

## GENES AND THEIR IMPORTANCE

Earth is a unique planet, because it contains something very precious, something that has not yet been found anywhere else in the known universe. This precious thing is none other than life - as embodied in all forms of organisms from the lowest plant to the most complex and the highest form - man.

Life itself is a marvellous phenomenon. It embodies the total process of birth, growth, re-production, decay and death. Although all living organisms die at one time or the other, they maintain the immortality of their species through re-production. Parents produce offspring generally having common characteristics of the species, but very often with minute dissimilarities between one individual and another. These features enable the continuation of the species, adapting itself to the changes it has to contend with.

The transmission of the characteristics of parents to their offspring is effected by genes - a group of bio-chemical molecules that determine particular characters of an organism. Genes are strung lengthwise on chromosomes, each chromosome containing hundreds of genes and each gene accounting for some feature or the other.

The impact of these genes leads to the production of the bewildering array of different life forms we see in the world, and based on the degree of similarities and differences, they can be divided and sub-divided into a number of groups. First we divide life forms into plants and animals, which in turn are divided into progressively smaller groups - family, genus, species and individuals. The total number of individuals belonging to a species is called a population.

Thus, in a population, we may have thousands of genes distributed among individuals. The totality of these genes is the gene pool of the species and it represents the genetic diversity within the species.

This can be really understood from a simple example. If we consider the case of dogs, we will observe that as a species all dogs bear common similarities which distinguish them from other species, but among the

individual dogs there are many differences that mark out one dog from another. They are the result of the gene pool in action. Thus it is clear that if the species with its ability to produce the individual variances is to be preserved, the total gene pool must be preserved. Conversely, if the gene pool is not preserved the species will ultimately die off.

### Why Conserve Species?

There are many reasons why all forms of life should be conserved, but the most important one is that it is in the interest of man himself to do so. Let us consider a few examples. Although there are thousands of different plant species, not more than a few hundreds are used by man. Day after day man is finding new uses in plants hitherto ignored by him. A substantial number of drugs now in daily use were originally plant derivatives. More discoveries are regularly reported in this field.

Apart from direct uses as food, medicines or industrial raw material, the wild plants contain useful genetic characteristics that can be profitably utilised.

Considering the vast number of plant species so far not properly studied, their potential can very well be imagined.

The environmental threat inherent in the extinction of species is too well understood to require explanation.

### Concern for Conservation

The concern for genetic conservation has assumed a new dimension owing to the rapid rate of depletion of worldwide forest reserves. In this regard, the tropical rain forests occupy a very important place. Firstly because of the crucial role they play in maintaining equilibrium in the natural environment and secondly due to the fact that they are the repositories of a multitude of plant and animal species not found anywhere else in the world.

Because of her unique heritage of forests such as Sinharaja, Horton Plains etc. Sri Lanka too has

attracted the attention of environmentalists and conservationists. The invaluable and unique genetic resources that we possess can be considered a heritage that should be protected, not only for our own benefit but also for the benefit of generations yet to come throughout the world.

### **Realities**

Conservation is a laudable objective but in its application we often come across a conflict of

interests between socio-economic development needs of man and the needs of nature.

It is not possible to present a ready made formula for the solution of such conflicts. All we can say is that we need more indepth studies on various aspects connected with the problem for the formulation of a methodology leading to the peaceful co-existence of man and nature.