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Proportions of Palaearctic birds in some East African habitats

By Staffan Ulfstrand

Moreau (1972, p. 48) estimated the number of Palaearctic birds spending the northern hemisphere winter in sub-Saharan Africa to 4 000 millions over an area of about 20 millions km^2. This means a density of approximately 200 Palaearctic visitors per km^2. The interdigitation of these birds with species-rich tropical avian communities presents a fascinating ecological problem. One type of essential information that seems to be almost entirely lacking, apart from counts of birds of prey (summarized in Brown 1970), is the proportion of Palaearctic birds in East African bird communities during the northern winter. Thus, Moreau (op. cit., pp. 71 et seq.), when attempting an analysis of the „avian environment» of the Palaearctic visitors, had to resort to species lists without any quantitative data at all. For South Africa data are available for hirundinids, waders and terns as well as birds of prey (Rudebeck 1957, 1963).

I submit a few data relevant to the issue. During December 1972 to January 1973 I performed a number of birds counts in several localities in Kenya and northern Tanzania. Each count took 30 min, during which I walked on a straight line and counted all birds seen within a distance of approx. 30 m on either side of my path. Only birds touching the ground or vegetation were included; birds flying overhead were ignored. I did not waste time in identifying certain difficult species groups, since, for the present purpose, the decision whether a given individual was of Palaearctic origin or not, basically was all that was required.

Clearly the line transect technique employed does not yield accurate quantitative information of the species composition of a bird community. Different species of course are very differently conspicuous. However, the Palaearctic species involved vary in this respect from extremely skulking to very conspicuous, and so do the African species. It does not seem likely that the proportions of these categories should be badly misrepresented because of this circumstance.

Data from 13 1/2 hours of bird counting are presented in the accompanying table. They intimate, if representative, that the proportion of Palaearctic migrants in the habitats examined during northern mid-winter was rather low. The values found vary between 0 and 14 %; the average for the whole material is 8.2 %. Unless these figures are highly untypical, they suggest that the impact of the Palaearctic visitors on the communities may not be quite as heavy as sometimes suggested (e. g. Moreau 1966.) Moreover, intra-tropical migrations of African species are currently being found to occur on a much larger scale than previously supposed (see, e. g., Elgood et al. 1973), so that in many habitats considerable seasonal fluctations of species composition and total numbers occur entirely apart from the vacillations of Palaearctic visitors.

Not surprisingly the mountain forests were found to harbour practically no Palaearctic birds at all (Moreau op. cit.). A probably real difference in the proportion of such birds was observed between Tsavo East and the Magadi area, on the one hand, and Amboseli, on the other. I do not doubt that the high proportion in the former areas was due to recent heavy rainfall producing an exceptionally lush vegetation and an abundance of insects, while most of Amboseli was very dry and seemed to offer a much less hospitable environment. In spite of recent records of pin-point navigation back to the same locality year after year (e. g., Pearson 1972) it seems probable that many Palaearctic species wander about a great deal until

Date	Mins	Locality	Habitat	Total no. of birds	Birds per 10 min	Dominant African spp.	Palaearctic spp.	Percent Palaearctic migrants
17 Dec	90	Nairobi 1.14 N 36.41 E	Gardens	190	21	Othyphantes reichenowi (80) Lanius collaris (21) Nectarinia kilimensis (11) Spermestes cucullatus (8)	Motacilla flava (15) Buteo buteo (1) Oenanthe pleschanka (1)	9
20 Dec	30	Nairobi N. P.	Grassland, riverine woodland	98	33	Alaudidae, 2 spp. (33) Othyphantes reichenowi (27) Pycnonotus tricolor (7) Xanthophilus xanthops (7)	Oenanthe oenanthe (3) Hippolais sp. (1) Sylvia borin (1)	5
22 Dec	60	Amboseli 2.30 N 37.10 E	Riverine woodland	90	15	Ploceus castaneiceps (36) Cisticola, 2 spp. (13) Eurocephalus anguitimens (13) Phoeniculus purpureus (11)	Anthus trivialis (2) Sylvia atricapilla (2)	4
24 Dec	90	Mt. Meru 3.15 N 36.45 E	Low montane forest with clearings	81	9	Pycnonotus tricolor (22) Tauraco hartlaubi (20) Oriolus larvatus (12) Tchitrea viridis (8)	Motacilla cinerea (1)	1
25 Dec	30	– –	High montane vegetation	42	14	Zosterops eurycricotus (18) Cinnyris mediocris (8) Arizelocichla nigriceps (8) Francolinus squamatus (4)	–	0
27 Dec	60	Marangu, Kilimanjaro 3.25 N 37.25 E	Gardens	135	23	Othyphantes reichenowi (54) Dioptrornis fischeri (29) Spermestes cucullatus (25) Pycnonotus tricolor (16)	Phylloscopus trochilus (2) Motacilla cinerea (1) Luscinia sp. (1) Saxicola rubetra (1)	4
30-31 Dec	90	Tsavo East 3.20 N 38.35 E	Nyika bush	275*	31	Creatophora cinerea (128) Sylviinae spp. (68) Anthus similis (33) Tmetothylacus tenellus (33)	Oenanthe oenanthe (18) Oe. pleschanka (13) Oe. isabellina (2)	12

30 Dec	30	– –	Riverine woodland	109	36	Spreo superbus (40) Stigmatopelia senegalensis (33) Eremomela icteropygialis (10) Apalis flavida (10)	Sylvia atricapilla (3) Hippolais sp. (3) Cuculus canorus (3) Phylloscopus trochilus (1) Phylloscopus sp. (1)	10
31 Dec	30	– –	Damp grassland	128	43	Quelea quelea (66) Vidua macroura (14) Cisticola sp. (6) Coturnix delegorguei (6)	Motacilla flava (8) Anthus cervinus (1) Circus macrourus (1)	8
1 Jan	30	Voi 3.19 N 38.28 E	Cultivation, village	76	25	Passer griseus (25) Estrilda, 2 spp. (14) Ploceus sp. (12) Plocepasser mahali (10)	Coracias garrulus (3)	4
7 Jan	90	Olorgesailie 1.29 N 36.20 E	Thorn bush	210**	23	Eremopterix leucopareia (95) Euplectes capensis (46) Pseudonigrita arnaudii (40) Oena capensis (32)	Oenanthe oenanthe (10) Monticola saxatilis (7) Anthus trivialis (2) Sylvia borin (2) Phylloscopus trochilus (2) Oenanthe pleschanka (1) Falco naumanni (1)	12
7 Jan	60	Lake Magadi 1.45 N 36.15 E	– –	102***	17	Pseudonigrita arnaudii (44) Euodice malabarica (20) Cisticola sp. (15) Prinia subflava (15)	Oenanthe oenanthe (10) Lanius isabellinus (3) Coracias garrulus (1)	14
9 Jan	60	Naivasha 0.38 N 36.18 E	Grazed grassland, scattered trees	84	14	Alaudidae, 2 spp. (29) Lanius collaris (19) Lamprocolius chalybaeus (18) Ploceus sp. (15)	Motacilla flava (8)	10
10 Jan	60	Lake Naivasha	Acacia woodland	130	22	Spreo superbus (44) Lanius excubitorius (30) Parus albiventris (25) Turdoides jardinei (16)	Phylloscopus trochilus (7) Hippolais sp. (1)	6

* Excluding 8 Anthus novaezeelandiae of unknown provenience.
** Excluding 4 Upapa epops/U. africana for same reason.
*** Excluding one Aquila rapax/A. nipalensis for same reason.

they find suitable quarters, rather than facing a difficult situation in a temporarily dry area. With regard to the huge inter-annual fluctuations in most East African habitats in terms of living conditions for passerine birds, whether insectivorous or omnivorous, such an adaptation would seem highly advantageous.

Naturally during periods of transit movements or in the presence of extraordinary food abundance, Palaearctic migrants may make up a much larger fraction of the total quantity of birds than found in the present material. Still I do not see any reason why the figures presented should be grossly misleading. Following MOREAU one may speculate about the total numbers of birds inhabiting African savanna habitats. If there are 200 Palaearctic birds per km², as estimated by MOREAU, and if these represent 5 to 10 % of the entire bird assemblage, then this will comprise 2 000 to 4 000 birds per km². There are extremely few studies from tropical Africa with which this estimate may be compared. MOREL & BOURLIÈRE (1962) in very dry savanna in Senegal recorded much lower densities, in the order of 400 to 800 birds per km². In addition they found higher proportions of Palaearctic migrants than those reported in the present study. BEALS (1970), in what seems to be structurally comparable habitats in the Ethiopian rift valley, estimated the density of breeding birds to 900 pairs per 40 ha, corresponding to 4 500 adult individuals per km². In his area Palaearctic visitors made up a very substantial proportion of the midwinter bird community (mainly *Phylloscopus*, 3 spp.). Finally, DE GRELING (1972) has presented results of census work in northern Cameroun from which one may gain the impression of 1 000 to 1 500 birds per km² being typical mid-winter values. These sparse data all derive from areas north of the Equator which may explain, at least in part, the generally higher proportion of Palaearctic components of the bird communities. It seems also probable that at least the West African habitats, in certain respects, were relatively low-productive in comparison with those in which my counts were carried out.

One may also compare the density values estimated for Africa with those provided by recent bird census work in Europe. For example, from woodland and mixed habitats ENEMAR (1966) and JÖRGENSEN (1970) report breeding densities usually between 400 and 1 200 pairs per km² corresponding to 800 to 2 400 adults. Still higher densities have been known to occur in favourable habitats.

Hopefully this brief communication may induce efforts to remedy our almost complete ignorance of the quantitative relationships between locally resident and migratory populations in different African environments. The rapid transformation of the vegetation over most of the continent adds a further interesting aspect to this question.

Zusammenfassung

Über den Anteil paläarktischer Vögel in der Avifauna einiger ostafrikanischer Biotope

Ungefähr 13 Stunden Vogelzählungen in verschiedenen Biotopen in Ostafrika während des Nord-Winters (Dezember bis Januar) zeigten, daß in den untersuchten Vogelgesellschaften der Anteil der palearktischen Zugvögel zwischen 0 (Bergregenwald) und 14 % (Savannen kurz nach Regenfall) (Totaldurchschnitt 8.2 %) schwankte. An Hand dieser Schätzungen, die möglichst bald von viel umfassenderen Zählungen erweitert werden sollten, wird die Frage der Einfügung der ungeheuren palearktischen Vogelscharen in die einheimisch afrikanischen Vogelgesellschaften kurz erörtert.

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Hugo Weigold 1886 – 1973

Als Museumsdirektor a. D. Dr. Hugo Weigold am 9. Juli 1973 an seinem letzten Wohnsitz Bruckberg in Oberbayern die Augen schloß, stand er im 88. Jahr seines Lebens – das man als reich und erfüllt bezeichnen darf. Doch fehlte es diesem so tätigen, ja kämpferischen Mann auch nicht an Enttäuschungen. Dazu gehört, daß sein großes biogeographisches Werk über Teile Tibets und Chinas nicht mehr zu seinen Lebzeiten zum Druck kommen konnte. Indes: Weigold hatte Erfolge – als der Begründer der Vogelwarte Helgoland – als der Neugestalter der Naturkunde-Abteilung des Landesmuseums Hannover – als der große Anreger naturkundlicher Zusammenarbeit in Niedersachsen – als Pionier von Natur- und Landschaftsschutz und, nicht zuletzt, – als bahnbrechender Forscher im Osten, besonders in weiten Teilen Tibets und Chinas.

Versuchen wir ein kurzes Lebens- und Schaffensbild[1]. Max Hugo Weigold ist am 27. Mai 1886 als Sohn eines Bauunternehmers aus altem sächsischem Bauerngeschlecht in Striesen bei Dresden geboren. Nach Besuch des Kreuzgymnasiums in seiner Heimatstadt widmete er sich ab 1905 dem Studium der Naturwissenschaften, zunächst in Jena, dann in Leipzig; als Lehrer seien hier nur genannt Ernst Haeckel und sein Doktorvater Carl Chun. Noch im Jahr seiner Promotion[2], 1909, wurde Weigold Assistent der Wissenschaftlichen Kommission für Meeresforschung bei der Preußischen Biologischen Anstalt auf Helgoland. Die Arbeit galt zunächst Fisch-Problemen, doch steuerte der junge Forscher sogleich darauf zu, im Rahmen der Biologischen Anstalt die „Vogelwarte Helgoland" wiederzubeleben, und zwar als Institut. Es war Heinrich Gätke gewesen, der kurz nach der Mitte des 19. Jahrhunderts seine ornithologischen Studien unter dieses Zeichen gestellt hatte; die „Vogelwarte" erlosch mit seinem Tod (1. Januar 1897)[3]. Schon am 1. April 1910 durfte sich Weigold hauptamtlich der ornithologischen Arbeit widmen. Er nützte diesen großartigen Brennpunkt des Vogelzugs dazu, um ein nach damaligem Stand modernes Unternehmen zu gestalten. Seine 1906 beginnende Liste der Veröffentlichungen[4] wandte sich mehr und mehr diesen Aufgaben[5] und besonders dem Vogelzug zu, teils in Einzelmitteilungen, teils in Jahresberichten (I bis VIII), die im Journal für Ornithologie erstattet wurden, ähnlich wie es J. Thienemann seitens der 1901 gegründeten Vogelwarte Rossitten tat, mit der sich eine gute Zusammenarbeit anbahnte. Damals drängte sich das Bestreben auf, an die Stelle allgemein gehaltener Bemerkungen das planmäßige Erfassen des Zuges mit möglichst genauen Zahlen zu setzen; darin eilte nun Helgoland der älteren Vogelwarte im Osten voraus. Die kleine Insel war diesem Plan günstig, wenn auch der nächtliche Vogelzug