**Séance N° 10**

**Biodiversity Loss and Species extinction**

**Extinction:**

**Extirpation:**

**The biodiversity of an area is literally the number of species, both plant and animal, inhabiting the environment.**

**Biodiversity loss is the extinction of species (plant or animal) worldwide, and the local reduction or loss of species in a certain habitat.**

according to the United Nations’ first comprehensive report on biodiversity:

**Species loss** is accelerating to a rate tens or hundreds of times faster than in the past, the report said. More than **half a million species** on land have insufficient habitat for long-term survival and are likely to go extinct, many within decades, unless their habitats are restored. The oceans are not any better off.

**Statistics about Biodiversity Loss and Species extinction**

* Human action has significantly altered 75% of land- and 66% of the sea environment.
* 1/3 of land on earth is now used for agriculture
* 290 million hectares of forest were lost between 1990 and 2015 – clearing land for cattle, growing feed crops for animals
* Since 1700 over 85% of wetlands have been lost
* Since the rise of human civilisation 83% of wild mammals have been lost
* 1 million species (around 15% of the total) are threatened with extinction, including 40% of amphibians and 25% of mammals.

**Cause of loss of species and biodiversity**

Researchers have identified five important drivers of biodiversity loss:

**Habitat loss and degradation**—which is any thinning, fragmentation, or destruction of an existing natural habitat—reduces or eliminates the food resources and living space for most species. Species that cannot migrate are often wiped out.

**Invasive species**—which are non-native species that significantly modify or disrupt the ecosystems they colonize—may outcompete native species for food and habitat, which triggers population declines in native species. Invasive species may arrive in new areas through natural migration or through human introduction.

**Overexploitation**—which is the harvesting of animals, fish, or other organisms beyond the capacity for surviving populations to replace their losses—results in some species being depleted to very low numbers and others being driven to extinction.

**Pollution** the addition of harmful substances contributes to biodiversity loss by creating health problems in exposed organisms. In some cases, exposure may occur in doses high enough to kill outright or create reproductive problems that threaten the survival of species.

**Climate change**

In an ecosystem, species tolerance limits and nutrient cycling processes are adapted to existing temperature and precipitation patterns. Some species may not be able to cope with environmental changes from global warming. These changes may also provide new opportunities for invasive species, which could further add to the stresses on species struggling to adapt to changing environmental conditions.

All five drivers are strongly influenced by the continued growth of the human population and its consumption of natural resources.

**Effects of biodiversity loss**

**Ecological effects**

The loss of populations increases the risk that a particular species will become extinct.

Biodiversity is critical for maintaining ecosystem health. Declining biodiversity lowers an ecosystem’s productivity (the amount of food energy that is converted into the biomass) and lowers the quality of the ecosystem’s services (which often include maintaining the soil, purifying water that runs through it, and supplying food and shade, etc.).

Biodiversity loss drivers the ecosystem to lose its ability to recover from a disturbance (ecological resilience). The ecosystem can become destabilized and collapse. That is, it ceases to be what it was.

**Economic and societal effects**

Biodiversity loss affects economic systems and human society.

The loss of biodiversity threatens global food security and the development of new pharmaceuticals to deal with future diseases. Simplified, homogenized ecosystems can also represent an aesthetic loss.

**Solutions to biodiversity loss**

Governments, organizations, and the scientific community must work together to create incentives to conserve natural habitats and protect the species.

Sustainable development (economic planning that seeks to foster growth while preserving environmental quality) must be considered when creating new farmland and human living spaces.

Laws that prevent poaching and the indiscriminate trade in wildlife must be improved and enforced. Shipping materials at ports must be inspected for stowaway organisms.

Conservation biologists agree that the most effective way to prevent continued biodiversity loss is to protect the remaining species from overhunting and overfishing and to keep their habitats and the ecosystems they rely on intact and secure from species invasions and land use conversion.