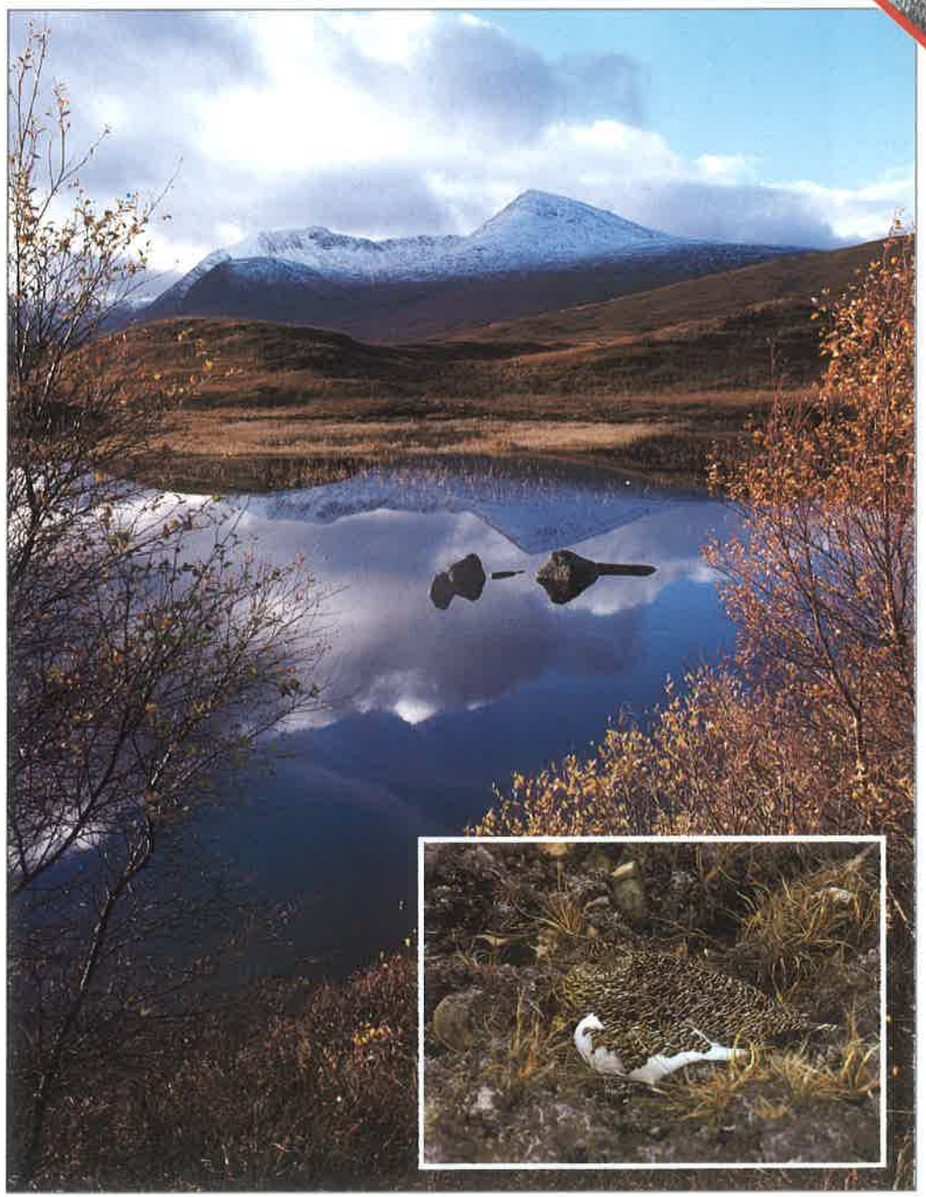
THE WILDLIFE OF THE SCOTTISH HIGHLANDS

CARD 17

GROUP 10: WORLD HABITATS



The Scottish Highlands exist in one of the world's harshest climates, yet this natural and untamed setting provides a unique habitat for some of Great Britain's rarest wildlife.

KEY FACTS

THE GOLDEN EAGLE

The golden eagle, the second largest bird of prey in Great Britain, is sometimes spotted soaring effortlessly on the updrafts along the edge of a cliff. In Great Britain, it is found only in Scotland. Although it is dark brown in color, the golden eagle gets its name from the gold-colored feathers that develop on the bird's head over time.

A silent and solitary hunter, the golden eagle catches its prey by swooping low, and then, by partially folding its large, powerful wings, dropping rapidly. It uses its talons to kill the prey and its curved beak to rip open tough skin or hide. But despite its great size and spectacular hunting skills, the golden eagle relies as much upon *carrion* (dead animals) for its food as it does upon killing other birds or mammals itself.

Scottish farmers, fearing that eagles would prey on their lambs, killed many eagles with poisons and pole traps. But observation later showed that eagles generally attacked lambs that were already close to death from sickness or starvation. It is now illegal to kill the golden eagle in Scotland.

DID YOU KNOW?

- The deepest lake in Scotland is Loch Morar near Inverness—over 1,000 feet deep at its deepest point.
- Loch Lomond, more than 22 miles long, is Scotland's largest lake.
- Reaching a height of almost 4,500 feet, the highest mountain in Great Britain is Ben Nevis, in Scotland.
- Scotland has more than 160 mountain peaks over 3,000 feet high.
- The River Tay, which is almost 75 miles long, is the longest river in Scotland.
- The tallest waterfall in Great Britain, with a drop of about 2,500 feet, is in Sutherland, Scotland.
- The coldest place in Britain is Braemar, with an average annual temperature of 43° F.

©MCMXCVI IMP BV/IMP INC. WILDLIFE FACT FILE™
PRINTED IN U.S.A. US P 6001 12 020 PACKET 20

Left: *The Grampian Mountains are among the most ancient in the world.*

Right: *The catlike pine marten inhabits the remote wilderness of the Scottish Highlands.*

The dramatic setting of the Scottish Highlands, with its beautiful islands, lochs, mountains, and craggy coastline, provides a vital habitat for wildlife. From the golden eagle to the wildcat, the animals of the Highlands remain remote, even today, from the interference of humans.

GEOLOGY OF THE HIGHLANDS

The clearly identifiable boundary of the Scottish Highlands was produced by a series of dislocations in the earth's crust, known as the Highland Boundary Fault. It runs from Stonehaven on the north-east coast of Scotland to the northern section of the Isle of Aran.

The craggy rocks of the Highlands create a rugged and inhospitable contrast to the Midland Valley and the Scottish Lowlands to the south and east.

The rocks forming the Highlands are among the most ancient in the world. Thrown upward by the heavings of the earth more than 600 million years ago, granite and other rocks formed mountains that were once as high as the Himalayas. The carving action of glaciers during the ice ages, along with millions of years of weathering and erosion, have shaved these peaks to their present height.

Coarse-grained rocks underlie the far northwest, including the islands of the Outer Hebrides. These rocks are thought to be 2.6-billion-year-old remnants of a continent that once attached Canada to Scandinavia.

HIGHLAND WILDLIFE

The wildcat, one of Great Britain's scarcest animals, is now confined mainly to the Scottish Highlands. Resembling a heavily built tabby cat, it is a fierce animal, hunting rabbits, mice, and other small mammals. The wildcat feeds mainly at dawn and dusk; it hides away during the day to avoid contact with humans or their dogs.

Another rare, cat-sized hunter found in the Scottish Highlands is the pine marten, a member of the weasel family and thought to be Great Britain's rarest mammal. Found in the mountains and forests of the western and central Highlands, the pine marten uses its agility to hunt animals such as the indigenous red squirrel.

The ptarmigan, a bird slightly smaller than the more common red grouse, lives on the heather moors and peat bogs of the Highlands. Its mottled plumage turns white in winter.

Front cover inset: *The rock ptarmigan's plumage serves as camouflage in the Highlands.*

Below: *The Scottish wildcat is one of the fiercest members of the animal kingdom.*

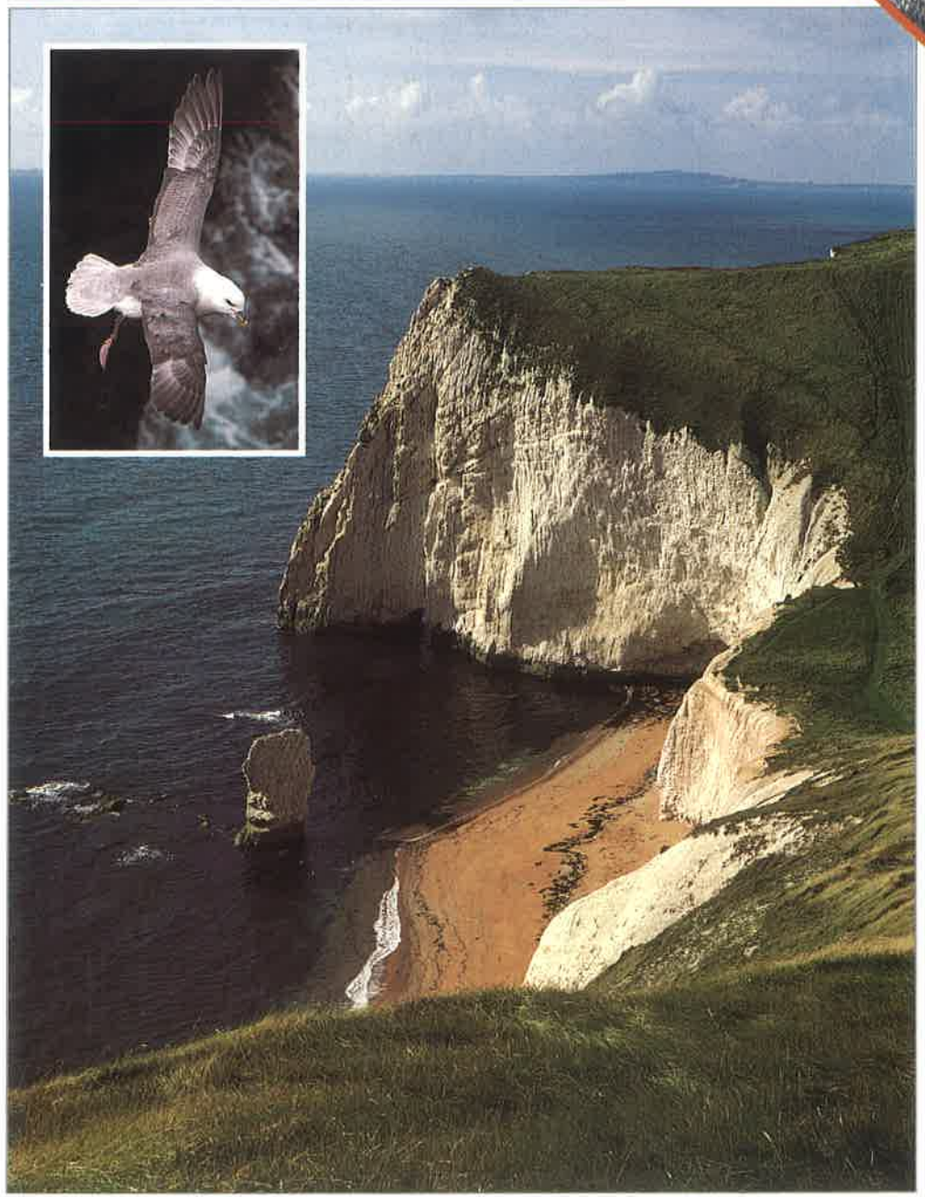
Above: *Mountain hares lose the blue tint to their fur and turn completely white in winter.*

Below: *The red grouse feeds on heather, berries, and insects.*

CARD 15

WILDLIFE OF THE WHITE CLIFFS

GROUP 10: WORLD HABITATS



The white cliffs of the British coastline appear barren. Yet many plants and animals can be found, clinging to tiny ledges or living in the cliff-top grasses.

KEY FACTS

WHITE CLIFF RARITIES

The white cliffs in Great Britain are home to some rare plant and animal species. Wild cabbage clings to the steep cliffs. The late spider orchid blooms in colonies along cliff tops and on ledges. The Glanville fritillary butterfly is a cliff dweller. It is found only along the southern cliffs of the Isle of Wight.

Left: *The Glanville fritillary is seen only on the slopes of the Isle of Wight.*

Front cover: *A fulmar soars high above the steep cliffs.*

WHITE CLIFF EROSION

The cliffs undergo constant change from the erosive activities of sea, wind, and rain. Made of hard, solid white chalk, these cliffs erode slowly. Along less rugged coastlines—where the chalk is mixed with clay and sand, the process may be more dramatic. The sea's constant assault, along with the water that is held in the soil after heavy rains, can cause avalanches: as the cliff tumbles and slides into the sea, it sometimes breaks off in huge chunks.

In spring following an avalanche, plants colonize the new slopes created by the erosion. Daisies and coltsfoot are quick to take root. The grasses appear more slowly, but after a few seasons the grassy and flowery slopes of the cliff are restored—until the next avalanche.

Above: *Wild cabbage grows lower down the cliff, where salt spray deters most plants.*

Left: *Despite frequent erosion, plants will quickly colonize the cliff slopes.*

Right: *Kittiwakes use the ledges on the cliff face to build their nests.*

©MCMXCVI IMP BV/IMP INC. WILDLIFE FACT FILE™

PRINTED IN U.S.A.

US P 6001 12 027 PACKET 27

The British chalk cliffs near the sea can be steep and dramatic; sometimes they slope gently from beach to cliff top. They provide a variety of habitats, including bare rock, cracks and ledges, grasses, and thick vegetation.

BIRDS & MAMMALS

Seabirds can often be seen near the white cliffs, and some species nest there. Fulmars and kittiwakes, for example, can breed on the tiny ledges. Herring gulls nest on the cliffs, as well as on the buildings of seaside towns.

The rock pipit makes its nest in a well-hidden place among thick vegetation or deep in a cleft in the rock. The rock pipit is easiest to see during the spring mating season, when the male performs his song flight over the cliffs, then drops suddenly back to his perch. Where a cliff is soft enough, sand martins bore nesting holes into its face.

The white cliff's most typical aerial hunter is the kestrel, which hovers as it searches for prey such as voles and young rabbits. The small mammals also fall prey to weasels and stoats. These fierce and efficient predators also catch much bigger animals, such as adult rabbits.

In among the thicker vegetation, small birds such as dunnocks and willow warblers build their nests. Hedgehogs search here for invertebrates.

Up on the cliff top and on the grassy slopes below, rabbits thrive. They dig their warrens into the softer soils of the grasslands. The grazing rabbits keep the grasses short, and jackdaws sometimes nest in old rabbit burrows near the brow of the cliffs.

PLANTS & FLOWERS

The chalk cliffs are very difficult for plants to colonize. The sheer slopes are an obstacle, and the chalk itself is in a constant state of erosion. But wherever there is a crack in the rocks or a tiny ledge where debris can collect, plants take root. Samphire, thrift, and rock sea lavender are all tolerant of the sea's salt spray.

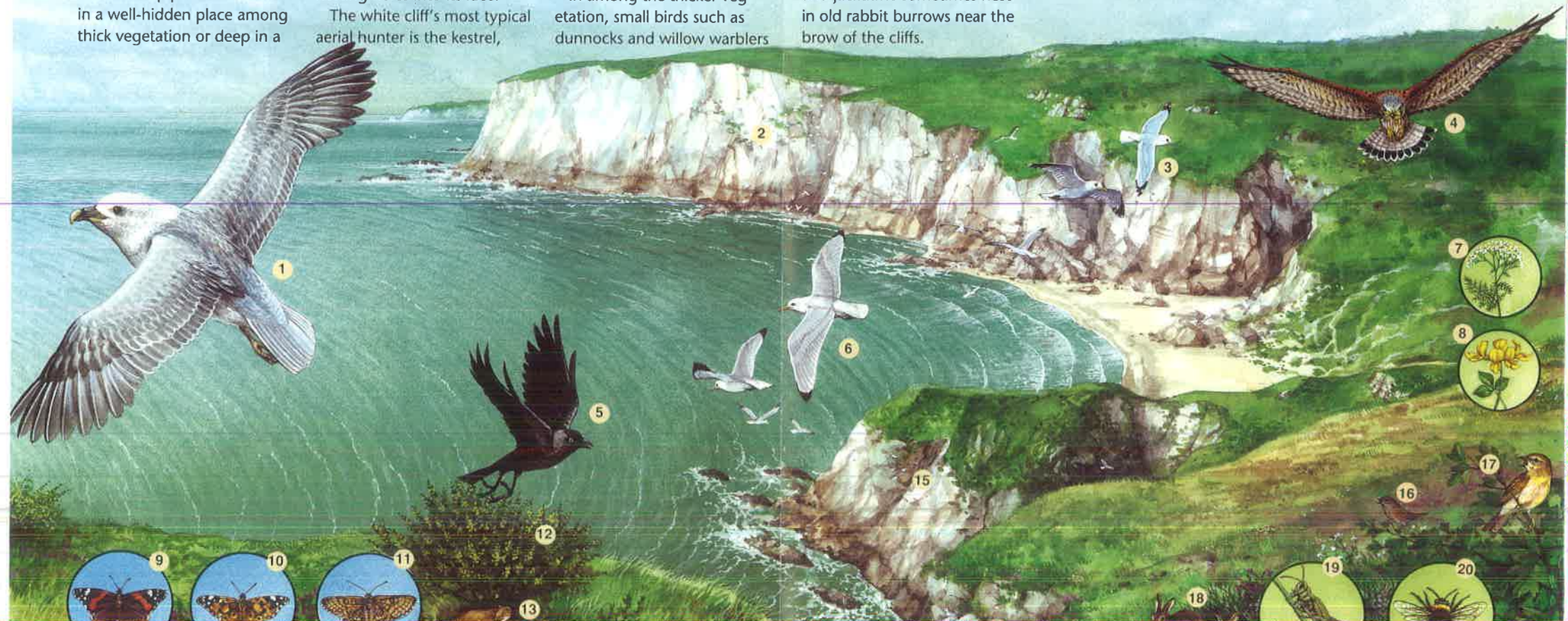
On gentler slopes, a more abundant group of wild plants thrives—especially where the chalk is mixed with other soils. Grasses like red fescue grow, along with yarrow, bird's-foot trefoil, carline thistle, common centaury, and bee orchid. Eventually the grass is taken over by shrubbery, and thickets of hawthorn, sloe, gorse, and ash develop. On the cliff top, a similar *sward* (portion of ground covered with grass) forms, followed by shrubbery.

INVERTEBRATES

The grasslands are the best spots on the white cliffs to find invertebrates. The red admiral and painted lady butterflies arrive in spring and summer. The burnet moth, common blue butterfly, meadow grasshoppers, and bumblebees are also found here.

KEY TO THE SPECIES

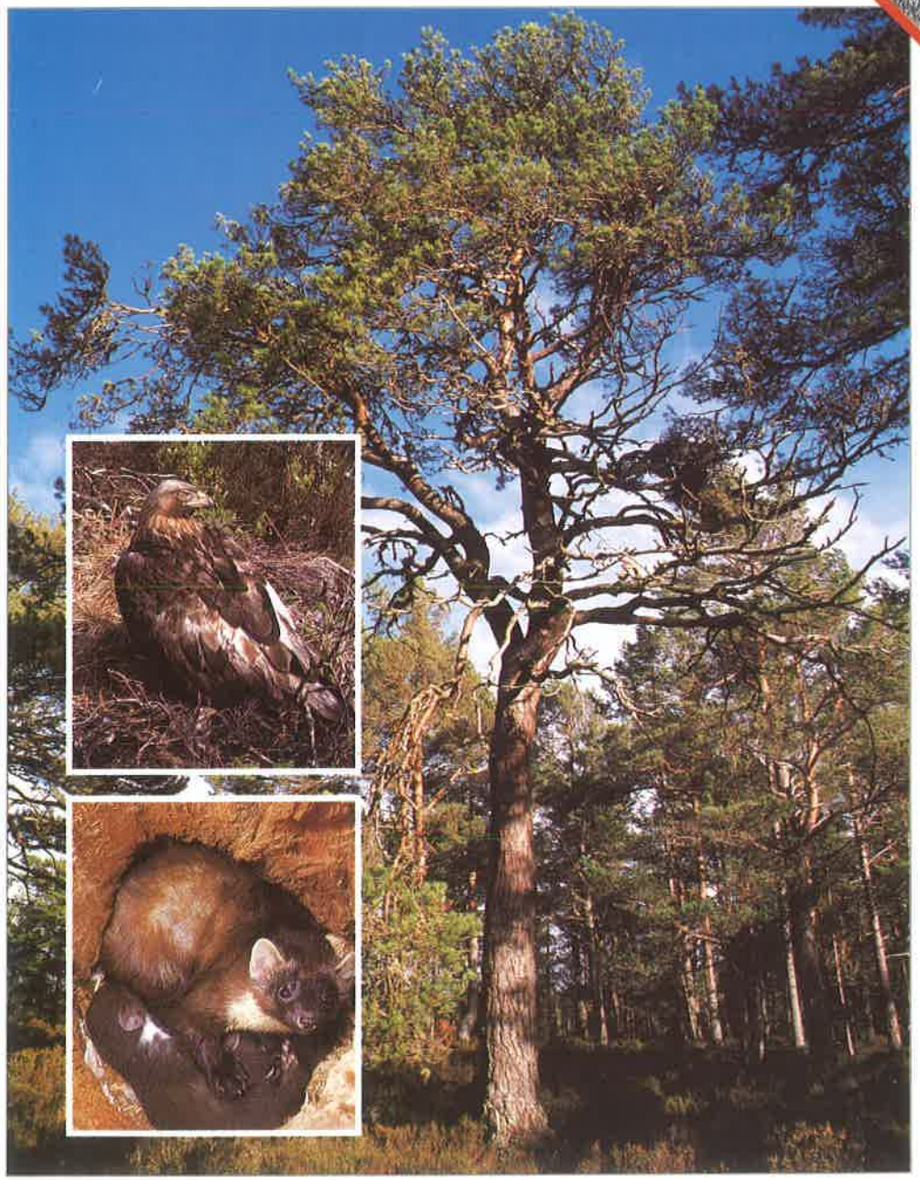
1 Fulmar
2 Bird colony
3 Herring gull
4 Kestrel
5 Jackdaw
6 Kittiwake
7 Yarrow
8 Bird's-foot trefoil
9 Red admiral
10 Painted lady
11 Glanville fritillary
12 Gorse
13 Weasel
14 Sloe
15 Kittiwake colony
16 Dunnock
17 Willow warbler
18 Rabbit
19 Meadow grasshopper
20 Bumblebee
21 Hawthorn



CARD 14

THE BRITISH PINE WOOD

GROUP 10: WORLD HABITATS



The few native pine woods that remain in Great Britain are home to such uncommon species of wildlife as the capercaillie, crested tit, pine marten, and red squirrel.

KEY FACTS

CHANGING PINE WOODS

After the glaciers of the last Ice Age retreated from the British Isles 10,000 years ago, expansive pine forests grew in areas once covered with ice and snow. As the climate grew warmer broad-leaved trees began to displace the pine. The only place in Great Britain where the ancient pine forests remain is Scotland. In the late eighteenth century the demands of an increasingly industrialized society caused most of the pine forests to be felled.

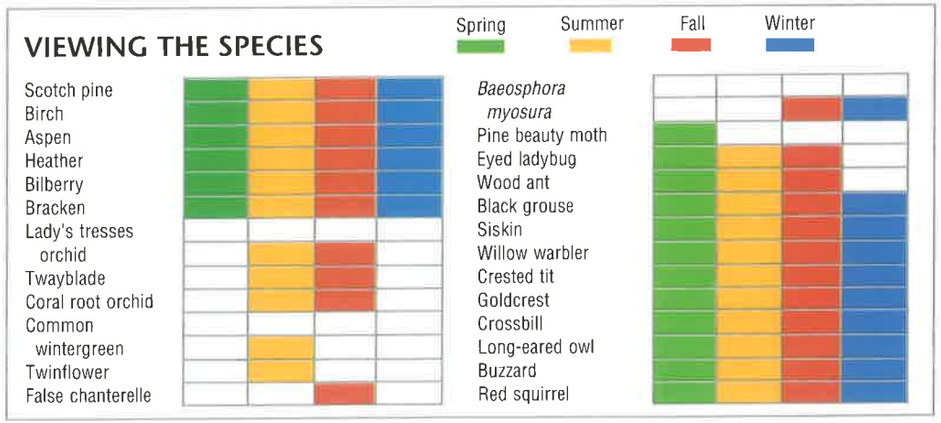
Efforts to replant the forests earlier in this century have been successful for commercial use. But little wildlife was attracted to the uniform rows of trees. Recent planting is less rigidly organized, so the new growth more closely resembles natural forests. Wildlife such as capercaillies (the largest European species of grouse) and pine martens have now begun colonizing the forests.

***The light and airy native forest* (top) *contrasts strongly with the dark, ordered rows of a planted forest* (above).**

THE RED SQUIRREL

The red squirrel is native to Great Britain. Once common throughout its range, it has become increasingly rare because of epidemic diseases earlier this century and the widespread destruction of its forest habitat. Today the red squirrel is still found in the newly grown pine forests of North Wales, in the county of Cumbria in northwestern England, and in Scotland.

VIEWING THE SPECIES



©MCMXCIII BY MP INC. WILDLIFE FACT FILE™

PRINTED IN U.S.A. US P 6001 12 017 PACKET 17

Once covering vast areas of Great Britain, the forests of Scotch pine, yew, and juniper receded in the warmer climate that followed the last great Ice Age. Today the only forests to survive unchanged are in the Scottish highlands; they are only a fraction of their original size.

PLANT LIFE IN THE PINE WOOD

The ancient pine woods are dominated by the stately Scotch pine trees. *Saplings* (young trees) grow among tall, mature trees and fallen trunks. Older trees may grow more than 100 feet high. Their bark is thick, cracked, and dark near the base of the trunk. The *crown* (top) of the pine trees becomes flat as the trees age.

Birch, aspen, and rowan grow between the pines, and below them grow clumps of heather, bilberry, juniper, and bracken. Mosses carpet the forest floor, through which grow the lady's tresses orchid.

Several species of wintergreen are found as well. The rare twinflower blooms in the shade of the tall trees, while fungi grow on fallen trunks and among needles on the ground.

UP AMONG THE BRANCHES

The Scotch pine woods are the only place where the increasingly rare pine marten and red squirrel live. Birds found here year-round are the crossbill, siskin, crested tit, long-eared owl, and goldcrest. The willow warbler spends the summer in the forest. Buzzards, golden eagles, and osprey fly above the forest canopy.

Caterpillars and aphids feed on the pine trees's needles.

DID YOU KNOW?

- Wolves, wild boars, brown bears, lynx, and elk once inhabited the pine woods.
- The crossbill's beak is adapted for feeding on seeds. Its *mandibles* (jaws) move from side to side, allowing the bird to pry open pine cones to get at the seeds.
- Pine forests once covered three million acres in the highlands. Today they cover little more than 20,000 acres.

UNDER THE TREES

The pine forest is the habitat of a variety of animals. Capercaillies perch in the tall trees, and the black grouse lives on the edge of the woods. Red deer frequently graze through the undergrowth.

Various types of beetle live throughout the ground vegetation. And wood ants gather pine needles from the forest floor to enlarge the mounds that cover their nests.

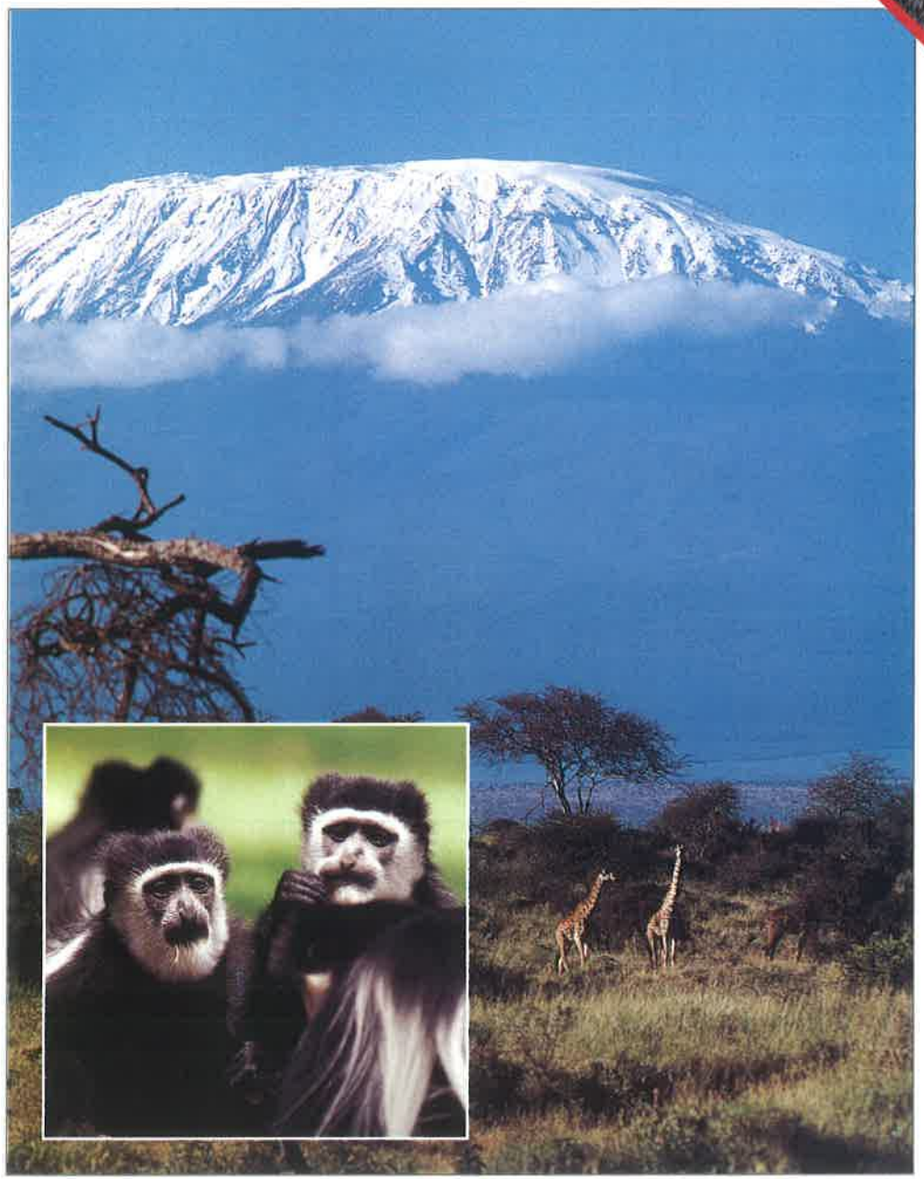
KEY TO SPECIES

1 Scotch pine	13 Pine beauty moth
2 Birch	14 Eyed ladybug
3 Aspen	15 Wood ant
4 Heather	16 Black grouse
5 Bilberry	17 Siskin
6 Bracken	18 Willow warbler
7 Twayblade	19 Crested tit
8 Coral root orchid	20 Goldcrest
9 Common wintergreen	21 Long-eared owl
10 Twinflower	22 Buzzard
11 False chanterelle	23 Red squirrel
12 *Baeosphora myosura*	24 Pine marten
	25 Red deer fawn
	26 Red deer

MOUNT KILIMANJARO AND ITS WILDLIFE

CARD 10

GROUP 10: WORLD HABITATS



Mount Kilimanjaro, rising from the plains of northern Tanzania, was formed by the violent eruption of ancient volcanoes and now supports a wide variety of wildlife.

KEY FACTS

KILMANJARO'S WILDLIFE

ZONE 1: Galagos, genet, tree hyrax, common bulbul, white-browed robin chat, tropical boubou, speckled mousebird, bronze sunbird.
ZONE 2: Blue monkey, black and white colobus, olive baboon, leopard, antelope, lion, civet, mongoose, Kilimanjaro bush pig, common and bush duiker, suni, bushbuck, silvery-cheeked hornbill, hartlaub's turaco.
ZONE 3: Eland, common duiker, buffalo, elephant, klipspringer, mole rat, civet, leopard, alpine or hill chat, lammergeyer, crowned eagle, augur buzzard, and a variety of other bird species.
ZONE 4: Raven, spider, ground-dwelling insects.
ZONE 5: No resident wildlife.

Above: ***The augur buzzard is one of the larger hawks (Zone 3).***

Above right: ***The African civet (Zones 2&3).***

Left: ***Olive baboons live in family groups (Zone 2).***

CLIMATE

The climate of Kilimanjaro is determined by its geographic location. It is 200 miles south of the equator and there are no mountain ranges between it and the Indian Ocean. Consequently, its lower slopes are subject to hot, humid tropical temperatures, but because of its great height, the upper regions have a colder, drier climate. The lower regions have a greater abundance of vegetation and wildlife, whereas the higher altitudes support little plant life.

The temperature varies, depending on the zone, from 86° F to well below freezing, and the summit is covered with a permanent layer of ice. For every 650-foot rise in elevation, the temperature drops approximately 1° F.

March to June is the wettest part of the year; the dry season runs June through July.

CONSERVATION

Man is faced with several problems in maintaining the ecological balance and natural beauty of Mount Kilimanjaro. The activities of poachers, farmers, and tourists threaten the native plants and wildlife and can have a devastating effect on the area's beautiful scenic and geographic features.

In 1977, Kilimanjaro National Park was established to help preserve the area for the enjoyment of present and future generations. It encompasses the 300-square-miles above the 8,900-foot level. It includes the moorland and highland zones, Shira plateau, and Kibo and Mawenzi peaks. The Forest Reserve, established in 1921, protects the forest area below the park.

©MCMXCI IMP BV/IMP INC WILDLIFE FACT FILE™

PRINTED IN U.S.A.

US P 6001 11 111 PACKET 11

Mount Kilimanjaro has five widely diverse climatic zones, all within a relatively small area. It was formed 750,00 years ago by the activity of three small volcanoes, which today give the mountain its distinctive shape.

FEATURES OF KILIMANJARO

Mount Kilimanjaro was created by the eruption of three separate volcanoes over 750,000 years ago. Today they form the three peaks.

Front inset: ***The striking black and white colobus monkey.***

Kibo is the mountain's summit at 19,340 feet.

The other two peaks are called Mawenzi (16,880 feet) and Shira (13,000 feet).

There are also five distinct climatic zones.

ZONE 1

This area is a continuation of the **open grassland** that surrounds Mount Kilimanjaro and is fairly well cultivated and grazed. Man has turned what was once scrub, bush, and lowland forest into grassland and cultivated crop fields. In the cultivated area, large animals are rarely found, but plenty of small animals cohabit peacefully with man.

ZONE 2

This is an area of beautiful **tropical forest** that encircles Mount Kilimanjaro and has the richest concentration of plant and animal life. An ideal environment for a variety of wildlife, 96 percent of Kilimanjaro's water originates here.

Left: ***A blue monkey feeds in the forest canopy (Zone 2).***

Above: Fruit trees provide food for the silvery-cheeked hornbill (Zone 2).

ZONE 3

This area is a **low alpine** zone and is characterized by wet scrubland. It is a cool region and is easily recognized by the giant daisylike plants, senecios, and the lobelias that grow here. Because of the sparse vegetation and high altitude, few large animals are found here. There is, however, an abundance of smaller animals, especially birds.

Right top: ***A lammergeyer surveys the landscape (Zone 3).***

Bottom: ***A klipspringer in its rocky habitat (Zone 3).***

ZONE 4

The climate of this **high alpine** zone is extremely severe. It receives strong sunlight and little rain. The ground is dry and barren, and the soil is so thin that, if it does rain, it is washed away. The variation in temperature is extreme as well, ranging from 105° F during the day to 32° F at night.

Very little wildlife is able to survive in this harsh climate. Insects and spiders are the only resident wildlife, and they use the sparse vegetation as cover from the strong winds. Large birds of prey will feed in the area but do not remain for any length of time.

ZONE 5

The highest area of Mount Kilimanjaro is the **summit** zone. Its climate is characterized by arctic conditions, being freezing cold at night and subject to the sun's burning rays during the day. The oxygen level is half that found at sea level, and any rain that falls turns immediately to snow. The extreme conditions make the area inhospitable to animals, although a few plant species manage to survive.

20,000 ft

SUMMIT ZONE 5

16,500 ft.

HIGH ALPINE ZONE 4

13,000 ft.

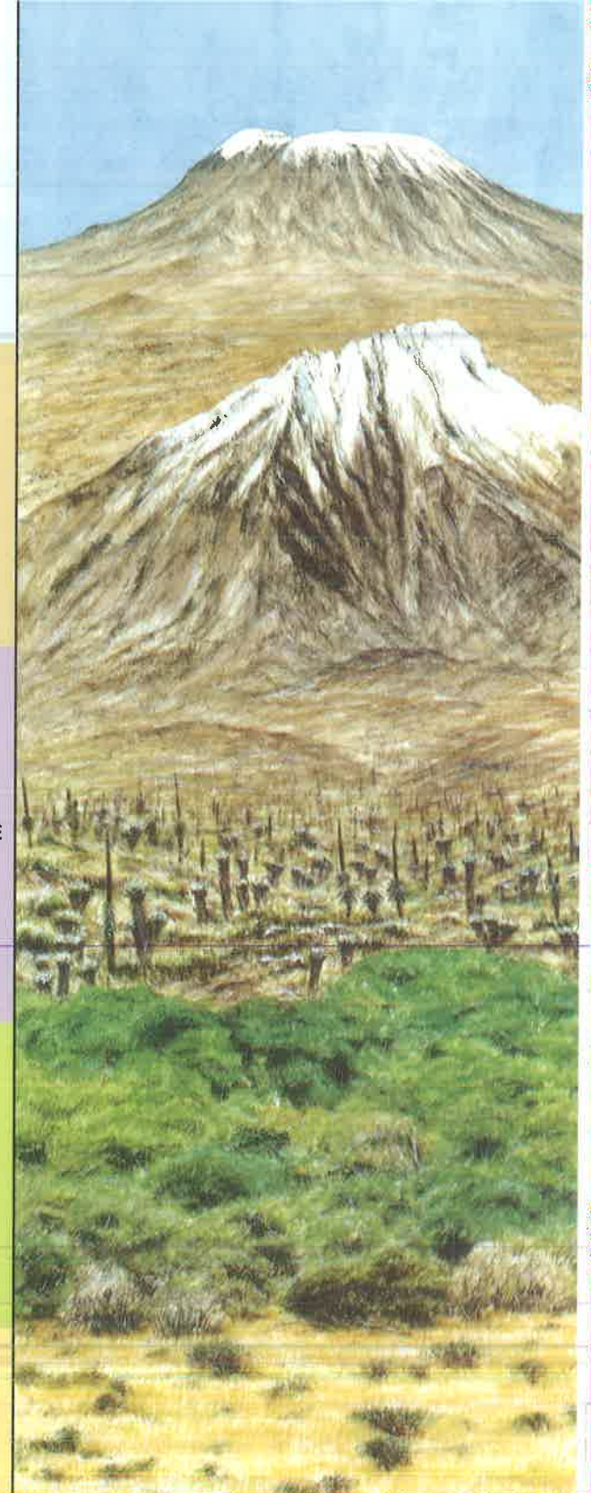
LOW ALPINE ZONE 3

10,000 ft.

TROPICAL FOREST ZONE 2

1,250 ft.

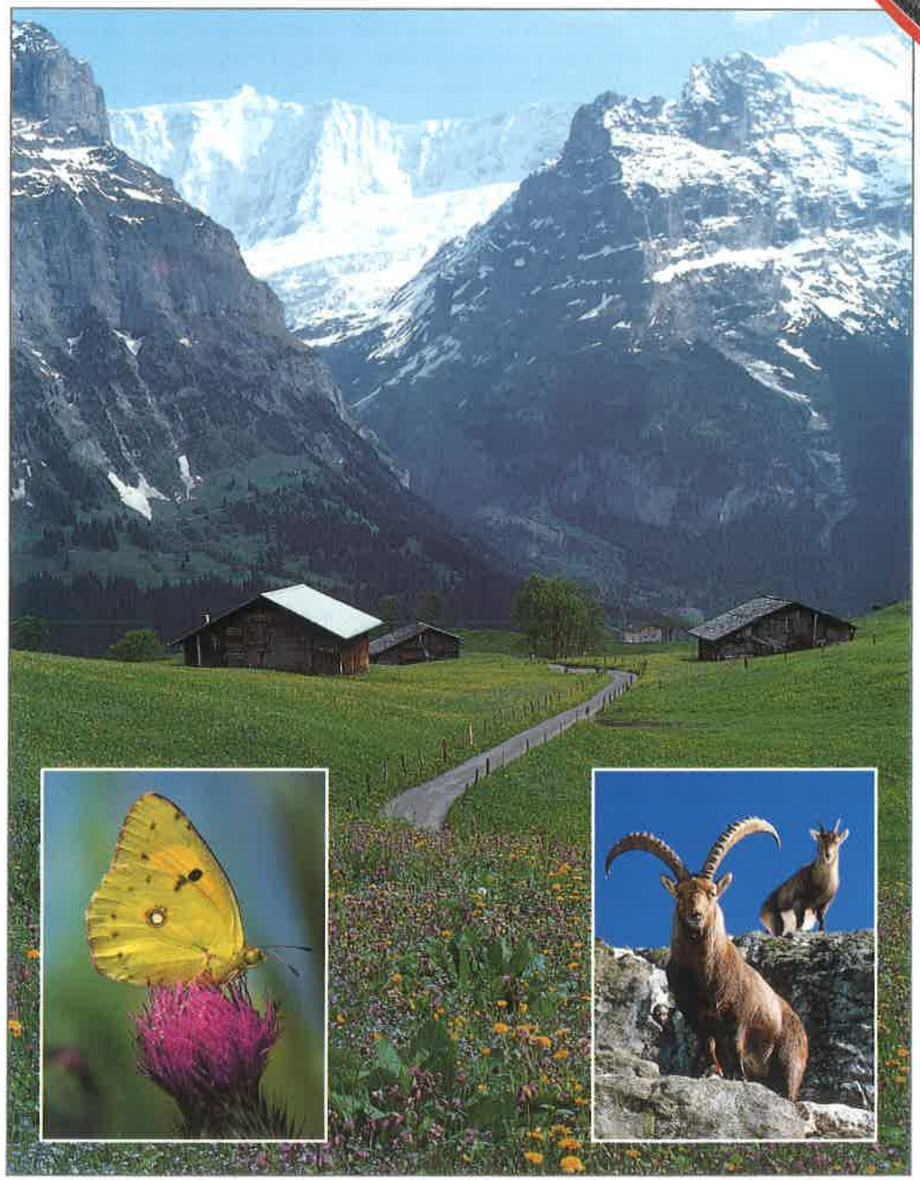
OPEN GRASSLAND ZONE 1



CARD 9

THE ALPS AND THEIR WILDLIFE

GROUP 10: WORLD HABITATS



The mountains and meadowlands of the European Alps support a wide variety of plant and animal life. Many of the higher-altitude Alpine plants can also be found at sea level in the Arctic.

KEY FACTS

WILDLIFE OF THE ALPS

LAND ANIMALS: Ibex, marmot, chamois, mountain hare, red deer, snow vole, Alpine shrew.
BIRDS: Golden eagle, goshawk, kestrel, ptarmigan, black grouse, rock partridge, eagle owl, black woodpecker, wall creeper, snowfinch, nutcracker, Alpine chough.
REPTILES & AMPHIBIANS: Fire and Alpine salamanders, Alpine newt, yellow-bellied toad, common toad, common frog, grass snake, adder.
BUTTERFLIES: Swallowtail, clouded yellow, mountain ringlet, black-veined white.
PLANTS: Edelweiss, king of the Alps, mountain pine, juniper, moss campion, dark-stemmed sneezewort, glacier crowfoot, alpine clover, alpenrose, gentian, bell-flower, orange lily, orchid.
WILDLIFE NOTES: All of the animals are year-round residents. Several bird species are resident year-round, but high-altitude species move to lower altitudes during the winter.

Left: ***The markings of the swallowtail butterfly provide protection from its Alpine predators.***

BIRDS OF THE ALPS

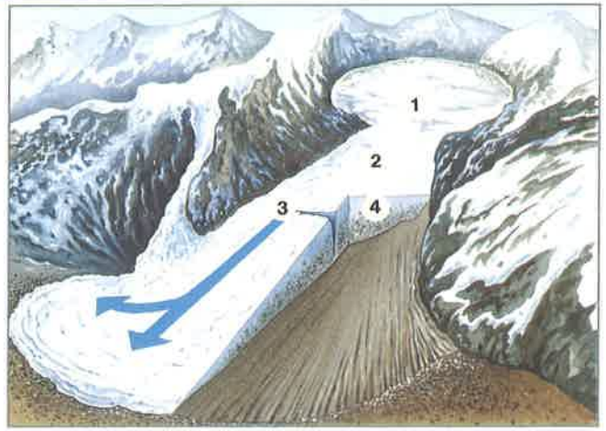
Some of the bird species in the Alps have adapted to specific habitats. The snowfinch, for example, breeds among the boulders on the steep grassy slopes above 7,500 feet, searching the rocky ridges for ripening seeds.

The Alpine chough nests in small colonies far above the tree line in the narrow spaces between the rocks. In winter the colonies flock around Alpine villages and feed on refuse.

The nutcracker bird collects seeds and nuts from pine cones and stores them in holes dug in the ground. Each year a nutcracker collects more than 100,000 seeds and nuts and buries them in as many as 25,000 different holes. The store of food enables the nutcracker and its young to survive the harsh winter.

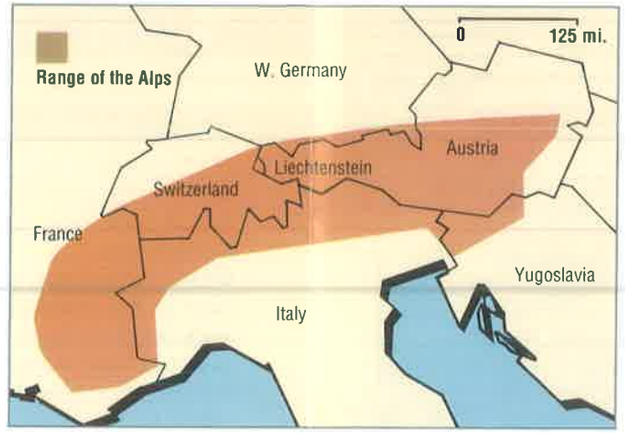
HOW GLACIERS ARE FORMED

1. Layers of snow accumulate on mountains higher than 10,000 feet, and the extreme weight causes the bottom layer to melt and refreeze, eventually becoming solid ice.
2. As more weight is added, the layer of solid ice separates from the top layer of snow, forming a glacier.
3. Most glaciers move down the valleys at an average of an inch a day, collecting rocks and soil, called *moraines*, as they move **(4)**.



©MCMXCVI IMP BV/IMP INC. WILDLIFE FACT FILE™
PRINTED IN U.S.A.
US P 6001 12 014 PACKET 14

The Alps are 700 miles long and 160 miles wide. They stretch across seven countries: Austria, Yugoslavia, Germany, Liechtenstein, Italy, Switzerland, and France.



CLIMATE

The Alpine climate varies widely, according to altitude, rock formation, and exposure. Summer days are hot and the evenings cool. Winters are cold, with frequent snowfalls and long periods of below-freezing temperatures. It is generally cooler and wetter on the north side of the Alps and drier and warmer on the southern side.

VEGETATION

The Alps have a wide variety of plant life that ranges from the lower meadow regions to the higher altitudes.

Coniferous trees such as pine and fir are found at altitudes up to 9,200 feet, and a variety of shrubs grow at altitudes up to 11,500 feet.

The glacier crowfoot and the dark-stemmed sneezewort are found at the highest altitudes. Both plants are found above the 14,000-foot level.

Many Alpine plants are found at 9,200 feet. Many of them are shaped like cushions, such as the king of the Alps and the moss campion. Their shape is a special adaptation that protects them from grazing animals, moisture loss, and wind and frost damage.

Front cover: *Two Alpine inhabitants—the clouded yellow butterfly and the ibex.*

FEATURES OF THE ALPS

1. Mountains: The Alps are divided into three sections: western, central, and eastern. Each section is made up of several separate mountain ranges. Mont Blanc is located in the western Alps just south of Chamonix, France. At 15,781 feet, it is the highest peak in the Alps.

2. Glaciers: Glaciers play an important role in the development of the geological features of the Alps. They erode mountain peaks and carve out valleys by shifting rock debris. They also create lakes and streams as they melt into the valleys.

3. Rivers: Many of Europe's major rivers, including the Rhone and the Rhine, originate in the Alps. They are fed by water that has melted from the ice and snow.

4. Meadowland: Meadowlands are found at the lowest altitudes and are characterized by an abundance of grass and wildflowers. The plants in this area are a mixture of lowland and mountain species. Most types of orchid are found here.

CONSERVATION

Huge areas of Alpine forest are bulldozed each year to make way for ski runs. Destroying the trees affects the greater stability of the Alps themselves. Trees play a vital role in maintaining the landscape. Their roots bind the soil together and prevent erosion. As the trees are felled, avalanches and mudslides become increasingly common.

Alpine forests are also being destroyed by chemical emissions from the industrialized parts of Europe. The trees lose their leaves and become weak and are therefore unable to withstand disease or gale-force winds. It has been estimated that 78 percent of the Bavarian forests in the central Alps have been damaged permanently.

The destruction of the trees also has a damaging effect on the animals and their habitats.

Above: *The marmot lives at altitudes of 4,200 to 9,000 feet.*

Left: *The nutcracker survives the cold winter months by feeding on stored seeds and nuts that it buries underground.*

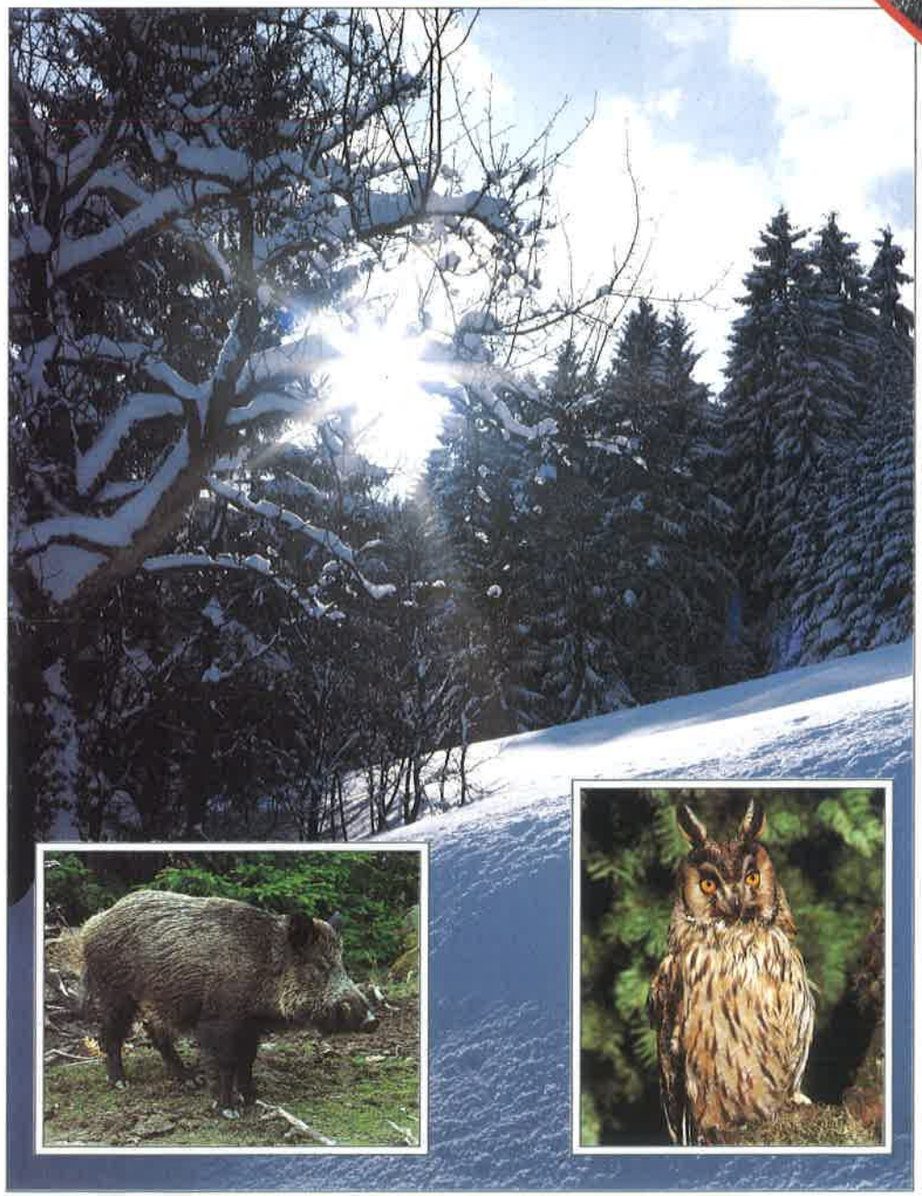
DID YOU KNOW?

- The 14,700-foot Matterhorn has been climbed by more than 120,000 people.
- Petrified remains of plants and animals have been found in the rocks of the Alps. They have given scientists clues to the geological history of the area, which is at least 300 million years old.

THE BLACK FOREST AND ITS WILDLIFE

CARD 8

GROUP 10: WORLD HABITATS



The Black Forest is famous for its scenic walks, forests, and mountains. The forest contains several types of woodland that are home to an abundance of wildlife.

TREES AND PLANTS OF THE BLACK FOREST

Thick woodlands of *conifers* (cone-bearing trees) blanket the Black Forest's mountain slopes. Mature trees form areas of deep shade that are carpeted with mosses and fungi. In summer, the air carries the fragrance of fir, larch, and pine. During winter, the trees turn white with snow, and the ground is crisscrossed with bird and animal tracks.

Alpine plants grow high in the mountain gorges of the Black Forest, protected from high altitude wind and weather conditions by their rocky walls. Many of these gorges have become havens for wildlife. The Wutach Gorge, for example, has more than 1,000 different plants, 100 species of bird, and more than 500 varieties of butterfly, some of which are rare. Yellow gentian, rhododendron, arnica, and sorrel flower on the upper slopes of the Feldberg; and heather, cranberries, and bilberries grow on lower levels.

On slopes at lower altitudes there are grassy upland meadows edged with broom and foxglove, small lakes surrounded by mixed woodland of conifer, oak, birch, and beech. The woodlands have areas of bracken and low-growing shrubs like juniper and holly. Ferns, dwarf pines, and mountain ash grow on some hillsides. Boggy areas are thick with reeds, bulrushes, and water lilies. Clear trout streams, edged with willows and silver birch, run to isolated farms set in broad, grassy valleys.

Top left: *In winter, the slopes, trees, and valleys of the Black Forest are blanketed in snow.*

Below: *The Black Forest in southwestern Germany covers over 2,000 square miles.*

Above: *In spring, valley landscapes are transformed into lush pastures.*

©MCMXCVI IMP BY IMP INC. WILDLIFE FACT FILE™ PRINTED IN U.S.A. US P 6001 12 019 PACKET 19

The Black Forest's name comes from its many dark, tree-covered summits. This mountainous area—covering more than 2,000 square miles—partially bordered by the Rhine River, has a mixture of forests, meadows, and valleys. Its rolling hills support vineyards, farms, and dairies.

Top: *The capercaillie is a game bird found in the Black Forest.*

Above: *The fieldfare migrates from Scandinavia in winter.*

Left: *Lower slopes provide lush pasture.*

ORIGINS & FEATURES

The contours of this part of Europe developed 50 million years ago. The Alps, and mountains stretching from France through the Vosges and the Black Forest to the Erzgebirges (in Czechoslovakia), were all folded upwards by geologic pressure.

About 42 million years later, the central section of this mountain range broke free and dropped about 3,000 feet into the earth's crust to form the Rhine plain. Other changes occurred from volcanic eruptions and the beginning of the Ice Age that smoothed the tops of the craggy mountains on either side of the plain to low, rounded summits. Black granite, often covered with a thick layer of red sandstone or limestone, forms the underlying surface.

The west boundary of the Black Forest is steep with narrow valleys, while the eastern side has wider valleys and rolling hills. The whole area is divided by the Kinzig valley, with northern peaks as high as 3,000 feet; the highest peak in the south, the Feldberg, rises almost 5,000 feet.

The mountain slopes are covered with forests until 4,000 feet.

Front cover insets: *The wild boar (left) and the long-eared owl (right) are native to the Black Forest.*

WILDLIFE OF THE BLACK FOREST

Red and roe deer *(Capreolus capreolus)* are common. Protected areas have been set aside so the animals can be observed without disturbing their natural habitat. In winter, deer come out of the forest to feed on fodder, regularly dumped in cold weather at special sites.

Wild boar and badgers also live in the forest. Foxes are common in the lower woodlands and feed on small rodents like voles, shrews, and mice, and on rabbits, hares, and birds. Pine martens, beech martins, and red squirrels climb up and down the trees hunting for food.

BLACK FOREST BIRD LIFE

Many species of bird live both in the Black Forest and along the Rhine River, which borders the forest toward the south and west. Here, the river is wide and slow, and its banks are lined with poplars and reeds, making it an ideal site for bird-watching.

Birds of prey live high in the trees: goshawks and sparrow hawks prey on other birds and on rabbits, hares, squirrels, and small rodents. At night, long-eared owls search for insects, voles, and mice.

Great spotted woodpeckers and their noisy relatives, the black woodpeckers, live among spruce, fir, and pine trees, picking holes in the tree bark as they search for wood ants and beetle larvae. Crossbills eat the seeds of pine cones. Black grouse and capercaillies are among the game birds of the forest.

Common in the lower woodlands are the bullfinch, crested and coal tits, and firecrests and goldcrests. In winter, fieldfares (thrushes) are found in forest clearings and along the tree line.

Above: *Sparrowhawks prey on other birds in the treetops.*

Left: *Red squirrels find plentiful food in the dense pine trees.*

Above right: *A fox searches for small rodents, such as voles and shrews, in the lower woodlands.*

Below: *Red deer live in the protected areas.*