



**Western European
Broadleaf Forests**
W-PA12



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FLYING FRIENDS

A bilingual memory game to discover
the birds of your bioregion





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Manual Contents

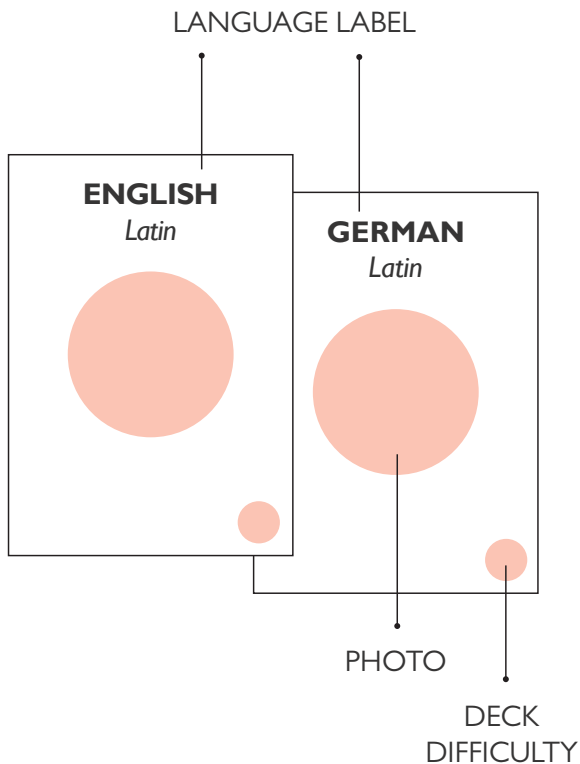
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I.

Content

This game currently consists of 5 decks of game cards. Each deck is made of 12 pairs of cards. Each pair has identical photos and an English or Chinese and pinyin label with the name of the bird. The number in the right lower corner indicates how easily the bird can be spotted and separates the cards into 5 distinct decks which can be purchased separately.

- 1 Very common
- 2 Quite common
- 3 Not quite that common
- 4 Rare
- 5 Very rare



2.

Rules of the Game

The significance of “earnest” is defined by and exhausted in the negation of “play” – earnest is simply “not playing” and nothing more. The significance of “play”, on the other hand, is by no means defined or exhausted by calling it “not-earnest”, or “not serious”. Play is a thing by itself. The play-concept as such is of a higher order than is seriousness. For seriousness seeks to exclude play, whereas play can very well include seriousness.

Johan Huizinga

- 1) Take all cards out of the box and lay them out in rows, face down on a hard and ideally smooth surface.
- 2) One player starts by turning over 2 random cards, one at a time.
- 3) Each card needs to be made visible to all other players.
- 4) Each card label needs to be read out loudly before the next card can be turned over.
- 5) If the two cards match, remove and keep them. Have another go.
- 6) If the cards don't match, its the next player's turn.
- 7) The game is completed when all cards have been paired.
- 8) The winner has matched the highest number of pairs.
- 9) Put all cards back into the box and return the game to where you have taken it from.
- 10) Go outdoors and find the birds you have encountered in the game.

3.

Advise to Parents and Teachers

This game applies the mystery effect and ties deeply into our brain's reward system. Children have a natural curiosity and want to know what they find on the back of a card. In particular, smaller children have a hard time waiting and want to turn over all cards at once. Learning to wait and doing things in a structured and consecutive order is an important lesson and a habit which helps to navigate better through life.

This game helps children to read and remember small parts of the natural world. Parents and teachers are invited to support children aged 6+ to read or spell the bird labels – one at a time before the player turns over the next card. Observe your children; sometimes they are eager to read at a much earlier age and you can use this game to get them going.

Flying Friends is a pairing game. Children are asked to pair identical photos and complementary names in two different languages. Pairing is a basic skill for later scientific work. Players grow their identical, partial and complementary pairing skills which are required for many tasks in different careers like e.g. biology, archeology, physiology, and many more.

Age Guidance

Set 1

Recommended for age 3+

Set 1 and 2

Recommended for age 6+

Set 1, 2, 3

Recommended for age 9+

Set 1, 2, 3, 4

Recommended for age 12+

Set 1-5

Recommended for advanced birders of all ages.

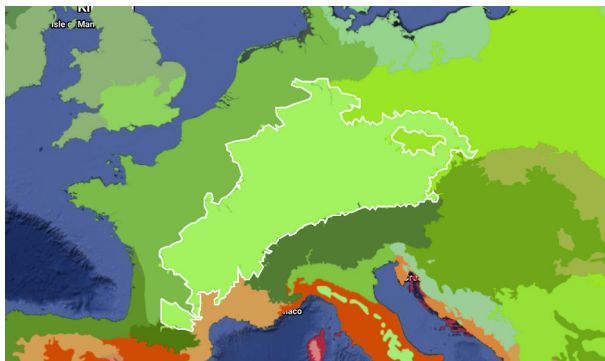
Extensions

Be creative and invent additional rules for the game. Use the information of the manual and e.g. ask the players to describe beak or wings before turning over the next card. Focus on one concept only and introduce the concept before each game. Children in upper elementary and lower secondary can use the bird Definition Cards in the manual to add complexity to the game.

Extension example: Bird Beaks

- Explain before the game why birds have beaks or ask a student in your class to prepare a presentation
- Outline different beak shapes and how birds use them
- Introduce specific vocabulary
- All students play the game in small groups with focus on this particular concept
- Assignment: ask students to write a short article or prepare a presentation about the beak of a bird they are intrigued by

4.

Birdlife of Western European Broadleaf Forests

The bioregion of Western European broadleaf forests encompass larger parts of France, Germany, Czech Republic, Poland, Liechtenstein, Switzerland, Austria and stretches into the Netherlands and Belgium. It includes larger cities like Lyon, Zurich, Munich, Berlin Prague and Vienna and deciduous and mixed forests are the most common natural ecosystems.

Thus it is not surprising that many of the very common birds that are featured in this game are species that thrive in these habitats, like the great spotted woodpecker, the great tit or the common chaffinch. They feed on the seeds of trees like beeches and oaks as well as insects and other invertebrates that inhabit the woods. Most of these birds nest in cavities they find in old hollow trees, which means they are dependent on old wood that is allowed to remain in the forest and not immediately cut down and removed.

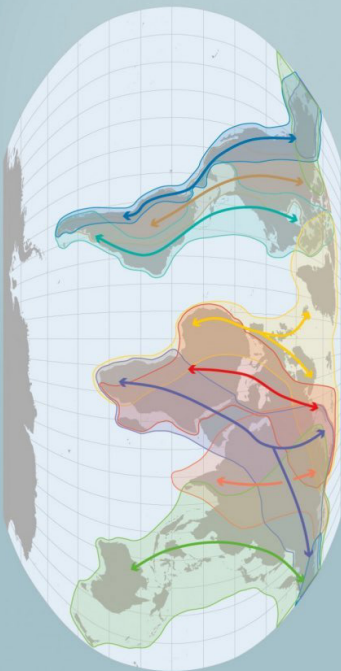
This bioregion has been severely altered by the presence of human beings over the last centuries. Only very little untouched nature remains. Most of the vast woodlands that once occupied the centre of Europe have been cleared and replaced by cities, agriculture and artificial forests for economic purposes, most commonly in form of Norway spruce monocultures. Therefore the most common birds in this part of the world are also the ones who have adapted best to this changing environment. The aforementioned species have been very successful in this aspect, as they do equally well in forest plantations and more urban areas like parks as they do in natural habitats. However, not all birds are so comfortable in human-made environments. The number of birds in the wild has dropped alarmingly over the last decades. In addition to the change in land-use, the application of pesticides in agriculture is said to be the main culprit of this decline.

The majority of birds feed on insects as part of their diet, which is why they are heavily affected if so many insects are killed by pesticides.

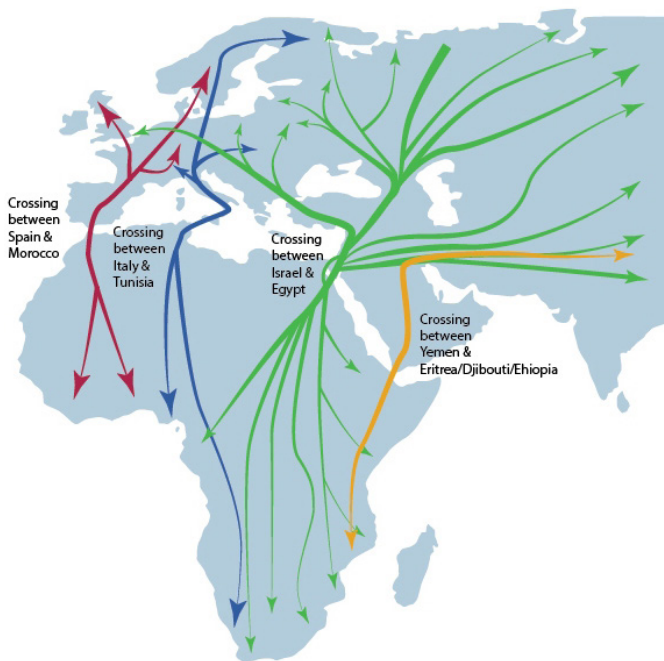
Still, some birds have profited from the human interventions. Pigeons and house sparrows being classic examples of birds who even prefer human settlements to their natural habitats, there are also some cases that are not as obvious. Because a lot of woodland has been transformed to agricultural land e.g. fields and meadows, species that inhabit more open landscapes with more or less scarce tree cover have benefited. One of these is the common kestrel. The small bird of prey hunts in open grasslands where it can easily spot mice and other small mammals from up high. Therefore farmland provides a very suitable habitat. Another example would be the rook. The omnivorous corvids can be most commonly seen on fields where they search for seeds, insects and other small animals.

THE EIGHT MAJOR MIGRATORY BIRD FLYWAYS

-  **PACIFIC AMERICAS**
-  **CENTRAL AMERICAS**
-  **ATLANTIC AMERICAS**
-  **EAST ATLANTIC**
-  **BLACK SEA-
MEDITERRANEAN**
-  **EAST ASIA-EAST AFRICA**
-  **CENTRAL ASIA**
-  **EAST ASIA-AUSTRALASIA**



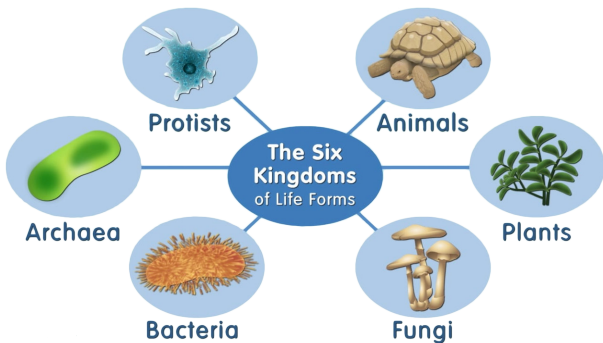
Migratory birds pass the Western European broadleaf forest bioregion along three main routes, which belong to the East Atlantic and the Black Sea-Mediterranean flyways. They cross from or to the African continent between Spain and Morocco, Italy and Tunisia or Greece and Turkey.



5.

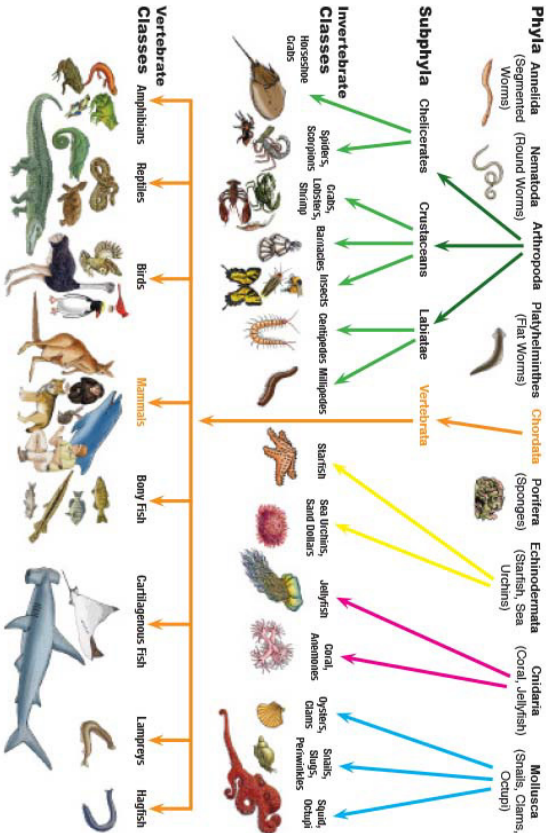
Introduction to Birds

Every species of living thing is related to others that evolved from the same ancestors. They form groups of species that are related to other groups in the same way, like a giant family tree. The tree has six main stems – the six kingdoms of life. Three of the kingdoms are made up of organisms that are mostly too small to see without a microscope, but the others consist of the animals, plants, and fungi.

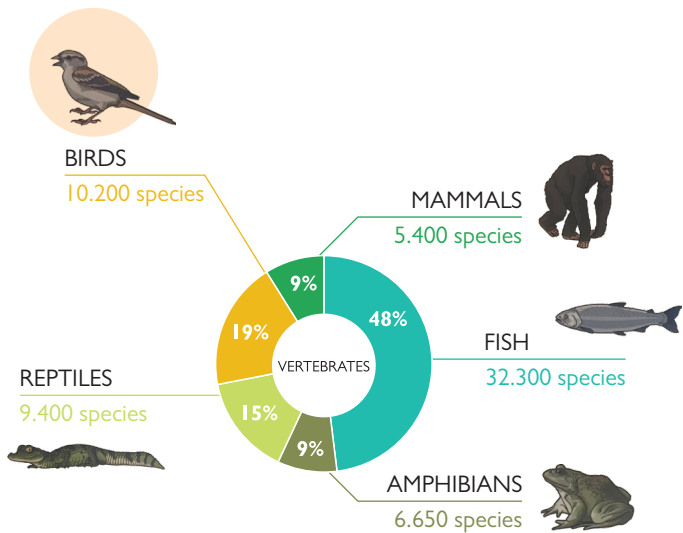


Animal Kingdom

@Sheri Ansel



The animal kingdom is separated in two major groups which biologists call phyla. One group consists of animals with a backbone and is called vertebrates, while the animals without backbone are called invertebrates. Vertebrates are a minority and make up only three percent of all animals. However, apart from trees, they are the largest life form existing and include giants like the blue whale or the African elephant.



With their beautiful feathers, fascinating habits and their amazing flying skills, birds are among the most colourful and intriguing of all animals. Recent research has proved that they are small, flying dinosaurs, descended from relatives of ancient hunters such as Velociraptor. Many of these long extinct dinosaurs had warm, insulating feathers just like those of birds today, but the birds turned them to even better use – by taking to the air.

Birds have a backbone and share this key feature with four other groups of animals: fish, amphibians, reptiles and mammals. There are more than 10000 different species of birds on our beautiful planet and about 930 can be found across the whole of Europe. In Austria about 360 species can be observed regularly, while Germany counts 300 breeding birds and 135 migratory birds passing through on their journeys.

Birds

There are many groups (classes) of animals. Birds are in one group. There are many different groups (orders) of birds. All birds share some traits.

strong, hollow-boned skeleton

lay eggs

beak

care for their young

warm-blooded

feathers

wings

most can fly

loons

kingfishers

hummingbirds

woodpeckers

songbirds

emus, rheas, ostriches, and kiwis, cassowaries

macaws and parrots

geese, swans and ducks

owls

herons

grouse, quails, pheasants and turkeys

doves and pigeons

sandpipers and seagulls

hawks, eagles, and vultures

www.exploringnature.org

©Sheri Amsel

There are many different groups of birds, which biologists call orders, but they all share the same features which define what we call a bird. They are warm blooded, lay eggs, have a beak and most of them can fly. They have wings, a very light, hollow-boned skeleton and feathers for the purpose of flying. However, some birds like penguins or ostriches are in their element when swimming or running. We can differentiate orders of birds in many ways, e.g. by describing the shape of their beaks or wings, if they sing or due to their favorite habitat.

Gliding

An albatross has long, slender wings for maximum lift.

Soaring

Eagles have broader wings to catch rising air currents.

Rapid takeoff

The rounded wings of a pheasant enable it to make a fast getaway.

High speed

Pointed wings give a swift speed and agility in the air.

Hovering

A hummingbird's short, triangular wings are ideal for fast wingbeats.



FLYING FRIENDS



GENERALIST



INSECT CATCHING



GRAIN EATING



FRUIT EATING



CHISELING



DIP NETTING



RAPTORIAL



FILTER FEEDING



AERIAL FISHING



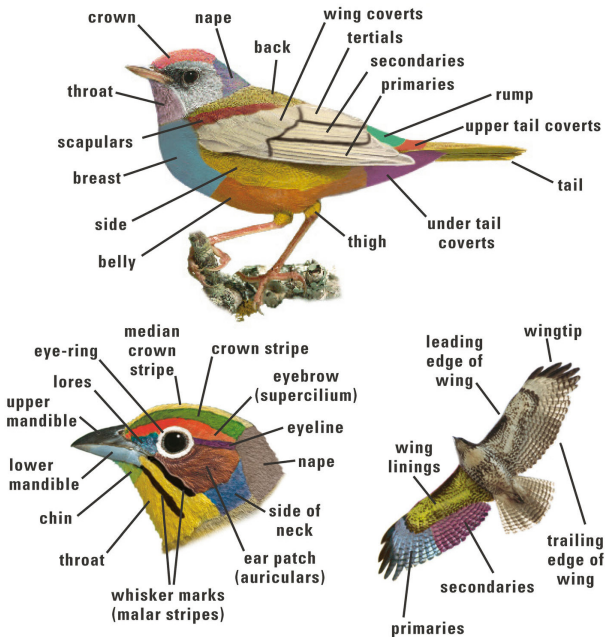
SCAVENGING



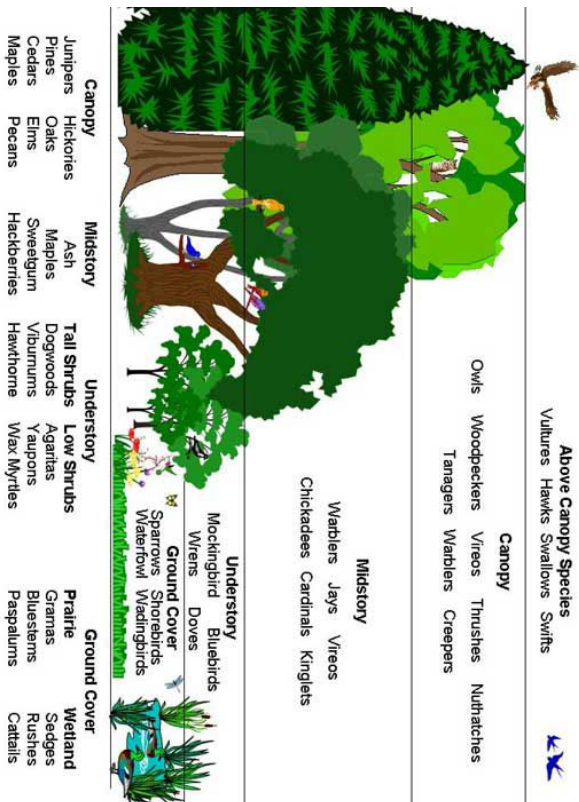
PURSUIT FISHING

While the beak is a prominent bird feature which substitutes heavy teeth of mammals and reptiles with a light and versatile tool, there are many other characteristics to a bird which are different from e.g. a human body. Birds have different “hairstyles”. Some have a crown, others an Elvis Presley-like crest.

Instead of arms they have wings with different types of feathers according to their potential flight height and speed. Many birds have something like natural make-up in the form of a mustache or an eye ring. There is certainly a reason for why we say that somebody walks like a peacock.



Almost every order of birds has its own specific habitat. While vultures, hawks, swallows and swifts circle sometimes far above the canopy, owls, woodpeckers, thrushes, and creepers enjoy the still lofty height of the canopy. The midstory is the favorite playground of warblers, jays, vireos and cardinals. The understory is home to wrens, doves, mockingbirds and bluebirds. Waders, water fowl, and sparrows enjoy the food rich ground cover and shorelines of water bodies.



So, where do we find birds if they don't fly? Exactly, most birds build nests in similarly different locations as their flight height. Some, like the Emperor Penguin don't bother to build nests, others don't use their nests for their eggs, but build nest-like constructions as an extension of their plumage to attract mating partners. Nests are however not permanent residences like human apartments. Birds build nest before the breeding season and use them to raise their young for which most birds care almost as much as mammals do.

CUP NEST



BOWER NEST

PENDULOUS CUP
NEST

NO NEST

WEAVED NEST



SUSPENDED CUP NEST



SCRAPE NEST



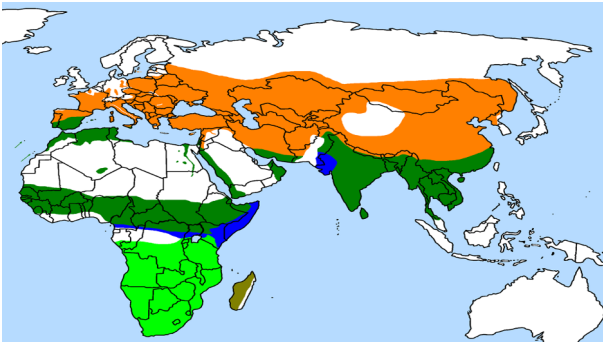
ADHERENT NEST

6.

Our Game Mascot: *Upupa epops*

Upupa epops is an attractive salmon-pink Eurasian bird with a long down-curved bill, a large erectile crest, and black and white wings and tail. It is a widespread Afro-Palearctic and Oriental species and as such a summer visitor from Scandinavia to the Russian Far East, Central, Eastern and North Eastern China and Korea. It winters in Africa, South & South East Asia and in China South of the Yangtze River.

Mark Brazil, 2009



Upupa and epops are respectively the Latin and Ancient Greek names for the hoopoe; both, like the English name, are onomatopoeic forms which imitate the cry of the bird. The hoopoe is native to almost all of Eurasia and large parts of Africa. It therefore exemplifies that ecosystems are not political, but natural, and points at a solution of embracing bioregional ecosystems as the larger territories within which we need to make political decisions.

Hoopoes are distinctive birds and have made a cultural impact over much of their range. They were considered sacred in Ancient Egypt, and were “depicted on the walls of tombs and temples”. At the Old Kingdom, the hoopoe was used in the iconography as a symbolic code to indicate the child was the heir and successor of his father. They achieved a similar standing in Minoan Crete.

In the Torah, Leviticus 11:13–19, hoopoes were listed among the animals that are detestable and should not be eaten. They are also listed in Deuteronomy as not kosher. Hoopoes also appear in the Quran and is known as the “hudhud”, in Surah Al-Naml 27:20–24: “And he took attendance of the birds and said, “Why do I not see the hoopoe - or is he among the absent? (20) I will surely punish him with a severe punishment or slaughter him unless he brings me clear authorization.” (21) But the hoopoe stayed not long and said, “I have encompassed

[in knowledge] that which you have not encompassed, and I have come to you from Sheba with certain news.

Hoopoes were seen as a symbol of virtue in Persia. A hoopoe was a leader of the birds in the Persian book of poems *The Conference of the Birds* («Mantiq al-Tayr» by Attar) and when the birds seek a king, the hoopoe points out that the Simurgh was the king of the birds.

Hoopoes were thought of as thieves across much of Europe, and harbingers of war in Scandinavia. In Estonian tradition, hoopoes are strongly connected with death and the underworld; their song is believed to foreshadow death for many people or cattle. In medieval ritual magic, the hoopoe was thought to be an evil bird. The *Munich Manual of Demonic Magic*, a collection of magical spells compiled in Germany frequently requires the sacrifice of a hoopoe to summon demons and perform other magical intentions.

Tereus, transformed into the hoopoe, is the king of the birds in the Ancient Greek comedy *The Birds* by Aristophanes. In Ovid's *Metamorphoses*, book 6, King Tereus of Thrace rapes Philomela, his wife Procne's sister, and cuts out her tongue. In revenge, Procne kills their son Itys and serves him as a stew to his father. When Tereus sees the boy's head, which is served on a platter, he grabs a sword but just as he attempts to kill the sisters, they are

turned into birds—Procne into a swallow and Philomela into a nightingale. Tereus himself is turned into an epops (6.674).

The hoopoe was chosen as the national bird of Israel in May 2008 in conjunction with the country's 60th anniversary, following a national survey of 155,000 citizens, outpolling the white-spectacled bulbul. The hoopoe appears on the logo of the University of Johannesburg and is the official mascot of the university's sports teams. The municipalities of Armstedt and Brechten, Germany, have a hoopoe in their coats of arms.



Hoopoe on Bamboo by Zhao Mengfu,
c. 1254–1322 (Shanghai Museum)



The official crests of Brechten and Armstedt, two German towns, featuring the Hoopoe
(Source: wikipedia.org)

7.

Bird ID cards

**HOOPOE***Upupa epops**Family: Bucerotiformes*

Name is derived from its call oop-oop-oop.

Size: Length 26-32 cm, weight 47-89g

Description: small head, large erectile crest, long decurved bill, hammerhead appearance

Habitat: favours open woodland, forest edge, groves and thickets, especially in river valleys; largely dependent on natural nest cavities, but sometimes uses holes in buildings.

Distribution: wide spread Afro-Palearctic and Oriental species

Conservation Status: Least concern

BEHAVIOR:

- Erects crest on alighting and in aggression
- Enjoy taking dust and sand baths
- Can quickly produce a foul-smelling liquid during breeding season to fend off predators



BLACK-HEADED GULL (LACHMÖWE)

Chroicocephalus ridibundus

Family: *Laridae*

The genus name comes from Greek “khroizo”= to colour, and “kephale”= head. The specific name comes from Latin “ridere”= to laugh, because of their call, which is similar to laughter

Size: Length 35-39 cm, wingspan 86-99 cm, weight 190-400 g

Description: Relatively small gull, bill and legs red or brown red, in summer with a completely black head, in winter with black spots above and behind the eye

Habitat: Lakes, wetlands, large reed zones, coastline

Distribution: All across Europe and smaller populations in North America and central Asia

Conservation Status: Least concern

BEHAVIOR:

- Omnivorous, feeds on insects, fish, seeds, worms, scraps, carrion
- Mostly migratory while some individuals reside in Europe
- Breed in colonies and often lay some of their eggs in other females' nests



CARRION CROW

(RABENKRÄHE)

Corvus corone

Family: *Corvidae*

The genus name comes from the Latin name for crow; the species name comes from Greek “korone”= crow, which derived from “krozo”= to croak

Size: Length 44-51 cm, wingspan 84-100 cm, weight 400-600 g

Description: Plumage, bill and legs completely black; strong, downwards bent beak that makes it distinguishable from the similarly black rook; smaller than ravens; closely related to hooded crow that inhabits Eastern Europe

Habitat: Open woodland, agricultural and cultivated landscapes, parks

Distribution: 2 main population, one in Western Europe (East and South of Alps replaced by hooded crow) and the other in Japan

Conservation Status: Least concern

BEHAVIOR:

- Omnivorous: feeding on carrion, insects, worms, grain, seeds, small vertebrates, eggs
- Non-migratory
- Pairs nest in trees and females lay 4-6 blue eggs; they have only one brood per year



COMMON BLACKBIRD (AMSEL)

Turdus merula

Family: *Turdidae*

Name is derived from *turdus*, “thrush”, and *merula*, “blackbird”

Size: Length 23-29 cm, wingspan 34-38cm, weight 80-125 g

Description: Adult males are glossy black with blackish-brown legs, a yellow eye-ring and an orange-yellow bill. Adult females are sooty-brown

Habitat: Parks, gardens, woodland

Distribution: Temperate Eurasia, North Africa, South Asia

Conservation Status: Least concern

BEHAVIOR:

- Fluty and melodious song, may already begin singing in January
- Often seeking food (insects, worms, fruit, seeds) on the ground in the open



COMMON CHAFFINCH (BUCHFINK)

Fringilla coelebs

Family: *Fringillidae*

The species name comes from latin “caelebs”=unmarried, since in the Swedish population the females were migrating to South leaving the males alone in fall.

Size: Length 14.5 cm, wingspan 24.5-28.5 cm, weight 18-29 g

Description: Size of House sparrow, easily recognized by double white wing-bar, white tail-sides and grey-green rump; male with grey-blue crown, nape and upper mantle

Habitat: Woodlands, parks and gardens; prefers open woods to dense ones

Distribution: Native to Europe, Palearctic realm to Siberia, north-western Africa; introduced to New Zealand and South Africa

Conservation Status: Least concern

BEHAVIOR:

- Mainly eats seeds and other plant material on ground; during breeding season it feeds on insects
- Partial migrant bird
- It builds nests in tree fork; camouflaged on outside with lichens and moss



COMMON KESTREL (TURMFALKE)

Falco tinnunculus

Family: Falconiformes

The genus name comes from Latin “falx”=sickle, referring to the claws of the bird. The species name comes from Latin “tinnulus”= shrill, which remind of its voice

Size: Length 31-37 cm, wingspan 68-78 cm, weight 136-314 g

Description: Long wings and tail. Chestnut brown upperparts with black dots; light brown, black-striped underparts; Sexually dimorphic: cap and tail blue –gray in males and brownish in females

Habitat: Open landscapes with trees and bushes; mountains; well adaptable to human settlements

Distribution: Different subspecies across Europe, Asia, Africa and oceanic islands

Conservation Status: Least concern

BEHAVIOR:

- Carnivores, feed on mouse-sized mammals; hover in mid-air on the hunt for mice
- It's a cavity nester; the female incubates the eggs while the male feeds her until they hatch; Parental care of the chicks is provided by both adults.



COMMON PHEASANT (FASAN)

Phasianus colchicus

Family: Phasianidae

Both names come from Latin “phasianus”= pheasant and “colchicus” = of Colchis (modern day Georgia), a country on the Black Sea where pheasants became known to Europeans.

Size: Length 70-90 cm, wingspan: 22.1 - 33.9 cm, weight 0.5-3 kg

Description: Accentuated sexual dimorphism; variety of colors in males: long black tail, gold or brownish body plumage, dark green head with small crest; female: duller mottled brown plumage, shorter tail

Habitat: Grasslands and farmlands

Distribution: Native to Asia and part of Europe; introduced globally as a game bird

Conservation Status: Least concern

BEHAVIOR:

- Non-migratory
- Polygynous bird, a dominant male mates with many females. The females provide most of the parental care to the chicks..
- Feed mainly on plant material (grain, seeds, shoots, and berries) as well as on insects and small invertebrates.



COMMON STARLING

(STAR)

Sturnus vulgaris

Family: *Sturnidae*

Both genus and species names come from Latin; “sturnus” = starling and “vulgaris” = common

Size: Length 19-22 cm, wingspan 31-44 cm, weight 58-101 g

Description: Iridescent black plumage with purple or green gloss and white-yellowish spots, long and pointed bill, which is yellow in breeding season

Habitat: Human settlements, gardens, parks, forests

Distribution: Native all across Europe, Middle East and Central Asia; introduced to Northern America, South Africa, Australia, Polynesia and Argentina

Conservation Status: Least concern

BEHAVIOR:

- Omnivores, feeding mostly on insects, but also on seeds, fruit and food waste
- Migratory in colder regions, form huge flocks of up to a million individuals
- Nest in cavities; the males build nests and sing to attract the females; eggs are blueish and both parents cooperate to incubate them



COMMON SWIFT

(MAUERSEGLER)

Apus apus

Family: *Apodidae*

Name is derived from gr. *a* = “without”, and gr. *pous* = “feet”, thought by ancients to be a type of swallow without feet.

Size: Length 17-18.5 cm, wingspan 40 - 44cm, weight 40 g

Description: Blackish-brown with a small pale grey patch on the chin; short forked tail; very long scythe-shaped wings; short legs used mainly for clinging on vertical surfaces

Habitat: The sky, rarely found on the ground, naturally breed on cliffs and tree cavities, nowadays often on multi-storey buildings

Distribution: Europe, Asia, and North Africa (Summer); Sub-Saharan Africa (Winter)

Conservation Status: Least concern

BEHAVIOR:

- Migrate in winter to South Africa
- Hunt insects in the air
- Pairs stay together throughout their lives and the same pair can reuse the same nest site for over 15 years



EURASIAN BLUE TIT

(BLAUMEISE)

Cyanistes caeruleus

Family: *Paridae*

The genus name is from the Ancient Greek “kuanos” while the species name is from the Latin, and they both mean dark blue.

Size: Length 10.5-12 cm, wingspan 18 cm, weight 11 g

Description: Azure-blue crown and black eye-stripe on white head; underparts yellowish-green and wings blue; black bill and blue legs

Habitat: Woodlands, deciduous or mixed woods, parks and gardens

Distribution: European continent, mainly with temperate or Mediterranean climate, and in parts of the Middle East

Conservation Status: Least concern

BEHAVIOR:

- Non-migratory
- They nest in tree holes and the same nest is returned to year after year. Female blue tits perform all the incubation and the males feed the females.
- Mainly insectivore diet, they feed on many pests. If insect prey is scarce, they feed on seeds.



EURASIAN COLLARED DOVE

(TÜRKENTAUBE)

Streptopelia decaocto

Family: *Columbidae*

The generic name is from Greek “streptos”= collar, and “peleia”= dove; the specific name *decaocto* means eighteen and is connected to the Greek myth of a girl the gods transformed into a dove.

Size: Length 29-33 cm, wingspan 48-53 cm, weight 125-240 g

Description: Medium-sized dove with long tail and pale plumage; black half-collar edged with white on its nape

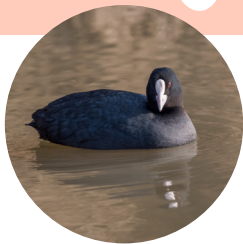
Habitat: Urban (farmyards, towns, parks, and gardens); avoids open spaces

Distribution: Native to temperate and subtropical Asia; expanded to Europe in the 20th century; invaded North America after escaping from captivity in Bahamas

Conservation Status: Least concern

BEHAVIOR:

- Not migratory, but strongly dispersive
- Mostly feeding on grain and vegetable matter
- Breeds throughout the year; monogamous species; female incubate during night and male during the day



EURASIAN COOT (BLÄSSHUHN)

Fulica atra

Family: *Rallidae*

The binomial name is from Latin: Fulica means “coot”, and atra mean “black”.

Size: Length 36-42 cm, wingspan 70-80 cm, weight 750-890 g

Description: Black body and head with white bill and white frontal plate; partial webbing on its long strong toes

Habitat: Lakes and slow rivers with ample vegetation; open-water areas

Distribution: Europe, Asia, Australia, New Zealand and parts of North Africa

Conservation Status: Least concern

BEHAVIOR:

- It is resident in the milder parts of its range but migrates further south and west from much of Asia in winter as the waters freeze
- Both sexes cooperate to build bulky nests in shallow water; the eggs are incubated by both sexes; only a single brood per year
- Omnivore: algae, vegetation, seeds, fruit and a variety of small live prey including the eggs of other water birds



EURASIAN MAGPIE

(ELSTER)

Pica pica

Family: *Corvidae*

From Medieval Latin pica “magpie” also meaning pathological craving for substance unfit for food” (such as chalk), probably translating Greek kissa, kitta “magpie, jay,” also “false appetite”.

Size: Length 46-50 cm, wingspan 56 - 61 cm, weight: 180-245 g

Description: Black plumage with white belly, back and wing patches and purple-green or blue gloss on the wings; long tail

Habitat: Farmlands, thickets, open woodedlands, meadows and mountainsides, parks and gardens

Distribution: Eurasia and North Africa

Conservation Status: Least concern

BEHAVIOR:

- Very intelligent bird - makes and uses tools, imitates human speech, grieves, plays games, and works in teams and can pass the mirror test
- Loud chattering call
- Omnivorous - eats young birds and eggs, small mammals, insects, acorns, grains, vegetable substances



EURASIAN NUTHATCH

(KLEIBER)

Sitta europaea

Family: *Sittidae*

The genus name comes from Greek “sitte”, which was the name for this bird. The species name is Latin for European.

Size: Length 12-14.5 cm, wingspan 22.5-27 cm, weight 17-28 g

Description: Blue-grey upperparts, black eye-stripe, white to rusty-buff underparts, stout grey bill

Habitat: Mixed and deciduous forests with large and old trees, gardens and parks with enough suitable trees

Distribution: Europe except Northern Scandinavia, Siberia, Eastern Asia

Conservation Status: Least concern

BEHAVIOR:

- Insectivores; they implement their diet with seeds and nuts, which they hide and store at wintertime
- Non-migratory
- They are monogamous, forming lifelong pairs; they nest in tree cavities in permanent territories
- Nuthatches are very good climbers that can even climb trees with their head facing downwards



EURASIAN TREE SPARROW (FELDSPERLING)

Passer montanus

Family: Passeridae

The scientific name 'Passer' comes from the Latin word for 'sparrow' and 'Montanus' is latin for mountain.

Size: Length 12.5-14 cm, wingspan 21 cm, weight 24 g

Description: Black-streaked brown back, white wing-bar, dusky underparts, red-brown crown, white cheek with black patch

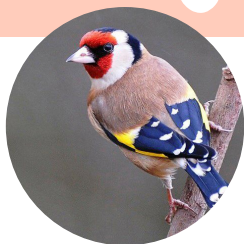
Habitat: Open woodland, cultivated land

Distribution: Temperate Europe, all of Asia except India and Middle East

Conservation Status: Least concern

BEHAVIOR:

- Mainly feed on seed and grain, sometimes insects and other invertebrates especially the young ones
- Mostly non-migratory
- Nests in cavities of old trees or rocks, often takes over unused nests of bigger birds like magpies, white storks or eagles



EUROPEAN GOLDFINCH (STIEGLITZ)

Carduelis carduelis

Family: *Fringilidae*

The genus and the species name (Tautonym binomen) come from the Latin “Carduus” = thistle, which seeds are main food of this bird.

Size: Length 12-13,5 cm, wingspan 21-25 cm, weight 14-30 g

Description: Typical red face, black and white head, warm brown upperparts, black wings with yellow (golden) wingstriae, ivory-coloured bill long and pointed

Habitat: Cultivated landscapes, open deciduous and mixed forests, gardens

Distribution: Europe (apart from northern Scandinavia), North Africa, Western and Central Asia, introduced to North and South America, Southern Africa, Australia and New Zealand

Conservation Status: Least concern

BEHAVIOR:

- Mostly granivorous (feeds on small seeds); can also feed on small invertebrates during breeding season
- Migratory in colder regions (e.g., Northern Europe)
- Builds nest mainly from moss, lichen and spider silk; lays 4-6 eggs



EUROPEAN ROBIN

(ROTKEHLCHEN)

Erithacus rubecula

Family: *Muscicapidae*

The genus name comes from Greek “erithakos” and refers to an unknown bird, now usually identified as robin. The species name comes from Latin “ruber” = red.

Size: Length 12.5-14 cm, wingspan 20-22 cm, weight 16-22 g

Description: Small and brownish, with rusty-red breast and face

Habitat: Woodlands, gardens, parks, forest edge

Distribution: Europe, east to Western Siberia and south to North Africa

Conservation Status: Least concern

BEHAVIOR:

- Non-migratory in most of its range except the far north
- Feeds mostly on insects, snails and worms, but also on fruit and seeds
- Big variety of nests sites; they are prolific breeders, producing between three and five broods a year
- The robin is considered to be a gardener's friend, since it hangs around humans in order to look for earthworms in the freshly dug soil



GREAT SPOTTED WOODPECKER (BUNTSPECHT)

Dendrocopos major

Family: Picidae

The genus name comes from the Greek “dendron”=tree, and “kopos”= to hit; the specific bird comes from Latin “major”= greater, to distinguish it from a smaller woodpecker species.

Size: Length 29-33 cm, weight 125-240 g

Description: Upperparts are glossy blue-black and white; underparts are white with red lower belly and undertail

Habitat: Woodlands, broadleaf, coniferous or mixed, and in parks and gardens

Distribution: Eurasia , North Africa

Conservation Status: Least concern

BEHAVIOR:

- Omnivorous; mainly feeds on insects and conifer seeds, but also other bird eggs
- Their tongue can extend to 40mm to trap insects in the bark holes
- Monogamous during the breeding season; both sexes excavate the nest hole; one brood per year
- Resident bird



GREAT TIT

(KOHLMIESE)

Parus major

Family: Paridae

The genus name comes from Latin “Parula”=small, the species name comes from Latin, meaning big, to distinguish it from all the other smaller tit species.

Size: Length 13,5-15 cm, wingspan 22.5-25.5 cm, weight 14-22 g

Description: Yellow underparts with black mid-line stripe, olive upperparts, black head with white cheeks, blue-grey wings with white wing-bar

Habitat: Common close to trees, from forests to gardens

Distribution: Europe, Middle East, Central Asia, parts of Northern Africa

Conservation Status: Least concern

BEHAVIOR:

- Predominately feed on insects, in autumn and winter also seeds and berries
- Non-migratory, couples stay together in their territory
- Monogamous, seasonal breeder who build its nest in cavities, mostly in trees
- Great tits cope well with the human influence on their habitat and have expanded their range in the last decades



HOUSE SPARROW

(HAUSSPERLING)

Passer domesticus

Family: Passeridae

Name of Passer domesticus comes from lat. Passer “sparrow” and lat. domesticus “domestic” referring to the its habitat in close connection with human habitat.

Size: Length 14-16 cm, , wingspan: 19-25 cm, weight: 24-39.5 g

Description: Robust, with big body and fairly big head with stout bill; Female: pale brown and grey; Male: bright black, white and brown markings

Habitat: Associated with human habitation, in both rural and urban areas

Distribution: Europe, Mediterranean Basin (not Italy), a large part of Asia; introduced to North- & South- America, Australia, New Zealand and Sub-Sahara Africa

Conservation Status: Least concern

BEHAVIOR:

- Eats mainly seeds and sometimes insects
- Prefers to nest manmade structures such as eaves or walls of buildings, street lights, air ducts
- Non-migratory



LONG-TAILED TIT

(SCHWANZMEISE)

Aegithalos caudatus

Family: *Aegithalidae*

The genus name was a term used by Aristotle to indicate European tits; the species name means “tailed” in Latin.

Size: Length 13-15 cm, wingspan 18 cm, weight 6.2-10.4 g

Description: Tiny round-bodied tit; short, stubby bill; very long and narrow tail; the plumage is mainly black and white, with variable amounts of grey and pink

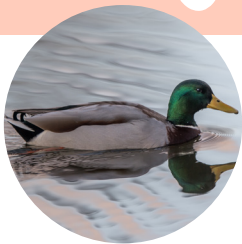
Habitat: Deciduous and mixed woods with rich undergrowth; bushy places; parks and gardens

Distribution: Europe and the Palearctic

Conservation Status: Least concern

BEHAVIOR:

- Mainly non-migratory bird; sensitive to cold weather; up to 80% of the flock may die during harsh winters
- Insectivorous throughout the year
- Builds a closed, oval nest of moss, spider web, birch bark and lichens in branch fork. The individuals without pairs help at the nests of male relatives
- During winter they form compact flocks to survive the cold



MALLARD **(STOCKENTE)**

Anas platyrhynchos

Family: Anatidae

The genus name comes from Latin “Anas” = duck”; the species name comes from Greek “platyrhynchos” = broad-billed (from “platys” = broad and “rhynchus” = bill)

Size: Length 50-60 cm, wingspan 81-95 cm, weight 0.7-1.6 kg

Description: Males in breeding season show a glossy green head and a white collar, females and males in non-breeding season are mottled dark to light brown; both genders show an iridescent purple-blue speculum (patch on lower part of the wing)

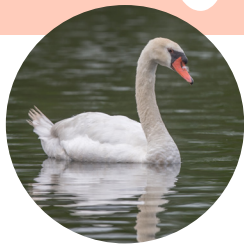
Habitat: Rivers, streams, ponds, lakes, wetlands, parks

Distribution: Almost all of the Northern hemisphere, New Zealand, Australia

Conservation Status: Least concern

BEHAVIOR:

- Omnivores that feed on plants as well as insects, snails or worms
- Non-migratory
- Female lays 8-13 eggs and has to take care of the ducklings without the father's help



MUTE SWAN (HÖCKERSCHWAN)

Cygnus olor

Family: Anatidae

Both cygnus and olor mean “swan” in Latin; The mute swan is less vocal than other swan species.

Size: Length 140-160 cm, wingspan 200-240 cm, weight 8.5-15 kg

Description: Large bird, white plumage with an orange-red beak with prominent black knob on forehead, black nostrils, cutting edges and nails. Very long neck, straight, small head.

Habitat: Freshwater lakes with reedbeds

Distribution: Native of Eurosiberia; introduced to North America, Australasia and Southern Africa

Conservation Status: Least concern

BEHAVIOR:

- Unpaired juveniles commonly form larger flocks (few hundred birds)
- Monogamous, often reuse the same nest each year
- They feed on a wide range of vegetation, including agricultural crops
- Non-migratory



ROOK (SAATKRÄHE)

Corvus frugilegus

Family: *Corvidae*

The genus name comes from Latin “Corvus” = raven; the species name is from Latin “frugilegus”= fruit-gathering. In English, the name “rook” derived from the bird’s harsh call.

Size: Length 44-46 cm, , wingspan: 81-99 cm, weight: 2804 - 340 g

Description: Large, gregarious, black-feathered bird, often showing blue or bluish-purple sheen in bright sunlight; legs and feet generally black; bill grey-black and the iris dark brown

Habitat: Open agricultural areas, like pastures or arable land, often close to human settlements, as long as there are tall trees for breeding

Distribution: Native to Scandinavia and western Europe to eastern Siberia; introduced in New Zealand

Conservation Status: Least concern

BEHAVIOR:

- Omnivorous; feeding mainly on vegetable matter, as well as on invertebrates, small vertebrates, carrions and human waste
- Pair-bond for life and pairs stay together within flocks
- Mainly non migratory bird; the northernmost populations may move southwards to avoid the harsh winter



WESTERN JACKDAW

(DOHLE)

Corvus monedula

Family: *Corvidae*

The scientific name 'monedula' is derived from the Latin word 'moneta', which means money. It was given to the bird for its supposed fondness for picking up coins.

Size: Length 30-34 cm, wingspan 64-73 cm, weight 240 g

Description: Shiny black plumage with purple, blue or green-blue sheen; cheeks, nape and neck are greyish-silver; underparts are slate grey; the bill is stout and short compared to other corvids

Habitat: Close to humans as well as in deciduous woods with hollow trees, locally in mountains and on sea-cliffs

Distribution: Europe, Near and Middle East

Conservation Status: Least concern

BEHAVIOR:

- Omnivorous: insects, larvae, carrion, grain, seeds, fruit
- Non-migratory, apart from the most northern populations
- They are monogamous and pair for life. Even in big flocks the two mates can always be seen together

8.

Ecological Concept

Nature. The word gets two slightly different meanings. One is “the outdoors” – the physical world, including all living things. Nature by this definition is a norm of the world that is apart from the features or produces of civilization and human will. The machine, the artifact, the devised, or the extraordinary (like a two-headed calf) is spoken of as “unnatural.” The other meaning, which is broader, is “the material world or its collective objects and phenomena,” including the products of human action and intention. Science and some sorts of mysticism rightly propose that everything is natural. By these lights there is nothing unnatural about New York City, [or Shanghai], or toxic wastes, or atomic energy, and nothing – by definition – that we do or experience in life is “unnatural.”

Gary Snyder

The natural world is by all means a space in which we are both subject and object. As members of the animal kingdom humans are part of the global fauna and our growing population impacts the biosphere of our planet like no other lifeform. However, modern man quite often

forgets that he is part of the natural world. We live disconnected from what we call nature in urban agglomerations and look at the planet and what is left of nature on the web, in documentaries and in zoos.

Urbanization is one reason for this disconnection; acceleration of modern life and digitalisation of our cultures are two others. New forms of transport have made it possible to travel in only five hours from Vienna to Munich by train and ship goods around the world within a single day. But speed has alienated us from our natural habitats and local ecosystems to such an extent that we don't even know the boundaries of the ecosystems we live in anymore, even less so the plants and animals we share these ecosystems with.

It is Green Steps' mission to connect you with Nature and we continuously develop new services and products to grow empathy for the planet. People ask us why we try to reinvent the wheel. There are already many hundreds or even thousands of publications about wildlife and games about nature on the market. We have observed though that these publications and games do not relate to the ecosystems we live in. They provide either an encyclopedic overview of life or a selection of species which we will rarely encounter in our neighborhoods or hometowns.

Green Steps designs products and services with this connection to your local ecosystem in mind. We hope to build with our games and publications a territory of human scale, one which we can physically relate to with all our senses. This territory of human scale starts with the fire pit which for most of us is nowadays a kitchen without open fire, sometimes not even that because our food gets cooked somewhere else and we “order in.” It continues with our own gardens, if we are in the lucky situation to call a garden our own, and merges from there into the commons, i.e. the land and the spaces which we share with others.

The commons are for many urbanites rather malls than parks and instead of plants, insects and animals we know brands, logos and trademarks. If we get to know the “outdoor” commons and establish stewardship for the green spaces which we share with other life forms, we will gradually develop a concept of our bioregion. We will recognize its natural boundaries, when we travel away from home. We will understand how its ecological balance is threatened and what we need to do in order to improve its condition. Once we have reconnected with the commons and our native bioregion, it will be easier to truly connect with the planet at large and appreciate our individual role in making life on it better for all.

This last step of connecting with the planet at large has been described by psychologists as “overview effect.” A team of researchers at the University of Pennsylvania examined the testimonies of hundreds of astronauts who had the opportunity to view the Earth from space. Their analysis uncovered three common feelings:

1. a greater appreciation for Earth's beauty
2. an increased sense of connection to all other living beings
3. an unexpected, often overwhelming sense of emotion

The researchers believe that seeing the Earth from a great distance provokes someone to develop new cognitive frameworks to understand what they are seeing. They believe these astronauts were forever changed by this new view, this new perspective, this new visual truth. This feeling is commonly referred to as the «overview effect.»

We know at least since the 1970s that human impact damages our home beyond repair and we have only recently celebrated the world's 50th Earth Day without scalable solutions to climate change in sight. What if the overview effect could transform many million people without shooting them into space?

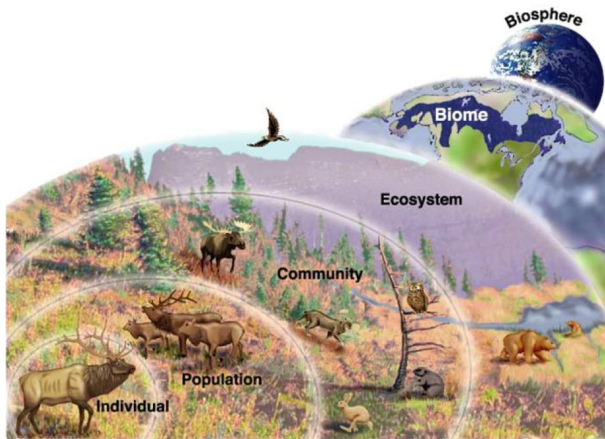
This game grows bioregional awareness and as such a physical understanding of Earth which transcends the political borders of modernity. Bioregions are shards of our planet's surface which are demarcated by a distinct climate, biodiversity and often also culture.

Learning about one's own bioregional identity is a beautiful journey which leads us towards and appreciation of all lifeforms and eventually will result in the overview effect without going to the moon.



The heart of a place is the home, and the heart of the home is the firepit, the hearth. All tentative explorations go outward from there, and it is back to the fireside that elders return. [...] As you grow bolder you explore your world outward from the firepit (which is the center of the universe) in little trips. The childhood landscape is learned on foot, and a map is inscribed in the mind – trails and pathways and groves – the mean dog, the cranky old man's house, the pasture with a bull in it – going out wider and farther.

Gary Snyder



9.

Pedagogical Concept

Nomenclature is one of the most important phases of education. The teacher may establish, by means of the didactic material, ideas which are very exact and clear, and may associate the proper word with these ideas

Maria Montessori

Italian educator Dr. Maria Montessori developed almost a century ago Nomenclature Cards as a method to introduce a complete concept, such as the names of specific colors. They are used after the child has received a complete presentation about a particular concept and has been introduced to related vocabulary. Nomenclature Cards are a pairing activity and are also called Three-Part Cards because children are asked to match picture and label with a control card which shows picture and label combined.

Nomenclature Cards have many benefits on a child's cognitive development. They support abstract understanding of vocabulary through use of images instead of objects. The oral teacher presentation familiarizes the child with writing during the early childhood years.

Nomenclature Cards continue to be presented to children through the lower elementary years to introduce more complex concepts and are supplemented by Definition Cards for upper elementary students.

Maria Montessori believed that play is the important work of early childhood and placed value on children's activities by describing and treating them as work. She combined the traditional definitions of work and play and tried to design learning materials which enable children to both play and work. Dr. Montessori succeeded with many of her designs in this difficult task, but society has changed significantly during the last one hundred years and so have our children's learning needs.

We have observed that Nomenclature Cards are well received by some students but are rejected by others and have come to the conclusion that they lack a play element in their pedagogical design. Traditional memory games, which are widely available on the market have a play element but very limited educational value. We wanted to make the best out of these two approaches and combined the concept of Nomenclature Cards with a memory game. The result is a pairing activity which engages children to learn about certain concepts in their local ecosystem, e.g. birds native to Central Europe, and simultaneously builds their vocabulary.

All our games include elaborate manuals which support older children and adults to learn the basics about a certain concept without the help of a teacher. These manuals do also empower parents without didactic and scientific qualification to introduce concepts of the natural world to their young children. As such, the overall game design becomes an integral part of our vision: improving and decentralizing education with a focus on empathy for the natural world.

This said, indoor games can only complement the sensory experience of being outdoors, where we can see, touch, hear and smell what we might have seen the evening before on the floor of the living room. Parents are recommended to use a light version of the three-period-lesson, another Montessori method, which helps children to recall what they have learned. Our experience as parent and teacher shows that one needs a much less structure approach to this method, when children are exposed to a concept through a game.

Project Team

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We are grateful for the contribution of nature lovers
Merlin Mayer and Gloria Corradini.



FLYING FRIENDS

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