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The Grey Heron in Central Liguria

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In Italy, the Grey heron (*Ardea cinerea*), after having registered a fall during the last century, is numerically increasing and enlarging in its distribution area (Brichetti and Fasola 1986, Volponi and Emiliani 1991, Aimassi and Ghiglia 1992, Fasola and Alieri 1992). In the last years, the expansion of the Italian population allowed to observe this specie in Liguria , and more frequently during all the year whilst some time ago it was observed just occasionally and as migrant (Calvi 1828, Durazzo 1840, Giglioli 1889, Spanò and Truffi 1987), more .

This work aims at better knowing the population in the districts of Genoa and Savona, supplying information about the phenology, the wintering contigent and the habitat utilization.

For assessing the presence of the Grey heron, in 1991-92 was created a team of volunteer watchers and got special survey cards ready. All the information we collected have been completed with those given by the Atlas of Wintering Birds in Liguria; further, some on-the-spot inspections were effectued, in order to control the areas not enough taken in census. We got the co-operation of 54 co-operators who, during two years, gave back 114 cards properly filled in. The 56% of the observations we got are related to the winter period, the 26.3% to the spring, the 5.3% to the summer and the 12.3% to the autumn.

The specie has been observed along almost all the watercourses of the district of Savona, excluding some streams of the Tyrrheanian side and the branch of Pallare of the Bormida river. In the district of Genoa have been noticed lacks of presence by the Vobbia stream, some long reaches of the Bisagno and the Trebbia streams and some smaller watercourses along the coast. The heron is constantly present in coastal areas, even if deeply anthropically determined.

In 1992 our co-operators searched for roosting places used not in the reproduction period and found totally 18 roosting places (8 in the district of Savona and 10 in that of Genoa), 12 of these were re-checked later: they were situated between 50 and 850 m a.s.l. (Table 1), with an average height of 390 m. In the district of Savona they were lower (4 roosting places between 50 and 330 m, average height 260 m) than those in the district of Genoa (8 roosting places between 100 and 850 m, average height 460 m).

The roosting places are very important for evaluating the number of the herons: there is a big difference between the number of animals observed feeding along the watercourse (more often single individuals) and the number of animals observed at the roosting places situated by the watercourse itself.

In the district of Genoa, was estimated the size of the wintering population between 01/11/91 and 15/02/92, supposing: 1) that in each main valley, where herons have been observed, there is at least one roosting place; 2) that the maximal number of herons at the roosting place agrees with the number of herons in the valley; 3) that the animals belonging to a roosting place move mainly inside the valley where that roosting place itself is located; 4) that in similar environmental conditions there is a constant relation between the number of observations along the watercourse and the number of animals at the roosting place. In case of valleys lodging more roosting places, if it was not demonstrated that more of them were utilized at the same time by different individuals, was considered just the biggest among them.

The roosting places have been found in 4 of the 9 main Genoese valleys, for a total amount of 63 herons and an average amount of about 16 individuals for each roosting place: val d'Aveto (22 herons), Entella - Val Fontanabuona (17), Val Polcevera (12) and Valle Stura (12). Supposing that there are roosting places also in the other 5 valleys from where we got regular observations during the winter, we think that the wintering population comes to about 140 units. For prudently correcting the evaluation we made, it is to consider that the number of individuals in the valleys where no roosting places were found, comes to the

Table 1. Main characteristics of the observed roosting places.

Valley	District	Height (m.a.s.l.)	Exposition	Trees	Distance from water (m.)	Characteristics of water courses	Distance from Road/houses (m.)	Accessibility	Utilization period
Pennavaira	SV	320	N-NE	B	100	S-NE-K-H	200	reduced	1-2
Pennavaira	SV	330	N-NE	B	100	S-NE-K-H	200	reduced	1-2
Arroscia	SV	50	/	C	500	R-NE-P-H	500	good	1-2
Bormida Spigno	SV	330	E-SE	B/C	1000	R-NE-P-H	500	limited	U
Stura	GE	430	SE	C	200	S-NE-P-H	150	reduced	1-2-3-4
Aveto	GE	820	W-NW	C	1000	S-NE-P-H	1000	reduced	1
Aveto	GE	850	SE	C	200	S-NE-P/K-H	800	reduced	1
Aveto	GE	850	/	B	1500	S-NE-P/K-H	1500	reduced	1
Varenna	GE	100	/	B/C	500	S-NE-P-H	100	limited	1-3-4
Fontanabuona	GE	220	NW	B	100	S-NE-P-H	100	reduced	1-2-4
Fontanabuona	GE	220	NW	C	200	S-NE-P-H	300	reduced	2-3
Polcevera	GE	195	N-NE	B	100	S-E-P-H	100	good	1-2-3-4

Legenda

B= broadleave S= stream NE= not embanked K= rocky bed H=shallow 1= winter 3= summer
C= conifers R= river E = embanked P= pebbly bed U=unknown 2= spring 4= autumn

By "limited accessibility" have been indicated the roosting places situated in parks where the access to the public is allowed just during limited visit times.

minimal recorded numbers (12 animals), also in relationship between the ecological needs of the specie and the morphological characteristics of the valleys themselves (Geiger 1984a; Voisin 1991). So, the minimal size of the wintering population in the district of Genoa can be evaluated in about 120-130 animals.

Two roosting places situated by Carasco (Val Fontanabuona) and Pontedecimo (Val Polcevera) have been regurarly observed respectively during two years (1990-92) and 4 months (1992), in order to assess the seasonal fluctuation of the presences. The specie is more abundant in winter, with peaks in December/February and a fall between May and September, probably because of the transfer of most adults to the traditional nesting places (Figure 1).

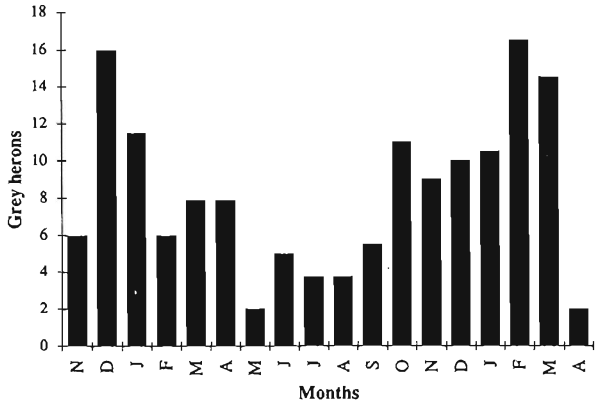

Figure 1 - Seasonal fluctuation of the presences of Grey heron at the roosting place in Carasco (Val Fontanabuona) from November 1990 to April 1992. The data are the average of the maximal values monthly recorded, carried out every 15 days.

Daily controls effectued at the same roosting places allowed to confirm the data reported in the literature about the daily activity rythms (Voisin 1991). In Carasco, where the roosting place is left at nightfall, it seems that the herons concentrate their feeding activity more in the night hours (Hancock and Kushlan 1984). This assumption is confirmed by the capture of a young individual (29/12/1991) at less than 1 km as the crow flies from the roosting place: the heron ended trapped in a mist net hanged up between the two banks of the Stura stream one hour after the nightfall and re-checked before dawning. By the roosting places in Pontedecimo this trend was not observed, maybe because of the different level of anthropical disturbance by the watercourses.

In 1992, for the first time, it was confirmed the reproduction of the Grey heron in Liguria: a colony in Valle Stura was found, on a group of pinasters (*Pinus pinaster*) at the NW side of a hill facing the river, at 350 mt a.s.l.. The place is not to see from the road

Table 2. Data collected in the colony of Stura Valley (= indicates no data collected).

Year	Nests	Laying period	Hatching period	Fledging period	juv. reared (N total)	juv. reared (mean)
1992	9	Mar-May	Apr-Jun	May-Jul	32	3.5
1993	11	Mar-Jun	Apr-Jun	Jun-Aug	35	3.2
1994	=	=	=	=	=	=
1995	13	=	=	May-Jun	=	=

running underneath and scantily accessible, but is close to the motorway; the closest human settlements are 500 m far away. For the environmental characteristics, this colony differs from the other Italian colonies (Fasola et al. 1981, Brichetti and Fasola 1986); there are more analogies with the Swiss colonies described by Geiger (1984b).

In 1992, 7 pine-trees (8-10 m high) lodged 9 nests; in 1993, 8 trees were occupied by 11 nests; many of the utilized plants changed from those of the previous year, even if belonging to the same group of pine-trees. The average distance between the nests is of about 4 m. We have no data for 1994 and in 1995 was confirmed the presence of at least 13 nests.

Remote observations allowed to have interesting data about the reproduction phenology and the numbers of reared chicks (Table 2). The average number of young reared is higher than what reported in the literature (Cramp and Simmons 1977).

The results we obtained during our study are interesting and unexpected. The Grey heron seems to be permanently installed in the Ligurian territory, adapting to occupy new and partially not usual habitats. It can be assumed that this specie can permanently live in most part of the Northern Appennine, nesting in small colonies or as isolated couples; the lack of information about this aspect could be related to the difficulty to individualize the roosting places and the nests and to the poor attention to the specie in these environments.

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Riassunto - Vengono illustrati i risultati di uno studio sull'Airone cenerino nella Liguria centrale. La specie risulta stabilmente presente lungo la maggior parte dei torrenti dal livello del mare fino ad oltre i 900 m. di quota, con una consistenza minima della popolazione svernante valutata attorno ai 120 individui nella sola provincia di Genova (inverno 91/92). Nel 1992 il ritrovamento di una garzaia di 9 nidi ha consentito di accertare per la prima volta la nidificazione della specie in Liguria. L'elevato successo riproduttivo nel 92 e nel 93 (3,5 e 3,2 piccoli/nido) e la tendenza all'aumento del numero dei nidi negli anni conferma come l'Airone cenerino possa adattarsi bene a vivere nell'ambiente appenninico.

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