**IAWA Bulletin New Series - Volume 10(2)**

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| **Author(s):** |  |
| **Title:** | **Preliminary material** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | i-iv |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90000477](http://dx.doi.org/10.1163/22941932-90000477) |

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| **Author(s):** | Gordon C. Jacoby |
| **Title:** | **Overview of Tree-Ring Analysis in Tropical Regions** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | 99-108 |
| **Keywords:** | forestry; Dendrochronology; dendroclimatology; annual growth; subtropics |
| **Abstract:** | Although tree-ring analysis is a rapidly developing area of study, tropical regions have been largely neglected until recently by dendrochronologists. Research in these regions had mainly consisted of phenological, anatomical, and other studies by ecologists, foresters and anatomists. Many dendrochronologists felt that the tropics, due to a general lack of seasonality, were difficult if not impossible regions to apply their science. Many species do not form distinct rings and in many cases where rings are formed they often are not annual in nature. Increasing concern over tropical forests is focusing greater interest on tropical tree-ring analysis. In northern Australia, India, northern Argentina, central America, Brazil, West Africa and Kenya there are initially promising results. The key to the results is seasonality of some environmental conditions that induce dormancy and/or genetic tendency for growing identifiable rings in a cyclical manner. All techniques including densitometry and isotopic analysis as well as conventional ring analysis must be employed to maximise future results. The importance of tree-ring analysis for forestry and ecology relates to better information about factors influencing growth rates, wood production and quality, rotation times, and replacement rates. This information should find uses ranging from harvest and plantation planning to maintenance of natural forests. In addition, longer time series of tropical tree growth are important to studies of climatic change. |
| **DOI:** | [10.1163/22941932-90000478](http://dx.doi.org/10.1163/22941932-90000478) |

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| **Author(s):** | Martin Worbes |
| **Title:** | **Growth Rings, Increment and Age of Trees in Inundation Forests, Savannas and a Mountain Forest in the Neotropics** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | 109-122 |
| **Keywords:** | inundation forest; radiocarbon analysis; tree ring analysis; Central Amazonia; Tropical trees; specific gravity; annual rings; periodical growth zones |
| **Abstract:** | Investigations on growth zones of tropical trees were carried out and published since the beginning of our century.In tropical regions with severe annual dry seasons or inundation phases trees form annual rings. This is demonstrated for trees from Central Amazonian inundation forests and the Gran Sabana in Venezuela using a combination of several dendrochronological methods (wood anatomy, radiocarbon dating, ring width measurements).The occurrence of annual rings allows the determination of age and growth rate of trees. The growth rate depends on the growth strategy of the species and the growth conditions. At a given site growth rate shows a weak negative correlation with the specific gravity of the wood of trees from the upper story. Several reported ring width patterns are explained by the vegetation history of different forest stands. |
| **DOI:** | [10.1163/22941932-90000479](http://dx.doi.org/10.1163/22941932-90000479) |

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| **Author(s):** | Pierre Détienne |
| **Title:** | **Appearance and Periodicity of Growth Rings in some Tropical Woods** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | 123-132 |
| **Keywords:** | tropical African and American hardwoods; wood structure; Annual growth rings |
| **Abstract:** | Trees belonging to 30 tropical African and South American hardwood species were wounded annually. This made it possible, after the trees had been felled, to mark precisey the annual growth rings and determine their boundaries. These boundaries are always formed during the longest dry season and clearly express the rhythm of cambial activity. The appearance and nature of these growth rings vary according to genera rather than to types of climate. |
| **DOI:** | [10.1163/22941932-90000480](http://dx.doi.org/10.1163/22941932-90000480) |

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| **Author(s):** | Roland E. Vetter; Paulo C. Botosso |
| **Title:** | **Remarks on Age and Growth Rate Determination of Amazonian Trees** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | 133-145 |
| **Keywords:** | age determination; Amazonia; growth rate; Tropical trees; radiation densitometry; radiocarbon dating; cambium marking |
| **Abstract:** | Specific data and comments are given on age and growth rate determination in trees of the Brazilian Amazon basin, based on longterm observation and research of diameter increment, radiocarbon dating, microscopic wood structure, and gamma- and X-ray densitometry; special attention is given to species of the unflooded Terra Firrne forest. Annual dry seasons in eastern Amazonia provoke periodical cambial activity which may be measured as variation in girth increment and is recorded in the wood anatomy as well as its density. Gamma radiation densitometry is discouraged because of poor results. X-ray densitometry and the radiocarbon method are promising but must be refined. Irregular specific climatic events should be considered to be possible natural marks. |
| **DOI:** | [10.1163/22941932-90000481](http://dx.doi.org/10.1163/22941932-90000481) |

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| **Author(s):** | Takayoshi Shiokura |
| **Title:** | **A Method to Measure Radial Incremenf in Tropical Trees** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | 147-154 |
| **Keywords:** | Dipterocarpaceae; mangroves; Growth rate; nailing; barrier zones |
| **Abstract:** | Radial increment was studied in natural forest trees in East Kalimantan, Indonesia, and in mangrove trees in Thailand and on Iriomote Island (Japan). Nails were driven into the trunk at breast height. Barrier zones fonned in response were located after felling of the tree, and the amount of wood fonned subsequent to nailing was measured. Thanks to the distinctness of the cambial response to nailing, this method appears very effective for measuring radial increment in tropical trees. The following results were obtained: |
| **DOI:** | [10.1163/22941932-90000482](http://dx.doi.org/10.1163/22941932-90000482) |

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| **Author(s):** | R. Villalba; J. A. Boninsegna |
| **Title:** | **Dendrochronological Studies on Prosopis Flexuosa DC.** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | 155-160 |
| **Keywords:** | South America; dendrochronology; subtropical desert; Prosopis flexuosa DC. |
| **Abstract:** | Wood structure and seasonal variation of the cambial activity were investigated in Prosopis flexuosa DC. in order to enable the use of this species in dendrochronological and ecological studies requiring exact age determination. Cambial activity was determined by counting the number of undifferentiated cells in each radial file. Change in vessel diameter and a terminal parenchyma band, containing rhombic crystals, mark the annual growth layer. Even though the growth rings are not always clearly demarcated, one growth ring is generally formed each year. Prosopis flexuosa has an annual rhythm of wood production which coincides with the climatic rhythm. It is possible to cross-date disk samples of Prosopis species, and a first chronology has been established. Relationships between xylem production, phenology and climatic factors are discussed. |
| **DOI:** | [10.1163/22941932-90000483](http://dx.doi.org/10.1163/22941932-90000483) |

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| **Author(s):** | J.A. Boninsegna; R. Villalba; L. Amarilla; J. Ocampo |
| **Title:** | **Studies on Tree Rings, Growth Rates and Age-Size Relationships of Tropical Tree Species in Misiones, Argentina** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | 161-169 |
| **Keywords:** | tree rings; growth rate; Tropical trees |
| **Abstract:** | Wood samples of 13 tree species from three sites in the Selva Misionera (Misiones Province, Argentina) were analysed macroand microscopically for occurrence and formation of growth rings. Well-defined annual tree rings were found in Cedrela fissilis Vell., Parapiptadenia rigida Benth., Cordia trichotoma Vell. and Chorisia speciosa St. Hil. |
| **DOI:** | [10.1163/22941932-90000484](http://dx.doi.org/10.1163/22941932-90000484) |

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| **Author(s):** | Rudi A. Seitz; Markku Kanninen |
| **Title:** | **Tree Ring Analysis of Araucaria Angustifolia in Southern Brazil: Preliminary Results** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | 170-174 |
| **Keywords:** | Parana pine; Tree rings; dendrochronology |
| **Abstract:** | Tree ring analysis of Araucaria angustifolia trees grown at the forest research station Sao Joao do Triunfo of the University of Parana has been carried out.Disks were taken from 10 trees at the height of 2 m and on each disk 8 radii were used for measurement of ring width.The preliminary results indicate that there is within-tree-variation in the ring series. The mean intra-correlation coefficient for the ring widths between the radii varied between 0.57 and 0.89.A mean correlation of 0.60 for all pairs of trees was obtained indicating consistency in the index series between the trees. This made it possible to construct an average tree ring index for the stand. |
| **DOI:** | [10.1163/22941932-90000485](http://dx.doi.org/10.1163/22941932-90000485) |

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| **Author(s):** | D. Eckstein; Cornelia Krause |
| **Title:** | **Dendroecologlcal Studies on Spruce Trefs to Monitor Environmental Changes Around Hamburg** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | 175-182 |
| **Keywords:** | Dendroecology; environmental changes; Picea abies |
| **Abstract:** | Spruce trees from around Hamburg were studied dendroecologically. Their raw treering widths did not show any unexpected patterns. However, after removal of the autocorrelation from the tree-ring series and calculation of the climate-growth relationship an increasing dependence of the trees on climate became evident. This change in behaviour during the lifetime of the trees cannot be explained by their ageing, but is probably due to additional stress factors occurring in the last 35 to 40 years. |
| **DOI:** | [10.1163/22941932-90000486](http://dx.doi.org/10.1163/22941932-90000486) |

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| **Author(s):** | Zion Madar; Nili Liphschitz |
| **Title:** | **Historical Studies of Cupressus Sempervirens L. Affected by Diplodia Pinea f. sp. Cupressi and Seiridium Cardinale** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | 183-192 |
| **Keywords:** | wounding; neerophyllactie periderm; resin ducts; Xylem pathology |
| **Abstract:** | Between 1980 and 1986 two serious diseases of Cupressus sempervirens were found in Israel: Seiridium cardinale and Diplodia pinea. Visual symptoms of both pathogens are similar and are eharaeterised by eanker formation aeeompanied by strong resin secretion from lesions. Histologieal examinations in the eentre of the eanker revea1 similar reaetions of C. sempervirens to Seiridium and Diplodia inoculation. Numerous resin duets are formed in the bark, necrophyllaetie periderm formation oceurs several months after inoculation, disorganisation of the xylem is eonspieuous, produetion of abnormal lignified parenehyma eells instead of traeheids oceur at the injured site, and eurved traeheids and transverse walls are formed. Tannin aeeumulation oceurs in the bark and xylem. Similar reaetions of C. sempervirens to wounding and similar effects of Matsucoccus josephi on Pinus halepensis are diseussed. |
| **DOI:** | [10.1163/22941932-90000487](http://dx.doi.org/10.1163/22941932-90000487) |

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| **Author(s):** | Cui Keming; Lu Pengzhe; Liu Qinghua; Li Zhengli |
| **Title:** | **Regeneration of Vascular Tissues in Broussonetia Papyrifera Stems After Removal of the Xylem** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | 193-199 |
| **Keywords:** | regeneration; cambium; Broussonetiapapyrifera; bark |
| **Abstract:** | The central cylinder of xylem plus pith was removed from the main stem of 1- to 2- year-old Broussonetia papyrifera (L.) Vent. treelets, leaving only the bark, cambial zone cells and a few immature xylem cells. The immature phloem and xylem cells and original cambium zone cells rapidly produced callus, then the original cambial zone started to produce xylem and phloem. A flat meristem was initiated intermittently inside the callus. Eventually, these islands connected laterally to form a ring of new cambium that began to produce normal xylem inward and phloem outward. About one month later, a concave oblate trunk had formed, which connected distally and proximally with the original trunk. |
| **DOI:** | [10.1163/22941932-90000488](http://dx.doi.org/10.1163/22941932-90000488) |

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| **Author(s):** | Ben J. H. ter Welle |
| **Title:** | **Review** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | 200-200 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90000489](http://dx.doi.org/10.1163/22941932-90000489) |

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| **Author(s):** | A. P. Wilkins; Sabine Papassotiriou |
| **Title:** | **Wood Anatomical Variation of Acacia Melanoxylon in Relation to Latitude** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | 201-207 |
| **Keywords:** | Acacia melanoxylon R.Br.; wood anatom; latitudinal variation |
| **Abstract:** | The wood anatomy of Acacia melanoxylon samples from various locations in eastern Australia was examined and a number of characteristics were found to be significantly related to latitude. Vessel member length, proportion of fibres and proportion of multiseriate rays were positively related to latitude. Vessel frequency, vessel diameter and the abundance of crystals were negatively related to latitude as were the proportion of: uniseriate rays, vessels and axial parenchyma. Total proportion of ray tissue and basic density was not found to be associated with latitude.Anatomical features associated with lower transpirational demand appeared to be correlated with the cooler, more xeric environmental conditions accompanying increasing latitude. |
| **DOI:** | [10.1163/22941932-90000490](http://dx.doi.org/10.1163/22941932-90000490) |

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| **Author(s):** | Pieter Baas |
| **Title:** | **Reviews** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | 208-208 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90000491](http://dx.doi.org/10.1163/22941932-90000491) |

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| **Author(s):** | Helena Pereira |
| **Title:** | **Trabeculae in the Cork Cells of Quercus Suber L.** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | 209-211 |
| **Keywords:** | Trabeculae; cork; Quercus suber |
| **Abstract:** | Trabeculae were observed in the cork tissue of Quercus suber L. They extended radially between tangential walls across a few cells, with a rod-like fonn, and were found to follow the undulation of the radial walls of the cork cells. |
| **DOI:** | [10.1163/22941932-90000492](http://dx.doi.org/10.1163/22941932-90000492) |

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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Announcements** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | 211-211 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90000493](http://dx.doi.org/10.1163/22941932-90000493) |

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| **Author(s):** | Pieter Baas |
| **Title:** | **Review** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | 212-213 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90000494](http://dx.doi.org/10.1163/22941932-90000494) |

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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Wood Anatomy News** |
| **Source:** | IAWA Bulletin NS, Volume 10, Issue 2 |
| **Publication Year:** | 1989 |
| **Pages:** | 213-214 |
| **Keywords:** |  |
| **Abstract:** |  |
| **DOI:** | [10.1163/22941932-90000495](http://dx.doi.org/10.1163/22941932-90000495) |