House Martin

Delichon urbicum

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Range

The House Martin is a polytypic species that inhabits almost the entire Palearctic. There are five subspecies, although the nominate race is the only one that breeds in Europe (Hagemeijer & Blair, 1997). Beyond the W Palearctic, it is widely distributed in C and N Asia, south to Iran, Himalayas, and S China (Cramp, 1998). It is a long-distance migrant, European populations wintering in the Afrotropics (Cramp, 1998). It is a common breeding species in Spain and N Morocco, but does not breed at the specific sites where the ringing campaigns are conducted.

Migratory route

The available recoveries show a prevalence of SW-NE movements in the W Mediterranean (fig. 1). The species migrates in broad front, with birds passing through the study area belonging to populations from SW Europe and the British Islands, but those passing further to the E tending to originate from more E and N Europe (Wernham et al., 2002). One bird ringed in early April in SE Morocco and recovered two years later in Tunisia, also in early April, (Thévenot et al., 2003), indicates that some individuals cross the Mediterranean by very different sites in different years. On the other hand, spring recoveries from UK birds show a front of passage spanning from E Spain to Italy (Hill, 2002; Wernham et al., 2002), indicating that birds of similar origin can cross the Mediterranean by different migratory routes.

Unlike the other two hirundines discussed here (Barn Swallow and Sand Martin), this species attains some of the highest relative and absolute number of captures on some islands (fig. 2), reflecting the passage of many birds across the Mediterranean Sea. The species is more frequent in E Morocco than on the Atlantic coast during migration (Thévenot et al., 2003).

Phenology

Captures span from mid-March to late May and peak in April (fig. 1), although the sample size is quite limited and the pattern of passage seems to fail to depict with precision the phenology of the species in the W Mediterranean. In S Iberia and Catalonia, migration generally peaks in April, but arrival takes place from February onwards (Finlayson, 1992; Telleria et al., 1999; ICO, 2010); in Morocco migration is very protracted, peaking between mid-March and mid-May, with the first arrivals seen from early January onwards (Thévenot et al., 2003). The passage across the Tyrrhenian islands peaks between mid-April and mid-May (Petersson et al., 1990; Spina et al., 1993), apparently somewhat later than in the W Mediterranean.

Biometry and physical condition

This species presents a strong latitudinal cline in size, with mean values of wing length increasing by about 1 mm each 2.2 degrees of latitude N (Cramp, 1998). The distinct differences in size had led to the proposal of three races within Europe: *urbica* in N Europe with wing length 115-123, *fenestratum* in Central Europe and British Islands with wing mainly 107-115, and *meridionalis* in S Europe with wing 100-107 (Clancey, 1950). Although these races are not generally accepted (see Vaurie, 1959), these size differences are fairly appreciable and can help determine the origin of birds passing in migration.

Mean values of wing length vary from 106.0 (N Morocco) to 108.3 (Els Columbrets). Mean third primary lengths range from 82.0 (Catalonia) to 86.3 (N Morocco), without significant differences between regions (table 1). In general, mean figures are somewhat lower than in the C Mediterranean (mean 84.1, n = 134; Spina et al., 1993), reflecting the passage of a lower proportion of birds of more northern origin in comparison with areas further to the E (see above). Third primary length tends to increase with time, but only significantly so in the wet Balearics (fig. 6). A similar trend is observed in the C Mediterranean (Spina et al., 1993) and in both cases is apparently caused by the later migration of more northern, longer- winged birds, a common pattern in polytypic migrants (Blondel, 1967).

Mean fat scores range between 0.3 (Els Columbrets) and 2.4 (wet Balearics), and body mass from 13.8 (Els Columbrets) to 16.8 (wet Balearics; table 1). Fat shows no clear overall temporal tendency, since no trend is detected in most areas, while it decreases significantly in the wet Balearics and increases in Catalonia (fig. 9). Body mass and physical condition increase significantly with time, particularly in the two areas with most available data (*i.e.* Catalonia and dry Balearics; figs. 7-8). In Catalonia and wet Balearics fat, body mass and physical condition are higher than in the dry Balearics and, particularly so, on Els Columbrets, where birds attain the lowest means (table 1). Overall, mean body mass in the Balearics/Els Columbrets is similar to that reported on islands in the C Mediterranean (mean 14.8, n = 134; Spina et al., 1993).

The mean body mass of birds trapped in S Morocco is similar to that reported at the nearby sites of Defilia (mean 14.5, n = 252; Ash, 1969) and Merzouga (mean 15.0; n = 15; Gargallo et al., unpubl.). The very scarce data available from N Morocco show a similar average to S Morocco, although the mean mass reported from a similarly tiny sample from N Tunisia is much higher (mean 19.6, n = 3; Waldenström et al., 2004).

The fact that birds trapped on insular sites located in wetlands are distinctly heavier than on the other islands suggests that these habitats provide much better opportunities for stopover and refuelling (*cf.* Ktitorov et al., 2008). However, birds from dry islands show average masses similar or even below those reported in S Morocco, a clear indication that they are under greater energetic stress. Birds migrating through continental Europe may gain mass en route, since the average in Catalonia is rather low compared with that reported in May from sites in Britain and the Netherlands (mean 18.4, n = 15; Cramp, 1988).

Stopover

The few retraps available are all from the dry Balearics (table 2, fig. 5). The initial mass of retrapped birds is much lower than that of those not trapped again and their fuel deposition rates do not differ from zero. These results suggest that only birds in particularly poor condition stay some days in these areas. The low percentage of birds recaptured is probably due among other reasons to the en route feeding habits of the species (Cramp, 1988), which is not necessarily tied to any particular stopover site.

Table 1. Mean (± SD), range and sample size of main biometric parameters according to area.

	n	Wing	Third primary	Body mass	Fat score
Catalonia	127	107. 8 ± 3.4 (99.5-117.0)	82.0 ± 2.5 (75.5-88.5)	15.9 ± 1.4 (11.8-19.2)	1.3 ± 1.1 (0-4)
Columbrets	44	108.3 ± 3.7 (98.0-117.0)	82.7 ± 2.9 (78.0-89.5)	13.8 ± 1.4 (11.1-17.3)	0.3 ± 0.5 (0-2)
Balearics (dry)	192	107.6 ± 3.9 (97.5-117.0)	82.1 ± 3.1 (75.0-91.0)	14.8 ± 1.7 (10.6-21.0)	1.0 ± 1.0 (0-5)
Balearics (wet)	24	107.0 ± 2.7 (101.0-112.0)	83.0 ± 3.5 (75.5-92.0)	16.8 ± 1.8 (13.0-21.7)	2.4 ± 1.2 (0-5)
Chafarinas	0				
N Morocco	3	106.0 ± 2.6 (103.0-108.0)	86.3 ± 4.2 (83.0-91.0)	14.9 ± 0.5 (14.5-15.4)	1.7 ± 0.6 (1-2)
S Morocco	14	107.1 ± 1.2 (105.5-109.0)	83.4 ± 2.4 (80.5-87.0)	15.0 ± 1.0 (13.9-17.3)	0.9 ± 1.1 (0-3)

Table 2. Variation in fuel deposition rate (g/day) according to area and type of retraps involved (mean ± 95% CI and sample size are given).

	Catalonia	Columbrets	Balearics (dry)	Balearics (wet)	Chafarinas	N Morocco
All retraps			-0.05 ± 0.42 (4)			
Retraps >1 day			0.13 ± 0.32 (3)			

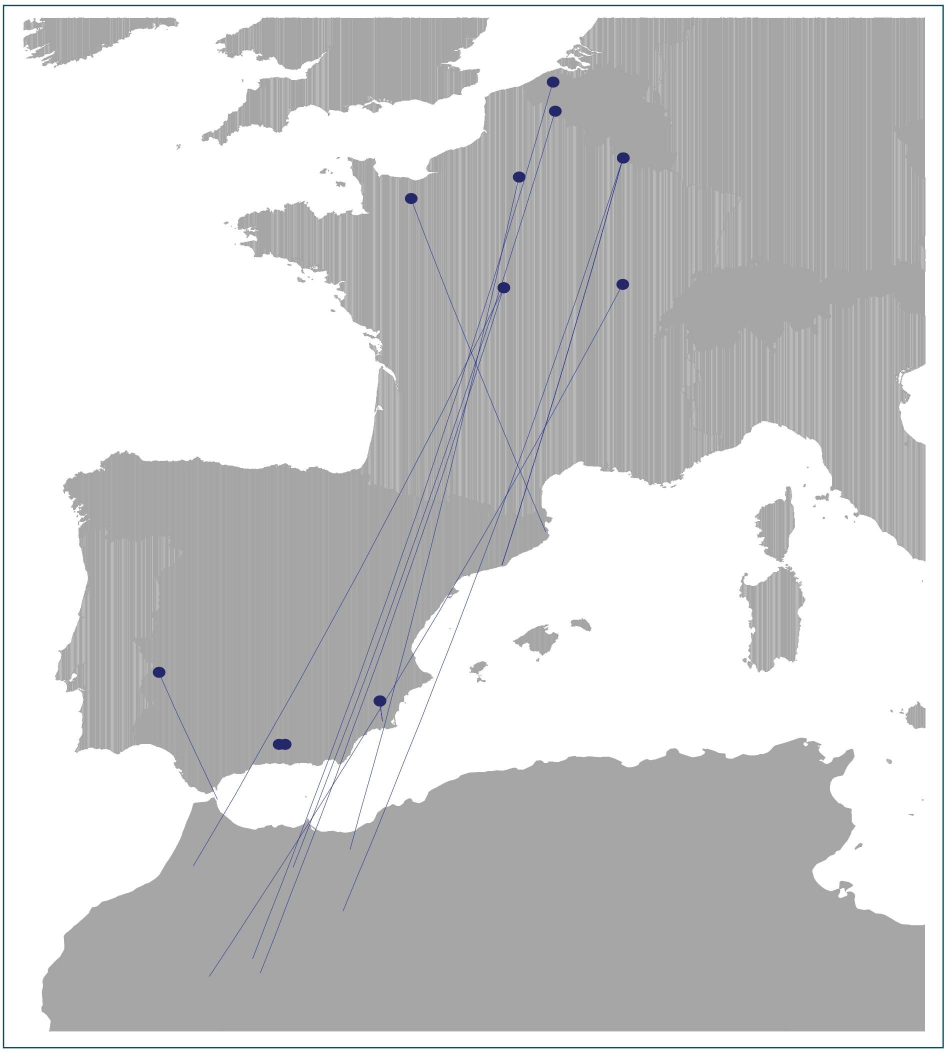


Figure 1. Map of recoveries of birds captured in the study area during the study period (March to May).

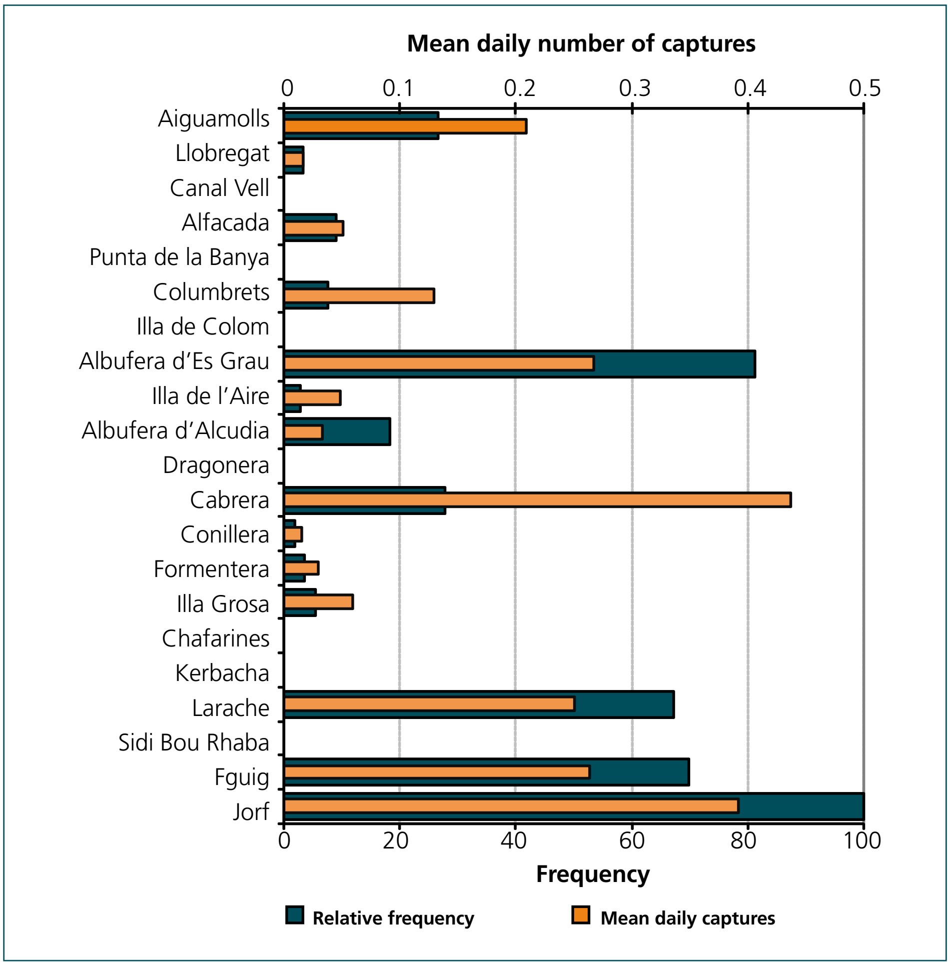


Figure 2. Relative frequency of captures and mean daily numbers according to site during the standard period (16 April to 15 May).

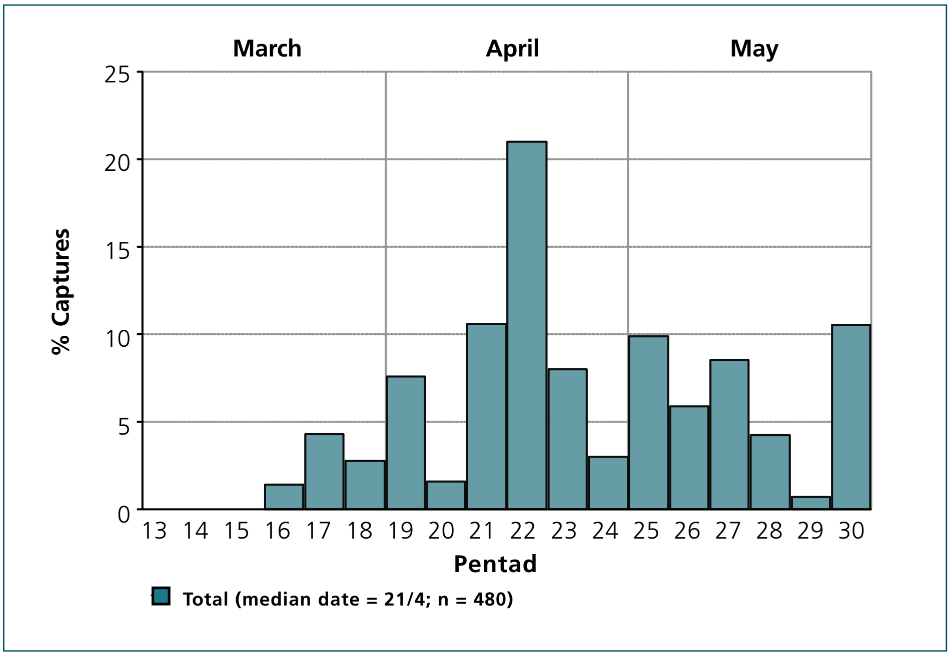


Figure 3. Frequency of captures during the study period.

Figure 4. Variation in body mass and fat score according to site during the standard period (16 April to 15 May).

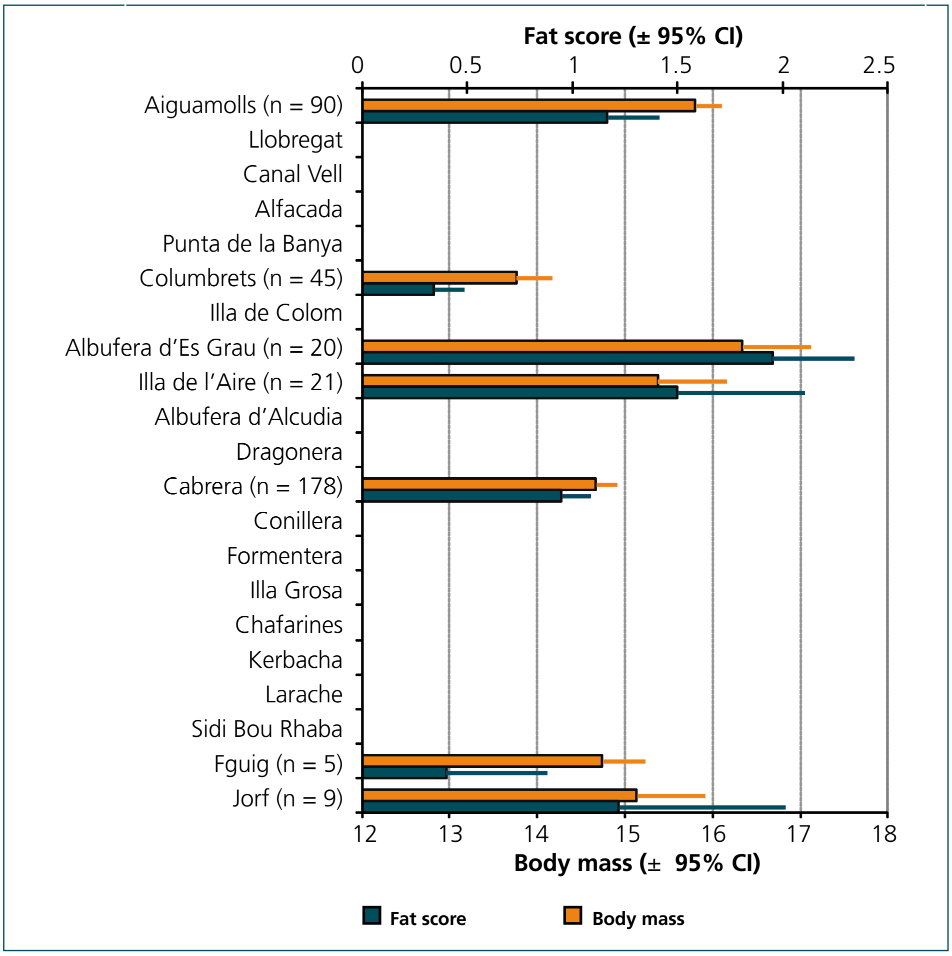
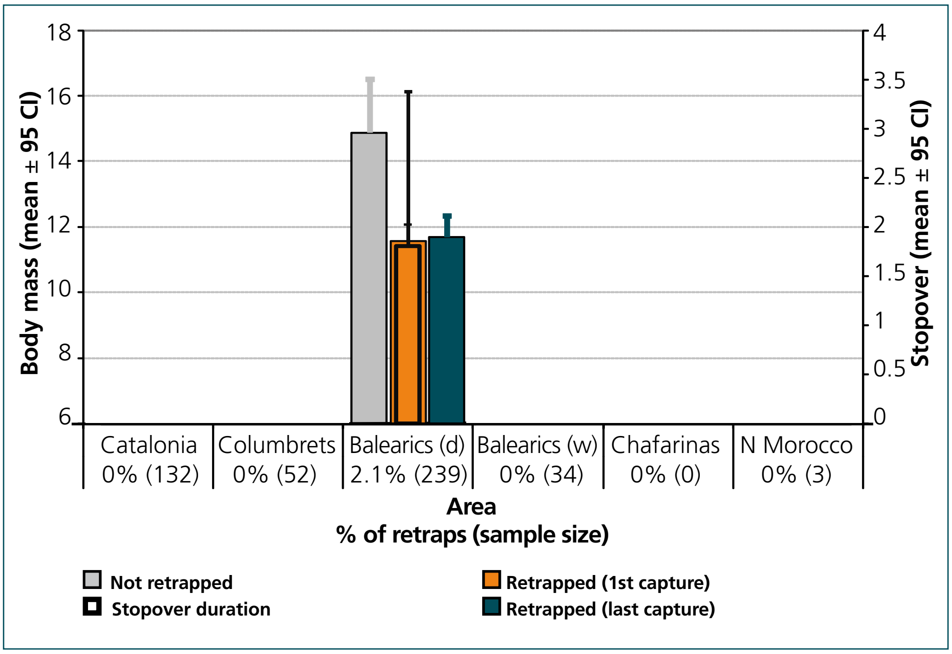


Figure 5. Variation in body mass by trapping status, minimum stopover length and frequency of retraps according to area.



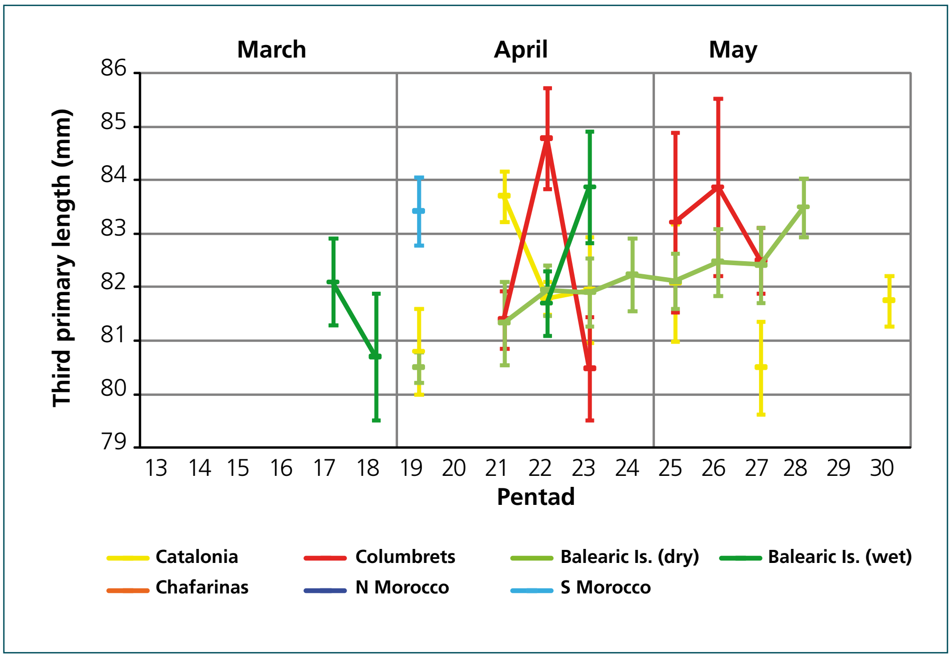


Figure 6. Temporal variation of third primary length according to area.

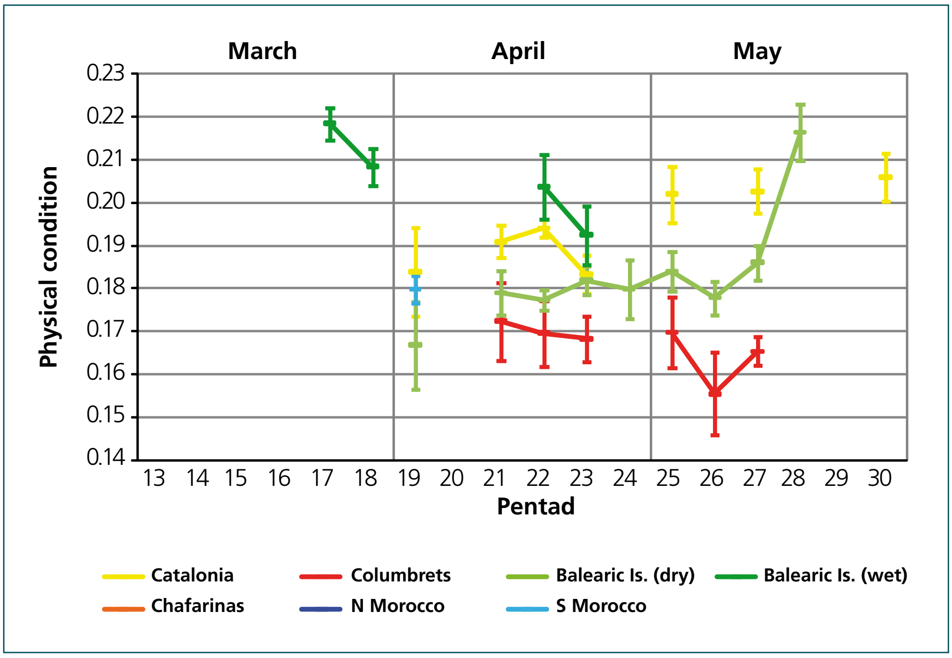


Figure 7. Temporal variation of physical condition according to area.

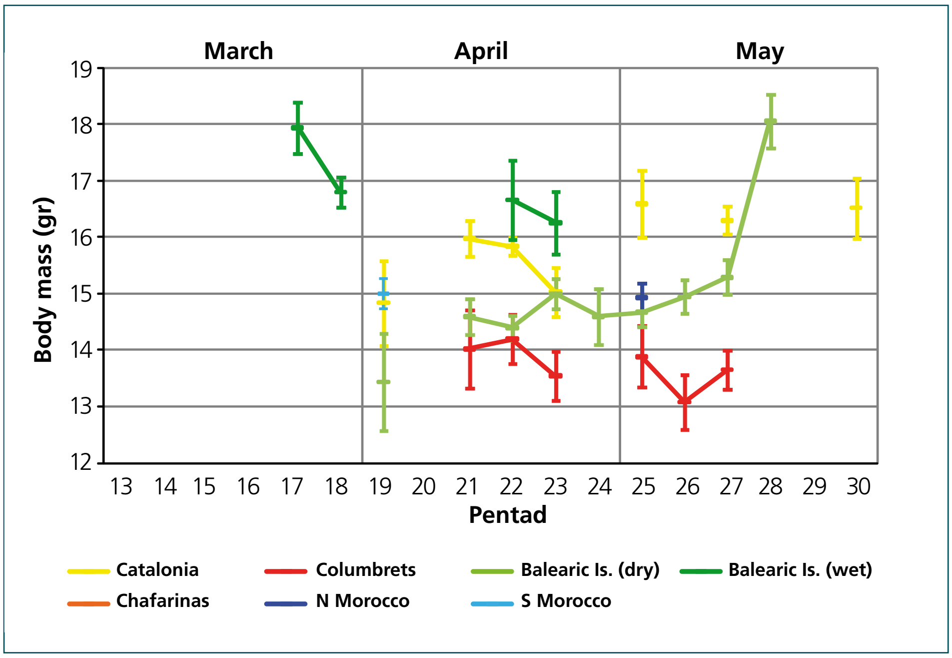


Figure 8. Temporal variation in body mass according to area.

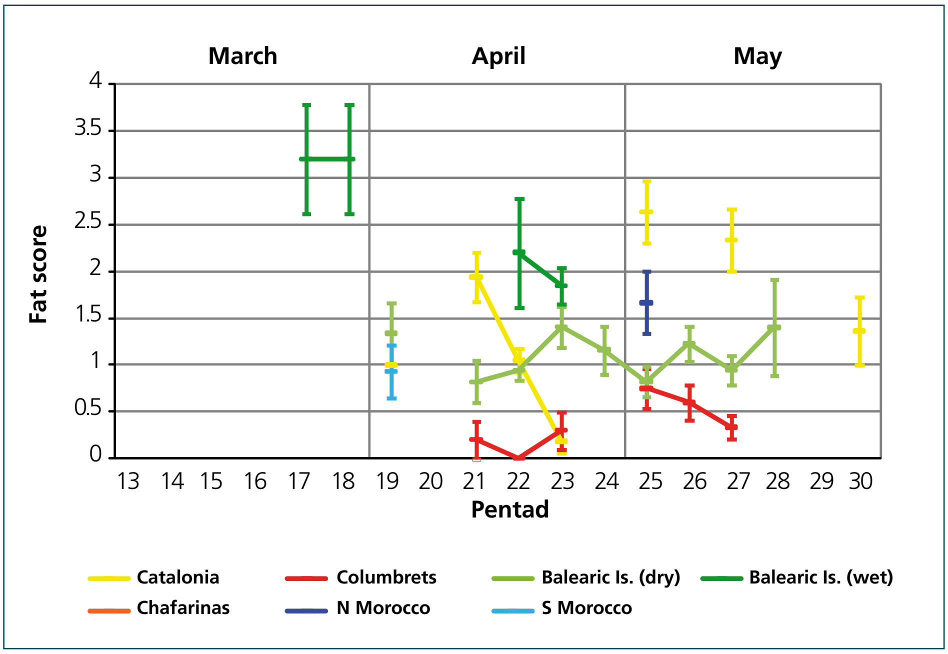


Figure 9. Temporal variation in fat score according to area.