

# Curlew *Numenius arquata* in the Vologda region of north-European Russia

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Analysis of data on distribution and some aspects of the breeding biology of Curlew *Numenius arquata*, collected in 1970-1993 in various parts of the Vologda region (145,700 km<sup>2</sup> of north-European Russia) has revealed that, although the species is distributed in the region extremely unevenly, its average density levels in the principle habitats occupied during the breeding season are rather similar, and range from 1-300 (mostly 10-200) birds per km<sup>2</sup>. Nesting in agricultural fields (e.g. clover, bare fallow) has been proved in several parts of the region. Although the survey routes and survey areas did not cover all of this geographical area, the first extrapolative estimates have shown that recently at least 10,000-20,000 Curlew inhabit the Vologda region in summer.

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Анализом данные, собранных в разных частях Вологодской области (145,700 км<sup>2</sup> севера европейской России) в 1970-1993 гг. по размещению и некоторым аспектам биологии размножения большого кроншнепа *Numenius arquata* установлено, что, вопреки крайне неравному распространению вида по области, средние уровни плотности в главных биотопах, населенных в период гнездования, более или менее одинаковы и варьируют в пределах 1-300 (чаще 10-200) особей на 1 кв. км. Было доказано гнездование на сельскохозяйственных угодьях (например, на клеверах или лишенных растительности залежках) в некоторых районах области. Хотя маршрутами и площадками исследований не охвачен весь этот географический район, первыми оценками, полученными путем экстраполяции, было выявлено, что за последнее время не менее 10,000-20,000 больших кроншнепов обитает летом в Вологодской области.

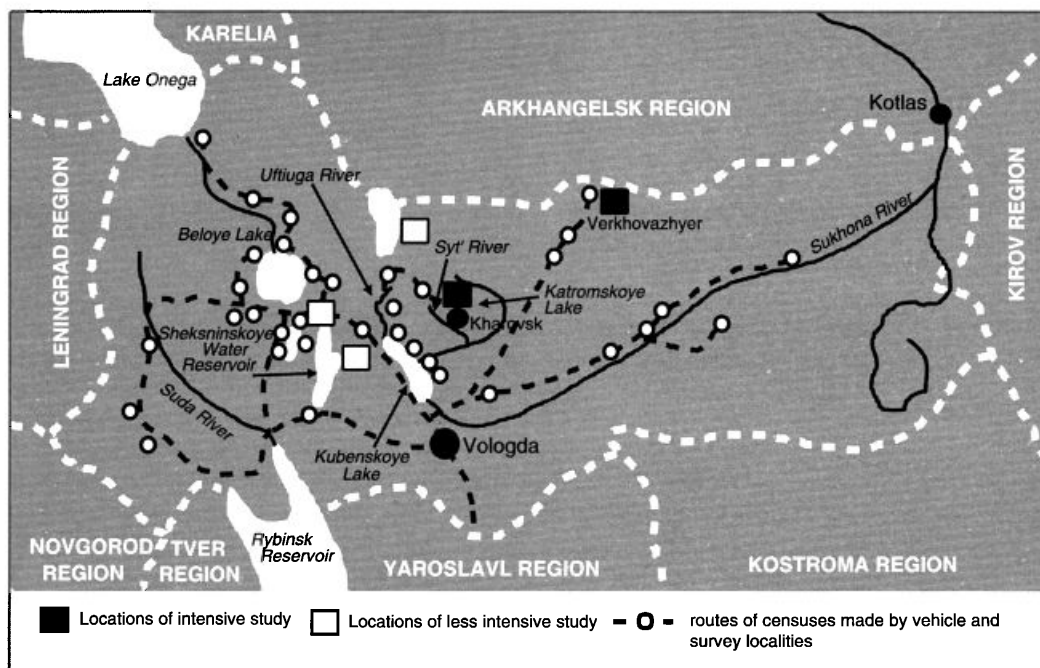
## Introduction

Curlew *Numenius arquata* is one of a group of species in which recently numbers have declined rapidly or even completely disappeared from rather large geographical areas; such a process is most pronounced in the southern parts of the Curlews breeding range. These trends have already been reported both in Russian and foreign publications (e.g. Cramp & Simmons 1983). As highlighted at a workshop on rare breeding birds in the central European Russia, the species is reported as recently rare, or extremely rare, with a declining trend in five out of eight administrative areas (Moscow and surrounding regions), and has not been recorded breeding at all in three other regions (Butiev 1990). This threatened status of Curlew in Russia has resulted in the inclusion of the species in the new edition of the Red Data Book of Russia. As a consequence, it is now important to obtain the most up-date data on the species distribution and density levels in different parts of the breeding range, as well as to highlight the areas where the Curlews population is still more or less stable. Unfortunately, such information for European Russia is extremely scarce.

In this paper we analyse our data on the distribution and population density of Curlew in the Vologda region. Although this region occupies a rather large part of north-European Russia, to date, there have not been any published data on the Curlew populations in this area.

## Study area and methods

Vologda region is situated in the north-north-west of European Russia, mostly within the middle and southern taiga subzones and occupies an area of 145,700 km<sup>2</sup> between 61°36' and 58°27' N, and 34°12' and 47°10' E. Forests are the prevailing vegetation types in the region, covering c. 60% of its territory (80-85% in the northern and 40-60% in southern parts). Rather large areas have been recently transformed into clear-cuts of different age. In the taiga zone, natural meadows are restricted mostly to the flood-plains; however, their size is enlarging rapidly due to recent intense development of agriculture, which has included the drainage of virgin areas for agricultural purposes, and an increase in the area of artificially sown pastures and hay meadows. By the end of the 1970s meadows covered about 10% of this territory, however their extent has more than doubled in recent years.



**Figure 1.** Location of research areas and survey routes during our studies in 1970-1993 in the Vologda region and main geographical names mentioned in the text.

Agricultural habitats with various crop types occupy, in different districts, from 5% to 25% (Antipov 1981). Rather large areas are covered with bogs and peatlands of different types.

Our studies were conducted in the spring and summer 1970-1993 mostly at the western, northern and central parts of the Vologda region. The extreme eastern parts have only been explored rather poorly. Data on phenology, spatial distribution and breeding ecology of Curlew were obtained during intensive studies in the Kharovsk district (1970-1978; 150 km<sup>2</sup> area; centre of the region), Verkhovazhye district (1979-1986; 120 km<sup>2</sup>; north of the region), at temporary stations on the shores of Sheksninskoye water reservoir (1983, 1986-1987, 1990-1993; 50 km<sup>2</sup>; centre of the region), as well as during the rapid surveys with the use of a vehicle in 1986-1987 and 1992-1993 in various coastal areas of central, northern and western Vologda region (total length of routes c.1,200 km, 36 surveyed areas). Counts were made on both repeated and unrepeated routes (total length c. 2,000 km) with further calculations according to Naumov (1963), as well as on the seven intensive plots from 5-20 ha each (with regular surveys every year lasting 3-10 days).

The location of the main research areas and survey routes as well as the main localities mentioned in the text are shown in Figure 1.

## Results

### Distribution and habitat preferences

We found that although the human influences on natural habitats are significantly increasing in the taiga zone of north-European Russia, and particularly in Vologda region, Curlew are still a widespread wader and are even considered common locally. During the breeding season it

occupies *Sphagnum*-dominated raised bogs, various flood-plain meadows, tussocky pastures and hay-meadows on fluvial terraces, wet clear-cuts, as well as drained hay-meadows, various types of fallow lands, and even agricultural fields with spring cereals and perennial crops. Curlew were found also on the floating mats of lakes (for example at the Katromskoye lake).

The recent distribution of Curlews within the region is not uniform: in some areas the species was recorded regularly and was rather abundant, while in other parts with almost similar habitat types, it was absent or only found sporadically (Figure 2). Curlews were not recorded at all in the open habitats along the western coasts of the Kubenskoye lake, only single birds were observed in the meadows and marshy areas of the middle reaches of the Uftiuga river (flowing into the Kubenskoye lake), at the eastern shores of Beloye lake, along the middle reaches of the Sukhona river, and along the banks of the Suda river. In those areas where Curlews breed regularly, their distribution is also rather restricted, and is determined by the location and availability of suitable breeding sites, as well as by the intensity of human influence on these areas. The birds were almost absent in the vicinity of large human settlements.

In favourable localities Curlews even formed small colonies, although the distance between the nests was rather large. For example, at the Katromskoye lake (12 km<sup>2</sup>) from four to six pairs were breeding in different years on the 5-6 km<sup>2</sup> of the floating mats. There, Curlews preferred only the parts with large open areas with *Sphagnum*, sparse sedge-grasses *Carex* spp., *Andromeda polyfolia*, *Cassandra calyculata*. A similar, uneven distribution was observed on the vast drained, natural meadows along the Syt river (Kharovsk station). Densities of Curlew in various

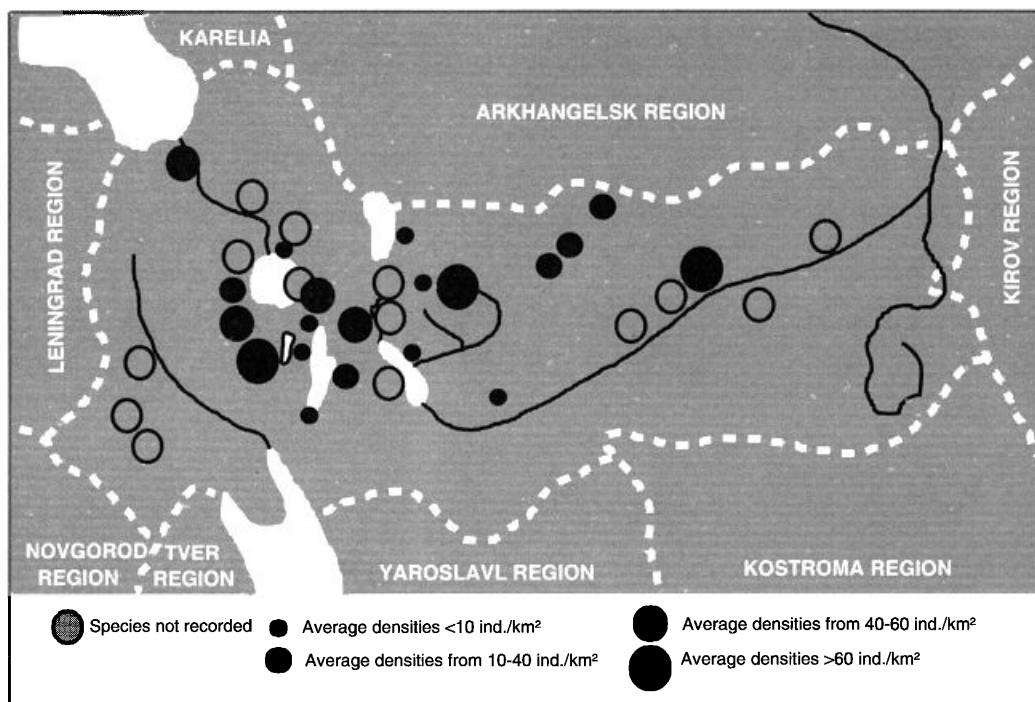


Figure 2. Distribution and density levels of Curlew in Vologda region according to the studies in 1970-1993.

habitat types during the breeding season (May-June) are shown in Table 1.

Table 1 shows that densities are rather similar in different habitat types (even taking into account the uneven distribution of the species in the study area). Noticeably smaller densities are found in the wet clear-cuts, as the species has started to settle in these habitats only in recent years. Although some birds counted during the surveys, especially in agricultural areas, were evidently non-breeding but only foraging, it seems quite probable from the similarity in densities that Curlew are already more or less adapted to a variety of natural and semi-natural areas.

Similarly, large densities of Curlew are known only in the neighbouring Kostroma region, where the species density in lowland parts was 60 individuals per km<sup>2</sup> (Balandin & Kuznetsov 1990).

### Some data on breeding ecology of Curlew in Vologda region

Curlew arrive on breeding grounds in the centre of Vologda region from the middle of April, but in the cold springs (such as 1976 and 1985) they only arrive from early May. Migrating birds can be seen displaying during short stopovers as well: at the Kharovsk study area, small flocks (up to 10 birds) were observed in 1975 after 29 April, part of these birds were performing song-flights, and on 4 May five males were displaying. However, later in the breeding season only two pairs were left. Evidently, local birds settle on breeding territories immediately after arrival, as the first territorial pairs were recorded in the period 3-15 May.

Nesting Curlews are found not only in natural hay-meadows or pastoral grasslands, but also in

agricultural fields as well. In Kharovsk district one nest was found in a field of bare fallow, whilst two nests in Verkhovazhye district were placed in clover fields at the edge of a flax meadow.

Breeding territories were identified on the basis of the alarm behaviour Curlews give towards the observer, potential predators or birds from neighbouring pairs, most were 140-200 m in diameter ( $n=30$ ). At the same time, one of the pairs breeding at the floating mat of the Katromskoye lake defended an area only c. 100 m in diameter. While nesting in the meadows, birds feed within, or in close vicinity of, the nearest breeding territory; while nesting on peat-bogs or on floating mats they flew up to 1 km to forage on meadows or agricultural fields.

Table 1. Average densities of Curlew during the breeding season (May-June, 1970-1993) in various habitat types of Vologda region.

Habitat	Density ind./km <sup>2</sup>
Low-grass pastoral meadows	2 - 200
Natural hay-meadows with draining canals	8 - 100
Patchy hay-meadows surrounded by shrubs or woodlands	40 - 60
Wet grasslands used for hay-harvesting with high vegetation	10 - 100
Flood-plain tussocky pastoral grasslands	20 - 250
Fields with perennial crops (clover, alfalfa etc.)	10
Fields with spring cereals in the flood-plains	10 - 300
Fields with winter cereals	20
Raised bogs (surveyed only locally)	20
Wet clear-cuts of 1-3 year age	1
<i>Sphagnum</i> floating mats on lakes	10 - 20

The period from settlement on the breeding territory to the start of nest-construction and egg-laying is very short. The first nest with a completed and even slightly incubated clutch was found on 17 May (1977) and on 13 May (1993). On 6 June (1976) we recorded the start of hatching in one of the nests and on 3 June (1974) downy chicks were found in the vicinity of the nest. Taking into account that incubation lasts in this species for c. 29 days (Kozlova 1962), calculated dates for the start of egg-laying fell between 1-10 May in the two latter cases.

Nests are placed in small depressions (in the meadows or low-grass pastures), or in hollows within the *Sphagnum* or sedge hummocks (on the floating mats). In the latter cases such hollows in the hummocks are made by the birds themselves. Three nests, found on fallow lands and clover fields, were lined with dry stems and leaves of grasses.

Egg sizes were as follows (n=12): length 68.6±0.7 mm (range 63.9-70.8 mm) and breadth 46.3±0.8 mm (range 41.1-48.5 mm).

Hatching was observed after 1-10 June. Downy chicks remain in the vicinity of the nest for some time, and move further within the breeding territory in the period up to fledging.

Post-breeding movements start from the first half of July and continue until the end of July. Evidently young birds leave by the first half of August; no local Curlew were recorded after 15 August. In the more southern Tver region the last single Curlews seen were recorded on 21 September (Nikolaev 1985). Similar early autumn migration is known for other north-European countries (Cramp & Simmons 1983).

As well as breeding birds, non-breeders in flocks of five or six, very occasionally up to 20 birds, were also recorded in the region throughout the whole summer, foraging in the various meadows and agricultural fields. For example, 12 non-breeding Curlews were recorded on one of the meadows of Kharovsk district in late May 1976 and 21 Curlew were observed on the eastern shores of the Beloye Lake between 20-30 June 1985.

## Discussion

The uneven distribution of Curlew within the Vologda region, the almost complete absence of any other quantitative data on its numbers or densities in this area, and especially the lack of data on Curlew aggregations in the rather large boggy areas in the central, eastern and south-eastern parts of the region caused many difficulties when we tried to extrapolate the total number of the Curlew population for the whole study area. The latter constraint was the most important, as data is available for neighbouring Tver (formerly Kalinin) and Novgorod regions, where it is known that Curlew are found in large numbers on the large peatlands (Nikolaev 1981, 1985; Mischenko & Sukhanova 1998). Mischenko & Sukhanova (1998)

estimated the local population of this species breeding on the raised bogs of the Ilmen' lake basin at 1,400-1,800 pairs.

Nevertheless, we tried to extrapolate the total number of Curlews inhabiting this area, based on average density estimates in different habitat types, and on the area covered by each habitat within the region. These calculations have revealed, that the number of Curlews during the breeding period in Vologda region is between 10,000-20,000 individuals (including non-breeding birds). According to our brief observations in the Arkhangelsk region and Komi republic, Curlews are also common in more northern taiga parts.

The taiga zone of north-European Russia supports the largest known populations of the species in the whole of eastern Europe; therefore, protection of the species in these areas is nowadays extremely important.

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