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Web maps for citizen scientists. New online tools aim to facilitate the stocktaking of species diversity.

Citizens create knowledge; nature lovers gather valuable information about our domestic flora and fauna day after day. The online accessible data help scientists to make more precise assumptions about the habitat and distributions of different species. In order to inspire even more people to capture biodiversity, scientists of the Leibniz-Institut für Länderkunde (IfL) and the Leibniz-Institut für Wissensmedien (IWM) together with the Dachverband Deutscher Avifaunisten (DDA) are designing a new generation of interactive online maps for the ornithological web portal ornitho.de.

Tübingen, 14 December 2017. From spotting rare butterflies, taking a fish sample to taking a picture of porpoise – every citizen with motivation and interest can support scientists and make a contribution to the creation of new knowledge. Under the key word Citizen Science, citizen can become researches as well. Ornithology benefits from laymen observers and participants, too. Until now only nationwide maps of distribution can be found on ornitho.de. People interested in the local or regional bird life still have to transfer the data of the website into other applications. For most users this is too laborious or they lack the know-how. Cartographically appealing solutions with coherent ornithological information are intended to overcome these shortcomings. Above all, it becomes possible to examine the uploaded observations of the laymen scientists on a small and local scale.

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The joint project, coordinated by the IfL, is going to start at the beginning of 2018. In the following two and a half year, scientists will develop digital tools that convert the information gathered by the hobby scientists into descriptive online maps and web graphics. The task of the IWM will be to test the functionality of the emerging portal together with the citizen scientists and with regard to opportunities of participation, knowledge growth and learning effects. The new online tools are intended to be used as open source software by other citizen science projects in the future. In addition, through interviews the researches will try to find out, to what extend user-friendly visualisations can motivate people to participate in those projects and to gain the necessary skills and know-how. Another question is how quality can be assured despite the different levels of knowledge of the participants. Julia Moritz from the lab Realistic depictions at the IWM looks forward to continue with the previous cooperation as part of the project “Democratization of expert knowledge” and is happy to have in the DDA a partner institution that experiences on its portal ornitho.de broad public participation: “Within the project we can develop map depictions and additional features with an interdisciplinary team as well as other citizens in order to extend the portal further.

Experiencing biodiversity – How natural science benefits from interactive web maps

The internet portal ornitho.de which was chosen for the analysis and development is operated by the Dachverband Deutscher Avifaunisten since 2011 – the term avifauna describes the totality of all birds occurring in one region. Its partners are local, national and international associations as well as the Federal Agency for Nature Conservation and other relevant authorities. In October 2016, 18.000 persons were registered on the platform and more than 22 million data records were transmitted via the app “NaturalList”. “Experiencing biodiversity – How natural science benefits from interactive web maps” is one of 13 projects for the promotion of scientific engagement of citizens for which the Federal Ministry of Education and

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Research will provide a total of around 5 million euros in the period from 2018 to 2021. More than 300 plans had been proposed for the citizen science funding program of the BMBF.

More Information:

Dr. Jana Moser

Leibniz-Institut für Länderkunde (IfL)

Phone: 0341 600 55-133

Email: J_Moser@ifl-leipzig.de

Dipl.-Psych. Julia Moritz

Leibniz-Institut für Wissensmedien (IWM)

Schleichstraße 6

72076 Tübingen

Phone: +49 7071 979-211

Email: [j.moritz\(at\)iwm-tuebingen.de](mailto:j.moritz(at)iwm-tuebingen.de)

Press:

Dr. Peter Wittmann

Leibniz-Institut für Länderkunde e.V.

Presse- und Öffentlichkeitsarbeit

Phone: +49 341 600 55-174

Email: Presse@ifl-leipzig.de

Mira Keßler

Leibniz-Institut für Wissensmedien

Public Relations

Phone: +49 (0) 7071 979-222

Email: m.kessler@iwm-tuebingen.de

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The IfL in Leipzig analyses social processes from a geographical perspective and illustrates social change. As the only research institute for Geography in Germany which is not attached to a university it is a member of the Leibniz Association that connects 91 independent research facilities. It is funded by the Federal Government and the Free State of Saxony.

Leibniz-Institut für Wissensmedien

The Leibniz-Institut für Wissensmedien (IWM) analyses how digital technologies can be used to improve knowledge processes. The psychological basic research of the 110 scientists is concerned with practical fields like school and university, knowledge work with digital media, knowledge-based internet use and knowledge transfer in museums. From 2009 till 2016, the IWM together with the University of Tuebingen organised the first Leibniz-ScienceCampus about the topic "Informational Environments", which is continued as follow-up project under the heading "Cognitive Interfaces".