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THE 1997 RAFOS EXPEDITION TO CYPRUS - AKAMAS '97

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INTRODUCTION

The Royal Air Force Ornithological Society conducted an expedition to the Akamas peninsula in Cyprus in the spring of 1995. A report of this expedition appears in RAFOS Journal No.25. The aim was primarily to study the spring migration through the area. Additionally, a survey of the birds breeding in the area was carried out with particular interest paid to the relative abundance of the **Cyprus Warbler** *Sylvia melanothorax* and **Sardinian Warbler** *S. melanocephala.* The society decided that it should build on the Akamas '95 results by repeating the expedition two years later. This interval was adequate to observe changes that had occurred and because of the relative importance of ringing data, was within the survival span for 1995 ringed birds, ensuring a reasonable expectation of retrapped birds for analysis.

The logistical preparations followed those of the 95 expedition and self-catering Tavros apartments near Neon Chorion were used in conjunction with commercial flights into Paphos Airport. A PSI landrover was again secured from Akrotiri and local foodstuffs were supplemented by Composite Rations purchased from Episkopi. The efforts of Sqn Ldr R Wilkin to facilitate the logistical arrangements and of Mr G Michael for local assistance are acknowledged. The period chosen was from 26 Mar to 7 May 97 which compared to 22 Mar until 3 May in 1995. The dates were chosen to provide better coverage of late migrants in addition to coinciding with the available flights.

AIMS

The primary aims were similar to Akamas '95 which were to determine and record the scale and scope of the spring migration through the Akamas Peninsula through the observations of Field Study Teams (FSTs) and a continuous ringing programme. In addition, efforts were targeted toward the following aims:

- producing a breeding and distribution map of the Cyprus and Sardinian Warbler.
- establishing which sub-species are present or in transit.
- finding evidence of breeding Woodchat Shrike - *Lanius senator*

PARTICIPANTS

To provide continuous coverage throughout the migration period, participants attended for adjacent or overlapping two or three week periods. A full list of expedition members is detailed below.

Wg Cdr C Moncaster	Project Officer
Mr V Cozens	Ringing Coordinator
Sqn Ldr A Stagg (Retd)	Field Survey Coordinator

FS A Brimmell	Treasurer
Mrs P Cozens	Secretary

Mr J Bell	Mr B Hancock	Mrs P Montgomery
Sqn Ldr M Blair (Retd)	Mr D Harlow	Mr F Naylor
Mr C Cooksey	Mr L Hatton	Miss B Robinson
Mr B Cozens	WO1 M James	Sqn Ldr E Robinson (Retd)
Mr D Crassweller	Mrs V Kersley	Mrs G Robinson
Maj A Crease	Mr B Little	Sqn Ldr A Smith (Retd)
Mr B Etheridge	Miss F Lowry	Lt(RN) J Springett
Mr C Etheridge	Mr G Mawson	Gp Capt R Springett
Mr P French	Mr C Mellor	Mr M Stevenson
Mr T Girling	Miss S Millar	Mr B Taylor
Mr A Hale	Sqn Ldr P Montgomery (Retd)	Miss C Taylor

STUDY METHODS

Migratory movement studies were conducted along the north coast from the Baths of Aphrodite (BoA) through the 'Grassy Plain' to Fontana Amorosa and on to the northerly tip at Cape Arnauti. West coast observations centred on the Invicta Camp area whilst observations were also conducted from the central spine of the peninsula. Watches commenced soon after dawn and continued until late afternoon/early evening sometimes extending until dusk. During transit movements to and from the watch sites, the teams looked for singing or displaying Cyprus and Sardinian Warblers.

Cyprus and Sardinian Warbler surveys broadly covered the Akamas and exploratory forays were made eastwards as far as Pyrgos and southwards to Lara to assess the extent of expansion by the Sardinian Warbler. Field Study Teams (FSTs) looked for singing or displaying males of both species and logged their finds on maps of the area. As the expedition progressed and breeding commenced, searches for nests of both species were made. During survey trips the teams also logged passage migrants seen. The FSTs were normally comprised of pairs of observers with pairings changed regularly to maintain a balance of ornithological and local area knowledge.

WEATHER SUMMARY

Local weather conditions were recorded daily and are summarized for the purpose of this report. The early phase of the expedition between 28 March and 4 April was characterized by light west through southerly winds, variable cloud cover and rain on one day only. The period between 5 April and the 9 April was unsettled with moderate to strong north-east through north-westerly winds and steady rain or showers on most days.

The latter half of the expedition was generally fine and sunny with prevailing west to south-westerly breezes. Only four days were affected by strong wind and rain. May 3rd was notable for a major fall of Spotted Flycatchers together with large numbers of

Bee-eaters and hirundines in the wake of strong wind, driving rain and low cloud on the 2nd and through the night.

SYSTEMATIC LIST OF BIRD SPECIES RECORDED

Mediterranean Shearwater *Puffinus yelkouen*
7 seen offshore Invicta Camp near Cape Arnauti on 28 Mar and 5 off Cape Yeronisos on 18 Mar.

Cormorant *Phalacrocorax carbo sinensis*
One passing Fontana Amorosa on 27 Mar.

Shag *Phalacrocorax aristotelis*
One at the Baths of Aphrodite (BoA) on 3 May.

Bittern *Botaurus stellaris*
Two in Polis Reedbeds on 10 Apr. One notably in an adjacent olive grove on 14 Apr.

Little Bittern *Ixobrychus minutus*
Between 12 and 28 Apr, a single male was seen at Polis Reedbeds on five occasions: a female was at the same location on 13 Apr. Two different individuals were trapped and examined on 13 and 17 Apr.

Night Heron *Nycticorax nycticorax*
11 records between 27 Mar and 14 Apr at Polis Reedbeds. On 12 Apr one was trapped and examined.

Squacco Heron *Ardeola ralloides*
Two sightings: one near Polis Campsite on 2 Apr and 6 at Cape Yeronisos on 27 Apr.

Little Egret *Egretta garzetta*
A total of 21 were seen on 8 days between 1 and 22 Apr: 15 on the north coast and 6 on the west coast.

Grey Heron *Ardea cinerea*
On 28 Mar 14 were observed moving northwards from Invicta Camp on a heading of 330 degrees with a further 6 on an offshore reef. On 12 Apr two flew SE from F. Amorosa towards Polis. One was at Polis Reedbed on 18 Apr with another at Invicta Camp on 23 Apr.

Purple Heron *Ardea purpurea*
A total of 85 were recorded between 28 Mar and 5 May; 65 on the west coast and 20 in the Polis Reedbeds. Major movements were on 18 Apr when 23 were present between Cape Yeronisos and Invicta Camp and on 27 Apr when 40 were at Cape Yeronisos.

Garganey *Anas querquedula*
One male was at Polis Reedbeds between 12 Apr and 5 May.

Honey Buzzard *Pernis apivorus*
Six records from 11 to 22 Apr of single birds moving north with the exception of two over Ay. Minas on 12th.

Marsh Harrier *Circus aeruginosus*
A trickle passage sustained from 27 Mar to 5 May with ones and twos most days. Both males and females were recorded with no peaks of movement.

Pallid Harrier *Circus macrourus*
On 1 Apr single males were recorded over Neon Chorion and Polis.

Harrier spp
A total of 13 were recorded as too distant for positive identification.

Goshawk *Accipiter gentilis*
Five sightings between 5 and 28 Apr in the same area of the Akamas. Behaviour and movements suggested they were from the Paphos Forest breeding population.

Sparrowhawk *Accipiter nisus*
Ones and twos observed moving northward on 13 days between 27 Mar and 24 Apr.

Buzzard *Buteo buteo*
A total of 11 seen between 31 Mar and 4 May with five on 11 Apr being the highest tally in a single day. All records were of the nominate race.

Booted Eagle *Hieraaetus pennatus*
Good views of a pale phased morph by two observers on 14 Apr near Drousha.

Eagle spp
Large, dark eagles seen on 13, 15 and 24 Apr but views were too brief or distant to enable positive identification. One on the 13 Apr had characteristics of Lesser Spotted Eagle - Aquila pomerina.

Lesser Kestrel *Falco naumanni*
One record at the BoA on 8 Apr, two at Ay Minas on 19 and 20 and a single on 24 Apr.

Kestrel *Falco tinnunculus*
A common and widespread breeding species throughout the peninsula. One bird trapped on 31 Mar at Ay. Minas had a broken part of a limestick stuck to the primary shafts of one wing.

Hobby *Falco subbuteo*
Single birds on passage were observed moving northwards on 9, 13, 20 and 24 Apr.

Eleonora's Falcon Falco eleonorae
Movement first observed on 8 Apr through to 6 May mainly in ones and twos with dark morphs predominant. On 20 Apr 14 were observed over the peninsula.

Peregrine *Falco peregrinus*
Between 3 and 20 Apr a total of 11 birds were seen over the Akamas.

Falcon spp
Between 11 and 26 Apr a total of 21 falcons were too distant for positive identification.

Chukar *Alectoris chukar*
Common and widespread breeding resident throughout the peninsula.

Black Francolin *Francolinus francolinus*
Numerous but localized breeding resident favouring the coastal grassland from the BoA to two miles south of Polis.

Quail *Coturnix coturnix*
Heard or seen throughout the expedition but particularly numerous between 27 Mar and 12 Apr. Seven were flushed at N. Chorion on 8 Apr and six on 11 Apr.

Water Rail *Rallus aquaticus*
One heard at Polis Reedbeds on 12 Apr.

Moorhen *Gallinula chloropus*
Up to four seen on each visit to Polis Reedbeds between 4 and 17 Apr.

Common Crane *Grus grus*
Five flew over Polis Reedbeds on 1 Apr; a single bird in seemingly good condition remained in Juniper scrub between F. Amorosa from 3 until 13 Apr. This may have been the same bird at Osia Maria on 13 Apr.

Black-winged Stilt *Himantopus himantopus*
A singleton was at Polis Quarry on 1 May.

Stone Curlew *Burhinus oedicnemus*
Two sightings: singles on 11 and 15 Apr were both near F. Amorosa.

Kentish Plover *Charadrius alexandrinus*
One bird was seen moving northwards past Invicta Camp on 28 Apr.

Snipe *Gallinago gallinago*
Three sightings of single birds at Polis Reedbeds between 13 and 25 Apr.

Redshank *Tringa totanus*
One bird observed at Polis Quarry on 1 May.

Greenshank *Tringa nebularia*
One bird at Cape Arnauti on 15 Apr.

Green Sandpiper *Tringa ochropus*
Five sightings: one over Ay. Minas on 31 Mar, one at F. Amorosa on 3 Apr, two at Polis Reedbeds on 10 Apr with singles there on 12 and 14 Apr.

Common Sandpiper *Actitus hypoleucos*
Between one and three seen randomly around the coast between Latchi and F. Amorosa from 5 Apr to 6 May. Ones and twos were reported from the Polis Reedbeds between 8 and 14 Apr.

Mediterranean Gull *Larus melanocephalus*
One bird coasted west past the BoA on 11 Apr with another on Latchi beach on 13 Apr.

Audouin's Gull *Larus audouinii*
Two birds seen close inshore opposite Ayios Yeoryios Island on 12 Apr with three moving westwards along the shoreline at F. Amorosa on 13 Apr. A further three were seen between BoA and F. Amorosa on 13 Apr.

Lesser Black-backed Gull *Larus fuscus*
Two coasted westward past the BoA on 10 Apr whilst three were offshore F. Amorosa on 12 Apr and one was at Cape Yeronisos on 27 Apr.

Yellow-legged Gull *Larus cachinnans*
Birds seen daily in proximity to the breeding colony at Ayios Yeoryios Island on the NE coast and also on the west coast north of the Ay. Yeoryios breeding colony near Lara.. On 10 Apr one bird was observed pursuing a second gull with a dead Swallow - *Hirundo rustica* in its bill.

Gull-billed Tern *Gelochelidon nilotica*
Two observed coasting northward past Lara on 14 Apr.

Rock Dove *Columba livia*
Common and widespread breeding resident in coastal areas and on inland rock faces. There are signs of cross-breeding with the feral population.

Wood Pigeon *Columba palumbus*
Common and widespread breeding resident. A roost near Polis held 100+ birds.

Collared Dove *Streptopelia decaocto*
Small numbers , relatively widespread especially near human population. Numbers around Polis showed a marked increase since Akamas 95.

Turtle Dove *Streptopelia turtur*
An early sighting of one at Prodromi on 2 Apr. Main passage commenced on 13 Apr and continued with small groups passing until 6 May. Song in woodland areas suggested possible breeding.

Great Spotted Cuckoo *Clamator glandarius*
Ones and twos regularly seen from 7 Apr onwards about the peninsula, especially in areas where Magpie - *Pica pica* breed. [*C. glandarius* is parasitic on *Pica pica*].

Cuckoo *Cuculus canorus*
Mainly ones and twos seen and heard from 27 Mar onwards; noticeable peak in passage on 10 Apr when 18 were seen in N. Chorion area and on 12 Apr when 19 were recorded about the peninsula.

Barn Owl *Tyto alba*
One was seen in Neon Chorion on 5 May.

Scops Owl *Otus scops*
Common throughout the region and heard calling by day as well as by night.

Little Owl *Athene noctua*
Widespread throughout the region but less numerous (or less vocal) than *O. scops*.

Long-eared Owl *Asio otus*
One seen on three occasions in N Chorion village between 4 and 6 Apr; one, long dead, was found near the Smiyies Track on 7 Apr with another sighted at close quarters in Polis Reedbeds on 13 Apr.

Nightjar *Caprimulgus europaeus*
Often seen and heard in the N Chorion-Smiyies Track area between 27 Mar and 5 May.

Common Swift *Apus apus*
Passage between 27 Mar and 6 May was mainly a daily trickle movement of groups numbering less than ten with the occasional group up to 150 birds.

Pallid Swift *Apus pallidus*
Five passed over the BoA with *A apus* and hirundines on 5 Apr: two were at the same location on 7 and 8 Apr with two at the Polis Reedbeds on 26 Apr.

Alpine Swift *Apus melba*
Passed in small numbers, usually less than ten, between 28 Mar and 6 May. The largest flock was 75 on 28 Mar moving north over Ay Konon.

Kingfisher *Alcedo atthis*
Between 2 and 19 Apr up to four were seen by a fresh water stream fringing the tourist campsite at Polis. Two were in the Polis Reedbeds with ones and twos at the BoA.

Bee-eater *Merops apiaster*
Common passage migrant; first seen on 15 Apr and most days thereafter until 6 May. On some days tens were recorded and on others numbers were in the hundreds all moving N-NW.

Roller *Coracias garrulus*
Passed in small numbers from 15 Apr until 5 May. Passage peaked on 17 and 18 Apr when 19 were recorded on the peninsula. A pair were seen displaying over a two week period near the Polis Reedbeds. These birds were incidentally trapped and probably constitute a breeding pair.

Hoopoe *Upupa epops*
Common in all areas throughout the expedition period. On 28 Mar, a total of 28 birds were recorded at seven locations with ten on the F. Amorosa headland, clearly passage migrants. A similar pattern was repeated throughout the Akamas until the last week in Apr when numbers significantly reduced. Birds in song along Smyies track during late Mar and Apr suggested possible breeding.

Wryneck *Jynx torquilla*
Seen almost daily between 28 Mar and 24 Apr. Passage was heaviest during the first two weeks of Apr, peaking between 7 and 14 Apr when 44 were seen or trapped.

Short-toed Lark *Calandrella brachydactyla*
Fairly common between 27 Mar and 28 Apr with the heaviest passage from 8 to 18 Apr. On 11 Apr 100+ were gathered on the F. Amorosa headland. Within the group there were variations in plumage ranging from sandy-brown to grey-brown in colour, some with neck markings, some without.

Lesser Short-toed Lark *Calandrella rufescens*
A flock of five were seen at Osia Maria on 3 Apr.

Crested Lark *Galerida cristata*
Relatively numerous and widespread breeding resident in areas of open countryside. Fluctuations in numbers on the F. Amorosa headland suggested some degree of passage through the Akamas.

Woodlark *Lullula arborea*
Eight records between 28 Mar and 19 Apr involving 17 birds, 13 of these were seen in the period 28 to 31 Mar on or near the north coast.

Skylark *Alauda arvensis*
Recorded on five occasions between 27 Mar and 18 Apr at locations along the north coast. The largest gathering was a flock of 12 which was weather-bound on the F. Amorosa headland on 29 and 30 Mar.

Sand Martin *Riparia riparia*
A northward movement of ones and twos, intermixed with other hirundines, passed through the peninsula from 27 Mar to mid Apr; from then until 5 May passage increased with 100s sometimes following the coast before moving NW out to sea.

Crag Martin *Ptyonoprogne rupestris*
Four sightings between 28 Mar and 19 Apr, including two at Ayios Konon on 28 Mar.

Swallow *Hirundo rustica*
A sustained passage was observed throughout the period of the expedition. From 27 Mar to mid-Apr, movement was of ones and twos with occasional groups of 50+. From mid-Apr to 6 May passage intensified with sustained movements of 100s passing daily. Polis reedbeds frequently hosted overnight roosting flocks of 1000+. Sheep and goat pens attracted both passage and breeding birds feeding on the insect concentrations.

Red-rumped Swallow *Hirundo daurica*
Passage birds observed throughout the period of the expedition. The second and third weeks of Apr saw a small movement increasing to 100s per hour often mixed with other hirundines. Summer visiting breeding birds were numerous around Neon Chorion.

House Martin *Delichon urbica*
Passage continued throughout the period of the expedition. From 27 Mar until mid-Apr a trickle movement of ones and twos were occasionally boosted by the presence of groups around 50 strong. Passage increased from mid-Apr with up to 200 per hour observed moving along the peninsula on some days. 42 nests were counted on buildings in Polis of which 11 were active.

Tawny Pipit *Anthus campestris*
Observed in passage throughout the expedition in ones and twos but occasionally in groups up to seven. Passage peaked on 18 Apr when a total of 19 were recorded.

Tree Pipit *Anthus trivialis*
A common passage migrant seen almost daily from 27 Mar to 4 May. The heaviest falls occurred during the first week in Apr when 100s were present in Carob and Olive groves near N. Chorion.

Meadow Pipit *Anthus pratensis*
Small numbers of this winter visitor were recorded. Groups of up to six were seen on nine days between 27 Mar and 19 Apr.

Red-throated Pipit *Anthus cervinus*
As established on Akamas 95, this common winter visitor and migrant is scarce on the Akamas. Only one record: a single bird overflew the Polis Reedbeds on 27 Mar and was identified by call.

Yellow Wagtail *Motacilla flava*
A common passage migrant throughout the expedition with peak movement on 14 Apr when an estimated 750 were seen at just two locations. *M.f. feldegg* and *M.f. flava* were the commonest races with a scattering of *M.f.thunbergi* from 5 Apr onwards. Surprisingly, Syke's Wagtail - *M.f.beema* was seen amongst mixed flocks on four occasions between 8 and 15 Apr at distances from two to ten meters. On each occasion, views were adequate to separate the bird from *M.f.flava*. It is possible that the similarity of the two races has caused *M.f.beema* to be overlooked in the past.

White Wagtail *Motacilla alba*
Seen almost daily from 27 Mar to 25 Apr singly or in groups of less than ten birds; occasionally flocks of up to 25 birds were observed. This winter visitor and passage migrant favoured goat sheds as a prime food source.

Robin *Erithacus rubecula*
Sightings of this winter visitor and passage migrant declined progressively from 27 Mar until 20 Apr when it was last seen. One bird trapped on 12 Apr had a partial brood patch and a bulging underside suggesting that it was near to egg laying.

Thrush Nightingale *Luscinia luscinia*
Eight were trapped and one was seen between 17 and 24 Apr.

Nightingale *Luscinia megarhynchos*
Heard or seen most days from 27 Mar until 3 May throughout the peninsula. Numbers rose from 4 Apr to peak between 10 and 21 Apr. On 11 Apr six sites on the peninsula were monitored with over ten birds singing or calling at each which suggested the presence of 100s overall. From 22 Apr numbers reduced to ones and twos.

Black Redstart *Phoenicurus ochruros*
There was up to nine sightings per day of this winter visitor between 27 and 31 Mar. Thereafter sightings reduced to occasional singles until 11 Apr.

Redstart *Phoenicurus phoenicurus*
A common migrant throughout the peninsula, seen almost daily with the main movement occurring between 9 and 30 Apr. There was one record of the middle eastern race P.p.*samamisicus* a single male ringed at Neon Chorion on 5 Apr.

Whinchat *Saxicola rubetra*
From ones and twos at the end of Mar, passage increased to peak at 30+ between 17 and 29 Apr.

Stonechat *Saxicola torquata*
Ones and twos of this winter visitor were recorded between 27 Mar and 2 Apr with two late records of a female at the BoA on 25 Apr and a male at Polis Reedbeds on 28 Apr.

Isabelline Wheatear *Oenanthe isabellina*
Up to nine per day were recorded from 28 until 31 Mar. Thereafter numbers dwindled to ones and twos with random sightings until 20 Apr. The final record was of a build up from one to five birds over a three hour period at BoA caravan park on 25 Apr.

Northern Wheatear *Oenanthe oenanthe*
A common passage migrant seen daily between 27 Mar and 1 May. Movement was generally a trickle of up to ten birds. On 5 Apr adverse weather led to a build up along the North coast of groups up to 60 birds.

Cyprus Pied Wheatear *Oenanthe cypriaca*
Arrival appeared to be later than usual with ones and twos only from 27 Mar. Between 3 and 7 Apr there was an influx and males were observed to be widespread and on territory throughout the peninsula. Courtship display was observed on 8 Apr. The main influx of females was noted from 10 Apr. The first nest was found on 22 Apr.

Black-eared Wheatear *Oenanthe hispanica*
Seen daily throughout the expedition and apart from a minor peak on 20 Apr numbers were fairly constant. Of the races identified, the eastern race *melanoleuca* outnumbered the western race *hispanica* in the ratio 2:1.

Desert Wheatear *Oenanthe deserti*
There were three sightings; one at Osia Maria on 28 Mar, one at F.Amorosa on 3 Apr and on 11 Apr.

Rock Thrush *Monticola saxatilis*
Two males were seen near F. Amorosa on 5 Apr with a third at N. Chorion on 24 Apr.

Blue Rock Thrush *Monticola solitarius*
A male was seen on the west coast near Cape Yeronisos on 30 Mar, a female was in the ruins of the ancient Ay. Nikolaos settlement with two birds in the general area of Smiyies on 13 and 21 Apr.

Blackbird *Turdus merula*
This predominantly winter visitor was recorded daily from 27 Mar to 2 Apr. The next sighting was of a singing male near Ay. Minas on 27 Apr. It was noted singing early in the morning of 30 Apr and a probable female was seen at the same location on 5 May. The Blackbird is suspected of breeding in the Troodos Mountains.

Song Thrush *Turdus philomelos*
This winter visitor was widespread and relatively common during the final days of Mar but numbers dwindled rapidly to ones and twos until the last sighting on 20 Apr.

Cetti's Warbler *Cettia cetti*
A common and widespread resident breeder in the vicinity of dense cover.

Fan-tailed Warbler *Cisticola juncidis*
A locally common resident breeder in areas of long grass or cereal crops.

Savi's Warbler *Locustella luscinioides*
Nine birds were trapped and one was noted singing between 7 and 20 Apr. One trapped at N. Chorion on 7 Apr was identified as of the eastern race *fusca*. Its tendency to skulk in dense vegetation no doubt causes this species to be under recorded.

Sedge Warbler *Acrocephalus schoenobaenus*
A sustained passage was recorded from 1 Apr until 5 May with no discernable peaks.

Marsh Warbler *Acrocephalus palustris*
A single bird was trapped and examined on 18 Apr.

Reed Warbler *Acrocephalus scirpaceus*
Both passage migrants and resident breeding birds were heard, seen and trapped regularly between 27 Mar and 5 May. Several of those examined in the hand were identified as of the eastern race *fuscus*.

Great Reed Warbler *Acrocephalus arundinaceus*
First heard at Polis Reedbeds on 1 Apr, it was regularly reported until 5 May. First trapped on 15 Apr, a total of 19 were examined in the hand.

Olivaceus Warbler *Hippolais pallida*
First seen at Osia Maria on 18 Apr, thereafter widespread and fairly common. Refer to the ringing report for comments regarding subspecies.

Olive-tree Warbler *Hippolais olivetorum*
One bird was trapped on 25 Apr at Ay. Minas.

Icterine Warbler *Hippolais icterina*
First seen on 19 Apr, a total of 30 were seen or trapped up to 6 May. Although classified as a scarce migrant, it was fairly common from 29 Apr onwards.

Spectacled Warbler *Sylvia conspicillata*
Only two records, one at Ay. Konan on 18 Apr and a second near Smiyies on 20 Apr.

Subalpine Warbler *Sylvia cantillans*
Passage observed in small numbers, usually fewer than five per day, between 28 Mar and 19 Apr. On 10 and 11 Apr 24 a peak of 24 were recorded.

Sardinian Warbler *Sylvia melanocephala*
Common and widespread, it was recorded breeding throughout the peninsula. Although significantly outnumbering *Sylvia melanothorax* (see report below), it was found to be sharing cistus type habitat with *S. melanothorax* in some areas. One bird trapped and examined on 2nd and one on 3 May showed characteristics of *S. m. momus*.

Cyprus Warbler *Sylvia melanothorax*
Although significantly outnumbered by *S. melanocephala* (see report below), it retains a significant foothold in an area between Pano Vakhines and Polis and southward to Ay. Minas. A total of 12 birds were trapped compared to 106 S. *melanocephala.*

Ruppell's Warbler *Sylvia rueppelli*
Seen and trapped regularly between 28 Mar and 19 Apr; usually less than ten daily.

Orphean Warbler *Sylvia hortensis*
Seen and trapped regularly between 28 Mar and 24 Apr, mainly ones and twos but occasionally five or six recorded daily.

Barred Warbler *Sylvia nisoria*
There were 16 sightings between 15 Apr and 4 May and six birds were examined in the hand. This was eight fewer than during the Akamas '95 expedition.

Lesser Whitethroat *Sylvia curruca*
A common passage migrant throughout the expedition. Peak passage appeared to be between 11 and 24 Apr. Hundreds were recorded on 11 Apr.

Whitethroat *Sylvia communis*
Commonly seen throughout the expedition although in smaller numbers than during Akamas '95. Only on 10 and 20 Apr did the number exceed 20.

Garden Warbler *Sylvia borin*
Rather scarce, there were only eight sightings between 14 and 30 Apr. Between 1 and 6 May eight were seen and 19 were trapped.

Blackcap *Sylvia atricapilla*
Undoubtedly the most numerous migrant through the area. Passage followed a wave pattern with sustained movements interspersed with brief lulls. Almost one in three birds trapped were of this species.

Bonelli's Warbler *Phylloscopus bonelli*
Seen frequently between 28 Mar and 24 Apr mainly in ones and twos. Two peaks were noted; 10-11 Apr and 20-21 Apr when 15 birds were recorded on both occasions.

Wood Warbler *Phylloscopus sibilatrix*
Sustained passage in variable numbers from 29 Mar and 6 May. Initial movements were of the order of around five per day until 15 Apr when numbers rose to a maximum of 37 seen or trapped until 21 Apr. Numbers dwindled to three or four until the end of the expedition. Passage movement was lighter than recorded on Akamas '95.

Chiffchaff *Phylloscopus collybita*
A winter visitor and passage migrant seen in progressively declining numbers as the expedition progressed. The main exodus occurred on 1-2 Apr when hundreds were

passing through. By mid Apr only stragglers remained; the final bird recorded was trapped on 25 Apr. Two birds trapped on 27 Mar were of the race *tristis.*

Willow Warbler *Phylloscopus trochilus*
Only 28 were seen or trapped between 28 Mar and 1 May. Birds trapped between 10 and 12 Apr showed characteristics of the race *acredula.*

Spotted Flycatcher *Muscicapa striata*
Passage was observed between 13 Apr and 6 May. Numbers rose to average 20+ between 18 and 26 Apr with 40+ recorded until 29 Apr, peaking at 150 on 4 May. Numbers were considerably higher than Akamas '95.

Semi-collared Flycatcher *Ficedula semitorquata*
First seen on 31 Mar, 42 were recorded of which 11 were examined in the hand.

Collared Flycatcher *Ficedula albicollis*
Ones and twos were recorded between 29 Mar and 7 Apr when building to a peak of 56 on 10 Apr. From 11 until 21 Apr numbers varied from 10 to 20 per day then dropping away to ones and twos. Numbers were noticeably lower than during Akamas '95.

Pied Flycatcher *Ficedula hypoleuca*
Less than ten were recorded daily up to 11 Apr, increasing to between 20 and 50 per day until 21 Apr. Thereafter numbers declined excepting a peak of 18 on 28 Apr. A similar pattern of movement was observed during Akamas '95.

Great Tit *Parus major*
A common and widespread breeding resident throughout the Akamas, using mainly nest holes in Carob and Olive trees. Females with brood patches were trapped on 28 Mar and the first juveniles were seen on 5 Apr.

Penduline Tit *Remiz pendulinus*
On 12 Apr one male and one female were trapped at Polis Reedbeds with a further two males trapped at this location the following day.

Golden Oriole *Oriolus oriolus*
Passage was noted from 15 Apr until the end of the expedition, with numbers varying from ones and twos to 10+ randomly.

Red-backed Shrike *Lanius collurio*
Passage commenced on 17 Apr and continued throughout the expedition. Movements peaked between 20 and 23 Apr when 228 birds were seen or trapped including 126 on 21 Apr. Numbers declined thereafter to less than five per day. The pattern of movement was similar to Akamas '95 although the peak on that occasion was 11 Apr.

Lesser Grey Shrike *Lanius minor*
Only 13 were reported between 20 and 30 Apr.

Woodchat Shrike *Lanius senator*
Passage commenced on 2 Apr continuing throughout the expedition. Assessed as fairly common, peaks were recorded between 14 and 18 Apr when 80 were seen and 30 Apr until 2 May when 42 were recorded. A pair were observed copulating on 27 Apr at Neon Chorion. These birds were probably ringed days later but no nest could be found. A nest with eggs (subsequently predated) was found in this area during Akamas '95. Most birds were recorded as belonging to the subspecies *L. s. senator* although one bird on 12 Apr and one on 3 May were recorded as *L. s. niloticus.*

Masked Shrike *Lanius nubicus*
A passage migrant and migrant breeder, the first record was a male on 28 Mar with ones and twos until 17 Apr when migration began in earnest. Until 30 Apr numbers fluctuated between six and 32 per day. During May, numbers dwindled to ones and twos, probably over-summering birds. One pair was observed nest building on 27 Apr.

Magpie *Pica pica*
Relatively common but localized breeding resident, especially near rubbish tips.

Jackdaw *Corvus monedula*
Common breeding resident on cliff faces and rocky gorges.

Hooded Crow *Corvus corone*
Widespread breeding resident.

Raven *Corvus corax*
One sighting of this scarce breeding resident with three at a refuse tip in Lara.

House Sparrow *Passer domesticus*
Common and widespread breeding resident. The adaptability of this species was demonstrated by the colonization of bushes on the north coast west of F. Amorosa following the break up of a rusting ship hulk upon which they were previously nesting.

Spanish Sparrow *Passer hispaniolensis*
A winter visitor, passage migrant and localized breeding resident. The main exodus of non-breeding birds occurred on 17 and 18 Apr when thousands moved North-west in groups of 50+.

Chaffinch *Fringilla coelebs*
Between 27 Mar and 20 Apr ones and twos, predominantly females, were seen throughout the peninsula. 25 were at Polis on 29 Mar with a late sighting of a female at BoA on 6 May.

Serin *Serinus serinus*
During Akamas '95 only three were recorded. On this expedition over 200 were seen or trapped between 27 Mar and 4 May. A nest was also found in Juniper along the coastal path on 11 Apr.

Greenfinch *Carduelis chloris*
A common and widespread breeding resident throughout the Akamas. A nest with pulli was found at Neon Chorion on 15 Apr.

Goldfinch *Carduelis carduelis*
A very common and widespread breeding resident. Females with brood patches were noted from 31 Mar 97.

Siskin *Carduelis spinus*
Late sightings of this winter visitor were made on 14, 18 and 22 Apr. Two males were trapped at Polis Reedbeds.

Linnet *Carduelis cannabina*
A common and widespread breeding resident, winter visitor and passage migrant. Flocks of 20+ continued moving through the peninsula until 18 Apr.

Hawfinch *Coccothraustes coccothraustes*
Two sightings only of this winter visitor: one male at BoA on 8 Apr and a further male at Ay Minas on May.

Ortolan Bunting *Emberiza hortulana*
First recorded on 5 Apr when two males were at F. Amorosa. Then encountered in varying numbers until 3 May with a peak in passage between 12 and 20 Apr when 100s were noted some days.

Cretzschmar's Bunting *Emberiza caesia*
Numerous passage migrant and breeding summer visitor in small numbers were seen throughout the expedition. Peak movements occurred between 6 and 12 Apr when 100s were moving through.

Reed Bunting *Emberiza schoeniclus*
One sighting only at Polis Reedbed on 1 Apr.

Black-headed Bunting *Emberiza melanocephala*
The first record was of four males on 22 Apr. On 24 Apr, 22 males were seen in the peninsula and thereafter numbers fluctuated daily from 10 to 35+. The first female was recorded on 29 Apr.

Corn Bunting *Miliaria calendra*
A common breeding resident throughout the Akamas and numerous passage migrant. Flocks of 25+ observed moving NW along the coast until mid Apr.

RINGING REPORT

Of the 40 days available, ringing took place on 35 with 5 days lost due to weather and logistics. 4,213 birds of 70 species were ringed (Table 1), this compares with 3,516 birds of 65 species in 1995. A further 11 birds were caught and processed but released unringed because no rings of the correct size were available (Table 2).

Of the birds ringed, 346 were retrapped on subsequent days (this compares with 140 in '95). In addition, 20 birds ringed on the 1995 expedition were also retrapped (Table 3). A Lesser Whitethroat bearing a British Trust for Ornithology ring was caught on the 11th April. This bird had been ringed as a juvenile on the 20th August 1994, at Icklesham Sussex and is only the third record of a British ringed Lesser Whitethroat trapped in Cyprus.

It had been planned to use the same ringing sites as in '95, but early in the expedition it became apparent that Ayios Konon and Fontana Amorosa had been heavily overgrazed by a massive increase in the goat population. After two attempts to ring at Ayios Konon, when very few birds were caught and a lot of effort expended to keep the goats away from the mist nets, it was decided to abandon these sites. This was unfortunate as they had been the most productive in 1995.

To compensate for the loss of these sites a new area near Polis was tried and proved a great success. This site along the Polis river valley (still holding water), had a good variety of vegetation including, olive and citrus groves and large areas of phragmites and papyrus beds. These beds accounted for the greater number of Acrocephalus and Locustella Warblers caught.

The site below Ayios Minas church was operated again with reasonable catches. Another area nearby, adjacent to a small reservoir, produced the highest numbers of birds and species ringed. The grounds of the Tavros apartments by the village of Neon Chorion produced the second highest totals, but as in '95 became unproductive later in the expedition and were abandoned. Two other areas near Neon Chorion were tried on odd days, when lack of transport forced the ringing teams to operate locally, with mixed success. A break down of the totals for each site is as follows:

	Number Ringed	Species
Ay. Minas Reservoir Area	1350	55
Tavros Grounds N. Chorion	1109	43
Polis River Valley	975	50
Ayios Minas Church Area	437	39
Neon Chorion By Pass	164	31
Ruined House N. Chorion	102	20
Ayios Konon / Osia Maria	76	30

Table 1. Akamas 97 - Ringing Summary

Species	March					April																										May					Total
	27	28	29	30	31	01	02	03	04	05	06	07	08	10	11	12	13	14	15	17	18	19	20	21	24	25	26	28	29	30	01	02	03	04	05	
Quail												1																								1
Common Snipe																	1																			1
Green Sandpiper																		1																		1
Cuckoo															1																					1
Kingfisher																1		1		2																4
Bee-eater																									4		9						3		3	19
Hoopoe		1					2						1			1	1			1		1														8
Wryneck		2			1	1	2	3	3	2	1	6	1	1	5	5	1	1				1	3		1											40
Sand Martin																										1										1
Swallow	1	2	1				2	2	3	10		13				2	1		3	1			1	1	16	3			1		1				3	67
Red-rumped Swallow																								1	6											7
House Martin																								1	3											4
Tree Pipit		1		1	7	12	4	51	27	15	1	19	2	2	5	7	1	1		5	3	6	6	4	2				2		2					186
Yellow Wagtail																			1		1															2
Robin	3	7	2	2	1	1	1	1					1			1					1															21
Thrush Nightingale																				1			1	3	3											8
Nightingale						6	4	6	8	6	1	5	5	9	5	14	9	7	6	4	4	15	7	11		1		1	1								135
Redstart						4				1					1						2	6	6	1	7	3			2	1			1			35
Whinchat		1																1		1		2	3	3						1						12
Isabelline Wheatear																					1															1
Northern Wheatear																					4															4

Table 1. Akamas 97 - Ringing Summary

Species	March					April																										May					Total
	27	28	29	30	31	01	02	03	04	05	06	07	08	10	11	12	13	14	15	17	18	19	20	21	24	25	26	28	29	30	01	02	03	04	05	
Cyprus Pied Wheatear								1														1	1	2	1	2		1	5	1	1		3	1		20
Black-eared Wheatear					1								1								2				1						1					6
Song Thrush	1	6	2		2	1										2						1														15
Cetti's Warbler	3	1	5		3	10	2	1	2					2	12	10	6	3	6	2	2	2	1		1	4	2	1	2		1	2		6			92
Fan-tailed Warbler						1																														1
Savi's Warbler							1					1				2	1	1				3															9
Sedge Warbler						5		1		1	1	1		2		2	15	8		2	1	15	3	2	1		3	1	2	9	1			1	14		91
Marsh Warbler																					1																1
Reed Warbler			1		7	11	1		2	1		2				12	18	17		17	6	16	1	3	4		19	6			2				13	159
Great Reed Warbler																1	5	1		7	1	6					4		1						3	29
Olivaceous Warbler																							1	9	7	3	7	2	1	6	1		2	5	6	50
Olive-tree Warbler																										1										1
Icterine Warbler																													1	1	4			1	1	8
Subalpine Warbler		1			1		1	3	1	2		1			1		1					1							1							14
Sardinian Warbler	2	8	5		7	3	2	1	2	1	1	3				2	2	2	6			6	5	4	1	1	1	3	2	1	9	4	10	2	3	99
Cyprus Warbler													1				1				1							1			1	1		4		10
Ruppell's Warbler						1	1	4	2			2	2																							12
Orphean Warbler		2			2	3	4	6	3	3		3	1						1	1			4	6	3											42
Barred Warbler																							2	4												6
Lesser Whitethroat		4	1		8	8	7	14		10	1	3	4	5	11	31	17	3	5	5	4	2	35	33	10	4						1				226
Common Whitethroat		1				3	2	8	2	3	1	3	2		6	1	2		1	1	2	7	12	15	3		2				2		1	1		81
Garden Warbler																			1		1	1						1		1	3	1	4	2	9	24
Blackcap	25	38	21	23	101	59	23	44	20	13	4	20	6	27	25	54	26	20	19	20	20	27	215	234	73	8	55	20	14	13	44	3	7	6	24	1351
Bonelli's Warbler		1	1		3	1		2				1	1		1	1	1					4	6													23
Wood warbler			1		1	2	2	1	2			1			1	2	1	3		3	1	8	3	11	7		5	2	1	1	9	2	3	2	1	76
Chiffchaff	29	12	5	9	26	36	3	9	5	2	1	6	6	1	4	12	3		2			1				1										173
Willow Warbler		1				1		1		2		2	2		2		1					1	4		1	1	1	1			2					23
Spotted Flycatcher																			2		1	3	3	2	5	2	1	2	7	1	4	3	14	6	9	65
Semi-collared Flycatcher									1					2	1	1			1			3	2													11
Collared Flycatcher					1	1	1			2	1	3	2			3	4					7	8	1	1			1						1		37
Pied Flycatcher		1						1	3	2				1	1			1		1	1	13	13	7	6	4			8	2	3	1	4	2	1	76
Great tit	3	5	3	1	5	2	1	1		4		5			4	10	6	1	6	1	1	34	19	6			3							2	3	126
Penduline Tit																2	2																			4
Golden Oriole																				2	2	1			1			1						1	5	13
Red-backed Shrike																							5	30					1		1					37
Woodchat Shrike												1				2					1	1	1	1									2			9

Table 1. Akamas 97 - Ringing Summary

Species	March					April																										May					Total
	27	28	29	30	31	01	02	03	04	05	06	07	08	10	11	12	13	14	15	17	18	19	20	21	24	25	26	28	29	30	01	02	03	04	05	
Masked Shrike						2									1							1		3		1		1									9
House Sparrow	1	2	1	6	5		1	10	2	17		3	3	2	7	4																					64
Spanish Sparrow	3	6	8	4	4	4	4	7	1	16	1	6		2	6	13	16	12		15							1								5	134
Chaffinch		1																																		1
Serin	7	2	2		7	5	1	1		1	2				1		1																			30
Greenfinch	1	1	1	4	4	10	5	10	1	2		1			4	8	4	2	2	9	2	1	1	1					7						6	87
Goldfinch	2	8	1	3	4	8	2	7	4	6	4	5	1	1	1	9	11	2	3	3	2	6	11	5		1	2	15	30	9	9		1		7	183
Siskin																					2															2
Linnet	1		1	1	6		1	3	1	4		1			2	4													9	7						41
Ortolan Bunting																1					3	2	4		1											11
Cretzschmar's Bunting	3	2		2	6	8	5	1	3	2	5	5			5	3						1	1							1						53
Black-headed Bunting																													4							4
Corn Bunting										1		2					1					3	1		2	1			5							16
70 Species	85	117	62	56	213	209	85	200	98	129	25	125	42	55	103	225	163	91	62	108	73	209	390	405	170	39	117	60	107	57	100	17	57	37	122	4213

Table 2: Birds Processed but unringed:

Date	27/3	28/3	31/3	1/4	12/4	13/4	17/4	20/4	26/4	5/5	Total
Species											
Little Bittern						1	1				2
Night Heron					1						1
Scops Owl	1	1									2
Kestrel			1	1		1					3
Roller									1	1	2
Red-backed Shrike *								1			1

* After processing, this bird was inadvertently released unringed.

Table 3: Birds ringed in 1995 and retrapped in 1997:

Ring Number	Species	Date Retrapped	Location	Date Ringed	Location
010 12643	Chiffchaff	27/03/97	Tavros	27/03/95	Tavros
020 06318	Cetti's Warbler	28/03/97	Tavros	28/03/95	Tavros
010 13027	Sardinian Warbler	28/03/97	Tavros	02/04/95	Tavros
020 06322	Spanish Sparrow	29/03/97	Tavros	28/03/95	Tavros
010 12417	Sardinian Warbler	31/3 & 4/4/97	Tavros	23/03/95	Tavros
010 12691	Sardinian Warbler	31/03/97	Ay Minas	29/03/95	Ay Minas
010 12817	Cyprus Warbler	02/04/97	Tavros	29/03/95	Tavros
010 12650	Sardinian Warbler	03/04/97	Tavros	27/03/95	Tavros
020 06306	Blackcap	04/04/97	Tavros	27/03/95	Tavros
010 12847	Sardinian Warbler	04 & 05/04/97	Tavros	30/03/95	Tavros
010 12659	Swallow	05/04/97	Tavros	28/03/95	Tavros
010 13604	Swallow	11/04/97	Tavros	27/04/95	Tavros
010 12660	Swallow	12/04/97	Tavros	28/03/95	Tavros
010 13662	Goldfinch	15/04/97	Ay Minas	01/05/95	Ay Minas
020 07905	Great Tit	15/04/97	Ay Minas	26/04/95	Ay Minas
010 13442	Olivaceous Warbler	20/04/97	Ay Minas	26/04/95	Ay Minas
010 12708	Sardinian Warbler	24/04/97	Ay Minas	30/03/95	Ay Minas
020 08246	Cyprus Pied Wheatear	29/04/97	Ay Minas	01/05/95	Ay Minas
010 12709	Sardinian Warbler	19,21&29/4/97	Ay Minas	30/03/95	Ay Minas
010 13152	Cyprus Warbler	02/05/97	By Pass	15/04/95	By Pass

Table 4. Wing And Weight Measurements Of Species Ringed

SPECIES		WING (mm)			WEIGHT (g)		
		Sample	Mean	Range	Sample	Mean	Range
Quail		1	113.0	113	1	110.0	110.0
Common Snipe		1	131.0	131	1	92.0	92.0
Green Sandpiper		1	147.0	147			
Cuckoo		1	220.0	220	1	97.0	97.0
Kingfisher		4	76.5	75 - 78	4	34.7	32.8 - 38.8
Bee-eater		19	148.5	138 - 155	19	53.4	38.0 - 67.0
Hoopoe		6	145.3	140 - 150	6	68.2	62.0 - 77.0
Wryneck		40	89.6	85 - 95	40	36.7	29.6 - 44.1
Sand Martin		1	109.0	109	1	12.7	12.7
Swallow		67	124.6	118 - 134	66	18.6	13.3 - 24.5
Red-rumped Swallow		7	122.3	120 - 126	7	24.1	20.7 - 25.9
House Martin		4	105.0	103 - 108	4	17.4	14.2 - 19.2
Tree Pipit		184	89.0	77 - 95	173	22.0	15.8 - 27.1
Yellow Wagtail		2	80.5	78 - 83	2	16.1	15.4 - 16.7
Robin		21	72.6	71 - 79	19	17.6	13.8 - 21.5
Thrush Nightingale		8	88.9	86 - 94	8	22.9	19.0 - 26.9
Nightingale		133	86.5	80 - 92	130	22.0	16.7 - 27.7
Redstart	Male	20	80.4	75 - 85	20	14.2	10.7 - 18.2
	Female	15	79.1	77 - 84	15	13.6	10.5 - 16.0
Whinchat		12	77.9	75 - 81	12	16.5	13.8 - 18.5
Isabelline Wheatear		1	99.0	99	1	22.7	22.7
Northern Wheatear	Male	4	96.8	96 - 97	4	23.9	18.0 - 26.2
Cyprus Pied	Male	13	85.4	83 - 90	13	15.6	14.2 - 18.2
Wheatear	Female	7	82.7	81 - 85	7	16.8	14.6 - 20.2
Black-eared Wheatear		5	89.4	86 - 92	5	16.0	14.5 - 17.0
Song Thrush		15	118.7	114 - 123	9	78.2	69.0 - 90.0
Cetti's Warbler	Male	39	62.7	59 - 66	38	15.2	13.4 - 17.4
	Female	47	55.6	51 - 61	47	11.5	9.5 - 14.5
Fan-tailed Warbler		1	53.0	53	1	8.4	8.4
Savi's Warbler		9	70.2	69 - 73	9	18.3	16.1 - 21.4
Sedge Warbler		91	68.1	61 - 72	88	12.1	9.5 - 16.5
Marsh Warbler		1	70.0	70	1	15.9	15.9
Reed Warbler		159	66.2	61 - 77	157	11.4	8.5 - 16.0
Great Reed Warbler		29	97.6	91 - 103	29	30.0	25.0 - 43.1
Olivaceous Warbler		50	67.2	62 - 71	50	10.5	8.9 - 13.8
Olive-tree Warbler		1	90.0	90	1	19.7	19.7
Icterine Warbler		8	79.9	76 - 84	8	13.1	11.3 - 15.4
Subalpine Warbler	Male	9	61.8	59 - 65	9	10.5	9.6 - 11.6
	Female	5	60.6	59 - 62	5	10.7	8.9 - 12.0
Sardinian Warbler	Male	50	57.8	53 - 61	51	11.5	9.5 - 14.6
	Female	40	56.8	55 - 61	41	12.4	10.4 - 16.1
Cyprus Warbler	Male	6	58.0	55 - 60	4	10.3	10.0 - 10.6
	Female	4	58.5	58 - 59	4	12.2	10.6 - 13.6
Ruppell's Warbler	Male	9	70.7	67 - 75	9	13.7	12.6 - 15.0

Table 4. Wing And Weight Measurements Of Species Ringed

SPECIES		WING (mm)			WEIGHT (g)		
		Sample	Mean	Range	Sample	Mean	Range
	Female	3	68.7	68 - 70	3	14.4	13.7 - 15.0
Orphean Warbler		41	80.0	75 - 84	38	22.7	18.2 - 27.8
Barred Warbler		6	89.3	88 - 91	6	24.3	22.6 - 27.0
Lesser Whitethroat		226	65.6	56 - 73	220	11.6	9.4 - 17.0
Common Whitethroat		79	72.8	65 - 77	77	15.1	11.7 - 18.4
Garden Warbler		24	82.0	78 - 86	24	17.1	12.5 - 21.0
Blackcap		1345	76.0	64 - 91	1321	18.5	10.1 - 28.1
Bonelli's Warbler		23	67.3	59 - 75	22	7.8	6.8 - 9.2
Wood warbler		76	76.7	70 - 82	75	8.8	7.0 - 11.6
Chiffchaff		173	56.9	52 - 65	148	7.8	5.4 - 10.5
Willow Warbler		23	69.4	64 - 73	23	9.0	6.0 - 12.0
Spotted Flycatcher		65	89.0	85 - 93	64	15.2	11.5 - 19.1
Semi-collared Flycatcher		11	82.3	78 - 87	11	13.5	12.0 - 15.0
Collared Flycatcher	Male	29	83.4	79 - 87	28	13.3	10.5 - 15.5
	Female	8	83.0	80 - 85	8	13.3	10.9 - 14.9
Pied Flycatcher	Male	40	81.2	77 - 84	39	12.7	10.0 - 15.4
	Female	34	79.9	77 - 84	35	12.2	9.0 - 15.0
Great tit		64	70.0	61 - 75	108	16.0	13.5 - 19.2
Penduline Tit	Male	3	54.3	53 - 56	3	9.2	9.0 - 9.5
	Female	1	53.0	53	1	10.4	10.4
Golden Oriole		13	153.5	149 - 158	13	60.7	51.0 - 74.0
Red-backed Shrike		37	93.5	90 - 99	37	28.5	22.3 - 39.7
Woodchat Shrike		9	101.3	99 - 105	9	32.8	27.0 - 36.4
Masked Shrike		8	90.6	88 - 93	8	23.6	21.5 - 27.0
House Sparrow		62	79.7	76 - 86	58	29.0	25.0 - 33.0
Spanish Sparrow		132	78.6	70 - 84	125	27.4	22.0 - 32.6
Chaffinch		1	82.0	82	1	26.4	26.4
Serin		30	71.5	68 - 76	29	12.0	7.3 - 14.6
Greenfinch		87	83.8	78 - 90	85	22.7	14.1 - 31.2
Goldfinch		179	77.3	66 - 83	172	15.6	12.0 - 20.4
Siskin		2	73.5	73 - 74	2	13.2	12.8 - 13.6
Linnet		41	79.7	72 - 85	41	17.6	11.4 - 19.8
Ortolan Bunting		11	86.5	80 - 92	11	24.1	20.1 - 28.0
Cretzschmar's Bunting		52	83.2	78 - 89	45	22.0	18.6 - 27.4
Black-headed Bunting		4	92.5	89 - 96	4	29.5	29.1 - 29.8
Corn Bunting	Male	12	102.9	99 - 105	9	48.0	44.0 - 52.0
	Female	4	92.5	90 - 95	4	40.3	36.6 - 44.0

Olivaceous Warbler:

Two races of Olivaceous Warbler are recorded as passing through Cyprus, these are Hippolais pallida opaca and Hippollais pallida elaeica. Most Olivaceous caught were examined to determine race and table 5 below details the findings.

Table 5: Olivaceous Warbler subspecies

	April								May				Total
	20	21	24	25	26	28	29	30	1	3	4	5	
H.p. opaca	1*	6	1	3	4	-	-	1	-	-	-	-	16
H.p. elaeica	1	2	6	-	2	2	-	5	1	2	5	6	32
Undetermined		1				1	1					1	4
Total	2	9	7	3	6	3	1	6	1	2	5	12	52

* Retrap from 1995

THE STATUS OF SARDINIAN WARBLER AND CYPRUS WARBLER IN THE NORTHWEST OF CYPRUS

V Cozens and A Stagg

Prior to 1992, the Sardinian Warbler was regarded as a winter visitor to Cyprus and a possible passage migrant through the island (Flint and Stewart 1992). However, in that year it was found to have bred on the Akamas peninsula (Frost 1994). Subsequent observations suggested it had become a localized breeding resident on the Akamas.

In 1995 a RAFOS expedition confirmed the thesis and estimated, by counting singing and displaying males and by examining mist-netted females with brood patches, that some 50 pairs of Sardinian Warbler held territory on the Akamas and outnumbered the endemic Cyprus Warbler by approximately 5:1. These findings were however regarded as tentative. They stemmed from information gathered whilst conducting migration studies during a six week period over fixed, predetermined transects of mixed habitats and from mist netting activities at locations known to be popular with a broad range of species. There was no concentration on the garigue and maquis habitats particularly favoured by the Cyprus Warbler (Cramp 1992) and also used by the Sardinian Warbler.

It was also recognized that without prior knowledge of the breeding distribution of the Cyprus Warbler on the Akamas (not previously plotted) there was no datum from which to assess population changes which might result from interaction with the growing population of Sardinian Warbler. One of the chosen aims of the expedition of Spring 1997 was therefore to produce a breeding and distribution map for both Cyprus and Sardinian Warblers resident on the Akamas peninsula.

Within a short time of the Akamas '97 expedition commencing, it became apparent that the Sardinian Warbler population had markedly increased during the two year interval since the previous expedition. Not only had numbers increased but probing surveys conducted outside of the Akamas study area showed range extensions at least as far east as Pyrgos (near the Turkish occupied area) and southwards to Lara. In view of these findings, coupled with the concurrent paucity of Cyprus Warbler sightings, it was decided that emphasis should be placed by the expedition FSTs mapping the breeding sites of Cyprus Warblers. An area west of a line from Latchi on the north coast to Lara on the south coast was chosen for this exercise. It was conjectured that with its relative ease of access, not only could any

interaction between Cyprus and Sardinian Warblers be assessed but also the effects on both species of increasing urbanization.

For the FSTs, which were small in number, the job of locating Cyprus Warbler territories was not easy. The rough terrain over much of the Akamas coupled with the difficulty of penetrating areas of dense garigue and maquis favoured by the species proved to be arduous and time-consuming. However in the six week period of the expedition, the points at which the Cyprus Warbler was concentrated were located and mapped. This information can reliably be used by future expeditions to assess changes in the status of the Cyprus Warbler in the region. As shown on the simplified version of the distribution map included in this report, the Cyprus Warbler population is currently limited and concentrated in an area extending northwest from the Baths of Aphrodite around Pano Vakhines, southeast to Neon Chorion and thence eastward beyond Ayios Minas church on the Smiyies track for approximately 1.5 kilometres. The Sardinian Warbler is altogether more widespread in its distribution and in some areas shares habitat with the Cyprus Warbler.

As in 1995, the identification of Cyprus Warbler territories largely stemmed from sightings of singing and displaying males. Song is concentrated in a period extending from late February to early June and usually delivered from a prominent position, such as a tree or the top of a bush, making singing birds relatively easy to see. Some Cyprus Warblers spend the winter outside of the island, predominantly in the Levant, but studies of bird liming victims (Flint and Stewart 1992) have shown that such migrants return mainly in late February or early March. All potential breeding birds could therefore be expected to be on territory during the survey period. These factors give added confidence to the likely accuracy of the distribution map produced by the FSTs.

Although both Cyprus and Sardinian Warblers show a liking for Cistus, Pistacio and thorny scrub in general, the Sardinian Warbler has shown elsewhere in its range less selectivity in choice of habitat. It is equally content to breed in pine and broad-leaf woodlands, tall undergrowth, shrubs, bushes, wetland fringes, indeed almost anywhere other than open ground. Furthermore it is tolerant of a considerable degree of urban development and will successfully nest in gardens and parks undeterred by human presence. The Cyprus Warbler on the other hand breeds mainly in thorny cover of a type most often destroyed where urban development occurs. Thus it is likely that human encroachment will prove far more detrimental to the Cyprus Warbler than loss of breeding sites through

competition with the now well-established and rapidly spreading Sardinian Warbler.

Should the Cyprus Warbler become more adaptable in its choice of breeding habitat, as pressures on its nest sites increase, conflict between the two species will be more likely. Whatever transpires, the survey and mapping work done on the Akamas '97 expedition will enable future studies conducted in this area to be related to an established datum. The distribution map produced during the expedition but unsuitable for reproduction in this report will be archived for future reference purposes.

The Ringing Summary below shows the daily number of each species ringed. Sardinian Warblers were fairly constant throughout the expedition, whereas the first Cyprus Warbler was not ringed until the 8th April, then spasmodically until the 4th May when 4 were ringed. Interestingly, the previous day at the same location no Cyprus Warblers were seen and as in '95 no juvenile Cyprus warblers were caught.

Numbers of Sardinian to Cyprus Warblers caught and ringed:

	Cyprus Warbler New ('95 Retrap)	Sardinian Warbler New ('95 Retrap)
Adult Males	6(2)	55(6)
Adult Females	4	39(1)
Juveniles	-	4
Undetermined	-	1
Total	12	106

Compared with the 1995 totals of birds ringed (16 and 134 respectively), the totals show a reduction in numbers for both species. However the Cyprus Warbler has reduced in percentage terms by a greater degree than the Sardinian Warbler (25% to 21%). The reduction in Sardinian Warbler numbers is largely due to fewer juveniles being caught (26 in '95 and 4 in '97). This could be attributed to the very wet start to the spring of 1997. Another point to consider is that with such a small sample size, the percentage rate will increase/decrease by 6.2% for every bird added to or subtracted from the equation. There are several possible theories as to the reductions in Cyprus Warbler numbers, such as :

a. Migrant birds being delayed in their wintering quarters due to weather.

b. The change in agriculture methods in their wintering areas, affecting the numbers of surviving migrants.
c. The Akamas is at the extreme north west of the Cyprus Warbler's range, they therefore arrive and breed later in this area (This could explain why no young have been caught on the two expeditions).

Taking all of the above into consideration there may be little cause for concern, however, study of other species show that a decline is usually observed by a reduction at the extreme boundaries of their range. Clearly there is scope for much more study of these species, and any future expedition should continue into mid May to determine maximum numbers and breeding success.

References

Flint, P.R. and Stewart, P.F. 1992. The Birds of Cyprus 2nd Edition. British Ornithological Union Checklist No. 6. Tring.

Frost, R. 1994. Cyprus Ornithological Society (1957) 1994 Annual Report.

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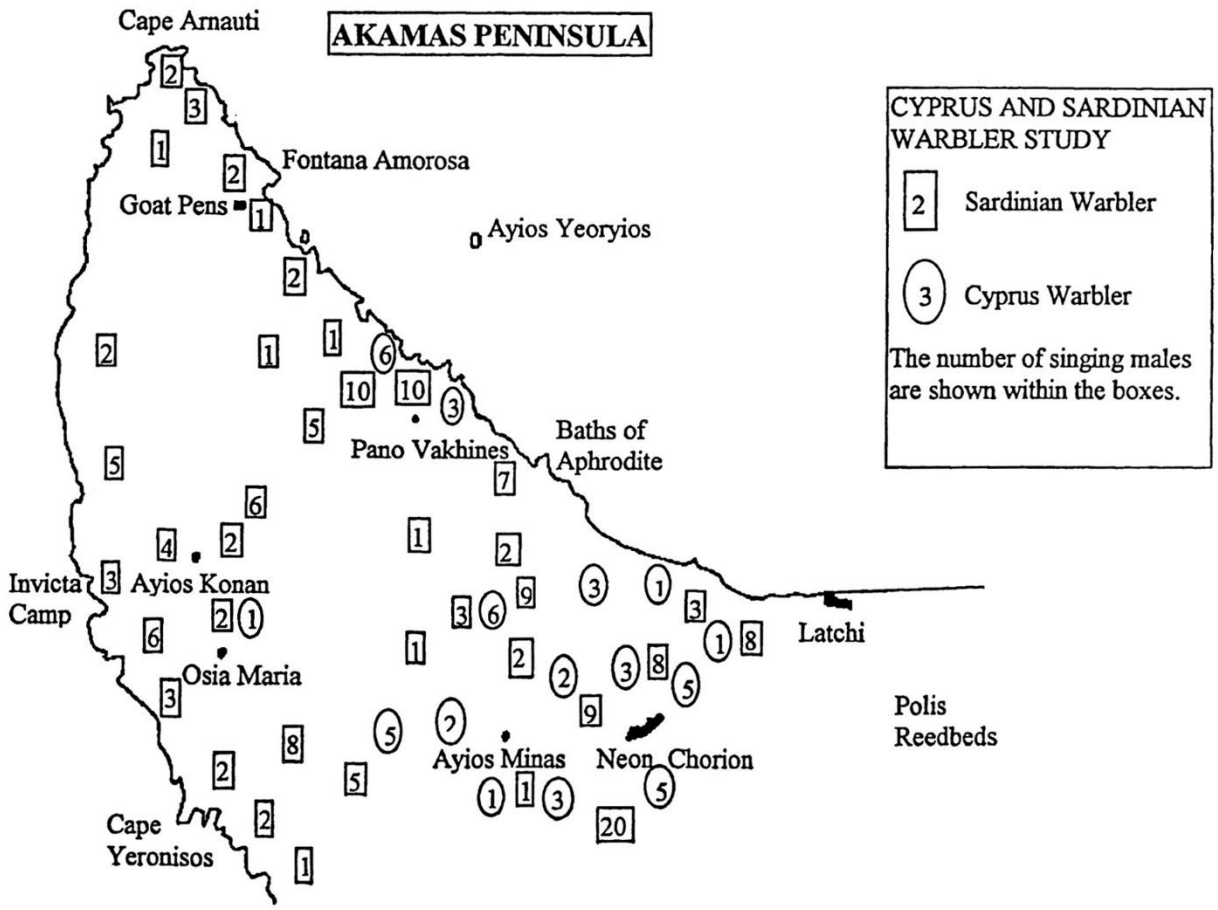

AKAMAS PENINSULA
Cape Arnauti
Fontana Amorosa
Goat Pens
Ayios Yeoryios
Pano Vakhines
Baths of Aphrodite
Invicta Camp
Ayios Konan
Osia Maria
Latchi
Polis
Reedbeds
Ayios Minas
Neon Chorion
Cape Yeronisos
CYPRUS AND SARDINIAN WARBLER STUDY
2 Sardinian Warbler
3 Cyprus Warbler
The number of singing males are shown within the boxes.

A record of Butterfly sightings in the Akamas during the period 28 Mar - 2 May 1998

A by-product of the observations of the FSTs were the following notes of butterflies observed by several interested participants.

Swallowtail - *Papilio machaon*

Seen at Neon Chorion 30 Mar, Latchi 2 Apr, Smyies area 7 and 20 Apr, BoA 24 Apr, Lara 26 Apr, Polis Reedbeds 28 Apr on the road to Innia on 1 May.

Eastern Festoon - *Allancastria cerisyi*

Seen at Neon Chorion 28 Mar, Pano Vakhines 2 Apr, Neon Chorion 7 Apr.

Large White - *Pieris brassicae*

Seen throughout the peninsula from 2 Apr.

Small White - *Artogeia rapae*

Seen throughout the peninsula from 28 Mar until 18 Apr.

Orange Tip - *Anthocharis cardamines*

Seen at Neon Chorion and Smiyies on 28 Mar and randomly throughout the peninsula until 25 Apr.

Clouded Yellow - *Colius croceus*

Seen at Neon Chorion and Smyies on 30 Mar and throughout the peninsula until the end of the expedition.

Cleopatra - *Gonepteryx cleopatra*

Seen at Neon Chorion and Smyies on 28 Mar and then widespread until 22 Apr.

Red Admiral - *Vanessa atlanta*

Seen in ones and twos only in the Neon Chorion-Smyies area from 28 Mar until 5 Apr. Although a resident species, it is scarce because its foodplant, nettle, is uncommon.

Painted Lady - *Cynthia cardui*

Numerous in all areas through the expedition but not in the thousands reported during the Akamas 95 expedition.

Cyprus Meadow Brown -*Maniola cypricola*

First seen near the tourist camping site at Polis on 2 Apr, subsequently in small numbers at Smyies on 24 Apr and on the N coastal path on 25 Apr.

Brown Argus - *Atricia agestis*

One sighting only: one near the tourist camping site at Polis on 2 Apr.

Common Blue - *Polyommatus icasus*

Seen commonly from 11 Apr across the peninsula, often several together.

PLANT LIST FOR AYIOS MINAS OLIVE AND CAROB GROVES

by Mark Stevenson

The following plant list was compiled on 5th May 1997. It is not an exhaustive or definitive list as the expedition had no comprehensive floral guides for Europe. No key to grasses was available, so only those familiar to the recorder were recorded. In addition, many early annuals had already died back and could not be identified. However, the list does contain the majority of the higher plants found at Ayios Minas and illustrates the highly diverse nature of the ground flora.

Many of the traditionally managed olive groves in the southern Mediterranean are slowly being replaced by irrigated citrus plantations. This move has been hastened by the introduction of national and European grants. As the traditional management practices are abandoned, the change in the floral composition is swift and dramatic - with citrus groves being dominated by just a handful of more competitive perennials. The knock on effect for organisms further up the food chain is a subject that is currently being investigated throughout Europe. It is hoped that this list will provide the basis and impetus for a twin study comparing both the plant and bird communities of olive and citrus groves.

Grasses

Aegilops geniculata	A grass
Avena sterelis	Wild winter oat
Briza maxima	Large quaking grass
Cynosurus echinatus	Rough dogstail
Hordeum murinu	Wall Barley

Forbs

Adonis annua	Pheasant's eye
Allium roseum	Rosy garlic
Allium trifoliatum	A white onion
Anacamptis pyramidalis	Pyramidal orchid
Anagalis arvensis	Scarlet pimpernel (blue form)
Anthemis ssp (probably A. amblyolepis)	A chamomile
Ballardia trixago	Ballardia
Chrysanthemum segetum	Corn marigold
Coronilla securidaca	A scorpion vetch
Crupina crupinastrum	Crupina
Cynoglossum creticum	Blue hound's tongue
Euphorbia helioscopia	Sun spurge
Foeniculum vulgare	Fennel
Gladiolus italicus	Field gladiolus
Legusia speculum-veneris	Large venus looking-glass

Linum bienne	Pale flax
Medicago rugosa	A medick
Mercurialis annua	Annual mercury
Muscari comosum	Tessel hyacinth
Nigella damascena	Love-in-a-mist
Ophrys apifera	Bee orchid
Orchis coriophora fragrans	Bug orchid
Ornithogalum narbonense	A star of Bethlehem

THE GEOLOGY OF THE AKAMAS

by Chris Moncaster

The Akamas peninsula runs in a North West direction and ranges between 422 metres close to Ayias Minas, to 211 metres near to the Cape Arnauti lighthouse where it shelves sharply to the sea. This peninsular forms the westerly extension of the Troodos Mountain Range. Further to the north and east, the Kyrenia Range, a parallel belt of mountains strike well out to the east as the Cyprus "Panhandle". The vegetation on both ranges is sparse and there are extensive outcrops of rock that provide an insight into the geological processes that have helped shape the island.

The most abundant rock type is the light sandy coloured limestone that is used extensively as building stone in churches and the older village houses. It is easily cut and shaped and weathers well. In the field, the rock is layered and these layers exhibit slight folding, tilting and some faulting. Closer inspection confirms it is a sedimentary rock of marine origin with the main evidence for this being provided by the frequent occurrence of complete and fragmented marine shells within the limestone matrix. These shells confirm that the ancient environment was a shallow, relatively sheltered warm sea. Besides the shells, some exposed sections of limestone contain both sharp angular chunks and more rounded pebbles of darker grey/green basaltic rock.

The other major rock type present is indeed this basalt found within the limestone. Extensive exposures of uneroded basalt is common throughout the Akamas, especially on the south western facing slopes of the peninsular where it underlies the limestone sequence. The track leading from Ayias Minas to Lara has some classic exposures of basaltic pillow lavas and sequences of beautiful green basalt.

The basalt erodes to form a dark brown soil, but pebbles and chunks of fresh basalt can be found in stream beds and flooded plains and these will eventually find their way into the sea where they will become entrapped into todays marine sediments. The presence of basalt within the limestones also confirms that this erosion was taking place as the limestones were being laid. The limestones are thus younger than the basalt. One other point of note is that the sharp angular nature of some the fragments of basalt indicates that the source of erosion was close to the point of final deposition. Were they to have been transported further, the fragments would become more rounded and sorted.

Basalt is a igneous rock, generally formed at sites of sea floor spreading - the mid oceanic ridges. As basaltic magma upwells from the earth's mantle below the ridge, it cools and solidifies. Some of the lava spills out onto the ocean floor and as it meets sea water and cools, forms characteristic pillow - like structures. This sequence of basalt, topped by pillow lavas is typical of the upper layers of oceanic crust that underlies all of the deep oceans. The same upwelling or convective plume of lava was also responsible for driving the oceanic plates on either side of the ocean ridge, allowing more magma to upwell. The convective cell is in part responsible for the drifting of the oceanic plates and the adjacent continents over the surface of the earth - continental drift.

Putting this evidence together, we can conclude the following sequence of events that gave rise to the Akamas and indeed the island of Cyprus. Initially, a sequence of pillow lava topped basaltic oceanic crust was formed deep below the ocean at the site of an ancient mid-oceanic ridge. With time, a thin layer of pelagic sediments were to be deposited on top of this crust. At this time, Europe and Africa were probably diverging from one another, but at some stage this process was reversed and the two continents then began to move together, perhaps driven by a stronger convective cell elsewhere in the earth's mantle. As two continents were driven together, most of the intervening ocean crust became subducted and reabsorbed into the parent mantle but in other areas, slices of oceanic crust were thrust over other slices of crust. With the continents now grinding towards one another, these slices of crust began to emerge from the warm, saline sea. as they did so, marine communities thrived on their shallow fringes and the limestones were laid down. Erosion products from the now exposed basalt were washed into the sea and became consolidated within these limestones. As Africa and Europe continued their relentless journeys towards one another, the slices of oceanic crust continued to be thrust higher out of the sea, dragging with them the surrounding limestone formations. The physical forces involved in this thrusting and uplift also gave rise to folding and fracturing of the limestones. On a continental scale, these same collision processes formed the Alps.

Above sea level erosion of the basalt and limestone continues, with the products being washed into the sea to become entrapped in the limestones that continue to form around the island of Cyprus today.

THE PEAK PERIODS OF SOME PASSERINE AND NEAR-PASSERINE MIGRATION THROUGH THE AKAMAS PENINSULA, CYPRUS IN THE PERIOD 23 MARCH TO 2 MAY 1995, WITH SOME ADDITIONAL MATERIAL

by R Frost

Introduction

During the spring of 1995 a survey of migrant birds was carried out in the Akamas area of north west Cyprus (Figure 1). The main task of the survey was to try to estimate the numbers of birds passing through the peninsula. The report (Brimmell *et al* 1996) stated that further analysis of the data collected was still proceeding and that bar graphs for many of the migrants would be published at a later date. Here I present those bar graphs together with the original graphs from that report. Incorporated in this presentation are some records gathered from a previous year 1993 and not previously published, but thought to be relevant to the representation of individual species movement through this area in comparison to migration through the whole island (Flint & Stewart 1992), and through the south east of the island (Horner & Hubbard 1982). For five of the more abundant species the number present of each, on the day of their highest calculated density, has been approximated. Thousands of birds use the Akamas en route to Europe, and these figures show the potential numbers of just a few species.

The records of some migrant species for instance **Bee-eaters** *Merops apiaster*, swifts and hirundines, have not been included, because the information gathered was not complete with many estimated figures and for *M. apiaster* a number of heard only reports. In addition, with the swifts and hirundines there was confusion between genuine passage migrants and those birds breeding.

The earlier spring migrants tend to be species with a more southerly breeding distribution, eg **Subalpine Warbler** *Sylvia cantillans*, whereas later migrants are inclined to be species which breed further to the north, eg **Spotted Flycatcher** *Muscicapa striata* (Flint & Stewart 1992). The graphs of those two birds mentioned and other species clearly show this phenomena.

Methods

The technique of the transect counting used, to gauge the density of species present, was based on Bibby *et al* (1992). This, the transect routes and the problems encountered are described in the survey report (Brimmell *et al* 1996).

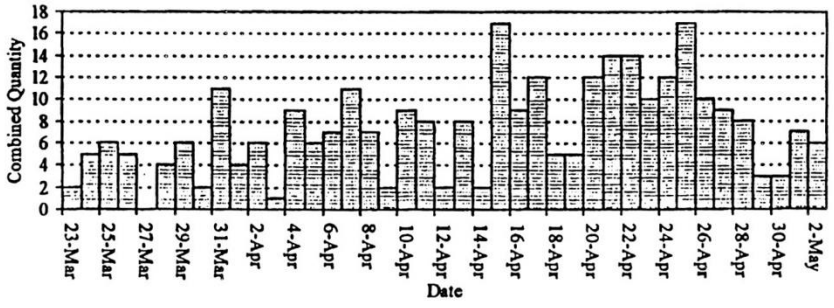
Habitat types of the area have been determined using a Vegetation Map of the Akamas Peninsula. The map (undated) was produced by a German working group on water and soil and was the result of a technical cooperation between the Federal Institute for Geosciences and Natural Resources, Hanover and the Ministry of Agriculture and Natural Resources, Nicosia. From this map, and only utilising the information north west of an imaginary line between Cape Yeranisos on the south west coast and the Baths of Aphrodite on the north east coast, estimates have been made of the areas covered by certain plants and of land use. Using the figures obtained for five of the more abundant species on the day of their highest individual density, and then by extrapolation, a total for each has been broadly deduced.

There was reduced field observation activity on the 3, 18 and 29 Apr, and no ringing operations were carried out on 31 Mar, 18 and 29 Apr. As will be seen from the graphs a number of species had peak counts between 15 and 21 Apr, therefore it is not known whether any significant numbers were missed. Where the *'Y'* axes on the graphs are annotated Combined Quantity, this refers to the total of birds observed and/or ringed for the day.

Discussion

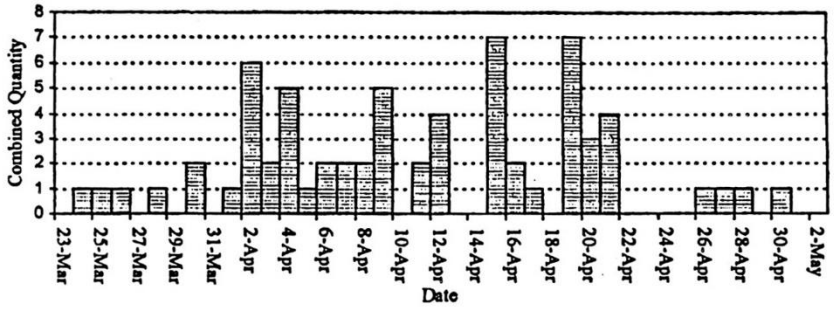
Hoopoe *Upupa epops*

The total number of migrant **Hoopoe** *U. epops* is unclear as this species is thought to breed in this region, especially around Neohorio and Smiyies. Nevertheless, from the graph, it can be seen that migrants passed through during late Mar to Apr and probably into early May with peak numbers in mid-late Apr. This agrees with the dates given by Flint & Stewart (1992) for this species' main passage.



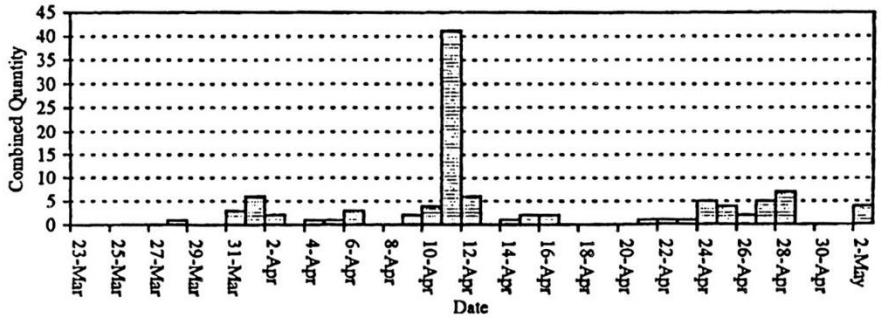
Wryneck *Jynx torquilla*

A total of 66 recorded of which a third were ringed. The graph shows a late Mar to Apr migration as Flint & Stewart (1992) state for Cyprus. A similar period of passage on the south east side of the island was found in 1968 by Horner & Hubbard (1982).



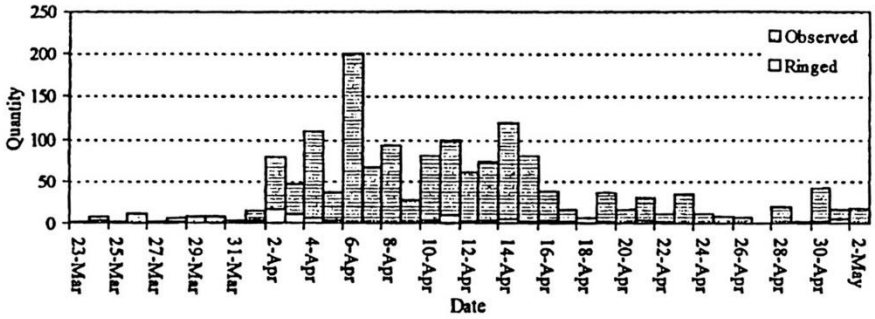
Tawny Pipit *Anthus campestris*

Suitable habitat for this species on the Akamas is limited so the small number of records is not unexpected. The 40 on 11 Apr were a surprise, and of that total 33 were in a cultivated field at Ayios Konan on the south west side of the peninsula.



Tree Pipit *Anthus trivialis*

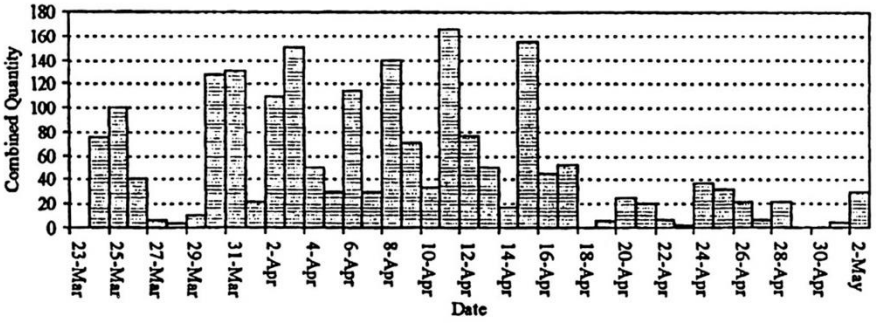
The graph clearly shows the peak passage to have been early-mid Apr and the 100s at this northern cape were in accordance with the status given by Flint & Stewart (1992).



From the vegetation map suitable feeding grounds, in addition to the transect habitat, was thought to be Juniper maquis with grass patches especially where *Tulipia cypria* was present. This species had been recorded in this more open habitat. The density of **Tree Pipit** *A. trivialis* reached a maximum on 6 Apr when over 20 birds/ha were calculated. This gave an estimate of 3,500 birds possibly using the peninsula on this day.

Yellow Wagtail *Motacilla flava*

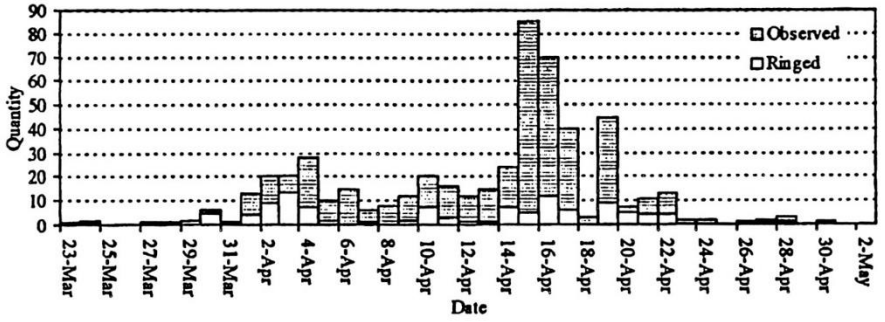
The majority of records were from the grassy plain ca 2.5 km up the peninsula from the Baths of Aphrodite. The graph shows the peak passage to have been late Mar to mid Apr. The period of the observed migration corresponds to Flint & Stewart (1992).



Nightingale *Luscinia megarhynchos*

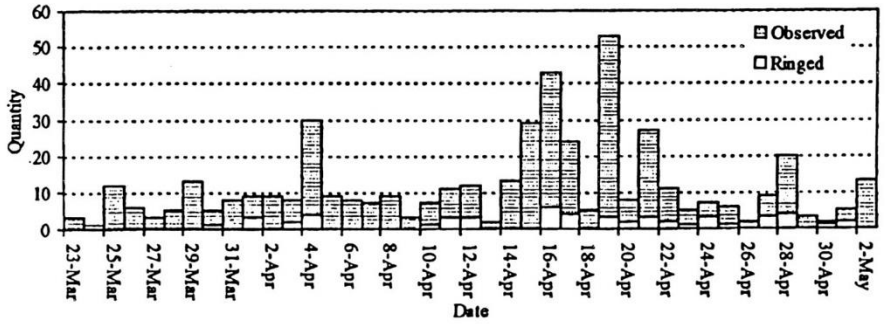
It is difficult to reliably separate **Nightingale** *L. megarhynchos* and **Thrush Nightingale** *L. luscinia* in the field and only one bird of the latter species was positively identified. The ratio of birds mist-netted and identified in the hand (115 *L. megarhynchos* to 5 *L. luscinia*, Brimmell *et al* 1996) supports the belief

that the great majority of the birds seen were *L. megarhynchos*. The graph shows a very marked peak passage 15-19 Apr which is not reflected in the ringing results (Brimmell *et al* 1996). The relative numbers of the two species recorded compared with the 249 *L. megarhynchos* and 113 *L. luscinia* limed at Paralimni in spring 1968 (Horner & Hubbard 1982) support suggestions of Flint & Stewart (1992) that the latter species is perhaps most numerous in the east of the island, and of Bourne *et al* (1964) that it is the less numerous in spring.



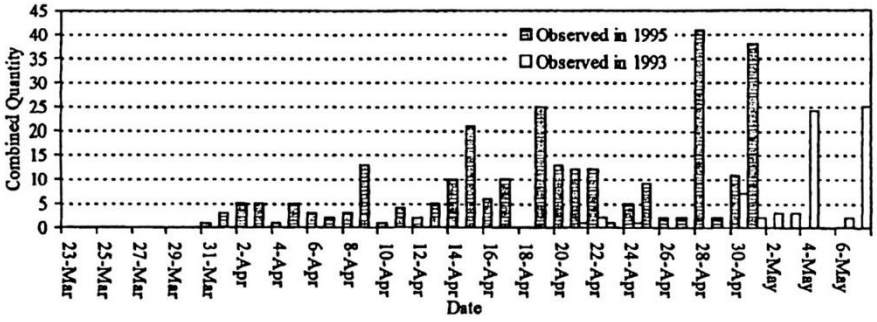
Redstart *Phoenicurus phoenicurus*

A common passage migrant, mainly Apr (Flint & Stewart 1992) is clearly shown by the graph.



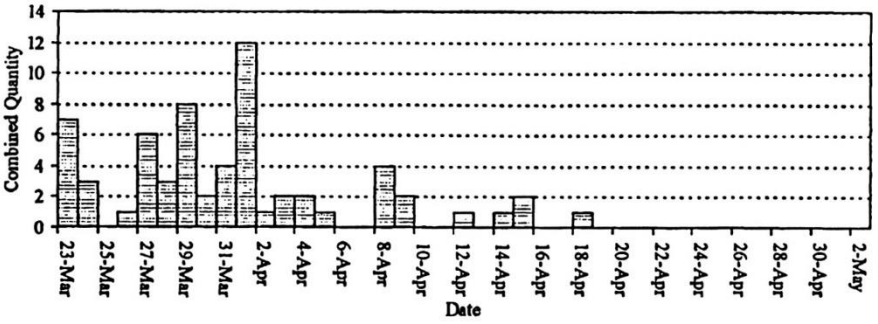
Whinchat *Saxicola rubetra*

The graph shows the combined records from 1993 and 1995 and gives a more accurate portrayal of this species' migration period. This agrees with Flint & Stewart (1992), the passage extending into the early days of May and probably beyond.



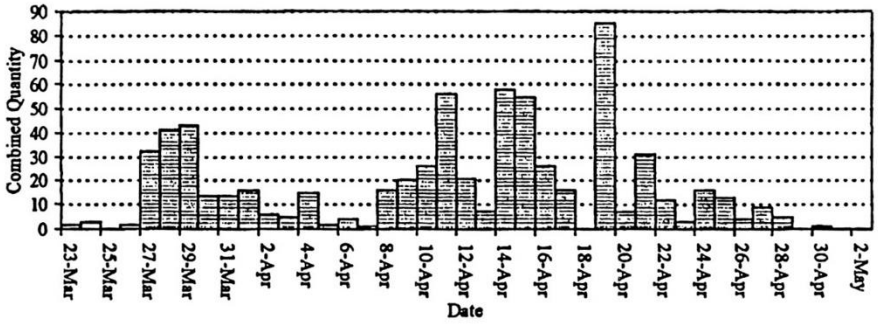
Isabelline Wheatear *Oenanthe isabellina*

The graph demonstrates the advantage of this type of presentation, and clearly displays this species as one of the early spring migrants. Flint & Stewart (1992) give this bird's migration period as late Feb to mid-late Apr, with peak numbers mid Mar to early Apr.



Northern Wheatear *Oenanthe oenanthe*

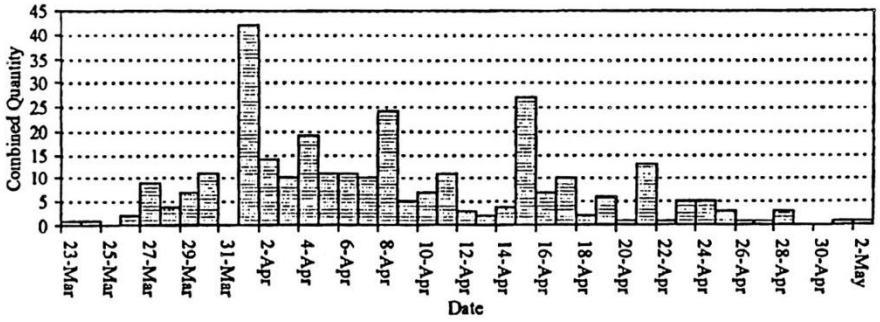
One of the common migrants throughout the survey period. It is unfortunate that there is a gap in observations immediately prior to the peak count on the 19 Apr. The majority of this count were seen on north east side of the peninsula, at Cape Arnouti, the coast at Fontana Amorosa and at the grassy plain. Only one **Northern Wheatear** *O. oenanthe* was mist-netted and ringed during this survey.



On the 28 Mar the density recording of this species was a peak at 13 birds/ha. Then the agricultural land, grassland and the coastal strips could have held ca 3,200 birds.

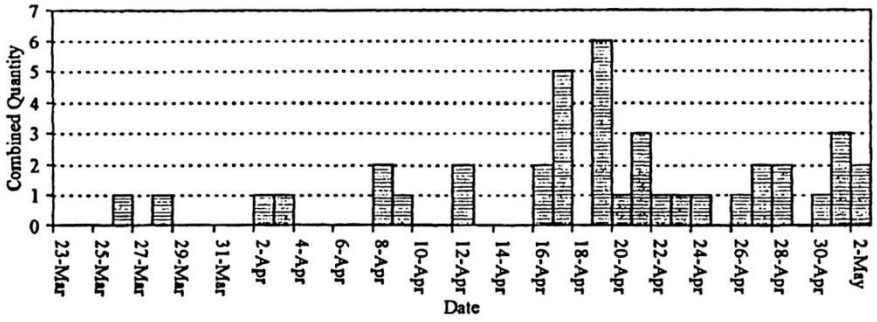
Black-eared Wheatear *Oenanthe hispanica*

A species recorded throughout the study period, but with the peak of migration from late Mar to late Apr. All records from Cyprus refer to *O. h. melanoleuca*, claims of *O. h. hispanica* being apparently due to confusion with the buff form of *O. h. melanoleuca* (Flint & Stewart 1992).



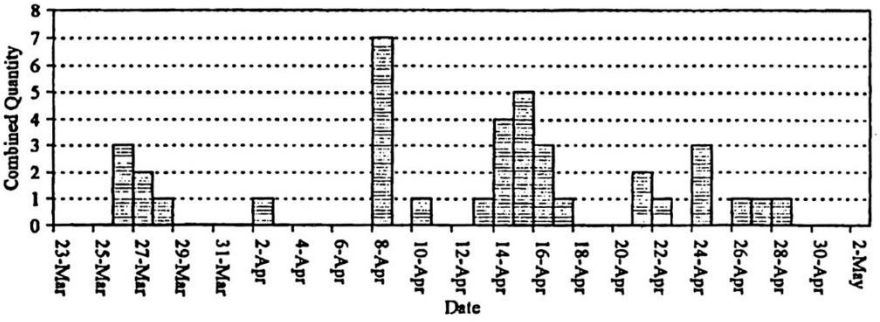
Sedge Warbler *Acrocephalus schoenobaenus*

Only 40 records, of which 27 birds were mist-netted and only 13 seen in the field. This is a secretive species and there was very little suitable habitat in the survey area for resting and feeding. The pattern of migration displayed by the graph agrees with that given by Flint & Stewart (1992).



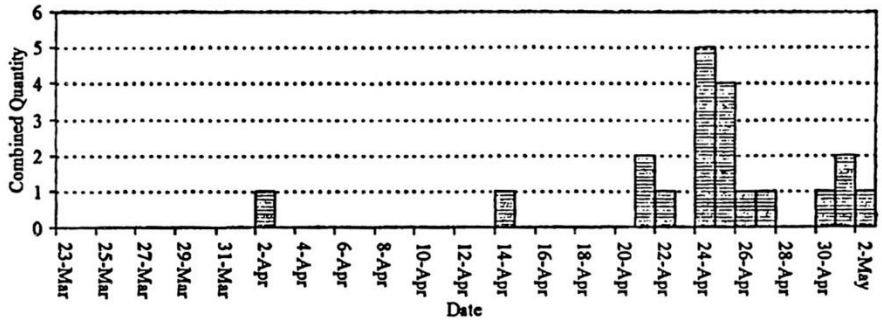
Reed Warbler *Acrocephalus scirpaceus*

As for the previous species, the **Reed Warbler** *A. scirpaceus* is a skulking bird and reeds and reed-beds are scarce which is probably the reason only 38 were recorded, 22 of which were mist-netted. This species breeds in Cyprus but the lack of suitable habitat in this area suggests that all these records refer to migrants.



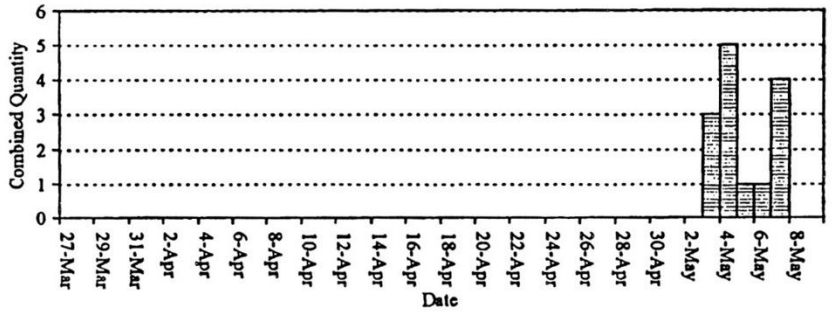
Great Reed Warbler *Acrocephalus arundinaceus*

Only 20 records of this species, but the pattern of the graph does agree with Flint & Stewart (1992) that main spring passage occurs mid-late Apr, sometimes to early May. Often the presence of this bird is indicated by its song, but care must be taken because the **Olive-tree Warbler** *Hippolais olivetorum* has a somewhat similar voice (Porter *et al* 1996). Two **Olive-tree Warbler** *H. olivetorum* were mist-netted during the survey.



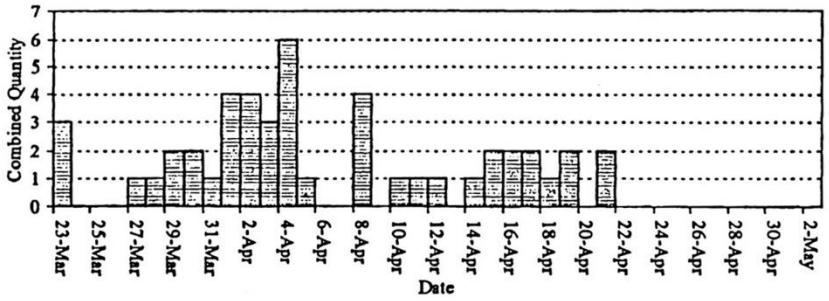
Icterine Warbler *Hippolais icterina*

This species, although expected, was not recorded during the 1995 study period. One was recorded later, on 12 May (pers. obs.). The graph show my observations from 1993 and the record of 14 was the highest reported total up to that time. Scarce passage migrant, mainly mid Apr to mid May (Flint & Stewart 1992) is supported. In 1968 Horner & Hubbard (1982) recorded only one on 27 April.



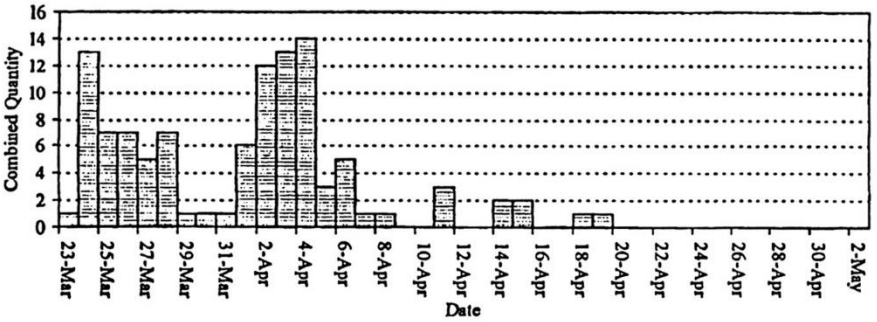
Subalpine Warbler *Sylvia cantillans*

Although only a comparatively few records it can be clearly seen that this species is an early migrant, and the peak migration (usually mid Mar, Flint & Stewart 1992) probably occurred before observations began.



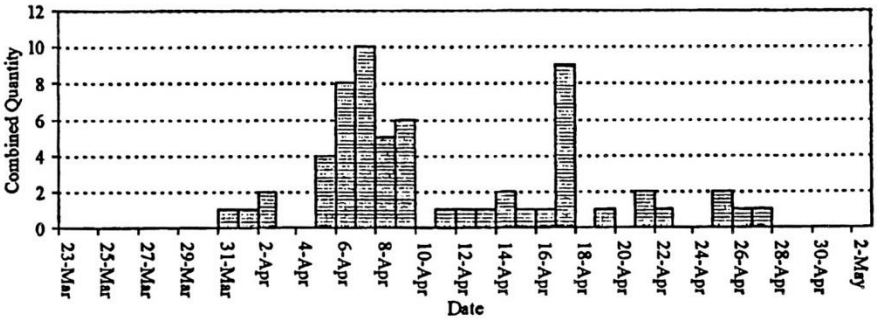
Rüppell's Warbler *Sylvia rueppelli*

The graph clearly shows this species also to be an early spring migrant and the peak migration (often mid Mar, Flint & Stewart 1992) may have occurred prior to the start of the survey.



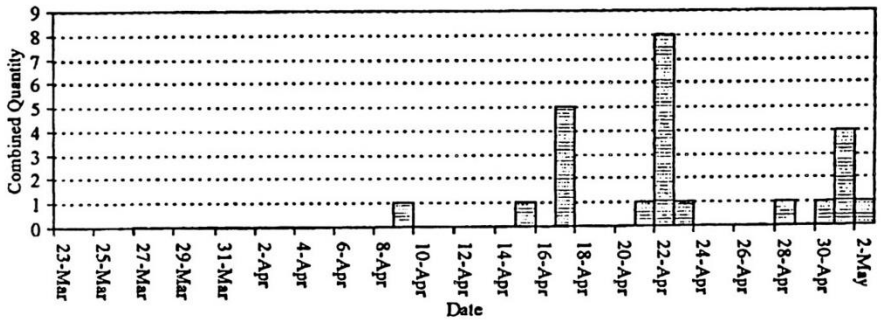
Orphean Warbler *Sylvia hortensis*

The Apr migration shown by the graph is at variance with the mid-late Mar to early-mid Apr main passage given by Flint & Stewart (1992), but this may have been because of a mix-up early in the study. In their report of bird liming at Paralimni in 1968, Horner and Hubbard (1982) mention varying shades of the iris from light, dull, and dark yellow, through light brownish and brownish yellow to light brown and brown. Very few of the birds noted in this study showed the iris as clearly as it is depicted in the field guides, and this prompted some confusion early in the survey.



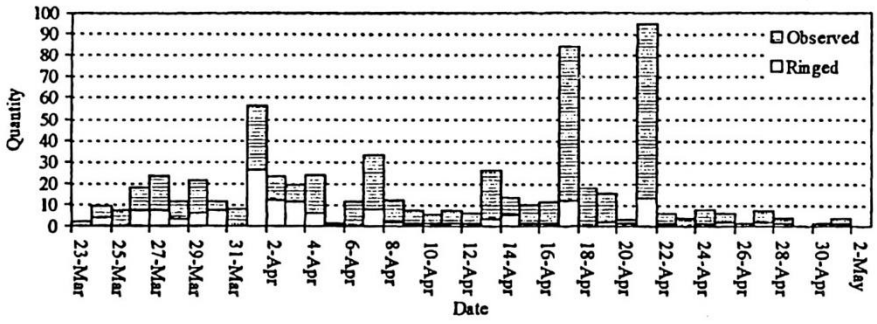
Barred Warbler *Sylvia nisoria*

Flint & Stewart (1992) describe this species as usually scarce but exceptionally fairly common in spring. The graph does not show any clear pattern of migration and later, but not shown, another six birds were recorded, five on 12 May and one on 14 May 1995 (D. Frost & pers. obs.). The later birds did not have the prominent barred underparts or yellow iris, and were thought to be young birds from the previous year. These later dates compare with those of Horner & Hubbard (1982) who, in 1968, recorded 56 limed birds at Paralimni between 9 Apr and 11 May, with 14 on the 2 May and 14 on the 8 May.



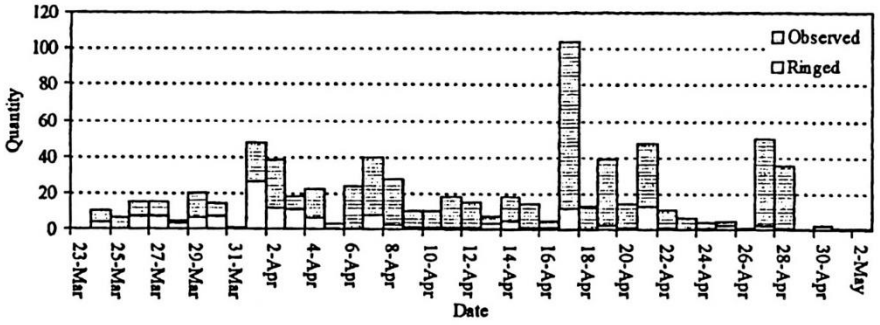
Lesser Whitethroat *Sylvia curruca*

A very common migrant throughout the study period.



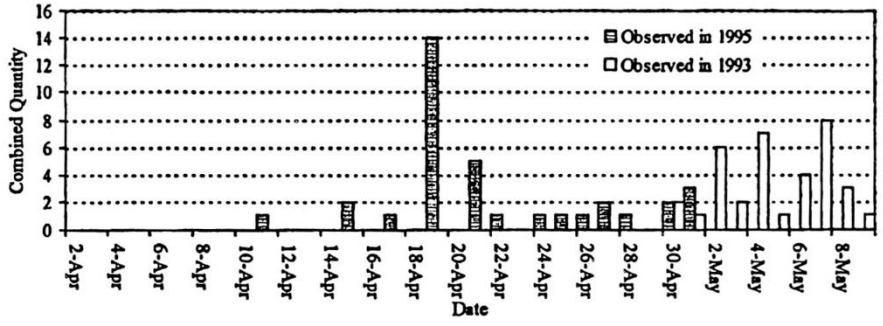
Whitethroat *Sylvia communis*

A common passage migrant in spring (Flint & Stewart 1992) and recorded throughout the period of the survey. This and the previous species had peak counts within the period 15 to 21 Apr.



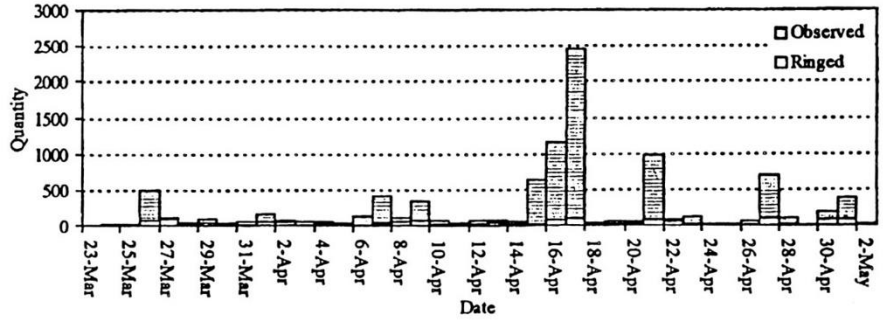
Garden Warbler *Sylvia borin*

Records from 1993 and 1995 are represented on the graph, and although the number of birds reported is low the graph shows this species to be a late spring migrant as mentioned by Flint & Stewart (1992). Horner & Hubbard (1982) refer to only 68 being captured, but they qualify this by suggesting that the migration of this species extends beyond 12 May, the end of their survey period. Later in 1995 five were observed on 12 May and two on 14 May (pers. obs.).



Blackcap *Sylvia atricapilla*

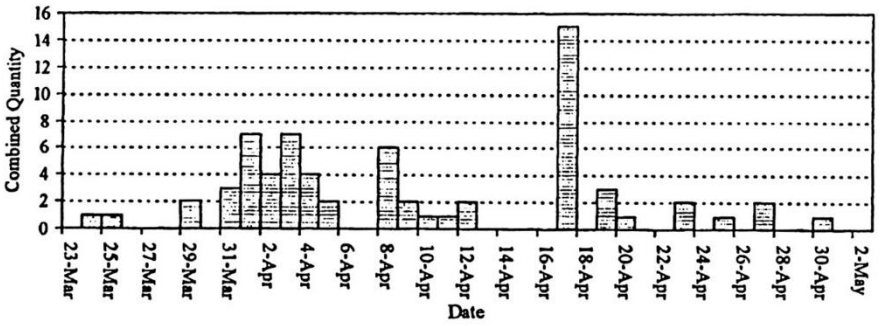
By far the most common migrant species recorded during the 1995 survey, and reported every day except 29 Apr when ringing and observation activity was relaxed. The graph does not give a true picture of this bird's passage through the region. The species is a winter visitor to Cyprus (Flint & Stewart 1992) so in the early days of the study there was some confusion over which birds had overwintered and which were passage migrants. There were also areas that concentrated these birds in large numbers, perhaps for a few days. Near Latchi, for example, a cultivated field where the crop had produced many berries (*Solanaceae* family, was very attractive to *S. atricapilla*. Also, at the beginning of the study, and after the winter rains, puddles were common on the tracks in the region of Fontana Amorosa and large numbers of this species would come in to drink. Later in the study, when these puddles had dried out the birds used the animal water troughs in the same area (Brimmell *et al* 1996). The accurate counting of these birds, not knowing whether a bird had made more than one visit to the water, was practically impossible.



Outside of the breeding season *S. atricapilla* is known to take the fruit of juniper *Juniperus spp.*(Cramp 1992), and a large percentage of the peninsula is

dominated by *Juniperus phoenicea* stands. Bearing this in mind and calculating the amount of similar habitat in which the **Blackcap** *S. atricapilla* had been seen to take this fruit (pers. obs.); then using the density of this species on the 9 Apr, calculated as 45 birds/ha, it was estimated that there could have been 15,000 birds using the peninsula on that day. This compares to a similar number estimated at Aksehir Gölü, Turkey from data obtained in spring 1992 (Bradshaw & Kirwan 1992). The Aksehir Gölü is an area of central Turkey almost due north of Akamas.

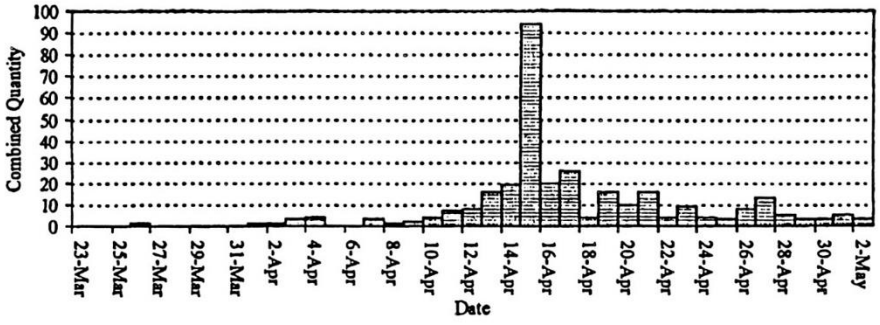
Bonelli's Warbler *Phylloscopus bonelli*



The graph for this species agrees with Flint & Stewart (1992) that the main passage is late Mar to mid Apr, sometimes into late Apr. But that the passage may extend further into May (Horner & Hubbard 1982) cannot be corroborated by the 1995 study.

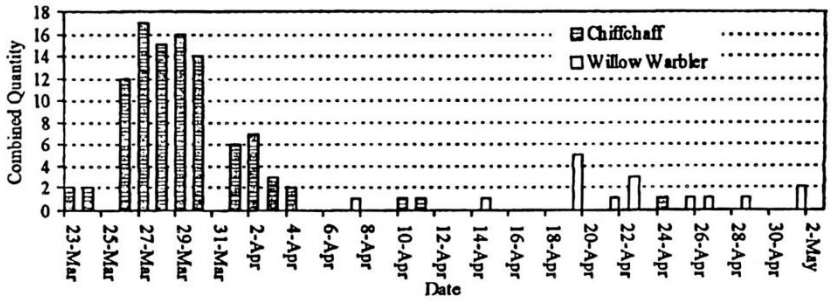
Wood Warbler *Phylloscopus sibilatrix*

Over 300 of this species was recorded, and the majority mid to late Apr. This agrees with the migration period given by Flint & Stewart (1992). In 1968, Horner and Hubbard (1982) caught only 21 birds but they suggest that migration may have continued after their sampling period ended on 12 May.



Chiffchaff and Willow Warbler *Phylloscopus collybita/trochilus*

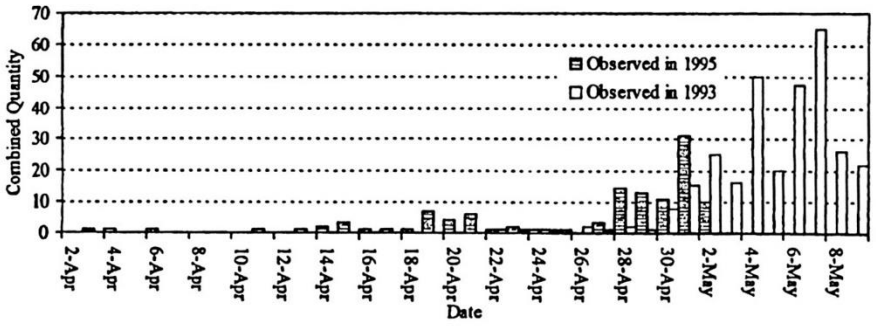
Chiffchaff *Phylloscopus collybita* and **Willow Warbler** *P. trochilus* records were generally lumped together because they are difficult species to separate in the field and the only valid records were produced by the ringing party. The graph is produced from records supplied by the ringing team. As can be seen clearly *P. collybita* passed through the area much earlier than *P. trochilus*. The **Chiffchaff** *P. collybita* is also a winter visitor to Cyprus (Flint & Stewart 1992), and some of the early records may have included these birds, but there appears to be an influx of birds at the end of Mar early Apr. Very few **Willow Warbler** *P. trochilus* were reported, and these were mid-late Apr. This agrees with Flint & Stewart (1992), who class this migrant in spring as usually scarce, occassionally fairly common or common, main passage Apr.



Spotted Flycatcher *Muscicapa striata*

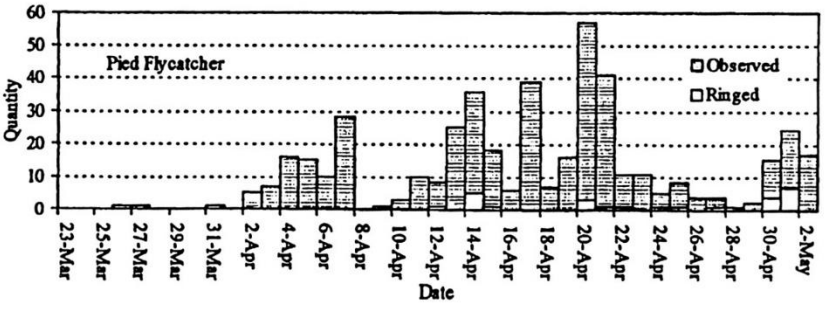
A common passage migrant and fairly common migrant breeder (Flint & Stewart 1992). Breeding has been recorded only above ca 900m in the Troodos range (Flint & Stewart 1992) and Akamas being remote from the breeding area, it

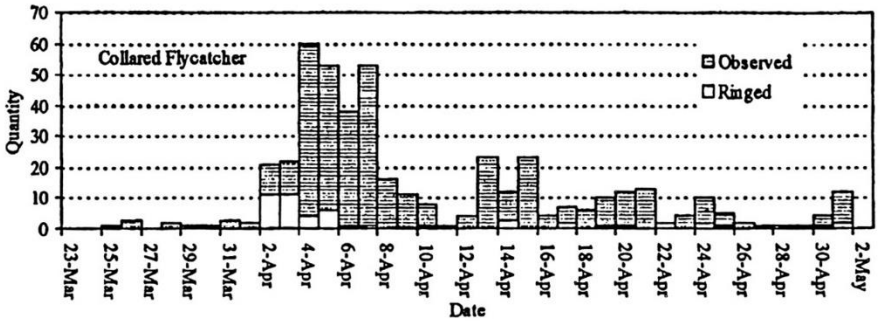
seems safe to assume that the records used to produce the graph were of passage migrants. The graph includes records from 1993 and 1995 to give a clearer picture of this species movement through this area. Flint & Stewart (1992) give the main migration period as late Apr to mid May, and the graph shows the main migration commencing late Apr and birds were still moving through this district on 12 May 1995 when ten were seen (pers. obs.). A similar pattern emerged at Paralimni in 1968 (Horner & Hubbard 1982) when 172 were captured and the bulk of the passage was between 25 Apr and 11 May.



Pied and Collared Flycatcher *Ficedula hypoleuca/albicollis*

The migration of these two species are discussed together in the report of 1995 (Frost 1996). The two graphs give an example of one species that has a more southerly breeding distribution (Collared), migrating earlier than another similar species that breeds further to the north (Pied). In 1968, Horner & Hubbard (1982) found that there was no apparent difference between the passage of these two species in that spring. However Flint & Stewart (1990) state that *F. albicollis* often occurs earlier than *F. hypoleuca*, sometimes 7-10 days earlier, and that clearly happened in 1995.

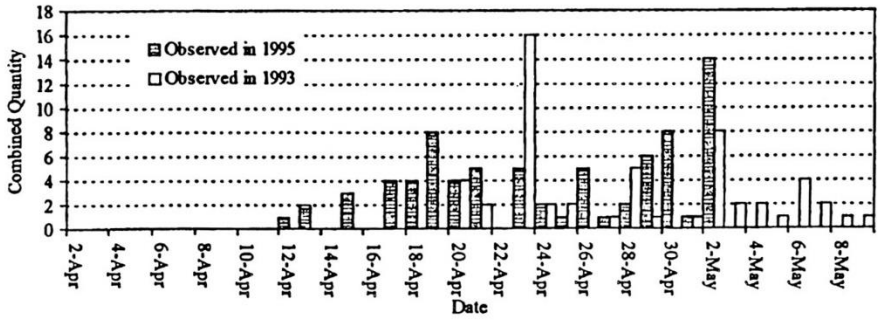




On migration these two species were noted to associate with open parkland and hedgerow type of habitat. The peak density of the *F. albicollis* was 9 birds/ha on 6 Apr and would have given a possible total of 2,000 birds; whereas for the *F. hypoleuca* the peak of ca 5.5 was on the 15 Apr and gave a possible total of 1,200 birds using suitable habitat.

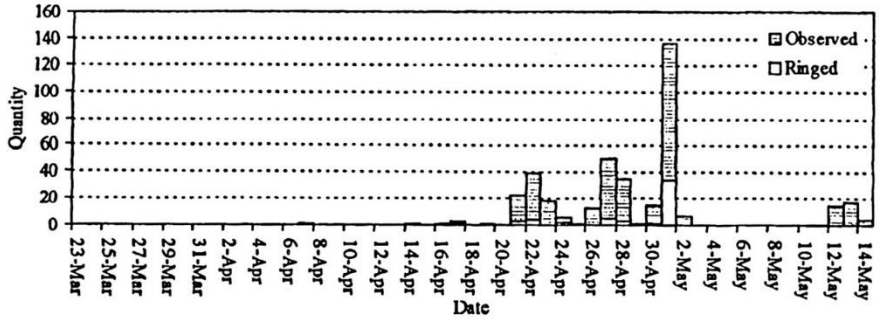
Golden Oriole *Oriolus oriolus*

Another species where confusion between passage and breeding migrants may have occurred. Although, only twice proved to have bred on the island, other observations of birds present, singing and mating in the breeding season in suitable habitat suggests this could be more common (Flint & Stewart 1992). During this study, the sightings on daily transects suggest that this species may also breed at the Akamas. The graph shows the combined results of observations in 1993 and 1995. The 16 recorded on 23 Apr may have been the beginning of passage for this species in 1993. The results tend to agree with the statement of Flint & Stewart (1992) that the main passage is mid Apr to mid May.



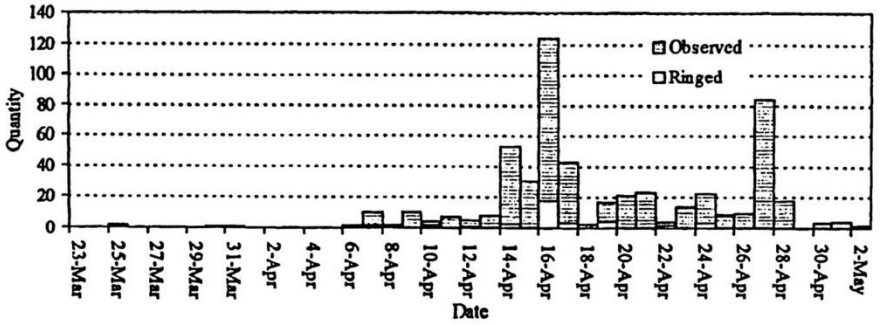
Red-backed Shrike *Lanius collurio*

Unfortunately continuity of observation was broken between 3 to 11 May, at the end of the survey until later when a short visit was made, and therefore the pattern of migration is distorted. Later observations from 12 to 14 May have been added to the graph (pers. obs.). The large influx of birds on the 1 May was mainly on the south west coast of the peninsula. Similar results were produced by Horner & Hubbard (1982) in 1968, when 484 were limed between 7 Apr and 12 May, with peak passage being 16 Apr to 9 May. During the Horner and Hubbard study, the maximum daily total of 93 occurred on 3 May and compares with the 1 May peak in 1995.



Ortolan Bunting *Emberiza hortulana*

The graph clearly shows the main migration to have been mid-late Apr, agreeing with the dates given by Flint & Stewart (1992).



Summary

In the spring of 1995 a survey of migrant birds was carried out at the Akamas

peninsula, Cyprus. In the report of this study (Brimmell 1996) it was stated that further bar graphs would be produced from the data obtained at a later date. Further information, gathered from previous and subsequent visits have been added to the graphs for clarification of individual species period of migration. Those bar graphs are the main subject of this paper. Using a Vegetation Map of the Akamas peninsula to secure information on areas of habitat composition and land use; and then, utilising the density calculation of five individual species on the day of their highest concentration, obtained from the transect results, their numbers present has been estimated. The passage of the more regular migrants through this area is clearly depicted, and most of the information gathered supports the status given by Flint & Stewart (1992).

Acknowledgements

Peter Flint read the early drafts of this paper and has given me a lot of advice and encouragement for which I am indebted. I am most grateful to the other members of the 1995 Expedition, for without their efforts in gathering the data this paper could not have been written. I greatly appreciate the support of my wife, who accompanied me in 1993 and 1995. The production of the Akamas peninsula map and all the graphs was the work of my son Brehon, who was also invaluable when I had IT problems. My thanks to Martin Godfrey the editor, for his constructive comments on earlier drafts. I hope the content of this paper, for which I take full responsibility, will foster in other bird-watchers the urge to visit the Akamas before commercialism destroys its unique habitat.

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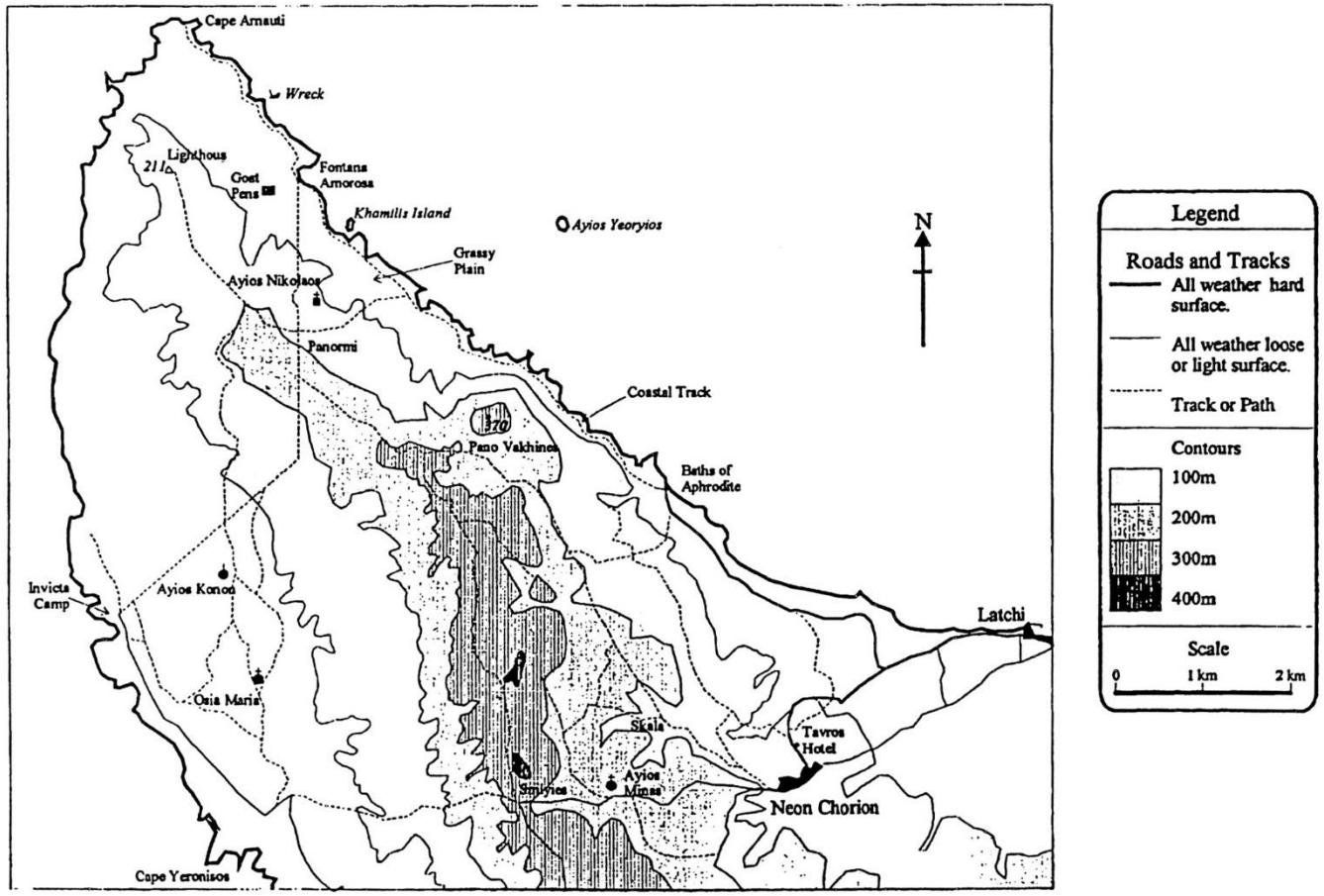

FIGURE 1 The Akamas Peninsula

OBSERVATIONS OF AUTUMN RAPTOR MIGRATION AT AKROTIRI SALT LAKE, CYPRUS 20 SEPTEMBER TO 11 OCTOBER 1996

by R Frost

Introduction

A return to Akrotiri Salt Lake was made between 20 Sep and 11 Oct 1996 to count migrating raptors. A similar survey was carried out in 1992 (Frost 1994), and the purpose of this study was to add to and verify the results previously obtained. This was as similar to the earlier study as possible, of the same length and covered the same date period, that is weeks 38 to 41.

Methods

The methods adopted to count the raptors were very similar to those used in 1992 with minor adjustments. To avoid double counting, the rules were as set out in the former study. Each morning the route taken was from the direction of Zakaki along the east side of the salt lake to Site C (Figure 1). The one exception was on the last day when, due to flooding caused by overnight torrential rain, the road from Limassol to Akrotiri was used and the start of observations was from Site D. Only five of the eight sites used in 1992 were manned during this study. These were the positions on the south side of the lake, Sites A, B,& C; Site D in Akrotiri village and Site G at the Phasouri reed-beds, which was only used on a few occasions.

Through the good offices of John Marr, a locally based birdwatcher, I was able to visit Cape Gata on two occasions. On 25 Sep we were in the area of Cape Gata and the lighthouse at 14.30 hours for about an hour, and then on the 28 Sep nearly six hours were spent along the cliffs between the lighthouse and the cliff tops near the riding stables, between 08.30 and 14.20 hours.

Observations were carried out by myself on all days, and by my wife on all but the one whole day that Cape Gata was visited. We were aided by John Marr on three days, including the day at Cape Gata and on one day by Ernie Parkes and Mike Hale, two members of the West Midland Bird Club, who were on holiday in Cyprus.

Weather

Temperatures at Akrotiri were high during this period. From 18.7°C at 08.00 hours on 2 and 7 Oct, up to 30.7°C at 13.00 hours on 24 Sep, but generally the average temperature in the middle of the day was 25°C. Wind speeds reached a high mean of 23 knots on the 21 Sep and speeds of 15-19 knots were recorded on a few days, but usually the range was between 4-9 knots. The direction of the wind was mainly westerly, between 250-270 degrees.

Generally there was little cloud cover during the survey period, but in the middle of the study there were three days of extensive cover. On 28 Sep the cloud built up from 11.00 hours to reach 6-7 oktas for the rest of the day, and on 30 Sep the day started cloudy but by 13.00 hours this had reduced to 1-2 oktas. Then on 2 Oct from 13.00 hours there was 4-7 oktas for the rest of the day's observation. On the last two days there was almost continuous cloud cover of up to 7 oktas.

There was an earthquake late afternoon of the 9 Oct, which indicated 6.4 on the Richter scale. The epicentre was some 40 km south west off the coast of Paphos. The first rain fell during the morning of 10 Oct and later that evening there was torrential rain with storm force winds. This caused flooding and damage to the vegetation, with shrubs and trees uprooted. The migration of raptors was almost at a standstill the following day, probably due to cooling of the ground and corresponding lack of thermals.

Results

Table 1 shows the results of the daily counts. On the 21 Sep observations began late at 10.15 hours and it can be seen from the table that nil raptors were recorded migrating during that day. The large count of raptors on 22 Sep was possibly due to the hold-up of migration caused by the weather conditions of the preceding two days and the raptors then taking advantage of the favourable circumstances to continue their journey. I logged more raptors on this day than in any previous.

The graph at Figure 2 shows the numbers of raptors counted migrating during each hour of observation. The results of similar observations in 1992 are also shown on the graph. As can be seen, the peak numbers recorded during the two years was between 12.00 and 13.00 hours and agrees with Flint & Stewart (1992) that the peak daily movement at Akrotiri is between these hours. A peak early in the graph for 1996 is noticeable. On the 29 Sep a comparatively large number of raptors (196) mainly buzzard *spp*, were recorded between 09.00-10.00 hours. From previous and subsequent observations this was unusual. The reason for this particular peak cannot be accurately identified. The graphs would otherwise have

been comparable.

Species Account

Honey Buzzard *Pernis apivorus*

As in 1992 only a comparatively small number of birds positively identified, but the majority of those birds listed as *Pernis/Buteo spp.* and Raptor *spp.*, and based on the ratio of *P. apivorus* to **Common Buzzard** *Buteo buteo* actually seen, were thought to be of this species. Only one adult bird was among the 282 identified, all of the rest being juvenile/immature.

Black Kite *Milvus migrans*

The majority noted at the beginning of the survey and the total counted was similar to that of 1992. These results seem to support Flint & Stewart (1992) that the migration of this species is mainly late Aug to Sep.

Egyptian Vulture *Neophron percnopterus*

A total of five counted, two departing together late morning of 23 Sep. All the birds were immature.

Short-toed Eagle *Circaetus gallicus*

The 15 recorded during this period is far more than was anticipated and is probably greater than has been reported previously at this time of the year. It is of interest that two of this species were reported in Cyprus, Jan 1997 at Asprokremnos Dam (Birding World Vol.10, No.1) and may have over wintered.

Marsh Harrier *Circus aeruginosus*

This species was observed migrating throughout this study, with some exceptional daily totals on 22 & 24 September. The overall total of 190 is 60% greater than that of 1992 (Frost 1994). It was noted that from the pattern of their plumage males are quite easy to identify even at great distances.

Montagu's Harrier *Circus pygargus*

Only one bird seen actually migrating, but see *C. macrourus/pygargus.* A number of young harriers hunting over the meadows of Phasouri Reed-beds and the

scrubland around the salt lake were identified as this species. No adult birds were recorded.

Pallid/Montagu's Harrier *Circus macrourus/pygargus*

Pallid Harrier *C. macrourus* was not positively identified whether migrating or hunting. All the birds in this category were in juvenile plumage and the majority were thought to be *C. pygargus* from the pattern of head, neck and underwing primary feathering (Forsman 1995). This was later supported by photographs.

Harrier *spp.* *Circus* spp.

These two birds were too distant to be identified more specifically.

Sparrowhawk *Accipiter nisus*

Fewer birds positively identified than in 1992.

Sparrowhawk/Levant Sparrowhawk *Accipiter nisus/brevipes*

Overall less sparrowhawks noted, 56 compared to 89 in 1992, and many of these were thought to be *A. nisus*. On two occasions *A. brevipes* was thought to have been seen from the wing shape, but the height and age of these birds precluded identity confirmation.

Common Buzzard *Buteo buteo*

Small numbers noted, and less than half the number recorded in 1992 were positively identified. As in that year, no attempt was made to identify the subspecies.

Honey Buzzard/Buzzard *spp.* *Pernis/Buteo spp.*

A very large number of buzzards could not be assigned to a specific species. This was due to the distance/height of the migrants and to the observer's lack of experience. A large proportion of the 622 birds, especially those recorded early in the study were probably *P. apivorous.* See also under Raptor *spp.*

Lesser Spotted Eagle *Aquila pomarina*

Four of this species were positively identified, but one was not considered to be

migrating at the time of observation and has been omitted from Table 1. See Eagle *spp.*

Eagle *spp.* *Aquila spp.*

Ten birds have been listed under this heading and many of these could have been *A. pomarina*. It seems to have been a good year for migration of eagles as other birds were reported to me which had been observed in other areas along the south coast of Cyprus. Some of these were reported as *A. pomarina.*

Booted Eagle *Hieraaetus pennatus*

Only four birds recorded this year, less than in 1992.

Osprey *Pandion haliaetus*

As in 1992 it is thought that most *P. haliaetus* had already migrated by the time this survey was begun. A total of eight is two more than in 1992.

Lesser Kestrel/Kestrel *Falco naumanni/tinnunculus*

Although a few *F. naumanni* were seen and photographed, especially hawking grasshoppers over the cultivated fields in company with **Red-footed Falcon** *F. vespertinus*, it was nevertheless difficult to differentiate between this and *F. tinnunculus* when they were migrating. Therefore, as in 1992, the figures for these two species have been lumped together.

Red-footed Falcon *Falco vespertinus*

By far the most abundant raptor. A number of reports, from other birdwatchers, referred to large flocks of this species hunting over the cultivated fields in the foothills and south coastal plains. Therefore the number of these falcons using this migratory route on a broad front could well reach 4-5,000. The shooting of this falcon is still commonplace and was observed in the fields adjacent to the M1 road. The 92 **Red-footed Falcon** *F. vespertinus* recorded on the last day were counted as they were feeding at Phasouri reed-beds. After these observations the Akrotiri area was vacated and there were no further counts, I therefore decided to add these birds to the daily total.

Hobby *Falco subbuteo*

Much less common than the previous species, with the juveniles of which it can be

easily confused. Only seven positively identified. No doubt a few are lost in the flocks of thermalling **Red-footed Falcon** *Falco vespertinus*, but although regular, this does not appear to be as common a species at this time of year.

Saker *Falco cherrug*

There were three sightings of this species but only two were recorded as migrating. Three other large falcons were seen at a distance and may have been this species.

Peregrine *Falco peregrinus*

Three **Peregrine** *F. peregrinus* were noted at the side of the salt lake in the early morning, one on 30 Sep and two on 5 Oct. All were thought to be young birds. None of these birds have been recorded on Table 1 as they were not seen to behave as migrants.

Falcon *spp.* *Falco spp.*

A total of 1127 falcons were counted which could not be positively identified. Using measures that were adopted in 1992 (Frost 1994) it can be seen that, removing the three large falcons referred to under **Saker** *F. cherrug*, then probably 1,106 of these birds would be *F. vespertinus* and this would give a grand total of 1,470 for that species. There was a considerable migration of falcons on 30 Sep the majority of which were thought to be *F. vespertinus*.

Raptor *spp.*

Among these raptors could be *Circus spp.*, **Black Kite** *Milvus migrans*, or dark-phase **Booted Eagle** *Hieraaetus pennatus*, but most likely they would be *Pernis/Buteo spp.* Distance and poor light conditions were the main reasons for insufficient identity features being visible. With the 622 *Pernis/Buteo spp*, the 922 Raptor *spp.* make a substantial number of unidentified birds of prey in a survey of this nature. This can be put down to the lack of observer coverage during the major movement of birds on 22 and 29 Sep, many being seen at a distance; and shows the advantage of having a team of observers spread along a track strategically placed to eliminate double counting.

Discussion

On the south coast of Turkey during the middle part of the day and early afternoon there would usually be some sort of a northerly, offshore, drift at 5000 feet (caused by the return flow above the low level, onshore, sea breeze). Large raptors would

perhaps therefore be able to gain height by soaring in thermals over Turkey and using the northerly tailwind/tail-component to start moving south. However, the strength of this flow would probably only be 5 knots, occasionally 10 knots, and it would only extend a short distance out to sea - a few miles at most. It would be unusual at this time of year for the birds to encounter a significant southerly (15 knots plus) which would prevent them making this short sea crossing (N S Sage *in litt*)

On the 21 Sep no raptors were recorded migrating. Most significant was the wind strength on this day, and the weather conditions during this and the previous day between southern Turkey and Cyprus. A very strong wind from 270° of 15 to 23 knots predominated on the 21 Sep throughout the hours when migration could be expected, and this was repeated at higher altitudes. There were thunderstorms over western Turkey on 20 Sep, and isolated showers and thunderstorms between Turkey and Cyprus on 21 Sep. Strong winds diminish the production of thermals, and therefore reduce or even stop raptor migration (Elkins 1983). At 08.00 hours, on 21 Sep, the wind force was a mean of 17 knots and then rose to a mean of 23 knots at 13.00 hours, which then persisted, the formation of suitable thermals was therefore restricted. This would impede the raptor movement, and the number of birds already on the island together with those reaching Cyprus, if any had attempted to leave Turkey, would build up. Raptors prefer to migrate under clear skies and with following winds (Newton 1979). The next day conditions had improved considerably, the temperature was very slightly higher but more importantly the wind, although from a similar direction, had fallen to half the speed of the previous day. A large movement of raptors was recorded, and it would seem that these were taking advantage of the improved conditions.

Graphs were constructed for each day to show the number of raptors counted compared to the temperature and wind speed/direction during each hour of observation. From these graphs it is apparent that generally when the wind speed exceeded 12 knots the number of migrating raptors declined. At the Bosphorus in 1966 Porter & Willis (1968) noted that in general few soaring birds were recorded when the wind was above force 4 (13-18 knots). An exception to this at Akrotiri was on the 28 Sep, when with very little raptor movement early and the wind building to 18 knots by mid-day and staying at this strength, there were less than 20 birds per hour. The wind direction changed from easterly to westerly at mid-day and by 14.00 hours the raptors counted had reached a maximum of 80 per hour. At other periods of stronger winds, when raptors were absent, it is possible that the birds had drifted further along the coast, to continue their migration out of sight of the observer. Winds influence not only the quantity of raptors migrating, but also the proportion which pass over an observation site and the number that pass within visual range of the observer (Newton 1979).

Dividing the total number of raptors recorded by the numbers of days in the study period, an average of 177.2 raptors/day is established. Each day that the number of raptors exceeded this mean was noted, then the weather between southern Turkey and Cyprus on adjacent days was compared to these peaks for any association. Apart from the observations at the start of the survey no definite pattern could be determined. The fact that the weather between Turkey and Cyprus was so good on many days would perhaps encourage the larger raptors to overfly the island.

There was an unusual peak in the numbers of raptors migrating on the morning of 29 Sep (see Figure 2). The wind speed on 28 Sep had been high. It had sharply increased from a mean of 2 knots at 10.00 hours to 18 knots at 12.00 hours and had remained strong into the afternoon. Some raptors were seen to move in these conditions, but a number of birds could have been held-up by the strong winds, especially those that had recently arrived from Turkey. Then, on the 29 Sep, a large number of raptors may have taken advantage of the suitable early weather conditions to continue migrating.

When counting the raptors in 1992 more effort was put in to identifying the species than to sex or age the birds. With some species sexing and ageing is fairly straightforward (ie **Red-footed Falcon** *Falco vespertinus*). The larger birds of prey are somewhat more difficult and in some cases the standard for separation has only recently been available (Shirihai *et al* 1996, Porter *et al* 1996, Forsman & Shirihai 1997). I noticed with the larger raptors that the majority recorded were juvenile or immature. For instance only one adult **Honey Buzzard** *Pernis apivorous* was observed, only immature **Egyptian Vultures** *Neophron percnopterus* were seen and if, as has been suggested (Porter 1981) that maybe a **Short-toed Eagle** *Circaetus gallicus* does not attain the dark hood until adult plumage, it was mainly immature of this species that were noted. Referring to many bird species Berthold (1993) states that in many long distance migrants adults depart before juveniles, whereas in short distance migrants the opposite is usually the case, but, unfortunately, no thorough review is available on this subject. Perhaps the reason I saw so few adults, apart from the difficulties of identification, was that they had passed before the beginning of this study.

Raptors were seen to pass out to sea on a broad front from the cliffs at Cape Gata. **Red-footed Falcons** *F. vespertinus* were seen flapping out southward, and similarly **Honey Buzzards** *P. apivorus* were also seen to depart in this manner and at a low altitude. In Sep 1971 many *apivorus* which left Cape Gata at low level flew southeast (Flint & Stewart 1992). Although known to exploit thermals, *P. apivorus* is capable of sustained flapping flight against strong opposing winds over wide stretches of water (Elkins 1983) and may, therefore, reach the coast of Israel.

It is known that falcons, harriers and accipiters normally feed on migration (Newton 1979), and all were seen hunting during this study. **Montagu's Harriers** *Circus pygargus* that were hunting for food at the Phasouri Reed-beds seem to be using one of two strategies:-

a) they arrive, feed up, probably on grasshoppers as these seem to be the most abundant food source in the area, and then depart after an hour or so to continue their journey.

Or b) they spend a few days at this site feeding up and during their stay they periodically test their ability to thermal to a good height and return to the meadows to hunt once more.

The **Red-footed Falcon** *F. vespertinus*, and perhaps **Lesser Kestrel** *F. naumanni* also, that feed over the Phasouri meadows appear to arrive in ones and twos from a great height. They were seen coming down to the meadows to hover and feed. Some may also be passing through from adjacent fields. But, over a period, the numbers of falcons in the area build up, and then, just as quickly as they arrive they have suddenly gone.

During the morning of 30 Sep from the start of observations until mid-day there was 5-7 oktas of cloud. As in 1992, I noted that some raptors whilst thermalling would disappear into cloud. At the time the cloud base was ca 2500 feet. Raptors are known to utilise the cloud base to aid their migratory journey (Smith 1985). Thermals move downwind, and those from the same source may form 'streets' (Elkins 1983). If cloud is present, then birds entering these 'cloud streets' with their wings flexed backward could often attain 40 km/hr. (Smith 1985). It is possible that some benefit, although small, may be gained by raptors using similar conditions when leaving the peninsula; and would be out of sight of the observer.

Once more, in comparison to other raptor migration watch points in the eastern Mediterranean the numbers of raptors counted here was very small. Nevertheless, Cyprus as a whole is an important migration route (Flint & Stewart 1992) and for *F. vespertinus* it maybe a major route in the autumn, and especially as a feeding station. Any future study should be well planned to maximise resources available, making use of radar and meteorological expertise and should cover a six week minimum period with definite goals set in advance. Perhaps then a true picture of raptor movement over Akrotiri in autumn can be achieved.

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Summary

A survey of raptor migration was carried out at Akrotiri salt lake between 21 Sep and 11 Oct 1996. This was a similar study to that carried out in 1992. A total of 3722 raptors were recorded. The **Red-footed Falcon,** *Falco vespertinus* was the most common species and it is suggested that over 4000 may have passed through Cyprus at this time of year. An attempt was made to correlate weather conditions with the number of visible raptors migrating but without success. Of note was that mainly immature/juvenile birds of the larger raptor species were recorded. It is suggested that future raptor migration studies in Cyprus should concentrate on specific goals, and that advantage of all resources available should be utilised.

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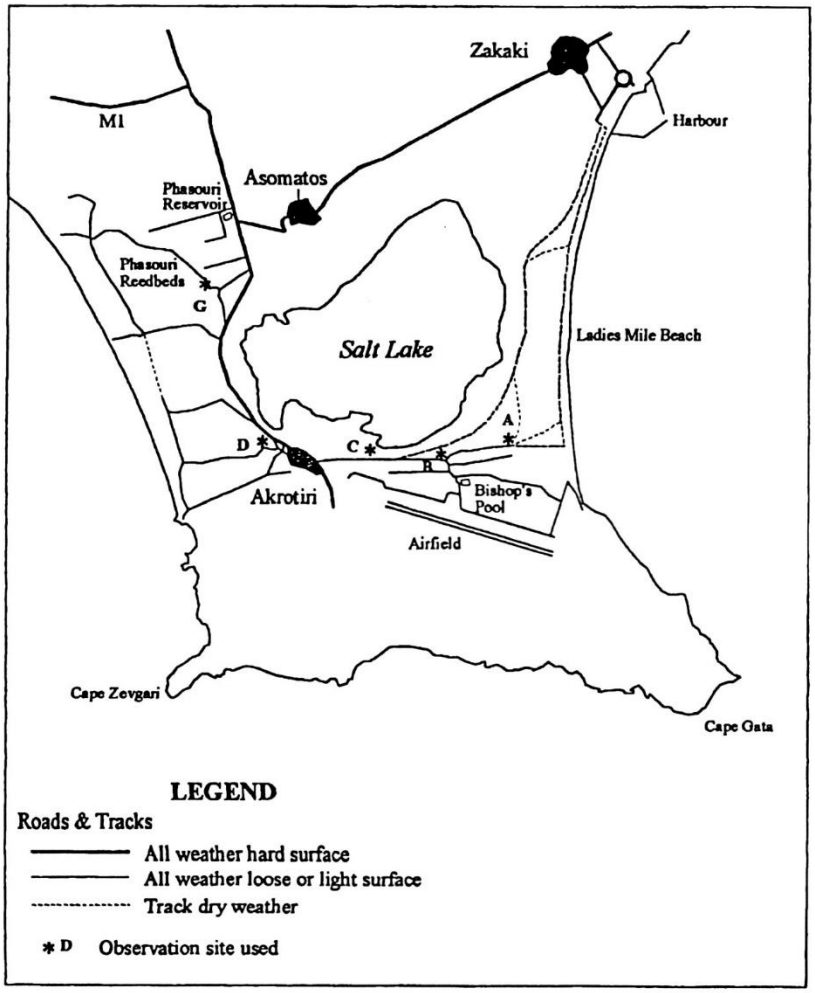

FIGURE 1. Akrotiri Peninsula, Cyprus

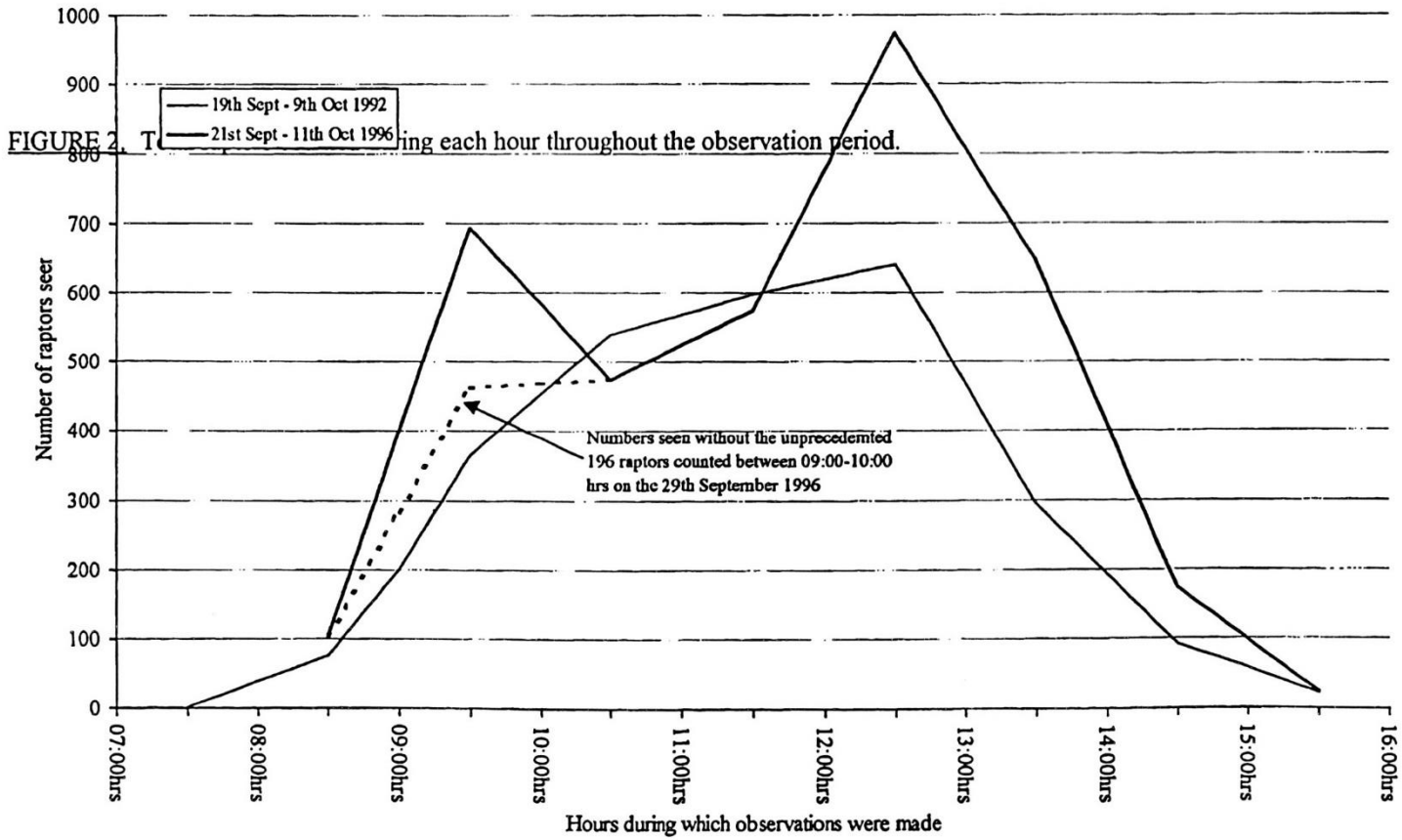

FIGURE 2. T ing each hour throughout the observation period.

	SEPTEMBER										OCTOBER											
	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	
Observation from Times to	10.15 14.00	08.30 15.10	08.30 14.00	08.35 15.00	08.15 11.15	08.15 14.00	08.15 15.11	08.30 14.20	08.15 13.30	08.15 14.10	08.10 13.50	08.07 14.30	08.15 14.00	08.20 14.00	08.15 13.30	08.15 13.30	08.35 12.30	08.15 14.20	08.30 14.30	07.59 13.40	08.25 12.50	Total
Daily Total hours/mins	3.45	6.40	5.30	6.25	3.00	5.45	6.56	5.50	5.15	5.55	5.40	6.27	5.45	5.45	5.15	6.15	3.55	6.05	6.00	5.50	4.25	116.23
Pernis apivorus		108	7	27	23	15	22	25	11	4	7	12		5	1			3	5	4	3	282
Milvus migrans		1	3	2	1	1	1	1	2	2	3							1	1			19
Neophron percnopterus			4	1																		5
Circaetus gallicus		1		2					1	1	4			3				1	2			15
Circus aeruginosus		36	11	69	5	5	7	6	4	7	1	12	1		1	10	2	6	5	1	1	190
Circus pygargus							1														2	3
C. macrourus/pygargus		2	2	4			1				2					1						12
Harrier Spp.		1					1															2
Accipiter nisus			1									1	1		2	1		1				7
A. nisus/brevipes			3	1	1		2	1	1	6		2	5		2	12	1	4	4	3	1	49
Buteo buteo		11		7						1		4		3		2	2	1	4			35
Pernis/Buteo Spp.		178	16	15	10	11	99	16	109	57	30	19	6	5	4	25	3	3	12	4		622
Aquila pomarina		2										1										3
Aquila Spp.										2			1			3		3			1	10
Hieraaetus pennatus		1									1			1				1				4
Pandion haliaetus							1	1		3	1	2										8
Falco naumanni/tinnunculus				1		2	3	1	2	1	4	1	4	2	2	3	1	2	4	1		34
Falco vespertinus			12	28	5		7		12	26	14	24	1	31	21	36	8	19	18	10	92	364
Falco subbuteo		1		1		1		2			1			1								7

Falco cherrug					1					1												2
Falco Spp.		11	16	167	25	12	29	5	1	422	31	45	2	15	10	87	6	32	179	26	6	1127
Raptor Spp.		227	43	30	41	56	45	103	233	26	39	23	6	12	11	11		1	7	5	3	922
Daily Totals		580	118	355	112	103	219	161	376	559	138	146	27	78	54	191	23	78	241	54	109	3722

TABLE 1 Daily totals of raptor migration at Akrotiri peninsula, Cyprus 1996.

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