

# Environmental Education

## *Scotland Issue*

### Teacher education and the ecology of the heart

A reflection on addressing the  
climate crisis with student  
teachers

### Learning for Sustainability in photography education

The power of photography  
education for teaching about  
and for sustainability



*Book Reviews, Children's Nature Books, Webwatch*

*The journal of*

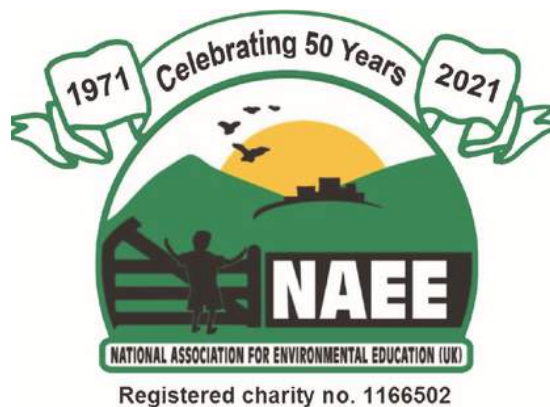
The National Association for  
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# Who we are

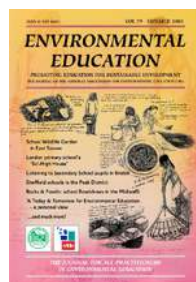
*Promoting environmental education, supporting all those involved in its delivery, so that together we can understand and act on the need to live more sustainably in order to protect the future of our planet.*



NAEE is a Charitable Incorporated Organisation [charity no. 1166502] run by members and volunteers who care passionately about environmental education. Our objective is to advance environmental education within early years settings, primary and secondary schools, and teacher training institutions within the UK and overseas.

NAEE started life in 1960 as the National Rural Studies Association, changing its name and emphasis in 1971. Since then, the Association has continued to support a wide range of professional educators to help them improve the quality of their teaching and their students' learning, in relation to environmental and sustainability issues.

In 2021, we celebrated our 50th anniversary, which included a new Wikipedia page, a new logo and a 50th anniversary edition of our journal. As part of our celebration, all the back copies of *Environmental Education* were digitised. Previous volumes can be accessed freely here: [tinyurl.com/2p8fsv6a](https://tinyurl.com/2p8fsv6a). The most recent copies can also be found here: [naee.org.uk/ee-journal](https://naee.org.uk/ee-journal).



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## From the Guest Editor


Claire Ramjan



My opening is to acknowledge Elsa Lee's invitation to edit this special Scotland Issue of *Environmental Education*. Though the perspectives described here are located in Scotland, many of the experiences and ideas will resonate with environmental educators from close-by and much further afield. In Scotland, Learning for Sustainability (LfS) was introduced as an entitlement for all Scottish school pupils, and as part of the Professional Standards for teachers. The LfS approach represents a commitment to learners that aspires to recognise current global challenges and work towards a more sustainable world. The articles in this special edition are situated within the context of LfS in Scotland and demonstrate some of the opportunities and challenges experienced within this important and ambitious idea.

During my time as a biology (as well as occasional geography) teacher, I was able to see first-hand the

impact that outdoor fieldwork experiences could have on my young learners. Through collaborations with local partners, in particular the Loch Lomond and Trossachs National Park, my interest in using citizen science as a vehicle for outdoor and environmental education was sparked. This led to my PhD, which explored Citizen Science and eco-citizenship capabilities, and served to deepen my appreciation of the positive impact of looking differently at the world around us in educational provision.

In my current role as an Initial Teacher Educator at the University of Glasgow, a key part of my role is to develop opportunities for student teachers to engage with Learning for Sustainability as part of their teacher education. By showing our future teachers that outdoor and environmental education can mean many things and happen in all sorts of places, I hope to build their confidence to take their learners out into the world. Using the processes of "wondering, wandering, caring and daring" (Thoresen, 2023, p.81), I ask my students to question their own assumptions about the purposes of education, supporting them to consider learning as rich, intense and meaningful in response to the global and local challenges that we currently face. 

## Reference

Thoresen, V. W. (2023). *Sustainable development, education and learning: The challenge of inclusive, quality education for all*. Agenda Publishing.

## A note from the NAEE Chair

Paul Vare




First of all, congratulations to Claire Ramjan and the other contributors to this Scotland-focused edition of *Environmental Education*. The breadth of work that is described in these pages is not simply a microcosm of what goes on elsewhere; it illustrates the ground-breaking work that can happen when Learning for Sustainability becomes embedded within education.

At this year's NAEE Annual General Meeting (AGM), NAEE members were also treated to a powerful demonstration of what an embedded approach to environmental education can look like in a Norwegian setting. Educator and author Katharine Burke shared inspiring stories of what she terms 'transformative ecological education' and invited us all to join her web-based *Earthwards Community*: [earthwards.mn.co](https://earthwards.mn.co).

Moreover, the AGM gave us the opportunity to acknowledge the huge contribution of our former Chair, Bill Scott, who was granted lifetime NAEE membership. Readers of our newsletter may have noticed our call for volunteers, as Bill retired from his role of producing this important weekly update. Luckily, Tessa Willy and Anya Pawlik stepped forward and are doing a wonderful job.

In case you missed the news, we have also launched our Year of Environmental Lunacy ([tinyurl.com/yc8ef8az](https://tinyurl.com/yc8ef8az)) initiated by Paula Owens who suggested the Fox Moon for January. We are now on to the Squirrel Moon proposed by Prof Justin Dillon. By the time you read this, we may already have reached the next lunar month. What would you call the moon that appears in March?

Lastly, it is with great sadness that we report the death of Sue Fenoughty who was a stalwart of NAEE; indeed, it was Sue who rescued this journal from an earlier funding crisis and edited it for many years. A full tribute to Sue will appear in the electronic version of the journal coming soon.

**P.S.** Please help us decide how to further develop this journal in future by completing this **brief survey**: [tinyurl.com/bdemfvxb](https://tinyurl.com/bdemfvxb) 



## Kenrick Days Update: Autumn Term visits

Sabina Hasan, Clare Lawton

### Year 5, Oasis Academy Small Heath, visit to Martineau Gardens, October 2024

Report by Sabina Hasan

#### An inspirational journey into sustainability and the environment

On Thursday 17<sup>th</sup> October, Year 5 embarked on an inspiring trip to Martineau Gardens, where they had the chance to connect with nature and bring their classroom learning to life. This outdoor experience not only enriched their understanding of science and geography but also motivated them to take action for sustainability back at school.

In preparation for the visit, the children explored key science topics such as ecosystems, food chains, and the plant life cycle. They learned about biodiversity and how organisms, including microorganisms, play vital roles in our environment. In geography lessons, they discussed sustainability and waste management. To make the most of the visit, the children prepared questions like, "How does composting help plants grow?" and "What makes an ecosystem healthy?"

#### Activities at Martineau Gardens

At Martineau Gardens, the children engaged in a range of hands-on activities that brought their studies to life. The day began with a sensory walk through the herb garden and allotment beds. Using touch, smell and sight, the children explored the unique features of different plants. They were excited to recognise familiar herbs such as mint and rosemary, with one child commenting, *"The rosemary smells like Sunday roast!"* This activity helped them better understand plant adaptations and uses in everyday life.

Next, the children explored the compost heap, where they were introduced to the role of invertebrates and microorganisms in breaking down organic material. They observed worms, beetles and other small creatures and learned how these organisms transform food waste into nutrient-rich compost. *"It's like nature's recycling system!"* one student exclaimed. This activity linked directly to their classroom learning about decomposition as well as about environmental sustainability.

During a tree identification and classification activity, the children worked as budding scientists, using guides to identify trees by their leaves, seeds and bark. They were thrilled to recognise species like oak and ash, tying this activity to their earlier lessons on classification and biodiversity. A pupil proudly said, *"Now I can name more trees in my park!"*

The visit concluded with a discussion on ecosystems, where the children explored how plants, animals, and microorganisms work together to maintain balance in nature. This activity deepened their understanding of the interconnectedness between all the different elements of the environment.



Exploring the beauty of colourful nature. Image by Sabina Hasan

#### Creating a school compost heap

Inspired by the compost heap at Martineau Gardens, the children returned to school eager to action. They worked together to create their own compost heap using food waste from the dinner hall. They collected scraps such as fruit peels and vegetable trimmings, layering them with garden materials to begin the composting process. This project allowed them to apply what they had learned and take meaningful steps toward sustainability. One child shared, *"It feels good to know we're helping the environment at our school!"*



Carefully sieving compost. Image by Iman Alim

**Year 1, Kings Rise Academy,  
visit to Mount Pleasant School Farm,  
November 2024**

**Report by Clare Lawton**

For many children in Kingstanding, opportunities to visit the countryside and experience farm life is often beyond them. On 15th November, we were able to take a group of 33 Year 1 children to Mount Pleasant Farm to experience first-hand the sights, smells and sounds of a working dairy farm.



A child is stroking a calf. Image by Clare Lawton

Many of the children went on the trip with some preconceived ideas of what farm animals looked like. Many were afraid of being around the animals, that they would bite and hurt them. By having the opportunity to see, feed and touch the animals the children were able to get a true sense of being around these animals and were able to overcome their fears.

The trip provided curricular links to support the children's understanding of their science topic: Animals Including Humans. They were able to apply their understanding of carnivores, herbivores and omnivores to real-life; even seeing a model sheep skull to understand that these animals cannot bite them. The children were able to use their geography knowledge to compare the rural and urban landscapes making comparisons between the farm location and where they lived in the centre of Birmingham. They also learnt about where their food comes from, giving them a greater understanding of food processing and manufacturing. They were very impressed that they would be able to buy the milk in Tesco from the cows they had seen.

Feedback from both children and staff was very positive. Nina who ran the day for us was wonderful with the children and got them all involved.

*"I liked the chickens. It didn't hurt me when I bent down and it ate from my hand."*

*"I liked the sheep. When I felt them they were soft and after I saw the piglets. They were cute. You can't touch them though because they will bite. I was scared of the cows because they were mooing and giant but now I'm not. They are herbivores. I had so much fun."*

*"I like the farm because I like the baby cows, they were cute. I like the sheep because they were fluffy. I can remember pigs noses are called snouts and their feet are called trotters. I was scared of the pigs because they can bite me, but I'm not scared now."*

At Kings Rise we are lucky to have an environmental curriculum embedded into our school curriculum and a newly developed specific outdoor learning area where we grow our own fruit, vegetables and herbs. Children from Nursery to Year 6 get to regularly explore and learn about nature and the environment in this outdoor setting. Through our green curriculum our children are taught about the impact of climate change on the world, working towards becoming a more sustainable and biodiverse school, respecting and caring for nature, the environment and our role in protecting the future of the planet. We have taken part in the NENP project to increase the biodiversity of the school grounds, developing green areas and planting a variety of plants to encourage wildlife back into our local area.

The green curriculum is led through our KRAKEN lessons, where children learn about the environment through outdoor activities. From our farm trip, the children have gained a greater understanding and appreciation for the countryside and the importance of the farms and their animals. 🌱



The children are feeding the sheep. Image by Clare Lawton



The children are feeding the chickens. Image by Clare Lawton



Etive House is a secondary specialist additional support needs provision within St Modan's High School, situated in the heart of Stirling by the banks of the River Forth. Surrounded by history and hills, it is a dynamic, vibrant school community within which young people thrive and excel.

Learning for Sustainability (LfS) is at the heart of our Etive curriculum. It is an approach to learning and life that enables us to work with a range of community partners and develop an understanding of our world through outdoor environmental education and transformative learning experiences. As a team we are passionate about LfS, embedding and enacting it through interdisciplinary learning that is relevant and purposeful for our learners.

Within our school grounds we have what we call our Tiny Farm. This is an outdoor classroom where learners explore, create, discover and grow a range of fruit and vegetables. It is a multipurpose setting where learners access their curriculum through a range of experiences. By working with partners, we are able to maximise the impact of our Tiny Farm on our learners. Art Link, a charity which uses the arts to counteract social, physical and attitudinal barriers, in partnership with the Stirling Re-Use Hub, an exciting warehouse space next to our school where preloved goods are sold and donated, provided a unique perspective that honoured the vision and voices of our learners in creating environmental place-based art projects. Our learners developed a sculpture path and learned how to make dye and use it to print their designs on material, using natural resources found and grown on the Tiny Farm. Continuing with sensory experiences, Scotland Big Noise is a charity on a mission to improve lives and strengthen communities through the power of music and nurturing relationships. They come to our school and support our learners to play and make music in our outdoor spaces, including a Makaton choir and powerful peer performances.



Tiny Farm at Etive House. Image by Iona McCroary

Community is at the heart of our partnership working, the eleventh Bridge of Allan Scouts and Cubs have helped develop our pumpkin tent within the Tiny Farm and use the space in the evenings for Squirrels, Beavers and Cubs to learn about how to grow food. Stirling and Trossachs District Scouts established a Scout troop within our school known as First Rionnagan Scouts. Rionnagan is Scottish Gaelic for Star, the name was picked after our learners designed their own Scout Neckie which was a star to represent the brightness that shines from all our learners.



Pumpkin tent. Image by Iona McCroary

We received STEM Nation funding from Education Scotland to build capacity within the staff team to allow our approach to be sustainable and successful. We worked with The Royal Highland Education Trust, who taught staff how to grow fruit and vegetables and linked this into curriculum practice. As capacity grew, staff became more confident and able to empower learners by turning their curiosity into projects. Our 'Quakers for Mushrooms' project (funded through Education Scotland's Food for Thought grant) stemmed from learners asking where mushrooms come from whilst walking in the Loch Lomond and Trossachs National Park. Our learners led their way into a project focused on growing mushrooms. They decided that ducks would be a good addition to the Tiny Farm as well!

Through empowering learners to link their ideas into LfS practice, we have developed a progressive curricular approach that sparks interest and meets our learners where they are developmentally, considering their additional support needs and disabilities. We remove barriers and encourage learners to take risks to build their resilience.



Through outdoor learning, our learners have experienced gorge walking, canoeing, abseiling and rock climbing with some participating in an Outward-Bound Scotland residential. Providing the freedom for learners to move in a range of outdoor activities creates multi-sensory experiences and offers space for adventure, risk and challenge. We've found that outdoor learning promotes emotional regulation, enabling our learners to manage change and be spontaneous where appropriate. Since incorporating outdoor learning into our curriculum, we've noticed a decrease in dysregulated behaviour and an increase in engagement. This increase in engagement has led to a growth in achievements where our learners are not only participating but also attaining. Our learners have achieved Duke of Edinburgh Awards, John Muir Awards, Paddle Awards, Navigation Awards and Youth Achievement Awards. This valuable recognition is welcomed not only for our learners, but also in demonstrating alternative attainment pathways across our school community.

The way in which our learners experience their school community matters. While LfS is a policy entitlement in Scotland, here at Etive House we have embraced it as a way of being, thinking and learning. By bringing our learners with us on this journey, we empower learners to embrace LfS as more than an offering in school, rather as a commitment in their learning and lives.

We've found that this has increased the visibility of our learners and what they are can accomplish, in turn challenging stereotypes and assumptions. At present Scotland's education system and the progress of individual learners is measured in the form of qualifications, some of which are valued more than others. For our learners, progression and achievement looks different from mainstream routes which means that our learners' achievements can be overlooked. Recognising and celebrating progression is vital to empowering learners and preparing them for life after school. Through LfS, we have been able to capture a diverse range of achievements, including skills for work and vocational training.

An example of this is The Forest Rangers programme delivered in partnership with Loch Lomond and

Trossachs National Park where our learners were immersed in the forest, working alongside the Forest Rangers to learn more about flooding and water pollution in our local rivers. Learners experienced first-hand the roles of the Forest Ranger and what their work looked like. The learners involved developed skills that they could take into the workplace through real world engagement. Transferring learning from our community back into our setting makes it meaningful and purposeful, seeing learners use skills gained from the Forest Ranger programme in the Tiny Farm showed how rich this learning experience had been.

We work closely with partners to create agency between school and our community. By doing so, Etive learners experience a holistic education through a curriculum developed collaboratively with teachers, support staff and partners. We continue to work as a community to give our learners the best possible opportunities and life outcomes; our Tiny Farm, and the outdoor learning opportunities that it brings are a vital part of our school experience, not only for our pupils but for our staff too. The Tiny Farm is at the heart of our setting and is loved by all who learn and teach there.

If you ever visit the Tiny Farm, and you are most welcome to do so, you will be consumed by the way nature wraps round the learning. The legacies that are planted for the next group of learners and the way nature is nurture. This, for us, is Learning for Sustainability. 🌱

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**Iona McCroary** is Principal Teacher at Etive House, Additional Support Needs Provision within St Modan's High School. She is passionate about engaging all learners in outdoor and adventure education, championing inclusive education, and fostering community partnerships to drive innovative projects through Learning for Sustainability. Iona is Learning for Sustainability Peer Mentor for Education Scotland and is always happy to support others develop opportunities for learners.

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## **GALLANT: Advancing Environmental Pedagogy and Community-Driven Climate Action in Scotland**

**Ria Dunkley**

### **Glasgow as a Living Lab Accelerating Novel Transformation**

The GALLANT (Glasgow as a Living Lab Accelerating Novel Transformation) project, led by the University of Glasgow and funded through NERC's "Changing the Environment" programme, is a five-year interdisciplinary initiative aimed at addressing environmental challenges in Glasgow through a Doughnut Economics framework (Raworth, 2017). This approach balances ecological health within the planetary

boundaries (Rockström et al., 2009) with essential social foundations, guiding GALLANT's research efforts to drive transformative climate action through both adaptation and mitigation efforts in Glasgow. Bringing together over 65 researchers from diverse fields – including ecology and earth sciences to the social sciences and engineering – GALLANT partners with Glasgow City Council, with a range of local organisations, and community groups to create innovative, community-centred solutions.

## Exploring climate and environmental crises with communities

As the triple crises of climate change, pollution and biodiversity loss continue to gather pace, affecting communities and habitats across the planet, a local lens that provides an appreciation of how these coupled crises affect unique places, including cities, towns and villages, here in Scotland is essential. In Glasgow, the GALLANT Community Collaboration Research team engages community members as co-researchers to explore key sustainability themes, including connections with nature, composting practices, sustainable travel, and the role of trees in flood resilience. As experts in their own areas, community members are essential contributors to research that seeks to enable crucial local-scale action. By adopting a community science approach, we are able to explore the uniqueness of Glasgow's history and social and cultural context and to position the city's climate and biodiversity action goals, plans and actions within a contextual understanding, seeking to align plans and practices.

The Community Collaboration Research workstream takes a transdisciplinary research approach while integrating a place-based environmental pedagogy into our activities. We encourage community members to engage with scientific research, seeking to make this research accessible while crucially maintaining research integrity and validity. This approach enhances local knowledge and engagement in climate and environmental action and enables GALLANT researchers to build their understanding of how to support community involvement in dialogue concerning local climate adaptation and mitigation. This collaborative approach redefines environmental pedagogy as a community-centred process where residents shape and implement solutions to ecological and social challenges.

The GALLANT Community Collaboration Workstream team, are taking a phased approach to this five-year project. We spent 18 months building meaningful and trusting relationships with local communities in phase one. A vital part of these activities was photo-voice walkshops, during which local participants provided us with a window into the environmental challenges they face daily, including navigating flooded streets or having limited green space access for recreation or food growing. We also gained crucial insights into how climate and environmental pressures were perceived within the communities we were working with. By listening to local voices and enabling this to shape our work in the second phase, we have been able to integrate local knowledge into our research processes. In phase two, the community science phase, our team now includes community members and gathers data. We are developing approaches together to strengthen the project's impact and the community's role in shaping Glasgow's climate and environmental future.

## Community science projects: Glasgow as a Living Lab

As GALLANT launched a series of community science projects, the Community Collaboration Research workstream collaborated closely with local people to support inclusive, transformative climate action. Key community science projects now underway as a result of this engagement include:


- **Biodiversity and Nature Connectedness:** This community science project will explore nature connectedness for communities in Glasgow, using a GALLANT app to support the collection of 'nature stories'. In addition, there will be a community interviewing project, which will seek to provide in-depth insights into the meanings of motivations, as well as the barriers and enablers of nature connectedness across the city.
- **Active Travel and Energy Literacy:** To promote sustainable travel, GALLANT is working with residents to map active travel routes and identify factors that encourage or hinder sustainable travel across the city. The data from this project will be at the centre of a conversation to link local travel habits with broader efforts to mitigate the climate crisis. This project creates momentum for sustainable infrastructure across Glasgow by highlighting the environmental impact of local travel habits while also providing decision-makers with a better understanding of the barriers and enablers of travel in the city.
- **Urban Composting and Waste Reduction:** Already underway at the Hidden Gardens, this project promotes waste reduction and Glasgow's circular economy by actively engaging residents in hands-on composting practices. By learning those practices, members of the community not only reduce waste but also play an active role in experimenting with local-level climate adaptation efforts, which, if scaled, could make a significant impact.



GALLANT science project. Image by Ria Dunkley



## Fostering lifelong learning through community collaboration

Over the next twelve months, we will expand our community science programme across Glasgow, aiming to create scalable, transdisciplinary research approaches to projects that integrate an environmental pedagogy, valuing local knowledge and inclusivity. We hope that this collaborative research programme will provide a pilot that demonstrates the values of community-centred research as integral to sustainable urban governance while also offering opportunities for lifelong learning, creative dialogue, skills development and enhancing a sense of place and community in the areas where we work. 



GALLANT science project. Image by Ria Dunkley

## References

Raworth, K. (2017). *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist*. Chelsea Green Publishing.

Rockström, J. et al. (2009). A safe operating space for humanity. *Nature*, 461, 472-475.

[doi.org/10.1038/461472a](https://doi.org/10.1038/461472a)

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**Ria Dunkley** is a Professor of Environmental Pedagogy at the University of Glasgow, where she focuses on creating pathways for people to engage with climate action and environmental sustainability. Ria's work centres on ecopedagogy, a people-focused approach that connects communities, educators, and researchers in practical responses to the pressing challenges of the Anthropocene – the period of human-driven environmental change.

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GALLANT webpage: [communitycollabglasgow.co.uk](https://communitycollabglasgow.co.uk)

## Embedding Learning for Sustainability in photography education

Heather Richmond

In 2019, the Scottish Government declared a Climate Emergency and asked within its cultural policy to utilise the potential of the arts and creativity to inspire and empower the cultural change needed to transform into a climate-ready Scotland by 2045 (Scottish Government, 2025). In 'Target 2030,' the Scottish government has set its priorities for education, aiming to make Learning for Sustainability (LfS) central to Scottish Education. This cross-curricular approach includes learners, educators, learning and teaching settings and the wider community. While most commonly associated with schools, LfS is a policy which extends into Further Education (FE) settings in Scotland. FE provision includes National Qualifications alongside school-FE partnerships with an emphasis on widening participation in post-16 education. In this article, I will describe the impact that embedding LfS in my photography education practice has had on my students' understanding of the environment and their place in the world as human beings.

City of Glasgow College was established in 2010 with the merger of three established city colleges to become the largest college in Scotland. Delivering a National Qualification in Photography at Scottish Credit and Qualifications Framework (SCQF) levels five and six, I found myself able to design projects that embed sustainability concepts throughout



Monkey puzzle tree branch and autumn leaves, shot in studio.  
Image by Alexander Bryson

learning and teaching. My learners come from various social, educational and cultural backgrounds. They range in age from 16 to 60+, and as such bring rich and varied lived experiences to the course. Many of them are those for whom traditional educational provision has proved challenging, which is why I am aware of the importance of building a positive and encouraging educational experience for my learners.

The course is project-based, designed to introduce learners to many genres of photography, including developing image and camera control, studio lighting, close-up, and reportage photography. Its design combines constructivism and place-based pedagogy, emphasising outdoor learning. Combining arts and environmental education forms an interdisciplinary approach to fostering a deeper understanding of environmental issues through creative expression. Roosen and colleagues (2017) discuss how scientific facts do not always communicate effectively and suggest that scientists should look to art and psychology to learn how to share in a way that could inspire change through visual, place-based art. In the current climate and biodiversity crisis, connecting individuals more deeply with the natural world is necessary. Bentz (2020) argues that collaborations between art, science and society create connections between individual life and the larger global context.

City of Glasgow College, as its name suggests, can be found in the centre of the city of Glasgow. I make extensive use of the college and surrounding areas for outdoor learning, thereby challenging traditional conceptions of 'nature' as wild and remote, somehow disconnected from the mundane, everyday, urban lives of my students. We begin the year learning basic camera techniques in and around the campus grounds. I lead demonstration and photography activities in the eco-garden, in the streets around the campus and in some of Glasgow's famous dear, green spaces. We look for opportunities to engage our 'hearts, heads and hands' to identify and strengthen our connection to the world around us.

The introduction to using the 'place' of our campus and beyond begins from the first week of the course and is continually developed throughout the year. Learners' responses vary depending on their past experiences of learning outdoors. A number of my learners are school leavers who lack confidence in artistic exploration outside the classroom but with lecturer and peer support, that confidence can be built relatively quickly. The support required is often the demonstration of techniques with learners individually, encouraging them to work with the visual elements of the image and supporting them through the process of image-making. By working outdoors through photography, students' apprehensions are able to be channeled into and through their creative responses. Group work also supports them to engage well within the environment due to the diversity of ages and experiences within the classes, encouraging communication and learning with peers.

Within their projects, I ask that learners focus on areas of sustainability with which they can engage quickly. For our close-up project, we work with rotten food, clothes, plastic, and nature to produce images that can be used in an exhibition to provide a platform to discuss food waste, fast fashion, pollution and biodiversity. In previous years, learners have included facts and statistics relating to each topic and politely protest by asking their audience to consider their own behaviours. Their learning often involves directly engaging with nature, such as learning composition skills in the photographic medium and recording local biodiversity. By harnessing the emotive power of the arts, educators and advocates can inspire individuals and communities to reflect on their relationship with the environment, leading to meaningful actions that promote sustainability and ecological well-being. This partnership not only enhances educational experiences but also cultivates a culture of care for the planet.



Lichen on a fallen branch, shot in studio.  
*Image by Conor Cunningham*



Dew on grass, shot on location in Glasgow City Centre.  
*Image by Jackie Thompson*

Outside of research and academia, photography is firmly embedded within our culture, shaping movements and people's senses of identity. This familiarity enables students to engage with the power of artistic practices to connect emotionally and intellectually with the world around them, encouraging them to look again, look closely and look differently. This close engagement promotes awareness, appreciation and action towards environmental sustainability.



Considering that with the complexity and seriousness of climate change, one possible reaction would be that people may feel powerless that they cease to care about the future and instead live for each day. Ojala's (2018) research found that young people use more constructive coping strategies when they feel their concerns are being listened to and included in intergenerational solutions. The conversations that emerged as my students shared their experiences of the city through their art practice offer hope for a constructive engagement with critical issues such as climate change, biodiversity loss and pollution.

Within the setting of the Scottish Further Education sector, engaging students through place-responsive artistic practice can provide spaces for imagination and experimentation, helping to make sense of complex ideas or issues. Bentz (2020) identifies that integrating art-based methods within environmental education can address emotions and create hope, empowering participants to work together to make a change. Her research found that although there is a wealth of information about climate change, only some effective teaching strategies empower learners to act for change (Bentz, 2020). Using Learning for Sustainability to guide project design can strengthen learner engagement by encouraging critical thinking through artistic exploration and questioning societal norms. Visual arts can powerfully communicate complex environmental concepts and issues. By transforming data and scientific information into

relatable narratives or compelling visuals, artists can evoke emotional responses that inspire audiences to connect with ecological themes on a personal level. 🌱

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**Heather Richmond** is a lecturer in photography at the City of Glasgow College. She is passionate about using visual arts to connect people with environmental issues and to notice and enjoy the natural world wherever they are. Her recent research considers sustainable approaches to photography, using plant-based materials to produce and develop images.

## From baking to place making: Social change and outdoor learning at Queen Margaret University

Patrick Boxall

Queen Margaret University (QMU) has created an Outdoor Learning Hub on campus with a Discovery Trail, Howff (a shelter/ resort), woodland and 'Wee Forest'. The hub was awarded a Scottish Learning Places Award in the Inspiring Places Category that was presented at a ceremony in Glasgow in 2024. We are delighted to have received the award and to celebrate how far we have come in a few short years.

The Outdoor Learning Hub was officially opened in March 2024 with the attendance of Graham Dey, the Scottish Minister for Further and Higher Education. The aims are to enrich students' experiences, to connect to communities and to have an impact on national and global priorities in education, sustainability and health and wellbeing. Rooted in QMU's commitment to justice and creative approaches to leading learning, the hub is actively influencing the curriculum and benefitting communities.

The commitment to making places have a positive impact on people, pedagogy and the planet has its roots in QMU's beginning. QMU was founded in 1875 and is now celebrating its 150<sup>th</sup> Birthday. Originally, it was called the Edinburgh School of Cookery and intended to address social and economic divisions and inequalities, including widespread poverty, by

providing educational opportunities for women and by improving diets, particularly for working class people. It's been very fitting that Dame Prue Leith has been QMU's Chancellor for the past seven years and has championed how such values can turn to action. Today the commitment to social justice remains; however, the world has changed which is why the university has grown new branches. Most recently, new courses in education were launched.

In 2019, QMU first opened its doors for folk to study Primary Education and Education Studies. We also began a Postgraduate Diploma Education in Home Economics for Secondary level teaching, which was extended to Religious and Moral Education and Business. From the beginning, the qualifications were designed with sustainability and outdoor learning as core elements. During the COVID-19 pandemic, outdoor learning became essential to the operating of the university, with practice outdoors being the only way to meet to face to face. For example, classes were held at the beautiful National Trust property of Newhailles House and Gardens.

QMU's new building was opened in 2007 on a brown-field site on the edge of Edinburgh. To walk round it feels like a pleasant municipal parkland with areas of

hedgerow, water and woodland. We could see the place had the potential for the natural world to thrive, enhance the environment for the community, support curriculum and research, and model how local green spaces can contribute to the global sustainability goals. The project was sponsored by Architecture & Design Scotland who provided startup funds, advice, and ongoing support.

Created with traditional materials, with a vision for a future connecting physical and digital spaces, the key project intention is to show how seemingly ordinary places – such as parks, small woodlands, ponds, meadows and hedgerows – are extraordinary when we really see and spend time within them. We aim to support teachers, educators and community leaders to develop confidence and skills by modelling environments that schools and community groups may access in their locality.



QMU Campus with Howff. Image by Patrick Boxall


Outdoor learning has the potential to bring communities together. The Outdoor Learning Hub sets a powerful example, flagging the importance of partnership. Collaborations with key stakeholders, including educational institutions, communities and environmental organisations, has been crucial to the hub's development. Landscape architects from the Wardell Armstrong consultancy helped with the design. The East Lothian woodcraft and nature company *Tree-ditions* realised the design and built the beautiful traditional reciprocal-roofed round house and Discovery Trail. Nature Scot funded the planting of a Wee Forest in 2022 which has been supported for ten years by the Edinburgh and Lothian Greenspace Trust. Schools, charities and voluntary organisations are active in the outdoor spaces on campus.

These partnerships have enabled us to create fertile grounds for resources and opportunities, growing a collaborative spirit that has planted seedlings that will bear fruit in the future. The Outdoor Learning Hub is becoming a centre for outdoor learning practice, leadership and professional development, and intends to contribute to national agendas such as Learning for Sustainability, Health and Wellbeing,

STEM, Skills Development, and the fourth National Planning Framework. To support educators and the community, we have created a series of films that follow the Discovery Trail called 'Gifts of Place'. The films can be accessed online or via QR codes, displayed on to the waymarkers of the trail. Thus, people can visit the hub and follow the trail online or by walking it.

We have developed undergraduate modules and Postgraduate micro-accreditations for professionals, namely, 'Making Places for Outdoor Learning' in partnership with Architecture & Design Scotland. Further, we developed 'Leading and Enhancing Community Learning Outdoors' together with Inspiring Scotland, working with the Community Learning and Development Standards Council Scotland.

The Outdoor Learning Hub supports the Learning for Sustainability Action Plan, presenting the concept of Sustainable Learning Settings in terms of four 'Cs': Curriculum, Culture, Community, and Campus. The QMU experience suggests that culture is the soil in which developments such as the Outdoor Learning Hub will grow. Since QMU's founding, the university's culture has been defined by the commitment to positive social change, openness to and support by leadership for new ideas, collaboration with partners, and the drive to be both critical and constructive in the world. This culture has made everything else possible: a university curriculum that embeds outdoor learning into courses and qualifications; the emphasis on positive student experience; the connections to communities; the support for research and knowledge exchange.

The Outdoor Learning Hub has co-created a space that holds gifts for people and benefits the natural world. We are making and growing places that give rich and meaningful experiences of learning, activity, and being. This is the beginning; seeds are being sowed that will create impact far beyond the physical dimension of the QMU campus. 

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**Patrick Boxall** is a lecturer at QMU in Edinburgh. He is engaged in research towards a PhD by publication, that focuses on the importance of creative pedagogy in outdoor learning as enacted by leaders and practitioners. He has worked in secondary and adult education.

**Profile:** [tinyurl.com/4uka5ap7](https://tinyurl.com/4uka5ap7)

**More information:**

QMU Outdoor Learning Hub: [tinyurl.com/54wujd8t](https://tinyurl.com/54wujd8t)





# Facing the ecological crisis: Teacher education and the ecology of the heart

Ramsey Affifi



Common blue. Image by Alison MacKenzie

The truth is... I don't know how to teach in the face of the ecological crisis.

I don't think anyone does. And yet, it is the heart of my work. I am a teacher educator working at a major Scottish university, hired for my 'expertise' in matters relating to ecology and sustainability education. It is also my passion.

The ecological crisis is about matters of life and death, and about how we – you, me, our students, our species – answer to its call. It poses existential questions filled with complex emotions that teachers seldom stir when teaching maths or modern languages. Are we then in the purview of therapists and monks, not educators? Who knows. But even if we steer past such heavy topics, they unavoidably spill into the classroom. Our students encounter the ecological crisis in media and social worlds, and in the air and water around them, and they bring big feelings into our teaching spaces.

The ecological crisis invokes heavy fears with heavy demands; its trends and facts surface one's personal mortality, but also that of loved ones, our species and others, and indeed the very home we share. Not just fear, but guilt and shame at our complicity in the destruction, grief at what has been lost, anger and blame, confusion and exhaustion. As the ecological crisis magnifies, my students will likely increasingly feel these and other so-called 'dark' emotions, as will their pupils. Not so dark, some say: as educators, we can help pupils appreciate the beauty, mystery, and wonder of the natural world, fostering gratitude, humility and a desire to care. Indeed. But increasing sensitisation to the astonishing beauty of what may

be slipping away also accentuates these painful emotions. We cannot love without opening ourselves to heartbreak (Martusewicz, 2014).

I notice some common responses to the ecological crisis in my students and colleagues, and especially in myself. One response denies its magnitude, explicitly in words or implicitly in action. Another dwells in it hopelessly. A third focuses on solutions. For many teacher educators, the third seems the only positive option. But things are not so simple. For starters, clinging to being 'part of the solution' can be its own kind of denial. Sometimes sitting in difficult and confusing spaces is needed to become clear about what ways forward are significant and which are superficial. But advocating we spend time dwelling in hopelessness is no answer either, especially because doing so can be its own kind of denial. Abstract terror can paralyse, preventing people from committing to real others with real stakes and suffering. Denial, for its part, is not always denial: sometimes people need to forget the horror and watch some silly comedy – perhaps to engage the horror again tomorrow.

From an ecological point of view, it does not make sense to malign one response and advocate another. What matters is what might happen when different responses interact together and with concrete conditions in the world. The very same response might contribute to healing or destruction depending on context. There is an ecology of the heart, which can be just as disrupted as those in fields and forests (Bateson, 2000), and indeed is intricately connected with them (Affifi, 2023).

This intuition does not tell me what a healthy ecology of the heart looks like, nor how to get there. It may also be wrong. Nevertheless, it leads me to an interest in what happens when a person identifies and opens to that suffering that uniquely calls them (Macy & Brown, 2014), and I try to work with my students in this space. When so found, the heart can ground our flights of denial, and give significance to the solutions we devise. If we listen, it might provide some valuable guidance. This is not to say the heart is automatically 'right' in what it cares about; like any perspective it can be biased or parochial. But a real investment into caring is expansive, because what we care for is interconnected with its world, our care grows outward with our investment.

That people can feel pain when bearing witness to suffering is beautiful; it is more beautiful still when people are guided by this vulnerability. I try to invite my students to see and feel this too, but it requires openness, trust, and support. It asks for skills that teacher educators, myself included, often lack and indeed which I sometimes resist.

Here are a few things I do:

I try to draw attention to prevalent short-circuits that diminish attention from the heart's call, like the inference it is not 'worth' putting energy into caring for a species or ecosystem presumed to be doomed (Affifi, 2020). Such thinking reduces the ecological crisis to a resource allocation problem and undermines why people care in the first place. We ease into the ecology of the heart by watching, reading, and discussing accounts where tensions between attending with the heart and head play out. At some point, I might share stories of what I love and suffer with. I want to express myself, but make an effort not to reduce these experiences to performances. I might meditate into my suffering prior to talking about it with students, especially when I find myself getting absorbed with how it might land. I might ask my students to recount times they have cared for something destined to die, and whether it was worth it. Or I might quietly pay attention to what pulls my students and make offerings when circumstances feel right.

Sometimes, my invitation frightens some students and they choose not to receive it. I then struggle with whether I should pull back, or reach my hand out in some other way. Other times, my cares and their own touch one another. Students sometimes tell me magic happens when our concerns seem to mutually validate one another in their relatedness. If social, cultural and biological destruction and violence are deeply intertwined, work in one may contribute to healing in the others. With this broader view, it is possible to see each other's calling as woven together in a broader shared purpose.

The ecological crisis is urgent, but perhaps it is asking us urgently to slow down, become more tentative, pay better attention and care better.

That seems part of what it is asking of me. Am I alone? I offer this little essay as an invitation to those who yearn to face the ecological crisis together, wholeheartedly alive. Come find me. We can do this work together. 🌱

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Isle of Skye. Image by Alison McKenzie

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Glencoe damsel. Image by Alison McKenzie



# BOOK REVIEWS

## **Astronomy for Curious Kids**

Giles Sparrow

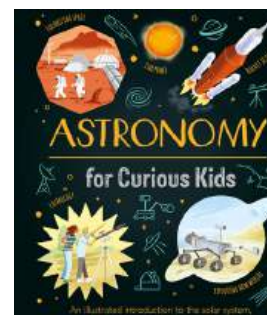
*Reviewed by Henricus Peters*

Whether it's a bright and full moon tonight, or you've heard of an upcoming space event and you want to check out details, the science of astronomy has huge and significant impacts on all our lives. *Astronomy for Curious Kids* does the field a great service, including in its 128 pages an introduction to all things space. Chapter 1 focuses on looking at the night sky using your eyes, binoculars and telescopes; chapter 2 tracks the history of astronomy from the first star-gazers; chapters 3 and 4 explore the moon and planets, and the stars, respectively; the book concludes with chapters 5 and 6, which include galaxies and asking some of those annoying questions!

Did you know, for example, that way back in 1609 Galileo had the first telescope pointing skywards? That the far side of the (our) Moon, is a real thing? There's actually something called 'the cosmic web'?

A useful glossary and simple index complete the volume. My critical comment is: I always prefer true photographic images when it comes to illustrate a science book – the pictures here have their place for sure, but I like the real deal.

Highly recommended for all kids everywhere – for those who are already curious and those whose curiosity is yet to be sparked.



CSIRO Publishing, 2014  
publish.csiro.au  
ISBN: 9781486318384

## **Oceans at Night**

Dr Vanessa Pirotta, illustrated by Cindy Lane

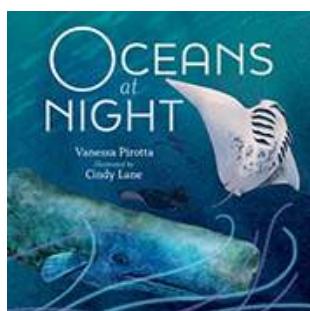
*Reviewed by Henricus Peters*

Australia is famous for its unique and interesting wildlife, with many of these species existing nowhere else on the planet. But did you know that a whopping 70 % of mammals are nocturnal?

That's land species. How much do we know about the night-time behaviours of sea animals?

NASA confirms that it's easier to send people into orbit than to dive the oceans with their great depths, zero visibility, steely cold temperatures and crushing amounts of pressure – so it's often said we know more about 'the great expanses out there' than we know about our own 'blue planet'.


*Oceans at Night* aims to help change that, for younger readers, and does so in a brilliantly unusual way.



CSIRO Publishing, 2024  
publish.csiro.au  
ISBN: 9781486317233

The focus is the wonderful world under the waves that comes to life between dusk and dawn.

From little penguins – often menaced by dogs and cars – through fascinating sharks, deep diving giant squid, and to sea turtles – this marvellous short book describes the animals in beautifully illustrated but still realistic scenes. The end pages include detailed fact pages, and a handy glossary.

Cindy Lane is an award-winning artist with a particular pencil for the ocean, using natural materials alongside her own paints. Author Dr Vanessa Pirotta is a scientist and science commentator with a special expertise in whales that come to and past Australia's coasts. 

**If you have read a nature book that you enjoyed, we would love to hear about it!**

Please let us know by emailing [info@naee.org.uk](mailto:info@naee.org.uk).

# CHILDREN'S BOOKS ABOUT NATURE – SCOTLAND FOCUS

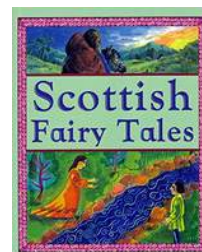
Compiled by Juliette Green

## Myths, legends and fairy tales

*Scottish Fairy Tales*, retold by Philip Wilson (Lomond Books, 2013. ISBN 1842040928) is a beautifully illustrated book full of tales that evoke a mystical land. But, be warned: some are rather gruesome!

*An Illustrated Treasury of Scottish Folk and Fairy Tales* by Theresa Breslin and illustrated by Kate Leiper (Floris Books, 2012. ISBN 0863159079) contains stories that feature mythical creatures as well as real Scottish animals such as the goshawk.

*The Lore of Scotland: A guide to Scottish legends* by Sophia Kingshill and Jennifer Beatrice Westwood (Arrow, 2011. ISBN 9780099547167) is a great reference book for places and legends, which can be used for making up your own tales.



## Well-loved stories with a Scottish twist

*There Was a Wee Lassie Who Swallowed a Midgie* by Rebecca Colby and illustrated by Kate McLelland (Picture Kelpies, 2014. ISBN 1782500480) is an adorable Scottish version of 'There was an old lady who swallowed a fly', except that she swallows a midgie and then lots of other Scottish animals instead – including a puffin, an eagle, a seal, Nessie, and finally a whole loch!



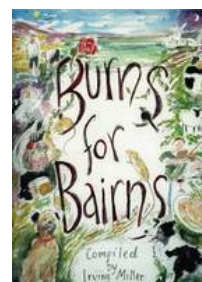
Julia Donaldson's classic *The Gruffalo* has been translated into *The Gruffalo In Scots* as well as Glasgow, Dundee, Shetland, Orkney and Doric dialects and various versions of *The Gruffalo's Bairn/Wean* (Child). All of these are published by Itchy Co: [itchy-coo.com/gruffaloscots](http://itchy-coo.com/gruffaloscots). Education Scotland's website also has resources based on the various versions: [education.gov.scot/resources/the-gruffalo-in-scots](http://education.gov.scot/resources/the-gruffalo-in-scots).



There is a brilliant and creative rendition of *The Boy, The Mole, The Fox and The Horse* by Charlie Mackesy, which has been translated into Scots by Matthew Fitt as *The Laddie, the Mowdie, the Tod and the Cuddie* (Luath Press Ltd., 2020. ISBN 1910022179).

## Poetry

Robert Burns referenced animals, plants, seasons and weather in many of his poems. *Burns for Bairns* compiled by Irving Miller (Alloway Publishing Ltd, 2014. ISBN 0907526969) and *Wee Rabbie's Rhymes: Robert Burns for Wee Folk* illustrated by Karen Sutherland (Itchy Co, 2008. ISBN 1845022203) are great for introducing children to Burns's poetry.



## Publishers of Scottish children's stories and non-fiction books

Scottish publishing house Birlinn have some great activity books for children based on the landscape, wildlife and history of Scotland, including *Magic Painting Book: Scottish Nature* (ISBN 9781780276564); *My Scottish Activity Book* (ISBN 9781780276526); *The Sticker Atlas of Scotland* (ISBN 9781780274126) and *Scottish Nature and Wildlife Sticker Book* (due to be published in July 2025; ISBN 9781780279466). All are available by searching on [birlinn.co.uk](http://birlinn.co.uk).

Kelpies are 'Scottish books for children everywhere' and are part of Edinburgh-based publishing company Floris Books, the largest publisher of children's books in Scotland. Many of their books are based in, or about, Scotland, with lots of them featuring indigenous Scottish wildlife, including beavers, wildcats and seals. The books on their website – [discoverkelpies.co.uk](http://discoverkelpies.co.uk) – can be searched by age, and there are also classroom resources and 'features for teachers'.





# WEBWATCH

## Scotland's environmental charities and causes

Compiled by Henricus Peters

### Alliance for Scotland's rainforests

[savingscotlandsrainforest.org.uk](http://savingscotlandsrainforest.org.uk)

Scotland's rainforest comprises the semi-natural woodlands of Scotland's west coast. High rainfall, mild temperatures and clean air provide the perfect conditions for mosses, liverworts and lichens to thrive. The sheer abundance, diversity and rarity of the species make this unique habitat internationally important.

### Forestry and Land Scotland

[forestryandland.gov.scot](http://forestryandland.gov.scot)

Scotland's government agency develops renewable energy schemes, creates and maintains trails and conserves habitats, wildlife and archaeological treasures.

### National Trust for Scotland

[nts.org.uk](http://nts.org.uk)

The Trust supports a wide range of charitable purposes: conservation of nature, the historic environment and cultural heritage; along with public access, learning and enjoyment.

### NatureScot: Nature agency for Scotland

[nature.scot](http://nature.scot)

The agency works to improve the natural environment and inspire people to care about it.

### National Parks in Scotland

[visitcairngorms.com](http://visitcairngorms.com)

**The Cairngorms** is the UK's largest National Park, located in the Scottish Highlands.

[lochlomond-trossachs.org](http://lochlomond-trossachs.org)

**Loch Lomond and The Trossachs** was the first to become a national park in Scotland in 2002. From the Arrochar Alps to the island habitats of Loch Lomond, it offers a multitude of stunning views.

### Butterfly Conservation, Scotland

[butterfly-conservation.org](http://butterfly-conservation.org)

Scotland's rugged landscape presents a distinctive set of challenges to the team at Butterfly Conservation Scotland. Scotland's upland and northern species such as Large Heath, Mountain Ringlet, Mountain Burnet and Northern Dart could be under threat from climate warming and could prove to be useful indicators of climate change.



### Buglife Scotland

[buglife.org.uk](http://buglife.org.uk)

Buglife Scotland has been protecting invertebrates and habitats for over ten years. Buglife Scotland projects have engaged thousands of people to raise awareness of protecting invertebrates.



### **RSPB Scotland**

[rspb.org.uk/scotland](https://rspb.org.uk/scotland)

Scotland is home to golden eagles, otters, red squirrels, wintering geese and huge seabird colonies. You can find them all among Scotland's rugged mountains, moorland, ancient Caledonian pine forests and miles of coastline.

### **Marine Conservation Scotland**

[mcsuk.org](https://mcsuk.org)

Scotland is home to 13% of Europe's seas and 62% of the UK's. The Marine Conservation Scotland has been working to protect Scotland's seas for over 20 years.

### **John Muir Trust**

[johnmuirtrust.org](https://johnmuirtrust.org)

The John Muir Trust is a leading voice for the UK's wild places, dedicated to the conservation, protection and restoration of the UK's wild places since it was founded in 1983.

### **PlantLife Scotland**

[plantlife.org.uk](https://plantlife.org.uk)

From the spectacular landscape of the Cairngorms to the corridors of Holyrood, Plantlife Scotland fights for wild plants, celebrates their beauty, and protects their future.

**Plantlife**

### **Scottish Wildlife Trust**

[scottishwildlifetrust.org.uk](https://scottishwildlifetrust.org.uk)

The Trust successfully champions the cause of wildlife through policy and campaigning work, demonstrates best practice through practical conservation and innovative partnerships, and inspires people to take action through its education and engagement activities. It also manages a network of over 100 wildlife reserves across Scotland and is a member of the UK-wide Wildlife Trusts movement.

### **Scotland's Rewilding Alliance**

[rewild.scot](https://rewild.scot)

The Scottish Rewilding Alliance is a collaboration between like-minded organisations who share a mission to enable rewilding at a scale new to Scotland. Our approach embraces working in partnership with landowners, communities, interest groups and government to achieve a shared agenda that shapes the landscape. Our goal is a flourishing ecosystem, supporting self-sustaining nature-based economies which secure a future for local communities.



For all NAEF blogs, journal issues, a dedicated members' page and environmental education resources visit [naef.org.uk](https://naef.org.uk) or email [info@naef.org.uk](mailto:info@naef.org.uk).

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