

# Alpine Tundra

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## ALPINE TUNDRA . . .

*. . . a world by itself  
in the sky.*

Enos Mills

Where mountaintops rise like islands above a sea of trees lies the world of the alpine tundra. John Muir called it "a land of desolation covered with beautiful light." Yet this light shines on a tapestry of living detail. Tundra lands, too cold for trees, support over 300 kinds of plants, as well as animals from bighorn to butterflies.

**Tundra** is a Russian word for "land of no trees."

**Arctic tundra** occurs around the north pole. **Alpine tundra** crowns mountains that reach above treeline.

Rocky Mountain National Park is recognized worldwide as a Biosphere Reserve because of the beauty and research value of its alpine wild lands. Alpine tundra is a sensitive indicator of such climatic changes as global warming and acid rain. Over 1/3 of the park is tundra.

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## A FRAGILE WORLD

After Trail Ridge Road opened in 1932, the tundra was not fully protected. People walking on the tundra caused much damage. Park scientists initiated an impact study in 1959, fencing off certain areas. Some of these areas show little or no sign of recovery today and may take centuries to heal. High winds and long winters also make new growth slow.

Areas along Trail Ridge Road are marked as **Tundra Protection Areas**. No walking off the trail is allowed in these areas. In other areas, walking on the tundra is permitted. But walk with care! Step lightly, without scuffing the surface. Step on rocks when you can. Spread out instead of walking in a single line.

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## SNOW IN JULY

The tundra's brief summer is squeezed into about 40 frost-free days per year. Temperatures stay below freezing for over 5 months. Winter winds exceed 170 mph (274 km/hr). Summer days seldom reach 60 F (16 C). Snow might fall any day of the year.

Average annual precipitation is 25 inches (64 cm), of which 65% falls as snow.

In summer, afternoon thunderstorms with lightning, hail, and high winds are frequent. Keep an eye on the clouds; storms can develop within minutes.

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## ALPINE ADAPTATIONS

Strong winds, scant soil, a short growing season, thin air, intense sunlight, temperature extremes, and limited water challenge life on the tundra. Plants cope by hugging the ground. Waxy or hairy leaves help hold water. Red pigments act as sunscreen. Roots are extensive; tundra plants hide up to 90% of their bulk below the surface.

Only a few animals live all year on the tundra. Pika cut and dry stacks of plants in summer for their winter larder. Ptarmigans, the only birds to winter on the tundra, grow feathers on the bottoms of their feet. Their toenails sprout comb-like teeth that work like snowshoes. Marmots hibernate. Other animals migrate or commute: ravens, hawks, coyotes, and elk.