

The weight of biodiversity loss is most pronounced on species whose populations are decreasing. That is, it ceases to be what it was (e.g., a tropical forest, a temperate swamp, an Arctic meadow, etc.) and undergoes a rapid restructuring, becoming something else (e.g., cropland, a residential subdivision or other urban ecosystem, barren wasteland, etc.). Although all ecosystems are able to adapt to the stresses associated with reductions in biodiversity to some degree, biodiversity loss reduces an ecosystem's complexity, as roles once played by multiple interacting species or multiple interacting individuals are played by fewer or none. 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.). The loss of genes and individuals threatens the long-term survival of a species, as mates become scarce and risks from inbreeding rise when closely related survivors mate. Beyond a critical point of species removal or diminishment, the ecosystem can become destabilized and collapse. The wholesale loss of populations also increases the risk that a particular species will become extinct. Biodiversity loss also threatens the structure and proper functioning of the ecosystem. As parts are lost, the ecosystem loses its ability to recover from a disturbance (see ecological resilience). Biodiversity is critical for maintaining ecosystem health.