



# THE ANGUILLA NATIONAL TRUST

## Preservation For Generations

### Eco-Corner

### Taking Conservation to the Next Level

#### *Understanding Conservation Biology*

Over the last 10 000 years, the Earth has undergone a phenomenal amount of changes – many of which have been caused by human beings. Natural ecosystems have been altered, natural resources have been exploited (and in most cases, over-exploited), species have gone extinct, topsoil has been eroded, and natural hydrological and chemical systems have been disrupted. Much of this has happened because the human population has grown to 8 billion and is one that generally craves a way of living that is based on consumption and accumulation.

It has been suggested that if everyone in the world had a lifestyle similar to the average North American or European, at least six Earths would be needed to properly support them. This population growth and pursuit of a materialistic lifestyle is being sought after at the expense of the health of the planet. Ecological systems of the Earth are being stressed possibly beyond their breaking points. It has taken just a few hundred years to degrade and destroy organisms, processes, and events that have existed or evolved over billions of years. But despite the destruction and damage, all is not lost. Changes in the way we think and act can reverse this disturbing trend. But action must be taken now; there will be no second chances.

In the 1980s, a new field of study – conservation biology – was created by the scientific community. Conservation biology combines and applies the principles of ecology (the study of the relationships between plants, animals, and their environments), economics (the study of production, distribution, and consumption of goods and services within the context of economic systems), sociology (the study of human social behaviour), anthropology (the study of the origin, behaviour, as well as the physical, social, and cultural development of humans), and many other disciplines in order to understand and maintain global biodiversity.

Conserving biodiversity is not new. It has been happening for centuries. What is different now, though, is its focus. Conservation biologists are no longer only interested in maintaining selected species for harvest and human use, but rather in stewardship and management with a focus on sustainability of ecosystems and biodiversity.

#### *Species vs. Ecosystem Conservation*

But why conserve? And at what level should we be focussing our efforts – at the species level or at the ecosystem level? Or can we even separate the two?

Before these questions can be answered, “species” and “ecosystem” should be clearly understood. “Species” can be defined as a category of classification of organisms that are able to interbreed. An “ecosystem,” meanwhile, is a collection of living things, together with their habitat and associated chemical and physical components in which they live.

The conservation of species is often pursued because the species provides something tangible and concrete to focus on. It is also possible to actually count the number of individuals within a species and to figure out if their populations are increasing or decreasing.

But is conserving the species enough? Within each species there is a tremendous amount of diversity that is hidden in the DNA of each individual of that species. The loss of individuals of a species may not necessarily cause it to go extinct, but the loss of each individual represents a loss of genetic information that allowed for adaptations to particular environments. A species-by-species approach also means taking steps to conserve specific and pre-selected species. How do we decide which species are worthy of conservation? And this is assuming that we even know all of the species that exist on Earth – which we do not. Perhaps more importantly, the species approach to conservation does not tackle one of the major problems as to why species are going extinct to begin with – the loss of habitats and ecosystems that support those species. How do we conserve a species when the habitat on which they need to survive no longer exists?

Ecosystem-based conservation is about managing and protecting the environment as a whole. This includes the plants, animals, invertebrates, and other living organisms and the ecological processes (such as the conversion of carbon dioxide into oxygen, nutrient cycling, and energy production) that sustain all life – including us. This means that we need to understand that we are not separate from the environment; we are a part of it. And this also means that we need to understand our own needs as well as the role we play within the environment and the impacts that our activities have on it.

### ***And Bringing It Back To Anguilla – the sea turtle***

One example that shows the need to integrate species conservation into an ecosystem approach involves sea turtles. Sea turtles have existed on this planet for over 100 million years. But now, most are being threatened by human activities that are affecting them both in and out of the water, so much so that their ability to survive such stressors is now being questioned. The situation is no different in Anguilla.

Sea turtles were seriously threatened in Anguilla and the rest of the world by over-exploitation of their meat, eggs, and shells, incidental capture (by-catch) during fisheries activities, turbulent waters, strong storms, sea level rise, predators, and by habitat loss through coastal development.

In 1995, however, the Government of Anguilla recognised the precarious position of the sea turtles that frequent Anguilla's beaches and waters. It was during that year that the Government introduced a five year moratorium on the harvesting of these animals, their eggs, and in the trading of their parts. It was renewed in 2000 for another five years and just two weeks ago, the Government decided to once again extend the moratorium – this time for 15 years.

While the Government of Anguilla should be applauded for its recognition that certain activities that threaten the survival of a species should be prohibited, more steps should be taken to make sure that other threats are limited or controlled. While harvesting the sea turtle may no longer be allowed, destruction of their natural habitat continues.

Sea turtles found in Anguilla's waters use the island's coral reefs, seagrass beds, and beaches for protection from predators, for feeding grounds, and for nesting areas. Should any of these habitats be harmed or destroyed, sea turtles will undoubtedly be negatively affected.

Coral reefs and seagrass beds can be damaged by (among other things) certain types of fishing gear, indiscriminate anchoring, and nutrient and sediment runoff from the land. Beaches, meanwhile, are compromised and lost by the mining of sand, the dumping of garbage, vehicular traffic, and coastal development which can lead to increased sewage and grey water runoff, the removal of vegetation, and increased coastal erosion.

While species conservation measures and action plans that address individual species' survival are important and necessary, especially when those species are threatened with extinction, these measures should still be fit into something larger and more comprehensive. An ecosystem approach to conservation that appreciates the importance of ecosystems as a whole should be promoted.



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Ecosystem conservation is able to protect these important species while also protecting other organisms and functions that also exist and operate in those systems. It is also an approach that adopts the multidisciplinary method that conservation biology advocates and entails. That is, while understanding and maintaining biodiversity and ecosystem integrity are always a main priority, it acknowledges the role that humans play within the natural environment and works within the social, economic, political, and ecological contexts that are present. It also recognises that human beings, as an intrinsic part of the environment, have a tremendous amount of influence over the success of any conservation measure and we must take an active role to ensure that it is successful.

As we move into sea turtle nesting season, some things to remember if you come across a nesting turtle:

- Don't walk on the beach with a flashlight or shine the light on the sea turtle's face – it may stop the sea turtle from nesting;
- Don't take photos using flashes – the brightness of the flash is even more intense than a flashlight;
- Stay out of the way and the line of sight of the sea turtle until she starts to lay her eggs – you may otherwise scare her away;
- Stay away from the turtle's head – they can bite;
- Don't touch the eggs or put anything in the nests – the eggs could become contaminated or be injured;
- Don't touch the sea turtle – you will disturb her and you could hurt her;
- Don't disturb the tracks left by the sea turtles – the Department of Fisheries and other researchers use these tracks to identify the turtles and to find and mark the nests; and finally
- Appreciate and enjoy the experience – it is something that is truly amazing.

Sources: Meffe, G. *et al.* 1997. Principles of Conservation Biology. Sunderland: Sinauer Associates, Inc. Publishers; [www.answer.com](http://www.answer.com); [www.cccturtle.org/contents.htm](http://www.cccturtle.org/contents.htm)

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**Eco-Corner is a regular feature provided by the Anguilla National Trust in co-operation with The Anguillian.**