

Wintering birds on the island of Capri, southwestern Italy

Övervintrande fåglar på ön Capri, sydvästra Italien

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Abstract

We trapped birds on the island of Capri, SW Italy, during February and earliest March 2002–2004 and in November–December 2004. The trapped birds were ringed, and common biometrical parameters measured. In total 247 birds of 17 species were trapped, a rather limited number, whereof c. 70% were either European Robins *Erithacus rubecula*, Blackcaps *Sylvia atricapilla*, Sardinian Warblers *Sylvia melanocephala* or Chiffchaffs *Phylloscopus collybita*. Although the majority of birds handled were probably settled winterers, variations in the trapping figures and cases of high body masses and fat scores suggested that in late November and December some birds may still have been en route for areas further south – and that already in late February some, particularly evident in Chiffchaffs, were on their way

north again. The comparatively mild winter climate on the island of Capri may be mirrored by the lower body masses of Robins trapped by us there, compared to birds wintering on the Italian mainland which probably put on some extra fat as insurance against spells of cold weather.

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Introduction

The Mediterranean basin is a major wintering area for many birds breeding in central and northern Europe and parts of northwestern Asia. The ecology, geographical distribution and temporal occurrence of these wintering birds have been the scope of a number of studies. Well-known examples include the one by Erard (1966) on European Robin *Erithacus rubecula* migration, and research on the interdependence between wintering birds and fruiting bushes carried out by Spanish and French workers (e.g. Herrera 1984, Debussche & Isenmann 1992). There also exist extensive studies of the wintering birds in e.g. the Strait of Gibraltar area (Finlayson 1992) and Italy (Spina et al. 2001, Licheri & Spina 2002, Spina & Licheri 2003), and the general concept of wintering birds was also included in the ecological overview of the Mediterranean region by Blondel & Aronson (1999).

The Swedish track record in the study of Mediterranean wintering birds is limited, but includes a

study of the morphology, biometrics and plumage of wintering European Robin populations from the easternmost to the westernmost Mediterranean (Pettersson et al. 1990a). The main aim of that study was to map the winter ranges of Robins with different plumage characteristics, indicating different breeding populations, which pass southern Sweden on autumn migration.

Capri Bird Observatory (40°33'N, 14°15'E) is located about 400 m a.s.l. in the old Castello Barbarossa on the island of Capri, situated in the Bay of Naples in southwestern Italy. It was founded by Swedish ornithologists in 1956 (Edelstam et al. 1963) and has since the mid 1980s been run jointly by the Swedish Ottenby Bird Observatory and the Italian Ringing Centre at Bologna, with the Italian work being part of the Progetto Piccole Isole (PPI; e.g. Spina et al. 2006). Results from the Swedish work have been summarized by Edelstam et al. (1963) and Pettersson et al. (1990b). The Italian results have been used in several specific papers and are included in a summary-report from the PPI-project (Messineo et al. 2001). The works

listed above have, however, mainly concerned the spring migration. Studies of the much less pronounced autumn migration was initially carried out by Swedish ornithologists during the five year period 1959–1963 and in 1989, and has since then been done more continuously for at least a few weeks each year between 1994–2004. The autumn results are summarized in the present volume by Waldenström et al. (2006).

The bird life of the Campania region, to which Capri belongs, was thoroughly described by Sceba (1993), in a book which also includes a lot of data from Capri Bird Observatory, of both Italian and Swedish origin.

The wintering birds

To complement the data from the spring and autumn migrations and thus getting a more complete knowledge of the annual cycle of bird occurrence on Capri, trapping and ringing were carried out during some winter months in 2002, 2003 and 2004. After a brief pilot study 4–8 February 2002, more extended efforts followed 12–28 February 2003 and 15 February–6 March 2004. Intermittent ringing (in total 20 ringing days) was also done between 1 November–15 December 2004. The grand total from these campaigns was rather low, only 247 birds ringed, belonging to 17 species (Table 1).

During the migration periods trapping is carried out on top of Monte Barbarossa, inside and

immediately outside the walls of the Castello. The winter trapping, however, has taken place on the more lush lower parts of the mountain, and in parts of the Villa San Michele gardens. Between 5–15, usually 8–12 mist-nets have been used, and the trapping has normally been done between dawn and mid-day. Ageing and sexing of birds was done according to Svensson (1992). Wing length measurements were taken using the maximum chord method of Svensson (1992) and body mass was measured using Pesola spring balances. Fat stores were determined according to the scale of Hasselquist & Pettersson (1985), which judge the amount of fat deposited on the abdomen and in the tracheal pit based on seven scores. Before doing the statistical analyses we checked whether the data was normally distributed or not, and thereafter computed either parametric or nonparametric tests, using the software SPSS for Windows (version 11.0).

Table 1 lists the birds ringed during the winter efforts, largely representing those birds which normally winter on Capri. The most common of these species were the European Robin, the Blackcap *Sylvia atricapilla*, the Sardinian Warbler *Sylvia melanocephala* and the Chiffchaff *Phylloscopus collybita*. These four made up c. 70% of the ringed birds, were considered our “target species” and are specifically discussed below.

Table 2 summarizes the body mass- and fat-score data for those birds where the trapping figures for at least one period of November/December

Table 1. Numbers of birds ringed on Capri during the winter campaigns in 2002–2004. *Antal fåglar ringmärkta på Capri vintrarna 2002–2004.*

Species <i>Art</i>	Nov	Dec	Feb	Mar
Wren <i>Gärdsmyg</i>	2		6	
Dunnock <i>Järnsparv</i>	6		9	
Robin <i>Rödhake</i>	25	3	26	2
Black Redstart <i>Svart rödstjärt</i>		1	2	
Stonechat <i>Svarthakad buskskvätta</i>	1			
Blackbird <i>Koltrast</i>	2		7	2
Song Thrush <i>Taltrast</i>			1	
Sardinian Warbler <i>Sammetshätta</i>	3	2	24	2
Blackcap <i>Svarthätta</i>	7	2	30	9
Chiffchaff <i>Gransångare</i>	1	2	29	4
Goldcrest <i>Kungsfågel</i>			3	1
Firecrest <i>Brandkronad kungsfågel</i>			5	3
Great Tit <i>Talgöxe</i>			3	
Short-toed Treecreeper <i>Trädgårdsträdskrypare</i>			4	1
House Sparrow (italiae) <i>Italiensk sparv</i>			6	
Chaffinch <i>Bofink</i>	1		1	
Greenfinch <i>Grönfink</i>			7	2

Table 2. Body mass and fat score data of birds ringed on Capri during the winter campaigns in 2002–2004. With the exception of the Goldcrest *Regulus regulus*, only birds with at least 5 individuals ringed during one of the periods November/December or February/March are included.

Vikt- och fettdata för fåglar ringmärkta på Capri vintrarna 2002–2004. Bortsett från kungsfågeln är bara arter med minst 5 individer märkta under endera perioden november/december eller februari/mars medtagna.

Species Art	November – December				February – March			
	n	Mean weight Medelvikt	St. dev.	Mean fat Medelfett	n	Mean weight Medelvikt	St. dev.	Mean fat Medelfett
Wren								
Gärdsmyg	2	8.9	0.4	2.0	6	9.2	0.6	2.7
Dunnock								
Järnsparv	6	19.1	1.6	3.2	9	17.4	6.6	2.7
European Robin								
Rödhake	28	16.0	1.4	2.1	28	17.6	1.2	2.2
Blackbird								
Koltrast	2	90.8	9.5	1.0	9	93.6	9.0	3.0
Sardinian Warbler								
Sammetshätta	5	12.7	0.2	1.6	26	12.4	0.7	2.5
Blackcap								
Svarthätta	9	17.5	0.6	3.2	39	19.0	1.8	3.6
Chiffchaff								
Gransångare	3	8.4	1.3	4.0	33	7.8	0.9	3.5
Goldcrest								
Kungsfågel					4	5.2	0.5	1.8
Firecrest								
Brandkr. kungsfågel					8	5.2	0.2	1.5
Short-toed Treecreeper								
Trädgårdsträdskrypare					5	8.5	0.7	2.0
Greenfinch								
Grönfink					9	23.5	1.2	1.2
	55				176			

or February/March reached 5 birds. The exception is the Goldcrest *Regulus regulus* with only 4 birds ringed, included simply for comparison with its relative the Firecrest *Regulus ignicapillus*.

Species accounts

European Robin

The Robins start to arrive on Capri in the middle of September, with their main passage culminating in October (Waldenström et al. 2006; see also Lövei et al 1986, Scebba 1993). Many continue their journey to winter in Sicily and North Africa, but a considerable number spend the winter on Capri, establishing territories in gardens, vineyards and other wooded areas. The progressing negative trend in body mass seen during the autumn (Waldenström et al. 2006) seems to reach a low in November/December with a mean mass of 16 g (Table 2). This may illustrate an increased

proportion of settled local winterers, compared to the heavier birds going for wintering areas further south. In February and earliest March the fattening-up prior to spring migration is already evident (Figure 1A), with the mean body mass having increased to 17.6 g ($t = -4.61$, $n = 54$, $p < 0.001$).

Our Robin body mass figures from the island of Capri show a different pattern from those based on data from the whole of Italy (Licheri & Spina 2002). These birds, mainly trapped on the mainland, rise in mass towards mid-winter, at the time when the island birds trapped by us remained lean.

Blackcap

The Blackcap is a local breeder on Capri, but the main winter population seems to consist of immigrants from northern and central Europe. Lövei et al. (1985) concluded, from a seven year study

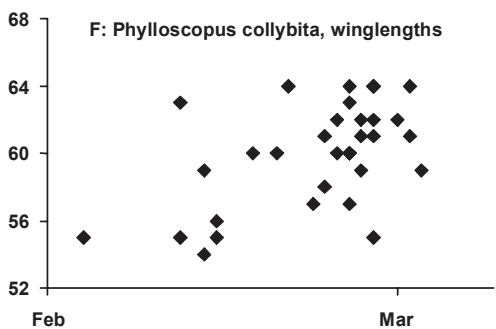
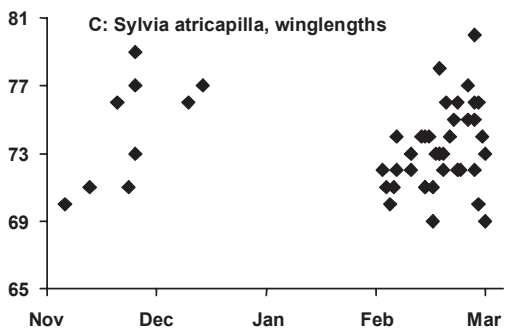
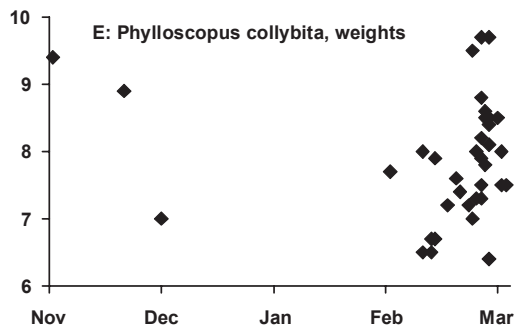
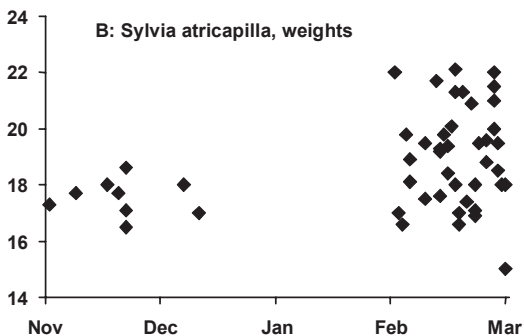
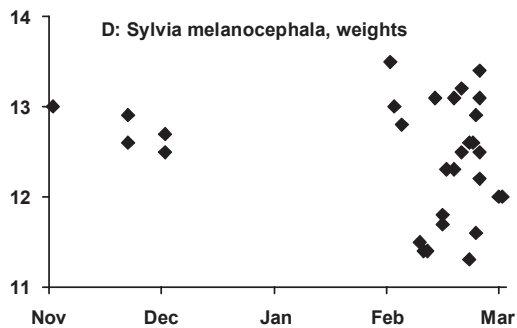
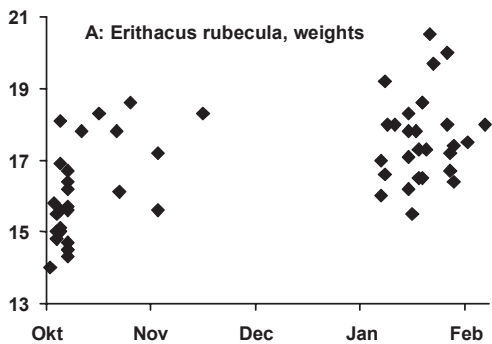


Figure 1. Body mass plots (in g.) for European Robins (A), Blackcaps (B), Sardinian Warblers (D) and Chiffchaffs (E), and wing-length plots (in mm.) for the Blackcap (C) and Chiffchaff (F).

Viktplotter (i gram) för rödhake (A), svarthätta (B), sammethätta (D) och gransångare (E), samt vinglängdplotter (i mm.) för svarthätta (C) och gransångare (F).

on the island of Vivara on the northern side of the Bay of Naples, that the local Blackcaps there (of the subspecies *paulucci*) left for the south in September and that the winterers were all longer-winged birds from the north. This seems to be the case also on nearby Capri, where c. 90% of the Blackcaps in winter have wing lengths of ≥ 70 mm and c. 25% wings ≥ 75 mm, with 80 mm as the longest. Nevertheless c. 10% of the winter Blackcaps on Capri are small (wing lengths ≤ 70 mm) and comparatively dark birds of likely Mediterranean provenance, suggesting that like in southern France (e.g. Berthold 1986) the local population may only be partially migrant.

As with the Robins on Capri, the Blackcaps' mean body mass in November/December (17.5 g, Table 2) was considerably lower than in February-earliest March (19 g; Mann-Whitney $U = 80.5$, $n = 48$, $p = 0.012$). This difference in mass may indicate an early fattening-up in spring of wintering birds preparing for migration. Although there was no statistically significant trend in body mass with date in the February-early March sample (Spearman Rank Correlation $r = -0.002$, $n = 39$, $p = 0.991$; Figure 1B) it is still possible that these birds included early migrating Blackcaps from the south (cf. the Chiffchaff), as wing-lengths increased with time through February into March (February-earliest March: Pearson $r = 0.339$, $n = 39$, $p = 0.035$; Figure 1C). The data from Capri show large resemblance to the all-Italian body mass data from Licheri & Spina (2002), with similar winter weight patterns.

Sardinian Warbler

The Sardinian Warbler is a common local breeder on Capri, with many birds spending the winter there. The island is probably also visited by birds en route to and from wintering areas further south, as is indicated by autumn body masses of up to 15 g (Waldenström et al. 2006) – and perhaps also by the fact that some 20% of the Sardinian Warblers trapped in February-earliest March had moderately increased fat stores (fat score 4). But compared with the Blackcap the Sardinian Warbler is a strictly Mediterranean and mainly sedentary bird, which seems only occasionally and locally (e.g. along the lower Senegal River) to venture south of the Sahara (Borrow & Demey 2001).

The winter body masses of the Sardinian Warbler had similar means (around 12.5 g, Table 2) in November/December and February-earliest March, without any obvious trend (February-ear-

liest March: Spearman Rank Correlation $r = 0.068$, $n = 26$, $p = 0.741$; Figure 1D). These island body mass figures are rather similar to the all-Italian ones given by Licheri & Spina (2002), although the latter have a tendency to be slightly higher (by c. 1 g) in mid-winter.

Chiffchaff

Some Chiffchaffs winter on Capri and many more pass the island on their way to winter quarters further south, including sub-Saharan Africa. Two of the three birds trapped in November/December had body masses around 9 g (Figure 1E), suggesting that they were still on migration. There is then a clear trend towards higher body masses through February into earliest March (Pearson $r = 0.391$, $n = 33$, $p = 0.024$; Figure 1E) which is accompanied by an increase in wing-length (Pearson $r = 0.527$, $n = 33$, $p = 0.002$; Figure 1F) and with slightly increasing trapping figures at the end of February. This may indicate an early passage of birds coming up from the south. About 30% of the Chiffchaffs at that time weighed more than 8 g and some as much as 9.5 g (Figure 1E) and the mean weight for the period was 7.8 g (Table 2). An increasing body mass trend in late February-early March is also found in the all-Italian Chiffchaff body mass data of Licheri & Spina (2002).

Retraps and recurrences

A number of the trapped birds were later retrapped within the same season. Weight gains and weight losses were recorded, as might be expected in locally resident wintering birds. There were also a number of retraps between seasons, both of birds which breed on Capri (Sardinian Warbler 4 cases, Wren *Troglodytes troglodytes* 2, and Short-toed Tree Creeper *Certhia brachydactyla* 2), and of such which come there only to winter (European Robin 2 cases, Chiffchaff 2, Dunnock *Prunella modularis* 1 and Black Redstart *Phoenicurus ochruros* 1). These recurrences were all from one year to the next. No birds were retrapped after more than one year.

Conclusions and some speculation

Our dataset from Capri probably includes both a majority of wintering birds and (in November/December) some which are still heading for areas further south, and (in February/earliest March) such which have already begun their northward

spring migration. This is indicated by small temporal changes in the trapping figures during these periods and by the occurrence of birds which seem too fat for being settled winterers. Also, the waters surrounding Capri give the island a milder climate as compared to mainland Italy, especially compared to higher altitudes and northern Italy, and such an "island effect" may be indicated by the mid-winter body masses of the European Robin – a bird utilizing a large spectrum of winter habitats. According to our limited dataset its mean body mass is considerably lower in midwinter on Capri than on the Italian mainland (c.f. Licheri & Spina 2002). Similar discrepancies have been discussed earlier (e.g. for Robins wintering in Greece; Pettersson 1986), and believed to illustrate the mainland winterers' need for extra fat as an insurance in areas where cold spells regularly occur. On the other hand, Lövei et al. (1986), on the island of Vivara only c. 30 km north of Capri found considerable interannual variations in Robin winter weights and had mid-winter (January–February) maxima like on the mainland in two years out of three. Thus more data is certainly needed to prove the "island effect".

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Sammanfattning

Capri är inte enbart en rastplats för flyttfåglar, utan tjänar även som vinterkvarter för åtskilliga arter. För att komplettera den befintliga kunskapen om vår- och höststräcken där med vinterdata genomfördes ringmärkning i februari – början på mars 2002–2004 och i november–december 2004. Totalt märktes under dessa kampanjer blygsamma 247 fåglar av 17 arter, varav 70% var antingen rödhakar, svarthättor, sammetsättor eller

gransångare. De flesta fåglar som hanterades var sannolikt etablerade övervintrare, men tidsmässiga variationer i antalet fångade fåglar och en del fåglar med för övervintring omotiverat hög vikt och fettstatus indikerade att ännu i november–december var en del på väg mot vinterkvarter längre söderut – liksom att vissa, särskilt gransångare, redan i februari rörde sig norrut igen.

Vad gäller rödhaken, en fågel som övervintrar inom ett vidsträckt geografiskt område (från Östersjön till Nordafrika) och i många olika biotoper, verkar det som om övervintrarna på Capri generellt sett har lägre vintervikter än dem på italienska fastlandet. Detta skulle kunna bero på det havsomslutna Capris avsevärt mildare vinterrar, med mindre risk för kallluftsinbrott än inne på fastlandet och följaktligen mindre anledning att genom reservbränsle (fett = högre vikt) försäkra sig mot sådana perioder med kyla och nedsatt födotillgång?