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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Preliminary Material** |
| **Source:** | IAWA Journal, Volume 16, Issue 4 |
| **Publication Year:** | 1995 |
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| **Abstract:** |  |
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| **Author(s):** | Alain Mariaux |
| **Title:** | **Growth Periodicity in Tropical Trees** |
| **Source:** | IAWA Journal, Volume 16, Issue 4 |
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| **Author(s):** | Wulf Killmann; Hong Lay Thong |
| **Title:** | **The Periodicity of Growth in Tropical Trees with Special Reference to Dipterocarpaceae - A Review** |
| **Source:** | IAWA Journal, Volume 16, Issue 4 |
| **Publication Year:** | 1995 |
| **Pages:** | 329-335 |
| **Keywords:** | Tropical trees; dipterocarps; phenology; periodicity |
| **Abstract:** | The periodicity of leaf change and flowering and fruiting of tropical trees is discussed. Cambial activity patterns in tropical trees are reviewed. Emphasis is put on research undertaken in South-East Asia on the most important timber tree family in that region, the Dipterocarpaceae. There is an urgent need for more information on the effects of rainfall patterns and phenological periodicity on cambial activity and ring formation in this family |
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| **Author(s):** | Martin Worbes |
| **Title:** | **How to Measure Growth Dynamics in Tropical Trees a Review** |
| **Source:** | IAWA Journal, Volume 16, Issue 4 |
| **Publication Year:** | 1995 |
| **Pages:** | 337-351 |
| **Keywords:** | Tropical trees; dendrometer measurements; X-ray densitometry; radiocarbon datings; dendrochronology; annual rings; phenology |
| **Abstract:** | Cambial dormancy and annual rings in tropical trees are induced by annually occurring dry periods or flooding. Growth periodicity is indicated by the leaf fall behaviour and is connected with an annual periodicity of shoot elongation. Changes in stem diameter are measured with a dendrometer or by measurable differences in the electrical resistance of the cambium. Dendrochronological methods applied to carefully prepared samples can serve as proof of the annual periodicity of growth zones. For this purpose the following methods have been used: cambial wounding, radiocarbon dating, pointer year detection and regression analyses of ring width and climate data. Although X-ray densitometry and the analysis of stable isotopes in rings of tropical trees promise to provide interesting climatological information, the use of these methods remains difficult. |
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| **Author(s):** | Ian D. Gourlay |
| **Title:** | **The Definition of Seasonal Growth Zones in Some African Acacia Species - A Review** |
| **Source:** | IAWA Journal, Volume 16, Issue 4 |
| **Publication Year:** | 1995 |
| **Pages:** | 353-359 |
| **Keywords:** | marginal parenchyma; growth rates; crystalliferous chains; African Acacia species; arid woodland; wood anatomy |
| **Abstract:** | This paper reviews and summarizes the results of investigations at the Oxford Forestry Institute on the occurrence of seasonal growth rings in the wood of one of Africa's most widely distributed genera in the arid areas, Acacia. The ring boundaries are marked by fine marginal parenchyma containing small crystals of Ca-oxalate. Rings are usually annual and produced in the rainy season. Ring width is related to precipitation and/or minimum temperature. Rooting characteristics of the various species studied influence the type of relationship found. |
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| **Author(s):** | Tadashi Nobuchi; Yoshiyuki Ogata; Somkid Siripatanadilok |
| **Title:** | **Seasonal Characteristics of Wood Formation in Hopea Odorata and Shorea Henryana** |
| **Source:** | IAWA Journal, Volume 16, Issue 4 |
| **Publication Year:** | 1995 |
| **Pages:** | 361-369 |
| **Keywords:** | S1-layer; Shorea henryana; pinning method; wood formation; Hopea odorata; tropical trees; cambial initials |
| **Abstract:** | Seasonal characteristics of wood formation were investigated using the pinning method in Hopea odorata and Shorea henryana in a natural dry evergreen forest of eastern Thailand. The position of cells having initiated S1-layer formation at the time of pinning was estimated in the zone where cells were directly injured by the pinning and consequently destroyed. The position of cambial initials at the time of pinning was estimated in the zone where cells were indirectly affected by the pinning and continued their physiological activity resulting in the formation of aberrant cells. Traumatic resin canals were occasionally formed in Shorea. These canals were formed after pinning and could, therefore, not record the exact time of the pinning. Diameter growth of both species was greatest in the rainy season and decreased in the dry season. |
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| **Author(s):** | Ute Sass; Wulf Killmann; Dieter Eckstein |
| **Title:** | **Wood Formation in Two Species of Dipterocarpaceae in Peninsular Malaysia** |
| **Source:** | IAWA Journal, Volume 16, Issue 4 |
| **Publication Year:** | 1995 |
| **Pages:** | 371-384 |
| **Keywords:** | Shorea leprosula; tembaga; humid tropics; cambium marking; kapur; Dryobalanops sumatrensis; wood formation |
| **Abstract:** | The wood formation of kapur (Dryobalanops sumatrensis) and tembaga (Shorea leprosula), growing under a weak seasonal climate in West Malaysia was studied over a four-year period using cambium marking. Technical problems arose from the heavy callus formation due to the wounding of the cambium, the small radial increment, and the high variability of the cambial activity around and along the stem. Wood formation in the two tree species appears to be a continuous process and not related to seasonality in rainfall and phenology. |
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| **Author(s):** | Nathsuda Pumijumnong; Dieter Eckstein; Ute Sass |
| **Title:** | **Tree-Ring Research on Tectona Grandis in Northern Thailand** |
| **Source:** | IAWA Journal, Volume 16, Issue 4 |
| **Publication Year:** | 1995 |
| **Pages:** | 385-392 |
| **Keywords:** | dendrochronology; Teak; climatic signal; Tectona grandis L; growth periodicity; tree rings; Thailand |
| **Abstract:** | From a network of teak chronologies in northern Thailand, 75 trees within one province were evaluated regarding their climatic signal. The raw tree-ring series revealed a high mean sensitivity of 0.50 and a moderate first-order autocorrelation of 0.48. The first principal component of the standardized data explained 44% of the total variation in the tree-ring data, indicating a considerable climatic influence on tree growth. The climate-growth relationship suggested that growth of teak in this study area is mainly controlled by rainfall from April to June. Thus, there is some promise that the whole network of teak chronologies in northern Thailand can contribute to reconstructing climate over at least the last three centuries. |
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| **Author(s):** | Brendan M. Buckley; Mike Barbetti; Manas Watanasak; Rosanne D' Arrigo; Saran Boonchirdchoo; Sakunyut Sarutanon |
| **Title:** | **Dendrochronological Investigations in Thailand** |
| **Source:** | IAWA Journal, Volume 16, Issue 4 |
| **Publication Year:** | 1995 |
| **Pages:** | 393-409 |
| **Keywords:** | Podocarpus; climate; Dendrochronology; Pinus; Thailand; Southeast Asia |
| **Abstract:** | Some of the first tree-ring chronologies from mainland Southeast Asia have been developed from Thailand, and a significant link between climate and tree growth has been suggested. Four chronologies from two species of pine (Pinus kesiya Royle ex Gordon and Pinus merkusii Jungh. ' de Vriese) from northeastern, lower northern and northwestern Thailand have been constructed: three from P. kesiya and one from P. merkusii. A second P. merkusii chronology is being developed from samples from northwestern Thailand. Preliminary climate modelling demonstrates significant relationships for tree growth with both temperature and precipitation for both species. A significant, direct relationship is revealed with temperature at the beginning of the wet season for Pinus merkusii from Thung Salaeng Luang National Park, along with an inverse relationship with precipitation for the same period. It is also suggested that the month of November (the transitional month from wet to dry season) during the year of growth is most important for Pinus kesiya from Nam Nao National Park, based on significant, direct relationships with both temperature and precipitation. The dendrochronological potential of another species, the long-lived Podocarpus neriifolius, is also discussed. |
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| **Author(s):** | Margaret S. Devall; Bernard R. Parresol; S. Joseph Wright |
| **Title:** | **Dendroecological Analysis of Cordia Alliodora, Pseudobombax Septenatum and Annona Spraguei in Central Panama** |
| **Source:** | IAWA Journal, Volume 16, Issue 4 |
| **Publication Year:** | 1995 |
| **Pages:** | 411-424 |
| **Keywords:** | tropical forest; Tropical dendrochronology; minimum temperature; maximum temperature; precipitation |
| **Abstract:** | Several plant communities in central Panama, each community located near a weather station, contain trees with annual growth rings, i. e. Cordia alliodora, Pseudobombax septenatum, and Annona spraguei. Tree-ring data are particularly valuable when concomitant weather information is readily available. Patterns of growth for the above species of trees were investigated across central Panama in relation to climate. A linear aggregate climate model was fitted to chronologies of each species at three sites along a rainfall gradient. Comparisons were made among sites to help explain how climate influences tree growth within central Panama. |
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| **Author(s):** | Uwe Schmitt; Walter Liese; Hong Lay Thong; Wulf Killmann |
| **Title:** | **The Mechanisms of Wound Response in Acacia Mangium** |
| **Source:** | IAWA Journal, Volume 16, Issue 4 |
| **Publication Year:** | 1995 |
| **Pages:** | 425-432 |
| **Keywords:** | wounding; suberization; electron microscopy; secretion; Acacia mangium |
| **Abstract:** | Branches of 8-year-old trees of Acacia mangium Willd. from a plantation in Malaysia were wounded. After response periods from 1 to 4 weeks wound-adjacent xylem was investigated by electron microscopy. Wounding induced the synthesis of dark-stained material in parenchyma cells with subsequent secretion through the pits into vessels and fibres. After four weeks many of them contained wall-attached layers of this material. Entirely filled vessels and fibres were not observed. As a second wound-associated process suberization of parenchyma cells contributes to the separation of wound-adjacent xylem tissue. Fungal degradation frequently occurred around the wound already three weeks after wounding. The effectivity of early wound responses in A. mangium appears low |
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| **Author(s):** | Gudrun Weiner; Walter Liese |
| **Title:** | **Wound Response in the Stem of the Royal Palm** |
| **Source:** | IAWA Journal, Volume 16, Issue 4 |
| **Publication Year:** | 1995 |
| **Pages:** | 433-442 |
| **Keywords:** | wound response; vascular bundles; light microscopy; palmae; Roystonea regia; parenchyma; Monocotyledons |
| **Abstract:** | Mechanical damage of a palm stem endangers physiological functions, such as water transport, and induces quality reduction due to discolouration. The wound response of a 35-year-old Royal palm (Roystonea regia) has been investigated in order to understand the protective mechanisms and the origin of the staining. Wounds were induced in the basal and top regions 21, 14, 7 and 1 day(s) before the palm was felled. As initial reaction phenolic compounds are deposited in few of the smaller ground parenchyma cells. Subsequently slime fills up metaxylem vessels and protoxylem tracheids of both regions, whereas tyloses only develop in vessels at the top. Additionally, phenolic compounds originate also in phloem, vascular parenchyma, ground parenchyma and fibres. |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Plant stems: physiology and functional morphology. B.L. Gartner (ed.), xvi + 440 pp., 1995. Academic Press Series in Physiological Ecology (series ed. H.A. Mooney). Academic Press, San Diego, New York, Boston, etc. ISBN 0-12-276460-9. Price: US$ 89.95 (hard cover).** |
| **Source:** | IAWA Journal, Volume 16, Issue 4 |
| **Publication Year:** | 1995 |
| **Pages:** | 443-444 |
| **Keywords:** |  |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **The Scientific Wood Collection of the Federal Research Centre for Forestry and Forest Products - Catalogue. H. G. Richter, two volumes. Institute of Wood Biology and Wood Protection, BFH, 21027 Hamburg, Germany. A limited number of hard copies are available free of charge from the institute.** |
| **Source:** | IAWA Journal, Volume 16, Issue 4 |
| **Publication Year:** | 1995 |
| **Pages:** | 444-444 |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Wood Anatomy News** |
| **Source:** | IAWA Journal, Volume 16, Issue 4 |
| **Publication Year:** | 1995 |
| **Pages:** | 445-446 |
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| **Author(s):** | Editors IAWA Journal |
| **Title:** | **Association Affairs** |
| **Source:** | IAWA Journal, Volume 16, Issue 4 |
| **Publication Year:** | 1995 |
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| **Abstract:** |  |
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