Changes in Breeding Population Numbers of Kentish Plover *Charadrius alexandrinus* at Atanasovsko Lake

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Abstract

Atanasovsko Lake is the most important Kentish Plover breeding site in Bulgaria. 141 pairs nested there in 1978, 252 in 1979 and 238 in 1981. During the following years, numbers decreased sharply due to habitat degradation, reaching 39 pairs in 1993 and 65 in 2000. Detailed studies in 2000 showed that the first spring migrants arrived 16 March, nest-building began mid-April and egg-laying after 20 April. The latest nests with eggs were found on 15 July. The decline in numbers of the Kentish Plover breeding population at Atanasovsko Lake are due mainly to narrow watercourses, mostly dikes, becoming overgrown by tall vegetation. To a lesser degree the birds suffer from numerous ground predators, such as red foxes, jackals and feral dogs and cats. Nowadays the Kentish Plover prefers to nest where the lake is being worked, on the board-lined banks that mark out the salt production basins.

1. Introduction

The Kentish Plover *Charadrius alexandrinus* is a cosmopolitan species occurring from the southern coast of the North Sea, along the south European shores of the Atlantic, in the Mediterranean, Black and Caspian Seas and round the Arabian Gulf. It also occurs inland in Central Asia, in the east reaching to the Trans-Baikal and Mongolia. In Bulgaria it breeds along the Black Sea coast and round the adjacent lakes, the core breeding population being concentrated mainly at Atanasovsko Lake in East Bulgaria. Atanasovsko is a shallow, hyper-saline lake divided by a motorway into northern and southern parts. The lake, being used for salt-production, is divided into numerous small ponds by a network of dikes and banks. In recent years habitat degradation has led to a serious decline in Kentish Plover numbers.

2. Methods and Materials

The material for this work was collected during the 2000 breeding season, from March to July. The lake was searched regularly for nests, which were described and mapped. All existing nearby breeding locations were also included in the analyses.

3. Results and Discussion

The earliest information about Kentish Plover breeding at Atanasovsko Lake came from the mid-19th century, when

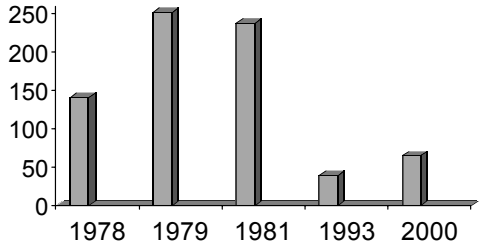

Fig. 1. Number of breeding pairs of Kentish Plover at Atanasovsko Lake by count years.

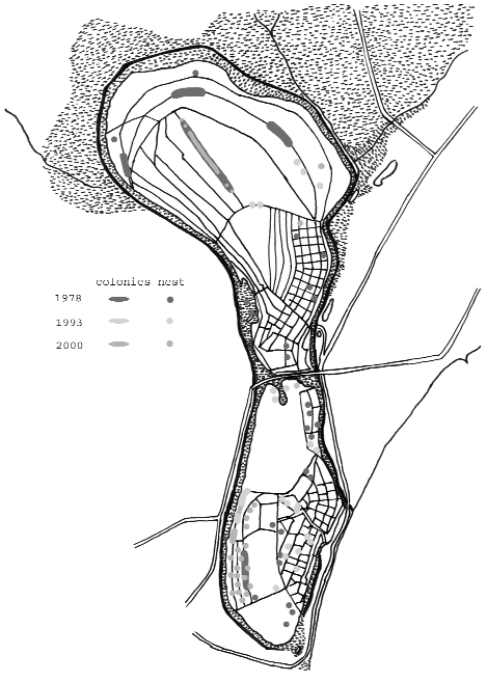

Fig. 2. Colonies and nests of Kentish Plover at Atanasovsko Lake in the years.

Elwes & Buckley (1870) found a nest with 2 eggs in early April 1869. Otmar Reiser (1894) also found the species nesting at Atanasovsko Lake, but at that time most of the breeding population bred on the sea-coast. Subsequently, many other ornithologists recorded the species along the Black Sea coast. A. Darakchiev & D. Nankinov (1979) compiled the first detail counts and maps at Atanasovsko Lake, finding 141 nests between 10 and 20 May 1978. In 1979 there were 252 breeding pairs (bp) and in 1981 238 (Nankinov 1989), these figures being maxima recorded (Fig. 1). A subsequent sharp decline followed, reducing to only 39 bp in 1993, a sixfold reduction (Nankinov 1994).

In 2000 the first return migrants, two individuals, arrived on 16 March. Pair-formation and displaying birds were observed by late March. Nest-building began in mid-April and egg-laying after 20 April. By 27 April there were 9 nests with eggs in the southern part of the lake (6 nests had 1 egg, 1 nest had 2 eggs and 2 nests had 3). After this early start, the breeding season peak was later than previously recorded (10-20 May in 1979 [Darakchiev Nankinov 1979]) most nests being recorded in 2000 between 20 May and 19 June. A total of 38 nests were recorded then (58% of all nests found). In late June the number of nests found gradually decreased; 16 (24%) of the total found. Two late broods were found on 15 July on the northern part of the lake.

In 2000, a total of 65 nests were found at Atanasovsko Lake: 49 nests were in the southern part and 16 in the northern. Some 25 bp comprised 3 small colonies of 5, 10 and 10 bp respectively; 40 bp nested separately. Two colonies (of 5 and 10 bp) were in the southern part of the lake and the other was in the northern part (See Fig. 1 for comparisons between count years.

Fig. 2 compares the positions of nests and colonies of Kentish Plover at Atanasovsko Lake in the years 1978, 1993 (Nankinov, 1994) and in 2000 shows that the previous numerous colonies have almost disappeared, only small colonies and separate pairs remaining. The species'

favoured nesting locations of open dikes have been overgrown by vegetation over 1m tall. These dikes now can scarcely be negotiated, and are frequented by red foxes *Vulpes vulpes*, jackals *Canis aureus* and feral dogs and cats. Kentish Plovers no longer breed there. The remaining colonies are on board-lined banks located in the working part of the lake, where the birds are often disturbed. Those dikes and dried-out parts of the ponds that became covered in glasswort *Salicornia europaea* became suitable secondary breeding habitat for Kentish Plover to nest, and are now the favoured breeding locations at Atanasovsko Lake. 37 nests (56.9%) were found in glasswort areas, which afford them concealment from ground and aerial predators. The effectiveness of this camouflage is shown that out of 11 nests (17%/) lost, only 2 were found by roaming feral dogs whereas 9 were flooded. No unfertile or unhatched eggs were found.

4. Conclusion

I deduce that the declines in Kentish Plover breeding population numbers at Atanasovsko Lake are due mostly to habitat degradation, namely overgrowing of dikes by tall vegetation. A secondary cause is the presence of numerous ground predators. Nowadays, the Kentish Plover prefers to nest in the working part of the lake. For information on other potential factors influencing these declines in the northern part of the lake, such as a sudden cold spells during incubation and brooding, and disturbances from increasing vehicle movement, other habitat changes and the increase in the presence of humans and cattle, see Dybbro (1970) and Jonsson (1983).

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