

# Breeding Dotterels *Charadrius morinellus* in the Altai mountains of Kazakhstan

B.V. Tsherbakov

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Data on the breeding biology of Dotterel *Charadrius morinellus* were collected from 1967-1982 in the Kazakhstan part of the western and southern Altai mountains. The earliest recorded appearance date on the breeding grounds of the Ivanovskiy mountain range was 26 May, when a high proportion of the mountain tundra (2,000-2,400 m) was still covered with snow. In rocky mountain tundra, birds chose fairly level areas on which to nest, generally ridges up to 6,000 m long and 100-150 m wide that are mostly on watersheds or on rounded mountain tops. Birds nest either in small isolated groups of three to ten pairs or as single pairs. At altitudes of 2,000-2,200 m, clutches are laid seven to ten days earlier than at altitudes of 2,400 m. In total, eight nests with clutches were found from 10 June to 5 August. Seven nests contained three eggs and one contained two eggs. Three broods were found between 13 and 19 July.

B.V. Tsherbakov, "Ecobiocentre", Gorky Str., 66, Ust'-Kamenogorsk 492024, Kazakhstan.

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Данные по биологии размножения хрустана *Charadrius morinellus* собирались в период с 1967 по 1982 гг. в казахской части западного и южного Алтая. Самая ранняя дата прилета на места гнездования на Ивановском хребте была 26 мая, когда большие участки горной тундры (2000-2200 м над ур. м.) еще лежали под снегом. В каменных участках горной тундры птицы выбрали для гнездования сравнительно плоские места, обычно гребни длиной до 6000 м и шириной 100-150 м, чаще расположенные на водоразделах или на округлых вершинах гор. Гнездятся хрустаны или небольшими изолированными поселениями от 3 до 10 пар или отдельными парами. На высотах с 2000 по 2200 м над ур. м. откладка яиц начинается за 7-10 дней раньше, чем на высоте 2400 м. В целом, было найдено восемь гнезд с кладками с 10 июня по 5 августа. В семи гнездах было по три яйца и в одном было два яйца. Было найдено три выводка между 13 и 19 июля.

## Introduction

The Dotterel *Charadrius morinellus* is widespread in the northern Palearctic and is well-adapted to high-latitude and arctic tundra landscapes. For mountain populations, many aspects of its biology however, especially during the breeding period, remain unclear. Data presented in this paper partly cover this gap in our knowledge.

The first records of Dotterel in the Ivanovskiy mountain range, Western Altai (not far from the new town of Leninogorsk) were made at the beginning of the 19th century (Sushkin 1938). Later, nobody was able to find this species there (Dolgushin 1962) and it was only several years ago that it was rediscovered by the author (Tsherbakov 1973). According to published data, this species is widespread in the Saur and Tarbagatay mountain ranges, Southern Altai (Yablonsky 1907; Polyakov 1916; Khakhlov 1928; Sushkin 1938; Berezovikov 1989; see Figure 1).

In the Altai, as in other mountain regions, Dotterel nest at high altitudes in the alpine tundra belt. In the southern and western Altai, where the mountain ranges have a south-westerly orientation, the breeding grounds of Dotterel are located not only on gently sloping watersheds, but also close to the peaks on western slopes. The birds nest on rocky areas with a sparse vegetation cover of low shrubs, *Salix* spp., herbs *Dryas oxyodonta*, *Thermopsis alpina*, *Rhodiola quadrifida*, sedges *Carex* spp., mosses *Polytrichum* spp. and lichens *Peltigera* spp. Data on the breeding biology of Dotterel were collected between 1967 and 1982 in the Kazakhstan part of the western and southern Altai mountains.

## Results and Discussion

The earliest spring records occurred in 1974. On 26 May 1974, Dotterel arrived in the central part of the Ivanovskiy mountain range when the slopes were still covered with snow. Near the Turgusun lakes

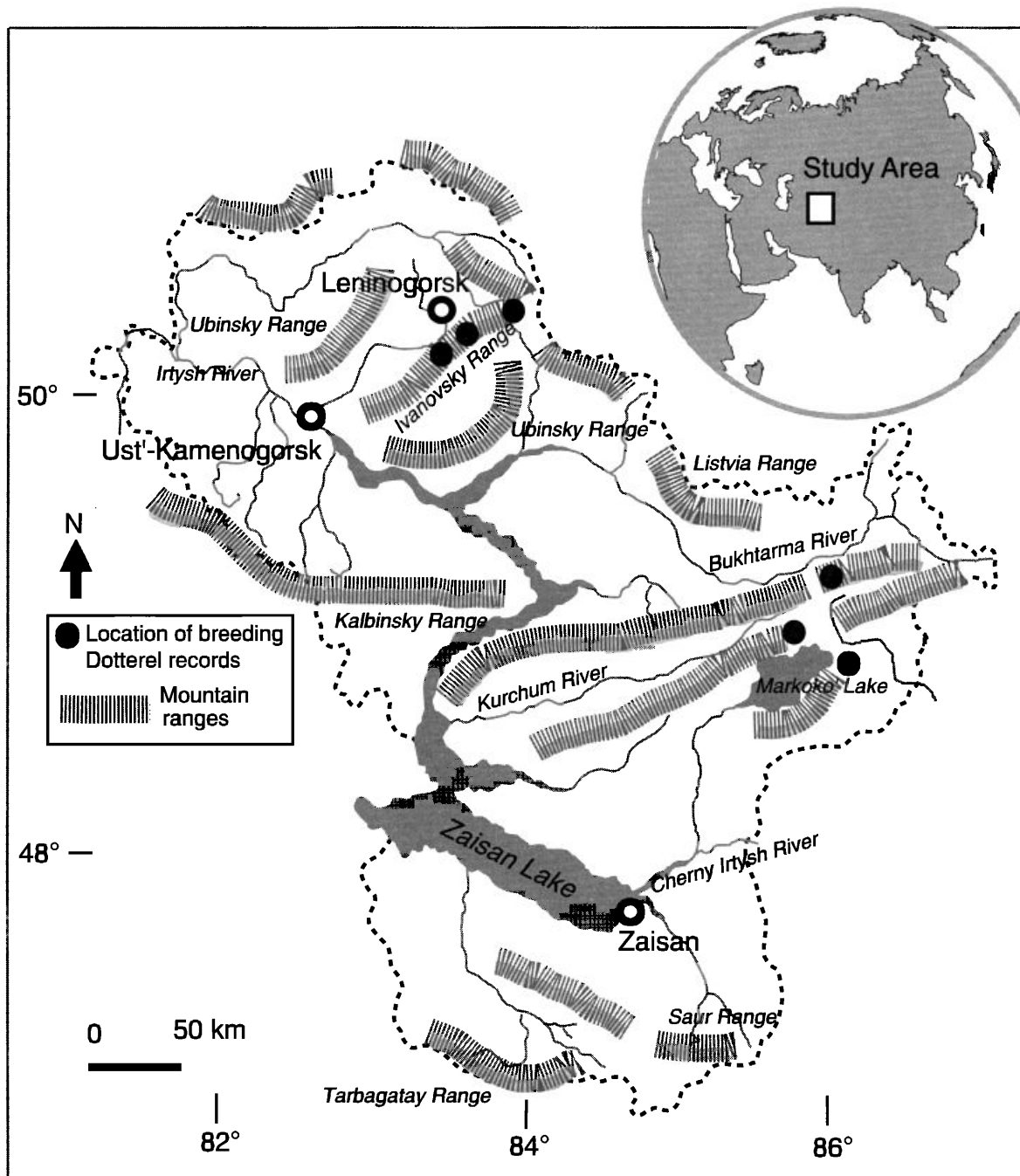


Figure 1. The eastern Kazakhstan administrative region and locations of breeding records of Dotterel.

(2,000-2,300 m above sea level) on the plateau-like part of the rocky mountain tundra, Dotterel were observed on 29 June 1974, at three locations (one, two and five birds respectively). Display flight with singing was also recorded that day: in wavy flights at a height of c. 250 m, the bird would make four circles, each about 150 m in diameter, then dive with a melodious sound "kr-r-r-r..." to the ground. No displays were recorded on the ground.

Nests were invariably made in small, shallow depressions at the tops of mountains, sometimes under the stems of herbs. They had an inner diameter of 9-10 cm and were 1-4 cm deep (n = 8 nests). The inner layer of the nests consisted of plant leaves and stems (*Polygonum viviparum*,

*Tripleurospermum* sp., *Carex rupestris*, *Schulzia crinita*) and bits of lichen. The distance between the nests ranged from 50-300 m. The breeding period was rather long; in the western Altai, at 2,000-2,200 m above sea level, egg-laying was observed seven to ten days earlier than at higher altitudes of 2,300-2,400 m.

Concrete information on Dotterel breeding biology is limited. Polyakov (1916) found five nests between 26 and 29 June 1909, in the Sary-Tau mountain range in the Southern Altai, of which two contained two eggs each, two had three slightly incubated eggs each, and one had three eggs containing well-developed embryos. During that period, broods of downy chicks were also recorded. In the Tarbagatay mountain range (2,200 m), A.

Tsyganov found a nest with two fresh eggs on 29 June 1989.

In the Ivanovskiy mountain range of the western Altai, I found the following nests with clutches: on 10 June 1967, on the Krestovaya mountain (2,200 m) - two nests, each containing three well-incubated eggs; on 22 June 1969, near the Vyshe-Ivanovskaya peak (2,400 m) - one nest with three well-incubated eggs; on 24 June 1969, at Medvezhya Tropa - two nests, one with three fresh eggs and one with three eggs in the middle stages of incubation; on 29 June 1972, at the eastern edge of the Ivanovskiy range - one nest with two incubated eggs; on 1 July 1974, near the Turgusun lakes - one nest with three eggs, one of which had a hole in it, made by the hatching chick; on 5 August 1971, also near the Turgusun lakes - one nest with three well-incubated eggs. Egg-measurements (n = 18) were in the range 39-42 x 28-30 ~mm, with average values of 40.2 x 28.6 mm. The weights of three fresh eggs were 16.0, 16.3 and 15.9 g.

If someone approached, the incubating bird silently got up from nest and, crouching slightly, ran in short, quick bursts, zig-zagging from side to side. If the person did not follow the bird, it returned and, in order to attract attention, fell on one side, hitting the ground with its wings and dragging its legs. Dotterel incubate rather tightly before hatching and sometimes one can even catch birds by hand. It is not only the males which incubate clutches and rear the chicks: on 24 June 1971, a female was collected from a nest with eggs. In 1971 and 1979, when nests were approached, both parents were observed nearby exhibiting alarmed behaviour.

Broods were observed three times: on Krestovaya mountain, one downy chick was seen on 13 July, 1967; in the upper reaches of the Palevaya river, three almost fledged chicks were observed on 16 July 1976, and one on 19 July. In each case, they

were accompanied by an adult bird. In the Southern Altai, on Sorvenskiy Belok mountain, Berezovikov (1989) observed a pair performing distraction displays from chicks on 14 June 1981 and also recorded a group of four fledged young. Near the source of the Verkhnyaya Yelovka river in the Kurchumskie mountains (2,800 m), he found a group of five fledged young.

According to Sushkin (1938), Dotterel start leaving the Altai breeding grounds from the middle of August onwards and by 27 August have all disappeared. Groups of two to twelve individuals were recorded in alpine tundras near the Turgusun lakes in the western Altai on the 5 August 1973. The latest record of juvenile Dotterel was on 10 September 1970, close to the Tri Brata peaks.

The stomachs of four Dotterel collected during the breeding period, contained Acrididae, Neuroptera, larvae of Coleoptera and small quartz gastrolites.

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