Biodiversity Education – Are We Succeeding?

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Abstract: The number and quality of biodiversity education projects has increased since environmental education first hit the global stage in the 1970's. But has this rise in biodiversity education been matched by a similar success in the preservation and enhancement of biodiversity itself? This paper will explore this issue by reflecting on the experience of the Field Studies Council, a UK educational charity with over 60 years experience of biodiversity education, and examining the kinds of learning that will really support the preservation and enhancement of biodiversity. The aim of the this paper is not to necessarily provide answers, but to challenge the thinking behind biodiversity education and prompt critical reflection on current practice.

Introduction

In the beginning…

Environmental education, and thus biodiversity education, first became prominent in the late 1970's with the Tbilisi Declaration. This international declaration was the first international attempt to define what environmental education should be about and how it needs to delivered. The five core principles of understanding, knowledge, attitude, values and action are still referred to today.

The environmental education movement was born out of a wider environmental movement in the 1970's that promoted individual action against the then environmental 'bads' of business, industry and big government. The environmental movement has come a long way since then, and many environmental organisations works actively as partners with business and big government. But how much has environmental education changed and developed? Despite many positive changes and increased effort, many programmes still rely on the basic assumptions behind the Tbilisi Declaration. Are these assumptions still current in today's climate?

In the United Kingdom…

Established in 1943, the FSC (Field Studies Council) has become internationally respected for its network of education centres, international outreach training projects, research programmes, information and publication services and professional training and leisure courses. In over 60 years it has grown from one small centre to a network of 17 centres, 14 of them residential. It runs a wide ranging programme of courses in environmental study from the ages of 3 to 90 years, and has over 100,000 visitors per year.

Central to the work of the FSC is its motto 'environmental understanding for all.' Central to the delivery of this is the concept pioneered by the FSC of the outdoor classroom. The FSC experience is that by bringing students face-to-face with the natural and man-made environment is key to successfully investigating and understanding it. And furthermore it is essential if that understanding is to be transformed into action throughout a person's life.

In short, the outdoor classroom:

- Brings concepts and theories to life
- Enables practical enquiry skills to be honed and perfected

- Ensures ideas and interests can be shared
- Inspires students for a lifetime
- Makes education fun.

The approach to learning pioneered by the FSC continues to develop today through education networks throughout the world. But the datable about how we should learn and how learning contributes to the preservation and enhancement of biodiversity continues, as it should do.

The Living Planet Index tracks the health of key ecosystems and their ability to sustain the planets functions in a state habitable for humans. As you can see all the trends are going in the wrong direction.

Biodiversity and ecosystems are being more widely understood for the services they provide that support human life. These ecosystem services are the things that clean the air and water, provide fertile soils and maintain the temperature of the planet. These ecosystem services are also suffering as diagrams 2 and 3 show.

Box 1: Key Findings from the Millennium Ecosystem Assessment

- Over the past 50 years, humans have changed ecosystems more rapidly and extensively than in any comparable period of time in human history.
- The changes that have been made to ecosystems have contributed to substantial net gains in human well-being and economic development, but these gains have been achieved at growing costs in the form of the degradation of many ecosystem services.
- The degradation of ecosystem services could grow significantly worse during the first half of this century.
- Approximately 60% of ecosystem services are being degraded or used unsustainably.

Source: UN Millennium Ecosystem Assessment

Are we succeeding…?

How do we measure success? Many education projects, quite rightly, measure the number of participants, publications distributed, workshops delivered and a whole host of other indicators. By such measures biodiversity education is truly succeeding. Every year more and more projects are delivered, greater numbers of people take part and the message of biodiversity education is received and digested. All well and good!

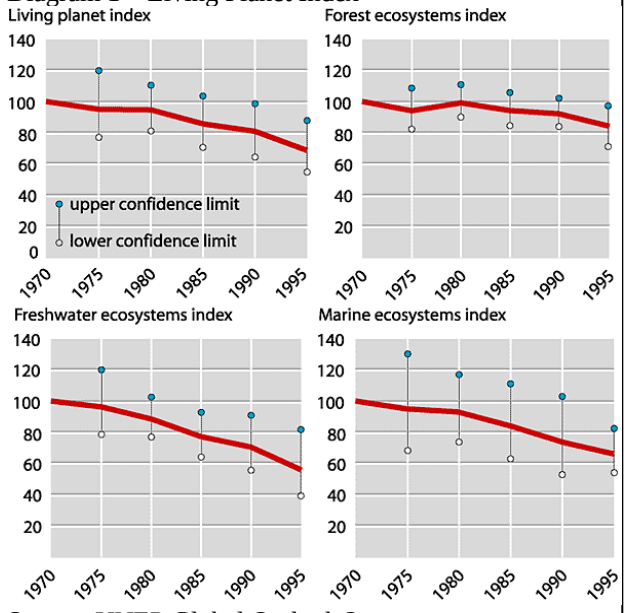
Reflection would be useful on the actual purpose of biodiversity education. If it is to provide learning and education then, yes, we are truly moving in the right direction. If it is to preserve and enhance biodiversity then we need to examine a different set of indicators.

In 2005 the United Nations released the Millennium Ecosystem Assessment. At the time of its release it received wide global media coverage. Box 1 above shows why.

Clearly this is not a success. The reason that the Millennium Ecosystem Assessment got such wide media coverage was because of the amount of negative news it delivered. Diagram 1 above shows this in a different way.

Clearly something is not right. If on one measure biodiversity educators are succeeding in delivering more and better quality learning opportunities (and they are) why are the indicators of healthy ecosystems and biodiversity mostly pointing in the wrong direction?

Diagram 1 – Living Planet Index



Source: UNEP Global Outlook 3

Diagram 2 – The Ability of Ecosystems to Regulate Flooding

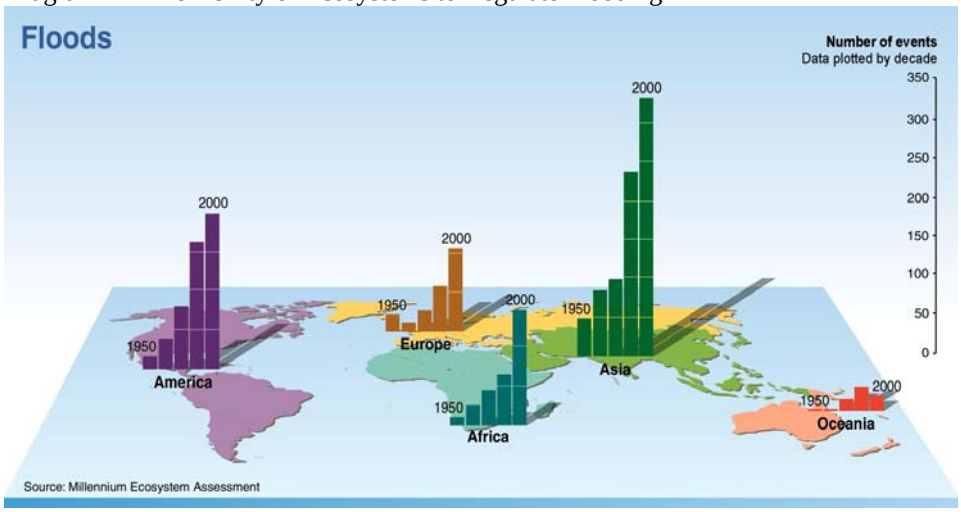


Diagram 3 – Status of Ecosystem Regulating Services

	Status
Regulating Services	↓
Air quality regulation	↑
Climate regulation – global	↓
Climate regulation – regional and local	+/–
Water regulation	↓
Erosion regulation	↓
Water purification and waste treatment	↓
Disease regulation	+/–
Pest regulation	↓
Pollination	↓
Natural hazard regulation	↓
Cultural Services	
Spiritual and religious values	↓
Aesthetic values	↓
Recreation and ecotourism	+/–

Source: UN Millennium Ecosystem Assessment

Are we looking at the right things…?

To answer the question above we need to ask what is it that is causing the impacts on ecosystems and biodiversity so clearly laid out in the UN Millennium Ecosystem Assessment. There are several key levers that are both destroying ecosystems and at the same time can become levers for change.

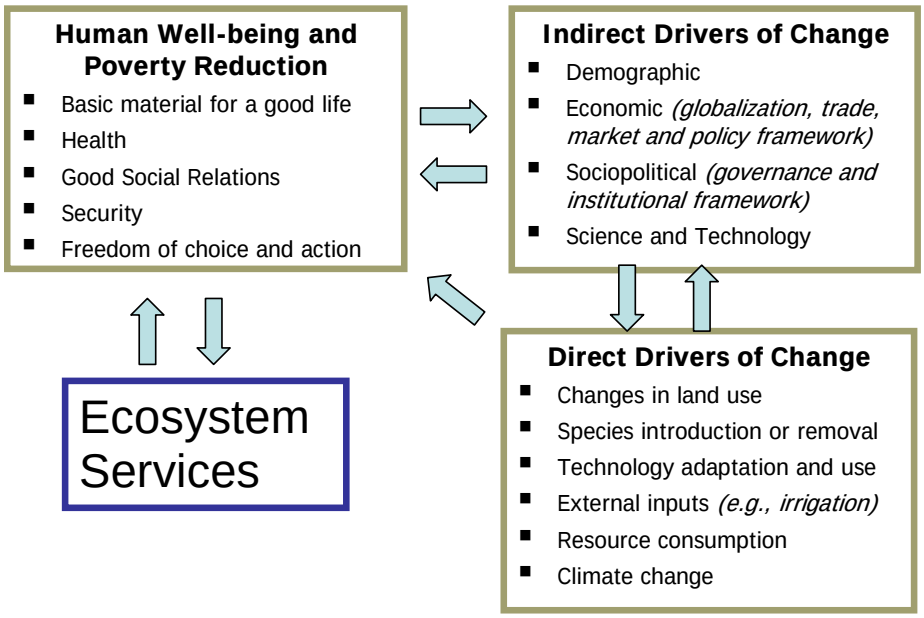
Some of the drivers in diagram 4 will be familiar to many biodiversity educators – changes in land use and species introduction or removal. Others are only talked about in the most general terms or ignored. But why is this? If issues such as resource consumption, governance, technology and demographics are such important issues why are they not addressed? One of the main reasons is a lack of systemic thinking. It is often assumed that by promoting personal behavioural change, often in a moralising and negative way, we can bring about effective change. This is rarely the case and becomes even more difficult to sustain in the face of the huge pressures from consumerism, driven as it is by the call to use more not less of the world's resources,

population change and our massive reliance on oil.

One simple example of this reliance on the 'you do your bit' style of education comes from Ireland. For many years campaigners had tried to reduce the amount of plastic bags used in society.

Oil has undoubtedly brought huge benefits to mankind. But these benefits have been at the cost of the natural resources that sustain the planet. Without the planets functions we cannot live.

Diagram 4 – Ecosystem Services and Drivers of Change.



Source: UN Millennium Ecosystem Assessment

The types of campaign will be familiar – reuse old bags, use a cloth one, etc. The result was about a 10% reduction in plastic bags. A general rule says that about 5-10% of the population are willing to change their habits by persuasion. In 2002 the Irish Government cam up with a different solution. They imposed a tax on plastic bags at source. Now when shoppers go to the supermarket they have to pay a tax on each plastic bag they use. The result? A 70% reduction in plastic bag use in one week. Whereas education had a key role in bringing the issues of waste and over-reliance on plastic to the publics attention, it was only when system change, in the form of a tax, was introduced that real results were gained.

Here are two diagrams that have everything to do with biodiversity and ecosystems but are mostly ignored.

The modern world is built on a cheap and plentiful supply of oil. The rise of industrialisation, the growth of wealth and standards of living can be tracked by following the increasing demands for oil globally. It would not be an understatement to say that we would not be where we are today without it.

Population growth has been relatively stable in human history, but in the last several hundred years it has increased many times over and is predicted to keep rising until, perhaps, levelling off at about nine billion. With this population growth has come an increased demand for natural resources, and as s result massive natural resource loss. Research is increasingly pointing to the fact that the poverty alleviation and health ecosystems are intrinsically linked.

Diagram 5 – Oil Consumption by Country

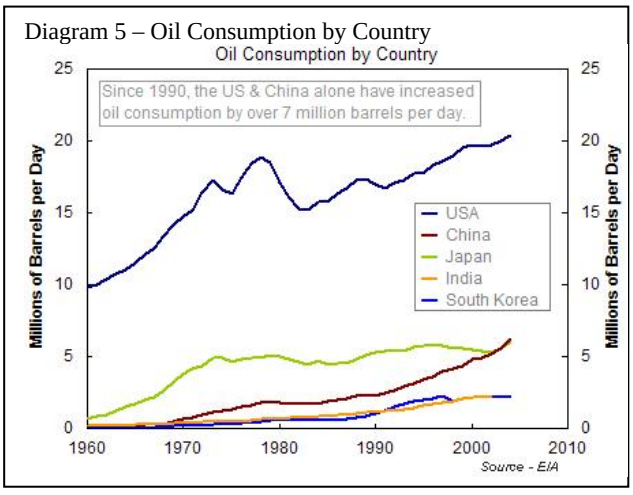
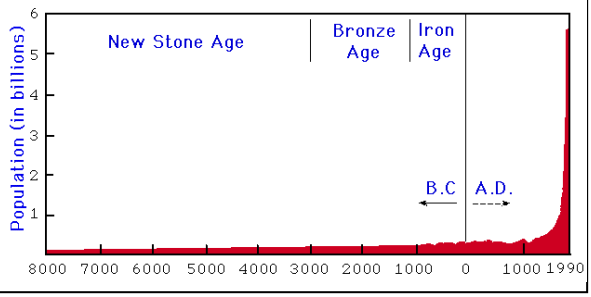


Diagram 6 – Population Growth



One of the greatest myths of the twentieth century has come from marketing. In the early days of industrial production the products created were new and there was a ready market. But what happened when companies realised that everyone had a fridge, TV or radio set? Marketing came to the rescue. Marketing promoted the belief that we should not be satisfied with what we have got, rather we need a better, bigger, newer fridge, TV or radio. The idea is that the less we have the unhappier with shall be, and conversely the more we have the happier we will be. This equation more=better is clearly a misnomer. More is a quantitative term whereas better is a qualitative term, the two are difficult to compare. Research into peoples' basic well-being provides some clear answers. Surveys of the well-being of American citizens shows that up to the 1960's, an increasing level of well-being with each dollar earned. Since the 1960's as GDP has continued to grow well-being has stayed more or less static. More does not equal better. Above an annual income of US$10,000 (or the equivalent good and services in other countries) wealth and well-being are not linked.

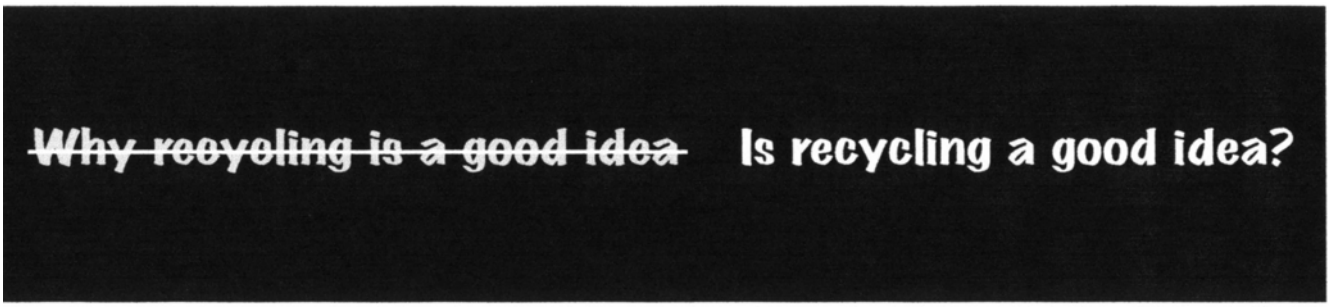
These examples of key drivers of change that have huge impacts, but are seldom discussed with any meaning.

Are we asking the right questions…?

One reason why we are perhaps getting it wrong is that we are asking the wrong questions. For example, a typical school project about the environment may start with the question 'why is recycling a good idea.' The normal answers follow and a recycling project is usually the result. But is this the best we can do? Is this the most effective way to tackle environmental solutions? Perhaps the right question should be 'is recycling a good idea.'

Changing the question can lead to a very different response. Why do we recycle – because we wish to reduce the amount of waste. Why do we produce waste – because our production processes are very inefficient. The Rocky Mountain Institute in its book Factor Four shows practical example of how nearly all industrial processes could see a four-fold increase in efficiency with a four-fold decrease in resources use. It is simply good business sense to do this! After all, if we want to tackle the waste issue why not just design it out of the system.

The same thinking can be applied to biodiversity. By changing the questions we are asking we can understand more deeply the actors creating biodiversity loss and understand more effectively where can needs to be applied.



So in summary, much of what we call biodiversity education is:

Doomy - the world is in a mess and it is getting worse.

Moralising - if only we all acted together to "save the world."

Individualistic - you created the problem now you do you bit to help.

Boring - does not give a sense of what is possible.

To be really effective biodiversity education needs to be:

Upbeat-there are real possibilities to have a healthy planet and a high quality of life.

Practical-there are choice that we can take to create sustainable societies and economies with personal benefits for you and me.

Systematic–change can benefit all of us.

Sustainability - a clean world full of opportunity, inclusion, empowerment a high and rising quality of life. The technology is already here, the only thing missing is the idea that we can do it!

Thinking like a Cherry Tree.

If biodiversity education can teach us one crucial lesson, it is to think and act like nature. The cherry tree is a good example.

The cherry tree in blossom is a beautiful site. We could say that the cherry tree is very effective in providing an abundance of beauty and its production of blossom and fruit. But the purpose of the blossom and fruit is to produce seeds to produce more cherry trees. The average cherry tree needs to produce one successful sapling every 50 years. Yet each year it produces hundreds of seeds. If this was production line we would immediately say what a hugely inefficient way to produce a product (in this case a cherry tree). But whereas in our industrial production processes waste really is waste, in nature waste from one plant is food for another. The cherry tree belongs to an ecology that has evolved to produce zero waste.

Where now…?

If biodiversity education is to blossom and fundamentally address the issues that really matter then it must undertake a metamorphosis. It must move from a very well-meaning and well delivered approach to learning that focuses on:

- Knowledge about biodiversity.
- An approach that focusing on understating how biodiversity functions.
- A limited view of the benefits of biodiversity not set in the broader context of the sustainability of the human race, and the fact that we are just a sub-sect of ecology.
- Personal responses that have little of no overall effect.
- Instead effective biodiversity education should be about:
- Understanding the pressures of economics and society on biological resources.
- Knowing where the levers of change are.
- Making connections between sustained biological resources and a high quality of life.
- Taking appropriate action.
- Changing systems.

To paraphrase Einstein, ‘we cannot solve problems with the same thinking that created them.’ If current learning about biodiversity is not leading to a positive benefit for biological resources themselves then we must either accept our fate, or change what we are doing.

References

Hawken, P., A. Lovins and L. Lovins. 1999. Natural Capitalism: Creating the Next Industrial Revolution. Little, Brown.

Jucker, R. 2002. Our Common Illiteracy. Education as if the Earth and People Mattered. Peter Lang.

Marks, N., A. Simms, S. Thompson and S. Abdallah. 2006. The Happy Planet Index: An index of human well-being and environmental impact. New Economics Foundation.

McDonough, W. and M. Braungart. 2003. Cradle to Cradle: Remaking the Way We Make Things. Rodale Books.

Millennium Ecosystem Assessment. 2005. Ecosystems & Human Well-being. Island Press.

Porritt, J. 2005. Capitalism as if the World Matter. Earthscan.

Scott, W.A.H. and S.R. Gough. 2003. Sustainable Development and Learning: framing the issues. Routledge Falmer.

Scott, W.A.H. and S.R. Gough (eds.). 2003. Key Issues in Sustainable Development and Learning: a critical review. Routledge Falmer.

Webster, K. 2004. Rethink, Refuse, Reduce…Education for sustainability in a changing world. Field Studies Council.

Weizsacker, E. 1998. Factor Four: Doubling Wealth, Halving Resource Use. Earthscan Publications Ltd.