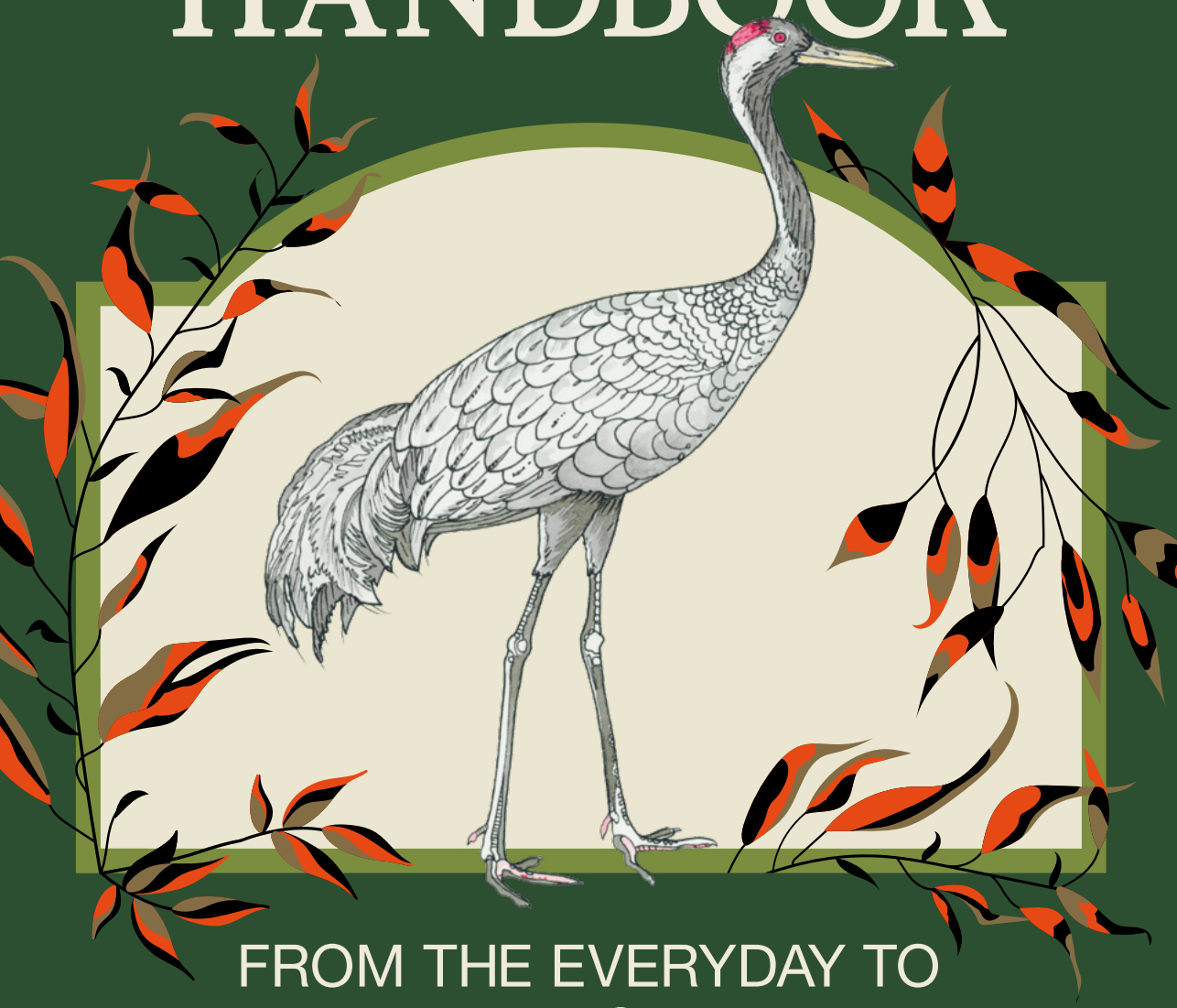
THE LOST SPECIES HANDBOOK



FROM THE EVERYDAY TO THE EXTRAORDINARY

VOL I

HE MORE CLEARLY WE CAN FOCUS OUR ATTENTION ON THE WONDERS AND REALITIES OF THE UNIVERSE ABOUT US, THE LESS TASTE WE SHALL HAVE FOR DESTRUCTION.

Rachel Carson

PREFACE

This illustrated species handbook, created by artist Lucy Orta and historian Sophie Page, is designed to give you insights into the beauty and diversity of Britain's wildlife, and understanding of how humans have contributed to its decline. Animals are an integral part of our everyday lives, whether they are living with us as pets, observed in close proximity to our homes, or made visible in wildlife documentaries or on social media. But we are losing a sense of the deeper cultural and spiritual connections we once had with them. We treat pigeons and other creatures as pests, destroy wildlife habitats and use harmful chemicals in farming. Many species have vanished or are disappearing from our landscapes. Some, like wolves, bears and lynxes, may never overcome the obstacles to reintroduction. Others, such as beavers, wild boar and white-tailed eagles can flourish if we rewild our landscapes to repair damaged ecosystems.

In this handbook we introduce you to thirty-seven mammals, birds, reptiles, insects and imaginary creatures and take a closer look at some of the social and symbolic bonds humans and animals once shared. By learning about the relationships humans had with wild and domesticated, real and mythical, common and rare animals we hope you gain a more holistic understanding of our environment's rich history and challenging present.

EVERYDAY ANIMALS AND SYMBOLISM

Medieval people lived in close proximity to animals and assigned special meanings to them, creating connections that our modern world has lost. Many peoples' livelihoods depended on their animals' welfare, and as a consequence close bonds and shared purpose arose between them. Animals were also important in the medieval belief system because they were considered part of God's good creation. Positive animal behaviours were thought to provide good models for humans to follow, while negative animal habits were thought to warn against spiritual danger.


EVERYDAY ANIMALS AND SYMBOLISM
DOG
CAT
CROW
BEE
FOX
DEER
BADGER
RABBIT
SPARROWHAWK
PIGEON

DOGS WERE FAMOUS FOR THEIR LOYALTY AND INTELLIGENCE AND VIEWED AS PSYCHOLOGICALLY SIMILAR TO HUMANS.

DOG

Medieval dogs guarded homes, protected livestock, helped humans hunt, aided them in war, and even acted as guides for the blind. Dogs were not only scolded off medieval beds but lurked under tables at feasts and loitered in the aisles of churches. They were famous for their loyalty and intelligence and viewed as psychologically similar to humans. Popular stories told of dogs who saved, avenged and mourned their masters. People and their dogs often led intensely intertwined lives. For example, the lymer, a scent hound with special training in 'untangling the knot' of prey trails, accompanied his master at all times and was allowed to share his room.

Gaston Fébus, the fourteenth-century Count of Foix and author of a famous medieval hunting book, the *Livre de chasse*, thought that elite hunting dogs should be addressed as 'friend' or 'brother' and encouraged with kindness, patience and clarity. An apprentice hunter looked after his Lord's pack from the age of seven and even lived with them to learn the verbal commands, visual signals and blowing of the horn that were used to train the dogs. A truly good hunter was also expected to understand a dog's own language so that their mutual acting, feeling and thinking could create a close bond and shared purpose. But, the relationship and obedience of dogs was not perfect. Long after the hunting day was over the weary apprentice could be found trekking back through forests and villages calling out for the over-adventurous dogs and those who had gone astray.

CAT

Medieval towns were home to large numbers of feral and cared-for cats. Cats protected food stores from house mice and juvenile rats, so flaps were often cut into the doors of medieval houses, schools and even cathedrals so that cats could come and go as they pleased. Because of their contribution to vermin control, domestic cats could be companions for men and women in religious orders who were otherwise not allowed to have pets. Even though the cat chasing a mouse was a common medieval symbol for the devil hunting a human soul, many medieval authors expressed great affection for their feline companions.

The thirteenth-century friar Thomas of Cantimpré wrote that cats delighted in being stroked and expressed their joy with their own form of singing. His contemporary Bartholomaeus Anglicus found cats' yowling ghastly. But he calls the young cat swift, amiable and merry and recommends playing with cats by holding out pieces of straw for them to chase. Perhaps the

most famous medieval work in praise of the companionship of a cat is Pangur Bán, a ninth-century poem by an Irish monk. The scholar, struggling day after day to study and write, compares his task to that of his white cat, Pangur, who wields patience and cunning in his pursuit of mice. Hunting for words and prey is hard and slow work, but success rewards both monk and cat with a kind of bliss.

CROW

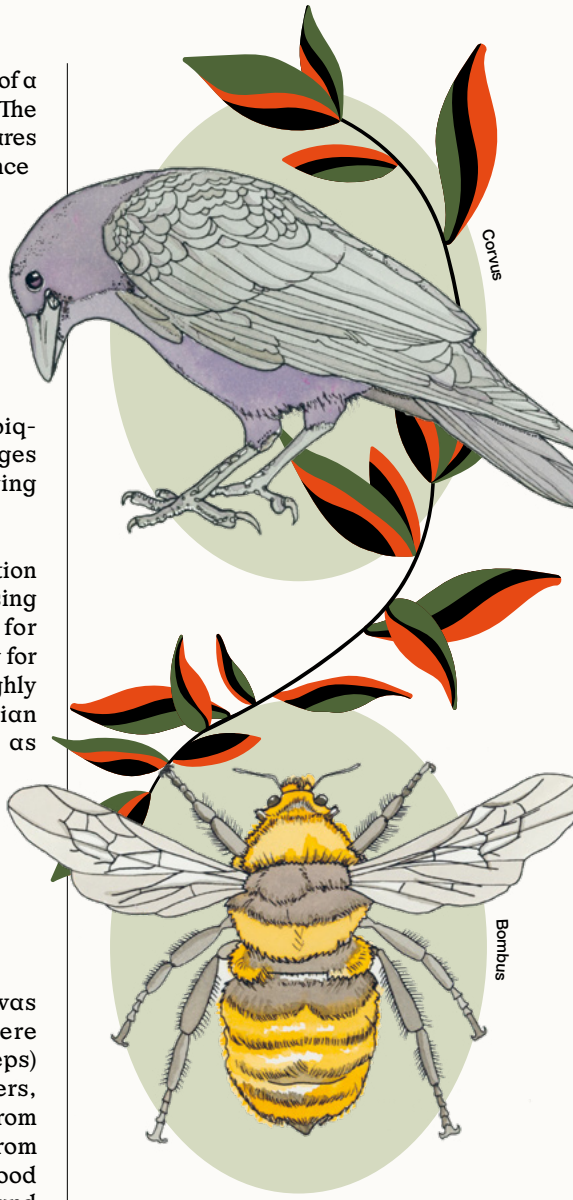
The all-black carrion crow is clever, adaptable and wary of humans. It is able to eat almost anything and was ubiquitous in medieval towns and fields, but manuscript images also drew attention to its more ominous habit of scavenging on battlefields.

Christian writers were uneasy about the crow's reputation for predicting rain and the future. In the medieval moralising text called the bestiary, however, crows are praised for practising monogamy, doting on their children and caring for their elderly parents. This positive interpretation of a highly social animal influenced both magic rituals and Christian sermons that admonished husbands and wives to be as faithful as the crow. A magic text called the *Cyranides* recommends to those seeking lasting marital happiness that the husband always wear the heart of a male crow and his wife the heart of a female crow.

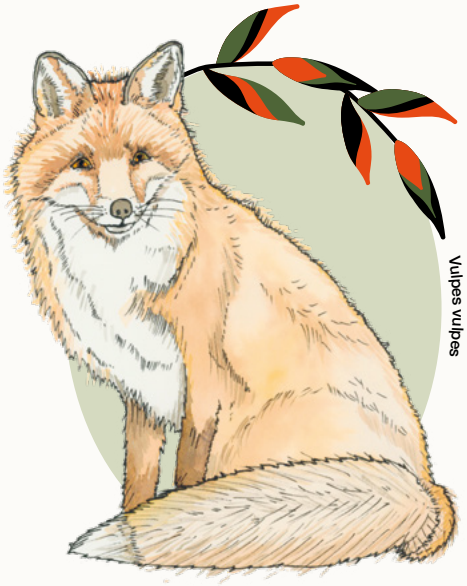
BEE

Small-scale beekeeping to produce honey and wax was widespread across medieval Britain. Honeybees were typically kept in woven basket-like hives (known as skeps) placed on raised platforms to keep them dry. Beekeepers, who were often women, worked hard to prevent swarms from escaping or being stolen and to keep colonies of bees from collapsing in cold and wet years. Honey was used as a food sweetener and for its antiseptic qualities, while the demand for beeswax candles in churches was considerable and had symbolic as well as practical roots. As bees were not observed mating, they were thought to be chaste and thus suitable symbols for the Virgin Mary and Christ. Domestic producers could not supply enough wax for the candles in England's 8,000 parish churches so it was imported from Baltic forests, Spain and North Africa.

Human proximity to honeybees and observation of their complex social organisations encouraged respect and interest in their lives. Medieval writers imagined the bees'



HUMAN PROXIMITY TO HONEYBEES AND OBSERVATION OF THEIR COMPLEX SOCIAL ORGANISATIONS ENCOURAGED RESPECT AND INTEREST IN THEIR LIVES.



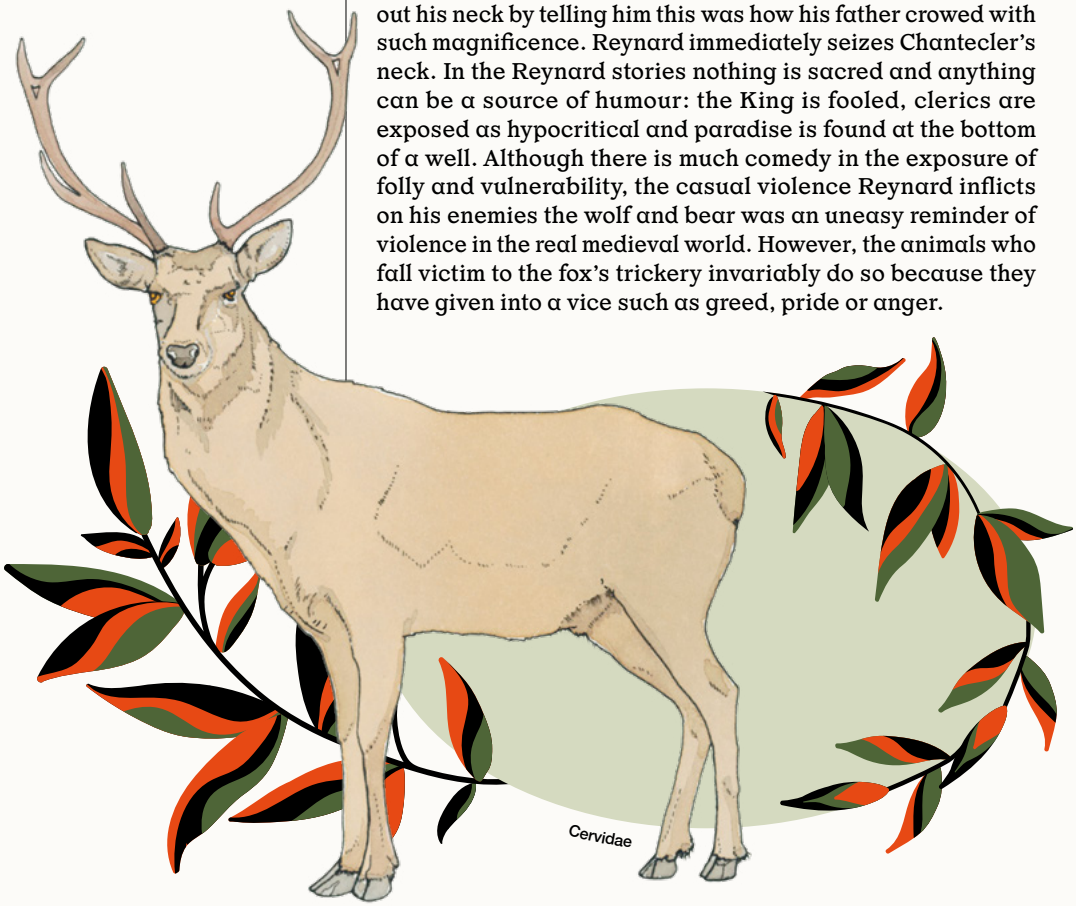
Vulpes vulpes

pleasure in flying among flowers and praised their skilful creation of honeycombs, their unquarrelsome division of labour, and their getting of sustenance without deception or violence. In doing so, they expressed the desire that men and women should be more like bees.

FOX

The red fox was known to be fleet footed and wily, and to conceal itself in underground dens that were often slyly appropriated from badgers. As well as targeting rodents, rabbits and hares, foxes broke into farmyards and stole chickens, ducks and geese. A common medieval image of the fox depicted it fleeing from a woman carrying a distaff (a staff onto which wool or flax was wound for spinning) with a goose in its mouth.

A popular character in medieval literature, 'Reynard the fox' moved fluidly between animal and human worlds: in some tales he is prankster in the farmyard, in others he is a scheming noble at the court of King Lion. In the former guise he tricks the cockerel Chantecler into closing his eyes and stretching out his neck by telling him this was how his father crowed with such magnificence. Reynard immediately seizes Chantecler's neck. In the Reynard stories nothing is sacred and anything can be a source of humour: the King is fooled, clerics are exposed as hypocritical and paradise is found at the bottom of a well. Although there is much comedy in the exposure of folly and vulnerability, the casual violence Reynard inflicts on his enemies the wolf and bear was an uneasy reminder of violence in the real medieval world. However, the animals who fall victim to the fox's trickery invariably do so because they have given into a vice such as greed, pride or anger.



Cervidae

DEER

Habitat destruction caused the decline of the native species of red and roe deer in most of medieval Britain. As the Normans established their aristocratic identity through the creation of parks and managed forests, deer became a semi-domesticated animal, hunted by the elite and farmed for venison. The Normans introduced fallow deer from Sicily, admiring their beauty and temperament and finding their small size and communal herding convenient for the confines of small parks.

Deer were considered gentle creatures, easily startled and charmed by music. A bestiary story of behaviour for good Christians to emulate told how stags helped each other cross a river when they migrated. Each stag placed its head on the deer in front so that they moved together as a team, and the strong animals helped the weaker ones move forward. The medieval hart, a red deer stag of at least five years, was renowned for being swift, strong and clever at evading hunters. Mysterious white or winged stags also appear in medieval romances and images, often portending a dangerous encounter.

DEER WERE CONSIDERED GENTLE CREATURES, EASILY STARTLED AND CHARMED BY MUSIC.

BADGER

The German abbess Hildegard of Bingen wrote that the badger was mischievous and discreet and hid its power modestly. According to the bestiary, families of badgers co-operated to build setts (a system of interconnected chambers and tunnels underground). One badger is said to lie down at the entrance to the hole with a stick in its mouth while others piled earth on its belly. Next two badgers take hold of the ends of the stick to pull the badger and the loaded earth away from their new home. Although unrealistic in detail, this story does reflect the effort and collaboration needed to construct a sett, which can take many years to complete and may be passed down to generations of badgers over more than a century.

Some medieval nobles kept them as unusual pets, but badgers suffer stress in captivity and engage in destructive digging. A more positive image of the badger as a companion animal is found in the story of Saint Ciarán of Ireland. Authors of saints' biographies (called hagiographies) often suggested

A SETT CAN TAKE MANY YEARS TO COMPLETE AND MAY BE PASSED DOWN TO GENERATIONS OF BADGERS OVER MORE THAN A CENTURY.

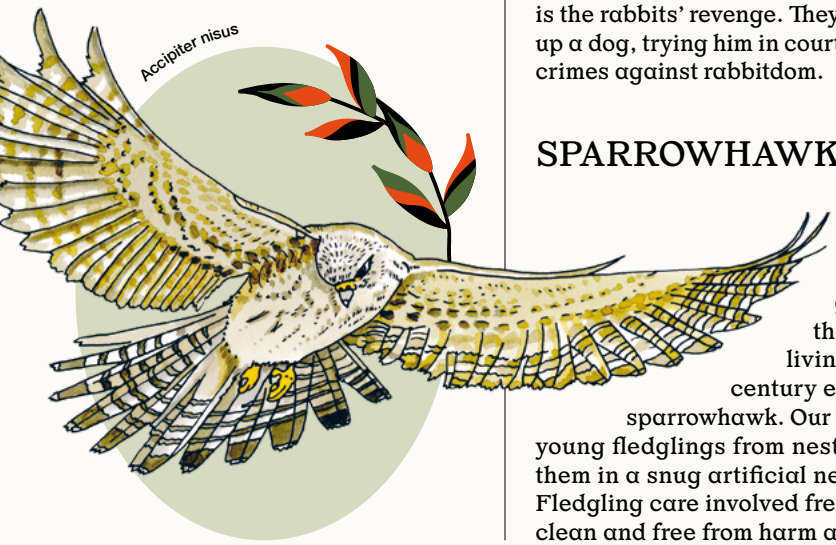
that wild animals freely chose the company of holy men and women, creating affectionate relationships that evoked the harmony of humans and animals in the Garden of Eden. When a disobedient fox stole Ciarán's shoes his companion badger tracked the fox down, told him off and brought both thief and shoes home to the saint.

RABBIT

The modern species of rabbit evolved in southern Spain and is one of the world's most successful mammals. Rabbit keeping first became popular across Britain in the period 1230-50. Acclimatising these Mediterranean animals to the colder climate of Britain was challenging at first, and many early warrens operated at a loss. Religious and secular lords persisted because warrens were status symbols for the elite and rabbit meat and fur were luxury items. By the mid fourteenth century there were more than 2,000 animals in numerous commercial warrens. The price of rabbits dropped, and warren escapees began plaguing local farmers by damaging arable farmland and competing with livestock for grazing. Unsurprisingly, warrens became the target for armed poachers and popular riots.

THE THREAT RABBITS POSED TO THE LIVELIHOODS OF ORDINARY PEOPLE HELPS EXPLAIN WHY VIOLENT RABBITS ARE A POPULAR VISUAL THEME IN THE MARGINS OF MEDIEVAL MANUSCRIPTS.

The threat rabbits posed to the livelihoods of ordinary people helps explain why violent rabbits are a popular visual theme in the margins of medieval manuscripts. These rabbits wield axes, sticks, swords and bows and arrows in their incensed pursuit of humans and their dogs. In the *Smithfield Decretals*, a thirteenth-century volume of law at the British Library, rabbit hunting is depicted several times, but so too is the rabbits' revenge. They are depicted catching and tying up a dog, trying him in court and finally executing him for his crimes against rabbitdom.



SPARROWHAWK

Hunting with birds was popular with the medieval nobility and inspired many how-to guides. One surviving treatise that was written for a wealthy girl living in Paris in the late fourteenth century explains how to raise and train a sparrowhawk. Our trainee hawker is advised to take young fledglings from nests in late May or June and place them in a snug artificial nest warmed by sunlight or a fire. Fledgling care involved frequent feeding and keeping them clean and free from harm and stress. Her goal is not only to

raise a strong and healthy bird, but also one that loves its carer. She slowly acclimatises the bird to people, dogs, horses and eventually to busy urban environments by walking around with it attached to her wrist. She may be raising many young sparrowhawks, but as they grow and their temperaments and qualities emerge she will focus her energy on the calmest, strongest, attentive, wisest and courageous birds. Once her sparrowhawk is trained our Parisian teenager will spend summers on her country estate hunting on horseback, accompanied by dogs who flush out the partridges and quail for her sparrowhawk to catch.

Creating a close bond between hawker and bird took great care, patience and hard work, yet the lifespan of sparrowhawks were fleeting. A sense of this poignancy is evoked in a late medieval poem popularly known as *The Sparrowhawk's Lament*. An unnamed person hears a sparrowhawk weeping and asks what the matter is. 'A dread of death' says the bird (in the poem birds and humans understand each other perfectly) and the narrator's empathetic response is that death is something that he fears too.

FERAL PIGEON

The feral pigeon, now so common in our towns and cities, is descended from captive domesticated pigeons (known as doves in the Middle Ages) who were lost or abandoned in medieval England. These birds were themselves the descendants of the native cliff-dwelling rock dove. Medieval dovecotes, like rabbit warrens, were status symbols for the elite and could be impressive stone structures. The frequency with which doves bred meant that they provided a year-round source of protein and a rich fertiliser for elite gardens.

The thirteenth-century English encyclopedist Bartholomew watched sitting doves moving their neck in all directions as if they were attentively observing the world. But, he reflects sadly, this doesn't stop them being easily brought down by arrows when they fly from their perches. Bartholomew admires how in Egypt and Syria doves carried messages from province to province but, loving their homes, always came back. Like modern pigeons, medieval doves had a diverse array of colours. These gained religious significance: sapphire wings represented the sky and a peaceful soul, silvery feathers signalled a good reputation, and gold colouring suggested a pure mind. But when the colour of the dove resembled that of a turbulent sea, this symbolised an agitated mind: distressed, confused and in conflict with itself.

LIKE MODERN PIGEONS, MEDIEVAL DOVES HAD A DIVERSE ARRAY OF COLOURS, WHICH GAINED RELIGIOUS SIGNIFICANCE.

THREATENED SPECIES

The UK's wildlife is disappearing: it is estimated that 165 of its species are critically endangered and it is now considered one of the most nature-depleted countries in the world.

Various factors account for the decline in species, but the main reason is habitat destruction due to modern agricultural practices, especially the use of fertilizers and agrochemical products, and increased carbon dioxide emissions. Farmland now accounts for over 70% of the UK's land area. This land includes the meadows, woodlands, hedges and ponds where many of the species live that are listed on *International Union for Conservation of Nature's Red List* as either endangered (EN), critically endangered (CR), or vulnerable to extinction (VU). This means that the approach of farmers to land use is extremely important, along with the other threats to species decline: urbanisation, deforestation, pollution and lastly climate change.

The Earth's biological resources are vital to humanity's economic and social development. They form the web of life to which we also belong and upon which we so fully depend. At the United Nations Conference on Environment and Development (UNCED) at Rio in 1992, the UK made a commitment to halt loss of biodiversity by signing the Convention of Biological Diversity, an action designed to ensure that we leave a healthy and viable world for future generations. Since 1994 protection plans have been put in place to conserve the most vulnerable species and those at risk of extinction across Britain but these are only having partial success. All of us can contribute to healthy local and national ecosystems, with a range of actions, and by educating ourselves and others.

THREATENED SPECIES

RED SQUIRREL
WATER VOLE
PINE MARTEN
HAZEL DORMOUSE
HEDGEHOG
NATTERJACK TOAD
WHITE CLAW CRAYFISH
TURTLE DOVE
GREATER MOUSE-EARED BAT
GREAT YELLOW BUMBLEBEE

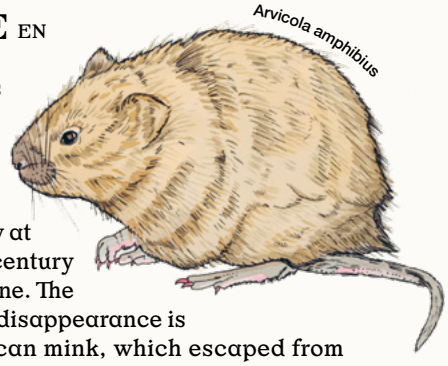
RED SQUIRREL EN

The red squirrel was once abundant across England yet it is estimated that all its populations will become extinct within the next 20-30 years unless more is done to protect them.

Red squirrels have become endangered due to the invasive non-native grey squirrels that arrived from North America in the early 20th century. The grey adapts better to changing habitats and transmits the deadly squirrel-pox virus to the red squirrel. Maintaining populations of red squirrels is extremely difficult. The primary conservation strategy has been to identify the forests in which they thrive best and to trap and forcibly remove grey squirrels from these locations.

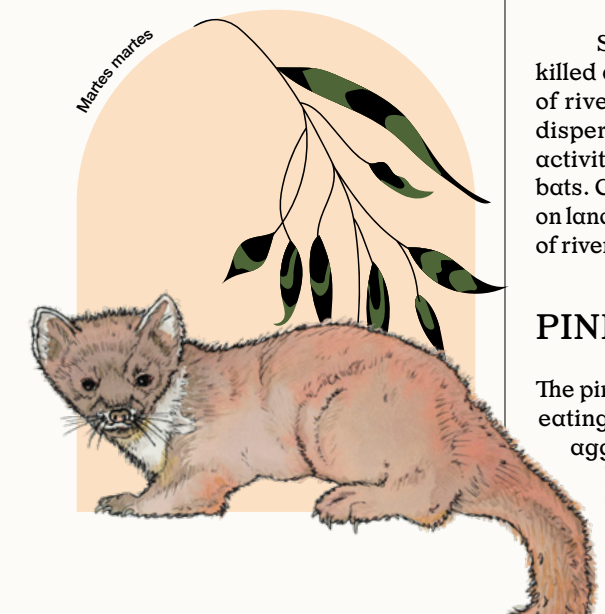
THE WATER VOLE ONCE LIVED BY THE MILLIONS ALONG MOST RIVERS AND STREAMS ACROSS ENGLAND, SCOTLAND AND WALES, BUT THE SPECIES HAS DIMINISHED BY AT LEAST 90%

WATER VOLE EN



Millions of water voles once lived close to rivers and streams in England, Scotland and Wales, but the species diminished by at least 90% in the last century and continues to decline. The main reason for their disappearance is the predatory American mink, which escaped from fur-farms and was released by activists in the early 1990s. Habitat loss due to intensive farming, the canalisation of rivers and water courses and water pollution have also played a major role in their decline as well as fluctuating water levels caused by climate change.

Sadly, water voles can also be mistaken for rats and killed accidentally. Water voles are important to the ecology of riverbanks because of their role in the food chain, seed dispersal and foraging and burrowing in river banks. Their activities benefit diverse small mammals, insects, birds and bats. Conservation efforts have shown that educating farmers on land use and restoring their natural habitats along the banks of rivers and streams are effective ways to protect the species.



PINE MARTEN CR

The pine martin plays an active part in woodland ecosystems, eating berries, fungi and small birds and mammals like the aggressive grey squirrel, which damages and eventually kills trees by stripping their bark. Hunting pine martins for sport and trapping them for fur throughout the 19th

century drastically reduced their numbers. The loss of their woodland habitat was also significant during this period.

Populations of pine martins are increasing in Scotland thanks to reforestation and woodland management programmes. It is hoped that increasing numbers of individuals will migrate and re-colonise English forests and woods. Some migration and re-colonisation has already started to occur, with the first sighting in Wales in 2015, and in forests in the North of England two years later.

HAZEL DORMOUSE VU

The hazel dormouse is a nocturnal climbing rodent living in the hedgerows and understorey of ancient woodlands, especially hazel coppice and other deciduous woodlands where they forage on a mixed diet of shrubs and bushes. Dormice are slow breeders with a short five-year life span. They live predominately in trees and do not cross open areas, so they are at higher risk of becoming isolated from other populations which makes them more vulnerable to extinction. A lack of habitat management and the removal of hedges and fragmentation of woodlands has impacted on their population density, especially in the last twenty-five years. Conservation efforts have focused on mitigating threats to habitats in which they live and protecting and providing safe places for them to nest and breed. Climate change has been identified as a new threat to hazel dormice because strong variations of temperature, particularly in Southern England, have been shown to impact on their hibernation, feeding and breeding patterns.

HEDGEHOG VU

Hedgehogs can adapt to a wide range of habitats from semi-natural vegetation areas to those that have been heavily modified by humans. In spite of this, at least one-quarter of the hedgehog population has disappeared in the last ten years, which demonstrates significant biodiversity loss across rural and suburban environments. In rural areas, intensive farming methods with a consequent loss of hedges and copses has reduced the quantity and quality of their habitat and the diversity of their food. In urban environments, the fragmentation of greenspaces, increased paving and reduced plant life have also contributed to their decline. The more roads and housing developments that are built, the greater loss of connectivity there is between the greenspaces that hedgehogs once roamed, resulting in thousands being killed every year as they cross roads to find food, water, shelter and mates. Different environments require different

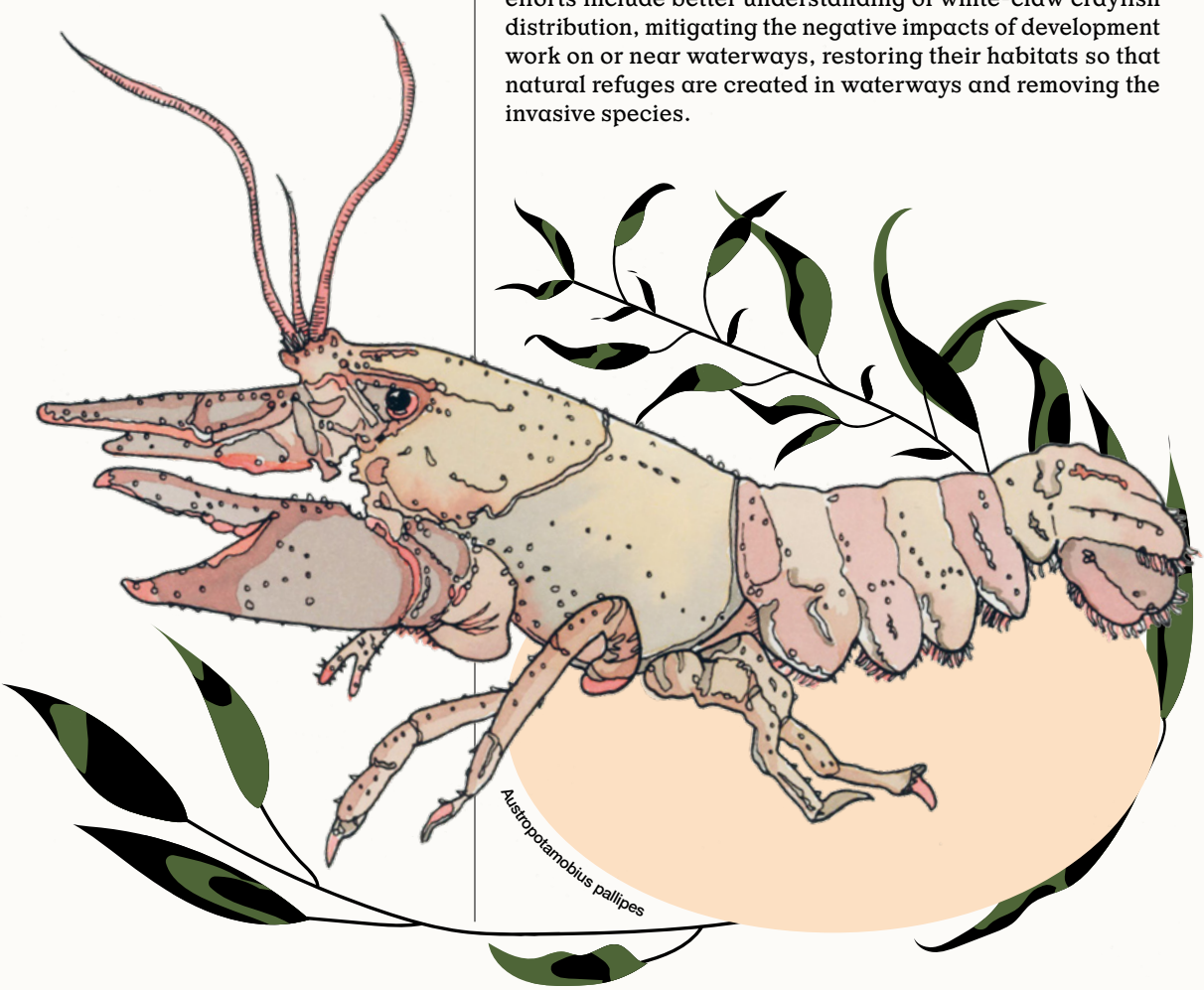
CLIMATE CHANGE HAS BEEN IDENTIFIED AS A NEW THREAT TO THE DOREMOUSE WITH VARIATIONS OF TEMPERATURE, AFFECTING THEIR PATTERN OF HIBERNATING, FEEDING AND BREEDING.

conservation approaches to the hedgehog. In suburban areas, individual initiatives can help hedgehog populations thrive. The campaign website Hedgehog Street offers advice for homeowners to link up gardens with 'hedgehog highways,' and create 'homes' and feeding stations.

WHITE-CLAW CRAYFISH EN

THE WHITE-CLAWED CRAYFISH IS THE ONLY SPECIES OF FRESHWATER CRAYFISH NATIVE TO THE UK

The white-clawed crayfish is the only species of freshwater crayfish native to the UK. They occupy a variety of aquatic habitats including canals, rivers, streams, reservoirs and quarry pools. The introduction of the invasive North American crayfish in the 1970s has been a major threat to the white-claw, because they transmit the deadly 'crayfish plague' as well as out-competing them for food. Water habitat destruction and pollution have also contributed to its decline across Europe by 50-80% over the last decade. Conservation efforts include better understanding of white-claw crayfish distribution, mitigating the negative impacts of development work on or near waterways, restoring their habitats so that natural refuges are created in waterways and removing the invasive species.



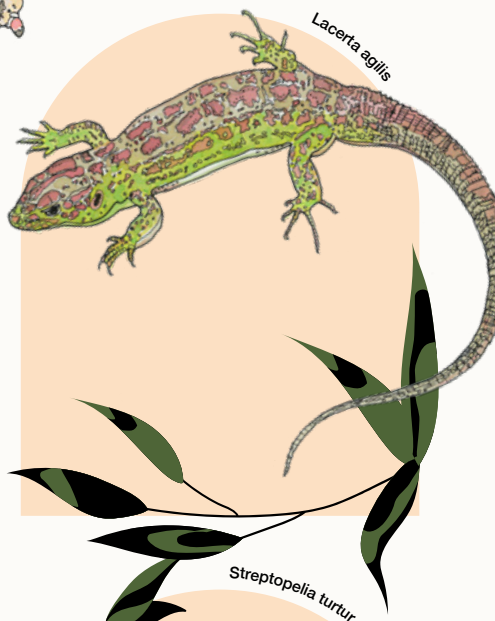
NATTERJACK TOAD

The decline of the natterjack toad, to near extinction in the 1970s, has been attributed to intensive farming, the acidification of aquatic habitats due to pollution and encroaching urbanisation, which has altered the natural ecology of the dunes and heathlands where the species once thrived. More recently, low rainfall caused by climate change has dried up the shallow coastal dune hollows where toads spawn. Today, as little as fifty breeding populations remain in mainland Britain. Conservation efforts include protecting the toads' dune habitats and implementing programmes of water saving and pond management, including creating artificial pools with controlled water levels to safeguard tadpoles until they are mature enough to leave.

TODAY, AS FEW AS FIFTY NATTERJACK TOAD BREEDING POPULATIONS REMAIN IN MAINLAND BRITAIN.

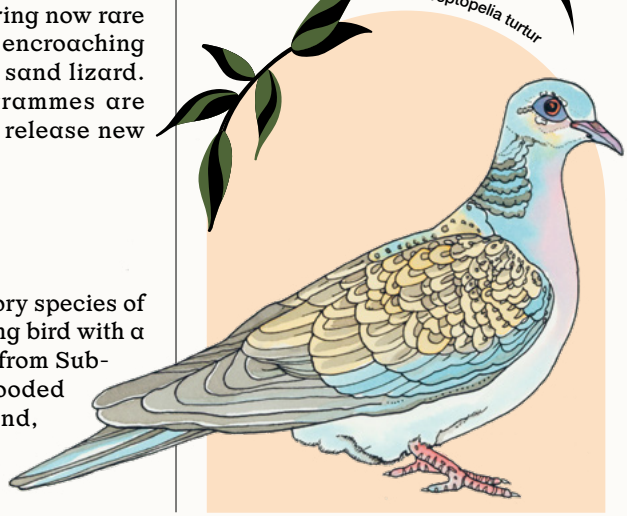
SAND LIZARD

The sand lizard was once common across heathlands in Britain. It favours loose sandy soil to dig burrows in which to shelter and hibernate, and exposed land where their buried eggs can be kept warm by sunlight. The sand lizard is now extremely rare due to building developments and fragmentation of their heath and dune habitats. Climate change may also have contributed to their steep decline of around 90% in the last fifteen years. Restoring now rare heathland and coastal habitats and clearing encroaching scrub and bushes is essential to protect the sand lizard. Captive breeding and reintroduction programmes are vital conservation methods to establish and release new populations into the wild.



TURTLE DOVE

Turtle doves are the only long-distance migratory species of dove in the UK and they are the fastest-declining bird with a 93% loss since 1994. On their migratory path from Sub-Saharan West Africa to the orchards and wooded areas of East Anglia and South East England, where they come to breed, they are vulnerable to a number of hazards including habitat loss, a contraction of the breeding season,



hunting and disease. Climate Change may also play a role as earlier, warmer Springs in Britain are changing the availability of their food supply. The RSPB is advising and working with farmers and landowners to increase the number of feeding habitats available to turtle doves within their core breeding range and to provide sources of food in early Spring to help them recover from their long migration.

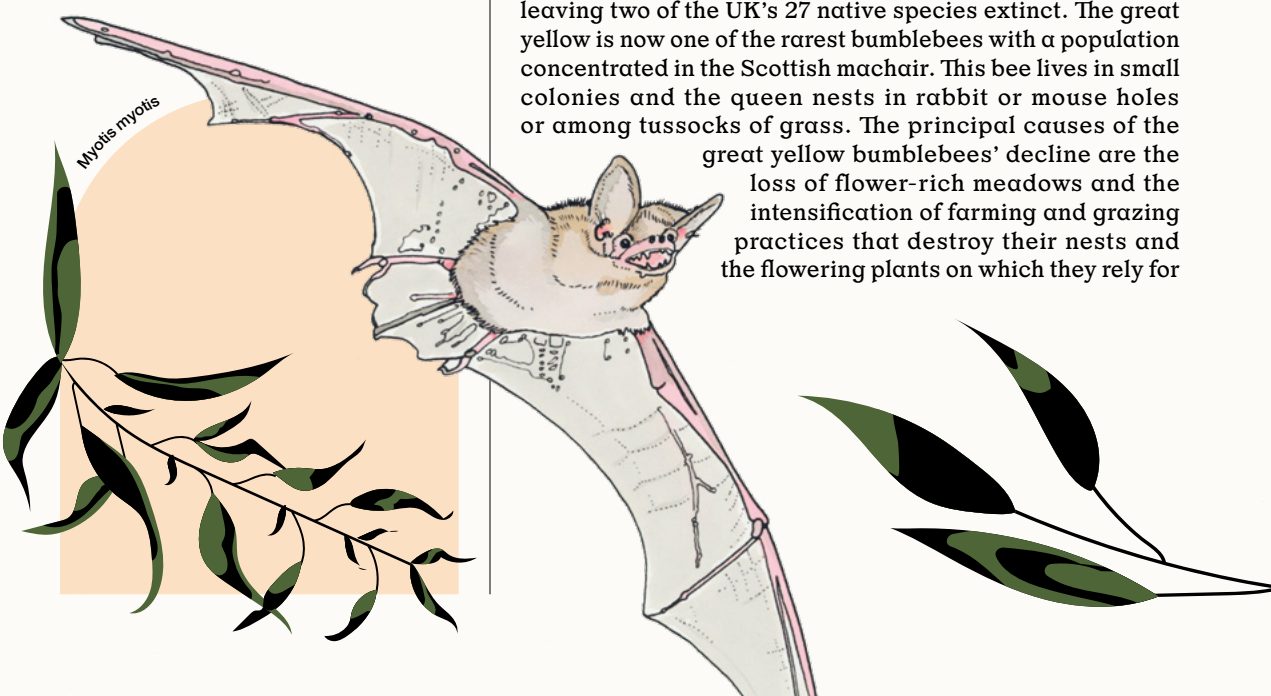
GREATER MOUSE-EARED BAT CR

Across Europe the greater mouse-eared bat can be found close to human settlements, hunting in woodland and cultivated land. It was thought that the UK population was extinct but a solitary male was sighted in Sussex in 2002. The greater mouse-eared bat is not the only critically endangered bat species. Seven out of the eighteen species that live in the UK are rare or threatened. Habitat loss, the disturbance or destruction of roost sites and changes in agricultural practices are the main reasons. Bats are vital to our biodiversity for pollination and seed dispersal, and they are strong indicators of a healthy and biodiverse environment. Since 1991, The Bat Conservation Trust has been the leading non-governmental organisation in the UK devoted to the conservation of bats and the landscapes on which they rely.

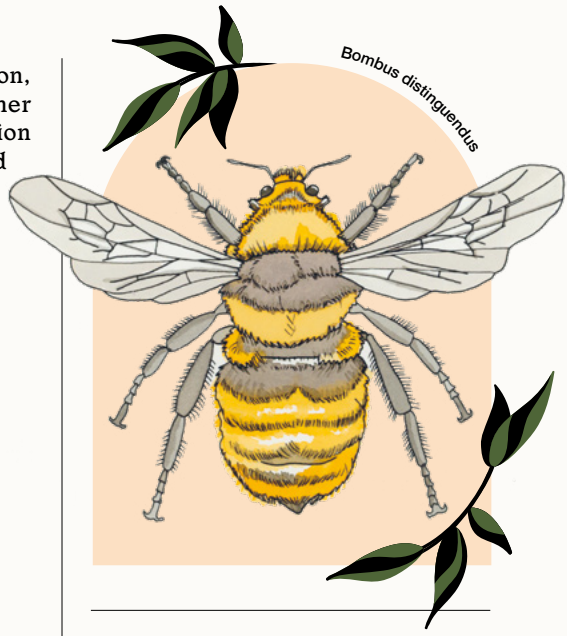
THE GREATER MOUSE-EARED BAT IS NOT THE ONLY CRITICALLY ENDANGERED BAT SPECIES. SEVEN OUT OF THE EIGHTEEN SPECIES THAT LIVE IN THE UK ARE RARE OR THREATENED.

GREAT YELLOW BUMBLEBEE

In recent years, bumblebees have suffered massive declines, leaving two of the UK's 27 native species extinct. The great yellow is now one of the rarest bumblebees with a population concentrated in the Scottish machair. This bee lives in small colonies and the queen nests in rabbit or mouse holes or among tussocks of grass. The principal causes of the great yellow bumblebees' decline are the loss of flower-rich meadows and the intensification of farming and grazing practices that destroy their nests and the flowering plants on which they rely for



food. The protection of all bee species is vital for pollination, not only of the flowers on which an intricate web of other species rely, but also of the crops humans eat. Conservation efforts in areas where bees are rare target farmers and land owners, to offer advice on how they can change agricultural or land management practices to benefit the bees. Homeowners can also contribute to efforts by cultivating bee friendly plants.

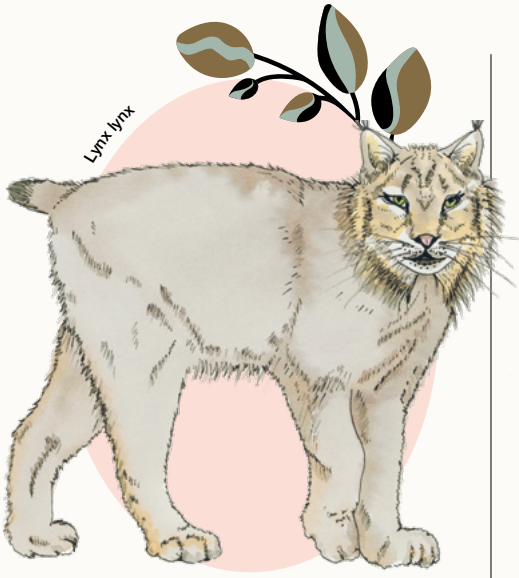


THE PROTECTION OF BEES IS VITAL FOR POLLINATION, NOT ONLY THE FLOWERS ON WHICH AN INTRICATE WEB OF OTHER SPECIES RELY, BUT THE CROPS HUMANS EAT.

EXTINCT SPECIES

These animals all became extinct or threatened in Medieval Britain for reasons that are unhappily familiar: habitat loss, persecution and competition with introduced species. Some medieval texts reflect a sense of great loss at their disappearance. Common cranes and white-tailed eagles have been successfully reintroduced into the UK and wild boar have escaped to form new communities in the wild. Larger and fiercer animals – the wolf, lynx and bear – are more controversial candidates for reintroduction.


EXTINCT SPECIES
LYNX
BROWN BEAR
WILD BOAR
BEAVER
WOLF
CRANE
WHALE
WHITE-TAILED EAGLE



EURASIAN LYNX

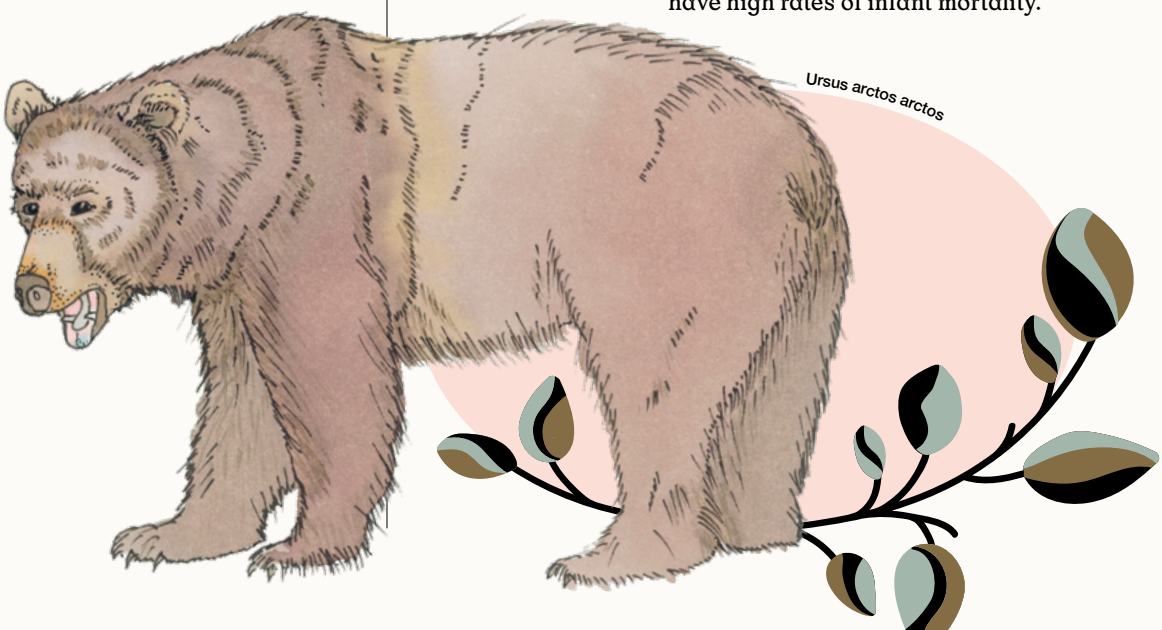
The Eurasian lynx is a solitary stealth hunter that needs a large territory and woodland cover to launch its ambush attacks. Fossil, linguistic and literary evidence suggests that it disappeared from Britain at the beginning of the medieval period, around the eighth century, due to hunting and as deforestation forced it to prey on domesticated animals. By the twelfth century lynxes were an exotic rather than a native species and were kept in the royal menagerie, their skins imported as luxury objects.

Medieval people thought the lynx had exceptional eyesight, so only keen-eyed nobles were meant to choose it as their heraldic emblem. The theologian and natural philosopher Albertus Magnus was hopeful that lynxes could be trained like dogs, but the German abbess Hildegard of Bingen saw the lynx as a carefree and joyful wild creature who took pleasure in both summer sunshine and winter snows, its eyes shining like the night's stars.

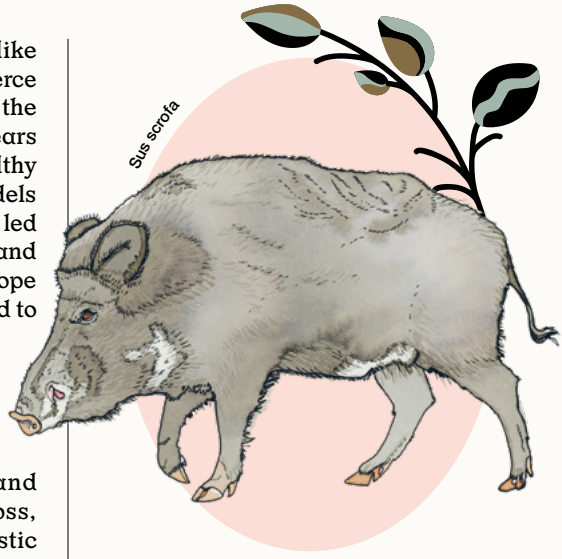
BY THE TWELFTH CENTURY LYNXES WERE AN EXOTIC RATHER THAN A NATIVE SPECIES AND WERE KEPT IN THE ROYAL MENAGERIE, THEIR SKINS IMPORTED AS LUXURY OBJECTS.

EURASIAN BROWN BEAR

Indigenous brown bears had died out in Britain by the sixth century as woodland clearance brought them into closer contact with humans. Bears are omnivorous and predominantly vegetarian, so any perceived threat to livestock was largely imaginary, but they were viewed as a prestigious hunting quarry due to their size and ferocity and the value of their skins. Eurasian brown bears were vulnerable to extinction because they breed infrequently, mature late and have high rates of infant mortality.



Medieval people thought bears were capable – like humans – of great wrath and gentleness. Poets compared fierce and tenacious human warriors to bears. They also noted the bears' tender care of their young, telling stories of how bears licked the shapeless mass of a new-born cub into a healthy animal. While these qualities could stand as positive models for human behaviour, intriguing similarities to humans also led to the bears' exploitation for entertainment. Tame bears and their trainers travelled from court to court in medieval Europe performing shows in which the animals danced, appeared to learn the alphabet or engaged in mock combats.



WILD BOAR

The native wild boar was rare in medieval Britain and became extinct in the thirteenth century due to habitat loss, overhunting and interbreeding with free-ranging domestic pigs. Although English nobles imported wild boars from France and Germany for hunting until the seventeenth century, these animals were not popular because of their destructiveness to crops. In the 1980s wild boars escaped from captive populations and there are now several viable populations in the wild.

The boar was admired for its courage and resilience and feared because of its tusks, size, speed and bold nature. Boars were thought to be a worthy combatant for the elite to demonstrate martial skills, and in the thirteenth century it was illegal for anyone but English nobles to hunt them. Boars were often served as the high point of a banquet: 300 were ordered from King Henry III's parks for a lavish Christmas dinner in 1251.

THE BOAR WAS ADMIRED FOR ITS COURAGE AND RESILIENCE AND FEARED BECAUSE OF ITS TUSKS, SIZE, SPEED AND BOLD NATURE.

BEAVER

The beaver became extinct in the twelfth century in South Britain, but probably survived into the sixteenth century in Scotland. It was hunted for its meat, fat and pelts - much sought after for their dense, insulating and waterproof fur. Early medieval Welsh laws proposed that beaver fur was most suitable for queens. Today, beavers can be found living close to humans across Europe, including those re-introduced in Scotland and Devon.

Gold mounted beaver incisors found in Anglo-Saxon burials up to the eleventh century are likely to have been protective talismans, but beavers were already extremely rare. The bishop Gerald of Wales thought that the beavers he observed on the river Teife

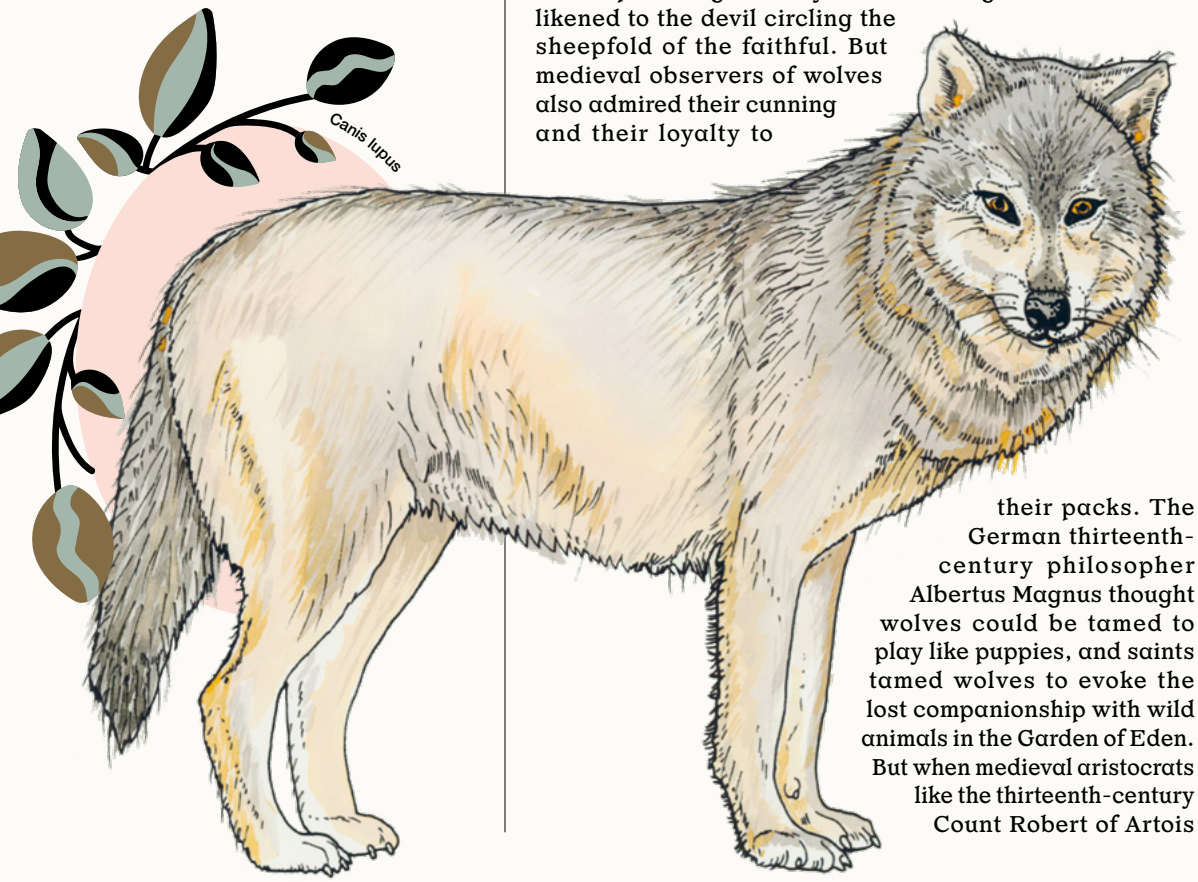
in 1188 were the last in Wales and Southern Britain. Gerald interpreted beaver life through a human lens that assumed a social hierarchy and unequal division of labour. He saw the beaver lodge as a carefully constructed castle, in which some beavers were forced to be the servants of the others.

GREY WOLF

Wolves are mobile, clever and advanced social animals, who were able to adapt to the new medieval landscapes of greatly reduced forest, though scarcity of their natural prey brought them into conflict with humans. The Norman conquest of the eleventh century introduced an aristocratic class that defined itself in part by its hunting culture and rituals. As forests became more tightly controlled by royal officials, poachers were punished harshly, and the hunting and trapping of wolves accelerated. By the late fourteenth century, the grey wolf had almost disappeared from South Britain.

CHRISTIAN SYMBOLISM FOCUSED ON THE WOLVES' THREAT TO SHEEP AND, FIGURATIVELY, THE COMMON GOOD: THE WOLF WAS LIKENED TO THE DEVIL CIRCLING THE SHEEPFOLD OF THE FAITHFUL.

Christian symbolism focused on the wolves' threat to sheep and, figuratively, the common good: the wolf was likened to the devil circling the sheepfold of the faithful. But medieval observers of wolves also admired their cunning and their loyalty to their packs. The German thirteenth-century philosopher Albertus Magnus thought wolves could be tamed to play like puppies, and saints tamed wolves to evoke the lost companionship with wild animals in the Garden of Eden. But when medieval aristocrats like the thirteenth-century Count Robert of Artois



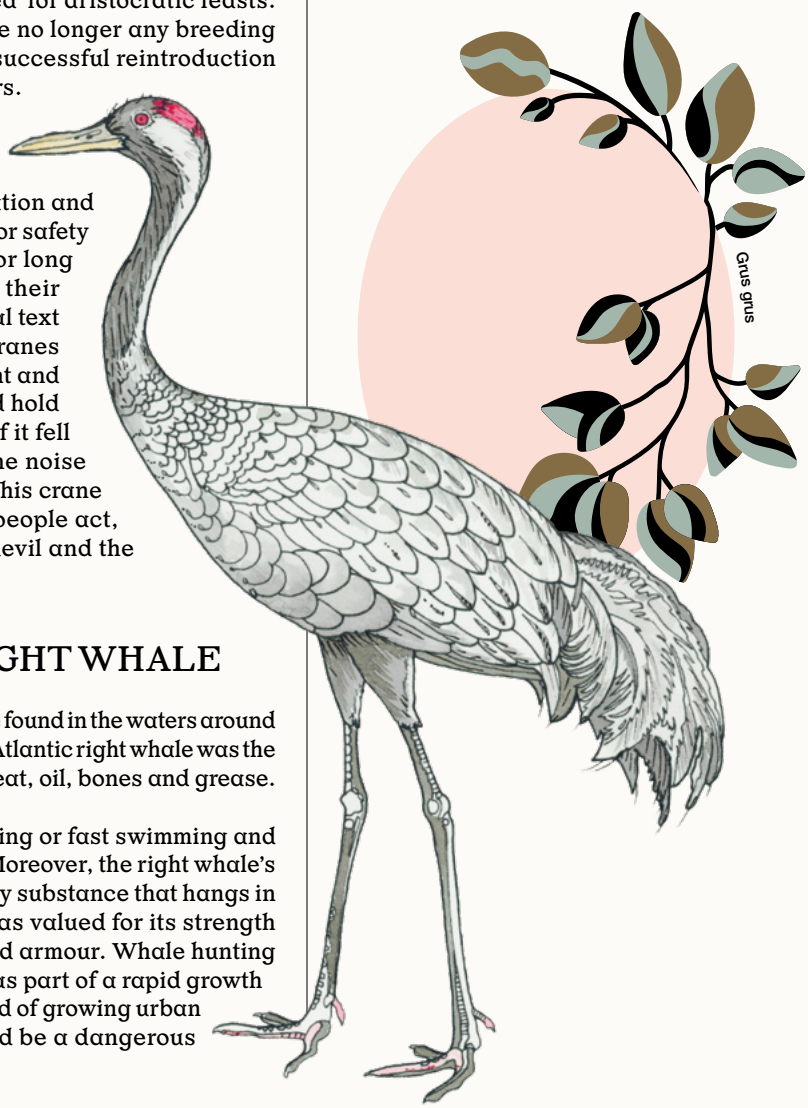
kept a pet wolf it was an assertion of power: a personal totem to intimidate subjects and enemies alike.

COMMON CRANE

The common crane was known to medieval people as a bird with great wings and a loud trumpeting call. It was thought to be affectionate to its fellows and to express itself playfully in dance. A more negative characteristic was its gluttony, a perception that probably reflects its scavenging of grain from fields, making it a pest to medieval (and modern) farmers. The crane's striking appearance made it a prestigious bird to hunt with trained gyrfalcons and peregrines, and its meat was prized for aristocratic feasts. By the sixteenth century there were no longer any breeding pairs in England but, following a successful reintroduction project, in 2020 there were 64 pairs.

THE COMMON CRANE WAS THOUGHT TO BE AFFECTIONATE TO ITS FELLOWS AND TO EXPRESS ITSELF PLAYFULLY IN DANCE.

Medieval moral stories often took the natural world as their starting points. During migration and winter, cranes roost in huge flocks for safety and to socialise, and they stand for long periods with one leg tucked into their body for warmth. A type of medieval text called a bestiary suggested that cranes took turns to guard the flock at night and that the designated watcher would hold a stone in one of its claws so that if it fell asleep it would be woken up by the noise of the stone falling to the ground. This crane was used to symbolise how good people act, protecting their fellows from the devil and the incursions of this world.



NORTH ATLANTIC RIGHT WHALE

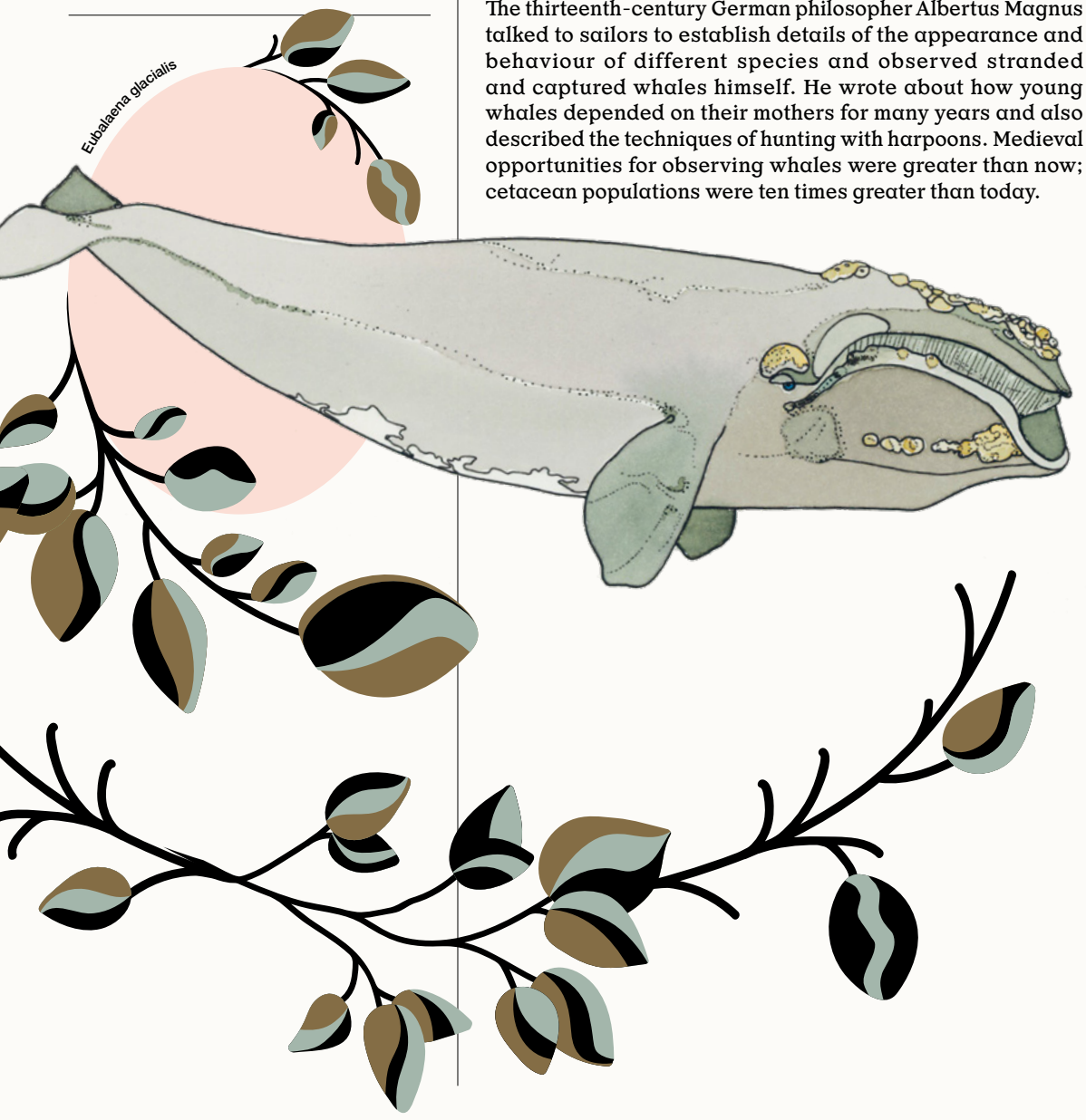
Although many species of whale were found in the waters around the medieval British coast, the North Atlantic right whale was the most vulnerable to hunting for its meat, oil, bones and grease.

It is not aggressive, deep-diving or fast swimming and can be found in temperate waters. Moreover, the right whale's high-grade baleen (an elastic, horny substance that hangs in long sheets from its upper jaws) was valued for its strength and flexibility and used in arms and armour. Whale hunting intensified in the eleventh century as part of a rapid growth in marine fishing to meet the demand of growing urban populations. Nevertheless, it could be a dangerous

WHALES WERE MONSTROUS AND MARVELLOUS IN THE MEDIEVAL IMAGINATION; LINKED TO THE DEVIL IN SOME STORIES AND TAMED BY SAINTS IN OTHERS.

occupation and many medieval whale products came from stranded, rather than hunted, whales.

Whales were monstrous and marvellous in the medieval imagination; linked to the devil in some stories and tamed by saints in others. But they were also an exploitable resource and a part of elite life; amid a growing whaling industry, whale bone might be encountered in a devotional image of the Virgin Mary, a backgammon counter or a dagger handle. The thirteenth-century German philosopher Albertus Magnus talked to sailors to establish details of the appearance and behaviour of different species and observed stranded and captured whales himself. He wrote about how young whales depended on their mothers for many years and also described the techniques of hunting with harpoons. Medieval opportunities for observing whales were greater than now; cetacean populations were ten times greater than today.

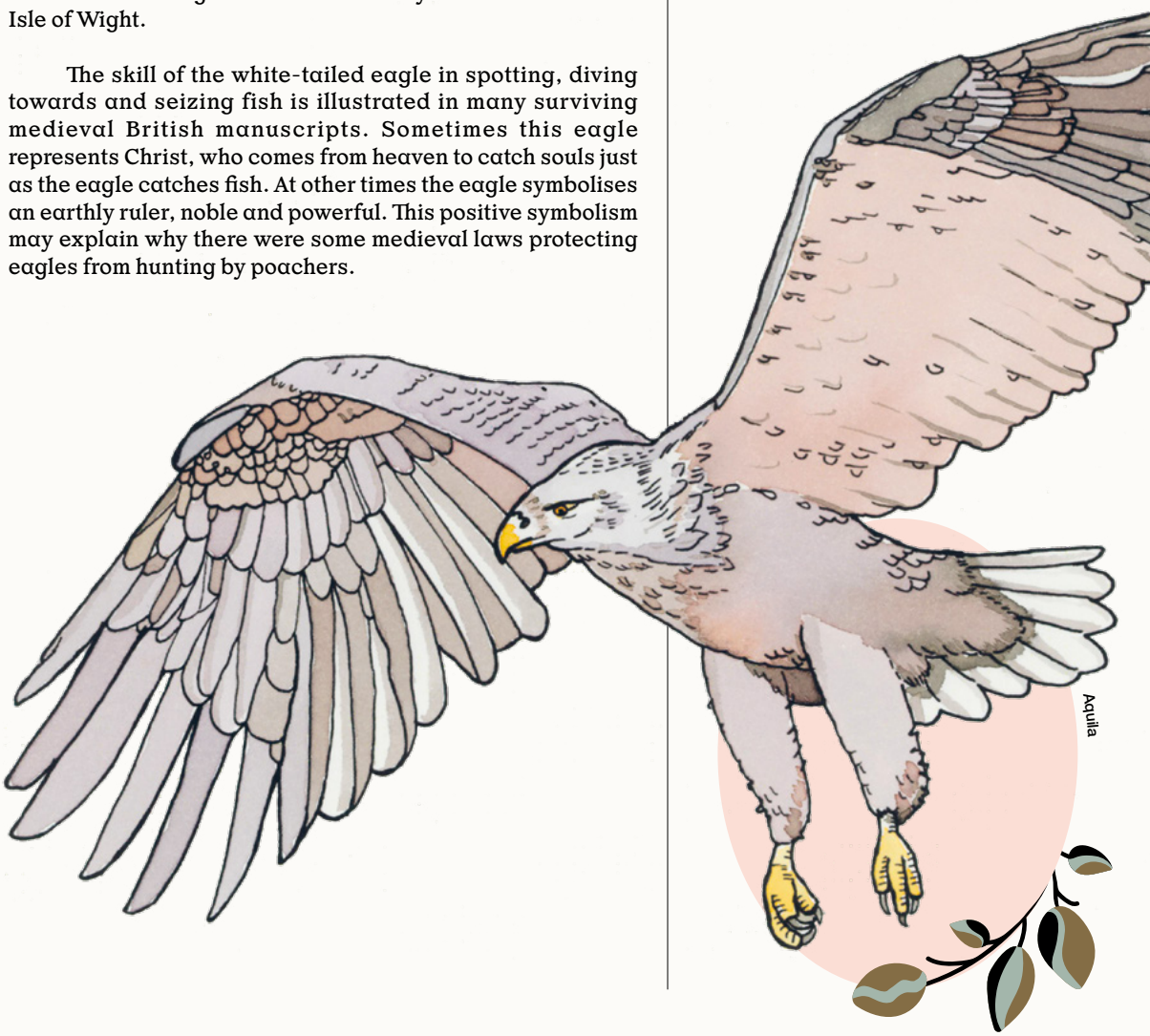


EAGLE

The white-tailed or sea eagle is a powerful predator of fish, birds, rabbits and hares and an opportunistic scavenger attracted to human settlements. Once very common in Britain, this eagle dramatically declined in the Late Middle Ages and was extinct by 1800; Britain's other native species of eagle, the golden eagle, survived. Its dwindling numbers are thought to have been caused by the loss and degradation of wetlands in Britain and perhaps by more intensive marine fishing that reduced its food supply. Even limited human activities affected eagle populations because they need huge territories, do not breed until they are five or six years old and have low breeding success. In 2019 and 2020, however, pairs of white-tailed eagles were successfully reintroduced on the Isle of Wight.

The skill of the white-tailed eagle in spotting, diving towards and seizing fish is illustrated in many surviving medieval British manuscripts. Sometimes this eagle represents Christ, who comes from heaven to catch souls just as the eagle catches fish. At other times the eagle symbolises an earthly ruler, noble and powerful. This positive symbolism may explain why there were some medieval laws protecting eagles from hunting by poachers.

SOMETIMES THIS EAGLE REPRESENTS CHRIST, WHO COMES FROM HEAVEN TO CATCH SOULS JUST AS THE EAGLE CATCHES FISH. AT OTHER TIMES THE EAGLE SYMBOLISES AN EARTHLY RULER, NOBLE AND POWERFUL.



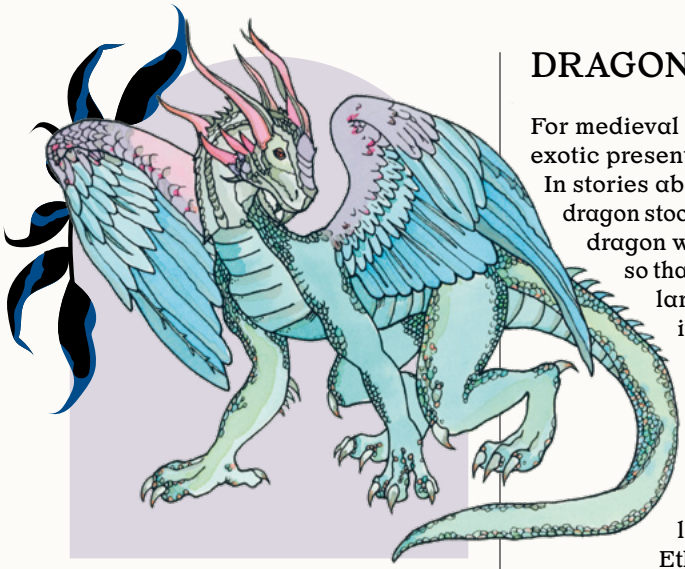
EXTRAORDINARY MEDIEVAL CREATURES

The medieval universe was inhabited by extraordinary creatures of myth, literature and artistic invention. Theologians and scientists made a strict distinction between humans, with their superior rationality and complex soul, and all the other animals. But in the realm of the imagination, much could be confused and combined. Whether fantastical creatures like dragons, unicorns, werewolves or dogheads actually existed mattered less than their usefulness for storytelling, symbolism and thought experiments.

Medieval authors tried to imagine what it would be like to be trapped in an animal body, or how a lion or a human-dragon hybrid expressed emotions. Some stories about marvellous and monstrous beings are about the limits and possibilities of communication. Without language, how did a lion cheer up its friend or a werewolf communicate its good intentions? Was the barking of dogheads equivalent to a human language? Other stories ponder the deceptions of appearances. Could one look into the eyes of a walrus and see a witch within? Whom would you trust with the secret of your transformation into another being?

EXTRAORDINARY MEDIEVAL CREATURES

DRAGON
UNICORN
GRIFFIN
WEREWOLF
YVAIN'S LION
DOGHEAD
SHAPESHIFTER
WALRUS FETCH
HYBRID



DRAGON

For medieval people dragons inhabited a distant past, an exotic present and the terrifying future of the apocalypse. In stories about the lives of saints set in ancient times the dragon stood for the wilderness or the devil. The wilderness dragon was often tamed or banished rather than killed so that new cities could flourish on previously barren land. Demonic dragons were more subtle and intimidating adversaries, but they could still be thwarted by the power of God. Saint Margaret of Antioch was eaten by a dragon when she refused to renounce Christianity, but she emerged unharmed and unperturbed from its belly after she made the sign of the cross. In their own times medieval Europeans usually located dragons at a safe distance in India or Ethiopia, but they were also depicted swooping in the skies above plague-afflicted cities. At times of prolonged suffering the apocalypse appeared imminent, and according to Christian thinking a terrible seven-headed, ten-horned red dragon-beast would appear at the end of the world.

UNICORN

The unicorn was often pictured in the margins of medieval manuscripts as a ferocious animal, charging with horn lowered. The medieval religious text called the bestiary, however, focused on its vulnerability to human violence. It describes how a unicorn is lured into a forest by a virgin and lays its head in her lap. While the unicorn is thus soothed and inattentive a hunter attacks and kills it with a sword or spear. In the Christian interpretation of this scene the unicorn is Christ, who is made gentle in the presence of the virgin because she reminds him of his mother, the Virgin Mary, and who chooses to sacrifice himself for humankind. Artists offered different emotional readings of the actors in the story. In some images the maiden is distressed and remorseful when the hunter appears; in others she is a pitiless colluder in the animal's death.

Although no one in medieval Europe had actually seen a unicorn, their real existence seemed to be supported by the wide circulation of narwhal horns slyly marketed as unicorn horns with magical properties, and by confusing travellers' reports of horned beasts. The thirteenth-century Venetian merchant and explorer Marco Polo confessed to being perplexed by a rhinoceros in Java because its savage strength, inelegant posture and fondness for mud seemed so distant from European fantasies of unicorns.

THE UNICORN WAS OFTEN PICTURED IN THE MARGINS OF MEDIEVAL MANUSCRIPTS AS A FEROCIOUS ANIMAL, CHARGING WITH HORN LOWERED.

GRIFFIN

Extraordinary creatures like the griffin, a hybrid with the body of a lion and the wings and head of an eagle, often played a part in the fantastical adventures of medieval heroes. The popular *Alexander Romance*, a largely fictionalised account of Alexander the Great, explains how he harnessed the power of griffins in his quest to explore the celestial regions. Standing in a basket attached by ropes to four griffins, Alexander held up a long stick with a tasty morsel of meat on its end. The griffins flew ever upwards in pursuit of a meal that was always just out of reach. Alexander rose so high that the earth below looked like a threshing floor, with the sea like a serpent writhing around it. Then God cast the basket back down to earth, and Alexander and the griffins landed unhurt in a meadow.

Medieval stories about griffins usually emphasise their hostility to humans and their ferocious guarding of gold and precious gems in the mountains of the far north. But because this hybrid combined two animals with powerful and positive associations it became a popular heraldic emblem. As a fourteenth-century fictional travelogue *The Travels of John Mandeville* pointed out, the griffin must have the strength of ten lions and a hundred eagles to carry off its prey of horses and oxen. For the highly militaristic medieval elites it became a sought-after personal icon. Wealthy households might also own a luxury 'griffin claw' cup that was really made from the horn of a European bison.

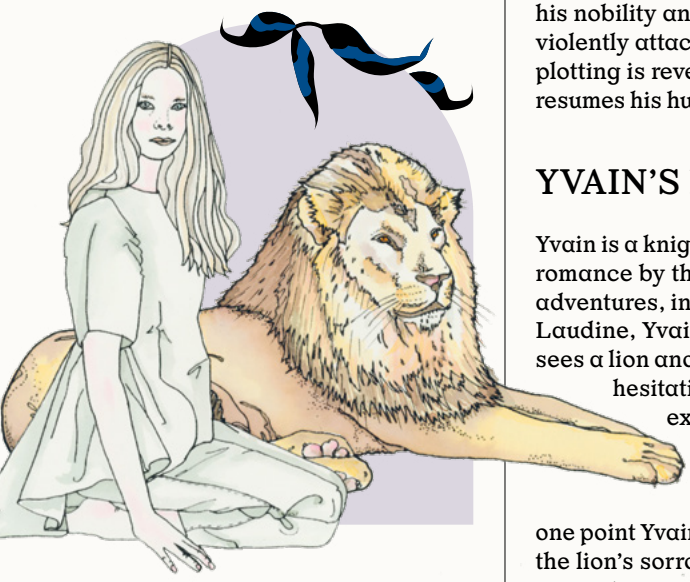
MEDIEVAL STORIES ABOUT GRIFFINS USUALLY EMPHASISE THEIR HOSTILITY TO HUMANS AND THEIR FEROCIOUS GUARDING OF GOLD AND PRECIOUS GEMS IN THE MOUNTAINS OF THE FAR NORTH.

WEREWOLF

There were three main kinds of medieval werewolf. First, there were humans cursed to temporarily take wolf form, either because of dark magic or because they had offended God. Then there were natural werewolves, humans who spent part of their time in wolf form. Finally, there were werewolves by choice, male and female witches who were taught by the devil how to turn into wolves in order to ravage their neighbours' livestock and run wild and free.

Sympathetic werewolves were a medieval innovation, and stories about them are attempts to imagine being a human trapped in an animal body. Bisclavret is a baron in Brittainy and a natural werewolf (or garwolf) in the

THE STORY OF YVAIN AND THE LION IS TYPICAL OF A CERTAIN NOSTALGIA IN MEDIEVAL CULTURE.



twelfth-century poem by Marie de France. He becomes stuck in wolf form after he reveals his secret transformation to his wife. She treacherously hides his clothing so he cannot turn back into a human and is forced to hide in a forest. His wife then marries another man. One day Bisclavret is cornered by the king's hunting dogs and uses the language of gesture (since he cannot speak) to beg for mercy and persuade the king of his nobility and gentleness. Once back to court, however, he violently attacks his former wife and her new husband. Their plotting is revealed, Bisclavret's clothes are returned and he resumes his human form and noble rights and lands.

YVAIN'S LION

Yvain is a knight from King Arthur's court in a twelfth-century romance by the French poet Chrétien de Troyes. After many adventures, including the winning and losing of his true love, Laudine, Yvain is travelling through a dense forest when he sees a lion and serpent engaged in a fierce battle. After some hesitation he intervenes to kill the serpent, and the lion expresses its gratitude with tears. Although the lion cannot speak, Yvain learns to interpret its body language and they become close companions, hunting and fighting together. At one point Yvain feels overcome by grief and regret, but seeing the lion's sorrow at his plight gives him the courage to carry on. He is eventually able to prove himself worthy of Laudine.

This story is typical of a certain nostalgia in medieval culture for the close, peaceful and harmonious relationship between humans and other animals in the Garden of Eden. Sometimes, it was thought, wild animals would help a virtuous person in times of great need, whether this was bringing food and companionship to a saint enduring hardship in the wilderness or helping a knight find his way back to sanity and love.

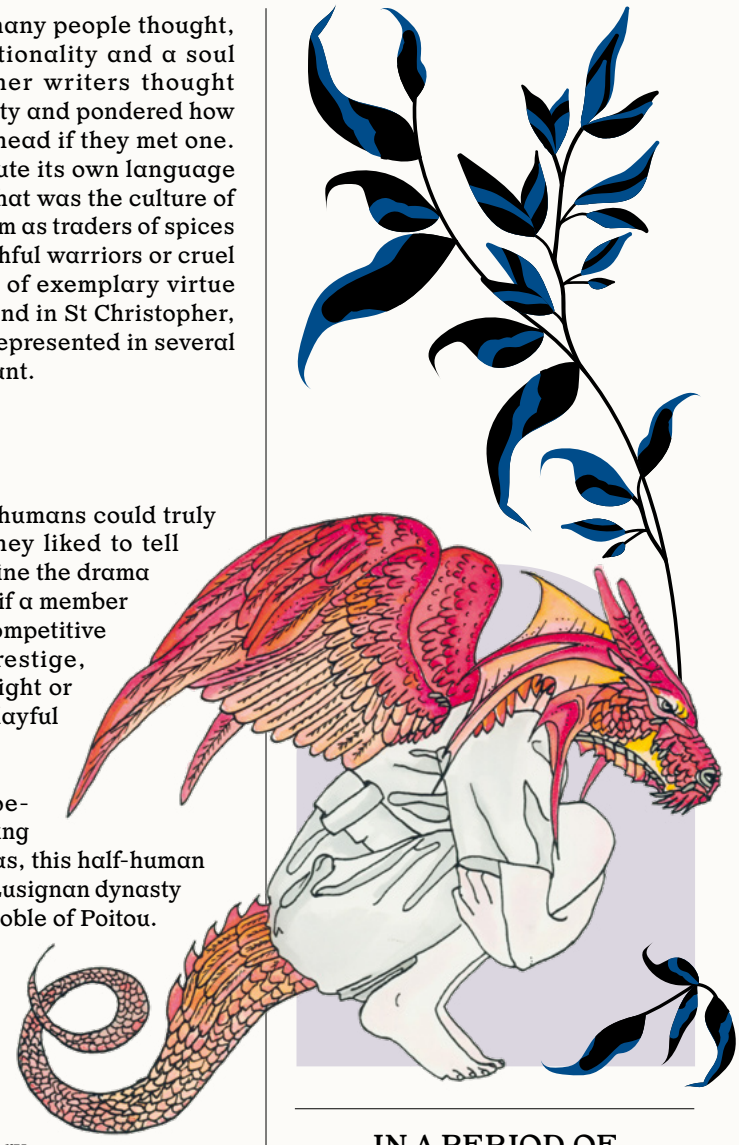
DOGHEAD

If you met a creature with the body of a man and the head of a dog, would your first assumption be that it was a human, demon or animal? Medieval thinkers weren't sure. They had found many references to so-called 'monstrous races' in ancient texts, such as the Dogheads, one legged Sciapods (shadow-feet) whose foot shaded them from the sun, Blemmyae, whose faces were in the middle of their chests, and the Astomi, or Apple-smellers, who had no mouths or need of food. The influential early medieval thinker Augustine argued that if the 'monstrous races'

descended from Adam and Eve, as many people thought, then they would possess human rationality and a soul whatever they looked like. But other writers thought language was central to human identity and pondered how they would communicate with a Doghead if they met one. Did the barking of Dogheads constitute its own language that could be learnt like any other? What was the culture of the Dogheads like? Some imagined them as traders of spices in the Andoman islands, others as faithful warriors or cruel idolaters. But the supreme marriage of exemplary virtue with extraordinary appearance is found in St Christopher, the patron saint of travellers, who is represented in several medieval sources as a dog-headed giant.

SHAPESHIFTER

Medieval people did not believe that humans could truly transform into other animals, but they liked to tell stories of metamorphosis and to imagine the drama and tragedy that might befall a family if a member wasn't wholly human. In a period of competitive territorial expansion and family prestige, non-human ancestors like a swan knight or a dragon fairy could add lustre and playful mystery to a noble genealogy.



Perhaps the most famous shape-shifting ancestor was Melusine. According to the medieval romance by Jean d'Arras, this half-human half-fairy hybrid sparks the rise of the Lusignan dynasty after she marries Raymondin, a poor noble of Poitou. Under Melusine's benevolent direction and with her supernatural energy, the lordship of Poitou flourishes: wildernesses are tamed, farms are established and new castles and cities built. Melusine conceals from her husband the fact that she changes into a serpent from the waist down every Saturday (the result of her mother's curse). The couple have ten sons together before Raymondin betrays her by spying on her. Although Melusine accepts his apology, when he calls her a serpent in front of the whole court she turns into a dragon and flies away, having failed to secure the full humanity and eternal salvation that his trust would have guaranteed. Melusine's predicament is emotional as well as physical and is portrayed with great sensitivity. She returns to nurse her youngest children but is forced to watch in horror as some grow up with physical blemishes and violent behaviours, perhaps because of their part-fairy nature.

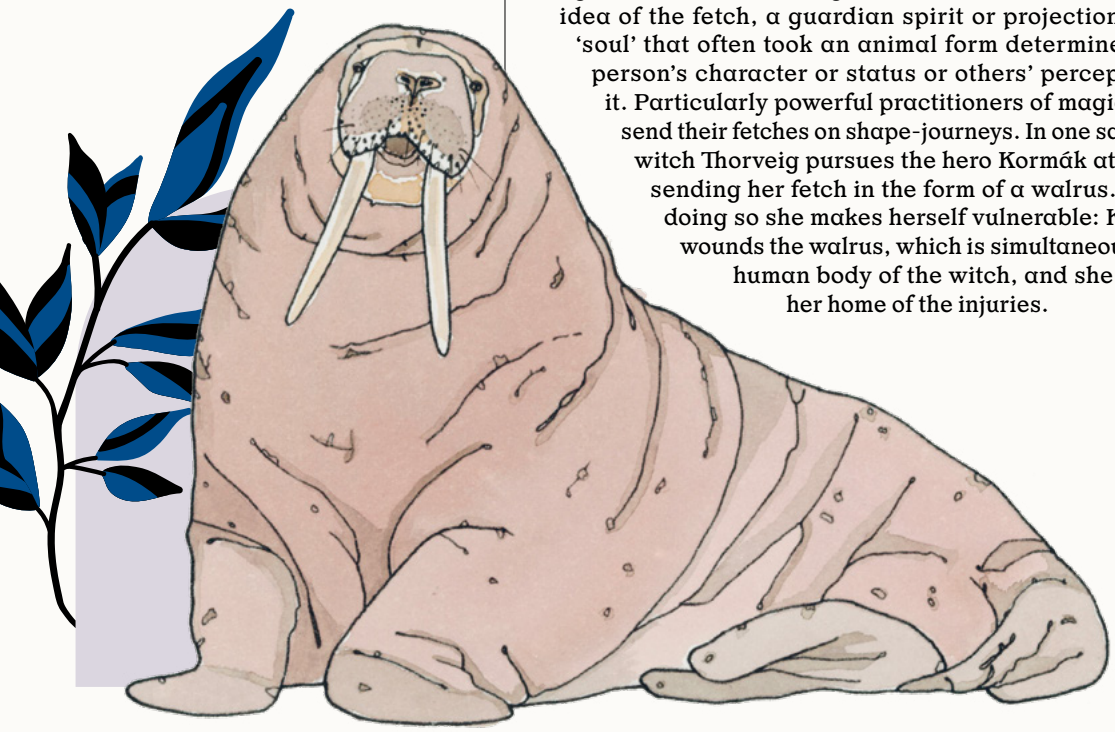
IN A PERIOD OF COMPETITIVE TERRITORIAL EXPANSION AND FAMILY PRESTIGE, NON-HUMAN ANCESTORS LIKE A SWAN KNIGHT OR A DRAGON FAIRY COULD ADD LUSTRE AND PLAYFUL MYSTERY TO A NOBLE GENEALOGY.

WALRUS FETCH

Across Medieval Europe walrus tusk ivory was valued as a raw material for making art objects, including sacred figures, knife handles and the famous twelfth-century Lewis chess pieces. Atlantic walruses were hunted in Iceland until the tenth century, when their overexploitation prompted the Norse colonisation of Greenland. As walrus populations diminished and became more remote hunters resorted to killing smaller female walruses after males with more lucrative tusks became scarce. In the thirteenth century, elephant ivory become widely available and walrus ivory lost its value. The loss of a profitable export commodity and a cooling climate led to the abandonment of Norse settlements in Greenland by the end of the fifteenth century. Fortunately for the walrus, the medieval period of intense overexploitation ended in time for it to recover its important place within sustainable indigenous hunting practice and the Arctic ecosystem.

FORTUNATELY FOR THE WALRUS, THE MEDIEVAL PERIOD OF INTENSE OVEREXPLOITATION ENDED IN TIME FOR IT TO RECOVER ITS IMPORTANT PLACE WITHIN SUSTAINABLE INDIGENOUS HUNTING PRACTICE AND THE ARCTIC ECOSYSTEM.

In the thirteenth and fourteenth centuries, the writers of Icelandic sagas created rich historical narratives set in the earliest period of Icelandic settlement – the ninth to early eleventh centuries. Although the saga authors were themselves Christian, they were re-imagining the struggles and family conflicts of a mostly pagan past; Christianity had no significant impact in Iceland until the eleventh century. Pagan influence in the sagas can be seen in the evocative idea of the fetch, a guardian spirit or projection of the 'soul' that often took an animal form determined by a person's character or status or others' perception of it. Particularly powerful practitioners of magic could send their fetches on shape-journeys. In one saga, the witch Thorveig pursues the hero Kormák at sea by sending her fetch in the form of a walrus. But by doing so she makes herself vulnerable: Kormák wounds the walrus, which is simultaneously the human body of the witch, and she dies in her home of the injuries.



HYBRID

Medieval people saw the natural world as good, beautiful and ordered: the work of a benevolent Creator. Hybrids (combinations of animals of different species or of animals, humans and sometimes plants) were unnatural and confusing things that only existed in fiction, in decorative contexts or as symbols of disorder or playfulness. In some sacred places, like the monastic cloister, depictions of hybrids were considered a dangerous enticement to daydream. Yet medieval people often thought in terms of hybrids when they were trying to describe their ideals. For example, a perfect horse was thought to possess the alert ears and bushy tail of a fox, the narrow head and nimbleness of a hare, the broad chest and large eyes of an ox, and the solid feet and strong backbone of an ass.

Hybrids that squabble and crawl and coil in the margins of medieval manuscripts are more extraordinary and otherworldly creations, perhaps a reminder of the inexhaustible creativity of a God who could bring into existence any being he wished. All kinds of curious and surprising creatures might yet be found in lands into which humans had not yet ventured or in worlds that God had not yet created.

HYBRIDS WERE MESSY AND CONFUSING THINGS THAT ONLY EXISTED IN FICTION, IN DECORATIVE CONTEXTS OR AS SYMBOLS OF DISORDER OR PLAYFULNESS.

PLACES OF SIGNIFICANCE

EAST LONDON

STRATFORD LANGTHORNE ABBEY
This wealthy medieval abbey was founded in 1135. You can see the remains of the abbey gatehouse in Abbey Gardens in West Ham and a stone window and carving in the nearby All Saints Church. The abbey was dissolved in 1538 and by 1732 an alehouse called the Adam and Eve could be found on its original site. In 1845 a medieval onyx seal depicting a griffin and bearing the motto 'I bring you tidings of joy and health' was found in the ruins of the Abbey.

EPPING FOREST
This open space is a fragment of ancient woodland (ca. 6000 acres). It was once part of Waltham Forest (ca 60,000 acres) an area of Essex countryside that included villages, farms and even a town. Waltham forest was made a 'royal forest' in the 12th century, that is, it became a managed landscape in which peasants were allowed to graze livestock and gather wood, but only the king could hunt deer.

HACKNEY MARSHES
These marshes are one of the largest areas of common land in London and a good place to see kingfishers, kestrels, herons and black bream; while rare black poplars line the banks of the river Lea. Sadly, this site of natural beauty also suffers from sewage dumps, litter and invasive plants like the floating pennywort. But many local groups are organising campaigns to increase understanding of, and action on, environmental issues.

THE RIVER LEA
The river Lea originates in the Chiltern hills and flows south-east to meet the Thames in London. In the Middle Ages water mills along the river supplied flour to London bakers who made bread for the whole city. Throughout the year you may see pipistrelle bats, cormorants and greylag geese, and in the spring and summer, dragonflies, warblers, and young mallard, coot and moorhens.

Have you found places to explore in your local area?

BIOGRAPHIES

Lucy Orta

Lucy is a visual artist with an interest in socially engaged creative practices that address key social and ecological challenges. She is Chair of Art and the Environment at the University of the Arts London (UAL) and is a member of the Centre for Sustainable Fashion based at London College of Fashion.

Lucy co-founded the Studio Orta with her partner, the Argentine artist, Jorge Orta, in 1992. They have worked in partnership since 2005 under the co-authorship Lucy + Jorge Orta.

Their artworks have been the focus of major exhibitions in contemporary art museums and galleries worldwide. In recognition of their contribution to sustainability, they received the Green Leaf Award for artistic excellence with an environmental message, presented by the United Nations Environment Programme in partnership with the Natural World Museum at the Nobel Peace Center in Oslo, Norway (2007).

www.studio-orta.com

Sophie Page

Sophie is Professor of Medieval history at University College London (UCL). She works on the social, cultural and intellectual history of medieval Europe, focusing especially on magic, interspecies relationships, science, religion and cosmology. Her publications include *Magic in the Cloister: Pious Motives, Illicit Interests, and Occult Approaches to the Medieval Universe* (2013), and the edited collections, *The Unorthodox Imagination in Late Medieval Britain* (2011) and the *Routledge history of Medieval Magic* (2019). Her work on animals includes *Good Creation and Demonic Illusions: The Medieval Universe of Creatures*, in *A Cultural History of Animals, vol.2* (2007). Sophie was the curator of *Spellbound: Magic, Ritual and Witchcraft* (Ashmolean Museum, August 2018 –January 2019).

HOW TO BECOME INVOLVED

The Amphibian and Reptile Conservation Trust
Bat Conservation Trust
British Hedgehog Preservation Society
British Trust for Ornithology
Bumblebee Conservation Trust
Forestry England
Hedgehog Street
Mammal Society
People's Trust for Endangered Species
Royal Society for the Protection of Birds
Royal Society for the Protection of Cruelty to Animals
Water Vole Conservation
The Wildlife Trusts
World Wildlife Fund

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