

Capri Bird Observatory – a brief historical overview

Capri Fågelstation – en kort historisk överblick

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Abstract

The Capri Bird Observatory is situated in Castello Barbarossa, an old fortification overlooking the Bay of Naples in southwestern Italy. The observatory was founded in 1956 by the Swedish Ornithological Society in cooperation with Villa San Michele. Until the mid-1980s it was entirely a Swedish venture, whereafter also Italian ornithologists joined, first the LIPU bird protection organization, later the ringing center in Bologna through its Piccole Isole project. The aim was to study bird migration between winter quarters in tropical Africa and breeding areas around the Baltic Sea. The main concern has been spring migration, when many birds make landfall on the island after having crossed

the Mediterranean. But work has also been done in autumns, and in later years even in winters. To the general study of bird migration, including ringing and the sampling of various biometric and phenological parameters, have been added more specialized studies, like visual observations of raptor migration, experiments on bird orientation, and sampling for the study of bird-born diseases. Recently, studies of butterfly migration have been added to the agenda.

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Introduction

The Capri Bird Observatory (Figure 1) is situated at 40°33'N, 14°15'E, 400 m above sea-level on a cliff-top overlooking the Bay of Naples, in southwestern Italy. It is located in Castello Barbarossa, a small (c. 70×70 m) fortification, originally dating from the 10th or 11th century but later named after the 16th century corsair Keir-ed-Din, better known as "Barbarossa". The hill on top of which the castello lies was bought by the Swedish physician Dr. Axel Munthe (Figure 2) and incorporated into his Villa San Michele complex, primarily to protect the bird life in the immediate surroundings. The story of that purchase, as well as the whole Villa San Michele story, is told in Munthe's classic book "The Story of San Michele" (1929), translated into some 50 different languages. When Axel Munthe died in 1949, Villa San Michele was donated to the Swedish state, to act as a place for cultural interchange between Sweden and Italy.

Munthe had been so influential and so engaged in the protection of birds and other animals that he got the Mussolini government to prohibit hunting on Capri – but it was reintroduced in 1945,

when the fascists were gone. However, proceeding in Munthe's spirit, Josef Oliv, the first curator of Villa San Michele, asked the Swedish Ornithological Society if they might be interested in doing research on Capri. Thus, in 1950 the young scientist Carl Edelstam was sent to Capri on a reconnaissance mission. Some years before he had been one of the co-founders of Ottenby Bird Observatory in Sweden, a project to which Axel Munthe had contributed financially. Edelstam's verdict was positive and it was decided to create a small Swedish bird observatory on Capri, located in Castello Barbarossa. Much assistance in this initial process was given by Professor Augusto Toschi from Bologna, who helped the Swedes through the Italian bureaucracy, to get permission for trapping birds without paying hunting-taxes, etc.

Work started in 1956, with ringing that year taking place from 26 March through 24 May. It had originally been the intention to do the trapping near the lighthouse (Faro) on the southwestern part of the island, but for logistic reasons that plan was abandoned. The ringing has since been carried out in and around Castello Barbarossa itself, using mistnets of various types, originally intro-



Figure 1. Castello Barbarossa on its cliff-top, housing Capri Bird Observatory and overlooking the Bay of Naples. (Photo: Boris Engström, 1960).

Castello Barbarossa med Capri Fågelstation, överblickande Neapelbukten.

duced there by Dr. A. Schifferli, then head of the Swiss Ornithological Institute at Sempach.

The full story of the creation of the Capri Bird Observatory and of its first six working years and the results from them was told by Carl Edelstam and his pioneer colleagues in 1963, in a paper in the Swedish Ornithological Society's journal *Vår Fågelvärld* (Edelstam et al. 1963). More recently, three popular accounts in Swedish have been published by Engström (2000) and Edelstam (2005)

on the early years, and by the present author (Hjort 2000) on later developments.

Capri as a site of ornithological interest

That Capri is an important resting place for migrant birds has been known since time immemorial, as had the inhabitant's almost industrial-scale trapping of birds for local consumption and export. The bishop of Capri got his tithes as part of



Figure 2. Dr. Axel Munthe, founder of Villa San Michele and the protector of birds, as envisaged by Harald Wiberg in 1958.
Axel Munthe, grundare av Villa San Michele och fåglarnas beskyddare, som Harald Wiberg tänkte sig honom 1958.



Figure 3. Capri (filled circle) in its geographical context, with Ottenby Bird Observatory in Sweden and our temporary ringing sites in Nigeria marked by open circles, and with the Sahara desert and its eastern counterparts given a paler shade.

Capri (fylld cirkel) i sitt geografiska sammanhang, med Ottenby fågelstation i Sverige och våra temporära ringmärkningslokaler i Nigeria markerade av ofyllda cirklar och med Sahara-öknen och dess östligare motsvarigheter med en blekare ton.

this trade and was ironically known as the "Quail Bishop". As much as unbelievable 45,000 Quails *Coturnix coturnix*, the economic main target of the trapping, may have been caught in one very good spring season day and these birds were not only exported to nearby Naples, but to such in those days relatively distant places as Rome and Marseille (e.g. Kesel 1983).

The first comprehensive overview of the ornithology of the island was written by the German scientist Alexander Koenig (Koenig 1886), a man later known for his Arctic and African ornithological studies – and in Sweden also credited as being the one who introduced the later so famous bird-life writer Bengt Berg to the Sudan and the enigmatic Shoebill *Balaeniceps rex*, or Abu Markub! Koenig's (1886) paper was very complete; it discussed the breeding, migrant and wintering birds of Capri and also gave a comprehensive overview of the bird-trapping industry and, like Axel Munthe, argued for protection of the birds. Ironically, as seen through our eyes, it must however be said that Koenig, like most of his contemporary colleagues, shot all birds he was interested in, for their proper identification and for his museum collection in Bonn!

Koenig's observations were only a few years later complemented by Ignazio Cerio, a member of that famous Capri family, through a short chapter in an Italian ornithological volume (Cerio 1890). Additional Capri information was given in papers by Tucker (1927) and Hörstadius (1927), but these two authors basically told the same story and concentrated on the mainland around the Bay of Naples. Today, however, the main work of reference, including most published data from Capri, also on migration, is the monograph by Sergio Scebba on the birds of the Campania region (Scebba 1993).

The reason for creating a Swedish bird observatory on Capri was, however, not to study the local bird fauna, but rather the trans-Mediterranean migration. One idea was to create a half-way checkpoint for migrants en route from tropical Africa to Sweden and the Scandinavian-Baltic area in general (Figure 3), and on the way back southwards in autumn. As to this Palaearctic-African bird migration system, a not inconsiderable knowledge already existed in the 1950s, but of course very much was left to do and still is today – and the best overview of the state-of-the-art in those rather early days is still Reginald Moreau's classic book on the subject (Moreau 1972).

The first years

During the first six working years of the observatory (1956–1961; summarized by Edelstam et al. 1963), the spring season was covered by a total of 308 working days, representing all the years and spanning the interval 22 March to 20 June, although with a concentration to the end of April and the month of May. Three autumns were also

covered, by a total of 230 working days spanning the interval 29 June to 16 November.

It was of course confirmed, as expected, that Capri was much more used by the spring migrants, making their first landfall there when arriving across the Mediterranean, than by birds en route southwards in autumn. The latter can equally well take-off from the nearby mainland. The trapping figures in spring were thus much larger than in autumn and the period of main spring passage identified as between 20 April and 25 May.

The five species with the largest ringing figures were, much like today, the Garden Warbler *Sylvia borin* (six year total, spring and autumn added, 5924), Icterine Warbler *Hippolais icterina* (3204), Spotted Flycatcher *Muscicapa striata* (2408), Whitethroat *Sylvia communis* (2332) and Redstart *Phoenicurus phoenicurus* (1470). Some other birds with interestingly large ringing figures were Woodchat Shrike *Lanius senator* (1078), Golden Oriole *Oriolus oriolus* (467), Nightjar *Caprimulgus europaeus* (183) and even Little Owl *Athene noctua* (6). Of the earlier mentioned symbol bird of the island, the Quail, only one (1) single bird was ringed in those six years – not much, even compensating for the fact that it prefers the lower parts of the island! The birds were all trapped in mist-nets in and around the Castello, in a habitat which in those years, before a succession of devastating fires, were more lush and higher grown than today, e.g. with more pine trees *Pinus halappensis*.

In those early years hunting and bird catching for local consumption was still going strong, even if the Quail trade had declined sharply. An analysis of snap-trap catches done in 1956 showed that almost 80% of these catches were of Whinchats *Saxicola rubetra* and Wheatears *Oenanthe oenanthe* – not so surprising considering that the traps should preferably be set well visible on open ground. A person working with c.100 such traps told the ornithologists that he could catch up to 200 birds in a good day (Edelstam et al. 1963).

Some changes of hands and the initiation of Swedish-Italian cooperation

After the early enthusiastic years the Swedish ringing at Castello Barbarossa continued, through the 1960s and 1970s and into the 1980s, administrated by the Swedish Ornithological Society until 1979 and thereafter by the Natural History Museum in Stockholm. A lot of birds were trapped, ringed, weighed and measured, etc., and many recoveries received – but not much came out of it in

the way of publications. Many Swedish and other ornithologists did, however, come here and learn a lot about both the Mediterranean bird fauna and the trans-Mediterranean migration.

From 1983 the Swedish work was discontinued for some years and the ringing at Castello Barbarossa was taken over by Italian ringers, first from the bird protection organization LIPU (Lega Italiano Protezione Uccelli), later from the ringing centre in Bologna. However, after a few years the Swedish Ornithological Society re-allocated the responsibility for Capri to its subsidiary Ottenby Bird Observatory and a Swedish renaissance on Capri was initiated in the spring of 1986 (Pettersson 1986a). Ottenby was then already active in the Mediterranean region, studying wintering Robins *Erithacus rubecula* along an east-west transect from Cyprus to Andalusia (Pettersson 1986b, Pettersson et al. 1990a). The resumed Swedish work on Capri was organized by Jan Pettersson, at that time director of the Ottenby observatory. Initially it included parallel work with the Italian ringers on Castello Barbarossa, concentrating on collecting biometric and phenological data for Ottenby's data base. Much of the older Swedish material from Capri, including all the recoveries of Capri-ringed birds, was now processed and published as the "Yellow Report" (Pettersson et al. 1990b). In the present issue, a special time series analysis of those spring migration data, combined with later data collected by the Italian ringers, is published (Jonzén et al. 2006), as is a stop-over study on Wood Warblers *Phylloscopus sibilatrix* (Holmgren & Engström 2006) and an orientation-ability study, mainly on Garden Warblers and Tree-pipits *Anthus trivialis* and including displacement experiments versus the Earth's magnetic field (Åkesson et al. 2006).

One of Ottenby's main interests in the work on Capri was to get Mediterranean biometric and phenological data for direct comparisons with those on the same species from Sweden (Pettersson 1986b, Jonzén et al. 2006), an interest which has later been extended to parallel work in sub-Saharan Africa (e.g. Ottosson et al. 2002, 2005, Gustafsson et al. 2003, Hjort et al. 2004). The migration studies have also been extended to trans-Mediterranean butterfly migration (Brattström 2006).

Autumn work and winter birds

In the mid-1990s it was decided that whereas the Italian ringing (administrated by the ringing cen-

tre in Bologna) should continue on Capri during the spring seasons as part of the PPI project (Progetto Piccole Isole; Messineo et al. 2001, and Spina 2006 in this volume), the future Swedish work should be concentrated to the autumns. This work started in 1994 (Jonzén 1995, Hjort et al. 2001) and continued until 2004. When including a few earlier autumn seasons (1959, 1960, 1961, 1963, 1989) a total of 14 autumns have been worked, although with very varying coverage – but the total interval covered is from 29 June to 16 November. These data have now been processed (Waldenström et al. 2006) and visual observations on the autumn migration of raptors were published by Jonzén & Pettersson (1999). Also some of the orientation tests mentioned above have been done in the autumn (Åkesson et al. 2006).

To complement our knowledge of the birds which use Capri for one reason or another during spring and autumn, the Swedish Ottenby team has recently also done some winter work there, during February and earliest March 2002–2004 and in November–December 2004. These data, concerning the wintering birds and the earliest onset of spring migration, including weights and fat-status, are published in the present volume (Hjort et al. 2006).

The future

Whereas the Italian PPI-related work on Capri continues (Spina 2006), with field work from mid-April to mid-May each year, the Swedish standard-type ringing work has now been discontinued. For the future we foresee more short-term, specialized studies. Such work on bird-born diseases, on the isotope composition of Willow Warbler *Phylloscopus trochilus* feathers (as indicators of where different populations winter), and on butterfly migration (Brattström 2006) are already going on.

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Sammanfattning

När den svenske läkaren Axel Munthe, bl.a. författare till den internationella bestsellern ”Boken om San Michele”, dog 1949 donerades hans Villa San Michele på den italienska ön Capri till svenska staten. Meningen var att där upprätta ett center för svensk-italienskt kulturutbyte och ett ställe där svenska författare, konstnärer och liknande kunde finna mediterrän inspiration – och så har det blivit! Munthe hade också varit mycket engagerad i djurskydd och speciellt i skyddet av fåglarna på Capri, där fångst av särskilt vaktlar och turturduvor på den tiden hade närmast industriell omfattning. Som en följd därav erbjöds Sveriges Ornitologis-

ka Förening att upprätta en fågelstation därnere, halvvägs mellan flyttfågelnas vinterkvarter i tropiska Afrika och många arters häckningsområden i Sverige och kring Östersjön. Efter recognosering 1950 skedde detta 1956. Drivande krafter var Josef Oliv, den förste intendenten på Villa San Michele, och Carl Edelstam, en av Ottenby Fågelstations grundare. Fågelstationen på Capri är inhytt i den gamla borgen Castello Barbarossa, belägen 400 m.ö.h. på en klippa med utsikt över Neapelgolven.

Verksamheten på Capri under de första sex åren (1956–61) redovisades i *Vår Fågelvärld* av Carl Edelstam m.fl. (1963). Man koncentrerade sig på arbete under våarna, då massor av fåglar landar på ön efter att ha korsat Medelhavet. Men även en del höstarbete genomfördes under de inledande åren, fast på hösten kan fåglarna lika gärna starta från det närbelägna fastlandet och är därför mycket färre ute på Capri än under vårsträcket. De är emellertid mycket fetare på hösten, fulltankade inför passagen över Medelhavet och Sahara, än när de anländer på våren efter att just ha genomfört denna långa resa.

Efter ett kortare avbrott på 1980-talet fortsatte den svenska verksamheten på Capri, fast nu i regi av Ottenby Fågelstation på Öland och ihop med italienska ornitologer. I samband därmed sammanfattades de då uppnådda resultaten i en särskild rapport (Pettersson m.fl. 1990b). Det inledande italienska samarbetet var med fågelskyddsorganisationen LIPU, därefter och till dags dato med ringmärkningscentralen i Bologna, som inom ramen för sitt s.k. öprojekt (Progetto Piccole Isole, PPI; Spina 2006) med samtidig fångst på många småöar runt Italien nu ringmärker på Capri varje vår mellan 15 april och 15 maj.

I mitten på 1990-talet koncentrerades den svenska verksamheten på Capri till höstarna (Waldenström m.fl. 2006), medan italienarna tog hand om hela arbetet på våren. På senare år har även de övervintrande fåglarna därnere studerats (Hjort m.fl. 2006). Sedan 2004 äger dock ingen svensk renodlad, klassisk ringmärkning längre rum på Capri, utan det satsas istället på olika specialprojekt; för närvarande t.ex. kring fågelburna sjukdomar och kring den omfattande flyttningen av fjärilar (Brattström 2006) över och kring Medelhavet.

Denna nu 50-åriga verksamhet, med dess olika inriktningar och resultat, speglas av artiklarna i detta jubileumsnummer av *Ornis Svecica*.

Brassica fruticulosa; the same plant is visited on Ventotene, together with the tall flowers of *Ferula communis*. Field observations and cage experiments could confirm that nectar is the target food for these birds, rather than pollen or insects. When thinking of the situation of a migrant after an endurance flight, with reduced digestive capacity and an urgent need for recovery, nectar might be the ideal solution, as monosaccharides do not need digestion and are absorbed directly. The uptake of glucose would also reverse the process of protein breakdown and initiate the synthesis of glycogen, lipids and proteins. Hence, nectar feeding would allow migrants to efficiently compromise between the need to minimize the overall duration of their return migration, in the meantime resting after prolonged and energetically very costly flights, and avoid the risk of reaching threshold low levels of blood glucose which would trigger a dangerous process of protein breakdown. Brief stopovers on Mediterranean islands therefore offer spring migrants a chance to 'get two birds with one stone': regardless of their physical conditions, they can rest, get some energy (through nectar or insects, in the case of exclusive insectivores), if necessary increase again blood glucose levels, and still minimize time. It is in fact a common experience on these islands to see 'night-migrants', like warblers or thrushes, resuming their northward migration during daytime.

Conclusions

The Mediterranean is a significant ecological barrier for spring migrants originating from their African winter quarters. Mediterranean islands represent important 'bottleneck areas' for migrants, where intense human activities may represent major threats for their conservation. There is a strong functional link between staging migrants and the islands' habitats; this aspect needs being taken properly into account when planning local and international conservation strategies. Long-term and large-scale monitoring of spring migration in the Mediterranean is useful also to better understand the relationships between ecological factors acting in Africa during the boreal winter and breeding performances of a large array of species within the Palaearctic. Recoveries originating from ringing activities on the Mediterranean islands through the PPI project confirm the key international responsibility of Mediterranean countries within the wider international framework of migratory birds conservation. The case of the long-term ringing

activities carried on by Swedish ornithologists on Capri, with the later positive developments of an intense co-operation with Italian ringers through the PPI, is an example of how migratory birds may stimulate international links for environmental research and conservation.

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Sammanfattning

Vårflyttande fåglar på väg norrut från vinterkvarteren i tropiska Afrika till häckningsområden i Europa måste passera en dubbel ekologisk barriär – först Sahara-öknen och ofta direkt därefter Medelhavet. Öar i detta hav ger dock vissa av fåglarna

möjlighet att rasta under dessa utdragna flygningar och sedan 1988 har italienska ornitologer inom ramen för det s.k. öprojektet PPI (Progetto Piccole Isole) studerat dessa rastande flyttfåglar. Ett stort antal ringmärkningsstationer deltar i projektet (Figur 1). Capri har varit en av huvudlokalerna för denna verksamhet och den här uppsatsen ger en översikt över PPI-projektet och dess uppnådda resultat.

Fåglar av många olika arter och i ytterst varierande fysisk kondition rastar på öarna, med väldefinierat säsongsmässigt utprädat både vad gäller de olika arterna och deras respektive köns- och ålderskategorier. Bredfronstäck av annars typiska nattsträckare noteras även under dagen – inte oväntat, då fåglarna ju först måste nå land innan de kan rasta. Fåglarna anländer till de olika märkstationerna vid olika klockslag, senare ju längre norrut de ligger. Ett exempel på detta ges i Figur 2 för trädgårdssångare. Olika arter kommer fram i olika grader av fysisk ”utmattning”, alltså med högre eller lägre relativa kroppsvikter. Det beror bland annat på hur långt söder om Sahara deras respektive startområde ligger och därmed hur lång deras totala flygsträcka varit. Figur 3 visar hur kroppsvikten hos trädgårdssångare varierar med läge. Väl framme på öarna i Medelhavet kan fåglarna både vila och justera sitt metaboliska system – det senare inte minst genom att äta nektar från olika blommor och via dess i blodet direktupptagna sockerarter snabbt komma i form igen.

Flyttfåglarna är under olika tider på året beroende av olika biotoper i Afrika, kring Medelhavet, och för många även områden mycket längre norrut i Europa. Dessa olika biotopers gynnsamhet för fettupplagring avspeglar sig i form av olika mängder fett hos fåglar som anländer från olika biotopzoner söder om Sahara (Figur 4). Detta faktum utgör ett starkt argument både för internationell koordination inom naturskyddet och för flyttfågelforskning längs hela vägen från häckningsområdena till vinterkvarteren.