

Dasgupta Review The role of Education

"In the end we will conserve only what we love; we will love only what we understand; and we will understand only what we are taught."

Senegalese environmentalist, Baba Dioum, 1968

The world urgently needs naturalists. In 2017, a study published in the Proceedings of the National Academy of Sciences brought together findings from around the world and declared an ongoing “biological annihilation” and “a frightening assault in the foundations of human civilisation.”¹ Planet Earth has lost 50% of all individual animals in the last forty years due to habitat destruction, overhunting, toxic pollution, intensive agriculture, invasion by alien species and climate change. Not only has the mass of wildlife thinned out, the range of many species has been greatly diminished as humanity has taken vast tracts of the surface of the earth for its own needs. The report underlined that we are living in the earth’s sixth mass extinction event. As the renowned Harvard biologist Edward Wilson commented, we are entering a new era which he termed the Age of Loneliness, where the only wildlife that will exist alongside humanity in the future will be generalist species such as the cockroach. We are, he says, eradicating beauty, variety and exuberance and are destined to be in command of a sterile earth.

If humanity is to flourish into the future we must restore a diverse and thriving natural world, not only for the goods and services it offers, but also because it provides a wellspring of creativity, inspiration and meaning. We are also bound by a moral responsibility to protect other life and we will be failing in our duty as guardians of the earth if we allow species to fail through selfishness, ignorance and disrespect.

There is no replacement for the awe, joy, excitement, mystery and indeed fear generated by wildlife, nor any substitute for the sight, sound, smell and feel of the world that surrounds us. These experiences stimulate so much creativity and spiritual reflection; without nature we are diminished as human beings. How we tackle the devastating losses that are now so evident, and create future citizens and who are themselves fulfilled and who respect and nurture life on earth, is one of the greatest challenges we face.

As humanity becomes increasingly urban (two thirds will live in cities by 2050 according to the UN²) and reliance on digital technology is increasing worldwide, fewer people have daily, visceral contact with the material planet. Physical, emotional and spiritual ties to the natural world are constantly being weakened or severed. The solution is multifaceted, requiring civil, economic and political action on many levels, but key to generating a nature-rich future and nature-literate societies is education centred on nurturing naturalists.

¹ Population losses and the sixth mass extinction

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² <https://www.un.org/development/desa/en/news/population/2018-revision-of-world-urbanization-prospects.html>

“A naturalist is the person who is inexhaustibly fascinated by biological diversity and who does not view organisms merely as models, or vehicles for theory, but rather as the thing itself that excites our admiration and our desire for knowledge, understanding, and preservation.”

American environmentalist, David Schmidley

Starting at primary level and continuing through to university education and into the workplace, nature can be woven into an individual’s life-long learning experience. Nature education will inspire the next generation with a passion for the earth and appeal to all, from babies to adults. By introducing young children to nature in its many different guises and sustaining their interest throughout their school life it is possible to create citizens who have an easy conversation with the world around them. They will be able to identify local wildlife and understand its needs and interconnectedness, as well as appreciate how their neighbourhood wildlife relates to the rest of the world. Nature education instils both a local and global perspective. Every child in every country has a right to be taught natural history, to be introduced to the awe and wonder of the natural world, and how it contributes to all of our lives.

Rootedness in place is vital to restoring nature worldwide, and it begins with an appreciation of natural history in a child’s local environment. Getting outside and experiencing wildlife cements a sustained interest in nature. Richard Louv, author of *Last Child in the Woods*³, writes, “Passion is lifted from the earth itself by the muddy hands of the young; it travels along grass-stained sleeves to the heart.” The interaction of the senses, motor functions and intellect stimulates ideas and develops skills that will accompany them along whatever path they choose to take as adults. Children will feel at home on a real, earthy planet rather than disassociated inhabitants of a virtual one. Exploring the all-pervasive influence of the natural world on human culture through stories, poems, art, music, geography, mathematics and science is a joy that will continue through life.

Children will also be taking part in the cultural history of their own location, keeping alive the uniqueness of place which is given definition and character by nature that lives there and by the stories and memories that surround it. Local wildlife provides an anchor – a still point in a turning world – and it helps people cherish and preserve their home because nature is part of them and integral to their identity. Wildlife retains an authenticity and a defining individuality in an age of mass reproduction and globalisation, and a child’s homeland can become a unique place to be celebrated and cherished. We must strive to keep this uniqueness in the world, to stop the planet from becoming a bland, uniform ecological shopping centre where only the big brands survive and where nuanced individuality is lost. Global resilience to disease and climate change will be enhanced by localism, by communities nurturing and celebrating the individuality of their own environment. The emotional, spiritual and psychological benefits of a connection to nature and to place are well-known, but they are increasingly compromised as nature thins out and disappears from our minds and hearts.

³ *Last Child in the Woods: Saving our Children from Nature-Deficit Disorder* (ed. Atlantic Books Ltd, 2013) - ISBN: 9781848877498

When children are young, we tell them what is important to us as individuals and as a society through stories, and those stories usually involve animals. It is one of the ironies of modern life that we surround children with animal pictures and toys only to remove that influence as they grow, replacing them with more conceptual, less immediate knowledge and distancing them from the physical nature of the earth. Animals and plants transition from being fellow travellers on a complex and interrelated planet to becoming objects in a system that we observe from the outside and that can be useful commodities. That switch drives the destruction and alienation that is obvious today and which results in so much damage, not only to the environment but also to our mental health, well-being and spiritual fulfilment.

The imaginative value of wildlife is so important to us, but under-recognised. Writers, artists, poets, musicians and spiritual thinkers have always drawn on the earth's variety of life and landscapes to help explore the human condition and to make sense of a complex, confusing world. Every society creates stories, myths, legends, parables and teachings that search for truths woven into the interaction of character and place, creating an inspirational realm where physical reality is enriched by wisdom. The natural world provides the settings, characters, similes and metaphors in infinite variety, a panoply of wonder that can enhance the whole of our lives. Worldwide, the study of natural history may not be purely based on a western, scientific model but include faith-based ideas about the preciousness of the planet. There is much wisdom in other ways of looking at the natural world that complement those based on classification and ecology. When we peer into the variety of life on earth, we see ourselves, in all our baseness and glory, reflected back. The French anthropologist Claude Levi Strauss simply surmised, "Animals are good to think with." Many education systems, however, devalue and side-line this all-encompassing study of natural history once children leave primary school, depriving young people of so much inspiration and important knowledge. Combining scientific, spiritual and cultural appreciation of our home is the foundation upon which we can build a better future that is built on hope, wisdom and understanding.

As children grow older, they can be taught the key skills of a naturalist – naming, observing, recording and collecting useable data which can contribute to national databases. Observing wildlife and interpreting behaviour through the seasons, understanding the interconnections between different species, tracking annual migrations, recognising invasive species, noting the effect of anthropogenic changes and monitoring how nature is responding to climate change are all vital to making the right decision for the future. The ability to work outside in the unpredictable and often challenging real world and to work with 'messy data' are life-skills that are widely applicable. This direct contact with the variety of lifeforms invokes intense curiosity about how they came to be and how we can preserve them. That passion may infiltrate through to decision making as children grow, influencing the choices they will make as adults, both personally and professionally. Ultimately, a deeper understanding of the natural world will affect how they elect to live their lives, and make living and thinking richer. They will be more observant, rounded and integrated people.

Natural history education is a natural bedfellow of both biology and geography as well as mathematics and the humanities. It is an enriching and leavening subject which brings

colour and meaning across the board. Anyone can study nature, be that in a city or in a rural area. There is as much wonder to be found in a ladybird on a weed or an elephant in a forest, in a dandelion or a Giant Sequoia. Nature is where we are and exploring it outdoors enhances the interior life, combats feelings of isolation and alienation and increases attention to detail and self-esteem.

The value of continuing nature education beyond primary level cannot be stressed enough. Research at the University of Derby⁴ shows that young people's connection to nature drops sharply from the age of 11 and doesn't recover until they are 30 – with significant implications for their engagement with pro-environmental behaviours like taking interest in conservation, recycling, or buying eco-friendly products. Nature is lost in these formative years and side-lined for subjects considered more serious and important. The recent demonstrations worldwide, mainly by young people, expressed concern for climate change and biodiversity loss, and showed how much young people want to be involved and to have the skills to tackle the damaged planet we are bequeathing to them. At the very time young people are making decisions about their future direction they are least connected to the natural world. The environmental crisis we see all around us is also particularly damaging to the mental health of the young, now recognised by governments worldwide, and they are demanding to be given the knowledge to put it right.

The lack of nature-connectedness has resulted in a decrease in joy and wonder in our daily lives, contributing to a worldwide increase in depression, anxiety and obesity. Paracelsus, the 16th-century German-Swiss physician, wrote: "The art of healing comes from nature, not from the physician." There is now a well-known connection between well-being and connection to nature – not simply being outdoors but having a meaningful relationship with the natural world that goes beyond utility and control. The University of Derby⁵ research also shows that it is possible to establish new, pro-nature, sustainable relationships by fostering 'pathways.' These encourage people to tune in to nature through their senses and emotions, not just through the intellect, by noticing nature's beauty and celebrating it, by acknowledging how it brings meaning to our lives and by actively caring for nature. These pathways engage an individual in a meaningful way with the life around them and translate into measurable sustainable behaviours. Including these in nature education will make it more effective and provide a bedrock for sustainable societies.

By establishing nature education now, and inspiring the next generation, it is possible to create a worldwide appreciation and respect for the natural world in a time of global extinctions. This provides the bedrock of motivation to change the world and bring wildlife back from the brink.

By establishing the natural world within the school system and by tapping into the natural history of the past as well as encouraging hopes for the future, we will be addressing the worrying phenomenon known as the 'shifting baseline.' It is a cliché but true that we are

⁴ <https://www.derby.ac.uk/news/2019/new-study-pinpoints-when-teenagers-fall-out-of-love-with-nature/>

⁵ <https://www.derby.ac.uk/research/about-our-research/centres-groups/nature-connectedness-research-group/>

what we remember, and we are rapidly forgetting past abundance and what it is like to live on a vibrant earth that sings and shines with life. Each generation defines a nature-line in the sand which gets washed away, reformed and reset with each new wave of extinctions and as wildlife becomes less common. We believe that what we see is how it is, the shifting baseline, which means we are progressively redefining ourselves as inhabitants of an emptying world. It is directly related to what author Robert Pyle termed the 'extinction of experience' over twenty years ago⁶, a reference to the disappearance of the experience of living amongst wild creatures.

As cities and metastasizing suburbs forsake their natural diversity, and their citizens grow more removed from personal contact with nature, awareness and appreciation retreat. This breeds apathy toward environmental concerns and, inevitably, further degradation of the common habitat....So it goes, on and on, the extinction of experience sucking the life from the land, the intimacy from our connections... people who don't know don't care. What is the extinction of the condor to a child who has never known a wren?

The knock-on effects of this are huge. If we don't experience wildness because it is gone, we won't be alarmed at it fading away elsewhere. We won't feel extinction as a personal, painful urgency, more of a shrug and resignation. As part of reversing this trend, nature education can encourage children to speak to the older generations so that their memories of a land full of life are not lost in time. Nature provides a thread that winds through time, binding us to the past and providing a guide to follow into the future. When children learn the ecological history of their area they will understand how they fit into the trajectory of life where they live. An understanding of the causes for the loss of wildlife can be used to stop and reverse the destruction, using memories of the past as a guide to the future vision.

We are now not only entering Edward Wilson's Age of Loneliness, we are in the midst of the Age of Forgetting, a collective, worldwide nature-amnesia. Part of the answer is for us to establish a new Age of Remembering, a reconnection to the past which will inform a vibrant future. By instilling nature into the heart of the world's education systems we will begin this healing process and restore wildlife from museum specimens to living, breathing life, with all the benefits that will bring.

As the world's nations plan for a greener and more sustainable future, we will need competent naturalists as never before, both professionals and informed citizens. If decisions about the future are based on fact and evidence, and not purely on emotion, we will make the right decisions and avoid making things worse. Future developments must be underpinned by an informed respect for nature, because only then will we create eco-sensitive cities, industry and infrastructure and build a world we wish for our children.

Suddenly, from behind the rim of the moon, in long, slow-motion moments of immense majesty, there emerges a sparkling blue and white jewel, a light, delicate, sky-blue sphere laced with slowly swirling veils of white, rising gradually like a small pearl in a thick sea of black mystery. It takes more than a moment to fully realize this is Earth.

⁶ Pyle, R.M. "The extinction of experience" *Horticulture* 1978, Vol 56 pp. 64-6

Putting nature back into the heart of education around the world will give a local, global and even a planetary perspective of humanity's place in the universe. Birds navigate using the stars, ocean life shifts with the tides and flowers track the sun. We are the only planet that supports life (as far as we know) and we are not only connected to each other but with the rest of the solar system. This is all too easily forgotten in the babble of daily existence. We must learn to cherish this earth again, this blue dot that whirls in space, and to have our eyes opened to the wonder and awe of this astonishing, singing, bright planet we are privileged to call home. This deep appreciation operates on many levels and can lead to a fulfilled existence for all life on earth. Albert Einstein said that "he who can no longer pause to wonder and stand rapt in awe is as cannot as good as dead; his eyes are closed." It is this reigniting of life-enhancing joy that will turn the present direction of travel around. Only when we truly care will we be able to make the sacrifices and changes needed for the greater good and create a world of richness for all.

"If a child is to keep alive his inborn sense of wonder ... he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement, and mystery of the world we live in."

Rachel Carson -author of Silent Spring,