Tree Pipit *Anthus trivialis*

Joan Carles Fernández

Range

The Tree Pipit breeds patchily throughout most of S Europe, but is more widespread in C and N Europe and extends eastwards to c. 140°E and south to N Iran and NW Himalayas (Cramp, 1988). It winters irregularly in the E Mediterranean and parts of Arabia, and otherwise right across the Afrotropics and Indian subcontinent. The main wintering area in Africa extends across from the Guinean coast at 10°N to Ethiopia in the west and south to the northern edge of equatorial rain forest, although in the east it also extends south to Natal and Transvaal (Cramp, 1988). It does not breed at any of the ringing sites.

Migratory route

The few recoveries available show a main N-NE migration direction (fig. 1). The recovery in Catalonia of a bird breeding in Hungary shows that there is also a degree of influx of birds from E Europe, as occurs in autumn (Zink, 1975). A couple of recoveries in Morocco agree with the known preference for inland sites in this region (Thévenot et al., 2003).

Most captures and the greatest frequencies of captures occur on islands (fig. 2), indicating that good numbers of Tree Pipits cross the Mediterranean Sea. In fact, this species is more common in the Balearics in spring than in autumn. All captures from Morocco come from southern oases where the species is particularly common in spring; otherwise, in Morocco it is more widespread in spring than in autumn.

Phenology

The first individuals pass though the study area during the last two weeks of March, although the main passage period occurs between early April and mid-May (fig. 3). Two peaks are observed: one in mid-April and the other in early May, in contrast with the unimodal tendency recorded at Eilat in the E Mediterranean (Morgan & Shirihai, 1997). Some birds may still pass through Spain and Morocco in early June (Telleria et al., 1999; Thévenot et al., 2003). In S Morocco some migrants arrive in January or February, but only usually from March onwards; the passage period in Morocco is similar to that given here, with most birds passing through in April and numbers falling off by mid-May (Thévenot et al., 2003).

When analysing the common period (16 April to 15 May), the median dates of passage at the different study sites range from 25 April to 30 April, very similar to the overall median period recorded in the C Mediterranean (27 April; Rubolini et al., 2005); this suggests that simultaneous passage occurs throughout the Mediterranean as proposed by Cramp (1988). The median

date of passage of second-year birds occurs four days later than in adults (fig. 3).

Biometry and physical condition

Mean third primary length ranges from 65.8 on Las Chafarinas to 69.6 in S Morocco, but is mostly around 66-67, marginally lower than in the spring migrants trapped in the C Mediterranean (mean 67.7, n = 454; Spina et al., 1993). The mean values of wing length vary from 87.0 in the dry Balearics to 88.8 in S Morocco (table 1). Overall, these values are similar to those encountered in the C and E Mediterranean (Morgan & Shirihai,1997; Waldenström et al., 2004) showing, thus, little differences in size between the populations that cross the Mediterranean. The third primary length decreases with time (fig. 6), presumably due to an earlier passage of longer-winged males (Cramp, 1988; Morgan & Shirihai, 1997).

Overall, mean fat scores are somewhat higher in the study area than in the Tyrrhenian islands (Spina et al., 1993), with values ranging between 0.7 on Las Chafarinas and 2.9 in the wet Balearics. Mean body mass varies from 19.7 on Els Columbrets to 22.1 in the wet Balearics (table 1), distinctly higher than that reported on islands of the C Mediterranean (mean 18.0, n = 454; Spina et al., 1993). Birds on Els Columbrets show significantly lower mean body mass than in Catalonia and the dry Balearics; mean fat and physical condition are lower on Els Columbrets than in Catalonia and Balearics. No overall temporal trends are observed for body mass and fat but physical condition increases significantly with time.

The highest average body mass is found in mainland areas (Catalonia) and the wet Balearics, suggesting that these areas offer better habitat for stopovers. Moreover, birds migrating through continental Spain are less energetically stressed than those crossing the sea, as exemplified by the very low body-mass figures from Els Columbrets, the most isolated island and the most distant from N Africa in this study, and from the Tyrrhenian islands.

The few birds captured in S Morocco are fairly heavy, contrasting with available data from nearby sites: Defilia (mean 18.2, n = 51; Ash, 1969) and Merzouga (mean 18.7, n = 14; Gargallo et al., unpubl.). This suggests that body condition can vary largely from year to year or possibly according to the nature of the habitat. Body mass reported in N Tunisia (mean 23.5, n = 10; Waldenström et al., 2004) is distinctly higher, suggesting some mass gain can take place in NW Africa prior to migration to Europe.

Stopover

In all areas with data the proportion of retraps is quite low (fig. 5). In the dry Balearics, the initial body mass of retrapped birds is significantly lower than in those not trapped again, suggesting that a higher proportion of birds in poor condition select to stay on these islands (table 2). Retraps of more than one day indicate that even in sites such as Els Columbrets birds have significant positive fuel deposition rates. These results suggest that, unlike most other species, Tree Pipits can benefit from the refuelling opportunities offered by the typical open habitats of small Mediterranean islands.

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

	n	Wing	Third primary	Body mass	Fat score
Catalonia	53	87.4 ± 2.9 (81.0-97.5)	67.2 ± 2.6 (60.0-73.0)	21.6 ± 2.5 (16.2-27.6)	2.4 ± 1.3 (0-5)
Columbrets	190	87.5 ± 2.7 (82.0-95.0)	66.3 ± 2.2 (61.0-73.0)	19.7 ± 3.1 (13.6-27.8)	1.3 ± 1.2 (0-5)
Balearics (dry)	609	87.0 ± 2.7 (79.0-97.0)	66.9 ± 2.4 (59.0-74.0)	20.7 ± 2.6 (14.4-28.7)	1.9 ± 1.5 (0-7)
Balearics (wet)	8	87.6 ± 4.2 (79.5-93.0)	67.0 ± 4.2 (59.0-72.5)	22.1 ± 1.7 (19.5-24.4)	2.9 ± 1.5 (1-5)
Chafarinas	3		65.8 ± 0.8 (65.0-66.5)	19.8 ±2.7 (18.2-23.0)	0.7 ± 1.2 (0-2)
N Morocco	0				
S Morocco	5	88.8 ± 1.2 (87.0-90.0)	69.6 ± 1.6 (67.0-71.0)	21.6 ± 2.3 (18.3-24.6)	1.4 ± 0.5 (1-2)

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	0.03 ± 0.84 (2)	0.37 ± 0.63 (8)	0.12 ± 0.19 (56)			
Retraps >1 day		0.52 ± 0.15 (4)	0.33 ± 0.13 (42)			

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

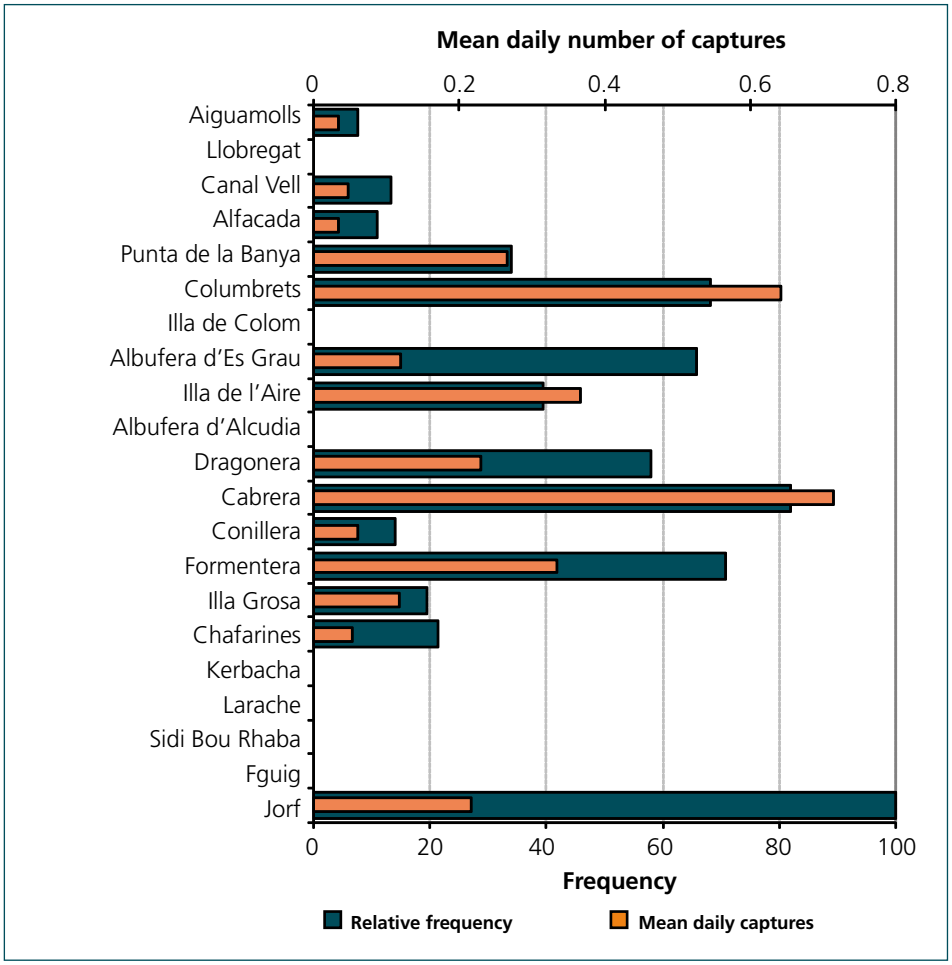

Figure 2. Relative frequency of captures and mean daily numbers according to site during the standard period (16 April to 15 May).

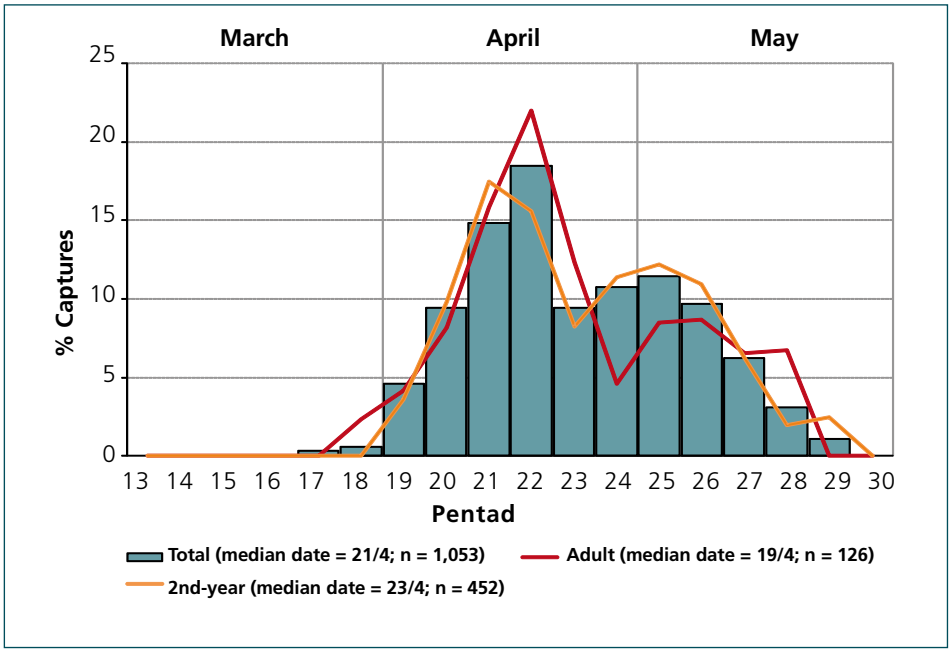

Figure 3. Frequency of captures during the study period.

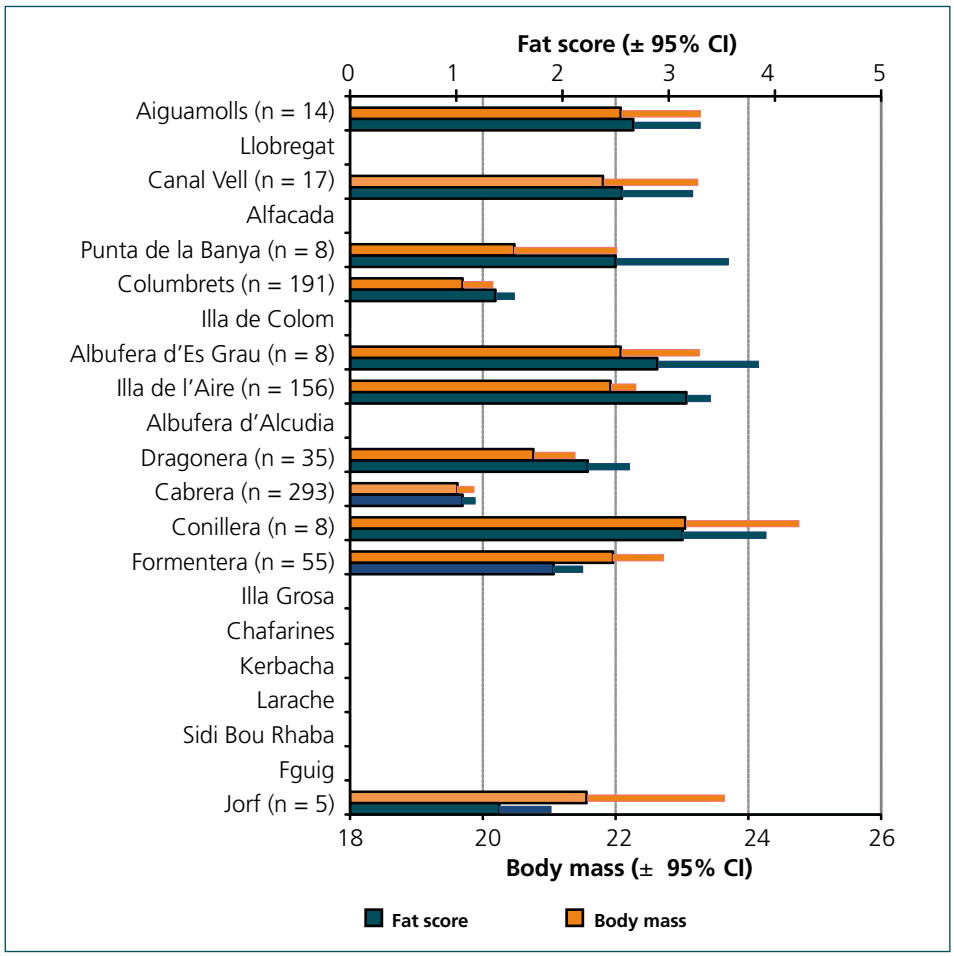

Figure 4. Variation in body mass and fat score according to site during the standard period (16 April to 15 May).

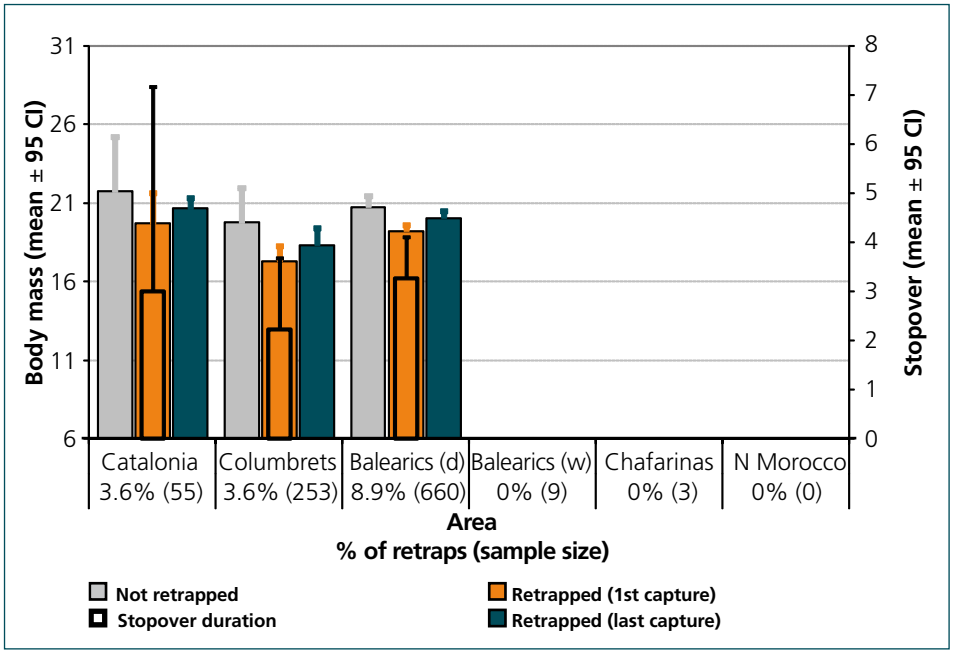

Figure 5. Variation in body mass by trapping status, minimum stopover length and frequency of retraps according to area.

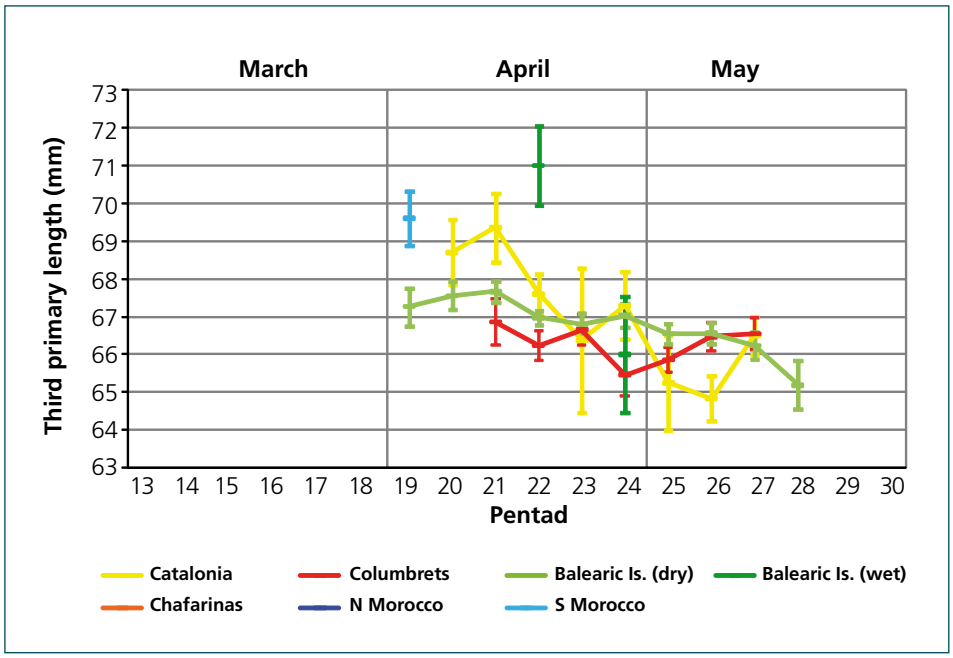

Figure 6. Temporal variation of third primary length according to area.

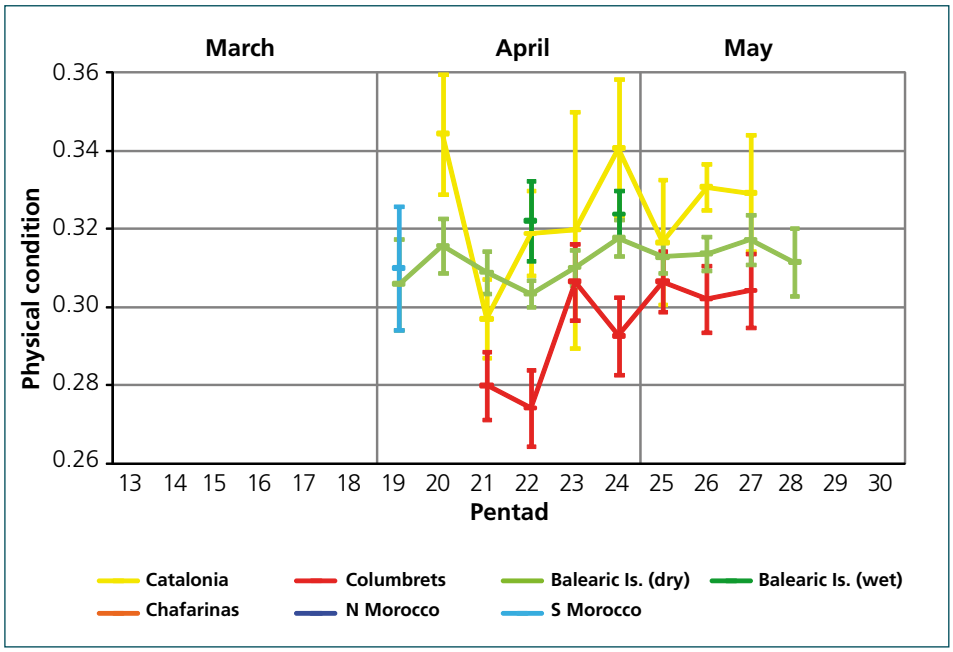

Figure 7. Temporal variation of physical condition according to area.

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

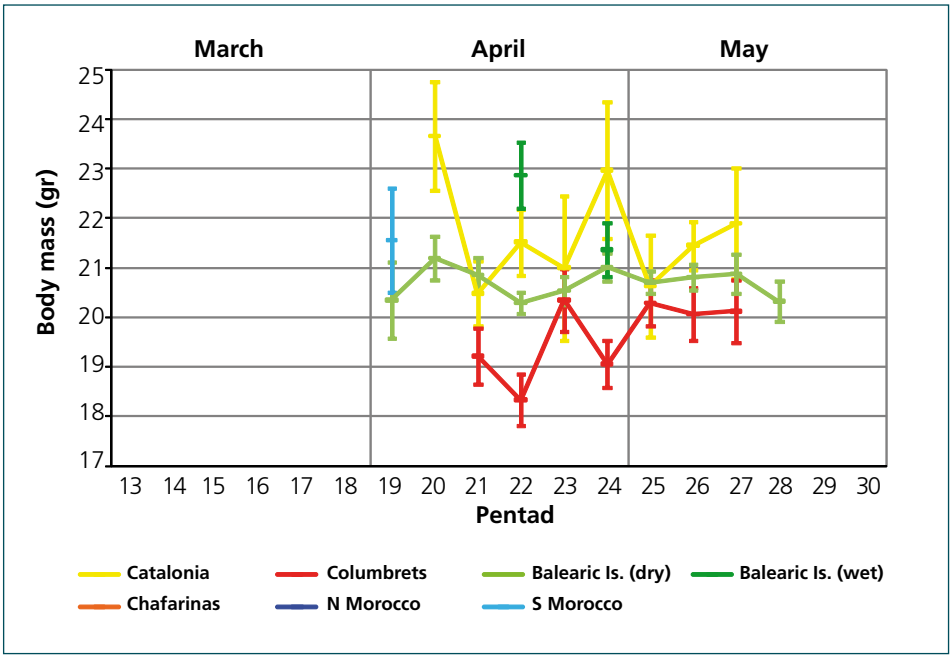

Figure 9. Temporal variation in fat score according to area.