LIFE IN THE TUNDRA SOIL

(Modified for ADEED)

This Alaska Department of Fish and Game lesson has been selected for Yukon Flats School District use by a team of education specialists at the University of Alaska Fairbanks Geophysical Institute.

This lesson was taken from the *Alaska's Tundra and Wildlife* notebook (2001). Page numbering is not consecutive as material has been obtained from different sections of the publication.

The lesson addresses the following Alaska Grade Level Expectations:

Science

[4] SC2.1 The student demonstrates an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms by choosing appropriate tools (i.e., hand lens, microscopes, ruler, balance) to examine the basic structural components (e.g., stems, leaves, fish scales, wings) of living things

[4] SC2.2 The student demonstrates an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms by describing the basic characteristics and requirements of living things.

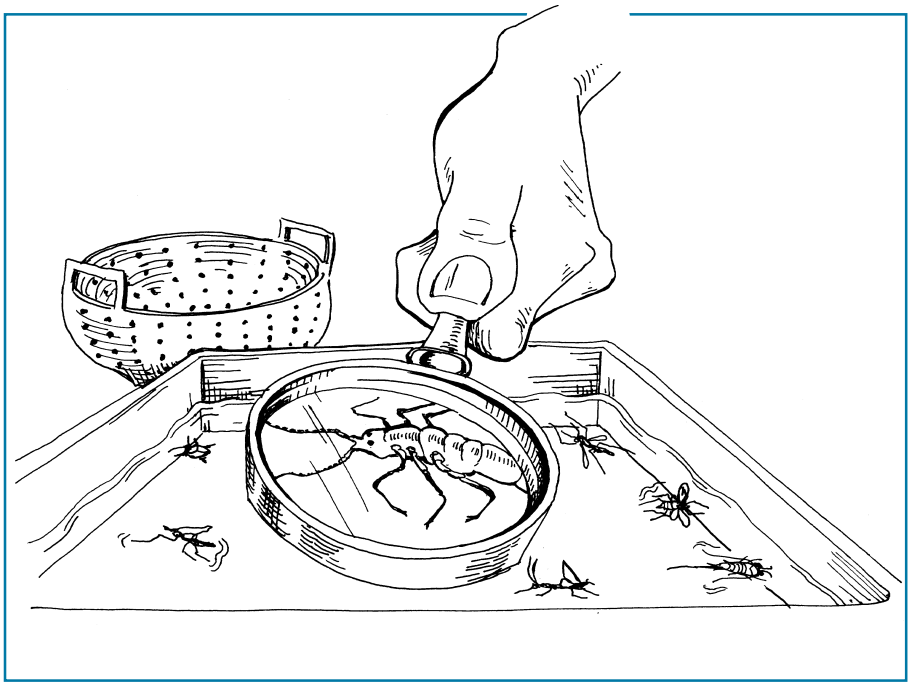
Added Materials

Alaska Ecology Cards

Life in the Tundra Soil

2 EXTENSIONS

ALERT: ALASKA ECOLOGY CARDS REQUIRED



Section 4
TUNDRA ACTIVITIES

Grade Level: 4 - 12

State Standards: S A-15, S B-1, S B-5

Subjects: Science, math

Skills: Estimating, measuring

Duration: 2 class sessions, separated by 24 hours

Group Size: Small, or whole class

Setting: Indoors

Vocabulary: Dormant, invertebrates, larval stage, pupae, springtails

Objective:

Given a sample of tundra soil, students will estimate and measure the invertebrate organisms in it.

Teaching Strategy:

Students find invertebrates in a tundra soil sample and count their numbers.

Materials:

Perforated bowl or colander, tray or baking pan filled with water, incandescent light, hand lenses or insect boxes, sample of tundra soil collected in the fall or spring and placed in a glass jar (*if you don't live near tundra, ask someone to collect a soil sample from a nearby mountain*).

Copies of the *Alaska Ecology Cards* for the following: roundworms, rotifers, segmented worms, mites, springtails, rove beetles, craneflies, midges, black flies, fungus gnats, ichneumons, blowflies, and bumblebees.

Optional: Insect field guides (*see Curriculum Connections, following*).

Background:

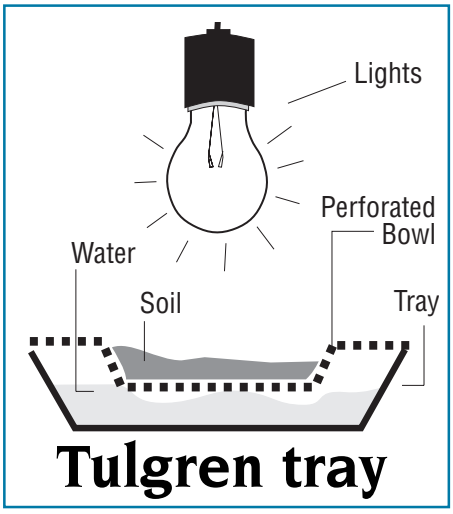
See INSIGHTS *Section* 4, *Tundra Ecosystems*: "*Detritivores Reuse and Recycle.*"

Procedure:

1. Collect a sample from the top 2 to 5 inches (5-13 centimeters) of tundra soil. Place this in the jar. Ask students to guess how many animals are in the soil sample. Each student has one guess. Write their guesses on the board or on chart paper.

2. Force the invertebrates out of the soil sample by using a "Tulgren tray." A Tulgren tray (*illustration follows*) is made by setting a perforated bowl or colander in a tray or baking pan full of water. Water should not reach the holes of the colander. Empty the soil sample into the colander.

3. Shine a light on the top of the soil. The soil invertebrates will move downward to flee from the warm light. After 24 hours, count the number of organisms that tumble out into the water or cling to the bottom of the colander.



4. Ask students to observe the creatures closely with hand lenses or magnifying glasses. What invertebrates can they identify, using the *Alaska Ecology Cards* or an insect field guide?

5. Count all the animals present. Compare this amount to the guesses on the board. Discuss the number of invertebrate animals scientists have found in samples of tundra soil.

Evaluation:

1. Ask students to explain why the Tulgren tray model is successful. Would it work if they didn't shine the light overhead? What if they moved the light closer to or farther from the dirt sample? What does the light in this model represent? What season is being simulated?

2. Ask the students the following questions:
- Would you expect to find more invertebrates in forest soil or tundra soil? Why?
- Why are invertebrates important in tundra soil?
- What is their role in the tundra ecosystem?

Students write answers to their questions and discuss their papers with the class.

EXTENSIONS:

A. **Apply knowledge to population estimates.** Based on experience in this activity, students estimate the number of invertebrates in one tablespoon of tundra soil, in one cup of tundra soil. Older students can estimate numbers for larger areas.

B. **Create an illustrated graph**. Students draw pictures of the different invertebrates found in the soil. Students cut out the pictures and use them as labels on a graph. The graph will show the number of each type of organism.

Curriculum Connections:

(See appendix for full citations)

Books:

National Audubon Society First Field Guide, Insects (Wilsdon)

A Naturalist's Guide to the Arctic (Pielou), 9-12

One Small Square: Arctic Tundra (Silver)

Peterson's Field Guide to Insects (Borror)

Peterson First Guides: Insects (Leahy) (for younger students)

Websites:

Audubon On Line Field Guides website
<www.enature.com>

Teacher Resources:

(See appendix)

In tundra that has severely cold summers,
most insects crawl rather than fly,
because the energy cost
of flying is too great!

Tundra Ecosystems – Community Connections

Energy Transfer – the basics of all life

Where the next meal comes from is a constant priority in any organism's life. In the tundra, this priority is especially critical because food sources (energy) are not abundant, and the slow organism may lose not only a meal but also its life. The following pages describe how energy is transferred and recycled in the tundra environment. Recycling here is not just an option, but is critical to continued survival of the ecosystem.

FOOD WEBS – who eats whom?

[See *Alaska Ecology Cards* for species illustrations and INSIGHTS 3 for the "Five Kingdoms of Tundra Life".]

A plant is exquisitely equipped to convert the nonliving – air, water, minerals, and sunlight – into food for itself and others. Plants and algae that make food from nonliving materials are called **producers**.

The other living things in the tundra that depend on food manufactured by producers are called **consumers**. Consumers divide into four groups: **herbivores** (animals that eat plants), **carnivores** (animals that eat other animals), **omnivores** (animals that eat both other animals and plants), and **detritivores** (animals and other organisms that eat dead or decaying material).

The pathway of **energy** and **minerals** from the nonliving environment, through producers, to consumers, and back again through detritivores creates a **food chain**. All the food chains of a tundra are connected into a **food web – the energy circulatory system of an ecosystem**.

***Energy Lost and Found*:** At each intersection in the web, some energy is returned to the nonliving environment as heat. That energy is not passed on and cannot be reused by living things. The lost energy is replaced during photosynthesis by the capture of energy from the sun.

***Mineral Recycling*:** Minerals are always passed along at each web intersection until the detritivores return them to the environment in their original form, where producers can use them to make new food.

Producers Convert Raw Materials

Using the process of **photosynthesis**, producers combine energy from sunlight

with carbon dioxide from the air and minerals from water, soil, and rocks to produce the sugars and oxygen that help all other living things survive. Plants, algae, and lichens are important producers in tundra ecosystems and are the first life forms in food chains.

***Unique in the World*:** Tundra producers are unique among producers in the world. Because lack of light (from darkness or snow cover), cold temperatures, and lack of moisture, they can only function for a few months each year. Ironically, this means that tundra producers are also tundra inhibitors – slowing and limiting the flow of energy and minerals through the ecosystem. [*Detritivores are another* **limiting factor**; *see below.*]

Scientists measure this flow of energy and minerals by determining the weight of carbon that is "fixed" or changed into living material by producers each year. Basically, the measurement is the dry weight of all new growth – leaves, roots, flowers, seeds – produced each year.

***Low Productivity in Tundra*:** On average, all tundra producers together make only one-tenth to one-third as much food each year as producers in forest ecosystems. As a result, tundra consumers are limited by a shortage of food unless they migrate elsewhere for part of the year (see "*Migration*" in INSIGHTS *Section* 3).

Herbivores Eat *Producers*

Some of the largest and smallest tundra wildlife are herbivores. Caribou and lemmings receive all their nutrition from plants. A caribou, however, must roam great areas of lowland tundra and migrate to obtain enough food to sustain its body mass.

Geese, also migrants, are tundra herbivores in the summer when plants are at their peak production.

Compared with forest ecosystems, relatively few plant-eating invertebrates occur in either alpine or lowland tundra environments. The tundra has herbivorous bumblebees, moths, butterflies, and a few sawflies, but these consume much less green vegetation than do vertebrate herbivores.

In alpine tundra, voles, pikas, marmots, Dall sheep, and mountain goats are the main plant consumers.

Carnivores Eat *Herbivores* – *and Each Other*

Tundra herbivores are prey of tundra carnivores such as wolves, wolverines, arctic foxes, weasels, jaegers, snowy and short-eared owls, gyrfalcons, and golden eagles. All will eat each other if the opportunity arises.

***Birds Seek Insects*:** Flocks of small, insect-eating shorebirds that migrate to the tundra to nest are major carnivores in the ecosystem despite the relative scarcity of insect herbivores. Goslings and ducklings also rely on insects for a protein boost during their first few weeks of life while the parent geese and ducks eat plants and algae.

The insect-eating invertebrates in tundra ecosystems include some predatory crane flies, spiders, and ground and rove beetles.

***Predator – Prey Dependency*:** Carnivores cannot survive without adequate populations of prey. Thus, the numbers and kinds of herbivores on the tundra determine, in part, the presence and abundance of carnivores.

Carnivores also influence the numbers and kinds of herbivores on the tundra. If a population of herbivores grows too large, the animals may eat all their food supply and starve. Maintaining healthy populations of carnivores reduce the chance of such herbivore population explosions and crashes. When a population explosion does occur, carnivores lessen the impact on plants.

Opportunistic Omnivores

Food on the tundra is often scarce; therefore, consumers that eat a variety of foods have a better chance of survival. Arctic ground squirrels, normally herbivores, sometimes eat bird eggs. Caribou, too, have been observed eating bird eggs and even lemmings.

***Brown Bears Say Yes to Everything*:** Few tundra animals, however, are true omnivores, requiring both producers and other consumers for food. Brown bears are good example of omnivores. They eat plant roots and berries as well as ground squirrels, caribou calves, muskox calves, and carrion.

***Mosquitoes Need Blood, Nectar*:** Mosquitoes are infamous for their abundance in lowland tundra where their hordes can torment humans and animals. Both male and female mosquitoes sip plant nectar as herbivores, but the female is omnivorous. She needs a blood meal from a warm-blooded animal to produce the eggs she will lay on the surface of any nearby water.

Detritivores Reuse and Recycle

The greatest number and variety of consumers in any ecosystem are the detritivores that eat dead things and waste materials. They are very important to the tundra because they return all the minerals stored in the food chains to the soil for reuse by tundra plants. Without detritivores, producers would soon run out of the minerals they need to make food.

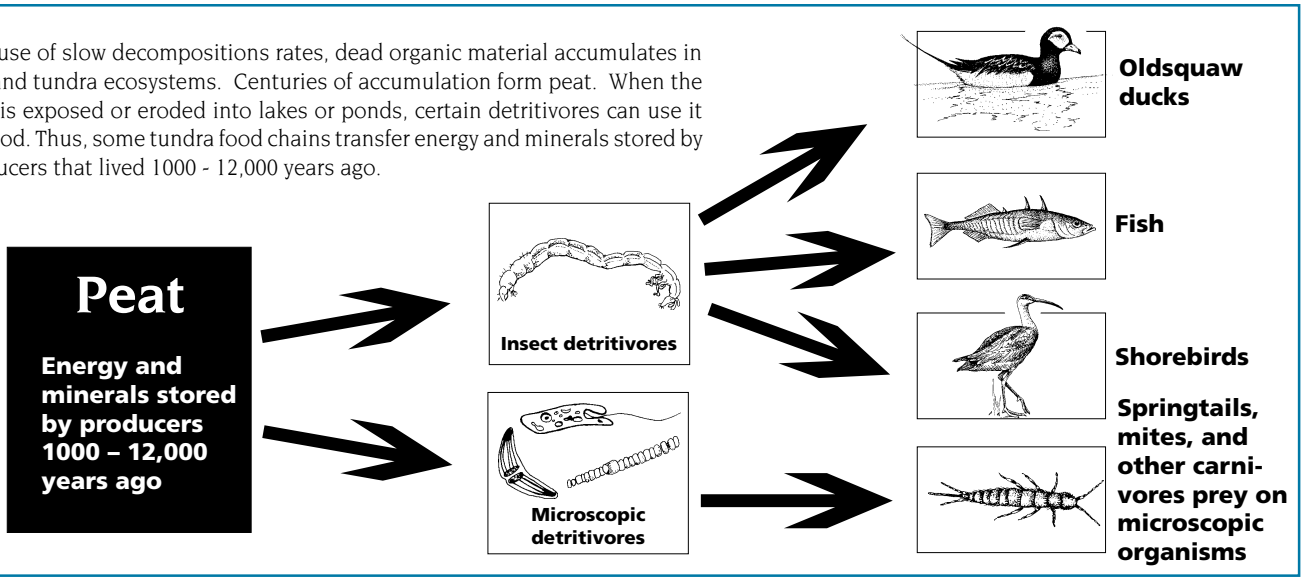
***Big and Small*:** Some well-known animals such as ravens are detritivores. But the most important detritivores are tiny, extremely numerous – and ignored. The most visible detritivores are tiny animals without backbones (invertebrates) – **enchytraeid worms**, **springtails**, **mites**, the **larvae** of many kinds of flies, and **nematodes**.

***Soil Teems with Life*:** Near Barrow, Alaska, scientists found the following invertebrates in an area of 1.09 square yards (1 square meter):
50,000 to 5 million nematodes
10,000 to 100,000 enchytraeid worms
10,000 to 80,000 mites
24,000 to one half million springtails
40,000 rotifers
15,000 tardigrades
700 fungus gnat larvae
smaller numbers of other insect larvae
Nearly all of these lived within 2 inches (5 centimeters) of the soil surface.

***Too Much to Consume*:** These small animals eat much of the food produced by tundra plants. Despite their numbers, they cannot keep up with task of digesting all the organic material, especially under the rugged climatic conditions of the tundra.

***More Detritivores*:** Completing the digestive team are **fungi**, **monerans**, and **protists** (see INSIGHTS *Section 3* for descriptions in *"Five Kingdoms of Tundra Life"*), non-animal detritivores. In tundra, fungi are more important and more prolific decomposers than are the microscopic bacteria of the monerans and protists.

Because of slow decompositions rates, dead organic material accumulates in lowland tundra ecosystems. Centuries of accumulation form peat. When the peat is exposed or eroded into lakes or ponds, certain detritivores can use it for food. Thus, some tundra food chains transfer energy and minerals stored by producers that lived 1000 - 12,000 years ago.



Fungi are well adapted to acidic soils. The majority of monerans and protists are detritivores and, although not as active under tundra conditions, play a role in creating soil.

Tundra Dilemma – too cold to rot

All the work of tundra detritivores is limited by the climate and the environmental conditions. Living in the top 2 inches (5 centimeters) of soil or on the surface, they are chilled from below by the permafrost and can be active only during the few short summer months.

Tundra detritivores do not break down all the new material produced each year. This slows the flow of energy and minerals through the ecosystem and limits tundra productivity. Much of the nitrogen, phosphorus, and calcium that could be returned to the soil for use by producers remains in accumulated detritus. This impoverishes the soil and, in turn, limits the growth of many tundra producers.

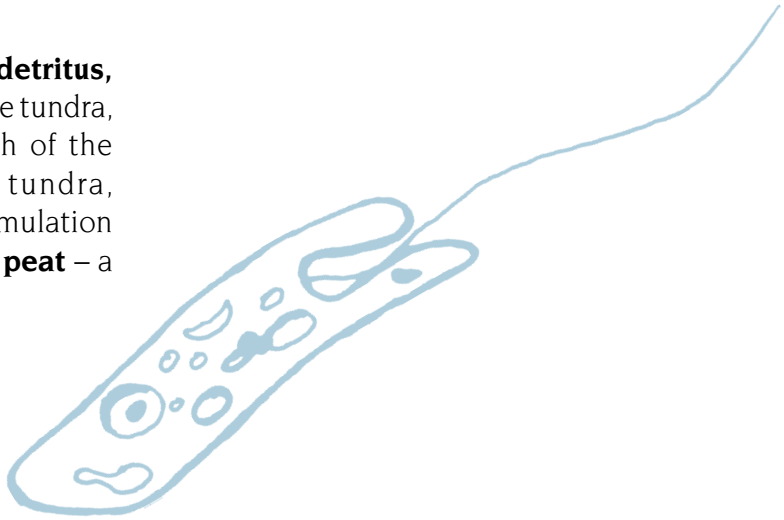
Detritus Food Chains

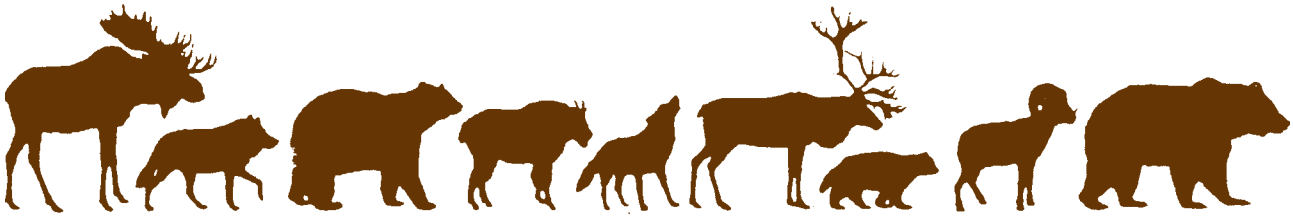
Dead, partially decayed material, called **detritus,** accumulates in tundra ecosystems. In alpine tundra, wind and water erosion carry away much of the excess. But in flat areas of lowland tundra, particularly in the Arctic, centuries of accumulation have created thick layers of detritus called **peat** – a storehouse of energy and minerals.

Many tundra food chains are based on dead organic material in ponds, lakes, and exposed peat.

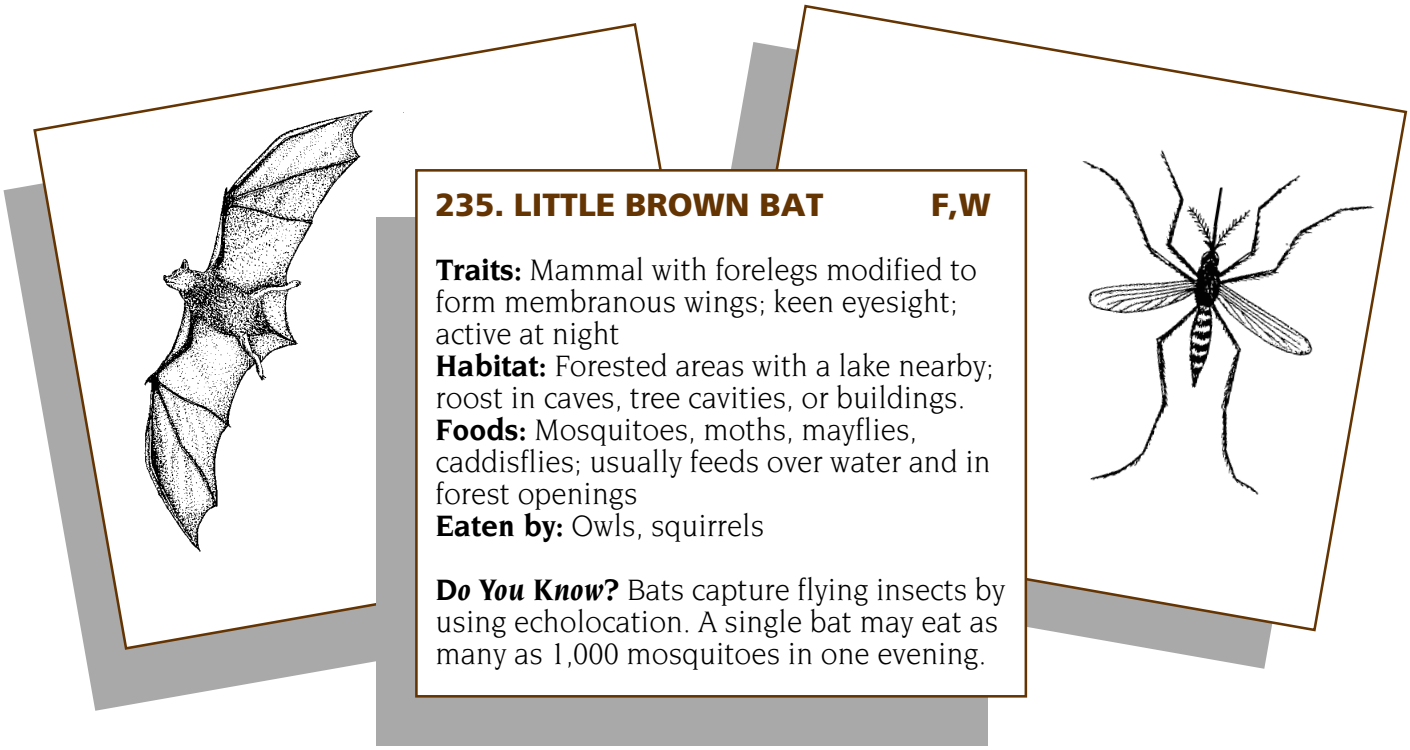
Although detritivores break down waste materials and return energy and minerals to the nonliving surroundings, they incorporate some of the food (energy and minerals) they consume into their bodies. Many carnivores, including certain insects, ducks, shorebirds, and fish, get the energy and minerals they need by feeding on detritivores.

Essentially, these consumers are living off energy and minerals stored by tundra producers in the past. If peat layers have been exposed or eroded into lakes, the consumers in peat-based food chains are actually supported by producers that lived 1000 to 12,000 years ago!



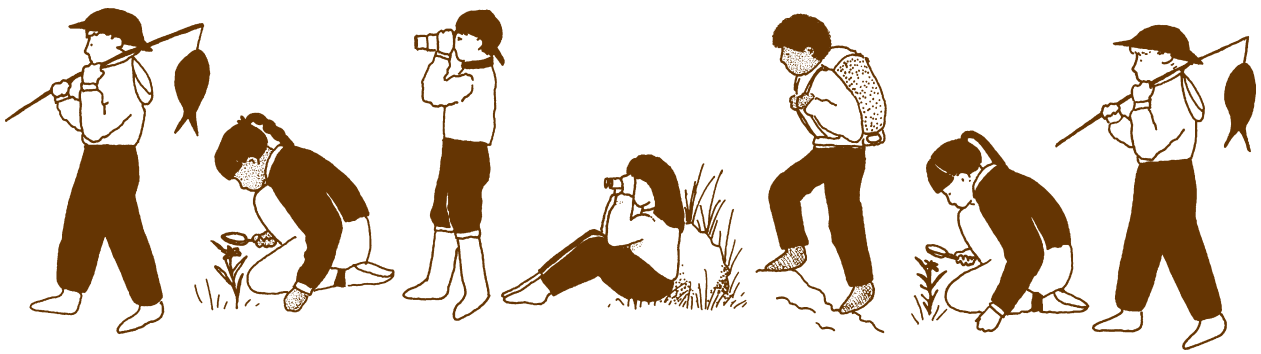


Alaska Ecology Cards



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.

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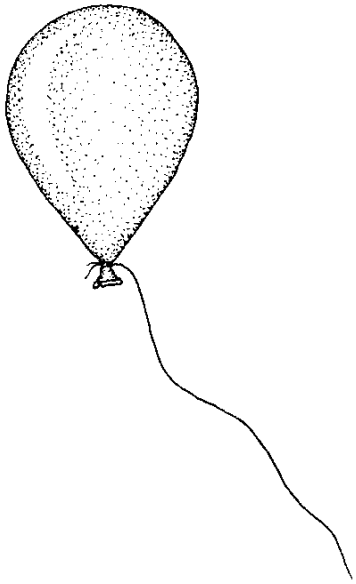
Alaska Ecology Cards

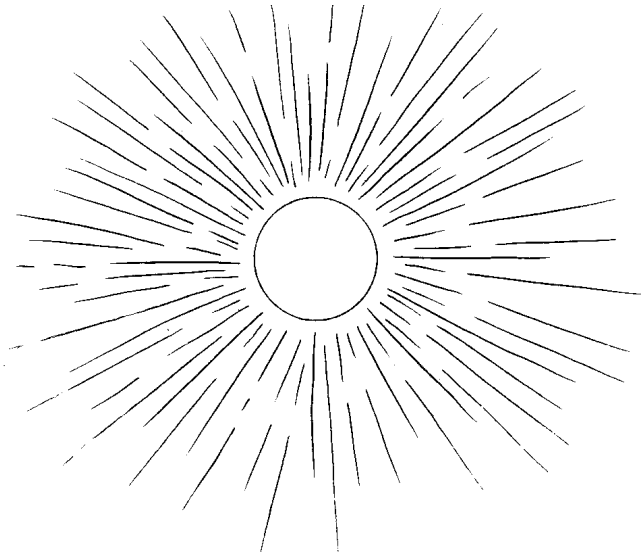
KEY:
F = Forest Habitat
T= Tundra Habitat
W = Wetlands Habitat

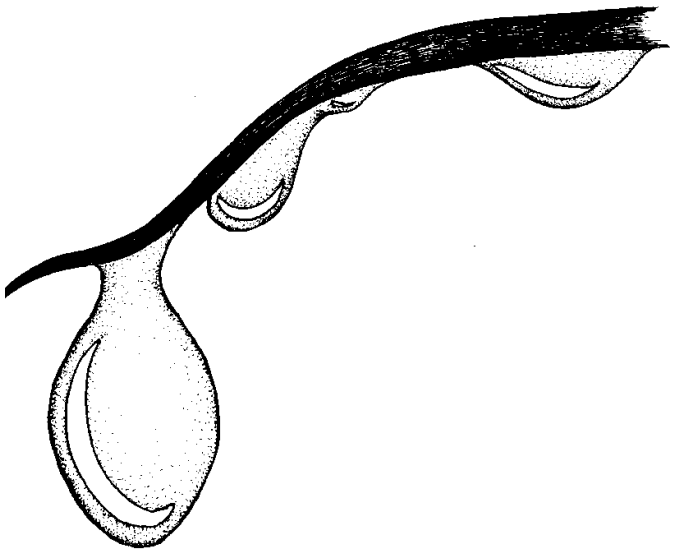
Plant or Animal Name	Scientific Name
MONERANS	
5. Bacteria F,T, W	Division: Bacteria
6. Cyanobacteria F,W	Division: Cyanophycota
PROTISTS	
7. Protozoans F,T,W	Kingdom: Protista
8. Diatoms F,W	Class: Bacillariophyceae
9. Flagellates W	Phylum: Protozoa
10. Amoebas W	Class: Rhizopodea
11. Ciliates W	Phylum: 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

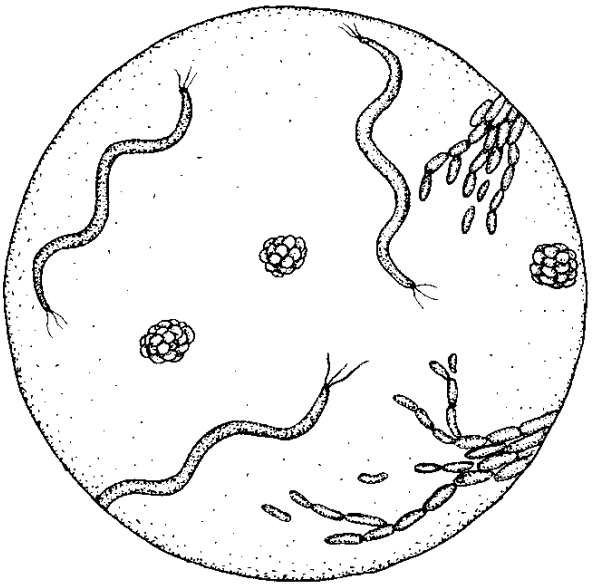
Plant or Animal Name	Scientific Name
FISHES – VERTEBRATES	
136. Slimy Sculpin F,T,W	*Cottus cognatus*
137. Nine-spine Stickleback F,T,W	*Pungitius pungitius*
138. Three-spine Stickleback F,T,W	*Gasterosteus aculeatus*
139. Blackfish F,T,W	*Dallia pectoralis*
140. Whitefish F,T,W	Genera: Prosopium, Coregonus
141. Burbot F,T,W	*Lota lota*
142. Arctic Grayling T,W	*Thymallus arcticus*
143. Eulachon W	*Thaleichtys pacificus*
144. Northern Pike W	*Esox lucius*
145. Arctic Char T,W	*Salvelinus alpinus*
146. Lake Trout F,T,W	*Salvelinus namaycush*
147. Pacific Herring W	*Clupea pallasii*
148. Sockeye Salmon W	*Oncorhynchus nerka*
149. Pink Salmon W	*Oncorhynchus gorbuscha*
150. Coho Salmon W	*Oncorhynchus kisutch*
151. Chum Salmon W	*Oncorhynchus keta*
AMPHIBIANS	
152. Wood Frog F,T,W	*Rana sylvatica*
153. Salamander and Newt F	Order: Caudata
BIRDS – WATERFOWL	
154. Loons F,T,W	Genus: Gavia
155. Grebes F,T,W	Genus: Podiceps
156. Tundra Swan T,W	*Cygnus columbianus*
157. Greater White-fronted Goose T,W	*Anser albifrons*
158. Brant T,W	*Branta bernicla*
159. Emperor Goose W	*Chen canagica*
160. Cackling Canada Goose T,W	*Branta canadensis minima*
161. Dusky Canada Goose W	*Branta canadensis ccidentalis*
162. Northern Pintail T,W	*Anas acuta*
163. Oldsquaw T,W	*Clangula hyemalis*
164. Canvasback W	*Aythya valisineria*
165. Mergansers T,W	Genus: Mergus
166. Eiders T,W	Genera: Polysticta, Somateria
167. Scoters F,T,W	Genus: Melanitta
BIRDS – RAPTORS	
168. Bald Eagle F,W	*Haliaeetus leucocephalus*
169. Northern Harrier T,W	*Circus cyaneus*
170. Sharp-shinned Hawk F	*Accipiter striatus*
171. Northern Goshawk F	*Accipiter gentilis*
172. Red-tailed Hawk F,W	*Buteo jamaicensis*
173. Rough-legged Hawk T	*Buteo lagopus*
174. Golden Eagle T	*Aquila chrysaetos*
175. American Kestrel F	*Falco sparverius*
176. Merlin F	*Falco columbarius*
177. Gyrfalcon T	*Falco rusticolus*
BIRDS – GROUSE	
178. Spruce Grouse F	*Dendragapus canadensis*
179. Blue Grouse F	*Dendragapus obscurus*
180. Ptarmigan T	Genus: Lagopus
181. Ruffed Grouse F	*Bonasa umbellus*
182. Sharp-tailed Grouse F	*Tympanuchus phasianellus*
BIRDS – CRANES	
183. Sandhill Crane T,W	*Grus canadensis*
BIRDS – SHOREBIRDS & GULLS	
184. Plovers T,W	Genera: Pluvialus, Charadrius
185. Sandpipers T,W	*Calidris mauri*
186. Phalaropes T,W	Genus: Phalaropus
187. Parasitic Jaeger T,W	*Stercorarius parasiticus*
188. Glaucous Gull T,W	*Larus hyperboreus*
189. Terns F,T,W	Genus: Sterna
BIRDS – OWLS	
190. Northern Saw-whet Owl F,W	*Aegolius acadicus*
191. Great Horned Owl F	*Bubo virginianus*
192. Great Gray Owl F	*Strix nebulosa*
193. Boreal Owl F	*Aegolius funereus*
194. Northern Hawk Owl F	*Surnia ulula*
195. Snowy Owl T,W	*Nyctea scandiaca*
196. Short-eared Owl T,W	*Asio flammeus*
BIRDS – HUMMINGBIRD	
197. Rufous Hummingbird F	*Selasphorus rufus*
BIRDS – KINGFISHER	
198. Belted Kingfisher F,T,W	*Ceryle alcyon*
BIRDS – WOODPECKERS	
199. Northern Flicker F	*Colaptes auratus*
200. Hairy/Downy Woodpeckers F	Genus: Picoides
201. Black-backed Woodpecker F	*Picoides arcticus*
202. Three-toed Woodpecker F	*Picoides tridactylus*
203. Red-breasted Sapsucker F	*Sphyrapicus ruber*
BIRDS – SONGBIRDS	
204. Flycatchers F,T,W	Family: Tyrannidae
205. Horned Lark T	*Eremophila alpestris*
206. Swallows F,T,W	Family: Hirundinidae
207. Gray Jay F,T	*Perisoreus canadensis*
208. Steller's Jay F	*Cyanocitta stelleri*
209. Black-billed Magpie F,W	*Pica pica*
210. Northwestern Crow F,W	*Corvus caurinus*
211. Common Raven F,T,W	*Corvus corax*
212. Chickadees F	Genus: Parus
213. Red-breasted Nuthatch F	*Sitta canadensis*
214. Brown Creeper F	*Certhia americana*
215. Winter Wren F	*Troglodytes troglodytes*
216. American Dipper F	*Cinclus mexicanus*
217. Warblers F	Family: Emberizidae
218. Kinglets F	Genus: Regulus
219. Northern Wheatear T,W	*Oenanthe oenanthe*
220. American Robin F,T,W	*Turdus migratorius*
221. Varied Thrush F	*Ixoreus naevius*
222. Small Thrushes F,T,W	Family: Turdidae
223. Water Pipits F,T,W	*Anthus spinoletta*
224. Bohemian Waxwing F,W	*Bombycilla garrulus*
225. Northern Shrike F,T,W	*Lanius excubitor*
226. Sparrows F,T,W	Family: Emberizidae
227. Snow Bunting T	*Plectrophenax nivalis*
228. Lapland Longspur T	*Calcarius lapponicus*
229. Gray-Crowned Rosy Finch T	*Leucosticte arctoa*
230. Common Redpoll F,T	*Carduelis flammea*
231. Pine Grosbeak F	*Pinicola enucleator*
232. Crossbills F	Genus: Loxia
233. Pine Siskin F	*Carduelis pinus*
MAMMALS	
234. Shrews F,T,W	Genus: Sorex
235. Little Brown Bat F,W	*Myotis lucifugus*
236. Collared Pika T	*Ochotona collaris*
237. Snowshoe Hare F	*Lepus americanus*
238. Tundra Hare T	*Lepus timidus*
239. Woodchuck F	*Marmota monax*
240. Marmots T	Genus: Marmota
241. Red Squirrel F	*Tamiasciurus hudsonicus*
242. Northern Flying Squirrel F	*Glaucomys sabrinus*
243. Arctic Ground Squirrel T	*Spermophilus parryi*
244. Beaver F,T,W	*Castor canadensis*
245. Deer Mouse F,T	*Peromyscus maniculatus*
246. Voles F,T,W	Genus: Microtus
247. Lemmings T,W	Genera: Lemmus, Dicrostonyx, Mictomys
248. Muskrat T,W	*Ondotra zibethica*
249. Meadow Jumping Mouse F	*Zapus hudsonius*
250. Porcupine F	*Erethizon dorsatum*
251. Coyote F,T,W	*Canis latrans*
252. Wolf F,T,W	*Canis lupus*
253. Arctic Fox T,W	*Alopex lagopus*
254. Red Fox F,T,W	*Vulpes vulpes*
255. Black Bear F	*Ursus americanus*
256. Brown Bear F,T,W	*Ursus arctos*
257. Marten F	*Martes americana*
258. Ermine F,T,W	*Mustela erminea*
259. Least Weasel F,T	*Mustela nivalis*
260. Mink F,T,W	*Mustela vison*
261. Wolverine F,T	*Gulo gulo*
262. River Otter T,W	*Lutra canadensis*
263. Lynx F	*Lynx canadensis*
264. Sitka Black-tailed Deer F	*Odocoileus hemionus*
265. Moose F,W	*Alces alces*
266. Caribou F,T	*Rangifer tarandus*
267. Mountain Goat T	*Oreamnos americanus*
268. Muskox T	*Ovibus moschatus*
269. Dall Sheep T	*Ovis dalli*
270. Humans F,T,W	*Homo sapiens*

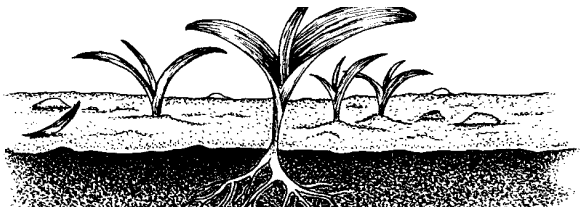
KEY: **F = Forest Habitat** **T= Tundra Habitat** **W = Wetlands Habitat**

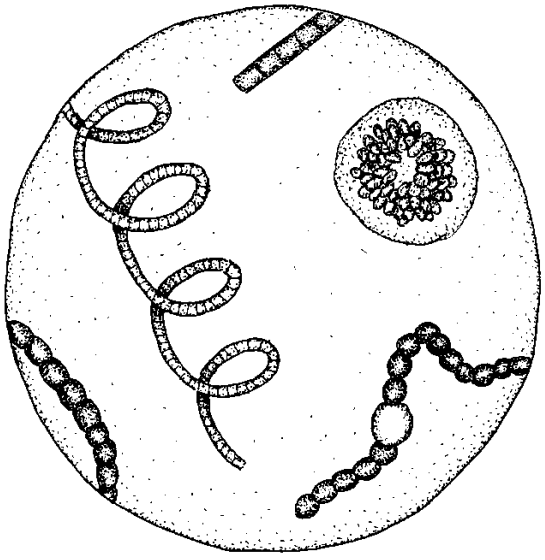












4. SUN F,T,W

Traits: The sun is a dwarf yellow star and a dense ball of gases and dust.
Occurrences: The sun is located in the center of our solar system, 93 million miles from planet Earth.
Values: Plants and other producers capture the energy in sunlight and, through photosynthesis, store it in the form of sugar. They use this "stored sunlight energy" to grow and reproduce.

Do You Know? The amount of solar energy striking the earth every day is about 1.5 billion times greater than the amount of electricity generated each year in the United States.

5. BACTERIA F,T,W

Traits: Bacteria (monerans) are single-celled microscopic organisms that have no chlorophyll and that multiply by simple division. They occur in three main forms: round, rod-shaped, and spiral.
Habitat: Every moist environment
Foods: Dead plants, fungi, animal materials; some kinds of bacteria live as parasites of living things, and some are able to make their own food.
Eaten by: Protozoans and some fungi

Do You Know? Some types of bacteria live in the digestive tracts of animals and aid in digestion.

6. CYANOBACTERIA F,W

Traits: Cyanobacteria (monerans) are microscopic organisms that are single-celled or in colonies of cells. They can appear blue-green, brown, red, or yellow depending on pigments.
Habitats: Small ponds, lakes, estuaries, open ocean
Foods: Make their own by photosynthesis
Eaten by: Protozoans, roundworms, segmented worms, springtails, mites

Do You Know? The Red Sea gets its name from the occasional abundance of blue-green algae, which is really red.

1. AIR F,T,W

Traits: Air is made of several gases, including nitrogen, oxygen, and carbon dioxide.
Occurrences: Air surrounds us, but we rarely notice that we breathe it every minute we live.
Values: The thin layer of air that blankets the earth provides living things with oxygen and carbon dioxide. It traps heat from the sun and blocks harmful high-intensity light rays.

Do You Know? Although the sky above us looks endless, the earth's atmosphere is actually very thin. If the earth were the size of an apple, the atmosphere would be the same thickness as the apple's skin.

2. WATER F,T,W

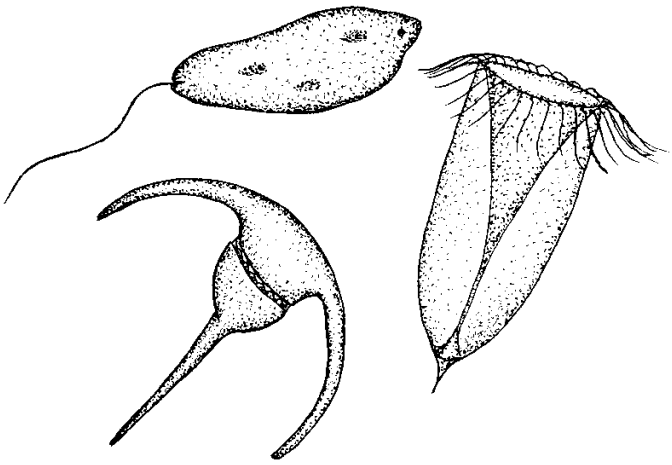
Traits: Water molecules are made of two atoms of hydrogen and one atom of oxygen.
Occurrence: As a *liquid* in rain, lakes, rivers, oceans; as a *solid* in ice, snow; as a ***gas*** in clouds, humidity, evaporation; some collects underground in the water table.
Values: All living things need water for most life processes.

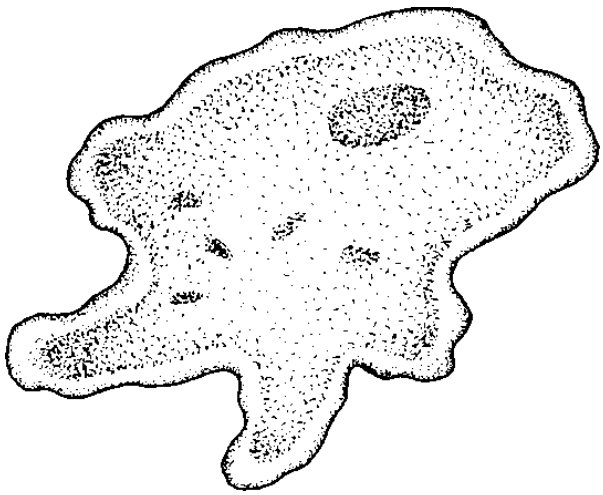
Do You Know? Water cycles continuously from clouds to rain or snow to plants, rivers, lakes, and oceans, then back to clouds. Today we are using the same "recycled" water that dinosaurs used thousands of years ago.

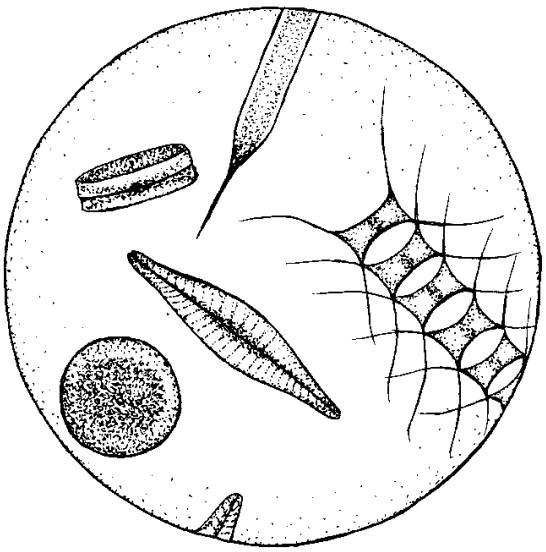
3. SOIL F,T,W

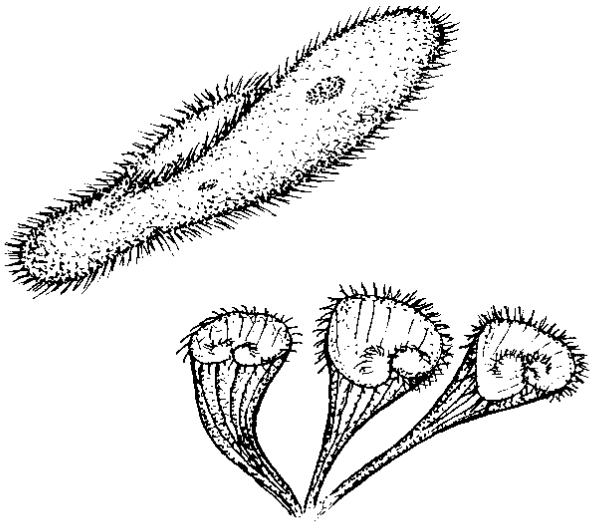
Traits: Rocks are made of elements and compounds. Wind and water erodes rocks into fine sand and clay particles, which become organic mineral soils. Organic soils are enriched by nutrients from decomposed plants, animals, and other living things.
Occurrence: Much of the land on earth is covered by soil.
Values: Most plants (producers) require soil to grow. Soil anchors them and feeds their roots.

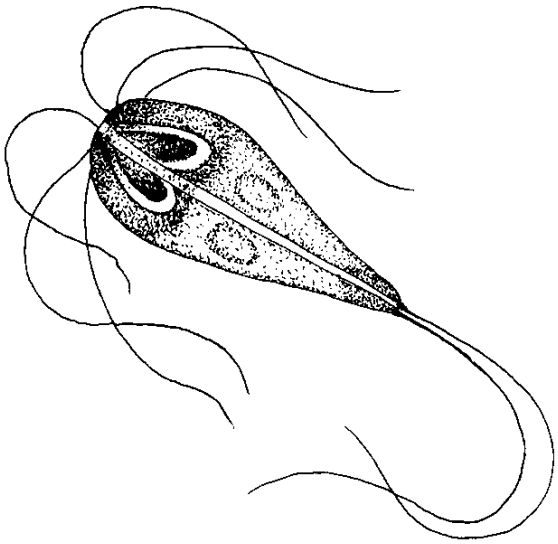
Do You Know? A teaspoon of soil may contain 3-10 billion microscopic organisms.

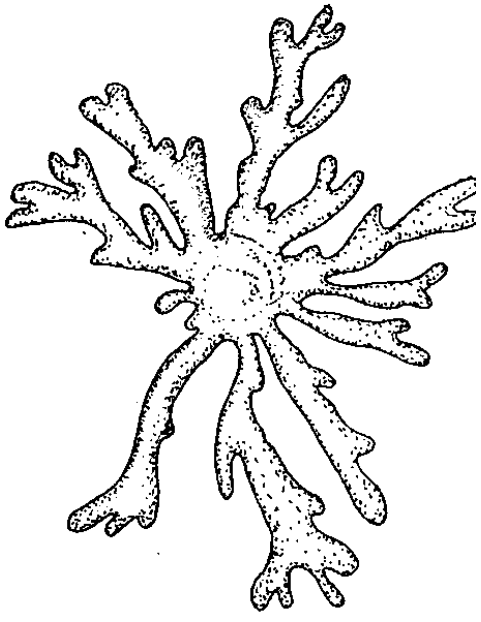












10. AMOEBAS W

Traits: Microscopic organisms (protists) that move and capture prey by "pseudopodia" (false feet), which are flowing extensions from their bodies
Habitat: Fresh and salt water
Foods: Small organisms, including other protozoans, bacteria, algae, diatoms
Eaten by: Other protozoans

Do You Know? Certain kinds of amoebas cause diseases, such as amoebic dysentery in people.

7. PROTOZOANS F,T,W

Traits: Microscopic organisms (protists) each made of a single cell or group of identical cells
Habitat: Water droplets on leaves, leaf litter, under rocks, and in soil
Foods: Dead plant material and animal wastes; some eat bacteria, algae, or other protozoans.
Eaten by: Protozoans, round worms, segmented worms

Do You Know? Some protozoans live in the intestines of certain animals and aid them in digestion of foods. Many are parasites of animals.

11. CILIATES W

Traits: Microscopic, single-celled organisms (protists) that have cilia (short, hairlike structures), which they use to move around and capture food
Habitat: Fresh and salt water; some live inside of, or attached to, other organisms.
Foods: Rotifers, protozoans, bacteria, algae, detritus, diatoms; some are parasites on other organisms.
Eaten by: Protozoans, roundworms, segmented worms, fish larvae

Do You Know? Certain ciliates live in the digestive tracts of hoofed mammals and help them digest their foods.

8. DIATOMS F,W

Traits: Microscopic, single-celled organisms (protists) that live individually or in colonies; diatoms have two lenslike shells made of silica (an element of glass).
Habitat: Fresh and salt water
Foods: Make their own by photosynthesis
Eaten by: Amoebas, small crustaceans, larvae of invertebrates, fish

Do You Know? When diatoms die, their shells fall to the bottom of the sea. Large deposits formed over centuries are now mined and used by industry in a variety of products.

12. SLIME MOLDS F

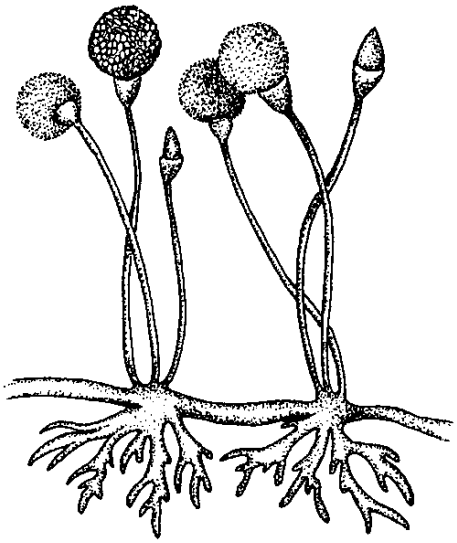
Traits: Slimy covering on logs, trees, and moist soil; they are sometimes covered with small flaglike fruiting bodies. During part of its life, the slime mold slowly rolls along like an amoeba and leaves a trail of slime.
Habitat: Wet, shaded locations in forests
Foods: Bacteria and other microscopic organisms
Eaten by: Unknown

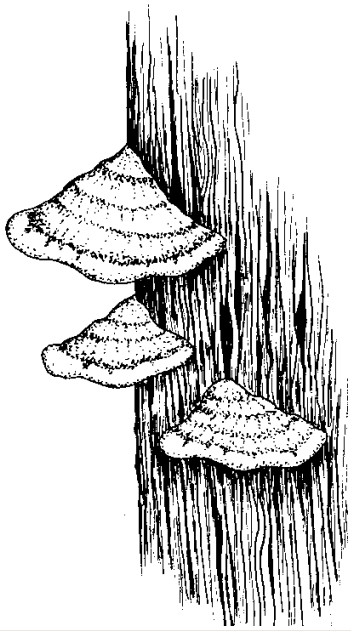
Do You Know? The classification of slime molds is still being debated. Some scientists consider them fungi, while others consider them to be protists. This organism has nine distinct life cycles.

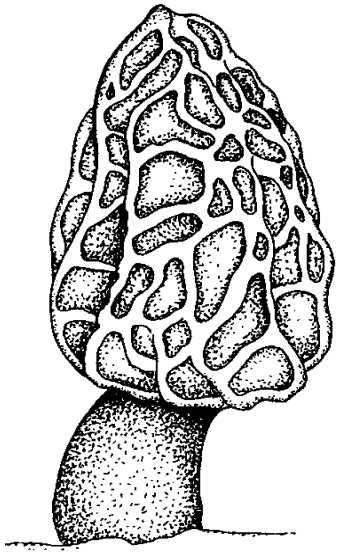
9. FLAGELLATES W

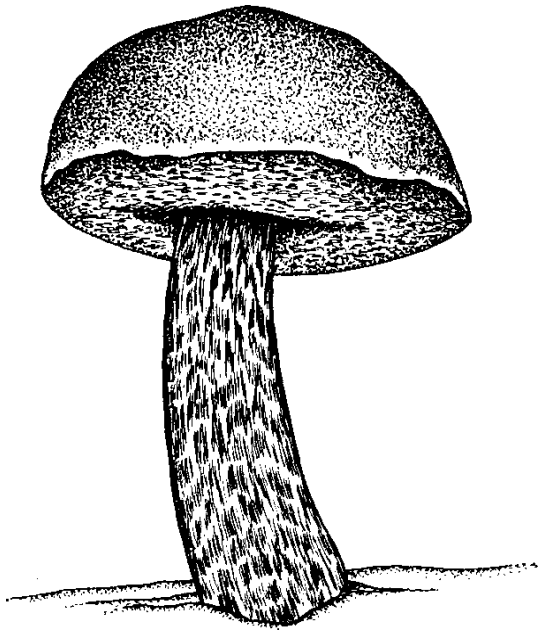
Traits: Microscopic, single-celled organisms (protists) with long, whiplike structures called flagella, which help them move
Habitat: Fresh and salt water; some are parasites on other organisms.
Foods: Produce their own food through photosynthesis, ome eat other microscopic organisms.
Eaten by: Zooplankton, small crustaceans, larvae of invertebrates, fish

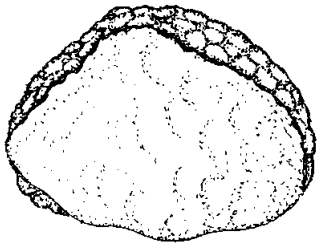
Do You Know? Red tides that can kill thousands of fish are caused by vast swarms of certain kinds of flagellates.

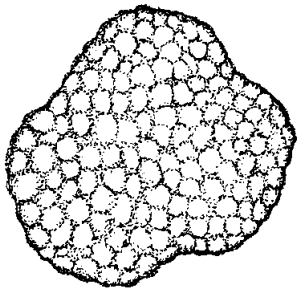


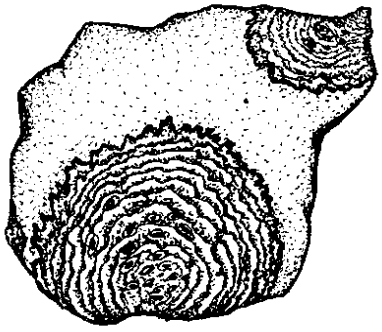












16. SHELF FUNGI F

Traits: Fungi with a fruiting body (called a conk) that grow from trees or logs and form a shelflike structure; the conks grow and produce spores each year.
Habitat: Old trees, logs, or other wood
Foods: Dead wood
Eaten by: Millipedes and a variety of insects

Do You Know? Some species of shelf fungi are parasites on living trees. They slowly decay the dead heartwood of the tree and may also attack living parts of the tree. Eventually the tree may be weakened and killed.

17. MUSHROOMS F,T

Traits: Fungi with fruiting bodies that consist of stalks and caps; the undersides of the caps are made of many slits or tubes.
Habitat: Soil, leaf litter, rotting logs, and dead vegetation
Foods: Mainly dead plant material and animal wastes
Eaten by: Lemmings, ground squirrels, fungus gnats, caribou, humans

Do You Know? Most fungi that grow in tundra areas, such as the gilled mushroom, are able to grow at temperatures lower than can those that grow in warmer environments.

18. CRUSTOSE LICHENS F,T

Traits: One of four types of lichen, this type looks like a thin crust on rocks and trees.
Habitat: Forest and tundra environments
Foods: Make their own food by photosynthesis
Eaten by: Mites, nematodes

Do You Know? Lichens are made of two kinds of organisms: algae and fungi. Algae capture energy through photosynthesis while fungi provide a protective shell and also help absorb water from rain. Sometimes they absorb pollution.

13.MOLDS, MILDEWS, AND RUSTS F,T

Traits: These fungi look like a fine powder, fuzz, or furry coating on plant parts or animal droppings. Molds, mildews, and rusts can also be abnormal growths.
Habitat: Dead plants or waste materials; certain kinds can grow on living plants or insects.
Foods: Dead plant materials (rarely wood); some species live as parasites on plants or insects.

Do You Know? Some of these fungi, particularly rusts, are parasites of plants and cause abnormal growths such as galls or witches brooms.

14. MORELS F

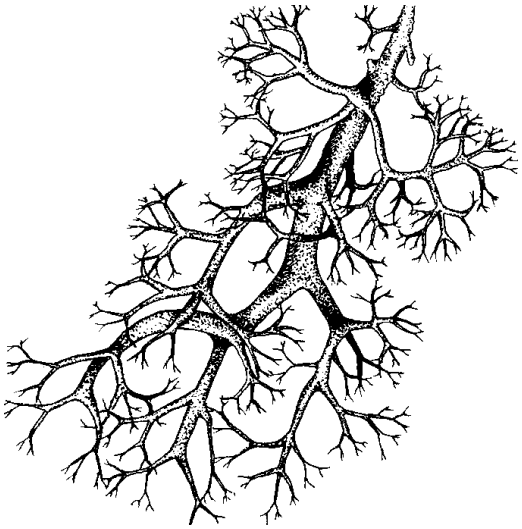
Traits: Mushroomlike fungi that look like natural sponges on stalks; the hollow dome-shaped cap is gray-brown to sandy colored and looks like a honeycomb.
Habitat: Varies by species, favor spruce forests and old burns
Foods: Dead plant material and animal wastes
Eaten by: Squirrels, voles, mice, humans

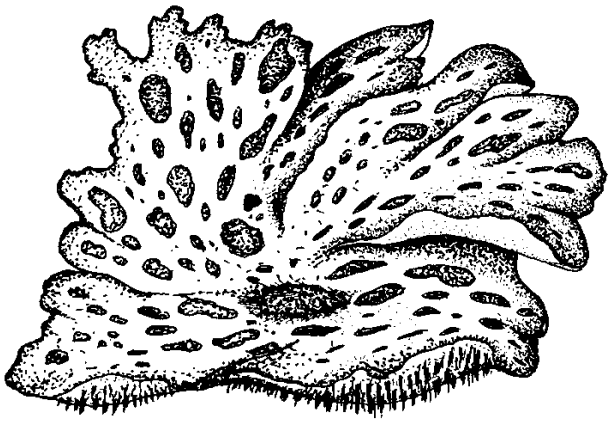
Do You Know? Morels are considered one of the finest edible mushrooms and are much sought after in North America and Europe. They grow abundantly in the spring following a forest fire.

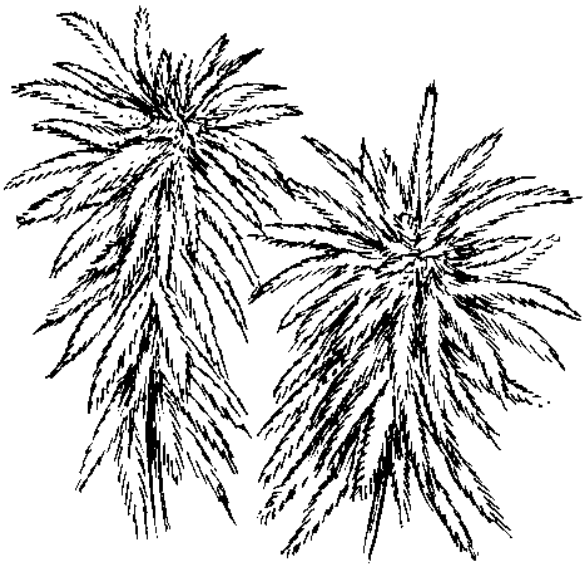
15. TRUFFLES F

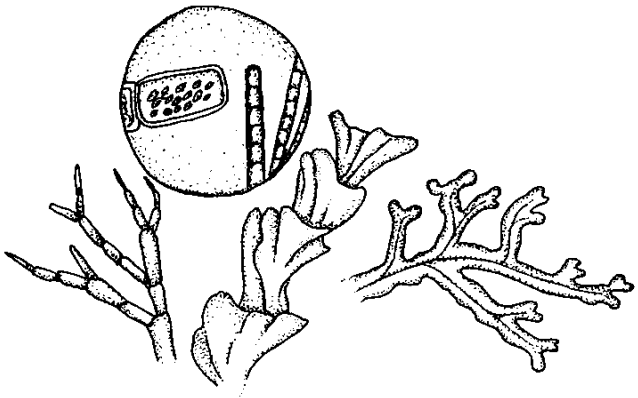
Traits: Fungi that produce underground fruiting bodies that look like spongy balls
Habitat: Underground in forests, usually in symbiosis with a tree
Foods: Sugar supplied by the tree or other plant it associates with and on minerals absorbed from the soil
Eaten by: Flying squirrels, voles, humans

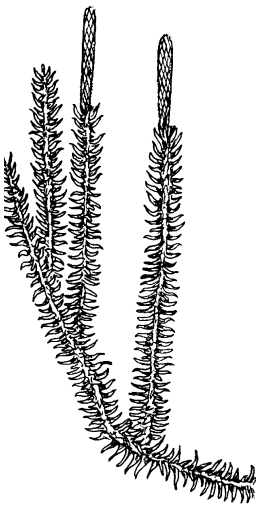
Do You Know? These fungi help trees and other plants obtain the minerals they need to grow. The organisms that eat them spread their spores throughout the forest.











22. MOSSES F,T

Traits: Small plants, either flat and scalelike or with stems and leaves; lack water-conducting cells and true roots; they reproduce by spores that grow in caplike structures, or capsules, at the tips of long stalks.
Habitat: Moist soil, rocks, and logs
Foods: Make their own by photosynthesis
Eaten by: Springtails, mites

Do You Know? Mosses have the ability to alternate periods of growth and dormancy, which allows them to survive harsh environments.

23. SPHAGNUM MOSS F,T,W

Traits: A soft-stemmed moss with featherlike leaves, varying from white to green to pink
Habitat: Wet sites in coastal wetlands, muskegs, tundra, and forests; often forms thick, spongy mats that cover large areas
Foods: Makes its own by photosynthesis
Eaten by: Certain small invertebrate animals and microscopic organisms

Do You Know? Sphagnum mosses have been used as a substitute for gauze in surgical dressings and as diaper lining by Native Americans.

24. CLUB MOSSES F,T

Traits: Ground cover plants with stems growing upward or along the ground; tiny, single-veined leaves in pairs or spirals around the stem; the spores develop in conelike structures located at the tips of upright stalks.
Habitat: Moist soils in forest and tundra environments
Foods: Make their own by photosynthesis
Eaten by: Springtails, mites

Do You Know? Club mosses become inactive during harsh living conditions and then resume activities when living conditions are good. Despite their name, club mosses are more closely related to ferns than to mosses.

19. FRUTICOSE LICHENS F,T

Traits: This member of the Fungi Kingdom looks like fine hairs or branches growing on trees and rocks.
Habitat: Forest and tundra environments
Foods: Lichens make their own food by photosynthesis.
Eaten by: Caribou, lemmings, mites, nematodes

Do You Know? Lichens are one of the most common climax species that dominates undisturbed tundra and boreal forest habitats. They are two kinds of organisms (fungi and algae) living in symbiosis.

20. FOLIOSE LICHENS F,T

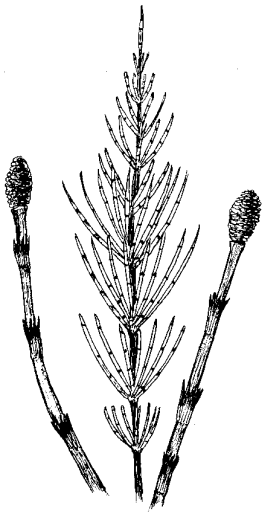
Traits: This member of the Fungi Kingdom resembles curly leaves growing on trees and rocks. It is two kinds of organisms (fungi and algae) living in symbiosis.
Habitat: Forest and tundra environments
Foods: Lichens make their own food by photosynthesis.
Eaten by: Lemmings, mites, nematodes

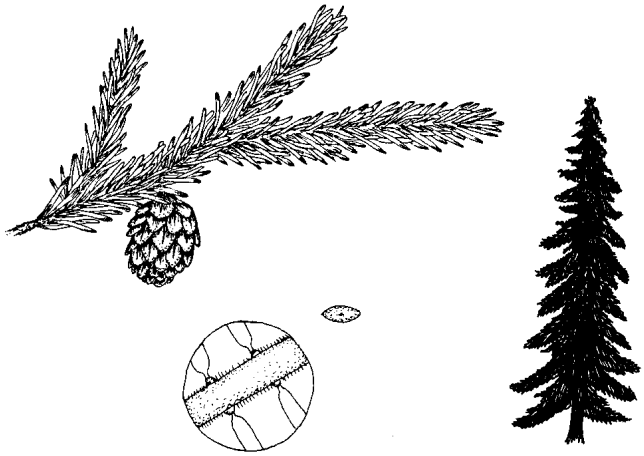
Do You Know? Lichens are able to survive years of unfavorable conditions by becoming dormant. Some specimens have been revived after 100 years of dormancy.

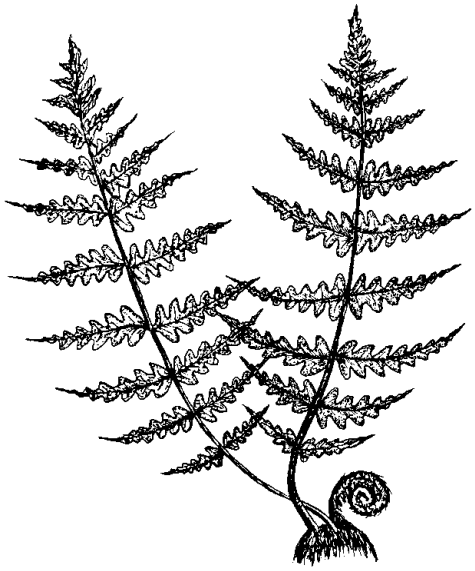
21. GREEN ALGAE W

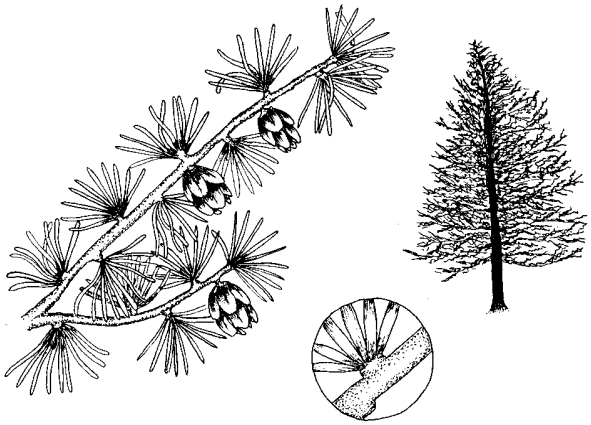
Traits: Green algae are single-celled organisms capable of photosynthesis. They occur individually, in filaments, or in colonies. The cells store food in the form of starch.
Habitat: Green algae can grow wherever water occurs. Some grow in damp or moist soil or in tree bark.
Foods: Make their own by photosynthesis
Eaten by: Protozoans, roundworms, small crustaceans, certain mollusks, other aquatic invertebrates, fish, geese, ducks

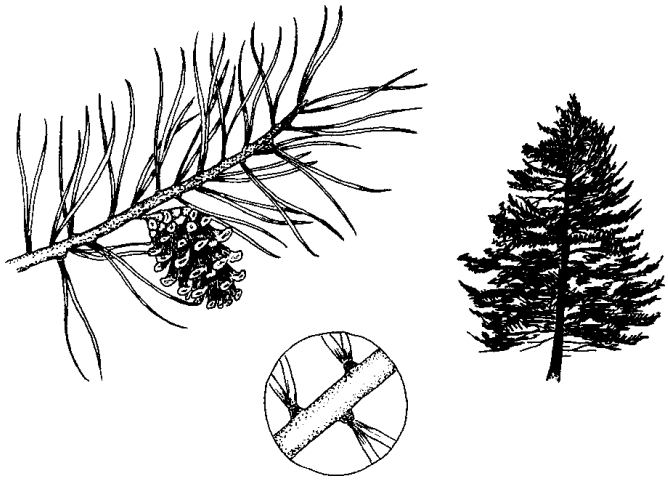
Do You Know? Some algae join with certain fungi to form lichens.











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

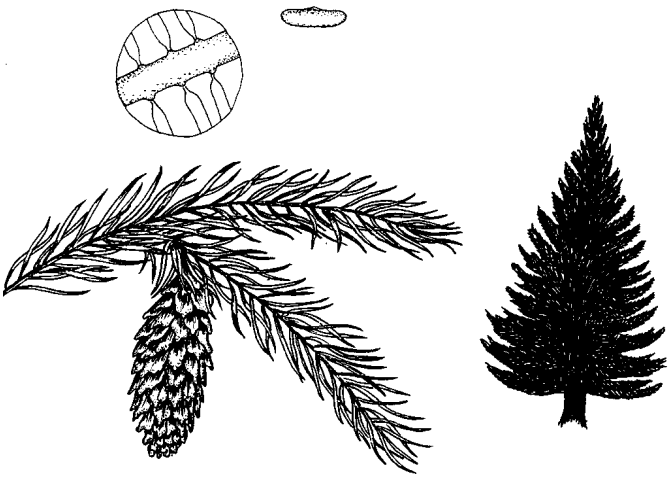
Traits: Plants with stems, leaves, and roots; most have stems that grow underground; leaves (called fronds) are usually divided into very fine parts; reproduces by spores on the undersides of the leaves or on special fronds
Habitat: Moist habitats; most common in coastal forests
Foods: Make their own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

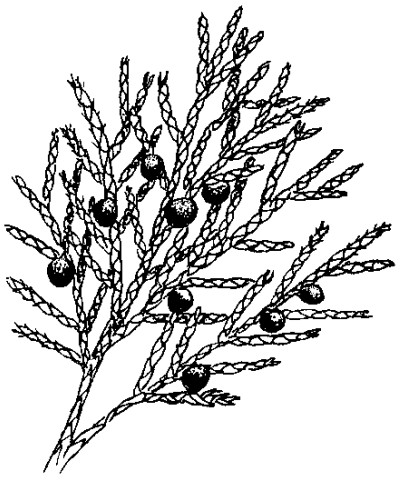
Do You Know? Young blades or fronds, called fiddleheads, first appear curled at the base of the plant and are edible.

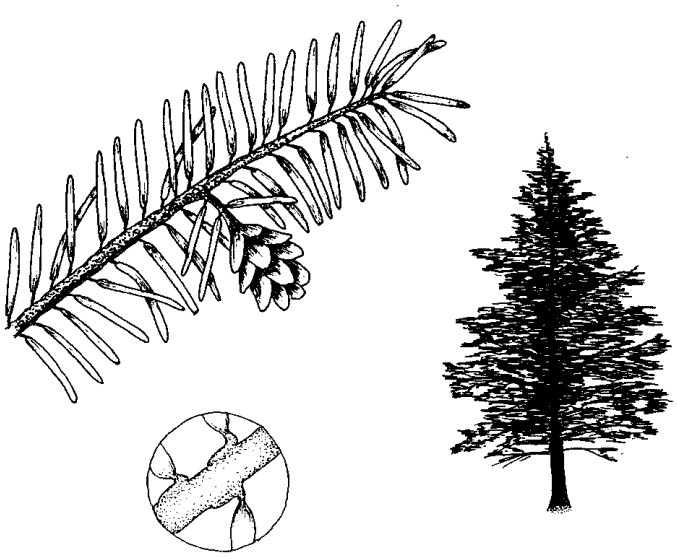
27. LODGEPOLE PINE F,W

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

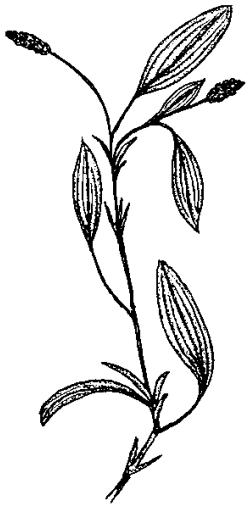
Traits: Plant with long, flat leaves whose flowers and seeds occur in round, burrlike clusters
Habitat: Deep or shallow water from alpine to lowland areas
Foods: Makes its own by photosynthesis
Eaten by: Ducks, swans, sandhill cranes, common snipes, muskrats

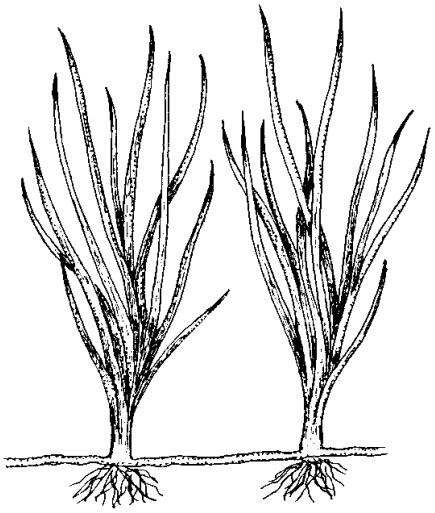
Do You Know? The shape of the flower heads gives this plant its name. Male and female flowers occur in separate burrs on the same plant.

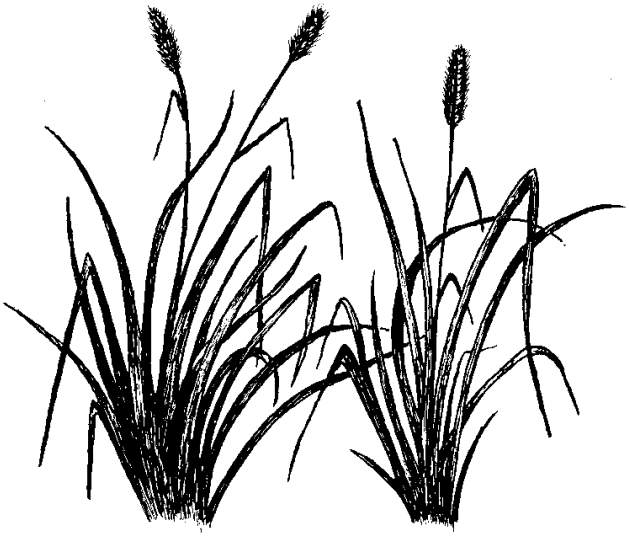
33. MOUNTAIN HEMLOCK F

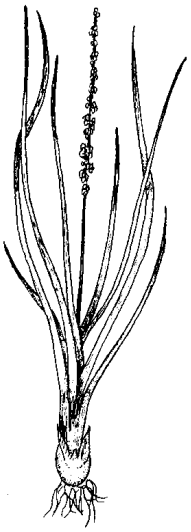
Traits: Conifer tree with rounded, blunt needles; fine hair on twigs; gray to dark brown bark; thin-scaled cones hang down
Habitat: Wet, moderate climates on well-drained and poorly drained sites of the coastal rainforest
Foods: Makes its own food by photosynthesis.
Eaten by: Red squirrels, crossbills,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

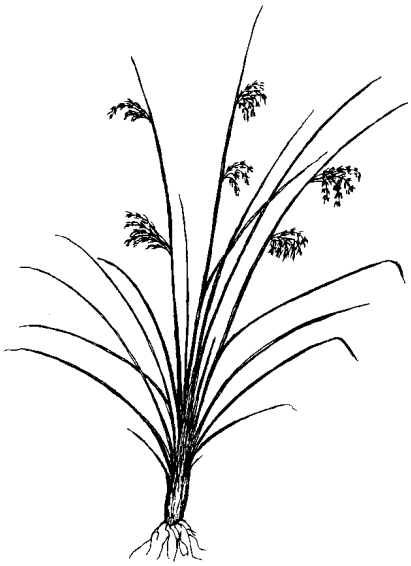
Traits: A marine (salt water) plant with slender, branched, green stems and leaves with parallel veins; separate male and female flowers grow on the same plant.
Habitat: Shallow estuaries and lagoons around the world
Foods: Makes its own by photosynthesis
Eaten By: Ducks, geese, fish, a variety of marine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

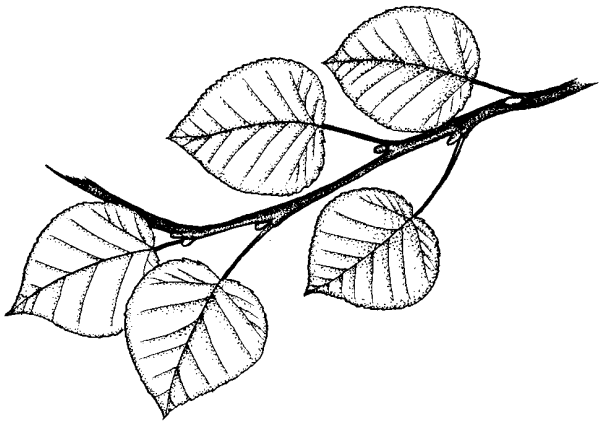
Traits: Herb with long, narrow leaves and solid stems; tiny, inconspicuous flowers grow in tight clusters. Tufts of white cottonlike bristles are present on the seeds.
Habitat: Wet tundra, muskegs, coastal wetlands, stream or lake margins
Foods: Makes its own by photosynthesis
Eaten by: Caribou, muskoxen,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

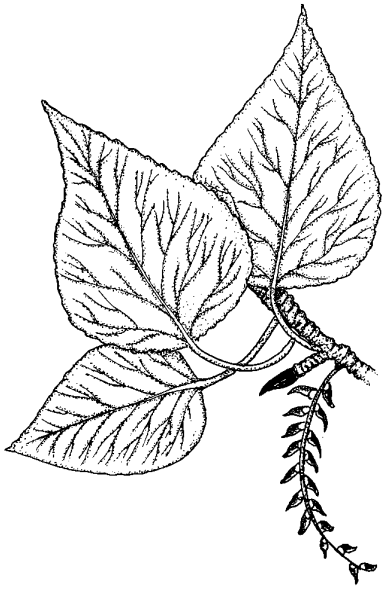
Do You Know? Tussocks formed by cotton grass provide shelter and nest sites for small tundra birds and mammals.

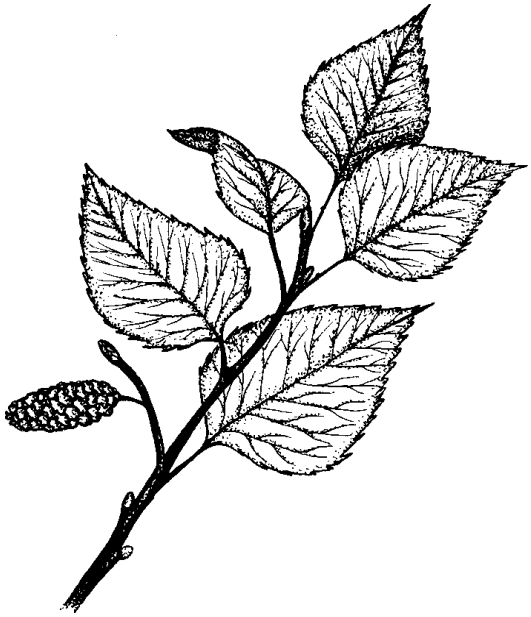
45. RUSHES T,W

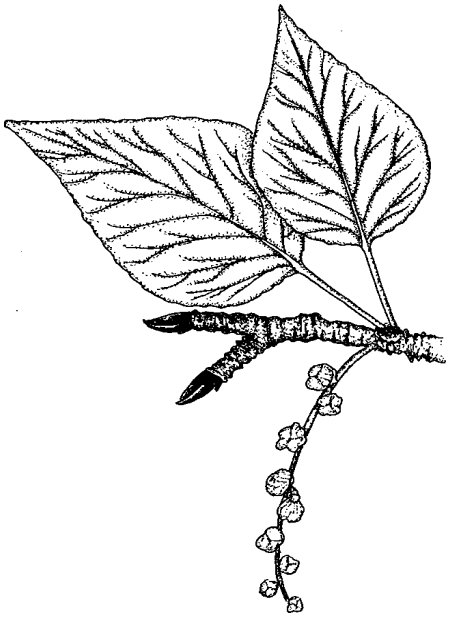
Traits: Emergent, aquatic plants with round leaves that have parallel veins; the tiny flowers have three greenish petals and grow in clusters along the side of the leaves.
Habitat: Marshes, wet tundra, riverbanks, estuaries, and ponds in temperate, subarctic, and arctic regions
Foods: Make their own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

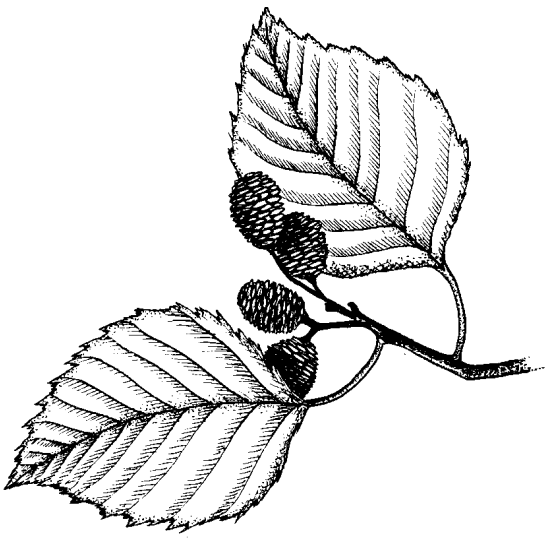
Do You Know? Rushes compete with other aquatic plants and sometimes crowd out other species.











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

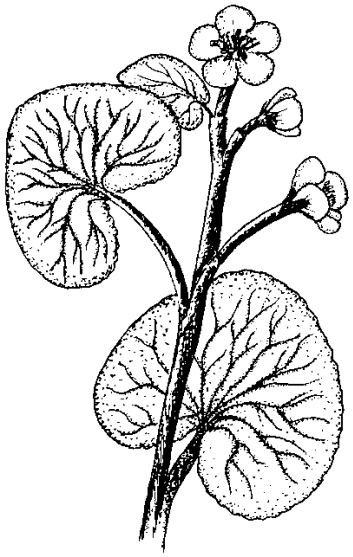
Traits: Broadleaf (deciduous) tree with spade-shaped leaves having small, rounded teeth; gray bark containing deep furrows; the male and female flowers grow on different trees. The long, egg-shaped seed capsules within long catkins have tiny, cottony seeds.
Habitat: Well-drained soils in boreal forests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

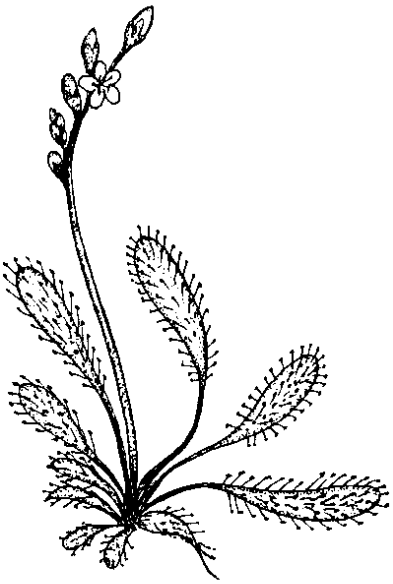
Do You Know? The wood of balsam poplar is used for boxes, crates, and pulpwood.

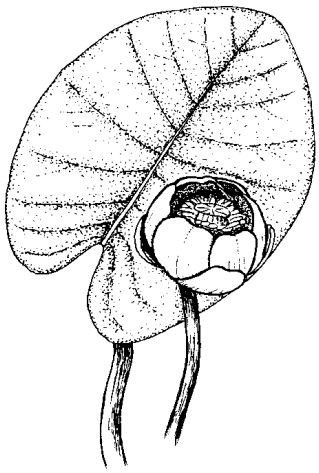
51. BLACK COTTONWOOD F

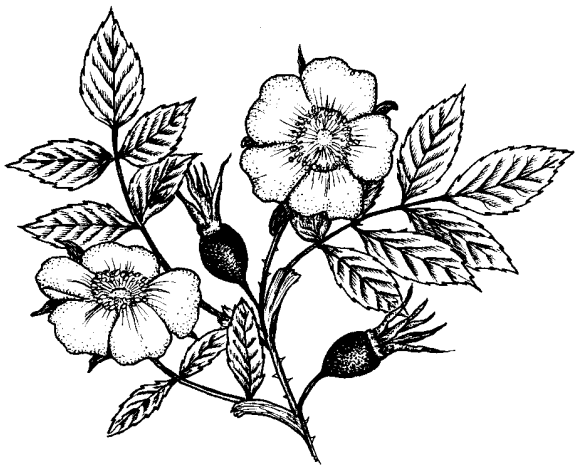
Traits: Broadleaf (deciduous) tree with spade-shaped leaves having small, rounded teeth; gray bark containing deep furrows when full-grown; the male and female flowers grow on different trees; round, three-parted seed capsules within long catkins; tiny cottony seeds
Habitat: River bottoms in coastal 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

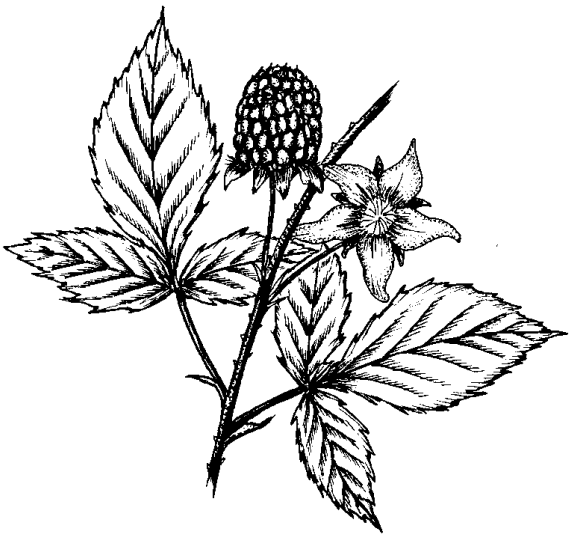
Traits: Broadleaf shrub with leaves made of three to nine leaflets whose leaves emerge from the stems on alternate sides; stems covered with small thorns and large pink flowers
Habitat: Shaded understory of mature boreal forest, in old burn sites, tall shrub thickets, and along beaches
Foods: Makes its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

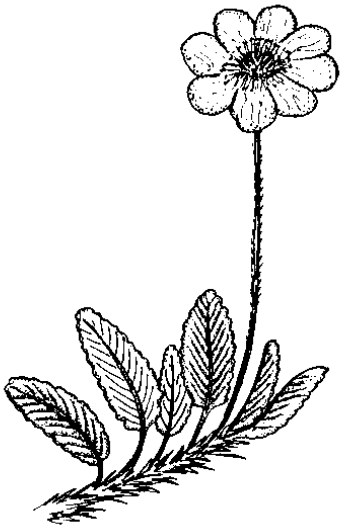
Do You Know? The fruit of the rose, called rose hips, is one of the richest known food sources of vitamin C.

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

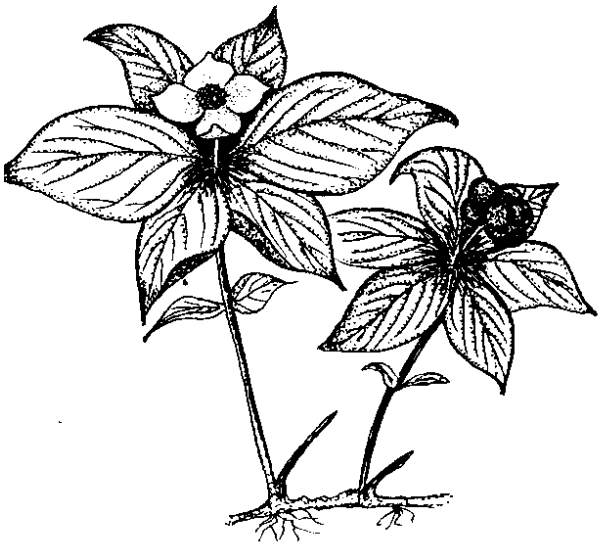
Traits: Herb (plant) with long, narrow leaves on a stalk, many reddish-purple flowers along the top of its stem, and cottony seeds
Habitat: Disturbed soils and forests with open canopies that allow plenty of sunlight to reach the ground
Foods: Makes its own by photosynthesis
Eaten by: Moth larvae, aphids,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

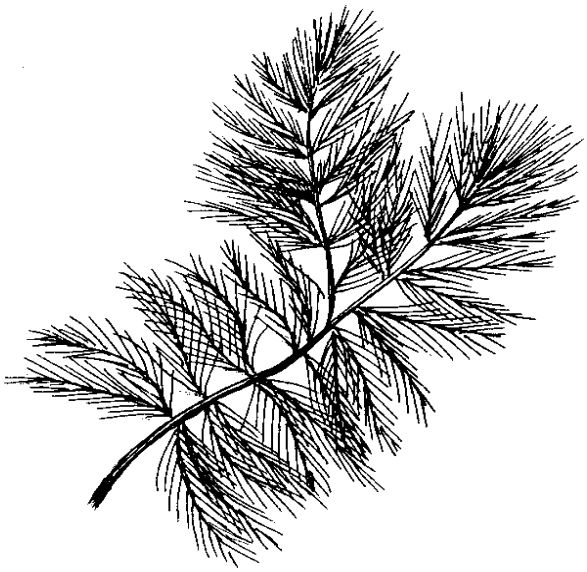
Do You Know? Fireweed is one of the first plants to appear after a fire, sometimes just a few days following a fire. People eat fireweed honey.

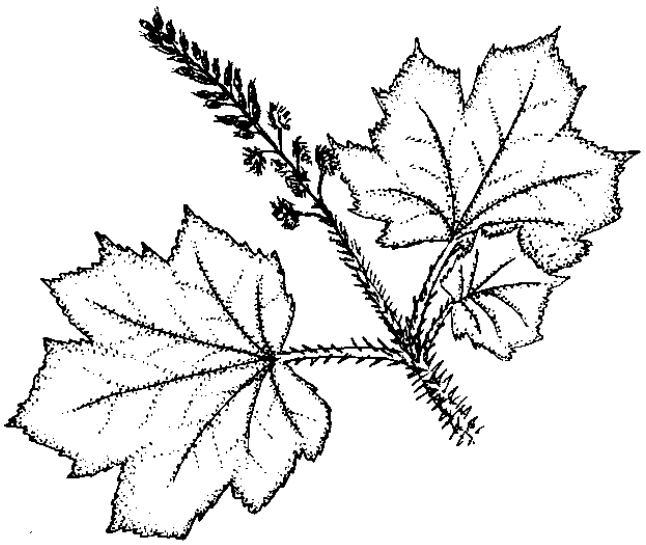
63. DRYAS F,T

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

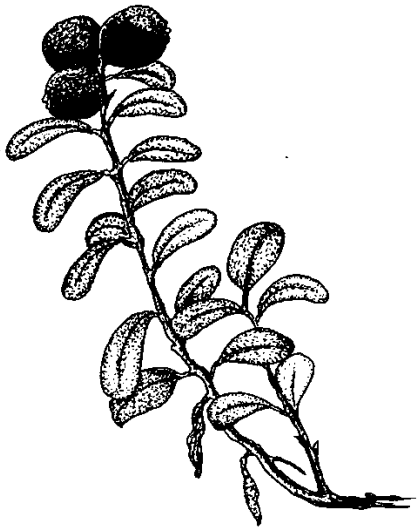
Traits: Emergent, aquatic plant with finely divided leaves that form a circle around the stem; its flowers grow on a spike that sticks above water.
Habitat: Shallow, slow-moving or still waters
Foods: Makes its own by photosynthesis
Eaten by: Muskrats, ducks, some shorebirds

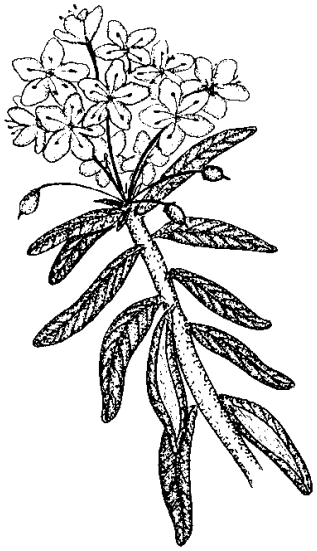
Do You Know? The male flowers have larger petals than do the female ones, and both male and female flowers grow on the same plant.

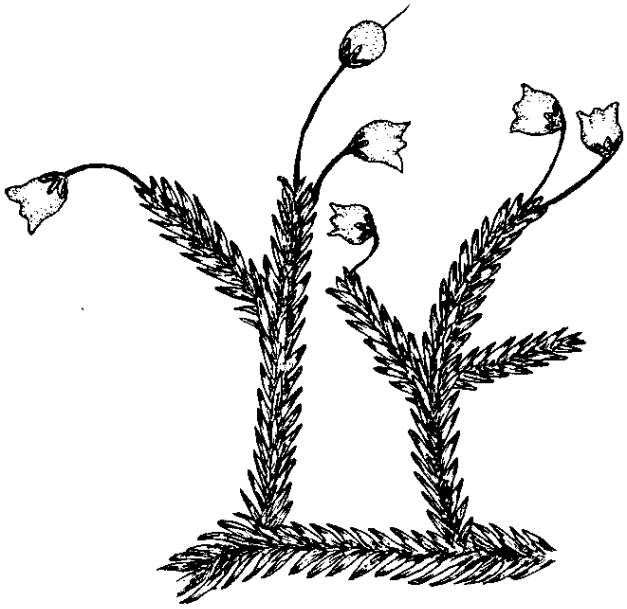
69. DEVIL'S CLUB F

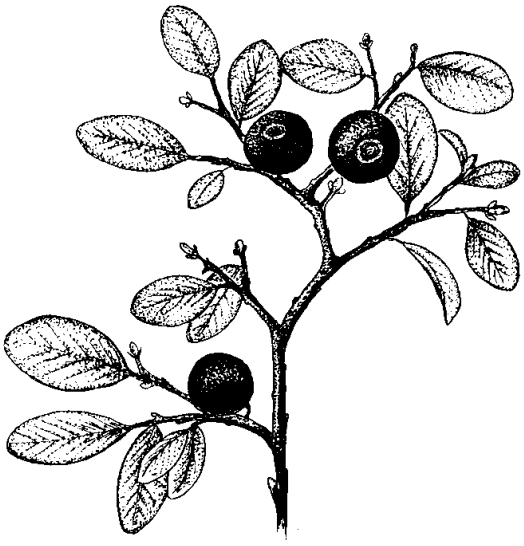
Traits: Spines cover the stems and very large leaves of this plant. Large cluster of flowers; fruit is a red berry.
Habitat: Coastal forests: old-growth stands and clearings
Foods: Makes its own by photosynthesis
Eaten by: Deer, red squirrels, leafhoppers, true bugs

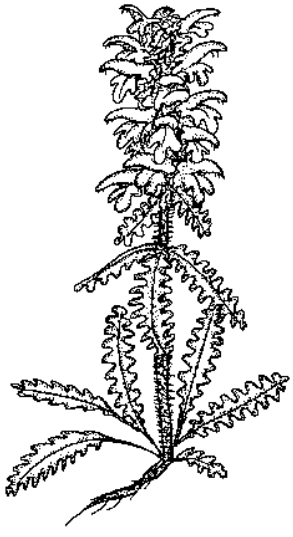
Do You Know? The bark, stems, and ash have been used by the Tanaina, Eskimo, and Haida people as a remedy for fever and colds and as a general cure-all.











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

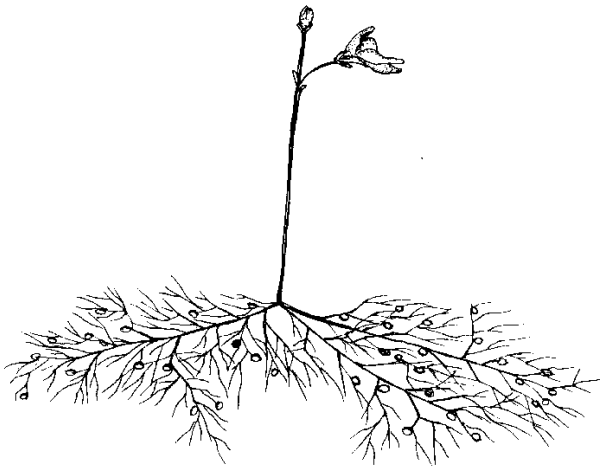
Traits: Low-growing shrub with evergreen leaves and small, white, bell-shaped flowers; fruit is an edible berry.
Habitat: Dry and moist soil in alpine and lowland tundra, forests, and muskegs
Foods: Makes its own food by photosynthesis
Eaten by: Bears, voles, lemmings, ptarmigan, geese, plovers, humans

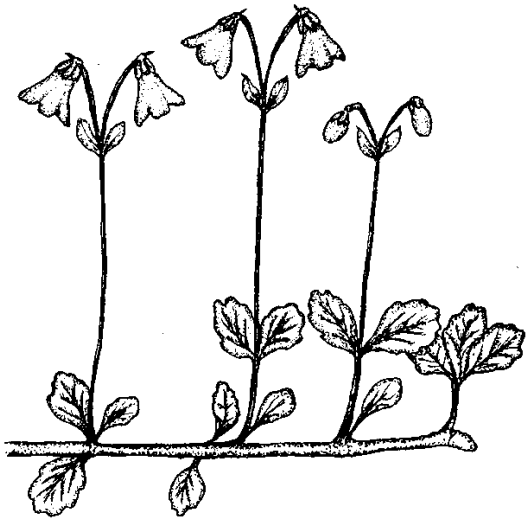
Do You Know? Bearberry plants depend on mycorrhizal fungi to help them obtain nutrients from the soil. In exchange, they provide sugars to the fungi. These plants depend on animals to transport their seeds.

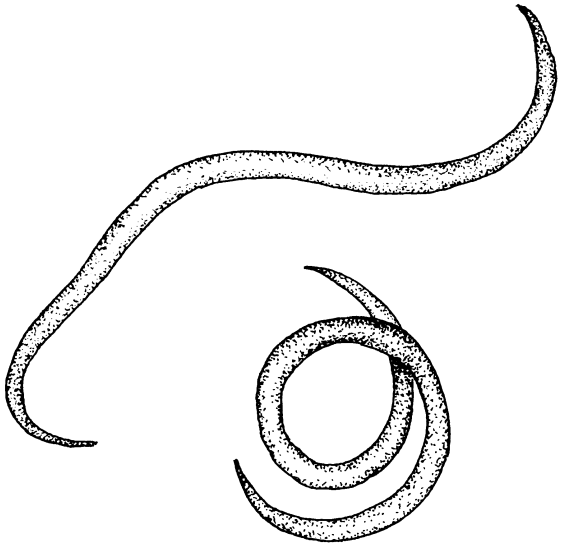
75. BLUEBERRY F,T,W
(also called HUCKLEBERRY)

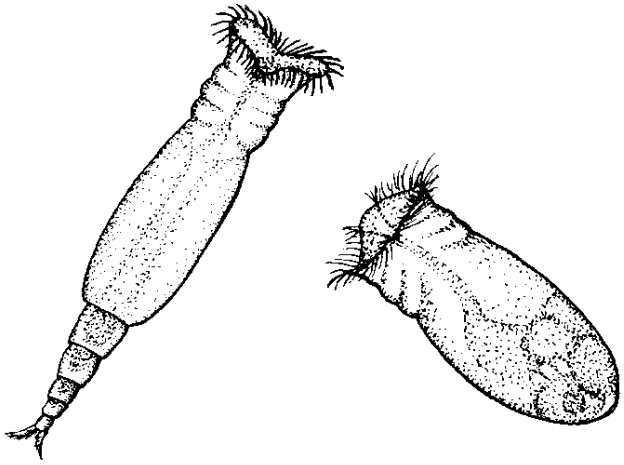
Traits: Shrub with small, oval leaves having smooth edges; small, bell-like flowers; blue, black, or red berries.
Habitat: Well-drained soils in wet, moderate climates
Foods: Makes its own by photosynthesis
Eaten by: Moth larvae, aphids, gall aphids, certain flies, true bugs, leafhoppers, slugs, snails,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

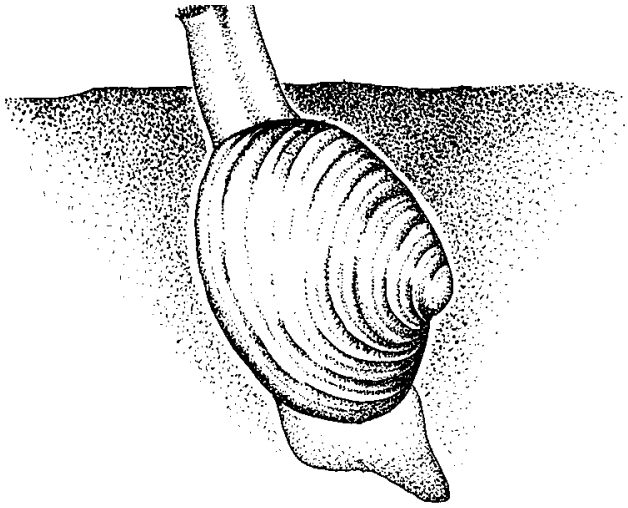
Traits: Microscopic invertebrate animals having one or more rings of cilia at the front end of the body
Habitat: Fresh water, or on mosses, other plants, or lichens
Foods: Aquatic detritus (dead organic matter), protozoans, other small animals
Eaten by: Roundworms, other invertebrates

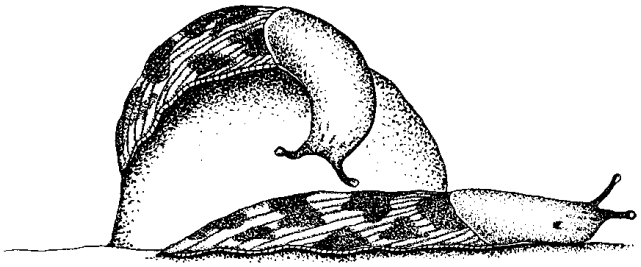
Do You Know? Terrestrial rotifers survive severe environmental conditions by going dormant for as long as three to four years.

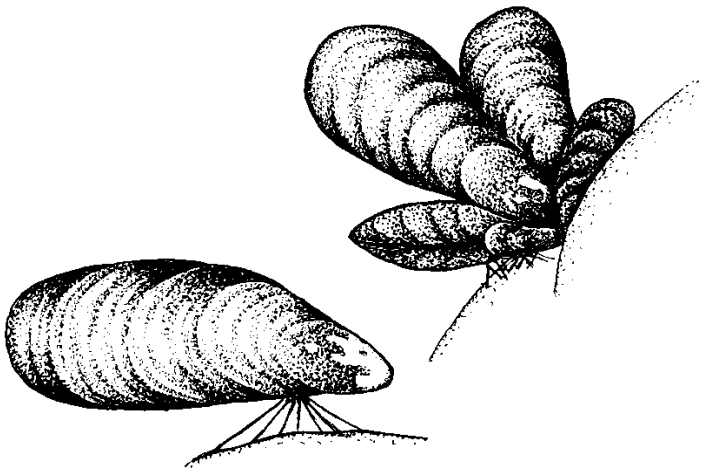
81. HIGHBUSH CRANBERRY F

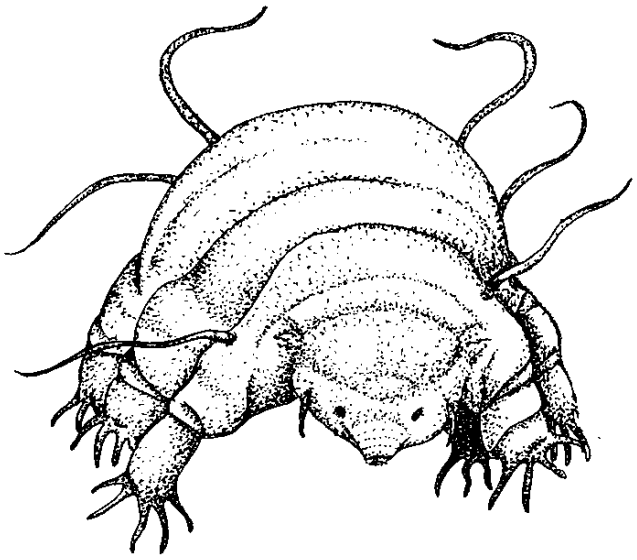
Traits: Shrub with three-lobed leaves growing in pairs along the stem; white flowers in clusters at the end of short twigs; bright red berries
Habitat: Understory in aspen and birch forests; grows best in well-drained, warm sites
Foods: Makes its own by photosynthesis
Eaten by: Moth and butterfly larvae,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

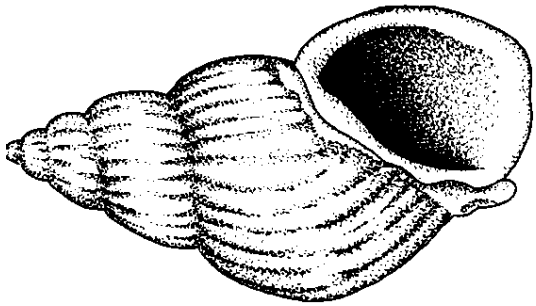
Do You Know? Highbush cranberry is also called "cramp bark" because the bark is a natural source of muscle relaxant.

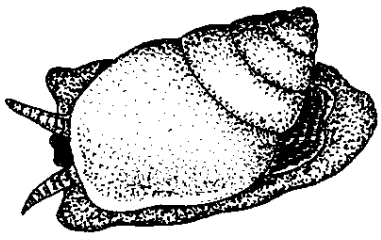


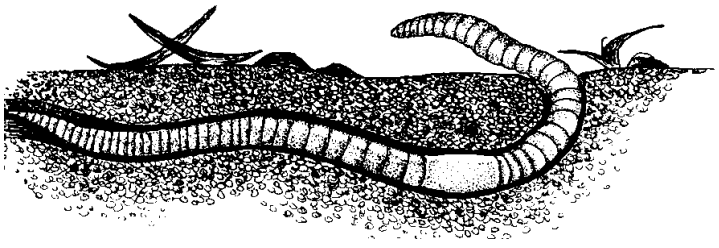












88. SLUGS F

Traits: A snail-like invertebrate animal without a shell; it has four antennae, with eyes that are located on the tips of one pair of antennae.
Habitat: Moist or wet forests, mainly in coastal Alaska; the larvae lives on rotten leaves and logs.
Foods: Leaves of plants, including skunk cabbage, salmonberry, and others
Eaten by: Certain ground beetles

Do You Know? In dry air, a typical slug will lose as much as 16 percent of its body weight per hour if it is active. If dry conditions continue, death will result in a few hours.

89. WATER BEARS F,T,W

Traits: Tiny to microscopic invertebrate animals. They are chubby with eight short legs having four to eight claws on each leg; they can survive for years in an inactive state when conditions are bad.
Habitat: In the water film around mosses and lichens
Foods: Fluids from inside the cells of mosses and lichens
Eaten by: Roundworms, centipedes, other invertebrates

Do You Know? Most of a water bear's life is spent in a dried, desiccated state. When water is available, it swells to four to five times its dried-up size.

90. SEGMENTED WORMS F,T,W

Traits: Slender-bodied worms with distinct segments along the body; invertebrate animals
Habitat: Many habitats; moist soil and decaying vegetation in forests
Foods: Varies by species; those that live in soil eat decaying vegetation, algae, or other invertebrate animals.
Eaten by: Thrushes, centipedes, ground beetles

Do You Know? Some segmented worms, called leeches, are parasites on other animals, including mammals, fish, birds, insects, snails and worms.

85. CLAM W

Traits: Invertebrate animal (mollusk) with two-valved shells hinged on one side, a small head, and a compressed body
Habitat: Varies by species; some burrow in sand, mud, or rocks.
Foods: Filter detritus, algae, protozoans, small crustaceans, insect larvae from the water
Eaten by: Snails, sea stars, certain fish, diving ducks, emperor geese, shorebirds, sea otters, humans

Do You Know? Clams can burrow very rapidly by extending their "foot" into the sand or mud, expanding the tip to act as a anchor, and pulling themselves down.

86. MUSSEL W

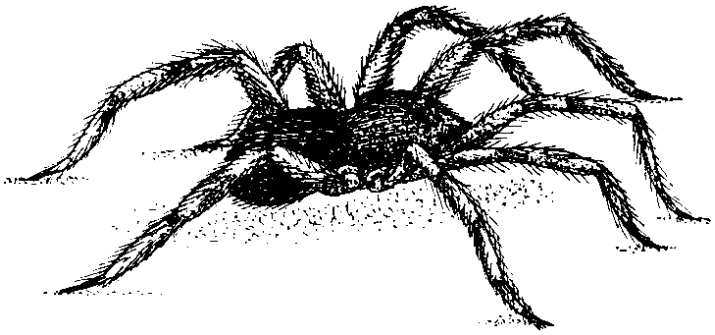
Traits: Invertebrate animal (mollusk) with two-valved shells hinged on one side, a small head, and a compressed body; they attach themselves to a surface with "byssal threads."
Habitat: Rocks or wharf pilings in salt water
Foods: Filter detritus, algae, protozoans, small crustaceans, insect larvae from the water
Eaten by: Snails, sea stars, certain fish, diving ducks, emperor geese, shorebirds, sea otters, humans

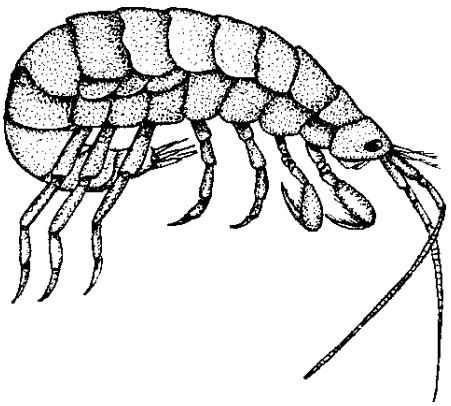
Do You Know? Mussels are edible.

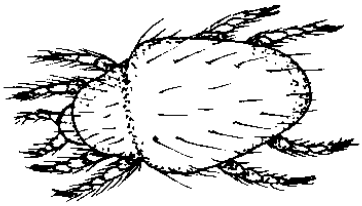
87. SNAIL W

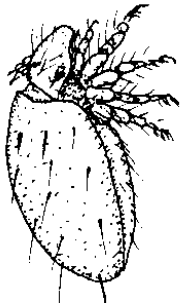
Traits: Invertebrate animal (mollusk) with flat creeping foot, a one-piece shell, and a well-developed head
Habitat: Land as well as water; on rocks, sandy or silty bottoms, and aquatic plants in either fresh or salt water
Foods: Fresh-water snails graze on algae, aquatic plants, detritus, and fungi. Some marine forms prey on other marine animals, including other mollusks.
Eaten by: Crustaceans, fish, birds, mammals

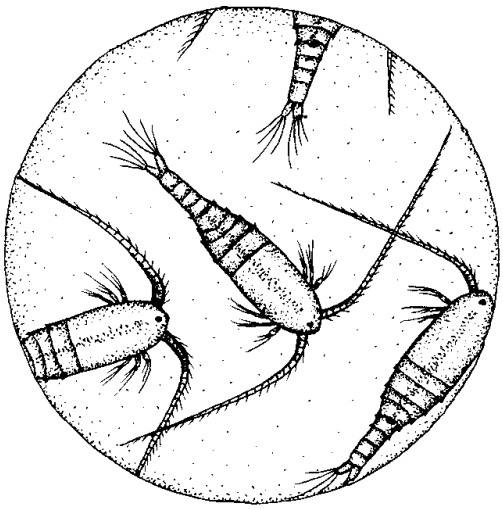
Do You Know? There are more than 35,000 species of snails.

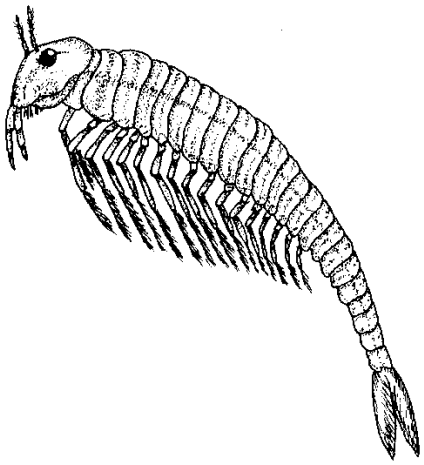












94. AMPHIPOD W

Traits: Crustacean with many legs, a hard exoskeleton, and a body compressed from side to side; eyes of amphipods not on stalks (unlike shrimp); invertebrate animal
Habitat: Salt water, fresh-water lakes and ponds
Foods: Detritus and small invertebrates
Eaten by: Fish, water birds, whales, other aquatic predators

Do You Know? Beach amphipods, sometimes called sand fleas, are only 0.75 inches (2 cm) long, but they can leap 1.1 yards (1 m); that is farther than any organism of their size.

95. WATER FLEA W

Traits: Crustacean (invertebrate animal) with a body compressed side to side; hard shell covers body but not head; uses second set of antennae to swim
Habitat: Lakes, ponds, streams
Foods: Filters detritus, protozoans, rotifers, crustaceans, algae, diatoms and other plankton from the water
Eaten by: Ducks, shorebirds, diving beetles, other aquatic invertebrates, fish

Do You Know? Females produce two kinds of eggs: thin-shelled eggs in the summer, which develop without fertilization, and thick-shelled ones in winter, which are fertilized by males.

96. FAIRY SHRIMP W

Traits: Crustacean (invertebrate animal) that swims upside down; 20 body segments with appendages on the first 11-12 segments; eyes on stalks; no hard shell covering body
Habitat: Small ponds, springs, meltwater pools
Foods: Detritus, small crustaceans, rotifers, protozoans, algae, diatoms and other plankton
Eaten by: Ducks, phalaropes, water shrews, diving beetles, other aquatic invertebrates, fish

Do You Know? Females are often more abundant than males. In some types, no males are known and develop from eggs that have never been fertilized.

91. SPIDER F,T,W

Traits: Small invertebrate animals with eight legs; the body appears divided into a large abdomen and a small head with large fangs.
Habitat: Soil, leaf litter, plants, rotten logs
Foods: Mainly insects such as aphids, flies, rove beetles, springtails, bristletails, others
Eaten by: Insect-eating birds such as thrushes and winter wrens

Do You Know? The silk produced by spiders may stretch as much as one-fourth its length before breaking. It is one of the strongest natural fibers known.

92. MITE F,T

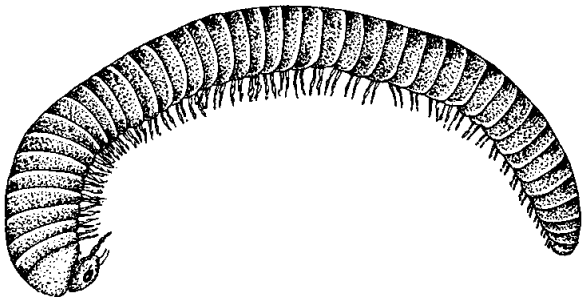
Traits: Tiny to microscopic invertebrate animals, each with eight legs and a pear-shaped body
Habitat: Mosses, rotten leaves, humus, forest soils
Foods: Varies by species; many prey on roundworms, other mites, and insect larvae; others feed on plants (dead or live) and animals.
Eaten by: Centipedes, some ground beetles, ladybird beetles, winter wrens, thrushes, sparrows

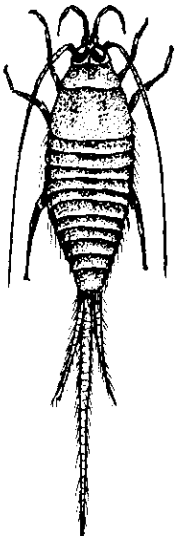
Do You Know? Some mites ride on the backs of carrion beetles. Other mites parasitize other animals.

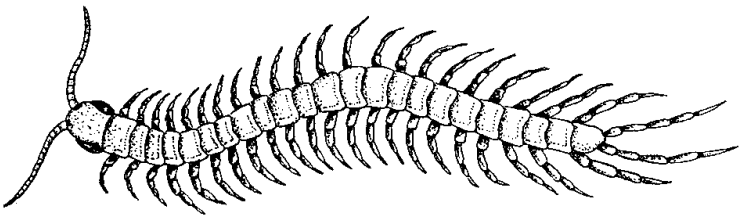
93. COPEPOD W

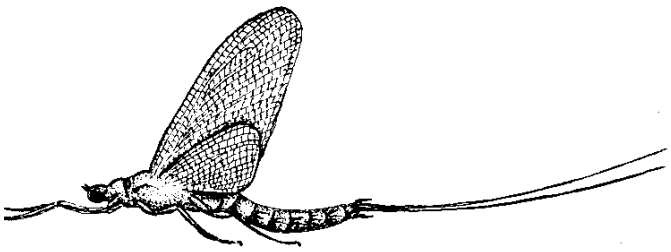
Traits: Crustacean (invertibrate animal) with a short, cylindrical body of ten segments; the first few segments have appendages
Habitat: Fresh and salt water wetlands and at sea
Foods: Filter detritus or algae from the water; some capture small zooplankton. Some are parasites on the gills of fish and large crustaceans.
Eaten by: Fish and other aquatic animals, including whales

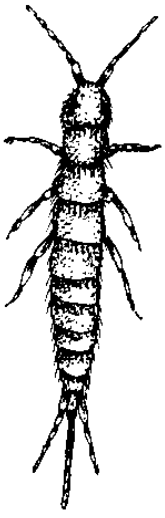
Do You Know? Although they are tiny, copepods and other small crustaceans are the chief food of humpback and gray whales.

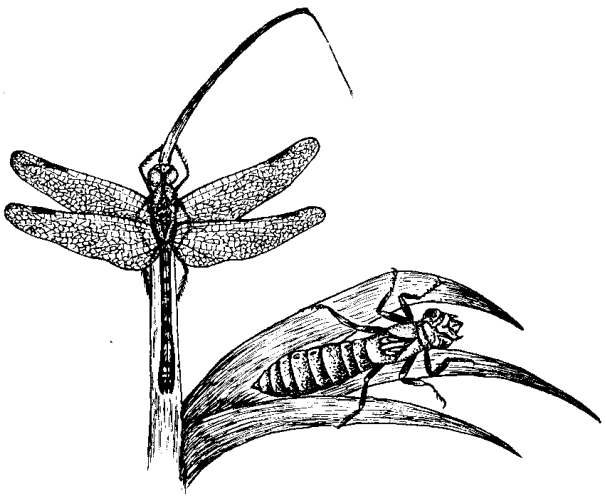












100. BRISTLETAIL F

Traits: Wingless insects with three tail-like parts and long antennae, often covered with scales; chewing mouthparts; invertebrate animals
Habitat: Damp or moist litter and soil of forests and meadows; under bark of logs or under rocks
Foods: Decaying leaves
Eaten by: Centipedes, shrews, thrushes, ground beetles

Do You Know? These insects are able to run rapidly or jump.

97. MILLIPEDE F

Traits: Slender-bodied, wormlike invertebrate animals with distinct segments along the body, two leglike structures on each segment
Habitat: In Alaska's coastal forests: under rocks or logs and in rotten leaves, wood or soil
Foods: Varies by species; decaying plants and fungi or centipedes, worms, or insects
Eaten by: Thrushes, sparrows, wrens, ground beetles

Do You Know? Some kinds have poison glands that secrete hydrogen and cyanide. Millipedes will coil up when disturbed.

101. MAYFLIES W

Traits: Delicate insects with two to three hairlike parts at the end of the abdomen; rear wings are smaller than forewings; invertebrate animal
Habitat: Adults: near water; nymphs: streams, lakes, ponds
Foods: Nymphs feed on diatoms, algae, and detritus; adults cannot feed because their mouth parts do not function.
Eaten by: Diving beetles, frogs, fish, waterfowl, shorebirds

Do You Know? Most adult mayflies live for only two to three days; some live for just one to two hours.

98. CENTIPEDE F

Traits: A small, wormlike invertebrate animal with two legs on each of its body segments; all have poison claws for capturing prey.
Habitat: Soil and humus or beneath stones, bark, or logs
Foods: Invertebrates that live in the soil, including springtails, bristletails, ground beetles, fly larvae, flea larvae, mites, worms, snails
Eaten by: Thrushes, winter wrens

Do You Know? Centipedes have poison glands on their jaws that can cause pain if they bite you. Not usually dangerous to people.

102. DRAGONFLY F,W

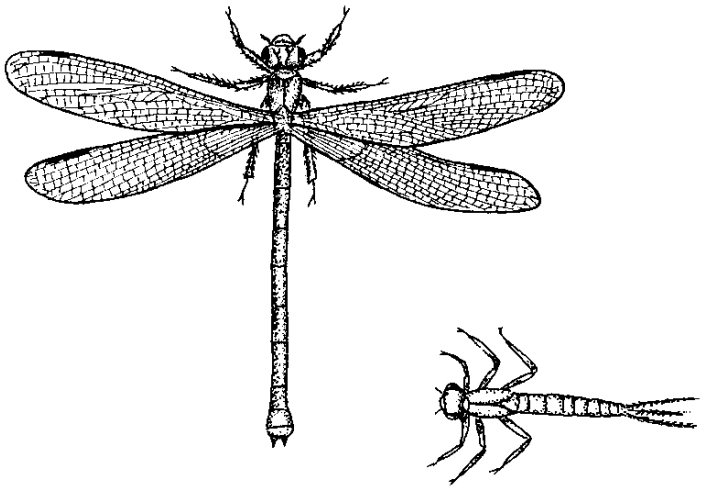
Traits: Insect with long, narrow abdomen; six legs, large eyes and four wings; invertebrate animal
Habitat: Adults: near water; nymphs: bottom of streams and ponds or on aquatic plants
Food: Adults prey on small flying insects, including mosquitos and black flies. Nymphs prey on mosquito larvae, snails, tadpoles, and small fish.
Eaten by: Adults eaten by flycatchers, fish, and swallows; dippers feed on nymphs.

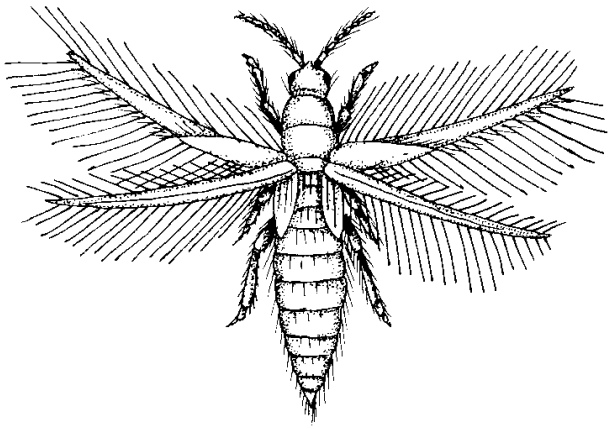
Do You Know? Adults catch mosquitos in the air with their basketlike legs and eat their prey "on the wing."

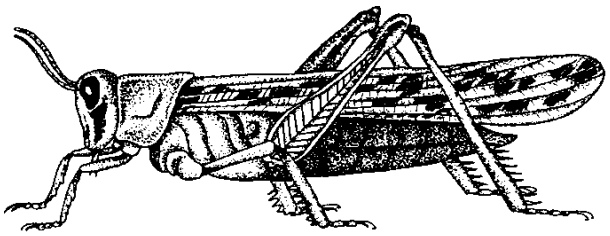
99. SPRINGTAIL F,T,W

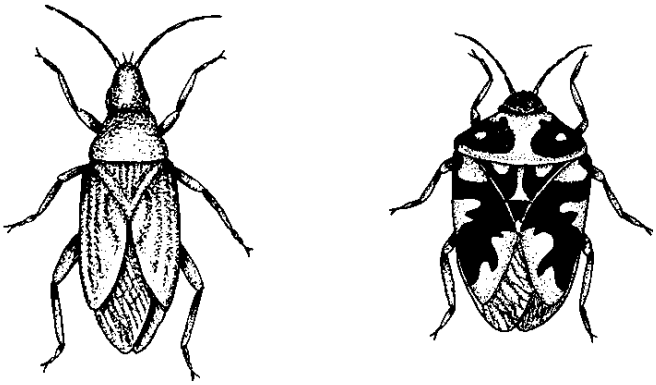
Traits: A small, wingless insect (invertebrate animal) with chewing mouthparts and a tube on the underside of the first abdominal segment
Habitat: Soil, litter, decaying logs, mosses; some in trees, and a few live in groundwater
Foods: Algae, lichens, pollen, fungal spores, decaying materials
Eaten by: Centipedes, ground beetles, spiders, shrews, birds

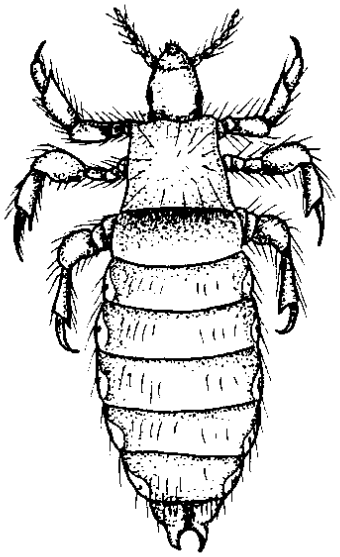
Do You Know? This insect's furcula (tail-like forked organ) folds down under the body and releases, springing the animal three to four inches (7-10 cm) into the air.

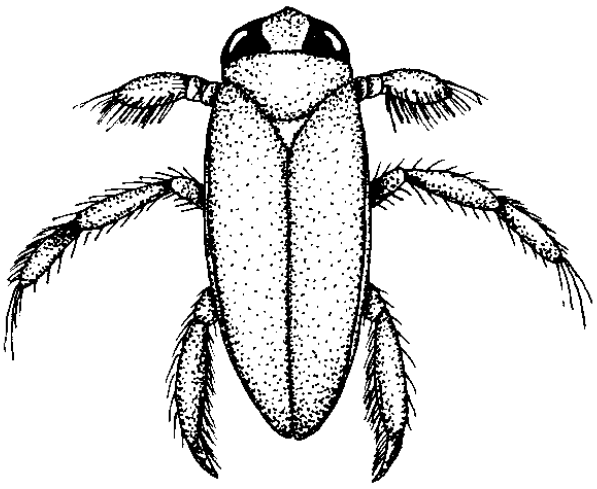












106. THRIP F

Traits: Tiny winged or wingless long-bodied insects; if winged, they have four narrow wings with fringes of long hairs; antennae, sucking mouthparts
Habitat: Flowers and leaves of plants
Foods: Flowers, leaves, buds, fruits; few eat fungal spores, mites, and small insects.
Eaten by: Warblers, chickadees, creepers, wrens, ants, hornets, ground beetles, lacewings

Do You Know? Some thrips carry microscopic organisms that cause plant diseases.

103. DAMSELFLY W

Traits: Insects with very large eyes and short antennae; adults have four wings of the same size.
Habitat: Adults: near water; nymphs: on aquatic plants or the bottom of streams and ponds
Foods: Adults prey on flying insects, including midges and mosquitos. Nymphs eat mosquito larvae, tadpoles, and small fish.
Eaten by: Diving beetles, frogs, fish, waterfowl, shorebirds

Do You Know? Fossil records indicate that some prehistoric relatives of damselflies had wingspans of 27 inches (69 cm).

107. TRUE BUG F,T,W

Traits: Front wings thick, colored, and hardened near body; wings thin and often clear at the tips; held flat over body. Beaklike mouthparts at front of head
Habitat: Variety of habitat types
Foods: Varies by species; some live only on the species of plant they eat; others are predatory.
Eaten by: Chickadees, thrushes, warblers, shrews, wasps, ground beetles

Do You Know? Many true bugs give off odors to repel predators.

104. GRASSHOPPER F,W

Traits: Insects with large hind legs for jumping; thickened, narrow front wings and hind wings that are clear and large; all have chewing mouthparts.
Habitat: Places with herbs and grasses
Foods: Leaves, stems, other parts of plants
Eaten by: American kestrels and other insect-eating birds

Do You Know? Grasshoppers serve as an important food source for birds and mammals.

108. WATER BOATMAN W

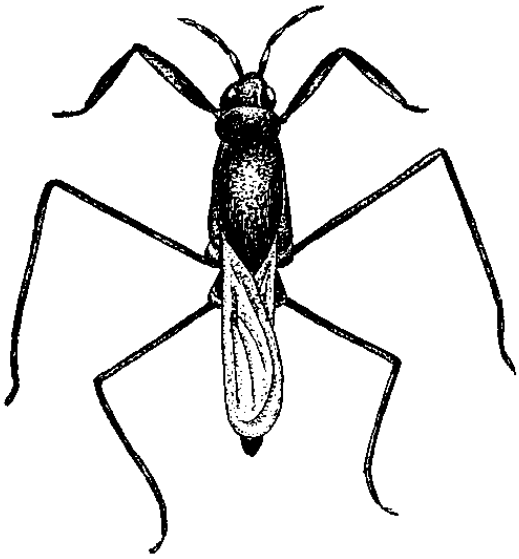
Traits: Aquatic insect with four long legs used for swimming; front legs modified to form scoops; the nymphs and adults look alike.
Habitat: Margins of lakes, ponds, estuaries
Foods: Decaying leaves
Eaten by: Diving beetles, frogs, fish, waterfowl, shorebirds

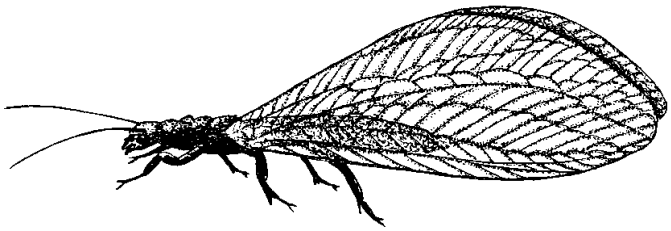
Do You Know? Water boatmen are like scuba divers. They trap an air bubble under their wings at the water surface, then use this “air tank” to breathe while diving underwater.

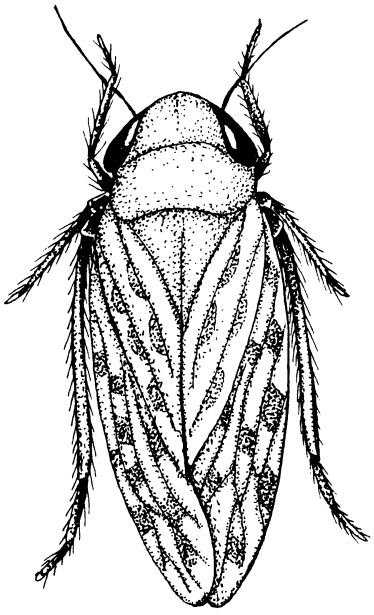
105. LICE F,T,W

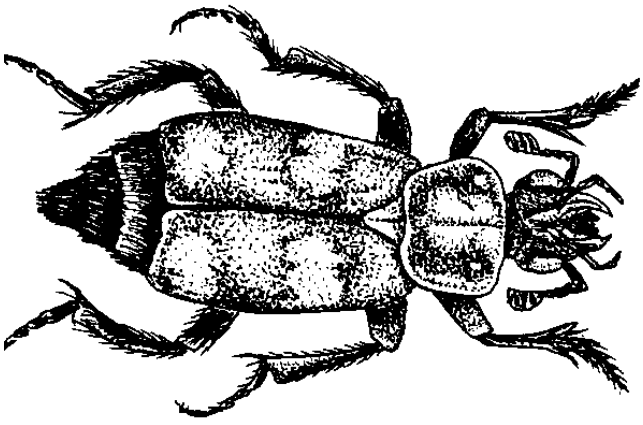
Traits: Small, wingless insects with sucking or chewing mouthparts; invertebrate animals
Habitat: Skin, fur, or feathers of birds and mammals
Foods: Varies by species; some suck blood of mammals or birds; others eat skin, feathers, or fur.
Eaten by: Sometimes eaten by birds or mammals during grooming

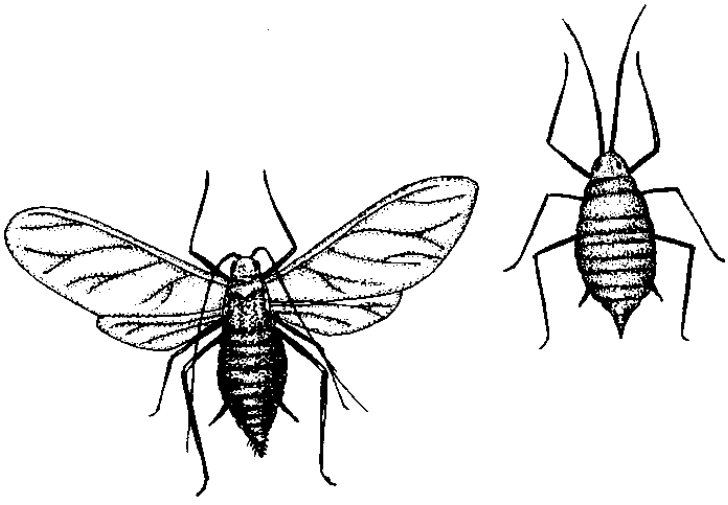
Do You Know? All lice are parasites of birds or mammals. Some blood-sucking lice carry microscopic organisms that cause diseases in mammals and birds.

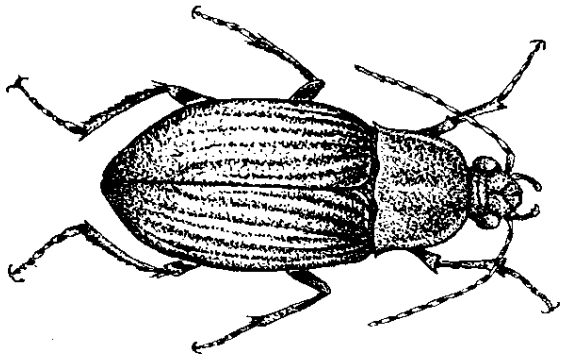












112. LACEWINGS F,W

Traits: Green or brown insects with large, clear wings with netlike veins; small head with large eyes and chewing mouthparts; long antennae
Habitat: Leaves of trees and shrubs; Eggs are attached to a leaf by a thread the female forms. Larvae spin cocoons.
Foods: Adults eat pollen, nectar, and aphid honeydew. Larvae prey on mites, aphids, and other insects.
Eaten by: Thrushes, warblers, chickadees, kinglets, hornets, dragonflies, bats, shrews

Do You Know? Green lacewings have glands on their bodies that emit foul odors when the insect is handled.

113. CARRION BEETLES F,T

Traits: Large, round-bodied insects with thickened front wings; black with red, orange, or yellow markings; clubbed antennae
Habitat: Soil and litter of forests and other habitats
Foods: Dead animals and other insects, such as fly larvae, that feed on dead animals; the adult female lays her eggs and buries them with a dead animal.
Eaten by: Thrushes, shrews, mice, voles

Do You Know? All carrion beetles have mites riding on their backs. These mites get a free ride to new food sources, but do not harm the beetle. This is an example of commensalism.

114. GROUND BEETLES F,T

Traits: Dark, flattened insects with thick front wings and grooves running from front to back; long legs, large mouthparts
Habitat: In most habitats on land
Foods: Varies by species; dead animal remains, insects (such as caterpillars), slugs, snails
Eaten by: Jays, thrushes, wrens, sparrows, centipedes

Do You Know? Most ground beetles are active only at night and hide during the day under logs, rocks, or leaf litter. Tundra species produce antifreeze that allows them to survive freezing temperatures.

109. WATER STRIDER F,T,W

Traits: Insect with body and long legs covered with stiff, waterproof hair that allows the insect to "skate" across the water surface
Habitat: Ponds and streams
Foods Small living or dead insects on the water surface
Eaten by: Fish, water birds, water shrews

Do You Know? A water strider will sink and drown if the hairs on its legs become wet and it cannot reach a place to dry out.

110. LEAFHOPPERS F,T,W

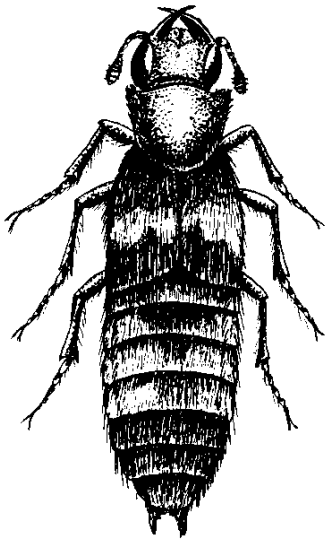
Traits: Insect with front pair of wings thin and clear, or only slightly colored; held rooflike over body; Beaklike mouth comes out of the rear underside of the head; one or more rows of spines on the hind legs.
Habitat: Plants in forests and other habitats
Foods: Sap of plants
Eaten by: Warblers, thrushes, chickadees, shrews, ground beetles, centipedes

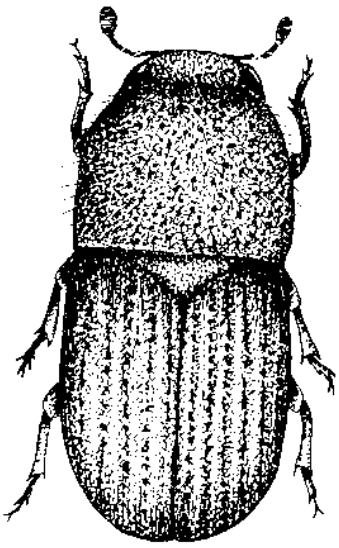
Do You Know? Leafhoppers often discharge a clear, watery fluid called "honeydew," which attracts other insects (especially ants).

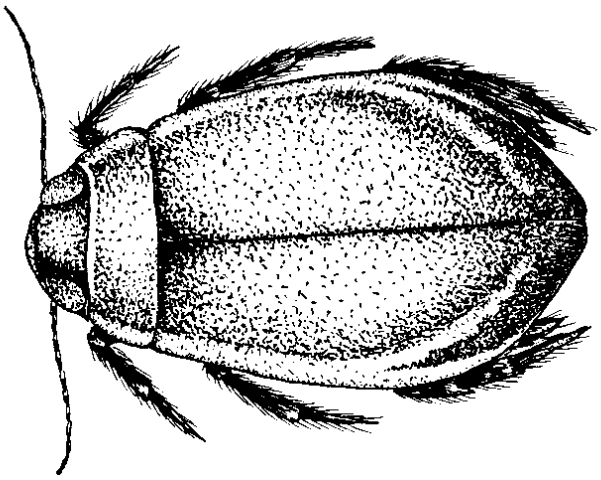
111. APHIDS F,T,W

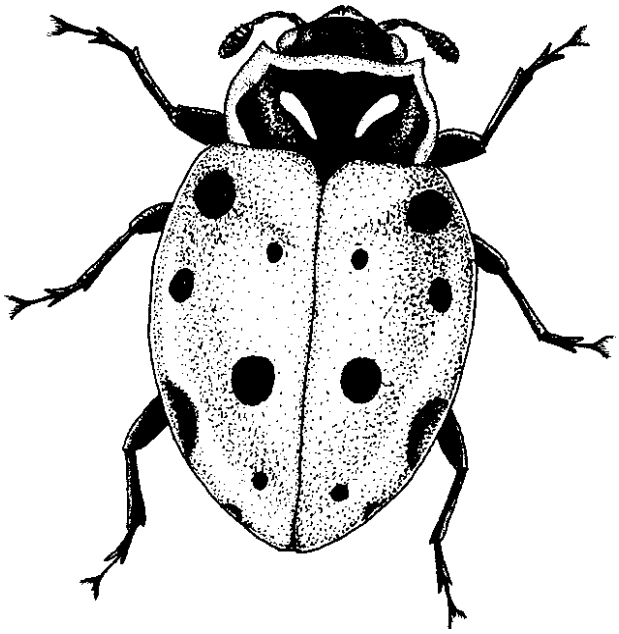
Traits: Pear-shaped insects with winged and wingless forms in the same species; most have two tubes (called cornicles) on the top of their abdomens.
Habitat: Leaves and stems of plants
Foods: Sap of plants; they cause plant leaves to wilt, curl, and turn yellow
Eaten by: Ants, wasps, ladybugs, warblers, chickadees, kinglets, wrens, sparrows

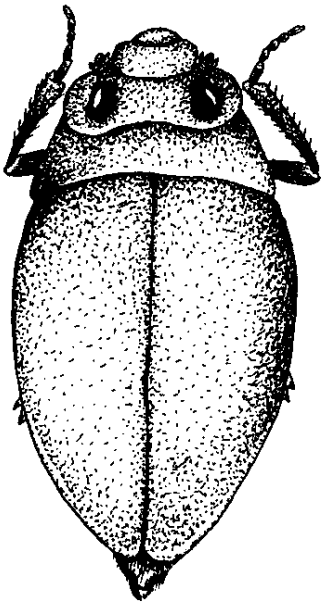
Do You Know? Aphids produce a secretion, called honeydew. To obtain this honeydew, certain ants protect and tend aphids.

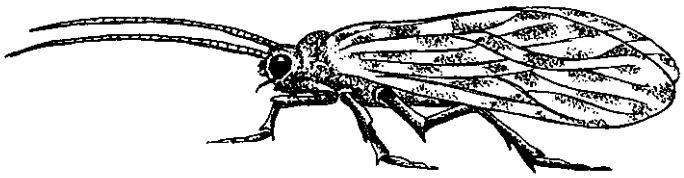












118. BARK BEETLES F

Traits: Small, round-bodied insects with thickened front wings; small antennae with clubs on the tips
Habitat: Under tree bark
Foods: Varies by species; majority eat the underside of tree bark or wood; others eat fungi that grow in the tunnels the beetles bore into wood
Eaten by: Woodpeckers, brown creepers, ichneumon larvae

Do You Know? Most bark beetles need fungi to break down and digest wood. Some species have these microscopic organisms living in their stomachs.

119. LADYBIRD BEETLES F

Traits: Brightly colored insects with very round bodies and thickened front wings, usually with spots on them; larvae are usually dark with bands of color and covered with spines.
Habitat: Leaves and stems of plants in forests, shrub thickets, and meadows
Foods: Aphids, other small insects, mites; a few species eat plant leaves.
Eaten by: Warblers, chickadees, thrushes

Do You Know? Also known as ladybugs, the adult beetles gather by the thousands and hibernate under fallen branches and rocks.

120. CADDISFLIES W

Traits: Adults have wings covered with hairs. Long antennae. Larvae have hooklike parts at the ends of their abdomens and some have featherlike gills.
Habitat: Adults are nocturnal and rest in cool, dark places. Larvae live in ponds, lakes, and streams.
Foods: Adults eat flower nectar. Larvae eat aquatic plants, algae, diatoms, and aquatic insect larvae.
Eaten by: Diving beetles, frogs, fish, waterfowl, shorebirds

Do You Know? Many larvae build cases made of leaves, twigs, or sand in which to pupate.

115. ROVE BEETLES F,T

Traits: Dark, flattened insects with short, thick front wings and long, slender bodies; some have large mouthparts that cross at the tips; May be covered by hairs
Habitat: Soil in forests and other habitats
Foods: Varies by species; dead animal or plant remains, insects such as ants
Eaten by: Thrushes, jays, wrens, sparrows, centipedes, ground beetles, mice, shrews

Do You Know? Some rove beetles live in the nests of mammals.

116. DIVING BEETLES W

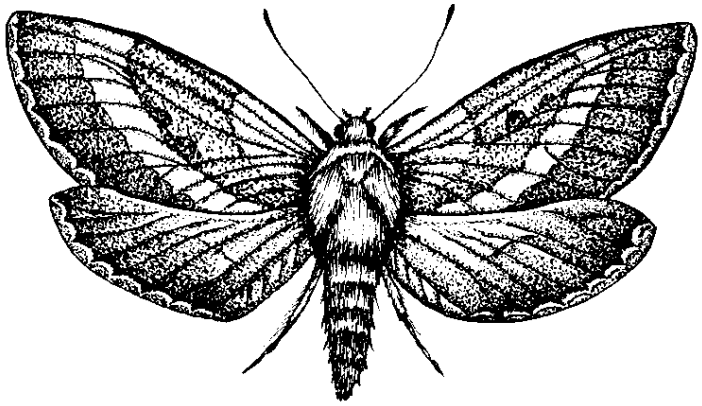
Traits: Aquatic insects; adults are oval-shaped and have legs with hairlike fringes; Larvae have large heads, long mandibles, and eight to ten abdominal segments.
Habitat: Ponds, lakes, streams, rivers, estuaries
Foods: Adults and larvae prey on aquatic insects, small fish, and tadpoles.
Eaten by: Fish, water birds, water shrews

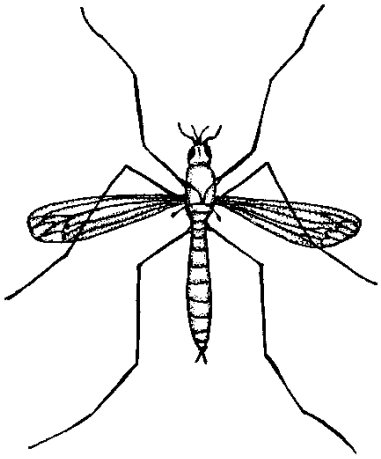
Do You Know? Diving beetles obtain air at the surface of the water, but can remain underwater by carrying an air bubble with them.

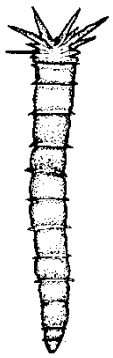
117. WHIRLIGIG BEETLES W

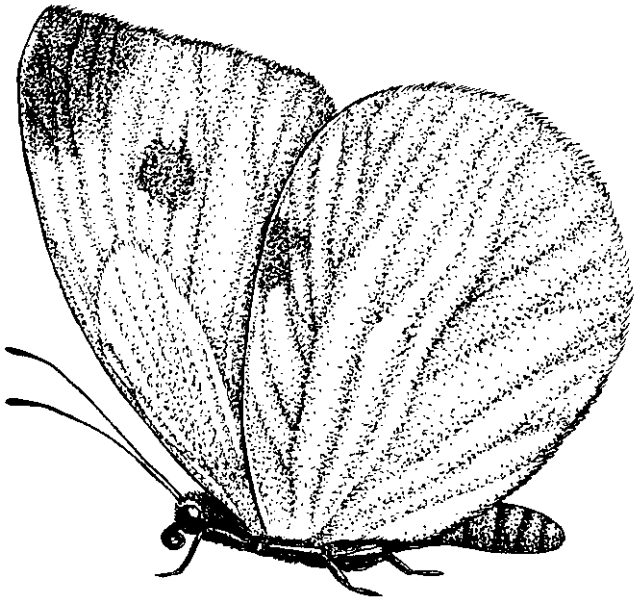
Traits: Aquatic insects; adults are flat, oval-shaped and have two eyes on top of the head and two on the bottom. They are black or greenish and often swim in circles together. Larvae are slender and have featherlike gills on abdomens.
Habitat: Ponds, lakes, streams
Foods: Insect larvae, small fish, tadpoles
Eaten by: Fish, water birds

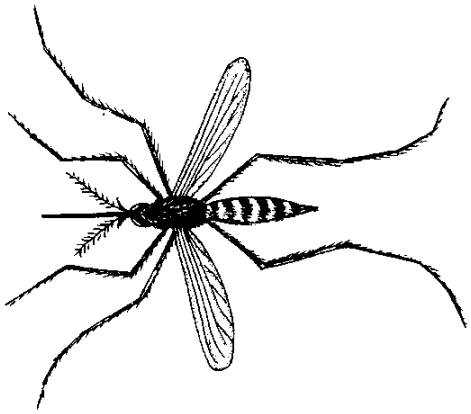
Do You Know? Whirligig beetles can see underwater and above water at the same time.

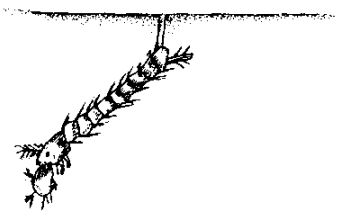


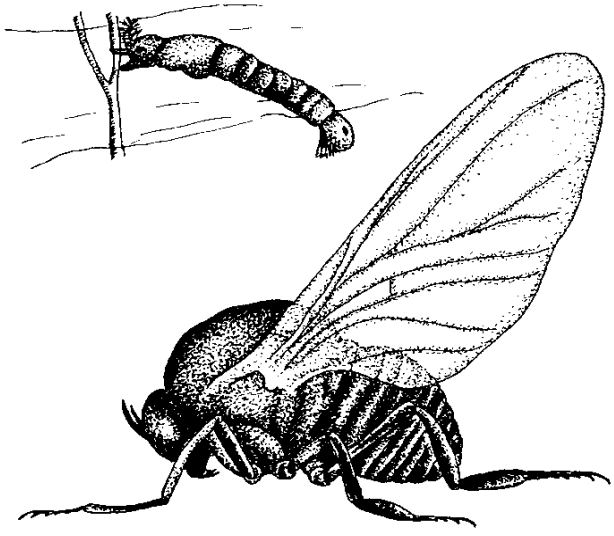


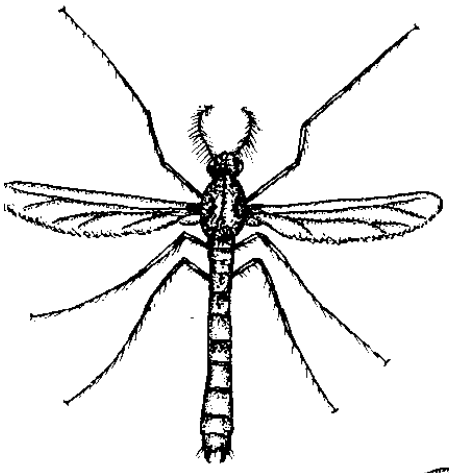












124. CRANE FLY F,T,W

Traits: Long-legged, mosquito-like insects with two clear wings
Habitat: Adults: damp habitats with abundant vegetation; larvae: moist soil and decaying plants in forests; some live in water.
Foods: Some adults eat flower nectar. Larvae eat algae, detritus, and larvae of other insects.
Eaten by: Bats, shrews, insect-eating birds, centipedes, spiders, other insect-eating invertebrates

Do You Know? Although craneflies look like giant mosquitoes, they do not bite. They do, however, eat mosquitoes.

125. MOSQUITO F,T,W

Traits: Adult insects have scales and long, tubular mouthparts (proboscis) for sucking. Larvae are wormlike.
Habitat: All types; larvae are aquatic and live in ponds, lakes, and still waters.
Foods: Adult females suck blood from birds and mammals. Adult males feed on flower nectar. Larvae feed on algae, protozoans, and detritus.
Eaten by: Adults are eaten by dragonflies, fish, frogs, birds, bats. Larvae are eaten by fish and water birds.

Do You Know? Some female mosquitoes carry microscopic organisms that cause diseases in mammals and birds.

126. MIDGE F,T,W

Traits: An adulthas six long legs, a long narrow abdomen, and two wings that are narrow at the base. Larvae are aquatic.
Habitat: Adults swarm over water and moist habitats. Larvae live in water or wet moss.
Foods: Adults eat flower nectar and pollen. Larvae eat algae or plant material or filter microscopic organisms from the water. Some prey on other insects.
Eaten by: Fish, aquatic animals, birds, shrews, ground beetles

Do You Know? Adults live for only five to ten days. Larvae live as long as seven years.

121. MOTH F,T

Traits: Insects with four large wings with powderlike scales; large eyes, long antennae, and tubelike mouths that coil up when not in use
Habitat: Adults use a variety of habitats. Larvae can only live on certain plants.
Foods: Adults eat flower nectar. Larvae eat plant leaves, fruit, stems, and roots.
Eaten by: Bats, shrews, ground beetles, warblers, flycatchers, swallows, chickadees, kinglets

Do You Know? Larvae spin cocoons. Some larvae make tents of silk threads.

122. BUTTERFLY F,T,W

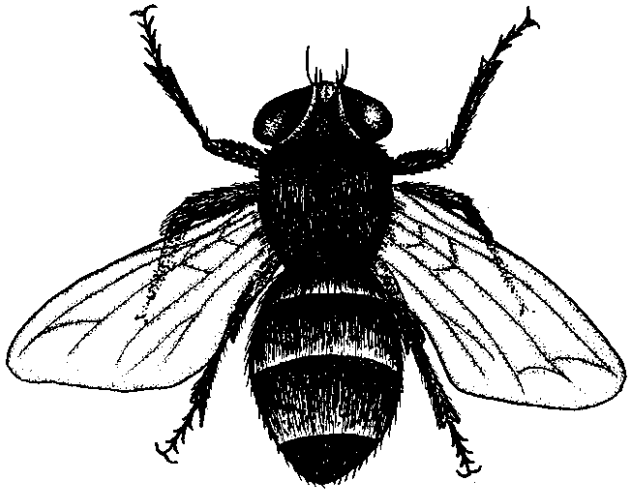
Traits: Adults have four large wings with powderlike scales; large, compound eyes, long antennae with clubs at the tips, and tubelike mouths that coil up when not in use.
Habitat: Adults use a variety of habitats. Larvae can live only on certain plants.
Foods: Adults eat flower nectar. Larvae eat plant leaves, fruit, stems, or roots.
Eaten by: Warblers, flycatchers, ground beetles, wasps, dragonflies

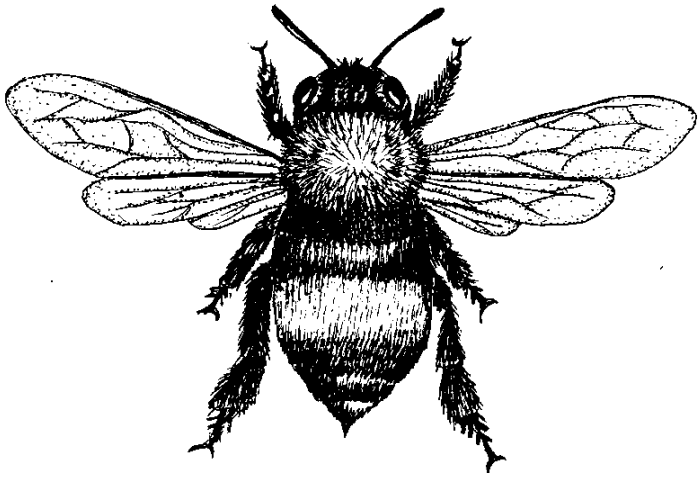
Do You Know? Larvae form a chrysalis for pupation.

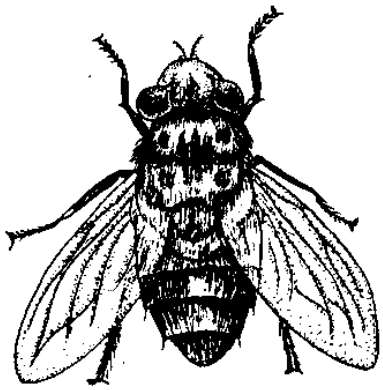
123. BLACK FLY F,T,W

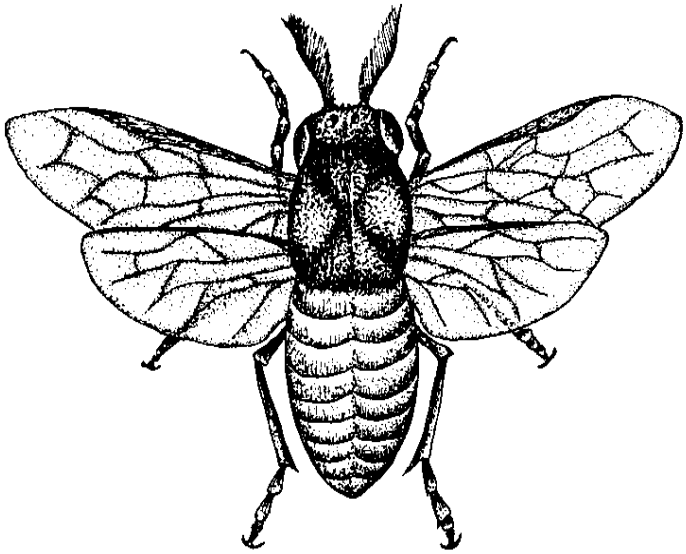
Traits: Adult black flies have six legs and are dark colored with two broad wings and short legs. Larvae are wormlike.
Habitat: Adults live around water. Larvae live underwater, attached to rocks and plants.
Foods: Adult males feed on flower nectar. Adult females suck blood from birds and mammals. Larvae filter detritus (decaying matter).
Eaten by: Adults are eaten by swallows and some insects. Larvae eaten by fishes, such as blackfish, and dippers.

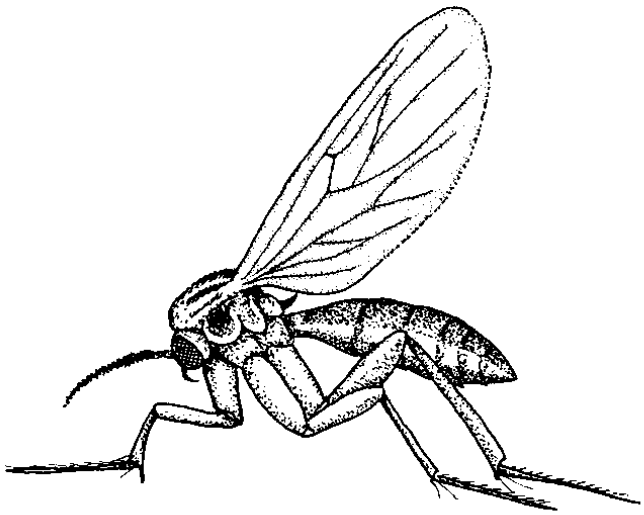
Do You Know? Female black flies are vicious biters. Males don't bite.

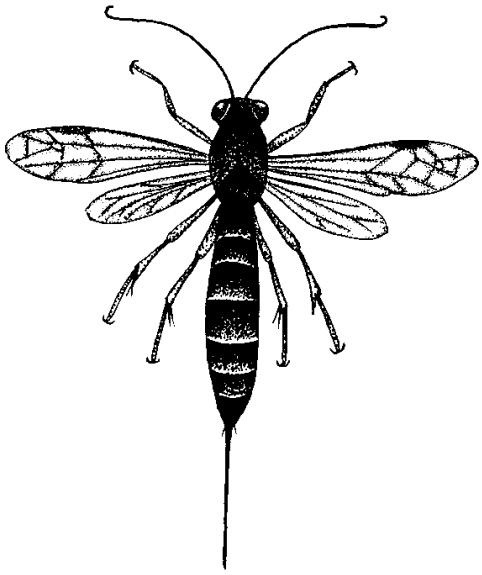












130. BUMBLE BEE F,T,W

Traits: Insects with four wings; hind wings much smaller than front ones; hairy, black bodies covered with yellow markings
Habitat: Any habitat with a variety of nectar-producing flowers, including pioneer, tall shrub, and old-growth forest; nests in the ground
Foods: Nectar and pollen of flowering plants
Eaten by: Flycatchers, swallows, warblers

Do You Know? Bees are among the most important plant pollinators. Some species eat the nectar and pollen and pollinate only one species of plant.

131. SAW FLY F,T

Traits: Insects with four clear wings; hind wings smaller than forewings; long antennae, broad abdomens
Habitat: Adults use a variety of habitats, but larvae usually live only on certain plants.
Foods: Leaves of conifers, certain broadleaf trees, other plants; some larvae are leaf miners. Some species eat nectar or pollen.
Eaten by: Flycatchers, swallows, certain wasps

Do You Know? These insects look scary because of their well-developed oviposters (egg-layer), which look like a stingers, but they do not sting or bite.

132. ICHNEUMON F,T,W

Traits: Insects with long, narrow bodies and four clear wings; antennae are at least half as long as the body. Some have a long, narrow tail-like structure for egg-laying.
Habitat: Any habitat where there are host insects
Foods: Adults lay their eggs inside larval sawflies, horntails, butterflies, moths, and spiders. When the eggs hatch, the larvae eat the host.
Eaten by: Flycatchers, swallows, thrushes, warblers, chickadees

Do You Know? These wasplike insects are important parasites of immature insects.

127. BLOW FLY F,T,W

Traits: Insects with two clear wings and two small knobs (called halteres), large eyes, metallic blue or green backs; invertebrate animal
Habitat: Soil and dead animals
Foods: Liquids from decaying plants and animals, animal wastes, blood
Eaten by: Warblers, flycatchers, chickadees, thrushes, shrews, carrion beetles, dragonflies, hornets, centipedes

Do You Know? Some blow flies are important as plant pollinators. Many flies transport microscopic organisms that cause diseases in animals. Flies taste with their feet.

128. BOT AND WARBLE FLY F,T

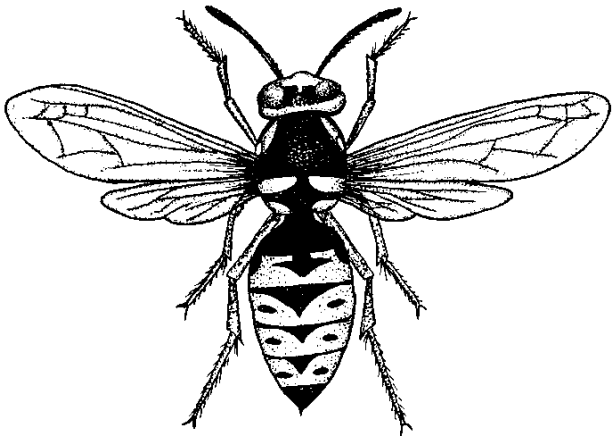
Traits: Beelike, hairy flies; invertebrate animal
Habitat: Larvae develop inside a host animal.
Foods: Larvae eat body fluids or tissues of their hosts (hares, squirrels, caribou, marmots, and other mammals). Foods of the adults are unknown.
Eaten by: Insect-eating birds

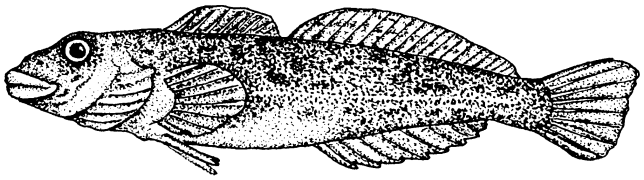
Do You Know? Bot flies lay their eggs on their host's skin. The larvae burrow under the skin and feed on tissues or body fluids of the host, then emerge and drop to the ground where they develop into adults who will continue the cycle.

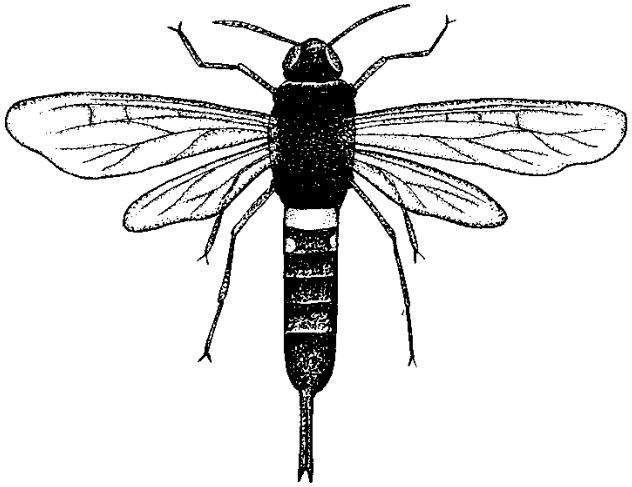
129. FUNGUS GNAT F,T,W

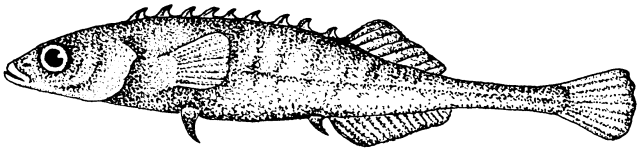
Traits: A slender, mosquito-like insect with long legs and long antennae; invertebrate animal
Habitat: Decaying vegetation, fungi, moist soil
Foods: Fungi, decaying plants, roots of live plants
Eaten by: Ground beetles, spiders, insect-eating birds

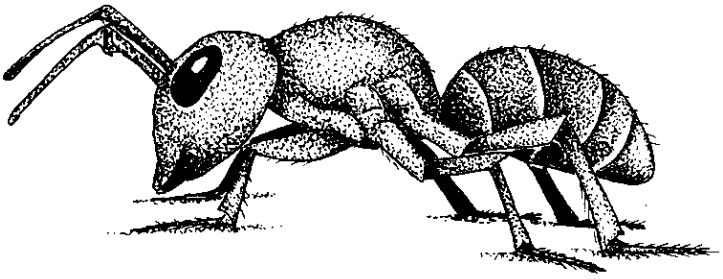
Do You Know? There are more than 600 species of fungus gnats in North America.

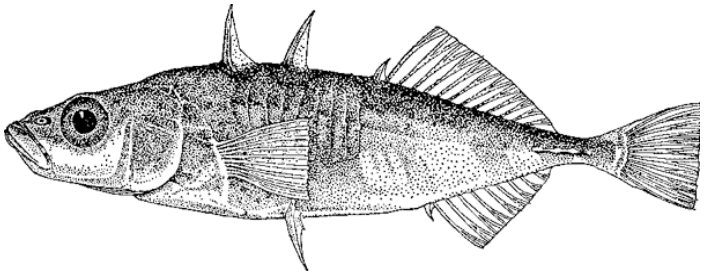












136. SLIMY SCULPIN F,T,W

Traits: Small fish (animal) with a large head, short lateral line ending below the second dorsal fin
Habitat: Lakes and fast-moving streams; adults move to shallow water to spawn.
Foods: Larvae of flies, mayflies, caddisflies, dragonflies, amphipods; also some eggs and young fish
Eaten By: Grebes, loons, mergansers, other fish

Do You Know? Male builds nest and defends eggs against predators. The color of its skin makes it nearly invisible when motionless on river and lake bottoms.

133. YELLOWJACKET AND HORNET F,T,W

Traits: Insects with bright black and yellow or white markings; the tip of the abdomen is pointed and has a stinger; invertebrate
Habitat: Variety of types
Foods: Adults eat flower nectar, ripe fruit, other insects; larvae eat caterpillars, flies, meat from dead animals, nectar.
Eaten by: Insect-eating birds such as flycatchers and swallows

Do You Know? These wasps build paper nests in the ground and in a protected site above ground.

137. NINE-SPINE STICKLEBACK F,T,W

Traits: Fish with nine spines on its dorsal (back) fin; animal (vertebrate).
Habitat: Lakes and rivers; spends the winter in deep water, then migrates to shallow water and tributaries to spawn
Foods: Midges, water fleas, copepods, crustaceans, aquatic insects
Eaten by: Arctic char, lake trout, grayling, loons, grebes, terns, gulls, mink, river otters, humans

Do You Know? Sticklebacks can lock their spines upright to prevent predators from swallowing them.

134. HORNTAIL F

Traits: Insects (invertebrate animal) with four clear wings, hind wings smaller than forewings; long cylinder-shaped abdomen with a spinelike part at the tail end, which is used for egg-laying; this insect does not sting.
Habitat: Forests; larvae live in wood of living or dead trees.
Foods: Wood
Eaten by: Woodpeckers, creepers, nuthatches, icheneumons

Do You Know? Some horntails are parasitized by ichneumons.

138. THREE-SPINE STICKLEBACK F,T,W

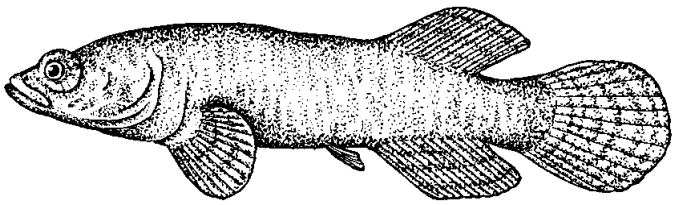
Traits: Fish with three sharp spines on its back; animal (vertebrate)
Habitat: Fresh and salt water
Foods: Copepods, water fleas, midges, rotifers, seed shrimp, aquatic worms, mollusks, amphipods, leeches, flatworms, water mites
Eaten by: Salmon, Dolly Varden, loons, grebes, mergansers, adult sticklebacks will eat young sticklebacks.

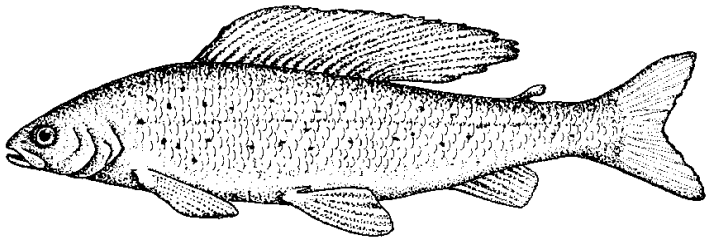
Do You Know? Sticklebacks have a high tolerance to low oxygen levels in shallow, frozen lakes. They can survive where other fish cannot.

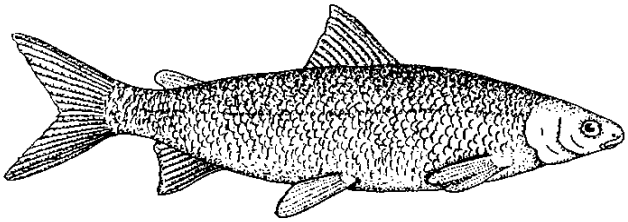
135. ANT F,T,W

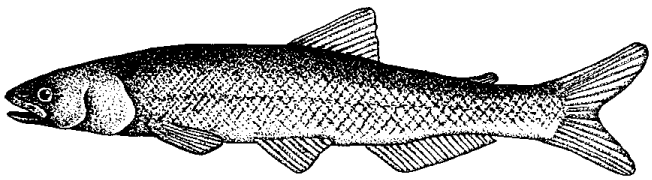
Traits: Body clearly divided into three segments by narrow constrictions, last segment forming a pointed end; many secrete formic acid as a defense. Only certain kinds of adults have wings.
Habitat: In colonies in the ground or in wood
Foods: Varies by species; flower nectar, plant juices, or aphid honeydew; seeds, leaves, or dead organisms; some are predators on other insects.
Eaten by: Flickers, wrens, thrushes, sparrows

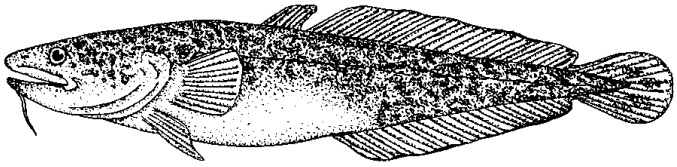
Do You Know? Some ants protect aphids from predators, then feed on the sugary secretion (honeydew) the aphids produce.

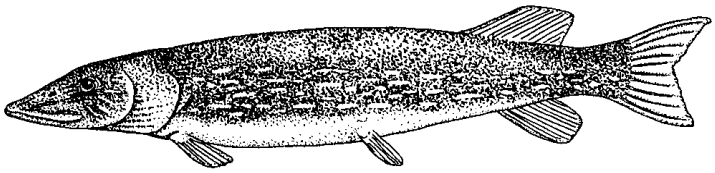












142. ARCTIC GRAYLING T, W

Traits: Fish with a large sail-like dorsal fin and small mouth; dorsal fin dotted with large iridescent red or purple spots; animal
Habitat: Cold, clear streams, lakes, ponds; spawn in streams with sandy gravel bottoms.
Foods: Mayflies, stoneflies, caddisflies, salmon eggs and smolt; also voles or shrews that fall into the water
Eaten by: Larger fish, loons, grebes, mergansers, humans

Do You Know? Grayling migrate from deep, fresh water holes upstream to spawn in smaller streams and headwaters.

139. BLACKFISH F,T,W

Traits: Fish with a broad, flat head; large dorsal and anal fins placed far back on body; rounded tail, three rays in pelvic fin; animal (vertibrate).
Habitat: Heavily vegetated lowland ponds and streams
Foods: Copepods, water fleas, insect larvae, mollusks, segmented worms, algae
Eaten by: River otters, mink, loons, grebes, terns, humans

Do You Know? The antifreeze in blackfish blood allows them to tolerate icy cold water and survive partial freezing.

143. EULACHON W

Traits: Fish has circular grooves on gill covers; narrow body, forked tail; animal
Habitat: Adults live at sea but return to fresh water streams with sandy gravel bottoms to spawn. The fry are swept out to sea and live in estuaries and near-shore waters.
Foods: Copepods, phytoplankton, mysid shrimp, barnacle larvae, water fleas, worm larvae
Eaten by: Salmon, seals, sea lions, beluga whales, humans

Do You Know? Eulachon is an oily fish, also known as the "candlefish" because of its traditional use as a candle when dried and fitted with a wick.

140. WHITEFISH F,T,W

Traits: Fish with slender, rounded bodies; forked tails; small mouths with upper jaw overlapping the lower jaw; animal (invertebrate)
Habitat: Lakes, streams, estuaries
Foods: Mainly insects, including larval mayflies, stoneflies, midges, dragonflies, mosquitoes; also eggs and larvae of other fish
Eaten by: Lake trout, burbot, arctic char, humans; fry are eaten by fish-eating birds, such as mergansers and grebes.

Do You Know? Most whitefish migrate long distances between feeding and spawning grounds. Some migrate to salt water feeding areas, but spawn and overwinter in fresh water.

144. NORTHERN PIKE W

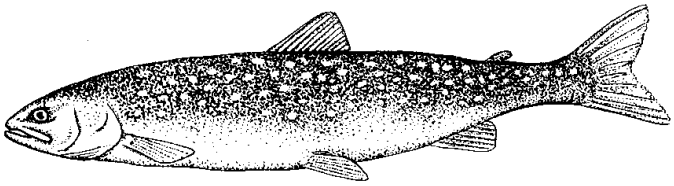
Traits: A fish with a long, flat snout; rear placement of dorsal and anal fins; large mouth with many sharp teeth; elongated body and head; animal (invertebrate)
Habitat: Deep, fresh water lakes and rivers in winter; shallow, near-shore waters in summer
Foods: Adults eat fish, waterfowl, frogs, water shrews, and insects. Young eat copepods, water fleas, and insects.
Eaten by: Bigger pike, blackfish, humans

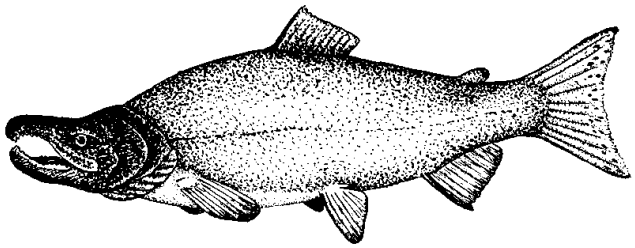
Do You Know? A 12-pound pike was found with a 4-pound pike in its stomach.

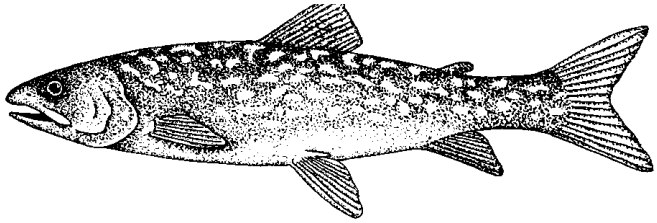
141. BURBOT F,T,W

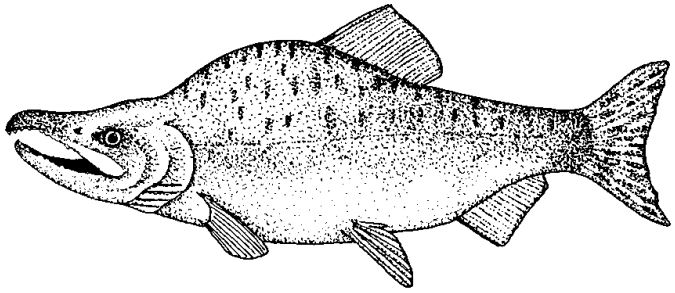
Traits: Fish with a large head, wide gill openings, two dorsal fins (second one long), small barbel on chin; rounded tail, no spines on fins; animal
Habitat: Deep waters of lakes and rivers; spawn in moderately deep water with gravel and sandy bottoms
Foods: Adults: mainly fish, some insect larvae, mollusks, copepods, fish eggs, shrews; young: stonefly and mayfly larvae, other insects, small fish
Eaten by: Young eaten by other fishes, humans

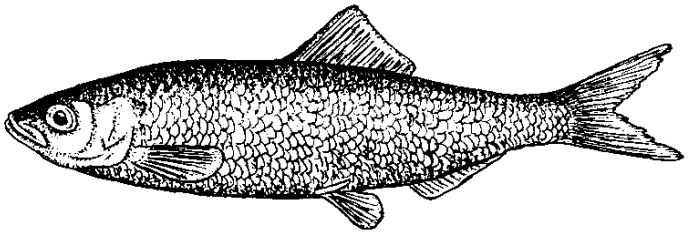
Do You Know? A single female burbot can lay 1,000,000 eggs!

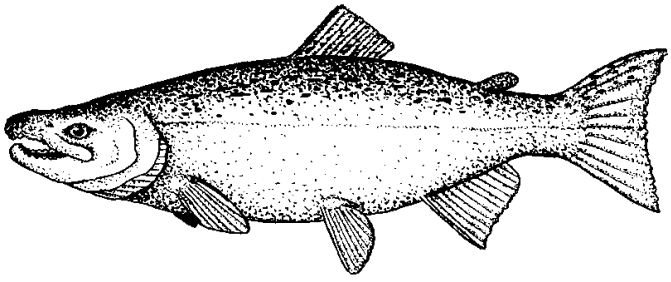












148. SOCKEYE SALMON W

Traits: Fish with an adipose fin; lacks definite spots on back and tail; animal (vertebrate)
Habitat: Adults live at sea, but return to fresh-water streams to spawn.
Foods: Squid, copepods, crustaceans, insects, other small fish; fry eat insects and other invertebrates.
Eaten by: Seals, whales, larger fish, bears, bald eagles, humans

Do You Know? Sockeye salmon, also known as red salmon, are the most abundant salmon in Alaska.

145. ARCTIC CHAR T,W

Traits: A medium-sized fish with an adipose fin, small scales, large pink to red spots on sides and back; animal (invertebrate)
Habitat: Lakes; spawns in gravel of lake margins or shallow, quiet stream pools.
Foods: Insects, young fish, crustaceans, mollusks
Eaten by: Other fishes, diving birds, humans

Do You Know? Adults feed on salmon smolts migrating to the sea. Arctic char eggs and young are adapted to survive near-freezing water temperatures.

149. PINK SALMON W

Traits: Fish with an adipose fin, very large spots on back, and caudal fin
Habitat: Adults live at sea but move into fresh water to spawn in rivers and river mouths. Young go to sea shortly after leaving spawning areas.
Foods: Copepods, squid, insects, amphipods, small fish
Eaten by: Larger fish, seals, sea lions, certain whales, bears, bald eagles, osprey, humans

Do You Know? Pink salmon, the smallest salmon, are also called humpbacks because the breeding males develop large humps on their backs.

146. LAKE TROUT F,T,W

Traits: Fish with deeply forked tail, adipose fin, and irregular shaped spots on a silver-to-dark-gray background; animal (vertebrate).
Habitat: Throughout northern North America in cold lakes at high altitudes
Foods: Varies with age; young eat adult and larval insects (including midges, craneflies). Adults eat fish (sticklebacks and whitefish).
Eaten by: Other fish, terns, grebes, loons, humans

Do You Know? Lake trout are seven or eight years old when they first spawn in Alaska. Thereafter they spawn every other year.

150. COHO SALMON W
(also called SILVER SALMON)

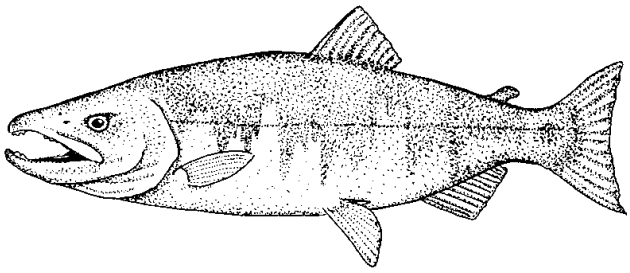
Traits: A large salmon with an adipose fin, small black spots on the back and upper caudal fin
Habitat: Adults live at sea, but return to fresh water to spawn in fast-flowing streams with gravel bottoms.
Foods: Herring, sandlance, crustaceans, other invertebrates; Young feed mostly on insects.
Eaten By: Whales, eagles, bears, other salmon, grebes, loons, humans

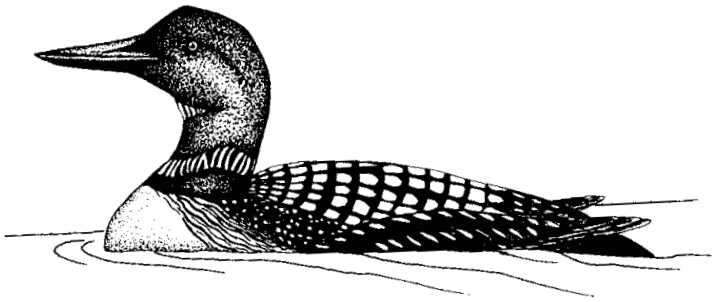
Do You Know? Young coho salmon may spend up as long as five years in fresh water before going to sea.

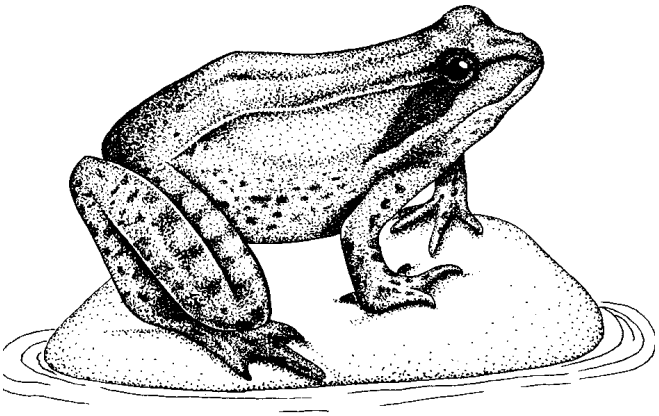
147. PACIFIC HERRING W

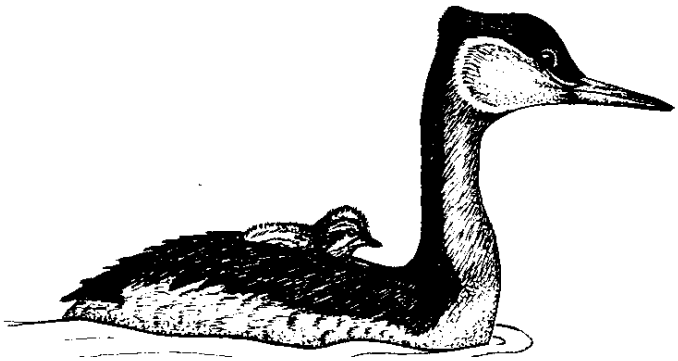
Traits: A medium-sized fish with no lateral line, large mouth, no teeth or jaws, no adipose fin
Habitat: Mainly at sea and in estuaries; spawns in shallow waters over eelgrass, kelp, or rocks. Young live in shallow bays and inlets before moving to deeper waters.
Foods: Adults feed on copepods, amphipods, euphausiids, mollusks, larvae, small fish. Young feed on copepods, invertebrate eggs, diatoms.
Eaten by: Chum salmon, loons, porpoises, beluga whales, humans

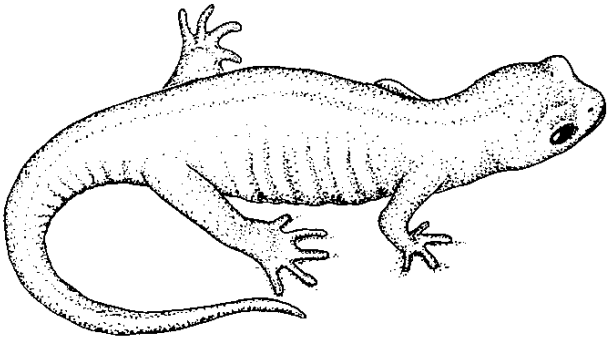
Do You Know? Pacific herring are a very important part of the food web!

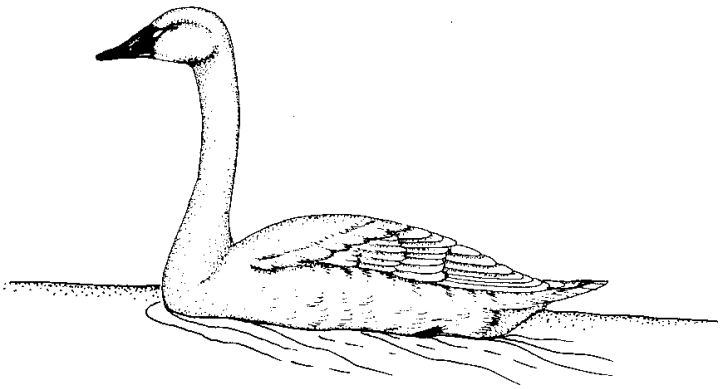












154. LOON F,T,W

Traits: Diving bird with a sharp, pointed bill and webbed feet; large, heavy body; unable to take flight from land; animal (vertibrate)
Habitat: Nests on freshwater lakes. Winters along Pacific coast to Mexico.
Foods: Sticklebacks, sculpins, herring, sandlance, young salmon, rockfish, flounders, codfish; also eat leeches, snails, shrimp, amphipods, aquatic insects.
Eaten by: Foxes, gulls, jaegers, eagles

Do You Know? Loons can dive to depths as great as 240 feet (73 m) and fly as fast as 60 miles (101 km) per hour.

155. GREBE F,T,W

Traits: Diving bird with a sharp, pointed bill and lobed feet; rarely seen on land or in flight
Habitat: Nests on lakes and estuaries; winters in bays and estuaries along Pacific coast to Mexico.
Foods: Fish, crustaceans, insects, other invertebrates
Eaten by: Foxes, eagles, mink, weasels, gulls

Do You Know? Grebes eat their own feathers! This is thought to protect their stomachs and intestines from sharp fish bones.

156. TUNDRA SWAN T,W

Traits: Large aquatic bird with a six- to seven-foot (1.8-2.1 m) wingspan, all-white plumage, very long neck; bright yellow spot on black bill
Habitat: Lowland tundra and small islands, ponds, lakes, rivers
Foods: Leaves, seeds, and underground roots of horsetails, pondweed, sedges, rushes, pond lily, water milfoil
Eaten by: Foxes, mink, gulls

Do You Know? Once paired, swan mates tend to stay together for life.

151. CHUM SALMON W

Traits: This salmon species has an adipose fin and an absence of spots on body and fins. All fins, except dorsal, have dark tips.
Habitat: Adults live at sea, but move into fast-flowing fresh-water streams to spawn.
Foods: Copepods, amphipods, squid, crab larvae, young herring, other fishes
Eaten by: Whales, eagles, bears, other fish, humans

Do You Know? Chum salmon swim 2,000 miles (3380 km) up the Yukon River to spawn.

152. WOOD FROG F,T,W

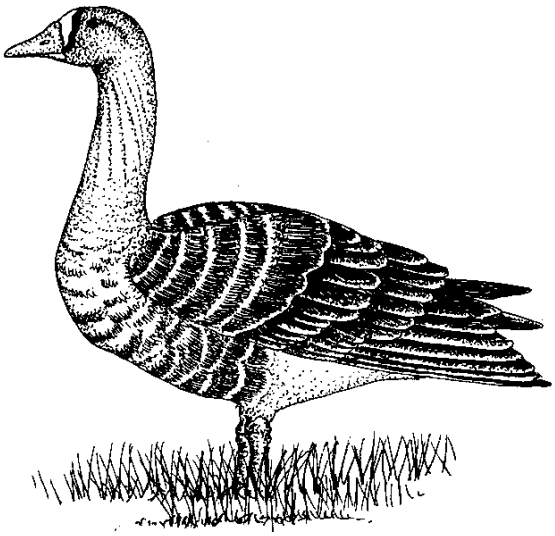
Traits: Small amphibian with moist skin, no scales or claws, long hind legs, short forelegs, large mouth; animal (vertebrate)
Habitat: Forests, muskegs, tundra; adults live on land, but breed in water. Eggs and tadpoles live only in water.
Foods: Adults eat flies, true bugs, lacewings, dragonflies. Larvae eat algae and small aquatic plants.
Eaten by: Pike, sandhill cranes, jays, crows, grebes, loons, mink, river otters; larvae are eaten by certain insects and fish.

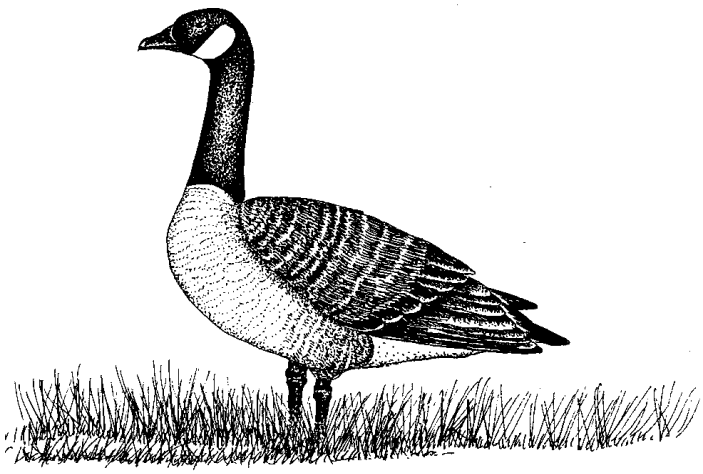
Do You Know? Wood frogs can survive temperatures as low as 21°F.

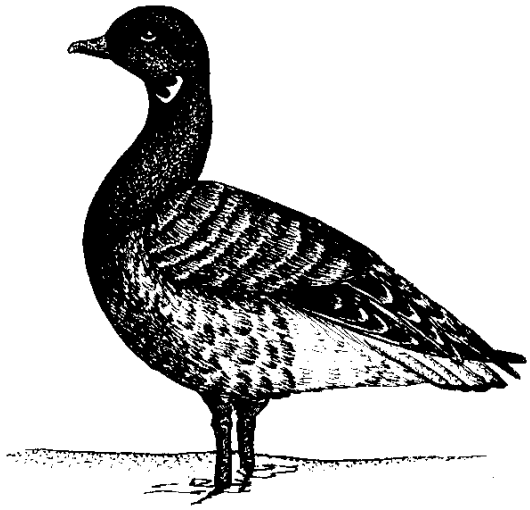
153. SALAMANDER AND NEWT F

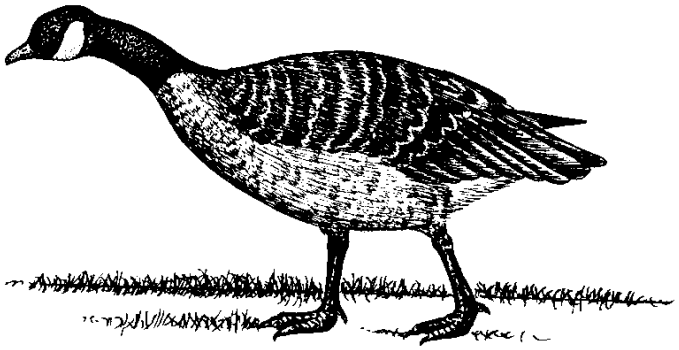
Traits: Small animals with moist skin, no scales or claws, short fore and hind legs, long tail
Habitat: Moist places in Alaska's coastal forests
Foods: Small insects, springtails, beetles, flies
Eaten by: Jays, crows, mink, shrews

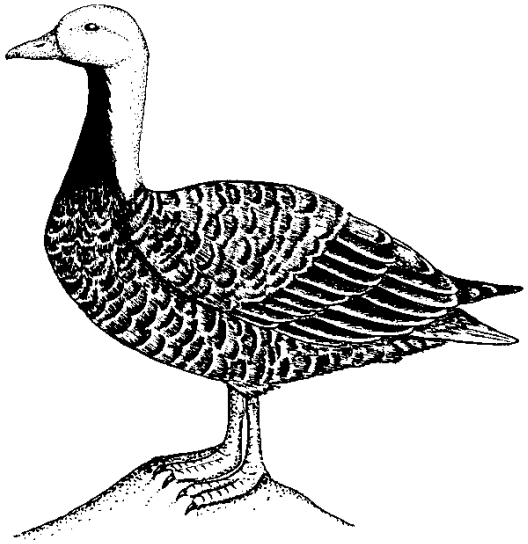
Do You Know? Alaska's two salamanders, the northwestern salamander and the long-toed salamander, are nocturnal (active at night) and are secretive. There is one species of newt in Alaska: the rough-skinned newt.

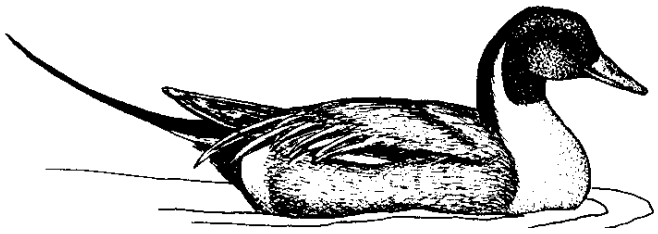












160. CACKLING CANADA GOOSE T,W

Traits: Bird with webbed feet, black head and neck with distinctive white “chin strap"; black bills, legs, and feet; this subspecies, the size of a mallard duck, is the smallest type of Canada goose.
Habitat: Nests in coastal wetlands of the Yukon-Kuskokwim Delta. Winters in wetlands and agricultural areas of Oregon and California.
Foods: Grasses, sedges, berries, agricultural grains
Eaten by: Foxes, gulls, jaegers, ravens, humans

Do You Know? The call of this goose is a short, high-pitched cackle. This is why it is called the “cackling” Canada goose.

161. DUSKY CANADA GOOSE W

Traits: A medium-sized goose with black head and neck marked with white “chin strap” from ear to ear; dark breast
Habitat: Nests in sedge marshes of the Copper River Delta; winters in Oregon along the Willamette River Valley.
Foods: Shoots, roots, and seeds of grasses and sedges, bulbs, grains, berries, insects, crustaceans, mollusks
Eaten by: Gulls, jaegers, bald eagles, brown bears, coyotes, mink

Do You Know? Nests only on the Copper River Delta and winters only in Oregon.

162. NORTHERN PINTAIL T,W

Traits: A large, slender duck; male has white breast and brown head with a long, pointed tail
Habitat: Tundra, lakes, ponds, marshes; winters in coastal freshwater wetlands.
Foods: Ninety percent plant foods, including seeds of sedges, grasses, pondweeds, smartweeds, grain; will eat aquatic invertebrates and insects.
Eaten by: Foxes, eagles, minks; young eaten by gulls, jaegers, humans

Do You Know? Pintails are the most widely distributed duck in North America.

157. GREATER WHITE-FRONTED GOOSE T,W

Traits: Medium-sized, grey-brown goose with orange legs and feet; animal (vertebrate)
Habitat: Nests in wetlands and tundra. Winters in wetlands and agricultural fields in central California.
Foods: Grasses, sedges, leaves, berries, seeds, roots of many aquatic plants in summer; seeds of rice, water grass, milo, barley, marsh plants (rushes and cattails) in winter.
Eaten by: Foxes, gulls, jaegers, ravens, humans

Do You Know? White fronts are also called “speckle-bellies” because of the dark brown bars on their undersides.

158. BRANT T,W

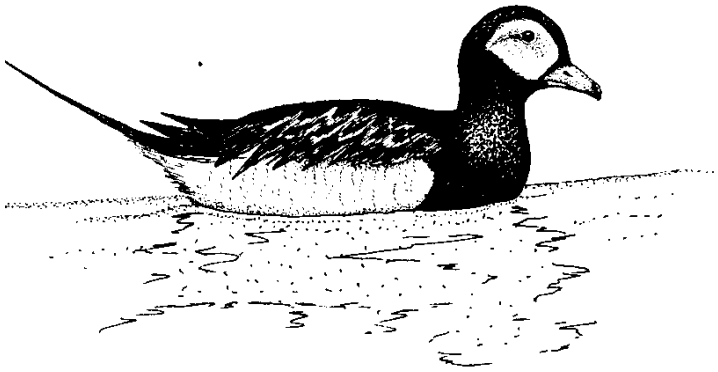
Traits: Small, dark goose with black head and neck and whitish patches on upper neck
Habitat: Nests on islands in salt bays, estuaries, coastal tundra lakes and ponds.
Foods: In spring and summer, short annual grasses, sedges, algae, larval insects, small crustaceans; eel grass in migration and winter
Eaten by: Foxes, gulls, jaegers, ravens, humans

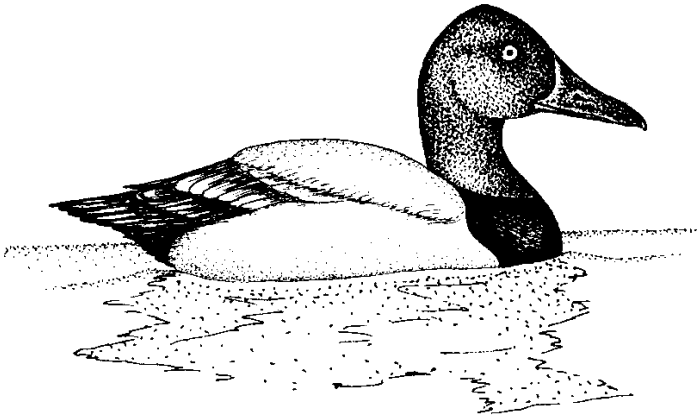
Do You Know? All brant gather in fall at Izembeck Lagoon, on the Alaska Peninsula. They fly nonstop to the Lower 48 in 48-60 hours.

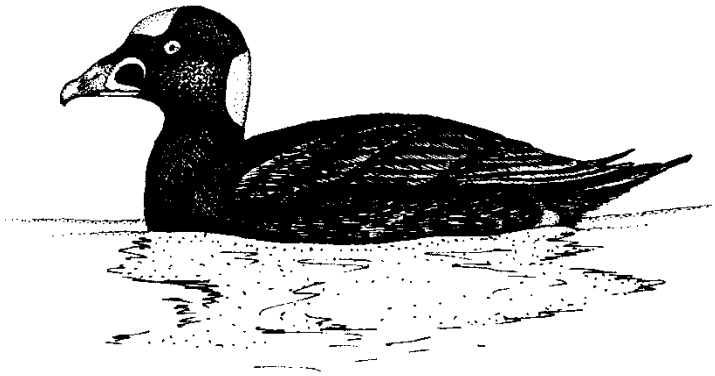
159. EMPEROR GOOSE W

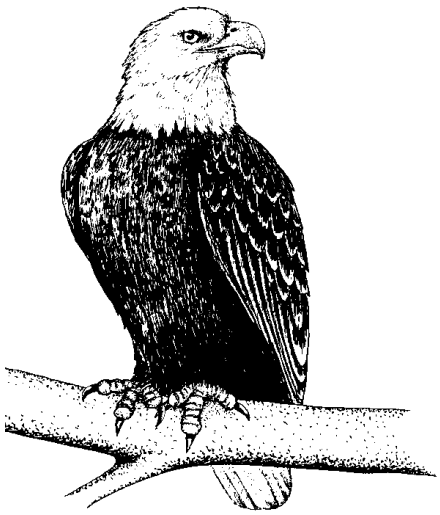
Traits: Blue-gray goose with round body, rounded head, and short, thick neck; the head and back of neck are white.
Habitat: Nests in wetlands within 5-15 miles (8-24 km) of the Bering Sea coast; they winter in the near-shore waters and intertidal areas of the Aleutian Islands.
Foods: Grasses, sedges, aquatic vegetation in summer and fall; small invertebrates, eelgrass, algae in winter
Eaten by: Foxes, gulls, jaegers, ravens, humans

Do You Know? Emperor geese spend their entire life in Alaska.









166. EIDER T,W

Traits: Large, bulky diving ducks with dense down feathers that help insulate them from the cold northern oceans
Habitat: Nest near lowland tundra lakes or on barrier islands; winter on the ocean.
Foods: In fresh water, eiders feed on aquatic insects and some plants, but at sea they feed on a variety of invertebrate animals (mussels, clams, whelks, seastars, sea urchins, and various crustaceans).
Eaten by: Foxes, bears; eggs are eaten by jaegers and gulls.

Do You Know? Eiders line their nests with their down feathers, thus providing superb insulation for their eggs.

163. OLDSQUAW T,W

Traits: Stocky, diving duck with black, brown, and white plumage; males have long tail feathers.
Habitat: Ponds and lakes of lowland and alpine tundra in summer. Ocean in winter.
Foods: Mussels, clams, snails, and crustaceans are their main foods. In fresh water, they also eat larvae of midges, craneflies, caddisflies, other insects.
Eaten by: Foxes, weasels, gulls, jaegers, ravens

Do You Know? Oldsquaws may dive deeper than any other duck. They have been recorded at depths of 72-240 feet (22-73 m).

167. SCOTER F,T,W

Traits: Stocky, short-necked, diving ducks; males are black with colorful bills. Females are brown.
Habitat: Alpine and lowland tundra lakes; coastal wetlands in winter
Foods: Insects (caddisflies, damselflies, dragonflies, beetles, water boatmen); at sea: mussels, clams, some crustaceans
Eaten by: Jaegers, weasels, foxes

Do You Know? Most species breed in the far north and migrate in large, compact flocks to and from their coastal wintering grounds.

164. CANVASBACK W

Traits: A large-sized duck with sloping forehead and long black bill; male has dark reddish head and neck. Females are light brown.
Habitat: Marshes, sloughs, and lakes with shoreline plants; winters in lakes, rivers, and saltwater bays.
Foods: Pondweeds, seeds of sedges and burr reeds, aquatic invertebrates (especially small clams).
Eaten by: Foxes, falcons, eagles, weasels, gulls, humans

Do You Know? Their legs are located far back on the body and wide apart, which is good for diving, but poor for walking.

168. BALD EAGLE F,W

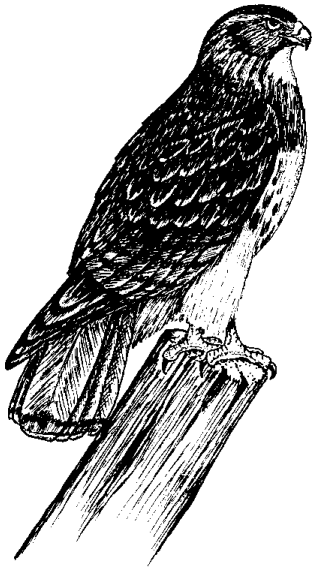
Traits: Large, brown bird with rounded tail and wings; hooked yellow bill; long, curved talons; adults have white heads and tails.
Habitat: Forested areas along coasts, lakes, rivers; also some treeless coastal regions
Foods: Waterfowl, small mammals, salmon, herring, dead and dying fish, mammals or birds washed up along shorelines
Eaten by: Young occasionally eaten by ravens and magpies

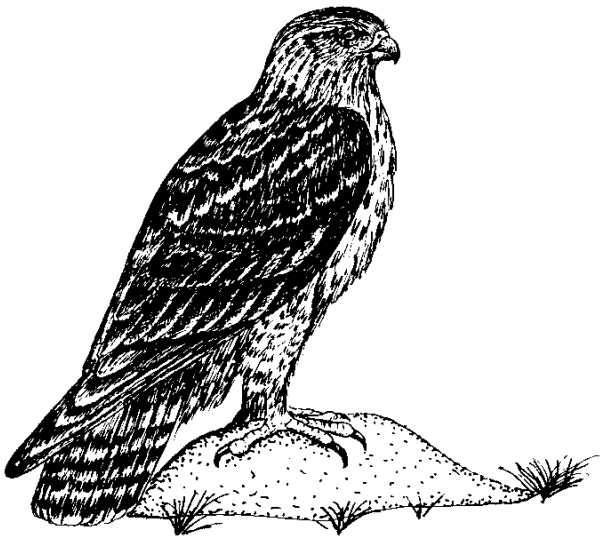
Do You Know?: Bald eagles are almost five years old when their heads and tails become all white.

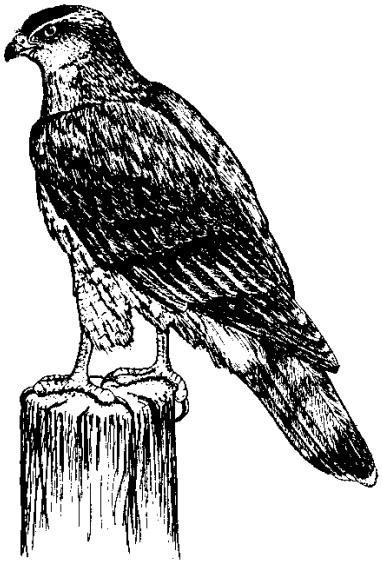
165. MERGANSER T,W

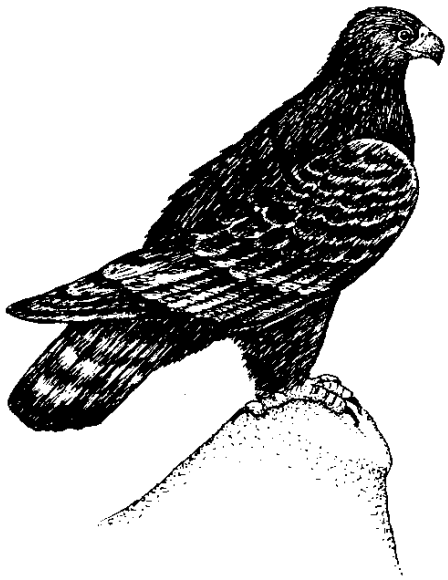
Traits: Long bill with saw-tooth edges and a hooked tip; most have a crest on head; unable to take off from land
Habitat: Nests in cavities on the ground or in a tree near rivers, lakes, or estuaries. Winters along the coast and on large inland lakes and rivers of the Lower 48.
Foods: Sticklebacks, sculpins, eels, eulachon, herring, blackfish, frogs, crustaceans, snails, insects, leeches
Eaten by: Foxes, weasels, gulls

Do You Know? Mother mergansers will sometimes carry young in her bill from nest to water.









172. RED-TAILED HAWK F,W

Traits: Large, brown bird with rounded tail and wings; reddish tail; hooked bill; talons
Habitat: Nests in old trees, sometimes on cliffs. Hunts in open areas, including early successional forests, muskegs, and along rivers.
Foods: Voles, mice, snowshoe hares, squirrels, shrews, weasels, other small mammals
Eaten by: Great horned owls; eggs may be taken by ravens.

Do You Know? Often soars in wide circles above trees or mountain ridges and perches on dead limbs or atop branches of tall trees.

169. NORTHERN HARRIER T,W

Traits: Hawk with large eyes; sharply hooked bill, talons; long tail; long wings; white rump patch
Habitat: Open areas, particularly coastal and fresh-water wetlands; nests throughout Alaska and winters in the Lower 48 south to northern South America.
Foods: Voles, lemmings, dragonflies, sparrows, sandpipers
Eaten by: Great horned owls; ravens will take eggs.

Do You Know? The harrier often locates prey by sound, using its curved, sound-reflecting facial ruff. The male drops prey items over the nest, and the incubating female flies up to catch them in mid-air.

173. ROUGH-LEGGED HAWK T

Traits: Large bird with long, white tail with dark bands; long, rounded wings; wide band of black across lower breast and belly
Habitat: Alpine and dry lowland tundra near cliffs or river bluffs where it nests; winters in open habitats throughout the Lower 48.
Foods: Lemmings, voles, hares, shrews, ground squirrels, some small birds and insects
Eaten by: Foxes and ravens will eat eggs.

Do You Know? Rough-legs may migrate in loose flocks, but are otherwise generally seen singly or in pairs.

170. SHARP-SHINNED HAWK F

Traits: Medium-sized bird with a long tail and rounded wings; long, curved talons; hooked bill
Habitat: Mature broadleaf-conifer forests
Foods: Small birds, including chickadees, warblers, sparrows, thrushes, woodpeckers
Eaten by: Eggs and young may be taken by squirrels and ravens.

Do You Know? When hunting, this hawk flies low through the leaves, darting under branches and across small openings. It can turn abruptly in flight to grasp small birds from the ground or capture them in mid-air with its sharp talons.

174. GOLDEN EAGLE T

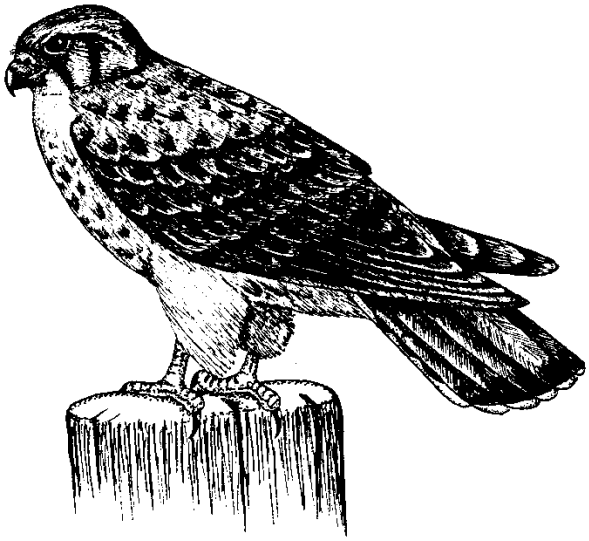
Traits: Large, brown bird with golden wash over back of head and neck; dark bill; tail faintly banded
Habitat: Alpine tundra
Foods: Arctic hares, marmots, ground squirrels, ptarmigan, carrion (dead animals)
Eaten by: No known predators

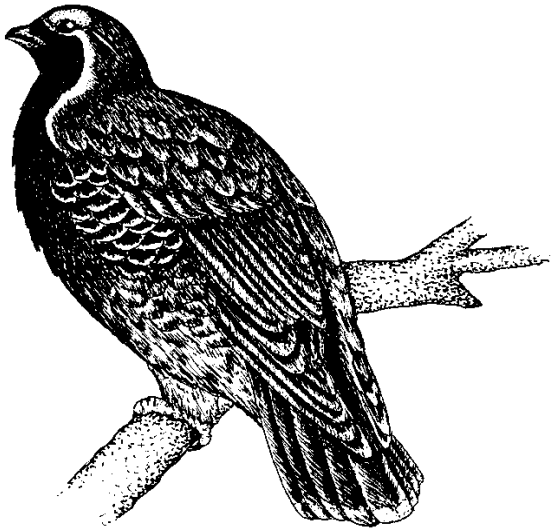
Do You Know? Eagles are sometimes electrocuted from high-voltage power lines or caught in leg-hold traps. These injured birds can sometimes be rehabilitated and placed in zoos or released into the wild.

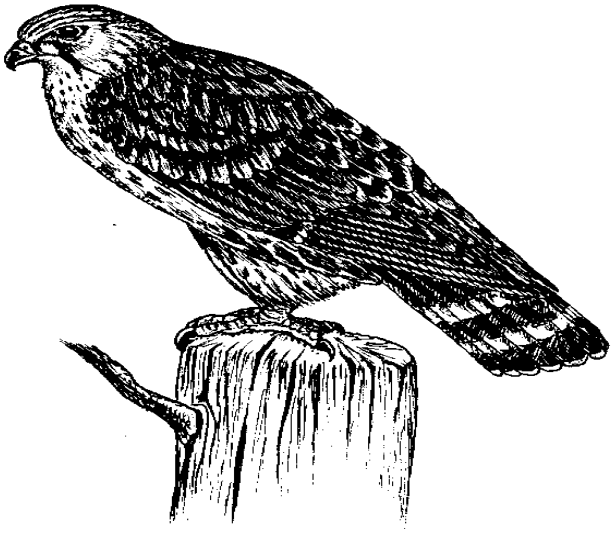
171. NORTHERN GOSHAWK F

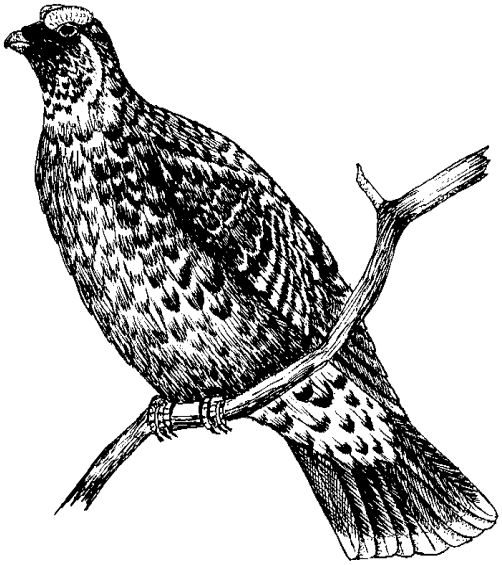
Traits: Large gray bird with a long tail and rounded wings; long, curved talons; hooked bill
Habitat: Mixed broadleaf-conifer forests with large, old trees for nest sites
Foods: Squirrels, grouse, ptarmigan, snowshoe hares, large songbirds, woodpeckers, weasels
Eaten by: Great horned owls; eggs and young eaten by foxes, ravens, gulls.

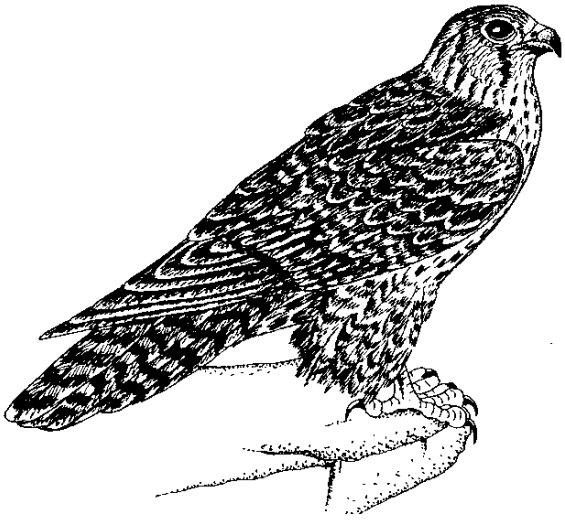
Do You Know? Goshawks aggressively defend nest sites, and they will not hesitate to strike people who stray too close to a nest.

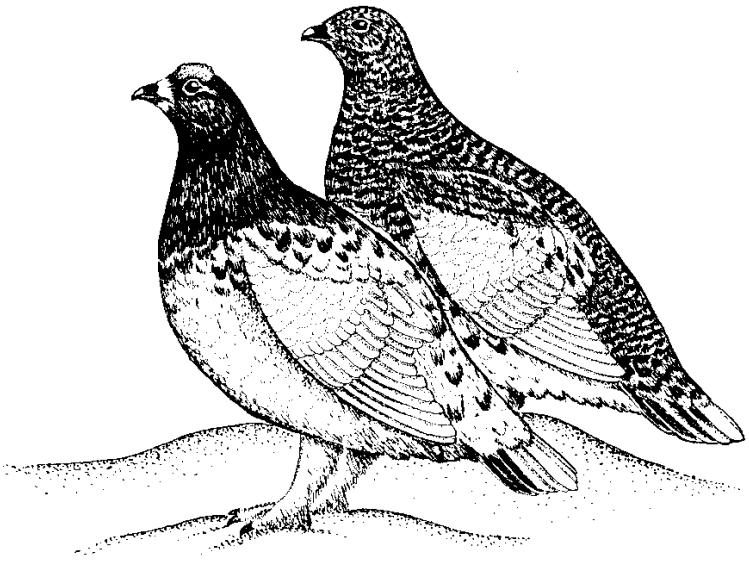












178. SPRUCE GROUSE F

Traits: Chickenlike bird with rusty band at the tip of dark tail
Habitat: Conifer and spruce-broadleaf forests; seeks shelter in forest, but feeds in forest openings. Requires a source of grit and gravel in the fall.
Foods: Insects, leaves, shoots, seeds, berries of ground cover plants; conifer needles in winter
Eaten by: Goshawks, great horned owls, great gray owls, foxes, lynx, coyotes, humans

Do You Know? In courtship display, male spreads his tail, erects red combs above eyes, and struts in his territory.

179. BLUE GROUSE F

Traits: Chickenlike bird with long, black tail tipped in gray; female brown, male gray
Habitat: Coastal rain forests, muskegs, and alpine areas during summer
Foods: Leaves and shoots of ground-cover plants (including herbs and ferns) seeds, berries; some insects (beetles, ants and caterpillars)
Eaten by: Great horned owls, goshawks, foxes, humans; weasels and ravens eat eggs and young.

Do You Know? Courting males stand on a high spot and inflate their neck sacs to amplify their hooting.

180. PTARMIGAN T

Traits: Chickenlike bird with feathered legs and feet; molts feathers three times a year from snow white to mottled brown to match its habitat.
Habitat: Alpine and dry lowland tundra
Foods: Buds and twigs of willow, dwarf birch, and other shrubs; also seeds, some insects
Eaten by: Foxes, lynx, gyrfalcons, golden eagles, humans

Do You Know? The feathered feet provide insulation and "snowshoes" that allow ptarmigan to walk on the snow surface. On cold winter nights, ptarmigan bury themselves in the snow to roost.

175. AMERICAN KESTREL F

Traits: Medium-sized, reddish-brown bird with a long tail; pointed wings; sharply hooked bill; talons
Habitat: Forest edges and openings and early successional stages that include large, dead trees with holes for nesting
Foods: Large flying insects (grasshoppers and dragonflies), small mammals and birds (voles, mice, sparrows, chickadees)
Eaten by: Great horned owls, other falcons

Do You Know? The kestrel is the smallest falcon, and uses abandoned woodpecker cavities for nesting.

176. MERLIN F

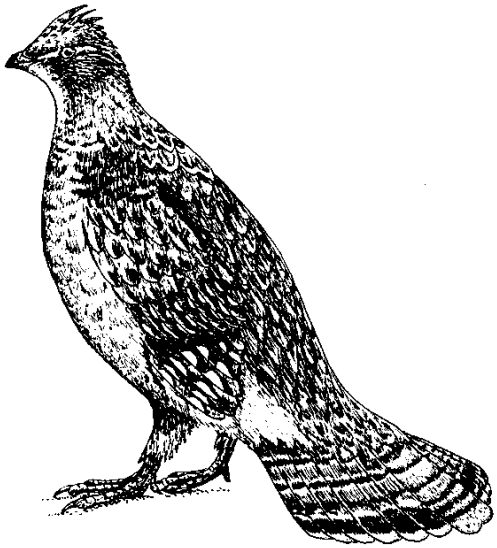
Traits: Medium-sized falcon with a long tail and sharply pointed wings; hooked bill; talons
Habitat: Open coastal and boreal forests; uses stick nests in spruce trees or (less commonly) nests on the ground.
Foods: Thrushes, juncos, swallows, waxwings, sparrows, woodpeckers, warblers
Eaten by: Squirrels, ravens, and marten may eat eggs.

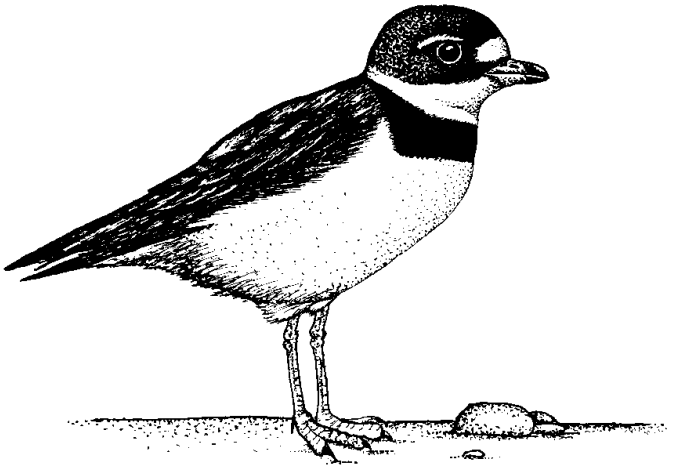
Do You Know? When hunting, the merlin often flies low over ground, frequently rising and falling in flight. It overtakes prey by plucking it out of the air with its sharp talons.

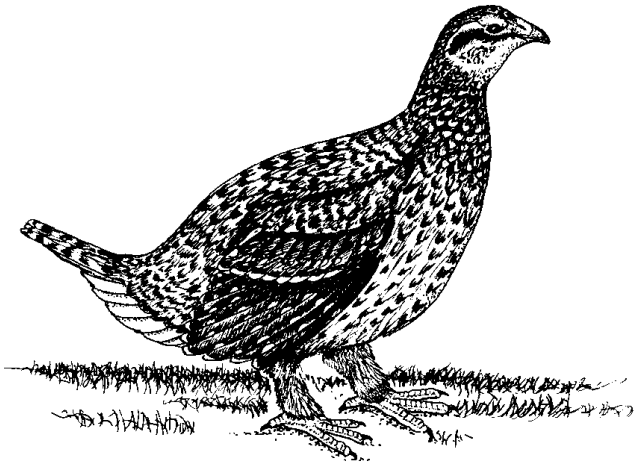
177. GYRFALCON T

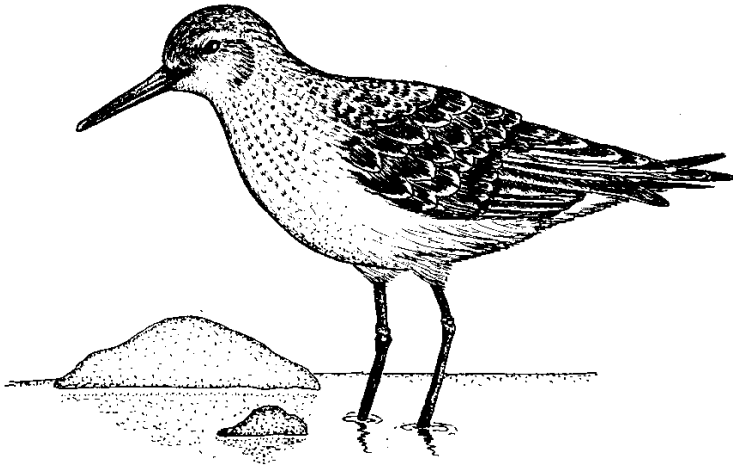
Traits: Large falcon with heavy body; pointed wings; narrow tail
Habitat: Alpine tundra near rocky outcrops and cliffs
Foods: Ptarmigan, other birds (gulls, jaegers, sandpipers, plovers, snow buntings, longspurs), some small mammals (lemmings, ground squirrels, hares)
Eaten by: Great horned owls, golden eagles; eggs and young taken by foxes, ravens.

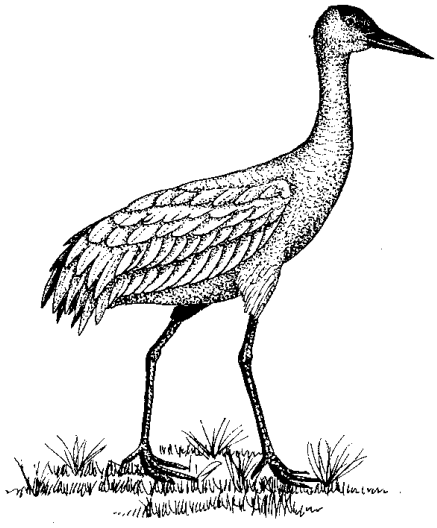
Do You Know? Gyrfalcons remain in Alaska throughout the year because their prey, ptarmigan, also stay.

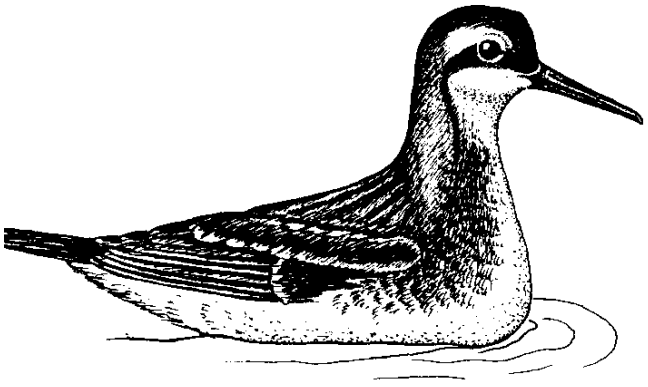












184. PLOVER T,W

Traits: Shorebirds with short tails and long pointed wings; short, stout beak; brown or gray feathers
Habitat: Alpine and lowland tundra; in winter, coastal wetlands and prairies
Foods: Caterpillars, flies, mosquitoes, beetles, grasshoppers, mollusks, crustaceans, marine worms, some berries
Eaten by: Jaegers, ravens, falcons, arctic foxes, weasels

Do You Know? Other shorebirds nesting near plovers gain an advantage from the watchful plovers' warning cries when predators approach.

185. SANDPIPER T,W

Traits: Small shorebirds with black legs, long bills, reddish markings on the head
Habitat: Drier tundra; winters along coastal tideflats.
Foods: Amphipods, small clams, worms, larvae of craneflies and midges
Eaten by: Foxes, falcons, jaegers, gulls, falcons, owls, weasels

Do You Know? Some sandpipers fly as far south as Argentina and Chile to spend the winter!

186. PHALAROPE T,W

Traits: Small bird with a straight, thin bill and four lobed toes; the only shorebird that swims
Habitat: Nests amid grasses and sedges in wetlands. Winters at sea, mainly in southern hemisphere.
Foods: Plankton, mosquitoes, midges, black flies, craneflies, amphipods, copepods, fairy shrimp
Eaten by: Foxes, falcons, gulls, weasels, owls, jaegers

Do You Know? Their native name "Nimishuruk" means "spins in a circle," after the spinning motion that phalaropes use, while swimming, to stir up prey in water.

181. RUFFED GROUSE F

Traits: Chickenlike bird with a ruff of black feathers on sides of neck; dark band at edge of gray tail
Habitat: Broadleaf forests; thickets of willow and alder
Foods: Insects, leaves, shoots, seeds and berries of trees and plants; in winter eats aspen catkins
Eaten by: Goshawks, great horned owls, great gray owls, foxes, lynx, humans

Do You Know? In courtship display, the male stands on a log or stump, erects the ruff on his neck, and rapidly beats his wings, creating a "drumming" sound.

182. SHARP-TAILED GROUSE F

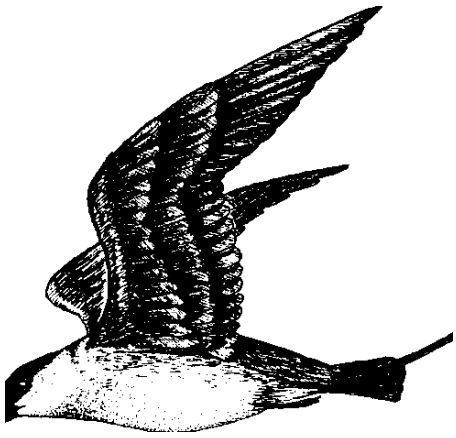
Traits: Chickenlike bird with narrow, stiff tail and V-shaped markings on breast
Habitat: Open grass areas and shrub thickets in boreal forests
Foods: Insects, leaves, shoots, buds, seeds and berries of shrubs and ground-cover plants, insects
Eaten by: Goshawks, great horned owls, great gray owls, foxes, lynx, coyotes

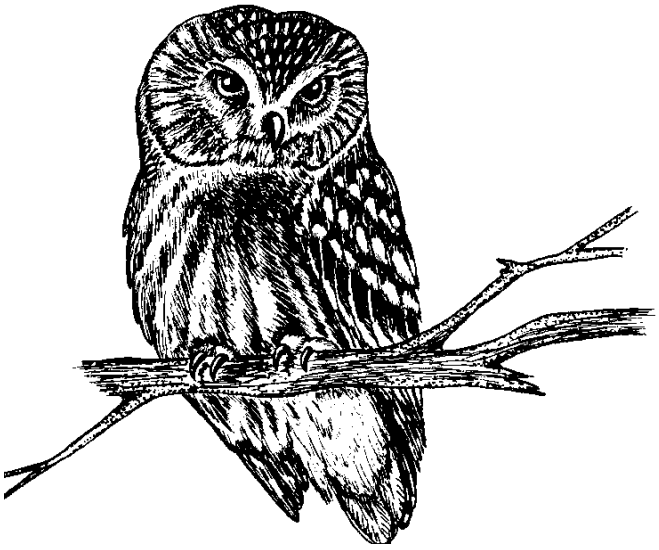
Do You Know? In the spring courtship ritual, males taxi like wind-up airplanes and follow a routine of feet-drumming and circling.

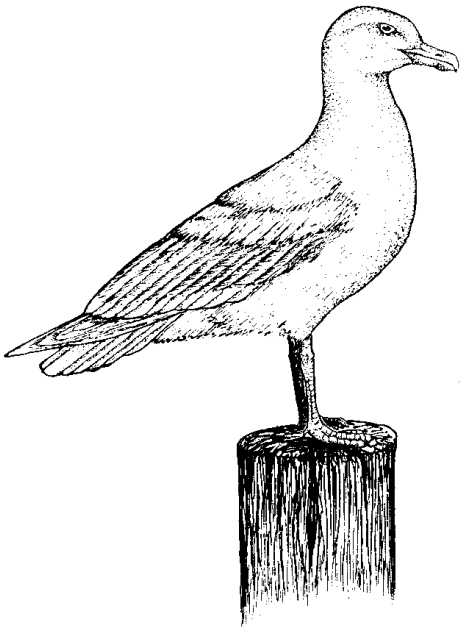
183. SANDHILL CRANE T, W

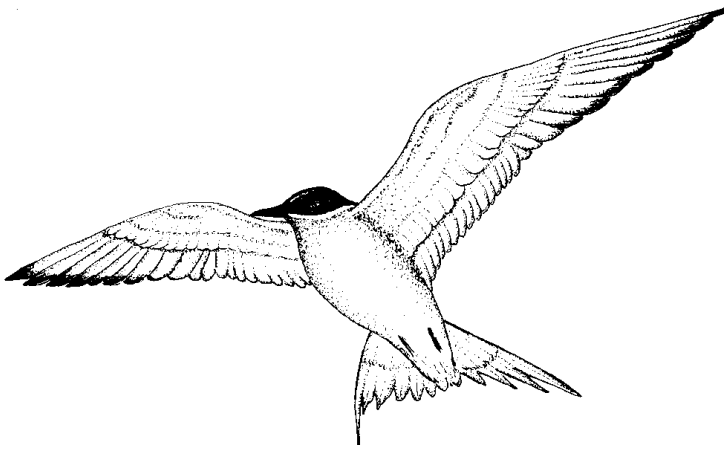
Traits: Large, gray bird with long neck, long legs, long beak; red skin on crown; whitish chin, cheek, and upper throat
Habitat: Lowland tundra, muskeg and river bottoms in summer; migrates to plains and coast of Lower 48 during winter.
Foods: Shoots, roots, and seeds of wetland plants; lemmings; voles; insects
Eaten by: Foxes, golden eagles, bald eagles, wolves, humans; eggs eaten by gulls.

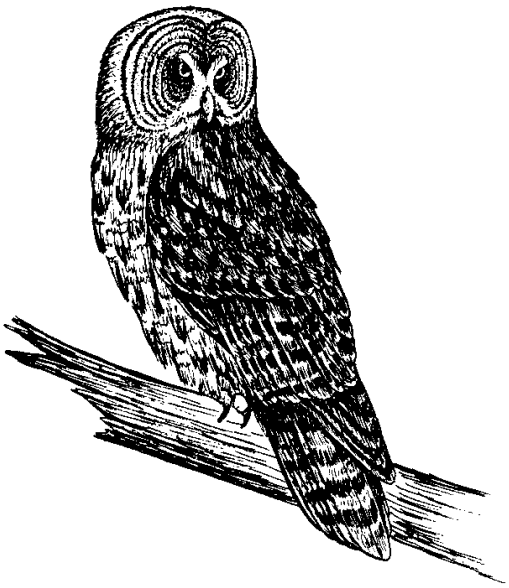
Do You Know? Cranes migrate at great heights. Some have been observed at elevations of 13,000 feet (3,962 m)!











190. NORTHERN SAW-WHET OWL F,W

Traits: Small, brown bird with large, forward-facing eyes; long talons; hooked bill; streaked breast
Habitat: Coniferous or mixed forests, wooded swamps, tamarack bogs
Foods: Insects, voles, mice, shrews, bats, sparrows, juncos, warblers
Eaten by: Great-horned owls, marten

Do You Know? This owl depends on woodpeckers to excavate cavities in trees that it needs for nesting and roosting.

191. GREAT HORNED OWL F

Traits: Large, brown bird with large, forward-facing eyes; feathers stick up on its head and look like horns; sharp talons, hooked bill
Habitat: Mature and old-growth forests throughout Alaska
Foods: Hares, squirrels, voles, mice, weasels, mink, porcupines, grouse, waterfowl
Eaten by: Other great horned owls

Do You Know? This owl often uses the abandoned nests of hawks, eagles, and ravens. It is very aggressive and will attack humans in defense of its nest.

192. GREAT GRAY OWL F

Traits: Large, gray bird with forward-facing eyes; rounded head; sharp talons; hooked bill
Habitat: Boreal forests; nests in old trees but feeds in open areas, including early successional stages, muskegs, and along rivers
Foods: Voles
Eaten by: Great horned owls

Do You Know? This owl has a very large facial disk with concentric gray circles. It is the largest owl in Alaska (because of its fluffy plumage), although not the heaviest or strongest.

187. PARASITIC JAEGER T,W

Traits: Gull-like bird with strongly hooked bill and long, pointed wings; long central tail feathers; predator
Habitat: Alpine and lowland tundra throughout Alaska; in winter, ocean
Foods: Lemmings, small birds, fish, eggs and young of geese, ducks, shorebirds
Eaten by: Eggs and young may be eaten by foxes, bears, gulls, falcons, eagles, ravens.

Do You Know? Jaegers are pirates chasing smaller birds and forcing them to drop fish they have caught or swallowed.

188. GLAUCOUS GULL T,W

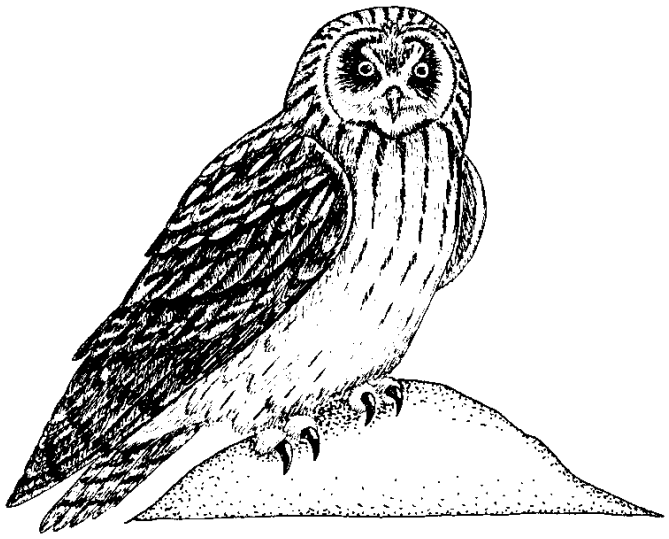
Traits: Large bird with pale gray wings and back; light can be seen through the white wing tips.
Habitat: Wetlands in tundra and marine coastal bluffs
Foods: Scavenges on dead animals; also eggs and young of other birds, crustaceans, insects, fish
Eaten by: Young bears; eggs eaten by jaegers, ravens, foxes

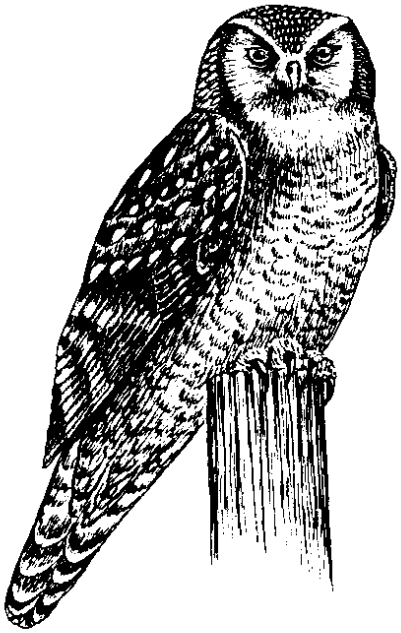
Do You Know? Gulls can stand on ice and still keep warm because of a special arrangement of blood vessels in their legs. Cold blood returning from the feet is warmed before it reaches the gull's body.

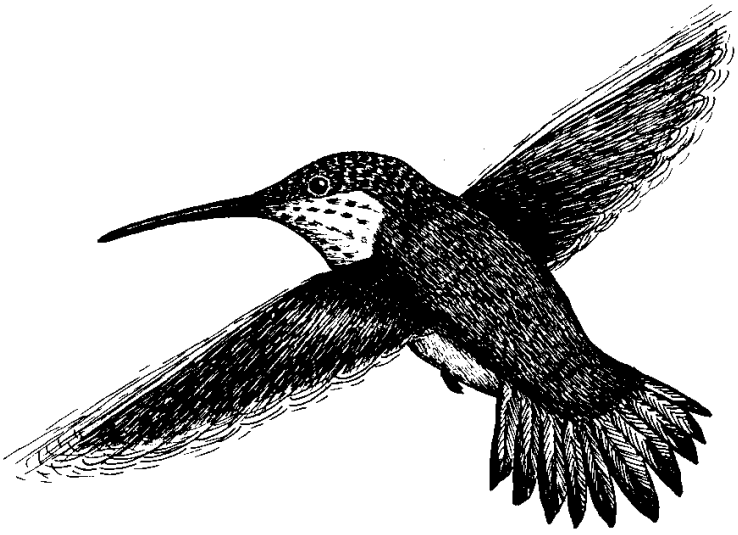
189. TERNS F,T,W

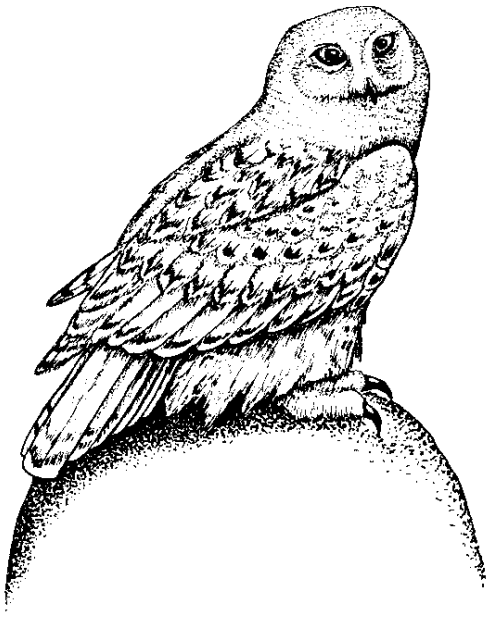
Traits: Birds with webbed feet, deeply forked tails, straight bills, and slender bodies.
Habitat: Wetlands in tundra and forested areas
Foods: Small fish
Eaten by: Falcons; eggs and young eaten by foxes, weasels, bears, gulls, jaegers, ravens

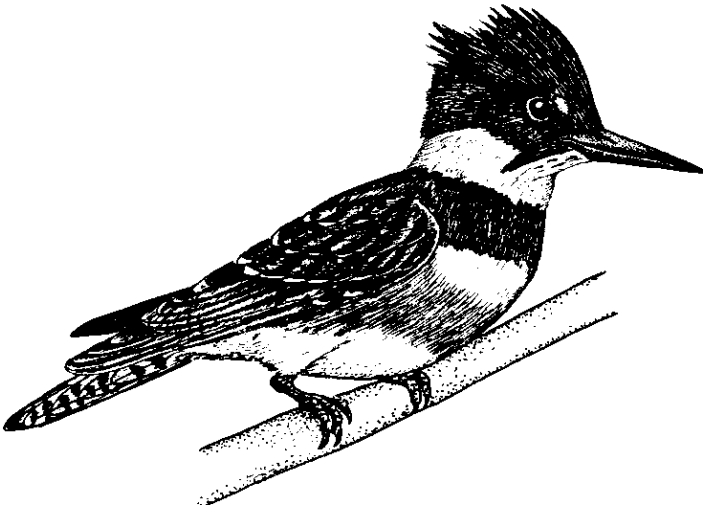
Do You Know? Terns attack any predators that come near their nesting colonies. Other birds nesting near tern colonies benefit from the terns' harassment of potential predators.











196. SHORT-EARED OWL T,W

Traits: Small, buffy-brownish colored owl with boldly streaked breast; light facial disk; ear tufts barely visible
Habitat: Moist tundra and wetlands throughout Alaska
Foods: Small mammals and birds (voles, shrews, lemmings, young hares, sparrows, shorebirds)
Eaten by: Great horned owls; eggs and young may be eaten by foxes, bears, ravens, weasels.

Do You Know? Short-eared owls are highly nomadic; they appear when rodents are plentiful and move to other areas when food is scarce.

193. BOREAL OWL F

Traits: Small, brown bird with large, forward-facing eyes; rounded head; streaked breast; short tail; curved talons
Habitat: Mixed spruce-broadleaf forests; nests in natural cavities in trees.
Foods: Voles, small birds including chickadees, warblers, thrushes
Eaten by: Great horned owls; eggs may be eaten by squirrels.

Do You Know? This owl's voice sounds like the ringing of a soft bell (also compared to the winnowing of the common snipe).

197. RUFOUS HUMMINGBIRD F

Traits: Very small bird; long bill with long, brush-tipped tongue; able to hover and fly backwards
Habitat: Coastal forest openings; nests on a conifer tree branch.
Foods: Flower nectar and pollen; also insects, especially spiders
Eaten by: Eggs or young may be eaten by squirrels, short-eared owls, sharp-shinned hawks.

Do You Know? The rufous hummingbird is the smallest bird in Alaska.

194. NORTHERN HAWK OWL F

Traits: Medium-sized, gray-brown bird with large, forward-facing eyes; rounded head; barred breast; long tail
Habitat: Recently burned areas with large vole populations and black spruce forests; nests in tops of broken birch or spruce trees.
Foods: Small mammals(voles), small birds (sparrows)
Eaten by: Great horned owls

Do You Know? Unlike most owls, the northern hawk owl often hunts during daylight hours (diurnal). Watch for it sitting in a tree top.

198. BELTED KINGFISHER F,T,W

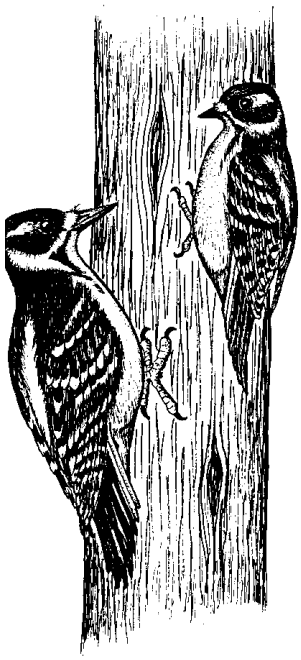
Traits: Medium-sized, chunky body; large head with crest; long, sharply pointed bill; small legs and feet; two front toes joined together
Habitat: Coasts, rivers, lakes, ponds
Foods: Sticklebacks, sculpin, blackfish, young salmon, herring, eulachon, crustaceans, mollusks, aquatic insects
Eaten by: Falcons, hawks, eagles

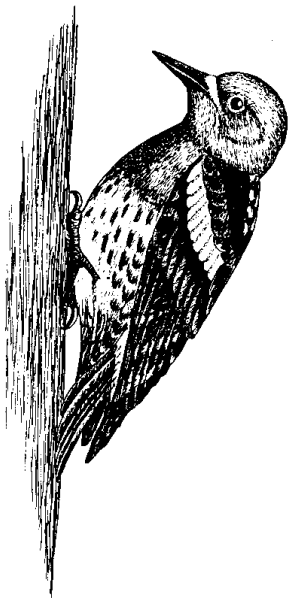
Do You Know? The kingfisher digs its upslanting burrow in creek, river, lake, or pond bank for nesting. Nest is often lined with fish bones.

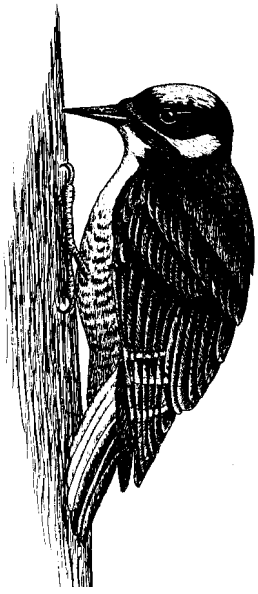
195. SNOWY OWL T,W

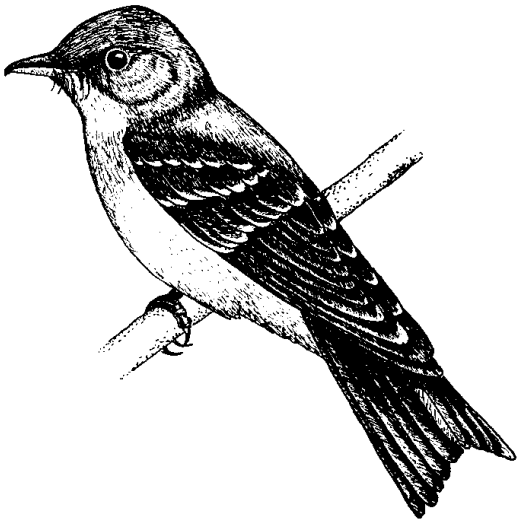
Traits: Large, white bird with a sharply hooked bill; talons; large forward-facing eyes; broad wings and tail; only all-white owl; they have varied amounts of black speckling. Nests on the ground.
Habitat: Coastal lowland tundra
Foods: Lemmings and other small mammals (voles, shrews, ground squirrels, hares, weasels)
Eaten by: Foxes eat young.

Do You Know? These owls have been recorded as far south as the southern United States and Bermuda.









202. THREE-TOED WOODPECKER F

Traits: Medium-sized bird with thick, pointed bill and stiff tail feathers; back is barred with black and white; males have yellow crowns
Habitat: Old forests and recently burned forests with many dead and dying trees (snags)
Foods: Insects that live beneath tree bark, (bark beetles, longhorn beetles, horntails, and others)
Eaten by: Hawks, falcons, owls

Do You Know? These birds excavate cavities in dead and diseased trees for nesting and roosting. Their holes provide homes for other cavity-nesting birds and mammals.

203. RED-BREASTED SAPSUCKER F

Traits: Medium-sized bird with stout, pointed bill; reddish head and breast
Habitat: Coastal rainforest sites that contain many large dead and dying trees (snags)
Foods: Insects that live beneath the bark of dying and dead trees (bark beetles, longhorn beetles, horntails, and others)
Eaten by: Falcons, hawks, owls

Do You Know? Sapsuckers are responsible for the horizontal rows of squarish holes frequently found on tree trunks. They drink sap from these holes and may also obtain insects that are attracted by the sap.

204. FLYCATCHER F,T,W

Traits: Small birds with upright posture, long tails, and large mouths.
Habitat: Varies by species; some need tall shrub thickets, and others live only in mature boreal or coastal forests.
Foods: Flies, moths, butterflies, other flying insects
Eaten by: Falcons, hawks, small owls

Do You Know? Flycatchers "hawk" flying insects by sitting on an elevated perch to spot their prey, flying out, and snapping up these insects in mid-air.

199. NORTHERN FLICKER F

Traits: Medium-sized bird with stout, sharp bill; long tongue; stiff tail feathers
Habitat: Open forests and early successional stages that contain standing dead trees (snags)
Foods: Insects that live beneath the bark of trees (such as bark beetles) and some that live in the ground, including ants
Eaten by: Hawks, falcons, owls

Do You Know? Two subspecies of the northern flicker occur in Alaska: the red-shafted and the yellow-shafted.

200. HAIRY and DOWNY WOODPECKER F

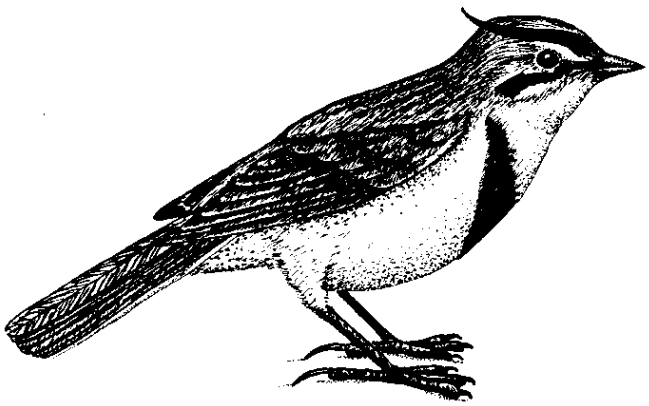
Traits: Birds with stout, pointed bills and stiff tails; white stripes on the backs; black and white markings on the face; red patch on the back of male's head
Habitat: Broadleaf or conifer forests, early successional stages that contain dying and dead trees (snags)
Foods: Insects that live beneath tree bark (bark and longhorn beetles, horntails and others)
Eaten by: Merlins, sharp-shinned hawks, falcons

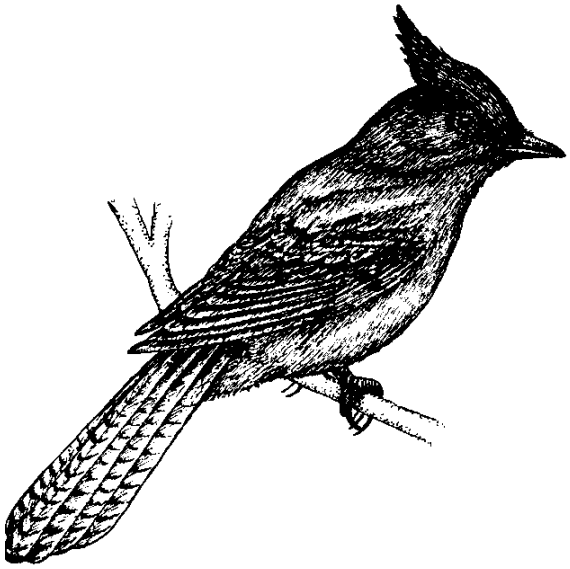
Do You Know? These birds excavate holes in dead trees for nesting and roosting. Their holes later provide homes for other cavity-dependent birds and mammals.

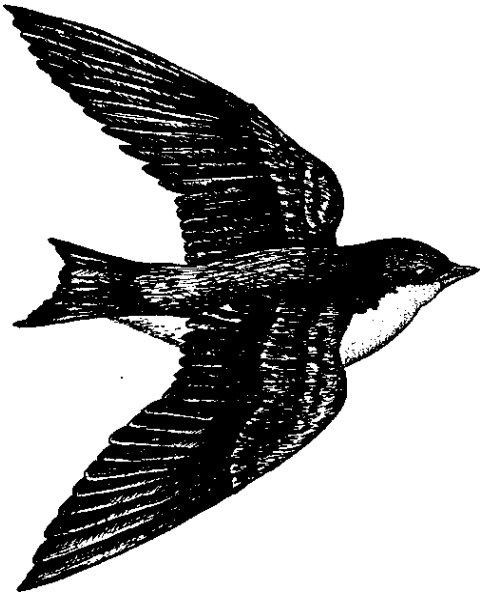
201. BLACK-BACKED WOODPECKER F

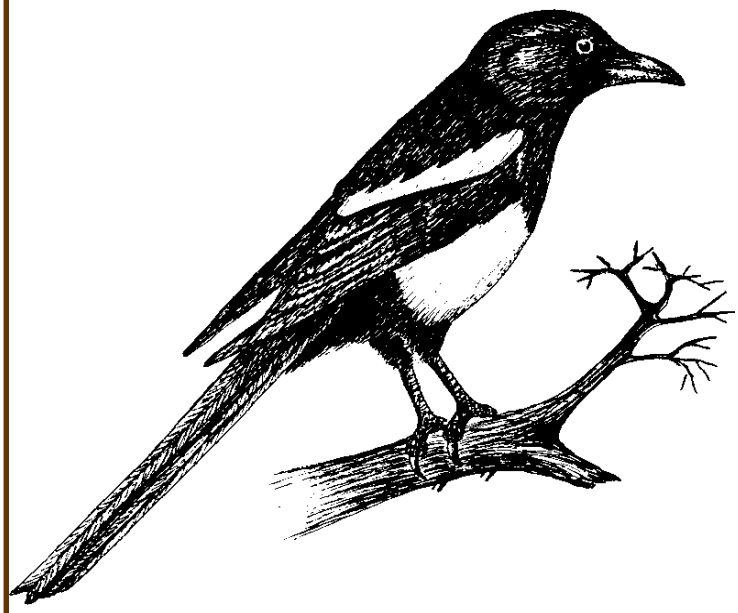
Traits: Medium-sized bird with a black back; thick, pointed bill; long, stout tail; yellow crown on males
Habitat: Recent burns and open forests with dead and dying trees (snags)
Foods: Insects that live beneath the bark of dead and dying trees, especially beetle larvae
Eaten by: Hawks, falcons, owls; marten and squirrels eat young.

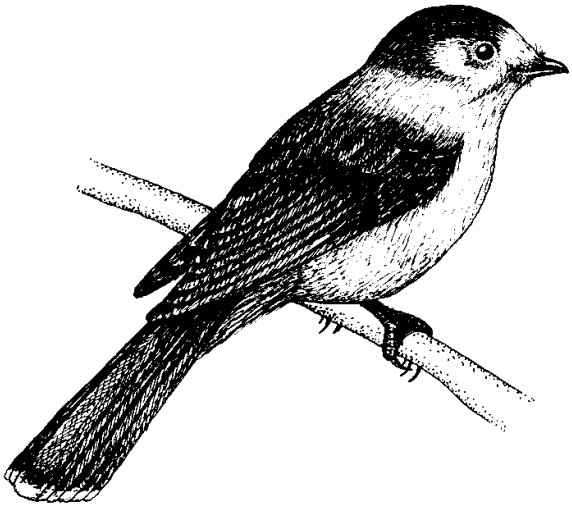
Do You Know? This bird forages on dead conifers, chipping away large patches of bark rather than drilling into it, in search of larvae and insects. It moves into burned forests to feed on insects attacking injured trees.

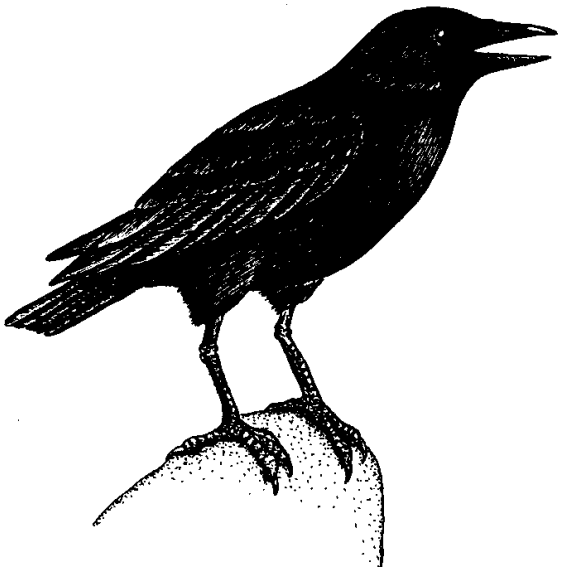












208. STELLER'S JAY F

Traits: Medium-sized, dark blue and black bird with a long tail
Habitat: Coastal rainforest, including openings and edges during summer
Foods: Seeds and berries of trees and shrubs, beetles, grasshoppers, caterpillars, moths, spiders, eggs, young birds
Eaten by: Hawks, falcons, owls

Do You Know? Jays sometimes follow predators around, or are attracted by predator activities. They then feed on the scraps left by predators.

205. HORNED LARK T

Traits: Medium-sized bird with slender bill; black "horns"; broad black stripe under eye; black bib
Habitat: Alpine tundra in summer; plains of Lower 48 in winter
Foods: Caterpillars, ants, wasps, grasshoppers, leafhoppers, spiders, seeds of grasses and other plants
Eaten by: Foxes, weasels, jaegers, falcons, short-eared owls

Do You Know? In its courtship flight, the male horned lark climbs to heights of 800 feet (244 m) and begins its high-pitched flight song as it circles downward.

209. BLACK-BILLED MAGPIE F,W

Traits: Large, black and white bird with glossy green and blue feathers; very long tail; large, stout bill
Habitat: Builds a domed stick nest in spruce or broadleaf trees; feeds in the forests and in openings
Foods: Small mammals, insects and other invertebrates, berries, carrion (dead animals), eggs and young of other birds
Eaten by: Squirrels, weasels, marten, and ravens eat eggs and young.

Do You Know? Abandoned nests of this bird are sometimes used by other birds, including merlins.

206. SWALLOW F,T,W

Traits: Small bird with a slender body and long, pointed wings; tiny bill; short legs; and small feet; moderately long, forked tail
Habitat: Open areas around lakes, ponds, and rivers; some species nest in tree cavities.
Foods: Flying insects (flies and mosquitoes)
Eaten by: Hawks, falcons

Do You Know? Swallows catch almost all their food in flight, sometimes even skimming insects off the surface of ponds and lakes.

210. NORTHWESTERN CROW F,W

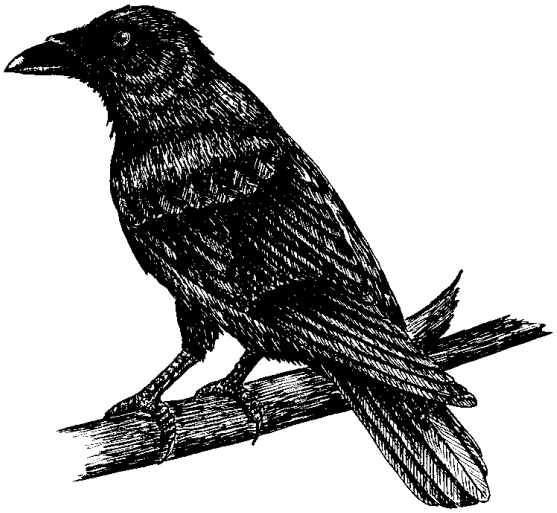
Traits: Medium-sized, black bird with a square tail and heavy bill
Habitat: Coastal forests; nests in dense thickets of spruce or hemlock trees. Feeds along the shoreline.
Foods: Invertebrates (mussels and limpets), carrion (dead animals), eggs and young birds, small mammals
Eaten by: Great horned owls, goshawks; eggs taken by ravens, jays, squirrels

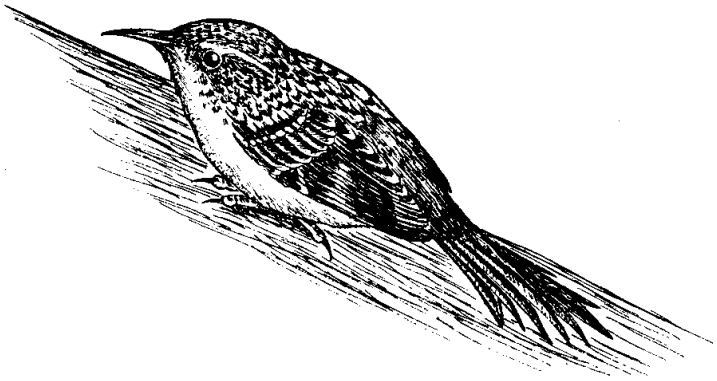
Do You Know? Crows open clams and mussels by carrying them aloft and dropping them on rocks below.

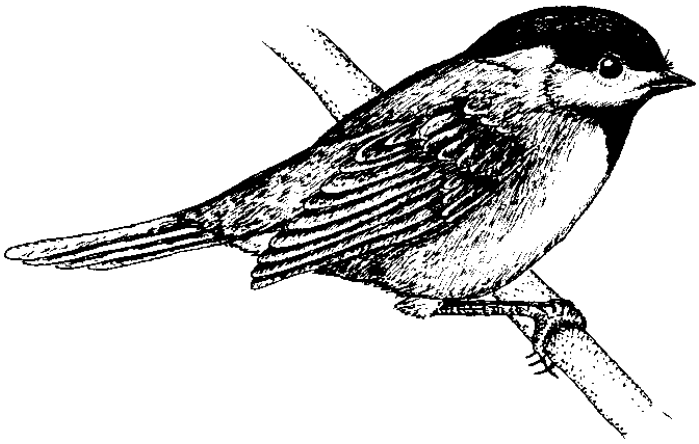
207. GRAY JAY F,T

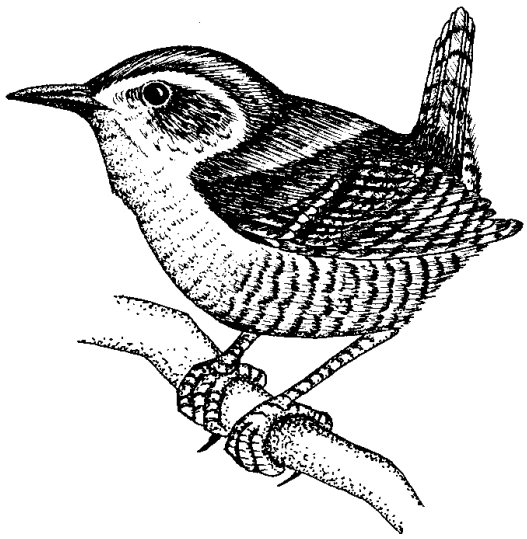
Traits: Medium-sized, gray bird with long tail; rounded wings, slightly hooked bill
Habitat: Mature forests and forest openings; more common in boreal forests
Foods: Variety; eggs and young of other birds, small mammals, insects and other invertebrates, berries, dead animals
Eaten by: Hawks, falcons, owls

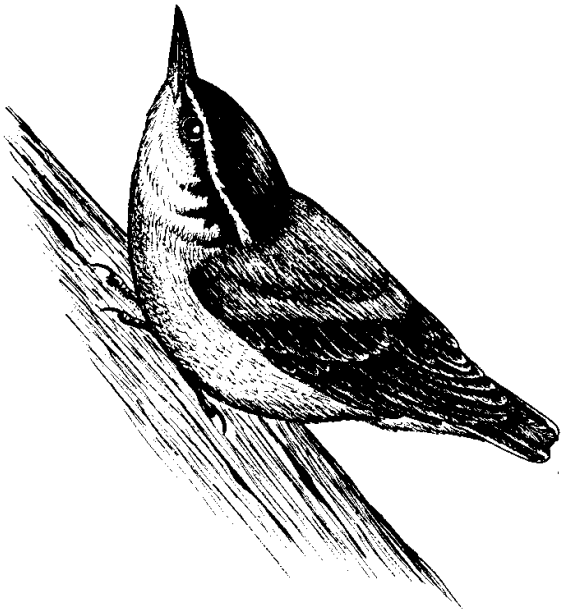
Do You Know? When gray jays find an abundant food source, they hide small caches for later use; sticky saliva help them attach to trees and crevices.

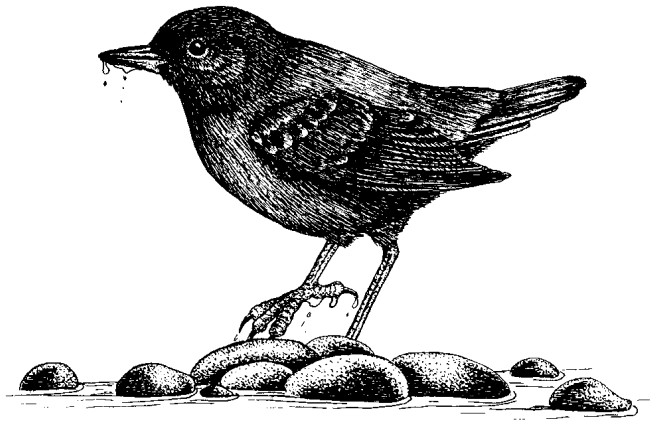












214. BROWN CREEPER F

Traits: Small brown bird with thin, curved bill and stiff tail feathers
Habitat: Old-growth forest for feeding and nesting; nests in tree cavities or behind bark that has peeled away from the trunk of a dead tree.
Foods: Insects that live in and under the bark of trees (beetles, moths, flies, spiders)
Eaten by: Sharp-shinned hawks, boreal owls

Do You Know? Brown creepers spiral up trees from near the base, hugging the bark closely as they search for insects.

211. COMMON RAVEN F,T,W

Traits: Large, black bird with wedge-shaped tail; broad wings; heavy bill.
Habitat: Forests, shrublands, tundra, wetlands; builds a stick nest on cliffs or in trees.
Foods: Small mammals, birds, berries, carrion (dead animals), eggs and young of other birds
Eaten by: Crows, marten, jays, or other predators may take eggs.

Do You Know? Ravens are very intelligent. They often work cooperatively to "steal" food from large predators and pets.

215. WINTER WREN F

Traits: Small brown bird that holds its short tail upright; thin bill
Habitat: Coastal forest habitats that include shrubs and ground cover plants; old-growth forests during winter
Foods: Beetles, sawflies, ants, caterpillars, aphids, lacewings, spiders, mites
Eaten by: Sharp-shinned hawks, boreal and saw-whet owls; shrews and squirrels prey on eggs and young.

Do You Know? The wren's loud song and aggressive territorial defense are surprising considering its small size.

212. CHICKADEE F

Traits: Small gray or brown bird with short, thin bill; long tail; dark cap and chin
Habitat: Boreal chickadees need mature boreal forests with conifer trees. Black-capped chickadees use broadleaf or mixed forests. Chestnut-backed chickadees use old-growth coastal forests.
Foods: Insects from leaves, bark, or branches (thrips, moths, butterflies, lacewings, flies, spiders); also seeds and berries
Eaten by: Small hawks, owls, shrikes

Do You Know? Chickadees can put on 8 percent of their body weight in fat each day. Each winter day, chickadees go through the same cycle: eat and put on fat in the short daylight, then burn up fat to keep warm through the long night.

216. AMERICAN DIPPER F

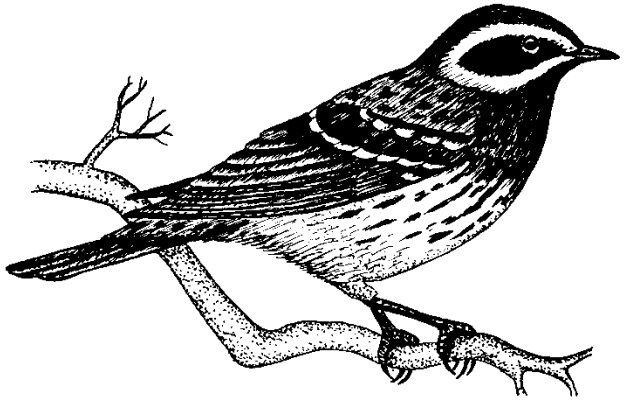
Traits: Plump, all-gray bird with short neck, short bill, short tail, and long toes
Habitat: Clear, fast-moving streams primarily in conifer forests
Foods: Larvae of caddisflies, stoneflies, mayflies, mosquito, midges, water striders, water boatmen, diving beetles; also clams, snails, small fish, fish eggs
Eaten by: Hawks, mink, weasels; sometimes large fish

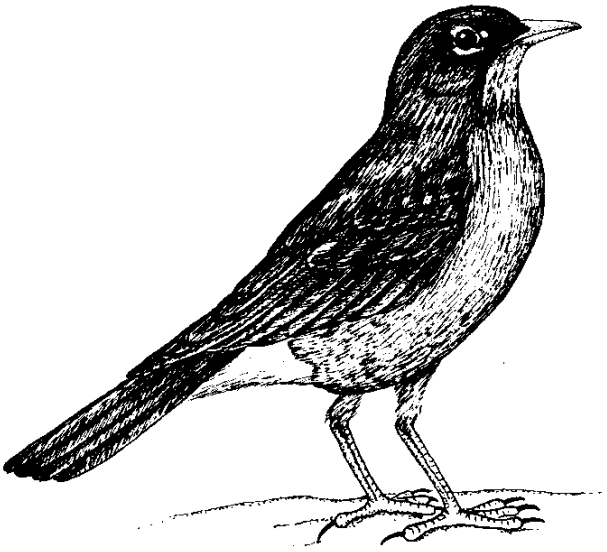
Do You Know? Dippers can walk underwater by grasping stream bottoms with their long toes and pushing forward with short wing strokes.

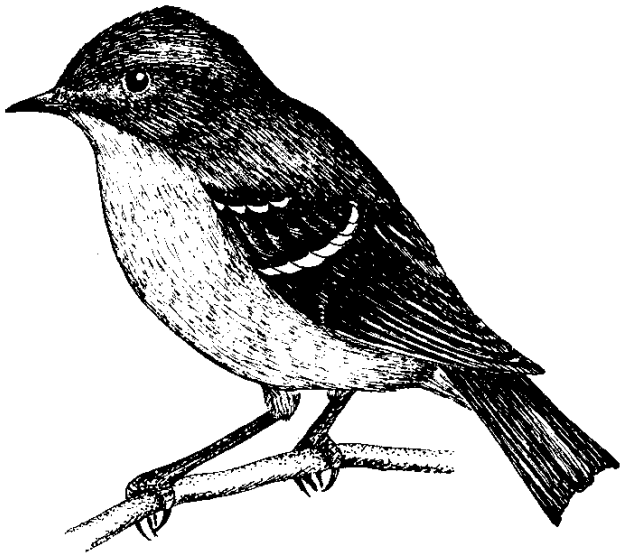
213. RED-BREASTED NUTHATCH F

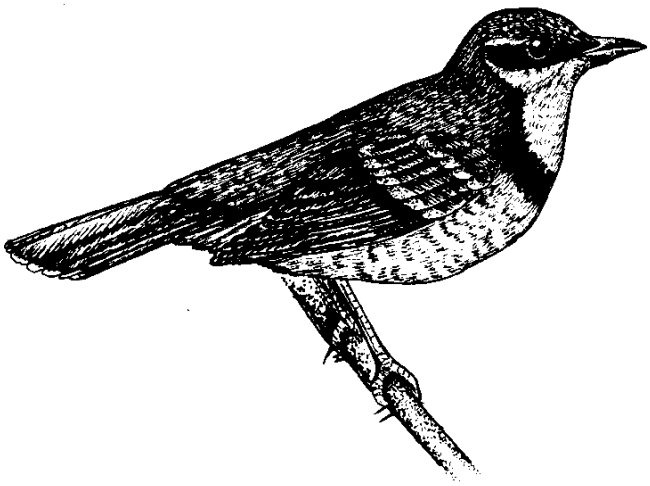
Traits: Small bird with a short tail and chunky body; long, chisel-like bill; dark gray on top, reddish underneath
Habitat: Mature forest stands with large trees having holes for nesting and roosting
Foods: Insects that live on the bark and leaves of trees; also seeds of conifers
Eaten by: Sharp-shinned hawks, boreal owls

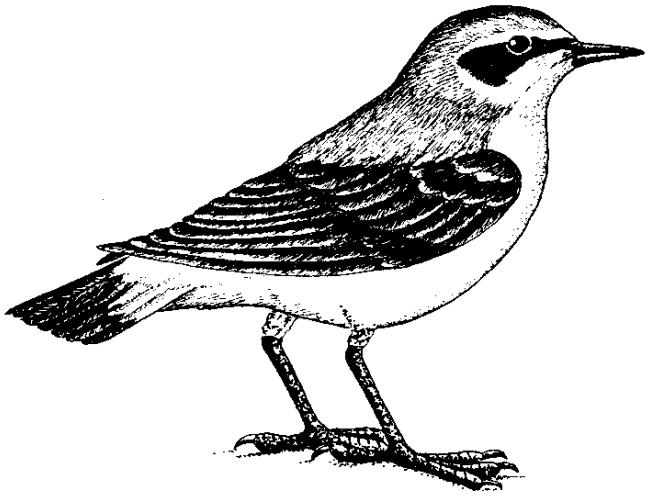
Do You Know? By traveling down trunks head first, nuthatches find food in crevices that is missed by other birds (brown creepers) that move up the trunk.

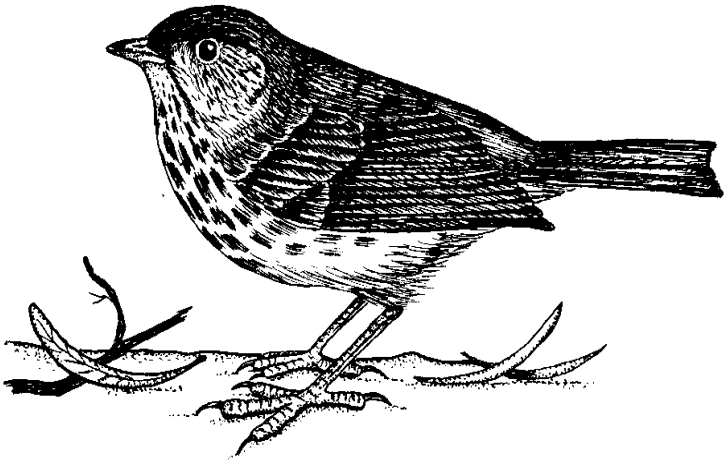












220. AMERICAN ROBIN F,T,W

Traits: Medium-sized bird with a long tail and short, thin bill; gray on back, reddish breast
Habitat: Open areas with many ground-cover plants as feeding areas; songposts and nest sites in tall shrubs or trees
Foods: Beetles, grasshoppers, ants, caterpillars, worms, berries and other fruits
Eaten by: Hawks, falcons, owls, cats

Do You Know? Robins are aggressive during the breeding season. A male will fight with his own reflection thinking it is another male robin.

221. VARIED THRUSH F

Traits: Medium-sized bird with a long tail and short, thin bill; gray on back, reddish underneath with black "V" on breast.
Habitat: Conifer and mixed forests; nests in trees, but feeds on the ground.
Foods: Beetles, ants, flies, caterpillars, grasshoppers, spiders, snails, worms, millipedes and other invertebrates; also berries
Eaten by: Hawks, falcons, owls; red squirrels prey on eggs.

Do You Know? The song of the varied thrush sounds like a telephone ringing.

222. SMALL THRUSHE F,T,W

Traits: Small birds with long tails and short, thin bills; brown backs; spots on white breast
Habitat: Tall shrub thickets, forest openings and edges, old conifer or broadleaf forests
Foods: Beetles, ants, moth and butterfly larvae, flies, treehoppers, millipedes, snails, berries
Eaten by: Hawks, falcons, owls; red squirrels prey on eggs.

Do You Know? Thrush habitat is being rapidly destroyed; we are in danger of losing these fine songsters from forests in the eastern United States.

217. WARBLER F

Traits: Small birds with thin bills; many have yellow markings.
Habitat: Varies by species; shrub thickets, mixed and conifer forests
Foods: Insects that live on leaves and twigs of trees and shrubs (true bugs, leafhoppers, moth and butterfly larvae, aphids, flies, beetles, sawflies, spiders)
Eaten by: Merlins, sharp-shinned hawks, shrikes

Do You Know? Most warblers winter in Central or South America.

218. KINGLET F

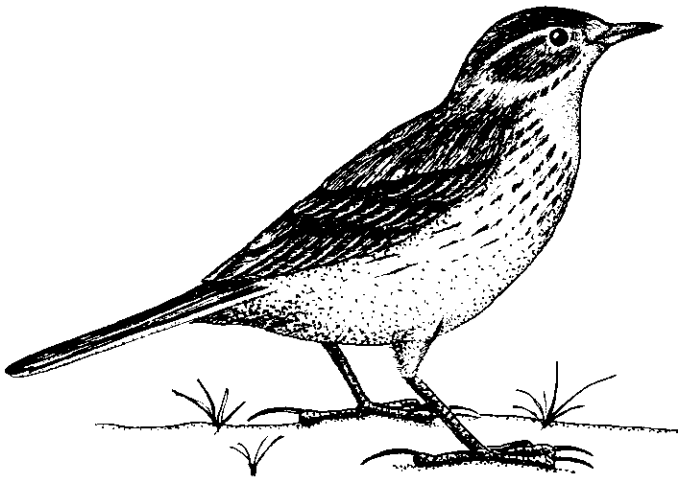
Traits: Tiny birds with short, thin bills and short tails; males have flame-colored crowns.
Habitat: Mature and old-growth forests; ruby-crowned kinglets prefer mixed forests. Golden-crowned kinglets mainly use mature coastal forests.
Foods: Insects that live on the leaves of trees and tall shrubs (true bugs, moth and butterfly larvae, aphids, ants, beetles, spiders)
Eaten by: Merlins, sharp-shinned hawks, small owls

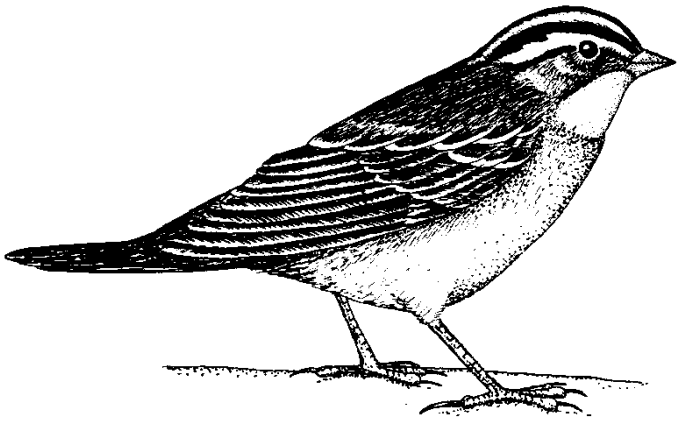
Do You Know? Despite being one of the smallest birds, the ruby-crowned kinglet has a song that is one of the loudest.

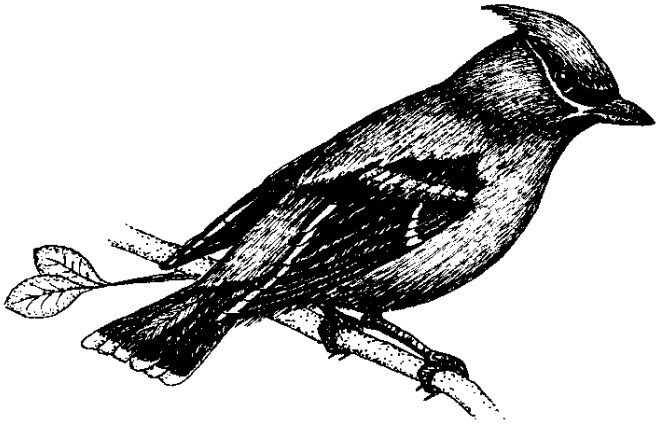
219. NORTHERN WHEATEAR T,W

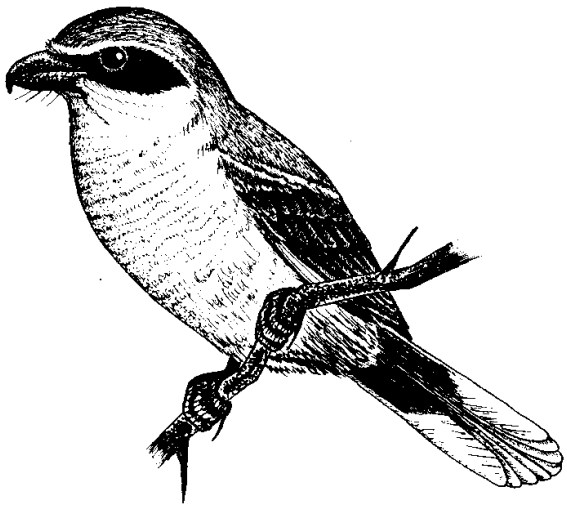
Traits: Small bird with white rump patch; black and white tail pattern like an upside-down "T"
Habitat: Alpine and dry lowland tundra in summer; coastal wetlands in winter
Foods: Spiders and other invertebrates
Eaten by: Jaegers, weasels, foxes, short-eared owls, falcons

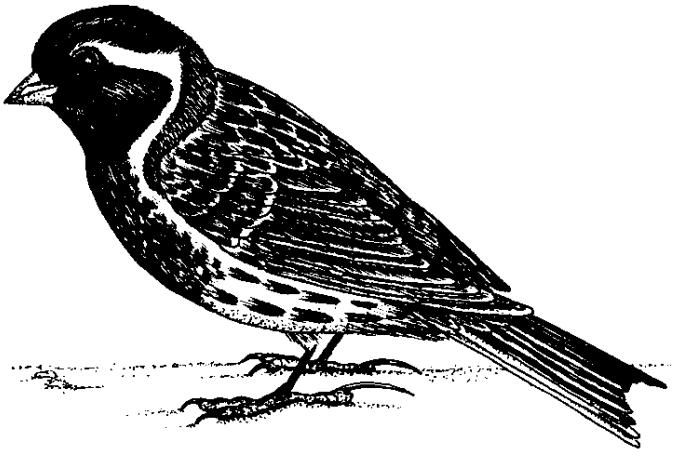
Do You Know? The wheatear migrates from tundra nesting areas to winter in eastern Asia and Africa.











226. SPARROW F,T,W

Traits: Small birds with stout, cone-shaped bills; majority are brown on the back and light underneath; many have streaks on the breast.
Habitat: Tall shrub thickets, forest edges, sedge lands, open tundra
Foods: Seeds of ground-cover plants and tall shrubs; insects during nesting season
Eaten by: Sharp-shinned hawks, falcons, small owls, shrikes; weasels, squirrel, ravens prey on eggs and young.

Do You Know? Sparrows often use hair from moose or feathers from other birds to line their nests.

223. WATER PIPIT F,T,W

Traits: Small, ground-dwelling birds with slender bills and tails with white outer feathers
Habitat: Tundra, tidal flats, fields, alpine meadows, lakeshores, rivers, streams
Foods: Insects, small invertebrate animals
Eaten by: Foxes, weasels, jaegers, short-eared owls, falcons

Do You Know? In courtship flight, the male pipit flies 50-150 feet (15-46 m) straight up in the air while singing.

227. SNOW BUNTING T

Traits: Small white bird with long black and white wings
Habitat: Alpine and lowland tundra throughout Alaska in summer; some remain along the coast throughout winter, but most migrate to central plains of the Lower 48.
Foods: Seeds and buds of tundra plants, amphipods, crane flies, spiders, beetles
Eaten by: Foxes, weasels, jaegers, short-eared owls, falcons, small hawks

Do You Know? Snow buntings avoid severe cold by burrowing into the snow. They often nest in buildings and boxes abandoned by humans.

224. BOHEMIAN WAXWING F,W

Traits: Medium-sized light brown bird with crest on head; short bill; bright yellow and orange markings
Habitat: Nests in open black spruce forests and muskegs; feeds in all types of forests.
Foods: Blueberries, cranberries, and other berries; also flying insects, (flies, butterflies, dragonflies, true bugs, beetles, and others)
Eaten by: Hawks, falcons, small owls

Do You Know? The red, waxlike spots on the wings of the adult give this bird its name.

228. LAPLAND LONGSPUR T

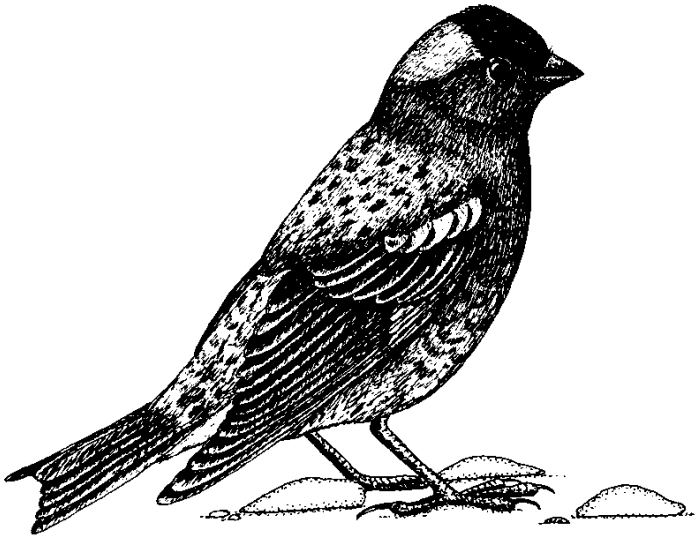
Traits: Small bird; breeding male has black crown, face, and breast and chestnut hind neck. Female is nondescript, like many sparrows.
Habitat: Alpine and dry lowland tundra; nests in side of tussocks, small clumps of sedge, or dry knolls
Foods: Seeds and buds of plants, crane flies, mosquitoes, spiders
Eaten by: Weasels, foxes, jaegers, gulls, short-eared owls, falcons, small hawks

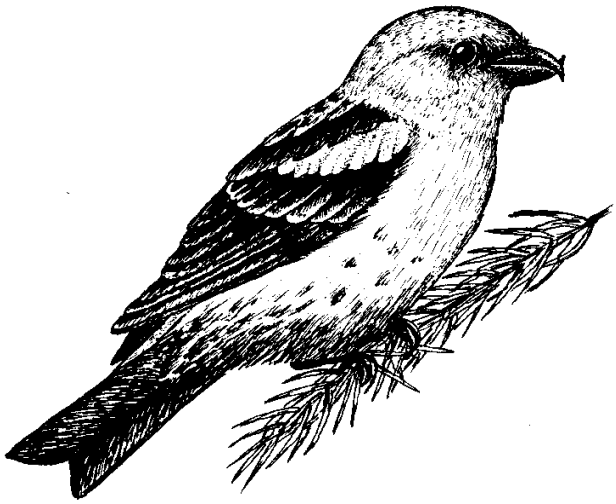
Do You Know? Longspurs often line their nests with caribou hair or ptarmigan feathers.

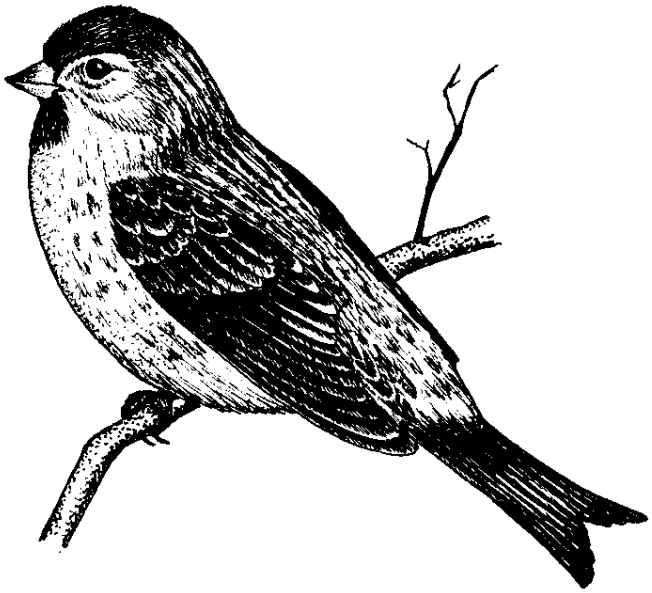
225. NORTHERN SHRIKE F,T,W

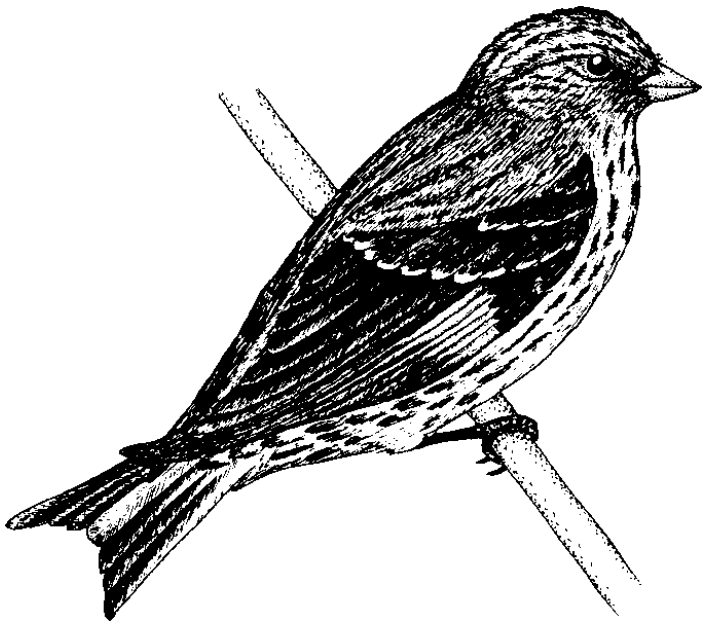
Traits: Medium-sized, gray bird with black mask; sharply hooked bill; long talons; predator
Habitat: Tall shrub thickets, forest openings and edges
Foods: Small birds and mammals, large insects
Eaten by: Merlins, sharp-shinned hawks

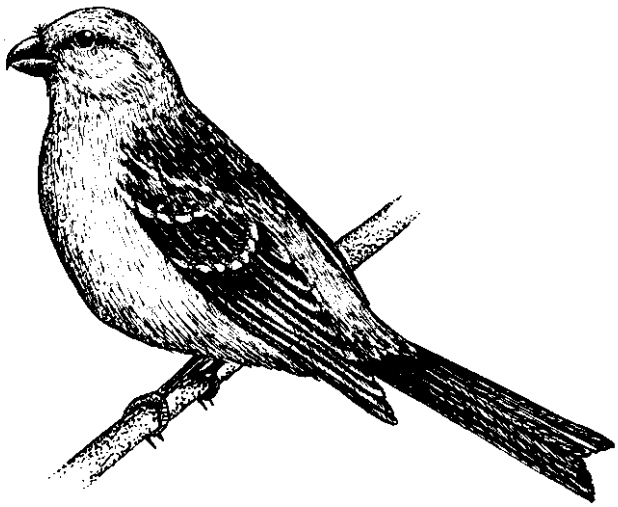
Do You Know? The shrike hangs its prey in the forks of branches. It can kill and store more prey than can be eaten at one time, earning it the name “butcher bird.”

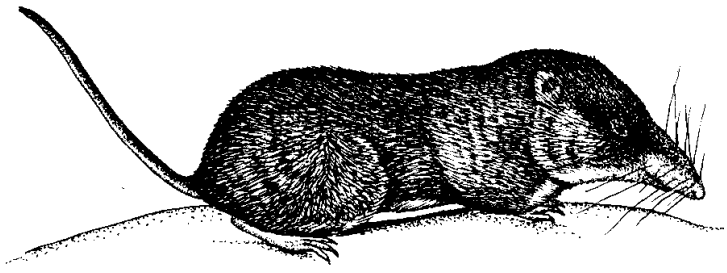












232. CROSSBILL F

Traits: Medium-sized bird with slightly forked tail; bill crosses at tip; males are reddish, females are yellowish.
Habitat: Mature and old-growth conifer forests
Foods: Seeds of conifers, alders, birches, willows, poplars; also insects
Eaten by: Sharp-shinned hawks, boreal owls, saw-whet owls; squirrels may eat eggs and young.

Do You Know? Crossbills may nest almost any time of the year. They are nomadic.

229. GRAY-CROWNED ROSY FINCH T

Traits: Small bird with pinkish-brown on wings and lower belly
Habitat: Alpine tundra
Foods: Seeds of alpine tundra plants, insects
Eaten by: Weasels, foxes, jaegers, short-eared owls, falcons

Do You Know? During nesting season, both sexes develop a pair of sacs in their upper throats, which are capable of carrying food.

233. PINE SISKIN F

Traits: Small bird with stout, cone-shaped bill; yellow on the wings and at base of tail
Habitat: Mature conifer forests, old-growth coastal forests; nests on a branch of a conifer.
Foods: Seeds of conifers, alder, birch; also moth and butterfly larvae, aphids
Eaten by: Sharp-shinned hawks, boreal owls; squirrels take eggs.

Do You Know? The siskin's winter range is highly erratic; large flocks appear here one year, there the next.

230. COMMON REDPOLL F,T

Traits: Small bird with red spot on forehead, stout body, cone-shaped bill
Habitat: Tall shrub thickets, mixed broadleaf-conifer forests; nests in alder or willow shrubs.
Foods: Seeds of birch, willow, aspen, alder and other plants; also insects in summer
Eaten by: Merlins, boreal and short-eared owls, sharp-shinned hawks, shrikes; weasels and squirrels may prey on eggs.

Do You Know? Redpolls store food in throat pouches on the back of their necks to digest during long winter nights. They are nomadic, moving from place to place.

234. SHREW F,T,W

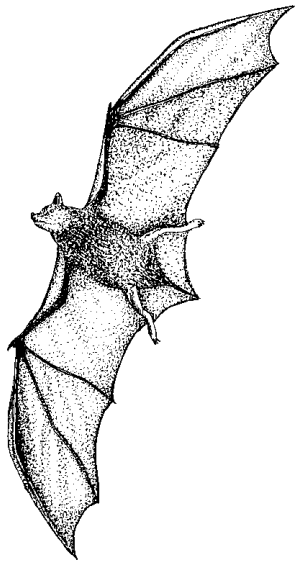
Traits: Very small mammals with a long, pointed nose; short legs; soft, dense fur; Alaska species have a long tail.
Habitat: Moist areas in forests, shrublands, wetlands, tundra
Foods: Springtails, beetles, fly larvae, centipedes, mites, worms, spiders, round worms, eggs and young of small ground nesting birds, young voles, carrion
Eaten by: Weasels, owls, kestrels, jaegers, shrikes

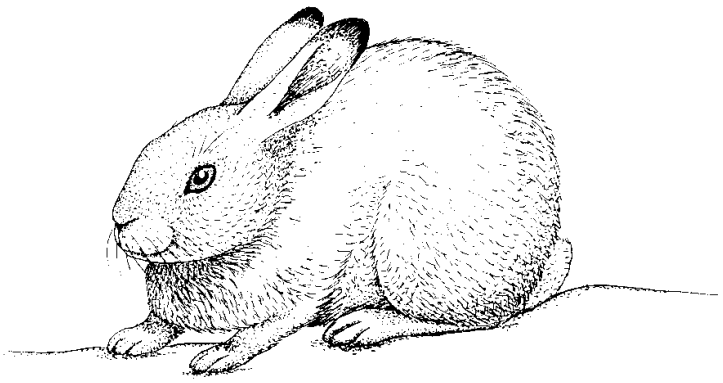
Do You Know? The shrews metabolism is so rapid that an individual shrew may eat its own weight in meat every three hours!

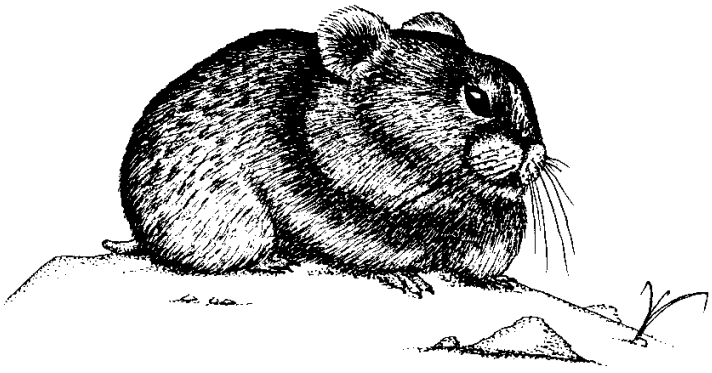
231. PINE GROSBEAK F

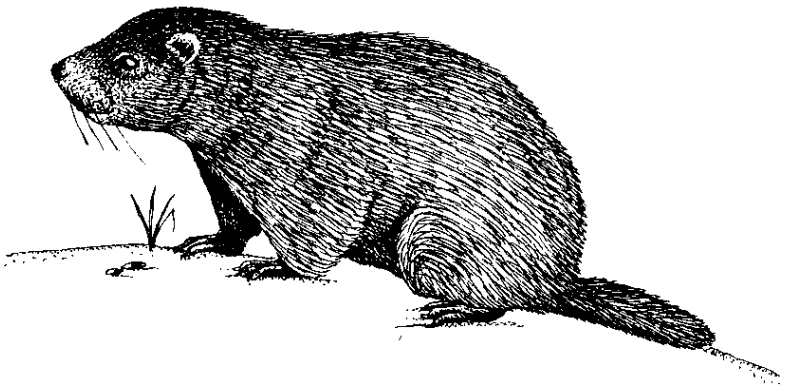
Traits: Medium-sized bird with a stout, cone-shaped bill; males are red; females are gray with gold markings.
Habitat: Young to old conifer and mixed forests; nests in conifer trees.
Foods: Buds, seeds, and berries of trees and shrubs; also insects
Eaten by: Sharp-shinned hawks, merlins, goshawks

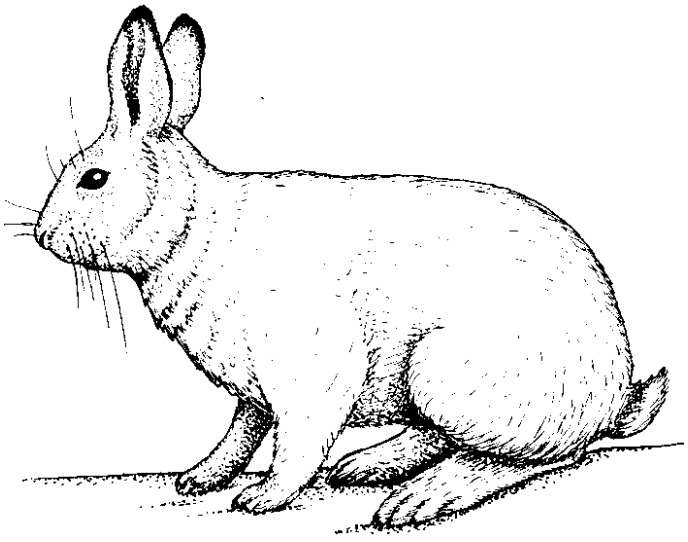
Do You Know? The male pine grosbeak, like the redpoll, gets new feathers only once a year, after breeding.

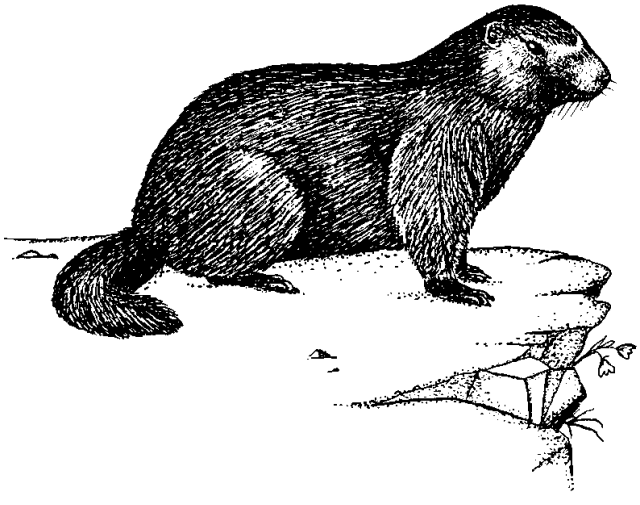












238. TUNDRA HARE T

Traits: Small mammal with dense, white winter fur
Habitat: Windswept rocky slopes and dry lowland tundra of western and northern Alaska
Foods: Willow shoots; leaves, flowers, and shoots of other tundra plants
Eaten by: Wolves, snowy owls, golden eagles

Do You Know? Newborn hares are covered with fur at birth (thus their name) and have their eyes open. True rabbits give birth to naked young whose eyes are closed.

235. LITTLE BROWN BAT F,W

Traits: Mammal with forelegs modified to form membranous wings; keen eyesight; active at night
Habitat: Forested areas with a lake nearby; roost in caves, tree cavities, or buildings
Foods: Mosquitoes, moths, mayflies, caddisflies; usually feeds over water and in forest openings
Eaten by: Owls, squirrels

Do You Know? Bats capture flying insects by using echolocation. A single bat may eat as many as 1,000 mosquitoes in one evening.

239. WOODCHUCK F

Traits: Small, ground-dwelling mammal with long front teeth for gnawing; short legs; long bushy tail; hibernates in winter.
Habitat: Forest edges in central Alaska
Foods: Green vegetation in spring and summer
Eaten by: Lynx, coyotes, wolves, red-tailed hawk

Do You Know? When alarmed, the woodchuck whistles sharply to warn its family.

236. COLLARED PIKA T

Traits: Very small mammal with a stocky body; short legs; sharp, curved claws
Habitat: Rocky slopes of alpine tundra in eastern and central Alaska
Foods: Stems and leaves of grasses, sedges, and other alpine tundra plants
Eaten by: Foxes, weasels, rough-legged hawks, golden eagles, snowy owls

Do You Know? Pikas do not hibernate. Their winter survival depends on the amount of stored plant material they have gathered and dried.

240. MARMOT T

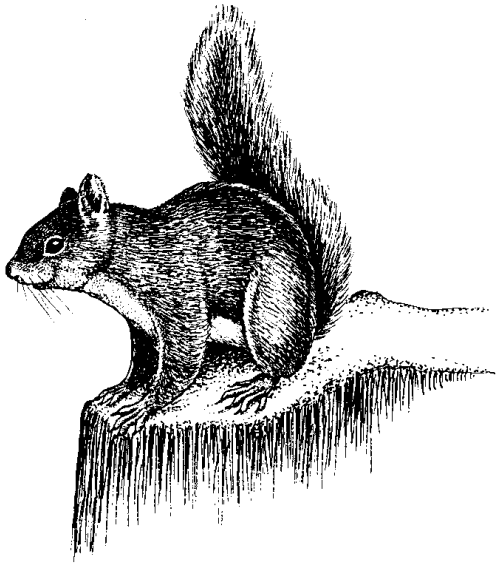
Traits: Heavy-bodied mammals with gray or yellow fur and dark feet
Habitat: Well-drained or rocky slopes of alpine tundra throughout Alaska; the Alaska marmot occurs only in the Brooks Range. The hoary marmot occurs elsewhere in the state.
Foods: Grasses, sedges, herbs
Eaten by: Golden eagles, brown bears, wolves

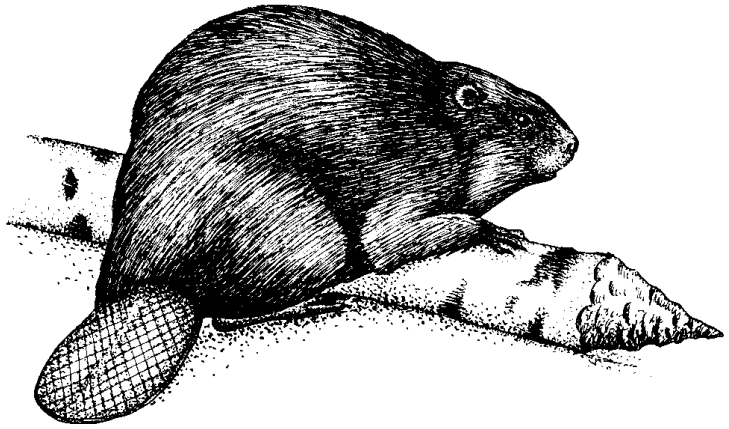
Do You Know? Alaska marmots hibernate in communal dens, thus reducing heat loss by each individual marmot.

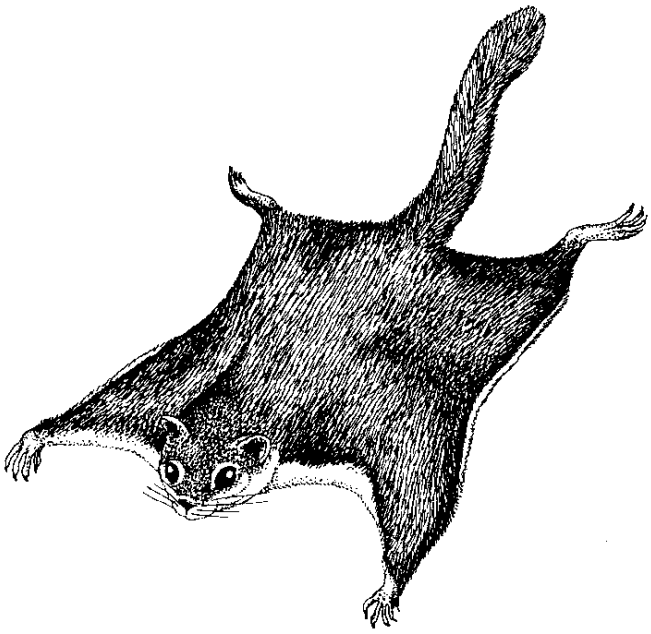
237. SNOWSHOE HARE F

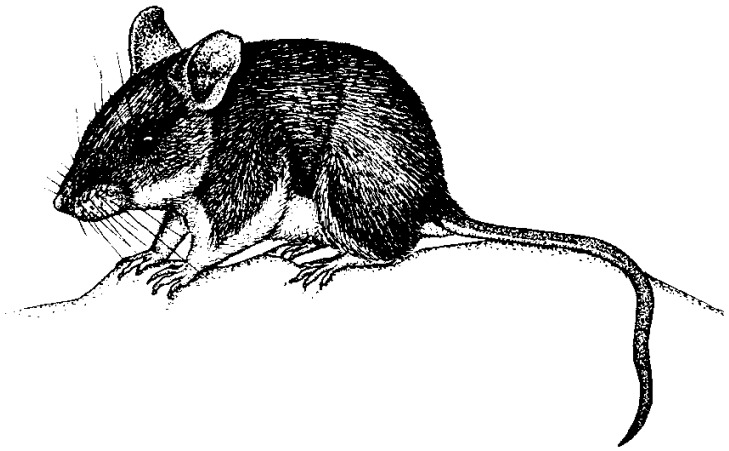
Traits: Small mammal with long front teeth for clipping twigs; large, long ears; short tail; long hind legs, and large hind feet; changes to white in winter.
Habitat: Forest mosaic that includes early successional stages where branches of willows, birch, and aspen are at heights it can reach
Foods: Buds and twigs of birch, willows, and aspen
Eaten by: Lynx, goshawks, great horned owls, red fox, coyote

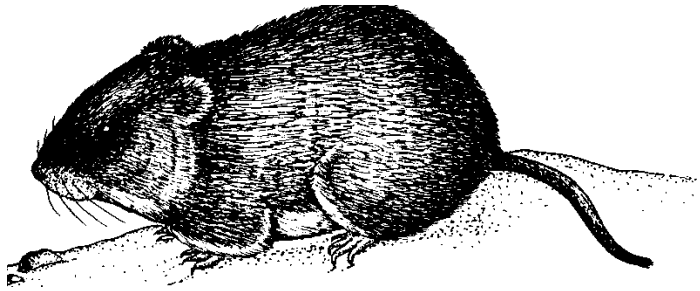
Do You Know? Hares depend on microscopic organisms that live in their intestines to produce important vitamins.











244. BEAVER F,T,W

Traits: Medium-sized mammal with long incisors; webbed feet; and a long, flat tail
Habitat: Slow-moving streams or lakes near willow, aspen, or other deciduous trees and shrubs
Foods: The cambium (inner bark) of willow, aspen, balsam poplar, and cottonwood trees; also shrubs; aquatic plants
Eaten by: Wolves, lynx, wolverines, bears, humans

Do You Know? Beavers change their environment to suit their needs by constructing large dams and by building lodges. Humans are the only animals that make more extensive changes in their environment.

245. DEER MOUSE F,T

Traits: Small mammal with long front teeth for gnawing, a long tail that is brown on top and white underneath, large eyes; this food-storing mammal is primarily nocturnal.
Habitat: Dry forest, tundra, grasslands
Foods: Seeds, nuts, insects, berries, mushrooms, fresh green vegetation
Eaten by: Foxes, weasels, marten, owls and other birds of prey

Do You Know? While eating and caching their foods, deer mice scatter the seeds of some plants and the spores of mycorrhizal fungi.

246. VOLE F,T,W

Traits: Small, mouselike mammals with rounded noses, short tails and legs, and long front teeth (incisors) for gnawing
Habitat: Forests, shrublands, wetlands, tundra
Foods: Fresh green vegetation, seeds, roots, berries, mushrooms and other fungi
Eaten by: Coyotes, wolves, foxes, marten, weasels, hawks, owls, jaegers, sandhill cranes, ravens, gulls, and other predatory birds

Do You Know? The singing vole makes a high-pitched trill when danger threatens the colony.

241. RED SQUIRREL F

Traits: Small mammal with long front teeth, short legs, large bushy tail; red-brown on back, whitish underneath
Habitat: Conifer forests
Foods: Seeds of spruce and other conifers, berries, mushrooms, some bird eggs and young
Eaten by: Marten, goshawks, great horned owls

Do You Know? When carrying and catching its food, this squirrel helps scatter seeds of spruce and berry-producing plants.

242. NORTHERN FLYING SQUIRREL F

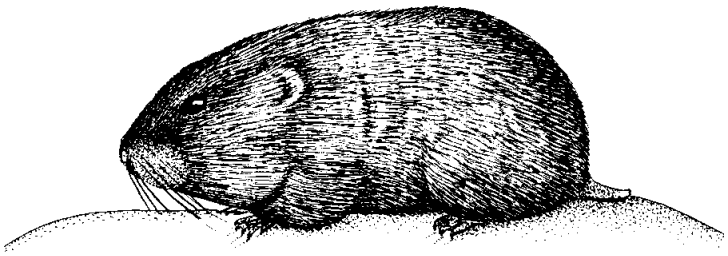
Traits: Small mammal with long front incisors; long bushy tail; short legs connected by a folded layer of loose skin used for gliding between trees
Habitat: Old forests with den sites in tree cavities and small forest openings
Foods: Mushrooms, truffles, other fungi; lichens, berries, green vegetation, seeds, buds, insects, small mammals and birds (live or dead).
Eaten by: Owls, goshawks, marten

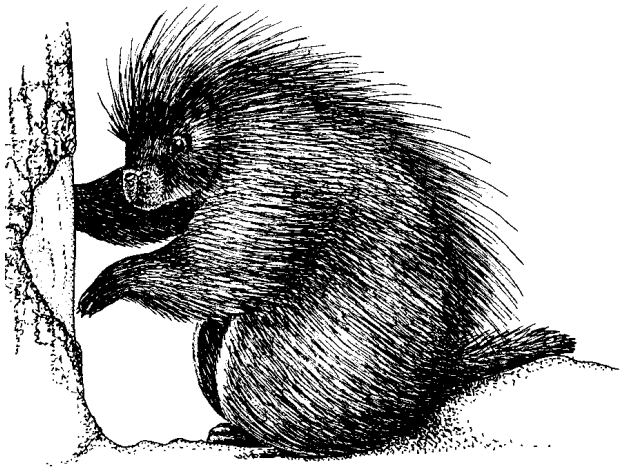
Do You Know? Unlike most squirrels, flying squirrels are active only at night.

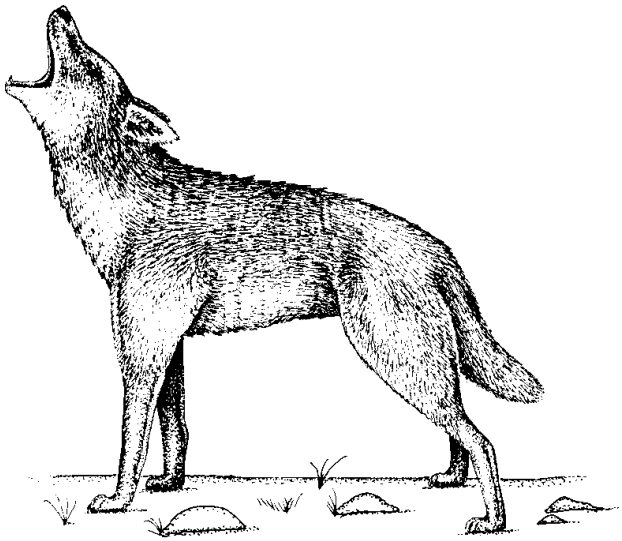
243. ARCTIC GROUND SQUIRREL T

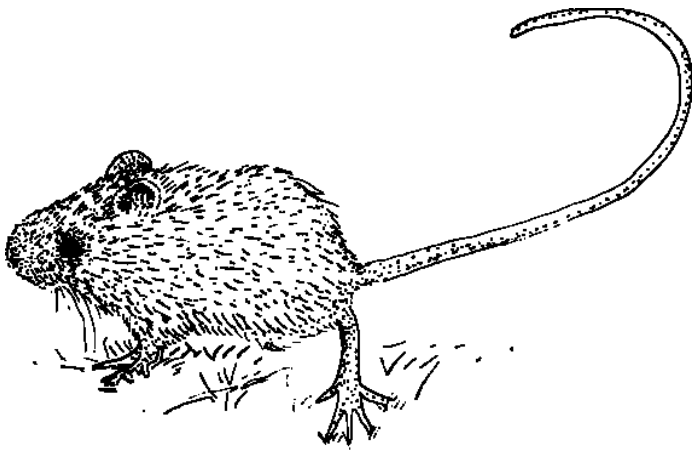
Traits: Large, reddish ground squirrel flecked with white; has a very small tail
Habitat: Well-drained soil of lowland and alpine tundra
Foods: Shoots and leaves of tundra plants, berries, insect larvae, bird eggs, carrion
Eaten by: Foxes, wolves, wolverines, brown bears, golden eagles, rough-legged hawks, snowy owls

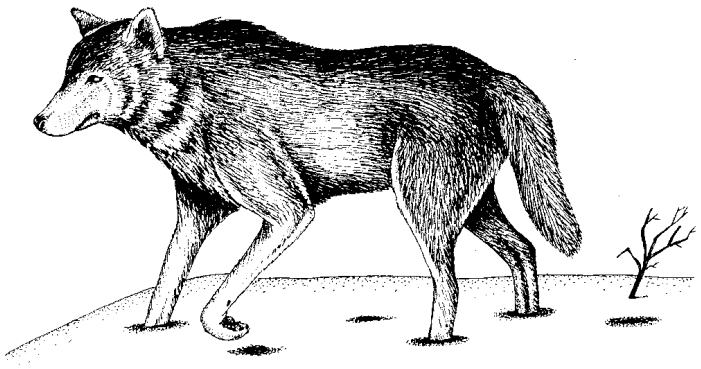
Do You Know? This mammal hibernates for seven months each year.











250. PORCUPINE F

Traits: Mammal with large front teeth for gnawing, short legs; back and tail covered with quills
Habitat: Conifer forests that include large hollow trees or small caves under rocks or logs for denning
Foods: Green vegetation in spring and summer, the inner bark (cambium) of spruce and birch trees in winter
Eaten by: Lynx, coyotes, wolves, wolverine, some bears

Do You Know? The wounds this animal inflicts on tree bark allow various microscopic parasites to enter trees.

251. COYOTE F,T,W

Traits: Doglike mammal with large, sharply pointed ears; long bushy tail; long legs; gray to brown in color
Habitat: Open areas, including early successional stages of boreal forest, wetlands, tundra
Foods: Hares, voles, lemmings, carrion (dead animals); some marmots, ground squirrels, muskrats, birds, fish, insects
Eaten by: Wolves, great horned owls, golden eagles, bears

Do You Know? Coyotes scavenge scraps from wolf and bear kills of large prey.

252. WOLF F,T,W

Traits: Large, doglike mammal with sharp teeth; long bushy tail; long legs; lives and hunts in packs
Habitat: Forests, tundra, and wetlands wherever large herbivores (moose, deer, caribou, goats, or sheep) are available for food
Foods: Moose, deer, caribou, muskoxen, goats, and Dall sheep adults and young; also marmots, beaver, voles, other small mammals
Eaten by: Other wolves occasionally

Do You Know? Social hunting behavior (hunting in packs) allows wolves to prey on large animals such as moose, caribou, and muskoxen.

247. LEMMING T,W

Traits: Small mouselike mammal with a thick neck and very short tail; two gnawing teeth (incisors) on both upper and lower jaws
Habitat: Alpine and lowland tundra, muskegs
Foods: Shoots and leaves of grasses and sedges; bark, twigs, and buds of willow and dwarf birch; some insects, berries, fungi
Eaten by: Owls, jaegers, gulls, rough-legged hawks, arctic foxes, weasels, wolves

Do You Know? Collared lemmings turn white in winter and grow shovel-like claws for digging through ice and snow.

248. MUSKRAT T,W

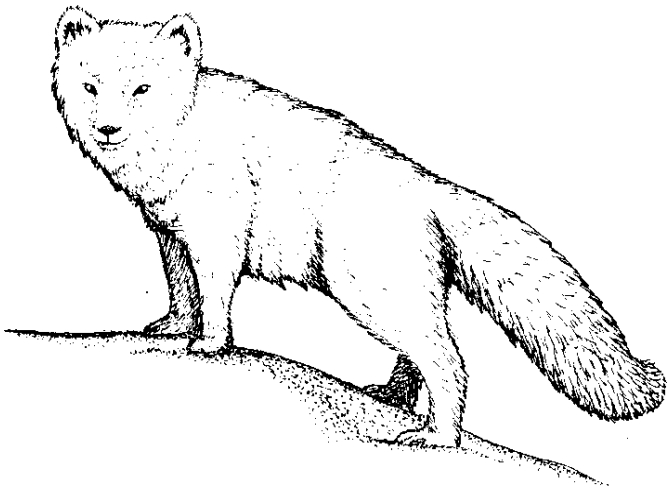
Traits: Brownish rodent; long, naked tail, flattened side to side with short hairs; hind feet webbed; two gnawing teeth (incisors) on both upper and lower jaws
Habitat: Ponds, lakes, marshes, estuaries
Foods: Aquatic plants (bulrushes, water lilies, pondweeds), some mussels, frogs, fish
Eaten by: Hawks, owls, foxes, coyotes, mink

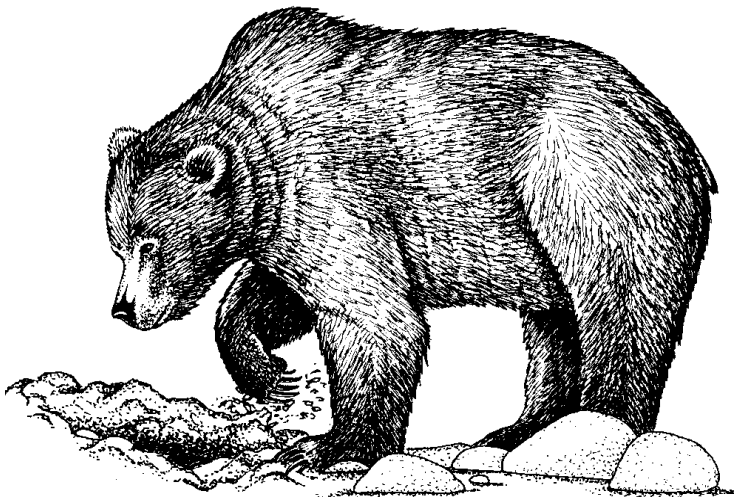
Do You Know? During winter, muskrats spend much of their time under the ice. They maintain holes through the ice, called "pushups," for breathing and as feeding sites.

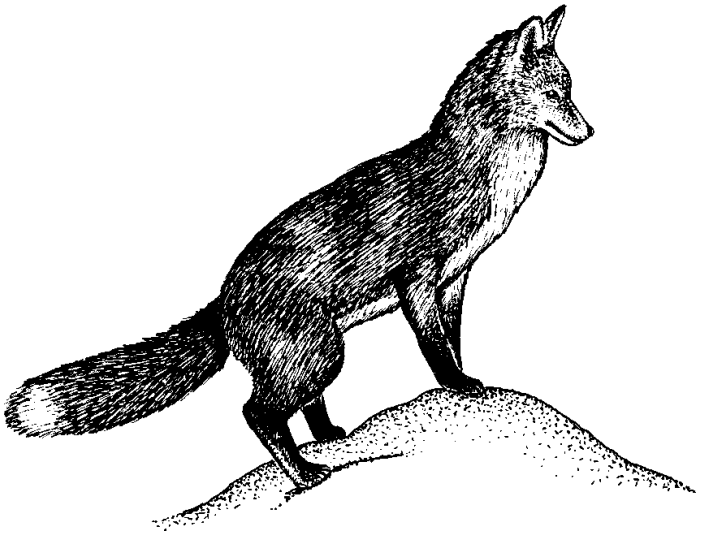
249. MEADOW JUMPING MOUSE F

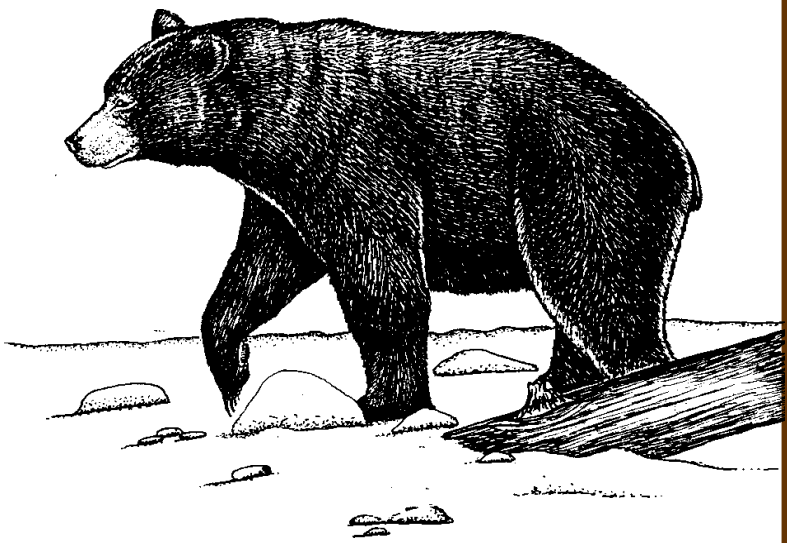
Traits: Small mammal with very long tail, large hind feet, small ears, and large front teeth for gnawing; hibernates during the winter and is primarily nocturnal.
Habitat: Forest edges and damp meadows; den sites beneath brush, logs, or stumps; well-drained sites to dig its deep winter burrow
Foods: Seeds, insects, fruits
Eaten by: Weasels, marten, owls, kestrels

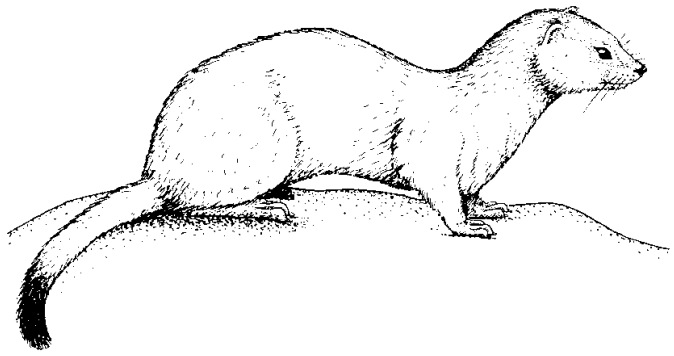
Do You Know? The hind feet of jumping mice can propel them into six-foot (2-m) jumps.











256. BROWN BEAR F,T,W

Traits: Heavyset mammal with short tail; long snout; large hump on shoulders; long claws on forefeet; brown fur; walks on heels rather than on toes.
Habitat: Tundra, forests
Foods: In spring, over-wintered berries, roots, fresh grasses, herbs; summer and fall berries; also small mammals, caribou, moose, salmon, carrion (dead animals)
Eaten by: Other brown bears, humans

Do You Know? Brown bears survive winter by remaining dormant in underground dens. They do not eat, drink, or defecate for the five to six months spent in the den.

257. MARTEN F

Traits: Small, furbearing mammal with sharp teeth, short legs, yellow to brown fur, long tail
Habitat: Conifer forests with high population of voles; mature conifer trees for cover
Foods: Meadow and red-backed voles, some berries, small birds, bird eggs, squirrels, and carrion (dead animals)
Eaten by: Coyotes, red fox, lynx, eagles, great horned owls

Do You Know? Martens use squirrel middens (piles of spruce cone scraps left by squirrels) for winter den sites.

258. ERMINE (SHORT-TAILED WEASEL) F,T,W

Traits: Small, furbearing mammal with sharp teeth; turns white in winter, except the tip of its long tail.
Habitat: Open areas (early successional stages of boreal forest, wetlands, tundra) with water for drinking
Foods: Voles, shrews, jumping mice, deer mice, other small mammals; some birds, insects, plants
Eaten by: Great horned owls, hawks, red foxes, goshawks

Do You Know? Ermines are chiefly nocturnal, but they also hunt during the day.

253. ARCTIC FOX T,W

Traits: Mammal with yellow-brown fur in summer, white in winter; also blue-gray variety that stays dark; short legs, ears, and muzzle
Habitat: Wetlands, dry tundra; pack ice in winter
Foods: Lemmings, voles, hares, birds and their eggs, fish, carrion from kills of larger animals
Eaten by: Occasionally taken by wolves, wolverines, or bears; snowy owls may take young foxes.

Do You Know? Arctic foxes were introduced to the Aleutian Islands by people for fur harvest and have caused declines in the populations of several seabirds and the Aleutian Canada Goose.

254. RED FOX F,T,W

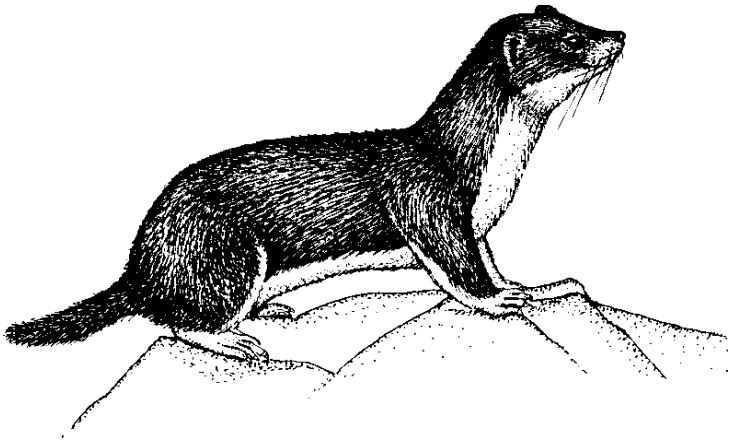
Traits: Doglike mammal with long tail; sharp teeth; red to black fur; long legs
Habitat: Early successional stages of boreal forest, tundra, or wetlands where prey is abundant
Foods: Voles, lemmings, some muskrats, squirrels, hares, birds, eggs, insects, berries, carrion (dead animals)
Eaten by: Wolves, coyotes, lynx, wolverine; rarely by bears, golden eagles

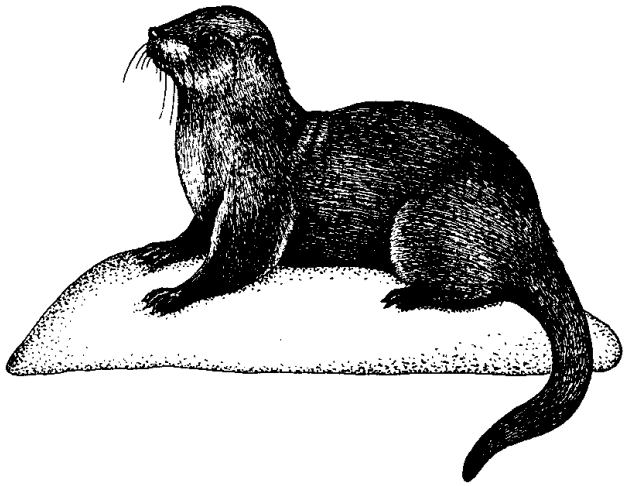
Do You Know? Foxes store excess food when hunting is good.

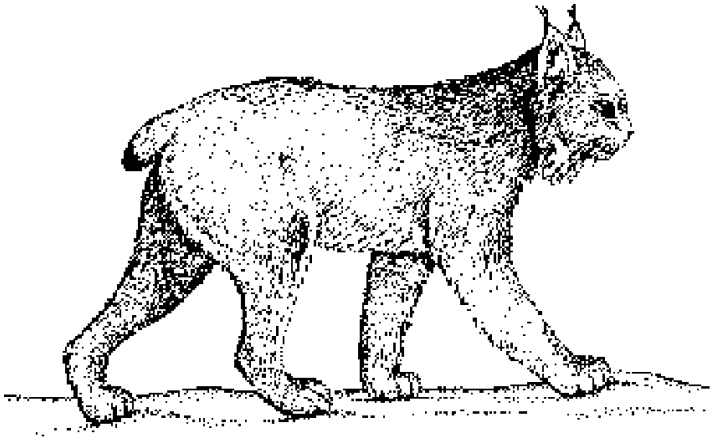
255. BLACK BEAR F

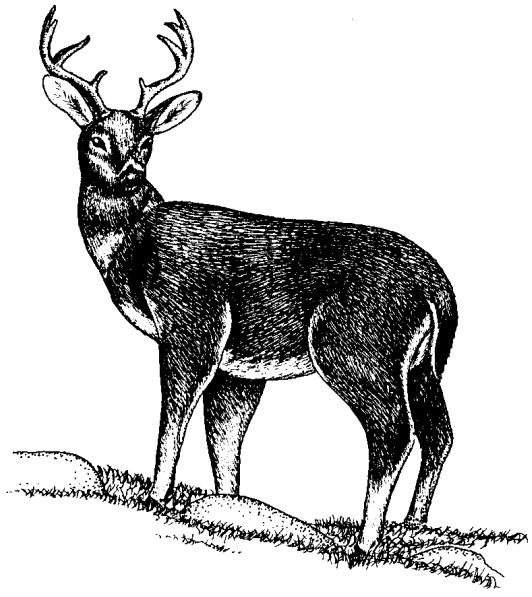
Traits: Large mammal with brown, black, or blue-gray fur; brown muzzle; short claws; sharp teeth
Habitat: Forested areas throughout Alaska
Foods: Varies seasonally; fresh green vegetation in spring, salmon and berries in fall; some moose calves and deer fawns; also carrion (dead animals)
Eaten by: Brown bears, black bears, humans

Do You Know? Black bears sometimes hibernate in a tree hollow created by fungi and bacteria that decayed the wood.









262. RIVER OTTER T,W

Traits: Furbearing mammal with large canine teeth; long, slender body; short legs; webbed feet and a long tail covered with dense fur
Habitat: Streams, rivers, large lakes, sea coasts
Foods: Fish (rockfish, blackfish, sculpins, suckers) frogs, aquatic invertebrates, some birds and small mammals
Eaten by: Occasionally lynx, coyotes, wolves

Do You Know? River otters can dive 60 feet (18.3 m) and stay underwater for as long as four minutes.

259. LEAST WEASEL F,T

Traits: Small furbearing mammal with a long tail; turns white in winter
Habitat: Early successional stages of boreal forest, tundra where food is abundant
Foods: Voles, shrews, lemmings, jumping mice, deer mice, other small mammals; some small birds, insects, plants
Eaten by: Great horned owls, hawks, red foxes, goshawks, ermine

Do You Know? Speed, ferocity, and its ability to fit into tight spaces help the weasel avoid larger predators.

263. LYNX F

Traits: Medium-sized mammal in the cat family; large feet, short tail, sharp teeth
Habitat: Mosaic of old conifer and early successional stage forests where prey is abundant
Foods: Snowshoe hares almost exclusively; small mammals, birds when hare populations are low
Eaten by: Great horned owls or wolverines may eat young.

Do You Know? The lynx is the only cat native to Alaska.

260. MINK F,T,W

Traits: Mammals with large canine teeth; a long, slender body; short legs; long, round tail; dense brown fur; feet not webbed
Habitat: Streams, lakes, marshes, inlets, estuaries
Foods: Muskrats, voles, lemmings; eggs and young of ducks, geese, and shorebirds; fish, frogs, mussels, aquatic insects
Eaten by: Hawks, owls, lynx, foxes, coyotes, wolves

Do You Know? Like all other weasels, mink have an anal scent gland that produces a strong odor.

264. SITKA BLACK-TAILED DEER F

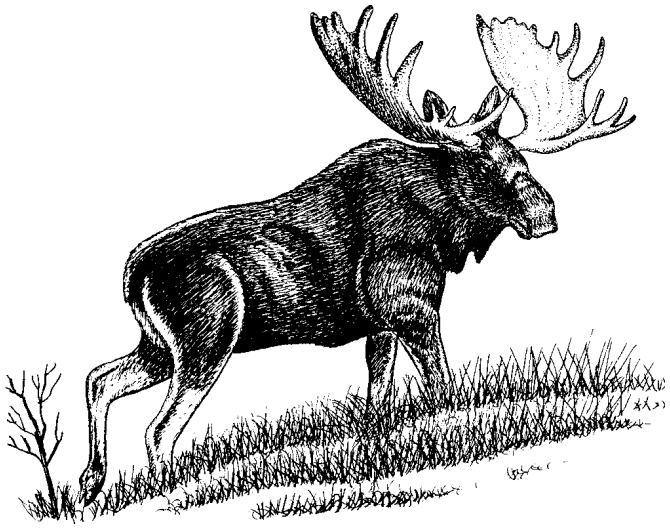
Traits: Small, hoofed mammal with long legs; reddish brown fur; black tail; antlers on male in fall
Habitat: Coastal hemlock-spruce forest; old-growth forest is critical for winter survival.
Foods: Herbs and shrubs (bunchberry and trailing bramble); blueberry, hemlock, arboreal lichens in winter
Eaten by: Wolves, brown bears, humans

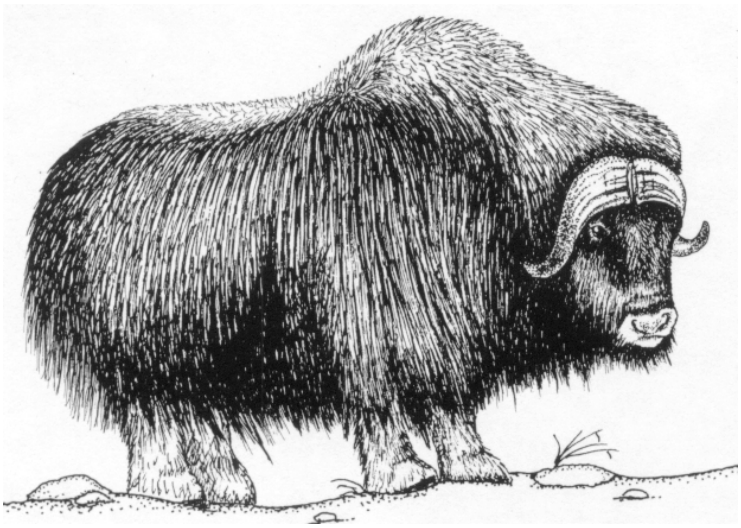
Do You Know? This deer is native to Southeast Alaska, but humans moved some to Yakutat and to Kodiak and Afognak islands.

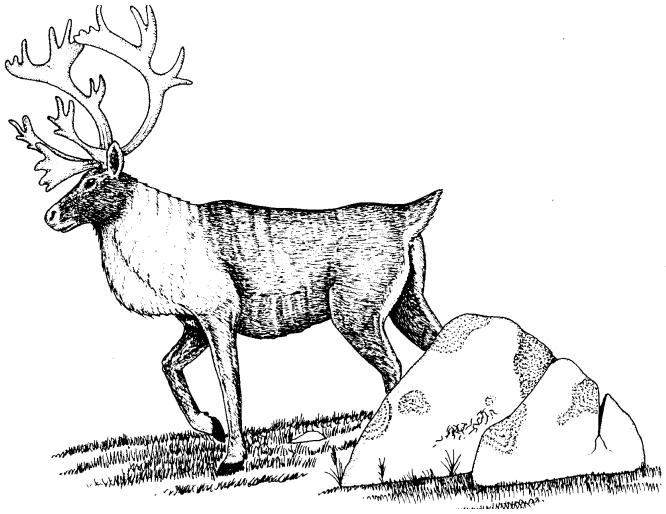
261. WOLVERINE F,T

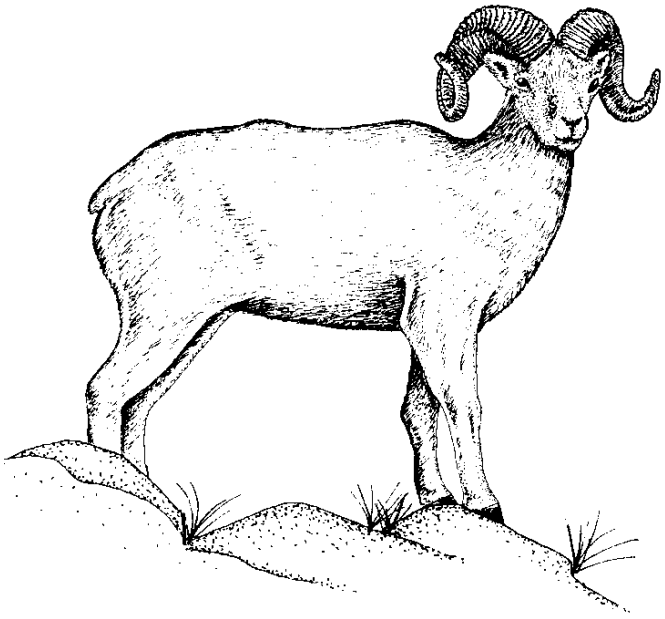
Traits: Furbearing mammal; brown with white stripes on sides; strong, well-developed teeth
Habitat: Coastal and boreal forests, tundra
Foods: Carrion (dead animals), marmots, voles; some bird eggs, berries, calves of moose and caribou
Eaten by: Occasionally killed by wolves or bears

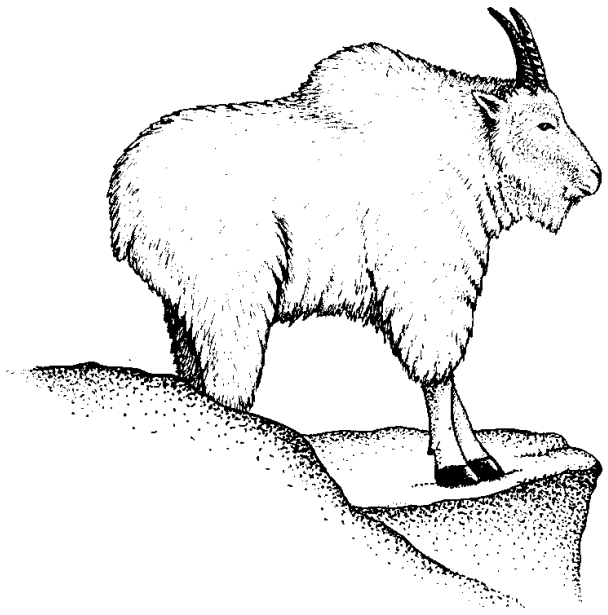
Do You Know? Spinelike hairs on the pads of their feet help wolverines walk on snow and ice. Wolverines are fierce and solitary predators.

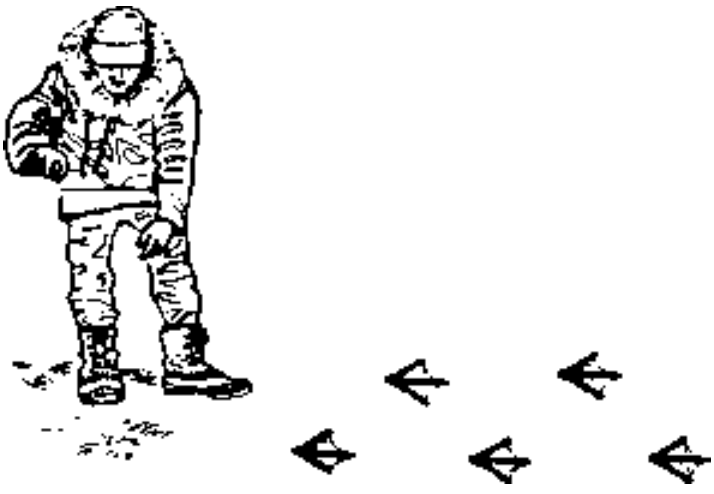












268. MUSKOX T

Traits: Large, stocky mammal with long, dense fur; short legs and tail
Habitat: Lowland tundra of northern and western Alaska; prefers floodplains and river bottoms in summer; windblown, snow-free areas in winter
Foods: Grasses, sedges, herbs, woody plants (willows)
Eaten by: Wolves, brown bears, humans

Do You Know? The muskox is called “oomingmak” in Inupiaq, meaning "the animal with skin like a beard."

265. MOOSE F,W

Traits: Large, hoofed mammal with long legs and long, drooping nose; large, palmate antlers on males in fall
Habitat: Tall shrub thickets along rivers; shelter in forests
Foods: Woody vegetation (willow, birch, aspen), grasses, sedges, horsetails, aquatic plants
Eaten by: Wolves, brown bears, humans

Do You Know? The moose is the largest member of the deer family in the world, and the Alaska race is the largest of all the moose.

269. DALL SHEEP T

Traits: Mammal with dense, white fur and sharp hooves specially designed for climbing
Habitat: Separate summer and winter ranges of alpine tundra; cliffs for escape cover; windblown ridges where food is available during winter
Foods: Alpine grasses and sedges; also flowering herbs, willows, mosses
Eaten by: Wolves, wolverines, bears, humans; golden eagles will eat lambs.

Do You Know? These high-country animals are seldom found below timberline in Alaska.

266. CARIBOU F,T

Traits: Moderately sized, hoofed mammal with short ears and tail; mane on neck; antlers large and variable with forward-projecting brow tines
Habitat: Lowland and alpine tundra, boreal forest; cool windblown sites or snow fields in summer to escape insects
Foods: Grasses, sedges, lichens, leaves of willow and birch, herbs
Eaten by: Wolves, bears, wolverine, humans

Do You Know? Caribou are the only member of the deer family in which both sexes grow antlers.

270. HUMANS F,T,W

Traits: Large mammals that walk erect on two legs and have forelimbs with opposable thumbs
Habitat: Adaptable; variety of environments around the world
Foods: Moose, caribou, salmon, geese, many plants, domesticated animals
Eaten by: Wild animals kill people rarely; humans have no true predators.

Do You Know? The Alaska population prior to European contact was estimated at 84,750 people. In 2000, the population of Alaska was 629,932.

267. MOUNTAIN GOAT T

Traits: Hoofed mammal with long, white hair on body and legs; short, black horns; long hair on chin
Habitat: Steep hillsides and cliffs of alpine tundra in Southeastern and Southcentral Alaska
Foods: Grass, herbs, low-growing shrubs in summer; hemlock, willow, other woody plants in winter
Eaten by: Wolves, coyotes, humans; golden eagles will kill kids (young goats).

Do You Know? Mountain goats are both grazing and browsing animals, depending on the particular habitat and season of the year.