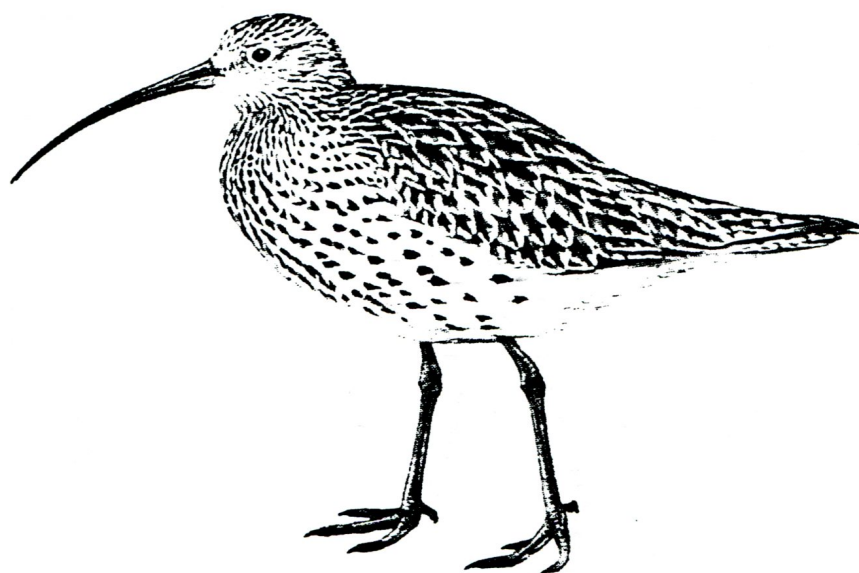


Annexe 8. Preparation of a rescue plan for *Numenius tenuirostris*:  
final report from Italy.  
Nicola Baccetti & Marco Zenatello

**PREPARATION OF A RESCUE PLAN  
FOR *NUMENIUS TENUIROSTRIS*:  
FINAL REPORT FROM ITALY**

by Nicola BACCETTI & Marco ZENATELLO (INFS, Italy)

*Including the reports of the field surveys carried out in 1993 by Domenico Cascianelli (Latina), Ferdinando Corbi (Latina), Roberto Tinarelli (Minerbio, Bologna) and INFS.*



Preparation of a rescue plan for *Numenius tenuirostris*: Final report from Italy

Nicola Baccetti and Marco Zenatello (INFS, Italy)  
with the participation of Domenico Cascianelli (Latina),  
Ferdinando Corbi (Latina), Roberto Tinarelli (Minerbio,  
Bologna) and INFS.

ICBP's Action Plan (1991) identified three large key-sites for the Slender-billed Curlew in Italy (Golfo di Manfredonia, Viareggio-Arno mouth area, Comacchio-Ravenna area), plus a number of 'potential' key-sites requiring additional surveys for their eventual full qualification. Within the ACNAT project, given the short time available, one site for each category was selected for further investigation in the field: Golfo di Manfredonia (Apulia, SE Italy) and Laghi Pontini (Circeo National Park, Latium, W Italy).

Apart from collecting ornithological data and searching the species (see sections A and B), habitats were accurately mapped (section C) and hunting monitored (section D) at Golfo di Manfredonia. For the same area, an overall view of the protection status of each sector is provided, in the unlucky background of the partial implementation of the new Gargano National Park (E). As a conclusion, data-sheets of all Italian *tenuirostris* key-sites and potential key-sites are presented (section F) and a critical list of all the species' records of the last 20 years is provided (section G).

Several reasons determined the selection of the two study sites. In the case of **Golfo di Manfredonia**, these include:

- the extremely high value of this wetland complex for wintering/migrating (and breeding) waterfowl, holding at midwinter top figures for species like *Anas penelope*, *Tadorna tadorna* and *Recurvirostra avosetta*.
- the serious problems affecting wildlife in the area, including hunting (heavy hunting pressure often mingling with poaching, inadequate wardening at protected sites, absence of 'buffer' zones) and habitat degradation (unauthorized building, pesticide and fertilizer water pollution, uncontrolled rubbish tips and sewage discharges).
- the local existence of recent sightings of SbC (see section G), together with at least 10 additional shooting records during the last 100 years.
- the recent (1992) creation of the Gargano National Park, designed to include also most of Manfredonian wetlands and, potentially, an ideal tool to promote nature conservation in the area.
- the almost complete lack of studies and surveys concerning the area, and the need to find local amateurs and involve them into a co-ordinated land study project.

As far as Laghi Pontini and the long-existing Circeo National Park are concerned, recent (1980-81, 1989) locally wintering SbCs were the main reason for the 1993 surveys, together with the availability of local observers and consequent convenience matters.

## C O N T E N T S

- A. Ornithological results of the 1993 surveys: Golfo di Manfredonia
  - 1. Methods & surveyed areas
  - 2. Results
  
- B. Ornithological results of the 1993 surveys: Laghi Pontini (Circeo Nat. Park)
  - 1. Methods & surveyed areas
  - 2. Results
  
- C. Habitat analysis: Golfo di Manfredonia
  - 1. Study area
    - 1.1 Boundaries & size
    - 1.2 Land subdivision
    - 1.3 Habitat description
  
- D. Hunting monitoring along Golfo di Manfredonia
  - 1. Methods & surveyed areas
  - 2. Results
    - 2.1 Poaching
    - 2.2 Shot counts
  - 3. Discussion
  
- E. Protection status of wetlands and arable lands along Golfo di Manfredonia
  
- F. Data sheets of key-sites and potential key-sites
  
- G. Commented list of recent SbC reports, 1974-1993
  
- H. Suggested priorities for SbC conservation
  
- I. References



## A. Ornithological results of the 1993 surveys: Golfo di Manfredonia

### 1. Methods and surveyed areas

A total of 10 surveys were carried out during 1993. On 7 of them, a complete count of all waders was performed. When the number of observers was not sufficient to census the whole area, spot counts at Curlew roosts and observations at the main wader areas were made. The surveyed area always covered the Salina di Margherita di Savoia Nature Reserve (including neighbouring Alma Dannata ponds and unprotected salt pastures of site g in Fig. C1), where most waders usually concentrate. Frattarolo Nature Reserve (site c, Fig. C1) was only visited when habitat conditions were suitable for waders (i.e. outside the dry periods). A complete visit of these areas was performed chiefly by 4-WD car(s), with a ca. 200 Km long route necessary to check all the salt-pans and salt-pastures. Optical equipment included 20-60x zoom telescopes and 10x binoculars. Most observations took place directly from parked cars. Each visit was made under permission of local Forestry authorities.

### 2. Results

Table A1 provides a general view of the performed field activities; detailed ornithological accounts, limited to wader species, are reported in Table A2. Despite the lack of exhaustive data in previous years, it appears that not many waders (excluding Avocet) wintered in the area in 1993. Common Curlew totals in January and on the early spring surveys were, however, between 53 and 85, i.e. something less than during the 1990 and 1992 midwinter counts (range: 98-123). The only Sbc sighting during 1993 was obtained on May 9th in the Alma Dannata part of Margherita di Savoia saline (site i, Fig. C1), close to the usual roosting site of the local wintering Common Curlew population. It was a single bird, observed at 19.30 while feeding on exposed mud. Before sunset the bird left, probably alarmed by other waders (Grey Plovers) calling at the observer's approach. A search of the bird on the following morning gave no positive result, and the observer had to leave the area afterwards.



MANFREDONIA 1993 CENSUS	Total or Partial census	Total WADERS	Total CURLEWS
22,23-jan	T	6345	85
28.29-mar	T	3781	101
22,23,24-apr	T	1938	20
8,9,10-may	T	2515	4
19,20-jun	T	1775	0
10,11-jul	T	2703	15
1,2-oct	T	13485	80
12,13,14-oct	P	n.c.	62
5,6-nov	P	>7600	54
7,8-dec	P	n.c.	32

Table A1: field activities performed at Golfo di Manfredonia and wader totals (n.c. = complete figure available).

MANFREDONIA: 1993 WADER CENSUS							
species	22.23-jan	28.29-mar	22-24-apr	8.9.10-may	19.20-jun	10.11-jul	1.2-oct
<i>Haematopus ostralegus</i>			1			1	1
<i>Himantopus himantopus</i>		5	110	145	160	160	7
<i>Recurvirostra avosetta</i>	2916	1815	700	1116	1200	1200	10601
<i>Charadrius hiaticula</i>	1			1			23
<i>Charadrius dubius</i>		4				5	11
<i>Charadrius alexandrinus</i>	175	169	200	200	160	160	273
<i>Pluvialis apricaria</i>	3						
<i>Pluvialis squatarola</i>	24	32	13	5	4	2	22
<i>Arenaria interpres</i>				3		1	7
<i>Varellus varellus</i>	30						
<i>Calidris ferruginea</i>			100	809	1	6	14
<i>Calidris alpina</i>	2416	1000	250	56	1		968
<i>Calidris minuta</i>	89	51	50	148		1	216
<i>Calidris temminckii</i>			2				
<i>Calidris alba</i>			8	7			1
<i>Calidris sp.</i>							450
<i>Limicola falcinellus</i>						1	
<i>Tringa totanus</i>	431	47	5	4	63	508	537
<i>Tringa erythropus</i>	92	70	50	2	92	448	35
<i>Tringa stagnatilis</i>		3	8		1	5	10
<i>Tringa nebularia</i>	3	13	20	3	1	4	62
<i>Actitis hypoleucos</i>	4		50	1		5	12
<i>Tringa glareola</i>		4	55	8			
<i>Tringa ochropus</i>		2					1
<i>Philomachus pugnax</i>		350	285	3		2	141
<i>Numenius arquata</i>	85	58	20	3			79
<i>Numenius phaeopus</i>		43				15	1
<i>Numenius tenuirostris</i>				1			
<i>Limosa limosa</i>	75	115	11		92	179	12
<i>Phalaropus lobatus</i>	1						1
<b>TOTALS</b>	<b>6345</b>	<b>3781</b>	<b>1938</b>	<b>2515</b>	<b>1775</b>	<b>2703</b>	<b>13485</b>

Table A2: Waders censused at Golfo di Manfredonia during 1993.

## B. Ornithological results of the 1993 surveys: Laghi Pontini

### 1. Methods & surveyed areas

Weekly surveys could be performed during spring and autumn migrations, counting waders at all suitable sites of the area according to a standard route. These fell, in spring, on grazed pastures which were visited by car as well as on foot, and in shallow waters of Pantani dell'Inferno and Pantani di S. Andrea. In autumn, dry soil prevented the use of pastures by waders: surveys did not cover the large 'Bufalara' pastures (between lakes Caprolace and Monaci).

### 2. Results

As for the previous site, tables B1 and B2 describe the field activities and the ornithological accounts respectively. A comparison of the count results is only approximately possible for wintering species, looking at the totals obtained by Biondi et al (1993) in January 1986-1991 (cf. also section F, data-sheet 2 of this report). Common Curlew figures on highest 1993 counts are well within the range of local winter totals, while Dunlin, Lapwing and Golden plover are apparently lower. For migrants, the presumed importance of this area during the spring months is not confirmed by the 1993 data: an obvious, rapid turnover of birds should however be kept in mind. As no other data is available, further comments are so far impossible.

LAGHI PONTINI 1993 CENSUS	Total or Partial census	Total WADERS	Total CURLEWS
06-mar	T	0	0
07-mar	T	0	0
14-mar	T	0	0
20-mar	T	0	43
28-mar	T	0	88
04-apr	T	0	0
10-apr	T	0	0
11-apr	T	0	0
17-apr	T	0	2
18-apr	T	0	0
24-apr	T	0	0
01-may	T	0	0
02-may	T	0	0
23-may	T	0	0
15-aug	T	0	0
22-aug	T	0	3
28-aug	T	0	7
29-aug	T	0	0
05-sep	T	0	15
12-sep	T	0	0
19-sep	T	0	7
26-sep	T	0	14
10-oct	T	0	8
24-oct	T	0	22
31-oct	T	0	10

Table B1: field activities performed at Laghi Pontini and wader totals



## LAGHI PONTINI: 1993 WADER CENSUS

species	06-mar	07-mar	14-mar	20-mar	28-mar	04-apr	10-apr	11-apr	17-apr	18-apr	24-apr	01-may	02-may	03-may	15-aug	22-aug	28-aug	29-aug	05-sep	12-sep	19-sep	26-sep	10-oct	24-oct	31-oct		
<i>Ilaemotopus ostralegus</i>							1											1									
<i>Himantopus himantopus</i>				2	22	33	7	32	15	10	18	22	7	1													
<i>Recurvirostra avosetta</i>	1	5	2	1			3				9																
<i>Charadrius hiaticula</i>							1			10	5				2	4		8	12	6	2						
<i>Charadrius dubius</i>		4					1		10						2	6			5	5	5	2			4		
<i>Charadrius alexandrinus</i>																										24	
<i>Pluvialis apricaria</i>	95	90		2	5							1	1	1	1	1	2	3	6	1	4	4	6			2	
<i>Pluvialis squatarola</i>	5												2													360	
<i>Arenaria interpres</i>																											
<i>Vanellus vanellus</i>	10	729	8	1							75	80	7	3												10	
<i>Callidris ferruginea</i>																										15	
<i>Callidris alpina</i>	50	12	60	200			10	10							2	2	2	15	4	3	20	6			6	55	
<i>Callidris nitida</i>		1	1	1	1	1	1	3			10	31	8	13	6			10	4	7	3					1	
<i>Callidris canutus</i>	1																										1
<i>Tringa totanus</i>						1	1	1	2						1											15	
<i>Tringa erythropus</i>						2	2				1																
<i>Tringa stagnatilis</i>						3	3	2	3																		
<i>Tringa nebularia</i>						10																				1	
<i>Actitis hypoleucos</i>																											
<i>Tringa glareola</i>								3	4	10																	
<i>Philomachus pugnax</i>	210	206	62	62	280	22	150	150	250	250	100	35	3													1	
<i>Numenius arquata</i>	35	27	44	42	28										5	2	60									10	
<i>Numenius phaeopus</i>																											
<i>Limosa limosa</i>	140		2	21	25	22			2																	1	
<i>Limosa lapponica</i>																										1	
<b>TOTALS</b>	401	1107	219	191	610	84	188	178	324	298	111	114	185	20	23	35	82	1	88	38	81	139	71	45	472		

Table B2: Waders censused at Llaghi Pontini during 1993

## C. Habitat analysis: Golfo di Manfredonia

Ecological investigations on Apulian SbC stop-over and potential wintering sites focused on the area between Manfredonia and the Ofanto river mouth, about 40 Km to the SE. The 1993 field surveys, covering spring and autumn seasons (section A), were joined by mapping of natural and semi-natural vegetation types. The latter, useful in understanding the local suitability for SbC, may also help in evaluating the medium and long term impact of human activities along these coastal wetlands. A general overview of the degree of degradation of local key-sites for waders and wildfowl is surely needed to realize concrete land management projects aimed to prevent them from total destruction.

### 1. Study area

#### 1.1 Boundaries and size

The study area (fig C1), extending for more than 20,000 ha, includes all the wetlands bordering the Gulf of Manfredonia as well as the surrounding cultivated areas, sometimes patched with salt-scrubs or salt-marshes. As it can easily be seen, the boundaries follow approximately those of the southern part of the Gargano National Park's ones, as proposed on 22 april 1993 by the Ministry of Environment (Gazzetta Ufficiale n. 103, 05 may 1993). The northern limit is represented by the railway between Siponto and Candelaro stations (approximately following the foothill of Mount Gargano); the eastern border is, of course, the Adriatic coastline, while the western one runs along the road between the latter and the Ofanto river, through Trinitapoli. The southern boundary runs along the country road linking the bridge of the main road no. 16 over the Ofanto river and Casa Pantanella, on the Adriatic coast, in order to fully include the Ofanto mouth.

#### 1.2 Land subdivision

For a better description of the study area, it was split into 12 smaller sub-areas, each one with a well-defined territorial and/or managerial homogeneity. Their list is reported in table C1, while an overview of the respective geographical location is given in fig. C1. The vegetation of the whole area was mapped during autumn 1993. The various vegetational communities were linked into structural groups (see map C14), in relation to their suitability for Curlews or large waders in general. Thus, great stress was given to *Salicornia* salt-marshes (Cor.15.1), *Arthrocnemum* salt-scrubs (Cor.15.6) and fallow fields (Cor. 87.1), the latter being gradually re-occupied by spontaneous scrub communities. The local Mediterranean climate and the salt richness of most arable soils cause a very fast turnover of some cultivated fields, chiefly due to water availability for irrigation. Thus, strips of lands are allowed to lie fallow for one or more seasons, during the warmer and drier years, to be ploughed again some months or years later; others are ploughed just episodically, to check whether they are suitable or not for cultivation, and often abandoned after the first year. The 'vegetation map' produced here has therefore to be considered as a description of the local situation during October-November

1993; this is mostly true for unprotected lands and the arable part of the Nature Reserves, both being subject to drastic and sudden changes of their previous condition. It thus happened that, during the field work period, some areas completely changed their pattern (and 'bird-appeal'). For instance, some fields around Masseria Combattenti and Il Monte (site g: satellite reserves of Salina di Margherita di Savoia), being not cultivated for some years and described in October 1993 as 'fallow fields with good re-colonization by *Arthrocnemum* salt-scrub', at the end of November were completely ploughed and sown with wheat.



Sites	Cultivated fields	Fallow fields	Reed beds	Salt-marshes		Salt-scrubs		Water bodies	Total
				Salt-pastures	Rush-scrubs	Salt-scrubs	Rush-scrubs		
a: Siponto-Zapponeta coastline	1249	116	20	205					1590
b: Candelaro and Cervaro reclaimed area	5412	160		400		612			6584
c: Frattarolo Nature Reserve				77		180			257
d: Daunia Risi Reserve	500		520						1020
e: Carapelle fish-ponds						30	360		390
f: San Floriano hunting reserve	80	40	200	50		200			570
g: Masseria Combattenti and Pantaniello	2462	156		48		760			3426
h: Zapponeta-Margherita di S. coastline	1055			5					1060
i: Alma Dannata fish-ponds						146	800		946
j: Margherita di Savoia salines						200	2725		2925
k: Giardino	1219								1219
l: Ofanto river mouth	934	27	10	10		100			1081
Totals	12911	499	750	795		2228	3885		21068

Table C1: sub-areas and vegetation types.

### 1.3 Habitat description

#### site a: Siponto-Zapponeta coastline

fig. C2 1,590 ha

It is an area highly exploited by man, both for tourist settlements and agriculture: the whole usable land was built up or ploughed. Only few patches of the natural scrub- and salt-marshes (Cor. 15.11, 15.5, 15.6) remain, covering some 200 ha, less than 15% of the total surface. The most interesting marshes are located near the Candelaro mouth, where a few hunting pools have been created: the area is actually very close to Daunia Risi and Frattarolo reserves, thus surely frequented by waders and other wildfowl. Little areas with reed-beds and marshy patches are scattered between villages and fields, usually in small land depressions or near brackish ponds. Despite their high fragmentation and disturbance from agriculture and tourists, these small marshy areas are quite important for waders, mostly during the winter season, when they are partly flooded by rainfalls.

#### site b: Candelaro and Cervaro reclaimed area

fig. C3 6,584 ha

It is quite a broad area, covered only on 15% by scrubs, marshes and fallow fields. 'Natural' habitats are mostly located around the Frattarolo Nature Reserve (area 'C'), where *Arthrocnemum* and *Juncus* scrubs (Cor. 15.6, 15.5), partly flooded during the rain season, coexist with tamarisk thickets (Cor. 44.813), salt-marshes and reed-beds (Cor. 15.1, 53.112); other scrubs and marshes occur near Carapelle fish-ponds and along the lower edge of the area, bordering S. Floriano hunting reserve. The remaining surface is entirely used for extensive wheat and vegetable cultivation, with a few scattered and temporary fallow fields (Cor. 87.1), hardly suitable for migrating and wintering waders.

#### site c: Frattarolo Nature Reserve

fig. C4 257 ha

The Nature Reserve 'Palude di Frattarolo', created on 5 May 1980, is one of the most suitable areas for SbC. It is almost entirely covered by salt-marshes and salt rush-scrubs (Cor. 15.1, 15.5, 15.6), flooded until two or three years ago by Cervaro river's floods and by winter and spring rains. Along the northern boundary, little freshwater springs host some *Typha* and *Phragmites* tufts (Cor. 53.112, 53.13), gradually replaced by *Juncus* and *Arthrocnemum* communities as distance from fresh water increases. A narrow *Tamarix* hedgerow (Cor. 84.2) separates the Reserve from the surrounding fallow fields and scrubs. A boundary drain ditched by the local Forestry authorities seriously lowered the water retention of the area, that is now almost completely dry also during the 'rain season', with the exception of a small salt-marsh along the Candelaro river and of the little springs above described. Furthermore, buffalo grazing is starting to damage the spontaneous flora, surely fastening its regression into a semi-desert scrub. The solution of this problem is now the most urgent one to be solved, in order to prevent complete habitat loss.



site d: Daunia Risi hunting reserve

fig. C5 1,020 ha

Municipal Nature Reserve (IBA 95-1), is now managed as a private shooting reserve. About half of its total surface is used for fish-farming and waterfowl hunting, being a series of freshwater ponds with extensive Phragmites and Typha reed-beds (Cor. 53.111, 53.13), holding an important heronry including *Ardea purpurea*, *Botaurus stellaris* and *Plegadis falcinellus*. The remaining 500 ha were reclaimed in this century and are now used for vegetable cultivation (Cor. 82.12). The tall bank south of the ponds, covered by a long Eucalyptus row (Cor. 84.1), hosts a heronry of *Egretta garzetta*, *Ardeola ralloides* and *Nycticorax nycticorax*. Hunting is surely the main disturbance source for fauna during migration and wintering periods, affecting its important role of stop-over site for wildfowl and, partly, also Frattarolo's suitability for waders.

site e: Carapelle fish-ponds

fig. C6 390 ha

It is formed by a series of fresh- and brackish-water ponds (Cor. 22.1, 23.1) used for fish-farming and hunting. This wetland is an important wintering area for cormorants, ducks and herons. Fish-farming techniques do not fit waders very well, only few individuals being present inside eventually drained ponds or along their embankments, which are partly covered with *Arthrocnemum* scrubs.

site f: San Floriano hunting reserve

fig. C7 570 ha

Private shooting reserve including large freshwater ponds (450 ha), with peripheral tracts of salt-marsh and grassland (Cor. 15.1, 81.2). It is flooded only during the hunting season to attract waders and wildfowl. Reed-beds (Cor. 53.111) are left around and inside some of the ponds. Cultivated fields also exist along the Zapponeta-facing boundaries. Foraging practises by local wardens make this reserve very rich in birds during the hunting season, even if shooting pressure results very high and non-selective (i.e. including protected species as *Tadorna t.* etc.). Away from the hunting season, ponds are drained and turned into semi-desertic grass- and scrub-land, unuseful for waders and other waterfowl.

site g: Masseria Combattenti and Pantaniello

fig. C8 3,426 ha

Large area edging the inland side of the saltpans (sites i and j) containing the best local *Arthrocnemum* scrubs, which cover ca. 20% of the total surface (760 ha). Here Curlews can often be seen, mainly during the winter and spring months, pecking invertebrates from scrubs or temporary wet salt-marshes (Cor. 15.6, 15.1). The area includes two Nature Reserves ('Masseria Combattenti' and 'Il Monte'), both bordering the Salina di Margherita di Savoia. The surrounding arable land is chiefly used for extensive crop cultivation (Cor. 82.3), as the fields that extend further inland. Here hunting disturbance is very high too, and scrubland ploughing by privates in order to widen the cultivated surface is fastly reducing the natural habitats.



site h: Zapponeta-Margherita di Savoia coastline

fig. C9 1,060 ha

Compared with geographically similar area a, this sea-coast section appears to be more used for intensive horticulture (Cor. 82.12) than for touristic purposes. On the landward side, a road just separates cultivated fields from saltpans. Many greenhouses (Cor 86.5) were recently built and intensive use of pesticides and chemical fertilizers is supposed to be gradually damaging the surrounding natural habitats, also due to the high permeability of the sandy soil and the low depth of the water table. Apart from the beach and the three canals which connect the saltpans to the sea, this is one of the most unsuitable areas for fauna, not likely to improve its carrying capacity at present: hunting is not practised here for obvious reasons. No natural vegetation is left outside the remains of the dune belt.

site i: Alma Dannata fish-ponds

fig. C10 946 ha

This part of the Salina di Margherita di Savoia, the northernmost one, is permanently occupied by six polygonal deep ponds, used as a salt-water reservoir (Cor. 89.13) and for fish-farming. Each pond is separated from the next one by muddy embankments covered by salt-scrubs quite suitable for most waterfowl except waders. These, however, have large habitat patches available on the final pond, where salt-marshes and mudflats (Cor. 15.1, 15.6, 14), covering approx. 15% of the total Alma Dannata surface are widely used for feeding. Here the most important Curlew roosting site is located, with birds probably coming from all the surrounding wetlands to rest and sleep. The 1993 SbC sighting (see section A) was obtained in the surroundings of this nocturnal roost.

Fish-farming activities do not seem in conflict with birds, while poaching ought to be better controlled, mainly along the boundaries.

site j: Margherita di Savoia salines

fig. C11 2,925 ha

Covering almost 3,000 ha, these salines, together with Alma Dannata above described, are an important Ramsar and EEC SPA site (IBA 095-3). The northern part of the area, covered by first evaporating ponds (Cor.89.13), contains low-salinity waters rich in Crustaceans and other Invertebrates and preferred by most waterbirds and waders. The southern part (crystallization ponds, Cor. 89.12) is less rich in animal and plant food, thus poorly frequented by birds. Curlews can be found chiefly on occasionally empty ponds, salt-marshes near water canals and on little Salicornia islets along the eastern and western boundaries (these cover no more than 10% of the total surface). Salt extraction and routine human presence in the salines do not cause disturbance to waterbirds, whereas poaching and other illegal activities not concerned with wildlife represent a serious threat for the conservation of this protected area.

site k: Giardino

fig. C12 1,219 ha

It is an area entirely covered by extensive and intensive vegetable, olive and almond cultivations (Cor. 82.12, 83.112, 83.14). Its ecological value for waders is negligible.

site 1: Ofanto river mouth

fig. C13 1,081 ha

In this area vegetable crops and vineyards (Cor. 82.12, 83.212) co-exist with tourist settlements and small semi-natural patches of salt-scrub (Cor. 15.5, 15.6, 44.813, 53.111, 87.1) potentially suitable for waders. Unfortunately the latter, covering no more than 15% of the total, are being seriously damaged by new building activities and by local hunters, who dug at the river mouth unauthorized shooting ponds, very active during the migration season. A little lateral Ofanto meander is now completely filled with earth and dump.

As easily seen in table C1 and in figure C14, less than 15% of the total surface is presently covered by scrubs and marshes; if we also consider fallow fields, the situation does not change much, the latter covering only some 500 ha. Scrubs and marshes outside Nature Reserves appear both scarce and extremely scattered, being limited to areas unuseful for agriculture or not still built up.

**POACHING EVENTS ALONG THE GULF OF MANFREDONIA  
1993-1994**

Date	Period *	Poaching
22-apr	NH	Gun shots inside Alma Dannata
08-may	NH	Quails mist-netted with tape-lures near Alma Dannata Hunters around S. Floriano hunting reserve
01-oct	NH	Duck decoys inside Alma Dannata
02-oct	H	One injured Avocet in Margherita di Savoia salines Hunters on Margherita di S. salines' embankment
13-oct	H	One Black-winged stilt shot outside Margherita di S. salines
06-nov	H	Duck decoys inside Alma Dannata
nov-dec	H	'Several poaching acts' inside protected areas (source: Forestry authorities)
08-dec	H	One Great white egret found dead inside Alma Dannata
22-jan	H	One Cormorant injured and a Herring gull killed during shot counts
22-jan	H	One Grey heron wing found inside Daunia Risi Reserve
* H=hunting period or day		NH=non-hunting period or day

Table D1: poaching events recorded in 1993 and january 1994.



## IPA SHOT COUNTS

Gulf of Manfredonia, dec 1993, jan 1994

date	station	start. hour	period	counted shots	shots		notes
						per hour	
08-dec	1	6.51	7'	22	189		Two Wigeon tape-lures played at Candelaro mouth and nearby touristic village
08-dec	2	7.15	7'	66	566		Wigeon tape-lures at S. Floriano; 15-20 hunters along the Southern boundary
08-dec	3	7.38	7'	55	471		Curlew tape-lure from a nearby hunting pond
08-dec	4	8.07	7'	21	180		All distant shots
08-dec	5	8.30	7'	16	137		All distant shots
08-dec	6	8.59	7'	10	86		
08-dec	7	9.37	7'	4	34		One or two hunters in the nearby hunting ponds
08-dec	4	16.16	7'	17	146		
* 22-jan	1	6.47	7'	0	0		
* 22-jan	7	7.27	7'	21	180		11 shots to a Cormorant (injured); Redshank and Curlew mouth-whistles played
* 22-jan	6	8.02	7'	4	34		All distant shots
* 22-jan	2	8.53	7'	7	60		One Herring gull killed; Wigeon tape-lure from a parked car
	2	7.30	35'	58	497		many <i>Shelducks</i> shot: 1992 shot count, from <i>Baccetti, in Grettton 1991</i>

\* no-hunting day in hunting reserves

### 3. Discussion

Until November 1993, the existence of the Ministry decree concerning the Gargano National Park boundaries surely stopped many people from poaching into the main wetlands (Alma Dannata and Margherita saltpans), probably because of the creation of a buffer zone between protected and unprotected areas, too wide to be rapidly crossed in case of authority inspection. Later on, the auto-exclusion of all the municipalities of Manfredonia, Zapponeta, Trinitapoli, Cerignola and Margherita di Savoia from the protected area and the new Ministry decree apparently accepting this 'new' boundaries (or, rather, not so new: no other areas than those already protected will probably fall inside the Park), encouraged local poachers, who widen again their 'hunting range'. Concerning shot counts data, their expression as 'shots per hour' does not describe at all the global phenomenon, hunting being not continuous during the whole day; nevertheless this extrapolation from 7' counts collected early in the morning can give a measure of hunting pressure during - at least - the first hour after sunrise, surely the most critical for birds leaving night roosts and approaching feeding areas or vice versa, according to respective habits. For instance, while performing the count at S. Floriano hunting reserve (station no. 2) a group of three wigeons flying over the fire line towards the reserve received 29 shots in the few seconds they passed by (and none was killed). High hunting pressure in these areas is made seriously worse by the wide use of illegal tape-lures. Furthermore, from the few data collected (table D1) many cases of protected birds being shot happen, even inside Nature Reserves (see also Gretton, 1991): no doubt that a real enforcement of controls would gain many positive results.

E. Protection status of wetlands and arable lands along Golfo di Manfredonia

The Gargano National Park was created on 4 december 1992 by the Ministry of the Environment, who later on (22.04.1993) issued an additional order concerning bans and allowed activities inside the Park. No hunting practises nor bird catching was allowed inside protected territories, and new ploughing or building activities became subject to local authorities license. The Park boundaries in the Golfo di Manfredonia area (fig. C14) were chosen in order to include all the existing Nature Reserves and their surrounding territories, and to create a countinuous protected belt along the coastline, surely necessary for real bird and wetland protection programmes. All wetlandsfacing the Gulf (except a part of S. Floriano) would in this way fall inside the Park. Unfortunately, many of the local Municipalities did not accept this and in november 1993 the protection order was repealed. After a period of strong debate between the Ministry and the local Province and Municipalities, their issues were almost globally accepted. At the present time (Jan. 1994) the definitive boundaries were set, accepting all hunters' and local farmers' issues: the Park now ends approx. at Daunia Risi (site d). The new boundaries were not drawn on our maps as they are still uncertain. It can be easily seen that, at the end, if really the southern border falls at Daunia Risi, almost nothing new will be done to protect wetlands along Golfo di Manfredonia. The protected areas will not change from those already existing (only some 5000 ha over the previous 21,000). This important sector of the Park would now appear as four fragmented spots alternated with unprotected and to some extent ecologically more suitable territories, more exposed to poaching and habitat mismanagement. Local suitability for migrating and wintering Curlews will be gradually reduced as 'non ecological fruition' of unprotected sites will go on. Some areas will probably remain very important for these birds: Alma Dannata, Masseria Combattenti salt-scrubs, Frattarolo (if only water retention problems will be solved), but their migrant and wintering populations will be probably modified by their increased vulnerability.



## PROTECTED AREAS IN THE GULF OF MANFREDONIA

Name	surface (ha)	Date of designation
N.R. "Palude di Frattarolo"	257	Ministry Decree 05.05.1980
N.R. "Saline di Margherita di Savoia"	3871	Ministry Decree 10.10.1977 Ministry Decree 30.05.1979
N.R. "Masseria Combattenti"	82	Ministry Decree 09.05.1980
N.R. "Il Monte"	130	Ministry Decree 15.07.1982
<b>Total</b>	<b>4340</b>	

Table E1: List of pre-1992 protected areas and respective dates of designation.

## F. Data-sheets of key-sites and potential key-sites

Data-sheet 1 - site:

### GOLFO DI MANFREDONIA

(incl. Salina di Margherita di Savoia)

#### LOCATION AND STATUS

41.22-41.37 N - 015.50-016.09 E

Italia

Region: Puglia (= Apulia)

Province: Foggia (FG)

Complex site, including two Ramsar sites & EEC SPAs and three privately managed hunting sites. Cf. IBA: 095 1-3.

#### HABITATS

The area was formerly covered by a single large salt-marsh or salt-lake, reclaimed early in the present century. Partial re-floodings or transformation of salt-marsh remains into an industrial salina (the largest in the country) took place afterwards. The area stretches along ca. 40 Km of sandy sea coast (Cor. 16.11, 16.12), hardly showing remains of the dune belt (Cor. 16.2122) and being interrupted by several tourist residences or settlements. Cultivations, dominated by small, continuous patches of different vegetables (Cor. 82.12, usually carrots and onions) along the seaside, soon turn into intensive croplands (Cor. 82.11) as distance from the sea increases. The latters cover the majority of the territory, just being interrupted by some patches of salt-pasture, salt-marsh or salt-scrublands (Cor. 15.5, 15.6, 15,8) and by the main four wetlands. These are extremely different from each other, ranging from a very large (ca. 4,000 ha) industrial salina (Cor. 89.12) which contains much natural habitats (Cor. 15.11, 15,61, 23.1, 23.2) to freshwater marshland with extensive reedbeds (Cor. 53.111, 53.112). Salt-pastures have usually a rather fragmented shape and small size; the largest of them, covering the whole Frattarolo Nat. Res., is seasonally used for grazing by locally bred feral buffaloes. Small communities of tamarisk thickets (Cor. 44.813) are left beside Eucalyptus plantations or rows (Cor. 83.322, 84.1), the latters being a remain of large-scale afforestation made at the time of land reclamation. See section 'C' for a more detailed description.

#### WATERBIRD OCCURRENCE

Quantitative information about historical bird situation almost un-existing, no precise figures even been available for large flocks of geese (*Anser fabalis* and, especially, *Anser albifrons*) which used to winter in the area up to the early 60ies (cf. Frugis & Frugis, 1963). Recent information is relatively better, though existing studies were episodically carried out by non-resident observers. The actual importance of Salina di Margherita di Savoia for breeding species has apparently developed during the last 15 years, with several species colonizing it one after another (*Gelochelidon nilotica* and *Recurvirostra avosetta* starting first, *Tadorna tadorna* and *Larus melanocephalus* being the last ones). For an updated picture of breeding waterbird population and complete references to previous literature, cf.



Tinarelli et al. (in press). Outside the breeding season, a complete winter count organized in 1989 revealed ca. 20,000 waders (12,000 *Calidris alpina* and 4,000 *Recurvirostra avosetta*), 11,000 *Tadorna tadorna*, 15,000 *Anas penelope* (pooled results from this and other Apulian wetlands can be found in Baccetti et al. 1989). Lower figures were obtained on subsequent winters for Shelduck and waders, only Avocet being relatively stable or slightly increasing (cf. Baccetti 1991).

#### SUITABILITY FOR *NUMENIUS TENUIROSTRIS*

Being the only wader site of a really high relevance in central and southern Italy, the Gulf of Manfredonia (and Salina di Margherita di Savoia in particular) is the most likely area to attract a migratory shorebird over a very large and mostly dry territory. Many habitat features (salt-pastures, etc.), especially just outside the salt-pan edges, appear to fit the species' requirements, as confirmed by many records of the past time, when wintering birds also used to occur (cf. De Romita 1884). Despite the irregularity of visits, the species was found on three occasions in the last few years (Aug. 1988, Mar. 1989, May 1993).

#### THREATS

After land reclamation early in this century, habitat loss has continued until now, under the form of salt-pasture ploughing and cultivation, drainage net improving, reduction of the flooding period of temporary wetlands (e.g. Frattarolo Nat. Res., San Floriano 'hunting estate', etc.). Disturbance and hunting pressure produce an additional, serious limit to the availability on resting sites, as also shown by the small numbers of *Numenius arquata* over an area of such a large size. Hunting and poaching have of course also a direct negative effect, mostly due to absence of effective controls, even inside protected wetlands. Lead-shot pollution is important, with mean densities of 2 millions shots/ha on theoretically protected mudflats. Other forms of pollution, from sewage, rubbish tips and agronomic practices, have not been analyzed yet, and their environmental impact might be not only a visual one.



Data-sheet 2 - site:

## LAGHI PONTINI

Circeo National Park

### LOCATION AND STATUS

41.15-41.24 N - 012.52-013.02 E

Italia

Region: Lazio (= Latium)

Province: Latina (LT)

Complex site, including four small neighbouring Ramsar sites & EEC SPAs; the entire wetland area is protected. Cf. IBA: 075.

### HABITATS

The only relict of the formerly immense 'Paludi Pontine', reclaimed around 1930 after many unsuccessful attempts starting as early as the Roman times. The four lakes (from the N: Fogliano, Monaci, Caprolace and Sabaudia, ca. 1,500 ha in total, all belonging to Circeo National Park) occupy a retrodunal depression and are very close to the sea (300 m). Their shores have to a great extent an artificial shape due to stone embankments. They are connected with the sea through canals, water being therefore brackish (Cor. 23.2), less so at Lake Monaci. Wader habitat is restricted to grasslands (Cor. 37, locally 15.5) around or between the lakes, amounting to a total of ca. 500 ha and being totally dry in summer; some of them are used for grazing by buffaloes (thousands) and cows. Reed-bed habitat (Cor. 53.1) is only present at the so-called Pantani dell'Inferno (between lakes Caprolace and Sabaudia), along almost all canals and in a few spots on the lakes shores (esp. Lake Sabaudia). A large oak-dominated lowland forest (Cor. 41.7), entirely included in the Circeo National Park, occurs at short distance from the southernmost lakes, while more termophilous formations (e.g. Cor. 32.1, 32.2, 45.318) locally separate them from the coastal dune belt (Cor. 16.2). Scattered Eucalyptus plantations (Cor. 83.322) and cane rows (Cor.53.62) can also be found.

### WATERBIRD OCCURRENCE

Historical details about this area, before its reclamation, are available in Patrizi Montoro (1909), Alexander (1927), Chigi (1904); recent general overviews, providing complete references to all previous literature, were made by Allavena (1977), Tornielli (1983) and Biondi et al. (1989) (the latter only concerning breeding species, and not always reliable). Breeding waterbirds do not include any striking feature: apart from usual reed-bed passerines, *Ixobrychus*, common Anatidae and Rallidae, only *Aythya nyroca* and *Himantopus* do irregularly breed. In winter, the lakes are occupied by large numbers of *Phalacrocorax carbo* (cf. Corbi 1988), Anatidae, Podicipedidae and also *Gavia arctica*. Wintering waders have been censused over several years (cf. Biondi et al. 1993), recording to the presence of relatively small, but interesting figures; mid-January totals for *Numenius arquata*, in 1986-91, varied between 10 and 85; for wintering *N. tenuirostris*, in 1980-81 and 1988, cf. Gretton (1991), section G and next paragraph. Spring migration is said to be an important phenomenon, although exact figures are lacking and 1993 counts resulted in rather disappointing totals (as at many other

Italian sites, in the same year): cf. Tab. B2.

#### SUITABILITY FOR NUMENIUS TENUIROSTRIS

The regular presence of wintering flocks of *Numenius arquata* and the repeated recent sightings of *N. tenuirostris*, beside at least 5 records of the latter species earlier in this century, surely indicate that the area, despite its presently small size, may be of some importance for the species. The complete site protection, a rare event in the national context, is probably an additional factor making this area attractive. A special management of local grasslands, together with eventual re-flooding of dry spots at least during the migratory seasons, might be useful initiatives by the National Park authorities to greatly increase the potential role of the Laghi Pontini in the SbC conservation.

#### THREATS

Mostly connected with summer tourist exploitation of the seashore and consequent problems of construction of houses and holiday structures, lake pollution, beach occupation etc. On the lakes, hunting is forbidden over many years and poaching is not recorded at an alarming rate.



## Datasheet 3 - site:

### MIGLIARINO - SAN ROSSORE - MASSACIUCCOLI Wetlands between Viareggio and the Arno estuary

#### LOCATION AND STATUS

43.41-43.502 N - 010.14-010.21 E

Italia

Region: Toscana (= Tuscany)

Provinces: Lucca (LU) and Pisa (PI)

Complex site originated by ancient patterns of the final course of the Arno river; it includes Arno and Serchio mouths, San Rossore retrodunal marshes, Migliarino and Lago di Massaciuccoli areas. No Ramsar sites. Cf. IBA: 050, 051.

#### HABITATS

Very different habitats feature each part of this area, which despite excessive human pressure has a very high landscape value. River courses are usually edged by continuous cane rows (Cor. 53.62) and more or less naturalized poplar plantations (Cor. 83.3211); Arno mouth is embanked and excessively man-affected (tourist harbour, military buildings, fishing systems etc.), while Serchio mouth is relatively wild, with no buildings around, the river itself often changing shape and creating sandy spits and islands; the seashore between the two rivers and further to the north, up to Viareggio, is occupied by wide sandy beaches (Cor. 16.11, 16.12, 16.13) bordered by dunal systems according to a variety of patterns (16.2122, 16.271, 16.31, 16.35), merging through Phyllirea- and Pistacia-dominated maquis clumps (Cor. 32.21) into large pine forests (Cor. 42.837) which cover most of San Rossore and Migliarino estates. A variety of habitats occur within these forests, usually according to the amount of *Quercus ilex* (determining Cor. 32.1 and 45.3) and presence of water-bodies: ponds with small reed-beds, fens, etc. (53.1, 53.31, 15.5, etc.). Agricultural land (Cor. 82.1) predominates further inland, with the only large interruption made by Lago di Massaciuccoli and its marshy surroundings, covering 1,700 ha (Cor. 22.14, 22.2, 22.4, 53.111, 53.112, 53.12, 53.13, 53.17, 53.31).

#### WATERBIRD OCCURRENCE

The area was among the best ornithologically-known ones in the country, during the last couple of centuries (or more): Paolo Savi was just from Pisa, and other important local ornithologists or bird collectionists followed (Caterini, Gragnani, etc.). This fact, added to strong bird-catching traditions, had the consequence that many rarities, in the past, were more likely to be collected and reported here than elsewhere in the country. In recent years the area is still well-surveyed, complete winter counts being made by the Tuscan Ornithological Centre (cf. Arcamone, 1989) and also ringing campaigns being frequently organized in wetland habitats. Pine and oak forests of the coast have a rich breeding avifauna, including interesting species as *Columba oenas*, *Picoides minor*, very few *Coracias garrulus*; frequent, *P. major*, *Sitta*, *Luscinia megarhynchos* and many other passerines. Near the sea-shore, *Calandrella*-dominated bird communities occur, with a few *Burhinus oedicephalus* and *Charadrius alexandrinus* pairs (< 5, both). *Merops* colonies relatively



abundant in agricultural or transitional areas. Massaciuccoli reed-beds are dominated by *Cettia*, *Acrocephalus* (melanopogon and others), *Remiz*, etc. and hold a few *Botaurus* pairs and a small heronry (*purpurea*: 30 pairs); gaps among reeds (usually created by hunters) hold irregularly important colonies of *Himantopus* (up to 100 pairs); breeding raptors (*Circus aeruginosus*) and *Anatidae* not particularly numerous, though occasionally including *Aythya fuligula*, *A. ferina* and *A. nyroca*. Outside the breeding season, large numbers of (spring) migrants worth being stressed: probably most typical species are *Chlidonias* terns (all three species), now appreciably decreased but until the early 80ies reaching probably some tens of thousands in a season (mainly *C. niger*). Also wader migration abundant, though not every year. The same applies to *Anas querquedula*, *Larus minutus*, *Ardeidae*, etc. Wintering waterfowl still limited by hunting and disturbance on Lago di Massaciuccoli, though not at the same scale as 20 years ago: populations of conspicuous species (e.g. *Fulica atra*) still manage in some years to be eradicated during the course of the hunting season, before the mid-winter census date. Most wintering game species, therefore, occur with very small number and waders are virtually absent. At San Rossore, despite the small territory size, good numbers of *Anatidae* (chiefly *Anas crecca* and *A. platyrhynchos*) are usually present, together with a reasonable flock of *Numenius arquata* (35-44 in 1991-93), many *Vanellus* (130-250 in 1991-93), etc.

#### SUITABILITY FOR *NUMENIUS TENUIROSTRIS*

A very large number of historical records is available (the largest among SbC key-sites), but this was probably determined to some extent by the facts that the species was quite common everywhere in the past and reporting probabilities were particularly high in this area (cf. the beginning of previous paragraph). Recently, there has been just a possible observation at Serchio mouth, more likely to be referred to *N. phaeopus*. The good ornithologists' pressure on this area might allow believing that it presently does not represent a real key-site for SbC, but this is of course difficult to confirm due to the species' small numbers. Suitable habitats (e.g. salt-pastures) mostly fall inside San Rossore estate and at Serchio mouth; captures in the past occurred, instead, mainly on reed-bed clearings of Lago di Massaciuccoli and surrounding fresh-water marshes, still not satisfactorily protected.

#### THREATS

Most direct is hunting on Lago di Massaciuccoli surroundings (only the lake itself is practically protected, but it is not a site for waders). Military shooting disturbance at Serchio mouth is also a very big problem, as it already caused the disappearance of the only Tyrrhenian wintering *Melanitta* flocks, of formerly present *Pluvialis squatarola*, *Podicipedidae*, etc. Other threats, like water pollution and tourism disturbance, have a primary importance too. All wetlands are included to a great extent, since ca. 1980, into the 'Migliarino-San Rossore-Massaciuccoli' Regional Park (almost useless, so far); San Rossore area belongs to the Presidential estates, and has therefore very strict access regulations and ideal protection conditions. Ramsar qualification for the whole complex is urgent.



Data-sheet 4 - site:

#### MAREMMA TOSCANA

Incl. Diaccia Botrona, Ombrone mouth, Orbetello and Lake Burano

#### LOCATION AND STATUS

42.22-42.46 N - 010.55-011.23 E

Italia

Region: Toscana (= Tuscany)

Province: Grosseto (GR)

Complex site including a coastal lagoon (Orbetello), Ombrone mouth and a series of relicts of a single, huge coastal wetland reclaimed mainly during the last century. It includes 2 Ramsar sites (Lake Burano and the northern corner of Orbetello Lagoon) and 3 EEC SPAs (Parco della Maremma, including Ombrone mouth, and two sectors of Orbetello Lagoon). Cf. IBA: 059, 060, 061.

#### HABITATS

The sea-shore is mainly occupied by sandy beaches (Cor. 16.11, 16.12), with some rocky interruptions (Cor. 18.1, 18.22). Almost intact dune belt is left, varying from Cor. 16.2122 to Cor. 16.271, including some of the best preserved situations of the Mediterranean basin. Large pine forests (Cor. 42.837) occupy lowland areas in succession with dune habitat, with much mixing with scrub (Cor. 32.1, 32.2, 32.3, esp. 32.23, 32.34 on degraded areas). Pure scrub (mainly Cor. 32.2) and more or less abandoned olive groves (Cor. 83.11) prevail on hills. Wetlands are rather different from each other. Starting from the N, we find first Diaccia-Botrona marshes (syn. Padule di Castiglione) a 1200 ha-large and once relatively closed reed-bed, dominated by Phragmites, Scirpus maritimus and Cyperus longus (Cor. 53.11, 53.17), in the last years progressively turning into a salt-marsh due to increasing salinity. Stabilized saltmarsh habitats (Cor. 15.5, 15.6) are mainly distributed on peripheral parts of the area, e.g. on the edge of the pine forest which divides it from the sea, or along reclaimed fields (Cor. 82.1). Further S, Ombrone mouth and neighbouring Trappola marshes offer one of the best examples of Mediterranean salt-marsh (incl. Cor. 15.81), changing into Ravenna cane communities (Cor. 53.61), sandy shore vegetation, forest, scrubland or salt-pasture according to a variety of possibilities; cultivated fields are occasionally flooded in winter, greatly increasing the habitat availability for waders from the 600-700 ha of salt-marshes and salt-pasture. Typical Maremma cattle and horses are kept on the area, in some cases in a too high density. The river is flanked by narrow riparian belts dominated by Tamarix and Populus alba (Cor. 44.614, 44.813).

Orbetello Lagoon, 3,000 ha large including peripheral salt-marsh habitats, is composed by two main water bodies (Cor. 23.2) separated from each other by a land spit (partly occupied by Orbetello town) and an artificial dyke. Two parallel sand strips (Feniglia and Giannella) separate the lagoon from the sea and link Mount Argentario with the mainland. Both lagoons (Cor. 23.2) are shallow (av. 1 m) and connected to the sea through canals; they are exploited for fish production. Feniglia spit is entirely occupied by a pine plantation (Cor.42.837) with a limited natural component (Cor. 32.2) but with nice contiguous belts: dunes on



the seaward side (e.g. Cor. 16.271), flooded *Arthrocnemum* marshes with *Tamarix* clumps on the inland side (Cor. 15.6, 44.813). Giannella spit is to a large extent cultivated (Cor. 82.3 and 82.2, rather than 82.1), bordered on the lagoon edge by continuous cane-beds or rows (Cor. 53.62) and hosting nice scrubland patches (Cor. 32.2), a rather poor dune-beach system and several holiday houses. The best wader spots are in the northern corner of the lagoon (the Ramsar part, managed as a WWF refuge), and especially in the Stagnone area, 500 ha large, where hunting is allowed. At both places very shallow lagoon expanses alternate with saltmarsh areas and grazed (by sheep) grasslands (Cor. 34.513, 15.6, 15.1 etc.). Reed-bed habitats (Cor. 53.11), some 50 ha, are restricted to a few places with lower salinity, on some 50 ha. Very close to Orbetello area (and formerly almost linked, if not for Ansedonia rocky peninsula), Burano Lake is a 140 ha large coastal lake, with slightly saline waters (Cor. 23.2) due to occasional contacts with sea-water (through a canal which is usually closed by sand). A 100 ha spit of consolidated dunes (250 m wide) covered by a rich scrubland (Cor. 32.1312, 32.2) with an intact white dune-beach system (Cor. 16.11, 16.12, 16.212), runs between the lake and the sea and is possibly one of the best preserved examples of such habitats in the country. Wader habitat is mainly on fields (e.g. 87.1: set-aside policies) at the N of the lake, as the lake itself is surrounded by dense reed-beds (Cor. 53.11, 53.31) and has relatively deep waters (ca. 1 m).

#### WATERBIRD OCCURRENCE

Knowledge about historical situation rather scanty due to former unaccessibility of the area (malaria, lack of roads, etc.); details on outstanding aspects (e.g. heronries, goose flocks) available since Savi's time. Presently the area is well surveyed and regularly censused in winter (Arcamone 1989). Very rich wintering waterfowl associations, dominated by *Anas crecca* and *A. clypeata* at Diaccia-Bottrona, by *A. penelope* and *A. platyrhynchos* at Ombrone mouth, by *Aythya ferina* and *Fulica atra* at Burano, more complexly featured at Orbetello; original goose flocks (*Anser fabalis*, in particular) are no longer present, but *A. anser* is being increasingly recorded (ca. 300 in the last winters). *Phalacrocorax carbo* (ca. 2,000) and grebes (*Podiceps cristatus* and *P. nigricollis*: hundreds) mainly winter at Orbetello, where also *Phoenicopterus* is increasingly common (up to 1,200 in the late summer; usually 500 in winter). Waders dominated by *Vanellus* at Ombrone mouth and *Calidris alpina* at Orbetello (200-800), including several interesting species, though often in small numbers. *Numenius arquata* main wintering flocks are found at Ombrone mouth (50-100); for *N. tenuirostris* sightings (2-3), see section O; sedentary *Burhinus* population is also recorded in winter (up to 30). Breeding avifauna not particularly striking, including at least 2 heronries (*Egretta garzetta* and *Ardea cinerea*: 300-400 pairs), the richest Italian *Botaurus stellaris* population (6-7 pairs at Diaccia-Bottrona: now decreased due to increasing salinity), irregular *Himantopus* colonies (up to 80 pairs), few *Charadrius alexandrinus* and *Burhinus oedicephalus*.

#### SUITABILITY FOR NUMENIUS TENUIROSTRIS

Almost the whole area appears very suitable for the species, thus



explaining the 2 (or 3) recent reports. Hunting situation, also, not too bad to prevent prolonged stays by large-sized waders, though arquata wintering flocks are practically confined to the only large protected area (Ombrone mouth). Scarce number of historical records explained by poor site coverage and absence of local collectionists or ornithologists. This one might be the second-important key-site in the country, after the Gulf of Manfredonia.

#### THREATS

Mainly by tourism development and water pollution (esp. Orbetello Lagoon). Of course hunting, although not allowed everywhere, is not compatible with fulfilling a key-site's role. Increasing salinity at Diaccia-Bottrona is maybe beneficial to waders, though may lead to extinction of local Botaurus population. A re-designation of Ramsar areas according to biological and not political criteria seems an urgent measure to be achieved.

Data-sheet 5 - site:

## COMACCHIO LAGOON AND RAVENNA WETLANDS

### LOCATION AND STATUS

44.15-44.40 N - 012.05-012.24 E

Italia

Region: Emilia-Romagna

Provinces: Ferrara (FE) and Ravenna (RA)

Complex site including a large coastal lagoon (Valli di Comacchio), Reno and Savio mouths and a series of coastal wetlands, as well as an operational salina (Salina di Cervia) and an abandoned one (Salina di Comacchio). Large, recently reclaimed (1960) area on the western side of the Comacchio Lagoon (former Valli del Mezzano). It includes 6 Ramsar sites and 4 EEC SPAs. Cf. IBA: 044, 046, 047, 047, 048.

### HABITATS

A group of wetlands of outmost importance in the country, originated by the Po ancient delta, before the river started flowing in a more northerly direction. The present delta is actually quite near, some 15 km to the north of Comacchio town. The Valli di Comacchio, 15,000 ha of lagoon (Cor. 23.2, with many salt-marsh spots and islands: Cor. 15.1, 15.6 and esp. 15.616), are the main and largest wetland of the area, though it is now about half the size it was till the early 60ies when Mezzano (now Cor. 82.1) was reclaimed and cultivated. The lagoon is connected with the sea through canals flowing to a part of the coast which is almost completely spoiled by tourist settlements and summer houses, with almost no natural habitats left. A little more to the south, however, the coast (sandy: Cor. 16.11, 16.12) is better preserved, especially near the Reno river mouth. Dune belts (esp. Cor. 16.2122) are left, and retrodunal marshy areas (e.g. Cor. 15.51) alternate with wooded spots (Cor. 42.837) according to a variety of patterns of very high natural and landscape value: the Bellocchio Ramsar area is one such example. Larger and well-known pine forests occur south of the Reno river, mixed with typical Cor. 45.3 vegetation and being among the northernmost habitats holding Mediterranean features in the country. The 'Pialasse' of Ravenna are the largest wetlands of these surroundings (1,500 ha), consisting in shallow lagoon-like waterbodies (Cor. 23.1, 23.2), mainly surrounded by Cor. 15.5 habitat types and not effectively protected despite Ramsar designation. Further inland, Mandriole and Punta Alberete are much better protected sites, respectively holding a large patch of flooded forest and huge reedbeds with scattered clearings (Cor. 44.61, 53.111). After some minor wetlands (e.g. Ortazzo Ramsar site) and a few small estuaries, the southernmost site of this large area is formed by the Saline di Cervia, a 800 ha. large series of operational saltpans (Ramsar). Together with Saline di Comacchio, a smaller and recently (ca. 1985) abandoned salina located on the eastern shore of Comacchio Lagoon, it is the main wader site of the area. Habitat conditions are similar at the two sites, featured by large square ponds, always very shallow and partly water-free during the winter. Small, grassy patches or stripes occur between the ponds, together with spots of salmarsh habitat. The latter is becoming increasingly widespread at Saline di Comacchio after activity ceased. Cervia



surroundings are extensively cultivated.

#### WATERBIRDS OCCURRENCE

Present knowledge relatively good due to long-term research projects carried out by several ornithologists and to large number of bird-watchers. Historical details much more scanty, especially before the beginning of this century. Recent ornithological key-papers on the area include Baccetti et al. (1992), Boldreghini & Montanari (1991), Boldreghini et al. (1992), Boldreghini et al. (1993), Bricchetti & Foschi (1990), Casini et al. (1992), Fasola (1991). Important waterbird breeding colonies are the best known feature of the area: these mostly include Laridae, Sternidae and Recurvirostra at Comacchio Lagoon and Cervia (almost all Mediterranean species are present), and Ardeidae at Valle Mandriole and Punte Alberete. Many species have established breeding populations in the last few years, most recent colonizations being those by *Platalea* and *Egretta alba*. *Tadorna* and *Aythya nyroca* also have here the main populations in the country. Wintering avifauna includes large but decreasing Anatidae figures in Comacchio area (*Aythya ferina* being particularly represented in the past, when up to 32,000 inds. were recorded) and Mezzano fields (*Anser* spp.), huge *Phalacrocorax carbo* flocks originating from night roosts located further north, and rich heron and wader populations at both saltpan areas (most abundant species *Calidris alpina*, ca. 4,000; *Numenius arquata* only 80-100). On migratory seasons, several sites also hold remarkable figures (e.g. *Philomachus pugnax* and *Limosa limosa*, both occurring with many thousand individuals).

#### SUITABILITY FOR NUMENIUS TENUIROSTRIS

The species has only reported twice after the early 50ies. As all other north Italian sites, this area was undoubtedly a stopover site before the major population decline: its present role is probably much smaller than that of more southern sites. In fact, this might be a parallel situation to the historical one, when the species was very common in the south, and not so numerous in the north. What is harder to support is any difference in the role of this area with the neighbouring Po Delta (almost unknown by Italian ornithologists until the last few decades: the only SbC record here, in 1964, was actually due to foreign activity) and the Lagoon of Venice, where many old reports are available. The presence of large, suitable habitats at the Reno mouth and in the saltpans, as well as the importance of the whole area for other migratory waders, however, seem two good reasons for maintaining the key-site status.

#### THREATS

Hunting is affecting site use by waders mainly at the Pialasse near Ravenna and around Saline di Cervia, where no buffer corridors exist between the saltpans (protected) and nearby fields. Here, temporary freshwater ponds are still regularly created as near as 20 m from the reserve, to shoot ducks and waders (mainly *Vanellus*) with the use of decoys. It is quite sure that any SbC occurring in Cervia during the hunting season would have quite low survival possibilities, as supported by the absence of wintering Curlews and by the small size of wintering *Vanellus* flocks. Poisoning by ingested lead-shots might be an additional source of risk, as observed in *Philomachus*. Habitat

transformation, after land reclamation ceased (as late as 1970), has still some importance esp. in the Comacchio area, due to fish-farming purposes and decrease of interest in salt production. Summer tourism has much impact on the whole coast (with very few exceptions).



## G. Commented list of SbC reports, 1974-1993

1) 01.04.78:

one ind. observed at the edge of Padule di Castiglione (= Diaccia Botrona), cf. section F, data-sheet 4. The observer reported the bird as a 'possible' SbC, due to lack of good view. Given the observer's experience and additional sightings in this area (nos. 2 and 7), there are good chances of correct identification.

2) 03.04.80:

3 inds. at the WWF Refuge of Orbetello Lagoon (section F, data-sheet 4), properly observed and heard calling by the WWF warden. This is one of the best available reports during migratory seasons.

3) 01.12.80 - 20.01.81:

a good series of observation of up to 4 birds wintering on the Laghi Pontini (Circeo Nat. Park: cf. data-sheet 2, section F). Much details are available about these birds and their habits, obtained by different observers. Another winter report was obtained in the area some years later (no. 10).

4) XX.03.81:

a collected specimen reported with no details in a local bird list (Paci, 1992); some details were obtained by G. Micali, including the locality (San Giustino, Perugia province). Additional enquiries are necessary to trace this specimen, which apparently belongs to a private unauthorized collection.

5) 28.01.82:

a good view obtained at the mouth of River Crati (Calabria) by an observer who at the moment was probably not fully aware of the species' rarity. He could however observe the bird for pleasure from a hide at a close range and for a reasonable time. He is absolutely sure of the identification.

6) 20.01.84:

two birds flushed on the same spot as no. 1, by the same observer who was, at the moment, carrying out a duck winter count. A better view than the previous was obtained. The observer is reasonably sure of the identification.

7) 14.02.86:

one bird observed on a stony river bed at Lame del Sesia, Vercelli province (observer: Bonvicini). It is the only north-Italian report in the recent years.

8) 06.08.88:

two birds observed while resting among black-headed gulls, in a saltpan (Salina di Margherita di Savoia: cf. nos. 10 and 12, and section F, data-sheet 1). The observer had a good wader experience, but at the time was not aware of the species rarity. The identification can surely be considered correct.

9) 07.02.89:

one bird observed at one of the Laghi Pontini, Circeo Nat Park (cf. no. 3). Many details given by the observer suggest this is a genuine report.

10) 24.03.89:

one bird observed at Frattarolo Nat. Res. during ICBP project.

11) 08.05.89:

8 birds observed at Serchio mouth (cf. section F, data-sheet 3). Doubtful report due to high number of birds, regular presence of many Whimbrels on that particular spot, late season, etc.

12) 09.05.93:

one bird sighted during the present project at Alma Dannata, cf. section A for further details.

13) 18-19.01.89:

two birds sighted by A. Sigismondi (LIPU) at Lesina Lake, Apulia.

14) 07.12.92:

two birds observed at Margherita di Savoia salines by Anthony Green.

15) 18.01.93:

one bird observed at Margherita di Savoia salines by A. Sigismondi (LIPU). This and observation no. 13 and 14 must be considered doubtful observations, both for the scarce knowledge of the observers' skill (though A. Green, an Englishman living in Bari, is said to be a good bird-watcher) and because, just on the latter date, we also counted the area.

N.B.: Gretton's (1991) report lacks records nos. 4, 7, 12, 13, 14 and 15, not available at that time.



## H. Suggested priorities for SbC conservation

As a complement of the Action Plan drafted by Gretton (1991), for the specific Italian situation we suggest the following priorities to be pursued, strictly necessary to realize concrete protection of the species in our country: - Designate Viareggio/Arno mouth wetlands as Ramsar sites and re-define the borders of existing Ramsar sites falling into the other four SbC key-sites (cf. Section F). These are: Golfo di Manfredonia (data-sheet no. 1), Laghi Pontini (data-sheet no. 2), Maremma toscana (data-sheet no. 4), Comacchio-Ravenna coast (data-sheet no. 5). None of them, except for Laghi Pontini, is protected at the moment for the entire surface, i.e. also on the surrounding grasslands; - Establish buffer areas 300-500 m wide (at least) around all the key-sites, to be strictly protected from hunting; - Enforce the borders of the Gargano National Park as defined by the Decree of the Italian Minister of Environment dated 4.12.1992, and not those suggested or identified at later stages; - Facilitate the creation of uncultivated habitats such as grasslands and salt-scrubs within the borders of protected areas, with particular reference to the key-sites.

## I. References

- Alexander H.G. 1927. Birds of Latium, Italy. *Ibis* 12(3): 245-283
- Allavena S. 1977. Gli uccelli del Parco Nazionale del Circeo. Collana Verde, Minist. Agr. 49; 144 pp.
- Arcamone E. 1989. Lo svernamento di Anatidi e Folaga in Toscana. *Quad. Mus. Stor. Nat. Livorno*, 10, Suppl. 1. 94 pp.
- Baccetti N., Focardi S., Tinarelli R., Boldreghini P. & Santolini R. 1990. Wetland value and midwinter distribution of waterfowl in Southern Italy. *Trans. XIX IUGB Congr. Trondheim*, 1989
- Baccetti N., Serra L., Tinarelli R., Utmar P., Cherubini G., Kravos K. & Casini L. 1992. Nuovi conteggi di limicoli costieri svernanti nelle zone umide adriatiche. *Riv. Ital. Orn.* 62: 3-12
- Biondi M., Corbi F., Guerrieri G., Gustin M., Meschini A. & Pietrelli L. 1993. I limicoli svernanti nella fascia costiera del Lazio. *Riv. Ital. Orn.* 63: 86
- Biondi M. & Pastorino A.C. 1989. L'avifauna nidificante del Parco Nazionale del Circeo. *Parco Nazionale del Circeo, Monografia n. 1*; 66 pp.
- Boldreghini P., Santolini R., Casini L. & Montanari F. 1992. Wintering waterfowl and wetland change in the Po Delta. In: Finlayson C.M. et al. (eds.). *Managing Mediterranean Wetlands and Their Birds. Proc. Symp., Grado, Italy, 1991. IWRB Spec. Publ. No. 20, Slimbridge U.K.*: 188-193.

- Boldreghini P., Casini L., Montanari F., Santolini R. & Tinarelli R. 1993. The population of the Great cormorant wintering in the Po Delta during 1988-1989. In: Aguilar S.S. et al. (eds.). Status and Distribution of Breeding Populations. Proc. II Symp. MEDMARAVIS, Calvià, 1989. SEO, Madrid: 369-370.
- Boldreghini P. & Montanari F.L. 1991. A short note on wintering geese in northern Italy. In: Fox A.D. et al. (eds.) 1991: Western Palearctic geese. Proc. IWRB Symp. Kleve 1989. Ardea 79 (2): 173-174.
- Brichetti P. & Foschi U.F. 1990. Valli di Comacchio: situazione Laridae e Sternidae 1989-90. Riv. Ital. Orn. 60: 199-200
- Casini L., Magnani A. & Serra L. 1992. Ciclo annuale della comunità di uccelli acquatici nella Salina di Cervia. Ricerche Biol. Selv. 92: 1-54.
- Chigi F. 1904. Gli uccelli del Lazio. Avicula 8: 121-126
- Corbi F. 1988. Lo svernamento del Cormorano in Italia. 18 Laghi Pontini (Lazio). Ricerche Biol. Selv., Suppl. 15: 129-150
- De Romita F. 1884. Avifauna Pugliese, Bari
- Fasola M. & Canova L. 1991. Colony site selection by eight species of gulls and terns breeding in the "Valli di Comacchio" (Italy). Boll. Zool. 58: 261-266
- Frugis S. & Frugis D. 1963. Le paludi pugliesi a Sud del Gargano. Riv. Ital. Orn. 33: 79-123
- Gretton A. 1991. Conservation of the Slender-billed Curlew. ICBP Monograph No. 6. Cambridge, U.K.. 160 pp.
- Paci A.M. 1992. L'avifauna dell'Alto Tevere Umbro. Picus 18: 3-20
- Patrizi Montoro F. 1909. Materiali per un'avifauna della Provincia di Roma. Boll. Soc. Zool. Ital. II, 10: 19-29
- Tinarelli R., Serra L. & Magnani A. (in press). Nuovi dati sugli uccelli acquatici nidificanti nella Salina di Margherita di Savoia (Foggia). Proc. VI Ital. Orn. Congr., Urbino 1993
- Tornielli S. 1983. Gli uccelli del Parco del Circeo. Ad Novas, Cesenatico