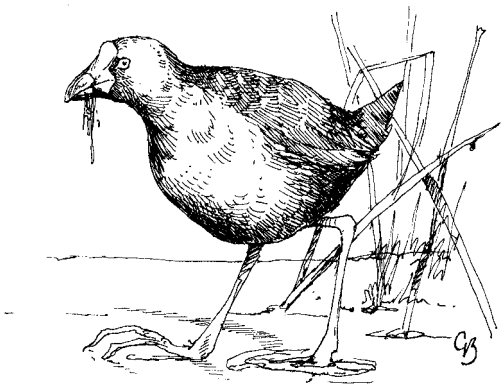
Species Action Plan
for the
Purple Gallinule *Porphyrio porphyrio*
In Europe



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Species Action Plan for the Purple Gallinule *Porphyrio porphyrio* in Europe

Compiled by:
Covadonga Viedma Gil de Vergara (Spain)
Mario Giménez Ripoll (SEO/BirdLife, Spain)

Contributors:

Yves Aleman (GO Roussillon, France)
Alesandro Andreotti (Istituto Nazionale per la Fauna Selvatica, Italy)
Christophe Bergès (LPO-Aude-BirdLife, France)
Juan Criado (SEO/BirdLife, Spain)
Mario Giménez Ripoll (SEO/BirdLife, Spain)
Juan Antonio Gómez López (Generalitat Valenciana, Spain)
Marcello Grussu (LIPU Sardegna/GOS, Italy)
Niky Kardakari (HOS/BirdLife, Greece)
Manuel Mañez Rodríguez (Junta de Andalucía, Spain)
Jordi Martí (Parc Natural dels Aiguamolls de l'Empordà, Spain)
Carlos Pacheco (IMAR-University of Coimbra; SPEA/BirdLife, Portugal)
Giovanni Palumbo (LIPU, Italy)
Concha Raya Gómez (Spain)
Vincenzo Rizzi (LIPU, Italy)
Xavier Rufray (GRIVE – *Meridionalis*, France)
Alfonso M. Sánchez-Lafuente (University of Jaen, Spain)
Helmar Schenk (Italy)
Rita Sebrosa (Portugal)
Pere Vicens i Siquier (Parc Natural de S'Albufera, Spain)
Covadonga Viedma Gil de Vergara (Spain)

Timetable
First draft: July 1999
Workshop: 10-11 September 1999 (Valencia, Spain)
Final draft: 31st December 1999

Reviews
This Action Plan should be reviewed and updated every 5 years. An emergency review will be undertaken if sudden major environmental changes occur within the species range, liable to affect the population.

Geographical scope
This Action Plan needs to be implemented in the following range state of the Purple Gallinule: Spain, Portugal, Italy, Greece and France.

Contents

Annex

SUMMARY

The Purple Gallinule *Porphyrio porphyrio* is listed as a SPEC 3 and is considered 'Rare' in Europe due to their limited numbers (Tucker & Heath, 1994). It is also listed in Annex I of the EC Birds Directive and Appendix II of the Bern Convention.

Europe holds the nominal subspecies *P. p. porphyrio*, that shows a fragmented distribution range as a consequence of a large decline that the species has suffered between the end of 19th and mid 20th. Current European population is estimated to be ca. 3.990-5.154 breeding pairs, 85-90% within Spain (3.500-4.500 pairs). Much smaller populations remain in Sardinia (450-600 pairs), Portugal (34-38 pairs) and France (6-16 pairs). In Greece the species was a rare resident breeding bird in the 19th century in Southern mainland and became extinct by the end of that century. Russia (Caspian Sea) and Turkey hold the subspecies *P. p. caspius*, whose current conservation status is unclear.

European populations are recovering and expanding their distribution range as a consequence of direct protection measures of the species and its habitat. However, some threats still remain which can stop or jeopardise this recovery process, namely habitat loss and degradation. Reintroduction programmes may be needed overcome habitat and population fragmentation.

Threats and limiting factors

- Habitat loss - high
- Habitat degradation - medium; locally high
- Habitat fragmentation - medium; locally high
- Hunting - medium
- Fishing - low
- Human disturbance - low
- Lead poisoning - unknown
- Pesticide use - unknown

Conservation priorities

The main objective of this AP is to maintain the current rate of increasing in numbers and distribution range in the EU countries where the species occurs and to encourage the re-colonisation of the former distribution range. Top priorities are as follows:

- Ensure full protection of the Purple Gallinule and to include the species in the appropriate category in the national catalogues - high
- Ensure the adequate protection of key sites - high
- Ensure the adequate protection of sites which support or may support small numbers of Purple Gallinule - high
- Promote the production and implementation of National Recovery Plans for Purple Gallinule in all EU member states in which the species occurs - high
- Promote restoration, conservation and enhancement of suitable habitats - high
- Ensure the creation of security and refuge areas with no disturbances in all of the key site - high
- Promote reintroduction programs and recovery plans in regions/countries with fragmented habitats or populations; or where the natural population recovery is not likely - high
- Ensure hunting restrictions in key sites where the Purple Gallinule breeds - high
- Set up research projects to study the Purple Gallinule's ecology, behaviour, breeding biology, management for habitat requirements, etc. - high
- To develop and implement effective education programmes in order to increase public knowledge of the species and of the need to protect its habitats - high

INTRODUCTION

The Purple Gallinule *Porphyrio porphyrio* is listed as a SPEC 3 (a species whose global populations are not concentrated in Europe, but which has an unfavourable status in Europe) being 'Rare' due to their numbers in Europe (< 10.000 pairs) (Tucker & Heath, 1994). It is also listed in Annex I of the EC Birds Directive and Appendix II of the Bern Convention.

Europe holds the nominal subspecies *P. p. porphyrio* (Del Hoyo *et al.* 1996), that shows a fragmented distribution range, limited to some countries on the Mediterranean basin: Spain, Italy (Sardinia), Portugal France (including Corsica) and Greece (currently extinct). By other hand, Russia (Caspian Sea coast) and Turkey hold the subspecies *P. p. caspius*, whose current status is unclear (Del Hoyo *et al.* 1996).

The European status is a consequence of a large decline in range and numbers that the species has suffered between the end of 19th and mid 20th century. Currently, these populations have recovered and expanded its distribution range as a consequence of direct protection measures of the species and habitat. This process has been particularly important in Spain, which holds 85-90% of the EU population nowadays. However, some threats still remain which can stop or jeopardise this recovery process, namely habitat loss and degradation. At the same time, habitat and population fragmentation can make the re-colonisation of certain areas difficult and the support from reintroduction programmes will be needed.

In September 1999 a workshop was held in Valencia, Spain, to discuss the European status of the nominal subspecies of Purple Gallinule *P. p. porphyrio* and to agree on the conservation priorities. It was organised by SEO/BirdLife and was attended by 11 experts from the EU range states: Italy, Portugal, Greece and Spain. This Action Plan is based on the results of that workshop and of the subsequent of discussions and further information received from a number experts. Consequently, the geographical scope of this AP is limited to the nominal subspecies current and former range within the EU: France, Greece, Italy, Portugal and Spain.

BACKGROUND INFORMATION

Distribution and status in Europe

The Purple Gallinule (*Porphyrio porphyrio*) is a tropical and subtropical species, with several subspecies whose distribution range extents from Africa to New Zealand. The nominal subspecies (*P. p. porphyrio*) is found in Europe (Cramp & Simmons 1980, Del Hoyo *et al.* 1996) and its current distribution range is limited to some countries on the Mediterranean basin: Spain, Italy (Sardinia), Portugal and South-eastern France (and Corsica). In Greece the species was a rare resident breeding bird in the 19th century in Southern mainland but became extinct by the end of that century. Russia (Caspian Sea coast) and Turkey hold the subspecies *P. p. caspius*, The current status of this populations is unclear, though these populations seem to be undergoing a slight expansion (Del Hoyo *et al.* 1996, Máñez 1997, G. Eken pers. com.). In its European range, the species behaves mainly as a resident (Cramp & Simmons, 1980).

Current European population of *P. p. porphyrio* is estimated to be ca. 3.990-5.154 breeding pairs (see Table 1, Tucker & Heath, 1994, Mañez 1997, AP estimation). The species' current status is the result of a drastic decline suffered between the second half of the 19th and the first half of the 20th centuries (Cramp & Simmons 1980, Tucker & Heath 1994, Del Hoyo *et al.* 1996). Thus, the species almost disappeared from countries such as Greece, Italy, Spain and Portugal. Since the 1980s, a recovery of the Spanish populations has been recorded. The range expanded from the Marismas of the Guadalquivir to Central and Eastern Spain along the Mediterranean coast, following a natural and human-mediated recovery process (Sánchez-Lafuente *et al.* 1992, Del Moral 1997). Also the Sardinian population has extended its range and number since 1970s but without reintroduction programmes (Grussu 1999).

Table 1. Breeding population of the Purple Gallinule in Europe (modified from Tucker & Heath 1994).

	BREEDING POPULATION			BREEDING RANGE TREND	SOURCE
	Size (pairs)	year	trend		
France	**6-16**	1999	**N**	**N**	Y. Aleman, C. Bergès & X. Rufray (Meridionalis) (*in litt.*)
Italy	**450-600**	1999	**+2**	**+2**	Grussu (1999)
Portugal	**34-38**	1999	**+2**	**+2**	C. Pacheco (*in litt.*) R. Sebrosa (*in prep*.)
Spain	3.500-4.500	1999	**+1**	**+1**	see Table 3
TOTAL	3.990-5.154				
Russia	100-1.000	-	(+1)	+1	Tucker & Heath (1994)
Turkey	100-200	1990	-1	-1	Tucker & Heath (1994)

Trends: (1970-1999) +2, Large increase; +1, Small increase; 0, Stable; X, Extinct; -2, Large decrease; -1, Small decrease; F, Fluctuating; N, New breeder

Data quality:
Bold: reliable quantitative data
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Brackets: no quantitative data
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Life history

Breeding
The Purple Gallinule is mainly monogamous, but territorial breeding groups of three adults or subadults have been found. The leading reasons to communal breeding seems to be the habitat saturation (high birds densities) but it still poorly understood for the subspecies *porphyrio* and further investigations are needed on this (Sánchez-Lafuente 1993). In the Southern Spain the laying period starts at end of January, with the main hatching period at the end of March. In Sardinia the Purple Gallinule breeds all around the year; egg laying mainly occurs in spring but is not infrequent in autumn and in winter (Schenk 1993 Grussu 1999). Both males and females advertise their territories by proclamation call. The nest consists on a platform of dried up stems and leaves of aquatic plants (*Typha* sp., *Scirpus* sp., *Phragmites* sp. etc.), and it is built by both sexes. Several nests are built within the territories, one of which is selected for egg laying (Sanchez-Lafuente *et al.* 1998). Usually four to six eggs are laid. Larger clutches are produced by two or more females. The incubation begins with the first or second egg and it is carried out by both sexes, hatching take place after 24-27 days and young are precocial and nidifugous, but remain on nest for a few days and are brooded by both parents. They begin feeding themselves after three weeks or earlier.

Feeding
Omnivorous, although it prefers shoots, leafs, roots, seeds and other parts of aquatic plants such as *Typha* sp., *Scirpus* sp. and *Phragmites* sp.. Animal food can locally predominate, and includes invertebrates, amphibians and frequently dead fish. Seeks food on foot, nibbling at low plants, and pulling down taller ones with bill. Rice can be temporally an important food when fields are available (Rodríguez & Hiraldo 1975, Cramp & Simmons 1980, SEO/BirdLife 1998b).
Uses bill to move gravel and larger stones to obtain invertebrates. Small items are picked up and swallowed, but larger items often held in foot between rear and three front toes, and lifted towards bill which tears off small pieces.

Habitat requirements
The Purple Gallinule is a sedentary species that lives in wetlands (marshes, lagoons, and reservoirs) were the vegetation cover and water depth are appropriate. Territories must have areas of high vegetation density (mainly reedmace *Typha* sp., club-rhushes *Scirpus* sp., rushes *Juncus* sp. and reeds *Phragmites* sp.) were the species spend most part of the time hidden. It prefers calm water or slowly running water. The water levels are determinant for the species, it seems to prefer not very deep zones and where water is deep, it prefers zones with high vegetation density where it can walk on (Cramp & Simmons 1980; Sanchez-Lafuente *et al.* 1998). The species occurs less frequently at river mouths, lakes and channels, and on the upper sections of rivers (Grussu 1999).
The availability of suitable food sources is one of the main limiting factors to the establishing of a breeding territory, and water level influences nest predation (Sanchez-Lafuente *et al.* 1998).

Threats and limiting factors

Habitat loss
During the 20th century, many wetlands where the species occurred have been drained and transformed into rice fields and other crops, and tourist developments. Habitat losses caused by the natural alternation between rainy and dry years in Spain have also deeply affected habitat availability.
Currently, habitat loss in Spain may only occur at a local scale, although it can be still important at some places. However, although not comparable to natural habitats, the siltation process in many reservoirs, as a consequence of agricultural management, have provided new, suitable habitats for the species (Sánchez-Lafuente *et al.* 1992). The habitat loss was the mainly cause of the Purple Gallinule extinction in Greece.

Importance: high

Habitat degradation
The loss of emergent, marshy vegetation, used by Purple Gallinule for nest building, shelter and feeding is still a major problem in many wetlands. Marshy vegetation is usually burned out in an uncontrolled way, as a result of human management (e.g. to introduce livestock), thus becoming a major cause of habitat degradation. Tourism development around wetlands also causes habitat degradation. Furthermore, alteration and/or overexploitation of wetlands also promote the waste of water resources and degradation of flooded areas. This risk is especially relevant during dry periods, and may even cause the complete desiccation of wetlands.
Industrial and urban pollution also causes habitat degradation in many wetlands.

Importance: medium; locally high

Habitat fragmentation
Due to habitat loss and degradation at some sites local populations may have become isolated. This factor may considerably reduce populations' ability to expand, recover and occupy new areas, which may have eventually developed suitable conditions for the species. Small wetlands have a fundamental role during the dispersal of the juveniles or non-breeding adults; their preservation will assure a constant flux of individuals between the most important breeding areas.
Since the Purple Gallinule is a quite sedentary bird, it is essential to plan the conservation of every important breeding area having a metapopulation perspective - both at a regional and at a European scale.

Importance: medium; locally high

Hunting
Hunting is a key factor to explain the decline of the species in many areas of its European range. The species is highly vulnerable to hunting, because of its confident behaviour; thus, protection of the species and hunting ban are main factors that may have favoured the recovery of the Spanish, Sardinian and Portuguese populations. Although the available information is limited, we suggest that mortality and disturbances caused by hunting activities may be locally important.

Importance: medium

Fishing
Fishing is also becoming a serious risk. In the Marismas of Guadalquivir (Southern Spain, IBA nº259) several cases of chicks trapped in funnel traps used to catch Red swamp crayfish (*Procambarus clarkii*) have been reported (Asensio 1991, *in* Máñez 1994). Also, breeding adults are frequently disturbed at the nest by fishermen (Máñez 1994).

Importance: low

Human disturbance
Other disturbances caused by human management and activities may have a negative impact on breeding success or survival in a number of sites.

Importance: low

Lead poisoning
Several cases of individuals poisoned by ingestion of lead shots have been reported in L'Albufera de Valencia and in El Hondo (East Spain, IBAs nº159 and 165, respectively). Lead poisoning may be an indirect, but important, risk in occupied areas with intense hunting activities of other waterfowl species.

Importance: unknown

Pesticide use
In Sardinia the diffuse use of DDT was a factor involved in the population decline (Andreotti, 1998). Currently, despite of the lack of data, the use of pesticides may have a negative impact on the species in a number of sites.

Importance: unknown

Conservation status and recent conservation measures

France
Full legal protection.

In the last 150 years birds have been only occasionally recorded in Languedoc-Roussillon. In 1995 young and adult birds have been more regularly observed in the 'Etang de Canet' (IBA LR 20). In 1996, 3 pairs successfully bred in this area (Cambrony & Aleman 1996), with more breeders (5-9 pairs) in 1999 (Y. Aleman pers. com. *in* C. Bergès *in litt.*). In 1999, 2-3 pairs successfully bred in 'Le Petit Castélou-Etang narbonnais' (IBA LR 04) (C. Bergès & V. Lelong pers. com., *in* C. Bergès *in litt.*). These birds may come from populations recovered in Northern Catalonia from a reintroduction program started in 1989 at Aiguamolls de l'Empordá Natural Park. More birds have been recorded in other areas in Languedoc-Roussillon, but breeding has not been confirmed: Etang de Capestang (IBA LR 05), Etang de Vendres, Pissevache et Lespignan (IBA LR18, SPA), Etangs montpelliérains (IBA LR 09, partial SPA) and Petite Camargue Fluvio-lacustre (IBA LR23). Also, new recent records have been produced in Camargue (IBA PAC02, SPA), in Marais entre Crau et Grand Rhone (IBA PAC08), in Aude, in Hérault (on the 'Reserve naturelle de l'Estagnol', SPA) (Roumanille & Rufray pers. obs. *in* C. Bergès *in litt.*) and in Corsica (Mathevet 1997).

Greece
Full legal protection

The species was a rare resident breeding bird in Southern mainland in the 19th century but became extinct by the end of the century (Handrinos & Acriotis 1997). Only one record is registered in the 20th century in the Nestos Delta (IBA 007), probably a vagrant bird.

Italy
Full legal protection.

Current Italian population is confined to several Sardinian wetlands. The Sardinian breeding population is estimated to be 450-600 pairs (Grussu 1999).

In the 19th century Purple Gallinule bred regularly in Sicily, Sardinia and probably in Apulia. In Sicily this species had a breeding range extending along the eastern and southern coasts; particularly it was very common in Catania and Siracusa districts, being the Lentini lake the most important key area, where 1.500 individuals were killed every year. Purple Gallinule disappeared from Sicily at the end of the 1950s, due to hunting pressure and habitat loss and degradation – the Lentini lake was drained in 1949-1950. Sardinian population declined due to habitat destruction, increase of the

hunting pressure and the diffuse use of DDT (Cramp & Simmons 1980; Andreotti 1998). Between the 1950s and the 1970s a bottleneck of about 50-100 pairs was recorded (Cramp & Simmons 1980) with a consequent contraction of the breeding range. Since the late 1970s the population has recovered and expanded its distribution range. Current Sardinian population is estimated to be 450-600 pairs, distributed in about 30-40 sites. The most recent censuses carried out by Schenk (1993), Grussu and Sanna (1997) and by Grussu (1999) agree on the overall population but are partly discordant on the importance of the different sites.

The main places for the species are the wetlands of the Sinis Peninsula and the Gulf of Oristano (IBA 120; SPA), the wetlands around Cagliari (IBA 124; SPA), and the wetlands of Sulcis in the Southwest part of Sardinia, see Table 2.

Table 2. Breeding population of the Purple Gallinule in Sardinia (Italy) (source: Schenk 1993; Grussu 1999).

SARDINIA (Italy)	BREEDING POPULATION		
	Size (pairs)		trend
	Schenk (1990-92)	Grussu (1999)	
Stagno di Cabras (Oristano; IBA 120, SPA)	**49-64**	**85-110**	0
Stagno di Santa Maria di Neapolis (Oristano; IBA 120, SPA)	**22-26**	**40-55**	0
Stagno di Pauli Maiori (Oristano; IBA 120, SPA)	**50-65**	**20-40**	0
Other wetlands of Oristano (IBA 120, SPA)	**92-130**	**75-95**	**-1**
Stagno di Molentargius-Quartu (Cagliari; IBA 124, SPA)	**53-67**	**70-95**	**+2**
Other wetlands of Cagliari (IBA 124, in part SPA)	**19-27**	**30-45**	-1
Sa Masa, Riu Sassu and other Sulcis ponds (Cagliari)	**71-99**	**-**	0
Stagno di Platamona (Sassari)	**8-15**	**30**	*
Other small wetlands in the Eastern and Northern coast	**75-117**	**100-130**	**+2**
TOTAL	**439-610**	**450-600**	**+2**

Trends (1970-1999): +2, Large increase; +1, Small increase; 0, Stable; X, Extinct; -2, Large decrease; -1, Small decrease; F, Fluctuating; N, New breeder

Data quality:
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In Sardinia the Purple Gallinule was hunted without bag limits until the hunting season 1970-71. The species become legally protected at national level in 1977, under the law 969/77. Nowadays it is included in the special protected species (157/92). It was listed as 'Rare' in the Red List of Italian Birds (Frugis & Schenk, 1981), but it has been catalogued as 'Vulnerable' in a recent review (Calvario *et al*. 1999). Large part of the main sites for the species are nowadays legally protected as SPA (EC Birds Directive). Many of the smallest wetlands haven't any kind of protection yet.

A reintroduction program is being prepared in Sicily (Andreotti 1998).

Portugal
Full legal protection.

Current Portuguese population is estimated to be 34-38 pairs (C. Pacheco *in litt.*, R. Sebrosa *in prep*.). After the large decline experimented between the end of 19th century and the middle of the 20th century, which took the species to the verge of extinction, the Purple Gallinule is nowadays restricted to some coastal wetlands in the South of Portugal. In 1978-84 the estimate was 10-15 pairs confined to a single place (Rufino 1989) and in 1989, 5-10 pairs (Ramos 1994, Tucker & Heath 1994) in 3 wetlands. Since then, the population has increased, and the species has expanded to other wetlands. In 1998, the population was estimated to be 21-28 pairs distributed by 7 wetlands and in 1999, 34-38 pairs were found in 9 places (C. Pacheco *in litt.*, R. Sebrosa *in prep*.). Isolated individuals or small groups have recently been recorded during winter outside breeding range in the South of Portugal.

Table 3. Breeding population of the Purple Gallinule in Portugal (source: Rufino, 1989; Ramos, 1989; C. Pacheco *in litt.*, R. Sebrosa *in prep*.).

PORTUGAL	BREEDING POPULATION	
	Size (pairs)	trend
Quinta do Lago – P. N. Ria Formosa (Algarve; IBA PT025, SPA)	**7-9**	**+2**
Vilamoura (Algarve)	**7**	**+2**
Pinheiros Altos P. N. Ria Formosa (Algarve; IBA PT025, SPA)	**7**	**N**
Ludo - P. N. Ria Formosa (Algarve; IBA PT025, SPA)	**4-5**	**-1**
Lagoa dos Salgados (Algarve)	**4-5**	**N**
Dunas Douradas (Algarve)	**2**	**N**
Vale do Garrão (Algarve)	**1**	**N**
Quinta Marim - P. N. Ria Formosa (Algarve; IBA PT025, SPA)	**1**	**N**
Lagoa de Sto. André (Baixo Alentejo; IBA PT021, SPA)	**1**	**N**
TOTAL	**34-38**	**+2**

Trends (1978-1999): +2, Large increase; +1, Small increase; 0, Stable; X, Extinct; -2, Large decrease; -1, Small decrease; F, Fluctuating; N, New breeder

Data quality:
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The species is legally protected since 1968, under the 19/68 law. It is classified as 'Endangered' in the Portuguese Red Book for birds (Cabral 1990). Some of the

wetlands where the species occurs are not legally protected and a few are threatened by tourist development. One of the most important will be drained in short term.

A reintroduction programme is now ongoing in the Baixo Mondego region (Coimbra), in the Paul de Arzila and Paul da Madriz Nature Reserves (IBA 011, SPA; IBA 012, SPA). This programme is being funded by European resources (LIFE B4-3200/98/506) and is carried out by the IMAR (Institute of Marine Research, University of Coimbra) and the ICN (Institute for the Conservation of Nature, Delegação de Coimbra) with the collaboration of the Autonomous Community of Valencia (Spain). The main objectives of the project are: a) establish a free living population in the Baixo Mondego region, b) habitat improvement and management to favour the Purple Gallinule, c) captive breeding and later reintroduction of the offspring, d) promote environmental education actions to increase public awareness for the protection the species and its habitat, and e) develop accurate census and monitoring methods based on individual recognition through calls. The first birds born in captivity from breeding programme of the Autonomous Community of Valencia (East Spain) were released in April and September 1999, at Paul de Arzila and Paul da Madriz Nature Reserve.

Spain
Full legal protection.

There has been an increase of at least 500-1000 pairs since the last estimation of the Spanish population, which was about 3.000-3.500 pairs (Mañez 1997). Therefore the current Spanish population is probably ca. 3.500-4.500 pairs. By mid 19th century birds could only be found in a few wetlands around the Marismas of Guadalquivir. Since the 1980s, a recovery of the populations has been recorded. The species range has expanded from the Marismas of the Guadalquivir to Central and Eastern Spain (along the Mediterranean coast), following a natural and human-mediated recovery process and successful reintroduction programmes (Sánchez-Lafuente *et al.* 1992, Del Moral 1997). Current main areas for the species are listed in Table 4.

Table 4. Main areas for the Purple Gallinule in Spain (Sources: Máñez 1997, SEO/BirdLife 1998a, Viada 1998, J. Martí pers. com., A. M. Sánchez-Lafuente *in litt.,* P. Vicens *in litt*.).

SPAIN	BREEDING POPULATION		
	Size (pairs)	year	trend
Marshes of Guadalquivir (Andalucía; IBA 259, SPA)	3000+	1997	F
Alt and medium course of Guadalquivir (Andalucía; IBAs 228, 230, 232)	ca. 250	1999	+2
Coastal wetlands of Huelva (Andalucía: IBA 261, 263)	**100+**	1997	F
Endorreic complex of Cádiz (Andalucía; IBAs 251, SPA; 252, SPA; 253, SPA; 258, SPA)	25+	1997	F
Albufera de Valencia (Valencia; IBA 159, SPA)	**102+**	1998	**N**
Marjal de El Moro (Valencia; IBA 156, SPA)	**62**	1998	**N**
Delta del Ebro (Cataluña; IBA 148, SPA)	10+	1996	N
Aiguamolls de l'Empordá (Cataluña; IBA 137, SPA)	**40**	1999	**N**
S'Albufera (Mallorca; IBA 318, SPA)	**200+**	1999	**N**
Embalse de Castrejón (Castilla-La Mancha; IBA 198, SPA)	ca. 50	1997	N

Trends (1980-1999): +2, Large increase; +1, Small increase; 0, Stable; X, Extinct; -2, Large decrease; -1, Small decrease; F, Fluctuating; N, New breeder

Data quality:
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The species is legally protected since 1973, and it is included in the National Catalogue of Threatened Species, under the 4/1989 law, and listed as 'Vulnerable' in the Red Data Book (Blanco & Gonzalez 1992). The main areas for the species are today legally protected as SPA (EC Birds Directive) and have become protected areas (National Parks, Natural Parks, etc.) under National or Regional laws. However, the project for a new reservoir in the upper course of Guadalquivir threatens the population in that area.

Different reintroduction programmes have been carried out by different Regional Governments, with a successful outcome (see Table 5).

Table 5. Reintroduction programs carried out in Spain.

Locality	Year started	Reintroduction method	Birds released	Current wild breeding population	Source
Albufera de Valencia (Valencia; IBA 159, SPA)	1988	Captive-breeding	ca. 200 (1995-1999)	102+ pairs (1998)	SEO/BirdLife, 1998a J. A. Gómez, pers. com.
Aiguamolls de l'Empordá (Cataluña; IBA 137, SPA)	1989	Directly released	66 (38+28) (1989-1991)	40 pairs (1999)	Heredia, 1992 J. Martí, pers. com.
S'Albufera (Mallorca; IBA 318, SPA)	1991	Directly released	28 (1991)	200+ pairs (1999)	Heredia, 1992 P. Vicens, *in litt.*

Aims and Objectives

Aims

In short term, to maintain the current rate of increase of numbers and expansion of the distribution range in the EU countries where the species occurs. In medium to long term, to increase the population size of the species and to encourage the re-colonisation of the former distribution range.

Objectives

1. Policy and legislation

1.1. To promote national and international policies that specifically favour the protection of the Purple Gallinule and its habitat

1.1.1. To ensure full protection of the Purple Gallinule and to include the species in the appropriate category in the national catalogues.

The species is full protected in all of the EU countries where it occurs, but it is important that the degree of legal protection is the maximum possible. This must involve the species inclusion in an adequate category in the national catalogues which obligates to the development of Recovery and/or Habitat Management Plans.

Priority: high
Time-scale: short/completed

1.1.2. To ensure the adequate protection of key sites.

All sites supporting nationally or internationally important numbers of the species should be designated as Special Protection Areas (SPAs under the EU Birds Directive 79/409/EEC) and as Ramsar sites. They should also be fully protected under national legislation. Most of the known key sites are protected under SPAs or national legislation.

Priority: high
Time-scale: short

1.1.3. To ensure the adequate protection of sites which support or may support small numbers of Purple Gallinules.

Many small wetlands, which support or may support small numbers of Purple Gallinules, have no protection. These small wetlands are necessary to guarantee the connection between the main population range, in order to favour the re-colonisation and species recovery.

Priority: high
Time-scale: short

1.1.4. To promote the production and implementation of National Recovery Plans for Purple Gallinule in all EU member states in which the species occurs.

National governments should express a commitment to increase the population size of the species and to encourage re-colonisation of the former range by adopting National Recovery Plans based on the objectives of this plan.

Priority: high
Time-scale: medium

2. Species and habitat conservation

2.1. To promote restoration, conservation and enhancement of suitable habitats

All the sites and sites which support small numbers of Purple Gallinules must have Habitat Management Plans which would maintain and/or increase the carrying capacity of the species, and would assure the adequate legal protection of each site. These Management Plans must pay a special attention to the palustrine vegetation management (for example, avoiding the uncontrolled burnings), and to the alteration and/or overexploitation of water resources.

Priority: high
Time-scale: medium

2.2. To ensure the creation of security and refuge areas with no disturbances in all of the key sites

Disturbances caused by human management and activities may have a negative impact on breeding success or survival in a number of sites (e. g. breeding adults are frequently disturbed at the nest by fishermen; Máñez 1994). For this reason, it is important to ensure the existence of areas of suitable size where the birds can breed without being disturbed, restricting any human use or activity. Higher bird densities have been reported in sites with undisturbed areas.

Priority: high
Time-scale: medium

2.3. To promote reintroduction programs and recovery plans in regions/countries with fragmented habitats or populations; or where the natural population recovery is not likely

The species has shown a good capacity of recovery and spreading of its range in regions where the suitable habitat showed some continuity, as in the case of the Southwest and the Central Spain. However, in regions with fragmented habitats or populations, or too far away from the current distribution area, natural population recovery is not likely. The recovery of the Purple Gallinule populations in these cases needs the development of reintroduction programmes. In the East of Spain some of these programs have been developed successfully, achieving the establishment of increasing wild populations in a few years.

Priority: high
Time-scale: medium

2.4. To ensure hunting restrictions in key sites where the Purple Gallinule breeds

The species is highly vulnerable to hunting, because of its confident behaviour. Consistently, hunting is a key factor to explain the decline of the species in many areas of its European range. Protection of the species and hunting prohibition are main factors that may have favoured the recovery of populations. In addition, high population densities are reached in localities where hunting has been banned. For this reason it is necessary to establish restrictions and even the total ban of waterfowl hunting in key sites, in order to avoid the accidental and illegal death of individuals and disturbance derived from the hunting.

Priority: high
Time-scale: short

2.5. Prevention of mortality caused by lead poisoning

Lead poisoning may be an indirect, but important, threat in occupied areas with intense hunting of other waterfowl species. Several cases of individuals poisoned by ingestion of lead shots are reported in L'Albufera de Valencia and in El Hondo (East Spain, IBAs nº159 and 165, respectively). Non-toxic shots should be used for all hunting over wetlands.

Priority: medium
Time-scale: medium

2.6. To prevent mortality by fishing nets

Drowning in fishing nets may cause significant mortality. In the Marismas of Guadalquivir (Southern Spain, IBA nº259) several cases of chicks trapped in funnel traps used to catch Red swamp crayfish (*Procambarus clarkii*) have been reported (Asensio 1991, *in* Máñez 1994). Actions to solve this problem are required (e. g. appropriate alterations to fishing techniques and/or equipment).

Priority: low
Time-scale: long

3. Monitoring and research

3.1. Set up research projects to study the Purple Gallinule's ecology, behaviour, breeding biology, management for habitat requirements, etc.

Studies on basic aspects of the biology of Purple Gallinule are scarce in Europe. Improving our knowledge in productivity, habitat carrying capacity, habitat requirements, feeding ecology and others issues, can provide us useful data to manage the species and can allow us to implement an effective conservation policy.

Priority: high
Time-scale: medium/ongoing

3.2. Population monitoring

3.2.1. To standardise census methods to be used throughout the range of the species.

Priority: medium
Time-scale: medium

3.2.2. To develop and implement a monitoring programme in the EU countries, which will accurately quantify and monitor trends in distribution, population size and density.

Priority: medium
Time-scale: medium

3.2.3. To verify, by genetic analysis on stuffed birds and living birds, the existence of possible differences among the Mediterranean populations, in order to assess the real isolation degree of the populations.

The decrease and the fragmentation of the range of *P. p. porphyrio* occurred recently, so the existence of differentiated enough populations is unlikely. Even though it would be necessary to establish the genetic status of this subspecies in the Mediterranean basin in order to ensure a correct management of this species at local and continental scale.

Priority: medium
Time-scale: medium

3.3. To research mortality caused by ingestion of lead shots

Several cases of individuals poisoned by ingestion of lead shots are reported in L'Albufera de Valencia and in El Hondo (East Spain, IBAs nº159 and 165, respectively). Although few data are available, lead poisoning may be an important cause of mortality for this species, as it is for other waterfowl species.

Priority: medium
Time-scale: medium

3.4. To research the current impact of the use of pesticides

Priority: medium
Time-scale: medium

4. Public awareness and training

4.1. To develop and implement effective education programmes in order to increase public knowledge of the species and of the need to protect its habitats

Public awareness campaign and Environmental Education actions should be promoted, including the production of slide shows, videos, posters, leaflets, visits, appearances in media, press releases, etc. These programmes should focus on specific audience such as: pupils, researchers, technicians and particularly to hunters and residents of the towns near to the key sites.

Priority: high
Time-scale: medium/ongoing

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ANNEX - Recommended Conservation Actions by Country

France

1.1.1. To ensure full protection of the Purple Gallinule and to include the species in the appropriate category in the national catalogue.

1.1.2. To ensure the adequate protection of key sites. All key sites supporting nationally or internationally important numbers of the species should be designated as Special Protection Areas (SPAs under the EU Birds Directive 79/409/EEC).

1.1.3. To ensure the adequate protection of sites which support or may support small numbers of Purple Gallinules.

1.1.4. To promote the production and implementation of a National Recovery Plan for Purple Gallinule.

2.1. To promote restoration, conservation and enhancement of suitable habitats.

2.2. To ensure the creation of security and refuge areas with no disturbances in all the key sites.

2.4. To ensure hunting restrictions in key sites where the Purple Gallinule breeds.

2.5. Prevention of mortality caused by lead poisoning.

3.2.1. To standardise census methods to be used throughout the range of the species.

3.2.2. To develop and implement a monitoring programme which will accurately quantify and monitor trends in distribution, population size and density.

3.3. To research mortality caused by ingestion of lead shots.

3.4. To research the present impact of the use of pesticides.

4.1. To develop and implement effective education programmes in order to increase public knowledge of the species and of the need to protect its habitats.

Greece

1.1.1. To ensure full protection of the Purple Gallinule and to include the species in the appropriate category in the national catalogue, considering that the species is extinct as breeder and this Plan seeks to recover its former range.

1.1.2. To ensure the adequate protection of potential key sites for Purple Gallinule by the establishment of new Special Protection Areas (SPAs under the EU Birds Directive 79/409/EEC).

1.1.3. To ensure the adequate protection of sites which support or may support small numbers of Purple Gallinules.

1.1.4. To promote the production and implementation of a National Recovery Plan for Purple Gallinule.

2.1. To promote restoration, conservation and enhancement of suitable habitats.

2.2. To ensure the creation of security and refuge areas with no disturbances in all the potential key sites.

2.3. To promote a reintroduction program in the suitable wetlands. The Delta of Evrotas, as an EU Project under LIFE Nature is being carried out, is an adequate site.

2.4. To ensure hunting restrictions in potential key sites where the Purple Gallinule may occur.

3.2.3. To verify, by genetic analysis on stuffed birds and living birds, the existence of possible differences among the Mediterranean populations, in order to assess the real isolation degree of the populations.

4.1. To develop and implement effective education and public information programmes in order to increase public knowledge of the species and of the need to protect its habitats as a pre-requisite of any reintroduction project.

Italy

1.1.1. To ensure full protection of the Purple Gallinule and to include the species in the appropriate category in the national catalogue.

1.1.2. To ensure the adequate protection of all key sites in Sardinia by the establishment of new Special Protection Areas (SPAs under the EU Birds Directive 79/409/EEC). In Sicily and Apulia it is already done.

1.1.3. To ensure the adequate protection of sites which support or may support small numbers of Purple Gallinules.

1.1.4. To promote the production and implementation of a National Recovery Plan for Purple Gallinule.

2.1. To promote restoration, conservation and enhancement of suitable habitats. This point should be developed specially in key/potential sites in Sardinia and Sicily.

2.2. To ensure the creation of security and refuge areas with no disturbances in all the key/potential sites.

2.3. To promote a reintroduction program in the suitable wetlands of Sicily (and if the case warrants it, in suitable wetlands of Apulia).

2.4. To ensure hunting restrictions in key sites where the Purple Gallinule breeds and in sicilian wetlands where the species may occur.

2.5. Prevention of mortality caused by lead poisoning.

3.1. Set up research projects to study the Purple Gallinule's ecology, behaviour, breeding biology, management for habitat requirements, etc.

3.2.1. To standardise census methods to be used throughout the range of the species.

3.2.2. To develop and implement a monitoring programme which will accurately quantify and monitor trends in distribution, population size and density.

3.2.3. To verify, by genetic analysis on stuffed birds and living birds, the existence of possible differences among the Mediterranean populations, in order to assess the real isolation degree of the populations.

3.4. To research the current impact of the use of pesticides.

4.1. To develop and implement effective education programmes in order to increase public knowledge of the species and of the need to protect its habitats.

Portugal

1.1.1. To ensure full protection of the Purple Gallinule and to include the species in the appropriate category in the national catalogue.

1.1.2. To ensure the adequate protection of key sites. All key sites supporting nationally or internationally important numbers of the species should be designated as Special Protection Areas (SPAs under the EU Birds Directive 79/409/EEC).

1.1.3. To ensure the adequate protection of sites which support or may support small numbers of Purple Gallinules.

1.1.4. To promote the production and implementation of National Recovery Plan for Purple Gallinule.

2.1. To promote restoration, conservation and enhancement of suitable habitats in the key sites. A reintroduction program financed by European resources (LIFE B4-3200/98/506) is now in course in the Baixo Mondego region (Coimbra), in the Paul de Arzila and Paul da Madriz Nature Reserves (IBA 011; IBA 012). This program includes habitat improvement and management to favour the Purple Gallinule.

2.2. To ensure the creation of security and refuge areas with no disturbances in all the key sites.

2.3. A reintroduction programme is now ongoing in the Baixo Mondego region (Coimbra), in the Paul de Arzila and Paul da Madriz Nature Reserves (IBA 011; IBA 012). This program is funded by European resources (LIFE B4-3200/98/506) and is carried out by the IMAR (Institute of Marine Research,University of Coimbra) and the ICN (Institute for the Conservation of Nature, Delegação de Coimbra). First birds born in captivity from breeding programme of the Autonomous Community of Valencia (East Spain) were released in April 1999, at Paul de Arzila Nature Reserve.

2.4. To ensure hunting restrictions in key sites where the Purple Gallinule breeds.

2.5. Prevention of mortality caused by lead poisoning.

3.1. Set up research projects to study the Purple Gallinule's ecology, behaviour, breeding biology, management for habitat requirements, etc.

3.2.1. To standardise census methods to be used throughout the range of the species. The reintroduction program mentioned above also includes the development of accurate census and monitoring methods based on individual recognition through calls.

3.2.2. To develop and implement a monitoring programme which will accurately quantify and monitor trends in distribution, population size and density.

3.3. To research mortality caused by ingestion of lead shots.

3.4. To research the current impact of the use of pesticides.

4.1. To develop and implement effective education programmes in order to increase public knowledge of the species and of the need to protect its habitats. The reintroduction program mentioned above also includes environmental education actions in order to know and protect the species and its habitat.

Spain

1.1.1. To ensure full protection of the Purple Gallinule and to include the species in the appropriate category in the national and regional catalogues.

1.1.2. To ensure the adequate protection of key sites. All key sites supporting nationally or internationally important numbers of the species should be designated as Special Protection Areas (SPAs under the EU Birds Directive 79/409/EEC).

1.1.3. To ensure the adequate protection of sites which support or may support small numbers of Purple Gallinules.

1.1.4. To promote the production and implementation of Regional Recovery Plans for Purple Gallinule in all autonomous communities in which the species occurs.

2.1. To promote restoration, conservation and enhancement of suitable habitats.

2.2. To ensure the creation of security and refuge areas with no disturbances in all the key sites.

2.4. To ensure hunting restrictions in key sites where the Purple Gallinule breeds.

2.5. Prevention of mortality caused by lead poisoning.

2.6. To prevent drowning in fishing nets. A special attention should be paid to the situation in the Marismas of Guadalquivir (Southern Spain, IBA nº259).

3.1. Set up research projects to study the Purple Gallinule's ecology, behaviour, breeding biology, management for habitat requirements, etc.

3.2.1. To standardise census methods to be used throughout the range of the species.

3.2.2. To develop and implement a monitoring program which will accurately quantify and monitor trends in distribution, population size and density.

3.3. To research mortality caused by ingestion of lead shots. A special attention should be paid to the situation in L'Albufera de Valencia and in El Hondo (East Spain, IBAs nº 159 and 165, respectively).

3.4. To research the present impact of the use of pesticides.

4.1. To develop and implement effective education programmes in order to increase public knowledge of the species and of the need to protect its habitats.