

Environmental Science

Lecture 13

Community Conservation

If you look at Community Conservation, it's very important to realize that let it be any part of the habitable area of let it be animal species of plum species. Human beings even though our detracting from it at rapid face they are the only ones who can even ensure that certain species can be preserved or conserved. So any conservation process has to involved to immediate community forward to be long living process, a sustainable process and educated process in the sense the people are not educated about the process of conservation the importance of biodiversity. The conservation principles and methods are going to fail. We will look at certain examples were certain communities of coming to gather and actually preserved and conserved certain bio diversification elements or animals or birds. In this case we are looking at people protecting pelicans, this doesn't KokkareBellur is a village in Mandya District of Karnataka, India. For generations, storks and pelicans have been coming here and roosting on the trees in the village for six months. They breed here, feed in the water bodies spread within a distance of a few kilometers and then fly away to their summer grounds. The villagers consider them a good omen and harbinger of good rain and protected their habitat. Villagers have also established an orphanage for injured birds. This area would prove to be an excellent community managed reserve.

So this is very crucial so it's going to be an enforced method of conservation with just law and protection by policies, so they are meant to be broken will still have certain factors that I am not uncompressed in that process, but in an immediate community whole entire community is participating like we have just seen there is no way this process can fail because the people themselves who are involved in this and the people who are aware of the importance of the birds and the migratory birds and what they can actually provide to the environment. These are the people who are involved in the village, usually the villages considered a place of lack of education and lack of awareness, but it is only in the village that is pelicans feels safe and the actually increase in number each here and more number of birds coming they migrate and these people actually look after them away for the period of the migration.

This is the PasgaonvaPond; this is the potential community reserve. In the pilibhit district of Uttar Pradesh lies a 1 Hector of village pond which is protected by the local people and this is become home several migratory waterfowl. The people have traditionally protected these birds and there is a community enforce band on hunting and poaching of birds from the pond.

Although small in area, this pond provides an example of traditional respect for wildlife through community enforced bans on hunting and poaching. Further, because of protection offered to the birds here, this pond teems with birdlife in the winter. Huge signboards listing birds in this area indicate that this pond hosts a number of migratory waterfowl.

Joint forest management

This is the kuvarai village in Andhra Pradesh where is the combination of government as well as community which is the best possible combination because of its slowly going to be the community alone, they will not have the backup or the strength or the power within them to enforce punishment or enforce certain finds. The government has to do the power so and the community needs to be involved create an active awareness for the same situation.

Ex-situ conservation that can happen within with respect to the community

- Captive breeding and species reintroduction
- NBAGR
- NBPGR
- Biotechnology
- Seed banks
- Bioinformatics

Bioinformatics

The terms bioinformatics and computational biology are often used interchangeably, these involves the use of technics include applied mathematics, informatics, statistics, computer science and bio chemistry to solve biological problems usually on a molecular level. For an example is genome sequencing.

Bioinformatics actually has an understanding of the entire system even though it's going to be in the level of the individual cell or genome sequencing; you can see the extent to which it can have an impact. Biomolecules, DNA, RNA, Proteins< Signaling Networks, Cells, Organisms, Clinician and Environment. So all of these are different level at which bioinformatics plays a role. This is the typical DNA molecule and all of that is going to be seed in the different gene banks, seed banks all of this supported by a very good infra-structure and bioinformatics and suitable people working in the field, this is the another example of how species re introduction can help in a particular area.

Dudwa rhino reintroduction

The Dudwa forests actually were home to one Horned rhino a century and half ago. But however due to rampant poaching for its valuable horn and for game hunting, it was wiped out from the area by the late 19th century. Rhinos were successfully reintroduced to Dudwa on April 1st 1984 following a systematic reintroduction effort of captive bred stock. Suitable habitats for 1st year prior to the reintroduction process about 27 sq. km of grass lings and open forest with perennial source of water was year marked as rhino reintroduction area and two monitoring stations have been established. Currently there are seven rhinos breeding successfully four adult females, one adult male and two sub adult males. So the importance of reintroduction is crucial as when species is extremely didn't wind ling and say to there is a couple of zoos, this whole process of reintroduction has to begin. Because in most cases, most species captive breeding is very rare, it has to be enforced, it has to be done under certain particular conditions, so as an when species is becoming endangered is close to extinction, it has to be studied and reintroduction does they time it's not an overnight process, it's not like ok in this area there are only two tigers lets been three tigers from the zoo and drop it over here, it cannot be done like that, it has to be

study done with the lot of study, the habitat has to be first made similar and the climate has to be made similar gradually let it to be a zoo or a while life sanctuary or national park, all of this steps are going to be gradual taking a couple of years at least. So this steps has to be gradually done unlike it done was successfully for this rhinos it can be done for others species as well.

This particular area now you can see thriving rhinos and before a species can be reintroduced the habitat has to be made suitable for its consumption of food and fodder. For example here Dudhwa it had to be grass lands and it had to be suitable species for rhinos, but if it was going to be a secondary carnivore like a tiger, panther even other animals like anchlors and deer's to be reintroduced in that particular area for that transition of the secondary carnivore to be smooth and problem free.

Project Tiger

This is the Success in species conservation. Tiger population has declined drastically from estimates of 40000 at the turn of the century to 1800 by the 1970's. This led in 1973 to the initiation of Project Tiger with the objective of conserving and rescuing this species from annihilation. Twenty three tiger reserves were set up along with the imposition of a total ban on hunting and trading in tiger products at the national and international levels and the implementation of habitat improvement and anti-poaching measures. Between 1973 to 1989, the species showed a marked recovery resulting in an increase in numbers to more than 4000 by the year of 1989.

So these numbers might seem small actually were 4000 with the respect to actually having a particular species and mind in an entire country. When we are talking about thousands and lakhs of few years ago, but what happens is the process of conservation is very gradual but it has to be study an in a positive direction. So has an when we notice particular drop or decline in a species, stringers measures has to be taken and we cannot wait for the situation become drastic aware the species becomes extent , except in zoos or other captive environment. Project Tiger is successful not only in our country but also other country for also come up on and looked up on in a case study, to study how the process can be done and replicated for other species as well but even though process has been done entirely our country there has been a lot of international influence and help funding and as well as technical know how it can done and the implementation of the stringer poaching laws is very crucial, irrespective of project tiger happening there or still hunters and poachers, hunting these animals down.

What are the efforts from the Indian Front

- The biodiversity bill which is passed in 2002
- India became party to convention on biodiversity
- May 22nd has been marked as the international day in biodiversity

Conservation Approaches: International Treaties

- Various treaties have helped conserve biota
- A major one is CITES, the convention on International Trade in Endangered Species of Wild Fauna and Flora, prepared in 1973

- This pretty much bans international trade and transport of body parts of endangered organisms

But in spite of this treaty being signed in 1973, there is still an entire smuggling ring in the industry in the billions of dollars dealing with endangered species as well as the transport and body parts of this species.

What are the different conservation approaches: Captive Breeding

Many endangered species are being bred in zoos, the zoo is basically to protect these animals from poaching to boost population as well as reintroduce them gradually into a wild that is again being protected.

This has worked so far the California condor, this is the photograph of the condor, so its imprints on birds and not humans

But this is worthless if there is not adequate habitat left in the wild

Say we have only zoos it is not sufficient we need to have adequate wild life habitat for these animals to be then later released to an area that habitat should be suitable for this species. If man is going to be going on destroying different forest grasslands that is not going to be possible.

Biodiversity hotspot in recognizing them, hotspot is discussed like an area that supports a specially high number of species endemic to that particular area for nowhere else in the world.

- When habitat is preserved to meet the needs of an “umbrella species” it helps preserve habitat for many other species. So primary species actually serves as an umbrella for others.
- Large species with large home ranges like tigers and other top predators are good umbrella species. Like we discussed if the secondary carnivore is reintroduced in a particular area in the wild before the carnivore is going to be reintroduced. Primary carnivores and secondary herbivores and certain plants have to be reintroduced in the habitat for a couple of months, so they can set up a suitable food chain among themselves and then the secondary carnivore is reintroduced.
- So are flagship species or charismatic species that win public affection like that of the panda

Now if you look at the different economic incentives that can be provided different approaches of conservation. The first approach is

Debt-for-nature swaps

These are financial transactions in which a portion of a developing nation's foreign debt is forgiven in exchange for local investments in environmental conservation measures. The concept of debt-for-nature swaps was first conceived by Thomas Lovejoy of the World Wildlife Fund in 1984 as an opportunity to deal with the problems of developing-nation indebtedness and its consequent deleterious effect on the environment. So like we just even saw, India has such one of the largest endemic species in the world.

It's one of the largest holder of hotspot in the world but we are developing country can be offered to actually invest money from or harden GDP conservation of species.

However important it is when we have other important problems like poverty, hunger and education. These do take a back step we do realize the importance of biodiversity, so it is only then the united nations came up with this program which will help developing nations and under develop nations to actually provide for safe habitat for such species, it could be plant, animal, birds, insects anything. But in provide for the suitable environment for this provide for conservation measure for this their fought for a dead percentage of it is forgiven which helps this countries in the longer run.

Conservation Concessions are management contracts between a government or community landowner and a conservation-minded buyer. They offer a novel way for green activists to complete directly with timber firms seeking to lease rights to land. So this is the another way of actually having where you lease out the land, so if you do not control to lose out the land, the buy products of the land, trees cannot be felled during the period of lease, their products may be used but they cannot be cut down destroyed, this is very important because it cannot go without saying that we are going to continue to depend on forest and other aspects of biodiversity. Let it be plants, animals or any other creatures but at the rate at which will take from them has to be controlled and at the same time research has to be done to find out alternate methods of rather than utilizing this resources and once those alternate methods or utilized then the dependency of the natural resources of biodiversity will gradually use and we can concentrate on conserving them and once the reaches the emphases that is the demand meet supply then we do not have to worry, it is only when demand in supply is so far part in between the defense is so far part that it's is become crucial for humans to intervene and help protect and conserve biodiversity.

So we all have to be proud of our BIODIVERSITY and try all possible ways to preserve it.