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Abundance and predictability of local waste food may keep juveniles Yellow-legged Gull *Larus michahellis* in their natal areas

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Summary: We analysed recoveries of juvenile Yellow-legged Gulls *Larus michahellis* ringed in the coastal city of Livorno, Italy. We assessed whether the availability of food resources affect the movements of juvenile gulls raised in the urban area. Results showed that juveniles tend to remain close to their natal area, limiting or delaying their movements towards northern wintering quarter.

Key Words: *Larus michahellis*, Yellow-legged Gull, juvenile, dispersal, recoveries, food availability

Introduction

In the Mediterranean basin most juvenile Yellow-legged Gulls *Larus michahellis*, once fledged, show a tendency to move towards richer North-European feeding areas and then return to natal areas after three or four years (Isenmann 1973, Yésou 1985, Snow & Perrins 1998, Bricchetti & Fracasso 2006). On one hand, these dispersive movements seem to confirm the tendency of the species to avoid competition between age classes and to explore new environments (Soldatini *et al.* 2005). On the other hand, these gulls are opportunistic feeders, exploiting a wide variety of food (Snow & Perrins 1998). In urban and coastal areas, dumped refuse and fishing discards are highly predictable, daily renewed and locally abundant resources (e.g. Chace & Walsh, 2006), presumably allowing the gulls to minimize time and energies spent foraging.

Aim and Methods

The aim of our study was to assess whether juvenile gulls born in an urban area where anthropogenic food resources are available, accessible and abundant, tend to remain in their natal area after fledging or disperse towards North-European quarters. Since 2001 in the coastal city of Livorno, Italy (43°33'6"N, 10°18'2"E), we have been monitoring an urban population of Yellow-legged Gull (Arcamone & Leone 2001, Arcamone & Franceschi 2006), and from 2009 we started to trap adult breeders and their nestlings in order to band them with coloured rings. A total of 31 chicks were banded in Livorno during the breeding seasons 2009 and 2010. The low number of chicks caught is mainly due to the complexity in capturing gulls in urban environment where most breed on rooftops (tile roofs): the reduced sample depends on the lack of suitable and safe places that ensure the safety both of the researchers and of the gulls, still unable to fly. The chicks were ringed at 15-20 days old, with both metal and engraved colour PVC rings allowing each chick to be individually recognized. Sighting data were actively collected, checking every fifteen days all

year round from July 2009 to June 2011 in all known foraging areas around the city of Livorno, while reports from other ornithologists or birders were also collected.

Results

A total of 32 sightings of 14 individuals were collected, i.e. about 45 % of the ringed chicks. Seven immature gulls were observed as age 3 in late summer or early autumn and then re-sighted as age 5 in the following spring (Table 1). We also collected two sightings from abroad: the first was a juvenile ringed on 25 May 2009 thereafter observed on 18 November 2009 at Pasajes, Guipúzcoa, Spain (43°19'20"N, 01°56'01"W) on the Atlantic coast of the Bay of Biscay (age 3; distance 988 km; direction from ringing site: 272,68 °), while the other one ringed on 12 May 2010 has been observed on 12 May 2011 at Zeebrugge, Belgium (51° 20' N, 03° 11'; age 5; distance: 1017,5 km; direction from ringing site: 330,82 °).

Ringing data	Metal ring	Coloured ring	Place	Number of Recoveries		
				Aug-Oct	Nov-Mar	Apr-Jul
20/05/2009	CC 9771	IVAH	Livorno – ITALY	0	2	2
26/05/2009	CC 9782	IVBB	Livorno – ITALY	0	1	2
05/05/2009	CC 9785	IVBF	Livorno – ITALY	0	1	0
07/05/2010	CH 1201	IVCA	Livorno – ITALY	2	1	2
07/05/2010	CH 1202	IVCB	Livorno – ITALY	0	0	1
07/05/2010	CH 1203	IVCL	Livorno – ITALY	0	0	1
28/05/2010	CH 1210	IVCN	Livorno – ITALY	0	3	1

Table 1: Recoveries of Yellow-legged Gulls ringed in Livorno and observed as 2cy (age 5) near the natal colony.

Discussion

Most (88%) of the observations took place at the Porto Mediceo of Livorno, where gulls feed daily on discards arising from fishing vessels activities. Recoveries were made all year round suggesting that some of the juveniles reared in the urban area tended to remain close to their natal area or delayed the departure towards North-European wintering areas. Immature gulls probably find plenty of food available during the winter and thus limit their movements.

Information on the dynamics of urban population of gulls remains scarce and needs more attention, particularly when their management is required. Our data suggest that an available and abundant source of food provided throughout the year, may hold juvenile Yellow-legged gulls in their natal area, or reduce to some extent their dispersal movements. These preliminary results need further investigations and experimental studies involving more marked individuals.

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