

Working with WODAN – an online charcoal database

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Summary: The WODAN charcoal and wood database was launched in 2011, from INSTAR funding received from the Heritage Council in Ireland (Ref. grants 16679, 16705 and AR01042, 2008-2010). The WODAN project aimed to establish an online database for wood and charcoal from archaeological sites and to store published and unpublished literature (when accessible). The database itself may serve a multitude of purposes but first and foremost it is a digital archive. The datasets can facilitate scientific research as well as optimise future sampling strategies. WODAN helps to identify key research agendas for environmental archaeology. This will feed back to other aspects of archaeology, thus facilitating more fully integrated archaeological reports and unlocking data for interdisciplinary research. Another key aim is the national and international standardisation of archaeological wood and charcoal data. This lecture presents the WODAN Project and its results to date.

Key words: WODAN, database, charcoal, standardisation.

INTRODUCTION

In 2007, specialists working on wood and charcoal analysis from Irish archaeological sites came together to form the Irish Wood Anatomists Association (IWAA). Discussions within this group flagged the issue that specialists were using different methodologies for charcoal quantification. Archives of wood and charcoal identifications were being stored in many different ways. Some were on paper as part of site archives, some as excel sheets and others within project based databases. During these meetings, the idea of a centralized database for wood and charcoal results, available to everybody, was born. It was clear also that the recording methods used by the specialists also needed to be standardized.

APPROACH AND DISCUSSION

The WODAN database will hold the accumulation of wood and charcoal data in the form of identifications, wood technology and usage, dating and general site information. This data will be especially useful for reconstructing past vegetation histories and for studying human factors in woodland development, but also in highlighting research areas and demonstrating optimal sampling strategies. The database will form a sustainable and integrated repository of the Irish data, supported by all wood specialists working in Ireland, with a potential to host international data (Stuijts, 2008).

An international dimension was established by collaboration with Dr Otto Brinkkemper (Cultural Heritage Agency, Amersfoort, Netherlands), Dr Mitchell Power (Geography Faculty, Utah, USA), Prof Dr Oliver Nelle (Ecology Center CAU, Kiel, Germany), BIAx Consult (Zaandam, Netherlands), ranketing (Kerken-Aldekerken, Germany), Dr Alan Hall (ADS, UK), Dr Vincent Bernard (France), Dr Peter Hambro Mikkelsen (Denmark), Philip Buckland (Sweden), Dr. Robyn Veal (Australia) and the Irish Wood Anatomists Association

(IWAA). These contacts have been instrumental in highlighting the differences between methodologies employed on the continent and in Ireland.

One of the first tasks was to evaluate the appetite for the database with relevant parties through a survey. We also compared and discussed our ideas with designers of existing environmental databases to see how they worked and if this was the way we would like to proceed. After this, the WODAN team and the IWAA sat down with the task of reviewing European methodologies and coming to a consensus on the methodology to be used in Ireland. The database aimed to house both the European methods (recording information per single fragment) and the Irish/British methods (recording information per Taxon i.e. wood species). As a result of the WODAN project and ongoing IWAA meetings, a standardised method for charcoal analysis has been developed for Ireland. This varied approach allowed for a consensus to be reached on the methodologies to be used in Ireland and with our partners (Stuijts *et al.*, 2008-2009).

A hierarchical system of recording was developed (Figures 1 and 2). The data model employed within WODAN allows users to record information at many levels, from the archaeological site down to individual fragments of charcoal and wood. Where possible the WODAN application also utilizes consistent and standardized terminology for specialists to describe their samples, enabling greater success in comparative analysis within and across archaeological excavations. The construction of the WODAN web application has also, where possible, employed open source software, thus enabling a more sustainable data resource for future researchers to utilize. Help functions which demonstrate how to use the site are online. Templates have also been developed help in recording of site, sample and charcoal fragment information.

Four workshops (International and Irish) introduced the prototype database to specialists and gave people an

opportunity to use it. This led to crucial feedback from the intended user community, which was subsequently used to adjust structure and fields of the database.



FIGURE 1. Introduction page to WODAN.

Thoughts in 2010 turned to the accessibility of the WODAN database. Should the results be available to everyone? Who will be allowed to add/adjust results? Instinctively we hoped to have an open policy, which would enable as many people as possible to use the database. Still consideration had to be given to specialists who may not want all their results available online, for example material being used for PhD research or unpublished results. We decided to create a profile for each specialist who is interested in using the database (MyWODAN). They can add their own identifications and thus essentially create a personal archive. The specialist can choose whether or not they want to make results available, on a site by site basis. The results are accessible to be browsed and queried by everybody, except in cases that specialists choose to keep their results from view for their own use (Stuijts *et al.*, 2010).

The development of an online database is a fundamental departure from other environmental databases. Its online availability makes the catchment area of the database far greater than any previously designed environmental databases. Internet hosting allows the data to be searchable, easy to upload and always relevant and up to date.

To allow specialists to have maximum use of the database, queries were designed which will allow specialists to search particular fields in the database and also will produce pro-formatted tables for incorporation into reports. WODAN can be further developed, pending funding arrangements (rapid data entry forms).

The database is implemented with Ruby on Rails 2.0. MySQL, Apache and Passenger Phusion are used to

manage the persistence and serve the content. The Project is using cloud computing, the database is hosted from the agency Blacknight.

CONCLUSIONS

The WODAN database is online and fully functional at www.wodan.ie. At the time of writing information from 500 sites has been added. The aim for the database is to be a sustainable repository. The next stage is output of results, to interpret data from Ireland and beyond. We would be delighted to collaborate with people who are interested in adding to, or using the database in the future.

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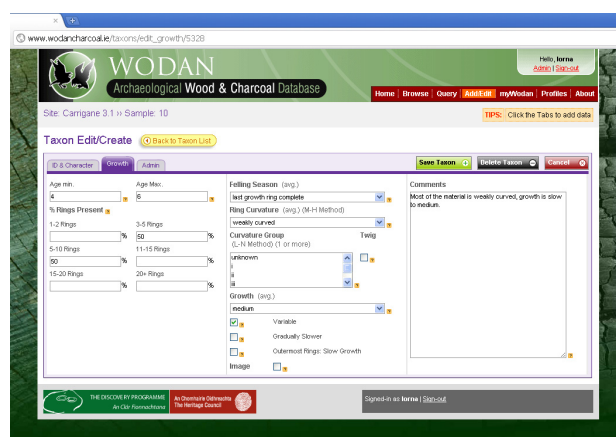


FIGURE 2. Detailed recording of charcoal at Taxon level.

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