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Migration of swifts over Bougouni, southern Mali

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Summary

Movements of European Swifts *Apus apus* and Little Swifts *A. affinis* were observed at Bougouni, southern Mali, at the start of the 1995 rainy season. The movements observed were explained by the response of swifts to favourable foraging conditions after passage of a rain-front. For European Swift these movements were likely to be part of a spring migration movement towards European breeding grounds.

Résumé

Des mouvements de Martinets noirs *Apus apus* et de Martinets des maisons *A. affinis* furent observés à Bougouni, sud du Mali, au début de la saison des pluies de 1995. Les mouvements observés s'expliquaient par la réponse des martinets à des conditions alimentaires favorables après le passage du front pluvieux. Pour le Martinet noir ces mouvements faisaient vraisemblablement partie d'un mouvement de migration de printemps en direction des sites de reproduction d'Europe.

Introduction

Bougouni is located in southern Mali at 11°30'N, 7°30'W in the southern Soudanian zone. Annual rainfall is 1200 mm and the rainy season extends from May to October. Isohyets are oriented SE-NW; rainfall thus decreases towards the northeast. Depressions generally move in an east-west direction over the area.

With the first thunderstorms at the end of April 1995, flocks of European Swifts *Apus apus* arrived on passage and were observed until the first week of June. The flocks were associated with Pallid Swifts *A. pallidus* and large numbers of Little Swifts *A. affinis*, the former representing less than 5 % of the numbers of European Swifts. A total of 60 Alpine Swifts *A. melba* was observed foraging and on passage on 5-7 May. No movements were observed of the resident Palm Swift *Cypsiurus parvus* (tens of pairs in Bougouni town) and Ussher's Spine-tail *Telacantura ussheri* (maximum of five individuals present). Little Swifts are resident in Bougouni town as

well, but these were generally outnumbered by their conspecifics on passage. During the peak of passage in the first half of May small numbers of Barn Swallow *Hirundo rustica*, House Martin *Delichon urbica*, Sand Martin *Riparia riparia*, Red-rumped Swallow *H. daurica* and Hobby *Falco subbuteo* were observed as well.

This article presents some observations on the behaviour of the flocks of European Swifts and Little Swifts in relation to rain-front passage.

Methods

Movements of swifts were observed on nine days between 24 April and 4 June 1995, for a total of 12 hours. All sessions were between 11h00 and 15h00. The observation post was a hill, 25 m high, overlooking Bougouni town. For each flock of European and/or Little Swift moving through an observation circle of 100 m radius around the observation post, the following were recorded: flock size, flight direction (16 compass directions), flight altitude above ground (in 5 classes, see Fig. 2). For flocks outside the 100 m observation circle only the number of birds was recorded. Birds were considered moving when keeping one predominant flight direction while in view from the observation post. Birds foraging near the observation post for some time were excluded.

In addition to these sessions, non-systematic observations were made throughout the period, of swifts foraging or moving over Bougouni town and its near surroundings.

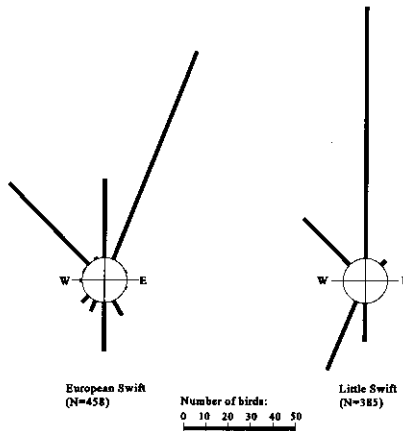


Figure 1. Flight direction.

Results

European Swifts were first seen on 23 and 24 April, coinciding with the arrival of the first rain-fronts in the region, when 50 mm of rain occurred at a locality 30 km east of Bougouni town. Massive northwards passage occurred in the first two weeks of May, always in association with the passage of a rainfront. Birds appeared within an hour after the rains ceased and swift passage continued until one or two days after. Generally, movement was most pronounced between 12h00 and 14h00. The flight direction most frequently observed was north-northeast, but movement in southerly directions occurred as well (Fig. 1). The limited data suggest that mean flight direction is north to north-northeast on the day of a rain-front passage, and more northwest on the following day. Southern and southwestern directions were observed two days or more after rain-front passages. The flight altitude most frequently observed was between 50 and 100 m (Fig. 2). Flight altitude was highest for northern directions, somewhat lower for northwestern and lowest for southern directions (Table 1). Flock size was apparently smaller for movement in southern directions.

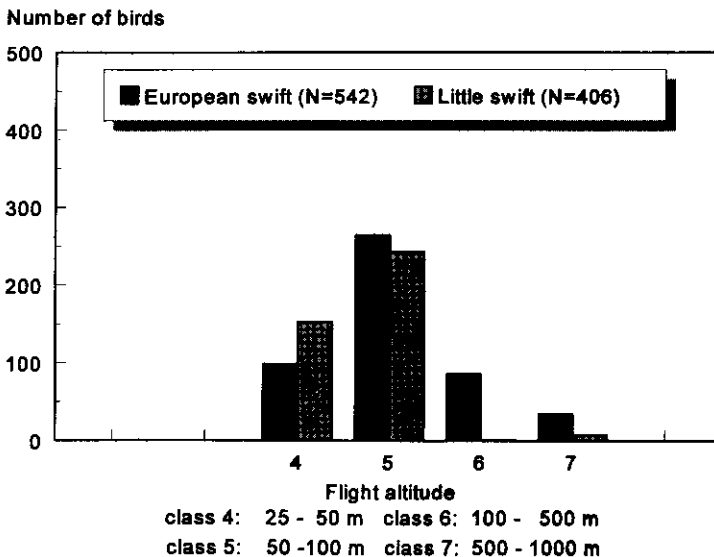


Figure 2. Flight altitude.

For Little Swifts, a similar pattern was observed (Figs 1, 2), but flight altitude and flock size did not appear to vary with flight direction. Mean flight altitude and mean flock size were lower than for European Swift.

Table 1. Flight altitude (m) and flock size for different flight directions. Mixed flocks were treated as two separate flocks of European Swift and Little Swift.

Direction ¹	No. of flocks	Flight altitude		Flock size	
		Median	Range	Mean	Range
European Swift					
S	7	60	25–100	6	1–16
SW	3	60	25–100	3	1–6
NW	6	70	25–500	17	2–50
N	9	120	50–1000	8	2–20
NNE	9	100	25–500	23	1–110
All directions	46	80	25–1000	11.8	1–110
Little swift					
S	4	80	50–100	9	2–15
SSW	3	50	25–100	23	10–40
NW	6	40	25–50	10	1–40
N	12	60	25–100	18	4–100
All directions	30	50	25–100	13.3	1–100

¹Directions with less than three flocks observed have been omitted from the table.

Foraging European Swifts were present over Bougouni every day between 5 and 17 May, coinciding with the peak period of passage. Before and after this period the occurrence of foraging birds was more sporadic. Small flocks of up to 40 birds were regularly observed over Bougouni town throughout the day but especially in the early morning. Large flocks of 100–1000 birds were observed in the afternoons after the passage of a rain-front. Birds were observed foraging at altitudes from ground level to 100 m, but most frequently between 10 and 25 m. Little Swifts were never observed in flocks larger than 50, in association with the flocks of European Swifts, foraging at the same altitude. Resident birds probably made up a large portion of these.

Discussion

The European Swift is reported to migrate through Mali from March until May, in flocks of 1000–5000 (Lamarche 1980). Mali is situated at the western limit of the spring migration route of European Swift, as observations of spring passage further west are relatively few compared to autumn passage (Fry *et al.* 1988). A diagonal crossing of the Sahara from the main winter quarters south of the equator is suspected, by-passing the western part of West Africa (Cramp 1985).

As in their winter quarters, in the period of spring migration European Swifts appear to be attracted to rain-storms. Moreau (1972) suggested that for Senegal, lower abundance in spring is explained by the absence of depressions during the period of

spring migration. Walsh & Grimes (1981) state for Ghana, that spring records of European Swift invariably occur after storms. Favorable foraging conditions in the lower airlayers may be the main reason for this, because of swarming termites (Fry *et al.* 1988) or possibly because the rains have forced the aerial plankton down. Large scale weather movements may be involved as well (Fry *et al.* 1988). In Europe such movements are well known and birds are thought to move around depressions to avoid bad weather (Cramp 1985) or to reach the zone of warm air in front of depressions where foraging conditions are favorable. In West Africa such a movement has been noted by Grimes (1974), who related an unusual spring influx of swifts at Accra, Ghana to a large anticyclone over southern Europe that made the intertropical convergence zone return southwards to the coast for a couple of days.

The European Swifts observed at Bougouni are likely to be on spring migration, in view of the short period of peak numbers and the predominantly northern flight directions. They are responding to the favorable foraging conditions related to rain-storms by foraging at low altitude by performing local movements. There are no indications that weather movements of the scale observed by Grimes (1974) are involved in this case. Foraging at low altitude is most pronounced just after passage of the rain-front, while local movements occur the following days. The pattern of movement seems to be that swifts move in a northwesterly direction at first, presumably to follow the passing rain-front. After the rain-front has moved away there is a return movement to the south and southeast, towards newly approaching rain-fronts.

As concerns the northern to north-northeasterly movements, that occurred mainly on the day of rain-front passage, it is not clear whether these are local movements as well. As rain-fronts move mainly from east to west, this movement seems to take the birds out of the zone where the rains have fallen. They also fly at relatively high altitude, compared to birds moving in other directions. For these reasons they may well be birds that are resuming or beginning migration towards their breeding grounds.

The observations in Bougouni are towards the end of the period of migration of the European Swift (Cramp 1985). The duration of stopover is probably short, in view of the short period of peak numbers. Lamarche (1988) mentions overwintering of European swifts in Mali. In fact I observed European Swifts to the end of June and early July, northeast of the Bougouni area, still associated with rain-storms. This may indicate that some of the birds remain with the rain-fronts for a longer period and possibly even overwinter.

Little Swifts are largely resident in West Africa, and only the Palearctic population is reported to migrate (Fry *et al.* 1988). As Little Swifts of Palearctic origin are unlikely so far south, the observations have to be interpreted as local movements. They may concern non-breeding birds wandering with rain-fronts, or local birds performing short-range weather movements to adapt to the dispersed availability of food at the start of the rainy season. As Little Swifts were mainly

observed at low altitude, this supports the idea that the high altitude movement of European Swift is related to migration.

The coincidence of migration of European Swifts with the arrival of the first rain-storms is open to several interpretations. Firstly, the birds may normally migrate over the area unseen at high altitude, in March and April. From the end of April birds encounter rain-storms and may interrupt migration to benefit from the foraging opportunities. Such birds could have wintered in West Africa. Alternatively, the birds may intentionally move along the edge of the intertropical convergence zone, in a western to northwestern direction, in order to experience optimal foraging conditions on the way and improve bodily condition for the crossing of the Sahara. Such birds may well originate from the main wintering quarters south of the equator.

References

- CRAMP, S. (ed.) (1985) *The Birds of the Western Palearctic*, vol. 4. Oxford University Press, Oxford.
- FRY, C.H., KEITH, S. & URBAN, E.K. (eds) (1988) *The Birds of Africa*, vol. 3. Academic Press, London.
- GRIMES, L.G. (1974) Weather conditions in temperate latitudes and the occurrence of Alpine and Mottled swifts at Accra. *Bull. Niger. Orn. Soc.* 10: 38–39.
- LAMARCHE, B. (1980) Liste commentée des oiseaux du Mali. 1ère partie: Non-passereaux. *Malimbus* 2: 121–158.
- MOREAU, R.E. (1972) *The Palearctic-African Bird Migration Systems*. Academic press, London.
- WALSH, J.F. & GRIMES, L.G. (1981) Observations on some Palearctic land birds in Ghana. *Bull. Brit. Orn. Club* 101: 327–334.