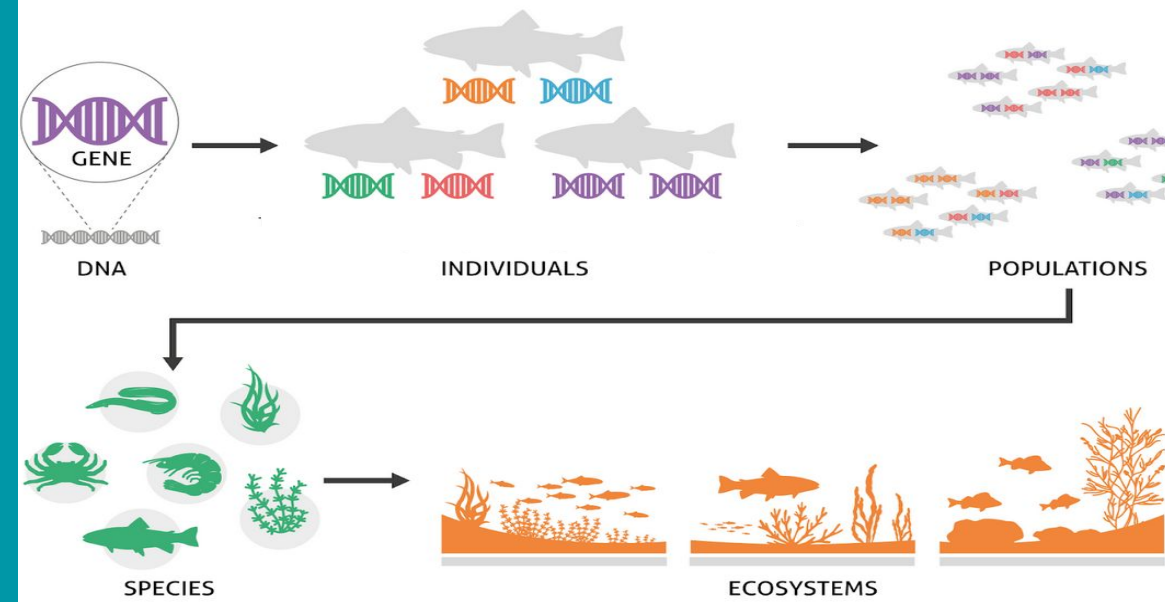


# Genetic variation underpins biodiversity and supports ecosystem services



## IPBES Agenda Item: Interlinkages among biodiversity, water, food and health

Genetic diversity is vital to the resilience of ecosystems and their services, including water filtration, carbon fixation, stable food supply, and disease-resistant plants and animals.

Genetic diversity is more important now than ever due to a changing climate and global spread of pests and disease.

Genetic diversity helps:

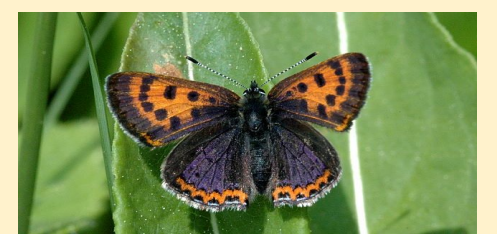
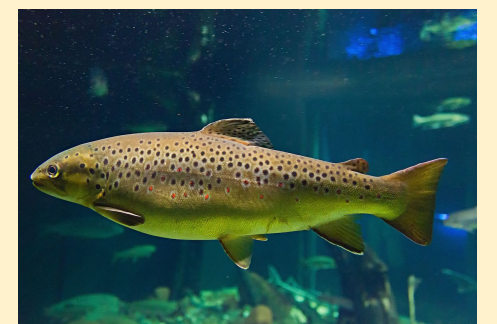
- Microbes fix more carbon
- Eelgrass survive heat waves
- Corals adapt to warm oceans
- Trees support insect diversity
- Populations survive disease
- Threatened species recover
- Increase crop yield

## IPBES Agenda Item: Causes of biodiversity loss and the determinants of transformative change

Genetic diversity is decreasing because of unsustainable harvest, habitat decline, fragmentation, extreme climate events and small populations. This is documented in many plants and animals (examples at right), on land and in oceans. Scientists forecast more than 50% loss of genetic diversity of species and populations unless actions are taken (Hoban et al 2021, BioScience).

**14% lower**  
genetic diversity  
in harvested fish

**28% loss**  
in island species  
in past 100 years



## IPBES Agenda Item: Building capacity, strengthening knowledge foundations and supporting policy

Networks (examples at right) are helping stakeholders by translating knowledge, providing training, and building collaborations. Scientists are also building capacity to produce large amounts of genetic data and other data on proxies to support genetic monitoring and make sure it can be used in policy and wildlife management.

