

Strategies for managing biodiversity

Protection or Exploitation?

In order to protect biodiversity strategies can be used that either totally protect the ecosystem or continue to totally exploit the ecosystem. For example if a Site Of Special Scientific Interest is found then a 'total protection' strategy is used in order to fully protect the area.

Some countries though (mainly developing) continue to exploit using a permit system. However this system does not work because there are no limits to the number of permits that can be 'handed out' meaning that there is no purpose of having a permit, thus leading to 'total exploitation'. Between total protection and total exploitation you have a mix of both exploitation and protection. This occurs in NICs and some MEDCs because they are actively investing in ways to restore the ecosystem, but are still exploiting some areas for economic gain e.g. using a cleaner method to mine coal.



Managing Biodiversity:

There are 4 main ways in which biodiversity can be managed. These are:

1. Total Protection Approach
2. Biosphere Reserve
3. Restoration Projects
4. Conservation Projects

Each of these methods uses a different way to protect biodiversity, with each having both positives and negatives of the approach.

1. Total Protection Approach

During the 1960s areas for total protection were completely fenced off from local people. The number of sites which have total protection has since been increasing. For example in the 1960s there was around 10,000 totally protected sites with the total site area of all protected areas being 3,000 million hectares. By 2000 the number of sites has increased rapidly with there being nearly 60,000 totally protected sites covering a total area of nearly 16,000 million hectares.

Despite total protection completely protecting the ecosystem it can cause problems, for example:

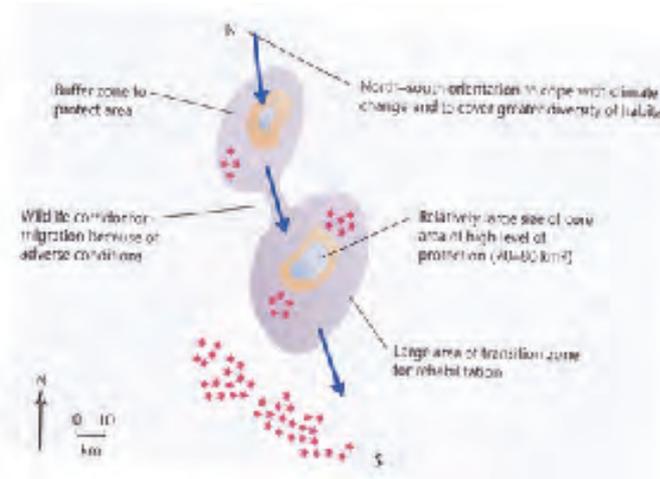
- In the poorest countries there is conflict between conservation and cutting local people off from biodiversity e.g. the Masai Mara Game Reserve.
- Totally protected areas are often protected for conservation or scientific interest and therefore the social, economic and political factors are ignored.
- Many protected areas are based on political and administrative boundaries. This means that a cross border biodiversity hotspot can only be totally protected in one country, as they cannot totally protect in another country.
- The protection often relies upon external agencies to coordinate the protection and therefore leaves local people out of discussion, who actually have better knowledge of the area.



2. Biosphere Reserves

Biosphere reserves are areas that cover terrestrial (land), marine and coastal ecosystems. Each reserve promotes solutions to conserve the biodiversity and use it sustainably. There are currently 651 biosphere reserves in 120 countries, including 15 transboundary reserves. There are 297 in 36 countries in Europe and N America, whilst in just 67 in 28 countries in Africa.

The biosphere reserves are nominated by national governments and remain under the states control, however their status as a biosphere reserve is internationally recognised. The biosphere reserves are special places where scientists can monitor and test the changes and interactions between social and ecological system, including conflict prevention and biodiversity management.



Biosphere reserves have three interrelated zones that aims to fulfil three functions:

- **Core Areas** - this comprises a strictly protected ecosystem that contributes to the conservation of landscapes, ecosystems, species and genetic variation
- **Buffer Zone** - the zone that surrounds the core areas. It is used for activities compatible with the ecological practices that can reinforce scientific research, monitoring, training and education
- **Transition Area** - the part of the reserve where the greatest activity is allowed, fostering economic and human development that is socio-culturally and ecologically sustainable.

CASE STUDY: North Devon Biosphere Reserve

The North Devon biosphere reserve was set up to protect a large area from the effects of climate change, mainly sea level rise. The biosphere reserve hasn't been successful with all stakeholders as some land is being flood using the 'do nothing' coastal management strategy.

Disagreements?

There are some disagreements whether biosphere reserves should be used, and if so where. Some examples of disagreements are:

1. **Hotspots** – should biosphere reserves be implemented on all biodiversity hotspots as these contain the greatest level of endemism and are under the greatest threat?
2. **WWF** – the WWF favours the broader approach whereby land known as ecoregion are targeted to protect the maximum habitat and species
3. **Developing counties** – although biosphere reserves are not expensive to implement, some believe that money could be better spent, with greater value of money.



3. Restoration:

Restoration projects restore highly degraded environments such as:

- recreating wetlands or river systems
- linking up small, fragmented reserves to create, larger more climate proof reserves

However some do not believe we should use restoration projects because they are:

- costly, as the land has to be first purchased and then restored
- the sites are often very polluted and therefore requires specialist companies to remove soil pollution, etc in order to make the area safe again.

CASE STUDY: Uckfield Millennium Green

The Uckfield Millennium Green once used to be two old clay pits which were used to support the activities of the brickworks that once operated there. The 21.99 acre site was then abandoned after the brickworks was sold leaving the land derelict and empty. In 1997 the council along with local residents made a successful application to establish a Millennium Green on the site. The green now has a seasonal pond, a dog-free picnic area for tourists, a historic walk down the old railway track and two Sites of Nature Conservation Interests (SNICs) where the old clay pits once were.

4. Conservation:

These are methods that are **in-situ** (occur in the place). They can also be **ex situ** if they are trying to reintroduce a population or more of the species into an area e.g. the White Rhino. It also includes capture breeding e.g. the Panda in Edinburgh zoo. However there are some issues with protected, conserved areas, these are:

- factors that are affecting areas our beyond our control e.g. climate change
- an area can have protected status, however the use of permits in this areas may mean that over exploitation still occurs
- only 12% of the surface and 1% of the marine is protected
- there is a shortage of funding for LEDCs to create protected areas as it needs to be managed and policed, with a strong government
- areas that are protected may mean that fragmentation occurs separating the areas.

