

Press release**Rheinische Friedrich-Wilhelms-Universität Bonn****Johannes Seiler**

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<http://idw-online.de/en/news474452>Cooperation agreements, Research projects
Biology, Environment / ecology
transregional, national**Genetic Markers for Tracking Species**

At the supermarket checkout, hardly anybody enters prices manually anymore. Using scanners that can read the barcodes is much faster. Biologists now want to use a similar procedure for identifying domestic animal and plant species more efficiently. German Barcode of Life (GBOL) is the name of an initiative on which zoologists and botanists are collaborating in Germany. Botanists from the University of Bonn have taken the lead for the flora. The overall coordination of the GBOL Project lies with the Zoological Research Museum Alexander Koenig in Bonn.

"In the DNA of living beings, we have identified sections as »DNA bar-codes« that, while being almost identical within a certain species, differ among the various species," explained Prof. Dr. Dietmar Quandt from the Nees Institute for Biodiversity of Plants at the University of Bonn. "Based on these markers, we can then identify species unambiguously and relatively fast." The result of this analysis resembles a barcode at the supermarket; only that it does not come in black and white, but in four colors, with each one corresponding to one of the four letters of the genetic code.

What counts is only (the genetic) make-up

In classical biological taxonomy, animals and plants are identified by their external characteristics. "It is in species of a genus that re-semble each other very closely, such as sedges, that definite identification can be a very long process," reported Prof. Quandt, Speaker for the botanical pro-ject within the GBOL Initiative. "In addition, we have to rely on com-pe-tent experts here, who unfortunately are a dying breed nationally." Fully automated sequencing of DNA, however, allows identifying plants much faster. "Besides, we do not need flowering and complete plants," added Stefanie Winter, one of Prof. Quandt's doctoral candidates. "A tiny fragment, e.g., from a leaf, is sufficient for identifying the species based on its genetic markers."

More than 5,000 plant species to be collected

In the GBOL Project, the scientists first want to create a library of sample material for classifying the species. In a concerted initiative with the natural history museums, nature conservancy organizations and proven experts, specific plant samples will be catalogued throughout Germany. "For this purpose, the natural history collections have proven to be invaluable treasure troves since they are providing us with some of their priceless samples," said Prof. Quandt. The challenge is enormous: There are about 4,000 flowering plants in Germany, as well as 1,300 species of mosses and ferns.

Project to Improve Monitoring of the Environment

Capturing our flora by means of DNA barcodes is intended to make mo-ni-toring environmental effects easier: How do individual species respond to climate change? Are certain species being replaced by living organisms that have been imported from other countries? Which species are threatened with extinction? "Given the many threats for life on Earth, environmental monitoring is becoming more important," said Prof. Quandt. "The DNA barcodes can simplify and

accelerate such studies considerably."

Botanical Project Supported with 850,000 Euros

The German Federal Ministry for Education and Research (BMBF) is supporting the collection of plant DNA barcodes in Germany with approximately 850,000 Euros. This botanical research network also includes the Botanical Garden Berlin (BGBM, Freie Universität Berlin), the Institute for Evolution and Biodiversity (University of Münster), the Stuttgart State Museum of Natural History, as well as the Albrecht-von-Haller-Institut für Pflanzenwissenschaften (University of Göttingen). Overall coordination of the GBOL Project lies with the Zoological Research Museum Alexander Koenig in Bonn.

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URL for press release: <http://www.bolgermany.de/> Information on the GBOL Project

URL for press release: <http://www3.uni-bonn.de/Pressemitteilungen/103-2012> Photo for this press release



Nutzen Erbgutsequenzen für die Bestimmung von Pflanzenarten: Prof. Dr. Dietmar Quandt und Doktorandin Stefanie Winter.

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