

## The Sundrun population of wild reindeer

Ivan Sivtsev

Institute of Biological Problems of the Cryolithozone, 41 Lenin Avenue, Yakutsk, Republic of Sakha (Yakutia), 677891, Russia.

**Abstract:** The Sundrun wild reindeer (*Rangifer tarandus*) herd was recognized as a separate population during the 1950s. Since then, the herd has ranged over an area of approximately 180 000 km<sup>2</sup> between the Indigirka and Kolyma Rivers in northeastern Yakutia. Population dynamics and movements were investigated between 1987 and 1997. During this period, the population estimates ranged from 25 000 to 45 000 reindeer, the sex ratio averaged 55 bulls:100 cows, and the percentage of calves in the herd ranged between 17% and 25%. The main routes of seasonal migrations, wintering areas, and the location of calving areas are discussed.

**Key words:** harvest, Indigirka, Kolyma, migrations, *Rangifer tarandus*, Russia, Yakutia.

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### Introduction

According to historical literature, numerous populations of wild reindeer occupied the Kolyma-Indigirka region during the end of the nineteenth century and the beginning of the twentieth century (Wrangel, 1848; Argentov, 1860; Maidel, 1894; Buturlin, 1913; Shmidt, 1930; Naumov, 1933; Mikhel, 1938; Druri, 1949). However, wild reindeer were apparently largely absent from the area between the 1920s and the 1950s. Beginning in the late 1950s and early 1960s, reliable reports of wild reindeer between the Indigirka and Kolyma Rivers again emerged (Egorov et al., 1965). The population was subsequently studied (Obukhov, 1967; Kichinski & Flint, 1973), and eventually surveyed from the air in 1975, 1978, and 1982 (Pavlov et al., 1982). Between 1987 and 2000, personnel from the Institute of Biological Problems of the Cryolithozone also conducted aerial censuses and ground composition counts of the herd (1987, 1993, 1996, and 2000). Because information on the history, dynamics, and distribution of the Sundrun wild reindeer herd has not been widely available to biologists outside Yakutia (Sakha Republic), we reviewed the historical literature and recent studies of the population and presented the information at the 9<sup>th</sup> North American Caribou Workshop.

### Distribution and movements

During the 1970s, wild reindeer from the Sundrun population migrated south in the fall to winter ranges on the Alazeya Plateau and the head of the Alazeya River, in the western portion of their range (Fig. 1). During the early 1980s, migration routes expanded east to the central part of the Kolyma lowland, encompassing a migration corridor approximately 100 km wide (Tikhonov & Koriakin, 1995). This migration corridor included the Ulakhan-Tas and Suor-Uyata ridges, and forest-tundra of the Rassokha River basin. From the Rassokha River basin, reindeer moved west across the Ilin-Uriakh and Arga-Uriakh Rivers to the Alazeya plateau. Migration routes also continued straight west to the Alazeya plateau from the Shangina River basin.

Spring migration of the Sundrun population usually begins early with pregnant females appearing on the Ulakhan-Tas and Suor-Uyata ridges, and Kondakov's plateau in early March. However, during the mid-1990s, movements of the Sundrun reindeer population changed (Fig. 1). In 1995 the spring migration was delayed 2 months to the end of April and beginning of May, and calving was also delayed. Calving reindeer were observed on the left bank of the Alazeya River, far to the south of the normal calving area. In October 1995, one large group of

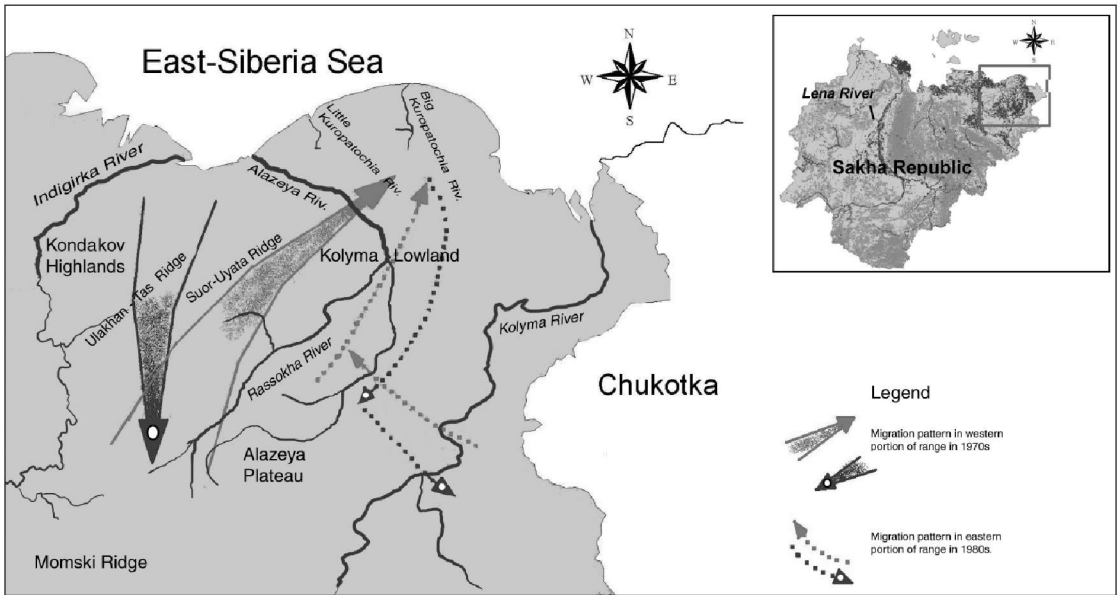


Fig. 1. Migration routes of the Sundrun wild reindeer population.

approximately 10 000 reindeer migrated to the east, and for the first time in 60 years, reached the head of the Konkovaya River. The animals then migrated east of the Kolyma lowland to the middle and head of the Alazeya River. An aerial survey in March 1996 found females on the right bank of the Chukochia River. During fall and winter 1996, about 1000 reindeer crossed the Kolyma River, the mouth of the Beriozovaya River, and traveled to the Ukagir plateau. During the rut (10 Oct through mid-Nov), the Sundrun population historically occupied the Ulakhan-Tas ridge region at the northern limit of the forest. However, since 1994, animals have been found in the Momski ridge area. It is also possible that, in this area, there was mixing of the Sundrun population with the Yana-Indigirka population, part of which winters on Momski ridge. The Sundrun population has also traditionally calved between the

Table 1. Aerial counts of the Sundrun wild reindeer population, 1982–2000.

Year of census	Number of reindeer
1982	27 100
1987	29 200
1993	40 000
1996	34 200
2000	29 600

Big and Little Kuropatochia Rivers, with the postcalving concentration occurring on the arctic coastal plain or northward onto the Kondakov Highlands.

A separate, non-migratory herd of about 1000 reindeer can also be found on the arctic tundra in the vicinity of Big

and Little Oler Lakes, the Chukochia River, and the head of the Big and Little Kuropatochia Rivers, where, during the winter, reindeer can be found in groups of 10–20 animals.

### Herd composition

Between 1987 and 1997 the sex ratio of the Sundrun reindeer population averaged 55 bulls:100 cows. Between 1975 and 1993 percent calves in the herd in July averaged 26%. In July 2000 herd composition was estimated to be 17% calves and 21% bulls. The lower proportion of calves observed in 2000 is believed to be a result of lowered natality.

### Population numbers

Sundrun reindeer population estimates ranged from 25 000 to 45 000 between 1987 and 1997 (Table 1). In July 2000, 29 500 reindeer were estimated in the Sundrun population using an aerial photo-direct count-extrapolation census (Hemming & Glenn, 1968; Safronov & Sivtsev, unpubl. data). This population estimate is comparable to the average estimates for the last 25 years.

### Human impact on the population

In the Russian arctic, meat production from the harvest of wild reindeer accounts for about half of all local meat consumption (the remainder is either imported from the south or comes from semi-domes-

tic reindeer). However, in some years and some areas, meat production from wild reindeer may comprise up to 70–99% of meat used. Wild meat production has thus become an important part of the economy of the far north. Hunters prefer to shoot males, and in the Sundrun reindeer population, male:female ratio has been reduced by hunting in recent years. In addition, large harvests under liberal hunting seasons have also exceeded the annual increment to the population in some years. Poor calf recruitment has also been an important contributing factor to the declining male:female ratio, and to a possible recent decline in herd size.

To optimize the harvest of reindeer from the Sundrun population, we recommend establishing specific annual quotas for the harvest of males and females. In addition, establishing reserve zones on the calving grounds and protecting the mass winter-spring migration of pregnant females may be necessary to conserve the population.

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