Trees on Farms for Biodiversity

Increasing both the number of trees and species on farms helps conserve and restore biodiversity and improves agricultural productivity. We work with communities, governments and NGOs to promote this approach in Honduras, Indonesia, Peru, Rwanda and Uganda.

Earth is naturally biologically diverse

Species abound in every habitat, but when those habitats are destroyed, the biodiversity disappears with them. The world's forests have historically been harbours of massive biodiversity, but it is well known that they have been extensively cleared and remain under imminent threat.

Forests support 80% of terrestrial biodiversity. [1]

We have recognised the need to protect our remaining forests, but humankind faces a major conundrum. Most of the forests that we have lost were cleared for agriculture, and the pressure to create more and more agricultural land grows as the world gears up to feed a population expected to rise to at least 9 billion people by 2050. If we do not get better at managing our resources, we will continue to find that our need to grow food conflicts with our need to protect our forests and other natural resources. On our current trajectory, we will continue to lose biodiversity – and as we continue to lose the ecosystem services that forests provide, we will find it more and more difficult to grow our food.

Agriculture directly supports the livelihoods of 2.6 billion people worldwide and is increasingly threatened by degradation, with 52% of all land used for food production moderately or severely impacted by the loss of healthy soil. [1]

Fortunately, farms can be managed to maximize their value in conserving biodiversity. We urgently need to complement our efforts to save and restore forests with efforts to manage biodiversity and ecosystems services on farmlands. There are many options to do so.

Recent research by the World Agroforestry Centre (ICRAF) shows that 45% of farms worldwide already have more than 10% tree cover. Farmers have trees on their farmland because they are useful and profitable: they provide timber and fuelwood, improve soil fertility and control water runoff; improve nutrition with fruit, nuts and leaves; provide fodder for livestock; and provide habitat for animals and pollinators.

Where households grow trees in sub-Saharan Africa, trees account for 17% of the total gross

annual income of those households. We also know that trees on farms bring global carbon benefits. Trees contribute more than 75% of carbon sequestration in agricultural land – sequestering approximately 0.73 gigatonnes of carbon dioxide per year over the past decade.[2]

Vitally, trees on farms contribute to general biodiversity – ranging from the insects that provide food for birds and pollination services to biological pest control and greatly increased diversity of soil organisms. Trees on farms also increase biological connectivity in the landscape, and this helps to conserve biodiversity as well.

Increasing the cover of trees on farms can go a long way to meeting global targets for conserving and managing biodiversity. Germany's International Climate Initiative is funding an important project to increase biodiversity through the planting, management and natural regeneration of trees into agricultural landscapes. Harnessing the potential of Trees on Farms for Biodiversity, the aim is to improve the ability of countries to meet Aichi Target 7 (sustainably managed agricultural areas) of the United Nations Convention on Biological Diversity by advancing the knowledge of the importance of trees on farms for biodiversity and human wellbeing.

The World Agroforestry Centre (ICRAF) implements the project globally with activities in five countries and also directly manages it in Uganda, Rwanda and Peru. The Centre for International Forestry Research (CIFOR) is the lead in Indonesia, supported by Tanjungpura University, Pontianak. The Centro Agronómico Tropical de Investigación y Enseñza (CATIE) leads in Honduras. The International Union for Conservation of Nature provides knowledge management and outreach expertise. The Gorge-August-Universität Göttingen provides scientific approaches to the analysis of political incentive systems and financing mechanisms.

Leibnitz Universität Hannover is coordinating the development of tools to help farmers identify attractive and effective options for investing in the introduction of more trees into farming systems.

The Trees on Farms for Biodiversity project will increase our knowledge of the links between trees, agriculture and biodiversity – providing tools for practitioners in the five countries. It will assess a range of funding and investment options for increasing investment in trees in agriculture, and will help local partners to create road maps and business plans. The project will prepare manuals for each country that describe cost-effective and attractive options to increase the use of trees on agricultural land. A biodiversity assessment tool that can be used to measure the contribution of trees on farms to biodiversity and sustainability, will also help governments to verify their efforts in restoring ecosystem services in agricultural landscapes.

Backed by sophisticated knowledge management and capacity building, the project will provide policy makers, researchers and practitioners with the knowledge, evidence and tools to help improve human wellbeing and biodiversity by increasing tree cover and tree species richness across agricultural landscapes worldwide.

The partners are fostering a close relationship with the parties and secretariat of the United Nations Convention on Biological Diversity to provide global platforms for the project's outputs, which will be brought to the forefront of biodiversity planning.

The aim is to fill an important gap in global biodiversity priorities by promoting the improved management of biodiversity in agriculture, particularly, through the increased integration of trees into farming systems.

[1] United Nations (n.d.). Goal 15: Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss http://www.un.org/sustainabledevelopment/biodiversity/

[2] R.J. Zomer, Henry Neufeldt, Jianchu Xu, Deborah Bossio, Antonio Trabucco, Meine van Noordwijk, Mingcheng Wang (2016). Global Tree Cover and Biomass Carbon on agricultural Land: the contribution of agroforestry to global and national carbon budgets, Nature, Scientific Reports 6: 29987.

GEORG-AUGUST-UNIVERSITÄT GÖTTINGEN

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CATIE Solutions for environment and development / Soluciones para el ambiente y desarrollo

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