

## BEING WITH OTHERS

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## **Holistic thinking.**

To bring conservation management to the heart of family life requires an ability in each individual to conceptualise the wholeness of self and environment as an integral set of beliefs to live by and a practical context that gives meaning to life. In other words, nature and the oneness of humankind should not be something observed from a distance, but be all-encompassing and self-defining. The long overdue task of education is therefore to teach people to live mentally so close to others, both other living things and other people, in all their diversity, that they have difficulty distinguishing themselves from them. This biocentric outlook as a belief system in cultural ecology may be summarised as learning to see:

- that we are biochemically, physiologically and behaviourally the same as all other kinds of organisms.
- that each kind of organism is a unique individual pursuing its own good in its own way signifying a fundamental reality common to all organisms.
- that the chances of an organism faring well or poorly at the levels of individuals, populations, communities and species, are determined by its relations with other living things.
- that each kind of organism is not a special object, or superior product of creation but the product of a system that has also produced every other kind of organism.

By being with others in all these ways we accept responsibilities with regard to protecting natural ecosystems and biotic communities of our planet. These responsibilities are in every case based on the fact that our treatment of those ecosystems and communities can promote human values and/or human rights. In this context, the rule of restorative justice imposes a duty to deal with acts which adversely affects the good of other organisms.

Restoring the balance of ecological justice gives voice to victims in forums designed not to deliver verdicts but to ascertain truth and restore the trust underlying afflicted communities. Justice is conceived as preceding, creating the political space for, and supplementing justice defined in retributive, and distributive terms. That is, restorative justice politicizes those communities that so often become the front lines for the environmental justice movement. When the environment is harmed, who should represent the trees? When an animal on the protected species list is killed, who will speak for that species? Surrogates are used, such as First Nation leaders or environmental experts. The community may be represented by those who express an interest in prosecution, and or mitigation.

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This ability to think and act biocentrically may be described as ecosacy; i.e. a third basic ability to be taught alongside literacy and numeracy. The term ecosacy comes directly from the Greek oikos meaning house, and household management, including making decisions about the natural resources that flow into it. To be ecosate means having the knowledge and mind-set to act, speak and think according to deeply held beliefs and belief systems about people and other life forms in nature, which may be conceptualised as 'a community of beings'.

The educational framework of ecosacy is cultural ecology. The term has its origin in the work of Steward in the 1930s on the social organization of hunter-gatherer groups. Steward argued against environmental determinism, which regarded specific cultural characteristics as arising from environmental causes. Using band societies as examples, he showed that social organization itself corresponded to a kind of ecological adaptation of a human group to its environment. He defined cultural ecology as the study of adaptive processes by which the nature of society and an unpredictable number of features of culture, are affected by the basic adjustment through which humans manage the flows of materials and energy through given environment.

Cultural ecology originated from an ethnological approach to the modes of production of native societies around the world as managerial adaptations to their local environments. It has long been accepted that this anthropological view is too narrow. It isolates knowledge about the ancient ways of resource management from possible applications to present day issues of urban consumerism. Because traditional systems often involve long-term adaptations to specific environments and resource management problems, which fall within the modern definition of 'conservation', they are of interest to resource managers everywhere. Also, there are lessons to be learned from the cultural significance of traditional ecological knowledge with regard to the sometimes sacred dimensions of indigenous knowledge, such as symbolic meanings and their importance for social relationships and values.

Conservation management is now an institutional process of political adaptation to the environmental impact of global industrial development. Conservation systems are concerned with stabilising the functional relationships between people and the environment, and managerialism has to be integrated into people's perceptions of how they fit within ecological systems and the biocentric outlook. In the latter context conservation management can be a practical outcome of restorative justice.

**Energese: towards an energy systems language**

The search for a dynamic mapping system for a scientific biocentric outlook began with research into the human cultural use of metabolic and work energy. In particular, the seamless coupling in a species energy model of the biosphere, was first systematically explored by Howard T. Odum in the 1960s. He began with the flows of energy and matter through 'Silver Spring', a common type of spring-fed stream in Florida, with a constant temperature and chemical composition. This study was the first complete analysis of a natural ecosystem. Odum started with an overall model and in his early work used a diagramming methodology very similar to the Sankey diagrams used in chemical process engineering. In this model, energy and matter flows through an ecosystem of herbivores, carnivores, and decomposers. Starting from that overall model Odum mapped in detail all the flow routes to and from the stream. He measured the energy input of sun and rain, and of all organic matter - even measuring the bread the tourists threw to the ducks and fish - and then measured the energy that gradually left the spring. In this way he was able to establish the stream's energy-sharing budget.

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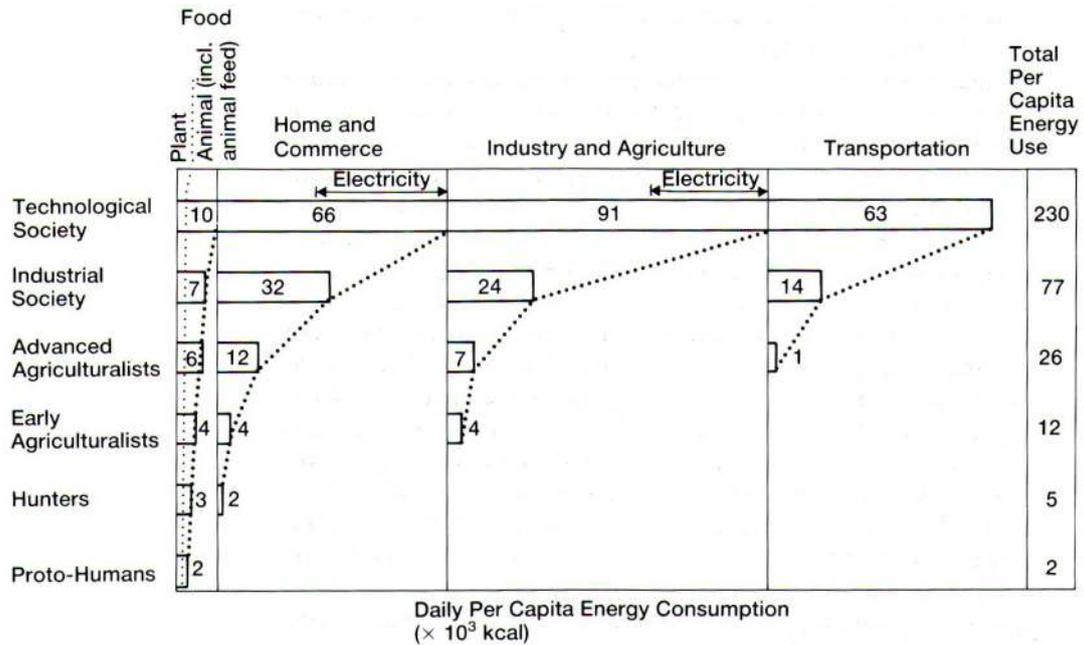
By the end of the 1960s Odum's electronic circuit ecological simulation models were replaced using a more general set of energy symbols. When combined to form systems diagrams, these symbols were considered by Odum and others to be the language of the habitat, which could portray generalized patterns of energy flow and species interdependence. Describing such patterns and also reducing ecosystem complexities to flows of energy, Odum believed, would permit discovery of general ecological principles, beginning with the fact that to gain energy for food, or as fuel for work, some energy has to be expended. Energy is therefore an investment, even in its most accessible forms. The energy return on investment is the energy produced from the fuel extracted divided by the energy required to locate, extract, refine and distribute that fuel. The difference between what is expended and what is then used is the energy gain. In a wild animal population, having to allocate effort to gather rare energy may mean less winter fat, increased embryo resorption, and lower birth weights. The potential impacts of such a situation on a human community could include less leisure time, a lower standard of living, higher taxes, and an increase in childhood mortality. In other words, energy gain defines important features of particular human cultures and their development. The juxtaposition of human and animal energy flows in this way indicates that the concept of energy gain has potential to aid our understand commonalities across living systems. It is therefore a valuable approach to investigating past and future human behaviour change associated with ecological resource transitions and the social provision of 'just shares' in environmental goods and services.

Regarding the application of the principle of 'just shares' to the use of energy in human economic development, if all persons have a basic right to climatic stability, then aggregate global emissions must be capped at a level that is at or below the atmosphere's capacity to absorb those emissions. If all have a basic right to these 'survival emissions', then the costs associated with achieving those necessary reductions from current emissions must be assigned on the basis of historical luxury emissions. They must also grant nations and persons entitlement to some basic minimum per capita level of emissions. Recognizing a less basic right to develop along with these two basic rights requires that developing countries be allowed per capita emissions shares that include both survival and luxury emissions - with the latter being a necessary, but insufficient, condition for development

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### **Culture; environment; history.**

By the 1980s the human ecological-functional view had prevailed as a scientific approach to the environmental and social impacts of industrialism. It had become a conventional way to present scientific concepts in the ecological perspective of human animals dominating an overpopulated world, with the practical aim of producing a sustainable culture. This is exemplified by I. G. Simmons book *Changing the Face of the Earth*, with its telling subtitle "Culture, Environment History" which was published in 1989. Simmons was a geographer, and his book was a tribute to the influence of W.L Thomas' edited collection, *Man's role in 'Changing the Face of the Earth*, that came out in 1956. In his book, Simmons arranged the historical ideas of energy flow and culture in chapters, each of which is characterised by a stage of socio-economic evolution. The quantities of energy used by human groups at various historical stages, together with the purposes for which it was used, is illustrated in the following diagram. In the book, chapter 2 deals with the lowest group on the diagram; chapter 3 with the hunters; chapter 4 with both types of agriculturalist, and chapter 5 with the remaining groups. Chapter 6 deals mostly with alternatives to the 'technological society', but also considers an integral part of it in the shape of nuclear energy.



The next diagram illustrates the energy sources available at different economic stages each referring to a chapter (2-6) of the book.

	Primitive man (2)	Advanced hunters (3)	Agriculturalists (4)	Industrialism (5)	Nuclear age (6)
Fire	X	X	X	X	X
Domestic animals			X	X	X
Wind			X	X	X
Water			X	X	X
Fossil fuels				X	X
Nuclear					X

N.B. Fossil fuels had a low level of use in some largely agricultural societies.

Simmons' book was one of many interdisciplinary culture/environment publications of the 1970s and 1980s, which triggered a crisis in geography with regards its subject matter, academic sub-divisions, and boundaries. This was resolved by officially adopting conceptual frameworks as an approach to facilitate the organisation of research and teaching that cuts cross old subject divisions. Cultural ecology is in fact a conceptual arena that has, over the past six decades allowed sociologists, physicists, zoologists and geographers to enter common intellectual ground from the sidelines of their specialist subjects. Simmons felt that the above table and diagram defined the unifying theme of energy flow which runs through his book. In this respect, it could be considered as the first attempt to produce a comprehensive syllabus for imparting energy literacy.

Within it are the first glimmerings of a yearning for a softer world exemplified by a quotation from Thomas Hardy in *Tess of the D'Urbervilles* (1891). Here Hardy contrasts the adoption

of the energy from coal to drive the plough and mechanised harvester with the age-old use of the metabolic energy of farm labourers. The world was on the cusp of industrialisation.

*'He (the engineman).... was in the agricultural world but not of it. He served fire and smoke; these denizens of the field served vegetation, weather, frost and sun'*

Nearly a century later, the rural energy revolution was complete, and Simmons quoted from R. S. Thomas description of a Welsh hill farmer celebrating his freedom from metabolic toil.

*Ah, you should see Cynddylan on a tractor.  
Gone the old look that yoked him to the soil;  
He is a new man now, part of the machine,  
His nerves of metal, and his blood oil.  
The clutch curses, but the gears obey  
His least bidding, and lo, he's away  
Out of the farmyard, scattering hens.  
Riding to work now as a great man should,  
He is the knight at arms breaking the fields'  
Mirror of silence, emptying the wood  
Of foxes and squirrels and bright jays.  
The sun comes over the tall trees  
Kindling all the hedges, but not for him  
Who runs his engine on a different fuel.  
And all the birds are singing, bills wide in vain,  
As Cynddylan passes proudly up the lane.*

Thomas, who was born in Wales with a Celtic ancestry, wrote in 1946. "Are not three-quarters of our modern ills due to the fact that we have forgotten how to live . . . ?" He was seared by modern soullessness and modernity's destruction of the Welsh countryside by roads and housing projects and vacationers. Thomas' political response was Welsh nationalism of the time, with its intense preoccupation with the past. For him, England represented modernity and therefore all that was superficial, mechanical, materialistic, vulgar, and vapid. Observation of the beauties of the natural world, particularly the landscape and bird life, was for him a spiritual exercise, a view that now leads into the realm of 'deep ecology' in environmental education.

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It was in the 1970s that international efforts were made to produce an interdisciplinary education programme as the only way to deal with our abuse of nature and its finite resources. The First United Nations Conference on the Human Environment in 1972, raised the urgent need for environmental education and the International Environmental Education Programme of UNESCO - UNEP was launched in the following year. The momentum continued and, in 1977, during the First Intergovernmental Conference on Environmental Education in Tblissi, Georgia, UNESCO-UNEP approved the guiding principles and goals of

environmental education as being important for the future of humankind and urged all nations to incorporate environmental issues into their education systems. This call was reinforced in 1987 in Moscow. The goals in brief were:

- 1 - To promote a clear awareness of the economic interdependence of social, and environmental policy in all ecosystems.
- 2 - Allocate to each person the tools (knowledge, attitudes, values, skills, etc.) to protect and develop the environment within the objectives of sustainable development.
- 3 - Create a whole society with clearly defined ethical standards with responsibility towards the environment.

However, UNEP-UNESCO recognised that as new concepts these goals had to be introduced into national education systems filled with traditional subjects, and recommended that environmental education should be incorporated within these existing subjects. Nevertheless, it was recognised that when environmental education is considered as a negotiable option in an overcrowded curriculum, its value is greatly diminished.

The latter point was emphasised forcibly two decades later, when in the year of the first Earth environment summit David Orr, published his book 'Ecological Literacy'. He concluded that environmental education will be ineffective in advancing its own goal of creating an environmentally or ecologically literate citizenry as long as it continues to discipline itself within the norms of general education. Yet, here we are in 2011 still discussing the importance of making spaces within a general curriculum to meet the 1972 goals. It is ironic that the goals to save humankind are regarded as less important than the pedagogy of subjects established to expand the economic fruits of the European industrial revolution. These disciplinary boundaries, norms, routines, and standardizations that characterize conventional education, work against the experiential, affective, collaborative, interdisciplinary, action-oriented, and transformative goals of UNESCO-UNEP. It is the trench warfare of practitioners of traditional subjects that prevents environmental education breaking with the traditional curriculum models and appearing as a new multidisciplinary stand-alone examinable subject. This infighting is compounded by the fuzzy nature of environmental studies, where there can be as many ways of creating an ideational framework as there are teachers. Indeed, research into environmental education, has shown that problems with study design, materials, and methods of analysis have greatly limited the relevance of outcomes.

### **Conservation curricula**

In view of the virtual impossibility of presenting environmental education as a stand-alone subject, a sharper focus is needed on an educational concept that is believed to

be both rational and prudent-- namely, "resource conservation." Yet, There can be little doubt that knowledge about conservation planning and active environmental management is either missing or confined to the periphery of environmental education.

For example the UNESCO\_UNEP 90 page educational module on 'Conservation and Management of Natural Resources' urges that pupils should 'plan' for the use of various natural resources, but nowhere is there a requirement to teach the generic process of how to make a plan. The following extracts make this need and the deficiency clear.

*(i) Environmental education should - stress both the need for active participation leading to specific action, and a desire and concern to play a real part in the work of planning, developing and managing the environment.*

*(ii) Group evaluation based on activities  
Imagine an ideal situation in which you are in charge of the planning and running of a small town of 5,000 inhabitants situated deep in the country, with rivers and forests and crops and pasture-land all around it. Make a detailed plan explaining how you intend to go about your task, what you would construct and how you would manage it.*

The essence of a curriculum, compared with a knowledge framework, is that the former is the course of actions and experiences through which people become the individuals they should be to play a role in the creation of solidarity in society.

The need for education in conservation management was clear enough to Orr in 1994 when he wrote:

*"Those now being educated will have to do what we, the present generation, have been unable or unwilling to do: stabilise world population; stabilise and then reduce the emission of greenhouse gases; protect biological diversity; reverse the destruction of forests everywhere; and conserve soils. They must learn how to use energy and materials with great efficiency. They must learn how to utilise solar energy in all its forms. They must rebuild the economy in order to eliminate waste and pollution. They must learn how to manage renewable resources for the long run. They must begin the great work of repairing as much as possible, the damage done to Earth in the past 200 years of industrialisation. And they must do all this while they reduce worsening social and racial inequities. No generation has ever faced a more daunting agenda"  
(Orr, D. *Earth in Mind: On Education, Environment, and the Human Prospect* (Washington, D.C.: Island Press)).*

In calling for a wise use of Earth's resources, Orr's stabilising agenda is an urgent plea for curricula that

encourage humankind to plan for the future by behaving to keep a **rein on consumerism**, keep a **richness of nature**, keep a **resilience in community**, keep a **reserve of production** and keep a **focus on environmental justice to combat the** social destruction wrought by inequality as a cross-cutting theme. These are five major global managerial principles by which we should plan our environmental demands to maintain ourselves in balance with Earth's ecological productivity whilst maintaining equal shares for all. In other words, the issue of conservation is far greater than maintaining a few tens of acres of woodland in a favourable condition. Ecosystem management is required on a planetary scale, the extremes being geo-engineering and sociology applied to deliver just shares of Earth's bounty; with the attendant question, how can it all work politically?

Educationalists may tackle these principles and questions starting from different windows on the processes by which we manage natural resources and people for production. However, all stabilising curricula must point to the need for human endeavour to mainstream conservation planning and management in school, home, workplace and recreation. Conservation here refers to the protection and sustainable use of all human resources, including management of environmental inequalities, cultural heritage, natural resources, community open spaces and protected nature sites. Therefore, a conservation management curriculum is essentially an applied systems-approach to culture and ecology focusing on the ways in which natural resources and human resources can come together through 'just shares management systems' for living in harmony with nature.

Orr's summary of a stabilising curriculum is just one of many variations on the theme of education for sustainability, where there will always be argument about the purposes of environmental education, the meanings of sustainability and the best way to respond to climate change. However, in terms of its basis in predictive logic, training in conservation management should be an essential centrepiece of training for citizen action. The aim is to develop individuals who are capable of making wise choices regarding appropriate and effective citizen behaviours and who are willing and able to apply those behaviours responsibly to environmental issue remediation. Thus, learners become familiarized with the methods of action at their disposal as citizens, and become skilled in the use of those actions. From being concerned with global environmental issues they turn to environmental issues experienced in daily life.

## **Delivery**

By definition, a conservation management curriculum is a stand-alone knowledge system because it is based on the simple logic of planning by setting measurable objectives and scheduling tasks to meet the targets.

The content of the learning environment can expand from the logic base of environmental management to fill the time and space available. This makes it ideal for flexible modular delivery within existing subjects. Regarding the problem of creating space within an overcrowded array of traditional subjects, there are new self-learning developments in the Web. These can provide individuals with various opportunities of personalizing the tools and services, and performing self-directed learning in an open and social context with their personal learning environments. Social software enables people to actively reflect, publish and share learning experiences; gain awareness and monitor other learners, communities and networks; publicly store and maintain the evidences of their learning; and personally retrieve socially gathered information. Learners can autonomously combine various tools, material and human resources into personal learning environments in order to enter with their personal environments into various learning activities and citizen's environmental networks.

Some ideas along these lines may be seen at a workspace set up at ConserveOnline for exploring ways of incorporating conservation management into education at all levels as conservation curricula, with the aim of delivering knowledge and tools for learning about how to make and operate plans for a sustainable future.

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