

ZHENGYAO TU
GROUP 3
ZOOLOGICAL

Young Ears Wild Sounds

Interactive
Board

Found a soundscape worth sharing?
Pop it into the nest
and listen to other bird lovers' favorites.

TAP IT ON YOUR PHONE
(with NFC)

LINK OPENS - MUSIC
PLAYS

PICK A BIRD-SHAPED
NFC TAG

PERSONAL VISUAL PROJECT DOCUMENT

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VATION STUDIO 2: INTERACTION DESIGN

ster 2

1 BRIEF

BRIEF | Brief Analysis And Expansion

After receiving the brief, we began to gradually analyze the theme and came up with three key questions. These questions focused on the Highland, spring, and zoological aspects.



DESIGN INNOVATION STUDIO 2: INTERACTION DESIGN
2024-25, Semester 2

SPRING IS COMING...

INTRODUCTION

As we approach the end of January you will now have some understanding of how it feels to get through the long, dark winter in the Highlands of Scotland. For many people it is very important to look forward to the arrival of Spring, with its increased daylight, warmer weather and the apparent coming back to life of the natural world.

There are different ways of defining "Spring", and similarly there are different ways of measuring time and the seasons. For this project your group will be randomly allocated one of the following approaches as a starting point for your thinking and research. (Note that these are not distinct and there will be some overlap between categories.)

Astronomical	Equinox, zodiac, moon phases, ocean tides...
Meteorological	Seasonal change, temperature, weather, daylight savings...
Horticultural	Appearance of plants and blossoms, leaves; planting times...
Zoological	Animal breeding seasons (e.g. sheep, toads/frogs); emergence from hibernation (insects, bats etc); return of migrant birds...
Traditional	Imbolc, Beltane, Holi, Easter, Eostre, Passover...

Meanwhile, it is increasingly recognised that feeling connected to the natural world in some way is important for our mental and physical health. From the Japanese healing practice known as *Shinrin-Yoku* (森林浴) or "Forest Bathing" developed in the 1980s (Miyazaki, 2018) to recent initiatives in the UK National Health Service using "social prescribing" of nature-based activities as an alternative to medication (Fullam et al, 2021), there have been many approaches to encouraging **nature connectedness** to improve our well-being.

Initial Research Questions:

- What does Spring mean to the people in the highlands of Scotland?
- What does the word "Spring" mean?
- Zoological—Animal breeding seasons (sheep, toads/frogs) emergence from hibernation (insects/bats), return of migrant birds

REFLECTION | Brief

I think these three questions provided a broad overview of the brief and served as a good starting point to guide our thinking. They helped us begin exploring the topic. However, I later realized that we had missed some important details. For example, I started wondering: why do local people celebrate spring? How do they decide when spring has arrived? These kinds of questions were not covered in our initial three. So while the questions were a useful entry point, they didn't fully capture the complexity of the topic.

Swan
Mute swan, Bewick's swan

Mating usually occurs every year, from March to May. After swans are reunited with their mates, both will begin to build a nest that will take 2 to 5 weeks to complete. In spring, you might see them nesting on top of a large mound of reeds. Swan chicks can be seen in late spring.

Redshank
Migrant

From the end of February, the number of redshanks begins to increase gradually due to the migration of birds.

It breeds from March to August in solitary pairs or in loose colonies. Breeding Redshanks favour a variety of damp habitats including coastal marshes, lowland wet grasslands and rough pasture on moorland fringes.

spring migrants

Seagull

herring gull, the black-headed gull, the lesser and great black-backed gulls, the common gull, and the kittiwake. What you can see in March is the courtship and reproduction.

1. -When forming a pair bond, the hen approaches the cock on his territory with a hunched, submissive posture, while making begging calls (similar to those emitted by young gulls). If the cock chooses not to attack her and drive her away, he responds by assuming an upright posture and making a mewling call. This is followed by a period of synchronised head-tossing movements, after which the cock then regurgitates some food for his prospective mate.
2. -Nesting usually occurs in late March, but gulls that have completed courtship earlier may already be nesting. Herring gulls nest in colonies mainly on rocky cliffs but also on dunes and even on buildings in coastal towns or cities. A large nest of seaweeds and grass is built, sometimes as early as February. A single clutch of 2-4 eggs is laid but if these are lost more are laid.
3. -In April and May, some seagulls begin to lay eggs. Two to four eggs, usually three, are laid on the ground or cliff ledges in colonies, and are defended vigorously by this large gull. The eggs are usually olive-brown in colour with dark speckles or blotches.



Farming:

Sheep: Lambing takes place in mid-March. As the weather warms up. The new grass is growing and the spring are high in nutrients, and the sheep use their stored body fat that sustained them through the winter to use **rotational grazing** to make so

Cattle: Most highland cows have twins in late April in the highlands, but it's dependent on the weather. They shed their heavy winter coats in the spring. "turnout" (what is the metaphorical meaning of "turnout" in the Spring?")

Pigs: Typically breeding happens in the autumn. (giving birth) happens in the summer.



Aquatic Mammals:

Seals: I haven't found very much spring-specific information on seals yet but I will update when I do!

Otters: Give birth all year. Feed on spawning frogs and toads in spring

Sn...
Sq...
re...
be...
flo...
Ha...
sh...
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Birds

Amphibians

Insects

Mammals

Fish

Zoological—Animal breeding seasons (sheep, toads/frogs) emergence from hibernation (insects/bats), re...

Reptiles

Atlantic Salmon

Breeding Season: October to January (spawns during winter). Juveniles (alevins) hatch in spring and emerge from gravel beds.

Brown Trout

Breeding Season: October to January. Juveniles hatch in spring.

Arctic Charr

Breeding Season: September to November. Juveniles hatch in the cold waters of early spring.

European Eel

Breeding Season: Typically spawns in the winter in the Sargasso Sea of the Atlantic. Juveniles drift across the ocean and return to Highland rivers in spring to grow.



Breeding Season: April to June (starts mating as temperatures rise in spring). Females are ovoviparous (eggs hatch inside the body), and young lizards are usually born between July and August.

2 RESEARCH

- Five insects of spring:
- Bumblebees and Solitary bees
 - Wood ants
 - Spring moths
 - Dark-edged tortoiseshell
 - Large red damselfly

warning!
Midges and ticks

Scotland's native amphibians:

- common frog
- common toad
- natterjack toad
- great crested newt
- palmate newt
- smooth newt

breeding and migration in spring

Amphibians: The Calmngorms' tenacious natives

thropogenic
gest issue)
seases,

ampaign

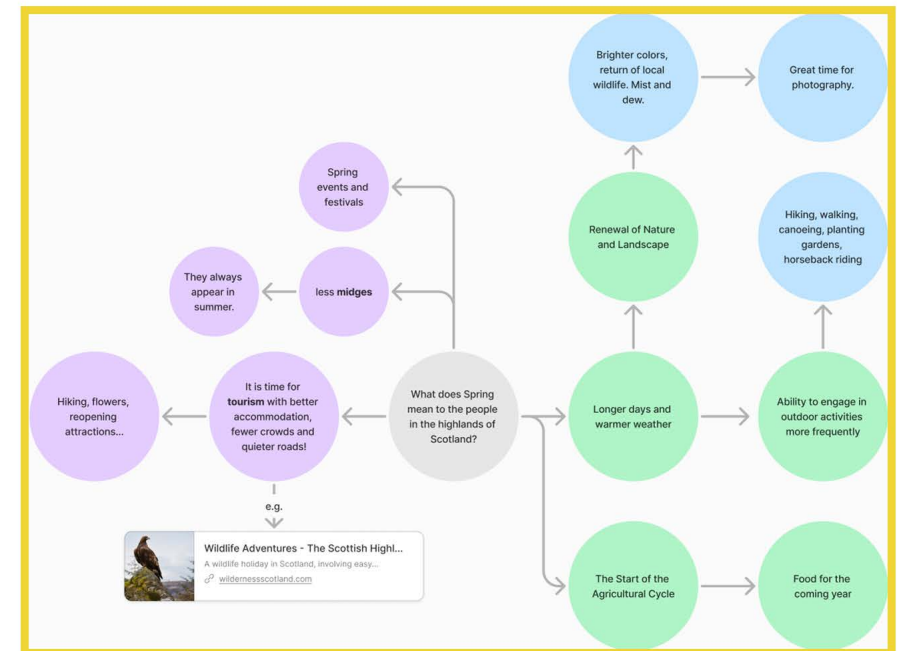
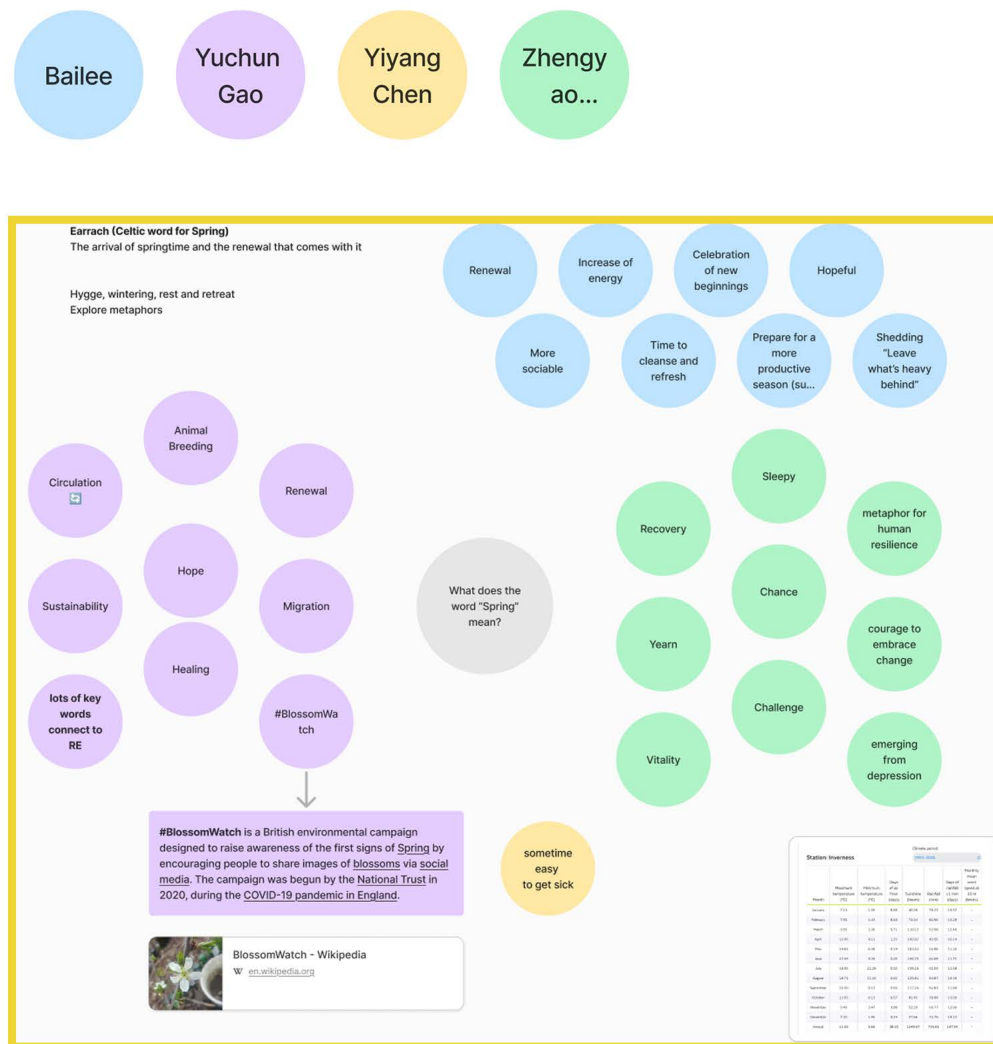
and, J. (2019). Amphibian conservation in Scotland: A review of threats and conservation strategies. *Marine and Freshwater Ecosystems*, 29(4), 647-654. <https://doi.org/10.1016/j.mfe.2019.04.001>

News Item

RESEARCH | Three Question

So, based on these three questions, each of us did a brainstorming session. After generating many keywords, we came together to organize them and analyze their commonalities and unique points.

Next, each person conducted in-depth research, looking for relevant articles and content.



How do humans transition from winter to spring? How do they exit hibernation?

what can we learn from animals?

umwelt — what would it be like to perceive the animal

Springtime rituals — spring cleaning, etc.

Look for inspiration, not information! Look for the interesting and unexpected.

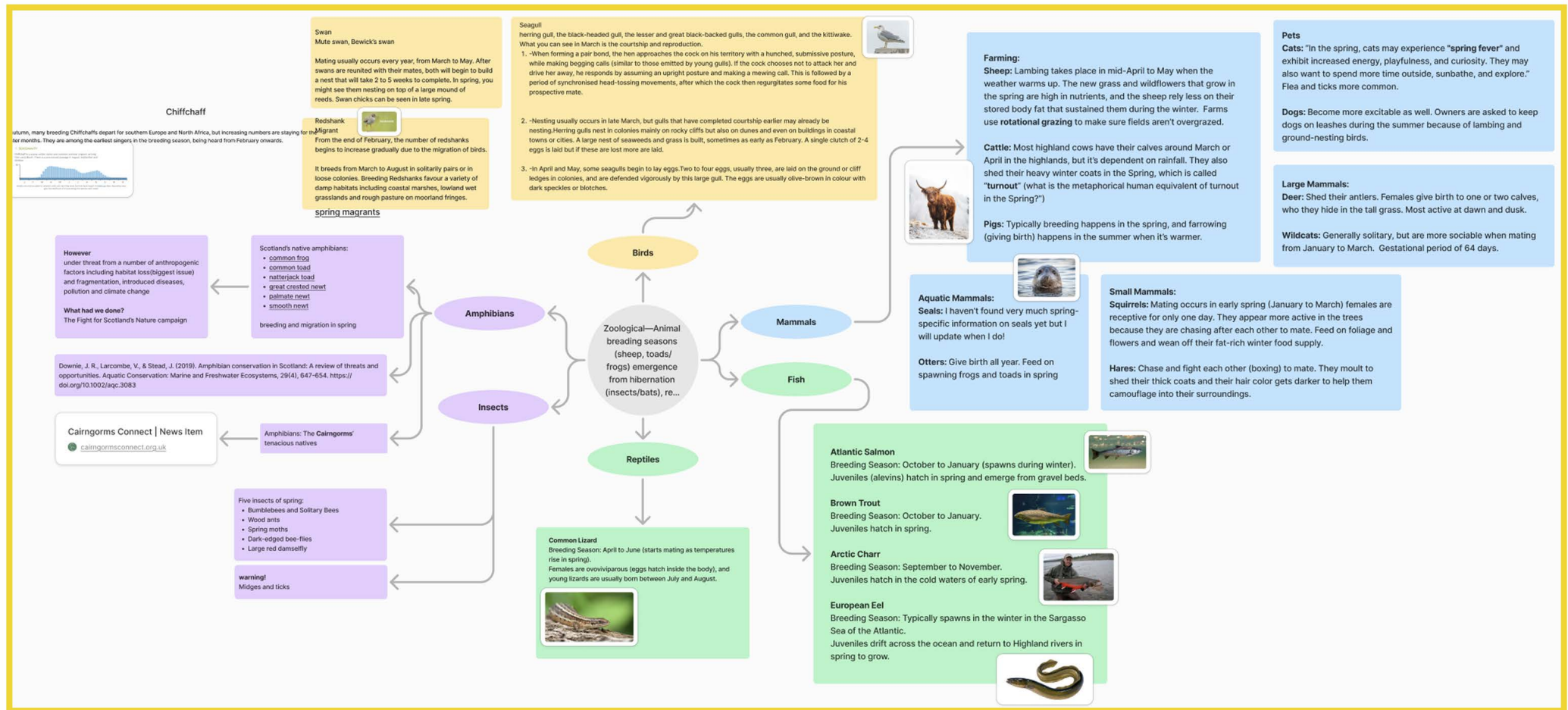
"mad as a march hare"

"going away and coming back" migrate and back to the same nests

REcovery
REsilience
REbirth
REnewal
REfresh

*** *The green part is mine.*

RESEARCH | Three Question



Things to learn more about:
'Turnout'
Mating styles

Shedding — losing heavy winter coats, antlers, fat supplies from winter etc.

More energy — (mating) more sociable, curious, and playful

RESEARCH | Three Question

I became particularly interested in the concept of shedding, so I decided to explore shedding in the Highland region more deeply. I found examples of springtime shedding in the following animals:

Red Deer

They shed their thick winter coats, transitioning to a sleeker summer version. Male stags also shed their antlers, which regrow throughout the summer.

Highland Cattle

Their woolly undercoats thin out as temperatures rise, though their outer hair remains long for protection.

Mountain Hares

These hares undergo a dramatic color change, shedding their white winter fur for a brown coat that camouflages them in the heather.

Ptarmigans

Like hares, these birds molt from winter white to mottled brown, blending into the rocky landscapes.

Sheep (Scottish Blackface & Cheviots)

Traditionally, sheep naturally shed their wool, but farmers assist through shearing in late spring.

Adders & Slow Worms

Reptiles shed their skins as they emerge from winter hibernation, allowing for fresh growth and parasite removal.

1. Antlers, after falling off, break down slowly, releasing **calcium and phosphorus** into the soil, enriching the environment **for plant growth**.

4. **Highland bagpipes** traditionally used antler or bone for tuning slides and embellishments.

DEER shed their thick winter coats, transitioning to a sleeker summer version. Male stags also shed their **antlers**, which regrow throughout the summer.



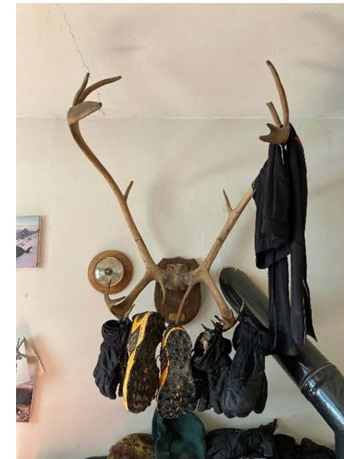
2. Antlers have long been used to make **knife handles, buttons, and decorative carvings**.

5. Some farmers use ground antler dust as a **natural fertilizer** in gardening.



Could naturally dropped antlers be promoted as an ethical alternative to ivory or synthetic materials?

3. Some species, such as foxes, might play with or chew on old antlers to **absorb minerals like calcium**.

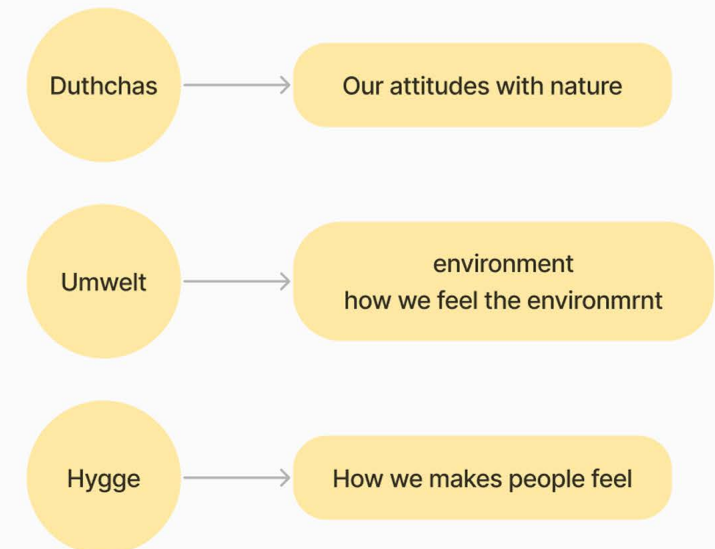
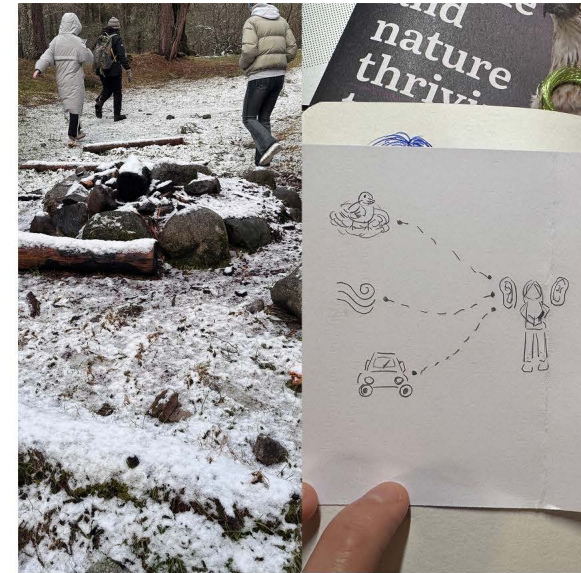


RESEARCH | Cairngorm National Park

Once we had a basic understanding of the brief and some background research, we joined a field trip to Cairngorms National Park, organized by our tutor. There, we also attended a talk by a local staff member named Alan. During his talk, we gained some new insights and perspectives. At the same time, the on-site listening test experience also gave us inspiration.

- What interesting behaviors do you see animals exhibit in the park during Springtime? Any unusual patterns?
- What's the most unforgettable wildlife encounter you've had in the field? Was there a moment that changed how you see the relationship between humans and animals?
- Have you noticed any changes in the behavior or ecological patterns of Highland animals? What do you think is causing these changes?
- How have Highland animals adapted to human activities like tourism, farming, or land development?
- What do you think is missing or often overlooked in current research on Highland wildlife?
- What kind of animal behaviors or natural phenomena tend to fascinate tourists the most?
- Are there any local folklore or traditional stories about Highland animals?

These are the questions that my team members and I prepared for the interview with Alan.



Key points we get

RESEARCH | Cairngorm National Park

So we continued to research these points in more depth, and here is what I found. At the same time, my team members seemed to be more interested in birds, so they researched a lot of birdsong content. At the same time, during the on-site listening experience, we also found that birdsong could express our theme very well, so we chose birdsong as the direction.

Hygge

Seasonal Comfort

Spring is **still cold and unpredictable** in the Highlands, so people embrace coziness with **warm fires, home-cooked meals, and community gatherings before full summer arrives.**

Connection to Nature

The transition from winter to spring brings **longer daylight hours**, encouraging locals to engage in gentle **outdoor activities**, such as **hill walking, foraging for wild herbs, or simply enjoying the changing landscape.**

Rural Social Bonding

Spring is a time when **local markets and Highland Games preparations** begin, bringing people together after the isolation of winter.

Animal Connection

Farmers and crofters experience a deep sense of renewal as **lambs are born, cattle are turned out to pasture, and birds return.** There is a unique joy in witnessing the landscape come back to life.

Duthchas

“tangible conduct and action motivated by a sense of ethics, respect, and responsibility for said place and community to maintain ecological balance.”[[iii]](#_edn3)

umwelt

An umwelt (plural: umwelten; from the German Umwelt meaning “**environment**” or “**surroundings**”) is the specific way organisms of a particular species experience the world, which is dependant on what their **sensory organs and perceptual systems can detect and interpret.**

Red Deer

With acute senses of **smell and hearing**, they detect predators and changes in vegetation long before humans notice them. During spring, they shift from their winter browsing behavior to grazing on fresh, nutrient-rich grass.

Adder Snakes

They use **infrared-sensitive pits and vibrations** to hunt in **cooler temperatures**, emerging from brumation (a reptilian form of hibernation) as spring arrives.

Salmon

Their migration relies on **magnetic field sensing and olfactory memory**, allowing them to return to their spawning rivers after spending years at sea.

Golden Eagles

These apex predators rely on their **binocular vision, spotting prey like hares or ptarmigans from miles away.** Spring gives them an advantage as prey animals become more active.

REFLECTION | CNP

To be honest, I didn't gain that much from the talk at Cairngorms National Park, as I could only understand about half of the presentation. Fortunately, my group members were very thoughtful and took detailed notes afterwards, and they also helped explain the parts I didn't catch. I realize that my English still needs improvement.

As for the research stage, I felt that the topics each of us looked into were quite scattered. This made it easy to overlook some people's findings when we tried to bring everything together. I think this happened because we didn't clearly set a research direction before assigning tasks. This is definitely something I need to pay more attention to in future group projects.

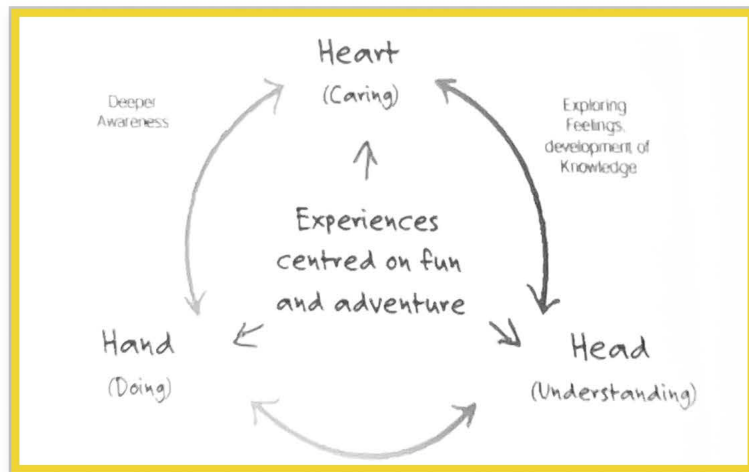
RESEARCH | Nature Deficit Disorder

After that, we had three more questions based on the research content, so we continued to investigate along these three questions.

What are the positive outcomes of nature connectivity in the highlands?

What are the outcomes of not being connected to nature in the highlands?

How has nature connectivity evolved in the Scottish Highlands over time?



**Nature
Deficit
Disorder**

After researching those three questions, we found that a weaker connection with nature often increases the likelihood of developing nature-deficit disorder. This insight became our next point of focus.

RESEARCH | Nature Deficit Disorder

Nature Deficit Disorder in Scotland

The phrase 'Nature-deficit disorder' was first coined by Richard Louv in his book 'Last Child in the Woods' in 2005

From a book review about 'The Last Child in the Woods' by William Crain:

Louv proposes that the consequences of this loss are so severe that children and adults suffer from a "Nature-deficit disorder." The term is not intended to be a new medical diagnosis, but a description of "the human costs of alienation from nature, among them: diminished use of the senses, attention difficulties, and higher rates of physical and emotional illnesses" (p. 34). Louv also suggests that isolation from nature is weakening our creativity and our spirituality — our sense that there is more to existence than the self and our need to love and respect all life. To remedy this nature deficit disorder, Louv calls for a "nature-child reunion" (p. 35).

https://discovery.gsa.ac.uk/discovery/fulldisplay?docid=cdi_crossref_primary_10_1353_cye_2006_0036...



Nature deficit disorder 'damaging Britain's children'

British children are losing contact with nature at a "dramatic" rate and their h...

bbc.co.uk

"diminished use of the senses, attention difficulties and higher rates of physical and emotional illnesses". In the UK as in many other countries, rates of obesity, self-harm and mental health disorders diagnosed in children have climbed significantly since the 1970s.

<https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2022.889828/full>

<https://iti.org.uk/wp-content/uploads/2019/02/children-in-the-outdoors.pdf>

- the link between outdoor use and health
 - Outdoors use and health -- Policy and intervention
 - Children and the Outdoors(key theme)
- (uk)

Rewilding childhood: Reversing the diminishing child-scape

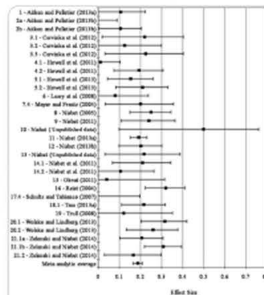
As a species, we evolved outdoors as hunter gatherers for tens of thousands of years, with a deep knowledge of and connection to the local environment on which we entirely depended. It has only been in the last 200 years that the connection between us and the land has been so profoundly broken.

Kith:

"Kith is our home territory, the very local landscape we get to know intimately as children, where a bond with the natural world can develop."

When I moved to the Cairngorms from Edinburgh, I started running nature play sessions with children referred through social work. I was saddened to realise that children as old as ten, who had lived their whole life within a few minutes' walk of a beautiful pinewood, had never made a den, climbed a tree or tasted blaeberrys.

<https://reforestingscotland.org/wp-content/uploads/2017/09/Avery-Childhood.pdf>



Frontiers | The relationship between nature...

Research suggests that contact with nature can be beneficial, for example...

frontiersin.org

Research suggests that contact with nature can be beneficial, for example leading to improvements in mood, cognition, and health.

Each of us searched for information related to Nature Deficit Disorder and took part in a discussion session to share our understanding of it. I also contributed by sharing two secondary sources on the topic.

At this point, we had gathered enough secondary research. After the tutorial, we decided to conduct some interviews to collect primary data. The goal was to explore whether Nature Deficit Disorder also occurs locally and to gain more insights and findings from experts.

RESEARCH | Interview With Lynn



When did you first start learning about gardening and birds? Did that take place in the home?
 Growing up, I had a garden bed the size of this table and it was MY flower bed and job to look after it. I would help with the hedges. At school we would look at wildflowers. There was more nature back then. Now there's an obsession with cutting everything down. OCD for nature. You wake up to the dawn chorus. Then they cut down the trees and the dawn chorus went away.

We are learning that nature connectivity and knowledge is dwindling in younger generations, and that youth are spending less and less time outside. Have you observed this in your own community? If so, how do you feel about it? What do think the consequences are of losing this connection to nature?
 More people played outside when I was younger. Everyone was in nature. Kids aren't playing outside anymore. People wake up, get in their cars, go to work or school, then come home and go to bed. Wildlife is going to suffer [as a result of losing this connection to nature]. Everything has been taken over by the council, and they want it to be neat and tidy. During Covid, they stopped cutting the grass. The grass on the way to wastebusters used to have orange Hawkweed and it was beautiful. But now they cut it every two weeks and you'll probably never see it again. You'll lose the insects too, because they'll have nowhere to go. It's important to be outside. If you're not feeling good, go for a walk. You used to get lots of bugs on your windshield, but you don't anymore. Because people are trying to maximize the amount of food they grow, the soil is suffering. They are spraying everything that's good, and everything that's bad. Forests balance things. If it's too wet, they dry it out. If it's too dry, they. They nation will get sicker because they are losing their connection to daylight.

What impact has being able to recognize birdsong and other animals had on your own wellbeing and connection with the land? Do you feel like it's a skill everyone should have? Why?
 Plants and people that hear birdsong are healthier. It's scientific, rather than just observing. I don't think you need identification to appreciate nature. People used to be much more connected to nature because they needed to use it—food, medicine, textiles etc. People needed to know these things because they didn't have synthetic products.

Working outside—yes. When you work outside, you learn these things yourself.

What birds are most common at this time of year on the estate?
 April—house martens, ospreys, "summer visitors" arrive. This signals the passage of time. Your body really gets into that cycle.

Traditionally, knowledge about gardening and birding etc is passed down orally through mentorship or within the home. How do you think that could be made more accessible to people growing up in homes that don't teach this? If someone were interested in learning bird songs, what resources would you recommend as a starting point?
 If people are interested, they'll look it up on the internet. Or school curriculum. When you learn something as a kid, it's imprinted.

Signs of Spring:
 Chinese new year:
 snowdrops
 crocus —stored energy in bulbs. They don't have to rely on what the light or energy. Also advantageous because they don't have competition this time of year.
 butter burr
 woodpeckers
 deer—have already mated
 foxes, badgers, pine martens
 squirrels—semi-hibernate. Chill out in the wintertime
 bats—still in hibernation for another month or two. They eat insects, so they need to wait for the insects—temperature
 poly tunnel—bees come out earlier

bees need nectar from the plants, plants bloom, birds come for the seeds

Birds come for seeds etc
 20th of march—national frog day
 We will get frogs EVERYWHERE
 frogs, toads, newts
 you will hear them and see them EVERYWHERE
 They lay eggs (amphibians) vegetarian, then carnivores

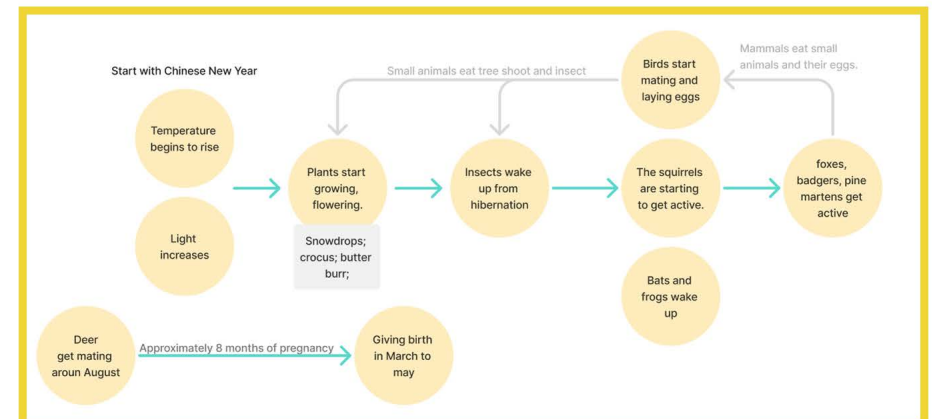
Interview transcript

Goal of Interview

- Better understand how people's connection to nature has changed over time in the Scottish Highlands and what the consequences of that are.
- Learn more about the key signs of Spring experienced here on the Altyre Estate.

Key Takeaways

- Overtime, busy daily routines have pushed people away from the natural landscape, making them less interested in protecting it. This threatens biodiversity and personal wellbeing.
- Everything is connected—each sign of spring influences the next.



Organize and visualize

RESEARCH | Interview With Alan

Goal of Interview

- Learn how people connect with nature *most effectively* in Cairngorms National Park
- Learn about existing programs within the park for various age groups and how to best connect with younger audiences.



You have worked with the national park for many years—have you observed that younger generations are less “in-tune” with nature than previous generations have been?

If yes, what do you feel are the consequences of people becoming less and less connected to nature?

We are especially interested in birdsong and the effects that it can have on people. Can you tell us about your personal connection with birdsong? Are you able to recognize different bird calls and migration patterns? If so, when did you learn this? How do you feel like it's impacted your relationship with the land?

What is Cairngorm National Park doing to promote personal connectivity with nature?

Does the park have nature educational programs for helping people recognize the signs of Spring and other seasons in their daily lives?

Interview Questions

Key Takeaways

- The general public is more influenced by **storytelling** and having personal experiences in nature than learning names and facts.
- Having sensory experiences in nature, particularly during your younger years, leads to a greater sense of **Dùthchas** or care for the environment.

REFLECTION | Interview

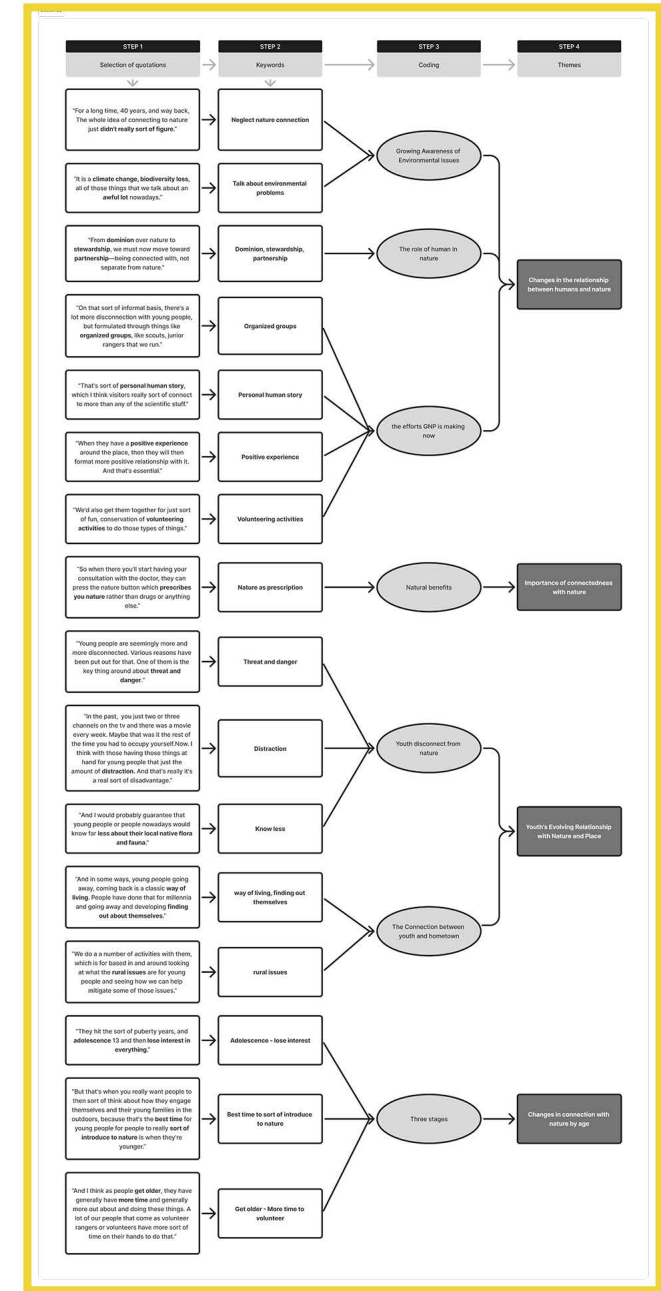
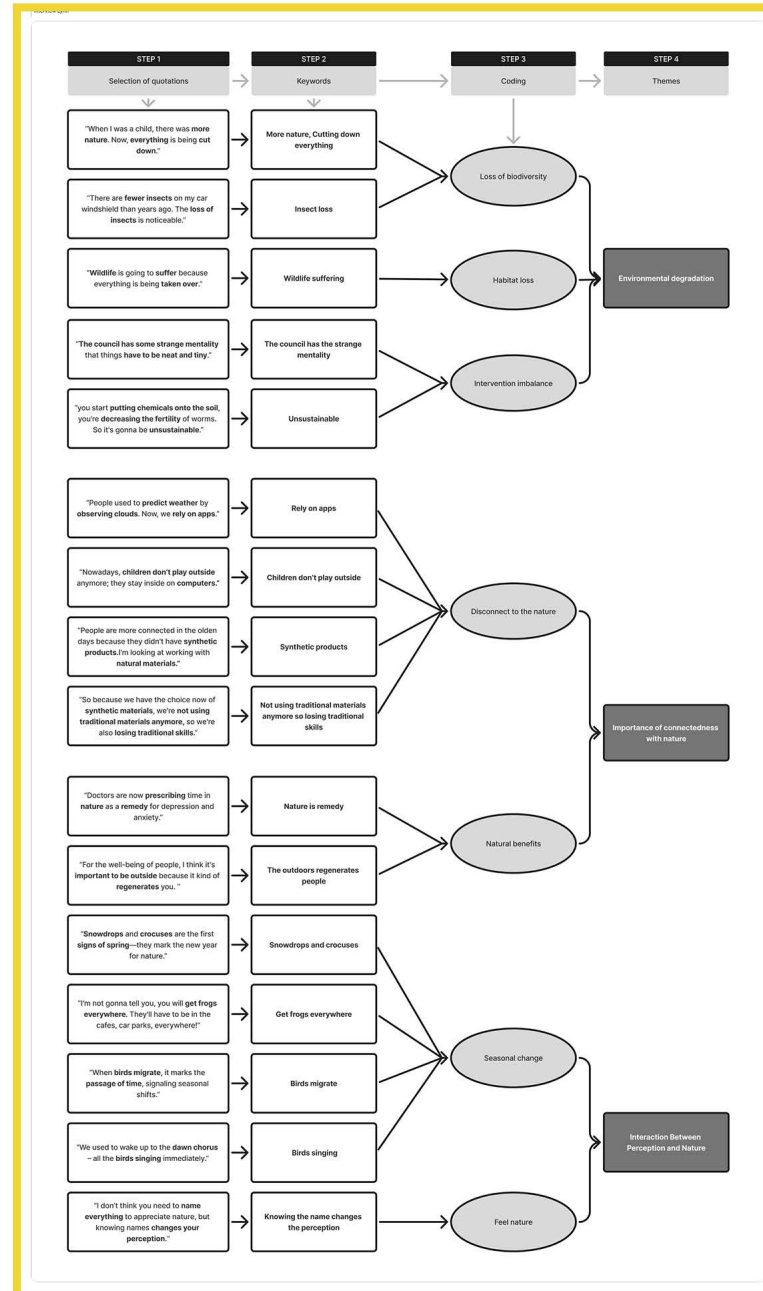
During the interviews, I mainly took on the role of recording, as my spoken English and listening skills weren't as strong as the other group members'. Even so, my teammates still gave me a chance to ask some questions, which really touched me. They didn't exclude me just because I might slow things down. On the contrary, they gave me many opportunities to practice. Although language improvement doesn't happen overnight, I feel that these experiences have made me more willing to speak up and communicate.

The interviews with Lynn and Alan went smoothly, and we gathered a lot of useful information. Everyone in the group collaborated really well, too.

RESEARCH | Interview Analyze

After completing the interviews with Lynn and Alan, we began summarizing and analyzing the content of their responses.

We used an inductive thematic analysis approach to analyze each interview separately. This allowed us to compare the data and identify emerging themes, which helped us determine the next direction for our project. I was responsible for half of them.

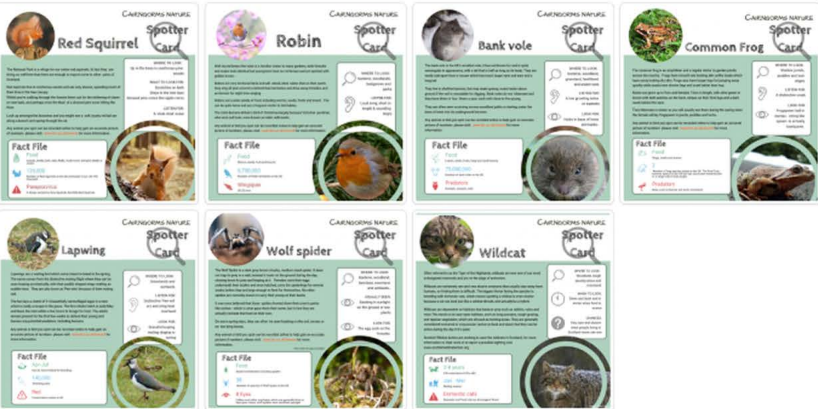


RESEARCH | Back To Desk Research

After extracting these key insights, we carried out further desk research based on the themes that had emerged.

What other nature sounds besides birdsong contribute to wellbeing?

Example projects at Cairngorms, other national parks in UK, and academic papers



<https://www.naturefromyourhome.org.uk/>
Nature from your Home - Cairngorms National Park Authority
"Nature from your Home" is a project that aims to help people connect with nature in their own backyards. It provides a range of resources, including fact sheets, audio guides, and interactive games, to help people learn more about the wildlife that lives around them.

<https://www.researchgate.net/publication/266400190>
The influence of listening to nature sounds on mental health

The sounds of ocean waves, stream, thunderstorm and birds, which are called nature sounds, have a deep connection with the life of human beings in the process of evolution.

Nishida, Kazumi & Oyama-Higa, Mayumi. (2014). The Influence of Listening to Nature Sounds on Mental Health. Communications in Computer and Information Science. 404. 319-323. 10.1007/978-3-642-54121-6_30.

<https://www.researchgate.net/publication/266400190>
"We are putting together a Google Earth Web sound map for UK National Parks."
"We want to find ways of helping visitors and residents of each Park to engage more with the invisible, yet audible world of sound, encouraging more attentive listening."

<https://www.researchgate.net/publication/266400190>
The sounds of birdsong and running water are not only comforting. Bioacoustics may also play a crucial role in ecosystem recovery.

In recent years, the technology for passive acoustic monitoring (PAM) has rapidly advanced. By using ultrasonic sounds to monitor bats and other hard-to-detect species, sensors can be deployed in the field for extensive periods with minimal disruption to provide insights into species distribution, physiological states, and more.

One of the primary goals of the initiative is to determine key indices for upland moorlands, a landscape characterised by low-growing shrubs, grasses and bog-mosses, often on damper peaty soils.

At this stage of the research, we seemed to hit a roadblock. We couldn't figure out the next breakthrough—specifically, how to choose the right target audience. So we decided it might be helpful to conduct a broad round of street interviews and then identify a suitable audience based on the responses we gathered.

RESEARCH | Interview With River



We first interviewed River, a woman from South Africa. Although we didn't end up using much of the information she provided directly, some of her reflections were quite inspiring. We realized that a person's relationship with nature is often deeply shaped by their past experiences or their parents' influence. At the same time, we also emailed a secondary school teacher with some questions. Unfortunately, she was too busy with work and wasn't able to respond.

What brought you to Forres?

- Worked for space industry in Atacama desert in Chile
- Came here to work for space industry, but haven't found opportunity
- Created business to bridge the gap between locals and the work she was doing in space industry with precious metals

Is feeling connected to nature important to you and your creative work?

Everything we live and experience on a daily basis is connected to nature. One cannot separate living with nature. You can never be 100% okay with yourself if you don't connect with your surroundings.

Whether it's desert or forest, I have to

Very often when I move somewhere new, I'm on my own and I don't know anything

Odor, smell, how plants touch and smell in a new place

Great affinity for Japanese bonsai because of the moss

Touch and feel the moss that grows on the trees in the forest

What are the biggest nature differences between Forres and South Africa?

Every country has its own beautiful environment

All 4 seasons in one day—south Africa. You never really know what you're going to get, which adds beauty to your environment.

We can see aurora here but not in South Africa

Do you feel disoriented by the differences in the natural environment?

Yes, people don't understand how much the earth is changing and how different it is compared to where in the world you are. You have to be aware so you can be prepared. You get used to the way of life in a certain place. And are less

Which signs of spring are the same or different here?

Surprised by flowers coming out so soon

What might help you feel more connected to the natural environment here?

When someone moves into a new village or town

Something to introduce people to town

Community

A way to learn about the medicinal properties of local plants

Walk around the forest with newcomers

Community garden!! Local plants that were originally there

Animals:

Father had a game farm with large animals

Relate very strongly to animals

The only animals exposed to here are people's dogs and cats

Would love to know where to find deer for example—where to find on Altyre estate

It would have been nice as a foreigner for someone to tell me where I can go experience these things

Any ideas for things that might help newcomers to the Scottish Highlands feel more connected to nature?

One thing that's really important that not a lot of people realize the value of is the power of scent

Using smells to help people remember memories

Always a good idea to connect people to the local universe through smells

Bee bird, humming bird, sunbird

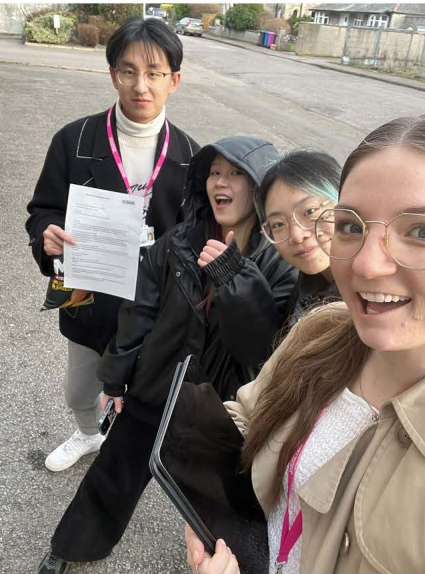
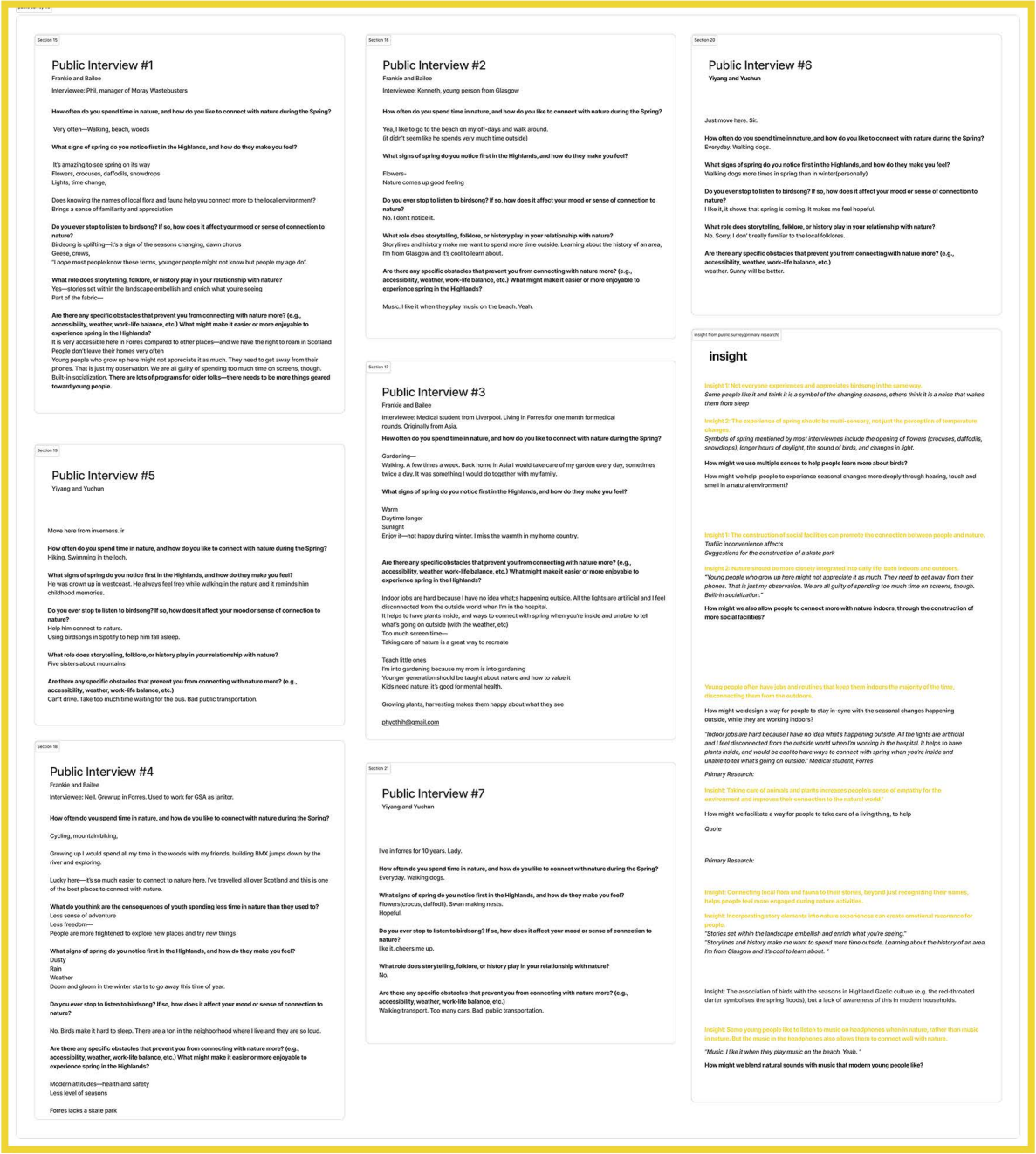
People don't think about newcomers as people who want to know what the local plants and animals are.

Picnics for newcomers

Raise awareness

What do you think are the biggest factors in whether or not people care about taking care of the environment?

RESEARCH | Public Interview



In order to find a suitable target audience, we conducted public interviews with people of different age groups and backgrounds. We split into pairs for the interviews and, in total, spoke with seven individuals.

RESEARCH | Target Audience

Based on the interviews and our previous desk research, we narrowed it down to two potential target audiences. However, we struggled for quite a while to decide between them. Both young adults and children and young families had valid reasons to be chosen, and we couldn't determine which one was more suitable purely from the data. In the end, we made our decision based on personal preference and chose young adults as our target audience.



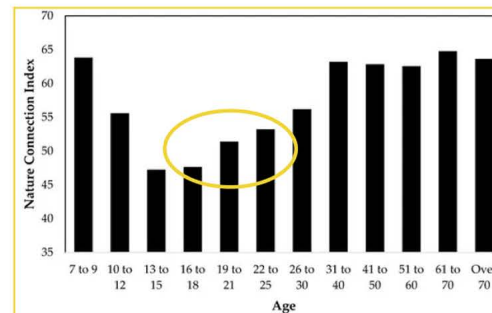
Young Adults ages 18–24

Young adults spend the least amount of time outdoors of any age group (see next slide), and experience low levels of nature connectedness due to work, educational, and social endeavors during this stage of life.



Children age 5–12 & Young Families

Although research suggests that experiences in nature as a young child make the biggest difference in pro-environmental behaviours, there are many resources already available that are geared toward children and young families.



Evidence in Desk Research

Young people aged 18–20 are the least likely to time outdoors, with only six per cent spending one to three hours and three per cent spending four to eight hours outside per week. (Young Scot, 2020)

Scot, Y. (2020). Young People and Nature: Insight Briefing. [online] Young Scot Corporate. Available at: <https://youngscot.net/young-people-and-nature-text-only> [Accessed 13 Feb. 2025].

REFLECTION | Target Audience

This situation made me reflect on why we struggled to determine a clear target audience. I think one possible reason was that we didn't explore the connections between different groups. For example, a child's early experiences with nature can influence their willingness to engage with nature later as a young adult. If we had looked more closely at these kinds of links, we might have been able to make a more informed decision. Another factor was probably time pressure. At that point, our mid-term presentation was approaching, so we had to make a decision quickly. This led to a somewhat rushed choice.

In future projects, I may encounter similar situations where the target audience isn't immediately clear. When that happens, I'll try to explore the relationships between different groups to help guide the decision.

How do storytelling and mixing natural soundscapes (birdsong) into their daily environment?

Ideas

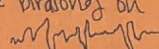
Installation of acoustic interaction device of real-time birdsongs.

Location: Entrance, bus stop, place where people usually walk by)



amplify birdsong -

Create a speaker that automatically starts playing birdsong early in the morning as you are waking up

Visualize birdsong on walls -  to help people see when birds are most active!

birdsong speakers as white noise in school hallways, hospital waiting rooms, etc?

(that connect to real time audio from locations in Cairngorms National Park)

Give people checklists or "quests" that help them recognize birdsong & other spring indicators on their daily commute (could be incentivized like wine tastings)

AR books or booklets that play bird calls and tell stories

daily meditations

Focused on local birdsong (and other plants & animals)

- how to recognize it
- what it represents in folklore

- how to share your experiences

if you like the thing (photo, sound)

results could be published!

In a book or website

With everyone's shared experiences when they share them in the app

Installation
each time you press a button the sound of a local bird is played accompanied by the story of the corresponding animal

3 OPPORTUNITY

OPPORTUNITY | Insights

With that, our early-stage research phase came to an end. We first extracted insights from all the research we had gathered. Then, we worked to organize and refine these insights, selecting and keeping only the most relevant and meaningful ones.

⚡ INSIGHTS ⚡

STEP1: all insights

order	insight	primary research + secondary research (references)	note
1	Knowing the names of local flora and fauna increases how connected to nature people feel while engaging in nature-related activities	"Names are one of our human built-in abilities, not only with each other but with the living world. It brings us together when it enables us to go through things and not knowing the names of the plants and animals around us. Once you are part of it, you start to care where you start to live, and that's why I had to do a story and describe it—like being lost in a foreign city where you don't read the good guide." (Wentworth, 2015) Wentworth, M. (2015). <i>Discovering a new world: the importance of language in nature conservation</i>. https://www.bbc.com/news/health-30888888	✓ Combined with the 2nd one
2	Rather than just focusing on the names of local flora and fauna, connecting them with stories can help people care more.	"Using stories, or storytelling, as an educational tool helps us deliver knowledge content with a context. If you deliver knowledge content that has no context, that knowledge content has to pass through a lot of stages of getting it to connect with what the knowledge recipients already have experiences with." (Dutthachan, 2019b) Dutthachan, S. (2019b). <i>Discovering a new world: the importance of language in nature conservation</i>. https://www.bbc.com/news/health-30888888 "And so you are teaching on the whole thing about people knowing the names of things, looking at the whole thing about the names of flowers and plants and animals and stuff, and not just focusing on the names of things, but looking at the whole thing about much about story. And story is the thing that connects people who don't have an expertise or don't have an interest in that scientific approach." - interview with A.	
1+2	Connecting local flora and fauna to their stories, beyond just recognizing their names, helps people feel more engaged during nature activities.		
3	Childhood memories can influence interactions with nature in adulthood.	"According to our theories, greater contact with nature during childhood is associated with greater adult contact with nature as an adult, which, in turn, is positively associated with connections to nature and PER. The stimulation of pleasant experiences while in direct contact with nature during childhood leads to bigger interactions with nature in adulthood and consequently, also to more pro-environmental attitudes." (Wells, Rydell and Oudejans, 2016) Wells, L., Rydell, R., & Oudejans, J. (2016). <i>Childhood nature experiences and adult nature engagement: A meta-analysis</i>. https://www.sciencedirect.com/science/article/pii/S0926641016300050 "Children's exposure to nature was the strongest predictor of a number of aspects of adulthood environmental citizenship and behaviour and attitudinal commitment to nature-based activities. Exposure through nature-based experiences had a predictive value for these outcomes (Aronson et al., 2017) Aronson, E., Aronson, E., Aronson, E., et al. (2017). <i>Childhood nature experiences and adult nature engagement: A meta-analysis</i>. https://www.sciencedirect.com/science/article/pii/S0926641016300050	✓
4	Taking care of a living organism increases one's sense of place or "Dutchness"	"Concretely, encouraging adults to interact with living things that their community often take to care about them, and they motivate them to take action that preserves them in their habitat." (Boris et al., 2021), p. 349 Boris, M., et al. (2021). <i>Encouraging adults to interact with living things that their community often take to care about them, and they motivate them to take action that preserves them in their habitat</i>. https://www.sciencedirect.com/science/article/pii/S0926641021000050 Additionally, as it explains, that ecological and genetic, goes beyond a mere "feeling" of identification with nature and community to tangible control and action motivated by a sense of respect, respect, and responsibility for said plant or organism to maintain ecological integrity." (Boris et al., 2021) Boris, M., et al. (2021). <i>Encouraging adults to interact with living things that their community often take to care about them, and they motivate them to take action that preserves them in their habitat</i>. https://www.sciencedirect.com/science/article/pii/S0926641021000050 Because the things that we see, we change and do things in order to protect them and do all after them other things, everything. In that's the key principle, really that we're working on. And that, in a sense, is embracing the concept of place, that we're working on the sense of connection, it's also about the sense of responsibility." - Alan Reiner	✓
5	The frequency of nature engagement plays a large role in the lasting impacts of nature connectivity.	"Engaging such a small requires more than simply going outdoors. Instead, people need to do things over time in the places where they hope that it might lead to a change and meaningful change, but a closer and somewhat part of their lives (Aronson et al., 2017). No measures reported suggest that nature is easy to do and that it is important to develop a connection and confidence." (Boris et al., 2021), p. 349 "The 'least sensory contact' that results in the smallest experiences of nature is also important for developing a sense of connection and may be a key to providing pro-environmental behavior through the strongly affected population." (Boris et al., 2021), p. 349 Boris, M., et al. (2021). <i>Encouraging adults to interact with living things that their community often take to care about them, and they motivate them to take action that preserves them in their habitat</i>. https://www.sciencedirect.com/science/article/pii/S0926641021000050	✗
6	Spending time appreciating nature has a bigger impact than consuming nature or simply spending time outside.	"The research studies clear that appreciative outdoor activities during childhood, such as an opportunity to observe and walk to parks, were not only related to the greatest appreciation of nature in adulthood, but also resulted in the greatest likelihood of future outdoor activities, such as being involved in environmental organizations and engaging with the environment with others, later in life." (Hewson, 2021), p. 600 Hewson, L. (2021). <i>Childhood nature experiences and adult nature engagement: A meta-analysis</i>. https://www.sciencedirect.com/science/article/pii/S0926641021000050 Appreciative Activities: being, nature photography, mind-walk, walking a sunset Consumptive Activities: hunting, fishing, birding Appreciative Activities: Off-roading, engaging a volunteer to help the environment (using time as a forest guard post)	✗ Cautions and insights are not aligned
7	Unstructured time exploring the outdoors is much more effective at positively influencing pro-environmental behaviors than structured activities.	"Children's self-reported nature use was the strongest predictor of a number of aspects of adulthood environmental citizenship and behaviour and attitudinal commitment to nature-based activities. Exposure through nature-based experiences had a predictive value for these outcomes (Aronson et al., 2017) Aronson, E., Aronson, E., Aronson, E., et al. (2017). <i>Childhood nature experiences and adult nature engagement: A meta-analysis</i>. https://www.sciencedirect.com/science/article/pii/S0926641016300050 "Self-reported nature use was the strongest predictor of a number of aspects of adulthood environmental citizenship and behaviour and attitudinal commitment to nature-based activities. Exposure through nature-based experiences had a predictive value for these outcomes (Aronson et al., 2017)" Aronson, E., Aronson, E., Aronson, E., et al. (2017). <i>Childhood nature experiences and adult nature engagement: A meta-analysis</i>. https://www.sciencedirect.com/science/article/pii/S0926641016300050	✓
8	Humans are multi-sensory and many benefits appear to be realized through the non-visual senses, and benefits from nature experiences through non-visual routes are potentially important	"Evidence that experiences of nature can benefit people has accumulated rapidly. Yet perhaps because the devastation of our senses in business, and even in leisure, is so common, many have not recognized this. The human senses are multi-sensory, and it seems likely that many benefits were delivered through the non-visual senses and are potentially important." (Hewson, 2021), p. 600 Hewson, L. (2021). <i>Childhood nature experiences and adult nature engagement: A meta-analysis</i>. https://www.sciencedirect.com/science/article/pii/S0926641021000050	?
9	Small connects people to past experiences, which enhances long-term mental connectivity.	"Also, while smaller memories were associated with stronger feelings of being brought back in time and had been thought of less often than memories evoked by verbal or visual information." (Bentley, 2022) Bentley, P. (2022). <i>Childhood nature experiences and adult nature engagement: A meta-analysis</i>. https://www.sciencedirect.com/science/article/pii/S0926641021000050	?
10	People's moods are affected by seasonal changes, and are generally more positive in spring.	Wentworth, M. (2015). <i>Discovering a new world: the importance of language in nature conservation</i>. https://www.bbc.com/news/health-30888888 Wentworth, M. (2015). <i>Discovering a new world: the importance of language in nature conservation</i>. https://www.bbc.com/news/health-30888888	✗
11	Birdsong can improve people's mental health while relieving anxiety and reducing stress.	Stokols, C., & Shuman, J. (2010). <i>Childhood nature experiences and adult nature engagement: A meta-analysis</i>. https://www.sciencedirect.com/science/article/pii/S0926641016300050	✓
12	Birdsong is disappearing, a symbol of ecological decline. At the same time, this has led to a reduction in the direct interaction between people and nature, thereby reducing people's awareness of environmental protection.	Stokols, C., & Shuman, J. (2010). <i>Childhood nature experiences and adult nature engagement: A meta-analysis</i>. https://www.sciencedirect.com/science/article/pii/S0926641016300050	✗

STEP2: Categorize and summarize insights
STEP3: Extract key insights

Insights

1. Being familiar with the names of local flora and fauna can increase your sense of place and desire to take care of it.
2. Rather than just focusing on the names of local flora and fauna, connecting them with stories can help people care more.
3. Taking care of a living organism increases one's sense of place, or "Duthchas"
4. Birdsong can improve people's mental health while relieving anxiety and reducing stress.
5. Young people are likely to have jobs and routines that keep them indoors the majority of the time, disconnecting them from the outdoors.

OPPORTUNITY | How Might We

1. Being familiar with the names of local flora and fauna can increase your sense of place and desire to take care of it.



How might we...

help young people develop a sense of place and environmental stewardship not just by learning the names of local plants, but by creating emotional and interactive storytelling experiences?

2. Rather than just focusing on the names of local flora and fauna, connecting them with stories can help people care more.



3. Taking care of a living organism increases one's sense of place, or "Dùthchas"



How might we...

facilitate ways for young people to care for plants or animals in a way that increases awareness of seasonal changes during the Spring and helps them feel more connected to their environment?

5. Young people are likely to have jobs and routines that keep them indoors the majority of the time, disconnecting them from the outdoors.



4. Birdsong can improve people's mental health while relieving anxiety and reducing stress.



How might we...

integrate natural soundscapes—like birdsong—into young people's everyday environments to improve mental health and alleviate stress?

5. Young people are likely to have jobs and routines that keep them indoors the majority of the time, disconnecting them from the outdoors.



2. Rather than just focusing on the names of local flora and fauna, connecting them with stories can help people care more.



How might we...

use storytelling to help young people be more keenly aware of changes in their natural surroundings during their busy, daily routines?

5. Young people are likely to have jobs and routines that keep them indoors the majority of the time, disconnecting them from the outdoors.



Based on the refined insights, we combined and rearranged them in different ways to generate four How Might We questions.

OPPORTUNITY | How Might We

We then looked for case studies related to each of the four How Might We questions, with each group member taking responsibility for one. Afterward, we sat down together to share and discuss our findings.

How might we...
Help young people develop a sense of place not just by learning the names of local animals and plants, but through emotional and interactive storytelling? (Hailie)

Famous Forest Folk
New Forest National Park Authority

Helps visitors to the park envision what the forest would have been like when it inspired famous works of art and literature throughout time.

We could...explore ways to help visitors to Cairngorms National Park learn about past species that have lived in the park that have been impacted by biodiversity loss, and explore the folklore of past Scottish generations.

Fison's Giant Adventure
Stonehenge National Park

The park uses AR available through an app to create a "quest" for park visitors as they

We could...explore ways to help visitors to Cairngorms National Park learn about past species that have lived in the park that have been impacted by biodiversity loss, and explore the folklore of past Scottish generations.

Global Climate Action Response

YOUTH4 NATURE

Storytelling - Youth4Nature

Reflection and Action - George
Arts & Culture

National Gallery Montage - George
Arts & Culture

Calling in our Gaps
Steve Simpson, Mary Shillington

The Plan Dashed
The Plan Dashed

How might we...
Facilitate ways for young people to care for animals and plants in a way that increases awareness of seasonal changes during the Spring and helps them feel more connected to their environment? (Yiyang)

Seasonal Change
Weather Science Projections

Hands-on Weather Activities and Projections - My Text...

- How to express seasonal change in our project?
- What is the meaning of "taking care of animals and plants"?
- (real animal? digital animal? something similar to animal?)

Taking care of animals/plants

AR (AR) is an interactive product that helps users understand the process of life growth by simulating the hatching process of small animals. It simulates the hatching process of birds, insects, frogs and other animals through dynamic shape changes and sound effects. The design not only focuses on the tactile sensation of the material, but also pays special attention to the emotional experience of life by the use of the AR technology.

A Resource Activity sheet

Learning from Animals

The list of Birds

How might we...
Integrate natural soundscapes—like birdsong—into young people's everyday environments to improve mental health and alleviate stress? (Yiyang)

1. UK NATIONAL PARKS SOUND MAP

Thought of our project: The sound map is intuitive, but are there any better ways to increase busy young people's interest? Like adding some small interactive games or animations on the map?

2. synaesthetic sanctuary captures the complexity of bird songs

New Zealand's native birdsongs - HOUDE

generative design software - audio-visual images and animations

SO

- Can we transform the CNP spring birdsong into graphics and design a new nature or adventure story is a fairy tale for young adults?
- Can we adopt a bird through the birdsong and communicate with it through the sound transformation device?
- Can we preserve the sounds of birds in the spring in some way, like a music box with sheet music?

WE HAVE TO THINK

- place
- outcome type
- combine which HW

3. aviary glass grove by howeler + yoon tweets when touched

Touch: display illumination and sound effects

Touch way:
Surface: a vertical burst of both light and noise
Stronghold: entire audiovisual experience sliding up and down; dynamic and harmonious blended effect
quicker movement: a flare of light floating up to the top and migrating to adjacent poles

4. Tell it to the Birds

Speak to installation - translate to birdsongs - only you know the secret

Music Box Migrations - 2008

Music Box Migrations

Natural Landscapes - Experience the Wild Sounds of Wales

How might we...
Use storytelling to help young people be more keenly aware of changes in their natural surroundings during their busy, daily routines? (Zhengyao)

Imagine transforming your local park into an enchanting outdoor classroom where stories come alive through rustling leaves and singing birds. Nature-inspired storytelling sessions blend the magic of narrative with the therapeutic benefits of spending time outdoors creating a unique experience that captivates both children and adults. You'll discover how these innovative programs are reshaping traditional storytelling while fostering a deeper connection with nature and building stronger communities through shared experiences in public green spaces.

8 Nature-Inspired Storytelling Sessions in Parks That...

build a robotic diorama with digital animations and animatronics to tell story

Scottish storyteller David Campbell reminds us of our responsibility to 'awaken' listeners in our storytelling sessions. He suggests that we design our workshops and performances with activities that awaken the body, the mind, the heart, the voice and the spirit.

digital storytelling

About Digital Storytelling

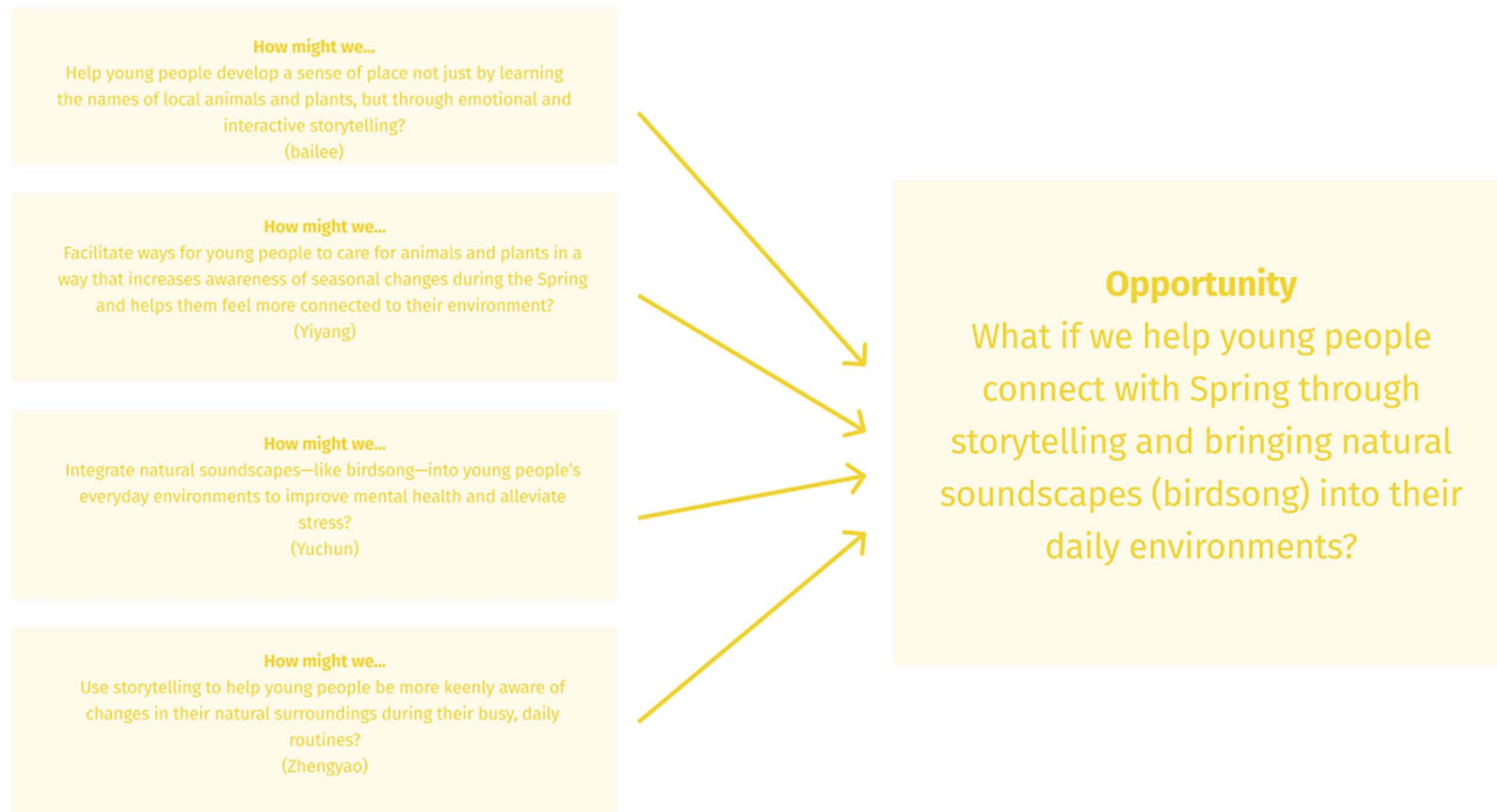
Summary:

- Digital carrier
- Robot or device
- Storybook (booklets)
- Space design (local abandoned sites or parks can be renovated to better tell stories)

*** Need to evoke people's activities in the story**

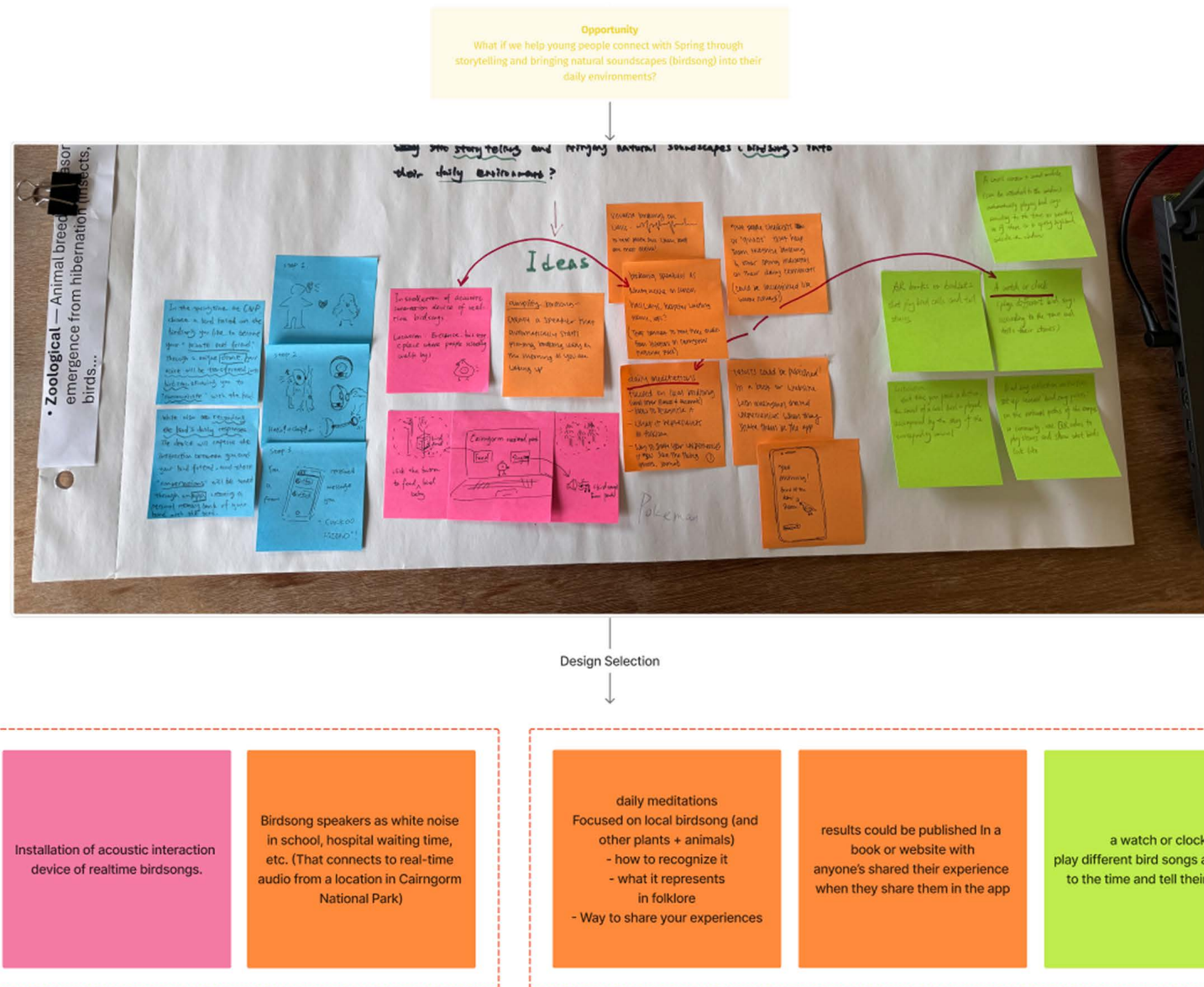
OPPORTUNITY | Opportunity

Next, we consolidated the four How Might We questions into one overarching opportunity statement, and began developing our project around that central opportunity.



OPPORTUNITY | Ideas

Based on the opportunity statement and the case studies each of us had researched earlier, we spent half an hour individually generating our own ideas. Afterwards, we brought them all together, shared them, and discussed how to combine the most interesting elements.



OPPORTUNITY | Ideas

From this process, we came up with three relatively complete design concepts. This is the idea I contributed, while the other two concepts were proposed by my teammates. I also created the necessary card designs and a low-fidelity mockup of the app to support my idea.

Bird collection

1. Bird Call Recording and Card Unlocking

people use the app to record bird calls. Using sound recognition technology, the system automatically identifies and unlocks the bird card corresponding to the recorded call. Each card includes Bird Information (Bird Call Recording, the recorded bird call, allowing users to experience the bird's sound at any time, Folklore).

2. Bird Collection System

Users gradually build their bird guide by continuously recording bird calls and unlocking new cards.

3. Sharing Locations and Bird Status

Users can share the locations where they find specific birds through the app, and the system will display the commonly found locations of those birds. Some birds, due to their seasonal appearance in the spring, will be marked as spring card birds.

Birds in different states (such as breeding or migration periods) will be displayed with different colors to help visitors understand the bird's activity status.

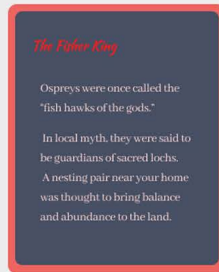
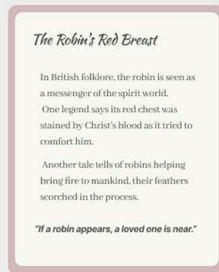
4. Physical Card

Physical card exchange stations will be set up in CNP. Users can exchange for physical bird cards.

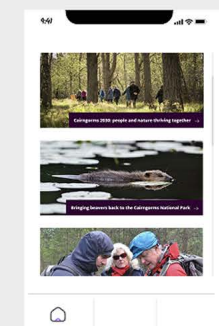
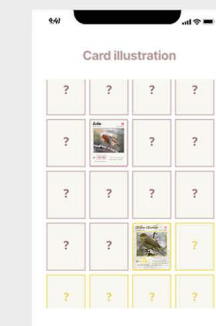
5. Share with others

People can share their discoveries within the app, engage in discussions, and even compare their bird card collections with other users.

Card



Low-fidelity mockup





4 DESIGN

DESIGN | Plan Design

Finally, based on our tutor's suggestions and by combining and refining elements from all three ideas, we developed our final, complete design concept. As the project progressed and we received feedback, we also made some minor adjustments and improvements.

STEP 1 Introduction:

Meet the other participants at the beginning of this event in the Aviemore iCentre. Participants will watch a short, 5-minute film about the power of birdsong and soundscape. The film invites people to pay attention to the sounds they will hear in Cairngorms National Park that day and the way that the sounds make them feel. It will share a few examples of folklore and stories associated with the sounds of Cairngorms National Park, and inspire people to listen for natural sounds during their daily lives.

STEP 2 Soundscape Meditations:

Participants will use the Young Ears, Wild Sounds guided meditation app to capture birdsong and other sounds of nature during an hour-long self-guided walk around Cairngorms National Park. They are encouraged to capture a variety of the sounds of Spring, but most importantly be as mindful and present as possible.

STEP 3 Reflection:

Participants will return to the Visitor Center and finish uploading their recordings. There will be a group reflection, where participants are encouraged to share their thoughts on how the soundscape session made them feel and what they learned. They can share cool discoveries, talk about the birds they heard, or share special experiences that they had.

STEP 4 AI Music Creation:

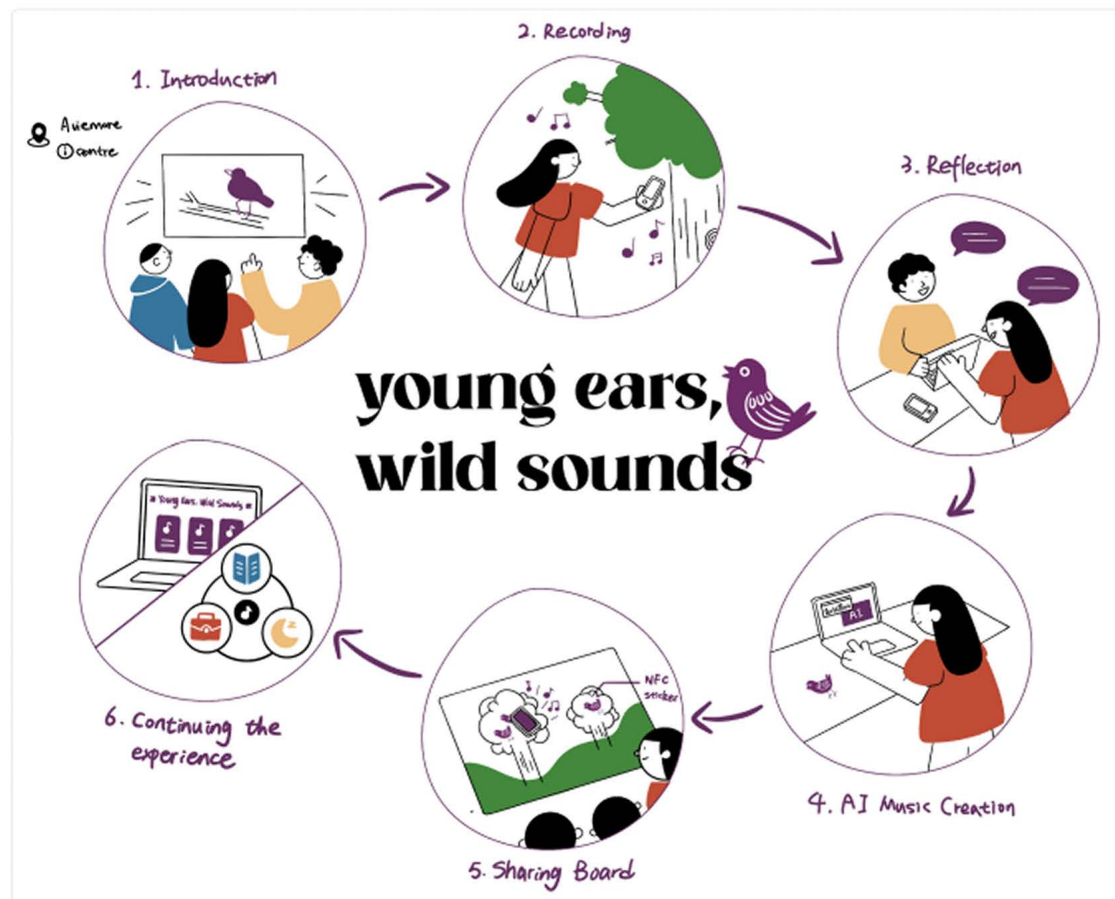
Optionally, participants can choose their favorite recording and use an AI tool to enhance it with background music or other additional elements. Participants can upload their personalized soundscapes to the "Young Ears, Wild Sounds" app/website that can be accessed by other people wishing to integrate the sounds of the Cairngorms into their daily lives.

STEP 5 Sharing Board:

Once participants finish editing their favorite recording, they can upload it to an NFC sticker and place it on the sharing board in a location that they feel represents their experience. These soundscapes can be accessed by others by touching them with their mobile phones, and downloaded or saved to their phone via the Young Ears, Wild Sounds app or website.

STEP 6 Continuing the Experience:

After the event, soundscapes can continue to be accessed via the sharing board or the app/website. These soundscapes can be used by anyone to bring the sounds of the Cairngorms into their daily lives to invite more peace and nature connectedness into their routines. These soundscapes would be great background noise for personal use when studying, or publicly in local schools, community centers, or reception areas. Additionally, 10 minute soundscape meditations will be available through the app or website that can be completed anywhere so that people can continue experiencing nature connectedness during their busy, daily routines!



Plan Design

We continuously refined and improved the design of our activity flow throughout the process.

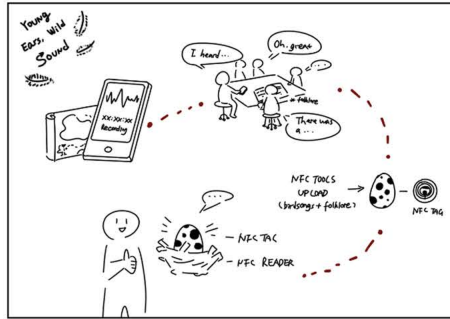
Idea 1

We could hold a birdsong outdoor festival to celebrate spring in CNP.

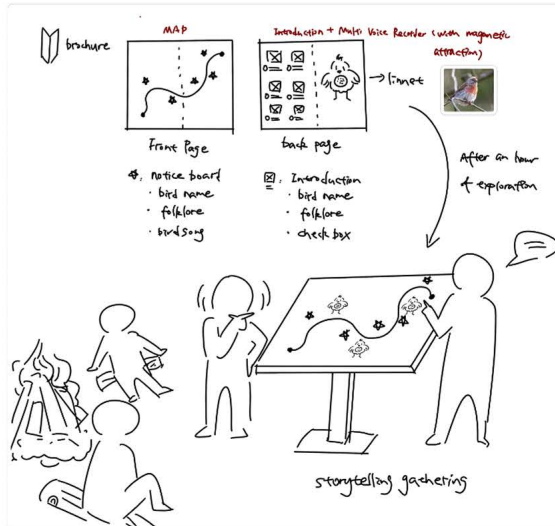
STEP1: Young participants will record birdsongs within a certain period of time.

STEP 2: After recording, people will participate in a seminar on bird culture and knowledge with experts from CNP to share the birdsongs they heard. The corresponding birdsongs and folklore will be imported into the NFC card in the shape of a bird egg.

STEP 3: After the festival, participants can get a "bird's nest" device. When the bird egg NFC card is placed in the device, it will play the corresponding birdsongs and folklore for people to use in future memories of good experiences, leisure, and relaxation.



Background: The story begins with Bride, the representative of spring, fighting against Beira, the goddess of winter. As the bride bird - linnet, you need to find bird partners through sound and gather their strength to defeat the winter goddess together.



Their experiences of nature can begin online, and this influences how they engage with the outdoors in person. Rather than resisting this change, we can embrace it and use it as a tool to inspire stronger connections with the natural world."



This article explores how to build a new ecological culture oriented towards "the common good" through the combination of AI and nature. AI is no longer just a technical tool, but a media system that can transform natural data into interpretable, perceptible, and actionable knowledge experiences.



This is an innovative project created by Ga5 London and Dublin for Agency for Nature, a non-profit organization under Purpose Disruptors. The project collects real-time data such as bioelectric signals, wind speed, temperature, soil moisture and humidity from a 150-year-old horse chestnut tree in Morden Hill Park, London, by installing more than 10 sensors on the tree. These data are input into a large language model (LLM), enabling trees to have real-time conversations with humans in the first person to share their experiences and emotions.

Through AI technology, trees can express their experiences in an anthropomorphic way, making it easier for young people to resonate and connect emotionally.

In the digital age, young people are accustomed to interacting with technology. By combining natural elements with advanced technology, their interest and attention to nature can be stimulated.

² <https://www.gps.forward.edu/ideal/culture-knowledge>
(2470) students are using it already, here's why...

Many participants reported using AI for fun or to be creative. Of generative AI users ages 14-22 surveyed, 31% said they use it to "make pictures or images," while 16% "make sounds or music" and 15% say they use it to write code.

² <https://www.technologyinsider.com/articles/young-adults-are-driving-adoption-of-generative-ai-103818>.

The survey, which had 17,000 participants from 17 different countries, found that 56 per cent of young adults between the ages of 18 and 24 were the most active users of generative AI.

Summary:
We found that young adults (18-24 years old) are the most active users of generative AI. They like to use AI to generate pictures, music or code. At the same time, many scholars believe that AI as a media system can better connect people with nature.



storytelling folklore birdsong celebrate spring young adults

Young Ears, Wild Sounds

"Listen to the sounds of spring, feel the magic of birdsong! Join us at Cairngorm National Park and embark on a springtime bird call festival journey with your friends!"

Objective Help young people learn about local bird species and folklore, use AI to create personalized birdsong music, and celebrate spring, connect with nature, and pass on the spirit of Dúthchas through a gift exchange of physical music.

Steps

1. Recording Session: Provide participants with recording devices to capture birdsong.
2. Learning & Sharing Session:
 - After gathering, offer knowledge about the recorded birdsongs (including species, characteristics of their calls, and related folklore) in an interactive area.
 - Invite bird experts to share folklore associated with spring and birds, fostering a cultural atmosphere.
3. AI Music Creation:
 - Participants will first choose their favorite bird species and corresponding folklore. Using an AI tool, the selected elements will be turned into personalized music.
4. Birdsong Music Gift Exchange:
 - The generated birdsong music will be stored on NFC devices, encouraging participants to exchange these as physical gifts, passing on the blessings of spring and serving as a memorable keepsake of the event.

*To attract more participants and encourage young people to return to Cairngorm National Park, we will set up a special section on the website that regularly features different birdsong-themed activities. The theme of this event will be "Spring."

Why do we use physical stuff?

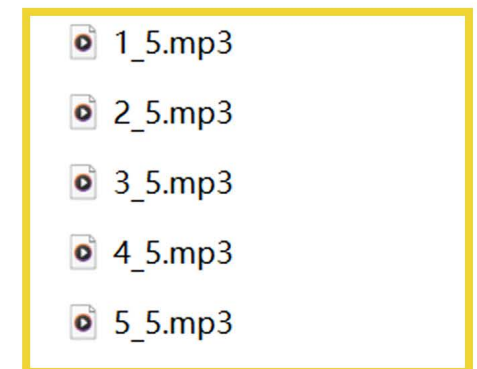
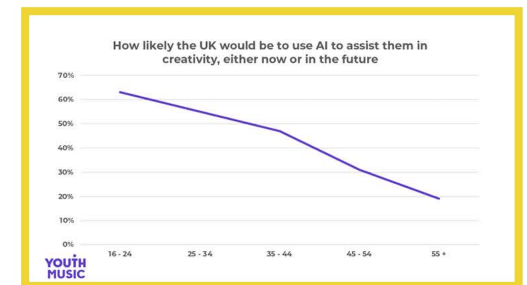
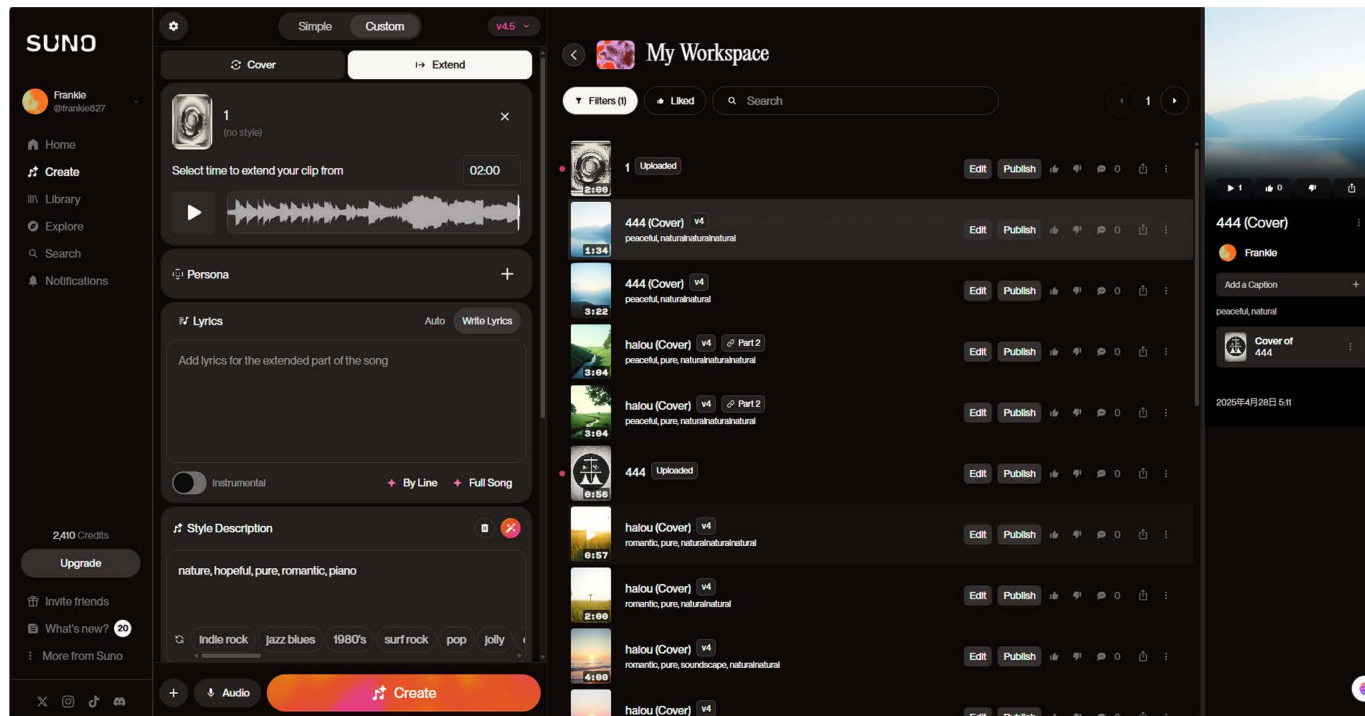
Research suggests that people generally ascribe higher value to physical goods compared to their digital counterparts (Atasoy & Morewedge, 2017; Goodman et al., 2016). This preference is attributed to greater psychological ownership and self-association with physical items (Atasoy & Morewedge, 2017).

Updated Steps:

1. **Arrive at Cairngorms National Park**
2. **Gather:** Meet the others who are participating in the recording soundscapes session.
3. **Introduction:** Participants will watch a short, 5 minute film about the power of birding and soundscape. The film invites people to pay attention to the sounds they will hear in Cairngorms National Park that day, and the way that the sounds make them feel. It will share a few examples of folklore and stories associated with the sounds of Cairngorms National Park, and inspire people to listen for natural sounds during their daily lives.
4. **Recording Session:** Participants will be given recording devices to capture birding and other sounds of nature. They will spend an hour on a self-guided walk around Cairngorms National Park, recording the sounds of multiple signs of spring.
5. **Reflection:** Return to the Visitor Centre and upload your recordings. Share your thoughts with how the soundscape session made you feel and what you learned. Share any cool discoveries, birds you heard, or special experiences that you had.
6. **AI Music Creation:**
 - Participants will first choose their favorite recording and use an AI tool to enhance it with background music or other additional elements. Participants can upload their soundscapes to a website that can be accessed by other people wishing to integrate the sounds of the Cairngorms into their daily lives. Participants can add tags and descriptions to the soundscapes so they are easier to access.
7. **Birdsong Music Gift Exchange:**
 - The generated birdsong music will be stored on NFC devices, encouraging participants to exchange these as physical gifts, passing on the blessings of spring and serving as a memorable keepsake of the event.
 - ***We need to think about the logistics of how we want this part of the event to work***
8. **Sharing Board :** People can leave their own NFC tags on the sharing board. These NFC tags can be opened by others by touching them with their mobile phones. People can share their music with visitors on this sharing board.

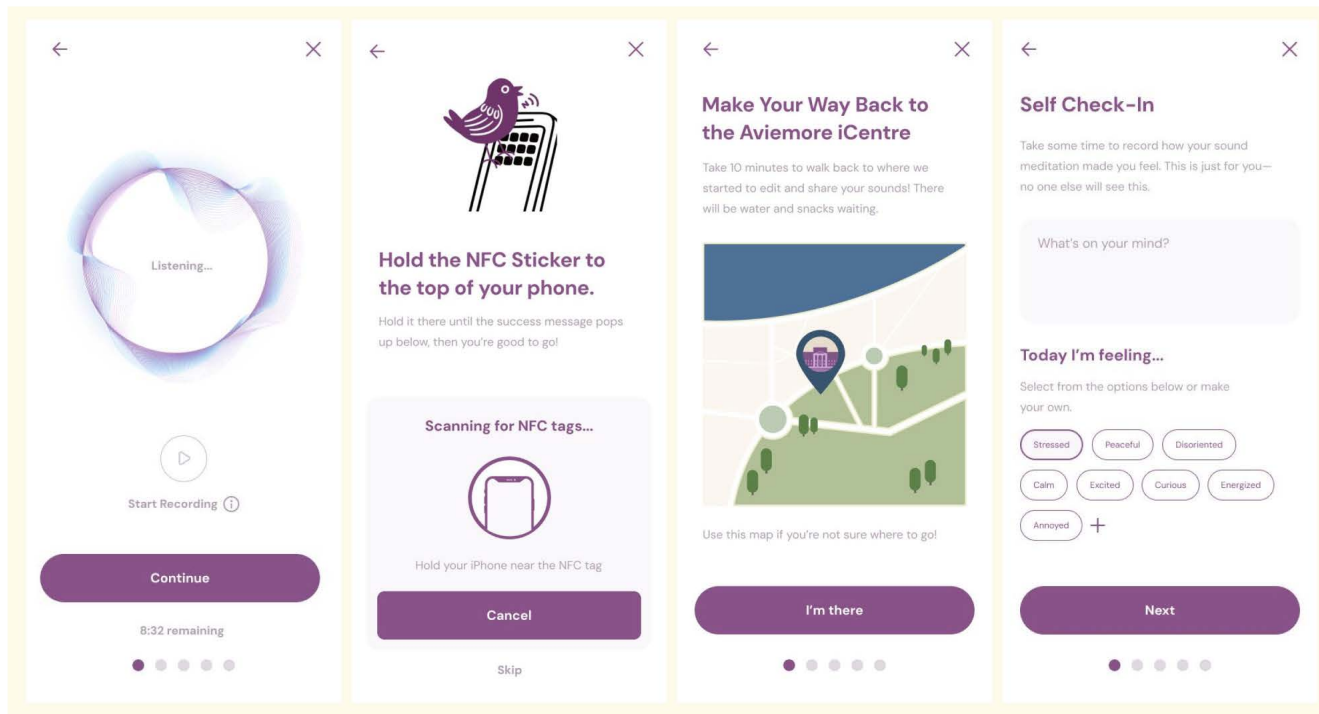
DESIGN | AI Generated Music

Then we moved into the design and production phase. I was responsible for the AI-generated music part. The main challenges were finding a suitable AI music generation platform and exploring how to craft effective text prompts. Another difficulty was adjusting and testing the generated music alongside recorded audio. I went through five rounds of iteration and improvement. Each time, I shared the results with my teammates to get their feedback—this helped ensure the music wasn't overly influenced by my personal taste or subjective opinions. In the end, the music generation process went smoothly. I produced five pieces in total, each with distinct emotions and instrumentation. I finalized the work only after my teammates agreed the results were effective.



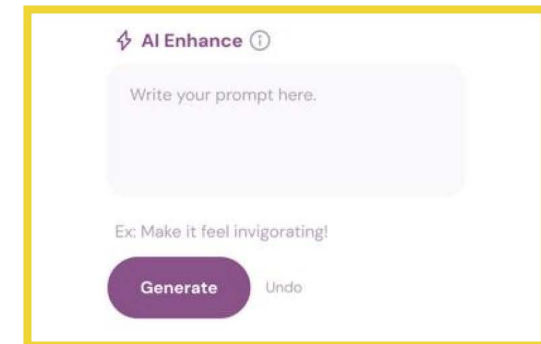
DESIGN | App Design*

The app design was mainly completed by one of my teammates. However, I contributed to the early-stage planning of the app's flow and also gave suggestions regarding the AI-generated music feature. Since I was responsible for that part, I had a better understanding of what kinds of prompts could lead to higher-quality music generation, so I shared that knowledge with my teammate.



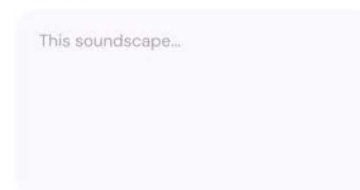
Create your Soundscape!

This is your sound mixing studio. Crop the audio, and use our AI tools to denoise or enhance your soundscape. Create a soundscape that can take you back to how you felt during your meditations today. Have fun!



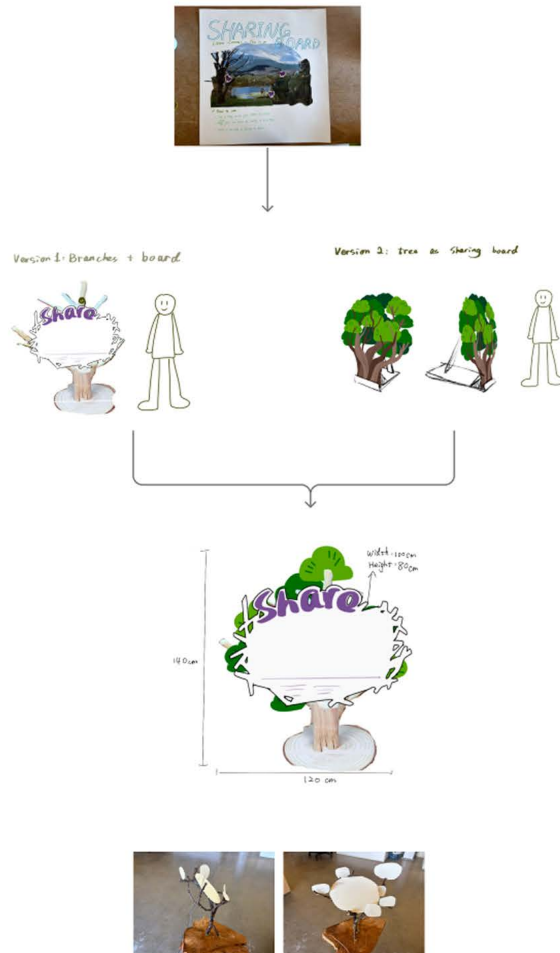
Write a Short Description

Tell people what your soundscape is about. What inspired it? What wild sounds are in it?



DESIGN | Sharing Board*

Since I wasn't involved in the design of the sharing board, I'll just give a brief overview of it. However, I did take part in the later user testing and feedback sessions, where I contributed suggestions for improvement.



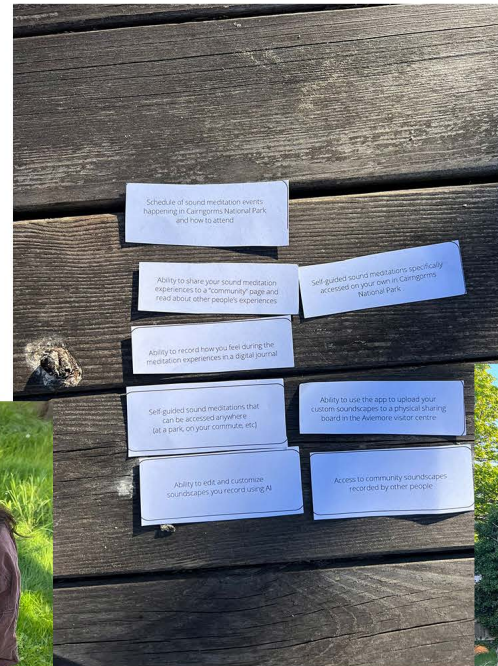
A first-person perspective shot of two hands holding Tascam DR-05 portable recorders. The hands are positioned in the lower half of the frame, with the left hand holding a recorder slightly higher than the right. Both recorders are black with silver accents and feature a small LCD screen and various control buttons. The background is a lush green grassy field with a large tree trunk visible on the right side. The scene is brightly lit, suggesting a sunny day. A semi-transparent white banner is overlaid across the middle of the image, containing the text "5 TESTING".

5 TESTING

TESTING | Role Play And User Testing

During the design phase, we were also conducting tests alongside development. For example, we tested different recording devices. Initially, we used professional audio equipment, which produced high-quality results, but it wasn't user-friendly in terms of exporting and editing the music. So, in the end, we decided to use mobile phone recording, which was more accessible for users.

However, due to time constraints, our final user testing was not fully prepared. We only conducted a simple test by inviting a few of our classmates—who did fall within our target audience but lacked diversity—to participate.



Pre-Experience Interview Questions

“Have you ever used sound for mindfulness before?”

Participant 1: I do it pretty often when I’m in my head about something, usually when I’m walking. I’ll take a few deep breaths and try to get outside my head by tuning into what I’m hearing around me.

Participant 2: I used to go to meditation centers where people would chant and use sound and humming to center your energy.

“What would make a sound meditation app useful to you?”

Participant 1: I would love if it was local to my own environment.

It would be cool if the experiences could be grouped based on environment or local area where it would take place.

I think it would be cool if you could use the app to learn more about a specific place that I’m in, like if I was walking through Cairngorms and learned that I could download the app and use it to learn more about the local area.

Participant 2: I would love if it was a way to learn about other people’s experiences, cultural backgrounds, etc

Post-Experience Interview Questions

Tell me your first impressions about the meditation experience.

Participant 1: Loved the idea of a video at the beginning as an instructional piece. The instructions about finding a quiet place etc were all very clear as well. I would make it clear that the self check-in happens before you listen. The tips and the listening experience are very cool.

During the reflection, it would be better to have I heard before I felt, so that people could see what sounds correlated to the feelings.

I thought it was a good idea to wrap up early if you were running low on time.

For the final reflection, I think it would be helpful to have multiple choice so that you don’t have to do so much effort on your end.

I loved that you could share your experience with the community.

Participant 2: It would be cool if for the self-guided option in Cairngorms National Park the app showed you different places you could go to hear different sounds. There could be different maps marked on the trails to help you experience different things.

What would you include to make this more usable in your daily life?

Participant 1: I think it would be cool if there were options to pair with other apps, like there’s another app I use called How You Feel. It would be cool to see if I could send that data into the sound app. It would also be fun to make the colors or background images of the app pair with where you are. So if you’re doing the park meditation, it give you the background of the app as a park etc.

Participant 2: It would be really cool if there were walking parts that were included too. So that you could use it as you were walking without needing to look at a screen.

A photograph of a grassy area, likely a park or roadside, covered with numerous small, bell-shaped flowers in shades of purple and white. Two large trees are visible in the background, casting shadows on the grass. A road with a black metal railing and parked cars (a white SUV and a dark sedan) is visible in the distance. The scene is brightly lit, suggesting a sunny day.

6 REFLECTION

REFLECTION

During the research phase, I felt it was more of a period for individual exploration and team adaptation. To be honest, we took quite a few wrong turns during this stage. Everyone in our group had different ideas and perspectives. For example, after visiting CNP, I felt it was too early to narrow our focus solely to birdsong. I thought we should have also looked into other “zoological” elements like frogs or bees. However, some of my teammates believed it was time to settle on a direction, so they chose birdsong. Following the principle of majority rule, I went along with the group. But looking back, this decision planted some issues that later affected the design stage.

Another problem was that we overlooked the importance of primary research in the early stages—such as interviews or surveys. By the time we realized this gap, we were already running out of time. We had to rush to the streets and interview people, and we hadn’t prepared our questions properly. Reflecting on this, I think one of the reasons was that not everyone in the group was willing to communicate openly or go out for fieldwork. I see that I also contributed to this issue. I’ve always been a more introverted person, and my limited English made it hard to communicate smoothly with my teammates. Because of that, I often ended up doing online research alone or going out by myself to collect data. In the past, I rarely worked in group projects, and when I did, it was usually with like-minded people. The random grouping this time made me feel quite out of place, and I struggled to fit in. Once I became aware of this, I tried to adjust by using my teammates’ ways of thinking and speaking to express my ideas. But it’s difficult to change completely. I’m still unsure whether I need to change, and this question continues to leave me feeling uncertain.

In the opportunities and ideas phase, I think our group did quite well. Individual creativity can be limited, but the strength of teamwork was clear here—each of us contributed 3 to 5 ideas, and we were able to merge and refine them into three solid concepts. We made simple storyboards for each and presented them to our tutor. However, we made the mistake of selecting one idea based only on the tutor’s feedback, instead of involving our target audience. This choice later led to some challenges in the project.

REFLECTION

During the design phase, we continued to build on the idea and research outcomes we had developed earlier. However, the concept always had some flaws, and it was difficult to make significant changes because of our lack of primary data. Throughout the project, we had limited contact with our target audience—especially during the design stage. We never truly went through the ideal cycle of design–test–revise–design again. The process ended up being quite linear. This was just my personal perspective—I wanted to treat the project as a real, long-term research study. I even suggested a few times that we go back and do more interviews or fieldwork, but due to time constraints, I eventually compromised. After all, this was a short 3–4 month project, and we had to deliver results within the set timeline.

In future short-term projects like this, I plan to place greater emphasis on primary research. I believe this can help reduce the need to constantly revise or redesign due to gaps in understanding. That said, I still feel proud of what we achieved—the final design outcome was strong, and every group member worked hard and took their responsibilities seriously. We also had great communication and collaboration.

Lastly, our user testing stage was quite limited due to time pressure and the fact that our design was finalized quite late. That's something we need to reflect on. I think part of the reason was that we spent too much time deciding on our target audience mid-project, which caused delays. But in design projects, things like this happen. Sometimes setbacks and mistakes are what help us improve the most. So I don't mind that we encountered them—but I do want to learn how to bounce back more quickly. I think that's still a weakness of mine. In future projects, I'll try to break out of linear thinking more easily and not be afraid to challenge or revise earlier research or assumptions.

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