Coffee cultivation good for diversity in agrarian settlements but not in forests

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Coffee shrubs, both in themselves and because they are most often cultivated in the shade of large trees, can have a positive impact on plant and animal diversity in those parts of the landscape that are deforested and dominated by agriculture. What constitutes a dilemma for consumers wishing to shop ecologically is that when coffee is grown in a forest, which is also common, the impact on diversity is negative.

This is shown by researchers at the Department of Botany, Stockholm University, in Sweden, who recently published two articles about the role of coffee cultivation in conserving plants and animals in Ethiopia, the original home of coffee.

Coffee is one of the most important trading commodities, consumed by people around the world. Each year seven million tons of coffee is produced in 50 countries. Coffee originally grew in Ethiopia, where it still grows wild in the ever-shrinking forested areas that remain.

Researchers Kristoffer Hylander and Aaron Gove at the Department of Botany, Stockholm University, working with colleagues in Addis Abeba, Ethiopia, recently published new findings about the role of coffee for the preservation of biodiversity in Ethiopia in two of the world's leading journals for conservation biology, *Frontiers in Ecology and the Environment* and *Conservation Letters*, based on a research project funded by SIDA, the Swedish International Development Cooperation Agency.

One of the studies shows that coffee shrubs cultivated in gardens under individual large shade trees can be home to a great diversity of forest plants. It is shown for the first time that the coffee bush itself is an important substrate for mosses and flowering plants.

"Coffee cultivation entails not only that growers preserve and nurture large trees in the cultivated landscape but also that coffee shrubs themselves house a diversity of plants. Coffee cultivation in an agricultural landscape is thus a positive force for conserving biological diversity from a landscape perspective," says Kristoffer Hylander.

The same conclusion regarding the role of coffee in the cultivation landscape is also drawn in the other study, which deals with the distribution of birds and above all forest birds in the landscape. But, besides growing coffee under shade trees in a cultivated landscape, growers also harvest coffee from forests in the regions under study.

"In some places they harvest sparse growth of rather low-producing forest coffee, while in other places they thin out the forest and replace all other wild shrubs and small trees with coffee. In contradistinction to the positive role of coffee as a creator of living environments in the open cultivated landscape, our research shows that the higher the density of coffee in the forest, the fewer species of forest birds can be found there," says Kristoffer Hylander.

One might wonder whether the aggregate impact of coffee production is positive or negative for conserving wild plants and animals in the Ethiopian landscape. Will increased interest in coffee be good for plant and animal diversity in Ethiopia by increasing the density of trees or will it impoverish the forest ecosystem through a gradual shift from forests to coffee plantations with shade trees? Kristoffer Hylander is continuing his research on ecosystems in southwestern Ethiopia with an eye to understanding the impact of coffee systems on plant and animal diversity

and the role of coffee in deforestation and forest conservation.

Source: Swedish Research Council