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The use of dredge islands by birds in northern Adriatic lagoons

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Introduction

Building of dredge islands, i.e. islands created with the use of sediments resulting from dredging operations, has been a common practice since the '60s in the Unites States, whereas very few examples exist for European countries, most of them referring to small or very small sites. In the Lagoon of Venice and in the Po Delta many islands have been created since the beginning of the '90s, as a new tool to dispose of dredged material. These islands were rapidly used by birds, and we report here the preliminary results of observations gathered in the period 1993-1998.

Study area and methods

The study area encompasses the lagoon of Venice (55,000 ha) and the Po Delta (64,000 ha), located in the North-western Adriatic coasts, between 45°30' N and 44° 50' N. The first islands were built in 1991; in 1998 43 islands were present, ranging in size from 4 to 34 ha; most of them are made of silty or clay sediments, whereas the others are mostly sandy. These islands can be considered intertidal sites (height < 1 m, and so called "artificial saltmarshes") or supratidal (> 1 m, "artificial islands"). Vegetation cover and species composition depends on soils characteristics, elevation and age of the sites, but is always due to alophylous, psammophylous or nitrophylous herbs species. Data on birds use come from regular monitoring at several sites and more occasional observations for others.

Results and discussions

Table 1 list all the 58 species of non-Passeriformes observed at least once in the study period.

Waders, gulls and herons were the most abundant groups. Most of the species used the islands as feeding sites (especially wintering waders such as *C. alpina* and *Numenius arquata,* but also *E.garzetta* and *A.cinerea*) or resting sites (mostly gulls and herons), whereas nine species nested. Among these latter, rare or localised species occur (such as *T. tadorna, R. avosetta*, *H. ostralegus* - with about 20% of the Italian breeding population in 1998-, *T. totanus*, *C. alexandrinus* and *S. albifrons*) together with invasive species like *L. cachinnans*.

Management of these islands (e.g. control of vegetation cover increase, creation of ponds and creeks, reduction of the *L. cachinnans* colonies), at the moment completely lacking, is needed to increase or maintain their importance for the birds communities.

Table 1. Species occurring in dredge islands and use over the 1993-1998 years.

	Nesting	Feeding	Resting
Podiceps cristatus		X	
Podiceps griseigena		X	
Podiceps nigricollis		X	
Phalacrocorax carbo			X
Egretta garzetta		X	X
Casmerodius albus		X	X
Ardea cinerea			X
Ardea purpurea		X	
Anser fabalis			X
Tadorna tadorna	X	X	X
Anas crecca		X	
Anas platyrhynchos	X	X	X
Anas querquedula		X	
Somateria mollissima			X
Mergus merganser		X	
Circus aeruginosus		X	
Circus cyaneus		X	
Circus pygargus		X	
Buteo buteo			X
Falco columbarius		X	X
Falco peregrinus		X	X
Haematopus ostralegus	X	X	X
Himantopus himantopus	X	X	X
Glareola pratincola			X
Recurvirostra avosetta	X	X	X
Charadrius dubius		X	
Charadrius hiaticula		X	
Charadrius alexandrinus	X	X	
Pluvialis apricaria		X	
Pluvialis squatarola		X	X
Vanellus vanellus		X	
Calidris minuta		X	
Calidris ferruginea		X	X
Calidris alpina		X	X
Philomacus pugnax			X
Gallinago gallinago		X	
Numenius phaeopus		X	
Numenius arquata			X
Tringa erythropus		X	
Tringa totanus	X	X	X
Tringa glareola			
Tringa nebularia		X	
Actitis hypoleucos		X	
Arenaria interpres			X
Catharacta skua			X
Larus melanocephalus			X
Larus minutus			X
Larus ridibundus			X
Larus canus		X	X
Larus fuscus			X
Larus cachinnans	X		X
Sterna sandvicensis			X
Sterna hirundo			X
Sterna albifrons	X		X
Chlidonias niger		X	
Cuculus canorus			X
Apus apus		X	
Alcedo atthis			X
58	**9**	**37**	**34**