



Terms of Reference – Roles of Biodiversity in Agriculture

IUCN is a membership Union uniquely composed of both government and civil society organizations. It provides public, private and non-governmental organizations with the knowledge and tools that enable human progress, economic development and nature conservation to take place together. IUCN provides a neutral forum in which governments, NGOs, scientists, businesses, local communities, indigenous peoples groups, faith-based organizations and others can work together to forge and implement solutions to environmental challenges. By facilitating these solutions, IUCN provides governments and institutions at all levels with the impetus to achieve universal goals, including on biodiversity, climate change and sustainable development, which IUCN was instrumental in defining.

This consultancy contributes to the publication of an agricultural report “Common Ground: improving Land Health for Agriculture”. The report provides evidence and analysis to support stronger dialogue between conservation and agriculture actors around sustainability in the food/agriculture sector. Specifically the consultancy will contribute the content for a chapter on the roles of biodiversity, and particularly soil biodiversity, in agriculture.

Background to the assignment

One of IUCN’s proposed targets for the 2021-24 programme is that governments, businesses, land managers, and communities are equipped to work together to enhance land health in the food and agriculture system to meet societal food requirements while protecting and restoring ecosystem functionality on which that production depends.

This assignment will provide scientific evidence, knowledge and analysis that will be incorporated into an IUCN report on conservation and agriculture, entitled “Common Ground: conserving biodiversity for agriculture”. The assignment will specifically provide information on biodiversity in agriculture, with emphasis on the roles of soil biodiversity in agro-ecosystem health. The overall study will call for more detailed insights into the value of agriculture as a conservation strategy and as a Nature Based Solution. The full report is to be drafted by September 2019, which sets a tight deadline for the proposed consultancy assignment.

Specific tasks

To review the most significant literature related to soil biodiversity in agriculture and conduct simple analytical work as appropriate including the following:

1. Overview of biodiversity in agriculture and its relative importance: pollinators, disease control, genetic resources, soil biodiversity; relative significance (species richness/diversity) and values
 - Provide a graphic representation of species diversity associated with different functions
2. Soil as an ecosystem: state of knowledge on soil biodiversity; biotic community with primary producers/consumers/decomposers etc.; discuss soil processes influenced by soil biodiversity – what does this mean for agricultural production methods (value)?
 - Provide a simple visual representation of soil biodiversity

3. The rich biodiversity of soil: summarise details of the various species groups inhabiting soils, with details about species richness and abundance of organisms;
 - Provide simple analysis (estimate) of species richness and diversity of different taxonomic groups – if possible in graphic form
4. Variety in soil communities: examples of biodiversity from different soil types (soil from various agricultural habitats. Classification by habitat? Organic soils chemically treated etc.
 - This could be illustrated with simple box-text
5. Availability of information on current soil biodiversity condition (Gap analysis): Discussion/synthesis of available data and the limits to the information presently available on conservation status of soil ecosystems/species/genes that contribute to agricultural production. Limits/gaps in these data. Opportunities for improvement.
 - Provide a simple analysis of Red List data for soil biodiversity (potentially the results will be limited to vertebrates – to be reviewed by the consultant)
6. Threats to soil ecosystems: discussion on land degradation impacts on soil; what are most prevalent and what are the results of the impacts of these on soil functionality for agriculture?
 - Analyse available data on soil biodiversity loss (emerging degraded lands, estimates of soil biodiversity decline)
 - Coordinate with authors working on the chapter on soil organic carbon
7. Opportunities for soil biodiversity remediation and conservation: restoration of functionality and species richness, what has been accomplished to date and what opportunities are there from local to global levels. Link to SDG's?
 - Analysis – gains to agricultural production potential if degraded lands remediated
 - This may require a review of a selection of case studies, in which case it is important to provide a global diversity of cases
 - Liaise with the authors working on the chapter on sustainable land management to avoid overlap

Report outline

- Biodiversity in agriculture
- Soil as an ecosystem
- The rich biodiversity (species diversity) of soil
- Variety in soil communities
- Threats to soil ecosystems
- Opportunities for soil biodiversity remediation and conservation

Deliverable

A report of approximately 20 pages that follows the agreed outline below. The task is anticipated to require approximately 10 days' work.

Applications

Please send your CV and letter of interest to linda.lungaho@iucn.org, copying chris.magero@iucn.org

Deadline for applications: Friday July 12th