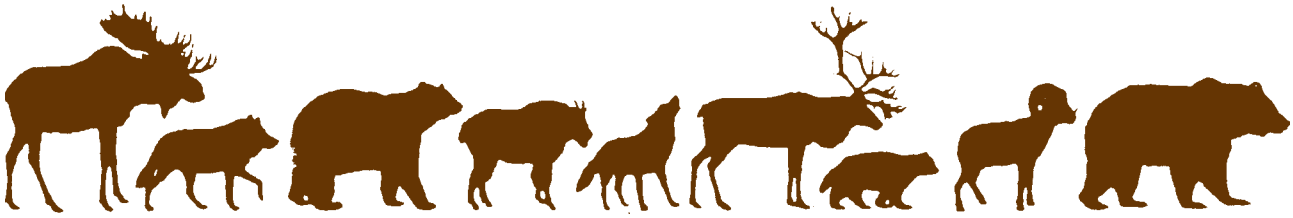
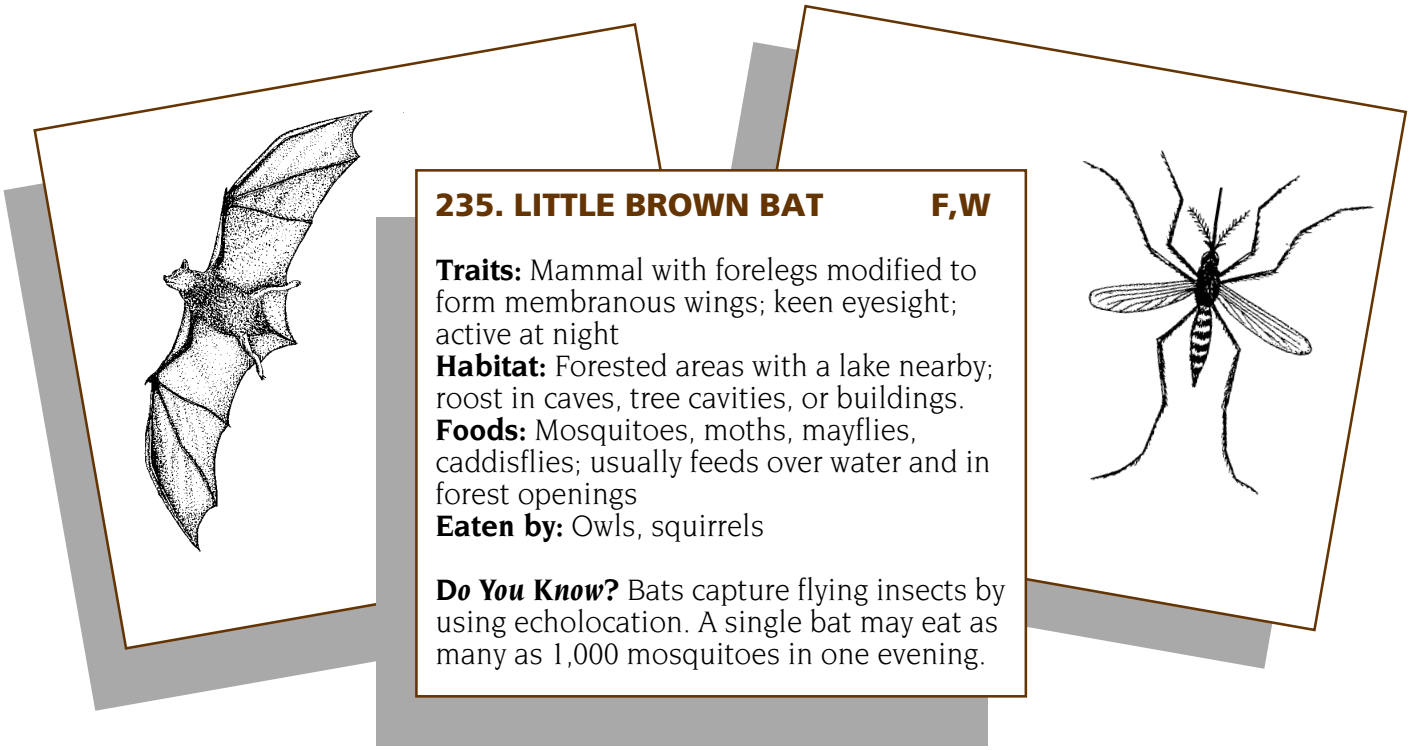
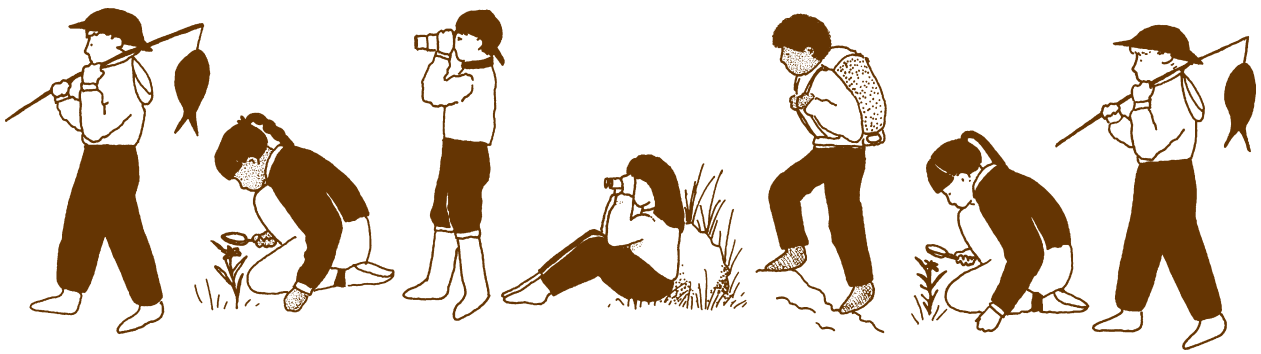


# Alaska Ecology Cards




**A collection of 270 illustrations of one-celled life, plants, invertebrates, fish, birds, and mammals found in Alaska**

Each illustration is backed by text describing the organism's traits, habitat, food habits, what other organisms eat it for food, and a "do you know?" fact. These cards are suitable for learners of any age. Primary educators may choose to adapt the illustrations and text for young readers.



# Alaska Ecology Cards

**REVISION 2001**

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The Alaska State Legislature funded this revision of *Alaska Wildlife Curriculum* in support of wildlife conservation education.

The Alaska Department of Fish and Game has additional information and materials on wildlife conservation education. The *Alaska Wildlife Curriculum* includes:

*Alaska's Ecology & Wildlife*
*Alaska's Forests and Wildlife*
*Alaska's Tundra and Wildlife*
*Alaska's Wildlife for the Future*
*Alaska Ecology Cards*

We revise the *Alaska Wildlife Curriculum* periodically. For information, or to provide comments on the *Ecology Cards*, please contact us:

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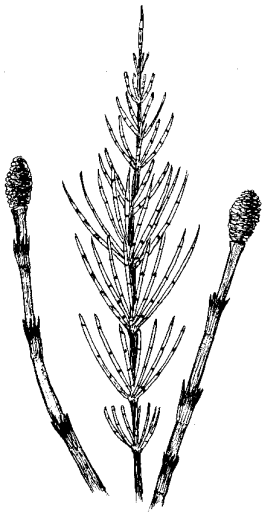
**http://www.state.ak.us/adfg/**

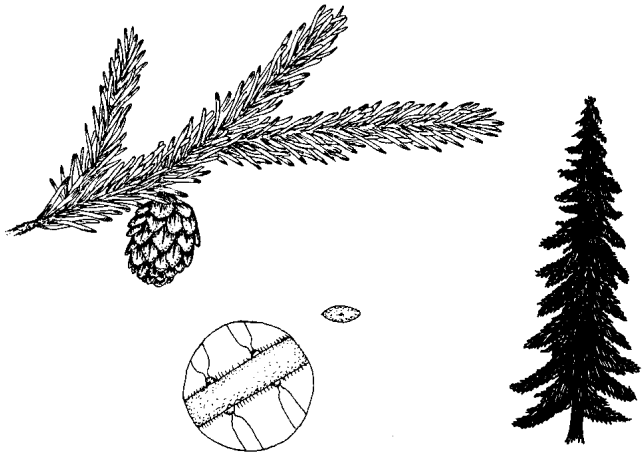
The *Alaska Wildlife Curriculum* is a resource for educators teaching today's youth about Alaska's wildlife. We dedicate this curriculum to you and your students.

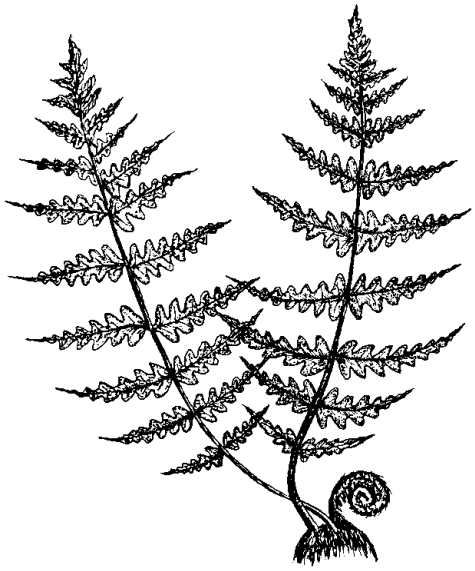
# Alaska Ecology Cards

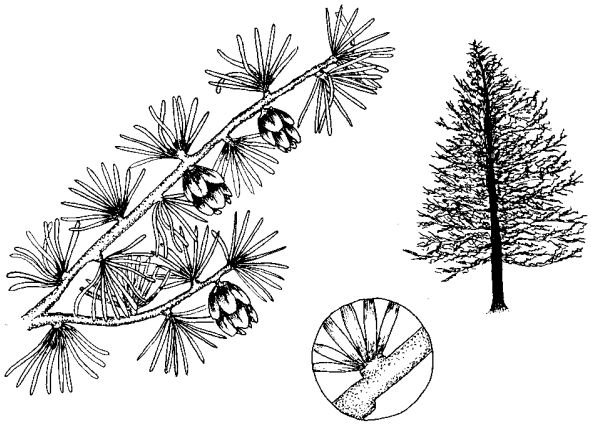
**KEY:**
**F = Forest Habitat**
**T= Tundra Habitat**
**W = Wetlands Habitat**

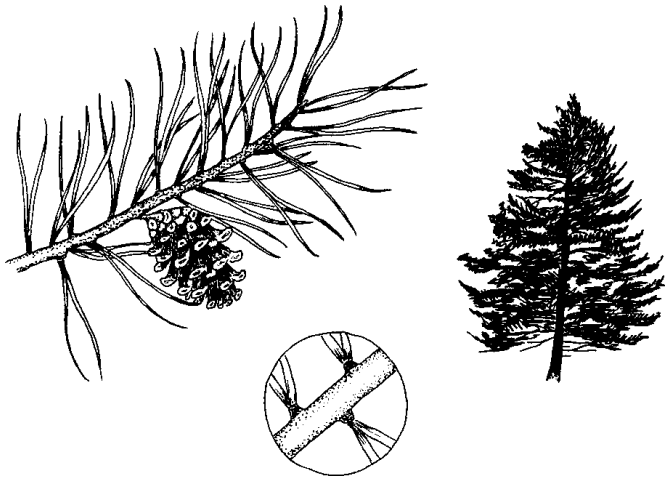
| Plant or Animal Name | Scientific Name |
|---|---|
| **MONERANS** | |
| 5. Bacteria F,T, W | Division: Bacteria |
| 6. Cyanobacteria F,W | Division: Cyanophycota |
| **PROTISTS** | |
| 7. Protozoans F,T,W | Kingdom: Protista |
| 8. Diatoms F,W | Class: Bacillariophyceae |
| 9. Flagellates W | Phylum: Protozoa |
| 10. Amoebas W | Class: Rhizopodea |
| 11. Ciliates W | Phylum: Ciliophora |
| 12. Slime Molds F | Order: Mycetozoida |
| **FUNGI** | |
| 13. Molds, Mildews, Rusts F,T | Kingdom: Fungi |
| 14. Morels F | Genus: Morchella |
| 15. Truffles F | Order: Tuberales |
| 16. Shelf Fungi F | Kingdom: Fungi |
| 17. Mushrooms F,T | Kingdom: Fungi |
| 18. Crustose Lichens F,T | Kingdom: Fungi |
| 19. Fruticose Lichens F,T | Kingdom: Fungi |
| 20. Foliose Lichens F,T | Kingdom: Fungi |
| **GREEN PLANTS** | |
| 21. Green Algae W | Division: Chlorophycota |
| 22. Mosses F,T | Class: Bryopsida |
| 23. Sphagnum Moss F,T,W | Class: Bryopsida |
| 24. Club Mosses F,T | Genus: Lycopodium |
| 25. Horsetail F,T,W | Genus: Equisetum |
| 26. Ferns F,T | Class: Filicineae |
| **TREES – CONIFERS** | |
| 27. Lodgepole Pine F,W | *Pinus contorta* |
| 28. Black Spruce F,W | *Picea mariana* |
| 29. Tamarack F,W | *Larix laricina* |
| 30. White Spruce F | *Picea glauca* |
| 31. Sitka Spruce F | *Picea sitchensis* |
| 32. Western Hemlock F | *Tsuga heterophylla* |
| 33. Mountain Hemlock F | *Tsuga mertensiana* |
| 34. Alaska Cedar F | *Chamaecyparis nootkatensis* |
| **GRASSES, SEDGES, RUSHES** | |
| 35. Cattail W | Genus: Typha |
| 36. Bur Reed T,W | Genus: Sparganium |
| 37. Pondweed W | Family: Potamogetonaceae |
| 38. Eelgrass W | *Zostera marina* |
| 39. Arrowgrass W | Family: Juncaginaceae |
| 40. Pendent Grass T,W | Family: Gramineae |
| 41. Grasses F,T,W | Family: Gramineae |
| 42. Agriculture Grains W | Family: Graminaceae |
| 43. Sedges T,W | Family: Cyperaceae |
| 44. Cotton Grass T,W | Genus: Eriophorum |
| 45. Rushes T,W | Family: Juncaceae |
| **FLOWERING PLANTS** | |
| 46. Twisted Stalk F | Genus: Streptopus |
| 47. Wild Iris W | Family: Iridaceae |
| **TREES – BROADLEAFS** | |
| 48. Willow F,T,W | Genus: Salix |
| 49. Aspen F | *Populus tremuloides* |
| 50. Balsam Poplar F | *Populus balsamifera* |
| 51. Black Cottonwood F | *Populus trichocarpa* |
| 52. Dwarf Birch F,T,W | *Betula nana* |
| 53. Paper Birch F | *Betula papyrifera* |
| 54. Alder F,W | Genus: Alnus |
| **FLOWERING PLANTS *continued*** | |
| 55. Water Smartweed W | *Polygonum punctatum* |
| 56. Moss Campion T | *Silene acaulis* |
| 57. Yellow Pond Lily T,W | *Nuphar polysepalum* |
| 58. Marsh Marigold W | *Caltha palustris* |
| 59. Sundew W | *Drosera rotundifolia* |
| 60. Wild Rose F | Genus: Rosa |
| 61. Mountain Ash F | *Sorbus sitchensis* |
| 62. Raspberry/Salmonberry F | Genus: Rubus |
| 63. Dryas F,T | Genus: Dryas |
| 64. Marsh Fivefinger W | *Potentilla palustris* |
| 65. Soapberry F | *Sheperdia canadensis* |
| 66. Fireweed F | *Epilobium angustifolium* |
| 67. Mare's Tail W | *Hippuris vulgaris* |
| 68. Water Milfoil W | *Myriophyllum heterophyllum* |
| 69. Devil's Club F | *Oplopanax horridus* |
| 70. Bunchberry F | *Cornus canadensis* |
| 71. Skunk Cabbage F | *Lysichiton americanum* |
| 72. Crowberry F,T | *Empetrum nigrum* |
| 73. Lowbush Cranberry F,T,W | *Vaccinium vitis-idaea* |
| 74. Alpine Bearberry F,T,W | *Arctostaphylos alpina* |
| 75. Blueberry/Huckleberry F,T,W | Genus: Vaccinium |
| 76. Labrador Tea F,W | Genus: Ledum |
| 77. Heather T | Genus: Cassiope |
| 78. Lousewort T | Genus: Pedicularis |
| 79. Bladderwort W | *Utricularia vulgaris* |
| 80. Twinflower F | *Linnaea borealis* |
| 81. High Bush Cranberry F | *Viburnum edule* |
| 82. Harebell T | Genus: Campanula |
| **ANIMALS – INVERTEBRATES** | |
| 83. Roundworms F,T,W | Phylum: Nemathelminthes |
| 84. Rotifers F,T,W | Phylum: Rotifera |
| 85. Clam W | Genus: Siliqua |
| 86. Mussel W | Order: Mytilidae |
| 87. Snail W | Order: Gastropoda |
| 88. Slugs F | Family: Philomycidae |
| 89. Water Bears F,T,W | Phylum: Tardigrada |
| 90. Segmented Worms F,T,W | Phylum: Annelida |
| 91. Spiders F,T,W | Order: Araneae |
| 92. Mites F,T | Order: Acarina |
| 93. Copepod W | Order: Copepoda |
| 94. Amphipod W | Order: Amphipoda |
| 95. Water Flea W | Order: Cladocera |
| 96. Fairy Shrimp W | Order: Anostraca |
| 97. Millipedes F | Class: Diplopoda |
| 98. Centipedes F | Class: Chilopoda |
| 99. Springtail F,T,W | Order: Thysanura |
| 100. Bristletail F | Order: Collembola |
| 101. Mayflies W | Order: Ephemeroptera |
| 102. Dragonflies F,W | Order: Odonata |
| 103. Damselflies W | Order: Odonata |
| 104. Grasshoppers F,W | Order: Orthoptera |
| 105. Lice F,T,W | Order: Anoplura, Mallophaga |
| 106. Thrips F | Order: Thysanoptera |
| 107. True Bugs F,T,W | Order: Hemiptera |
| 108. Water Boatman W | Order: Hemiptera |
| 109. Water Striders F,T,W | Order: Hemiptera |
| 110. Leafhoppers F,T,W | Order: Homoptera |
| 111. Aphids F,T,W | Order: Homoptera |
| 112. Lacewings F,W | Order: Neuroptera |
| 113. Carrion Beetles F,T | Order: Coleoptera |
| 114. Ground Beetles F,T | Order: Coleoptera |
| 115. Rove Beetles F,T | Order: Coleoptera |
| 116. Diving Beetles W | Order: Coleoptera |
| 117. Whirligig Beetles W | Order: Coleoptera |
| 118. Bark Beetles F | Order: Coleoptera |
| 119. Ladybird Beetles F | Order: Coleoptera |
| 120. Caddisflies W | Order: Trichoptera |
| 121. Moths F,T | Order: Lepidoptera |
| 122. Butterflies F,T,W | Order: Lepidoptera |
| 123. Black Flies F,T,W | Order: Diptera |
| 124. Crane Flies F,T,W | Order: Diptera |
| 125. Mosquitoes F,T,W | Order: Diptera |
| 126. Midges F,T,W | Order: Diptera |
| 127. Blow Flies F,T,W | Order: Diptera |
| 128. Bot and Warble Flies F,T | Order: Diptera |
| 129. Fungus Gnats F,T,W | Order: Diptera |
| 130. Bumble Bees F,T,W | Order: Hymenoptera |
| 131. Sawflies F,T | Order: Hymenoptera |
| 132. Ichneumons F,T,W | Order: Hymenoptera |
| 133. Yellowjackets and Hornets F,T,W | Order: Hymenoptera |
| 134. Horntails F | Order: Hymenoptera |
| 135. Ants F,T,W | Order: Hymenoptera |











## 28. BLACK SPRUCE F,W

**Traits:** Small conifer (evergreen) tree with short sparse branches that often droop' needles are long, stiff, blue-green and occur on all sides of the twig; the twigs are covered with very short, reddish hairs.
**Habitat:** Wet bogs, muskegs, and lake margins throughout central, eastern, and southern Alaska
**Foods:** Makes its own by photosynthesis
**Eaten by:** Red squirrels, porcupines, beetles, horntails, aphids, carpenter ants, crossbills, redpolls

***Do You Know?*** The stiff-scaled cones of the black spruce stay on the tree for many years and are opened by fire or years of drying in the sun.

## 29. TAMARACK F,W

**Traits:** A small- to medium-sized conifer tree with dark gray bark; the leaves are needles that are deciduous (shed in fall) and grow in clusters of 12-20.
**Habitat:** Muskegs throughout central and parts of western Alaska
**Foods:** Makes its own by photosynthesis
**Eaten by:** Porcupines eat the inner bark. Red squirrels cut cones and seeds. Voles and some birds eat the seeds.

***Do You Know?*** Tamarack is the only Alaska conifer that sheds its leaves in winter. A certain species of mushroom, the yellow-pored bolete mushroom, grows only with tamaracks.

## 30. WHITE SPRUCE F

**Traits:** Conifer tree with four-angled, sharply pointed needles with white lines on all sides, hairless twigs, and thin gray bark; cones are long, hang downward, and fall off at maturity.
**Habitat:** Well-drained soils in boreal forest
**Foods:** Makes its own by photosynthesis
**Eaten by:** Spruce grouse, porcupines, crossbills, red squirrels, bark and longhorn beetles, horntails, certain moths and flies, spruce aphids, carpenter ants, redpolls, siskins

***Do You Know?*** White spruce is used extensively in Alaska for log cabins.

## 25. HORSETAIL F,T,W

**Traits:** Ground-cover plant with distinctly jointed stems that grow from an underground rhizome
**Habitat:** Wet, moist, and dry soils in forests, tundra, and wetlands
**Foods:** Makes its own by photosynthesis
**Eaten by:** Bears, moose, grouse

***Do You Know?*** Horsetail stems contain silica (an element in sand). They can be used like a scouring brush to clean pots and pans. Horsetails were among the dominant plants when dinosaurs roamed the earth; many kinds grew to tree size then. Today, only one species grows more than 6 ½ feet (2 m) tall.

## 26. FERNS F,T

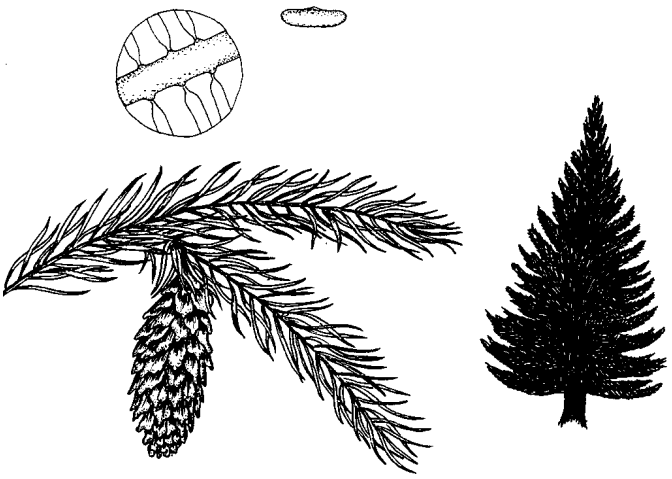
**Traits:** Plants with stems, leaves, and roots; most have stems that grow underground; leaves (called fronds) are usually divided into very fine parts; reproduces by spores on the undersides of the leaves or on special fronds
**Habitat:** Moist habitats; most common in coastal forests
**Foods:** Make their own by photosynthesis
**Eaten by:** Grouse, deer, hares, springtails, slugs, humans (in early spring)

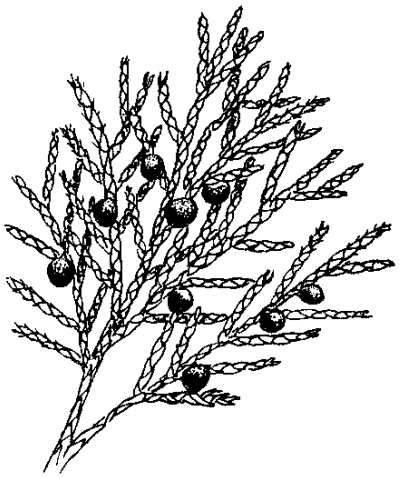
***Do You Know?*** Young blades or fronds, called fiddleheads, first appear curled at the base of the plant and are edible.

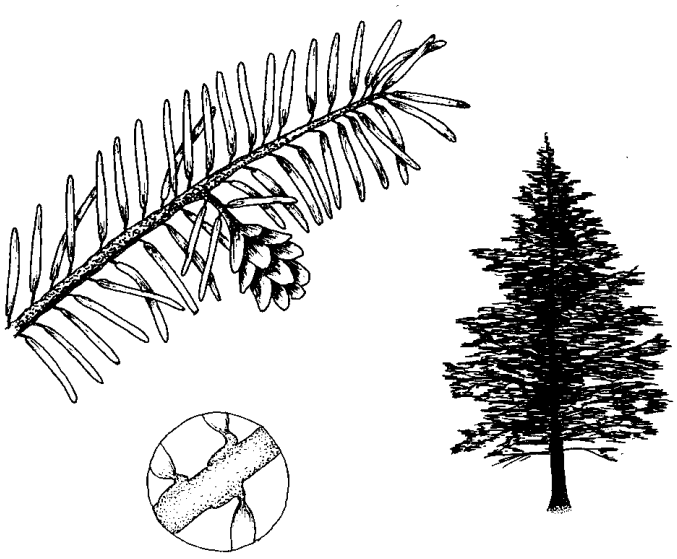
## 27. LODGEPOLE PINE F,W

**Traits:** A low-spreading or scrubby conifer tree that has two needles per bundle; sometimes grows as a shrub in poor soil
**Habitat:** Open muskegs and along open lake shores in southeast Alaska; intolerant of shade
**Foods:** Makes its own by photosynthesis
**Eaten by:** The seeds are eaten by pine grosbeaks and squirrels. Porcupines eat the bark. Deer and moose browse younger trees.

***Do You Know?*** The lodgepole pine along with its close relative, the shore pine, are the only true pines naturally found in Alaska.







## 34. ALASKA CEDAR F

**Traits:** Conifer tree with scalelike, flattened leaves in sprays, drooping branches, and gray to brown bark with shreds and fissures; the round cones have four to six scales, each with a pointed knob in its center.
**Habitat:** Wet, cool climate of coastal rainforest
**Foods:** Makes its own by photosynthesis
**Eaten by:** Wood-boring insects, aphids, other herbivorous insects

***Do You Know?*** Natives of southeast Alaska made their canoe paddles from this durable, aromatic wood.

## 31. SITKA SPRUCE F

**Traits:** Conifer tree with sharply pointed needles, flattened with slight ridge; hairless twigs; gray to purplish-brown bark; cones with stiff, long scales fall off every year.
**Habitat:** Well-drained soils in wet, moderate climates of coastal rainforest
**Foods:** Makes its own by photosynthesis
**Eaten by:** Red squirrels, crossbills, porcupines, deer mice, bark beetles, horntails, certain moths and flies, spruce aphids, carpenter ants

***Do You Know?*** Sitka spruce is the largest and one of the most valuable trees in Alaska. It is also the state tree.

## 35. CATTAIL W

**Traits:** Tall plant with broad leaves on a central, reddish-brown spike
**Habitat:** Shallow water and marshes in Interior Alaska
**Foods:** Makes its own by photosynthesis
**Eaten by:** Muskrats

***Do You Know?*** Called "the supermarket of the marsh," all parts can be eaten by humans.

## 32. WESTERN HEMLOCK F

**Traits:** Conifer tree with needles arranged in two rows along a hairy twig; needles have two white lines on the underside; reddish-gray outer bark with red inner bark
**Habitat:** Coastal forests on deep, well-drained soil at low elevations
**Foods:** Makes its own by photosynthesis
**Eaten by:** Deer, red squirrel, blue grouse, crossbills, pine siskins, bark beetles, horntails, certain moths and flies, spruce aphids, sawflies

***Do You Know?*** Alaska Indians made coarse bread from the inner bark of this tree and of the shore pine tree.

## 36. BURR REED T,W

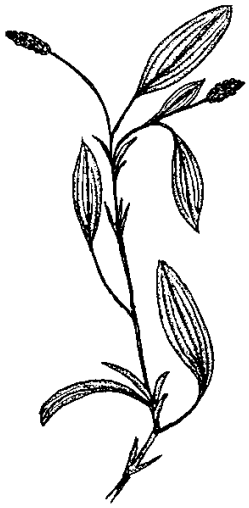
**Traits:** Plant with long, flat leaves whose flowers and seeds occur in round, burrlike clusters
**Habitat:** Deep or shallow water from alpine to lowland areas
**Foods:** Makes its own by photosynthesis
**Eaten by:** Ducks, swans, sandhill cranes, common snipes, muskrats

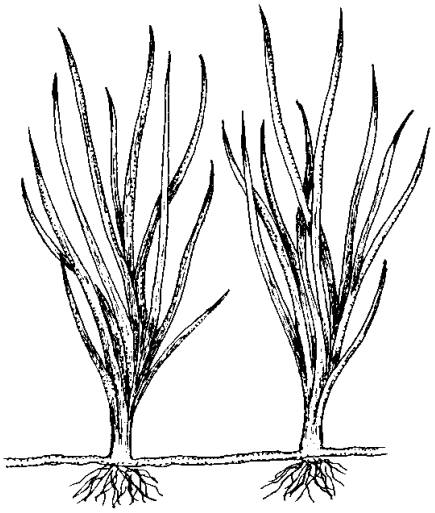
***Do You Know?*** The shape of the flower heads gives this plant its name. Male and female flowers occur in separate burrs on the same plant.

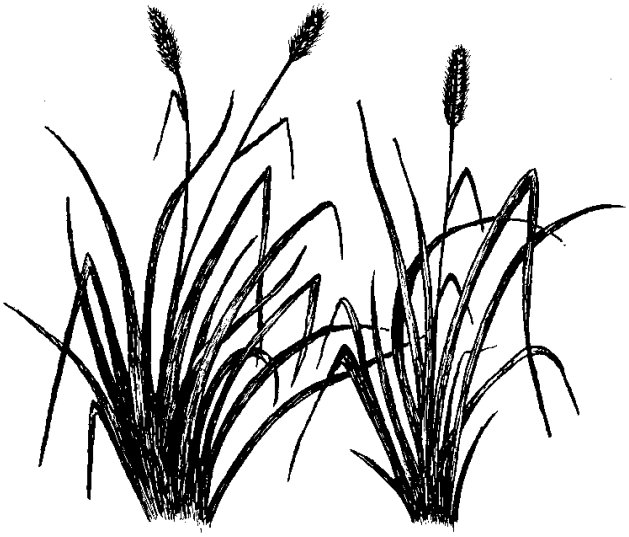
## 33. MOUNTAIN HEMLOCK F

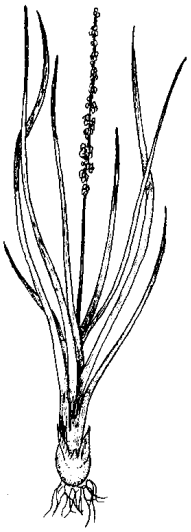
**Traits:** Conifer tree with rounded, blunt needles; fine hair on twigs; gray to dark brown bark; thin-scaled cones hang down
**Habitat:** Wet, moderate climates on well-drained and poorly drained sites of the coastal rainforest
**Foods:** Makes its own food by photosynthesis.
**Eaten by:** Red squirrels, crossbills, porcupines, larvae of bark and longhorn beetles, certain moths and flies, sawflies

***Do You Know?*** This tree's scientific name honors the German naturalist Karl Heinrich Mertens who discovered it near Sitka, Alaska, in 1827.









## 40. PENDENT GRASS T,W

**Traits:** Emergent, aquatic grass (plant) with long, narrow leaves; small, red-brown flowers occur in one to seven tight clusters (spikelets) at the top of a tall stalk.
**Habitat:** Shallow water of wet tundra and along lake shores and stream banks
**Foods:** Makes its own by photosynthesis
**Eaten by:** Geese, ducks, certain insects, snails other aquatic invertebrates; it is a major spring forage for brown and black bears.

***Do You Know?*** Loons and grebes use the leaves and hollow stems of this grass to build nests that float on the water.

## 41. GRASSES F,T,W

**Traits:** Ground cover plants with long, narrow leaves
**Habitat:** Wet, moist, and dry soils depending on the species
**Foods:** Make their own food by photosynthesis
**Eaten by:** Bison, lemmings, voles, ground squirrels, marmots, goats, sheep; the seeds are eaten by snow buntings, longspurs, redpolls.

***Do You Know?*** Their long, narrow leaf shape is less likely to be shredded or ripped by strong winds.

## 42. AGRICULTURE GRAINS W

**Traits:** Grains are actually types of grasses that once grew wild. They have narrow leaves, small green flowers, and round, hollow stems.
**Habitat:** Large agriculture fields throughout the world in regions of moderate climates; barley is grown in Alaska.
**Foods:** Make their own by photosynthesis
**Eaten by:** Bison; many waterfowl eat shoots and seeds, especially during migration and wintering. People worldwide depend upon grains for bread, cereal, and other foods.

***Do You Know?*** Some national wildlife refuges grow special crops of grains just for waterfowl to eat during winter.

## 37. PONDWEED W

**Traits:** Aquatic plant with floating leaves having parallel veins; the leaves are submerged on young plants and are long and narrow in most species. Flowers occur in a spike.
**Habitat:** Shallow to deep water in lakes and ponds throughout Alaska
**Foods:** Makes its own by photosynthesis
**Eaten by:** Insect larvae, snails, muskrat, waterfowl

***Do You Know?*** There are about 40 species of pondweed in North America, almost all of which are important either as food or shelter for animals.

## 38. EELGRASS W

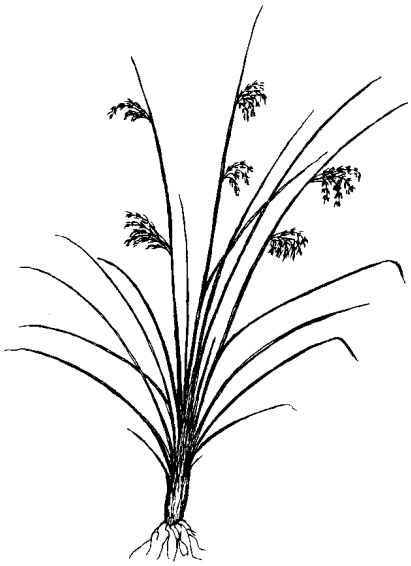
**Traits:** A marine (salt water) plant with slender, branched, green stems and leaves with parallel veins; separate male and female flowers grow on the same plant.
**Habitat:** Shallow estuaries and lagoons around the world
**Foods:** Makes its own by photosynthesis
**Eaten By:** Ducks, geese, fish, a variety of marine invertebrates (including mollusks and crustaceans), humans

***Do You Know?*** Eelgrass is the primary food for brant geese on their staging areas and wintering grounds.

## 39. ARROWGRASS W

**Traits:** An emergent, aquatic plant with long, narrow leaves that rise from a horizontal root; the rounded fruits are loosely arranged along the stem. May grow 4 to 35 inches (10-89 cm) tall, but they are usually small. This plant contains small amounts of cyanide.
**Habitat:** Fresh or salt water wetlands
**Foods:** Makes its own by photosynthesis
**Eaten by:** Ducks, geese, some aquatic invertebrates

***Do You Know?*** The same species of arrowgrass that occur in Alaska also grow in Canada, Europe, Asia, and Siberia.



## 46. TWISTED STALK F

**Traits:** Ground-cover plant with long leaves emerging from stem on alternate sides; its pink bell-like flowers grow beneath the leaves, and its berries are orange to dark red.
**Habitat:** Coastal forest sites with open canopies
**Foods:** Makes its own by photosynthesis
**Eaten by:** Moth and butterfly larvae, leafhoppers, true bugs, aphids, slugs, snails, mites, grouse, pine grosbeaks, voles, moose, hares, bears

***Do You Know?*** The stem of this plant changes angles of growth between leaves to form a stairstep shape.

## 47. WILD IRIS W

**Traits:** Tall plant with broad, grasslike leaves having parallel veins and a thick, round flower stalk; flowers have three large, purple-violet petals.
**Habitat:** Bogs, meadows, shorelines, riverbanks
**Foods:** Makes its own by photosynthesis
**Eaten by:** Unknown; may be poisonous to most animals

***Do You Know?*** This plant is poisonous and causes vomiting.

## 48. WILLOWS F,T,W

**Traits:** Broadleaf (deciduous) tree or shrub with long, narrow leaves; both male and female flowers occur in soft, fuzzy catkins.
**Habitat:** Wetlands, forests, and tundras throughout northern regions of the world; prefer moist or wet sites
**Foods:** Make their own by photosynthesis
**Eaten by:** Muskoxen, caribou, moose, snowshoe hares, ptarmigan, redpolls, beaver

***Do You Know?*** Willow bark contains salicylic acid, the active ingredient in aspirin, and was used as a painkiller at least 2,400 years ago.

## 43. SEDGES T,W

**Traits:** Herbs with long, narrow leaves that have parallel veins and solid, usually triangular, stems ("sedges have edges" to their stems); the tiny, inconspicuous flowers grow in clusters.
**Habitat:** Shallow water, mud, or moist soil of fresh or salt water wetlands
**Foods:** Make their own by photosynthesis
**Eaten by:** Caribou, muskoxen, ground squirrels, lemmings, voles, geese, seed-eating birds such as snow buntings, longspurs, rosy finches

***Do You Know?*** The long, narrow leaf shape of sedges reduces fraying by strong winds.

## 44. COTTON GRASS T,W

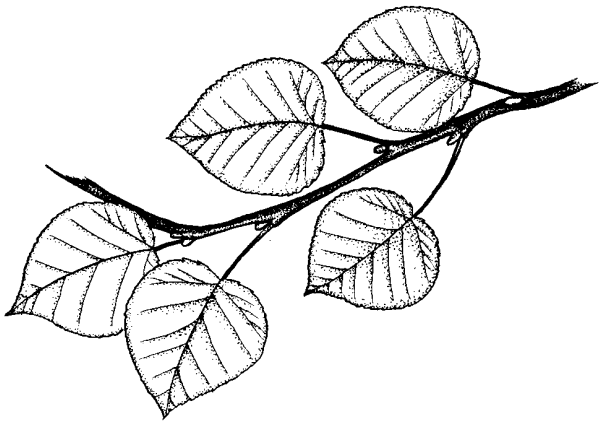
**Traits:** Herb with long, narrow leaves and solid stems; tiny, inconspicuous flowers grow in tight clusters. Tufts of white cottonlike bristles are present on the seeds.
**Habitat:** Wet tundra, muskegs, coastal wetlands, stream or lake margins
**Foods:** Makes its own by photosynthesis
**Eaten by:** Caribou, muskoxen, lemmings, voles, geese, seed-eating birds such as longspurs, redpolls, snow buntings

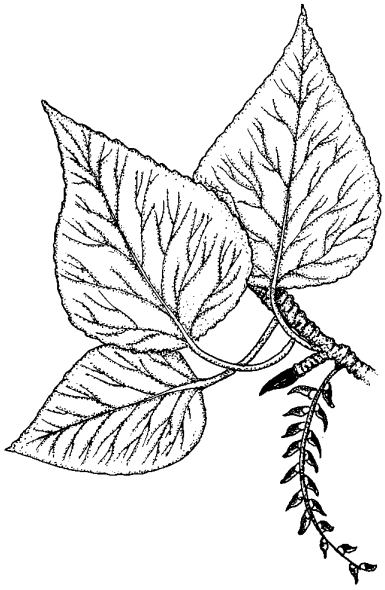
***Do You Know?*** Tussocks formed by cotton grass provide shelter and nest sites for small tundra birds and mammals.

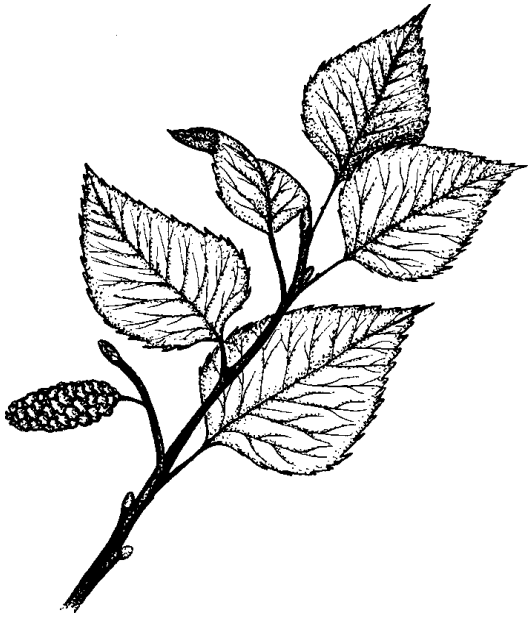
## 45. RUSHES T,W

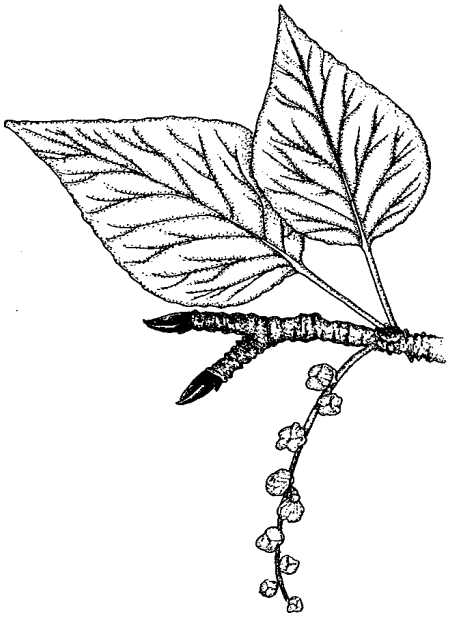
**Traits:** Emergent, aquatic plants with round leaves that have parallel veins; the tiny flowers have three greenish petals and grow in clusters along the side of the leaves.
**Habitat:** Marshes, wet tundra, riverbanks, estuaries, and ponds in temperate, subarctic, and arctic regions
**Foods:** Make their own by photosynthesis
**Eaten by:** Some aquatic invertebrates; seeds are eaten by seed-eating birds.

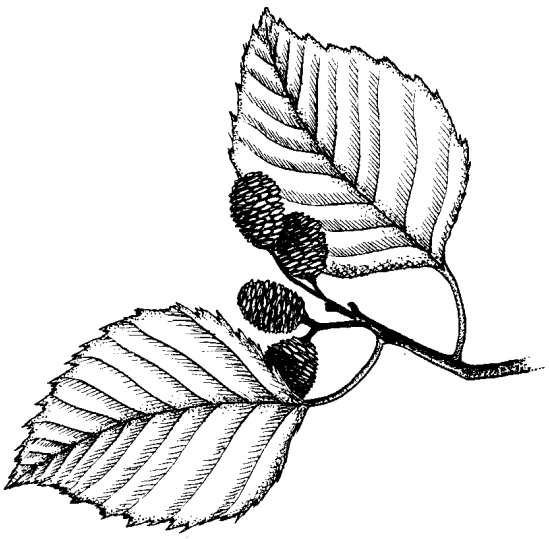
***Do You Know?*** Rushes compete with other aquatic plants and sometimes crowd out other species.











## 52. DWARF BIRCH F,T,W

**Traits:** A low, broadleaf shrub with small, round deciduous leaves; male and female flowers grow on the same plant in catkins.
**Habitat:** Moist soil, muskegs, rocky alpine slopes, tundra
**Foods:** Makes its own by photosynthesis
**Eaten by:** Ptarmigan, caribou, muskoxen, and seed-eating birds such as redpolls, longspurs, snow buntings

***Do You Know?*** This shrub can grow horizontally to avoid the wind and to take advantage of warm soil temperatures. Its perennial growth allows it to survive and reproduce despite the short growing season in tundra regions.

## 53. PAPER BIRCH F

**Traits:** Broadleaf (deciduous) tree with toothed leaf edges and white, smooth bark; the male and female flowers appear on the same twig, and the seeds develop on a conelike fruit.
**Habitat:** Boreal forests; grows best on sites without permafrost
**Foods:** Makes its own by photosynthesis
**Eaten by:** Moth larvae, aphids, metallic wood borers, pine grosbeaks, redpolls, ruffed grouse, moose, hares

***Do You Know?*** Birch are generally found in a mixture with white or black spruce, which replace it in the successional sequence after a fire. Birch sap is used to make syrup.

## 54. ALDER F,W

**Traits:** Broadleaf (deciduous) tree with horizontal lines (lenticels) on a smooth, gray bark; the leaf margins are finely toothed, and the fruit is a dark brown cone appearing in groups of three to nine.
**Habitat:** Disturbed sites such as gravel slopes, flood plains, landslides, and along streams and marshes
**Foods:** Makes its own by photosynthesis
**Eaten by:** Deer and moose browse the twigs and leaves. Some birds eat the buds and seeds.

***Do You Know?*** Alder roots usually have root nodules that fix nitrogen from the air and enrich the soil. They help other trees grow.

## 49. ASPEN F

**Traits:** Broadleaf (deciduous) tree with round leaves sharply pointed at the tip; whitish or greenish-gray bark containing black scars and knots; the male and female flowers are on different trees producing cottony seeds.
**Habitat:** Well-drained soils on warm slopes
**Foods:** Makes its own by photosynthesis
**Eaten by:** Moth larvae, aphids, true bugs, leafhoppers, mites, pine grosbeaks, ruffed grouse, moose, snowshoe hares

***Do You Know?*** Aspen trees often grow in dense pure stands, especially following forest fires. They live about 80-100 years.

## 50. BALSAM POPLAR F

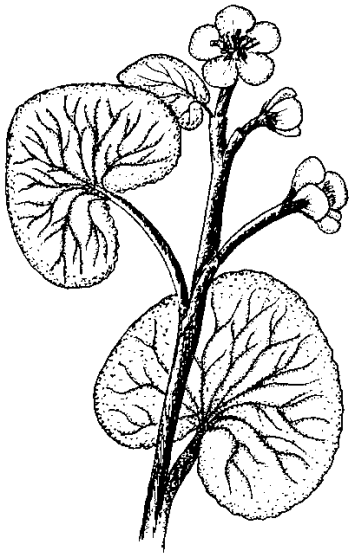
**Traits:** Broadleaf (deciduous) tree with spade-shaped leaves having small, rounded teeth; gray bark containing deep furrows; the male and female flowers grow on different trees. The long, egg-shaped seed capsules within long catkins have tiny, cottony seeds.
**Habitat:** Well-drained soils in boreal forests
**Foods:** Makes its own by photosynthesis
**Eaten by:** Aphids, moth larvae, sawflies, true bugs, leafhoppers, moose, snowshoe hares, pine grosbeaks, beaver

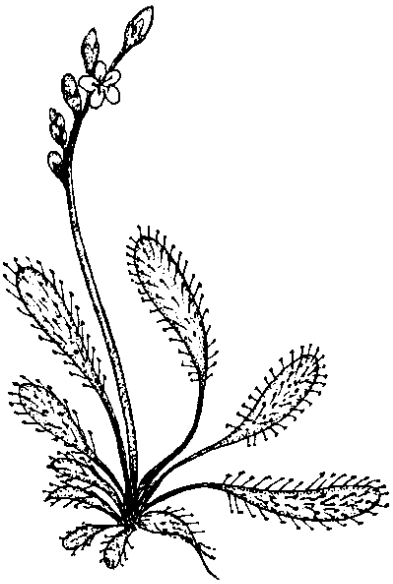
***Do You Know?*** The wood of balsam poplar is used for boxes, crates, and pulpwood.

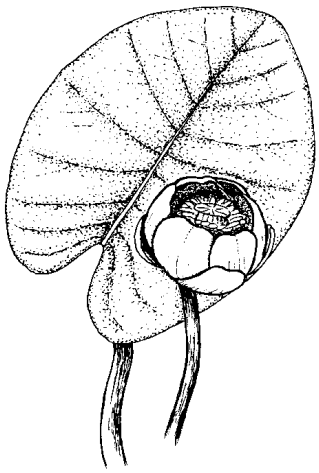
## 51. BLACK COTTONWOOD F

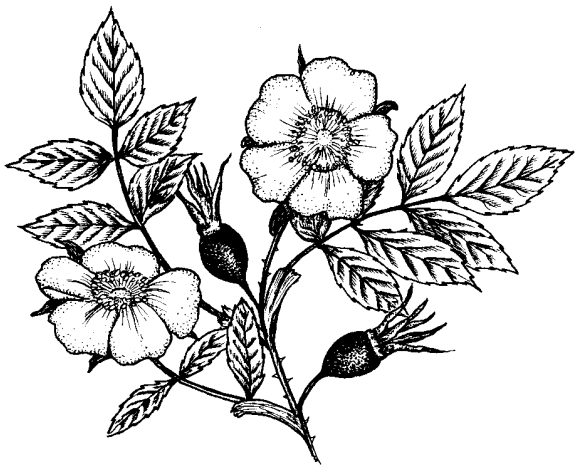
**Traits:** Broadleaf (deciduous) tree with spade-shaped leaves having small, rounded teeth; gray bark containing deep furrows when full-grown; the male and female flowers grow on different trees; round, three-parted seed capsules within long catkins; tiny cottony seeds
**Habitat:** River bottoms in coastal forests
**Foods:** Makes its own by photosynthesis
**Eaten by:** Moth larvae, aphids, leafhoppers, true bugs, blue grouse, pine grosbeaks

***Do You Know?*** Black cottonwood is the largest broadleaf tree in Alaska, growing rapidly to heights of 80 to 100 feet (24-30 m) at maturity.









## 58. MARSH MARIGOLD W

**Traits:** A small herb with shovel-shaped, net-veined leaves and showy yellow flowers
**Habitat:** Wet and moist places
**Foods:** Makes its own by photosynthesis
**Eaten by:** Moose, muskrats, some aquatic invertebrates

***Do You Know?*** Marsh marigolds are poisonous when raw, but are edible after careful boiling.

## 55. WATER SMARTWEED W

**Traits:** Aquatic plant with long petioles (small stem that attaches leaf to a main stem) on oblong, smooth-edged leaves; leaves often tinged with red; pink flowers grow in dense spikes (upright cluster)
**Habitat:** Wetlands, ponds, bogs
**Foods:** Makes its own by photosynthesis
**Eaten by:** Muskrats, moose, ducks, some aquatic invertebrates

***Do You Know?*** This plant grows in wetlands of northern areas around the world.

## 59. SUNDEW W

**Traits:** Small carnivorous plant with sticky glands covering the leaves; the small flowers have five petals.
**Habitat:** Common in muskeg bogs
**Foods:** Makes its own by photosynthesis and eats insects
**Eaten by:** Unknown

***Do You Know?*** Sundew plants trap insects on their sticky leaves; the leaves close around the trapped insect and digest it. The nitrogen and phosphorus in an insect's body are valuable nutrients that the sundew needs to produce its flowers.

## 56. MOSS CAMPION T

**Traits:** A low-growing, densely tufted plant that looks like a small cushion; has short, flat leaves covered with stiff hairs; small pink-purple flowers
**Habitat:** Dry soil in alpine and lowland tundra
**Foods:** Makes its own by photosynthesis
**Eaten by:** Dall sheep, mountain goats

***Do You Know?*** The low growth form and cushion shape of this plant allow it to withstand severe winds and to retain heat.

## 60. WILD ROSE F

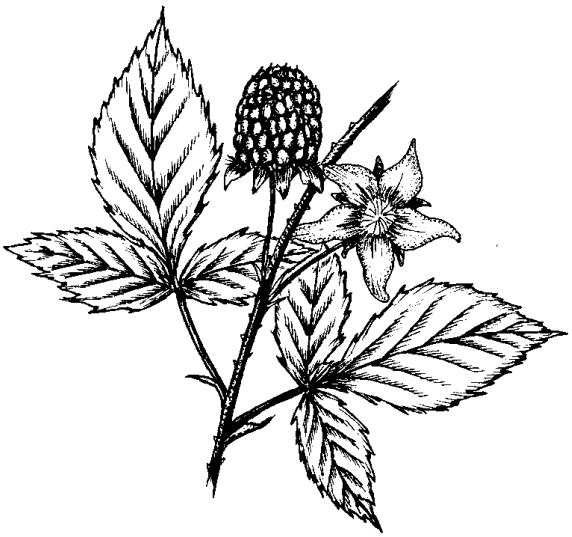
**Traits:** Broadleaf shrub with leaves made of three to nine leaflets whose leaves emerge from the stems on alternate sides; stems covered with small thorns and large pink flowers
**Habitat:** Shaded understory of mature boreal forest, in old burn sites, tall shrub thickets, and along beaches
**Foods:** Makes its own by photosynthesis
**Eaten by:** Moth larvae, aphids, pine grosbeaks, grouse, thrushes, hares, mice, humans

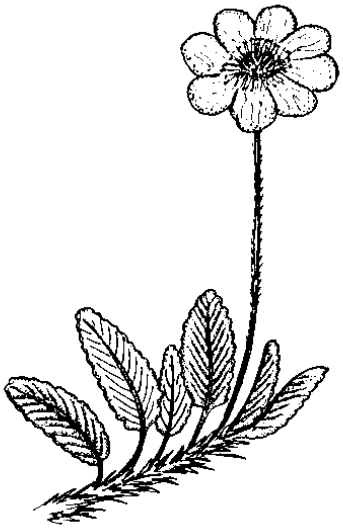
***Do You Know?*** The fruit of the rose, called rose hips, is one of the richest known food sources of vitamin C.

## 57. YELLOW POND LILY T,W

**Traits:** Floating, aquatic plant with large, long-stemmed, heart-shaped floating leaves; its large, yellow flowers have seven to nine petals.
**Habitat:** Ponds and slow streams throughout most of Alaska; bogs and muskegs except in western Alaska and north of the Brooks Range
**Foods:** Makes its own by photosynthesis
**Eaten by:** Roots eaten by muskrats, ducks, and, traditionally, by Alaska Natives.

***Do You Know?*** Seeds may be popped like popcorn and served as a cereal or snack.





## 64. MARSH FIVEFINGER W

**Traits:** A sprawling plant with a woody rootstalk.; leaves are toothed and in separate groups of five to seven leaflets; its flowers are purplish-brown with five pointed petals.
**Habitat:** Very wet meadows, marshes, shallow water, along streams
**Foods:** Makes its own by photosynthesis
**Eaten by:** Unknown

***Do You Know?*** Also called marsh cinquefoil.

## 61. MOUNTAIN ASH F

**Traits:** Broadleaf (deciduous) tree with oblong, toothed leaves, each made of 9-11 leaflets; smooth gray bark, red berries, and showy flowers in large clusters
**Habitat:** Moist, cool climates in coastal forests
**Foods:** Makes its own by photosynthesis
**Eaten by:** Aphids, true bugs, leafhoppers, moth larvae; berries are eaten by pine grosbeaks, waxwings, thrushes, and jays. The leaves and buds are a favorite of moose.

***Do You Know?*** The fruits from this tree are eaten by many birds, especially in winter.

## 65. SOAPBERRY F

**Traits:** Broadleaf shrub with oval leaves growing in pairs (opposite) along the stem and covered with reddish-brown hairs on the underside; has small, yellow flowers and red to yellow berries
**Habitat:** Dry, well drained, woody places near rivers and lakes
**Foods:** Makes its own by photosynthesis
**Eaten by:** Bears, grosbeaks, waxwings, grouse, insects such as aphids, larval moths, butterflies

***Do You Know?*** The raw berry of this plant is very bitter because of the presence of "saponin," a chemical also found in detergents.

## 62. RASPBERRY AND SALMONBERRY F

**Traits:** Broadleaf shrubs with leaves made of three leaflets, toothed along edges; showy white or pink flowers; yellow to red fruit of many small seeds encased in fleshy coats
**Habitat:** Moist, cool forest climates
**Foods:** Make their own by photosynthesis
**Eaten by:** Aphids, true bugs, leafhoppers, moth larvae, slugs, grouse, grosbeaks, jays, waxwings, thrushes, crows, sparrows, voles, deer mice, deer, moose, bears, hares, foxes, marten, humans

***Do You Know?*** The fruit from these plants are delicious eaten raw and make a very good jam.

## 66. FIREWEED F

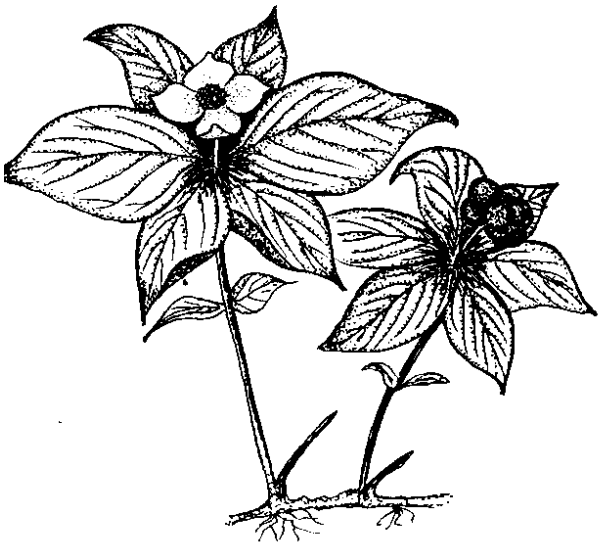
**Traits:** Herb (plant) with long, narrow leaves on a stalk, many reddish-purple flowers along the top of its stem, and cottony seeds
**Habitat:** Disturbed soils and forests with open canopies that allow plenty of sunlight to reach the ground
**Foods:** Makes its own by photosynthesis
**Eaten by:** Moth larvae, aphids, gall aphids, certain flies, true bugs, leafhopppers, slugs, redpolls, sparrows, moose, hares, bears

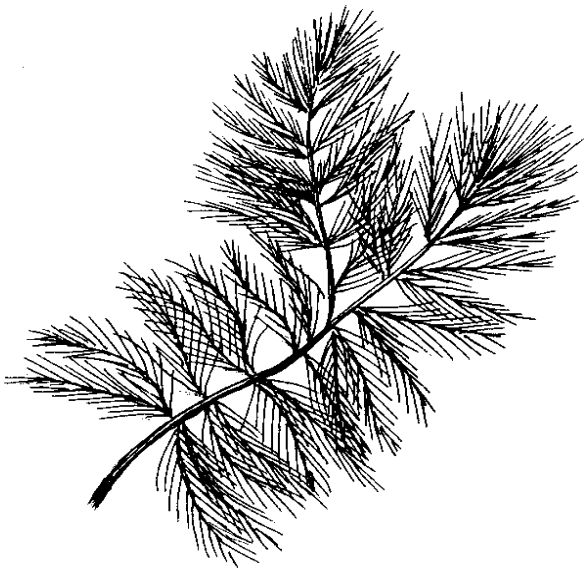
***Do You Know?*** Fireweed is one of the first plants to appear after a fire, sometimes just a few days following a fire. People eat fireweed honey.

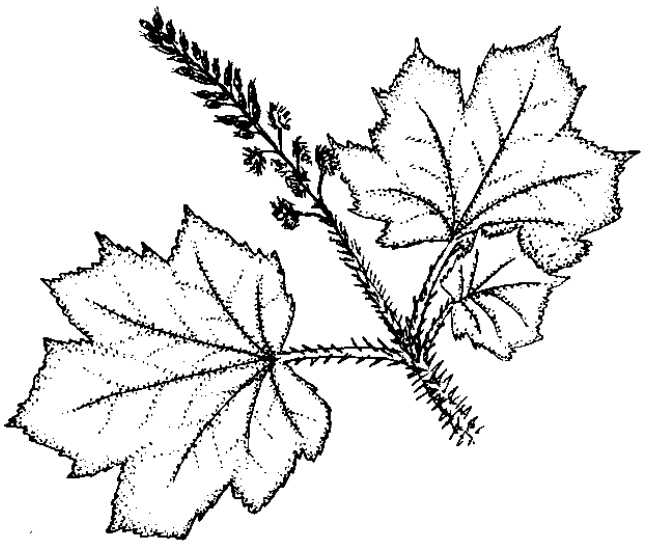
## 63. DRYAS F,T

**Traits:** A low-growing, evergreen, herbaceous shrub with narrow, sometimes wavy-edged, leaves; this dwarf plant often appears matted.
**Habitat:** Dry soil of boreal forest and tundra
**Foods:** Makes it own by photosynthesis
**Eaten by:** Caribou, lemmings, ground squirrels, Dall sheep

***Do You Know?*** The small, leathery leaves of dryas lose less water than do other kinds of leaves and are more resistant to winds.







## 70. BUNCHBERRY F

**Traits:** Ground cover plant with four to six oval-shaped leaves arranged in a circle around a central flower cluster; tiny flowers surrounded by white petal-like bracts; clusters of red berries
**Habitat:** Mature and old-growth coastal forests, boreal forests, subalpine forests
**Foods:** Makes its own by photosynthesis
**Eaten by:** Aphids, moth larvae, true bugs, leafhoppers, pine grosbeaks, thrushes, sparrows, red squirrels, voles, mice, deer

***Do You Know?*** This plant depends on mycorrhizal fungi to help it obtain soil nutrients and on insects to pollinate its flowers.

## 71. SKUNK CABBAGE F

**Traits:** Herb (plant) with large leaves having smooth edges; its flowers grow on a spike surrounded by a bright yellow, modified leaf. It produces its own heat by a chemical reaction to melt snow, allowing its leaves to quickly emerge in the spring.
**Habitat:** Wet, shaded locations in coastal forests
**Foods:** Makes its own by photosynthesis
**Eaten by:** Slugs, bears, deer

***Do You Know?*** Skunk cabbage depends upon flies to pollinate its flowers and attracts these pollinators with a skunklike odor.

## 72. CROWBERRY F,T

**Traits:** Hardy, low-growing evergreen shrub whose fruit is an edible blue-black berry
**Habitat:** Moist or wet ground in alpine and lowland tundra and boreal forests
**Foods:** Makes its own food by photosynthesis
**Eaten by:** Berries eaten by lemmings, voles, geese, plovers, snow buntings, longspurs, rosy finches, humans

***Do You Know?*** The small, wax-coated leaves are resistant to drying by wind and cold. This plant reduces its exposure to the wind by growing close to the ground. Crowberry is a perennial.

## 67. MARE'S TAIL W

**Traits:** Emergent, aquatic plants with 6-12 pale green leaves in a whorl (circle) around the stem; its flowers grow between the stem and leaf.
**Habitat:** In Alaska, one species grows in shallow running water, one in mountain streams, and one in estuaries.
**Foods:** Makes its own by photosynthesis
**Eaten by:** Ducks, certain sandpipers, some aquatic invertebrates

***Do You Know?*** Only a few species of mare's tail exist; they occur in wetlands worldwide.

## 68. WATER MILFOIL W

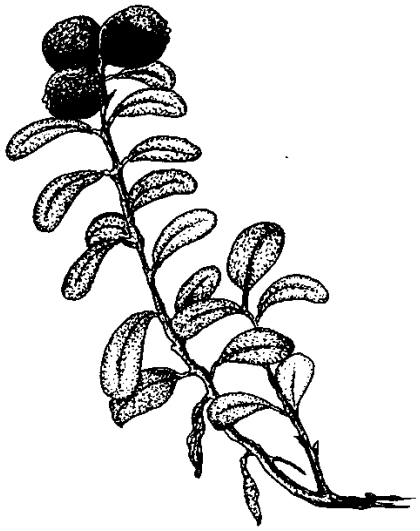
**Traits:** Emergent, aquatic plant with finely divided leaves that form a circle around the stem; its flowers grow on a spike that sticks above water.
**Habitat:** Shallow, slow-moving or still waters
**Foods:** Makes its own by photosynthesis
**Eaten by:** Muskrats, ducks, some shorebirds

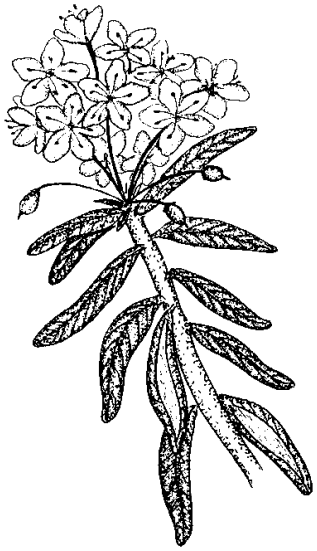
***Do You Know?*** The male flowers have larger petals than do the female ones, and both male and female flowers grow on the same plant.

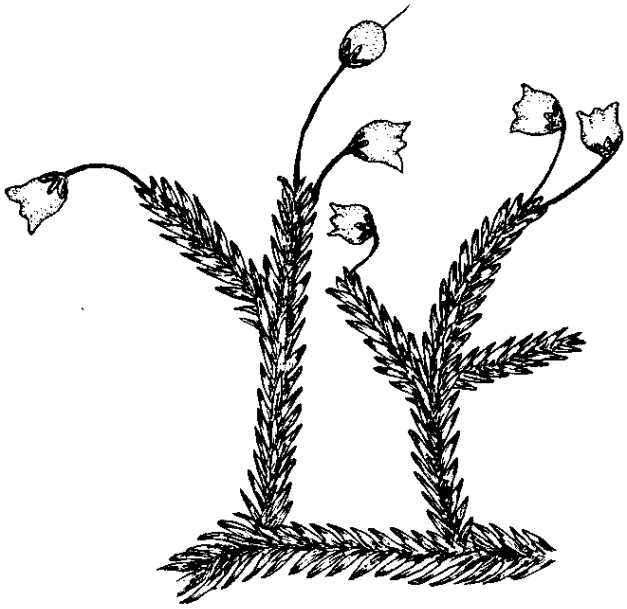
## 69. DEVIL'S CLUB F

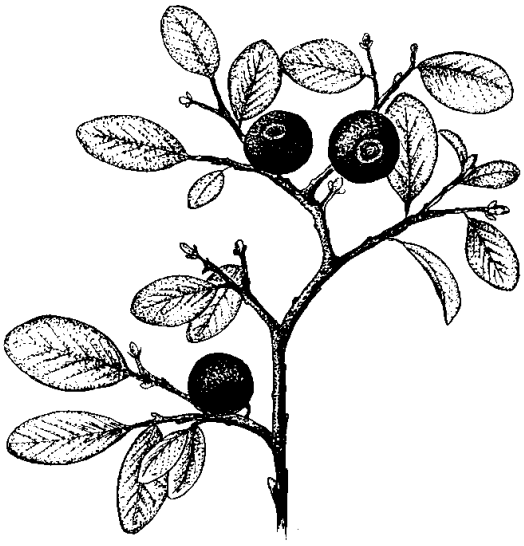
**Traits:** Spines cover the stems and very large leaves of this plant. Large cluster of flowers; fruit is a red berry.
**Habitat:** Coastal forests: old-growth stands and clearings
**Foods:** Makes its own by photosynthesis
**Eaten by:** Deer, red squirrels, leafhoppers, true bugs

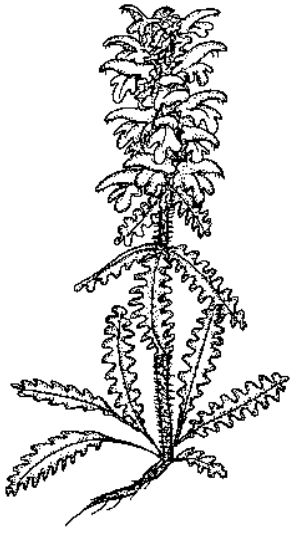
***Do You Know?*** The bark, stems, and ash have been used by the Tanaina, Eskimo, and Haida people as a remedy for fever and colds and as a general cure-all.











## 76. LABRADOR TEA F,W

**Traits:** Shrub with long, narrow leaves that are thick and rolled under on the sides and have reddish-brown, hairy undersides; sweet-smelling white flowers grow in clusters at ends of twigs; its fruit is a capsule.
**Habitat:** Poorly drained soils, muskegs, old-growth forests
**Foods:** Makes its own by photosynthesis
**Eaten by:** Moth larvae, aphids, true bugs, leafhoppers, snowshoe hares

***Do You Know?*** The strongly aromatic leaves of this plant can be used to make a tasty tea.

## 77. HEATHER T

**Traits:** Low-growing, mosslike shrub with white, bell-shaped flowers
**Habitat:** Dry soil of alpine and arctic tundra
**Foods:** Makes its own by photosynthesis
**Eaten by:** Lemmings, ground squirrels

***Do You Know?*** Heather's perennial growth allows it to survive despite the short growing seasons in tundra regions. The bell-shaped flowers retain solar heat and deflect wind from the seed-producing flower parts.

## 78. LOUSEWORT T

**Traits:** Perennial plant with one to two simple stems arising from the roots and topped by a large flower spike; a dense gray wool covers the plant.
**Habitat:** Dry soil of alpine and lowland tundra
**Foods:** Makes its own by photosynthesis
**Eaten by:** Ground squirrels, lemmings, caribou

***Do You Know?*** The dead leaves of this plant do not fall off. They help protect the shoots and flower buds during winter. Lousewort is pollinated by bumble bees.

## 73. LOWBUSH CRANBERRY F,T,W
**(also called LINGONBERRY)**

**Traits:** Ground cover plant with small, oval leaves; small, white to pink bell-shaped flowers; small, edible red berry.
**Habitat:** Moist soils in alpine and lowland tundra and boreal forests
**Foods:** Makes its own food by photosynthesis
**Eaten by:** Bears, lemmings, voles, ptarmigan, grouse, geese, plovers, snow buntings, longspurs, moth larvae, aphids, leafhoppers, cranes, humans

***Do You Know?*** The small, wax-coated leaves of low-bush cranberry are resistant to drying by wind and cold.

## 74. ALPINE BEARBERRY F,T,W

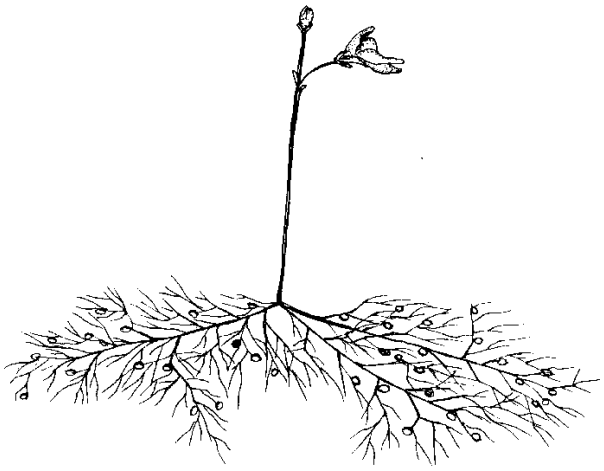
**Traits:** Low-growing shrub with evergreen leaves and small, white, bell-shaped flowers; fruit is an edible berry.
**Habitat:** Dry and moist soil in alpine and lowland tundra, forests, and muskegs
**Foods:** Makes its own food by photosynthesis
**Eaten by:** Bears, voles, lemmings, ptarmigan, geese, plovers, humans

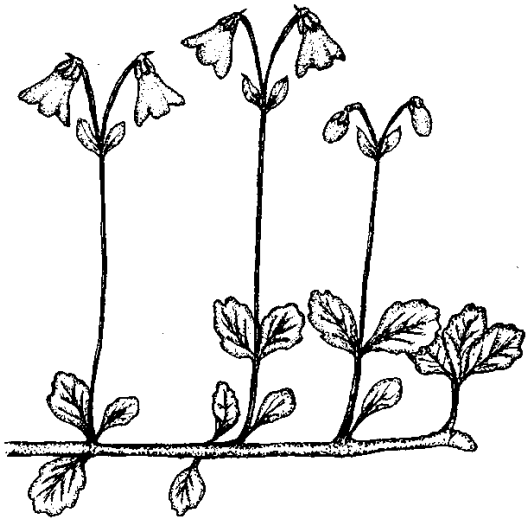
***Do You Know?*** Bearberry plants depend on mycorrhizal fungi to help them obtain nutrients from the soil. In exchange, they provide sugars to the fungi. These plants depend on animals to transport their seeds.

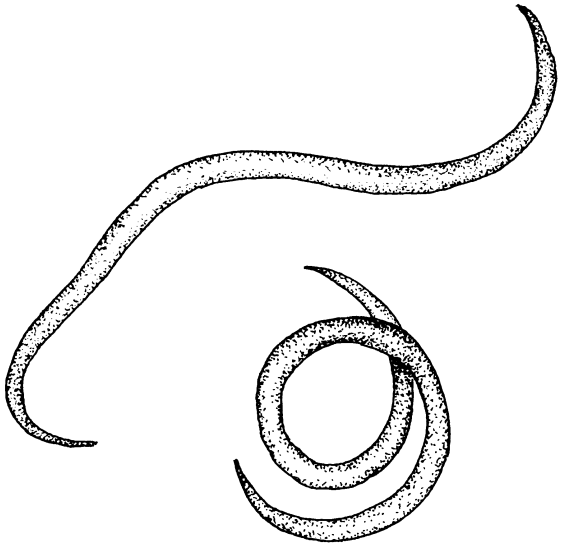
## 75. BLUEBERRY F,T,W
**(also called HUCKLEBERRY)**

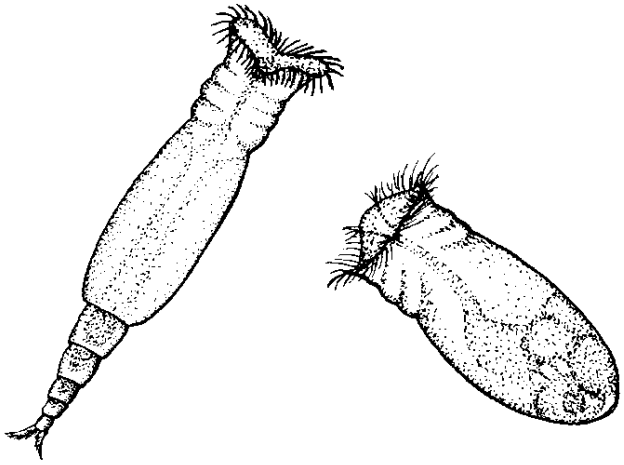
**Traits:** Shrub with small, oval leaves having smooth edges; small, bell-like flowers; blue, black, or red berries.
**Habitat:** Well-drained soils in wet, moderate climates
**Foods:** Makes its own by photosynthesis
**Eaten by:** Moth larvae, aphids, gall aphids, certain flies, true bugs, leafhoppers, slugs, snails, deer, pine grosbeaks, jays, voles, mice, thrushes, bears, cranes, humans

***Do You Know?*** The berries are available in late fall and make good pies, jams, and jelly.









## 82. HAREBELL T

**Traits:** A slender, delicate perennial plant with clusters of blue bell-shaped flowers
**Habitat:** Dry to moist soil in rock crevices of alpine tundra
**Foods:** Makes it own by photosynthesis
**Eaten by:** Lemmings, voles, ground squirrels, hares

***Do You Know?*** This plant's blue, cup-shaped flowers absorb and retain heat better than do light-colored flowers of other shapes.

## 79. BLADDERWORT W

**Traits:** Carnivorous aquatic plant with finely divided, underwater leaves, bearing small flowers that stick out of the water
**Habitat:** Ponds and lakes throughout Alaska
**Foods:** Makes its own by photosynthesis; also feeds on small insects.
**Eaten by:** Ducks

***Do You Know?*** Small air sacs (or bladders) on the underwater leaves are traps for insects. When an insect touches the sensitive hairs outside the trap, the air sac pops open. Water then rushes in, carrying the unsuspecting insect into the trap, and the bladderwort then eats it.

## 83. ROUNDWORMS F,T,W

**Traits:** Slender worms tapered at both ends, without any segments; invertebrate animals
**Habitat:** Soil, mosses, lichens, leaves, or waste, materials, also in water
**Foods:** Dead things, algae, insects, or waste material
**Eaten by:** Centipedes, other invertebrates

***Do You Know?*** These worms often hitch rides to new areas on the legs of flies, beetles, birds, or mammals.

## 80. TWINFLOWER F

**Traits:** Ground cover plant with small, oval leaves with tips divided into three parts; the small, pink, bell-shaped flowers grow in pairs on a tall stalk, and the fruit is a capsule.
**Habitat:** Boreal and coastal forests with an open canopy that allows light to reach the forest floor
**Foods:** Makes its own by photosynthesis
**Eaten by:** Moth larvae, leafhoppers, true bugs, deer, voles, sparrows, grouse

***Do You Know?*** Twinflower needs mycorrhizal fungi to help it get soil nutrients, and it depends on insects to pollinate its flowers.

## 84. ROTIFERS F,T,W

**Traits:** Microscopic invertebrate animals having one or more rings of cilia at the front end of the body
**Habitat:** Fresh water, or on mosses, other plants, or lichens
**Foods:** Aquatic detritus (dead organic matter), protozoans, other small animals
**Eaten by:** Roundworms, other invertebrates

***Do You Know?*** Terrestrial rotifers survive severe environmental conditions by going dormant for as long as three to four years.

## 81. HIGHBUSH CRANBERRY F

**Traits:** Shrub with three-lobed leaves growing in pairs along the stem; white flowers in clusters at the end of short twigs; bright red berries
**Habitat:** Understory in aspen and birch forests; grows best in well-drained, warm sites
**Foods:** Makes its own by photosynthesis
**Eaten by:** Moth and butterfly larvae, leafhoppers, true bugs, aphids, other insects, ruffed and spruce grouse, pine grosbeaks, voles, moose, hares, bears, humans

***Do You Know?*** Highbush cranberry is also called "cramp bark" because the bark is a natural source of muscle relaxant.