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International Single Species Action Plan For the Conservation of the Eurasian Spoonbill *Platalea leucorodia*

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African-Eurasian Migratory Waterbirds (AEWA)

EURASIAN SPOONBILL
AEWA International Single Species Action Plan

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AEWA International Single Species Action Plan

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Platalea leucorodia balsaci Mauritanian subspecies

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- **Milestones in the production of the Plan**

Workshop: 22-26 October 2007, Djoudj National Park (Senegal)
Draft 0 sent to all the contributors: 15th November 2007
Draft 1 sent to AEWA: 31st January, 2008

- **Geographical range**

The Spoonbill has a wide distribution from Europe to East Asia. Its distribution is partly included within the geographical range of the actions of AEWA. The present Action Plan covers the distribution in Europe, western Asia and Africa. The Plan distinguishes five subspecies or populations:
The Atlantic Population *Platalea leucorodia leucorodia*
The Central European Population (Panonnian population) & Southeast European Population *P. l. leucorodia*
The West Asian Population (so called "*P. l. major*")
The Red Sea subspecies (*P. l. archeri*)
The Mauritanian subspecies (*P. l. balsaci*)

- **Reviews**

This International Single Species Action Plan should be reviewed and updated every ten years (first review in 2018). An emergency review will be undertaken if there is a sudden major change liable to affect one of the populations or subspecies.

- **Credits**

Front page: adult Spoonbill *P. l. archeri* : Dawit Semere

- **Recommended citation**

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EURASIAN SPOONBILL
AEWA International Single Species Action Plan

Executive summary

The Eurasian Spoonbill *Platalea leucorodia* is distributed from the East Atlantic to India and China (Fig. 2). Four or five populations/subspecies can be distinguished: *Platalea leucorodia leucorodia*, the nominate subspecies, is distributed from Western to Central Europe/ Southeast Europe. It is often separated into two populations, Atlantic and Central and Southeast Europe, differing in their distribution and ecology, in particular during the breeding season. The population which breeds in eastern Europe and throughout Asia has been designated as a separate subspecies, *Platalea leucorodia major* on the basis that it is larger in size than the nominate subspecies. Two subspecies are found in Africa, *P. l. balsaci* whose distribution is limited to the Banc d'Arguin (Mauritania) and *P. l. archeri*, the Spoonbill of the Red Sea. These two populations are not migratory and mix with Eurasian Spoonbills during the winter.

The current estimate of the numbers of Atlantic population is 4,800 breeding pairs with a wintering population of 19,000 birds. The Central/ Southeast European population is probably made of of 5,000 to 6,000 breeding pairs (current estimate 5,500 breeding pairs). Its known wintering numbers are only between 7,000 and 8,000 birds, indicating many gaps in knowledge of the wintering sites. The discrepancy between numbers of breeding pairs and wintering numbers is even higher for the "*major*" population (5,000 breeding pairs against only 2,100 known wintering birds. Most of the "major" birds breeding within the AEWA area probably winter in Pakistan and India (and perhaps as far Sri Lanka and Bangladesh).

The *balsaci* population is presently the most at risk with now only 750 breeding pairs (1,610 pairs in 1985) and very high mortality among fledegings. The *archeri* population is composed of 1,100 to 1,200 breeding pairs, with, however, a lack of recent data from Sudan and Somalia.

The Atlantic population is the one which is increasing.

The Central and Southeast Europe population, and probably the "major" population breed partly in non-protected sites and particularly in artificial fish-ponds. The decline of these populations seems to be due to a combination of different threats linked to human activities. Poaching is an important cause of death for this population.

P. l. archeri is not protected in four countries. These are often in non-protected areas and birds are liable to persecution. Some data indicate that colonies of this subspecies are often disturbed by human activities.

The *balsaci* subspecies is the most at risk, with a sharp decline in numbers in the breeding population, which is restricted to a single site, the Banc d'Arguin (Mauritania). A large proportion of juveniles are killed by predators (jackals) and the breeding site faces an increasing risk of sea flooding.

The Spoonbill is classified as being of "Least Concern" in the 2006 IUCN Red List of Threatened Species but all populations are listed in Column A of the Table I in the AEWA Action Plan.

The conservation priorities are to maintain (Atlantic population) or increase the number of breeding pairs in the different geographic areas to a critical level in particular for *P. l. archeri* and *P. l. balsaci*.

The Pannonian population is still subject to heavy illegal hunting pressure, particularly in staging areas between its breeding and wintering areas; reduction of illegal hunting in these staging areas is a priority.

Rehabilitation of former wetlands is considered as important to improve post-fledging survival and would be also a major factor in promoting an increase in Spoonbills numbers. Cooperation with the owners of fishponds is important to protect the breeding sites.

For *P. l. archeri*, the priority is to encourage the relevant governments of the Range States to protect the subspecies and its key sites during the breeding and wintering periods. As the number of key sites seems to be limited, measures could probably be taken with some ease, except for states where the security situation makes this impossible.

Measures to be taken for *P. l. balsaci* include strict control of predators, in particular of jackals, as a high priority. The study of sea defences for protecting the nesting sites must start as soon as possible.

For each population, the study of migratory movements and demographic parameters are necessary. This will depend on colour ring schemes and, if possible, on satellite telemetry.

This Action Plan was prepared by the International Spoonbill Working Group, an informal group hosted by Eurosite. The present Action Plan is based on more or less complete answers from these 75 countries. Implementation of this action plan is foreseen in 54 range states.

EURASIAN SPOONBILL
AEWA International Single Species Action Plan

1 - Biological Assessment

1.1. General information

The Eurasian Spoonbill *Platalea leucorodia* is about 60-70 centimeters long and weighs 1,800-2,400 grams. The bill is most characteristic, with a spoon-like shape. The plumage is predominantly white and, during the breeding season, adult birds have a large plume on the back of the head and an orange/yellow band across the breast. Juveniles and sub-adults show black tips on wing feathers. As a wading bird, it has long legs like herons and storks. Males are larger than females with longer bill and legs.

It lives in habitats with changing water levels such as tidal areas, river deltas, estuaries, alluvial wetlands, lakes and man-made wetlands such as carp fish farms or reservoirs. It is a colonially breeding species, breeding in mixed colonies with other waterbirds (herons, egrets, cormorants, gulls and/or tern species), nesting in trees, reedbeds, dunes, salt marshes and in - arid areas - in low shrubs or on the bare ground, surrounded by water. It forages in shallow open waters and prefers mudflats, searching for small fish species, shrimps or other aquatic invertebrates.

The species' distribution and numbers have recently decreased, especially the Mauritanian subspecies. Before 1900 they probably bred in all large river (inner) delta's and marine estuaries. Due to land reclamation, drainage, agriculture, house building and tourism their habitats disappeared or decreased in extent. Since the use of chemicals (mainly in agriculture/aquaculture) increased, pollution of their feeding habitat and accumulation of pesticides in their prey resulted in a sharp decline in numbers and a restriction of their distribution. Some populations recovered (i.e. the NW European and Hungarian populations) but other populations are still suffering.

It is a migratory bird species but african subspecies are resident. Migration distances of 4,000 kilometres is normal. During migration they use stop-over sites (stepping stones) to recover from the long distance flights (sleep and feed).

1.2 Taxonomy

Phylum: *Chordata*
Class: *Aves*
Order: *Ciconiiformes*
Suborder: *Ciconiae*
Family: *Threskiornithidae*
Subfamily: *Threskiornithinae*
Genus: *Platalea*
Subspecies:

Platalea leucorodia leucorodia Linneaus 1758, the nominate subspecies.
Platalea leucorodia archeri Neumann 1928 (like *balsaci* but smaller than it, Cramp *& al.*, 1977).
Platalea leucorodia balsaci Naurois & Roux 1974 (bill completely black and virtually no yellow-buff on chest; size smaller than nominate subspecies (Cramp *& al.* 1977).
Platalea leucorodia "major" Temminck & Schlegel, 1849 (considered to be larger than nominate subspecies Cramp *& al.*, 1977; this subspecies is not considered as valid by del Hoyo *& al*. 1992).

1.2. Population development

The Eurasian Spoonbill has a wide but fragmented Palearctic distribution, with a breeding range that extends from Europe to China, India, Red Sea and Northwest Africa (Cramp & Simmons 1977; Hancock *et al*. 1992). The breeding range was formerly more extended. The species bred in France in the estuary of the Loire during the sixteenth century, in southern England, the Netherlands and in Northern Germany and Denmark in the seven-

teenth century and on the Baraba Steppes, in western Siberia, during the nineteenth. It bred also in the Pinsk marshes of Belarus and Poland, and has bred in northern Algeria (Lake Fetzara) according to Vaurie (1965). The species is migratory throughout its range, except for the populations of Northwest Africa (*P. l. balsaci*) and the Red Sea (*P. l. archeri*). Wintering areas include the river estuaries of the Atlantic coast, the Mediterranean, sub-Saharian countries, Pakistan, Iran, India, Sri Lanka, Japan and southern China.

The total population is estimated at 63,500-65,250 individuals (Delany & Scott 2007). In most countries, breeding populations are declining except for Western Europe, Hungary, Romania and Italy.

The East Atlantic flyway is well known and breeding sites are protected throughout its length. Along it, new colonies have recently been established in Morocco, Portugal, France, Spain, the Netherlands, Belgium, Germany and Denmark (and there are signs of recolonization in the United Kingdom), and the breeding population has increased to about 4,800 pairs (present enquiry). The total population has been estimated at 19,000 individuals (present enquiry).

In Central and Southeast Europe, the population is estimated to be from 4,910-6,160 breeding pairs (present enquiry). The population is increasing in Hungary (Kovács, Végvári & Kapocsi 2001), Italy (Fasola 2001) and in Romania (Papp & Sándor 2007), but decreasing sharply in Russia and Turkey (Osiek 1994, present enquiry). New colonies have recently been established in the Czech Republic and Slovakia.

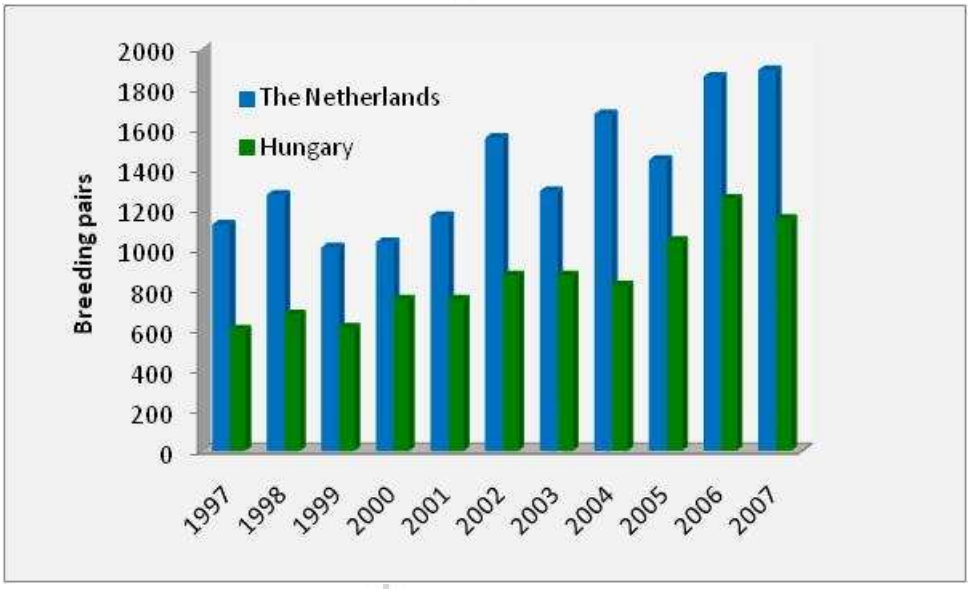

Fig. 1: Changes in the numbers of breeding pairs in The Netherlands and in Hungary

Recent counts show a serious decrease in the numbers of breeding pairs of the Mauritanian subspecies in the Banc d'Arguin, in fact numbers have decreased from 1,610 breeding pairs in 1985 (Gowthorpe & Lamarche 1996) to less than 750 pairs in recent years (O.Overdijk, T.Lok in prep).

1.3. Geographical distribution

The distinctions between breeding areas of the different populations/subspecies are often not clear, thought the wintering areas can be distinguished with a greater clarity (Fig. 2):

1. The westernmost "Atlantic" population (*P. l. leucorodia)*, the most clearly demarcated, breeds in Western Europe and migrates along the East Atlantic coast to winter mainly in coastal West Africa.

2. The Central and Southeastern European population (*P. l. leucorodia*) breeds in the Danube basin, northern Italy, Greece, the Black Sea region and Anatolia. Birds from the western breeding colonies winter mainly in the Eastern Maghreb, with small numbers crossing the Sahara to winter in Sahel wetlands (mainly the Inner Niger Delta and Lake Chad). Birds from the eastern end of this population winter either along the Nile, as far south as Sudan, or in Israel, Syria and Iraq, with a few reaching the Persian

Gulf and even south western Pakistan and India. Some western birds may however go to the Nile, while eastern breeders may winter in the Maghreb. Further studies may reveal that if two separate populations are involved. The status of birds breeding in Turkey is not clear; those from western Anatolia may belong to this population, those from eastern Anatolia may belong to the "*P. l. major*") population.

3. The Azov/Caspian population ("*P. l. major"*) breeds east of the Sea of Azov, some birds migrate via eastern Iran and Baluchistan to winter mainly in the Indus Delta in southern Pakistan; others cross eastern Afghanistan and the Hindu Kush to winter in northern Pakistan (Punjab) and along the Ganges in northern India (this enquiry). The status of birds nesting in Iran is not clear; they may winter along the Iranian coast of the Persian Gulf, or may migrate to the Indus Delta in southern Pakistan.
   Figure 2b shows migration routes/flyways used by birds marked at the nest with metal rings in Turkey, Ukraine, Russia, Azerbaijan, Kazakhstan and Uzbekistan. Birds breeding in Syria and Iraq are considered to belong to the "*major*" population.

4. *P. l. archeri* is a subspecies, found in the Red Sea, with an estimated population of 860 to 1,270 breeding pairs, according to the present enquiry. It is mainly distributed along the coasts of the Red Sea and Indian Ocean (Somalia, del Hoyo *& al*. 1992). Most Spoonbills breeding on the Arabian side of the Southern Red Sea are likely to belong to this subspecies. The identity of the population breeding in the Northern Red Sea is unclear but may be the subspecies *P. l. major* (Jennings, in prep). In the Northern Egyptian Red Sea, the population appears to have declined by up to 50% (Jennings et al. 1985; Grieve & Millington 1999).

5. *P. l. balsaci* is another endemic subspecies with an estimated population size of 3,100 birds (Tamar Lok, pers. comm., O. Overdijk), breeding only in the Banc d'Arguin National Park (Mauritania). Birds are probably resident in the park, although a few observations have occurred elsewhere (notably in the Senegal Delta).

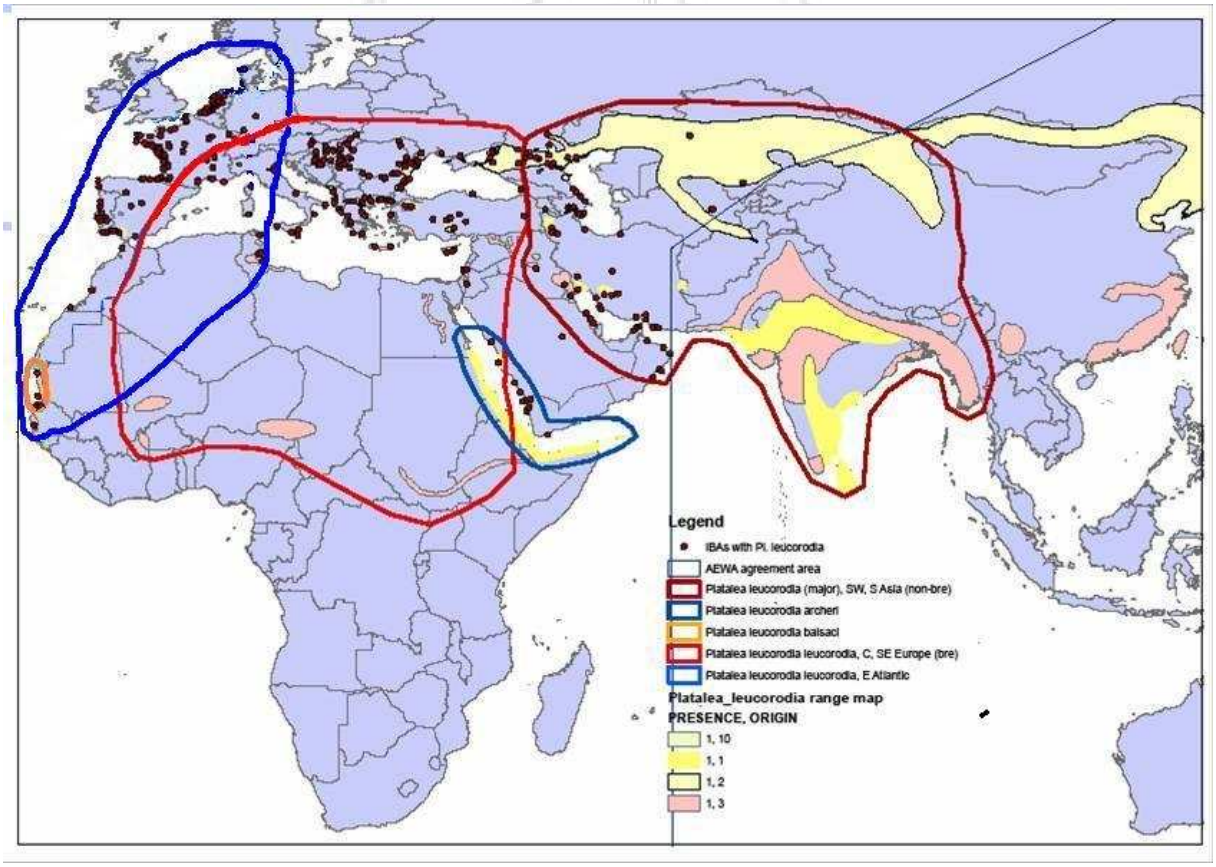

Fig 2a: The distribution of the different populations and subspecies in the AEWA region. (Provisory map)

Fig. 2b: Spoonbill movements as shown by metal ring recoveries.

Table I: Geographical distribution of the Spoonbill

Y=Yes, N=No, V=Vagrant, W=Wintering, PM=Passage Migrant, S=Summering

The Atlantic Population			**The Central Europe/Mediterranean population**		
Country	**Breeding**	**Non breeding**	**Country**	**Breeding**	**Non breeding**
Belgium	Y	N	Albania	Extinct	W, PM
Denmark	Y	N	Austria	Y	N
France	Y	Y	Bosnia	Extinct	PM
Germany	Y	N	Bulgaria	Y	Y
Morocco	Y	Y	Croatia	Y	PM
Netherlands	Y	N	Czech Republic	Y	N
Portugal	Y	Y	Greece	Y	N
Spain	Y	Y	Hungary	Y	Y
United Kingdom	Y	Y	Italy	Y	PM
			Moldova	Y	PM
Cape Verde	N	V	Montenegro	Y	PM
Gambia	N	W	Romania	Y	Y
Luxemburg	N	V	Serbia	Y	Y
Mauritania	N	W, S	Slovakia	Y	Y
Senegal	N	W, S	Turkey	Y	PM
Sweden	N	V	Ukraine	Y	N
			Algeria	Extinct	W
			Burkina Faso	N	W
The *balsaci* population			Cameroon	N	W
Mauritania	Y	W	Chad	N	W
			Cyprus	N	PM
			Dem. Rep. Congo	N.	V
			Egypt	N	W, (S?)
			Israel	N	PM, W
			Jordan	N	V
			Kenya	N	W

Lebanon	N	V
Libya	N	W
Macedonia	N	PM
Mali	N	W
Malta	N	W
Niger	N	W
Nigeria	N	W
Palestine	N	W
Poland	N	PM
Slovenia	N	V
Sudan	N	W, (S ?)
Tunisia	N	W, S
Uganda	N	V

The *P. l. major* subspecies		
	Breeding	**Non breeding**
Armenia	Y	PM
Azerbaijan	Y	N
Iran	Y	PM, W
Iraq	Y	W, PM
Kazakhstan	Y	PM
Kuwait	Y	W
Russia	Y	PM
Syria	Y	W, PM
Turkmenistan	Y	PM
Uzbekistan	Y	N, PM
Bahrain	n.a.	V
Belarus	n.a.	V
Georgia	n.a.	PM
Oman	n.a.	W
Qatar	n.a.	V
Tajikistan	n.a.	PM
United Arab Emirates	n.a.	W
India*	n.a.	W
Pakistan*	n.a.	W, PM

The *P. l. archeri* subspecies		
	Breeding	**Non Breeding**
Djibouti	Y	W
Eritrea	Y	W
Egypt	Y	W
Saudi Arabia	Y	W
Somalia	Y	W
Sudan	Y	W
Yemen	Y	W
Ethiopia	N	V

* Countries outside AEWA agrement area

1.4. Distribution throughout the annual cycle

The breeding strongholds of the Western or Atlantic population are in the Netherlands (particularly on the offshore islands of the Wadden Sea) and southern Spain (Odiel and Coto Doñana). The current breeding distribution is clearly a relict of a formerly much wider breeding area, the decrease caused by disturbance and above all wetland loss. In recent years, with improved protection and wetland restoration, some former breeding areas have been recolonized notably in France (Atlantic coast), in Germany and Denmark, and also in northern Morocco. These breeding populations migrate along the Atlantic coast, most birds crossing central Spain via Santoña, using an inland route over the Iberian peninsula to Morocco, to winter along the Atlantic coast of Mauritania and Senegal, where they mingle with the Mauritanian subspecies *P. l. balsaci* and the African Spoonbill *Platalea alba*. However, some of them follow the north coast of the Iberian Peninsula to overwinter in the estuaries of NW Spain and Portugal. Small numbers stay in the flyway to winter in France, Spain or in Morocco. Their movements have been intensively studied through colour ringing and by observations throughout the flyway which have shown that young birds spend their first 3 or 4 years in Africa, before returning to breeding colonies. Observations of Dutch and Spanish breeding birds in the Mediterranean are rare.

Spring migration starts in Western Africa around 1 February and birds are arriving at breeding sites by February (Southern Spain) and March / April in Nortwestern Europe. Autumn migration starts in September and birds arrive at the wintering sites again in November.

The Central and Southeast European population breeds along the Danube and its tributaries: in the Danube Delta, on the Pannonian Plain (Carpathian Basin) in central and northern Greece and in Anatolia. The nest sites are mainly in man-made fishponds and reedbeds or flooded riparian forests as well as on the ground on bare islands. Since about 1990 breeding Spoonbills have colonized northern Italy (Po Delta). Recoveries of ringed birds show that some winter south of the Sahara (the Inner Niger Delta and Lake Chad). A Hungarian and a Serbian bird have been controlled in Niger (J. Brouwer; Pigniczki *in press*). Nonetheless, numbers are small and totals from sub Saharan Africa east of Senegal recorded by the International Waterbird Census were only 25 in 1995, six in 1996 and 54 in 1998 (Dodman *& al*. 1995, 1996, 1999) but 100-200 in Niger (Brouwer & Mullié 2001, Niger Bird DataBase, coordinator Joost Brouwer). Single Hungarian ringed individuals were reported from Mali and Nigeria (Pigniczki *in press*). Many more birds stay in freshwater or saltwater sites in particular in the Mediterranean (mainly the tidal areas of southern Tunisia and Libya), thus avoiding a long trans-Saharan journey. New colour-marking programmes in the Danube basin, Italian and Greek breeding colonies have provided more information on these wintering birds (Akriotis & Handrinos 2004). It is strongly suspected that young birds summer in Israel, Tunisia and probably Algeria too. Some Central and Southeast European Spoonbills migrate through the Nile Delta (curiously, very few appear to stay to winter in the Nile Delta itself (Goodman & Meininger 1989) and along the Nile to winter in inland southern Egypt and Sudan, at latitudes similar to those where the Western European breeding population winters in Senegal and Mauritania; a few winter in the Gulf. A single Hungarian young individual were seen in Morocco and one Croatian bird during its third winter,, along the main migration route of Western European population.

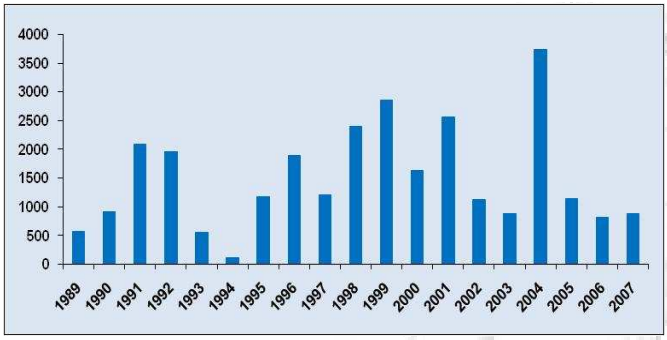

Fig. 3: Changes in numbers in the wintering Spoonbills in the Senegal delta river

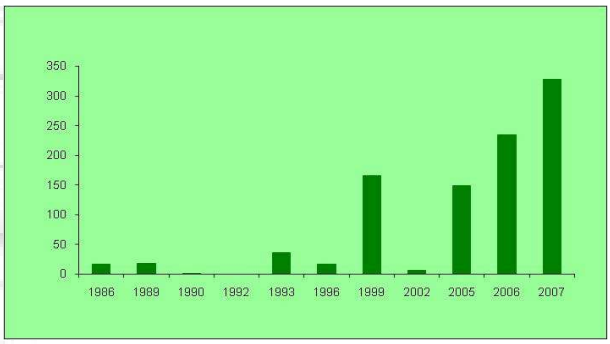

Fig. 4: Changes in numbers in wintering Spoonbills in Turkey

The Central and Southeast European breeding Spoonbills thus have two main migration routes. One of them leads south-west over the Adriatic Sea, through Italy to North Africa, and some fly across the Sahara. The other route leads south-east, through the Balkans, Anatolia, the Middle East and the Nile Delta to the Egyptian and Sudanese sectors of the Upper Nile. A small number of birds from the eastern end of this population (whose eastern limit is poorly defined at present) migrate through Syria and Iraq and as far as the Persian Gulf or even the Indus Delta in Pakistan. There is considerable crossover between the two main routes: most Austrian and Hungarian breeding birds winter in Tunisia, but some take the Nile route; Mullié *et al* (1989) list fifteen ringing recoveries in Egypt, nearly all from the period 1930 to 1957, with eleven in the general area of the Nile Delta: one from Neusiedler See in Austria, six from Kisbalaton in Hungary, three from Kus Gölü, Turkey and one from Romania. In addition they give four recoveries without precise places of ringing (one from Turkey and three from "Hungary/Yugoslavia"). Similarly many Greek and Romanian breeding birds winter along the Nile, but some take the southwestern route. The colour-ringing programme in the Romanian sector of the Danube Delta began in 2003 and recoveries in Spain, Tunisia, and Oman illustrate differing migration directions taken by these birds (Kiss *et al* 2007).

Some first-year Spoonbills may stay in the Carpathian Basin until as late as December and in small numbers (2-20 individuals) overwintering has been known from Hungary since 2005. Recoveries of two- and three- year old Spoonbills from Central and Southeast European colonies show that immatures summer in Tunisa and southern Italy, notably in Sardinia. Some were found in Albania and Bulgaria between their wintering and natal areas during the summer; they may also reach the Carpathian Basin. Four-year old metal ringed Spoonbills were found in the Carpathian Basin in the breeding period, but over 100 km from their natal area in the 1900s (Pigniczki, in press). It is thought that half the colour-ringed Spoonbills bred over 100 km from their natal colony in Hungary in 2007, mainly because of the condition of feeding areas around their natal area. Ringing recoveries support the meta-population hypothesis: two Italian and Romanian (from Danube delta) individuals appeared to breed in

Hungary, and a Hungarian bird was recovered in Romania, outside the Carpathian Basin, in the breeding season (Pigniczki, in press).

The cutoff point between the Central and Southeast European breeding population and the population breeding in Northeastern Europe and western Asia (Azov/Caspian), the so-called "*P. l. major*" subspecies, is as yet unclear. Birds nesting in the eastern Black Sea and eastern Turkey may belong to the Central and Southeast European population, or to the Azov/Caspain population. A few birds have nested on the Kuwaiti islands of Warba and Bubaiyan since the 19th century, and a few birds summer in the Gulf. Most birds in the Gulf are winter visitors or passage migrants. Numbers vary from year to year, with highest numbers between September and April. Larger feeding concentrations from December to April are known from the coast of central Oman, including 270 at Bar al Hikman (in February).

The West Asian (Azov/Caspian) breeding population (*"P. l. major"*) breeds from the east coast of the Sea of Azov to the lower Volga (north to Lake Sarpa, lower Ural, the Ilek and Khoboda rivers north to about 50N and to about 54 to 55E in the Ubagan valley north of Kustanai, south to the region north of the Caucasus (swamps of the lower Kuban and Terek rivers and of the Manych depression); also elsewhere in Kazakhstan from the east coast of the Aral sea to the valley of the lower Syr Darya, at Lake Tengiz, and from Zaisan Nor east to the valley of the Kara Irtysh and Tanna Tuva; the breeding range of the Spoonbill extends further east (outside the AEWA area) as far as Mongolia, Manchuria and Ussuriland (Vaurie 1965). In the wintering area, birds breeding within the AEWA area mingle with birds breeding further east, outside the AEWA area: the East Asian population is estimated to number 10,000 individuals (Wetlands International, 2006), wintering in South Asia (mainly India and Pakistan) and East Asia (mainly China). The latest winter census data available relate to January 2002, 2003 and 2004 (Li & Mundkur, 2007): the total number of wintering Eurasian Spoonbills counted in the whole of Asia were with respectively 10,753 in 2002, 13,472 in 2003 and 14,044 in 2004. Of these 2,799 (2002), 4,063 (2003) and 6,069 (2004) were found in India and 975 (2002), 752 (2003) and 16 (2004) in Pakistan; numbers recorded in Bhutan, Nepal and Sri Lanka were much smaller. It should be emphaisized that these counts are undoubtedly under-estimates, as not all potential wintering sites were visited, but also that some of these birds had undoubtedly bred outside the AEWA area. Larger wintering numbers were noted in East Asia with 6,889, 8,329 and 7,729 birds respectively.

Recoveries of Moscow ringed birds show that only a tiny number of birds from the western Asian population winter along the Nile Valley (though a few may join post breeding assemblies in the Sea of Azov). Most birds from the western part of the population migrate across the breeding range, (following a remarkably constant bearing between 120 and 140 degrees from their breeding place) and concentrating in north east Iran; they then appear to take one of two separate routes to reach their winter quarters: they either fly via Sistan and Baluchistan to reach wintering grounds along the Arabian Sea (mainly round the Indus Delta or the lower reaches of the river Indus); or they fly through Turkmenistan, Uzbekistan and eastern Afghanistan, over the Hindu Kush and Khyber Pass, to reach the Punjab and the Ganges plain, wintering in numbers as far east as 87E (this enquiry). Birds breeding in northern Iran appear to winter along the Iranian shores of the Persian Gulf (D.A. Scott, *pers comm.*), or may move into Pakistan.

P. l. archeri occurs in the Red Sea. It breeds mainly on islands, from the Tiran archipelago at the mouth of the Gulf of Aqaba to Yemen. It is believed to be mainly sedentary, but the picture is complicated by the arrival in winter of birds from Europe, and birds nesting in the northern part of the Red Sea may indeed belong to *P. l. major* rather than to *P. l. archeri.* It is a gregarious species by nature, but migrants and visitors often occur individually. Small parties, usually no more than about a dozen together, may occur along all parts of the Red Sea coast where their subspecies identity is not clear (see Jennings, *in press.* for more comments on status and numbers).

P. l. balsaci breeds exclusively on the ground on bare islands in the Banc d'Arguin National Park in Mauritania. Only very small numbers breed in mangrove trees at a height of 2-3 meters. Mostly they breed in mixed colonies with Western Reef Herons and/ or Little Egrets, in trees also mixing with African Cormorants and Grey Heron. Breeding starts around March and continues to September or October. Most of them seem to winter around the breeding place, though a few may wander south to the Senegal Delta. In winter, they intermingle (and perhaps compete?) with wintering birds from the Eastern Atlantic population of *P. l. leucorodia*.

1.5. Productivity & survival

The age at maturity is well known in the Atlantic population: there are three observations of birds breeding at age 2, 3 civil years (all dealing with males) in the Dutch database (T. Lok, O. Overdijk) but most birds start breeding at the age of 4-5 years (5-6 civil years). The average first breeding age is 3.6 years (4.6 civil years). Non-breeding birds either stay on the wintering grounds or come back to the breeding grounds during summer. Maximum observed longevity (in the Dutch Ringing Scheme data) is 26 years. Birds in captivity are reported to live for 29 years but they have fewer threats.

The estimate for survival (probability of an adult bird surviving until the next breeding season) is 0.83 (s.e. = 0.4) while survival rate average 0.87 (0.84-0.90) in Spain (de le Court 2001, Doctoral Tesis). The estimate for observation (probability of a bird being observed at least once a year if this bird has already been seen back in Holland as an adult, given that bird is alive) is 0.82 (s.e. = 0.4) while it is highly variable from year to year in Spain. Return rate of juveniles to the breeding grounds (at a modal age of 3 years) is 0.32 for the Dutch population (Bauchau *et al* 1998). Recent follow up study indicates that survival of the Dutch spoonbill population has decreased over the last 15 years from 0.92 in 1990 to 0.79 in 2005. This may be caused by density-dependent population regulation (T. Lok, pers. comm.). Recoveries suggest that a minimum of 11,7-16% of the Spoonbills reach maturity (4 or 5 calendar year old) in Hungary based on metal ringed recoveries from the 1900s (Pigniczki in press).

Reproductive success is strongly dependent on weather circumstances and/or food availability and/or predation. Droughts and floods can have a large influence on the reproductive success. Larger colonies reproduce less hatched chicks per nest than smaller colonies (breeding success = 1.13 ± 0.91 (s. d.) on Schiermonnikoog 2007 and figure 5 and 6). Under excellent circumstances (i.e. in NL / D: Wadden Sea islands with few predation and a lot of food, shrimps, for the chicks) Spoonbills can raise 3 chicks in a season. If the first breeding attempt fails, Spoonbills may make a second attempt in the same season (sometimes even when they already had chicks of 2 weeks old). Predation by ground predators (foxes, domestic cats, rats, wild boars, etc.) can destroy a whole cohort of juveniles. Spoonbills breed in trees and on the ground as well. It was shown in the Netherlands that after large scale predation in a colony the breeding population spread out more over a larger area, discovering new breeding sites (O. Overdijk, pers. obs.).

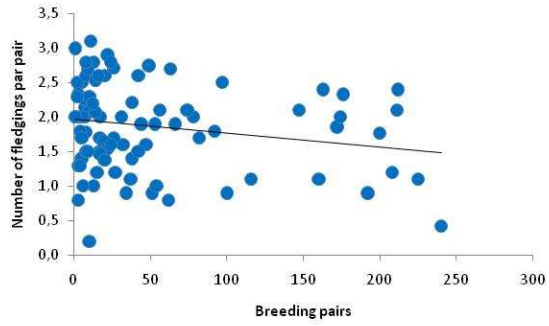

Fig. 5 : Relationship between the size of colonies and the production of fledging birds (data from The Netherlands, France, Germany)

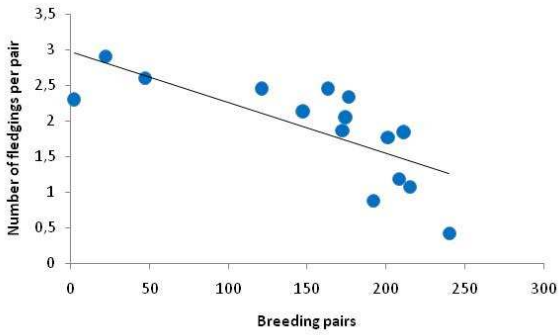

Fig 6 : Relationship between the size of one colony (NP Schiermonnikoog) and the production of fledging birds

Life history	**Breeding** The Spoonbill breeds in close proximity to shallow waters. The species is social, monogamous and sexually polygynous. Sexual dimorphism is slight (legs and bill size, de Voogt 2004). Pair formation occurs after arrival on the breeding grounds. Birds breed in large high density colonies, small colonies or solitary, on reed beds, on the ground or in shrubs or trees. Clutch size 2-6 eggs. Incubation 24-28 days.Chicks hatch with some day differences; younger ones usually die if the food supply is poor. Fledging after 42 days. Mortality of eggs, chicks or young varied from 0 – 90% After breeding almost 100% divorce (Overdijk, obs. pers). Males, females and their young disperse/migrate separately (Overdijk, obs. pers). Breeding may start as early as January in Spain, while it is not before March or April in the Netherlands. Southeastern European population usually starts the breeding activity in mid-April and clutch size is 2-4 eggs. The first pairs start to breed March in mild weather and the lasts finish their nesting in July in the Pannonian population. They breed in reedbed, usually next to little pools in it without vegetation, or on *Salix* bushes in Hungary. In Kazakhstan, inhabits steppe lakes with rich reedbeds, nests on trees along river channels, or bushes with shallow water nearby. Appears as early as mid-March, but usually only in April. Spring migration ends in mid-May. Settles in colonies, sometimes together with Grey Heron *Ardea cinerea*, Great Egret *Egretta alba* and Cormorant *Phalacrocorax sp.* Nest is built by both partners in reedbeds from reed stems, or in bushes and trees (willow) from dry twigs with some reed stems and leaves at a height of 2-7 m. Clutches of 3-5, more often 3-4 eggs in early May, but usually mid- May – early June. Juveniles hatch end of May – early June (Gavrilov & Gavrilov 2005). *P. l. archeri* breeds during or just after the rainy season from February until August/September. *P. l. balsaci* breeding starts in March and lasts in October or November.	**Feeding** Alone or in social groups by day and night using shallow waters in alluvial or tidal wetlands, lakes, marshes and pastures. Diet composed of small fishes (sticklebacks) in freshwater, crustaceans (mainly shrimps), aquatic insects, frogs, leeches and other worms. In tidal areas mainly foraging during low tide. Birds need about 555 g of small fishes (fresh weight) per day (Kersten 1998). Sometimes in close co-operation with other fish-eating species such as cormorant, pelican and heron species. Interactions with cormorant, pelican and gull species to steal or to eat waste food, during the feeding of juveniles by the adults are observed frequently. Grey Herons and Great White Egrets showed cleptoparasitic activity against Spoonbills in Hungary (Pigniczki in press b). Not commonly, but at least once Spoonbill was seen to predate eggs from Lesser Black-backed Gulls (O. Overdijk, obs. pers).	**Outside breeding** Migrates in large or smaller flocks or alone, rarely with other species (cormorants or herons observed). Spring migration starts in January and ends at mid-March or April. Autumn migration starts in August or September. Very small numbers winter in their natal area. Some disperse in nearby areas. Great difference in migratory strategy. Some make small steps (100-300 km) and rest a few days at stop-over sites. Others make large steps (1,000-2,000 km) and stop for longer period to recover. More birds of Atlantic population are wintering in the North than before (Overdijk, 2002), probably in relation with the increase in numbers, the increase in quality of different sites in France and Spain, and possibly global warming.

Habitat Requirements		
	Breeding habitat requirements: A nesting place must be safe, in the neighbourhood of enough available food resources and free of predators. Especially for ground breeders, the absence of predators is very important. They may breed in reeds, trees, shrubs (*Alnus, Sambucus, Salix, Pinus*), on the ground or on bare rocks. Breeds mostly in mixed colonies with gulls, herons, cormorants, egrets, terns. Breeds in reedbeds and willow bushes in Hungary, Croatia and Romania. In Mauritania breeds on volcanic rocky islands, on sandbanks and in mangroves. Nests made out of seagrass (*Zostera*) Garbage is used for nest-building, bird feathers and bones too.	***Feeding habitat requirements:*** West European population greatly depends on brackish habitats, most of them are intertidal ones, while central and eastern European birds mainly exploit fishponds and flooded areas after they return from their wintering sites in spring, and once again after the breeding season (Schneider-Jacoby 2002). Natron lakes are very important feeding areas especially in spring but from middle of summer dried out fishponds are the most important for Spoonbills in Hungary. In northern regions the shallow sea does not contain fish at all when birds arrive in their nesting area as the seawater is still too cold. They then need food resources in farmland, ditches or artificial lakes (fishponds) for early spring (Overdijk 1994).

2. Available key knowledge.

Survival rate and mortality factors are known for the Spanish and Dutch breeding populations. These are the most studied populations, but the bottlenecks for population development are still not known. A large gap in knowledge relates to the food situation for Spoonbills, especially about its availability along the key wetlands present on the different flyways during the non-breeding season. In this context, although numbers are apparently influenced primarily by conditions in breeding or wintering areas (Newton 2004), recently many efforts have been done to clarify the influence of the conditions experienced at stopover sites in population regulation of migratory waterbirds. Thus, spoonbill population regulation could be limited by ecological conditions at some key stopover areas, since they show a strong dependence on a few sites to complete their migratory movements (e.g. Santoña Marshes for Atlantic population; see Navedo 2005).

Atlantic Population	**Central Europe & Southeast European Population**	**Western Asian Population**	***P. l. archeri***	***P. l. balsaci***
Sensitive as during migration and winter, species is restricted to a few sites (O. Grove, Santoña marshes, Tajo Estuary, Ría Formosa, Guadalquivir marshes; Banc d'Arguin, Senegal Delta). During breeding restricted to three major sites. The current breeding distribution is the result of a long lasting historical decline.	Recovering from historical decline. Breeding sites of Pannonian population mostly on man-made wetlands, but feeding on temporary wetlands. South-east populations mainly use natural wetlands. Stop-over sites in the Balkans endangered, improving in Italy, unknown in Egypt and Sudan.	Status and population size are uncertain.	Small population size, declining. Breeding places are vulnerable to human disturbance. Low level of protection and knowledge, largely resident.	After 2000, large decrease: 750 breeding pairs in 2007. Total population size estimated at 2800 in 2007, compared to ± 5000 in 1997-2001. Generally, low breeding success. One main breeding colony. Mainly resident.

3. Threats

The main historic threats for Spoonbills are the loss of habitat for feeding and breeding. Feeding grounds have over the years been drained, regulated, empoldered, changed into intensive agricultural land or fish farms, abandoned, become overgrown by vegetational succession or lack of grazing, invasion by alien species, or used for recreation (disturbance) activities. Overfishing and water pollution are also huge problems in some areas.

Breeding grounds are destroyed or abandoned by the species as a result of housing, or the management of water levels for agriculture, fish farming, industry, recreation, military activities and even forestry purposes. In all cases, water management (usually drainage) is the key problem.

While Spoonbill habitat remains at risk throughout the range of the populations and subspecies under consideration in the present document, there is a growing acceptance of the need to preserve and restore Spoonbill habitats, and many major sites have been given protected status, notably: in the breeding area of the Atlantic population; in the breeding area of the Pannonian population; in the major West African sites of Banc d'Arguin, Diawling and Djoudj; in wintering areas in Tunisia; in some breeding areas in Turkey and southern Russia; in breeding and wintering grounds in Iran; and in wintering areas in Pakistan and India. Nevertheless, there are still major areas where protected status is lacking or poorly applied, and much further work is needed.

In addition, particularly in southeast Europe and in the wintering range of *P. l. major*, illegal hunting is a serious problem in some areas.

The highest non-natural cause of death in East Atlantic population during migration is poaching and collisions with electric power lines, especially in highly urbanized areas.

For the Central and Southeast European breeding population, most breeding areas now enjoy protected status, though the some sites in Anatolia lack protective measures. The principal threat on staging areas in the Balkans and Middle East is the heavy (generally illegal) hunting pressure, which causes direct mortality and also means that otherwise suitable feeding areas cannot be used because of disturbance; a shooting ban in Montenegro in spring 2006 (imposed because of the fear of Avian Influenza) led to increased numbers of Spoonbills using staging sites. Birds moving through Mesopotamia must also be exposed to illegal hunting.

Information is lacking on the conservation status of the breeding sites of birds from the "*P. l. major*" subspecies, but it seems clear that, even where protected areas exist, funds for protective measures, monitoring and wardening are lacking. Little detailed information is available on hunting pressure in staging areas, but it appears highly likely that "*major*" Spoonbills are subjected to illegal hunting in migration routes through eastern Iran, Turkmenistan, Afghanistan and Pakistan.

Little information is available on threats to *P. l. archeri*, but it is clear that few of their breeding sites enjoy protected status and that such sites are open to predation and disturbance by fishermen and other visitors to breeding islands in the Red Sea. It is also likely that sites used outside the breeding season do not enjoy protected status, and that some birds are trapped and/or shot.

The source of the high mortality of *P. l. balsaci* recorded on the Banc d'Arguin over many years is still not known. A high probability is predation by Jackal *Canis aureus* (i.e. in 2007, 43 over 45 young ringed birds were predated by Jackals within ten days after their ringing). Spoonbills breed on islands and Jackals can swim without difficulty. Jackals also breed on islands, sometimes in the middle of a Spoonbill colony. Another possibility is the increased frequency of flooding (due to sea level rise?) during extreme high tides. Other sources could be poisoning of vegetation (plankton) in the (warm) sea, because high mortality of other waterbird species was also observed at that time or predation by other bird species (Lesser Black-backed Gull, Slender-billed Gulls). Further studies are necessary and some are underway.

Table II: Threats identified in each population/subspecies. Details of the main threats per country are given in annex 2.

Critical	A factor causing or likely to cause very rapid declines (>30% over 10 years).	1
High	A factor causing or likely to cause rapid declines (20-30% over 10 years).	2
Medium	A factor causing or likely to cause relatively slow, but significant, declines (10-20% over 10 years).	3
Low	A factor causing or likely to cause fluctuations.	4
Local	A factor causing or likely to cause negligible declines.	5
Unknown	A factor that is likely to affect the species but it is unknown to what extent.	0

	Problem	Description	*leucorodia (Atlantic)*	*leucorodia (continental*	*major*	*archeri*	*Balsaci*
Migration	**Starvation (mainly juveniles)**	Juveniles arrive at unknown sites and are not keen enough to find food. Causes of problems: Farming operations, ducks hunting (France), uncontrolled tourism (canoe, dog walking, Wadlopen Netherlands), recreational shellfish collection, bird disturbing from fish-ponds (Israel, Croatia). Competition with individuals of the same species or with other fish feeders could add to the risk.	3	3	3	0	2
	Disorientation	No experience where to go, getting lost (at the ocean) and die. Cases from Cape Verde Islands.	4				
	Collision with power lines	In river deltas with large ports or industry.	3	4	4		
	Industrial spills	Bird feathers get dirty or food is polluted.	5				
	Poaching	Direct mortality from illegal hunting, in the area of the Caspian, and more especially in eastern Iran, Turkmenistan and Afghanistan.			2		
Wintering	**Starvation**	Not enough food available or they cannot find it in combination with disturbance. Causes: overgrowth of open waters (vegetation succession, invasive plant species), human settlements, overfishing, industrial and tourism development.	2	3 (SE) 4 (SW)	3		
	Run-off of agricultural chemicals (in particular DDT)	DDT is still in use in rice cultures in Africa. Birds may feed in those rice fields. DDT is stored in their body fat and also found back later in the embryo and chicks. When food availability is limited, the body fat will be used and birds are less alert. They die because of secondary dead causes (shot, crashes against power lines).	4	5	4	0	0
	Competition	Food competition at certain wintering sites with congenerics or individuals of other species.	5				
	Poaching	Birds got shot and die or get wounded. Direct mortality from illegal hunting, notably in Egypt (organised hunting parties), probably also in Sudan (subsistence hunting), and perhaps Pakistan. Weak legislation on protection and of little application of existing legislation.	0	3 (SE) 5 (SW)	2	3	
	Loss of habitats	Food competition at neighbouring sites. Dredging for navigation (Seine Estuary, Santoña, Spain), river diversion (irrigation), land reclamation (construction of infrastructures for tourism, fruit plantations, agriculture (Nile delta), intensive fish-farming, water regime regulation (water transfert, dam).	3	2	3		
	Disturbance	Loss of condition (no food or no sleep) and loss of energy (fly away in panic) and if they move to other sites, food competition. Causes: hunters, insensitive ecotourism, motorised shepherds, Jackals and feral dogs, firewood cutting.	3	3	3	4	0

	Problem	Description	*leucorodia*	*leucorodia*	*major*	*archeri*	*balsaci*
Reproduction	**Collision with power lines**	Birds crash against the line (they cannot see the distance) and get hurt on breast and mostly break the legs. They die soon or later.	3	4	4		
	Botulism/cyanotoxins/ parasites	Mostly direct after fledging the temperatures are quite high and botulism can break out under other waterbirds as well. Some tens or hundreds bird can die very quickly. Depends strongly on the type of parasites and most are in to the feathers. Birds spend long time to remove the parasite with their bill and while doing so, they cannot sleep or feed. Their body mass is getting less and less and they could die.	2	5	5	5	5
	Heavy rain and hail-storms in spring	Adult birds cannot leave the eggs or just born chicks alone for feeding. If the weather conditions continue, adults have to feed and chicks get cold and wet and die in few days.	2	4	4		
	Poaching	Birds got shot by poachers and get killed or wounded. Mostly during feeding.		5	5	0	
	Starvation after fledging	After fledging the parents nurse the chicks short time and then family relation ends. The juveniles are left to be independent and some juveniles are able to find food, others not and these suffer or die. The causes are overfishing (shrimps), restricted migration of seafish to inland waters, possible competition for food.	3	3	3	0	
	Invasive plant species	In Doñana, overgrowth of *Azolla filiculoides*. In the Senegal delta, *Typha*.	3				
	Predation	Mainly not fledged juveniles get killed by the predator. Some predators destroy also eggs. Adults cannot be caught or only small numbers. Fox, wild Boar, Jackal.	3	4	4	4	1
	Current flooding	Nests flood away or eggs disappear out the nests. Small chicks can get cold to die later. Sometime secondary predation by gulls.	2	3	3	0	2
	Future effect of sea level rise and climate change	Reproduction will be lower or none. Adult birds winter more northerly with possible food problems. Sea level rise will have effects on (the number of) flooding the breeding sites and loss of existing feeding habitats, however, new habitats will be created. The global warming could cause drought in the Pannonian and Anatolian region, so it could cause loss of breeding areas and feeding areas.	2	2			1
	Pollutants	Oil spills: oil can cover the breeding site. Birds cannot feed in neighbourhoods' and get dirty. Pollutants: birds are less fertile, thus lower production or their body fat is polluted which will have effects during migration when using this body fat.	3	5	5		5

	Lack of water (drought, drainage)	Breeding areas are not protected by the water anymore and predators can come easily to the colonies. No feeding areas for the inland population, or the adults should fly large distance. Feeding areas overgrowth by reed, and another vegetation. Spoonbills are not able to look after food on that site, so they have to fly more to look after food, it costs more energy and so they will have less number of chicks in nests. Drought may affect but in a Mediterranean climate it does not cause a significant decline unless occurring continuously in many years. Fishpond abandonment and land reclamation.	2	3	3		
	Loss of nesting trees	Nests in trees are safe against ground predators. Adults must build their nest at a less safe place. Colonial birds contribute to the death of trees, in Doñana and other colonies.	2	5			
	Competition for nesting places (Cormorant, large Gulls)	Adults need to spend energy in defending their nest (material) and when they are behind a concurrent they have to leave the nest alone and can be damaged by other birds. The faeces of Great Cormorants destroy the breeding habitat within some (2-3) years.	5	4	4		
	Disturbance	Tourism (including bird watchers): disturbance at breeding- or feeding sites. Agricultural work gives also disturbance at feeding sites especially in early spring. Fisheries: food concurrence and disturbance at feeding sites. Drilling of fighter planes: this kind of disturbance is dangerous when fighter planes fly for long minutes above heron colony, and the parents start to fly around colony. It could cause the death of the eggs or small chicks, if the weather is rainy or/and cold.	3	4	2		5
	Overfishing	No food or less food available. Disturbance at feeding sites.					2
	Urbanistic and industrial development	Loss of habitat (bridges, wind farms...). Suboptimal water levels (flooding, oscillations, drought, shortage of freshwater). Drainage of feeding waters. Breeding habitats (wetlands) are degraded by water regime intervention mainly for intensive agriculture.	2	2			
	Burning and cutting of reed	Loss of breeding habitat. Loss of nests when burning is done in breeding season.		4			
	Isolated population	Inbreeding. No immigrants.					0

4. Treaties, legislation and policies relevant for management

The Spoonbill is classified as "Least Concern" in the 2006 IUCN Red List of Threatened Species, indicating that it has been evaluated but does not qualify for any other category.
If the IUCN criteria are applied at subspecies/population level, *P. l. archeri* should be assessed as category "Vulnerable" as it declined up to 50% in the last ten years.

The present studies of *P. l. balsaci* indicate that this subspecies should be considered as “endangered” due to its sharp decline in the last ten years.

The following section briefly reviews the obligations of the range states arising from the major international conventions and agreements. The species is also affected by national conservation legislation and policies.

4.1. International Directive, conventions and agreements

4.1.1. At European Union level: Bird Directive

The Annex I deals with birds which are the subject of special conservation measures concerning their habitat in order to ensure survival and reproduction within their range.
The terms of reference for site classification are given in paragraphs 1 and 2 of Article 4 of the Directive, which is given in full below :
1. The species mentioned in Annex I shall be the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution. In this connection, account shall be taken of:
(a) species in danger of extinction;
(b) species vulnerable to specific changes in their habitat;
(c) species considered rare because of small populations or restricted local distribution;
(d) other species requiring particular attention for reasons of the specific nature of habitat.
Trends and variations in population levels shall be taken into account as a background for evaluations.
Member States shall classify in particular the most suitable territories in number and size as special protection areas for the conservation of these species, taking into account their protection requirements in the geographical sea and land area where this Directive applies.
In this respect, Special Protection Areas have to be established to assist conservation measures.
According to article 6, Member States shall take appropriate steps to avoid, in the special areas of conservation, the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this Directive.

4.1.2. The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)

Annex II: Special protection (`appropriate and necessary legislative and administrative measures`) for the animal taxa listed, including:

- All forms of deliberate capture and keeping and deliberate killing;
- The deliberate damage to or destruction of breeding or resting sites;
- The deliberate disturbance of wild fauna, particularly during the period of breeding, rearing and wintering, insofar as disturbance would be significant in relation to the objectives of this Convention;
- The deliberate destruction or taking of eggs from the wild or keeping these eggs even if empty;
- The possession of and internal trade in these animals, alive or dead, including stuffed animals and any readily recognisable part or derivative thereof, where this would contribute to the effectiveness of the provisions of this article.

4.1.3. Convention on the Conservation of Migratory Species of Wild Animals (CMS)

Annex II of the Bonn Convention

This appendix refers to migratory species that have an unfavourable conservation status or would benefit significantly from international co-operation organised by tailored agreements. The Convention encourages the Range States to conclude global or regional Agreements for the conservation and management of individual species or, more often, of a group of species listed in Appendix II.

4.1.4. The Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)

The taxaare in Column A Category 1 meet one or more of the following criteria:

Category 1: (a) Species which are included in Appendix I to the Convention on the Conservation of Migratory species of Wild Animals;

(b) Species which are listed as threatened in Threatened Birds of the World (BirdLife International 2000); or

(c) Populations which number less than around 10,000 individuals.

Category 2: Populations whose numbers are comprised between 10,000 and 25,000 individuals.

Table III: Classification of different Spoonbill populations/subspecies according to their numbers

Populations/Subpecies	Population covered by the SSAP	Table 1 Column A	Global Conservation Status
Platalea leucorodia leucorodia	Western Europe & Northwest Africa	2	LC
Platalea leucorodia leucorodia	Cent. & SE Europe/Mediterranean, Mesopotaamia and sub-saharan Africa	2	
Platalea leucorodia major	West Asia/Southwest & South Asia	2	
Platalea leucorodia archeri	Red Sea & Somalia	1c	
Platalea leucorodia balsaci	Coastal West Africa (Mauritania)	1c	

4.1.5. Ramsar Convention on Wetlands

The Convention on Wetlands provides the framework for the conservation and wise use of wetlands and their resources through local conservation activities.

The Convention requires that each Contracting Party should designate at least one suitable wetland within its territory for inclusion in a List of Wetlands of International Importance maintained by the Ramsar Bureau, but the parties are encouraged to designate all wetlands of international importance meeting the Ramsar criteria.

The Convention establishes guidelines for the formulation and implementation of national wetland management and conservation policies, including establishing inventories of wetlands, determining priorities for each site, requiring impact studies for all projects that may affect wetlands, regulating the use of wild flora and fauna to avoid over-exploitation, and drafting legislation that encourages wetland conservation, taking into account international responsibilities for the conservation, management and wise use of migratory stocks of waterfowl.

4.1.6. Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)

The 'Washington' Convention on International Trade in Endangered Species of Wild Fauna and Flora, more commonly known as CITES, aims to protect certain plants and animals by regulating and monitoring their international trade to prevent it reaching unsustainable levels.

The Spoonbill is listed in the appendix II, which lists species that are not necessarily now threatened with extinction but may become so unless trade is closely controlled. International trade in specimens of Appendix II species may be authorized by the granting of an export permit or re-export certificate.

4.2. National institutions, laws and policies affecting bird conservation

There is a wide diversity of situations relating to institutions and laws dealing with bird protection in the range of countries cover by the species range. Some countries have no bird protection administration at all, while in others, the responsible for the protection is either in the Ministry of Environment or it is linked to other offices (forestry, agriculture, even interior).

Surprisingly, the species is not protected everywhere. The Atlantic, Central and South-East European breeding populations are fully covered by legislation. The West Asian breeding population is protected almost everywhere. The *archeri* subspecies does not benefit from any real legal protection. In some African countries, the Eurasian Spoonbill is not protected, but it benefits from confusion with the African Spoonbill *Platalea alba* which is protected there.

Table IV: The legal status of the different populations/subspecies

	Protected	**Not protected**	**Unknown**
Atlantic breeding population	12	0	3
Central Europe & Southeast European breeding population	31	4	0
Western Asian breeding population	10	2	3
P. l. archeri	4	4	1
P. l. balsaci	1	0	0

5. Framework for action

The aim of this Action Plan is to improve the conservation status of the different populations of Spoonbills and in particular to meet the measures below.
Some priorities do not follow the criteria, but as monitoring or estimations will not prevent the population decline, it is essential to find the best measures which will really prevent the decline.

Table V: The long and short term targets for the different populations/subspecies

	Long term target	**Short term target**
Atlantic breeding population	Maintain and increase current population size and promote conditions which will help expansion in Western Europe towards former breeding range, taking account of any possible effect on the *balsaci* subspecies.	The combination of survival and reproduction rates is sufficient to maintain a growing population.
Central and South-East European breeding population	Increase the breeding population in order to recolonise all major wetlands throughout the range, and secure stopover and wintering sites.	The combination of survival and reproduction rates is sufficient to maintain a growing population.
West Asian "*major*" population	Increase the breeding population in order to recolonise all major wetlands throughout the range and secure stopover and wintering sites.	The combination of survival and reproduction rates is sufficient to maintain a growing population.
Red Sea "*archeri*" subspecies	Remove the subspecies from its present vulnerable status by increasing the size of the population above 3,000 breeding pairs (cf. 10,000 individuals).	Stop the decline of the population and increase by 20% compared to 2007 level.
Mauritanian "*balsaci*" subspecies	Restore the population of at least 1,400 breeding pairs or 3,000 mature individuals with enough reproduction to ensure a stable population.	The combination of survival and reproduction rate is sufficient to maintain a growing population. A 5-year average reproduction rate of 1.4 fledged young per breeding pair is maintained.

This aim will be achieved by actions applied at different levels.

Significance of the symbols used in the following tables

Critical	Result needed to prevent a major decline in the population, which could lead to extinction.	1
High	Result needed to prevent a decline of more than 20% of the population in 20 years or less.	2
Medium	Result needed to prevent a decline of less than 20% of the population in 20 years or less.	3
Low	Result needed to prevent local population declines or events likely to have only a small impact on the population across the range.	4
Not a priority	Local measure which has not a significant impact on the population	5

At the species level

Objective	***Activities***	**Priority**
Coordinated research and monitoring	*Continue and expand the internationally coordinated colour marking scheme as the crucial tool to determine and monitor survival rates and metapopulation structure, investigate possibilities of satellite telemetry, and apply results.*	2
	Maintain a central / coordinated database to collect, store and analyse data on metal and colour rings, count data, survival rate and breeding success.	2
	Develop standardised methodology for monitoring.	2
	Count breeding pairs at key colonies and wintering birds on an annual basis.	2
	Use recent techniques and models to analyse the trends in the populations (i.e. programs TRIM, MARK, etc).	3
	Adapt the International Single Species Action Plan to each country.	2
Increased awareness about the need for collaboration between countries along the flyways	*Strengthen and expand activities of the International Spoonbill Working Group and encourage exchange of experience between the personnel of key sites.*	3
	Organise regional meeting in Montenegro (2009) and in Tunisia (2011).	3
	Produce an AEWA poster.	3
Networking	*Develop a new travelling exhibition.*	4
Use the species as flagship	*Encourage fundraising activities to support Spoonbill conservation (e.g. adoption of birds/key sites).*	3
	Improve collaboration between countries along the flyways under the framework of the Central Asia Flyways initiative and strengthen collaboration between the Central Asian Flyways initiative and AEWA.	3
	Increase education and public awareness of the Spoonbill, related species and wetlands.	3
Training	*Organise training courses in management techniques for staff of protected areas.*	2
	Organise training courses in monitoring techniques for observers (volunteers and wardens).	2
	Organise training courses in nature-friend fishpond management for fishpond owners	2

At population and subspecies level

Table VI: Proposed programme for the different populations/subspecies

Aim	Objectives	Activities	*lecorodia (Atlantic)*	*leucordia (continen-*	*major*	*archeri*	*balsaci*
Survival rate is sufficient to maintain a growing population.	**Designate the species as protected in all countries along the flyways and of the range states**	Convince national authorities of the need to protect the species.			1	1	
	Maintain the integrity of the coastal ecosystem at Banc d'Arguin.	Measure the possible impact of any activity or exploitation (industrial shellfishing).					2
	Designate and maintain key feeding and stop-over sites as European Union Special Protection Areas (if appropriate) and/or Ramsar sites.	Use IBA and Ramsar criteria.	2	3	3	1	
	Restore former feeding areas and prevent drainage of existing feeding areas.	Give a priority to know and threatened sites. In Senegal, a priority must be to restaure the Guembeul reserve.	2	2	2	2	
	Prevent overgrowth of feeding areas by management of vegetational succession and/or invasive plants.	Develop an integrated management of the sites, including the vegetation aspects.	2	2	2		
	Take measures to limit activities which may reduce the availability of food (e.g. overfishing, disturbance, including bird disturbing at fishponds, shellfish collection), pollution, constructions which may limit movement of prey species, wind farms, gravel extraction, intensive fish farms, human settlements, infrastructures, regulation of rivers).	Reduce disturbance through information, education and surveillance and visitor management. Include site and species conservation in any project of development. Investigate the impact of oil exploration, exploitation and transport on key sites and survival and take appropriate mitigation measures. Forbid gravel extraction around key wetlands.	2	2	2	2	

	Maintain the area of extensively managed fishponds and adjust their management to the needs of the species.	Promote integrated management of fishponds.		2	2		
	Develop management plans for key feeding and stop-over sites addressing off-site threats at basin-level (e.g. pollution, water regime).	Strengthen staff capacity at protected areas both for administrative and surveillance tasks. Provide assistance for planning and management of key sites.	2	2	2	2	
	Reduce mortality caused by collisions with overhead power lines.	Identify critical sections of powerlines. Replace existing lines with underground cables or mark them with warning signs obvious to flying birds where necessary. Avoid siting new lines near breeding or feeding areas through Environmental Impact Assessment (EIA).	3	3	3		
	Reduce direct mortality caused by poaching.	Provide information, education and surveillance at key sites. Enforce the legistation on bird protection. Stop spring hunting in all countries along the flyways. Designate no-hunting zones at key sites.	4	2	2	2	
	Reduce direct mortality caused by toxins.	Create an early warning system that helps to detect early cyanotoxin blooms so appropriate management can be carried out (remove dead bird, manage water levels).	3	3	3	3	3
	Phase out organochlorins (especially DDT) along the entire flyways.	Monitor level of pollutants in eggs, chicks and dead birds.	4				

Aim	Objectives	Activities	*lecorodia (Atlantic)*	*leucordia (continen-*	*major*	*archeri*	*balsaci*
Reproduction rate is sufficient to support an increase in the population to the target level.	**Restore and maintain wetlands for breeding, maintain adequate water level at colonies and create water supply systems.**	Conduct a strategy for protecting wetlands and waterbirds, in particular in and around existing colonies. If possible, create nature reserves on key sites.	2	2	4		
	Protect colonies threatened by flooding.	Use measures fitting local conditions (if there is higher risk of flooding with sea level rise). Manage fish-ponds for conservation or through integrated management.	4	3	3	2	1
	Preserve colonies from burning and cutting of reed.	Promote reedbed exploitation with respect of nature conservation.		3	3		
	Protect colonies against predation.	Study the best way to do and use appropriate means (fox, wild boar, feral dog, rat, jackal).	2	4	4	2	1
	Manage competing species if necessary and appropriate.	In particular, a better understanding of the relation between the species and the Sacred Ibis is requested. Study the real impact before any possible intervention (*L. michahellis).* Study the possible impact of competition between *P. l. leucorodia* and *P. l. balsaci.*	3	5	4	2	4
	Protect nesting colonies from disturbance.	Protect by restricted/prohibited access or by visitor management. By changing flying techniques for military planes above the colonies in breeding season	2	2	2	2	4

Aim	Objectives	*Lecorodia (Atlantic)*	*Leucordia (continen-*	*major*	*archeri*	*Balsaci*
Key gaps in know ledge neces sary for more effec- tive con- serva tion of the popul ation are filled.	Determine and monitor breeding success and calculate the value necessary to meet the targeted survival rate.	2	2	3	3	1
	Determine and monitor survival rate necessary to achieve the desired population growth through colour ringing and satellite telemetry.	2	2	2	3	1
	Identify limiting factors with a view to promoting further expansion of the breeding range and to creating an early warning system against potential threats.	2	2	2		
	Identify additional wintering and stop-over areas along the flyways (sites meeting Important Bird Area criteria) and identify their role in limiting the growth of the different populations/subspecies (i.e. the influence of the conditions at wintering sites on breeding success).	2	2	2		2
	Identify any potential age and gender differences in use of stop-over and wintering sites.	3	3	2		
	Determine migratory status and the migratory flyways (study any local or dispersal movements during non-breeding season using colour-ringing and satellite tracking).	3	3	3	3	3
	Complete full survey of breeding areas.		2	2	2	
	Study the sensitivity of spoonbill to disease and toxins.	3	3	3	3	3
	Identify key mortality factors and hot spots.	2	3	3	2	2
	Collect and analyse genetic samples (Turkey, Hungary). Clarify the delineation between the "*major*" and Central and South East European populations.		2	4		4
	Study the feeding ecology of the species.	3	4	3	4	4

Table VII. Expected results and means of validation

Aim	The Action Plan	Success Indicators	Sources of validation	Assumptions
P. l. leucorodia Atlantic population	Maintain and increase current population size and promote conditions which will allow expansion in Western Europe towards former breeding range.	Total number of birds after breeding and during winter census.	National censuses, Wetland International database, AEWA Conservation Status Report.	The high current effort of observation and ringing is maintained.
P. l. leucorodia Central and SE European population	Increase current breeding population by recolonisation of all major wetlands throughout the range and by providing secure stopover and wintering sites.	Total number of birds after breeding and during winter census.	National censuses, Wetland International database, AEWA Conservation Status Report.	The current effort of observation and ringing is at least maintained and preferably increased.
P. l. major	Increase the breeding population by recolonisation of all major wetlands throughout the range, and by provision of secure stop over and wintering sites (subject to better understanding of population levels and limits).	Total number of birds after breeding and during winter census.	National censuses, Wetland International database, AEWA Conservation Status Report.	The current limited effort of observation and ringing is strengthened.
P. l. archeri	Remove the subspecies from its present vulnerable status by increasing the size of the population above 3,000 breeding pairs (cf. 10,000 individuals).	Counts on the breeding sites or during winter census.	National censuses, Wetland International database, AEWA Conservation Status Report.	Access is obtained to colonies and trained volunteers are available.
P. l. balsaci	Restore the population to at least 1,400 breeding pairs or 3,000 mature individuals with enough reproduction to ensure a stable population.	Counts on the breeding sites or during winter census.	National censuses, Wetland International database, AEWA Conservation Status Report.	Access to colonies is obtained and trained volunteers are available.
Objective	Obtain a survival rate sufficient to maintain a growing population. Survival rate is correctly measured from recovery data using e.g. MARK.	Calculation of survival rates is repeated routinely every year using the data of	Increase in the number of ringed birds returning to	Colour-ringing is maintained at its current level.

		resighting colour ringed birds.	**colonies.**	
	For *P. l. archeri*, stop the decline of the population and increase numbers by 20% compared to 2007 level.	**Counts on the breeding sites or during winter census.**	**Wetlands International database**	**Access to colonies is obtained and trained volunteers are available.**
	For *P. l. major* and *P. l. archeri*, designate the species as protected in all countries along the flyways and of the range states	**The subspecies are protected in all countries.**	**A national protection law is approved in all countries.**	**Authorities responsible for the conservation of the species are identified, and involved into the work of the International Spoonbill Working Group.**
	For *P. l. balsaci*, reverse the current decline.	**Counts of nests and of non breeding birds.**	**Banc d'Arguin National Park database.**	**Wardens of the park are trained to count nests and birds.**
Results to be achieved by:	Maintain the integrity of the coastal ecosystem at Banc d'Arguin.	Regular measures of prey densities.	Banc d'Arguin National Park database	EIA of activities in surrounding area is effective.
	Designate and maintain key feeding and stop-over sites as European Union Special Protection Areas if appropriate and/or Ramsar sites.	Protected area status of key sites listed in the Annex of the action plan is maintained and sites stay in good ecological conditions.	SPA list in the European Union and Ramsar list are improved in each country.	Implementation of national politics for wetlands conservation.
	Restore former feeding areas and prevent drainage of existing feeding areas.	Lower mortality due to natural causes.	National reports.	Increase in means for wetlands managers.
	Prevent overgrowth of feeding areas by management vegetational succession and/or invasive plants.	Decrease in the number of colonized sites by vegetation.	National reports.	Training sessions about invasive plants species for wetlands managers.
	Take measures to limit activities which may reduce the availability of food (e.g. overfishing, disturbance, constructions which may limit movement of prey species, wind farms, human settlements and infrastructures, regulation of rivers).	Lower mortality due to natural causes.	Database of ornithological ringing stations	National authorities take nature conservation into account in the management of wetlands.
	Maintain the area of fish-ponds managed extensively in Central Europe, and adjust their management to the needs of the species by promoting integrated management of fish-ponds	Number of colonies and number of breeding pairs on fish-ponds	Database of Ornithological Associations	Contacts between conservationists and fish-pond managers are strengthened
	Develop management plans for key feeding and stop-over sites.	All key sites have a management plan.	Data on each site are updated in the IBA and the Ramsar databases.	Assistance is provided for planning and management of key sites if necessary.
	Reduce mortality caused by collision with	Fewer birds are found	Database of	Awareness of promo-

	overhead power lines.	beneath overhead power lines.	ornithological ringing stations	tors of power lines is increased.
	Reduce direct mortality caused by poaching.	Fewer birds are found dead, killed by poachers.	Database of ornithological ringing stations	Enforcement of nature policy is more effective. Information in hunting magazines is regular.
	Reduce direct mortality caused by toxins.	Decrease in this semi-natural cause of mortality.	Database of ornithological ringing stations	Training of wetland managers is necessary for detecting this cause of mortality.
	Phase out organochlorines (especially DDT) along the entire migratory flyways.	Decrease in the intensity of non natural causes of mortality.	Database of ornithological ringing stations	National authorities take the necessary steps.
	Restore wetlands for breeding, maintain adequate water level at colonies and create water supply systems.	Increase in the number of appropriate breeding sites.	Data on each site are updated in the IBA and the Ramsar databases.	Give means to potential key sites.
	Protect colonies threatened by flooding, by using measures fitting local conditions	Reduced mortality due to natural causes.	Database of ornithological ringing stations	Local interventions fitted to local needs.
	Preserve colonies from burning and cutting reed, by avoiding such activities around colonies.	Colonies in reedbeds have a good breeding successful.	Database of Ornithological Associations	Increase in resources for wetlands managers.
	Take measures to protect threatened colonies against excessive predation (notably by fox, wild boar or jackal).	Reduced mortality due to natural causes.	Database of protected areas (for measures) and of ornithological ringing stations.	Need to strengthen the role of wardens in colonies.
	Manage competing species if necessary and appropriate.	Increase in numbers of breeding pairs in colonies.	Database of Ornithological Associations.	Local interventions fitted to local needs.
	Protect nesting colonies from disturbance.	Fewer birds found dead.	Annual checks of the colonies.	Staff capacity is strengthened at protected areas, both for administrative and surveillance tasks.
	Determine and monitor breeding success and calculate the value necessary to meet the target in relation to survival rate.	Breeding success known from different colonies of each population.	Annual reports published in the Spoonbill Newsletter.	Necessary to centralize the data.
	Determine and monitor survival rate through colour ringing and satellite telemetry.	Survival rate known from different colonies of each population.	Scientific publications.	Data centralisation is secured and maintained, quick feedbacks to observers. Wardens and volunteers are trained.
	Identify limiting factors with a view to promoting further expansion of the breeding range and to creating an early warning system against potential threats.	Increase in numbers of colonies and of breeding pairs in colonies.	Annual National reports on breeding colonies.	Warden and volunteers are trained in counting breeding pairs.

	Identify additional wintering and stop-over areas along the flyways and their role in limiting the growth of the different populations/subspecies (i.e. the influence of the conditions at wintering sites on breeding success).	Increase in the known number of sites and of wintering birds.	Wetlands International database.	Develop surveys in collaboration with Wetlands International Africa.
	Identify any potential age and gender differences in use of stop-over and wintering sites.	Better knowledge of the role of the sites and development of adequate measures.	Scientific publications.	All key sites participate to the study.
	Determine migratory status and the migratory flyways (study movements during non-breeding season using colour-ringing and satellite tracking).	Better knowledge of all the sites used by the species during its migrations.	Scientific publications.	A coordination of the colour ringed data is necessary.
	Complete full survey for breeding areas (Turkey as a priority).	Number of breeding sites, number of breeding pairs.	National reports and publication in the Spoonbill Newsletter.	Necessity to organize a national network.
	Study the sensitivity of spoonbill to disease and toxins.	Better knowledge of potential mortality factors.	Scientific publications.	Necessity to develop a cooperation between protected areas and specialized laboratories.
	Identify key mortality factors and hot spots.	Predictions of single and multisite models help to determine appropriate measures to apply on different sites.	Scientific publications.	Necessary to set a scientific team on this project
	Collect and analyse genetic samples (Turkey, Hungary).	Analysed number of colonies and individuals birds.	Scientific publications.	Need to harmonize methods in both countries.
	Study the feeding ecology of the species.	Prey, feeding and ingestion rate, according to the prey species are known on main sites.	Scientific publications.	A study on different key sites is necessary and requests trained people.

Table VIII. Activities at national level

Significance of the symbols used in the following tables

❶ **Critical:** Result needed to prevent a major decline in the population, which could lead to extinction.
❷ **High:** Result needed to prevent a decline of more than 20% of the population in 20 years or less.
❸ **Medium:** Result needed to prevent a decline of less than 20% of the population in 20 years or less.
❹ **Low:** Result needed to prevent local population declines or events likely to have only a small impact on the population across the range.
❺ Not a priority

Key to time scale criteria:
🔔🔔🔔 **Short:** to be completed within the next 1-3 years
🔔🔔 **Medium:** to be completed within the next 1-5 years
🔔 **Long:** to be completed within the next 1-10 years

Results	National activities	Priority	Time scale	Responsible organisations
Maintain and expand suitable feeding areas around breeding colonies, along migration routes and at wintering areas.	Maintain the integrity of the coastal ecosystem at Banc d'Arguin.	❶	🔔🔔🔔	National Conservation Authorities
	Designate and maintain key feeding and stop-over sites as European Union Special Protection Areas and/or Ramsar sites.	❷	🔔🔔	National Conservation Authorities
	Restore former feeding areas and maintain the sites in good ecological conditions (esp. maintain supply and quality of water).	❷	🔔🔔	Governmental and non-governmental conservation organisations
	Prevent overgrowth of feeding areas by management of vegetational succession and/or invasive plants.	❷	🔔🔔	Governmental and non-governmental conservation organisations
	Take measures to limit activities which may reduce the availability of food (e.g. overfishing, disturbance (including bird disturbing at fishponds, shellfish collection), constructions which may limit movement of prey species, wind farms, gravel extraction, intensive fish farms, human settlements, infrastructures, regulation of rivers).	❷	🔔	Governmental and non-governmental conservation organisations
	Maintain the area of extensively managed fishponds and adjust their management to the needs of the species (promote integrated management of fish-ponds).	❷	🔔🔔	Governmental and non-governmental conservation organisations
	Develop management plans for key feeding and stop-over sites addressing off-site threats at basin-level (e.g. pollution, water regime).	❷	🔔🔔	Governmental and non-governmental conservation organisations
	Strengthen staff capacity at protected areas both for administrative and surveillance tasks.	❷	🔔🔔🔔	Governmental and non-governmental conservation organisations

Reduce mortality caused by collisions with overhead power lines	Identify critical sections of powerlines.	3	🔔🔔	National and regional authorities and non-government conservation organisations
	Replace existing lines with underground cables or mark them with warning signs obvious to flying birds.	3	🔔	Electric companies, local owners, national and regional authorities
	Avoid siting new lines near breeding or feeding areas (EIA), or at sites crossing flyways, especially in river delta's.	2	🔔🔔	National or Regional Conservation Authorities
Reduce direct mortality caused by poaching	Improve information, education and surveillance at key sites.	2	🔔🔔🔔	Governmental and non-governmental conservation organisations
	Stop spring hunting in all countries along the flyways.	3	🔔🔔	National Conservation Authorities
	Enforce legislation on species protection.	2	🔔🔔🔔	National Conservation Authorities
	Grant the species, and in particular the *archeri* and "*major*" subspecies, with legal protection in all the range states.	1	🔔🔔🔔	National Conservation Authorities
	Designate no-hunting zones at key sites.	2	🔔🔔	National Conservation Authorities
Reduce direct mortality cause by toxins.	Create a warning system.	4	🔔🔔🔔	National Conservation Authorities
Phase out organochlorins (especially DDT) all along the flyways	Try to take advantage of non-hatched eggs and dead birds.	4	🔔🔔🔔	National Conservation Authorities
Restore wetlands for breeding, maintain adequate water level at colonies and create water supply systems.	Develop agreements with local water managers.	3	🔔🔔	Governmental and non-government conservation organisations

Protect colonies threatened by flooding.	Use measures fitting local conditions.	2	🔔🔔🔔	Governmental and non-government conservation organisations
	Protect colonies threatened by flooding of fish-ponds, either by managing them solely for conservation or through integrated management of fish-ponds.	4	🔔🔔🔔	Governmental and non-government conservation organisations
Preserve colonies from burning and cutting of reed through avoiding such activities around colonies.	Cut reed on a 3-year plan and prohibit cutting or burning during breeding period.	3	🔔🔔🔔	Governmental and non-government conservation organisations
Take measures to protect threatened colonies against excessive predation	Protect colonies of *P. l. balsaci* against predation by jackals.	1	🔔🔔🔔	National Conservation Authorities
Manage competing bird species if necessary and appropriate.	Control nesting gulls, cormorants.	4	🔔🔔🔔	Governmental and non-government conservation organisations
	Study the possible impact of competition between *P. l. leucorodia* and *P. l. balsaci*.	4	🔔🔔🔔	Scientific institutions
Protect nesting colonies from disturbance.	Restrict/prohibit access or manage visitors.	3 2	🔔🔔🔔	Protected areas managers
	Increase surveillance in order to reduce disturbance factors by public, land-users, fisherman, reedcutters, farmers and other factors.	4	🔔🔔	Governmental and non-government conservation organisations
	Provide key sites with legal protection.	1	🔔🔔🔔	National Conservation Authorities
	Stop military activities (exercices by military aircraft) above colonies in breeding season.	3	🔔🔔	National Conservation Authorities
Determine and monitor breeding success.	Monitor the number of breeding pairs in each colony year by year, by the best techniques (including aerial photos of the colonies inside the reedbed to count the breeding pairs). Calculate breeding success necessary to meet the targeted survival rate.	2	🔔🔔🔔	Scientific institutions

	Identify limiting factors for each breeding sub-population with a view to promoting further expansion of the breeding range and to creating an early warning system against potential threats.	2	🔔🔔🔔	Scientific institutions
Identify limiting factors with a view to promoting further expansion of the breeding range and to creating an early warning system against potential threats.	Run studies on different key sites and compare results between sites and between the different populations or subspecies.	2	🔔🔔🔔	Scientific institutions
Identify additional wintering and stop-over areas along the flyways and their role in limiting the growth of the different populations/subspecies (i.e. the influence of the conditions at wintering sites on breeding success).	Develop and update the database in annex of the action plan, through surveys in poorly known sites. Develop local and coordinated studies on site occupancy by birds in different conditions.	2	🔔🔔🔔	Scientific institutions
	Identify any potential age and gender differences in use of stop-over and wintering sites.	3	🔔🔔	Scientific institutions
	Determine migratory status and survival rates through colour ringing and satellite telemetry.	2	🔔	Scientific institutions
	Complete full survey for breeding areas.	2	🔔🔔🔔	Scientific institutions
Study the sensitivity of spoonbill to disease and toxins.	Monitor disease outbreaks and identify causes of mortality (botulism, cyanotoxins, avian flu etc). Check veterinary state by regular sampling (blood, feather).	2	🔔🔔	Scientific institutions
Identify key mortality factors and hot spots.	Investigate the impact of oil exploration, exploitation and transport on key sites and species survival and take appropriate mitigation measures.	3	🔔🔔🔔	Governmental and non-government conservation organisations
Collect and analyse genetic samples.	Clarify the delineation between the "*major*" and Central and Southeast European breeding populations.	3	🔔🔔	Scientific institutions
Study the feeding ecology of the species.	Use the same method to determine the intake rate of the different populations.	3	🔔🔔	Scientific institutions

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6.2. Population size, distribution and movements

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ANNEXES

Annex 1. Breeding and non-breeding population estimates in range states 2001-2007

All data come from the 2007 enquiry, except for breeding pairs in Russia (Burfield & van Bommel 2004).

Trends: F = fluctuating, - = negative trend, + = positive trend, 0 = no trend, ? = trend unknown, n.d. = no data, n.a. = not applicable

Atlantic breeding population

Country	No breeding	No of colonies	Breeding success	Year	Trend	Wintering numbers	Year	Trend
Belgium	18	1	2.5	2007	+	0-2	>2000	0
Denmark	46	3	n.d.	2007	+	0	2007	n.a.
France	142	7	2.47	2005	+	430	2007	+
Germany	220	9	1.3-2.2	2007	+	0	2007	n.a.
Morocco	20	1	n.d.	2004	+	349	1995-2005	0/+
Netherlands	1890	29	1.9	2007	+	0-2	2007	n.a.
Portugal	92-99	10	n.d.	2002	+	900-1200	2004-2006	+
Spain	1631	12	1.2-1.8 (in 4 colonies in 2007) but highly variable among years & colonies	2007	+	1,500 in Andalusia; more than 270 rest of Spain	2002-2006	+
United Kingdom	1-7		n.d.	99-00	N	12	2004-2005	0
Gambia	n.d.	n.d.	n.d.	n.d.	n.d.	<30	1998-2006	0
Mali	n.d.	n.d.	n.d.	n.d.	n.d.	55	2007	0
Mauritania	n.d.	n.d.	n.d.	n.d.	n.d.	10,000	>2000	F
Senegal	n.d.	n.d.	n.d.	n.d.	n.d.	112-3735	1989-2007	F

Central and Southeast European breeding population

Country	No breeding	No of colonies	Breeding success	Year	Trend	Wintering numbers	Year	Trend
Albania	Not recently	n.a.	n.a.	2005	-	3-24	1995-2002	F
Austria	38	1	n.d.	2006	0	0		n.a.
Bosnia	Not recently	n.a.	n.a.	>200	-	0		n.a.
Bulgaria	80-150	5	n.d.	2007	0	0-5	91-07	F
Croatia	154-275	3	n.d.	2006-2007	0	16-120	1998-2004	F
Czech Republic	3	1	1.0	2007	+	0		n.a.
Greece	223	4	n.d.	2007	F	284 - 355	1999-2005	+
Hungary	1100-1200	16	n.d.	2007	F	0-20	2007	+
Italy	105-110	3-5	n.d.	2007	+	580	2000	+
Moldova	5-20	1	n.d.	90-00	0	0		n.a.
Montenegro	33	1	n.d.	2007	+	0-90	1999-2007	+
Romania	1400-1600	17	n.d.	2006	0	64	2006	+
Serbia	190-240	5	n.d.	2007	0	30-150	1990-2007	+
Slovakia	10-35		n.d.	80-99	F	0		n.a.
Turkey	500-700	11	n.d.	2006	?	166-1320	1999-2005	+
Ukraine	1000- 1500	14	n.d.	2000	?	0		n.a.
Cyprus	-	-	-	-	-	10	>2000	0
Algeria	-	-	-	-	-	<100	>2000	0
Cameroon	-	-	-	-	-	253	1997	0
Chad	-	-	-	-	-	2	2003	n.d.
Israel	-	-	-	-	-	267-907	2005-2002	0
Jordan	-	-	-	-	-	9-75	>2000	0
Libya	-	-	-	-	-	90	2005-2007	+
Mali	-	-	-	-	-	55	2007	0
Niger	-	-	-	-	-	100-200	>2000	0
Nigeria	-	-	-	-	-	2-18	1980-2007	0
Palestine	-	-	-	-	-	<10	>2000	0
Tunisia	-	-	-	-	-	3000-5000	>2000	+

West Asian (*P. l. "major"*) breeding population

Country	**No breeding**	**No of colonies**	**Year**	**Trend**	**Wintering numbers**	**Year**	**Trend**
Armenia	1-3	1	2003-2005	-	Single individuals.	2001-2007	?
Azerbaijan	800	2	2006	0	n.d.		n.a.
Iran	420-770		1977 – 2006	0	367-494	2002-2007	0
Irak	15	3	2007	0	110	2000-2007	0
Kazakhstan	<650	3	>2000	-	<10	>2000	0
Kuwait	c65	5-10	2007	0	110	>2000	?
Russia	2500-3000		1990-2000	-	n.d.		n.a.
Syria	50-100	1	2005	0	42	2004	0
Tajikistan	n.d.	n.d.	n.d.	n.a.	n.d.		n.a.
Turkmenistan	1-2	1	>2000	n.a.	n.d.		n.a.
Uzbekistan	250	1	>2000	-	n.d.		n.a.
Georgia	n.d.	n.d.		n.a.	22-225	1981-2003	?
Oman	n.d.	n.d.	n.d.	n.a.	875	2005	?
United Arab Emirates	n.d.	n.d.	n.d.	n.a.	80	2007	?

P. l. archeri

Countries	**No breeding**	**No of colonies**	**Year**	**Trend**	**Wintering numbers**	**Year**	**Trend**
Djibouti	4 (17-1987)	1	>2000	**-**	81	2001	**?**
Egypt	100	0	>2000	-	700	>2000	**?**
Eritrea	250	20	2007	0	500	2006	0
Saudi Arabia	110-250	22	1996	?	350	>2000	?
Somalia	200		2006	?	n.d.		n.a.
Sudan	200-500			?	175	2007	?
Yemen	30-40	4	>2001	?	n.d.		n.a.

P. l. balsaci

Countries	**No breeding**	**No of colonies**	**Year**	**Trend**	**Wintering numbers**	**Year**	**Trend**
Mauritania	750	3	2007	-	3,100	2007	-

Annex 2. Threats encountered by each population/subspecies in the different stages of the life

❶. **Critical:** a factor causing or likely to cause very rapid declines (>30% over 10 years);
❷. **High:** a factor causing or likely to cause rapid declines (20-30% over 10 years);
❸. **Medium:** a factor causing or likely to cause relatively slow, but significant, declines (10-20% over 10 years);
❹. **Low:** a factor causing or likely to cause fluctuations;
❺. **Local:** a factor causing or likely to cause negligible declines;
⓪? **Unknown:** a factor that is likely to affect the species but it is unknown to what extent
Blank space: factor does not apply in this country

Atlantic Population

THREATS		Belgium	Denmark	France	Germany	Morocco	Netherlands	Portugal	Spain	Gambia	Senegal
Habitat Loss/Degradation (human induced)											
Agriculture abandonment				⓪			❺	❺			❺
Marine aquaculture				⓪		❸	❺		❹		❺
Freshwater aquaculture							❺				❺
Abandoning of land management in non-agricultural areas			❺	❹			❺	❹			
Change of management /water regime				❺			❺	❸	❸		
Fisheries					❸		❺	❸			❹
Infrastructure development /Industry		❷		❹			❺	❹			❺
Human settlement				❹		❷	❸	❹	❷		❸
Tourism/recreation			❺	❹	❹	❹	❸	❹	❷		❺
Transport – water				❹		❹	❸				❺
Dams				❺		❺					❷
Telecommunications				⓪			❺	❺			❺
Power lines		⓪	⓪	❺			❸	❸	❺		❺
Invasive alien species (directly impacting habitat)			❺	❹					❸		❹
Change in native species dynamics (directly impacting habitat)				❹			❺				
Invasive alien species (directly affecting the species)											
Competitors				⓪							❺
Predators				⓪			❸		❸		❺
Pathogens/parasites/toxins				⓪				⓪	❸		
Accidental mortality											
Bycatch	Hooking							❺			❹
	Netting							❺	❺		❹
	Poisoning			⓪			❺	❺			
	Shooting			❺		❺	❺	❺	❺	❺	
	Pest control						❹				
Collision	Pylon and building collision	⓪	⓪	⓪			❺	❺			
	Vehicle collision						❺	❺			
Persecution	Pest control										
Pollution (affecting habitat and/or species)											
Water pollution	Agricultural		❹	❺	❺	❸	❸	❸	❸		❸
	Domestic			⓪	⓪	❸	❸	❺			❺
	Commercial/Industrial			⓪	❺		❺	❸	❸		
	Non-agricultural			❹	⓪		❺	❺			
	Thermal pollution				⓪		❺	❺			
	Oil spills	❺			⓪			❺			

	Sediment	2		5				5			
	Sewage					4		5			5
	Solid waste					4		5			
	Noise pollution			4		0		5			
Natural disasters											
Drought			5	0	0	5			3		3
Storms/flooding			3	5	4		4		2		3
Temperature extremes				0					3		
Changes in native species dynamics											
Competition for nests				0	0			0			
Predators		2		0	0			0			5
Prey/food base				0	0			5	3		
Pathogens/parasites				0	0			5			
Intrinsic Factors											
Limited dispersal				0							
Poor recruitment/reproduction/regeneration				0				0			
High juvenile mortality				5				0	4		
Inbreeding				5				0			
Low densities				5				5			
Skewed sex ratios				0				0			
Slow growth rates				0				0			
Population fluctuations				0				4			4
Restricted range		4		0		2		5			
Human disturbance											
Recreation/tourism			5	5	5	4	3	3	4		4
Research				0	5		4				3
Hunting				5		4		5			3
Transport				4							3
Others											
Wind farms					5						
Reedbed cutting				4							
Nesting trees cutting and tree mortality				5					2		
Drought at staging sites in Spain							5		3		

Central and Southeast European breeding Population (breeding countries)

THREATS		Albania	Austria	Bosnia	Bulgaria	Croatia	Greece	Hungary	Italia	Moldova	Montenegri	Romania	Serbia	Slovakia	Turkey	Ukraine
Habitat Loss/Degradation (human induced)																
Agriculture abandonment		4	4			4		3		5	4	5				
Marine aquaculture		2				4										
Freshwater aquaculture		4		2	3	2		4				4	2	2		
Abandoning of land management in non-agricultural areas		4				2						4				
Change of management regime						2	3	4		5		2				5
Fisheries		3	4		3	3					0	5				
Fish farming		3		2	3			4					2	2		
Infrastructure development																
Industry			4		2			4				3	5		3	
Human settlement		3			2			4				3	5			
Tourism/recreation		2			2	2		4	4		0	2	2			5
Transport – water					2	3		4		5	0	5				
Dams						2		3				5			3	
Telecommunications									4			0				
Power lines		4			4			5				0				
Oil pipeline (production)					2					0						
Invasive alien species (directly impacting habitat)						2		3	5							
Change in native species dynamics (directly impacting habitat)						3		2	5			0	5		5	
Invasive alien species (directly affecting the species)																
Predators								5		0			5			
Accidental mortality																
Bycatch	Fisheries-related										0					
	Shooting	2			4	4		5	5			0	4			
	Poisoning								5							
	Pest control					4										
Persecution																
Pest control												5	4			
Pollution (affecting habitat and/or species)																
Water pollution	Agricultural	0	4				2	3		0	0	0	4		3	5
	Domestic					5	2			0		0			4	
	Commercial/Industrial				3	3	3	3		0		0	4		3	5
	Other non-agricultural											0	5			
	Oil slicks				3					0						
	Sewage						2			0					3	
	Noise pollution	3										0	5			
Natural disasters																
Drought			5		3	4		2	5	4		3	5		4	
Storms/flooding					2	5		4	4			3	3		4	
Temperature extremes						4		0	4							
Fires					4			5								
Salinity and water level								2								
Changes in native species dynamics																
Competitors						5	3	5							5	
Predators					4	5		5	3	0	0	3	5		5	
Prey/food base			2			3		4	5			0	3		0	
Pathogens/parasites						5		5		0		0				
Intrinsic Factors																
High juvenile mortality								4	4	0		0			0	
Low densities						5										
Population fluctuations					3	5		3		0		3				

Restricted range					2			4					5				
Human disturbance																	
Recreation/tourism		2	4		3	4		5	5	5	0	3	3			5
Research						4		5	5			4	4			
War/civil unrest/ exercices by military aircraft				2				4								
Hunting		2		2	3	4			5	5	0	5	5			
Transport								4			0	5				
Logging, disturbance by management of commercial fishponds		2		0	2			5								
Others																	
Reedbed management (cutting, fire)		2														5
Nesting trees cutting					2											
Negative effects (especially groundwater levels) of regulation of rivers								3		0						
Negative effects (especially reduction of dropping groundwater levels) of creating mining lakes around breeding and feeding ground								5		5						

Non breeding countries

THREATS			Algeria	Cameroon	Chad	Cyprus	Israel	Jordan	Kenya	Libya	Macedonia	Mali	Malta	Niger	Palestine	Tunisia
Habitat Loss/Degradation (human induced)									4							
Agriculture abandonment														3		
Land management of non-agricultural areas									4							
Change of management regime								3						3		3
Fisheries				5										3		
Industry									4							4
Human settlement										3	0					3
Tourism/recreation								4		4	0					0
Dams				2				2				5				
Invasive alien species (directly impacting habitat)														3		
Accidental mortality	Bycatch	Hooking		3								5				
		Netting		3												
		Poisoning		2												
		Shooting		5				3			0	5	5			0
Pollution (affecting habitat and/or species)																
Water pollution	Agricultural			0				3				5				0
Sewage								3								
Natural disasters																
Drought								1			0	5		3		3
Temperature extremes				0												0
Fires				0												
Changes in native species dynamics																
Intrinsic Factors																
Limited dispersal				0								4				
Human disturbance																
Recreation/tourism								3			0					0
Research											0					
Hunting				3				3				5	5			3

West Asian (*P. l. major*) breeding population

THREATS			Armenia	Iran	Iraq	Kazakhstan	Kuwait	Russia	Turkmeni-	Syria	Uzbekistan	Oman	Belgium	United Arab Emi-	Bosnia	Czech-republic	Denmark	Italia	Macedonia FYR
Habitat Loss/Degradation (human induced)								4											
Agriculture	Abandonment		0		4														
Marine aquaculture				3															
Freshwater aquaculture				2	3				2		2								
Change of management regime			5		4	5					1								
Fisheries				2	0					2									
Fish farming			3		3					2	3								
Infrastructure development		Industry		0	2														
Human settlement			0				3		2										
Tourism/recreation			0	2	2						5		2						
Transport – water			0	5	2														
Dams				0	2														
Power lines			0	0	4			4											
Drying up of rivers flood-land lakes											2								
Water discharge resulting in flooding of islands								4											
Change in native species dynamics (directly impacting habitat)			0	0	3														
Invasive alien species (directly affecting the species)				0	2														
Predators					4														
Accidental mortality	Netting			0	2														
	Poisoning		0	0	2														
	Shooting/poaching		2	0	2	0	4				4								
Pylon and building collision			0	5	4														
Water pollution	Agricultural		2	3	3			4	3	3									
	Domestic		0	0	3			4											
	Commercial/Industrial			0	3														
	Other non-agricultural		0	0	3					3									
	Thermal pollution				2														
	Oil slicks				3														
	Sediment		2																
	Sewage		0	0	2					4									
	Solid waste		0		2														
	Noise pollution			3	2						4								
	Fire in reedbeds (mainly during breeding season)		2								2								
Natural disasters	Drought			2	3			3			2								
Storms/flooding				3	3			3			3								
Temperature extremes			0	0	2			3											
Salinity and water level variations								3		3									
Changes in native species dynamics																			
Competitors				0	2														
Predators			0	0	4														
Prey/food base			0	0	2														
Poor recruitment/reproduction			0		2														
High juvenile mortality			?		2														
Low densities			2		3														
Human disturbance																			
Recreation/tourism			2	2	4				2				2						
Research			2	4	4														
War/civil unrest					2														
Hunting			2	4	2	5	4		2	2									
Visits to colonies					2							2							

Red Sea population (*P. l. archeri*) and Mauritanian population (*P. l. balsaci*)

THREATS			Djibouti	Egypt	Eritrea	Saudi Arabia	Somalia	Sudan	Yemen		Mauritania
Habitat Loss/Degradation (human induced)											
Agriculture	Abandonment							2			
Marine aquaculture						3		1			
Land management of non-agricultural areas	Change of management regime		2	5		3					
Fisheries			?		5	2	3	1			4
Infrastructure development					0			2			2
Human settlement				2	3	2		3			3
Tourism/recreation			2	2	5	3		1			
Transport – water					5	4		5			
Dams					5			0			
Invasive alien species (directly impacting habitat)			1		0	3					
Invasive alien species (directly affecting the species)											
Competitors			1		0						
Predators			1		0	3					
Accidental mortality	Bycatch	Shooting	0	3							
		Netting				3					
		Pest control				3					
Water pollution	Agricultural			3	5						
	Domestic				0	2					
	Commercial/Industrial				0	2					
	Other non-agricultural				5						
	Thermal pollution				5						
	Oil slicks		0			3					
	Sediment		0		0						
	Sewage		0		5	2					3
	Solid waste		0	3	5						
Noise pollution						3					
Changes in native species dynamics	Competitors		0		0						3
	Predators		0		0	3					5
Intrinsic Factors	Low densities		0		0						1
	High juvenile mortality			2		3					
Human disturbance											
Recreation/tourism			1	2	5	3		3			
Nest photography and permanent disturbance of the colony			0			4					
War/civil unrest			0					5			
Hunting			0	3							

Annex 3. Membership of states in international conservation conventions and agreements

Y: party of the convention, N: not yet, blank: not applicable

Primary Range States	Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)	Convention on the Conservation of Migratory Species (CMS)	Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)	African-Eurasian Migratory Waterbird Agreement (AEWA)	European Union Bird Directive	Ramsar Convention
	Appendix II	**Appendix II**	**Annex II**	**Annex II**	**Annex I**	
Belgium	Y	Y	Y	Y	Y	Y
Denmark	Y	Y	Y	Y	Y	Y
France	Y	Y	Y	Y	Y	Y
Germany	Y	Y	Y	Y	Y	Y
Morocco	Y	Y	Y	Y	Y	Y
Netherlands	Y	Y	Y	Y	Y	Y
Portugal	Y	Y	Y	Y	Y	Y
Spain	Y	Y	Y	Y	Y	Y
United Kingdom	Y	Y	Y	Y	Y	Y
Cape Verde	Y	Y		N		Y
Dem. Rep. Congo	Y	Y		N		Y
Gambia	Y	Y		Y		Y
Luxemburg	Y	Y	Y	Y	Y	Y
Senegal	Y	Y	Y	Y		Y
Sweden	Y	Y	Y	Y	Y	Y
Albania	Y	Y	Y	Y		Y
Austria	Y	Y	Y		Y	Y
Bosnia	N	N		N		Y
Bulgaria	Y	Y	Y	Y	Y	Y
Croatia	Y	Y	Y	Y		Y
Czech Republic	Y	Y	Y	Y	Y	Y
Greece	Y	Y	Y	Y	Y	Y
Hungary	Y	Y	Y	Y	Y	Y
Italy	Y	Y	Y	Y	Y	Y
Moldova	Y	Y	Y	Y		Y
Montenegro	Y	N		N		Y
Romania	Y	Y	Y	Y	Y	Y
Serbia	Y	N		N		Y
Slovakia	Y	Y	Y	Y	Y	Y
Turkey	Y	Y	Y			Y

Ukraine	Y	Y	Y	Y		Y
Algeria	Y	Y		N		Y
Burkina Faso	Y	Y	Y	N		Y
Cameroon	Y	Y		N		Y
Chad	Y	Y		N		Y
Cyprus	Y	Y	Y	N	Y	Y
Israel	Y	Y		Y		Y
Jordan	Y	Y		Y		Y
Kenya	Y	Y		Y		Y
Lebanon	N	N		N		N
Libya	N	Y		Y		Y
Macedonia	N	Y	Y	Y		Y
Mali	Y	Y		Y		Y
Malta	Y	Y	Y		Y	Y
Niger	Y	Y		Y		Y
Nigeria	Y	Y		Y		Y
Palestine	N	N		N		N
Poland	Y	Y	Y	N	Y	Y
Slovenia	Y	Y	Y	Y	Y	Y
Switzerland	Y	Y	Y	Y		Y
Tunisia	Y	Y	Y	Y		Y
Uganda	Y	Y		Y		Y
Armenia	N	N	Y	N		Y
Azerbaijan	Y	N	Y	N		Y
Iran	Y	N		N		Y
Iraq	N	N		N		Y
Kazakhstan	Y	Y		N		Y
Kuwait	Y	N		N		N
Russia	Y	N		N		Y
Syria	Y	Y		Y		Y
Turkmenistan	N	N		N		Y
United Arab Emirates	Y	N		N		Y
Uzbekistan	Y	Y		Y		Y
Bahrain	N	N		N		Y
Belarus	Y	Y		N		N
Georgia	Y	Y		Y		Y
Oman	N	N		N		N
Qatar	Y	N				N
Tajikistan	Y	Y		N		Y
Djibouti	Y	Y		Y		Y
Eritrea	Y	Y		N		N
Egypt	Y	Y				Y
Saudi Arabia	Y	Y		N		N
Somalia	Y	Y		N		N
Sudan	Y			Y		Y
Yemen	Y	Y		N		N
Ethiopia	Y	N		N		Y
Mauritania	Y	Y		N		Y

Annex 4. Spoonbill conservation and protection status

Country	National Red Data Book	National protection status	Under what law is the species protected	Is Spoonbill legally protected from being deliberately killed?	Is Spoonbill legally protected from egg harvest?	Is Spoonbill legally protected from nest destruction?	What are the penalties for?			Who is the highest national authority for protection of birds?
							Illegal killing	Egg harvest	Nest destruction	
Belgium	Y	Y	Royal decree bird protection (1981)	Y	Y	Y	?			Ministry of Environment
Denmark	Y	Y	The game act	Y	Y	Y				Ministry of Environment
France	Y	Y	National Law (1976)	Y	Y	Y	Max fine 9000 € + 6 months of prison			Ministry of Environment
Germany	Y	Y	Regional laws	Y	Y	Y				Council of Lower Saxonia and Schleswig-Holstein
Morocco	In preparation	Y	Decree of the Minister of Agriculture (3 November 1962) dealing with permanent hunting code	Y	Y	Y	4000 to l4000 dirhams and imprisonment from 2 to 6 months			Haut Commissarait aux Eaux et Forêts et à la Lutte Contre la Désertification
Netherlands	N	Y	Natuurbeschermingswet 1998	Y	Y	Y	Fine			Ministry of Agriculture, Nature and Food Quality
Portugal	Y	Y	Decret-Law 140/99	Y	Y	Y				ICNB
Spain	Y	Y	National: Law 42/2007 for Nature Heritage and Biodiversity in Spain Andalucía: Law 8/ 2003 for fauna and flora	Y	Y	Y	Fine of between 601,02 and 60.101,21 euros			Ministry of Environment Regional Ministeries of environment
United Kingdom	N	Y	Wildlife & Countryside Act, 1981	Y	Y	Y	£5,000			Laws are passed by Parliament
Gambia		Y	Biodiversity /wildlife Act 2003	Y	Y	Y	Fine or 1 year imprisonment			Department of Parks and Wildlife Management
Luxembourg	Y	Y	Nature protection law 2004	Y	Y	Y	Imprisonment from 8 days to 6 months and fine of 251 to 750,000 Euros, or one of these only			Ministry of Environnement
Senegal	N	Y	Law on Nature Protection	Y	N	N				Ministry of Environnement

Country	National Red Data Book	National protection status	Under what law is the species protected	Is Spoonbill legally protected from being deliberately killed?	Is Spoonbill legally protected from egg harvest?	Is Spoonbill legally protected from nest destruction?	What are the penalties for?	Who is the highest national authority for protection of birds?
Albania	Y	Y	hunting and wildlife protection (1994)	Y	Y	Y		Ministry of Environment, Forests and Water Administration
Austria	Y	Y	Nature conservation legislation	Y	Y	Y		
Bosnia	In progress	Y		Y	N	N		
Bulgaria	Y	Y	Bulgarian Biodiversity Law	Y	Y	Y		Ministry of environment and waters
Croatia	Y	Y	Nature Protection Act, Official Gazette 70/2005	Y	Y	Y	32,400 HRK (ca 4,300 eur)	Ministry of culture, Dpt for Nature Protection
Czech Republic	Y	Y	Nature Conservation Act No. 114/1992	Y	Y	Y	max. 1 million Czech crowns (i.e. ca. 35.000 Euros)	Ministry of Environment
Greece	Y	Y	EU 79/409 Bird Directive	Y	Y	Y	It depends on the occasion and is up to the court decision. No occasion is known up to now.	Ministry of Rural Development and Food
Hungary	Y	Y	13/2001. (V.9.)	Y.	Y	Y	Money penalty (500, 000 HUF= 2,000 Euros) per individual and prison.	Ministry of Environment and Water.
Italia	Y	Y	National law 157 11/02/1992 so called "Hunting law"				Penal act	Ministry of Agriculture, Ministry of the Environment
Moldova	Y	Y	Law for protected state of natural territory (Annex 3). 16.07.1998	Y	Y	Y		Ministry for Protection of Environment and Natural Resurse
Montenegro	N	Y	Law for protected rare and endangered plant and animal species (1981. and 2006)	Y	Y	Y	Money penalty and prison	National Institute for Protection of Nature and Ministry for environment of MNE
Romania	Y	Y	HG457/2007	Y	Y	Y	Fine to be paid for disturbance and deliberate killing, but not a cummulative penalty, ca. 135 euro/case.	Ministry of Environment and Rural Development
Serbia	N	Y	Decree on Protection of Natural Rarities 1993; Law on Hunting 1993	Y	Y	Y	60000 Serbian dinars (750 EUR)	Ministry of Protection of Environment
Slovakia	Y	Y	543/2002 Z.z.	Y	Y	Y	100000 Sk/ 1 ind.	Ministry of Environment

Turkey	Y	Y	The Hunting Law (4915), The Regulation on Conservation Wetland	Y			Penalties			The Ministry of Environment and Forestry (The General Directorate of Nature Protection & National Parks.)
Ukraine	Y	Y	Law on the Red Data Book of Ukraine	Y	Y	Y	23000 HRN (2600 $US) for killing 1 individual.			Ministry for Environment and Nature Protection

Country	**National Red Data Book**	**National protection status**	**Under what law is the species protected**	**Is Spoonbill legally protected from being deliberately killed?**	**Is Spoonbill legally protected from egg harvest?**	**Is Spoonbill legally protected from nest destruction?**	**What are the penalties for?**			**Who is the highest national authority for protection of birds?**
							Illegal killing	Egg harvest	Nest destruction	
Algeria	N	Y	Decree on Environment and wise use 83-509 (2003)	Y	Y	Y				Ministry of Agriculture and wise use (MADR)
Cameroon	N	N								Ministry of Forestry and Wildlife
Chad		N								
Cyprus	N	Y	Law 152(1) 2003, Annex VI	Y	Y	Y	2 years in prison and/or 3,400 Euros			Ministry of Interior
Israel	Y	Y	the low of Wildlife protection which cover all species of terrestrial vertebrates	Y, all species in Israel, but the pests	Y, all species in Israel, but the pests	Y, all species in Israel, but the pests				Israel Nature & Parks Authority (NPA) – "Rashut HaTeva Ve-Haganim"
Jordan	N	Y	All wild birds are protected	Y	N	N	N	N	N.	Ministry of Agriculture, Royal Society for the Conservation of Nature
Kenya	N	Y	Kenya Wildlife Act	Y			Fine and imprisonment-for specifics refer to the act			Kenya Wildlife Service
Lebanon	N	N		N	N	N	N	N	N	Ministry of Environment
Libya	N	Y	Law No 15/2003 on protection and improvement of the Environment. Law No 8 of 1968 on hunting of wild animals	Y	n.a.	N	Paying a fee on each individual			Environment General Authority EGA
Macedonia	N	Y	Law on hunting	Y	Y	Y				Ministry of Environment and Physical Planning of RM

Mali	N	N	N	N	N					
Malta	N	Y	National and EU	Y	n.a.	n.a.	Depends on whether it is a 1st or 2nd etc offence. Penalties not currently sufficient to act as a deterrent.			MEPA
Niger	N	Y	Law 98/07							Ministère des Eaux et Forêts
Nigeria	N	Y								
Palestine	N	Y	Environmental Low	N	N	N				Ministry of Agriculture
Poland	N	Y								
Slovenia	N	Y								
Tunisia	N	Y	Ministry of Agriculture and Water Resources Law of 24 August 2006 on the organisation of hunting in the 2006/2007 hunting season (Ministerial Decree renewed each year, which always mentions the Spoonbill as a protected species).	Y		.	Law N° 2005-13 of 26 January 2005, omplements the Forestry Code, states: Imprisonment for 6 to 16 months. Fine from 500 to 5000 Tunisian dinars.	n.a.	n.a.	Ministry of Agriculture and Water Resources – General Direction of Forest. The National Agency for Protection of the Environment (ANPE) and the Agency for Protection and Management of the Coastline (APAL), both of which come under the Ministry of the Environment.

Country	National Red Data Book	National protection status	Under what law is the species protected	Is Spoonbill legally protected from being deliberately killed?	Is Spoonbill legally protected from egg harvest?	Is Spoonbill legally protected from nest destruction?	What are the penalties for?			Who is the highest national authority for protection of birds?
							Illegal killing	Egg harvest	Nest destruction	
Armenia	Y	Y	Fundamentals of Republic of Armenia Legislation on Nature Protection, adopted by the Supreme Council of the Republic of Armenia on April 25, 1996.	Y	Y	Y	Law on penalties for compensation of damages to flora and fauna as a result of violation of environmental legislation. 3 May, 2005 100,000 AMD (210 Eur)			Ministry of Nature Protection of the Republic of Armenia
Azerbaijan	Y	Y	Law on Protection of Animals; Law on Protected Areas	Y	Y	Y	300 conventional units = 150AZN (New Azeri Manatas, about 176USD) per individual or nest or clutch			Ministry of Ecology and Natural Resources
Iran	N	Y	DoE's Hunting and Capturing legislation	Y	Y	Y	13 $	Calculated according to the number of damaged eggs (4.3 $ per egg)		DOE
Iraq		N	No law	N	N	N	N	N	N	Ministry of Environment Ministry of Higher Education and Scientific Research Some local authorities
Kazakhstan	Y	Y	Red book only, not special laws	N	N	N				
Kuwait	N	Y	Anti-Shooting Law	Y	N	N	Fine/Imprisonment			Ministry of Interior (enforcement of anti-shooting law)
Russia	Y	Y	Federal Act on Wildlife; Decision of the Government of the Russian Federation on Red Data Book	Y	Y	Y	21,600 Rus Roubles			Ministry of Natural Resources
Syria	In progress	Y								
Turkmenistan	RDB 1st edition (1985), 2 edition (1999) was not included	Y	The Regulation "On Hunting and Hunting Facilities Maintaining" (1995)	Y	Unknown	Unknown				Ministry of Nature Protection of Turkmenistan
Uzbekistan	Y	Y	Law of Republic of Uzbekistan on protection and use of fauna (1997)	Y	Y	Y	150 minimal rate of salary for residents or 1898 US $ and 3,000 US $ for foreign people	50% of birds cost per each egg	450 minimal rate of salary per each nest or 5694 US $	State Committee for Nature protection

Country	National Red Data Book	National protection status	Under what law is the species protected?	Is Spoonbill legally protected from being deliberately killed?	Is Spoonbill legally protected from egg harvest?	Is Spoonbill legally protected from nest destruction?	What are the penalties for?			Who is the highest national authority for protection of birds?
							Illegal killing	Egg harvest	Nest destruction	
Belarus	N	N	Wild animals protection Law							Ministry of Nature
Georgia	N	Y	There is no special protection for the species, except the general protection under the Law of Georgia on Wildlife.	Hunting is prohibited. In Georgia hunting species (species allowed for hunting) are listed in the Order N512	There is no special protection for this species. All bird species, except the hunting species, as well as their egg harvesting are under protection of the Law of Georgia on Wildlife and Order N512 of the Minister of Environment on "Taking off the Wildlife Objects		Criminal Code and Administrative Code Georgia define penalties for illegal killing : 50 – 500 GL (approximately 30 – 300 USD)			The ministry of Environment Protection and Natural resources
Oman	?	Y	?	Y	n.a.	n.a.				
Tajikistan	N	Y	Law "On protection and use of the animal world" (1994)	Yes. However, enforcement of this law is close to inexistent.						
United Arab Emirates	N	Not protected	N	N	N	N				EAD

Country	National Red Data Book	National protection status	Under what law is the species protected?	Is Spoonbill legally protected from being deliberately killed?	Is Spoonbill legally protected from egg harvest?	Is Spoonbill legally protected from nest destruction?	What are the penalties for?			Who is the highest national authority for protection of birds?
							Illegal killing	Egg harvest	Nest destruction	
Djibouti		N		N	N	N	Indefined			Ministère de l'Habitat, de l'Urbanisme, de l'environnement et de l'Aménagement du Territoire
Eritrea	N	N	there is a Proclamation by Ministry of Fisheries	N	N	N	N	N	N	Ministry of Agriculture, Forestry & Wildlife Dept.
Egypt	N	Y	Law 102 for 1983, Law 4 for 1994.	Y	Y	N	According technical equation which calculate the international price of Bird, multiplied by number of possible chicks in life time of birds + costs for raising in captivity. But this is not clearly stated in the law but it mentioned penalty of min. 1000 LE and max. 5000 LE for any of these violations. The decision will be according to The Judge view.			The Egyptian Stat Ministry of Environmental Affair, Egyptian Environmental Affairs Agency, Natural Conservation Sector.
Saudi Arabia	N	Y		Y	Y	Y				National Commission for Wildlife Conservation & Development
Somalia	N	Y	N	N	N	N				No Ministry
Sudan	N	Y	Wildlife law	Y	Y	N				Wildlife Administration
Mauritania	No national red list	Y	Loi 2000-024 du 19 /01/2000	Loi 2000-024 du 19 /01/2000	Loi 2000-024 du 19 /01/2000	Loi 2000-024 du 19 /01/2000	Fine	Fine	Fine	President of RIM

Annex 5. Spoonbill research, conservation and attitude towards the species in the different countries

Countries	**What research has been conducted on the Spoonbill over the past 10 years?**	**What conservation efforts have there been for the Spoonbill over the past 10 years?**	**What is the general attitude ofthe public toward the Spoonbill?**	**What is the general attitude of the conservation authorities toward the Spoonbill?**
Belgium	Census and monitoring breeding populations.	N	Unknown	Positive
Denmark	Protected	No special conservation efforts aimed specifically at spoonbills.	Positive (though most people probably don't know this bird).	Positive
France	- Annual monitoring of the national breeding population, population dynamics at Grand Lieu and Brière, migration (colour ringing, satellite transmitter). -Studies on the stop over (period, duration, origin of birds, ecology and choise of site), studies on the feeding ecology and ecology of prey species.	- No disturbance in the pioneer colony of Grand Lieu. - Dike restoration and hydraulic management. - Creation of hunting reserve. - Management of ponds and islands and management of the water **level** in the Moëze-Oleron nature reserve.	Good	Good but water level conflicts in wetlands did not really take Spoonbills into account (ex Grand-Lieu, Brière).
Germany	Only monitoring of Breeding Population and breeding success and colour-ringing of nestlings.	Protecting breeding sites.	Good	Good
Morocco	Monitoring of numbers on two sites: Merja zerga and Sidi Moussa-Walidia Lagunas. Winter census.	No specific action but all the sites used by the species are designated as Ramsar sites (2005).	In general the public does not know this species, with the exception of the few naturalists in the country, or of schoolchildren with whom enlightened teachers have made educational campaigns.	The authorities concerned (the High Commission for Water and Forests and for the Fight against Desertification) are conscious of the threats faced by many species including Spoonbill. Their conservation strategy is based on preparation and implementation of management plans for a number of sites identified as protected areas.
Netherlands	Survival rate. Feeding ecology. Use of feeding areas.	Breeding sites protected. Water purification.	Highly beloved	Highly beloved
Portugal	N	Establishment of protected areas	Good	Good
Spain	In Andalusia (=98% of the population) Conservation and managmenent Plan in Andalucía: coordinated monthly censuses (also aerial), monitoring all breeding colonies, ringing. Study of survival, feeding ecology, reproductive ecology, migra-	UE sentence for protection of Santoña Marshes, Protection of nearly all main wetlands in the country as SPA, Saving nest from floods, Monitoring migration in principal stopover sites Avoid disturbances in wetlands, stablish quite areas inside Santoña marshes, improve roosting at resting areas during hide tide, educational work and media promotion of the spoonbills.	(only within people who loves nature; not too much people in Spain) It´s known as very sensible and endangered species. As any other (not common) species, Spanish society didn´t know it. This bird is especially emblematico of Doñana, but for sure part of the Spanish society does no know it as it occurs also with lynx or flamingos.	It´s known as a species with not too large populations, very concentrated and very sensitive to habitat alteration. There are several examples of wetlands that are used by spoonbills in last decade which have improved its social value because of this species using (Urdaibai, Los Canchales, O Grove, Cádiz Bay)

	tion and dispersion, wintering, stopover ecology, study of contaminants, evaluation of sanitary state and mortality. In other areas: monitoring of breeding colonies. International Waterbird count in January. Regular National censuses Feeding ecology, reproduction biology, effects of pollutants on reproduction, migration biology. Regular censuses of the main wetlands in Cantabria, use of habitats, feeding ecology, study the migration.	Protection of wetlands. Reinforcement of the legislation. Management and restoration in breeding colonies, restoration of feeding sites, captive breeding and release of young birds. Publications and educational work. Web page dedicated to spoonbills observations (by ornithologist volunteers). Avoid disturbances in wetlands, establish quite areas inside Santoña marshes, improve roosting an resting areas during hide tide.		In Andalusia: there is a high concern for this vulnerable species, which has lead the govenement to carry out a specific conservation and monitoring effort every year since 1990. The species is considered as vulnerable but not enough endangered and too localised to require a national conservation strategy.
United Kingdom	None that JNCC is aware of.	The species benefits from high levels of protection of most UK Estuaries (most major sites are EU Special protection Areas and Ramsar sites). See: http://www.jncc.gov.uk/page-1417.	Positive	Positive
Gambia	African Water Bird Census but not focused on the species.	Part of the overall biodiversity conservation efforts.	No known negative attitude.	Form part overall national species protection efforts.
Senegal	African Waterbird Census.	Site protection.	The public respects laws in general and the culture for nature.	They apply laws and look after the natural resources.

Countries	What research has been conducted on the Spoonbill over the past 10 years?	What conservation efforts have there been for the Spoonbill over the past 10 years?	What is the general attitude ofthe public toward the Spoonbill?	What is the general attitude of the conservation authorities toward the Spoonbill?
Albania	Inventory of breeding birds. Midwinter census.	Designation of key sites as Protected Areas.	Indifferent	Indifferent
Austria	Surveys of breeding pairs only.		Positive	Positive
Bosnia	Monitoring of Karst Poljes as Livanjsko Polje by Euronatur since 2002.			
Bulgaria	Monitoring of numbers of two of the colonies(Poda and Srebarna).	Education campaign. Implementation of the Srebarna Reserve management plan, Implementation of Persina Natural Park management plan by the park authorities, Implementation of the Poda Protected Site management plan by BSPB.	Indifferent to positive	Neglected by most conservation authorities except BSPB, protected by Biodiversity Act.
Croatia	Colour ringing programme is running since 2003 – 344 birds CR ringed. Monitoring in Krapje Dol and Nature Park Lonjsko Polje.	Water management of the main Spoonbill colony each year, buffer zone management and enlargement (ECONET – Euronatur), establishment of extensive grazing scheme (Podolci Cows).	Generally positive, cooperation between the ZOO Zürich, Lonjsko Polje and Euronatur to promote the species.	Generally positive, Symbol of the Nature Park Lonjsko Polje and flag-ship species.
Czech Republic	Ringing of juveniles in nests.			
Greece	None	Not something especially for this species. Other actions such as the reflooding of the drained Drana lake in the Evros Delta probably affect positively this species among many others.	Neutral or positive	Neutral or positive
Hungary	Colour-ringing project from 2003 and Cs. Pigniczki has studied ecological parameters from 2006. Colony site selection of the Spoonbill in the Hortobágy NP (in: Végvári 2003: PhD Thesis).	Wetland restoration and maintenance, consultation with the local fish farm owners.	Positive, no public conflict. Spoonbill will be the Bird of the year 2008.	It is a highly protected bird in Hungary. Destroying or negative changing breeding habitat is forbidden by conservation authority. It is regarded as a flagship species in wetland protection.
Italy	Colony census, colour ringing & reading at the 2 major colonies.	Nothing different to other colonial waterbirds.	Positive	Positive, but not different to other colonial waterbirds.
Moldova	Surveys of breeding pairs only	Created is of scientific reserve "Lower Prut"	Positive, they like the species.	Positive
Montenegro	Monitoring of wetlands, special int.programme in Bojana Delta (Center for Protection and Research of Birds of Montenegro, Euronatur).	Colony site and feeding places identified as EMERALD sites, proposed for protection in draft Physical Plan.		
Romania	Colony surveys, Colour-ringing for migration	Designating the colonies as protected areas (16 colonies proposed,	Positive, they like the species	Indifferent

	studies, wintering bird surveys.	13 designated).		
Serbia	Intensive research on the species distribution, breeding numbers, movements (by colour ringing each year) starting from 2003.	Proposal for the protection of Tamis River valley, the most important site during migration. Intensive communication with the fishpond owners and managers.	Mostly positive: people recognize the species and aesthetically it is very attractive.	Very positive.
Slovakia	Basic monitoring of population, access to breeding sites is limited from year 2000, because the sites are in private property.	In 2003 a Special Protected Area was declared (not legally approved by government yet). Limits in land use due to being a part of SPA; ban on aerial spraying of reedbeds. Fishery-environmental schemes were prepared for Iňačovce fishponds (not accepted by fishpond-managers yet). Habitat restoration activities at meadow Ostrovík in SPA Senné – Spoonbills now utilise the site for feeding.	For majority of population the bird is unknown, no negative attitude was found.	Generally accepted as rare species, but no special protection programs were implemented yet.
Turkey	The only breeding population monitoring studies were carried out on Manyas and Bolluk Lakes, furthermore some individual short-term studies were done to determine the breeding population.	The species is protected by Ministry of Environment and Forestry. New nesting habitat was created by planting *Salix spp* in the Manyas Lake.	The species is not preferred for hunting.	General tendency of the authorities is for protection of the species and improve their nesting sites.
Ukraine	Hardly any species specific research.	Formally the species is protected according to Ukrainian legislation. But there hardly been any species specific effort for its conservation.	Positive.	Indifferent
Algeria	Some studies in Universities.	N	Indifferent	Indifferent
Belarus	Occasional registration in 2002, 2003.	N	Indifferent (lack of awareness).	Indifferent (lack of awareness).
Cameroon	N	N	Indifferent	Indifferent
Israel			Positive	Full protection
Jordania	N	N	Mostly unknown	N
Kenya	N	Most of the sites where the Eurasian spoonbill has been recorded are protected legally. -Kenya Wildlife Service works with ornithology section at National museums of Kenya to count waterbird species in majority of wetland sites used by wintering Palaearctic species during migration.	No studies done from other spoonbills species it can be positive since there is no direct negative interaction between man and the spoonbills in Kenya.	Positive
Libyia	The species was included in results of the winter census of waterbirds 2005-2007 and ongoing likely for the next years.	Several sites harbouring the species are either Protected areas or proposed sites for protection.	Spoonbills are not major target species for hunting, though some illegal hunting may occur in eastern areas (Temimi and Ain Al Ghazala).	Spoonbills although with few numbers per site but it have a high conservation interest by EGA.

Mali	N	Wintering waterfowl census : WIS 98- 2007- ONCFS : DOEA Wetland restoration.	Tolerance from fishermen.	Confusion with the African Spoonbill which is protected. This explains the non protection with it.
Macedonia	No special survey for the species.	No special conservation efforts for the species.	The species is not generally known for the public.	The species is not among priorities for conservation.
Malta	N	BirdLife Malta continues to work to protect all bird species from illegal hunting pressures.	The general public is interested in seeing the species when it appears in Malta.	Bird protection laws are still not sufficient and the local law enforcement agencies are under-staffed and underfunded.
Niger	N	N	Ignorance probably.	No specific stance.
Tunisia	Census, population monitoring, contribution to studies of migrations of the species' populations (ring reading).	The species is among those that have been protected in Tunisia for more than ten years. Biggest concentrations in Tunisia are in sites declared as IBAs, sites protected by Tunisian legislation and/or proposed Ramsar sites.		

Countries	What research has been conducted on the Spoonbill over the past 10 years?	What conservation efforts have there been for the Spoonbill over the past 10 years?	What is the general attitude ofthe public toward the Spoonbill?	What is the general attitude of the conservation authorities toward the Spoonbill?
Armenia	None	N	Variable: from ignorant (little familiar species) to negative as a "fish pest" together with herons and cormorants; potentially an attractive taxidermy trophy.	Low to medium interest/attention.
Azerbaijan	Some researches have been conducted under the leadership of E.H. Sultanov in 1997-2000 (see citations). Special researches on Ciconiiformes have been conducted by E.H. Sultanov and A.F. Jabbarova (2006).	Creation of Aggol and Shirvan National Parks.	Relation quite neutral but in some regions they estimate very high the quality of meat so this species is damaged from illegal hunting.	Medium to high interest/attention.
Iran	No specific research; instead general studies like mid-winter census, site observation and ringing programme applied for all migratory species.	General conservation schemes applied for all migratory species like, Protected Areas legislation, Site Management Planning.	There are no specific public awareness schemes; instead general awareness raising on migratory species, like poster, site brochures.	Protection of its habitat.
Irak	Ornithological activities are very few in Iraq.	The species interred to the IBA, KBA surveys that were held by Nature Iraq NI environment organization science Apr 2005, which described the Iraqi avifauna checklist that listed by me and (Expert of the birds of the middle east – Birdlife International) during 2005-2006-2007.	Because the recent political situation in the area with and low financial situation of population, few attitude have seen.	Because the recent political situation in the area with and low financial situation of population, few attitude have seen. This situation give no time for birds observation and conservation ,it's dangerous area to visit , old equipments small rate from funding .
Kazakhstan	N	Ramsar convention	Nothing	Nothing
Kuwait	N	General protection by Coastguard.	Unknown to them.	To protect them.
Russia	Monitoring of the breeding colonies and ringing of chicks since 2004 by the staff of Chernyye Zemli NR.	No special efforts. Chernyye Zemli NR is a strictly protected area.	Positive. No persecution.	Secure general protection
Syria	N	N	Mostly unknown, or interest for hunting.	Limited awareness
Tajikistan	There has been no research specifically on Spoonbill.	Tajikistan is a signatory to CITES, CMS and Ramsar, among others. On the ground, specific protection measures for the Spoonbill have not been taken – a situation also related to the relatively rare occurrence of the species in this country.		
Turkmenistan	This species was counted and was included into the monitoring programme of reservation.	Species is included into the list of species, under prohibition for hunting under the regulation on "Hunting and Hunting Facilities Maintaining" (1995).	Non negative	Migratory individuals are conserved under the Khazar, Amudarya Reservations and Sarykamyshskiy game reserve of Gaplangyr.
Uzbekistan	There is no special researches	At present time bag of Spoonbill is prohibited in Uzbekistan because	Positive	Positive

		the species is included in the national Red Dada Book. Also the species protected in the territory of protected areas during breeding and migration seasons. There are zakazniks (IV category of IUCN PA): Lakes Tuzkan, Sudochye, Karakyr and Dengizkul.		
Georgia	N	N	Not known.	Protection
Oman	N	N	Probably most local people simply ignore the species.	All species of birds are protected.
United Arab Emirates	N	N	General interest.	Not known.

Countries	**What research has been conducted on the Spoonbill over the past 10 years?**	**What conservation efforts have there been for the Spoonbill over the past 10 years?**	**What is the general attitude ofthe public toward the Spoonbill?**	**What is the general attitude of the conservation authorities toward the Spoonbill?**
Djibouti	Winter census.	N	Indifferent	Indifferent
Egypt	No specific research.	Nothing specific.	Similar attitude to other species.	Similar attitude to other species.
Eritrea	No research has done except our study on the number of breeding pairs and wintering over the last three years.	There has been little effort. There is a hope for the near future some sites will be declared as MPA.	There is lack of knowledge among the public. Most people think as if the species have no value at all.	Fair
Saudi Arabia	No research has been carried out especially on Spoonbills.	Important sites are now included in the revised protected areas.	Little known.	It should be protected.
Somalia	N	N	Indifferent	Indifferent
Sudan	N	N	Not studied	Indifferent
Mauritania	Winter counts. Ringing started in 2002. Project NM/ RuG/ International Spoonbill Working Group.	Counts of birds and colonies; Creation of the nature reserve in the Chatt Boul.	Indifferent	A wish for a better monitoring of the species.

Annex 6. Spoonbill national action plan, census and monitoring in the different countries

Countries	Is there a national Spoonbill action plan?	Is there a national Spoonbill working group?	Is there a national and specific census?	Is there a monitoring programme in protected areas?	Are there routines for informing the responsible authorities regarding nesting areas and nest sites?
Belgium	N	N	Y	Y	Y
Denmark	N	N	BirdLife Denmark has appointed a volunteer species coordinator (Jan Skriver) who is performing a yearly census.	There is a general state monitoring programme covering a number of species including spoonbill.	Relevant authorities are informed when new sites are detected.
France	N	N	N	Not at present, but Y in the past.	N
Germany	N	N	N	Y	Y
Morocco	N	There is a project to create a working group with the training of two students and the implication of searchers working on waterbirds in Morocco.	Census during mid-January counts. These counts are coordinated by the Centre for the Study of Bird Migration (CEMO) at the Scientific Institute in Rabat.	A study is in progress at the Science University of Casablanca. This monitoring is being carried out in the wetland complex of the Lower Loukkos near the city of Larache in north-west Morocco. Monitoring at Merja Zerga and marais de Larache.	N
Netherlands	Y	Y	No, not anymore.	Y	Y
Portugal	N	N	Y	Y	Y
Spain	There is no national conservation plan but a regional one, in Andalusia where most of the population is found (breeding and wintering).	In Andalusia	Y (volunteers; not official). In Andalusia: every month, Also in some important places like Urdaibai, Santoña and O Grove.	Y	In Andalusia: yes.
United Kingdom	N	N	No specific census but in the breeding season, the species is monitored by the Rare Breeding Birds Panel (RBBP) and in the non-breeding season the species is included in the national Wetland Bird Survey (WeBS).	Generally through WeBS.	Y, through national reporting of RBBP and WeBS.
Gambia	N	N	No spp focus census.	Limited	N
Senegal	N	Y	Y	Y	N

Countries	Is there a national Spoonbill action plan?	Is there a national Spoonbill working group?	Is there a national and specific census?	Is there a monitoring programme in protected areas?	Are there routines for informing the responsible authorities regarding nesting areas and nest sites?
Albania	N	N	Part of the waterbird census.	N	N
Austria	N	N	Y	Y	Y
Bosnia	N	N	Generally no but sometimes census of the species made with other species.	Generally no but sometimes monitoring of the species made with other species.	N
Bulgaria	N	N	N	Only at Poda Protected Site.	N
Croatia	N	N	Y	Y (Kopački rit, Lonjsko polje, Jelas fishponds).	Y
Czech Republic	N	N	N	Y, monitoring programme for existing and proposed SPAs.	Y, results of regular monitoring.
Greece	N	N	N	Y. It is carried out by the Hellenic Ornithological Society.	At the recently established Management authorities there are guards which patrol most of the colonies where spoonbills breed.
Hungary	Not yet	Y	Y	Y	Y
Italy	N	N	N	Partial	N
Moldova	N	N	N	N	N
Montenegro	N	N	Y	Y	N
Romania	N	Y	N	N	N
Serbia	N	Y	Y	N	N
Slovakia	N	N	N	N	No regular reporting about breeding is going on, but any activity potentially threatening the spoonbills (e.g. spraying of reed, cutting of reed) has to be approved by the State Nature Conservancy – their opinions always take into account breeding habits of spoonbills and also fishpond-managers usually respect these opinions.
Turkey	Not yet	Not yet	Regularly Mid-winter waterfowl counts carried out coordinated by the Nature Society and supported by Ministry of Environment & Forestry.	There are short-term monitoring breeding & wintering studies in some protected areas not directly on the species concern. For example, Manyas & Bolluk Lake are monitored not only	A study is continuing to establish such a mechanism (Biodiversity Monitoring Unit) under the The Ministry of Environment & Forestry. Also the Nature Society has its own bird databank.

				for concerned species but also other water-bird species.	
Ukraine	N	N	N	The species is more or less regularly counted in Lebyazhi Islands (a nature protected area). It was formerly counted in the Danube Delta biosphere Reserve (no more Spoonbills are breeding there).	N
Algeria	N	N	N	Y	N
Belarus	N	N	N		
Cameroon	N	N	N	N	N
Chad	N	N	N		
Israel	N	N	Y	Partly	Y but no relevant.
Jordania	N	N	N	Y, for birds in general.	
Kenya	N	N	N	Y for all biodiversity but not specific to the birds or this spoonbill species.	There are well established channels of reporting any deaths or mass congregations any species in Kenya.
Libyia	N	N	Y	Y	N
Macedonia	N	N	N	Partly, Prespa Lake.	N
Mali	N	Y but not functional.	Y with other census ONCFS/ WIS.	Restoration, environnemental education, Action plan for rare and threatened species.	N
Malta	N	N	N	N	N
Niger	N	N	N	N	N
Palestine	N	N	N	Y	N
Tunisia	N	No but the Tunisian Ornithological Group (GTO), the scientific section of the AAO (Association « Les Amis des Oiseaux ») and other ornithologists are actively monitoring the species in Tunisia (census, ring reading etc).	No, but special attention is paid to this species during mid-winter censuses carried out in January every year.	Y, there is a monitoring programme of IBAs in Tunisia, covering all the sites mentioned in the above tables. A winter census is carried out every year in January.	N

Countries	Is there a national Spoonbill action plan?	Is there a national Spoonbill working group?	Is there a national and specific census?	Is there a monitoring programme in protected areas?	Are there routines for informing the responsible authorities regarding nesting areas and nest sites?
Armenia	N	N	Midwinter waterbird count.	Y, Basic monitoring.	N
Azerbaijan	N	N	N	Yes, General monitoring programme for all bird species.	N
Irak	N	N	N	There are IBA, KBA monitoring program but not in protected areas.	N
Iran	N	N	No, but mid-winter census.	No, but a general monitoring programme applied for all migratory species.	Y, according to the patrolling reports of "DoE's Game Guards" which are submitted to the site manager and higher authorities respectively.
Russia	N	N	N	Y	Y
Syria	N	N	N	N	N
Turkmenistan	N	N	N	General Monitoring programme “Letopis Prirody” is conducted in Khazar, Amudarya and Gaplangyr Reservations; it includes this species as well.	N
Uzbekistan	N	No, but we have a working group on wetlands and a Crane working group (national coordinator of both these groups is Lanovenko E.).	N	Y. Only for Zapovedniks, not for Zakazniks.	N
Kuwait	N	N	N	N	N
Georgia	N	N	N	N	N
Oman	N	N	N	Database of all bird sightings in Oman including sightings of this species.	N
Tajikistan	N	N			
United Arab Emirates	N	N		N	Y, by email.

Countries	Is there a national Spoonbill action plan?	Is there a national Spoonbill working group?	Is there a national and specific census?	Is there a monitoring programme in protected areas?	Are there routines for informing the responsible authorities regarding nesting areas and nest sites?
Djibouti	N	N	N	No, only one law dealing with the creation of terrestrial and marine protected areas was adopted by the gouvernement but it is not applied efficiently.	N
Egypt	N	N	N	Y but not only for the species.	N
Eritrea	N	N	N	There is no protected area in the coast.	N
Saudi Arabia	N	N	In late 1980s and early 1990s.	N	In the Farasan, forest officer document sometimes the nesting birds.
Somalia	N	N	N	N	N
Sudan	N	N	To some extent.	To some extent.	Wildlife Administration.
Mauritania	N	N	Y	Y	N

Annex 7. Knowledge of habitat and diet, and occurrence of the Spoonbill in Protected Areas, BirdLife Important Bird Areas and Ramsar sites.

Protected areas include national parks and reserves, regional parks and reserves, and private reserves.

Staging and wintering

Countries	Site	Numbers	Water quality	Prey species	Feeding period	Legal status	IBA	Ramsar Site	Conservation problems
Belgium	'Blokkersdijk' at Antwerpen	10-30 staging				Nature reserve	Y	N	-
	'Gentse Kanaalzone' near Gent	10-30(max. 60-70) , during the last years < 10 (staging)				Industrial development	Y	N	Suitable feeding habitats largely disappeared.
	'Zwin area' at Knokke	0-2 (10-50, during the last years max. 10-15, staging)	Mainly brackish	Probably small fish	?	Nature reserve	Y	Y	Suitable feeding habitats largely disappeared.
	'IJzermonding' at Nieuwpoort	0-1 (3-8, staging)				Nature reserve	Y	N	-
Denmark	Vejlerne	(2-10, 2007)				Protected	N	N	
	Ulvedybet	(1-3, 2007)				Protected	Y	N	
	Skjern Å	(2-10, 2007)				Protected	Y	N	
	Vadehavet	(1-5, 2007)				Protected	Y	N	Summer floodings.
	Moeze Oleron	7 (2006)	Fresh, brackish and sea water	*Palaemontes varians, Gasterosteus aculeateus, Gambusia affinis, Cyprinus carpio*	Night and early in the morning	Nature Reserve	Y	N	Quality of the fresh water; disturbance.
	Ile de Ré	12-18 (2006-2007)				Private + Nature Reserve (SPA and N2000 area)	Y	Y	Human disturbance.
	Baie de Somme	12-21 (2006-2007)	Fresh and brackish water	*Palaemonetes varians*	Night and early morning	Nature Reserve	Y	Y	
	Camargue (Tour du Valt, Vigueirat)	175 (2007)	Brackish, fresh and sea water	Fishes, shrimps	Night, day	Protected	Y	Y	
	Seine Estuary	2 (2007)	Fresh and brackish water	*Palaemonetes varians*, Sticklebacks	Night, day	Nature Reserve	Y	N	Sediment, disturbance, pollution, industry.

France	Reserve duer Sarzeau	55 (2006)	Brackish water	*Palaemonetes varians*, fishes	Day and probably night	Regional protection	N	N	
	Réserve Naturelle des Marais de Séné	32-37 (2006-2007)	Brackish and sea water	*Palaemonetes varians*, *Gasterosteus aculeatus*, *Anguilla anguilla* (marginal), flatfish (marginal)	Probably both day and night feeding, low tide feeding in estuary	Nature Reserve	Y	Y	Hydraulic management, disturbance. Need new estimation of food resource.
	Marais de Pen en Toul/ Larmor-Baden	29 (2006)	Brackish	*Palaemonetes varians* and small fishes	Probably both day and night feeding		N	N	Small area (20 ha), habitat quality (food accessibility) depending on water level. Effect of hunting disturbance nearby not well estimated.
	Rivière Pont L'Abbé	23-55 (2002-2006)	Salt water	*Palaemon serratus*, *P. elegans*, *Aphia minuta*, *Gobiusculus flavescens*, *Carcinus maenas*, *Syngnatus lumbriciformis*		Nature Reserve	N	N	Human disturbance.
	Domaine de Certes/ Bassin d'Arcachon	151-162 (2006-2007)	Brackish	*Palaemonetes varians*, Sticklebacks	According to the tide	Regional protection	N	N	Tourism.
	Marais d'Olonne, St Denis du Payré	4 (2006-2007)	Brackish, Freshwater	Shrimps, Small fishes		Nature reserve (partially)	Y	N	Tourism, overfishing?
Germany	Hauke-H-Koog	160 (staging)	Sea water	Crangon, stickle-backs, other fishes	Day, night		Y	N	
	Meldorfer K, Süd	60 (staging)	Sea water	Crangon, stickle-backs, other fishes?			N	N	
	Tahaddart		Brackish water				N	N	Breeding during one year only.
	Merja Bargha	47 (1995-2005)				Nature Reserve	Y	N	Intensive agriculture and cattle rearing. Water exploitation from lakes, pollution and eutrophication, habitat lost through cultures near lake. Cutting vegetation. Wildfowl hunting.
	Sidi Moussa-Oualidia Lagunas	63 (1995-2005)				Nature Reserve	Y	Y	Intensive agriculture, cutting vegetation and overgrazing. Salt exploitation. Oyster farming. Shellfishing. Poaching. Human settlement.

Morocco	Khnifiss laguna	62 (1995-2005)				Nature Reserve	Y	Y	Waste increase and disturbance due to many activities: salt exploitation, tourism activity, fishery and aquaculture.
	Embouchure de l'Oued Loukkos	32 (1995-2005)				Nature Reserve	N	Y	Disturbance, hunting and salt exploitation.
	Merja Zerga	33 (1995-2005)				Nature Reserve	Y	Y	Agriculture, Vegetation cutting and overgrazing. Poaching. Overfishering, overshellfishing.
	Marais du Bas Loukkos	20 (1995-2005)				Nature Reserve	N	Y	Draining of wetlands, pollution. Waterfowl hunting.
	Baie d'Ad-Dakhla	22 (1995-2005)				Nature Reserve	Y	N	Increase of fishery and tourism activities, urban and industrial settlement, and bird disturbance within the breeding season.
	Marais de l'wad Smir	17 (1995-2005)					Y	N	Drainage, grazing and plant cutting for commercial use (*juncus, typha, phragmites*); Development of the town M'diq and of tourism structures; Reject of polluted water without treatment; Increase of wastes. Building of a dam and of a pleasure harbor near the mouth of the Oued Smir, which will limit freshwater arrival and increase marine water
	Merja de Sidi Bou Ghaba	11 (1995-2005)				Nature Reserve	Y	Y	Bird disturbance; Eutrophication and pollution of the borders by solid wastes; Decrease of the surface of the lake due to silt deposit and increase of the vegetation.
	Embouchure de l'wad Souss	11 (1995-2005)				National Park	Y	Y	Urban pollution of the oued Souss. Bird disturbance within the year and destruction of the habitat.

Countries	Site	Numbers	Water quality	Prey species	Feeding period	Legal status	IBA	Ramsar Site	Conservation problems
Netherlands	All freshwatersites			Sticklebacks	In tidal areas, both	Protected			Pollution by agriculture.
	Tidal areas			Shrimps	Day & night	Protected			Overfishing shrimps.
	farmland			Sticklebacks	Day	N			Agro-disturbance, Maintaining ditches Pollution by agriculture.
Portugal	Lagoa dos Salgados	10-50	Freshwater			N	N	N	Golf course, water pollution.
	Tejo estuary	150-300	Sea and freshwater	Shrimps, fish		Protected	Y	Y	Human pressure Lisbon 2 million inhabitants, high pressure , rice fields and cattle grazing.
	Sado estuary	50-150	Sea and freshwater	Shrimps, fish			Y	Y	
	Estuario do Arade	10-50					N	N	
	Taipal marsh	4-10	Freshwater	Crawfish (*Procamburus clarkia*), shrimps	?	Protected	Y	Y	
	Paul do Boquilobo	(25 bp-2006)	Freshwater	Crawfish (*Procamburus clarkia*), shrimps			Y	Y	House building. Water management.
	Ria Formosa	300-500	Brackish				Y	Y	
	Castro Marim	50-150	Saltpans Former saltmarhes	Fish, shrimps	Day & night	Partly protected	Y	Y	Tourism. Farming activities.
	Donãna	2200 (passing autumn 2006) 500-1000 (wintering)	Fresh and brackish	Crawfish (Procamburus clarkia) Shrimps	During the breeding period, both day and night; otherless mainly dusk/dawn and night	National & Natural Parks	Y	Y	Drought

Spain	Marismas de Santona y Noja	27 ± 12 (1585 ± 618 (autumn) 247 ± 35 (spring))	Brackish and marine water	Pomatochistus, Crangon	Both, at least during migration	Natural Park, SPA	Y	Y	Recreational shellfishing, moderate-high level of human disturbances during the length of the stopover in autumn. Boats and the local 'fiestas' in sep (Navedo & Herrera, in press). Significant reduction in the amount of fresh water input by the main river from june till august.
	Isla Cristina Marshes	80 (passing autumn 2006) 50-150 (wintering)	Brackish and salt water	Fishes and shrimps	During the breeding period, both day and night; otherless mainly dusk/dawn and night, depending on the tidal schedule	Protected area (Paraje Natural)	Y	Y	Disturbance. Land transformation for urbanistic purposes.
	Ensenada de O Grove	50-150	Mainly marine (salt) water	*Palaemon serratus*, *Carcinus maenas*, Gobidae (*Pomatochistus*)	Tidal area (both)	SPA; Protected wetland (regional protection category)	Y	Y	Disturbance. Land transformation for urbanistic purposes.
	Odiel marshes	520 (passing autumn 2006) 300-500 (wintering)	Brackish and salt water	Small fishes (*Fundulus, Pomatoschistus, atherina*) Shrimps (*Palaemonetes sp*.)	During the breeding period, both day and night; otherless mainly dusk/dawn and night, depending on the tidal schedule	Protected area (Paraje Natural)	Y	Y	Industrial activity (contamination). human infrastructures. Tourism. Decreasing food quality and availability.
	Cadiz Bay	500-1000 (wintering)	Brackish and salt water		During the breeding period, both day and night ; otherless mainly dusk/dawn and night, depending on the tidal schedule	Natural Park	Y	Y	Disturbance. Industrial activity. Land transformation for urbanistic purposes.
	Urdaibai	300 – 500 birds (autumn)				SPA	Y	Y	High level of human disturbances during the length of the stopover in autumn. Mainly boats (Garaita *et al.*, 2004).

	Los Canchales Dam (Guadiana river)	5 (40-80 birds (regularly sep) 10-30 birds (reg. febmar)	Freshwater		Daylight, preferring sunshine and sunset	N	N	N	Changing levels of water depending on 'drinking' water needings of Badajoz population (150,000 people).
	Bahia de Santander	3					Y	N	Disturbance.
	Embalse del Ebro	0 (25 staging)				SPA	Y	N	Disturbance.
	Delta del Ebro	10-50				SPA	Y	Y	
	Salinas de San Pedro del Pinatar	10-50				SPA	N	N	
	Salinas de Santa Pola	10-50				SPA	Y	Y	
	Oyambre	6 (4-8, staging)					Y	N	Disturbance.
Gambia	Boabolon Wetland Reserve	10-15 (1998-2007)	Brackish and freshwater during raining season	Not known	Daylight	National Protected Area	Y	Y	Inadequate data for species protection/conservation.
	Tanbi Wetland Complex	10-12 (1998-2007)				National Protected Area	Y	Y	
	Allahien River Mouth,	10-15 (1998-2007)				Unprotected	Y	N	
Senegal	Djoudj National Park	103-921 (1999-2007)	Fresh and brackish water	Fish	Morning, evening	National Park	Y	Y	Invasive plant species.
	Saint-Louis Lagoons	51-2395 (1999-2007)	Brackish and sea water	Fish	Night, morning	Reserve (partially)	Y	Y	Water level fluctuations on the feeding sites and on the resting site (Reserve de Guembeul.
	Trois Marigots	27-35 (1999-2007)	Freshwater	Fish	Morning, evening	N	Y	N	Lack of water during some years, developpement of the vegetation.

Countries	Site	Numbers	Water quality	Prey species	Feeding period	Legal status	IBA	Ramsar Site	Conservation problems
Albania	Karavasta	3-24	Brackish		Day	National Park	Y	Y	Illegal hunting.
	Butrint	2-17	Brackish			National Park	Y	Y	Disturbance.
Bosnia	Bardača	15-50 (2003-2007) staging	Freshwater		Day		Y	Y	This site is private fish farm and this is problem for conservation (conflict of interests).
	Hutovo blato	18 (2000) staging					Y	Y	Not available management plan, illegal hunting.
	Mostarsko polje	21 (2007) staging					N	N	Illegal hunting & degradation of biotopes.
	Livanjsko polje	33 (2007) staging					N	N	Illegal hunting & degradation of biotopes (drainage canals).
Bulgaria	Atanasovsko lake(salina)	1991-2007 : 0-5				Nature reserve (partly)	Y	Y	
Croatia	Donji Miholjac fishponds	3-38 (2002-2007) 19-55 (staging)	Freshwater	Fish, amphibians	Day	No protected	Y	N	Hunting.
	Lonjsko Polje Sava Wetlands	Up to 400 stagiing / poostbreeding (1986 – 1988)		Fish, amphibians, crustacea (?)		Nature Park, (but not the fish farms!)	Y	Y	River regulation for Navigation (dredging), fish farms not protected.
	Kopacki rit – Podunavlje fishponds	4-12 (2001-2002) 100-700 staging/ post breeding.	Freshwater	Fish, amphibians	Day	Protected as Nature park	Y	Y	Fish production ceased in 2005.
	Delta of Neretva river	118 (2003-2006) stopover	Brachish/seawater	Fish, amphibians	Day	Partly protected	Y	Y	Hunting and disturbance. Enlargement of the Port of Ploce.
	Nasicka Breznica fishponds	4-33 (2006-2007) 120 staging	Freshwater	Fish, amphibians	Day	Not protected	Y	N	Hunting, fish production abandoned on one third of the site.
	Poljana fishponds	2004 104 staging	Freshwater	Fish, amphibians	Day	Not protected	N	N	Hunting and disturbance.
	Jelas fishponds	16 (2007)	Freshwater	Fish, amphibians	Day	Protected	Y	N	Hunting and disturbance.

	Grudnjak fishponds	2005 7 staging	Freshwater	Fish, amphibians	Day	Not protected	Y	N	Hunting and disturbance.
	Island of Pag	> 40 staging				Partly protected	N	N	Poaching and disturbance.
	Vransko Jezero	37 (2004 – 2005) staging				Nature Park	Y	N	Disturbance.
	Kninsko Polje	23 staging (2007)				Not protected		N	Disturbance.
Greece	Axios delta	32-35	Brackish water		Partly tidal	SPA	Y	Y	Pollution.
	Lake Kerkini		artificial, Freshwater			NP, SPA.	Y	Y	
	Messolonghi lagoon	166-219 (1999-2005)	Brackish water			SPA	Y	Y	
	Kalamas Delta	86-101 (1999-2006)	Brackish water			SPA	Y	N	
Hungary	Büdös-szék, Pusztaszer	200-300 (staging)	Alkali lake	Frog, invertebrates, fish	Day is sure, night: no data	Strictly protected	Y	Y	Dryness.
	Péteri-tó	1200 (2007) (staging)	Former fishpond	Fish was seen	Day	Protected	Y	N	Dryness.
	Szeged Feher to	500 (staging)	Artificial lake	Fish, frog, invertebrates	Day	Protected	N	Y	Fish farming.
	NP Hortobagy	1700 (2006) staging	Lakes, wetlands	Frog, fish, invertebrates	Day	Protected	Y	Y	Recreation.
Italy	Porto Corallo	10 (2000)					N	N	
	Stagno di Cagliari	83 (2000)				Protected	Y	Y	Pollution, disturbance, free ranging dogs.
	Biviere di Gela	16 (2000)				Partially protected	Y	Y	
	Biviere di Lentini	56 (2000)				Partially protected	N	N	
	Augusta	8 (2000)					N	N	
	Saline di Trapani	37 (2000)				Protected	N	N	
	Saline di Marsala	121 (2000)				Protected	N	N	
	Laguna di Venezia	22 (2000)				Partially protected	Y	Y	Hunting.
	Saline di Tarquinia	9 (2000)				Protected	N	N	
	Valli di Argenta	8 (2000)	Fresh water	*Procambarus clarkia*	Day	Protected	Y	N	
	Saline Margherita di Savoia	116 (2000)				Protected	N	Y	

	Orbetello e Burano	83 (2000)				Protected	N	N	
	Lago di San Giuliano-	5 (2000)					N	N	
	Oristano e Sinis	6 (2000)				Mostly protected (Marine reserve, SPA)	N	N	Disturbance, hunting, cormorant shooting.
	Ravenna coastal marsh-lands	150-200 (2007) staging	Freshwater	*Procamba-rus clarkia*	Day	Protected	N	N	Hunting on surrounding areas.
Montene-gro	Solila Tivat	7 (2004 – 2007) – stop over site	Sea water		Day	Protected	Y	Partly	Disturbance.
	Bojana Delta – Sltpans Ulcinj	112 (2203 – 2007) (stag-ing, sum-mering)					Part ly		Hunting, poaching, disturbance.
Slovakia	Medzibodrožie SPA		Freshwater	Unstudied		SPA	Y	N	Lesser threat, but lack of suitable breeding sites.
	Senné SPA		Freshwater	Unstudied	all the day, especially in morning	SPA	Y	N	Disturbance, loss and degradation of shallow water bodies.
	Medzibodrožie SPA		Freshwater	Unstudied		SPA	Y	N	Lesser threat, but lack of suitable breeding sites.
Ukraine	Danube Delta	337 (stag-ing)					Y	Y	
	Eastern Sivash	1-117 (stag-ing)					N	N	
	Central Sivash	8_128 (staging)					N	N	

Countries	Site	Numbers	Water quality	Prey species	Feeding period	Legal status	IBA	Ramsar Site	Conservation problems
Algeria	Marais de la Mekhada	14-59 (1999-2007)	Freshwater		Day		Y	Y	Reject of wasted domestic waters. Silting in and filling in of water supplies.
	Garaat El Haoues	8-35 (2006-2007)					N	Y	
	Chott Ech Chergui	2-11(2002 - 2003)					N	Y	Sanding inthe wetland due to desertification, poaching.
	Garaet El Tarf	2002 : 2					N	Y	Reject of wasted domestic waters, poaching.
	Lac Fetzara	2001 : 12					Y	Y	Reject of wasted waters. Drainage of the lake.
	Lac Tonga	32-46 (1999-2000)				National Park	Y	Y	Poaching.
Cameroon	Plaine d'inondation du Logone	2-3				Non protected	Y	N	Dryness of the plan. Poaching, water pollution.
	Wasa	253 (1997)				National Park	Y	Y	
Cyprus	Larnaca		Sewage work			SPA	Y	Y	
	Akrotiri		Salt lake				Y	Y	
Jordan	Azraq	(1-5)				Partly protected	Y	Y	Drought & overpumping.
	Aqaba sewage plant	(2-10)				Partly managed as observatory	Y	N	Disturbance.
	River Jordan	(5-50)				Partly protected	N	N	Habitat loss, overpumping.
	Al-Karamah Dam (Jordan Valley)	(1-10)				unprotected	N	N	Disturbance, hunting.
	Farwa Lagoon to Ras Ajdir	60-70 (2005-2007)	Marine (tidal)			Not protected.	N	N	Possible pollution from nearby petrochemical site; encroachment of nearby town.
	Wadi Zaret Dam	1-2	Freshwater			Water storage reservoir	N	N	None known.
	Wadis mouths east of Tripoli	2005 : 1	Mainly freshwater, brackish nearer sea.			National Park.	N	N	Uncontrolled human visitors cause disturbance and leave litter.

Libya	Taourgha springs	5-9 (2005-2007)	Spring is fresh water, but large neighbouring salt lake is brackish			No protected status at present.	N	N	None known. Merits Ramsar designation.
	Al Hisha springs	2-6	Spring is fresh water, but large neighbouring salt lake is brackish.			Nature Reserve of 160,000 ha. with strictly controlled access declared in 1984	N	N	None known.
	Benghazi/Al Thama/Ain Azziana	2-22 (2005-2007)	Brackish; linked to sea but much inflow of waste water.			No protected status at present.	Y	N	Heavy urbanization pressure (situated in mid Benghazi); great potential for public awareness raising; merits Ramsar designation.
Niger	Tabalak	23 (2007)					N	Y	Disturbance: edges of wetland (2000 ha wetland) 90% converted to market gardens; in 1994 only 10-20%; fishing has also increased; the wetland dries out occasionally now, which it never used to do. Lack of integrated management of wetland, for agriculture, pastoralism, fisheries, collection of natural products and biodiversity.
Palestine	Wadi Gaza	4 (2001)		Fish	Day	Protected	N	N	Dumping site.
	Jericho	7 (2005)		Fish	Day	Protected	Y	N	
Tunisia	Kneïss Islands	1013-1513 (2003-2007)				Natural reserve	Y	Y	
	Oued El Maltine	111 (2006) 142 (2007)	Sea water				N	Y	
	Island of Djerba	60-1257 (1998-2007)	Sea water			Hunting reserve	N	Y	City development, expansion of tourist facilities.
	Gulf of Boughrara	268 (2006)	Sea water			Hunting reserve	Y		
	Thyna salt-pans	82-480 (1998-2007)	Sea water			Hunting reserve	Y	Y	Disturbance by visitors.
	Kerkennah Islands	222-392 (2002-2007)	Sea water			Hunting reserve	Y	N	
	Bahiret el Bibane	66 (2006) 94 (2007)	Sea water			Hunting reserve	Y	Y	
	Gourine	600 (2006) 110 (2007)	Sea water			Hunting reserve	Y	N	

	Sebkhet Dreïaa	41-178 (2003-(2007)	Sea water			Hunting reserve	Y	N	
	Oued Akarit	15 (2003) 3 (2006)	Freshwater			Hunting reserve	N	N	
	Monastir salt-pans	55 (2003)	Sea water			Hunting reserve	Y	N	
	Sebkhet Halk el Menzel	17-88 (2003-2007)	Brackish			Hunting reserve	Y	N	
	Oued Sed	58 (2003)	Freswater				Y	N	
	Lebna reser-voir	150 (2001) 11(2006)	Freshwater				Y	Y	Disturbance from hunting of other species.
	Korba Lagoons	11 (2005)	Brackish			Hunting reserve	Y	Y	
	Oued el Hajjar reservoir	14 (2003) 3 (2006)	Freshwater				Y		Disturbance from hunting of other species.
	Sebkhet Kelbia	640 (1976) 800 (1997)	Freshwater			Nature Reserve	Y	Y	
	Ichkeul Na-tional Park	61-130 (1998-2006)	Freshwater in winter, brackish in Summer			National Park, World Heritage	Y	Y	Conflicts over use of lake water (reduced inflow because of filling of dams on tributaries) appear to have been resolved: the Government has accepted that Ichkeul is a net water consumer; site removed from World Heritage in Danger List, 2006.
	Sidi El Barrak reservoir	75 (2002)	Freshwater				N	N	
	Lake of Tunis	12 (2002)	Lagoon, sea water			Hunting reserve	Y	N	Major area of the southern lake has been changed in connected with city de-velopment projects.
	Oued Rmal reservoir	40 (2002) 13 (2006)	Freshwater			Hunting reserve	N	N	
	El Haouareb reservoir	2 (2003) 1 (2007)	Freshwater				Y	N	
	Zarate & Chott El Aouamer	40 (2007)	Sea water				N	N	
	El Makhadha	3 (2007)	Freshwater			Hunting reserve	N	N	
	Oued El Maleh	2 (2006)	Freshwater				N	N	
	Oued Tmoula	13 (2006)	Freshwater				N	N	
	Oued Gabès	3 (2006)	Freshwater				N	N	
	Tuzla Lake Mediterranean	1000 (2007) staging	Salt Lake				N	N	Water regime interven-tion.

Turkey	Ceyhan Delta, Mediterranean	300 (1999) staging	Salt, Fresh and Sea Water			Nature Reserve	N	Y	Intensive agricultural usage, thermal plants, industrial plants.
	Akyatan Lake Mediterranean	1350 (2005)	Brackish			Wildlife refuge	N	Y	Intensive agricultural usage, pollution.
	Yumurtalık Lagoon Mediterranean	919 (2006)	Brackish				Y	Y	Intensive agricultural usage, unplanning development.
	Göksu Delta Mediterranean	400 (2006)	Freshwater, Seawater, Brackish			SPA	Y	Y	Water regime intervention, intensive agriculture, second houses, pollution, and dam construction.
	Palas Lake Central Anatolia	680 (2005)	Freshwater and Salt Lake			Natural site area	Y	N	Water regime intervention.
	Kızılırmak Delta -Black Sea	1210 (2002) Staging	Freshwater and Sea water				Y	Y	Water regime intervention, pollution, second houses.
	Bosphorus	310 (2006)	Seawater				Y	N	
	Sultan marshes Central Anatolia	930 (2006)	Freshwater and Salt lake			Nature reserve	Y	Y	Water regime intervention, pollution.
	Kulu Lake Central Anatolia	339 (2004) Staging	Brackish			SPA	Y	N	Pollution, human disturbance.
	Manyas Lake, Marmara Region	21 (2007)	Freshwater lake			National Park	Y	Y	Pollution. The lake is changed to a reservoir by construction embankment for agricultural purposes.
	Mogan Lake - Central Anatolia	38 (2004)	Freshwater lake			SPA	Y	N	Pollution, second houses, and recreational activities.
	Gavur Lake, South-East Anatolia	590 (2005) staging	Freshwater Lake				Y	N	Water regime intervention.
	Hatay-Belen Plain, South-East Anatolia	126 (2005) staging	Freshwater				N	N	-
	Tuz Lake, Central Anatolia	42 (2005) staging	Salt lake			SPA	Y	N	Water regime intervention, pollution.
	Meriç Delta, Marmara Region	391 (2003) staging	Freshwater, Brackish water		Day	National Park	Y	Y	Pollution, water regime intervention. Intensive agriculture.

Countries	Site	Numbers	Water quality	Feeding period	Legal status	IBA	Ramsar Site	Conservation problems
Armenia	Lake Sevan	1-7 (2000-2007)	Freshwater	Day, Night	National Park	Y	Y	Hunting, fishing, disturbance.
	Armash	1-7 (2000-2007)	Freshwater	Day, Night	N	Y	N	Hunting, fishing, other disturbance sources.
	Metsamor River System (Araks Valley)	1-2 (2000-2006)	Fresh and brackish water	Day	N	Y	N	Hunting, fishing, agriculture, drainage of channels.
Azerbaijan	Divichi liman (Lake Akzibir)	300-400 (staging)	Sea water	Day	N	Y	N	Overhunting, water level.
	Lake Sarisu		Freshwater	Day		Y	N	Overhunting, water level.
	Lake Ak-Gel	244 (2006)	Freshwater	Day	National Park	Y	Y	Overhunting, water level.
	Kura river Delta	141 (2000)	Sea water	Day	N	Y	N	Overhunting, water level.
	Lake Makhmudchala	6 (2000)	Freshwater	Day	N	Y	N	Overhunting, water level.
	Varvara w.r.		Freshwater	Day	N	Y	N	Overhunting, water level.
	Kizil Agach reserve	559 (2006)	Sea water, Fresh water	Day	State Nature Reserve	Y	Y	Overhunting, water level.
Iran	Miankaleh Peninsula and Gorgan bay					Y	Y	Tourism, illegal fishery.
	Khouran Straits					Y	Y	Harbour construction, tourism development, (oil) pollution.
	Hilleh river delta					Y	N	
Kazakhstan	Irgys-Turgay Lakes	403 (2005) staging				Y	Y	
Kuwait	Bubiyan Island	100 (2000-2007)			Protected	N	N	None at present.
	Jahra Bay	10 (2000-2007)			N	N	N	Some shooting.
Syria	Sabkhat al-Jabbul	390 (2005) staging			Nature reserve	Y	Y	Change in hydrologic management.
Tajikistan	None identified with certainty. Potentially Tigrovaya Balka in Jilikul district and Rybkhoz of	no data available			Tigrovaya Balka is a zapovednik.	On national list of	N	Illegal hunting.

	Ghozimalik.				Rybkhoz of Ghozimalik has no formal protection.	potential IBAs.		
Turkmenistan	Sudochye lakes system (to the south from Aral Sea,	4 (2000) staging	Salty water	Day	IV category of IUCN PA	N	N	Deficit of water resources and regular drying up of the lakes. Burning out of reed beds. Regular pass of cattle.
	Kagan Fish Farm	25-350 (2006)	Freshwater	Day	N	N	N	Overfishing and bad fishing management.
	Balikchi Fish-Farm	270 (2006)	Freshwater		N	N	N	Human persecution, changes in hydrology.
Georgia	Javakheti Lakes	almost every year a small number detected			Planned National Park	N	N	Human encroachment, mowing.
	Kolkheti Lowland				National Park	Y	Y	Human encroachment, poaching, tree-cutting.
	Ktsia-Tabatskuri				Planned Sanctuary	Y	N	Human encroachment, mowing.
Oman	Masirah	50 (1990) 100 staging			N	Y	N	None.
	Khawr Ghawi	100 (1995) 120 staging			N	Y	N	None.
	Barr al Hikman	600 (2005) 600 staging			Proposed nature reserve	Y	N	None.
	Duqm	200 (2005) 220 staging			N	N	N	None.
	Sur	24 (2005) 24 staging			N	N	N	None.
	Khawr Dirif	10 (2005) 31 staging			N	N	N	None.
	Salalah khawrs	30 (2007) 50 staging			Some areas protected	N	N	None.

Countries	Site	Numbers	Water quality	Feeding period	Legal status	IBA	Ramsar Site	Conservation problems
Djibouti	Ile Musha	38 (2005)			Protected area	N	N	
	Doralé-Loyada	27 (2004)			None	N	N	
Egypt	Egyptian Coastal Shoreline and Northern Lakes	No estimate of winter population (10-20 staging)	Sea Water and brackish water in northern lakes.	Day	Protected	N	N	Hunting, habitat change, pollution, settlement establishing and development extension.
	Aswan Reserve	No estimate of winter population (10-20 staging)	Freshwrater	Day	Protected	Y	N	Hunting, habitat change, development extension.
	Wadi El Rayan Lakes	200	Brackish water	Day	Protected	Y	N	Habitat change, decreasing water level.
	Qaroun Lake	500	Brackish water	Day	Protected	N	N	Habitat change, Hunting, pollution.
Eritrea	Around Massawa	60 (2005)				Y	N	Will be declared as MPA in near future.
	Anfile Bay	200 (2006)				N	N	Site is not protected.
	Around Berasole	>250 (2006)				N	N	Site is not protected.
	Nahleg	45 (2006)				N	N	Site is not protected.
	Berite	16 (2007)				N	N	Site is not protected.
	Hirgigo	12 (2005)	Sea water	Day	Protected	N	N	
	Sheik Seid Island	32 (2005)	Sea water	Day	Protected	N	N	
	Dessie Island	5 (2005)	Sea water	Day		N	N	Tourist site.
	Isratu Island	2 (2005)	Sea water	Day	Unhabited	N	N	
	Gurgusum	2 (2005)	Sea water	Day		N	N	Tourist site.
	Sheik Seid Island	2 (2004)			Protected	N	N	
	Mai Aron	2 (2004)	Freshwater	Day		N	N	Farming.
Saudi Arabia	Jiddah South Corniche and Central	300 (2000)			N	Y	N	Both sites are heavily visited by people, and disturbance to birds must occur. The threat of oil spills is ever present.
	Khawr ‘Amiq	20 (2000)			N	Y	N	Grazing by camel is causing extensive damage, and small-scale mangrove cutting also

								threatens the site.
	Jizan Bay	30 (2000)			N	Y	N	The site is much disturbed and faces a multitude of threats. Pollution by oil, sewage effluent and rubbish and extensive land reclamation for further urbanization all threaten the site, the later reducing the area of inter-tidal flats available for feeding waterbirds. Human disturbance to birds using the area is high. Further landfill and urbanization and harbour through the middle of prime mudflats. Fish market nearby.
	Malaki Dam	?				Y	N	Intensive cultivation continues to increase as the local human population expands. This is resulting in the continued loss of scrub to the bulldozer. Development projects came up, insecticide & pesticide spraying.
Somalia	Jannaale	Not recently				N	N	Cutting trees in the past. No recent prospect due to insecurity.
Sudan	Khartoum bird sanctuary (KBS)	69 (2006)			Protected	N	N	No real conservation measures.
	Saggay Island	100 (2007)				N	N	Fishing, grazing.
	Dungunab marine park	8 (2007)			Protected	N	N	Fishing.
	Red Sea shore at Port Sudan	15 (2007)				N	N	Human disturbance.
	Dinder National Park	35 (2007)			Protected	Y	Y	Poaching; grazing; fire.
	Um Gar Island	1 (2007)				N	N	Cultivation, grazing, fishing.
	Sinnar dam	11 (2007)				N	N	Hydroelectric power, heavy traffic.
	Gladema	5 (2007)				N	N	Irrigation canals.
	White Nile at Sunt+ Umm Shugeira Island	1-200 (1999-2003	Freshwater	Day		N	N	Major development of the river bank with control of inundation, construction of golf course and office and residential accommodation.
Yemen	Aden	170 (1993)	Salty water			N	N	Land claim, disturbance.

Countries	Site	Numbers	Water quality	Prey species*	Fe eding period	Legal status	IBA	Ramsar Site	Conservation prob-lems
Mauritania	Banc d'Arguin National Park		Sea water	Shrimps, small fish	both	NP	Y	Y	Industrial fishing, Mechanical cockle dredging in the future. Oil exporation, Up-coming tourism.
	Diawling		Sea & fresh water	Shrimps, fish	both	NP	Y	Y	Invasive waterplants, Diamadam?
	Baie d l'Etoile		Seawater	Shrimps, fish	both	N	Y	Y	House building along the bay.
	Aftout/Chatt Boul		Inland lake	Fish	both	NP	Y	Y	Cattle grazing.

Breeding sites

Ardea cinerea *A.c.*, Ardea purpurea *A. p.*, Egretta garzetta *E. g*, Egretta alba *E. a.*, Egretta gularis *E. gu.*, Nycticorax nycticorax *N. n.*, Bubulcus ibis *B. i.*, Ardeola ralloides *A. r.*, Plegadis falcinellus *P. f.*, Ciconia ciconia *C. c.*, Phalacrocorax pygmeus *P. p.*, Phalacrocorax carbo *P. c.*, Larus argentatus *L. a.*, Threskiornis aethiopicus *T. a.*, L. ridibundus *L. r.*, Larus michaelis/cachinnans *L.m.;* Podiceps ruficollis *P.r.*, Anser anser *A.a.;* Larus ridibundus *L.r.*; Larus fuscus *L.f.*

Countries	Colony	Year of first breeding	Number Breeding Pairs (min-max)	Habitat	Water	Prey species	Feeding period	Breeding among colony of?	Breeding success (n fledglings/ BP)	Legal status of the site	IBA	Ramsar Site	Conservation problem
Belgium	Verrebroekse Blikken at Verrebroek	2003	1-18	Harbour area with sandy areas, shallow waters, remnants of polders and creeks; The colony itself is found on an small island of dead trees and branches.	Brackish	Probably small fish	Day, Evening	*L. r., P.r.*	1.6 – 2.5	SPA	Y	N	Breeding site will disappear as a result of industrial development. Full compensation (with alternative breeding site) is planned.
	Zwin area at Knokke	1999	1-2	Brackish coastal 'lagoon', tidal marshes and adjacent polder area's with creeks and ditches; The colony itself is found in old pine trees.	Mainly brackish	Probably small fish	?	*A.c., E.g., N.n., P.c.*	?	SPA, nature reserve	Y	Y	As a result of external factors (e.g. sand deposits on the beach of Knokke-Heist), a gradually increasing siltation of the creeks, mudflats and saltmarshes occurred. This caused less frequent flooding of the reserve by high tides and a decrease in the ornithological importance (mainly as a feeding area).
Denmark	3 separate colonies Ulvedybet og Nibe Brednin g; Ringløbi ng Fjord; Vadehav and Byghol Velje	1996		Small islands with reed				*P. c., Larus sp*		Nature Reserve	Y	Y	Northermost breeding colony. Illegally persecution of cormorants. In some years foxes are present at the beginning of breeding season.
France	Grand-Lieu	1973	1-51	Floating forest	Fresh water	Shrimps, crayfishinsects, fish		*T. a., A.c., E. g,*	2.45	National reserve	Y	Y	
	Brière	1992	2-119	Salix, rarely reedbeds	Fresh water	Shrimps, crayfish		*T. a., A.c., E. g,*	2.83	No	Y	Y	Water level, human and cattle disturbance.

	Edre	1994	3-26	Salix, Alnus				*A.c.*,	?	No	Y	N	Water level.
	Orx	1997	0-6	Salix, Pinus				*A.c.*,		Nature reserve	Y	N	Water level, invasive plants (Ludwigia).
	Baie de Somme North	2000	6-28	Pinus				*A.c., E. g, C. c.*,	1.8	Nature Reserve	Y	Y	
	Baie de Somme South	2007	3	Beech				*A.c; E.g, E.a.*		Private site	N	N	
	Camargue (Banas-ton)	1998	2-36	*Salicornia, Halimione, Sueda sp.*				*L.m., T.a.*		Depart-ment reserve	Y	Y	Yellow-legged-Gull and Sacred ibis? (risks of predation on nests and of competition for space).
	Camargue (Bessons)	2005	1-7	*Salicornia, Halimione,Sueda sp*				*L.m., T.a.*		Depart-ment reserve	Y	Y	Yellow-legged-Gull, Horse riding.
	Guérande	2000	6-25	Oak				*A.c., E.g,*		Regional protection	Y	N	
	Dombes	2006	5-6	Salix				*A.c., E.g,*	2	No	Y	N	Water level, human disturbance.
	La Grip-perie - Saint-Sym-phorien	2006	1-8	(*Alnus glutinosus, Fraxinus sp., Salix sp.* and *Quercus pedun-culata)*				*A.c., E g, B i., N.n.*,	0.6	Private site	N	N	Cut of trees and human disturbance (colony at 300 m of the road and 500 m of village).
Germany	Mem-mert	>1990	117	Saltmarsh	Salt-water	Shrimps	Night, Day	*L. a.*	1.7	Fully protected	N	N	Tourism, overfishing.
	Mellum	>1990	40	Saltmarsh	Salt-water	Shrimps	Night, Day	*L. a*,	1.5	Fully protected	N	N	Tourism, overfishing.
	Nor-deney	2000	21	Saltmarsh	Salt-water	Shrimps	Night, Day	*L. a*,	1.1	Fully protected	N	N	Tourism, overfishing.
	Trischen	2002	2-14	Saltmarsh, dunes	Salt-water	Shrimps	Night, Day	*L.a.,L.f.*	1.6 - 1.7	National Park	N	N	Tide flood, overfishing.
	Borkum	1999	6	Saltmarsh	Salt-water	Shrimps	Night, Day	*L.a.*,	2.0	Fully protected	N	N	Tourism, overfishing.
	Oland	1999	2-28	Saltmarsh	Salt-water	Shrimps	Night, Day	*L.a., A.a.*		National Park	Y	N	Tide flood, overfishing.
	Föhr	2007	2	Saltmarsh				*L.a., L.f.*		National Park		N	
Morocco	Smirt	1994	1-20	Dunes with Ta-marix, Genévrier rouge et Len-tisque.	Brac kish water			*E. g, B.i.,, N.n.*,		Domaine maritime	N	N	Apparently no problem, close to a royal property so no disturbance.
	Tahad-dart	1967	13	Sarcocornia marshes				None	0		N	N	First and last breeding, nests destroyed by cat-tle, no protection.

Netherlands	Zwanen water	<1650	120	Freshwater, dune slack				*P.c.*	Ca. 1.3	Fully protected	Y	Y	High human pressure Access of foxes. Competition with Cormorants. Polluted feeding ground by agriculture (Tulips).
	Oostvaardersplassen	>1972	320	Artificial polder, reedbeds				*A.a., E.a.,*	Strongly fluctuating	Fully protected	Y	Y	Waterlevels and access of foxes.
	Texel, de Geul	1980	250	Dune slack with reedbeds and willow trees	Brackish water			*P.c.*	Ca 1.0	Fully protected	Y	Y	Competition with Cormorants.
	Texel, de Muy	<1900	30	Dune slack	Brackish water			*P.c.*	Ca 1.0	Fully protected	Y	Y	Human pressure.
	Texel, De Schorren	1982	65	Saltmarsh	Salt water	Shrimps		*L. a.*	fluctuating	Full protection	Y	Y	Summer floods.
	Vlieland	1983	220	Dune and polder	Salt water	Shrimps		*L. a.*	Ca 1.1	Full protected	Y	Y	
	Ameland	1994	40	Saltmarsh	Salt water	Shrimps		*L. a.*	Ca 1.2	Full protected	Y	Y	Summer floods.
	Schiermonnikoog	>1992	240	Saltmarsh				*L. a.*	Ca. 1.2	Fully protected	Y	N	Flooding by seawater.
	Rottum Oog & plaat	Ca 1998	50	Saltmarsh	Salt water	Shrimps		*L.a.*	Ca 1.3	Full protection	Y	Y	Summer floods.
	Terschelling	>1960	220	Saltmarsh				*L. a.*	Ca. 0.8	Fully protected	Y	N	Flooding by seawater.
	Haarlem Buitenliede	2004	9	Woodland (*Alnus*)	Fresh water	Small fish		*A. c.*	Ca 1.8	Unaccessable	N	N	Human disturbance.
	Balgzand	2000	80	Saltmarsh	Salt water	Shrimps		*L. a.*	Ca 1.2	Full protection	N	N	Human disturbance, areoplanes.
	Onderdijk	2001	55	Artificial island in freshwater lake	Fresh water			*Sterna hirundo, L.r.*	Ca 1.1	Full protected	N	N	Some years, botulism.
	Biesbosch Sassenplaat	1999	84	Former sea arm	Brackish water	Small fish		*A.c.*	Ca 1.2	Full protected	N	N	Human disturbance.
	De Wieden	2003	25	Woodland (Alnus)	Fresh water	Small fish		*A.c., E.a.*	Ca 1.2	Full protected	N	N	High human pressure.
	Botshol	1998	26	Marshland	Fresh water	Small fish		*T.a.*	Ca 1.3	Full protection	N	N	High human pressure, Foxes.
	Markiezaat	2000	38	Reedbeds	Brackish water	Small fish		*L.a., L.f.*	Ca 1.2	Full protected	N	N	Foxes.
	Middelplaten	1997	18	Island in former sea arm	Brackish water	Small fish		*L.a.*	Ca 1.2	Full protection	N	N	Foxes.

	Quack-jeswater	1989	200	Duneslack	Salt water	Shrimps		*E.g.*	Ca 1.1	Full pro-tection	N	N	High human pressure.
	Vlissin-gen	2002	25	Industry area				*L. a.*	Ca 1.6	Not pro-tected	N	N	Human disturbance.
Portugal	Ria Formosa Algarve	1989	13 (2005)	Saltmarshes	Salt water					Full proc-tectio	Y	Y	
	Monte do Álamo	1998	20-25 (2007)	Pinus pinea	Fresh water			*A.c., E.g., C.c., B.i.*		Private land, not protected	N	N	Tree mortality, Habitat transformations.
	Esca-roupim	2003	20-25 (2007)	Salix, Populus	Fresh water			*E.g., A.c., B.i., N.n.*		Not pro-tected	N	N	Human disturbance (nautical sport).
	Paul do Bo-quilobo	1988	50-60 (2005)	Salix, Populus	Fresh water					Nature Reserve	Y	Y	Contamination by agri-culture.
Spain	Odiel Marshes	1960	271 (191-364)	*Spartina densiflo-ra, Suaeda vera, Halimione portu-lacoides, Arth-rocnemum ma-crosthachyum*		Killifish *Fun-dulus sp* (71%), *Palae-monetes varians* (19%)		*A.c., E. g, B.i., A.p.*	0,94 (0,5-1,4)	Paraje Natural	Y	Y	Drought, pesticides, parasites. Tide flood, nest flooding during spring tides. Drought. Contamination by heavy metals and pesticides. Human infrastructures. Decreasing food quality and availability.
	Pajarera de Doñana	1959	910 (0-2091)	Old trees *Quer-cus suber, Popu-lus alba, Salix atrocinerea*	Fresh water	*Pro-cambu-rus clarkia*, fishes Shrimps		*E. g, A.c., C. c.,N. n., B. i., A.r.*		National Park	Y	Y	Oak mortality (loss of breeding site), drought. Toxins (botulism and cyanobacterias). Invasive plant species (*Azolla fuliculoides*).
	Huerto de los Zorros	2002	32 (1-94)	*Eucaliptus*	Fresh wa-ter, Brac kish wáter	*Pro-cambu-rus clarkia*, fishes, Shrimps		*E. g, A.c., C. c.,N. n., B..i,.A. r.,*		National Park	Y	Y	Drought. Toxins (botu-lism and cyanobacte-rias). Invasive plant species (*Azolla fuliculoides*). Tree mortality (loss of breeding site).
	Casa Neves	2000	102 (12-177)	*Eucaliptus, Fres-nus*	Fresh water	*Pro-cambu-rus clarkia* fishes Shrimps		*E. g, A.c., C. c.,N. n.,B.i.*	1,5 (1,2-1,8)	Natural Park	Y	Y	Tree mortality (loss of breeding site).
	Isla Cristina marshes	1997	98 (0-163)	*Spartina densiflo-ra, Suaeda vera, Halimione portu-lacoides, Arth-rocnemum ma-crosthachyum*	Salty wáter	*Palae-monetes sp.*		*E. g, B.i.*	1,10 (0,4-1,6)	Paraje Natural	Y	Y	Disturbance. Predation (feral dogs). Land destruction for urbanistic projects. Drought.
	Cadiz Bay	1996	77 (62-116)	*Arthrocnemum* and *Sarcocornia*	Salty wáter			*L.m.*	1,16 (0,2-1,65)	Natural Park	Y	Y	Human disturbance. Salina abandonment. Drought.
	Bornos	1994	11 (7-12)	*Tamarix tamarix*	Fresh water			*A.c., E.g, B.i., A.r, N.n.*		Protected (Paraje Natural)	Y	N	Water level manage-ment.

	Cabra-hígos	1999	18 (10-30)	*Olea europaea*	Fresh water			*A.c., E.g, B.i.,N.n.*		Private land, not protected	N	N	Tree mortality (loss of breeding site).
	Veta de Adalí	2001	34 en 2004	*Eucaliptus*	Fresh water			*A.c., E.g, C.c.*.		Private land, not protected	N	N	Abandoned since 2004 because presence of Imperial Eagle. Human disturbance (agriculture, cattle).
	Olivillos	2003	4 en 2004	*Salix,Populus*	Fresh water			*A.c., E.g,*		Private land, not protected	N	N	Abandonned since 2004 because human distur-bance (agriculture, cattle).
	Extre-madura (1-6 sites)	1999	4 (1-15)	*Oak, woodland*	Fresh water					Not pro-tected	N	N	Disturbance. Land destruction for urbanistic projects.
	Other (2 sites)	2005	3-6	*Trees*	Fresh water					Not pro-tected	N	N	Disturbance. Land destruction for urbanistic projects.

Countries	Colony	Year of first breeding	Number Breeding Pairs	Habitat	Water	Feeding	Breeding among colony of?	Breeding success	Legal status of the site	IBA	Ramsar Site	Conservation Problem
Albania	Kune	1960		Riverine forest surrounded by marshes	Brackish		*P. p., P. c., A.c., E. a., E. g., P. f., N. n.,*		Nature Managed Reserve	Y	N	Illegal logging, hunting, disturbance, nesting habitat alteration.
	Velipoja	Pre 1970		Riverine forest surrounded by marshes	B		*P. p., P. c., A.c., E. a., E. g., P. f., N. n.*		Landscape Protected Area	Y	N	Illegal logging, hunting, disturbance, nesting habitat alteration.
Austria	Lake Neusiedl	Pre 1900	38-81	Reedbeds	Freshwater		*A. c., E. a.*		National Park	Y	Y	Water level.
Bosnia	Bardača	1973	??	biotope of reed, bulrush and rush						Y	Y	This site is private fish farm and this is problem for conservation (conflict of interests).
	Livanjsko polje	1888-1904	9-30		Freshwater	Day				N	N	Illegal hunting & degradation of biotopes.
Bulgaria	Poda	1964	10-50	Bogs and marshes; Shallow saline pools	Freshwater		*P. c., P.p., N. n, A. r, E. g., E. a., A. c, A. p., P. f.*		Protected area	N	Y	Agricultural intensification – expansion, aquaculture and fisheries, recreation and tourism, unsustainable exploitation, infrastructure, extraction industry, industrialization and urbanization, natural events.
	Lake Srebarna	1890	5-70	Bogs and marshes and Temperate riverine			*P. c., P. p., N. n, A. r., E. g., E. a., A. p., P. f.*		Nature Reserve Biosphere ReserveUNESCO Site	Y	Y	Agricultural intensification – expansion, aquaculture and fisheries, recreation and tourism, infrastructure, extraction industry, construction of dykes, natural events, flooding, pigs, disturbance.
	Belene island	1968	0-22	Bogs and marshes and Temperate riverine			*P. p., N. n., A. r., E. g., E. a., A. p., P. f.*		Natural Park with Strict Nature Reserve & Natural Monument	Y	Y	Selective logging, intensified forest management, afforestation, commercial deforestation, aquaculture and fisheries, unsustainable exploitation, drainage, burning of vegetation, disturbance to birds.

	Vardim island	1975	9-20	Temperate riverine			*P. c., P. p., N. n., E. g., E. a.*		Protected Site	Y	N	Selective logging, intensified forest management, commercial deforestation, unsustainable exploitation, drainage.
	Ibisha island	1997	10	Temperate riverine			*P. p., N. n., E. g., A. p.*		Managed Nature Reserve	Y	Y	Selective logging, agricultural intensification – expansion, intensified forest management, afforestation, commercial deforestation, unsustainable exploitation.
Croatia	Krapje Đol	1949-2007	3-180	Rarely in *Typha sp.*, reedbeds (2 years only 1988, 2007), normally on willows in the water	Freshwater		*A. r., E. g., N.n., A. p, P.p., A.c., E.a..*		Special ornithological reserve	N	Y	Artificial water level maintenance in the oxbow; execution of mitigation schemes, abandonment of fish production on fishponds. Succession and alien species.
	Jelas Fishponds	1990	2-200	carp fishponds/ reedbeds (*Typha* and *Phragmites*)	Freshwater		*A. r., E. g., N.n., A. p., E. a., P. p, P. f.*			N	N	Water level maintenance, dying of typha stands.
	Našice fishponds	1993	0-60	carp fishponds/ reedbeds (*Typha* and *Phragmites*)	Freshwater		*A. r., E. g., N.n., A. c.*		Not protected, hunting ground	N	N	Water level maintenance, disturbance by fisherman /cormorant depredation activities/ and photographers, abandonment of fish production on fishponds.
	Donji Miholjac fishponds	1995	2-11	carp fishponds/ reedbeds (*Typha* and *Phragmites*)			*A. r., E. g., N.n., A. c.*		Not protected, hunting ground	Y	N	Water level maintenance, disturbance by fisherman /cormorant depredation activities.
	Grudnjak fishponds	2003	9-30	carp fishponds/willows			*A. r., E. g., N.n., A. c.*		Not protected, hunting ground	Y	N	Water level maintenance, disturbance by fisherman /cormorant depredation activities/ abandonment of fish production on fishponds.
	Kopački rit Nature park*	1953	3-11	*Typha sp.*, reedbeds			*A. r., E. g., N.n., A. c., E. a.*		Protected as Nature park	N	Y	Abandonment of fish production on fishponds drainage of former flood plain, lack of pasturing.
Czech Republic	Zliv	1984	1 - 11	fishpond islets	Freshwater	Day	*N. n.,*	1,0 – 3,75	proposed SPA	N	N	Slow abrasion of breeding islets.
Greece	Kerkini Lake		125	Freshwater lake,			*E.g., N.n., A r., A c., A p. P c., P p., P f.*		SPA	Y	N	Increase of water level of the artificial lake which may destroy nests during the breeding season.

	Axios Delta		26	River Delta			*E.g., N n., A r, P c., P. p., P f.*		SPA	Y	Y	
	Gallikos River	2006	2	River			*E. g., N.n., A. r., P. p., P. f.*			Y	Y	Pollution.
	Amvra-kikos		70	Freshwater Marsh			*E. g., N. n., A. r., P. f.*		SPA	Y	Y	Disturbance?
Hungary	Kolon-tó	Tradi-tional breed-ing site	30-120	Reedbed	Fresh water		*A.c., A. p., A. r., N. n., E. a., E. g,*		National Park,(SPA, pSCI)	Y	Y	Wild boars in dry year.
	Péteri-tó	?	0-250	Fishpond with reedbed	Fresh-water		*A. p., A. r., N. n., E. a., E. g, P. f.,*		Nature conser-vation site	N	N	Sometimes there is no water in the ponds because of climatic problems.
	Csaj-tó	?	150-250	Fishpond	Fresh-water		*A. p., A. r., N. n., E. a., E. g, P. f., P. p.,*		Nature conser-vation site, (SPA, pSCI)	N	N	Sometimes, dryness.
	Szeged, Fehér-tó	?	50-150	Fishpond	Fresh-water		*N. n., E. a., E. g,*		Nature conser-vation site, (SPA, pSCI	N	N	
	Tiszaalp ár	?	0-140	Flooded area of river Tisza	Fresh-water		*A.c., A. p., A. r., N. n., E. a., E. g, P. f., P. p.,*		National Park, (SPA, pSCI)	Y	N	Sometimes the water destroys the nests. Some years ago it was dry, and there was no Spoonbill in those years.
	Nyirkai-hany, Bősárká ny	2005	0-15	Habitat recon-struction	Fresh-water		Alone		Pro-tected	Y	Y	Dryness on feeding area, collapse of reed-bed in breeding site.
	Derzsi-10	2002	Min: 225, max: 520	Fishpond	Fresh-water		*E. a., E. g, A. p., A.c., A. r., N. n., P. p., P. f.,*		National park	N	N	Fishing activities.
	Halastó-7	1985	Min: 112, max: 300	Fishpond	Fresh-water		*E. a., E. g, A. p., A.c., A. r., N. n., P. p., P. f.,*		National park	N	N	
	Kunkáp olnás	1980	Min: 20, max: 180	Marshland	Fresh-water		*E. a., E. g, A. p., A.c., A. r., N. n., P. p.,*		National park	N	N	
	Német-sziget	2000	Min= max: 40	Marshland	Fresh-water		*E. a., E. g, A. p., A.c., A. r., N. n., P. p.,*		National park	N	N	

	Meg-gyes-lapos	2002	Min= max: 10	Marshland	Fresh-water				National park	N	N	
Italy	Comac-chio lagoons	1989, 1991-2007	2-95		Brack-ish water lagoon		*L. cachin-nas*	1.7 ±0.6 during 1989-2002	Pro-tected (re-gional park, SPA)	N	N	Eggs/nesltings preda-tion by gulls and rats; human disturbance (photographers), heavy rains and cold spells during the nestling stage.
	Ravenna coastal marsh-lands	1990, 1998, 2004-2007	1-85	Marsh	Fresh-water		A.c., A. p., N.n., E.g., E. a., B. i., A. r., *Ple-gadis fal-cinellus, P. f, P. p.*) for 1500-2500 bp		Pro-tected (re-gional park, SPA)	N	N	Loss of bushes and other aquatic plants due to heavy decrease of water quality (salt input and high nutrient levels) also affecting local grazer food web and prey availability, heavy rains and cold spells during the nestling stage.
	Bologna ponds (Malal-bergo)	1999-2003	1-7	Marsh	Fresh-water		*A. c., N. n., E. g.*		Pro-tected (reserve, SPA)	N	N	
	Sarti-rana lake	2003, 2007	2-3		Inland fresh-water lake		*A. c., A. p., N., n., E. g., B.I., A. r.*		Pro-tected	N	N	
	Cava-nata lagoon	1997	2		Brack-ish water lagoon		?	3 young (0 + 3 each nest)	Pro-tected (re-gional park, SPA)	N	N	Human disturbance; heavy rains and cold spells during the nes-tling stage.
	Isonzo river mouth (Isola della Cona)	1998	At-tempt (nest aban-doned)		Fresh-water marsh		?		Pro-tected (re-gional park, SPA)	Y	N	Heavy rains and cold spells during the nes-tling stage.
	Lagoon of Ven-ice	1998	1-5		Brack-ish water lagoon		*A. c., A. p., N. n., E. g., B. i., A. r.*		SPA	Y	Y	Heavy rains and cold spells during the nes-tling stage.
	Sesia river	1990-1991	2-4	River			*A. c., A. p., Nycticorax n., E. g., B. i., A. r.*		Pro-tected (re-gional park, SPA)	N	N	
	Bando ponds	1991-1993	1-3		Fresh-water marsh		*A. c., A. p., N. n., E. g..*		Pro-tected (natural reserve, SPA)	N	N	

Moldova	Beleu Scientific Reserve ("Lower Prut")		5-20 pairs (2002)	Reedbeds, Floodland, Forest	fresh-water	Day	A. c., N. n., E. g., A.r.		Reserve	Y	Y	Lack of nesting places, Water regime, illegal hunting and degradation of biotopes.
Montenegro	Paratuk	1997-2007	Max 33	Alluvial forest – island in the Bojana River			*P. p, P. c., N. n.,A.c., E. g,, E.a., A..r., P.f.*		Non protec.	N	N	Tourism disturbance and boat traffic (increasing), lack of border control, proposed regulation of river.
	Ada Bojana	Until 2004	Max 18	Flooded wood			*P. p, P. c., N. n., A.c., E. g,*		Non protec.	N	N	Tourism disturbance and boat traffic, lack of border control, huge tourism project proposed.
	Sasko lake/ex colony	197…	Max 32							N	N	
	Skadar Lake, Ulcinj	2004	20		Salty water	Day			N	N	N	Hunting disturbance.
Romania	Bistret		120-166	Fishpond, extensive use			*E. g, E. a.,*		SPA, ornithological reserve	N	N	Fisheries management, water level fluctuations, disturbance.
	Braţul Borcea		144-160	wetland complex	Fresh-water		*E. g, N. n., P. f., A. r., A.c., P. p.,*			N	N	Illegal hunting. More than one colony in the site.
	Dunare Ostroave		144-160	wetland complex	Fresh-water		*E. g, N. n., P. p., P. f., A.c.,*		SPA	N	N	Forestry interventions, disturbance. More than one colony in the site.
	Suhaia		160-200	Fishpond, extensive use			*E. g, N. n.,*		SPA	N	N	Fisheries management, water level fluctuations, disturbance, illegal hunting.
	Gârla Mare-Gruia-Izvoarele		254-280	wetland complex	Fresh-water		*E. g, N. n., P. p., P. f., A.c.,*		SPA	Y	N	Human disturbance. More than one colony in the site.
	Eleşteiele Jijiei şi Miletinului		26 - 40	Fishpond, extensive use			*E. g, N. n.,*		SPA	N	N	Fisheries management, water level fluctuations, disturbance.
	Delta Dunarii (Danube Delta)		360-440	wetland complex	Fresh-water		*E. a., E. g, N. n., P. p., P. c., P. f., A. c., B. i.,*		MAB Reserve National Park, Scientific reserve,	Y	Y	water level fluctuations, human disturbance, predation, desease. More than one colony in the site.
	Balta Vederoasa		40-50	wetland complex	Fresh-water		*E. g, N. n., P. p., P. p., P. f., A. c.*		SPA	N	N	Illegal hunting, disturbance.

	Balta Alba Amara Jirlau		40-52		Mixed fresh-water and alkali lakes		*E. g, E. a., A. c.*		SPA, scien-tific reserve,	Y	N	Infrastructure develop-ment, water level fluc-tuations, disturbance.
	Lunca Siretului Inferior		5-6	wetland com-plex	Fresh-water		*E. g, N. n., A. p.,*			N	N	Infrastructure develop-ment, water level fluc-tuations.
	Iazurile de pe valea Ibane-seiBa-seului-Podrigai		5-20	Fishpond, extensive use			*E. g, A. c.*			N	N	Fisheries management, water level fluctuations.
	Blahnita		54-68	wetland com-plex	Fresh-water		*E. g, N. n., P. p., A. p., E. a.,*		SPA	N	N	Human disturbance.
	Lunca Prutului Vlădeşti Fru-muşiţa		12-45	wetland com-plex	Fresh-water		*E. g, N. n., A. p.,*		Natural Park, SPA	N	N	Fisheries management, water level fluctuations.
	Insula Mica a Brailei		80-120	wetland com-plex	Fresh-water		*E. g, N. n., P. p., P. f., A. c.*		National Park, SPA	Y	N	
	Bečej fish farm	1991	70-100 in 2007	Reedbed	Fresh-water		*A.c., N. n., A. r., E. g,, E. a., A. p., P. p.,*		Not pro-tected	N	N	Disturbance, poaching during post-breeding season, Increase of water level, Privatiza-tion of fishpond.
	Jazovo fish farm	Late 1980ćs	50-70 in 2007	Dense Reed-mace	Fresh-water, Brack-ish		*E. a., A. p., A.c.,*		Not pro-tected	N	N	Disturbance, poaching during post-breeding season.
	Kapetan ski Rit Fish Farm	2004	0 in 2007	Reedbed			*E. a., A. p.,*		Not pro-tected	Y	N	Disturbance, poaching during post-breeding season, burning of dry reed prior to the breed-ing season.

Countries	Colony	Year of first breeding	Number Breeding Pairs	Habitat	Breeding among colony of?	Breeding success (n fledgings/BP)	Legal status of the site	IBA	Ramsar Site	Conservation problem
Serbia	Baranda Fish Farm	2005	Cca 50 in 2007	Reedbed	*N. n., A. r., E. g, E. a., A. p., A.c., A.c., P. p., P. f.,*		Not protected	N	N	Possible transformation of the breeding site into the tourist site.
	Perleska Bara	The first written data from 1950	Cca 20 in 2007	Reedbed	*N. n., A. r., E. g, E. a., A. p., A.c.,*		Protected as a Special Nature Reserve	N	N	No obvious threats.
	productive fishpond "CH6", Iňačovce fishpond system	from 2002	1-35, in 2005 12-20 pairs	*Typha* in 60-80 cm water level,	*A.c., A. p.,* some nests of Marsh Harrier found nearby, too		not protected, commercial fishpond,	N	N	Intensive fish production connected with reduction of Typha and Phragmites grow and disturbance from 2003 it is a part of SPA, but still is not declared by government.
	productive fishpond "CH7", Iňačovce fishpond system	from 2006	2-3 pairs	*Typha* and *Phragmites* in 60-80 cm water level	individual pairs of *A.c.*, breed on the fishpond, too		not protected commercial fishpond,	N	N	Intensive fish production connected with reduction of Typha and Phragmites grow and disturbance. From 2003 it is a part of SPA, but still is not declared by government.
	productive fishpond "CH5"	1997-2001	0-35	*Typha latifolia*	*A.c., A. p.,*	3, sometimes 4 eggs, 1-4 pull in the nests	not protected	N	N	Intensive fish production connected with reduction of Typha and Phragmites grow and disturbance. Commercial fish-pond, in year 2002 was the Phragmites grow completely destroyed by fishpond-managers.

	Colony	Year of first breeding	Number Breeding Pairs	Habitat	Water	Feeding	Breeding among colony of?	Breeding success (n fledglings/BP)	Legal status of the site	IBA	Ramsar Site	Conservation problem
Turkey	Haçli Lake, Eastern Anatolia	2000	12 (2000)						None	Y	N	Over grazing.
	Bolluk Lake, Central Anatolia	1995 (30 BP)	21-54 (1996-2006)	The species breeds on two small islets.	Highly saline lakes	Day	E. g., Med. Gull, Slender Billed Gull and Gull-billed Tern colonies.		SPA	Y	N	The species bred at the lake; however it fed on surrounding freshwater & brackish lakes. Some of the lakes are not protected. In addition, drought period is effected on freshwater resources last years.
	Manyas (Kus) Lake Marmara Region	First record comes from 1930's.	29-200 (1990-2007)	The species breeds on the tree (scarcely on reedbeds).	Freshwater lake,	Day, Night (?)	*A. c.*, cormorant, *E. g.*, *N. n.*, *A. r.*, *P. f.*			Y	Y	Pollution. The lake has changed to a reservoir by construction embankment for agricultural purposes. The population figure is not clarified. 500 pairs in 1950's (E. Schüz), 835 pairs in 1966 (R.Porter).
	Meriç Lake, Delta-Marmara Region	1995 ? (40 BP	40-75 (2002-2003)	The species breeds on reedbeds.	Freshwater lake	Day	*E. g.*, *P. f.*, *A. p.*, *A. c.*, *N. n.*,		National Park	Y	N	Pollution, water regime intervention, intensive agriculte.
	Kulu Lake, Central Anatolia	1998	2-5 (1998-99)	Brackish Lake. The species breeds on small island.		Day	*E. g.*		SPA	Y	N	Pollution, human disturbance.

Turkey	Tuz Lake Central Anatolia	1998	3 pairs (1998)	Saline lake, breeds on the island.			Day	White Pelican		SPA	N	N	Water regime intervention, pollution, agricultural usage. All eggs & chicks destroyed by *Larus armenicus.*
	Kızılırmak Delta, Black Sea	1992	76 (1992)	Fresh water system, the species breeds on reedbeds.				*A. c., A. p.*	Mean Clutch size 3.66		Y	Y	Water regime intervention, pollution, second houses.
	Akşehir & Eber Lake, Central Anatolia	?	15 (?)	Freshwater lake, the species breeds on reedbeds.						Natural Protected Area	Y	N	Water regime intervention, pollution.
	Ereğli Plain, Central Anatolia	1969 (70 pairs)	10-20 (1998)	Saltmarshes						Natural Protected Area	Y	N	Water regime intervention, pollution, agricultural usage.
	Seyfe Lake, Central Anatolia	?	50 (1996)	Salt Lake, the species breeds on reedbeds.						Natural Protected Area	Y	Y	Water regime intervention, intensive agriculture.
	Sultan-Marshes, Central Anatolia	1994	10 (1994)	Freshwater marshes, the species breeds on reedbeds.						Wildlife protected Area	Y	Y	Water regime intervention.
	Kocaçay Delta, Marmara Region.	2005	5 ?	Lagoon, salt marshes, the species breeds on reedbeds.						Wildlife Protected Area	Y	N	Pollution.
	Uluabat Lake, Marmara Region.	1998	48 (1998)	Freshwater lake, the species breed on reedbeds & Salix trees.							Y	Y	Water regime intervention, intensive agriculture, pollution, dam construction.
	Bafa Lake, Aegean R.	?	5-10 ?	Freshwater lake						Nature Park	Y	N	Recreational activities.
Ukraine	Dniester delta		2-70 (1983-2004								Y	Y	
	Eastern Sivash		1-128 (1983-2004)								N	N	
	Le-byazhi Islands		2-116 (1992-2003)								N	N	
	Danube delta		160 (1986)								Y	Y	

Countries	Colony	Year of first breeding	Number Breeding Pairs	Habitat	Water	Feeding	Breeding among colony of	Legal status of the site	IBA	Ramsar Site	Conservation Problem
Armenia	Armash Fish Farm (Arax River Valley)	2003	1-3	Fish farming ponds in semidesert habitat at c 800 m asl; ponds fringed with reeds, reedbeds in the middle of some ponds support mixed breeding colonies	Fresh water	Day	*P.p, N. n, B i., E. g., A. r., A. p., P. f.s*	Privately managed fish farm; designated as IBA	Y	N	Lack of conservation activities; hunting; disturbance of the breeding colony by researchers/photographers. Lack of applied regulation on management of the species by researchers and photographers; water pollution.
	Arax River Valley (in general)	Reported breeding in early 20th century	Common to very common (especially around the present day Armash Fish Farm aea) (early 20th century)	Natural marshlands along Arax River	Fresh water		*P. p., N. n., B. i., E. g., A. r., A. p., P. f.*	Since then natural habitat was fragmented, under agricultural use; Few potential breeding sites still exist	N	N	Lack of conservation activities; hunting; poaching; disturbance, habitat change and fragmentation, extensive agriculture, water pollution.
	Lake Gilli (in Lake Sevan basin)	Reported breeding throughout 1920s – late 1940s	Several (1920 s – late 1940s)	Highland lake (1900m asl) overgrown with reeds, peat bogs	Fresh water		*P. c., N. n., E. g., A. r., A. p.,P. f.*	National Park,	Y	Y	No suitable breeding sites exist at present. Poor management of the Sevan National Park. High level of disturbance year around. Uncontrolled tourism and Recreation. Lake Gilli drained. The area is under agricultural use.
Azerbaijan	Kizil Agach State Reserve	1950	800 pairs(1950-1995)	Extensive stands of reeds and flooded tamarisk as well	Sea-water, fresh	Day, night	*P. p., N.n., A.r., E.g., B.i., E.a., A.c., A.p., P.f.*	State Nature Reserve	Y	Y	Agriculture change, disturbance, hunting.
	Lake Agzibir	1990		Extensive reedbeds, Tamaris	Sea water	Day, night	Herons, egrets and P.f.				Agriculture change, disturbance, hunting.
	Ak-Gel Lake	1960	600-2200 pairs (1960-90)	Reedbeds, tamaris	Fresh	Day, night	*P.p., N.n., A.r., B.i., E.g., A.p., P.f.*	National Park	Y	Y	Agriculture change, disturbance, hunting.
	Makchmudchala		200-360 pairs (1988-91)	Shallow lake, 50% is covered with reed and flooded tamaris too	Fresh	Day, night	*Ph.pygmeus, N.n., Ixb.m., A.r., E.g., B.i., P.f.*		Y	N	Agriculture change, disturbance, hunting.

	Kura delta	1980 years	5-10 pairs (1988-90)	Reeds and tamaris	Sea-water	Day, night	*Ph.pygmeus, B.st., Ixb.m., A.r., E.a., E.g., A.p.*		Y	N	Drought (Building Dams).
Iran	Tashk lake		200	rocky island, reed-beds	Salty		Slender billed gull, *A. g.*	National park	Y	Y	Drought (Building Dams).
	Parishan lake		50-400 (1977)	Reed bed,	fresh water lake		Cormorans, *A. c., E. g,*	Protected Area; Biosphere reserve	Y	Y	Tourism, illegal fishery and fish introduction, poaching.
	Lake Uromi-yeh		50 (1977)		Fresh and brack-ish			National Park, Biosphere reserve	Y	Y	Urban pollution, agriculture pollution, drought, salinisa-tion, loss of food resources.
	Hamoun -I Sa-bari, Hamoun -I Hir-mand		120 (1977)	Reedbeds				Protected area	Y	Y	Human exploitation, fish introduction.
	Arjan & Hirm				Fresh water			Protected area & non p.a	N	N	Illegall shooting, agriculture, overpopulation, climate change.
	Miankal eh Pen-insula , Gorgan Bay				Bracki sh			National Park, Biosphere reserve	Y	Y	Road?
	Khouran Straits				Salt water			Nature reserve, Biosphere Reserve	Y	Y	Urban pollution, agriculture pollution, drought, salinisa-tion, loss of food resources.
	Hilleh river delta				Fresh water			Protected area	N	N	
Irak	3 colo-nies In Haur Al-Hawizeh Marshes	2007	15	The colonies was billed among the reed beds (Marshland)	*	Day	P. p. 2.Sacred Ibis 3.African Darter N. n. E. g., P. f., A. r.		Y	N	There is no protection law for the observations sites, no legal applications on conservation, observation activities could be mention. Unsecure areas with huge risk for birding and Scientific researches. *Caraceous caraceous, Liza abo, Bellamya bengalinisis, Melanopsis modosa, Physa acuta, Sectarma boulangari, Amphibians
	1 colony in Haur Al-Hawizeh Marshes	2005	22	Marshland	*	Day	*P. p., T. a. E. g.,* Afri-can Darter		Y	N	
Kazakhstan	Shoshka kol Lake		204 (2001)	Reedbeds	B			Y	N	N	
	Kor-galzhyn		41					Y	Y	Y	

Russia	Volga Delta		250-350	Wetland complex				Nature Reserve	Y	Y	Hydro-electrical installations, pesticides, waste water release.
	Manych-Gudilo	1980th	65-120 (2004-2007)	Islands on a salty lake			*A. c.*	State Nature Reserve	Y	Y	Flooding and wave erosion of islands.
Syria	Sabkhat al-Jabbul	2005	50-100	Freshwater lake			*E.a., E.g.*	Nature Reserve	Y	Y	Change in hydrologic management
Uzbekistan	Tudakul lake	29-120	1	Island with reed-bed	Brackish		*P. p., P.f., E.g.*			N	
	Tudakul lake	100 (2003)	1		Brackish					N	
	Sudochye Lakes system	120-140			Salty					N	
	Kungrad lakes (Karajar)	100-120 (1990s)			Salty		*P. p., N.n., P.f., E.g. , A.c.*, Cormorant, *A.r.*			N	
	Toguzture	200-240 (1990s)			Salty					N	
	Tuzkan lake (Aydar Arnasay lakes system)	9-43 (1990s)	1		Salty					N	
	Alan floods (Kashkadarya region)	4 (1991)	4		Salty		Cormorant, *P.p., A. c, E.g.*, N.n.			N	
	Cape Akkala (Aral Sea,	300 (1969)			Sea water		Herons, cormorants and gulls			N	
	Lake Shomkekul	32 (1960s)			Salty					N	
	Lake Balanaydyn	10 (1970s)			Salty		Herons, cormorants, *A.r.* and gulls			N	
	Lake Korahojabah	12 (1970s)			Salty		Herons, cormorants, *A.r.* and gulls			N	

Countries	Colony	Year of first breeding	Number Breeding Pairs	Habitat	Breeding among colony of?	Legal status of the site	IBA	Ramsar Site	Conservation Problem
Djibouti	Ile Musha		1-20	Ile	4 species	Protected	N	N	Disturbance, habitat destruction.
Eritrea	Darmachia	unknown	30-40	In mangrove *(Avicenna marina*)	*E. gu*	N	N	N	The site is not protected from any threat.
Saudi Arabia	Kutambil Island	Not known	50-70	Coast	Terns	Not protected, proposed	Y	N	Eggs and young of the breeding spoonbills were taken by humans, exploitation of the seabird species may occur.
	Jizan Bay	Not known	Now none, late 1990s (20-40)	Coast mudflats	Terns	Not protected area	Y	N	The site is much disturbed and faces a multitude of threats. Pollution by oil, sewage effluent and rubbish and extensive land reclamation for further urbanization, the later is reducing the area of inter-tidal flats available for feeding waterbirds. Human disturbance to birds using the area is high. Further landfill and urbanization and harbour through the middle of mudflats.
	Farasan Island	Not known	40-70	Island, shore	Terns	National Park	Y	N	Development of the naval base could have disastrous consequences for the terrestrial and marine wildlife of the area, especially shorebirds. Uncontrolled and intensive fishing causes considerable damage to reefs, from anchors and threatens the viability of the traditional artisanal fishery. Some time, sea birds eggs are collected for sale and personal consumption. Reintroduced predators: domestic cats and rats.
Yemen	Humar Island		6 (1979)				Y		
	Islet near Kamaran		10 (2002)				Y		
	Badi Island		18 (2002)				Y		
	Hodeidah marshes		Y (2002)				Y		

Annex 8. Measures by countries

P. l. leucorodia: Atlantic

❶ **Critical:** Result needed to prevent a large decline in the population, which could lead to extinction. ❷ **High:** Result needed to prevent a decline of more than 20% of the population in 20 years or less. ❸ **Medium:** Result needed to prevent a decline of less than 20% of the population in 20 years or less. ❹ **Low:** Result needed to prevent local population declines or events likely to have only a small impact on the population across the range. ❺ Not a priority	**Belgium**	**Denmark**	**France**	**Germany**	**Morocco**	**Netherlands**	**Portugal**	**Spain**	**Senegal**
Designate and maintain key feeding and stop-over sites as European Union Special Protection Areas and/or Ramsar sites.			❷		❷		❷		❷
Restore former feeding areas and breeding sites and maintain the sites in good ecological conditions (esp. in favourable hydrological conditions and water quality).	❷	❷	❷	❷	❷	❷	❷	❸	❷
Prevent overgrowth of feeding areas by management vegetational succession and/or invasive plants.								❸	❶
Take measures to limit activities which may reduce the availability of food (e.g. overfishing, disturbance (including bird disturbing at fishponds, shellfish collection), constructions which may limit movement of prey species, wind farms, gravel mining, intensive fish farms, human settlements, infrastructures).	❸	❸	❸	❸	❸	❸	❸	❷	❸
Develop management plans for key feeding and stop-over sites addressing off-site threats at basin-level (e.g. pollution, water regime).	❸	❸	❸	❸	❸	❸	❸	❸	❸
Reduce mortality caused by collisions with overhead power lines.		❸	❸	❸	❸	❸	❸	❷	
Reduce direct mortality caused by poaching.			❹						
Reduce direct mortality caused by toxins.								❶	
Phase out organochlorins (especially DDT) along the entire flyways.									❹
Restore wetlands for breeding, maintain adequate water level at colonies and create water supply systems.	❷		❷			❷	❷	❷	
Protect colonies threatened by flooding.						❹		❶	
Take measures to protect threatened colonies against excessive predation.		❹	❹	❹		❹	❹	❸	
Manage competing species if necessary and appropriate.		❺	❺	❺		❺	❺	❺	
Reduce disturbance through information, education and surveillance and visitor management.	❷	❷	❷	❷	❷	❷	❷	❷	❷
Determine and monitor breeding success and calculate the value necessary to meet the target in relation to survival rate.	❷	❷	❷	❷	❷	❷	❷	❷	❷
Determine and monitor survival rate necessary to achieve the desired population growth through colour ringing and satellite telemetry.		❷	❷	❷		❷	❷	❷	
Identify limiting factors for each breeding sub-population with a view to promoting further expansion of the breeding range and to creating an early warning system against potential threats.		❷	❷	❷		❷	❷	❷	
Identify additional wintering and stop-over areas along the flyways.			❷		❷		❷	❷	❷
Identify any potential age and gender differences in use of stop-over and wintering sites.			❸		❸		❸	❸	❸
Determine migratory status and the migratory flyways (Study movements during non-breeding season using colour-ringing and satellite tracking).	❸	❸	❸	❸	❸	❸	❸	❷	❸
Study the sensitivity of spoonbill to disease and toxins.		❸	❸	❸		❸	❸	❸	
Identify key mortality factors and hot spots.	❷	❷	❷	❷	❷	❷	❷	❷	❷
Study the feeding ecology of the species.	❸	❸	❸	❸	❸	❸	❸	❸	❸

P. l. leucorodia: Continental

	Albania	Austia	Bosnia	Bulgaria	Croatia	Czech Re-	Greece	Hungary	Italy	Moldova	Montene-	Romania	Serbia	Slovakia	Turkey	Ukraine	Algeria	Cyprus	Israel	Jordan	Libya	Macedonia	Malta	Palestine	Tunisia
Designate and maintain key feeding and stop-over sites as Special Protection Areas and/or Ramsar sites.	4		2	2	4					5	2	2	2		2	2	2		2	2	2	2		2	2
Restore former feeding areas and breeding sites and maintain the sites in good ecological conditions (esp. in favourable hydrological conditions and water quality).	2	2	2	2	2		2	2	2	1	2	2	2	2	2	2	3	2	2	2		2			2
Prevent overgrowth of feeding areas by management vegetational succession and/or invasive plants.	3	2		4	2		1	3		5			2						5	3		3		2	
Take measures to limit activities which may reduce the availability of food (e.g. overfishing, disturbance (including bird disturbing at fishponds, shellfish collection), constructions which may limit movement of prey species, wind farms, gravel mining, intensive fish farms, human settlements, infrastructures, regulation of rivers).	3		2	2	1		2	2	2	2	2	2	2	2	2	2	4		2	2		3			
Maintain the area of extensively managed fishponds and adjust their management to the needs of the species.	3		2	3	1			2		3		2	1	2			4		3	2		2			
Develop management plans for key feeding and stop-over sites addressing off-site threats at basin-level (e.g. pollution, water regime).	3	2	2	2	2			2	2	2	2	2	2	2	2	2	2		2	1	2	2			2
Reduce mortality caused by collisions with overhead power lines.	4	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	5	3	3	3	3		3
Reduce direct mortality caused by poaching	1	2	2	3	2		1	3	3	5	2	2	3	2	2		2	2	5	1	2	2	2	2	
Reduce direct mortality caused by toxins.	4		4	4	4		4	4	4	2	4	4	4		4	4			5			2			
Restore wetlands for breeding, maintain adequate water level at colonies and create water supply systems.	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3	3	3		5	3	3	2			3
Protect colonies threatened by flooding of fish-ponds, either by managing them solely for conservation or through integrated management of fish-ponds.	3			4	4			4		5			1	4					5			4			
Preserve colonies from burning and cutting of reed through avoiding such activities around colonies.	2			3	4			3		2		3	2	3					5			2			
Take measures to protect colonies against predation.				2	2	2	2	2	2			2	2		2	2									
Manage competing species if necessary and appropriate.								5		5			4						5			2			
Reduce disturbance through information, education and surveillance and visitor management.	1	2	2	2	2			2	2	3	1	2	2	2	2	2	2		5	3		2		2	
Determine and monitor breeding success and calculate the value necessary to meet the target in relation to survival rate at key colonies and/or at post breeding gathering sites.				2					2	4			4			2									
Determine and monitor survival rate through colour ringing and satellite telemetry.	2	2	2	2	2		3	2	2	3		2	3		4										
Identify additional wintering and stop-over areas along the flyways.	3	3		3	2		3	3		3		3	2						4			3			
Identify any potential age and gender differences in use of stop-over and wintering sites.		3		3	4		2	3		3			4						5			3			
Determine migratory status and the migratory flyways (study movements during non-breeding season using colour-ringing and satellite tracking).	2	2	2	2	2			2	2	3		2	3		4				5			3			
Complete full survey of breeding areas.															2										
Identify key mortality factors and hot spots.	2	2		2			3	2					3						5			2			
Collect and analyse genetic samples.								2																	
Study the feeding ecology of the species.				4	4		4	4	4	4		4	4		4	4									4
Organise regional meeting in North Africa, Montenegro				3						5	2	3	3						5						3

P. l. major

	Armenia	Azerbaijan	Iran	Irag	Kazakhstan	Kuwait	Russia	Syria	Tajikistan	Turkmenistan	Uzbekistan	Oman	United Arab Emirates	Czech Republic	Denmark	Italia	Macedonia FYR
Designate the species as protected in all countries along the flyways.	1			1				2	4								
Designate and maintain key feeding and stop-over sites as Special Protection Areas and/or Ramsar sites.	2	2	2	2	2						2						
Restore former feeding areas and breeding sites and maintain the sites in good ecological conditions (esp. in favourable hydrological conditions and water quality).	2	2	2	2	2		2		4		2		2				
Prevent overgrowth of feeding areas by management vegetational succession and/or invasive plants.	3	2			2			2					2				
Take measures to limit activities which may reduce the availability of food (e.g. overfishing, disturbance (including bird disturbing at fishponds, shellfish collection), constructions which may limit movement of prey species, wind farms, gravel mining, intensive fish farms, human settlements).	2		2		2												
Maintain the area of extensively managed fishponds and adjust their management to the needs of the species (promote integrated management of fishponds).	1	2	3		4												
Develop management plans for key feeding and stop-over sites addressing off-site threats at basin-level (e.g. pollution, water regime).	1	2	2	2	2	2	2	2	2		2						
Reduce mortality caused by collisions with overhead power lines.	5	2			2			2									
Reduce direct mortality caused by poaching.	1	3			4			2			2						
Monitor level of pollutants.	2	3	3		2												
Restore and maintain wetlands for breeding, maintain adequate water level at colonies and create water supply systems.	1	2			2			2									
Preserve colonies from burning and cutting of reed through avoiding such activities around colonies.	1		3		3						3						
Take measures to protect colonies against predation.		2	2				2										
Manage competing species if necessary and appropriate.	3		5		5												
Reduce disturbance through information, education and surveillance and visitor management.	1	2	2	2	2	2		2			2		2				
Determine and monitor breeding success and calculate the value necessary to meet the target in relation to survival rate.	4		2		2								2				
Determine and monitor survival rate through colour ringing and satellite telemetry.	4	3	2		2						2						
Identify limiting factors for each breeding sub-population with a view to promoting further expansion of the breeding range and to creating an early warning system against potential threats.	3		2		2												
Identify additional wintering and stop-over areas along the flyways.	4		1		2												
Identify any potential age and gender differences in use of stop-over and wintering sites.	5				2		2										
Determine migratory status and the migratory flyways (Study movements during non-breeding season using colour-ringing and satellite tracking).	5				2												
Complete full survey of breeding areas.		2	2				2										
Identify key mortality factors and hot spots.	2		2		2	2											
Clarify the delineation between the "*major*" and Central and South East European populations.		4	4		4		4	4									
Study the feeding ecology of the species.		4	4		4		4	4									
Improve collaboration between countries along the flyways under the framework of the Central Asia Flyways initiative and strengthen collaboration between the Central Asian Flyways initiative and AEWA.	3	3	3	3	3	3	3	3	3	3	3	3	3				

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P. l. archeri and *P. l. balsaci*

	Djibouti	Egypt	Eritrea	Saudi Arabia	Somalia	Sudan	Yemen		Mauritania
Grant the species, and in particular the subspecies, with legal protection in all its range states.	1	2	1		1				
Maintain the integrity of the coastal ecosystem at Banc d'Arguin.									2
Designate and maintain key feeding and stop-over sites as European Union Special Protection Areas (if appropriate) and/or Ramsar sites.	1	1	1	1	1	1	1		
Restore former feeding areas and maintain the sites in good ecological conditions (esp. in favourable hydrological conditions and water quality).	2	2			2	2			2
Take measures to limit activities which may reduce the availability of food (e.g. overfishing, disturbance (including bird disturbing at fishponds, shellfish collection), constructions which may limit movement of prey species, wind farms, gravel mining, intensive fish farms, human settlements, infrastructures).	2	1							2
Develop management plans for key feeding and stop-over sites addressing off-site threats at basin-level (e.g. pollution, water regime).	2	1	2		2	2			
Reduce direct mortality caused by poaching.	2	2	2	2	2	2	2		
Reduce direct mortality caused by toxins.	3	1	2						2
Phase out organochlorins (especially DDT) along the entire flyways.	4	1	2						2
Protect colonies threatened by flooding.	5	5							1
Take measures to protect threatened colonies against excessive predation.	1	4							1
Manage competing species if necessary and appropriate.	1	5							1
Protect nesting colonies from disturbance by restricted/prohibited access or by visitor management.	2	1	2						2
Determine and monitor breeding success and calculate the value necessary to meet the targeted survival rate.	3	1	2						2
Determine and monitor survival rate through colour ringing and satellite telemetry.	4		2						2
Identify additional wintering sites.	2	2	2	2	2	2	2		
Study movements during non-breeding season using colour-ringing and satellite tracking.	4	2	2	2	2	2	2		2
Improve a national census of the species during the breeding season and the winter period.	2	2	2	2	2	2	2		2
Identify key mortality and hot spots.	2	1	2			2			2
Study the feeding ecology of the species.		4	4	4	4	4	4		

Annex 9: Measures per site

	Designate the site as protected area and as Ramsar site.	**Conduct strategic and project level Environmental Impact Assessment and audit of existing operation.**	**Develop and implement integrated (catchments/coastal zone) management plans for the site.**	**Identify management needs of habitat and implement necessary management actions to maintain the site in good ecological condition.**	**Adopt a new way to manage fish ponds.**	**Ensure that pollution guidelines/legislation are developed and enforced.**	**Prevent disturbance through legislation, planning, zoning and through enforcement of these rules as appropriate.**	**Enhance the habitat on the site (e.g. creation of breeding sites, rehabilitate/create wetlands) where necessary.**
Belgium				Zwin area				
France	Seine Estuary							
Spain	Veta Adalí, Extremadura		Santoña, Ayamonte, Los Canchales Dam	Los Canchales Dam, Santoña Odiel marsjes, Isla Cristina marshes, Cádiz Bay Ensenada de O Grove			Odiel marshes, Doñana marshes, Cadiz Bay, Isla Cristina, Ensenada de O Grove	Odiel marshes, Doñana marshes
Morocco	Smirt		Marais de Smir, Bas Loukkos, Merja Zerga, Lagunes de Sidi Moussa-Oualidia et Lagune de Khnifiss				Marais de Smir, Bas Loukkos, Merja Zerga, Lagunes de Sidi Moussa-Oualidia et Lagune de Khnifiss	Lower Loukkos (near Larache) : establishement of a breeding site Marais de Smir ; Lagune de Khnifiss
Gambia	BaobolonTanbi, Tanji							
Senegal	Senegal Delta		St Louis, Trois Marigots	St Louis				

	Designate the site as protected area and as Ramsar site	Conduct strategic and project level Environmental Impact Assessment and audit of existing operation	Develop and implement integrated (catchments/coastal zone) management plans for the site	Identify management needs of habitat and implement necessary management actions to maintain the site in good ecological condition	Adopt a new way to manage fish ponds	Ensure that pollution guidelines/legislation are developed and enforced	Prevent disturbance through legislation, planning, zoning and through enforcement of these rules as appropriate	Enhance the habitat on the site (e.g. creation of breeding sites, rehabilitate/create wetlands) where necessary
Bosnia	3 sites, plus Karst poljes as Livanjsko and fish farms			Restoration of drained peat pog in Livanjsko Polje, preservation of wet Karts Poljes				
Croatia	Freshwater cyprinid fishpond, floodplain marshes along large rivers (Drava, Sava, Danube), atop over sites at the Adria wetlands on Pag Island)		Delta of Neretva river, Kolansko, M. and V. Blato (Pag island), basin plan for Sava and Drava has to provide protection to alluvial feeding sites.	Freshwater cyprinid fishponds, floodplain marshes along large rivers (Drava, Sava, Danube), freshwater supply for Neretva Delta and staging zones, coastal wetlands (e.g. Island of Pag).				Freshwater cyprinid fishponds
Czech Republic				Zliv				Zliv
Greece				Kerkini		Axios, Gallikos		
Hungary				Kiskunság, Hortobágy, Körös-Maros, Fertő-Hanság NP	Csaj-tó, Szeged, Hortobágy, Biharugra, Begécs, Apaj, Akasztó, Szakmár, Rétszilas			Csaj-tó, Natron lakes of Kiskunság, Tiszaalpár, Kolon-tó, Szeged, Gátér Fehér-tó, Apaj
Italy			Piallasse e Valli Ravennati Comacchio e Mezzano					
Libyia	Farwa, Taourgha		Farwa, Taourgha					Benghazi
Macedonia	Dojran Lake		Dojran Lake	Dojran Lake, Prespa Lake				Dojran Lake, Prespa Lake
Moldova				Beleu Scientific Reserve			Beleu Scientific Reserve	

Montenegro	Bojana Delta		Basin management plan for Bojana River including Lake Skadar	Remaining parts of Lagoon system in Bojana Delta, maintainence of saltpans Solana Ulcinj				
Serbia	Bečej Fish Farm, Jazovo Fish Farm, Kapetanski Rit Fish Farm, Tamiš River Valley (including also Baranda Fish Farm)		Bečej Fish Farm, Jazovo Fish Farm, Kapetanski Rit Fish Farm, Tamiš River Valley (that includes also Baranda Fish Farm)				Bečej Fish Farm, Jazovo Fish Farm, Kapetanski Rit Fish Farm, Tamiš River Valley (that includes also Baranda Fish Farm)	Bečej Fish Farm
Slovakia			SPA Senné		SPA Senné, SPA Medzibodrožie		SPA Senné	
Tunisia			New Ramsar sites					
Turkey	Manyas L., Meriç D.		Tuz Lake Basin Management Plan apply for Tuz, Bolluk & Kulu Lakes by Specially Protected Areas. Authority under the Ministry of Environment & Forestry	Ramsar Management Plan for Manyas Lake, National Park management Plan for Meriç Delta applied by The General Directorate of Nature Conservation & National Parks.				Manyas L.

	Designate the site as protected area and as Ramsar site	**Conduct strategic and project level Environmental Impact Assessment and audit of existing operation**	**Develop and implement integrated (catchments/coastal zone) management plans for the site**	**Identify management needs of habitat and implement necessary management actions to maintain the site in good ecological condition**	**Adopt a new way to manage fish ponds**	**Ensure that pollution guidelines/legislation are developed and enforced**	**Prevent disturbance through legislation, planning, zoning and through enforcement of these rules as appropriate**	**Enhance the habitat on the site (e.g. creation of breeding sites, rehabilitate/create wetlands) where necessary**
Armenia	Armash							
Azerbaijan	Kura river Delta, Lake Agzybir, Lake Makchmudchala, Lake Sarisu		Kura river Delta, Lake Agzybir, Lake Makchmudchala, Lake Sarisu, Lake Ak-Gel, Varvara w.r., Gizilagach reserve			Kura river Delta, Lake Agzybir, Lake Makchmudchala, Lake Sarisu, Lake Ak-Gel, Varvara w.r., Gizilagach reserve		
Georgia	Kolkheti Lowland							
Iran	Tashk, Parishan, Khour Khuran		Tashk-Parishan, Khour Khuran			Tashk, Parishan, Khour Khuran		
Jordan	River Jordan & Al-Karamah Dam			River Jordan & Al-Karamah Dam				
Kuweit	Bubiyan Island		Bubiyan Island					
Russia		Manych-Gudilo						
Tajikistan			Tigrovaya Balka Rybkhoz Ghozimalik	Tigrovaya Balka				
Uzbekistan	Tudakul lake		Tudakul lake	Tudakul lake			Tudakul lake	

	Designate the site as protected area and as Ramsar site	**Conduct strategic and project level Environmental Impact Assessment and audit of existing operation**	**Develop and implement integrated (catchments/coastal zone) management plans for the site**	**Identify management needs of habitat and implement necessary management actions to maintain the site in good ecological condition**	**Adopt a new way to manage fish ponds**	**Ensure that pollution guidelines/legislation are developed and enforced**	**Prevent disturbance through legislation, planning, zoning and through enforcement of these rules as appropriate**	**Enhance the habitat on the site (e.g. creation of breeding sites, rehabilitate/create wetlands) where necessary**
Djibouti	Aire Protégée Marine Musha Maskali		Aire Protégée Marine « Musha –Maskali »				Aire Protégée Marine « Musha – Maskali »	Aire Protégée Marine « Musha – Maskali »
Kuweit	Bubiyan Island		Bubiyan Island					
Sudan	Dinder Park		Red Sea	Marwi dam				Dinder Park