From the Frog’s-eye View: FSC Certificate Put to the Test
Forest certification project is being tested in the rainforest of Guyana

Dresden, 03/02/2016. Senckenberg scientists have tested the Forest Stewardship Council (FSC) certification system with regard to its sustainability and its contribution toward the protection of species diversity. In the context of an evaluation of the certification project, the international team of researchers conducted a study in the rainforests of Central Guyana to determine the behavior of various species of frogs in sustainably managed forested areas under the influence of extreme climate events. In the study, which was recently published in the scientific journal “Biotropica,” the authors show that the amphibian communities in already logged forests are less sensitive to climatic extremes.

Nearly 150 million hectares of forest in approximately 80 countries around the world have been certified according to the criteria of the Forest Stewardship Council (FSC) to date. Forests with this certificate are managed in an ecologically responsible manner, the diversity of animal and plant species is preserved, and the timber is produced under socially just conditions – so it is stated in the FSC’s statutes. “But is it really possible to reconcile tropical forest management and the preservation of biological diversity in view of the global climate change?” asks Dr. habil. Raffael Ernst of the Senckenberg Natural History Collections in Dresden.

Together with an international team, the amphibian researcher conducted a study to examine this question in the rainforests of Central Guyana. Using amphibians as a group of model organisms, the scientists studied the effects of extreme climate events, such as sustained drought periods or heavy precipitation events, in three study areas. In the process, they compared a forest parcel without logging, an area with current logging activity and a fallow parcel that had already been logged in the past. Over a period of three years, the changes in species composition and the distribution patterns of a total of 2628 individual frogs from 39 species and 11 families were compared to each other in the forested area encompassing 232.25 hectares.
“The result came as a surprise to us,” says Ernst, and he continues, “Amphibian communities in already logged forests initially reacted less sensitively to climatic extremes than their relatives in unaffected forests. In the primary forests, the species diversity is subject to much higher fluctuations.” For example, the Southern frog species *Leptodactylus petersii* and *Physalaemus ephippifer* thrived in already managed forests, where they occurred in large numbers.

The scientists think this phenomenon may be explained by the presence of artificial diversion habitats that were created as a result of the logging activities and that are being used by these species as breeding grounds. According to the study, these newly created, management-based habitats thus perform a buffer function during extreme events and prevent a further loss of diversity. “However, only a small number of species choose these artificially created habitats for breeding – overall, the level of diversity in these areas is significantly lower than in untouched forests, and the species composition changes,” explains the scientist from Dresden.

The results show that real processes often tend to be much more complex than expected in theory. “We therefore recommend further field studies and the consideration of such research results in planned forest restoration measures,” offers Ernst in summary.

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*world of biodiversity*

To study and understand nature with its limitless diversity of living creatures and to preserve and manage it in a sustainable fashion as the basis of life for future generations – this has been the goal of the Senckenberg Gesellschaft für Naturforschung (Senckenberg Nature Research Society) for almost 200 years. This integrative “geobiodiversity research” and the dissemination of research and science are among Senckenberg’s main tasks. Three nature museums in Frankfurt, Görlitz and Dresden display the diversity of life and the earth’s development over millions of years. The Senckenberg Nature Research Society is a member of the Leibniz Association. The Senckenberg Nature Museum in Frankfurt am Main is supported by the City of Frankfurt am Main as well as numerous other partners. Additional information can be found at [www.senckenberg.de](http://www.senckenberg.de).

2016 is the Leibniz year. On the occasion of the 370th birthday and the 300-year death anniversary of polymath Gottfried Wilhelm Leibniz (*7/1/1646 in Leipzig, † 11/14/1716 in Hanover), the Leibniz Association is organizing an extensive topical year. Under the title “The best of all possible worlds” – a Leibniz quote – it brings into focus the diversity and timeliness of the subject matter currently studied by the scientists at the 88 Leibniz institutions across the Federal Republic of Germany. [www.bestewelten.de](http://www.bestewelten.de)