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### BREEDING DATES OF BIRDS IN MOLE NATIONAL PARK, GHANA

### by P.W. Greig-Smith

### Received 2 February 1977

Published information on the breeding seasons of West African birds is sparse. As yet there has been no comprehensive survey comparable to that made for migration by Elgood, Fry & Dowsett (1973), and their paper provides the most complete review of breeding dates. The bulk of information relating to the Guinea savanna zone is given by Fry (1965, 1970), and Wells & Walsh (1969). Therefore, it seems worth reporting records of breeding behaviour which were collected casually during studies of Guinea savanna birds at Mole National Park, Ghana. In addition to my own observations (made during three visits, - 7 July to 28 August 1974, 3 July to 3 September 1975, and 28 October to 3 December 1975), I have drawn on the occasional references to breeding made by other workers at Mole. This has produced some indication of breeding for 100 species out of approximately 200 which might be expected to breed there. Accounts of the bird communities of the area, and their migration behaviour, are given by Greig-Smith (1976, 1977).

The records are generally consistent with evidence of breeding in other Guinea savanna localities, as described for Nigeria by Fry (1965, 1970), Wells & Walsh (1969), and Elgood, Fry & Dowsett (1973). Some discrepancies are indicated parenthetically in the following list, and they are due to the fact that several species have prolonged breeding seasons (in many cases covering the latter part of the dry season, the whole of the wet season, and the early dry season: see also Elgood et al. 1973). The records from Mole indicate extended breeding seasons in at least four species, all of which are predominantly graminivorous, namely Streptopelia senegalensis (nesting in May, July, and November), Treron waalia (nests in May and October), Plocepasser superciliosus (nest-building in May, July, September and November) and Estrilda bengala (nests in May, July, August and September).

The significance of species' breeding seasons, in relation to diet, habitat requirements, and other ecological parameters, will be discussed elsewhere (Greig-Smith, in prep.), together with an analysis of the number of species breeding at Mole at different seasons.

### RECORDS OF BREEDING BEHAVIOUR

In the following notes, all observations are by the author, unless indicated by these symbols:

- D N. C. Davidson, July-Sept 1974 and July-August 1975 (pers. comm.)
- EG M. Edmunds & L. G. Grimes, March 1969 (unpublished notes)
- G R. E. Genelly, July to October 1966 (Genelly 1968)

HH - W. G. Harvey & I. Harrison, 24 July to 7 September 1968 (Harvey & Harrison 1970)

PR - R. B. Payne & C. J. Risley, October 1975 (pers. comm.) - team of game rangers, May 1970 (unpublished report)

skin - study-skin deposited at Mole, examined by the author

Butorides striatus Male with enlarged testes, July 1968 (skin). (Fry, 1965, found nestlings in October and fledglings in November.)

Nest and display flight (HH) Scopus umbretta

Occupied nests, March 1969 (EG) Leptoptilus crumeniferus

Threskiomis aethiopica 'Breeds in dry season' (HH)

Dendrocygna viduata Displays (HH); juvs in Nov 1975

Nettapus auritus Possible nest-prospecting (HH)

Displays and food-passes, Nov 1975 Buteo auguralis

Haliaetus vocifer Occupied nest, Sept 1974 (D)

Francolinus bicalcaratus Juvenile at the end of post-juv moult (G)

Actophilornis africanus Juveniles, Nov 1975

Vanellus senegallus Nesting on bovals, mid July 1974 and 1975

Nesting on boyal, July 1974 and 1975; pullus, 25 Aug Charadrius forbesi 1975

Streptopelia semitorquata Nest in Mitragyna bush in marsh, Aug 1974 S. senegalensis Nest with 2 eggs, July 1968 (HH); nest with one egg,

May 1970 (T); bird with nest-material, Nov 1975

Treron waalia Nest with fledgling, Oct 1966 (G); nest with 2 eggs, May 1970 (T)

Poicephalus robustus Pair investigating possible nest-holes, mid-July and August 1975

P. senegalus Investigation of nest-holes, July and August 1975

Psittacula krameri Investigation of nest-holes, Oct 1966 (G), and July, Nov and Dec 1975

Crinifer piscator Display July 1968, copulation Aug 1968 (HH)

Chrysococcyx klaas Male in post-juvenal moult, Oct 1975 (PR)

Centropus senegalensis Nest, July and Aug 1974; bird with possible nestmaterial. Aug 1968 (HH)

C. toulou Held territory, July and Aug 1974

Macrodipteryx longipennis Male displaying, March 1969 (EG)

Cypsiurus parvus Nesting in Borassus palms, July 1975

Alcedo cristata Possible nest-hole (HH)

Halcyon senegalensis Nests in July and Aug 1974 and 1975

H. chelicuti Displays and copulation, July-August 1974
Merops bulocki Large proportion of birds netted in July-Aug 1974 and 1975 were undergoing post-breeding moult

M. hirundineus Juveniles, July 1975

Phoeniculus purpureus Nest with 2 young, May 1970 (T); copulation, August 1974 (D); juveniles begging, July 1974 (D)

Indicator indicator Immature birds, July and August 1975

Dendropicos obsoletus Nest in Nov 1975

Mirafra rufocinnamomea Male with regressed testes, July 1968 (skin); display

Mesopicos goertae Male with regressed testes, Aug 1968 (skin)

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flights frequent in July and August 1974 and 1975
Hirundo rustica (= H. lucida) Investigating possible nest-sites, July 1975
H. smithii Nesting Aug 1975 (Fry, 1965, recorded nest-building in October.)
H. semirufa Juvenile, August 1968 (skin)
H. abyssinica Nests in July 1974
Prionops plumata
                   Juveniles begged from adults, mid July and early August
       1975 (Fry, 1965, found nestlings in March and October.)
              Juveniles, July and August 1975
Dryoscopus gambensis
                       Adult female feeding juvenile, Sept 1975
Tchagra senegala Held breeding territories throughout July and August 1975;
      adult carrying food, July 1975 (Fry, 1965, found fledglings on 23 April.)
Malaconotus sulfureopectus Juveniles, July and August 1975
Corvinella corvina
                     Juvenile begged from adults, July 1975: possible nest
      (HH)
Dicrurus adsimilis
                    In moult (HH)
Lamprotomis purpureus
                         Nest with one nestling, May 1970
                       Males in post-juvenal moult, Aug and Sept 1975
Campephaga phoenicea
Pycnonotus barbatus
                      Nest with 2 young, July 1974; nest-building, Aug 1966
      (G) (but Fry, 1965, stated that at Zaria, Nigeria, it nests in the late
      day season.)
Cercomela familiaris
                       Display, March 1969 (EG)
Myrmecocichla albifrons Male with regressed testes, July 1968 (skin)
Cossypha albicapilla/niveicapilla Fledgling, July 1975; display, March
      1969 (EG)
Sphenoeacus mentalis Female with brood patch, July 1975; adults carrying food, August 1975; song, March 1969 (EG)
Cisticola erythrops Juvenile, August 1975
C. cantans Song, March 1969 (EG)
C. lateralis Song, March 1969 (EG); nestling and juveniles, Aug 1968 (HH)
C. galactotes
                Nest with 2 eggs, July 1975 (Fry, 1965, recorded fledglings
      in December.)
C. natalensis
                Held breeding territories, July-August 1974 and 1975
C. rufa/brachyptera
                     Adult carrying food, July 1975; adult feeding fledg-
      lings, late November 1975
Prinia erythroptera Birds in breeding plumage, July 1974; song, March 1969
      (EG); in moult, July-August 1968 (HH)
P. subflava Nest in July 1974; song, March 1969 (EG)
Hypergerus atriceps Nest, August 1975 (Fry, 1965, saw birds carrying nest
      material in April.)
Camaroptera brachyura
                      Pre-copulatory display, July 1975; juveniles, late
      July 1975
Eremomela pusilla Adults feeding juveniles, July 1975, August 1974
Sylvietta brachyura Adult carrying food, Nov 1975 (Elgood et al., 1973,
      state that in Nigeria it is a wet-season breeder.)
Myioparus plumbeus
                    Juvenile, July 1975
Melaenomis edolioides Juveniles, July 1974 and 1975
Bradornis pallidus Nests in July 1966 (G); nest with 3 young, May 1970
      (T); adult carrying food, July 1975; juveniles, July, August,
      September 1974 and 1975 (for Zaria, Nigeria, Fry, 1965, stated that it
      breeds in April and May.)
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Hyliota flavigaster Juvenile, July 1974

Batis senegalensis Adult carrying food, August 1968 (HH): feeding juveniles Sept 1974 (D)

Platysteira cyanea Adults carrying food, August and Sept 1975: juveniles. August 1975

Trochocerus longicauda Fledgling, July 1975; male with regressed testes, Julv 1968 (skin)

Terpsiphone viridis Juvenile, August 1974

Juvenile begging from adult, July 1975 Parus leucomelas

Anthreptes platura Males in breeding plumage, Nov 1975

Nectarinia verticalis Juvenile, Nov 1975

Juveniles, mid-July to late August 1975; 'breeding', July-N. senegalensis August 1968 (HH); nest, Aug 1974 (D)

N. venusta Male in breeding plumage, Nov 1975

Males in breeding plumage, March 1969 (EG), July and August, 1974 N. cuprea & 1975; territorial, July-Aug 1968 (HH); males changing to nonbreeding plumage, Nov 1975

Nests, Aug 1966 (EG), and July-August 1968 (HH); males in N. pulchella breeding plumage, July & Aug 1974 and 1975

Emberiza cabanisi Adult carrying food, early Sept 1975

Adults with nest-material, August 1975; nest in May Serinus mozambicus 1970 (T); juyeniles, Aug and Nov 1975; courtship feeding, August 1975 (D)

Male changing to breeding plumage, early July 1975 (cf. Ploceus luteolus Fry, 1965, who reported moult into breeding plumage in February.); nests, August 1975 and March 1969 (EG) and July 1974 (D); juveniles, Nov 1975; adults feeding young in nest, early August 1968 (HH)

P. cucullatus Nesting in colonies, July 1975, and July-Aug 1968 (HH)

Adult with nest-material, Aug 1975; nest-building July-Aug P. nigricollis 1968 (HH); juveniles, late Aug 1975

Juvenile, July 1975; begging from adult, Aug 1975 Malimbus rubriceps Quelea erythrops Female with brood patch, July 1974; nests in early September 1974 (D)

Female with brood patch, July 1974; males held breeding Euplectes afer territories, August-Sept 1974 and 1975; male nest-building, August 1975 (D)

E. hordeacea 2 Females with yolked ova, Oct 1975 (PR); males in breeding plumage, July and August 1975

Male with enlarged testes, August 1968 (skin); held breeding territories, July and August, 1974 & 1975

E. orix Males in breeding plumage, Mid-July to September 1974 & 1975: held breeding territories, August 1974 & 1975; nest-building, August

Nest-building, Sept 1968 (HH), May 1970 (T), July Plocepasser superciliosus and early Nov 1975

Sporopipes frontalis Nests, Oct 1975 (PR) Vidua macroura Males in breeding plumage, Males in breeding plumage, July, August & Nov 1975

Immature male, Oct 1971 (skin) V. chalybeata

Vidua orientalis Males in breeding plumage, late Aug and Nov 1975

Estrilda melpoda Juveniles, Nov 1975

- E. bengala Two nests, May 1970 (T); nest-building, July & Sept 1966 (G), and August 1975; male with regressed testes and female with oviducal egg, August 1975
- Lagonosticta rufopicta Female with oviducal egg, late August 1975
  L. senegala Male in wing-moult. July 1974
- Lonchura cucullata Nests occupied, May 1970 (T), and August 1974; nest-building, May 1970 (T), July to Oct 1966 (G), and July 1975; juveniles, August & Nov 1975

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