

ARE WE DOING IT FOR THE ENVIRONMENT?

Andrew SMITH

During this paper I wish to take you on a journey to look at the need for conservation education, and for conservation education programs to aim to change attitudes to create a conservation ethic in the community.

So.... everyone, get comfortable, close your eyes, because you are about to leave on an adventure into space.

Imagine you are seated in a space shuttle ready to launch into space and travel to the outer edge of our solar system.

From the window of the shuttle you can see tall mountains clothed in forests, a river flows down a steep valley past the launch site.

Hold on, its time for lift off.....5.....
4.....3.....2.....1..... Blast off
..... As your shuttle lifts into the sky the river becomes a thin silver line snaking through the rough green carpet of forest.....

the mountains become small bumps on the landscape.....

higher and higher the shuttle travels and as you pass the moon you can

look back at the planet you have left...
.....

its a large round blue ball with patches of green..... white clouds scud across the surface..... a blue ball floating in the blackness of space...
.....

now your shuttle accelerates out past Venus, Mars, Saturn, Jupiter, Uranus, Neptune and Pluto until you have reached the very edge of the solar system.

Beyond here is black...cold.....
and lonely emptiness.

Turn your ship to look back along the line of planets we have passed. Of all those planets, only the distant blue Earth has life, only Earth can support life, it is the only planet that we can return to and survive on at the end of this journey. Somewhere between 30 million and 100 million species depend on that planet for their existence. Life exists on that planet alone in this solar system, probably this galaxy, and possibly in many galaxies.

So let's head back down to our planet and consider what is happening on it...
..... down past the other planets,
past the moon, down through the
clouds and back here into this hall.

Well what is happening on this **unique planet?**

At the moment, **1 in 10 of the known plant species** in the world are considered to be threatened.

"Nearly half the worlds species of... animals and microorganisms will be destroyed or severely threatened over the next 25 years". (Peter Raven in *Our Diminishing Tropical Forests*).

A section of rainforest the size of ten city blocks disappears every minute (The Smithsonian Institute).

77 billion tonnes of topsoil are washed or blown away around the world each year resulting in the **irreversible loss of some 6 million hectares of farmland** (United Nations Environment Program estimates).

The greenhouse effect is set to change the entire world climate in a way that will **significantly alter the lifestyle of most organisms on the planet.**

Australians have one of the **worst records for species destruction.** We have wiped out at least 18 mammal species and 100 plant species.

Soil erosion is presently occurring

across Australia at **10 to 50 times the natural rate.**

The organisation Greening Australia believes as much as **60% of our farmland requires treatment for soil degradation.**

More than **41 million hectares of forest have been destroyed** in Australia, including **75% of the nations rainforests.**

In Tasmania, since white settlement 190 years ago we lost **90% of our grassy woodlands.**

On our tiny island State of 100,000 sq kilometres we have **136 out of 1630 plant species listed as rare or threatened.**

In total Australia has 3 250 plant species listed as rare or threatened. **That's about 1 in 6 of our plant species.**

Botanic gardens might be able to go out collect, propagate and grow some of these threatened species out of endangerment. But those efforts will be largely pointless unless we can reduce the pressure on plant species generally, after all, the attitudes and actions of people are the threatening processes. The importance of personal actions and appropriate choices in shaping our society, in a positive and negative way, is often underestimated. The world is **shaped as a result of an accumulation of the daily decisions of ordi-**

nary people.

The only way to attain a sustainable environment is to increase understanding, increase concern, and encourage appropriate choices and personal action so that the generation after ours thinks hard before it cuts down, uses up and makes extinct.

There is no doubt that we need conservation reserves, ex situ collections, ex situ propagation, and reintroductions, but the success of those programs will depend on the success of our **community education programs in achieving environmentally friendly attitudes and eradicating environmental abuse.**

So how do we go about it? Should we be imparting knowledge and therefore understanding about plants or should we be developing attitudes and emotions to encourage concern and action? It is interesting to observe that those that back the knowledge-is-the-only-way-to-understanding philosophy are also fervently concerned and enthusiastic, sometimes showing great emotion and passion, about their subjects. Similarly, being emotional does not mean you are incapable of retaining information. The two are of course not mutually exclusive.

Education in botanic gardens should not simply be the labelling of plants, or just letting the public know what the botanic gardens are doing. It does not have as its **prime** objective to

"help create the climate that will allow more adequate resources to be allocated to conserving plant diversity" (Heywood *Botanic Gardens - a global conservation network* 1991) although this will be a spinoff of an effective awareness program.

Botanic gardens can play an important social role by encouraging people to treat nature and their surroundings with more respect. (H van Ginkel, Utrecht University, Netherlands).

Some of the aims of environmental education are to instil a sense of care and concern at what is happening to the global environment, develop the concept of stewardship and to suggest what action individuals and the community can take. Education should be seen as an intrinsic and essential part of the mission of most if not all botanic gardens and not just an appendix grafted on. (Vernon Heywood, Botanic Gardens Conservation International).

Environmental education in the context of a botanical gardens can be described as the process of recognising values and clarifying concepts in order to understand and appreciate the inter-relatedness between people and their biophysical surroundings. It entails the formulation of a code of personal behaviour about issues concerning environmental quality. (Environmental Education Policy, Royal Tasmanian Botanical Gardens).

Environmental education requires that people should come to see themselves as being involved in environmental issues and seek to become increasingly responsible for environmental problems which are often regarded as being someone else's domain (Environmental Education, Education Department, South Australia). In brief, it is learning about the environment for the environment.

An important aspect of environmental education is providing an opportunity for action. By working jointly with other conservation orientated organisations we can direct participants to other relevant programs, such as recycling and energy conservation. But Botanic Gardens have an ability to provide opportunities for action too, through horticulture. For instance by growing and replanting endangered species. As part of our education program we have a Threatened Species in Schools Program, during which children learn about endangered species, adopt a species, collect seed and grow plants for planting in their school grounds. This endangered species collection then becomes part of the environmental program of the school for the many years of the plants life. These endangered species plantings are also recorded on a School Collections data base at the botanical garden. In Las Palmas The Club del Arbol and the Dragon Tree replanting project is an excellent example of a program that encourages children to do

something positive for their environment. In this way children are not left feeling helpless about the problems that face their planet.

So let's imagine that we have just enthused and amazed students with a session on plant physiology - How does it relate to conservation of species? Has it inspired care and concern? Helped to develop the concept of stewardship? Inspired individual and community action for the environment? Helped to reduce the number of species which will in future require intervention against extinction? So the important thing is that we ask the questions "Have I encouraged people to treat nature with more respect? Is what I am doing to the advantage of plant species?" If it isn't then the program is more accurately described as, hopefully, an imaginative lesson on plant physiology - but not environmental education

An example I use during teacher seminars to illustrate the difference between accumulation of knowledge and environmental education uses frogs as an example. As a Science student I was required to dissect frogs that had been stored in alcohol. I pinned bits and pieces of the frog to card and measured this and named that, made records and so on. The only recollection of facts I retain from that exercise is that the frog smelled terrible. And, if it wasn't for the aversion therapy aspects of the exercise, there was a subliminal message that it was OK to kill and cut up

frogs.

If an environmental educator set about teaching about frogs it would involve conceptually placing frogs in their place in the environment. Where do they live? Why do they live there? How do they manage to counteract the wet and dark conditions of bogs and lagoons? What adaptations do they display? What do they eat? What eats them? The best place to do that study is in the swamp, not in a laboratory. Hopefully at the end of the study students will understand the importance of frogs and their suitability to place, the importance of their habitat, and the last thing they would want to do would be to cut one up and pin its bits to a board.

Similar questions need to be asked when using the utilitarian argument for endangered plant species conservation - that is we need to save species because they may be useful to people. This may be particularly relevant in countries where traditional medicinal plants are now on threatened species lists, such as Sri Lanka or Haiti. And of course many of our modern medicines are derived from plants. But what happens if an endangered species isn't useful? Is it OK to let it become extinct? Of course not, but to know why that is not acceptable it is necessary to feel the intrinsic worth of life. Valuing intrinsic worth is a very emotive concept, but I contend it is necessary if a conservation ethic is to be adopted for life. This same question can even be raised if we

use the aesthetic qualities of nature as a reason for its conservation - an argument often used by conservationists to illustrate the value of the wilderness - majestic grandeur, spectacular beauty, minute splendour. What about the ugly places and plants - is it OK to let them disappear? So why are plants important? They produce the oxygen we breathe, they ensure clean water, they maintain familiar weather patterns, they hold the soil together, they regulate water tables, they are at the base of all food chains because they are the only organisms capable of converting the sun's rays to useable energy, they provide habitat for animals, birds and insects, they process carbon dioxide and store carbon, and they shelter us from increasingly harmful UV light. They are necessary for life itself to exist on the planet.

There are many pathways to environmental enlightenment. Early in the journey we need to learn the appropriate navigation skills to find the goal. Those navigation skills are an understanding of the big picture. How things work. How we fit into the system. How we can destroy the delicate web of life. How we can correct our disasters. How we can avoid making the wrong decisions. If we are going to change habits and lifestyle for the sake of plant species it is not enough to know about plants, we must feel for them too and, as educators, this is one of the educational outcomes we need to plan to achieve. We need to closely evaluate

what we are doing to ensure that we
are in fact out saving the planet.

To finish up, a poem from a song
book produced by the Department of
Conservation and Land Management in
Western Australia, for *Landcare for
Kids*,-

" Universes Daughter "

In the silent world of space
Like a jewel of priceless worth
Glowing green and shining blue
Slowly turns the planet earth
In her swirling cloak of cloud
Miracle of land and water
Born of fire and of time
To the universe - a daughter

Long the years and vast the time
Day to night to day returning
Slowly slowly life arrives
So begins the planets birthing
Flowers, creatures, birds and trees
Rich variety delights her
In the space beyond the stars
Can there by another like her?

People living on the earth
Have forgotten how to wonder
Lost in speed and blind despair
Hopelessly pollute and plunder
But there comes a sound of hope
Can you hear the childrens voices
We will keep the earth alive
By our love and by our choices