INTERNATIONAL WATERBIRD CENSUS REPORT

GREECE · 2009-2018

Mediterranean Waterbirds
Oiseaux d'eau Méditerranée
الطيور المائية بمنطقة البحر المتوسط

LIST OF PARTICIPATING ORGANISATIONS AND INDIVIDUALS

- **NATIONAL CO-ORDINATION:** Hellenic Ornithological Society / BirdLife Greece

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- **AUTHOR:** Danae Portolou (Hellenic Ornithological Society / BirdLife Greece)

Cover image: Dunlins flying over Schinias Marsh in the Attica region © M. Kotsakis / HOS - **Proofreading:** Jeanette Freynet
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A WELL ESTABLISHED MONITORING NETWORK

The Greek International Waterbird census (IWC) is the oldest long-term bird monitoring programme in Greece, covering mainly waterbirds but also birds of prey wintering on Greek wetlands. The IWC commenced in Greece in 1968, and until 1976 counts were carried out exclusively by international ornithologists, mainly from the Tour du Valat in France. During the period 1977-81, censuses were discontinued; they resumed again in 1982 by Greek ornithologists. Since 1997, the IWC have been coordinated by the Hellenic Ornithological Society (HOS), at times in collaboration with the Hellenic Bird Ringing Centre (HBRC), under the auspices of the Ministry of Environment and Energy. Overall, 216 sites of international, national or regional importance for wintering waterbirds have been counted by more than 150 volunteers per annum. Apart from the HOS volunteer network, volunteers from numerous local NGOs and environmental organisations participate in the counts, as well as staff from 18 Management Authorities of National Wetland Protected Areas. Larger wetlands have been separated into subsites (> 300 overall), and counts are carried out from predefined viewpoints. During 2009-18, more than 6.5 million waterbirds were recorded from 141 species.

NUMBER OF VOLUNTEERS:

550
VOLUNTEER COUNTERS

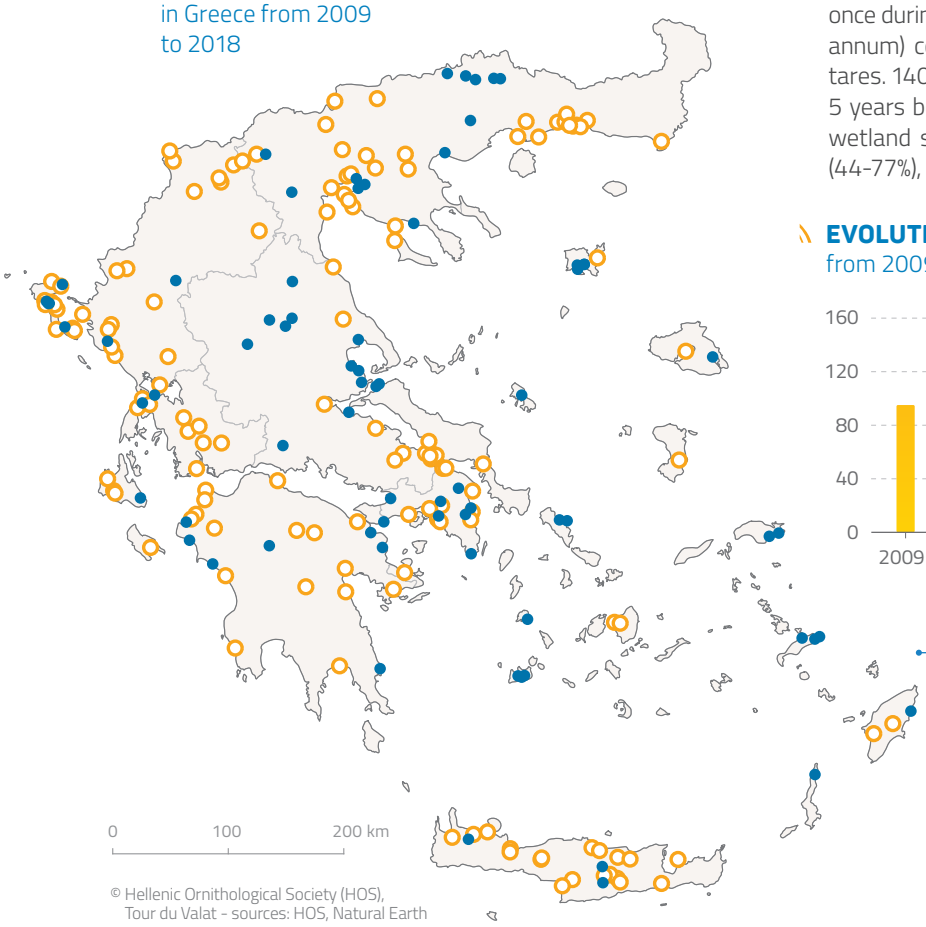
NUMBER OF KM TRAVELLED:

6,000-7,000
KM PER ANNUM (AVERAGE)

NUMBER OF WETLANDS COUNTED:

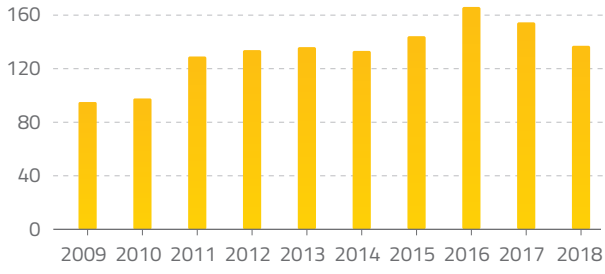
216
WETLANDS COUNTED AT LEAST ONCE DURING 2009-2018

WETLANDS COUNTED
in Greece from 2009 to 2018



In total **224** wetland sites occur in the Greek Mid-Winter Database. Of these, **216** sites (96%) were counted at least once during 2009-2018 (ranging from 95-166 wetlands per annum) covering an area of approximately 330,000 hectares. 140 of the sites (63%) were regularly counted (at least 5 years between 2009-2018). Since 2009, the number of wetland sites covered on an annual basis has increased (44-77%), which represents only a 10% increase in area.

EVOLUTION OF MONITORED SITES
from 2009 to 2018



National census network

- Sites irregularly counted *(less than 5 years between 2009 and 2018)*
- Sites regularly counted *(at least 5 years between 2009 and 2018)*

WATERBIRD POPULATIONS EXHIBITED A DECLINING TREND OF 4%[1]

During 2018, 553,476 waterbirds, belonging to 93 species, were counted in the Greek IWC. According to counts carried out between 2009-2013 and 2014-2018, waterbird populations exhibited a declining trend of 4%, with lowest counts in 2010 (547,155) and highest in 2013 and 2017 (821,902 and 796,776 birds). When comparing the average numbers of the two sub-periods, taxonomic groups on the rise were Spoonbills (70%), Swans (63%), Pelicans (41%) and Flamingos (42%), as well as Gulls and Terns (14%). In decline were groups such as Herons (15%), Ducks, Coots and Waders (8-9%) and Seaducks (6%).

The trends of wintering populations have been calculated using TRIM and BirdStats and are presented in the tables below. Counts used in trend calculation for the Lesser White-fronted Goose originated from systematic wetland monitoring (HOS Lesser White-fronted Goose DataBase), while for all other species, IWC counts were used. Those seeing notable decline are the populations of Slender-billed Gull and Kentish Plover, as well as all the heron species, Little Grebe, Curlew, Redshank and Lapwing. Species on the rise include the Bewick's Swan, Red-crested Pochard, Ferruginous Duck, Sandwich Tern, Spoonbill, Greater Flamingo, Pygmy Cormorant, Mallard, Common Sandpiper, Dalmatian Pelican, Black-necked Grebe and Common Pochard.

SPECIES ON THE RISE
ACCORDING TO CALCULATIONS MADE DURING THE PERIOD 2009-2018

ORDER		Mid-January 2018		Trends*
Species		Total	N° sites	Mag.**
ANSERIFORMES				
Bewick's Swan	*Cygnus columbianus*	4,256	6	44,54
Greylag Goose	*Anser anser*	120	3	25,72
Lesser White-fronted Goose	*Anser erythropus*	112	2	12,98
Red-crested Pochard	*Netta rufina*	230	5	25,04
Common Pochard	*Aythya ferina*	30,049	46	3,16
Ferruginous Duck	*Aythya nyroca*	367	18	15,83
Mallard	*Anas platyrhynchos*	25,672	111	6,39
PODICIPEDIFORMES				
Black-necked Grebe	*Podiceps nigricollis*	4,245	67	4
PHOENICOPTERIFORMES				
Greater Flamingo	*Phoenicopterus roseus*	28,315	69	8,04
PELECANIFORMES				
Eurasian Spoonbill	*Platalea leucorodia*	1,072	41	9,95
Pygmy Cormorant	*Phalacrocorax pygmeus*	5,345	38	7,22
Dalmatian Pelican	*Pelecanus crispus*	2,686	32	4,17
CHARADRIIFORMES				
Common Sandpiper	*Actitis hypoleucos*	34	21	6,38
Sandwich Tern	*Sterna sandvicensis*	423	28	13,18

SPECIES CONSIDERED STABLE
ACCORDING TO CALCULATIONS MADE DURING THE PERIOD 2009-2018

ORDER		Mid-January 2018		Trends*
Species		Total	N° sites	Mag.**
ANSERIFORMES				
Red-breasted Merganser	*Mergus serrator*	290	12	-0,71
Common Shelduck	*Tadorna tadorna*	6,978	64	2,1
Tufted Duck	*Aythya fuligula*	3,966	20	-0,12
Gadwall	*Mareca strepera*	3,570	31	-0,15
Eurasian Wigeon	*Mareca penelope*	53,408	74	0,1
Northern Pintail	*Anas acuta*	3,332	45	-2,34
Eurasian Teal	*Anas crecca*	54,326	83	-2,14
PODICIPEDIFORMES				
Great Crested Grebe	*Podiceps cristatus*	15,943	80	1,5
PELECANIFORMES				
Great Cormorant	*Phalacrocorax carbo*	35,526	156	-0,77
CHARADRIIFORMES				
Dunlin	*Calidris alpina*	14,193	41	0,04

SPECIES IN DECLINE,
ACCORDING TO CALCULATIONS MADE DURING THE PERIOD 2009-2018

ORDER		Mid-January 2018		Trends*
Species		Total	N° sites	Mag.**
ANSERIFORMES				
Mute Swan	*Cygnus olor*	609	36	-3,52
Greater White-fronted Goose	*Anser albifrons*	160	2	-13,56
Common Goldeneye	*Bucephala clangula*	129	9	-9,2
Northern Shoveler	*Spatula clypeata*	23,087	71	-2,27
PODICIPEDIFORMES				
Little Grebe	*Tachybaptus ruficollis*	2,476	91	-4,86
GRUIFORMES				
Eurasian Coot	*Fulica atra*	83,625	95	-2,65
PELECANIFORMES				
Grey Heron	*Ardea cinerea*	1,778	140	-5,14
Great Egret	*Ardea alba*	2,643	115	-4,31
Little Egret	*Egretta garzetta*	1,739	105	-6,89
CHARADRIIFORMES				
Northern Lapwing	*Vanellus vanellus*	5,793	27	-4,52
Kentish Plover	*Charadrius alexandrinus*	2,287	24	-10,62
Eurasian Curlew	*Numenius arquata*	973	46	-6,69
Ruddy Turnstone	*Arenaria interpres*	11	2	-15,69
Common Redshank	*Tringa totanus*	1,523	51	-5,3
Black-headed Gull	*Larus ridibundus*	34,806	84	-2,12
Slender-billed Gull	*Larus genei*	1,477	22	-9,09

[1] Species with fluctuating or indeterminate numbers are not represented in these tables

* **Trends:** 10 years

** **Magnitude:** in percentage per year average

2018 COUNTS AND 10 YEAR TRENDS (direction and magnitude) over the period 2009-2018 of the numbers of regular wintering waterbird species recorded in Greece in mid-January

DUCKS DOMINATE IWC

During the period 2009-2018, the vast majority (>40%) of waterbirds recorded by the IWC in Greece was comprised of duck species, mainly Common Teal, Mallard and Eurasian Wigeon. Of these, 50% were recorded in just two wetlands, namely Amvrakikos Gulf and Evros Delta, which have been identified as the two most important wetlands in Greece.

Various duck species in Oropos Wetland, Attica - © G. Alexandris / HOS

Coots and Rails are the second most numerous taxonomic group, mainly consisting of the Common Coot, reaching approximately 20% of the total count. Almost half of the national wintering population of Coot occurs in three wetlands: Amvrakikos Gulf, Mesolongi Wetlands and Lake Volvi. The third most abundant taxonomic group overwintering on Greek wetlands is Gulls and Terns. On a European level, Greece hosts the most significant population of wintering pelicans, as well as large numbers of cormorant species.

GROUPS	MEAN 2009-2013	MEAN 2014-2018
Ducks	300,379	272,122
Coots, Rails and Crakes	147,458	133,753
Gulls and Terns	65,285	74,448
Waders	52,541	48,377
Cormorants	43,038	41,566
Flamingos	22,269	31,616
Grebes	30,606	30,950
Herons	9,631	8,213
Swans	3,241	5,294
Geese	5,621	4,330
Pelicans	2,284	3,229
Storks, Ibis & Spoonbills	517	877
Seaducks	870	819
Woodcocks and Snipes	516	480
Loons	51	55
Cranes	13	30
TOTAL WATERBIRDS	**684,323**	**656,163**

MEAN NUMBERS OF WATERBIRDS
counted during the mid-January census, 2009-2013 and 2014-2018

Counting waterbirds on the wetlands in Mesolongi
© R. Trigou / HOS

A POSSIBLE EVOLUTION OF RAMSAR SITES

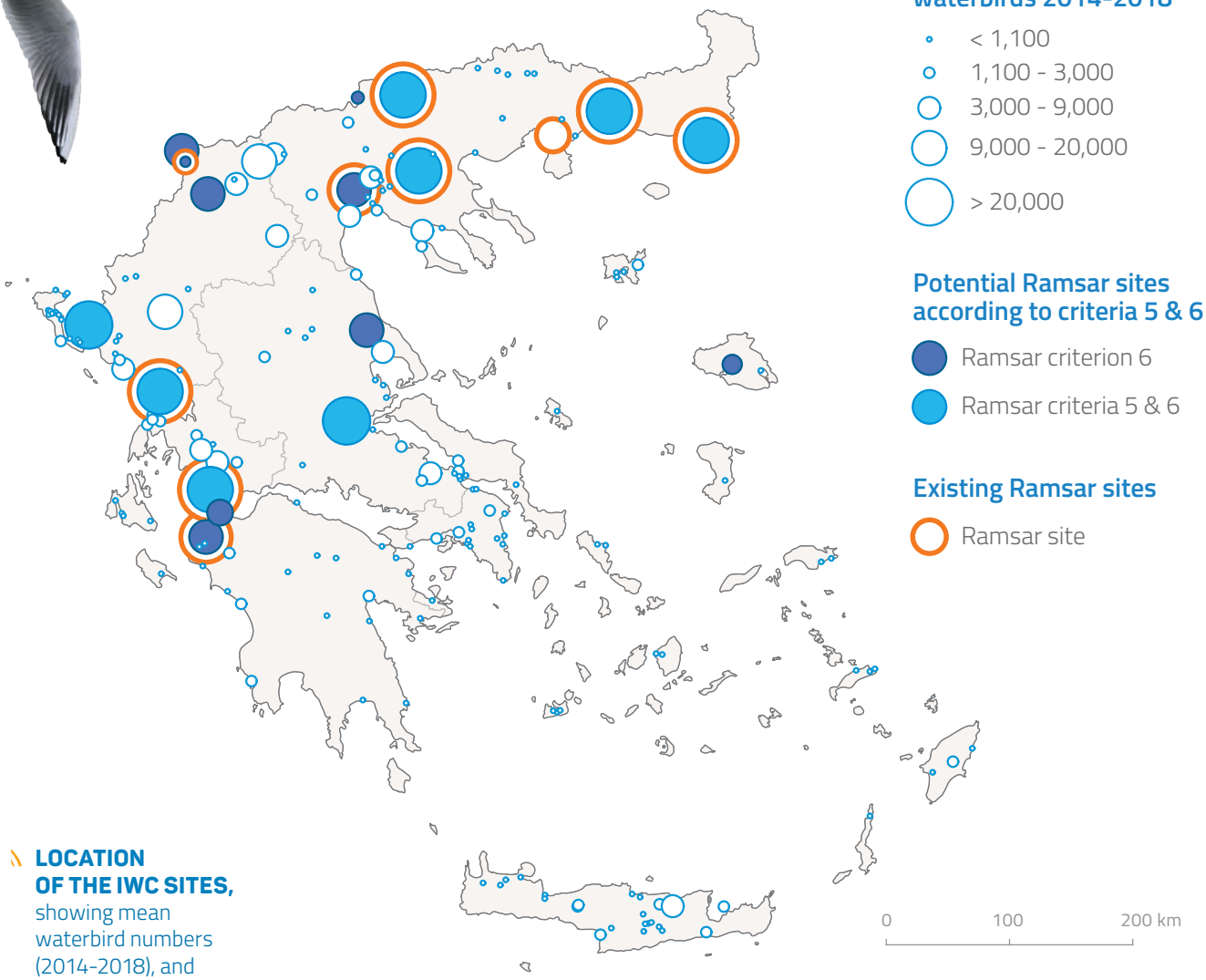
The majority of the registered wetlands in Greece are river estuaries and deltas, coastal lagoons and marshes. Large inland lakes are mainly located in the North and West of the country, while of great significance is the network of small island wetlands.

The Gulf of Amvrakikos hosts 16% of the total wintering populations of waterbirds in Greece, while just 10 wetlands are responsible for 68% of average annual counts. The Mesolongi wetlands have the greatest species diversity, with 89 waterbird species, followed by Amvrakikos Gulf, Axios, Loudias and Aliakmon deltas, Lake Kerkini and Evros Delta. Nestos Delta and the Keramoti lagoons which met Ramsar criteria in the past, fail to meet the criteria in the 2014-2018 period, however this might be an outcome related to changes in the count coverage of the specific site.

SITES OF INTERNATIONAL IMPORTANCE	*Existing Ramsar Site*	> 20,000 waterbirds	Northern Shoveler	Eurasian Teal	Eurasian Wigeon	Mallard	Gadwall	Common Pochard	Dunlin	Kentish Plover	Tundra Swan	Whooper Swan	Mute Swan	Eurasian Coot	Common Merganser	Dalmatian Pelican	Pygmy Cormorant	Greater Flamingo	Eurasian Spoonbill	Great Crested Grebe	Pied Avocet
Number of sites		8	1	2	4	1	1	1	1	1	2	1	2	1	1	10	1	6	2	2	5
THRACE																					
Evros Delta	R	o		o	o	o					o	o	o					o			o
Lake Vistonis, Lake Ismaris, Porto Lagos and lagoons	R	o											o			o		o			o
Nestos Delta and Keramoti Lagoons	R																				
MACEDONIA																					
Lake Koronia and Lake Volvi	R	o														o				o	
Lake Kerkini	R	o						o			o					o		o			o
Axios Delta, Loudias Delta, Aliakmon Delta	R															o					
Lake Doirani																o					
Lake Kastoria																o	o				
Lake Megali Prespa																				o	
Lake Mikri Prespa	R														o						
EPIRUS																					
Kalamas Delta		o																	o		
Amvrakikos Gulf and Vonitsa Bay	R	o	o		o		o							o		o		o			o
THESSALY																					
Karla reservoirs																o					
STEREA ELLADA																					
Mesolongi and Aetoliko Lagoons, Acheloos Delta and Evinos Estuary	R	o		o	o				o	o						o		o	o		o
Spercheios delta		o																			
PELOPONNESE																					
Araxos (Pappas) Lagoon					o																
Kotychi Lagoon / Kalogria (Metochi) Lagoon	R															o					
AEGEAN ISLANDS																					
Kalloni Gulf																		o			

WETLANDS OF INTERNATIONAL IMPORTANCE FOR WATERBIRDS identification based on mid-January (2014-2018) count data for Ramsar Criteria 5 and 6*. Empty cells in the "Ramsar site" column identify sites not included in the Ramsar network; "R" identifies wetlands with an existing Ramsar designation.

*Criterion 5: A wetland can be considered internationally important if it regularly supports 20,000 or more waterbirds.
Criterion 6: A wetland can be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.



LOCATION OF THE IWC SITES, showing mean waterbird numbers (2014-2018), and information on Ramsar criteria 5 & 6.

In Greece, seventeen wetland sites met Criteria 5 & 6 of international importance over the period 2014-2018. Among the ten existing Ramsar sites, six host on average more than 20,000 waterbirds, thus meeting Criterion 5, as do two other wetlands (namely Kalamas Delta and Spercheios Delta) which are not currently designated as Ramsar sites.

Overall, sixteen wetlands regularly support 1% of the biogeographic populations of nineteen waterbird species. Ten wetlands meet Criterion 6 for the Dalmatian Pelican, six wetlands for the Greater Flamingo, and five wetlands for the Avocet. Interestingly, eight wetlands which have not been designated as Ramsar sites meet Criterion 6.

Waterbirds on Vistonida Wetland - © D. Kokkinidis / HOS

Dalmatian Pelicans
© N. Bedau / HOS

FOCUS ON "KEY" SPECIES IN THE COUNTRY
DALMATIAN PELICAN *(PELECANUS CRISPUS)*

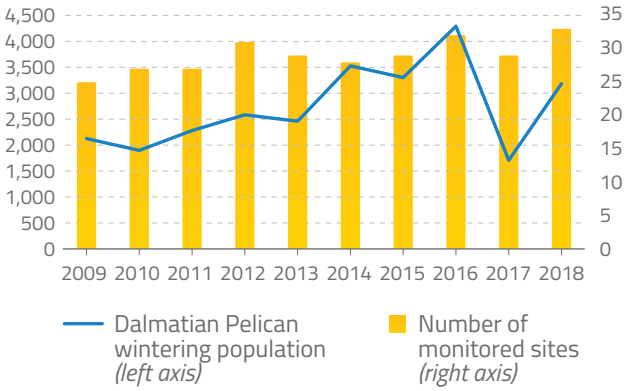
The Dalmatian Pelican (*Pelecanus crispus*) is a widely distributed wetland species occurring in three separate flyway populations: the Black Sea-Mediterranean (SEE), the Central Asian and the East Asian. The most recent global population estimates refer to c.27,000 mature individuals, with the most important breeding populations occurring in Kazakhstan, Russia and Greece (Catsadorakis and Portolou 2018).

Sites of international importance for the species in Greece in 2018 (threshold of 1% pop.): **10**

The SEE flyway population consists of short-distance migrants, overwintering mainly on the wetlands of SE Europe and Turkey (Crivelli *et al.* 1991; Catsadorakis and Portolou 2018), with Greece hosting approximately 45% and 40% of the European breeding and wintering populations respectively (BirdLife International 2017). In Greece, two almost distinct sub-populations have been identified, separated by the Pindus mountain range, with the wetlands of the western sub-population hosting substantially lower numbers of wintering individuals.

The species was first recorded by the Greek IWC in 1964, and exhibits large inter-annual fluctuations. During 2009-18, an average of 2,740 individuals overwintered on fifty-four wetlands across Greece, twenty of these on a regular basis, with Lake Kerkini hosting the most significant wintering populations, followed by Amvrakikos Gulf, Lake Volvi and the Mesolongi wetlands. Over the last 30 years, the Dalmatian Pelican wintering populations have gradually increased in most countries on the SEE flyway.

EVOLUTION OF THE DALMATIAN PELICAN POPULATION IN GREECE,
and number of occupied sites



In Greece, a moderate increase of 5.7% has been estimated (1986-2017), more specifically, a strong increase has been recorded in the western sub-population (9.7%), and a moderate one in the eastern (4.7%) (Barboutis *et al.* 2020). The marked decline observed in the national counts in 2017 relates to severe prevailing climatic conditions which caused a large proportion of wetlands in the north to freeze.

Dalmatian Pelicans

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Greater Flamingos on Evros Delta - © M. Ekker / HOS

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Pied Avocet in Mesolongi wetlands
© P. Andriopoulos / HOS

THE IWC PROVIDES ESSENTIAL DATA FOR WETLAND PROTECTION

The Greek IWC is the oldest and most important monitoring programme implemented in the country, made possible through the continuous participation of a large network of volunteers, local NGOs and employees of the Management Authorities of Protected Areas. The number of wetlands covered every year has increased with the inclusion of numerous small wetlands across the country, in parallel with the expansion of the volunteer network. The programme is funded exclusively by independent financial sources of the Hellenic Ornithological Society. Further participant training and support would be possible if external financial support was available.

Data collected through the Greek IWC programme are extremely important as they comprise the only standardised nationwide dataset for wintering waterbird populations in the country. The national dataset is made available to the Ministry of Environment and Energy, and is used for the revision of the Standard Data Forms (SDF) of Natura 2000 sites, the compilation of Special Environmental Studies and Management Plans of the Natura 2000 Network, as well as Article 12 reporting of the European Birds Directive (2009/147/EC).

As presented above, eight nationally important wetlands meeting Ramsar Criterion 5 and/or Criterion 6 are currently not designated as Ramsar sites, however fortunately they are all included in the Natura 2000 network. Nevertheless, all of these protected wetlands, which hold nationally and internationally important waterbird populations, are systematically threatened by habitat degradation from agricultural runoff, pollution, inappropriate water management, waste dumping and landfilling, as well as uncontrolled hunting and illegal killing. Hunting is often even allowed in core zones of important wetlands, such as Amvrakikos and Mesolongi, creating significant disturbance to foraging and resting waterbirds, as well as breeding Dalmatian Pelicans. In addition, even though, in Greece, lead shots have been banned from wetlands since 2013, they are still in use today, causing serious cases of lead poisoning. The operation of management authorities in most wetlands has improved the situation, however, it is essential that these bodies are provided with adequate funds to pay for much needed wardens and additional threat monitoring.

From the ten waterbird species whose hunting is allowed by national legislation, two species exhibit moderate increasing trends (Mallard and Common Pochard), while three species exhibit moderate decreasing trends (Northern Shoveler, Eurasian Coot and Northern Lapwing). However, national population trends should not be interpreted independently from those of the flyway trends produced by Wetlands International. As a final point of concern, also expressed by the NADEG in 2019, species with an unsecure status, such as the Common Pochard and Northern Lapwing which are listed as Vulnerable in the European Red list, should be temporarily excluded from the list of huntable species until management plans and adaptive harvest management programmes are in place and and have been implemented.

IWC volunteers counting waterbirds on Amvrakikos wetlands
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COUNTRY CONTACT AND NATIONAL COORDINATOR:

Hellenic Ornithological Society
Danae Portolou
Themistokleous 80,
GR 10681 Athens, Greece
dportolou@ornithologiki.gr

Ορνιθολογική
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Grey Heron - © M. Ekker / HOS

Mediterranean Waterbirds
Oiseaux d'eau Méditerranée
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