to establish territories and be available to display to females when they arrive later.

The use of camera traps in avian research

GD Engelbrecht, ST Matjee, Mashao ML, Leshokgotho MLB and Masotla MD

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Video-surveillance to monitor nests has been in use since the 1950's. However, since the 1990's, researchers have made increasing use of miniature cameras and camera traps to video-record activities at bird nests. This has led to major advances in our knowledge of the nesting ecology, parental behaviour, identification of nest predators and the diet of nestlings, amongst others. We will present various options available, potential pitfalls, limitations, possible sources of bias in data collection and interpretation, and future prospects. We will also highlight some of the major advances our use of video-surveillance has made to our understanding of avian biology and ecology.

Family life of waders: harmony or battlefield?

Magdalena Remisiewicz

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Everything you have always wanted to know about the private lives of waders, but have been too embarrassed to ask.

Wing morphology as a trade-off between selective pressures: a review.

Justyna Szulc, Krzysztof Stępniewski and Jarosław K. Nowakowski

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The biometry of a bird's flight apparatus is related to the species' flight characteristics such as manoeuverability, energetics and speed. Birds use their wings to cross their habitat, forage, escape predators and migrate. These selective pressures often promote conflicting solutions and the wing's final shape reflects a trade-off between these demands . Moreover, the effects of these pressures depend on other factors, such as the sex or the age of an individual, as well as on the species' history. The current wing shape reflects how an initial wing model has been shaped by former adaptations, and is the result of an evolutionary process. Studying wing morphology offers an insight into species' evolutionary adaptations to their environments. We review studies that analyse the morphological parameters of the wing and their relationships with the ecology of birds.

Biometrics as an ornithologist's tool: what can measuring wings teach us about the evolution and ecology of birds?

Jarosław K. Nowakowski, Justyna Szulc and Krzysztof Stępniewski

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The Bird Migration Research Station at the University of Gdańsk has studied the ecomorphology and evolution of avian wings for decades, particularly those of migrating birds. We will review the results of our most recent studies and will show that changes in the size and the shape of the wing is a continuing evolutionary process of new optimal adaptations to rapid changes of the environment. We use a dataset collected over more than 50 years in the Operation Baltic research project, which focuses on ringing and measuring passerine migrants. We have recorded how birds' morphology has responded to recent climate changes. The size and shape of the wing reflect an almost deterministic relationship with migration distance, but this relationship is also affected by other factors, not studied previously. Results from different migrant passerines show that studying the relationships between animal biometry and their migration behaviour in changing climatic conditions is a promising research field. We would like to encourage South African ringers to gather biometric data from migrants. Results can be published as overviews of the biometrics of different populations, allowing for further comparative analyses.

ID of reedbed warblers Kobie Raijmakers

Kobie Raijmakers

Evidence of a trade-off between end of moult and pre-migratory fattening in the Curlew Sandpiper *Calidris ferruginea*

Yahkat Barshep

Animal Demography Unit, Department of Biological Sciences, University of Cape Town, Rondebosch 7701, Cape Town, e-mail: byahkat@yahoo.com

Most studies on carry-over effects (COEs) tend to focus on non-breeding season processes that exert a measurable outcome during the breeding season (such as reproductive success). However the converse effect, whereby breeding season processes exert effects in the non-breeding season, is less frequently investigated. One possible scenario in which COEs might arise, is if reproductive outcome causes a shift in the timing of post-breeding moult. I present evidence that the onset of moult of the Curlew Sandpiper *Calidris ferruginea* during the non-breeding season varies in relation to environmental variables in the breeding areas. Evidence of a physiological trade-off between end of moult and pre-migratory fattening was also found.

Strategies of the Reed (*Acrocephalus scirpaceus*) and Sedge (*A. schoenobaenus*) Warbler during their southwards migration from eastern Europe via Middle East and Egypt.

Katarzyna Stępniewska

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The Reed and Sedge Warblers are closely related Palearctic migrants, connected with reed habitats. In autumn they leave their breeding grounds in Europe early, and winter in sub-Saharan Africa. The knowledge of their migration strategies from the south-eastern flyway is limited. In this study I analysed the data collected in autumn in different years between 2001 and 2008 at 17 ringing stations collaborating within the SEEN (South-East European Bird Migration Network), in Poland, Ukraine, Turkey, Jordan and Egypt. Total numbers of caught birds, retraps and their fat score were analysed. Reed Warbler was more numerous than Sedge Warbler at most stations. Sedge Warbler had lower capture-recapture rates almost everywhere. For Reed Warbler the mean fat score of ringed birds increased gradually from northern to southern latitudes. There was no such clear tendency for Sedge Warblers, and they had a very high mean fat score in north-east Turkey. This might indicate that Sedge Warblers prepare there for a long non-stop flight across a large geographical barrier, the Mediterranean Sea, and probably also through Sahara desert afterwards, without refueling. This study indicates the need for more research along the south-eastern flyway including other Palearctic migratory species.

The Lepidopterists' Society of Africa & South Africa's Butterflies

Justin Bode[1]

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An introduction to the Lepidopterists' Society of Africa from its beginnings as a small study group, the achievements of the society to date including special reserves and the publications of a Butterfly Atlas and Red List. The future plans of the society with an emphasis on conservation of South Africa's threatened

lepidoptera and expanding on the South African Butterfly Conservation Assessment (SABCA) into Africa to include both butterflies and moths through LepiMap.
An introduction to the butterflies of South Africa with an overview of the families found in South Africa.

A hidden world: Ectoparasites of wild birds in South Africa

Ali Halajian[1], Derek Engelbrecht[1] ,Oldrich Sychra[2], Wilmien Luus-Powell[1], Eddie A Ueckermann[3], Craig Symes[4], Heloise Heyne[5]

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Although ectoparasites can have negative effects on their hosts such as transmiting blood parasites, damaging the skin or feathers and harming the chicks by sucking blood and fly worry , they are nevertheless amazing creatures with unique life cycles, unique interactions with their hosts, and of course they are ubiquitous. Although Zumpt (1959) and Ledger (1980) contributed much to our present knowledge of ectoparasites in South Africa, there is a big gap that requires modern taxonomic and sometimes molecular approaches to solve taxonomic issues and for accurate species identification. There is generally insufficient knowledge of ectoparasites of the nearly 850 resident birds species in South Africa and little has been published. We initiated a survey/study in 2012 on the diversity and distribution of avian ectoparasites in South Africa to fill this gap.

For collecting ectoparasites there are several different methods, each with their own advantages and disadvantages, e.g. body washing, dust ruffling, fumigation chamber and post-mortem ruffling, visual examination, and combinations of some of them. In our study, we selected a combination of visual examination, fumigation chamber and body ruffling. To date, a total of 820 passerines and 170 non-passerine individuals were sampled from different localities in the Limpopo, Mpumalanga, Northern Cape, and Western Cape provinces.

The study revealed a rich diversity of ectoparasites: several different species of hippoboscid flies (*Icosta, Ornithoica*), lice (*Brueelia, Menacanthus, Myrsidea, Penenirmus, Philopterus, Picicola, Ricinus*, *Sturnidoecus*), mites (*Alaudicola, Bontiella, Dolichodectes, Montesauria, Onychalges, Pandalura, Troussartia*…) and ticks (*Amblyomma, Haemaphysalis, Hyalomma, Ixodes, Rhipicephalus*) were recorded from various bird species. Three new species of lice were described and several records of new host-louse associations have already been published. There were also several distribution range extensions including first records for South Africa.

We aim to compare the results within and between different species and different localities, and are interested in determining the effect of climate, biomes, rainfall etc. on ectoparasite diversity. Finally, the project will also attempt to shed light on the ecology of the ectoparasites and host-parasite interactions.

Barn Swallows responding to climate change: trends in timing of moult

Marc Burman PhD candidate, e-mail: marcbur@gmail.com

Supervisors: Les Underhill, Res Altwegg, Birgit Erni, Magda Remisiewicz

University of Cape Town

Each species has an evolved degree of flexibility in the timing of its life stages. Exploring this flexibility, and the constraints on it, enables one to ask how and why species respond as they do to change. Human-induced climate change is causing warmer and earlier springs in the Northern Hemisphere, with knock-on effects including the mis-timing of prey availability, breeding and migration for species with less flexible phenology. Birds, and particularly long-distance Palearctic and Nearctic migrants such as the Barn Swallow *Hirundo rustica*, make good model species for studying such flexibility because the stages of their life cycles are often closely tied to seasonal events in several parts of the world, where global changes may be happening at different rates. Migration, breeding and moult are constrained by one another to varying degrees, and success during all three stages requires good feather condition. Replacing worn feathers is therefore of great importance. Barn Swallows breed in the Northern Hemisphere during summer and moult in the Southern Hemisphere during summer, linking the stages with a month-long, 12 000 kilometre migration. Barn Swallows are breeding earlier in the year now than twenty years ago, and are leaving their non-breeding grounds earlier, subject to geographic variation. The constraints linking the timing of migration and moult suggest a set of testable hypotheses regarding flexibility in moult timing. I have tested these hypotheses, applying the Underhill-Zucchini moult model to SAFRING ringing records collected by citizen scientists since 1970. I will discuss the results and implications.

The value of the archival data – the moult story of Greenshanks *Tringa nebularia* in Africa

Magdalena Remisiewicz[1,2*], Anthony J. Tree[3], Les G. Underhill[2,4]

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Greenshanks migrate from their Eurasian breeding grounds to western Europe and West Africa along a western route, and to East and Southern Africa along an eastern route. We relate the geographical patterns of primary moult of adult Greenshanks to migration distance, and compare the moult patterns of western Greenshanks (Dutch Wadden Sea and Morocco) with eastern Greenshanks (Kenya and southern Africa). At a finer scale, we related the timing of arrival of Greenshanks with the starting date of primary moult in Kenya, Zimbabwe, and on the east coast and west coast of South Africa. These comparisons were enabled by moult records of Greenshanks since 1970's at various locations in Africa. We used the Underhill-Zucchini moult models for the analyses. At the Wadden Sea, a stopover site 800–2300 km from the breeding grounds, those adult Greenshanks which arrived in July had an advanced but suspended primary moult; they resumed moult at the site. Later migrants commenced their moult at the Wadden Sea and either completed or suspended it there. At a stopover and final staging site in Morocco (4500–6500 km from the breeding grounds) the majority of adult Greenshanks arriving in July commenced moult and replaced all primaries after arrival in Morocco, a minority arrived with suspended moult and then resumed

it. Moult duration was 108 days, between 23 July and 10 November. Along the eastern African migration route Greenshanks began primary moult 32 days apart, between 23 August in Kenya (5500–8000 km from the breeding grounds) and 23 September at the West Coast of South Africa (9000–12500 km). The sequence of the moult starting dates probably reflected arrivals. Primary moult took between 125 days in Kenya and 105 days at the West Coast, between late August and January. Some Greenshanks which migrate medium-distances start primary moult at early stage of migration, suspend it and resume it at later stopover sites and the final non-breeding site. In contrast, the longest-distance migrants commenced primary moult after completing their migration to Africa.

Volunteering for Akcja Baltycka

Herman Bernitz

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The presentation will cover an amazing ringing experience at the two Akcja Baltycka ringing stations in Northern Poland, including the pleasure of camping in a pristine forest environment coupled with hours of fine ringing and plenty of exercise. Some of the species caught and ringed will be shown, and including a multitude of tits, Savi's warbler, Grasshopper warbler , and Greater spotted woodpecker to name a few.

No rush in residents: extended primary moult of White-browed Sparrow Weavers in southern Africa as shown by SAFRING data

Dieter Oschadleus[1], Magdalena Remisiewicz[1,2*]

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We aimed to determine the timing of moult of White-browed Sparrow Weavers across southern Africa, based on 3800 moult records collected by SAFRING ringers between June 1995 and June 2013. The rate of primary growth was slow and duration of adults' primary moult was 213 days on average (range 168 – 298 days), as estimated based on moult progress of individuals caught twice in a season. This is a very long moult duration, in comparison with e.g. migrant Little Stints. We will present the comparison of the the moult timing of adult and immature birds between six main regions where most White-browed Sparrow Weavers were caught: Namibia, Northern Cape, Northern Province, North West Province, Free State and Eastern Cape.

No place to hide: tracking birds with small electronic tags

Joel Avni

Bird's Eye View, 391 Main Road, Kirstenhof 7945, Cape Town, South Africa

Abstracts: Posters

Parental care strategies of four lark species

GD Engelbrecht, ST Matjee, Mashao ML and Leshokgotho MLB

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We compared parental care strategies of four lark species during the incubation and nestling periods. The four species were the Chestnut-backed Sparrow-lark *Eremopterix leucotis,* Pink-billed Lark *Spizocorys conirostris,* Sabota Lark *Calendulauda sabota*, and Monotonous Lark *Mirafra passerina.* The first two species exhibit biparental care in all aspects of the breeding cycle, i.e. nest construction, incubation and brooding and feeding of nestlings. In the last two species, females are responsible for all nest construction, incubation and brooding duties, but the male partner assists the female in feeding the nestlings.

We divided the nesting cycle into the incubation and nestling period and compared the relative contribution of each parent during each of these two periods. The relative contribution was quantified as the mean on-bout duration (mean incubation/brooding bout duration in minutes), mean off-bout duration (mean time spent away between two incubation/brooding visits in minutes) and nest attentiveness (the percentage of total hours spent on the nest during a video session). During the nestling period, feeding trips/h (number of feeding visits/h) was also included. The results revealed interesting differences in the parental care strategies of biparental breeders as opposed to those species where the female is responsible for most of the nesting duties.