

Publication

The Wood Image Analysis and Dataset (WIAD): Openaccess visual analysis tools to advance the ecological data revolution

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

ID 4638481

Author(s) Rademacher, Tim; Seyednasrollah, Bijan; Basler , David J.; Cheng, Jianlin; Mandra, Tessa; Miller, Elise; Lin, Zuid; Orwig, David A.; Pederson, Neil; Pfister, Hanspeter; Wie, Donglai; Yao, Li; Richardson, Andrew D.

Author(s) at UniBasel Basler, David ;

Year 2021

Title The Wood Image Analysis and Dataset (WIAD): Openaccess visual analysis tools to advance the ecological data revolution

Journal Methods in Ecology and Evolution

Volume 12

Number 12

Pages / Article-Number 2379-2387

Ecological data are collected and shared at an increasingly rapid pace, but it is often shared in inconsistent and untraceable processed forms. Images of wood contain a wealth of information such as colours and textures but are most commonly reduced to ring-width measurements before they can be shared in various common file formats. Archiving digital images of wood samples in libraries, which have been developed for ecological analysis and are publicly available, remains the exception. We developed the Wood Image Analysis and Dataset (WIAD), an open-source application including a web interface to integrate basic visual analysis of wood samples, such as increment cores, thin sections or X-ray films, basic data processing, and archiving of the images and derived data to facilitate transparency and reproducibility in studies using visual characteristics of wood. WIAD provides user-friendly tools to manipulate images of wood samples, mark and measure wood characteristics such as growth increments, density fluctuations, early- and latewood widths and fire scars, and to visualise, process and archive images, metadata, and the derived data. WIAD constitutes a step towards the reproducible automation of treering analysis while establishing an open-source foundation to create improved community-developed repositories which would enable novel ecological studies harnessing the wealth of existing visual data. **ISSN/ISBN** 2041-210X

edoc-URL https://edoc.unibas.ch/86935/ Full Text on edoc No; Digital Object Identifier DOI 10.1111/2041-210X.13717 ISI-Number 000702313300001