

Porsild (1951a) believes that such soil conditions, combined with the shortness of the growing season, the scarcity of soil and the low precipitation, affect plant growth more than the actual air temperature. He notes that absorption of heat by the vegetation and dark-coloured soil may raise the actual temperature of the surface soil and the air surrounding the plant as much as 25 or even 40 degrees F. above that of the air higher up. Also, many arctic plants are able to recover from complete freezing, thus extending the length of their growing season into those months whose first frosts would kill or make dormant plants adapted to higher temperatures.

He notes that "Many arctic plants are xerophytes: plants adapted to withstand prolonged drought by having rather small, often leathery leaves or by having their leaves and stems covered by densely matted hairs that provide a felt-like covering for the stomata. . . . As protection against desiccation rather than low temperatures, the wintering buds of many arctic plants are placed just below the surface of the soil (hemicyrptophytes), or just above the surface where they are protected by the persisting leaves, leafstalks or stipules of former years (chamaephytes). . . . By their low and compact growth habit (cushion plants), arctic plants are well adapted to resist desiccation and mechanical abrasion by wind and by drifting snow and sand."

The commonness of vegetative reproduction among arctic plants through creeping rootstocks or adventitious roots and buds allows many of them to propagate even in years with exceptionally severe climates. Nodding saxifrage (*Saxifraga cernua*) and alpine bistort (*Polygonum viviparum*) frequently have all or most of their flowers replaced by bulbils that fall off and take root.

Porsild recognizes four major plant communities in the Canadian Arctic: rock desert or fell-field communities (rock deserts: unstable talus slopes or scree; gravelly river flats and fans), tundra communities (heaths: grasslands: willow and alder thickets: marsh and wet tundra: snowflashes), strand communities (lagoon and salt-marsh: sand dunes and gravel beaches: rocky shores), and freshwater communities (ponds and lakes; brooks and rivers).

Growing among the numerous lichens of the rock deserts may be found small ferns (*Dryopteris fragrans*; *Woodsia glabella*; *W. ilvensis*), large mats of crowberry (*Empetrum nigrum*), cotton-grass (*Eriophorum vaginatum*), and a "rock garden" of plants with brightly coloured flowers such as moss pink (*Silene acaulis*), arctic poppy (*Papaver radicatum*), species of *Draba*, saxifrages (*Saxifraga*), *Hedysarum mackenzii*, locoweeds (*Oxytropis*), alpine milk-vetch (*Astragalus alpinus*), river-beauty (*Epilobium latifolium*) and large-flowered wintergreen (*Pyrola grandiflora*).

The tundra communities are characterized by tussocks or 'nigger-heads' of various grasses and sedges, arctic lupine (*Lupinus arcticus*), fern-weeds (*Pedicularis*), sweet coltsfoot (*Petasites frigidus*), and various members of the Heath Family such as Labrador-tea (*Ledum decumbens*), Lapland rhododendron (*Rhododendron lapponicum*), bearberry (*Arctostaphylos alpina* and *A. rubra*), white heather (*Cassiope tetragona*), bilberry (*Vaccinium uliginosum*), and alpine cranberry (*V. vitis-idaea*), the bushes of the thicketed areas being dwarf birch (*Betula glandulosa*) and various willows (*Salix*), with some alder (*Alnus crispa*) in the southern area. Alpine clubmoss (*Lycopodium alpinum*), a dwarf willow (*Salix herbacea*), mountain sorrel (*Oxyria digyna*) and dwarf buttercup (*Ranunculus pygmaeus*) are common in snowflashes.

Halophytic (salt-loving) grasses, sedges and rushes characterize the coastal lagoons and salt-marshes of the strand communities, with an admixture of sweet-scented white buttercup (*Ranunculus pallasii*), white marsh-marigold (*Caltha natans*), and a few other marsh herbs. Lyme-grass (*Elymus mollis*) is common on gravel beaches and sand dunes, together with other grasses, a few halophytic sedges, beach sandwort (*Arenaria peploides*) and a few species of willow. On rocky shores are found dense carpets of goose-grass (*Puccinellia*), together with scurvy-grass (*Cochlearia*), chickweed (*Stellaria humifusa*) and a few species of willow.