

## The Purple Gallinule, *Porphyrio porphyrio*, in the Eastern Mediterranean

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**Abstract:** The decrease of the East Mediterranean population of the Purple Gallinule, *Porphyrio porphyrio*, since the last century, perhaps even since classical antiquity, is described. The only locality where the ssp. *seistanicus* is known to breed in the Mediterranean is the Göksu delta in Turkey (< 30 pairs) for which urgent conservation measures are recommended.

**Kurzfassung:** Der Rückgang der ostmediterranen Population des Purpurhuhns, *Porphyrio porphyrio*, mindestens seit dem letzten Jahrhundert, vielleicht schon seit der Antike, wird beschrieben. Momentan ist die ssp. *seistanicus* im Mittelmeerraum als Brutvogel nur noch aus dem Göksu Delta in der Südtürkei (< 30 Paare) bekannt, für das dringend Schutzmaßnahmen empfohlen werden.

**Key words:** Rallidae – conservation – distribution – systematics – annual cycle – Middle East

### 1. Introduction

The Purple Gallinule, *Porphyrio porphyrio*, has a restricted range in the Mediterranean where it has decreased markedly since at least the last century (CRAMP & SIMMONS 1980). The few populations which have remained are shared among three subspecies. This suggests that there is less interchange between those populations and makes conservation even more urgent and difficult.

In this publication, the former and present status of the population in the eastern Mediterranean which belongs to the *poliocephalus* subspecies group, will be described.

### 2. Distribution

#### Greece

Members of the "Expédition de Morée" recorded a few Purple Gallinules near Pilos (Navarino) and near Helos, both situated in the Peloponnese (GEOFFROY SAINT-HILAIRE 1832), and ERHARD (1858) reported it breeding at the Distros lake in Euböa and at the Kopais lake in Attica. REISER (1905) noted that Kopais lake had been drained and that he himself did not find the species at Pilos. There is apparently only one recent record from Greece, in the Nestos Delta in April 1965 (BAUER et al. 1969).

#### Amik Gölü (Turkey)

The Purple Gallinule was first recorded at Amik Gölü in 1910 by AHARONI (1911), and after another visit in 1930 the same author gave more details of the

occurrence of this species at the lake (AHARONI 1930). Although no numerical data were given, it is clear that the species was quite common in those days. MEINERTZHAGEN (1935) confirmed this in May 1933, when he described the species as "fairly common; seldom seen though often heard". KUMERLOEVE (1963) found this an adequate description in May 1953, and heard several in May 1962. He also mentioned a museum specimen from December 1951 (collector?). He did not note the species during short visits in August/September 1956, in May, June and December 1964, and in March and April 1965 (KUMERLOEVE 1963, 1966, 1970), nor did WARNCKE (1964-65) in April 1964. The lake, which once comprised some 28,400 hectares, was progressively drained in the 1960's. For example, only 4,600 hectares remained in 1967 (VARİŞLIGİL 1968). In recent years, marshes have appeared again due to inadequate drainage (pers. observ.).

### Göksu Delta (Turkey)

Apparently the first record was by VIERHAUS & BRUCH who observed a single individual on 12.4.1967 (KUMERLOEVE 1970). An individual was shot in late January/early February 1968 and an adult and a juvenile bird observed in August 1970 (Bird Report 1968-69, 1970-73). Although the latter records were published without locality, they clearly refer to the Göksu delta. Since 1977, the Purple Gallinule has regularly been observed in the delta (Bird Report 1976-81 and many unpublished records). Usually, only a few individuals were recorded. Maximum counts are at least 20 during a walk along the western shore of Akgöl on 11.4.1986 (HUSBAND, unpubl.), at least 15 there on 6.4.1987 (DIJKSEN, KASPAREK & KILIÇ, unpubl.), and up to 30 on 11-13.5.1989 (HIRSCHFELD et al., unpubl.). The observers noted that the actual number might have been considerably higher. BILGIN, AKIN, TURAK & GÖRÜR (unpubl.) recorded more than 20 individuals daily between 18 and 25.2.1989, with a maximum of 39 birds on 24.2.1989. All the birds except one were observed on the north-western edge of Akgöl, only a hundred metres from human habitation. They were observed feeding communally from dawn until dusk on the tubers of reed (*Phragmites australis*) and bulrush (*Typha* sp.) at a recently burnt marshy patch, not far from tall vegetative cover. On 26.2.1989, a separate team (MAGNIN et al.) observed 41 birds at the same place.

A recent statement by MAGNIN (1989) that several hundred pairs of Purple Gallinules may be breeding in the Göksu delta is discussed below.

All observations were made at Akgöl, a lagoon on the right side of the river delta. The brackish lagoon is bordered by rather dense reedbeds in the north, while sand dunes predominate in the west with only a narrow fringe of emergent vegetation. Nevertheless, most of the earlier observations were made on this western shore. It is probable that the birds use different habitats opportunistically as they become available. Only KYRK & SVANOLD (unpubl.) and ROBERTSON et al. (unpubl.) have recorded a single bird on 28.9.1981 and 8 birds on 22-23.5.1989, respectively, on the left side of the delta where there are some former reed-fringed river-beds.



Fig. 1. Purple Gallinule, *Porphyrio porphyrio*, in the Göksu Delta. Note the whitish head which distinguishes the birds of ssp. *seistanicus* from other Mediterranean subspecies. Photograph by N. KOCH.

#### Aynaz Marshes (Turkey)

At the Aynaz Marshes (or Aynaz Gölü) near the Berdan (Tarsus) River mouth, the Purple Gallinule bred until the early 1970's according to TURAN (unpubl.). Also VAN DER HAVE et al. (1988) obtained similar information from local people. In November 1968, two specimens were shot by local hunters. One of them is currently in the private collection of N. TURAN (unpubl.). Since then, only HERKENRATH, RATZKE & STEIOF (unpubl.) observed an immature bird on the banks of the Berdan River, south of Tarsus town, on 8-10.10.1982.

No Purple Gallinules were recorded in the Aynaz Marshes by WARNCKE (1964-65) and LEHMANN (1974) who visited the swamp in 1964 and 1965. In the early 1970's the marshes were completely drained (cf. GÜNAYDIN, s.a.), and have now been converted to agricultural land: only a few drainage channels survive to recall the former marshes.

#### Other areas (Turkey)

For İstanbul, RIGLER (1852) included "*Fulica porphyrio*" in his list of the birds of the city, and MATHEY-DUPRAZ (1923) reported an individual at Kağıthane, now a part of the city, on 15.7.1893. KIZIROGLU (1987) listed the Purple Gallinule as a

resident (!) at Manyas Gölü with observation(s) in April. As no other substantiated records from this ornithologically well-explored lake are available, this statement has to be rejected. In the Sultan Marshes, one individual was observed on 6.5.1979 (KASPAREK 1985) and 6 individuals were observed on 7.5.1988 by a group of the Swedish Ornithological Society (Sveriges Ornitologiska Förening, unpubl.). At Akşehir Gölü, one bird was recorded on 12.7.1977 (Bird Report 1976-81), and BERTILSSON, HIRSCHFELD & SIMONSSON (unpubl.) observed one bird in marshes some 5 km to the north of Karataş (Adana prov.) on 29.5.1987. In January 1969, one specimen was shot by hunters at Gölbaşı Gölü in the Adıyaman province (TURAN, pers. comm.).

### Syria

In an account of the subspecies distribution, CRAMP & SIMMONS (1980) has included north-west Syria in the species range (also accepted by PAZ 1987). However, as he did not cite any Syrian record, we believe that the statement is due to a confusion over the former Amik Gölü which belonged to Syria until 1939, when it became Turkish.

In the Ghab region of the Orontes River system, KATTINGER (1970) observed single individuals at fish ponds at Qal'at el Mudig in August 1964 and KINZELBACH (unpubl.) saw one around some marshy springs at Ain Taqa on 25.3.1979. Both localities are close to each other and local people confirmed the regular occurrence of the species in 1979 (KINZELBACH, unpubl.). Along the Syrian Euphrates, local people reported the Purple Gallinule at Deir ez-Zor in spring 1979 (KINZELBACH, unpubl.) and a specimen which is exhibited in the Ministry of Agriculture at Damascus was shot on the banks of the Euphrates River on 18.11.1963 (KINZELBACH, unpubl.). Unfortunately, the exact collecting site of the specimen is not known.

In 1980, KINZELBACH (unpubl.) met local people at lake Aj-Jabboul to the south-east of Aleppo who were familiar with the Purple Gallinule. But as there is no reed bed, it obviously does not breed there.

### Cyprus, Lebanon and Israel

On Cyprus, the Purple Gallinule has been recorded twice in winter, on 4.1.1968 and on 31.12.1975 (FLINT & STEWART 1983). For the Lebanon, there is only one record of an immature specimen in the Anti-Lebanon in 1945 (KUMERLOEVE 1962).

In Israel, it was found in the Huleh swamps until the last century (TRISTRAM 1864, 1868). However, it was no longer found there by ZAHAVI (1957) nor by later bird-watchers, although the remains of the former marshes are one of the main attractions for bird-watchers in Israel. PAZ (1987) called the Purple Gallinule a very rare accidental visitor to the country with about 15 sightings during the 1970's and early 1980's. These records are from almost all months of the year, and are especially from the coastal plain and the Bet She'an Valley (tributary of the Jordan River). The observations are of both *P. p. caspius* (or *seistanicus*? see discussion) and *P. p. madagascariensis*.

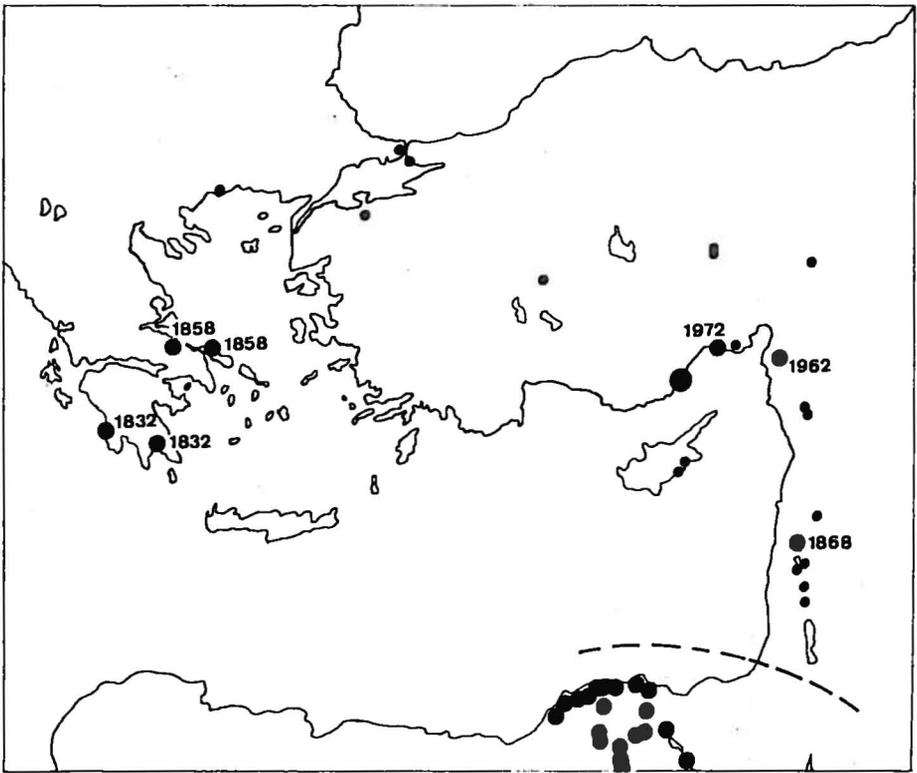


Fig. 2. Former and present distribution of the Purple Gallinule, *Porphyrio porphyrio*, in the eastern Mediterranean. Small dots show non-breeding records, medium-sized dots former breeding sites together with the approximate year of extinction (for details compare text). The large dot shows the only breeding site in the Göksu delta which has remained. The broken line indicates that the population in the Nile delta belongs to another subspecies.

### 3. Phenology

AHARONI (1930) considered the Purple Gallinule to be resident at Lake Amik. The only definitive winter record seems to be by KUMERLOEVE (1963) who reported a museum specimen from December 1951. In the Göksu delta, some hunters have reported the presence of the species throughout the year.

Social groups, with up to 41 birds in view at the same time, were reported from the Göksu delta in the pre-breeding season, in late February. Calling males were heard from late March onwards (AHARONI 1930). In the Göksu delta, male calls were heard on many dates in April, while MEINERTZHAGEN (1935) often heard calls in May.

Breeding starts at the beginning of the second half of April (AHARONI 1930). MEINERTZHAGEN (1935) reported a nest from lake Amik containing eggs in the period

14-28 May. A clutch of 5 eggs in the Museum König Bonn was collected at Amik Gölü on 6.6.1929 (KUMERLOEVE 1963). AHARONI (1930) gives a figure of 3-7 eggs, mostly five; local fishermen even spoke to him of 10 eggs. MEINERTZHAGEN (1935) obtained a nest with 5 eggs at Amik Gölü. There are two broods a year according to AHARONI (1911). WALLISER (unpubl.) observed 3-4 adults, one of them with a young, in the Göksu delta on 3.5.1989, which is the earliest known date for hatched young. Members of the Dansk Ornitologisk Forening (unpubl.) observed two adults with three young there on 22.5.1986, BERTILSON, HIRSCHFELD & SIMONSSON (unpubl.) a downy young there on 27.5.1987 and MEINERTZHAGEN (1935) also obtained a freshly-hatched chick at Amik Gölü on May 27th. On 30.6.1986, OLESEN (unpubl.) saw two young, and on 28-29.8.1987, GOSNEY & LISTER (unpubl.) observed a number of fully grown juveniles together with two that were not fully grown. Juveniles (i.e. immatures?) were also noted on 20.10.1977 (Bird Report 1976-81).

#### 4. Systematics

Originally, several species of Purple Gallinule were described. HARTERT & STEINBACHER (1932-38) grouped all these under one name: *Porphyrio porphyrio*. The birds from Turkey, the Caspian Sea and from the Tigris-Euphrates river system belong to the *poliocephalus* subspecies group of this polytypic species. In 1917, HARTERT described the subspecies *caspius*. However, only a few years later he himself treated *caspius* as a synonym of *seistanicus* (HARTERT 1921-22). Most authors followed this view (e.g. DEMENT'EV & GLADKOV 1969, GLUTZ VON BLOTZHEIM, BAUER & BEZZEL 1973, POTAPOV & FLINT 1989), but recently CRAMP & SIMMONS (1980) have revived the subspecies *caspius* mainly on the basis of its smaller size. Apart from the Caspian shores, he included "south Turkey and north-west Syria" in the range of this subspecies. Two specimens were collected by KUMERLOEVE (1963) at Amik Gölü. Tab. 1 gives their wing length when compared with *seistanicus* and *caspius* sensu CRAMP & SIMMONS. Both are well within the range of *seistanicus* and do not fit the range given for *caspius*. No matter which taxonomic view is accepted, the wing length of the two individuals indicates that the Turkish population is genetically closer to the Tigris-Euphrates population than to the Caspian population.

#### 5. Hunting and trapping

KUMERLOEVE (1966, 1970) reported that a hunter from Adana killed 15 Purple Gallinules for consumption at lake Amik, probably at the end of the 1950's or in the early 1960's. KUMERLOEVE himself collected one specimen in 1953, and another was collected in 1951 (KUMERLOEVE 1963). In early 1968, one bird was shot in southern Turkey (probably in the Göksu delta) (Bird Report 1968-69). A specimen of unknown origin is exhibited in a hunting club at Ankara. Two specimens were hunted in the Aynaz Marshes in 1968, and one at Gölbaşı in 1969. In the Göksu delta, KASPAREK found the skin of a Purple Gallinule in December 1986. It was obvious that the bird had been hunted and that the skin with the feathers had been thrown away. Hunters admitted that they go hunting Purple Gallinules every evening. AKIN (unpubl.)

Tab. 1. Wing length of two specimens of the Purple Gallinule, *Porphyrio porphyrio*, collected by KUMERLOEVE (1963) at Amik Gölü in Turkey. For comparison the wing lengths of birds of ssp. *caspius* (Caspian Sea) and ssp. *seistanicus* (Tigris-Euphrates river system to north-west India) are given (from CRAMP & SIMMONS 1980). Measurements are in mm.

	n	mean	range
<b>males</b>			
<i>caspius</i>	9	285	272-295
<i>seistanicus</i>	9	269	262-276
Amik bird	1	269	
<b>females</b>			
<i>caspius</i>	10	267	262-275
<i>seistanicus</i>	7	255	248-262
Amik bird	1	257	

observed a hunter displaying a shot adult in February 1988 and was also informed by the local administrator ("muhtar") that three birds were hunted by a boy in mid February 1989. At Silifke, a local villager kept two Purple Gallinules in captivity in 1989 which he had captured as chicks in the Göksu delta (BILGIN, unpubl.). Summarizing these sporadic observations on hunting and trapping, it is clear that this activity may be a serious threat to the survival of the relict populations.

In the Göksu delta, hunters admitted that the taste of the birds' meat is delicious, in contrast to the Coot, *Fulica atra*. In the south Caspian Lowland, SCHÜZ (1959) had already reported that Purple Gallinules are the preferred quarry for hunters, who esteem the delicious white muscles. In the Nile delta, MEININGER & MULLIÉ (1981) reported that 450 birds were shot and trapped in one year at Lake Manzala alone; GOODMAN & MEININGER (1989) give an estimate as high as 800-900 birds.

## 7. Discussion

The Purple Gallinule has been known in Turkey since classical antiquity. It can be clearly identified on mosaics from Daphne near Harbiye, which are now exhibited in the Antakya Museum (Fig. 3). However, it is not possible to determine whether the model was a bird from the nearby Amik Gölü or from lower Egypt.

GAIUS PLINIUS SECUNDUS (Pliny the Elder), who lived in the first century, wrote that the "best" Purple Gallinules come from the Balearic Islands, and the "second best" from Syria Commagene (KELLER 1909). Commagene was an empire on the upper Euphrates, in modern Turkey, with borders marked by the modern towns of Birecik and Kahraman Maraş and by Mt. Nemrut. Apart from river banks, the main wetland is Gölbaşı Gölü and some smaller lakes nearby. The only recent record of the Purple Gallinule is from Gölbaşı Gölü in January 1969 (see above). Although it cannot be

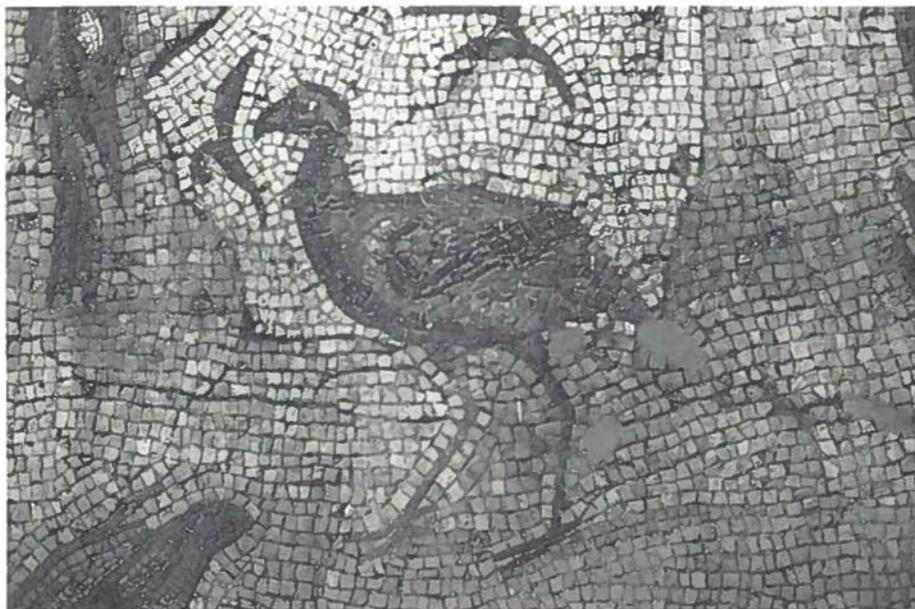


Fig. 3. A Purple Gallinule, *Porphyrio porphyrio*, on ancient mosaics from Daphne (Toprakkale) in the Antakya Museum (Turkey). Birds from the nearby Amik Gölü may have served as models. Photograph: R. KINZELBACH.

ruled out that a population which was first mentioned in classical antiquity survived in the upper Euphrates region until recent times, it is clear that the population is now extinct.

Some breeding season records from Syria and Turkey are rather surprising as they are outside known breeding areas. In particular, those from the Upper Orontes River, the Sultan Marshes, Akşehir Gölü and from the Çukurova (marshes to the north of Karataş) raise the question whether there are still undiscovered breeding populations in Turkey. In the case of the Sultan Marshes, the existence of a large population is not likely as the area is relatively well investigated (see KASPAREK 1985) and local reed-cutters are not familiar with this species (BILGIN, unpubl.).

In the Soviet Union, the occurrence of the Purple Gallinule is confined to the basin of the Caspian Sea (DEMENT'EV & GLADKOV 1969). The main breeding areas are the nature reserve Kyzyl-Agach and the bay of Divichinsk in Azerbaijan and the wetlands in the Kura-Araks lowland (POTAPOV & FLINT 1989). Observations at the end of the last century and the beginning of this are available from the mouth of the Ural River, from Mangyshlak and from Kara-Bogas-Gol. During this century, breeding sites at Lake Kumisi near Tibilisi (Georgia), at the mouth of the Samur River (Dagestan) and the mouths of the Terek and Sulak Rivers, and in the Volga delta have

been abandoned (POTAPOV & FLINT 1989, VINOGRADOV & ČERNJAVSKAJA 1982).

In Egypt, the Purple Gallinule is a not uncommon breeder in the Nile delta. The Egyptian Nile valley south of Cairo has been colonized since the 1970's, apparently as a result of the increase in the range and extent of reedbeds on the river banks since the completion of the Aswan High Dam (GOODMAN & MEININGER 1989). In the Faiyum oasis, the species was described as "abundant" in the last century (e.g. DRESSER 1872), but the oasis was then abandoned and re-colonized only in the 1980's (GOODMAN & MEININGER 1989).

Populations fluctuate greatly in size. The total Soviet population may rise to 4,000-5,000 birds after two or three mild winters, but decrease again to a few hundred birds in "normal" years (SOSNOVSKIJ 1987). A population estimate of 7,000-8,000 birds in the Kyzyl-Agach nature reserve by POPATOV & FLINT (1989) was based on the nesting densities given by TKAČENKO (1987), although this author himself did not risk making an estimate. The population size depends mainly on the weather conditions of the preceding winters. Almost the entire population collapses after bad winters, and a few years are necessary for it to recover. The survival of the species is probably ensured by a part of the population which is migratory (genetic polymorphism?). TKAČENKO (1987) has recently emphasized the influence of water level. Its fluctuations from year to year correlate with the number of breeding pairs of the Purple Gallinule. The collapse of a population involves the potential loss of some of its genetic diversity. Any such bottleneck events may have contributed to the genetic separation between populations of this polytypic species, for which 24 subspecies have been proposed.

The Purple Gallinule has experienced a marked decline in both range and population size in Southern Europe and North Africa, especially in the 20th century (cf. e.g. CRAMP & SIMMONS 1980 for the south-west European populations). The species became extinct on the Italian mainland, Sicily and the Balearic islands before the middle of the century, while there are only a few fragmented populations now left in Spain, Portugal and the North African countries. As has been discussed above, a similar situation exists along the eastern periphery of the Mediterranean. Apart from the more remote population in lower Iraq, the species is represented in this region by two principal breeding populations, one in the Nile delta and the lower Nile (ssp. *madagascariensis*), and the other in the Göksu delta, Turkey (ssp. *seistanicus*). The latter site is under serious threat due to the construction of summer homes near the northern and north-western shore of Akgöl. Plans to build an air strip nearby have been shelved for the time being, although a new scheme involving the construction of an aquaculture farm on 85 hectares of land within the area has recently been announced (newspaper news). Part of the delta is scheduled to be protected from hunting during the 1989-90 season by the Wildlife and Hunting Department at the Ministry of Agriculture, Forestry and Rural Affairs, although such prohibitions have proved to be ineffective in the past due to lack of enforcement.

The current population at the Göksu delta may number no more than thirty pairs; if we assume the size of the reed bed to be 40 hectares (an exact figure is not available), this gives a density of 0.75 pairs/hectare. This figure is in the upper range of

nesting densities found by TKAČENKO (1987) in the Kyzyl-Agach Nature Reserve on the shores of the Caspian Sea. On different plots and in different years, he found 0.03-1.29 nests hectare, mostly between 0.2 and 0.8 nests/hectare. The estimate by MAGNIN (1989) of "possibly several hundred pairs" in the Göksu delta would thus involve an unbelievable nesting density.

Including the possibility of some additional undiscovered small populations, the total Turkish population is probably less than a hundred adult individuals. Such a small population not only runs the increased risk of genetic deterioration through the effects of inbreeding and genetic drift, but is also more susceptible to the effects of environmental and demographic stochasticity (BURGMANN et al. 1988). Effective measures to avoid any further decrease in the Göksu population urgently need to be taken by the appropriate agencies in Turkey. Research is badly needed to determine the existence and size of any other populations as well as to obtain data on the biology of the endangered population(s), since geographical races vary considerably in their behavioural characteristics (see CRAMP & SIMMONS 1980).

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