

Sustainable Management of Nature and wildlife – Why does it matter? What are the priorities in Cyprus?

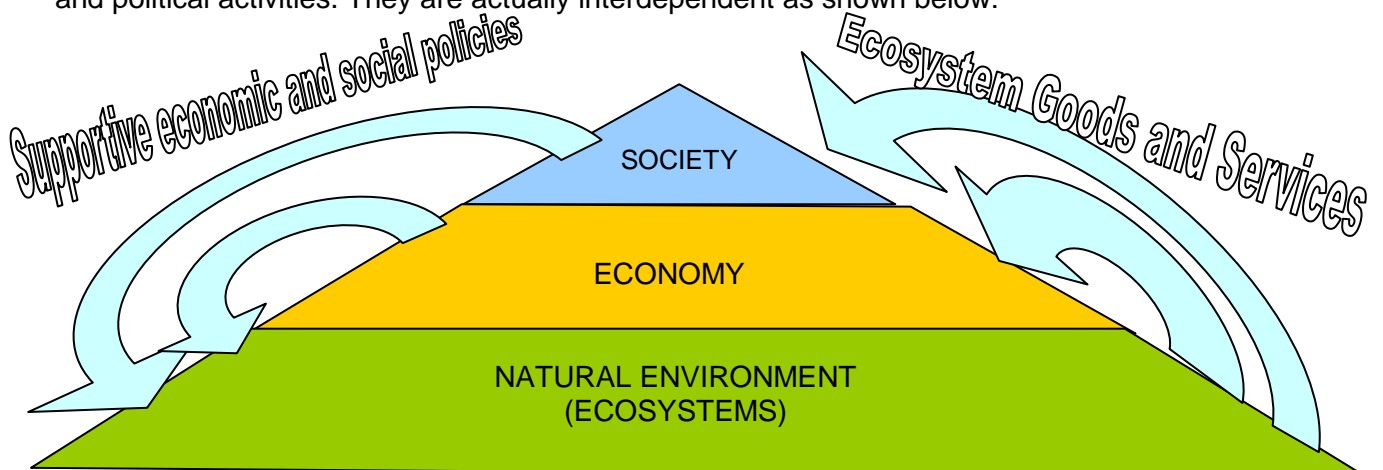
The original title of the talk that I am giving was “Preservation of Nature and Wildlife”. I chose to modify that to the title above and would like to explain why! Firstly because the “preservation of wildlife” brings some unusual images to mind!



Historically, the term preservation in relation to wildlife was in widespread use in the USA in the 19-20th century (the Preservationist Movement, exemplified by writers such as John Muir and groups such as the Audubon Society), whose philosophy was the protection of large wilderness areas, in which no human development, intervention or interference would be permitted.

Later it was understood that the simple *non-intervention* philosophy is not a good way to manage most habitats, since the great majority of so-called natural habitats are anyway not 100% natural but influenced by human activity. They should more correctly be called *semi-natural habitats*, and the human influence clearly needs to be managed in some way to protect the wildlife and nature that they support. This gave birth to the concept of “Conservation” as opposed to preservation, meaning that human interference in a protected area is managed in such a way that the ecology is stabilised and even improved, as indicated by increased populations of rare species or increased biodiversity. The main limitation of *this* approach that conservationists rapidly recognised is that it is not enough to focus our efforts just on a few protected areas (usually small and isolated fragments of habitat) and to allow uncontrolled degradation of the areas in between.

So the next giant conceptual leap was the realisation that we need to address ecological issues in ALL ECOSYSTEMS, including so-called artificial ones such as farmland, and shift their management as quickly as possible onto a SUSTAINABLE basis. Sustainable ecosystem management means that we ensure that future generations have access to the same (or better) ecological resources as we have. It can also be seen from this point of view that human activity is really an inseparable PART of our planet’s ecosystems, and that sustainable management of ecological systems must be seen together with sustainable management of economic, social and political activities. They are actually interdependent as shown below:



Which of these three dimensions should be the priority? The answer is *all of them* – but we need to keep our focus on the environmental foundation stone. If we get that wrong then we can forget the issue of economic and social well-being. So in this talk I will

focus on sustainability of the Natural Environment, but we all need to remember that this is part of a wider discussion that brings in the economic and social dimensions too.

Regarding the natural environment, the key point to get clear in our minds is this:

“Healthy, fully functional, sustainably-managed ecosystems are a REQUIREMENT for human economic and social well-being on this planet”

We can easily understand why this is true when we see what happens when we ignore the environment – let’s call it the “We do whatever we want and Nature can take care of itself!” approach... in other words the one we have been recklessly following since the beginning of the industrial revolution. The clear result is that we have already damaged the planet’s life-support systems in ways that are very harmful to ourselves, economically and in terms of human society and human health.

An important concept to understand is the one of ECOSYSTEM GOODS AND SERVICES. We are used to understanding GOODS as the *things* we buy and sell and SERVICES as the *skills and processes* that we buy and sell. We need to understand clearly that a great number of resources that we take for granted as “freely available” from natural ecosystems - and the natural processes, balances and cycles that operate within them - represent goods and services provided by natural ecosystems. Unfortunately, as Joni Mitchell once sang:

“Don’t it always seem to go that you don’t know what you got till it’s gone!”

Ecosystem GOODS include:

- Fisheries
- Wild game animals
- Wild food plants
- Herbal medicines
- Fuel wood and charcoal
- Timber for construction
- Animal grazing / browsing

Ecosystem SERVICES include:

- Air purification
- Water filtration / purification
- Storm-water absorption by infiltration to soils and groundwater
- Flood prevention by natural wetlands and river systems
- Soil maintenance and enrichment
- Maintenance of carbon dioxide / oxygen balance in the atmosphere
- Climate regulation
- Pest control in our crops and gardens from natural predators

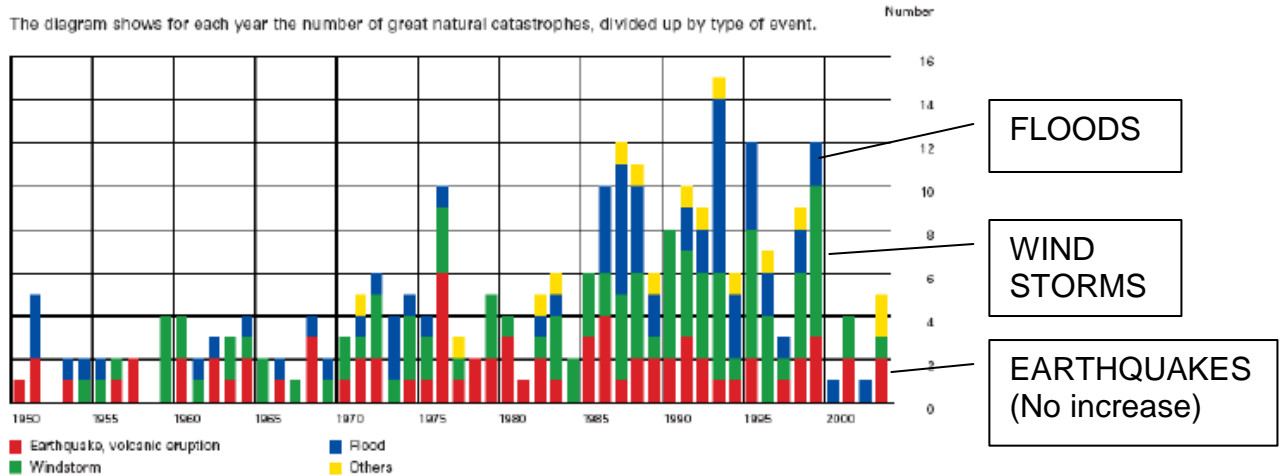
So let’s look at some examples of the consequences of Ecosystem Goods and Services breaking down:

1. On a **global scale**, climatic change is already having a huge economic and social impact, due to increased frequency and severity of storms, hurricanes and floods:

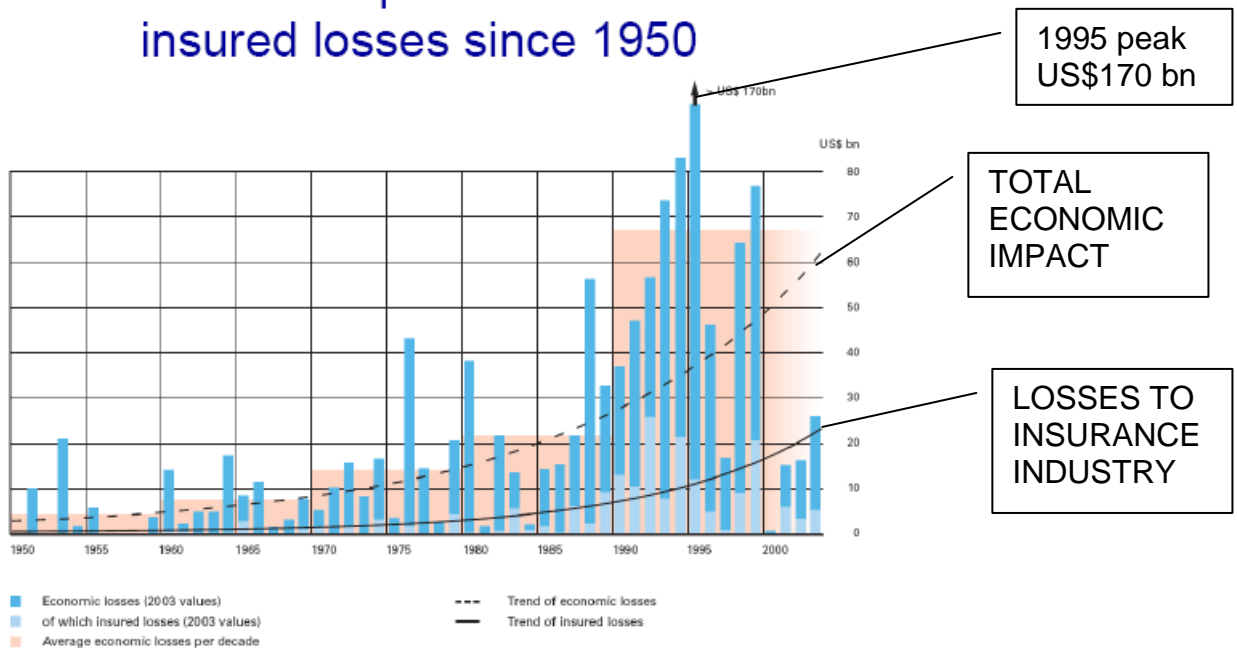
Number of natural catastrophes, 1950-2003 (MunichRe, 2004)

Number of events

The diagram shows for each year the number of great natural catastrophes, divided up by type of event.



The economic impact of that is illustrated in this chart relating to the USA: Natural Catastrophes: economic and insured losses since 1950



- Climate change is also having unexpected effects on a **regional scale** e.g, the increased frequency of the anomalous El Niño current in the S.E. Pacific (causing droughts in Australia and Indonesia, but flooding in Peru and Chile and also leading to the temporary collapse of normally rich fisheries off the western coast of S. America). Economic impacts, in the US alone, of the 1997-1998 El Nino were estimated to be in the order of \$25 billion (including agricultural losses approaching \$2 billion, or nearly 1-2 percent of total crop output, and property losses estimated at nearly \$2.6 billion).

3. Let's look at a more **local scale** at things going wrong in Cyprus. The natural ability of the ground to absorb and store rainwater (infiltration) depends a lot on the nature of the ground surface. Natural soil with a covering of vegetation and organic humus is the most absorbent. Anywhere that development has been significant (e.g. Peyia), around half of the rain falls on impermeable surfaces (roof tiles, roads, concrete yards etc) and immediately passes through the surface water drainage system into the nearest river channel. The result is sometimes catastrophic flash floods, causing damage to properties and vehicles - and even loss of human life (October last year in Peyia two people died when their car was washed off a bridge).
4. There are a number of other big economic effects in Cyprus of poor management of water. Because of reduced infiltration combined with over abstraction of water from ground water reserves, the amount of available water has decreased. To try to solve this, instead of addressing the root causes the Government has spent billions of pounds over the years on dams, pipelines and desalination plants. There are other low cost solutions that could have been addressed, including water conservation, household rainwater capture and household water recycling (from the shower and washing machine).
5. Production of meat and milk from wild forest and scrub by grazing are excellent examples of *ecosystem goods*. When shepherds put too many animals in an area (*overgrazing*) they destroy most of the vegetation, leading to deforestation, soil degradation and greatly reduced productivity. Intact forests are very productive.
6. Frequent use of artificial pesticides in agriculture often kills not only pest species but natural predators as well. When the pest population starts to increase again there are few natural predators to control them and the pest outbreaks become much more severe and destructive. Result? More crop damage and / or more expenses for the farmer who becomes dependent on pesticides. Very often within a few generations the pests develop insecticide resistance leading again to increased dosage requirements and eventually the failure of pest control. Whereas organic (biological) agriculture works **with** the ecology and does everything possible to encourage natural predators in farmland, recognising their valuable economic contribution to agriculture.

The examples above illustrate why looking-after ecosystems everywhere makes good economic sense. But what about attractive landscapes, rare species or threatened habitats? Is there any real reason why we should protect them? Surprisingly, there are once again good economic reasons for doing this, though they are sometimes hard to quantify. They are what we can call "*soft ecosystem goods and services*" including:

- Ecotourism and other forms of nature tourism (e.g. hiking, mountain-biking and wildlife tourism based on habitats and species of interest, especially birds and flowers)
- The "beauty factor" - the extent to which the nature and beauty of the landscape influence the decision by ordinary tourists to come back to the island or not.
- Some natural beauty spots are great attractions for tourists and local residents alike e.g. Baths of Aphrodite area. These "honeypot sites" will continue indefinitely to generate a great deal of revenue for local businesses, provided they are kept in a good state.
- There are measurable benefits to people's physical and psychological health from having easy access to natural areas. For example, a number of scientific studies have documented a range of benefits to hospital patients from views of

nature or green gardens, including reduced stress levels, shorter recovery times and less need for pain-killers (Ulrich, 2002, Health Benefits of gardens in Hospitals). Significantly, the most beneficial contact with nature is in naturalistic settings that combine trees with open grassy areas and have visible wildlife, such as birds or squirrels. So it is now official – Nature is Good for You!

- The feel-good factor – many, many people just love plants and animals, and are willing to spend time and money in enjoying them as part of their leisure.

Classic examples in Cyprus of areas that could be huge attractions for long-term economic benefits through “*soft goods and services*” are Karpas, Akamas and the Troodos mountains, amongst several others. The biggest danger to all of these is building development, representing an attempt for short-term economic gain that ignores the importance of the unspoiled natural landscape to the attractiveness of the area. It is the “wilderness character” that people are looking for. When it has gone, fewer people will come to visit.

The biggest lie that people tell us about such areas is that “protection will prevent economic development”. This is actually a false choice, because the two can easily be combined if it is done with imagination and sensitivity. As a result of this kind of negative propaganda, many people in rural communities are very worried about the protection of Natura 2000 sites for example, because they need reassurance that they will still be able to get economic benefit from their land. The truth is that Natura 2000 protection does not prohibit economic growth or activity, but any development has to be compatible with the protection of the ecology and the landscape i.e. of a low-key character, in harmony with the local tradition and friendly to the environment. In the end, respecting nature and natural habitats will always be an investment in the long-term economic well-being of a community. Experience shows clearly that communities and countries that are prepared to apply strict environmental and architectural criteria to development will always win over those which do not:

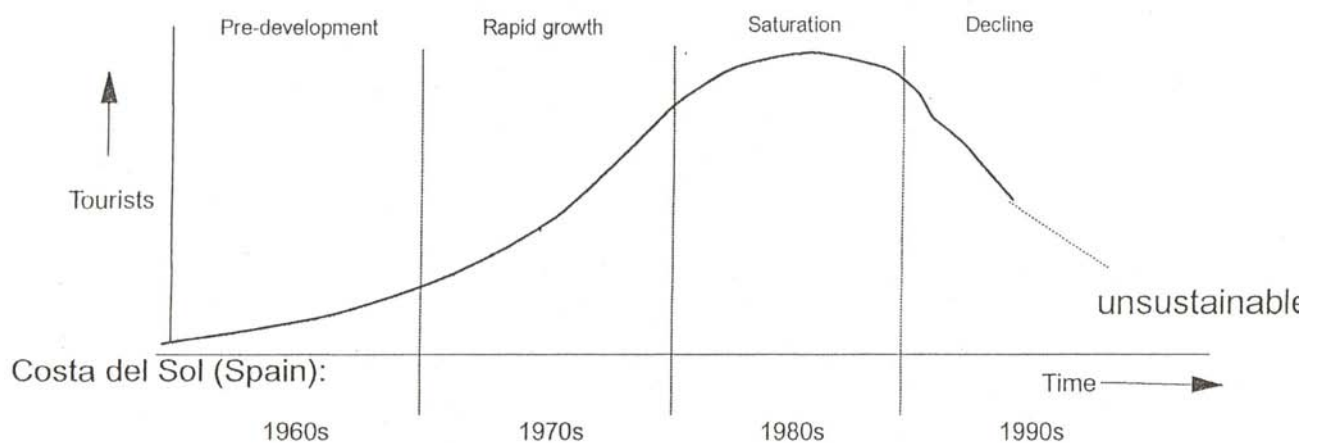
A popular holiday beach in the Bahamas, a huge international destination. Strange... where are all the big hotels??

See the houses?



Asprokremmos beach in Akamas
Aaaah that's much better!

The problem with this however is that whilst in theory (and practice) it is possible to combine ecological protection and development, we all know that - in a country with lax implementation of planning laws - the desire to maximise profits by building as many housing units or hotel apartments as possible usually becomes the overriding factor. Developers will always argue that residents and tourists will boost the local economy, so the more we have the better. However, it has been found again and again in other popular holiday destinations that this is only a short term benefit. In the long term, over-development in ecologically important landscapes always has severe economic, social and environmental consequences. The classic example that every developer in Cyprus should take note of was the development of the Costa del Sol in southern Spain. This was one of the case studies from which academics described the phenomenon called the Resort Cycle, a classic boom-and-bust cycle shown below:



Finally there is one other controversial question that needs to be asked. Should we try to keep ALL rare habitats and species? Or is an over-emphasis on a few rare species and habitats going to take attention and resources away from the bigger picture of sustainable ecosystem management?

Our first instinct as concerned individuals is probably that "Every species has a right to exist!", but in reality change and extinction have been the only truly constant features of the history of life on our planet. In today's rapidly changing climate, preservation of all rarities may not be viable or in some instances even desirable.

An example may help to clarify this issue. The Humberland Peatlands (England) are a 3400 Ha remnant of lowland raised bog (5% of the UK total) which supports 5500 known animal species, 30 of which are red data species. This is undoubtedly a very important site, yet it requires constant management (including thousand of man hours and pumping in water at a cost of over 70,000 euro per year) to combat encroachment by alien species, reduced rainfall and constant water losses by seepage to the surrounding agricultural lands. Even with all this effort and cost, the site is continuing to decline in ecological value. At what point should we give up and accept that change is inevitable?



An extremely important site but when should we accept change?

Another example: a pair of Cranes (*Gruidae spp*) successfully bred in Holland last year. It cost approximately 5 million euros to ensure their survival! Again, in Britain, the rarest plant, lady's slipper orchid (*Cypripedium calceolus*) is so rare that it is constantly monitored and kept secret from the general public for its safety. These are all examples of rare habitats and species that without massive human intervention would not survive. When do we say that the cost of their conservation outweighs the benefits?

Closer to home, what should we do about the critically endangered Green Turtles, or the Griffon Vulture or the Mediterranean Monk Seal? Is their extinction inevitable? Is their protection going to be so expensive that it is not viable? Or are they so symbolic of Cyprus that their presence is a potentially important part of the tourism product? Maybe you have some ideas on that?