

TUNDRA JUNIOR

The landscape of the tundra is flat with little vegetation; it is like a cold desert. The climate in the tundra varies according to whether it lies in an oceanic region or in a continental one. For example, in the European tundra warmed by the Gulf Stream, the ground is not frozen for many months while in the Canadian continental tundra it is always frozen. In Europe, the tundra begins at latitude 7°N, while in East Canada it starts from 55°N. During the long winter, the monthly minimum temperatures never drop below -10°C in the European tundra but reach -30°C in Alaska. In Eastern Siberia, the average winter temperature can drop to -50°C. Since the sun does not rise in the winter months, the tundra passes various months in a long, frozen night. On the contrary, in the summer period, the sun never sets and it stays over the horizon so that there is no real night. However, the sun does not heat a lot and the water contained in the soil ices to a depth of many metres and forms a layer of hard soil that thaws on the surface only in summer.

The frozen soil of the tundra is called permafrost. Evaporation is greatly reduced, hence, even if it rains very little, during the arctic summer many moist areas are formed as a result of the melting of the topmost layers of soil. The tundra biome includes the northernmost areas of Europe, of Siberia and of North America. The tundra biome occupies 5% of the land surface. Some tundra areas can be found even in the southern tip of South America. On the mountains over 2000 metres in temperate zones, an environment without trees, as a result of the cold, can be found. This ecozone resembles the tundra and is called alpine tundra. Common to both the real tundra and the alpine tundra are some plants, such as the dwarf willow, and some insect species. In the alpine tundra however there is no permafrost, the alternation of day and night does take place within 24 hours and solar radiation is more intense. Animals that characterise this biome are the marmot, chamois, Rock ptarmigan and the finch. The vegetation consists almost exclusively of perennial plants such as cushion and herbaceous plants. There are no tall trees. Shrubs, such as birch and willow, are rare and are small to withstand the bitter cold and the strong winds. In the humid areas, where the soil is saturated with water, mosses, rushes and gramineous plants grow. Plants grow very slowly due to the cold: Reindeer lichen, for example, takes an entire year to grow just 1-5 mm.

Despite the low temperature, the tundra is populated by many animals. Many of these migrate to avoid the colder months. Others, instead, protect themselves from the bitter cold in many other ways. In the tundra hibernation is not possible, because the frozen soil does not allow animals to dig shelters and galleries and because the warm season is too short to ensure a sufficient accumulation of food supplies. Many small animals, like the lemming, dig tunnels under the snow to search for food and to escape from predators, but the stoat, a small carnivore with an agile, streamlined body, manages to chase them even in their narrow burrows. The arctic fox hides supplies of frozen meat and feeds on them during the winter. Arctic hares find shelter under the

snow but feed on the surface, risking the attack of foxes. Many of the species that remain in the tundra even during the winter months, like the willow capercaillie, the arctic fox, the arctic hare and the stoat, change colour to camouflage themselves. Hence, in summer they have dark, brown fur that turns as white as the snow in winter.