Wood Sandpiper *Tringa glareola* and Green Sandpiper *Tringa ochropus* in Bulgaria

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The current and historical status of Wood Sandpiper *Tringa glareola* and Green Sandpiper *Tringa ochropus* in Bulgaria is reviewed. Both species occur during the breeding season, but although Wood Sandpipers have bred in the past, they do not do so at present. In contrast some tens of pairs of Green Sandpiper breed annually. Until 1992, only nine Wood Sandpipers and two Green Sandpipers with foreign rings had been recorded in Bulgaria and neighbouring countries. Four more locally-ringed Wood Sandpipers and two more Green Sandpipers were recaptured at the Atanasovskoye lake ornithological station. Green Sandpipers migrating through Bulgaria originate from the Baltic states, whilst Wood Sandpipers move from Scandinavia as well as from central Europe. The main threats to these sandpipers are currently from wetland degradation, especially as a consequence of pollution.

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Приведен обзор современного и исторического статусов фифи *Tringa glareola* и черныша *Tringa ochropus* в Болгарии. Оба вида встречаются во время гнездового сезона, но, несмотря на то, что фифи гнездилась в прошлом, в настоящее время она уже не гнездится. В отличие от последнего вида в стране каждый год гнездится несколько десятков пар черныша. До 1992 года в Болгарии и в соседних странах было зарегистрировано всего девять фифи и два черныша с зарубежными кольцами. Еще четыре окольцованных поблизости фифи и два черныша были вторично пойманы на орнитологической станции "оз. Атанасовское". Мигрирующие через Болгарию черныши прилетают из Прибалтийских республик, тогда как фифи летят как из Скандинавии, так и из центральной Европы. Этим куликам угрожает в настоящее время прежде всего деградация водно-болотных угодий, особенно в результате загрязнения окружающей среды.

Introduction

Wood Sandpiper *Tringa glareola* and Green Sandpiper *Tringa ochropus* have not previously been the objects of detailed study in Bulgaria. In Bulgarian ornithological literature little is found about the occurrence of these species in the country (Radakoff 1878; Alleon 1886; Khristovich 1890; Reiser 1894; Collections du Musee, Sofia 1907; Petrov & Zlatanov 1955; Boyev 1962; Boyev *et al.* 1964; Prostov 1964; Robel *et al.* 1978; Roberts 1980; Petrov 1981; Nankinov 1982, 1985, 1989; Nankinov *et al.* 1997).

Data analyses in this paper were collected in the 1970s and 1980s, including both observations and results of ringing at two ornithological stations: the Atanasovskoye lake in eastern Bulgaria and at Rupite in south-western Bulgaria.

Distribution of both species during the year

Winter

The Wood Sandpiper only occasionally overwinters in Bulgaria. Indeed, in the last two decades it has been recorded only twice.

Green Sandpiper is a common species which winters throughout the whole country, near ice-free waters. Birds concentrate mainly at the Upper Frakia lowland (the Maritsa river, reservoirs, ponds, ricefields), at the lakes and marshes of Prichernomorye near the Black Sea, in the valleys of the Struma and Mesta rivers and near Sofia. Winter concentrations rarely exceed ten birds, most frequently as singles.

Spring migration

In the first days of March Wood Sandpipers start to

appear in larger numbers in the valleys of the Struma, Marista and other rivers of southern Bulgaria as well as at coastal areas (Prostov 1964). In north-eastern Bulgaria spring migration is visible in March and April at a variety of wetlands (Petrov & Zlatanov 1955). During spring migration Wood Sandpiper is common in the whole country, often with concentrations of over 100 birds (up to 200 on 1 May 1975 at Atanasovskoye lake). Such large concentrations have been recorded on the lakes Atanasovskoye, Burgaskoye, Mandrenskoye, and at the fishery ponds near Sokolitsa and Trud settlements, Plovdiv region; smaller concentrations were observed near Sofia, Plovdiv, Yambol, Pomorje, and Shabla.

Green Sandpipers are less numerous than Wood Sandpipers. They occur in small groups, in pairs, or singly. However, up to 120 individuals were observed on 28 April 1990 at the Atanasovskoye Lake. Concentrations of less than 100 birds were recorded on other lakes in the vicinity of the Black Sea, at the fishery ponds and water reservoirs of the Upper Frakia lowland, in the Rose Valley and in the surroundings of Sofia.

Between 4 March and 27 May 1990 waders were censused at 14 sites of the country (Nankinov *et al.* 1997). During this study 40,802 waders of 32 species were counted, and the proportion of Wood Sandpiper and Green Sandpiper in this number was 1.9% and 1.6% respectively. The proportion of these species at lakes of the Black Sea area was less, at 0.8% and 0.35% respectively among 6,881 waders of 19 species.

Breeding period

Both species occur in Bulgaria during the breeding season. Although these are mostly non and over-summering birds, some data about the breeding of both species in Bulgaria are also available.
In the 19th century the southern limit of the breeding range in Wood Sandpiper was situated further south than at present, and the species bred in Bulgaria (Radakoff 1879; Alleon 1886). Near Sofia on 9 June 1897 two Wood Sandpiper eggs were collected (Collection du Musee, Sophia 1907). Some authors believe that it is still possible that Wood Sandpiper currently breed in Bulgaria, in Dobrudza or somewhere nearby (Petrov & Zlatanov 1955), but this is thought unlikely (Hagemeijer & Blair 1997).

Green Sandpiper was formerly considered to be a very common breeding species in Bulgaria (Radakoff 1879; Khristovich 1890), although there were some doubts about the reliability of these data (Reiser 1894). There is very little information, however, about the breeding of this species in Bulgaria during the 20th century. It was found incubating in north-eastern Bulgaria in the Batovoy river valley in 1951 (Petrov & Zlatanov 1955), and ten years later - on 25 June 1961 - Boyev (1962) found a nest with four eggs near Mirovo, Starozagorsky region. Nowadays pairs of Green Sandpiper are recorded every year from the end of April up to July in different parts of the country, particularly in the river valleys. It is thought that some tens of pairs breed each year (Nankinov 1985; Hagemeijer & Blair 1997).

Autumn migration

During autumn migration the Wood Sandpiper occurs at fewer sites than the Green Sandpiper but in larger numbers. At the lakes near Burgas (*e.g.* at the Atanasovskoye lake) up to 700 individuals were counted on 13 August 1983; concentrations of 200 birds can be found in September at the Mandrenskoye, Burgaskoye, Pomorijskoye lakes and at the fishery ponds near Trud settlement. Postbreeding migration starts after heavy rains in July, and birds are common near pools in Dobrudzha (Petrov & Zlatanov 1955).

Green Sandpipers appear alone or in small flocks which rarely exceed some tens of birds. It has been seen occasionally at the Frakia lowland feeding together with Lapwings *Vanellus vanellus* and Yellow Wagtails *Motacilla flava* on damp agricultural lands.

Changes in abundance during the year

Changes in abundance of the two species show some differences. Wood Sandpiper is present in Bulgaria from the beginning of March to the end of November, and migration influxes can be easily recognised both in spring and after breeding. It does not seem to breed in Bulgaria nowadays. Peak spring migration takes place in April when 23.3% of the total records of the species were recorded. In May migration is less apparent (14.2% of records), and only 2.6% and 5.3% of species records occurred respectively in June and July. The heaviest migration of Wood Sandpipers takes place in August (31.5% of the total records), when most birds can be found at the Black Sea coast. The number decreases in September (16.8%) and especially in October (1.5%) and November (0.2%).
Green Sandpiper occurs in Bulgaria year-round. Numbers do not vary between the seasons so markedly as in Wood Sandpiper; with tens or hundreds of birds being recorded each month. Birds, observed in January on wintering grounds comprised 5.7% of the total number of records. Spring migration becomes noticeable in March (17.3% of records), and reaches the peak in April (26.4%). The proportion of Green Sandpipers staying in June (3.4% of records) is almost similar to that in Wood Sandpiper.

In autumn Wood Sandpipers are less abundant than in spring: a slight increase in number, observed in August (12.5%) in comparison with July (6.8%) and September (7.9%), indicates the time of the most intense migration.

Habitat preferences

Wood Sandpipers occur at fishery ponds, the banks of small and large rivers, at lakes, marshes, scattered riparian woodlands, and other kinds of wetlands including coastal lagoons. During migration they occur also at montane water bodies.
Green Sandpipers prefer damp woodlands and afforested areas near water bodies such as lakes, marshes and canals, river floodplains; sometimes they can also be found on the open marshes and ponds. Khristovich (1890) wrote that "it was common along the Maritsa, Struma, Topolnitsa, Iskr, Tundzha, Vcha, Yeli-Dyerye, Slivnishka and other rivers, in winter - mostly at the rivers and unfrozen water bodies". In the mountains it reaches altitudes of 2,400 m (Flossner 1972).

Food

Data on diet in Bulgaria are very scarce. Near Burgas town Prostov (1964) recorded that the stomachs of Wood Sandpipers contained the remnants of Mollusca and Hydrophilidae, and the stomachs of Green Sandpipers - Coleoptera (Hydrophilidae, Carabidae) and Mollusca. Larvae of *Eristolis* sp. was found in the bill of a shot Green Sandpiper (Boyev 1962). The Green Sandpiper has also been reported to feed on "insects and their larvae, worms, snails, crustaceans, tadpoles *etc.*". Other sources give only general information on the food of these waders (small terrestrial and water insects: beetles, Diptera, Chrysomelidae, Heteroptera, Trichoptera, Odonata, and also worms, crustaceans and molluscs).

Results of ringing

Until 1992, only nine Wood Sandpipers and two Green Sandpipers with foreign rings had been recorded in Bulgaria and neighbouring countries (Figure 1). Four more Wood Sandpipers and two more Green Sandpipers were recaptured at the "Atanasovskoye lake" ornithological station (Paspaleva-Antonova 1961; Paspaleva 1962; Stromar 1963, 1967; Dontschev 1976; Kirchner 1978; Nankinov *et al.* 1984, 1986; Radovic 1990). These recoveries enable at least an approximate evaluation of the migration routes and the geographic origin of both species in Bulgaria (Figure 1).

One recovery of a young Wood Sandpiper indicates that birds born in southern Sweden (27 July) migrate to the south-east and cover 2,000 km in a month (2 September) to reach wetlands in western Bulgaria. Young individuals were found also in the Bosfor Strait area. Adult Swedish waders stopped in March in Romania; in Bulgaria they were recorded in the first half of April (6 and 15 April), *i.e.* in the period of intense spring migration. An adult bird ringed in early August in southern Finland was caught in the Balkans two years later (1,790 km from the ringing location), also during the most intense migration period. One Wood Sandpiper, which was migrating through Germany late in August appeared later in winter in northern Bulgaria. Wood Sandpipers with German rings were recorded also in Fennoscandia, Belgium, France, Spain, Italy, Morocco and Upper Volta (Schlenkel 1974). Wood Sandpipers ringed on migration in Central Europe fly mostly to the south-west (Glutz von Blotzheim *et al.* 1977).

It is probable that some individuals do not always follow the same migratory route. This is suggested by a recovery of Wood Sandpiper which migrated in August 1963 through France, although the following autumn it was found in eastern Europe. Moreover, spring and autumn migration routes may also differ. Thus, one individual caught in spring (24 April) in Italy was flying in autumn (the same year) to the wintering grounds via north-eastern Bulgaria. It can be supposed (Nankinov 1989) that birds which cross Bulgaria in autumn return to their breeding grounds through western Europe or vice versa. Myhrberg (1961) showed that Scandinavian Wood Sandpipers winter in western Africa, 29% of migrants fly across south-western Europe and the remainder move through Italy. Birds caught in Bulgaria demonstrate the Scandinavian origin of Wood Sandpipers and also indicate that some Scandinavian birds migrate to the south-east and probably winter somewhere in the Middle East or in Eastern Africa. Additionally, the fact that Finnish and Swedish Wood Sandpipers migrate south-eastwards is proved by records of birds in autumn in many places throughout the Ukraine, where the species is especially numerous, and also in Romania and European Russia (Lippens & Wille 1972).

Green Sandpipers migrating through Bulgaria originate from Baltic states. Birds, ringed on 12 July 1953 and 16 August 1957 near Strench (Latvia) were shot respectively on 26 September 1953 and 23 August 1957 in north-western and northern Bulgaria. It is interesting that the respective distances of 1,525 km and 1,750 km were covered by the birds in not more than seven days. Obviously the birds migrating across Bulgaria originate from other areas of the Baltic as well as probably from north-western Russia. Finnish Green Sandpipers were recorded in France, Italy and Cyprus; one bird ringed in Czechoslovakia was shot three years later in the Crimea (Glutz von Blotzheim *et al.* 1977). Passage Green Sandpiper, ringed in the Danube delta, were caught in Tunisia (Lippens & Wille 1972).

Recaptures of marked birds indicate that Wood and Green Sandpipers, migrating through Bulgaria, stopover in autumn at the same places, respectively for seven to twelve and for three to seventeen days. The majority of Green Sandpipers ringed in Bulgaria were first year birds. The longest period between capture and recapture of the same bird in Bulgaria was seven years, four months and twenty-one days. The oldest known Wood Sandpiper was nine years, two months (Rydzewski 1978), and the Green Sandpiper was nine years, eight months (Glutz von Blotzheim *et al.* 1977).

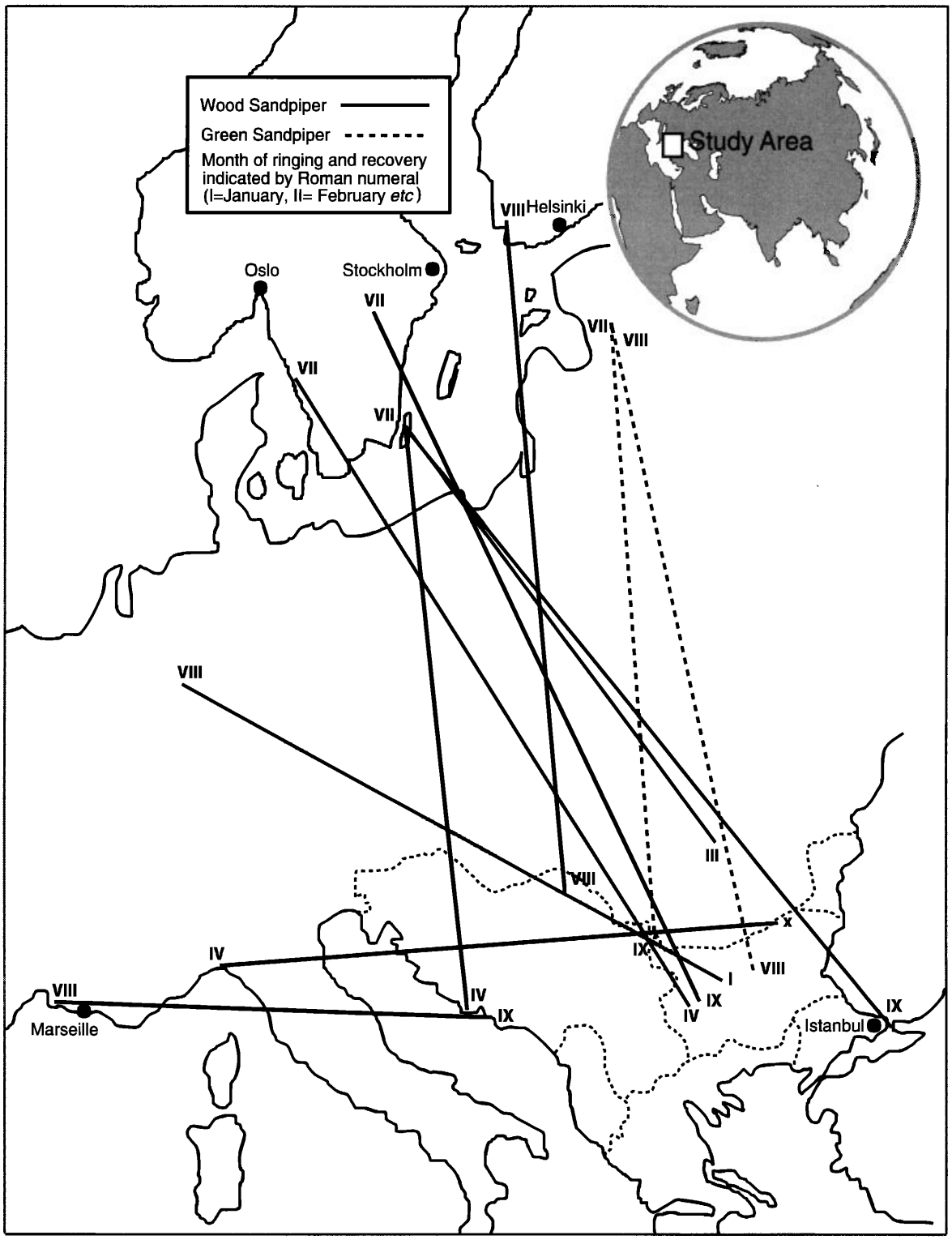

Figure 1. Movements of Wood Sandpipers and Green Sandpipers either ringed in Bulgaria and recovered abroad, or vice versa.

Threats and protection measures

The main threat to populations of both species in Bulgaria is wetland pollution by different chemicals, leading to a reduction of invertebrate foods. Although some of the areas where Wood and Green Sandpipers occur have recently been given formal protection (Atanasovskoye and Shablenskoye lakes), even there conservation measures are still insufficient.

Both Wood and Green Sandpipers are protected according to Bulgarian laws, Green Sandpiper is included in the *Red Data Book of Bulgaria* as a rare breeding species facing the threat of local extinction.

Nevertheless, both species are sometimes in the hunting bag because they can be hard to recognise from other game wader species by uneducated hunters. Real conservation of these birds will only be possible if the level of wetland chemical pollution from industrial sources and from the uncontrolled use of pesticides and other pollutants is reduced, at least in those areas where birds breed or concentrate during migration.

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