NATURAL FOREST MANAGEMENT

IN THE

AMERICAN TROPICS: AN ANNOTATED BIBLIOGRAPHY

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INTRODUCTION

Approaches to natural forest management include a diversity of methods for extracting timber and other forest products while maintaining forest cover. This bibliography was compiled to facilitate application of available research findings on natural forest management, to encourage better communication among forest managers, and to stimulate further research; we apologize for our oversights, errors, and biases. Although there are no clear lines of demarcation between natural forest management and other types of forestry, for the purposes of this bibliography we include enrichment planting but exclude many plantation management studies and projects. Agroforestry and social forestry are also not included unless based on management of natural forest. Seekers of agroforestry citations should see "Technology monitoring and evaluation in agroforestry projects: an annotated bibliography" compiled by E.U. Müller and S.J. Scherr, published by the International Council for Research in Agroforestry (1989).

Primary emphasis in this bibliography is on the American tropics, but we include citations to noteworthy studies on projects from elsewhere in the world. Further citations can be found in the "Bibliography on Dipterocarpaceae" compiled by Widharto, H. Effianto, and S.S. Soedojo, published by the Southeast Asian Regional Center for Tropical Biology (1989). Our focus on the Americas seems justified given the area's vast primary and secondary forests, rapid deforestation rates, and meagre financial investment in forest management projects relative to investments in the African and the Asian tropics. Furthermore, due in part to lack of access to information to the contrary, many people believe that natural forest management does not generate sufficient financial returns to be justified for wood production and that logging is incompatible with

extraction of non-timber forest products. Hopefully this bibliography will help rectify this situation and serve as part of an ecologically and economically sound foundation upon which to develop forest management practices that will contribute to the well-being of tropical forests.

In the spirit with which this bibliography was compiled, it is not copyrighted. Users are encouraged to disseminate the information contained herein in whatever way, shape, or form strikes their fancy. The compilers, however, do reserve film rights.

SOURCES OF MATERIAL

The bibliography does not pretend to be complete. Responses from agencies solicited for information were still trickling in when we went to press, new projects are started all the time, and books and journal articles on natural forest management appear weekly. We earnestly hope that reviewers of this edition will send us additional references, information about overlooked and new projects, and advice on how to make future editions of the bibliography more useful. Perhaps with input from other people, our biases will be tempered and the more blatant of our numerous oversights will be corrected.

Approximately 200 governmental and non-governmental agencies and companies were contacted and asked to provide descriptions of relevant projects recently or currently being conducted (1975 - 1991). We received responses from less than half of the groups contacted. After screening project descriptions, about 10% of the agencies and companies had projects that eventually were included in the bibliography. In addition, bibliographical searches were conducted by the United States Department of Agriculture on their Current Research Information database (CRIS) and by the United States Agency for International Development.

Many of the citations and annotations included in this bibliography were taken from computer-aided searches of the CAB- and Agris-Index. Silvicultural practices (e.g., liberation felling) and generic names (e.g., *Cedrela*) were used in these searches. Approximately 2000 references from these databases were reviewed for relevance to the neotropical natural forest management focus of this bibliography.

ACKNOWLEDGEMENTS

Efforts in compiling the bibliography have benefitted greatly from the assistance of many people but especially Susan K. Stevens and Pamela Handley. David C. Gibson, Forest and Natural Resources Advisor for Latin America and the Caribbean (USDA/OICD), provided welcome support, feedback, and encouragement. Major financial support was provided by U.S.A.I.D.'s Bureau for Latin America and the Caribbean through its LAC TECH Project. Additional administrative and material support was provided by U.S.D.A.'s Office for International Cooperation and Development. Although we cannot mention all of our other correspondents and advisors by name, we thank them for taking time out of their busy schedules to assist us in this effort.

Please send additions, and corrections to Francis E. Putz, Department of Botany, University of Florida, Gainesville, Fl 32611-2009, USA.

USING THE BIBLIOGRAPHY

The bibliography is divided into two parts. Part 1 contains references to recent and current research and development projects on natural forest management (hereafter referred to as projects). Part 2 contains information on neotropical natural forest management literature (hereafter referred to as literature). Parts 1 and 2 each have separate indices for: geographical area, general descriptors, silvicultural descriptors, and species/ ecosystem. A more detailed description of the entries is found followed by sample entries. The indices for both parts are combined at the end of the bibliography. Note that the projects index will not work for the literature citations and vice versa. Note that line 3 of the projects entries refers to geographical location while geographical location is found on line 4 of the literature entries.

LITERATURE ENTRIES

Line 1 is the author or authors of the article or book.

Line 2 is the title of the article or book.

Line 3 names the language of publication: EN = English, ES = Spanish, PO = Portuguese.

Line 4 is the geographical location to which the literature citation refers. The abbreviations are the same as for the projects.

Line 5 is the compete journal or book reference.

Lines 6, 7, 8, and the abstract explanations are the same as in the projects section.

PROJECT ENTRIES

Line 1 of each project reference is headed by the agency responsible for the project, directly followed by the names of affiliated agencies. The information we received arrived in many forms and in varying degrees of completeness; some confusion naturally arose when deciding which agency to list first. We attempted to include the names of every agency involved, though the order they appear may be in error.

Line 2 is the project title.

Line 3 contains the geographical region the project is/was taking place and the expected dates of the project. CA = Central America, AF = Africa, AS = Asia, SA = South America, and NA = North America. If the project spanned continents the word "General" was substituted for a location.

Line 4 is the funding agency. Often there was more than one funding agency so we prioritized the list starting with the largest contributor first. Again, errors are likely here, for which we claim responsibility and offer apologies.

Line 5 contains the name of person(s) to contact for more information.

Lines 6 and 7 are indexing terms and refer to general and silvicultural descriptors, respectively.

Line 8 refers to the species involved and/or the ecosystem in which the project was/is conducted. We only used generic and family names in the index for the sake of simplicity. Abbreviations used here include: TF = tropical forest, TmpF = temperate forest.

At the end of each entry is an abstract explaining the project purpose and sometimes a description of the field methods.

Sample Literature Entry

1. Author
2. Title
3. Language of publication
4. Geographical location
5. Journal or book
6. General descriptors
7. Silvicultural descriptors
8. Species and/or ecosystem

Abstract

Sample Project Entry

1. Authoring agency, affiliated with ....
2. Project title
3. Geographical location, indexed p. 268 Dates
4. Funding agencies
5. Contact person, when available
6. General descriptors, indexed p.269
7. Sivicultural descriptors, indexed p.273
8. Species and/or ecosystem, indexed p.274

Abstract

PART 1

LITERATURE ON NATURAL FOREST MANAGEMENT IN THE AMERICAN TROPICS

Previous Page Blank

1.
1. Acosta-Solis, M.
2. Los manglares del Ecuador.
3. ES
4. SA, Ecuador
5. Junta Autonoma del Ferrocarril, Quito. (?) p. 82.
6. vegetation-composition
7. economics
8. mangroves
General characteristics, geographical distribution, economic uses, and notes on mangrove management in Ecuador.

2.
1. Acuna, R. A.
2. The effect of storage on the germination of West Indian Cedar [Cedrela mexicana m. Roem.].
3. EN
4. CA
5. Philip. Journal of Forestry (1938) 1:293-299.
6. seed-germination, seed-storage, seeds
7.
8. TF, Cedrela

3.
1. Agaloos, B. C.
2. The value of cut-over forests in the Philippines.
3. EN
4. AS, Philippines
5. Forestry Leaves (1963) 14:(4)1-6.
6.
7. silviculture, economics
8. TF

4.
1. Agudelo N.
2. Plan de manejo para el bosque del Uyuca de la Escuela Agricola Panamericana, El Zamorano, Honduras: Primeros cinco anos.
3. ES
4. CA, Honduras
5. Tesis de Maestria, CATIE. 327 p. (1988)
6.
7. silviculture
8. TF

5.
1. Aguirre, A.
2. Estudio silvicultural y economico del sistema Taungya en las condiciones de Turrialba.
3. ES
4. CA, Costa-Rica
5. Turrialba (1963) 13:(3)168-171.
6. agriculture
7. Taungya, economics, plantations
8. TF, Cordia
A study of the silviculture and economics of the Taungyasystem at Turriabla, Costa Rica.

6.
1. Aho, P. E., G. Fiddler, and G. M. Filip.
2. How to reduce injuries to residual trees during stand management activities.
3. EN
4. NA. USA
5. Gen. Tech. Rep. TNW-156. Portland, OR: USDA For. Serv. Pac. NW For. and Range Exp. Sta. 17 pp. (1983)
6.
7. logging-damage
8. TmpF

7.
1. Aho, P. E., G. Fiddler, M. Srago.
2. Logging damage in thinned, young-growth true fir stands in California and recommendations for prevention.
3. ES
4. NA, USA
5. Research Paper PNW-304. USDA, Forest Service, Pacific Northwest Forest and Range Experiment Station, Portland, OR.(1983)
6.
7. damage
8. TmpF

8.
1. Akindele, S. O.
2. Teak yields in the dry lowland rain forest area of Nigeria.
3. EN
4. AF, Nigeria
5. Journal of Tropical Forest Science (1989) 2:(1)32-36.
6.
7. plantations, taungya, growth
8. TF, dry-forest, Tectona

The yield of teak plantations by taungya in the dry lowland rain forest area of Nigeria was assessed. The study involved the examination of the stand volume-age relationship for plantations ranging from 9 to 25 years in age. The teak plantations maintained a fairly linear increment pattern during the first 25 years, averaging 27 m3/ha/yr.

9.
1. Albrechtsen, E.
2. Un exemplo practico de ensaios de especies na RegiaoBragantina (parte baixa da Amazonia Brasileira).
3. ES
4. SA, Brazil
5. Actas de la Reunion Internacional sobre Silvicultura de Bosques Tropicales, Cali, Columbia, 2-6 Diciembre 1974. IICA serie Informes de Conferencias, Cursos y Reuniones no. 61. II-D; 1016 (1974)
6.
7. enrichment
8. TF

10.
1. Alcorn, J. B.
2. An economic Analysis of Huastec Mayan forest mnagement.
3. EN
4. Mexico
5. In, Fragile Lands of Latin America: Strategies for Sustainable Development, J.Browder (ed), pp. 182-206. Boulder: Westview Press. (1989)
6. NTFP, conservation, agriculture
7. social-description, economics
8. TF, secondary-forest
Social forestry in NE Mexico; managed secondary forest in former agricultural fields.

11.
1. Alcorn, J. B.
2. An economic analysis of Huastec Mayan forest management.
3. EN
4. CA
5. In: Fragile lands of Latin America: strategies for sustainable development. J.O. Browder (ed.). (1989) Boulder, Colorado, USA; Westview Press Inc.182-206.
6. NTFP
7. economics
8. TF

12.
1. Alder, D.
2. Growth and yield of the mixed forests of the humid tropics: a review.
3. EN
4. General
5. Consultancy report prepared for the Food & Agriculture Organization of the United Nations, Washington DC. (1983)
6.
7. growth, economics
8.
A compilation of information on some typical growth rates and yield estimates for planning and projection purposes, a review of strategies for data analysis and a review of some results and conclusions of managerial silvicultural significance based on unpublished consultancy and internal reports from FAO projects.

13.
1. Alencar, Jurandyr da Cruz and Vivaldo Campbell de Araujo.
2. Comportamento de especies florestais amazonicas quanto a luminosidade.
3. ES
4. SA, Brazil
5. Acta Amazonica (INPA, Brasil) (1980) 10:(3)435-444.
6.
7. enrichment
8. TF

14.

1. Alexandre, D. Y.
2. Aspects de la regeneration naturelle en foret dense de Cote-d'Ivoire.
3. FR
4. AF, Ivory-Coast
5. Conservatoire et Jardin Botaniques de Geneve (1982) 37:(2)579.
6.
7. natural-regeneration
8. TF

Aspects of natural regeneration in forests of the Ivory Coast. Modes of regeneration in treefall gaps including buried seeds and advance regeneration. Effects of surrounding vegetation.

15.

1. Alexandre, D. Y. and G. H. Tehe.
2. Le recru apres expolitation tranditionnelle de la foret dense ombrophile de Tai (Cote-D'Ivoire). Silviculture sous de conditiones ecologiques et economiques extremes.
3. FR
4. AF, Ivory-Coast
5. Session 25. Union Internationale des instituts de recherches forestiers. (1980)
6.
7. economics, silviculture
8. TF, secondary-forest

Regeneration after traditional logging in the Ivory Coast under extreme ecological and economical conditions.

16.

1. Alexander, T. G.
2. Taungya and soil management during the establishment phase of forest plantations in Kerala, India.
3. EN
4. AS, India
5. In Agroforestry in the humid tropics its protective and ameliorative roles to enhance productivity and sustainability (Vergara, N.T. and N.D. Briones, eds.). (1987) pp. 125-131.
6. agriculture
7. Taungya
8. TF, Albizia, Eucalyptus, Tectona

Taungya has been widely used as a low-cost means for establishing forest plantations in Kerala, India. The site shock, including accelerated erosion, generated during the establishment phase by land clearing and preplanting operations can be counteracted through protective and ameliorative measures provided by ground cover. Taungya provides an early soil cover with trees and annual crops badly needed under the highly erosive rains, thus minimiziung nutrient loss. However, its effectiveness depends on the nature of crops and culturalpractices. Among the common Taungya annual of rice, tapioca, ginger, turmeric, and sesame, site disturbance is least for rice. A case study involving rice, tapioca, rice-rice, and rice-tapioca sequences reveals that changes in soil properties are minimum under the first crop of rice.

17.
1. Alonso, R. M., J. L. Garcia, and Y. L. A. Gonzalez.
2. Observaciones fitopatologicas en rodales de cedro (Cedrela odorata).
3. ES
4. Caribbean, Cuba
5. Revista Forestal Baracoa (1984) 14:(1)29-42.
6. ecology
7. pests
8. TF, Cedrela

18.
1. Alvarez Garcia, L. A.
2. A cedar seedling blight in Puerto Rico.
3. ES, EN
4. Caribbean, Puerto-Rico
5. Carib. For. (1940)
6. seeds
7. pathogens
8. TF, Cedrela

19.
1. Anderson, A. and D. A. Posey.
2. Management of a tropical scrub savanna by the Gorotire Kayapo of Brazil.
3. EN
4. SA, Brazil
5. In, Resource Management in Amazonia: Indigenous and Folk Strategies. D.A. Posey and W. Balee (eds). Pp. 159-173. Advances in Economic Botany, vol. 7. New York Botanical Garden. (1989)
6. NTFP, social-issues
7.
8. TF, secondary-forest
Describes complex savanna resource management system and the influence of management by indigenous people on the origins of "natural" vegetation communities.

20.
1. Anderson, A. B., P. H. May, and M. J. Balick.
2. The subsidy from nature: palm forests, peasantry, and development on an Amazon frontier.
3. EN
4. SA, Brazil
5. Columbia University Press, NY
6. NTFP, social-issues, policy-issues, ecology
7. economics
8. TF, palms
Overview of biology and use of Orbignya.

21.
1. Anderson, A.
2. Use and managment of native forests dominated by acai palm (Euterpe oleraceae Mart.) in the Amazon estuary.
3. EN
4. SA, Brazil
5. Advances in Economic Botany
6. fruits, NTFP
7. economics
8. TF, palms
Traditional management systems for this important source of fruit and palm cabbages.

22.
1. Anderson, R. L., R.A. Birdsey, and P.J. Barry.
2. Incidence of damage and cull in Puerto Rico's timber resource, 1980.
3. EN
4. Caribbean, Puerto-Rico
5. Resource Bulletin, Southern Forest Experiment Station, USDA Forest Service (1982) No. SO - 88
6.
7. logging-damage, pathogens, pests
8. TF, lianas
Tables show tree damage by species, tree class and damaging agent (e.g., insects, diseases, top breakage, vines and parasitic plants, weather and people). Form damage was the most common type of damage.

23.
1. Andrews, J. and R. Popper.
2. Ecuador forestry sector development project: midterm evaluation.
3. EN
4. SA, Ecuador
5. Associates in Rural Development, Inc. Burlington, VT (1986) p. 135.
6. natural-resources
7. economics
8. TF

24.
1. Anonymous.
2. Baboin [Virola spp.].
3. FR
4.
5. Bois Foret Tropicale (1955) 39:25-28.
6.
7. species-trials
8. Virola

25.
1. Anonymous.
2. Cedrela odorata and C. toona: silvicultural characters and plantation techniques.
3. FR
4.
5. Bois. For. Trop. (1962) 81:29-34.
6.
7. plantations, species-trials
8. TF, Cedrela

26.
1. Anonymous.
2. The characteristics of some forest species with regard to their use in the match industry.
3. ES
4.
5. Turrialba (1964) wood utilization. 14:(1)38-39.
6.
7.
8. TF, Virola

27.
1. Anonymous.
2. Effect of gregarious flowering of bamboo on forest regeneration in India (C.P. & Berar).
3. EN
4. AS, India
5. Report on Forest Research (1948) p. 18 (1947).
6.
7. weeds, natural-regeneration
8. TF, bamboo

28.
1. Anonymous.
2. Fast growing timber trees of the lowland tropics.
3. EN
4.
5. Commonwealth Forestry Institute, University of Oxford
6.
7. species-trials, plantations, growth
8. TF

29.
1. Anonymous.
2. Micro-environment significant to tree-growth in limestone region.
3. EN, ES
4. Caribbean, Puerto-Rico
5. Caribbean Forester, Report from the U.S. Tropical Forest Experiment Station (1951) 12:(1)7-8, 24-25.
6. ecology, drought-tolerance
7. growth
8. TF, Bursera, limestone

30.
1. Anonymous.
2. Natural Regeneration of cedar [Cedrela mexicana] in British Honduras.
3. EN
4. CA, Belize
5. Report from the Forest Department British Honduras (1948[1949]) p. 3.
6.
7. natural-regeneration
8. TF, Cedrela

31.
1. Anonymous.
2. Ochroma lagopus: silvicultural characters and plantationmethods.
3. FR
4.
5. Bois For. Trop. (1961) 80:27-32.
6.
7. plantations, species-trials
8. TF, Ochroma

32.
1. Anonymous.
2. Partial cuttings improve Luquillo forest.
3. EN, ES
4. Caribbean, Puerto-Rico
5. Caribbean Forester, Report from the U.S. Tropical Forest Experiment Station 12 (1952) 13:(1)16-17, 39-40.
6.
7. stand-improvement, silviculture
8. TF, Cecropia

33.
1. Anonymous.
2. Regeneration in treated Dipterocarp forest.
3. EN
4. AS, Borneo
5. Borneo Terr. For. Bull. (1961) vol. 11:
6.
7. natural-regeneration
8. TF, Dipterocarpaceae

34.
1. Anonymous.
2. The status of forestry and forest research in Puerto Rico and the Virgin Islands.
3. EN
4. Caribbean, Puerto-Rico Virgin-Islands
5. Carib. For. (The 18th annual report of the Tropical For. Res. Center) (1958) 19:(1/2)1-24.
6.
7. silviculture
8. Cecropia

35.
1. Anonymous.
2. Uniformisation par le haut.
3. FR
4. AF
5. Rapp. Inst. Nat. Etude Agron. Congo belge (1954) 247-256.
6.
7. stand-improvement
8. TF, Guarea
Thinning from above in central Africa.

36.
1. Appanah, S., G. Weinland, H. Bossel, H. Kreiger.
2. Are tropical rain forests non-renewable? An enquiry through modelling.
3. EN
4. AS
5. Journal of Tropical Forest Science (1989) 2:(4)331-348.
6. conservation, statistics
7. shelterwood, selective-logging
8. TF, Dipterocarpaceae

A mechanistic-process model was developed based on five development stages of trees and the individual photosynthetic production at each layer. The model was used to assess two silvicultural systems. Long rotations (ca. 100 years) are appropriate for dipterocarp forests because of slow recruitment. The model also showed that pole regeneration is ephemeral in time and space, implying that cutting dipterocarp forests when the poles are few or absent would endanger the timber sustainability of such forests.

37.
1. Appanah, S. and F. E. Putz.
2. Climber abundance in virgin dipterocarp forest and the effect of pre-felling climber cutting on logging damage.
3. EN
4. AS, Malaysia
5. Malaysian Forester (1984) 47:335-342.
6.
7. climbers, logging-damage
8. TF, lianas, Dipterocarpaceae

Prefelling climber cutting significantly reduced logging damage to advanced growth. Cut vines mostly resprouted.

38.
1. Ardieta, R. R.
2. Determination of yield of cut-over forest areas on Mount Makiling at known periods after clearing.
3. EN
4. AS, Philippines
5. Philippine Journal of Forestry (1956) 12:133-149.
6.
7. growth
8. TF, montane, secondary-forest

39.
1. Arguelles, S., L. A. & H. Galletti.
2. Planificacion estrategica para el desarrollo rural: El caso del Plan Piloto Forestal de Quintana Roo II. "Evaluacion de Tierras y Recursos para la Planeacion Nacional en las Zonas Tropicales".
3. ES
4. Mexico
5. Chetumal, Mexico, 25-31 de Enero, 10 pp. (1987)
6. NTFP
7. silviculture, selective-logging
8. TF, Swietenia, Cedrela

40.
1. Armour, R. P.
2. Investigations on Simarouba glanca D.C. in El Salvador.
3. EN
4. CA, El-Salvador
5. Economic Botany (1959) 13:(1)41-66.
6.
7. species-trials
8.

41.
1. Arnot, D. B. and F. H. Landon.
2. Management of Malayan forests under the selection system.
3. EN
4. AS, Malaysia
5. Malaysian Forester (1937) 6:62-67.
6.
7. selective-logging
8.

42.
1. Ashton, P. S. and T. Panayotou.
2. The case for multiple-use management of tropical hardwood forests.
3. EN
4. General
5. Report to the International Tropical Timber Organization; Harvard Institute for International Development. 276 pgs. (1988)
6. policy-issues,
7. economics
8. TF

43.
1. Ashton, P. S., M.J. Hopkins, L.J. Webb, W.T. Williams, J. Palmer.
2. The natural forest: plant biology, regeneration and treegrowth.
3. EN
4. General
5. A state of knowledge report, UNESCO (1978)
6. ecology
7. growth, regeneration, silviculture
8. TF
Large review paper on forest biology.

44.
1. Asiddao, F.
2. Natural versus artificial reproduction of dipterocarp species.
3. EN
4. AS, Philippines
5. Philippine Journal of Forestry (1950) 7:63-79.
6.
7. enrichment, natural-regeneration
8. TF, Dipterocarpaceae

45.
1. Asthana, M. N. and D. N. Bbatia.
2. The influence of felling implements on coppicing power of sal (Shorea robusta).
3. EN
4. AS, India
5. Indian Forester (1969) 95:(1)21-23.
6.
7. coppicing
8. TF, Dipterocarpaceae, Shorea

46.
1. Aubert de La Rue, E.
2. Man's influence on tropical vegetation.
3. EN
4. General
5. Proceedings of the Ninth Pacific Science Congress 20:81-94.
6. conservation
7.
8. TF

47.
1. Aubreville, A.
2. Forets sauvages ou sylviculture.
3. FR
4. General
5. Bois et Forets des Tropiques (1954) 33:3-13.
6. conservation
7. silviculture
8. TF
Unmanaged forests or silviculture, an essay.

48.
1. Aubreville, A.
2. L'experience de l'enrichissement par layons en Cote d'Ivoire.
3. FR
4. AF, Ivory-Coast
5. Revue Bois et Forets des Tropiques, no. 29 (1953)
6.
7. enrichment
8. TF

49.
1. Aubreville, A.
2. Silviculture of mixed tropical rainforest.
3. EN
4. General
5. Proc. U.N. Sci. Conf. on Conserv. and Util. of Resources. (1951) 5:114-116.
6.
7. silviculture
8. TF

50.
1. Auclair, D.
2. Coppice versus single-stem: physiology, growth, economics.
3. EN
4. General
5. Paper presented at the 18th World Congress of the International Union of Forestry Research Organization. Yugoslavia (7-21 Sep 1986)
6.
7. economics, coppicing
8.
Review of sprouting literature.

51.
1. Auclair, D.
2. Growth and physiology of coppice.
3. EN
4. General
5. Bull. Finn. For. Res. Inst. (1988) 304:42-50.
6. ecology
7. coppicing
8.
Review of literature on coppicing.

52.
1. Augspurger, C. K.
2. Light requirements of neotropical tree seedlings: a comparative study of growth and survival.
3. EN
4. CA, Panama
5. Journal of Ecology (1984) 72:(3)777-795.
6. light-requirements
7. growth
8. TF, Aspidosperma, Bombacopsis, Cavanillesia, Ceiba, Cochlospermum, Cordia, Dalbergia, Lafoensia, Lonchocarpus, Luehea, Myroxylon, Platypodium, Pseudobombax, Ochroma, Tabebuia, Terminalia, Triplaris,
Data are presented comparing germination, survival, and growth of seedlings during 1 yr under sun and shade in a screened enclosure, for 18 species of wind-dispersed trees on Barro Colorado Island, Panama. Although high and synchronous germination occurred in both sun and shade for most species, seedlings generally survived longer and grew faster in sun than in shade. There was a wide and continuous range in light requirements of seedlings between species.

53.
1. Augspurger, C. K.
2. Seedling survival of tropical tree species: interactions of dispersal distance, light-gaps, and pathogens.
3. EN
4. CA, Panama
5. Ecology (6) 65, 1984. 1705-1712:
6. ecology, seeds
7. pests
8. TF

54.
1. Aumeeruddy, Y.
2. Etude de la regeneration des arbres par rejet de souche.
3. FR
4.
5. Diplome d'Etude Approfondie d'Ecologie, Academie de Montpellier (1984)
6.
7. natural-regeneration, coppicing
8.
Study of forest regeneration by stump sprouts.

55.
1. Awasthi, A. K.
2. Sucker regeneration and sprouting in Diospyros melanoxylon Roxb.
3. EN
4. AS, India
5. Journal of Tropical Forestry (1986) 2:66-68.
6.
7. coppicing
8. TF, Diospyros

56.
1. Bagnaresi, U.
2. Coppice: a technique for the present day?
3. EN
4. General
5. Dendronatura (1981) 2:13-19.
6.
7. coppicing
8.

57.
1. Baker, F. S.
2. Principles of silviculture.
3. EN
4. General
5. McGraw Hill Publishers, New York, NY (1950)
6. textbook
7.
8.

58.
1. Baker, J. D., J. M. Guldin, and R. W. Guldin.
2. Natural regeneration methods for loblolly and shortleaf pines.
3. EN
4. NA
5. Forest Farmer (1990) 50:(3)59-63.
6.
7. silviculture, economics
8. TmpF
Financial analysis of pulpwood and sawtimber in even and uneven aged stands and plantations.

59.
1. Bakshi, B. K. and S. Singh.
2. Heart-rots in trees.
3. EN
4. General
5. International Review of Forestry Research (1970) 3:197-251.
6.
7. pathogens
8.

60.
1. Balee, W. and A. Gely.
2. Managed forest succesion in Amazonia: the Ka'apor case.
3. EN
4. SA, Brazil
5. In, Resource Management in Amazonia: Indigenous and Folk Strategies, D.A. Posey and W. Balee (eds). pp. 129-158. Advances in Economic Botany, vol. 7. New York Botanical Garden. (1989)
6. NTFP, social-issues, agriculture, succession
7. social-description
8. TF, secondary-forest

Describes how the Ka'apor Indians of the eastern Amazonia (Brazil) manipulate flora and fauna so as to increase biodiversity which helps to maintain and enhance the habitability of the forest. The diversity of vegetational and sustained productivity near Ka'apor settlements may be the result of long-term human manipulation of Amazonian forest.

61.
1. Balick, M. J.
2. Ethnobotany of palms in the neotropics.
3. EN
4. SA, CA
5. Advances in Economic Botany (1984) 1:9-23.
6. ethnobotany, NTFP
7.
8. TF, palms

62.
1. Balick, M. J.
2. Palms, people, and progress.
3. EN
4. General, CA SA
5. Horizons (1984) 3:32-37.
6. NTFP
7.
8. TF, palms

63.
1. Balick, M. J.
2. Useful plants of Amazonia: a resource of global importance.
3. EN
4. SA, Brazil Ecuador, Peru
5. In: Key Environments: Amazonia, edited by G.T. Prance and T.E. Lovejoy. Perganon Press. pp. 339-368 (1985)
6. ethnobotany, NTFP
7.
8. TF, palms

64.
1. Banerji, J.
2. Tropical rain forest.
3. EN
4. General
5. Trop. Silv. II. (1957) pp. 36-45.
6.
7. silviculture
8. TF

65.
1. Barber, J. C. and S. L. Krugman.
2. Preserving forest germplasm.
3. EN
4. General
5. American Forester (1974) 80:(10)8-10, 42-43.
6. conservation, genetics
7.
8. TmpF, TF

66.
1. Barbosa, O., J. B. Baitello, C. Mainieri, R. G. Montagna, O. C. de Negreiros.
2. Identificacao e fenologia de especies arboreas da Serra da Cantareira (Sao Paulo).
3. PO
4. SA, Brazil
5. Silvicultura em Sao Paulo. (1977) 11/12:1-86.
6. wood-properties, phenology
7.
8. TF, Byrsonima, Cariniana, Casearia, Chrysophyllum, Cinnamomum, Clethra, Cordia, Cupania, Gomidesia, Lafoensia, Lamanonia, Machaerium, Miconia, Mouriri, Ocotea, Pouteria, Prunus, Qualea, Rudgea, Sapium, Solanum, Tovomitopsis, Vantanea
Descriptions of morphology and wood anatomy, brief notes on flowering and fruiting, and general information (including common names) are given for 25 species, with line drawings of vegetative and reproductive parts and photographs of bark and cross-sections of wood.

67.
1. Barnard, R. C.
2. Elements of Malayan silviculture, 1950.
3. EN
4. AS, Malaysia
5. Malaysian Forester (1950) 13:122-129.
6.
7. selective-logging, monocyclic
8. TF, Dipterocarpaceae

68.
1. Barnard, R. C.
2. Manual of Malayan silviculture for inland lowland forests.
3. EN
4. AS, Malaysia
5. Malaysian Forest Resource Institute Research Pamphlet No. 14(1954)
6.
7. selective-logging, monocyclic
8. TF, Dipterocarpaceae
General description of the silvicultural system.

69.
1. Barnard, R. C.
2. Recruitment, survival, and growth of timber tree seedlings in natural tropical rain forest.
3. EN
4. AS, Malaysia
5. Malayan Forester (1956) 19:156-161.
6.
7. growth, natural-regeneration
8. TF

70.
1. Barnard, R. C.
2. Silviculture in the tropical rain forest of western Nigeria compared with Malayan methods.
3. EN
4. AF, Nigeria, AS, Malaysia
5. Malayan Forester (1955) 18:173-190.
6.
7. selective-logging, silviculture, natural-regeneration, monocyclic
8. TF

71.
1. Barnard, R. C. and J. Wyatt-Smith.
2. Survival and growth of meranti tembaga in ten-year-old belukar.
3. EN
4. AS
5. Malayan Forester (1949) 12:(2)81-83.
6.
7. growth, natural-regeneration
8. TF, Dipterocarpaceae, secondary-forest

72.
1. Barnard, R. C.
2. Woody climbers, cutting and recovery.
3. EN
4. AS, Malaysia
5. Headquarters Bulletin of the Malayan Forestry Department July 1953:pp. 73-74
6.
7. climbers
8. TF, Dipterocarpaceae, lianas

73.
1. Barrera, C.
2. El bosque humedo tropical, fuente sostenible de materia prima para la industria papelera.
3. ES
4. SA, Colombia
5. Paper presented at the DESFIL Humid Tropical Lowlands Conference, Plaza Paitilla Inn Hotel, Panama, Republic of Panama, 17-21 June 1991. (1991)
6.
7. clearcut
8. TF
Rapid regrowth after clearcutting in southwestern Colombia.

74.
1. Barreras, C.
2. Utilization of natural forests in the Pacific Coast region of Colombia.
3. ES
4. SA, Colombia
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 207-214.
6.
7. clearcut
8. TF
Describes the management system in use in southwestern Colombia that was abandonned due to invasion by humans.

75.
1. Barrera Garavito, L. E.
2. Comportamiento inicial de tres especies forestales bajo dos methodos de reforestacion, en San Andres Itzapa, Chimaltenango, Guatemala Sistema Taungya.
3. ES
4. CA, Guatemala
5. Thesis, Agron., San Carlos Univ. (1986) 92 pp.
6. agriculture
7. Taungya, plantations
8. TF, Alnus, Eucalyptus, Grevillea
Initial behavior of three forest species under two reforestation methods in San Andres Itzapa Chimaltenago, Guatemala. A comparison of reforestation systems underplanting timber species (Eucalytpus, Gravillea, Alnus) with corn and beans.

76.
1. Barrett, J. W.
2. Regional silviculture of the United States.
3. EN
4. NA, USA
5. John Wiley & Sons, NJ (1980) 551 pp.
6. textbook
7.
8. TmpF

77.
1. Barrichelo, L. E. G., J. O. Brito, A. R. de Freitas, J. P. Chimelo, A. de A. S. Pontinha, A. O. da L. Freire-Neto, E. Giannotti, M. G. Carneiro, E. S. de B. Ferraz, and M. Tomazello-Filho.
2. Utilization of native Brazilian timbers. In proceedings of the national conference on native species, Campos do Jordao, Sao Paulo, Brazil 12-18 Sept., 1982, [edited by Malvesi, I.T.O.; et al.].
3. PO, EN
4. SA, Brazil
5. Silvicultura em Sao Paulo (1982) 16A:2.
6. charcoal, NTFP, extractives, wood-utilization
7.
8. TF, Araucaria, Blepharocalyx, Dalbergia, Eucalyptus, Myrcia, Ocotea, Pinus, Rapanea, Schizolobium, Vochysia, Xylopia.
Five papers from the conference. Several other related papers are noted elsewhere. Barrichelo, L.E.G. and J. O. Brito [Wood of native species and the supply of cellulose.]. A. R. de Freitas and J.P. Chimelo [Utilization of Amazonian timbers for production of

sleepers for the Carajas Iron-ore Project.]. A. de A. S. Pontinha, A. O. da L. Freire-Neto, and E. Giannotti [Quality of laboratory-made charcoal using ten cerrado species.]. M. G. Carneiro, E. S. de B. Ferraz, and M. Tomazello-Filho [Polymerization of methyl methacrylate in Schizolobium parahybum [parahybum] wood using thermal processing.]. Carneiro, E. S. de B. Ferraz, and M. Tomazello-Filho [Polymerization of methyl methacrylate in Schizolobium parahybum.

78.
1. Bascope, F. et al.
2. Descripciones de arboles forestales No. 3. Carapa.
3. ES
4. CA, SA
5. Inst. For. Lat. Amer. de Investigacion y Capacitacion, Merida. 20 pp. (1958)
6.
7. species-description
8. TF, Carapa
Descriptions of forest trees, Carapa.

79.
1. Batista, M. P. and R. A. Woessner.
2. Comparacao do incremento em altura e diametro de especies nativas e exoticas no nordeste do Para, Brasil.
3. PO
4. SA, Brazil
5. Floresta. (1980) 11:(1)24-32.
6.
7. growth, plantations
8. TF, exotics
A trial of 18 exotic (including 8 Pinus spp. and 6 Eucalyptus spp.) and 9 native species up to 8 yr old. Among the best results were those produced by the exotic Gmelina arborea in clay soils and Pinus caribaeae in sandy and clay soils. Eucalyptus deglupta was considered promising for both sandy and clay soils. Anthocephalus chinensis and Jacaranda copaia were also considered worth growing in clay soils.

80.
1. Baur, G. N.
2. The ecological basis of rain forest management.
3. EN
4. General
5. Dep. Con. Serv. N.S.W. (1964) 499 pp.
6. textbook
7.
8. TF
A thorough review of natural forest management in the tropics.

81.
1. Baur, G. N.
2. Rainforest treatment.
3. EN
4. General
5. Unasylvia (1964) 18:18-28.
6.
7. silviculture
8. TF

82.
1. Bazzaz, F. A.
2. Dynamics of wet tropical forest and their species strategies.
3. EN
4. General
5. In: Physiological Ecology of Plants in the Wet tropics. E. Medina, H. A. Mooney, and C. Vazquez-Yanes, eds. 233-244. Boston. Dr. W. Junk (1984)
6. ecology, succession
7.
8. TF

83.
1. Beard, J. S.
2. The natural vegetation of Trinidad.
3. EN
4. SA, Trinidad
5. Oxford Forestry Memoir 20 ((1946)
6. Vegetation-composition, ecology
7.
8.
Classic paper on vegetation on structure and composition.

84.
1. Beard, J. S.
2. The progress of plant succesion on the Soufriere of St. Vincent.
3. EN
4. Caribbean, St-Vincent
5. Journal of Ecology (1945) 33:1-9.
6. succession
7.
8. Ochroma

85.
1. Beard, J. S.
2. Silvicultural techniques in Trinidad for the rehabilitation of degraded forest.
3. EN
4. SA, Trinidad
5. Caribbean Forester (1944) 6:(1)1-18.
6. succession
7. silviculture
8. TF, Cedrela, secondary-forest

86.
1. Beard, J. S.
2. A silvicultural technique in Trinidad for the rehabilitation of degraded forest.
3. EN
4. SA, Trinidad
5. Caribbean Forester (1944) 6:1-18.
6. ecology
7. silviculture
8. TF, Calophyllum, Carapa, Peltogyne, Terminalia

87.
1. Beard, J. S.
2. Summary of silvicultural experience with Cedar, Cedrela mexicana M.J. Roen (C. odorata L.) in Trinidad.
3. EN
4. SA, Trinidad
5. Caribbean For. (Puerto Rico) (1942) 3:(3)91-102.
6.
7. species-trials
8. TF, Cedrela

88.
1. Beekman, F., K. F. Wiersum, and F. Wouters.
2. Bibliography on forest ecology, forest management, agroforestry, and timber characteristics for Indonesia 1950-1980.
3. EN
4. AS, Indonesia
5. Rijksinstituut Voor Onderzoek In de Bos en landschapsbouw "De Droschkamp" Wageningen. Rapport (1982) 285
6. textbook, agriculture
7. silviculture
8.

89.
1. Begley, C. D.
2. The present and future place of coppice.
3. EN
4. General
5. In: Broadleaves in Britain. Edited by D.C. Malcolm, J. Evans, and P.N. Edwards. Institute of Chartered Foresters, Edinburgh. (1982) pp. 24-30.
6.
7. coppicing
8. TmpF, TF

90.
1. Begue, L.
2. Aspects de la Sylviculture en Afrique tropicale.
3. FR
4. AF
5. Bois et Forets des Tropiques (1963) 89:3-10.
6.
7. silviculture
8. TF

91.
1. Belanger, R. P.
2. Stump management increases coppice yield of sycamore.
3. EN
4. NA, USA
5. Southern Journal of Applied Forestry (1979) 3:101-103.
6.
7. coppicing
8. TmpF, Platanus

92.
1. Bell, G. S.
2. Notes on natural regeneration in Dominica; Windward Islands.
3. EN
4. Caribbean, Dominica
5. Commonw. For. Rev. (1976) 55:27-36.
6.
7. natural-regeneration
8. TF

93.
1. Bell, T. I. W.
2. The Trinidad Mora forests - to fell or not to fell?
3. EN
4. SA, Trinidad
5. Commonw. For. Rev. (1972) 51:123-131.
6. conservation
7. logging
8. TF, Mora

94.
1. Bene, J. G., H. W. Beall, and A. Cote.
2. Trees, Food, and People; Land Management in Tropics.
3. EN
4. General
5. Ottawa, IDRC (1977)
6.
7.
8. TF

95.
1. Bergeron-Campagne, B.
2. Evolution de methodes d'enrichissement de la foret dense de la Cote d'Ivoire.
3. FR
4. AF, Ivory-Coast
5. Revue Bois et Forets des Tropiques (1958) 58/59:17-32, 19-35.
6.
7. enrichment
8. TF
Evolution of enrichment methods for Ivory Coast forests.

96.
1. Berner, P.
2. El manejo sostenible de los bosques naturales en el neotropico: una meta alcancable?
3. ES
4. CA, Costa-Rica
5. El Chasqui (1988) 18:2.
6.
7. silviculture
8. TF

97.
1. Berner, P.
2. Investigacion en manejo forestal y agroforestal: el enfoque cientifico en el contexto de una carrera contra el reloj.
3. ES
4. CA, Costa-Rica
5. El Chasqui (1989) 21:4-5.
6. conservation
7.
8. TF

98.
1. Berner, P. and T. Stadtmuller.
2. Naturnaher Waldbau in Bergwaldern der feuchten Tropen: Erfahrungen, Probleme und Perspektiven.
3. German
4. CA, Costa-Rica
5. Schweizerische Zeitschrift fur Forstwesen (1988) 139:(12) 1031-1044.
6. conservation
7.
8. TF

99.
1. Betancourt, A.
2. Mangroves in Cuba.
3. EN
4. Caribbean, Cuba
5. Baracoa (1972) 2:(2)31-54.
6.
7. pests, pathogens
8. TF, Avicennia, Conocarpus, Laguncularia, mangroves, Rhizophora
Describes the areas of mangroves in Cuba, the four main species (Avicennia nitida; Conocarpus erectus; Laguncularia racemosa; and Rhizophora mangle), their habitat and silviculture, properties and uses of the woods, tannin from the bark, and diseases and pests.

100.
1. Bevan, C. W. L., et al.
2. Extractives from West African members of the family Meliaceae.
3. EN
4. AF
5. Nature (1965) 206:(4991)1323-1325.
6. extractives, NTFP
7.
8. TF, Carapa, Meliaceae

101.
1. Bhadran, C. A. R.
2. The introduction of regular forest management.
3. EN
4. SA, Suriname
5. Report to the Government of Suriname. ...O, Rome Italy. (1965)
6.
7. silviculture
8. TF

102.
1. Bianchetti, A. and A. Ramos.
2. Quebra de dormencia de sementes de guapuruvu (Schizolobium parahyba (Vellozo) Blake).
3. PO
4. SA, Brazil
5. Boletim de Pesquisa Florestal, Unidade Regional de Pesquisa Florestal Centro-Sul, EMBRAPA, Brazil (1981) 3:69-76.
6. seed-dormancy, seeds
7.
8. TF, Schizolobium
Breaking dormancy of guapuruvu (Schizolobium parahybum) seeds

103.
1. Bierregaard, R. O., Jr.
2. Species composition and tropic organization of the understory bird community in a terra firme forest.
3. EN
4. SA, Brazil
5. In, Four Neotropical Forests, A.H. Gentry (ed.). Yale University Press, New Haven (1990) 217-236.
6. ecology, taxonomy, wildlife
7.
8. TF

104.
1. Blaikie, P. and H. Brookfield (eds).
2. Land degradation and society.
3. EN
4. General
5. London: Methuen (1987)
6. policy-issues, conservation
7.
8. TF
Collection of papers on the political and economic factors leading to land mismanagement and common property problems.

105.
1. Blake, J. G., F. G. Stiles, and B. G. Loiselle.
2. Birds of La Selva Biological Station: Habitat use, tropic composition, and migrants.
3. EN
4. CA, Costa-Rica
5. In, Four Neotropical Forests. A.H. Gentry (ed.) Yale University Press, New Haven (1990) 161-182.
6. ecology, wildlife
7.
8. TF

106.
1. Blake, T. J.
2. Coppice systems for short-rotation intensive forestry: the influence of cultural, seasonal and plant factors.
3. EN
4. Australia
5. Aust. For. Res. (1983) 13:279-291.
6.
7. coppicing
8. Eucalyptus

107.
1. Blake, T. J.
2. Effects of coppicing on growth rates, stomatal characteristics and water relations in Eucalyptus canaldulensis Dehn.
3. EN
4. Australia
5. Australian Journal of Plant Physiology (1980) 7:81-84.
6. drought-tolerance
7. growth, coppicing
8. TF, Eucalyptus

108.
1. Blanche, C. A.
2. An overview of the effects and implications of the Philippine selective logging on the forest ecosystem.
3. EN
4. AS, Philippines
5. In: RS Suparto, et al. (eds.) Symposium on the long-term effects of logging in Southeast Asia. BIOTROP, Bagor, Indonesia (1975)
6.
7. selective-logging
8. TF

109.
1. Blanford, H. R.
2. Regeneration with the assistance of taungya in Burma.
3. EN
4. AS, Burma
5. Indian Forest Records (1924) 11:81-83.
6. agriculture
7. Taungya, plantations
8. TF

110.
1. Blanford, H. R.
2. Regeneration of evergreen forests in Malaya.
3. EN
4. AS, Malaysia
5. Indian Forester (1929) 55:383-395.
6.
7. natural-regeneration
8. TF, dipterocarpaceae

111.
1. Blaser, J.
2. Standortliche und waldkundliche Analyse eines Eichen-Wolkenwaldes (Quercus spp) der Montanstufe in Costa Rica.
3. German
4. CA, Costa-Rica
5. Gottinger Beitrage zur land- und Forstwi
Subtitle: Gottinger Beitrage: zur land- und Forstwirtschaft in den Tropen und
6. ecology
7.
8. TF, Quercus

112.
1. Boerboom, J. H. A.
2. De natuurlijke regeneratie van het Surinaamse mesofytische bos na uitkap.
3. Dutch
4. SA, Suriname
5. Wageningen, Nederland, Landbouwhogeschool. (1964)
6.
7. natural-regeneration
8. TF
Natural regeneration in rain forests of Suriname.

113.
1. Boerboom, J. H. A.
2. The natural regeneration of the mesophytic forest (tropical rain forest) of Suriname after exploitation.
3. Dutch
4. SA, Suriname
5. Wageningen, Netherlands, State Agricultural University, Department of Forest Mensuration, Forest Management and Silviculture and Forest Protection in the Tropics. 2v. (1965)
6.
7. natural-regeneration, silviculture
8. TF, secondary-forest

114.
1. Bol, M. M. G. R. and F. Beekman.
2. Economically and environmentally sound harvesting methods.
3. EN
4. General
5. Communications of the Norwegian Forest Resource Institute (1989) 41:319-330.
6. conservation
7. selective-logging, economics, damage
8. TmpF, TF

115.
1. Bol, M. M. G. R. and N. A. Leek.
2. Forest operations and changing management practices.
3. EN
4. General
5. In: Human Impacts on Forests. M. Oswald (ed). IUFRO Symposium, Strasbourt 1984. INRA, Paris, France. (1985)
6.
7. logging, economics
8. TmpF, TF

116.
1. Boom, B. M.
2. Use of plant resources by the Chacobo.
3. EN
4. SA, Bolivia
5. In, Resource Management in Amazonia: Indigenous and Folk Strategies, D.A. Posey and W. Balee (eds), pp. 78-96. Advances in Economic Botany, vol. 7, New York Botanical Garden. (1989)
6. social-issues, conservation, NTFP
7. economics
8. TF

82% of the tree species in a 1 ha study plot in the Bolivian Amazon were used by Chacobo. Their management system could serve as a model for conservation efforts.

117.
1. Borota, J.
2. The result of gap planting in natural forests.
3. EN
4. AF, Tanzania
5. Tanzania Silvicultural Research (1969) 13:9.
6.
7. enrichment
8. TF

118.
1. Bossel, H., E.F. Bruenig, Y.W. Huang, J. Poker, H. Schaefer, and H. Woell.
2. Tropical rainforest ecosystem structure, functions and dynamics: the state of system analysis and modelling of structural change and growth in CERP and ASEAC.
3. EN
4. General
5. In: Wan Razali Wan Mohd, H.T. Chan, and S. Appanah, (eds). Proceedings of the Seminar on Growth and Yield in Tropical Mixed/Moist Forests. For. Res. Inst. Malaysia, Kuala Lumpur, Malaysia. pp. 35-50. (1989)
6. vegetation-structure
7.
8. TF

119.
1. Botero, L. S.
2. Strategies for the ordination of watersheds in the American Tropics.
3. EN
4. SA, CA
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 99-108.
6. ecology
7.
8. TF

120.
1. Bowels, R. J.
2. Forestry development in Suriname: forest based industry development.
3. EN
4. SA, Suriname
5. (Saw mill and panel board enterprises). FAO, Rome Italy (1974)
6. wood-utilization
7. sawmills, economics
8. TF

121.
1. Boxman, O., N.R. Graff, J. Hendrison, W.B.J. Jonkers, R.L.H. Poels, P. Schmidt, and R. Tjon Lim Sang.
2. Forest land use in Suriname.
3. EN
4. SA, Suriname
5. In: Beusekom, C.F. van, C.P. van Goor, and P. Schmidt, (eds) Wise utilzation of Tropical Rain Forest Lands. Tropenbos Scientific Series 1. The Tropenbos Programme, Eds, The Netherlands. (?)
6. natural-resources, conservation
7. inventory, silviculture
8. TF

122.
1. Boxman, O., N.R. de Graaf, J. Hendrison, W.B.J. Jonkers, R.L.H. Poels, P. Schmidt, and R. Tjon Lim Sang.
2. Towards sustained timber production from tropical rain forests in Suriname.
3. EN
4. SA, Suriname
5. Netherlands Journal of Agricultural Science (1985) 33:125-132.
6.
7. silviculture
8. TF

123.
1. Brand, D. G.
2. A systematic approach to assess forest regeneration.
3. EN
4. General
5. The Forestry Chronicle (Ottawa). (1988) 64:(5)414-420.
6.
7. plantations, inventory, regeneration
8. TF
A system is described that processes field survey data collected by a portable datalogger through a relay of software programs. The programs provide data summary, free-growing projection, application of a new spatial pattern statistic, and use of a GIS for map production.

124.
1. Brandts, T. G.
2. Cold-press wood adhesives from Kapok [Ceiba penrandra] seed and Kapok-seed cake.
3. EN
4. General
5. Tectona (1952) 42:(1/2)8-16.
6. NTFP, extractives
7.
8. Ceiba

125.
1. Brasnett, N. V.
2. Enrichment of tropical mixed deciduous forest by planting.
3. EN
4. General
5. Forestry Abstracts (1949) 10:(4)447-454.
6.
7. enrichment
8. TF

126.
1. Brasnett, N. V.
2. Planned management of forests.
3. EN
4. General
5. Geo. Allen and Unwin Ltd, London (1953)
6.
7. silviculture
8. TmpF, TF

127.
1. Breithaupt, G., A. Gomez, and B. Manzanet.
2. La agricultura nomada.
3. ES
4. Caribbean, Cuba
5. World Agric. Econ. and Rural Socio. Abst. 19, 5667. (1976) 14: (4)387-397.
6. agriculture, conservation
7. taungya, natural-regeneration
8. TF

Different types of forest-field cultivation are described, including the taungya system, with reference to recent experience in Cuba in solving the problem of uncontrolled shifting cultivation which can lead to the destruction of natural forests and decreased soil fertility and water resources.

128.
1. Breslin, P. and M. Chapin.
2. Conservation Kuna-style.
3. EN
4. CA, Panama
5. Grassroots Development (1984) 8:26-35.
6. conservation
7.
8. TF

In Panama the Kuna transformed part of their reservation into a park.

129.
1. Brienza Junior, S.
2. Cordia goeldiana Huber (freigo) em sistema Taungya na regiao do Tapajos, estado do Para pousio, Brasil.
3. PO
4. SA, Brazil
5. Circular Tecnica - Centro de Pesquisa Agropecuaria do Tropico Umido
(Brazil) (1982) 33:10 pp.
6. agriculture
7. taungya, plantations, species-trials
8. TF, Cordia

Cordia goeldiana Huber (freijo) in "taungya" system, in the Tapajos area, state of Para fallow, Brazil.

130.
1. Brinkmann, W. L. F. and M. N. Goes Ribeiro.
2. Air temperatures in Central Amazonia. III. Vertical temperature distribution on a clearcut area and in a secondary forest near Manaus (Cold front conditions July 10th, 1969).
3. EN
4. SA, Brazil
5. Acta Amazonia (1972) 2:(3)25-29.
6. ecology
7. clearcut
8. TF, secondary-forest

131.
1. Brinkmann, W. L. F. and J. C. de Nascimento.
2. The effect of slash and burn agriculture on plant nutrients in the tertiary region of central Amazonia.
3. EN
4. SA, Brazil
5. Acta Amazonica (1973) 3:55-61.
6. agriculture, conservation
7.
8. TF

132.
1. Brinkmann, W. L. F.
2. Weekly water-loss from spherical water-loss integrators on a clearing and below secondary growth in Central Amazonia.
3. EN
4. SA, Brazil
5. Acta Amazonia (1972) 2:33-36.
6. ecology
7. clearcut
8. secondary-forest

133.
1. Brokaw, N. V. L.
2. Treefalls, regrowth, and community structure in tropical forests.
3. EN
4. General
5. In: S.T.A. Pickett and P.S. White (eds), The Ecology of Natural Disturbance and Patch Dynamics. Academic Press, NY. pp. 53-68. (1985)
6. vegetation-structure
7. natural-regeneration
8. TF
A well-researched review of forest dynamics in the tropics.

134.
1. Bromley, D. W.
2. Property relations and economic development: the other land reform.
3. EN
4. General
5. World Development (1989) 17:687-877.
6. policy-issues, social-issues
7. economics
8. TF
Challenges argument that privatization will lead to better use of public land.

135.
1. Brooks, R. L.
2. The regeneration of mixed rain forest in Trinidad.
3. EN
4. Trinidad
5. Canadian Forester (1942) 2:(4)164-73.
6. ecology
7. natural-regeneration
8. TF

136.
1. Browder, J. O.
2. Brazil's export promotion policy (1980-1984): impacts on the Amazon's industrial wood sector.
3. EN
4. SA, Brazil
5. Journal of Developing Areas (1987) 21:(3)285-304.
6. marketing, policy-issues, wood-utilization
7. sawmills, economics
8. TF

Brazil's export promotion policy during 1980-84 is described, illustrating how the policy favored capital formation in the professional merchant class and notes some of the abuses that followed its implementation. It discusses the way in which trading companies gained a dominant foothold in the mahogany forests of Rondonia, regulated logging and exploited lumbermen. The final sections present empirical evidence of merchant oligopoly and unequal exchange in the Amazon lumber industry during the mahogany boom of 1980-84 and discuss the theoretical ramifications of this evidence. A cost-of-production framework is used in the financial analysis of the mahogany trade.

137.
1. Browder, J. O.
2. Development alternatives for tropical rain forests.
3. EN
4. General
5. In, Environment and the Poor: Development Strategies for a Common Agenda. Jeffrey Leonard (ed), pp. 111-134. New Brunswick: Transaction Books. (1989)
6. policy-issues, conservation
7.
8. TF

Discusses strategies for development that combine conservation and economic use, including forestry.

138.
1. Browder, J. O.
2. Public policy and deforestation in the Brazilian Amazon.
3. EN
4. SA, Brazil
5. In, Public Forest Policies and the Misuse of Forest Resources, R. Repetto and M. Gillis (eds), pp. 247-297. Cambridge University Press. (1988)
6. conservation, policy-issues
7.
8. TF

Describes how government policies (taxes, credit, timber concessions) result in deforestation and resource misuse.

139.
1. Brown, A. F.
2. Silviculture in the tropics.
3. EN
4. General
5. MacMillon & Co., London (1912)
6. education, general, textbook
7. silviculture
8. TF

140.
1. Brown, C. L. and P. P. Kormank.
2. The influence of stand disturbance on epicormic branches.
3. EN
4. General
5. In: T. Hansbrough (ed). Silviculture and management of southern hardwoods. Lousiana State Univ. Press, Baton Rouge. (1970) pp. 103-112.
6. disturbance, wood-properties
7. coppicing
8. TmpF

141.
1. Brown, G. W., W. R. Bentley, and J. C. Gordon.
2. Developing harvesting systems for the future: linking strategies, biology, and design.
3. EN
4. General
5. Forest Products? (1982) 32:(6)35-38.
6. policy-issues
7. logging
8. TF

142.
1. Brown, G. S.
2. Timber extraction methods in North Borneo.
3. EN
4. AS, Malaysia
5. Malaysian Forester (1955) 18:121-132.
6.
7. extraction, logging
8. TF, Dipterocarpaceae

143.
1. Brown, S. and A. E. Lugo.
2. Biomass of tropical forests: a new estimate based on volumes.
3. EN
4. General
5. Science (1984) 223:1290-1293.
6. ecology, conservation
7. inventory
8. TF

144.
1. Brown, S., A. J. R. Gillespie, and A. E. Lugo.
2. Biomass estimation methods for tropical forests with applications to forest inventory data.
3. EN
4. General
5. Forest Science (1989) 35:881-902.
6. ecology
7. inventory
8. TF

145.
1. Brown, S. and A. E. Lugo.
2. Effects of forest clearing and succession on the carbon and nitrogen content of soils in Puerto Rico and US Virgin Islands.
3. EN
4. Caribbean, Puerto-Rico Virgin-Islands
5. Plant and Soil (1990) 124:53-64.
6. soils, ecology
7. growth
8. TF

146.
1. Brown, S., A.E. Lugo, S. Silander, and L. Liegel.
2. Research history and opportunities in the Luquillo experimental forest.
3. EN
4. Caribbean, Puerto-Rico
5. US Forest Service Southern Forest Experiment Station, New Orleans, LA. General Technical Report SO-44. (1983)
6. history
7. growth
8. TF

147.
1. Bruce, J. W.
2. Community forestry: rapid rural appraisal of tree and land tenure.
3. EN
4. General
5. Community Forestry Note 5. FAO, Rome (1990)
6. social-issues
7. community-forestry
8. TF
Analysis system for community forestry actvities with emphasis on tenure questions.

148.
1. Bruenig, E. F.
2. Use and misuse of tropical rain forests.
3. EN
4. General
5. In: H. Lieth and M.J.A. Werger, (eds). Tropical Rain Forest Ecosystems. Biogeographical and Ecological Studies (Ecosystems of the Worlds 14) Elsevier, Amsterdam. Chapter 35, pp. 611-636 (1989)
6. extractives, disturbance, conservation
7.
8. TF

149.
1. Brunk, F.
2. The use of weedkillers in tropical forest nurseries and plantations.
3. FR
4. General
5. Bois et Forets des Tropiques (1972) 14:31-39.
6.
7. nurseries, plantations, weeds, herbicides
8. TF

Paper presented at the Symposium on Weeding in Tropical Crops, Antibes, 7-8 Sept. 1971. Reviews types of nursery and plantation work that involve weedkillers, attention to special aspects of the use of these compounds in tropical silviculture, and tests made by the Centre Technique Forestier Tropical at its overseas centres. Nursery use of weedkillers is limited only by cost, while in plantations a combination of traditional (mechanical) and chemical treatments is likely to give the best results.

150.
1. Budowski, G.
2. La conservacion de los bosques tropicales a traves de su explotacion sostenible.
3. ES
4.
5. In: Savia (Ecuador) (1990) 2:3-4.
6. conservation
7.
8. TF

151.
1. Budowski, G.
2. La conservacion de los bosques tropicales a traves de su explotacion sostenible.
3. ES
4. CA, SA
5. Conservation (1990) 2:3-4.
6. conservation
7. silviculture
8. TF

Overview of successful forest management projects in Brazil, Peru, Mexico, Costa Rica, Suriname, and Trinidad. Generally only one paragraph per project/country. Brief discussion of policy failures.

152.
1. Budowski, G.
2. Is sustainable harvest possible in the tropics?
3. EN
4. General, Costa-Rica, Peru, Suriname
5. American Forests (1988) 94:34-37, 80-81.
6. conservation
7. silviculture
8. TF, Prioria

Review of successful forest management projects in Costa Rica, Peru, and Suriname. Recommends focus on secondary forest management.

153.
1. Budowski, G.
2. Quelques aspects de la situation forestiere au Costa Rica.
3. FR
4. CA, Costa-Rica
5. Bois et Forets des Tropiques (1957) 55:3-8.
6. conservation
7. silviculture
8. TF, Cordia
Some aspects of the forestry situation in Costa Rica.

154.
1. Budowski, G.
2. Sistemas de regeneracion de los bosques de bajura en la America Tropical.
3. ES
4. CA, SA
5. Caribbean Forester (1956) 17:(3/4)76-91.
6.
7. natural-regeneration
8. TF
Regeneration systems in the lowland forests of the American tropics.

155.
1. Budowski, G.
2. The socio-economic effects of forest management on the lives of people living in the area: the case of Central America and some Caribbean countries.
3. EN
4. CA, Caribbean
5. Pages 87-102 in: Socio-economic effects and constraints in tropical forest management. E.G. Hallsworth, ed. John Wiley and sons, Chichester, UK. 233 pp. (1982) 87-102.
6. social-issues, conservation
7.
8. TF

156.
1. Budowski, G.
2. The socio-ecomomic effects of forest management on the lives of people living in the area: the case of Central America and some Caribbean countries.
3. EN
4. CA, Caribbean
5. In, Socio-Ecomomic Effects and Constraints in Tropical Forest Management, E.G. Hallsworth (ed), pp. 87-102, New York: John Wiley and Sons (1982)
6. social-issues, conservation
7.
8. TF
Considers successful forest management especially agroforestry. Discusses resentment of local farmers about national parks and other protected lands.

157.

157.
1. Buongiorno, J. and J.K. Gilles.
2. Forest management and economics.
3. EN
4. General
5. Macmillan Publ. Co., New York, USA (1987)
6.
7. economics
8.

158.
1. Burdett, A. N.
2. Physiological processes in plantation establishment and the development of specifications for forest planting stock.
3. EN
4. General
5. Can. J. For. Res. (1990) 20:415-427.
6. ecology
7. plantations, nurseries
8. TmpF

159.
1. Burgess, P. F.
2. An approach towards a silvicultural system for the hill forests of the Malay Peninsula.
3. EN
4. AS, Malaysia
5. Malayan Forester (1970) 33:(2)126-134.
6.
7. silviculture
8. TF, Dipterocarpaceae, montane

160.
1. Burgess, P. F.
2. Assisting the regeneration of dipterocarp rain forest.
3. EN
4. AS, Malaysia
5. Down to earth: a review of agricultural and chemical progress (1971) 26:29-31.
6.
7. enrichment, silviculture, natural-regeneration
8. TF, Dipterocarpaceae

161.
1. Burgess, P. F.
2. The effect of logging on hill dipterocarp forests.
3. EN
4. AS, Malaysia
5. Malayan Nature Journal (1971) 24:231-237.
6.
7. logging-damage
8. TF, Dipterocarpaceae, montane

162.
1. Burgess, P. F.
2. Silviculture in the hill forests of the Malay Penninsula.
3. EN
4. AS, Malaysia
5. Forest Research Institute Research Pamphlet 66, Forestry Department, Peninsular Malaysia (1975)
6.
7. silviculture
8. TF, Dipterocarpaceae, montane

163.
1. Burgess, P. F.
2. Studies on the regeneration of the hill forests of the Malay peninsula.
3. EN
4. AS, Malaysia
5. Malaysian Forester (1972) 35:103-121.
6.
7. silviculture, natural-regeneration
8. TF, Dipterocarpaceae, montane

164.
1. Burgess, T.
2. Forestry as a social institution.
3. EN
4. general
5. In: Chapter 18, Socio-economic effects and constraints in tropical forest managememt. E.G. Hallsworth (ed.). John Wiley & Sons Ltd, Cinchester, UK. 233 pp. (1982) 203-208.
6. social-issues
7.
8. TF

165.
1. Burgos, J. A.
2. Un estudio de la silvicultura de algunas especies forestales en Tingo Maria, Peru.
3. ES
4. SA, Peru
5. Caribbean Forester (1954) 15:(1/2)14-53.
6.
7. silviculture
8. TF
A study of the silviculture of some forest species in Tingo Maria, Peru.

166.
1. Burns, D.
2. Runway and treadmill deforestation: reflections on the economics of
forest development in the tropics.
3. EN
4. General
5. Series Paper on tropical forest policy. Forestry and Land Use Programme, International Institute for Environment and Development, editor. International Union for Conservation of Nature and Natural Resources. Cambridge, United Kingdom. (1986)
6. conservation,
7. economics
8. TF

167.
1. Burns, L. V.
2. Roofing shingles in Jamaica.
3. EN, ES
4. Caribbean, Jamaica
5. Caribbean Forester (1942) 4:9-12.
6. NTFP, wood-utilization
7.
8. TF, Cedrela

168.
1. Burns, R. M. and B. H. Honkala (technical coordinators).
2. Silvics of North America: Volume 2, Hardwoods.
3. EN
4. NA, Caribbean, Hawaii
5. Agricultural Handbook 654, U.S. Department of Agriculture, Forest Service, Washington, D.C., 877 p.
6. ecology, wood-properties, seeds, genetics
7. species-trials, growth, silviculture, pests
8. TF, Acacia, Calophyllum, Casuarina, Cecropia, Cedrela, Dacryodes, Didymopanax, Eucalyptus, Grevillea, Manilkara, Melaleuca, Metrosideros, Tabebuia.

The habitat requirements, distribution, associated species, life history stages, growth and yield, rooting habits, reaction to competition, damaging agents, uses, and genetics of important tree species in North America, Puerto Rico, and Hawaii are described. Each description has a different author. (Replaces Agriuclture Handbook 271 published in 1965).

169.
1. Burns, R. M. and B. H. Honkala (technical coordinators).
2. Silvics of North America: Volume 1, Conifers.
3. EN
4. NA, Caribbean, Hawaii
5. Agricultural Handbook 654, U.S. Department of Agriuclture, Forest Service, Washington, D.C. 675 p.
6. ecology, wood-properties, wood-utilization, seeds, genetics
7. silviculture, species-trials, growth, pests
8. TF, Pinus

The habitat requirements, distribution, associated species, life history stages, growth and yield, rooting habits, reactions to competition, damaging agents, uses, and genetics of important tree species in North America, Puerto Rico, and Hawaii are described. Each

description has a different author. (Replaces Agriculture Handbook 271 published in 1965).

170.
1. Burrough, E. R., Jr. and J. G. King.
2. Reduction of soil erosion on forest roads.
3. EN
4. NA
5. USDA For. Ser., Intermountain Res. Sta., Gen. Tech. Rep. INT-264, Ogden, UT. (1989.)
6. conservation
7. logging-damage, erosion, roads
8. TmpF

171.
1. Buschbacher, R. J.
2. Ecological analysis of natural forest management in the humid tropics.
3. EN
4. General
5. In: Race to save the tropics. Robert Goodland (ed). (1990) Island Press,59-79.
6.
7.
8. TF
Review of forest management in the tropics.

172.
1. Buschbacher, R. J.
2. Natural forest management in the humid tropics: ecological, social, and economic considerations.
3. EN
4. General
5. Ambio (1990) 19:(5)253-258.
6. social-issues
7. silviculture, economics
8. TF
A brief historical overview of natural forest management systems with a discussion of sustainability. A discussion of obstacles to sustainable practices.

173.
1. Caballero, D. M.
2. La investigacion y la capacitacion forestales.
3. ES
4. Mexico
5. In, Alternativas Tecnologicas 6, Academia Mexicana de Ingenieria/ Consejo Nacional de Ciencia y Technologia, Mexico D.F., pp. 161-174 (1984)
6.
7. silviculture
8. TF

174.
1. Cameron, R. J.
2. Natural regeneration of Podocarps in the forest of the Whirinaki River Valley.
3. EN
4. New-Zealand
5. New Zealand Journal of Forestry (1960) 8:(2)337-354.
6.
7. natural-regeneration, silviculture
8. TmpF, Podocarpus

175.
1. Camino, R. de.
2. Economic consideration in the management of tropical forests.
3. ES
4. General
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 175-188.
6.
7. economics
8. TF

176.
1. Campos Romero, R.
2. System of rural settlement 'Jenaro Herrera'.
3. EN
4. SA, Peru
5. In, Informe sobre Seminario FAO/SIDA sobre Ocupacion Forestal en America Latina. FAO, Rome (1976)
6. social-issues, conservation, policy-issues, agriculture
7.
8. TF
Describes a Swiss/Peruvian development project that incuded wood extraction, cattle-raising, and agrarian activities. Emphasis on socially-owned enterprises.

177.
1. Canadas Cruz, L. E.
2. The swampy forests in the San Lorenzo zone, Ecuador.
3. EN
4. SA, Ecuador
5. Turrialba (1965) 15:(3)225-230.
6. vegetation-composition, ecology
7.
8. TF, Carapa, swamps

178.
1. Candido, J. F., A.R. Conde, R.F. da Silva, J. Maria, and A.A.M. Ledo.
2. Estudo da causa da dormencia em sementes de guapuruva (Schizolobium parahybum (Vell) Blake) e metodos para a sua quebra.
3. PO
4. SA, Brazil
5. Revista Arvore (1981) 5:(2)224-232.
6. seed-dormancy, seeds
7. nurseries,
8. TF, Schizolobium

Dormancy was identified as the impermeability of Schizolobium seed coats to water. Breaking of dormancy was attempted by: (a) removal of seed tip; (b) immersion in boiling water; (c) mechanical scarification; (d) chemical (acid, organic solvent) scarification; or (e) brief exposure to fire. The most effective treatments, in terms of both speed of germination and % germination after 28 days, were a and b with 91% and 92% germination, respectively (vs. 15% in control). Treatment b is the more economical and practical.

179.
1. Canonizado, J. A.
2. Simulation of selective forest management regimes.
3. EN
4. General
5. Malaysian Forester (1978) 41:128-142.
6. statistics
7. silviculture
8. TF, Dipterocarpaceae

180.
1. Cardenas, A. and J. Maresma.
2. Efecto de seis materiales de curierta en la germinacion de las semillas, supervivencia y desarrollo de las posturas de Swietenia macrophylla, Caesalpinia violaceae y Colubrina ferruginosa en vivero.
3. ES
4. Caribbean, Cuba
5. Revista Forestal Baracoa. (1985) 15:(2)7-17.
6. seed-germination, seeds
7. nurseries
8. TF, Caesalpinia, Colubrina, Swietenia

Effect of six mulches on seed germination, survival, and seedling performance of Swietenia macrophylla, Caesalpinia violaceae, and Colubrina ferruginosa in nurseries.

181.
1. Cardenas, L.
2. Estudio ecologico y diagnostico silvicultural de un bosque de terraza media en la llanura aluvial del Rio Nanay, Amazonia Peruana.
3. ES
4. SA, Peru
5. Tesis de Maestria, CATIE. 133 p. (1986)
6. ecology
7.
8. TF

182.
1. Carifor.
2. La sylviculture de l'acajou amer.
3. FR
4. General
5. Rev. int. Bois (1947) 14:(122/123)151-152.
6.
7. silviculture
8. TF, Cedrela

Silviculture of Cedrela mexicana.

183.
1. Carpenter, R. A. (ed.).
2. Assessing tropical forest lands: their suitability for sustainable uses.
3. EN
4. General
5. Proceedings of the Conference on Forest Land Assessment and Management for Sustainable Uses. on For. Land Assess. and Mgmt. for Sustainable Uses, East-West Center, Hawaii, June 1979 (Dublin, Eire: Tycooly Int. Pub. Co.) (1981) Dublin, Eire: Tycooly International Publishing Company, East-West Center, Hawaii, 19-28 June 1979 Dublin, Eire: Tycooly Int. Pub. Co., 1981).
6. conservation
7. silviculture
8. TF

184.
1. Carreno, S. E., and B. A. Martinez.
2. Respuesta de 9 especies forestales a diferentes tratamientos pregerminativos.
3. ES
4. SA, Colombia
5. Investigaciones Forestales, Instituto Nacional de los Recursos Naturales Renovables y del Ambiente, Colombia (1984) 15:
6. seed-germination, seeds
7.
8. TF, Alnus, Schizolobium
Response of 9 tree species to various pregermination treatments.

185.
1. Carstens, A.
2. Structure of a matorral in semiarid-subhumid northeastern Mexico and consequences of various treatments for its management.
3. EN
4. Mexico
5. Insititue Silviculture No. 27. Univ. Gottingen, German Federal Republic. (1987) University of Gottingen, German Federal Republic.273.
6. vegetation-structure
7.
8. subTF

186.
1. Carton de Colombia.
2. Ninth annual report, forest research in the Bajo Calima concession.
3. EN
4. SA, Colombia
5. Cali, Colombia: Carton de Colombia, S.A. (1985)
6.
7. clearcut, pulpwood
8. TF

187.
1. Carvalho, J. O. P.
2. Abundancia, frecuencia e grau de agragacao de pau-rosa (Aniba duckei Kostermans) na Floresta Nacional do Tapajos.
3. PO
4. SA, Brazil
5. Boletim de Pesquisa no. 53. Centro de Pesquisa Agropecuaria do Tropico Humido (EMBRAPA/CPATU), Belem. (1983)
6.
7. inventory
8. TF

188.
1. Carvalho, J. O. P.
2. Fenologia de especies florestais que ocorrem na Floresta Nacional do Tapajos.
3. PO
4. SA, Brazil
5. Boletim de Pesquisa no. 20. Centro de Pesquisa Agropecuaria do Tropico Humido (EMBRAPA/CPATU), Belem. (1980)
6. phenology
7.
8. TF

189.
1. Castro, E. and Adel Santos.
2. Tentative de classification des arbols selon leur capacite de reiteration.
3. FR
4. General
5. Biotropica (1980) 12:(3)187-194.
6. ecology
7. coppicing, damage
8.
Description of tree architectures and responses to mechanical damage and changed environmental conditions.

190.
1. Cater, J. C.
2. Deforestation and soil erosion in Trinidad.
3. EN
4. SA, Trinidad
5. Tropical Agriculture (1939) 16:230-232.
6. conservation
7.
8.

191.
1. Cater, J. C.
2. The silviculture of Cedrela mexicana.
3. EN, ES
4. General
5. Caribbean Forester (1945) 6:89-113.
6.
7. silviculture
8. TF, Cedrela

192.
1. Cater, J. C.
2. The silviculture of Cedrela mexicana.
3. EN
4. SA, Trinidad
5. Caribbean Forester (1945) 6:89-113.
6. ecology
7. plantations
8. TF, Cedrela

193.
1. CATIE-ROCAP.
2. Silvicultura de especies promisorias para produccion de lena en America Central-Resultado de uno ano de investigacion.
3. ES
4. CA
5. Publ. Patrocinada por Projectos No. 596-0089-596-0117, Costa Rica. (1986)
6.
7. plantations, silviculture, species-trials, fuelwood
8. TF
Silviculture of promising species for production of firewood in Central America.

194.
1. Catinot, R.
2. Le present et l'avenir des forets tropicales humides.
3. FR
4. General
5. Revue Bois et Forets des Tropiques, no. 154 (1974) 3-26.
6. conservation
7.
8.

195.
1. Catinot, R.
2. Results of enrichment planting in the tropics.
3. EN
4. General
5. FAO Publication, FAO:FDT - 69/4 (1970) Food and Agriculture Organization of the United Nations, Rome, Italy.
6.
7. enrichment
8. TF

196.
1. Catinot, R.
2. Results of enrichment planting in the tropics.
3.
4.
5. Basic Paper FO:FDT-69/4 (of the Centre Technique Forestier Tropical, Paris)
6.
7. enrichment
8. TF

197.
1. Catinot, R.
2. Silviculture tropicale en foret dense africaine V.
3. FR
4. AF
5. Bois et Forets des Tropiques (1965) 104:17-29.
6.
7. silviculture
8. TF
Tropical silviculure in African rain forests.

198.
1. Catinot, R.
2. Sylviculture en foret dense africaine: premiere partie.
3. FR
4. AF
5. Bois et Forets des Tropiques (1965) 100:5-19.
6.
7. silviculture
8. TF
Silviculure in African rain forests: part one.

199.
1. Catinot, R.
2. Sylviculture tropicale dans les zones seches de l'Afrique.
3. FR
4. AF
5. Bois et Forets des Tropiques No. 111, 112. (1967)
6.
7. silviculture
8. TF, arid
Tropical silviculture in the arid zones of Africa.

200.
1. Caufield, C.
2. Rainforests can cope with careful logging.
3. EN
4. General
5. New Scientist (September 1983) 631.
6. ecology
7. selective-logging
8. TF
Observation that selective logging of rainforests, strictly controlled, may mimic natural disturbance with which the forests have learned to live.

201.
1. Cavieres, A. and A. Lara.
2. La destruccion del bosque nativo para efectuar plantaciones de pino insigne en la cuenca del Rio Canicura, Comuna de Quilleco, Provincia de Bio-Bio, VIII Region.
3. ES
4. SA, Chile
5. Informe Tecnico, no. 1. Santiago, Chile: Comision para la Defensa de la Flora y Fauna, CODEFF (Comission for the Defense of Flora and Fauna. 97 p. (1983)
6. conservation
7. plantations

8. TF, Pinus
The destruction of natural forest to establish pine plantations in Bio-Bio. Reviews negative social and ecological consequences of converting natural forest into pine plantations.1

202.
1. Ceara, I. A. de.
2. Land tenure and agroforestry in the Dominican Republic.
3. EN
4. Caribbean, Dominican-Republic
5. In, Land, Trees and Tenure: Proceedings of an International Workshop on Tenure Issues in Agroforestry, J.B. Raintree (ed), pp. 301-314. Madison: Land Tenure Center, University of Wisconsin, and international Council for Research in Agroforestry (ACRAF). (1987)
6. policy-issues, agroforestry
7.
8. TF
Describes the Plan Sierras designed to improve soil conditions and increase forest cover. Farmers reluctant to grow hardwoods because of laws against tree cutting.

203.
1. Center for International Development and Environment.
2. Directory of Country Environmental Studies (an annotated bibliography of environmental and natural resource profiles and assessments).
3. EN
4. General
5. Center for International Development and Environment World Resources Institute. (1990)
6. conservation
7.
8. TF

204.
1. Cermak, F. I. and A. H. Lloyd.
2. Timber transportation in the tropics.
3. EN
4. General
5. Unasylva (1962) 16:(2/3/4)75-103, 140-160, 207-218.
6.
7. logging, roads, extraction
8. TF

205.
1. Chacon, J. F. A.
2. The characteristics of some forest species with regard to their use in the match industry.
3. ES, EN ?
4. CA
5. Turrialba (1964) 14:(1)38-39.
6. wood-utilization, wood-properties
7.
8. TF, Spondias

206.
1. Chai, D. N. P. and M. P. Udarbe.
2. The effectiveness of current silvicultural practice in Sabah.
3. EN
4. AS, Malaysia
5. Malaysian Forester (1977) 40:(1)27-35.
6.
7. silviculture, stand-improvement, natural-regeneration
8. TF, Dipterocarpaceae

Linear sampling chain surveys were carried out in plots (a) treated by poison girdling after felling and (b) untreated, each replicated on two felling areas of the Segaliud-Lokan Forest Reserve felled resp. in 1966 and 1971. Girdling made little improvement in the stocking of commerical species, and created favourable conditions for competing secondary forest species. It is suggested that the '2d silvilcultural treatment' as originally proposed is now inadequate owing to increased logging intensity and recommendations are given for more effective treatment.

207.
1. Chai, Domingo N. P.
2. Enrichment planting in Sabah.
3. EN
4. AS, Malaysia
5. Malayan Forester (1975) 38:271-277.
6.
7. enrichment
8. TF, Dipterocarpaceae

208.
1. Chambille, K.
2. Atenquique: los bosques del sur de Jalisco.
3. ES
4. Mexico
5. Mexico, D.F.: Instituto de Investigaciones Economicas, Universidad Nacional Autonoma de Mexico (UNAM) (1983)
6. conservation
7. logging, economics
8. TF

Part of a series of books on forest use in seven Mexican States. This volume on timber extraction and industrialization in southern Jalisco.

209.
1. Champion, H. G.
2. Regeneration of tropical evergreen forests (rainforest).
3. EN
4. AS, India
5. Indian Forester (1929) 55:429-446, 480-494.
6.
7. regeneration, silviculture
8. TF

210.
1. Chan, H. T.
2. Rehabilitation of logged-over mangrove areas using wildings of Rhizophora.
3. EN
4. AS, Malaysia
5. Journal of Tropical Forest Science (1989) 1:(2)187-189.
6.
7. enrichment-planting
8. TF, mangroves, Rhizophora, secondary-forest
High mortality of propagules of Rhizophora apiculata and R. mucronata was mainly due to predation by long-tailed macaques. Establishment success using transplanted seedling was much higher, observed mortality was 8% three months after planting.

211.
1. Chaplin, G. E.
2. An integrated silvicultural solution to weedy climber problems in the Solomon Islands.
3. FR
4. Solomon-Islands
5. Commw. For. Rev. (1985) 64:(2)133-139.
6.
7. climbers, herbicides, weeds
8. TF, lianas
Comparative merits are discussed of weed control of climbers (Merremia pacifica, M. peltata, M. bracteata, Operculina riedeliana) by herbicides, cattle, fire and cover crops. An integrated silvicultural solution is proposed that controls available light. Factors involved include: choice of species for dense crowns in young stages; nursery production of vigorous stock; planting methods and spacing to ensure rapid canopy closure; and, early tending.

212.
1. Chapman, V. J., G. Cintron, C. Goenaga, A.E. Lugo, N.B. de Pascuas, R. Pannier, F. Pannier, R.E. Baez Valdes, O. Gonzalez Rondon, J.P. Lescure, P.N. Coutinho, R.R. Horna Zapata, D. Mizrachi, P.R. Bacon, J. Herna.
2. Memorias del seminario sobre el estudio cientifico e impacto humano en el ecosistema de manglares.
3. ES, EN
4. SA
5. (1980) United Nations Educational, Sci. and Cultural Organiz., Montevideo, Uruguay; Unesco Regional Office for Sci. and Tech. for Latin America nad the Caribbean.
6. vegetation-composition
7. silviculture
8. Avicennia, Conocarpus, mangroves, Laguncularia, Rhizophora
13 papers are of particular forestry interest: Chapman, V.J [Mangrove vegetation: an overview. 9-17.] G. Cintron, C. Goenaga, and A. E. Lugo [The development of mangrove areas on arid coasts.]. N. B. de Pascuas [Phytosociological characteristics of the mangroves in the Tayrona National Park (Colombia).]. R. Pannier and F. Pannier [Structure and dynamics of the mangrove ecosystem: a global approach to the problems.]. R.E. Baez Valdes and O. Gonzalez Rondon [Volume table for Rhizophora mangle using empirical morphological coefficients.]. J.P. Lescure [Ecological aspects of the mangrove forest in French Guiana. 76-93.] P.N. Coutinho [Mangroves of the

coastal plain of Recife.]. R.R. Horna Zapata [The soil/mangrove relation.]. (Rhizophora mangle; Conocarpus erectus; Laguncularia racemosa; Avicennia nitida.). 195-214 [27 ref.] D. Mizrachi, R. Pannier and F. Pannier [Observations on the occurrence of semiparasites in the coastal mangroves of Venezuela: implications for ecological damage to the ecosystem.]. A.E. Lugo, G. Cintron, and C. Goenaga [Mangrove ecosystem under stress.]. D. Mizrachi, R. Pannier, and F. Pannier [Propagation and establishment of Conocarpus erectus.]. P.R. Bacon [Methodology for decision making in the management of neotropical mangrove ecosystems. 355-363]. J. Hernandez Comacho, P. von Hildorbrand, and R. Alvarez Leon [Problems of mangrove management with special reference to the western sector of the CGSM swamp.].

213.
1. Cheah, L. C.
2. Forest regeneration and development options in Peninsular Malaysia today.
3. EN
4. AS, Malaysia
5. Malayan Forester (1978) 41:171-175.
6.
7. regeneration, enrichment, economics
8. TF, Dipterocarpaceae

214.
1. Chin, S. C.
2. Managing Malaysia's forests for sustained production.
3. EN
4. AS, Malaysia
5. Wallaceana (1989) 55/56:1-11.
6.
7. silviculture
8. TF, Dipterocarpaceae

215.
1. Chudnoff, M.
2. Density of tropical timbers as influenced by climate life zones.
3. EN
4. General
5. Commonw. For. Rev. (1976) 55:203-217.
6. wood-properties
7.
8. TF
Reviews data on wood property variability.

216.
1. Chudnoff, M.
2. Development of the tropical wood resource.
3. EN
4. General
5. TA/OST 73-23. Office of Science and Technology. Agency for International Development. Washington, DC (1973)
6. wood-properties
7. economics
8. TF
Discusses need to utilize lesser known species.

217.
1. Chudnoff, M.
2. Tropical timbers of the world.
3. EN
4. General
5. Wash. DC, US Govern. Print. Off. (1980)
6. wood-properties
7.
8. TF
Comprehensive review of wood properties of hundreds of species.

218.
1. Cintron, G. and Y. Schaeffer Novelli.
2. The mangrove ecosystem: research methods.
3. EN
4. General
5. Marine Resources Section, Department of Natural Resources, P.O. Box 5887, Puerta de Tierra, Puerto Rico 00906, 22 pp.
6. ecology
7.
8. TF, Rhizophora, mangroves
Overview of a field method appropriate for mangrove research.

219.
1. Clark, D. A. and D. B. Clark.
2. Analisis de la regeneracion de arboles del dosel en bosque muy humedo tropical; aspectos teoricos y practicos.
3. ES
4. General
5. Revista de Biologia Tropical, supplement (1986)
6. ecology
7. enrichment, natural-regeneration,
8. TF
Analysis of tree regeneration in humid tropical forests; theoretical aspects and practices.

220.
1. Clark, D. B.
2. La Selva Biological Station: A blueprint for stimulating tropical research.
3. EN
4. CA, Costa-Rica
5. In, Four Neotropical Forests, A.H. Gentry (ed.). Yale University Press, New Haven. (1990) 9-27.
6. ecology, education, conservation
7.
8. TF

221.
1. Clarke, E. C.
2. The regeneration of worked-out greenheart (Ocotea rodiaei) forest in British Guiana.
3. EN
4. SA, Guyana
5. Emp. For. Rev. (1956) 35:(2)173-183.
6.
7. natural-regeneration
8. TF, Ocotea, secondary-forest

222.
1. Clarke, E. C.
2. A report on silvicultural research and the silvicultural treatment of exploited mixed swamp forest in the peat swamp forests of Sarawak 1960-1963.
3. EN
4. AS, Malaysia
5. Kepong Forest Research Institute. Research Pamphlet. (1964) 45:40.
6.
7. silviculture
8. swamps, secondary-forest, Dipterocarpaceae

223.
1. Clay, J.
2. Indigenous peoples and tropical forests: models of land use and management from Latin America.
3. EN
4. General
5. Cultural Survival Report 27. Cambridge, Mass.: Cultural Survival (1988)
6. social-issues, policy-issues, NTFP, conservation
7.
8. TF
Review of indigenous forest management in Latin America. Includes summary of research undertaken and an extensive bibliography.

224.
1. Clayton, J. L.
2. Soil disturbance resulting from skidding logs on granite soils in central Idaho.
3. EN
4. NA, USA
5. Res. Pap. INT-436. U.S. Department of Agriculture, Forest Service, Intermountain Research Station, Ogden, UT. (1990)
6.
7. erosion
8. TmpF

225.
1. Cleary, D.
2. The Brazilian rain forest: Politics, finance mining and the environment.
3. EN
4. SA, Brazil
5. The Economist Intelligence Unit, Dartford, Kent, UK (1991)
6. policy-issues
7. economics
8. TF

226.
1. Clutter, J. L.
2. Timber management: a quantitative approach.
3. EN
4. General
5. Wiley, New York. 333 pp. (1983)
6. textbook
7. logging, silviculture
8. TmpF, TF

227.
1. Coelho, L. C. C., J.C.B. Nogueira, A.C.M.F. Siqueira, O. Buzatto, L.M. de A.B. Salles, S.E. Bertoldi, W.J.M. de Souza, M. de A. Fagundes, M.A. Zandarin, A.C.S. Zanatto, et al.
2. Establishment of plantations of native Brazilian tree species. In Proceedings of the national conference on native species, Camos do Jordao, Sao Paulo, Brazil, 12-18 Sept., 1982 [edited by Malvesi, I.T.O.; et al.].
3. PO, EN
4. SA, Brazil
5. Silvicultura em Sao Paulo (1982) 16A:2.
6.
7. plantations, species-trials
8. TF, Balfourodendron, Cariniana, Centrolobium, Myroxylon, Ocotea, Peltophorum, Schizolobium, Tabebuia

Eight papers from the conference: Coelho, L.C.C., J.C.B. Nogueira,A.C.M.F. Siqueira, O. Buzatto, L.M. de A.B. Salles, [Spacing study in Peltophorum dubium at Mogi Cuacu, Sao Paulo.]. Nogueira, J.C.B., A.C.M.F. Siqueira, S.E. Bertoldi [Spacing study in Centrolobium tomentosum at Pederneiras, Sao Paulo.]. W.J.M. de Souza, J.C.B. Nogueira, A.C.M.F. Siqueira, M. de A. Fagundes, M.A. Zandarin [Spacing study in Ocotea porosa at Angatuba, Sao Paulo.]. A.C.S. Zanatto, J.C.B. Nogueira, A.C.M.F. Siqueira, S.E. Bertoldi [Spacing study in Cariniana legalis at Luiz Antonio, Sao Paulo.]. J.C.B. Nogueira, A.C.M.F. Siqueira, E. Morais, M.A. Zandarin [Plantations of Myroxylon peruiferum established at various spacings.]. P.R.F. Rosa, J.C.B. Nogueira, A.C.M.F. Siqueira, L.M. de A.B. Salles [Silvicultural characteristics of Tabebuia vellosoi.]. M.A. de O. Garraido, J.C.B. Nogueira, L.M. de A. Gurgel Garrido [Silvicultural characteristics of Balfourodendron riedelianum.]. J.L. de Moraes, L.C.C. Coelho [Spacing of Schizolobium parahybum.].

228.
1. Cole, I.
2. Composition of Carapa procera gum.
3. EN
4.
5. Nature, Lond. (1964) 202:(4937)1109-1110.
6. NTFP, extractives
7.
8. TF, Carapa

229.
1. Colfer, C. J. P.
2. The role of indigenous knowledge in forest management: Lessons from Indonesia.
3. EN
4. AS, Indonesia
5. unpubl. ms (1991)
6.
7.
8. TF

230.
1. Collardet, J.
2. Processing hard-to-process and lesser used species.
3. EN
4. General
5. Unasylva (1976) 28:93-105.
6.
7. enrichment
8.

231.
1. Commonwealth Forestry Institute.
2. Enrichment planting in English speaking countries of the tropics.
3. EN
4.
5. FO:FDT-69/4-A. Item 3(c) of Provisional Agenda. FAO Committee on Forest Development in the Tropics, Second Session. (1969)
6.
7.
8.

232.
1. Conif.
2. Reunion Nacional de Silvicultura.
3. EN
4. SA
5. Memorias. CONIF. Bogota. 1988. (Serie Documentacion No. 9) (1988)
6.
7. silviculture
8. TF

233.
1. Contreras, A.
2. A regional TFAP for Latin America and the Caribbean.
3. EN
4. SA, CA Caribbean
5. Unasylva (1988) 40:(1)6-18.
6. conservation
7.
8. TF
Policy and Planning Service, Forestry Department, FAO, Rome Italy.

234.
1. Conway, S.
2. Felling practices.
3. EN
4. General
5. Miller Freeman Publ., San Francisco, Ca., USA. (1978)
6. textbook
7. felling, damage
8. TF
Very practical over view of felling practices.

235.
1. Conway, S.
2. Logging practices.
3. EN
4. General
5. Miller Freeman Publ., San Francisco, Ca., USA. (1982)
6. textbook
7. felling, damage
8. TF
General text on logging systems with a practical orientation.

236.
1. Cooper, St G. C., P. R. Bacon, W. S. Chalmers, J. S. Kenny (eds.).
2. The natural resources of Trinidad and Tobago.
3. EN
4. SA, Trinidad Tobago
5. Edward Arnold Ltd., London, UK. (1981) 223 pp.
6. natural-resources, social-issues
7. economics
8. TF, Mora, palms, Tectona
The physical, biological, and human resources of Trinidad and Tobago are described in contributions by various authors. There are 2 chapters of particular forestry interest: W. S. Chalmers. Chapter 8. Forests. 78-105. The subjects discussed are: The national forest estate (state forest, policy, and legislation, private forestry, and employment in forestry and wood-based industries); Local sources of timber (royalties and prices, mora - Mora excelsa - forests, teak and pine, state and private lands, and imports and exports); Utilization of forest products (sawmilling and wood-based industries, minor forest products and naval stores); Plantation forestry (taungya, teak, and pine plantations, the Northern Range reafforestation project); Forest management and research (increasing yields, multiple use); Recreation, wildlife, national parks; and indirect benefits of forestry. J. S. Kenny and P. R. Bacon. Chapter 10. Aquatic resources. 112-144 [42 ref., 4 pl.] The section on swamps and freshwaters includes a description of the mangrove forests (mostly Rhizophora spp. with some Avicennia and Laguncularia) and patches of palm forest.

237.
1. Cordero, W., W. Picado, and M. Ramirez.
2. Extraccion maderera con bueyes en plantaciones forestals.
3. EN, ES
4. General, Costa-Rica
5. Departamento de Ingenieria en Forestal, Instituto Tecnologico de Costa Rica, Cartago, Costa Rica. Tecnologia en Marcha. (1981) 3:(4) 9-13.
6.
7. logging, extraction
8. TF
Log hauling with oxen in forestry plantations.

238.
1. Corporacion Nacional de Investigacion Y Fomento Forestal Conif.
2. Contribucion al desarrollo silvicultural del Anden Pacifico Colombiano a traves de un lustro de accion investigadora.
3. ES
4. SA, Colombia
5. Conif. Bogota, Colombia (1988) 75.
6.
7. silviculture
8. TF
Silviculture investigations in Pacific Columbia.

239.
1. Cozzo, D.
2. Siete anos de ensayos de enriquecimiento del bosque subtropical utilizando Cordia trichotoma.
3. ES
4. SA
5. Revista Forestal Argentina (1969) 13:(2)44-46.
6.
7. enrichment
8. TF

240.
1. Cozzo, Domingo.
2. Auspiciosos resultados de un ensayo de enriquecimiento del bosque subtropical de Misiones Misiones mediante plantacion en so interior de Cordia trichotoma.
3. ES
4. SA, Argentina
5. Revista Forestal Argentina (1964) 8:(2)42-44.
6.
7. enrichment
8. TF

241.
1. Crane, J. C.
2. Living fence posts in Cuba.
3. EN
4. Caribbean, Cuba
5. Agriculture in the Americas (1945) 5:(2)34-35, 38.
6. agriculture
7. coppicing
8. TF, Bursera, Spondias

242.
1. Crockford, K. J., M. J. Spilsbury, and P. S. Savill.
2. The relative economics of woodland management systems.
3. EN
4. General
5. OFI Occ. Pap., Oxford For. Inst., Univ. of Oxford. (1987) 35:64.
6. marketing
7. silviculture, economics
8. TmpF
Economic viability of various management systems and options in the UK, in which fuelwood can be sold as well as timber. Major variables affecting profitabilty were: productivity; prices; establishment and maintenance costs; sporting, conservation and

amenity values; grants; and taxation. Data are presented for discounted cash flow, net revenue and land expectation values (LEV) for 18 management options (including pure conifer, pure broadleaves, mixtures, coppice, natural regeneration, shelterwood, improvement planting, etc.). User documentation, methods and assumptions are given for a computer program that computes LEVs for different management systems and different personal situations.

243.
1. Crow, T. R.
2. Tree growth in a moist tropical forest of Puerto Rico.
3. EN
4. Caribbean, Puerto-Rico
5. Forest Service Research Paper ITF-22 (1977)
6.
7. growth
8. TF
Data from permanent plots.

244.
1. Crowther, R. E. and J. Evans.
2. Coppice.
3. EN
4. General
5. Forestry Commission Leaflet 83. HMSO, London (1984)
6.
7. silviculture, coppicing
8.

245.
1. D'Ianni, J. D., T. H. Rogers, A. F. Finelli, and E. A. Sinclair.
2. Rubber economics.
3. EN
4.
5. In: Guayule: Reencuentro en el Desierto, Centro De Investigacicn en Quimica Aplicada, pp. 331-356. Mexico, D.F.: Consejo Nacional de Ciencia y Tecnologia. (1978)
6. NTFP
7. economics
8. TF, Hevea

246.
1. Dahms, K. G.
2. Das Holzportrait. Echtes oder amerikanisches Mahagoni (Swietenia macrophylla king, Familie Meliaceen),.
3. GR
4. General
5. Holz als Roh und Werkstoff (1989) 47:(1)1-6.
6. wood
7. silviculture
8. TF, Swietenia
Wood portrait: true or American mahogany (Swietenia macrophylla). An account under the headings; history (nomenclature, taxonomy, trade names, imports); distribution; tree characteristics; wood description (macroscopic, microscopic, chemistry, physical and mechanical properties, defects); working properties (solid wood, veneering, drying, joining, surface treatment); uses; possible substitute timbers; and economic perspectives.

247.
1. Dale, J. A.
2. Management studies in the escarpement rainforests of southeast Queensland.
3. EN
4. Australia
5. Res. Pap., Dept. of For. Queensland. (1983) 14:90.
6.
7. enrichment, logging, plantations
8. TF
Logging in the rainforest improved growth rates in the smaller size classes, and did not appear to have significantly affected species composition of the remaining stand, despite heavy canopy reduction. The forest is considered capable of returning to its climax conditions after a single heavy logging. Underplanting of select species in cut-over rainforest is not necessary, as adequate natural regeneration occurs. Underplanting is uneconomical because of slow growth rates, high establishment costs and risk of damage by animals.

248.
1. Daniel, T. W., J. A. Helms, and F. S. Baker.
2. Principles of silviculture.
3. EN
4. General
5. McGraw-Hill, New York (1979)
6. textbook
7. silviculture
8. TmpF
Emphasis on temperate forestry.

249.
1. Davidson, J.
2. Bioenergy tree plantations in the tropics: Ecological implicatons and impacts.
3. EN
4. General
5. Commission on Evol. Pap. No. 12, International Union for the Conservation of Native and Natural Resources. (1987)
6.
7. plantations, fuelwood
8. TF

250.
1. Davidson, J. et al.
2. Economic use of tropical moist forest.
3. EN
4. General
5. The Environmentalist, 5 (suppl.). (Reprinted in commission on ecology papers no 9, Gland, Switzerland: Intenational Union for Conservation of Nature and Natural Resources, 1985)
6. marketing
7. economics
8. TF

251.
1. Davies, H.
2. The effect of removing overhead shade by poisoning emergents of uneconomic species in areas regenerated by the tropical shelterwood system.
3. EN
4. AF, Nigeria
5. In: Department of Forestry Research. Report 1956-1957. Nigeria (1958) 8.
6.
7. silviculture, stand-improvement, herbicides, shelterwood
8. TF

252.
1. Davis, S.
2. A sawmill in Bolivia.
3. EN
4. SA, Bolivia
5. Grassroots Development (1985) 9:3-9.
6. wood-utilization, social-issues
7. economics, sawmills
8. TF
Inter-American Foundation provided a sawmill to a cooperative of Ayoreode Indians who sawed high value hardwoods.

253.
1. Dawkins, H. C.
2. Estimating total volume of some Caribbean trees.
3. EN, ES
4. Caribbean
5. Caribbean Forester (1961) 22:(3/4)62-63.
6. statistics
7. growth
8. TF, Ochroma

254.
1. Dawkins, H. C.
2. The management of natural tropical high-forest with special reference to Uganda.
3. EN
4. AF, Uganda
5. Oxford, UK, Imperial Forestry Institute Paper 34, Oxford Univ. (1956)
6.
7. silviculture
8. TF
Classic paper in tropical silviculture; basic message is to treat the forest gently.

255.
1. Dawkins, H. C.
2. New methods of improving stand composition in tropical forests.
3. EN
4. General
5. Caribbean Forester (1961) 22:(1/2)12-20.
6.
7. stand-improvement
8. TF

256.
1. Dawkins, H. C.
2. The productivity of lowland tropical high forest and some comparisons with competitors.
3. EN
4. General
5. J. Oxford Univ. For. Soc. (1964) 12:15-18.
6.
7. silviculture, growth
8. TF

257.
1. Dawkins, H. C.
2. Productivity of tropical forests and their ultimate value to man.
3. EN
4. General
5. In: The Ecology of Man in the Tropical Environment. IUCN Publicaton, new Series 4, Morges, Switzerland. (1964) 178-182.
6. marketing, conservation
7. growth
8. TF

258.
1. Dawkins, H. C.
2. The refining of mixed forest; a new objective for tropical silviculture.
3. EN
4. General
5. Emp. For. Rev. (1955) 34:188-91.
6.
7. stand-improvement, silviculture
8. TF

259.
1. Dawkins, H. C.
2. Timber planting in the Terminalia woodland of northern Uganda.
3. EN
4. AF, Uganda
5. Emp. For. Rev. (1949) 28:226-247.
6.
7. plantations, artificial-regeneration
8. TF, Terminalia

260.
1. Dawkins, H. C.
2. The volume increment of natural tropical high-forest and limitations on its improvements.
3. EN
4. General
5. Empire Forestry Review (1959) 38:175-180.
6.
7. growth, silviculture
8. TF

261.
1. Dawkins, H. C.
2. Wood production in tropical rain forest.
3. EN
4. General
5. J. Ecol. (1967) 55:20-21.
6. ecology
7. growth
8. TF

262.
1. Dawson, D. H. and J. A. Pitcher.
2. Tree improvement opportunities in the north central states as related to economic trends: a problem analysis.
3. EN
4. NA, USA
5. USDA For. Serv. Res. Paper NC-40. North Central For. Exper. Sta. St. Paul., MN, USDA For. Serv. (1970)
6.
7. economics
8. TmpF

263.
1. de Graff, N. R.
2. Secondary forest - should it be an option in forest mangement in Suriname?
3. EN
4. SA, Suriname
5. Paper presented at the DESFIL Humid Tropical Lowlands Conference, Plaza Paitilla Inn Hotel, Panama, Republic of Panama, 17-21 June 1991. Wageningen Agricultural University, Department of Forestry.
6. ecology, succession
7. silviculture, monocyclic
8. TF, secondary-forest
Application of monocyclic management to secondary forests possible but it is much better to avoid destroying the high forest.

264.
1. DeBonis, J. N.
2. Harvesting tropical forests in Ecuador.
3. EN
4. SA, Ecuador
5. Journal of Forestry (1986) 43-46.
6.
7. extraction
8. TF

265.
1. Denevan, W. and C. Padoch (eds).
2. Swidden-fallow agroforestry in the Peruvian Amazon.
3. EN
4. SA, Peru
5. Adances in Economic Botany, vol. 5. New York Botanical Garden (1987)
6. agriculture, NTFP
7. economics
8. TF

Collection of papers on ethnobotanical research in the Peruvian Amazon.

266.
1. Deval, Jean Leroy.
2. Biologie et sylviculture de l'Okoume, Tome II, maladies et defauts de l'okoume.
3. FR
4. AF
5. 1-77.
6. ecology
7. silviculture
8. TF

267.
1. Dewey, L. H.
2. Fiber production in the Western Hemisphere.
3. EN
4. NA, SA
5. Miscellaneous Publications, USDA (1943) 518:95.
6. NTFP
7.
8. TF, TmpF, Ceiba

268.
1. Dichoso, M. O.
2. Drought tolerance of some reforestation species.
3. EN
4. AS, Philippines
5. Sylvatrop (1984) 9:(3-4)197-209.
6. drought-tolerance
7. species-trials, plantations
8. TF, Acacia, Albizia, Gmelina, Pterocarpus, Swietenia

Pot experiments are reported with seedlings of 5 species. Seedlings were planted in a clay forest soil of bulk density 1.39 and subjected to moisture stress. Measurements were made of: soil moisture depletion during the survival period of each species; days to, and percent of, permanent wilting; and survival percent in relation to number of stress days. Survival performance and number of days to permanent wilting decreased in the order Gmelina arborea, Acacia auriculiformis, Pterocarpus indicus, Swietenia macrophyla, Albizia falcataria. Percent permanent wilting occurred in the reverse order.

269.
1. Dickinson, J., M. Dourojeanni, D. McCaffrey, D. Pool, and R. C. Smith.
2. Central Selva Natural Resources Management Project: USAID Project No. 527-0240.
3. EN
4. SA, Peru
5. (1981) JRB Associates, McLean, VA.
6.
7. clearcut, silviculture
8. TF

270.
1. Dickinson, J. C. III, F. E. Putz, S. Castillo M., J. G. Laarman, and V. Molinos.
2. Successful approaches to natural forest management in the American tropics.
3. EN
4. General
5. DESFIL Blue Cover Report, USAID
6. conservation, NTFP
7. silviculture
8. TF
Discusses forest management by Plan Piloto Forestal, Mexico (Yucatan), the BOSCOSA Project in Costa Rica (Osa Peninsula), and secondary forest management in San Isidro, Costa Rica.

271.
1. Dickinson, J. C., III and F. E. Putz.
2. The Tropical Forest Competing demands for preservation, exploitation and conservation.
3. EN
4. General
5. Paper presented at the DESFIL Humid Tropical Lowlands Conference, Plaza Paitilla Inn Hotel, Panama, Republic of Panama, 17-21 June 1991. In, Chapter 9, DESFIL Report, Chapter 9.
6. NTFP
7. silviculture, economics
8. TF
Socioeconomic, political, and ecological conditions appropriate for different forest land uses are discussed. A decision-making system is introduced.

272.
1. Dixon, Robert G.
2. Silvicultura, informe preliminar: botanica, silvicultura, manejo.
3. FR
4. General
5. Proyecto 127, UNDP FAO (1966)
6.
7. silviculture
8. TF

273.
1. Djapilus, A. H.
2. Pengaruh pemangkasan dan bentuk bibit mahoni (Swietenia macrophylla King) terhadap persen jadi dan pertumbuhan di lapangan.
3. IND
4. AS, Indonesia
5. Buletin Penelitian Hutan, Pusat Penelitian an Pengembangan Hutan, Indonesia. (188) 497:1-6.
6.
7. growth, nurseries, plantations
8. TF, Swietenia
Container stock of Swietenia macrophylla was compared with normal bare-root stock and bare-root stock undercut in the nursery 15 days before lifting. Survival of the container stock and undercut stock was n.s.d. 6 months after wet-season planting on a lowland site at Cikampek, W. Java; normal bare-root stock survived poorly. The use of undercut bare-root stock is recommended as more efficient than container stock.

274.
1. Dodge, C. R.
2. A descriptive catalogue of useful fiber plants of the world including the structural and economic classification of fibers.
3. EN
4. General
5. USDA Fiber Investigations Report # 9 (1897)
6. NTFP
7.
8. TF

275.
1. Dolezal, B.
2. Internal spatial stand structure as the key problem of shelterwood group.
3. Czech., Russian, EN, GR
4. Europe
5. Lesnictvi (1973) 19:(10)881-894.
6. vegetation-structure
7. felling, shelterwood
8. TmpF

A description of the changes in ideas and methods imposed by the adoption of the shelterwood group system in Czechoslovakia and the resultant type of stand structure, with reference to extraction techniques and working systems, species requirements, regeneration, protection, etc.

276.
1. Dolezal, B.
2. The relations between extraction techniques and working systems under shelterwood group management.
3. GR, EN, Czech
4. Europe
5. Acta Universitatis Agriculturae (Brno), C. (1972) 41:(3/4)313-341.
6.
7. felling, shelterwood, logging
8. TmpF

Under the shelterwood group system in Czechoslovakia a new approach is necessary to the organization and lay-out of cutting sections, location of skidding trails, etc., in order to make efficient use of machinery for extraction. Illustrated examples are presented to demonstrate that the history of the development of such working systems has been related to the methods of extraction used at that time, and that it is by studying the nature of these relations that working systems can best be developed for practicing shelterwood group management in combination with economic mechanized techniques.

277.
1. Dorfman, R.
2. An economists' view of natural resource and environmental problems.
3. EN
4. General
5. In: The Global Possible: Resources, Development and the New Century. Robert Repotto (ed). World Resources Institute. Chap. 4, pp. 67-95
6. natural-resources, marketing
7. economics
8.

278.
1. Douay, J.
2. Appreciation des possibilities de regeneration d'une parcelle de foret tropicale par comptage des preexistants.
3. FR
4.
5. Bois et Forets des Tropiques (1954) 36:11-19.
6.
7. natural-regeneration
8. TF
Regeneration possibilities of a parcel of tropical forest.

279.
1. Ducke, A.
2. The most important woods of the Amazon Valley.
3. EN
4. SA, Brazil
5. Tropical Woods (1943) 74:1-15.
6. wood, wood-utilization
7. economics
8. TF, Carapa

280.
1. Dudin, V. A.
2. Optimum volume removal in shelterwood and selective fellings.
3. Russian
4. USSR
5. Lesnoe Khozyaistvo (1975) 1:23-27.
6. statistics
7. shelterwood, silviculture
8. TmpF Picea
Discusses the principles for determining the optimum cut in uneven-aged Spruce stands [Picea obovata] in the Kriov region of E. Russia, in which the 'young' part of the stand forms 50-60% of the number of trees and 25-30% of the standing volume. On the basis of data for growth after selective logging in such stands, a model was developed for calculating the optimum cut, and this indicates that in these uneven-aged stands of density 0.6-0.9, a cut of 40-50% (by volume) is silviculturally appropriate. This should be followed by a second cut 25-30 years later, which will bring the stands into a structure resembling that of a shelterwood system.

281.
1. Duellman, W. E.
2. Herpetofaunas in neotropical rainforests: comparative composition, history, and resource use.
3. EN
4. SA, CA
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale University Press, New Haven (1990) 455-505.
6. ecology, wildlife
7.
8. TF

282.
1. Dunn, W. W., A. M. Lynch, and P. Morgan.
2. Benefit-cost analysis of fuelwood management using native alder in Ecuador.
3. EN
4. SA, Ecuador
5. Agroforestry Systems. (1990) 11:125-139.
6.
7. economics, fuelwood
8. TF, Alnus

283.
1. Durst, P. B. and M. J. Norris.
2. A profile of United States tropical foresters: depth and variety in experience, education, and skills.
3. EN
4. General
5. Journal of Forestry (1990) 88:(2)17-20.
6. education
7.
8. TF

284.
1. Dutrow, G.
2. The economics of forestry improvement: past and future.
3. EN
4. General
5. Parts I and II. Unpbl. ms. Wash., DC: Timb. Mgt. Res., USDA For. Serv. (1974)
6.
7. economics, silviculture
8.

285.
1. Dyrness, C. T.
2. Soil surface condition following tractor and high-lead logging in the Oregon Cascades.
3. EN
4. NA, USA
5. Journal of Forestry (1965) 63:(4)272-275.
6.
7. logging-damage, erosion
8. TF

286.
1. Earl, D. E.
2. Charcoal and forest management.
3. EN
4. General
5. Commonwealth Forestry Institute Paper. Oxford. (1973) 107.
6. NTFP, Charcoal
7. economics
8. TF

287.
1. Echenique-Manrique, R. and R. A. Plumptre.
2. A Guide to the use of Mexican and Belizean timbers.
3. EN
4. CA, Belize, Mexico
5. Oxford Forestry Institute Tropical Forestry Paper # 20. 175 pp. (1990)
6. wood-utilization
7.
8. TF

288.
1. Echevarria Zamora, E. and R. Napoles.
2. Incidencia de Apate monachus (Coleop, Bostrychidae) sobre cinco especies latifolias, en areas de la EFI [Empresa Forstal Integral] Sierra Maestra.
3. ES
4. Caribbean, Cuba
5. Boletin Tecnico Forestal (1985) 1:(85)14-24.
6.
7. pests
8. Hibiscus, Delonix, Samanea, Swietenia
Occurrence of Apate monachus (Coleoptera, Bostrychidae) on five broadleaved species in areas of the Sierra Maestra Integrated Forestry Enterprise, Cuba.

289.
1. Eckholm, E., G. Foley, G. Barnard, and L. Timberlake.
2. Fuelwood: the energy crisis that won't go away.
3. EN
4. General
5. International Institute for Environment and Development, Washington, DC (1984) 105.
6.
7. plantations, fuelwood
8. TF

290.
1. Eden, J.
2. Silvicultural and agroforestry developments in the Amazon Basin of Brazil.
3. EN
4. SA, Brazil
5. Commonwealth Forestry Review (1982) 61:
6. conservation
7. silviculture
8. TF

291.
1. Eden, M. J.
2. Ecology and land management in Amazonia.
3. EN
4. SA, Brazil
5. Bellhaven Press London. 269p. (1990)
6. conservation, ecology
7.
8. TF

292.
1. Edwards, J. P.
2. Preparatory fellings - suggested modifications.
3. EN
4. AS, General
5. Malayan Forester (1931) 1:53-55.
6.
7. felling, shelterwood
8. TF

293.
1. Edwards, W. G.
2. Organizacion, administracion y manejo del sector forestal del Ecuador. Actualizacion.
Organization, administration and management of the forestry sector in Ecuador. Modernization.
3. ES
4. SA, Ecuador
5. Quito, Ecuador; Ministerio de Agricultura y Ganaderia (1985) 44.
6. policy-issues
7.
8. TF

294.
1. Ehui, S. K., T. W. Hertel, and P. V. Prekel.
2. Forest resource depletion, soil dynamics, and agricultural productivity in the tropics.
3. EN
4. General
5. Journal of Environmental Economics and Management (1990) 18:136-151.
6. agriculture, conservation
7. erosion
8. TF

295.
1. Eisenberg, J. F.
2. Neotropical mammal communities.
3. EN
4. CA, SA, Costa-Rica, Brazil, Panama, Peru
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale Unviersity Press, New Haven (1990) 358-368.
6. ecology, wildlife
7.
8. TF

296.

1. Ellen, R. F.
2. Patterns of indigenous timber extraction from Moluccan rain forest fringes.
4. AS, Indonesia
5. Journal of Biogeography (1985) 12:559-587.
6. conservation
7. felling
8. TF

297.

1. Enright, N. and J. Ogden.
2. Applications of transition matrix models in forest dynamics: Araucaria in Papua New Guinea and Nothofagus in New Zealand.
3. EN
4. AS, New-Guinea New-Zealand
5. Australian J. of Ecol. (1979) 4:3-23.
6. statistics, ecology
7. growth
8. TF, TmpF, Araucaria, Nothofagus

Stand projection matrix approach outlined with examples.

298.

1. Enright, N. H.
2. The effects of logging on the regeneration and nutrient budget of Araucaria cunninghamii dominated tropical rain forest in Papua New Guinea.
3. EN
4. AS, New-Guinea
5. Malaysian Forester (1978) 41:303-318.
6.
7. logging, natural-regeneration, erosion, growth
8. TF, Araucaria

299.

1. Erfurth, T.
2. Toward the wider use of tropical wood products.
3. EN
4. General
5. Unasylva (1976) 28:119-26.
6. wood-utilization
7. economics
8. TF

300.

1. Evans, J.
2. Plantation forestry in the tropics.
3. EN
4. General
5. Clarendon Press, Oxford (1982)
6. textbook
7. plantations
8. TF

Basic overview of plantation establishment and maintenance methods with only brief mention of natural forest management.

301.
1. Evans, J.
2. Site and species selection: changing perspectives.
3. EN
4. General
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 279-290.
6.
7. plantations
8. TF

302.
1. Evans, J.
2. Sustainable use of plantation forestry in the lowlands tropics.
3. EN
4. General
5. Paper presented at the DESFIL Humid Tropical Lowlands Conference, Plaza Paitilla Inn Hotel, Panama, Republic of Panama, 17-21 June 1991.
6.
7. plantations
8. TF
Overview of plantation forestry.

303.
1. Ewel, J. J.
2. Differences between wet and dry successional tropical ecosystems.
3. EN
4. General
5. Geo. Eco. Trop. (1977) 1:103-117.
6. succession, ecology
7.
8. arid
Vegetation structure, dynamics, and successional processes discussed.

304.
1. Ewel, J.
2. Environmental implications of tropical forest utilization.
3. EN
4. general
5. Pages 158-167 in: International symposium on Tropical Forests, utilization and conservation. F. Mergen, ed. Yale University, School of Forestry and Environmental Studies, New Haven, CT. (1981) 158-167:
6. wood-utilization, conservation
7. logging-damage, erosion
8. TF
Impacts of forest utilization on wildlife, water, stand, and site quality: a review.

305.
1. Ewel, J. and L. F. Conde.
2. Potential ecological impact of increased intensity of tropical forest utilizaiton.
3. EN
4. General
5. Biotrop. spec. public. no.11 ISSN 0125-975X. (1980)
6. conservation, wood-utilization
7. felling, logging-damage, extraction

8. TF
Extracting more timber will result in more logging damage. Good review of the logging damage literature.

306.
1. Ewel, J.
2. Secondary forests: the tropical wood resource or the future.
3. EN
4. CA
5. Pages 53-60 in: Simposio Internacional sobre las Ciencias Forestales y su Contribucion al Desarrollo de la America Laina. San Jose, Costa Rica. M. Chavarria, ed. 53-60.
6. vegetation-structure, succession
7. economics
8. TF, secondary-forest
Characteristics of secondary forests and successional species, environmental effects of secondary forest management, comparisons with plantations.

307.
1. Faber-Langendoen, D.
2. Combining conservation and forestry in a Columbian rain forest: an ecological assessment.
3. EN
4. SA, ColOmbia
5. Ph.D. Dissertation, St. Louis University, Missouri, USA. (1989)
6. conservation
7. clearcut, natural-regeneration, coppicing
8. TF

308.
1. Faber-Langendoen, D.
2. Natural rain forest management at the Bajo Calima Concession, Colombia.
3. EN
4. SA, Colombia
5. Forestry Research Report No. 6, Smurfit Carton de Colombia. Research and Development, Box 626, Callahan, FL, USA.
6. conservation
7. clearcut, coppicing
8. TF

309.
1. Falconer, J.
2. Forestry extension: a review of the key issues.
3. EN
4. General
5. ODI Social Forestry Network Paper, No 4e. London: Overseas Development Institute (1987)
6. education, conservation
7.
8. TF
Goals and techniques of forestry extension.

310.
1. Fanshawe, D. B.
2. Studies of the trees of British Guiana. I. Crabwood (Carapa guianensis).
3. EN
4. SA, Guyana
5. Tropical Woods (1947) 90:30-40.
6. wood-utilization
7. species-description
8. TF, Carapa

311.
1. Fanshawe, D. B.
2. Studies of the trees of British Guiana. II. Greenheart (Ocotea rodiaei Schomb. Mex.).
3. EN
4. SA, Guyana
5. Tropical Woods (1947) 92:25-40.
6. wood-utilization
7. species-description
8. TF, Ocotea

312.
1. Fanshawe, D. B.
2. Studies of the trees of British Guiana. III. Wallaba (Eperua spp.). IV. Purpleheart (Peltogyne spp.). V. Mora (Mora excelsa Bth.).
3. EN
4. SA, Guyana
5. Tropical Woods (1948) 93:1-28.
6. wood-utilization
7. species-description
8. TF, Eperua, Mora, Peltogyne

313.
1. Fanti, M.
2. The mattress-growing tree - Kapok.
3. EN
4. General
5. J. Geog. (1943) 42:96-103.
6. NTFP
7.
8. TF, Ceiba

314.
1. FAO.
2. Appropriate technology in forestry.
3. EN
4. General
5. FAO Forestry Paper 31, FAO; Rome (1982)
6. conservation, industry
7. logging, economics
8. TmpF, TF

315.
1. FAO.
2. Appropriate forest industries.
3. EN
4. General
5. FAO Forestry Paper No. 68. FAO, Rome (1986)
6. wood-utilization, industry
7.
8. TF

316.
1. FAO.
2. Assessment of logging costs from forest inventories in the tropics.
3. EN
4. General
5. FAO For. Pap. 10/1 and 10/2. FAO, Rome, Italy (1978)
6.
7. inventory, logging-damage, economics
8. TF

317.
1. FAO.
2. Basic technology in forestry operation.
3. EN
4. General
5. FAO Forestry Paper 36 (1982) 132.
6. industry
7. logging, extraction
8. TF

318.
1. FAO.
2. Chainsaws in tropical forests.
3. EN
4. General
5. FAO Train. Ser. 2. FAO, Rome, Italy (1980)
6. education
7. logging, felling
8. TF

319.
1. FAO.
2. Charcoal.
3. EN
4. General
5. FAO Forestry Occassional Paper 2 (1956)
6. NTFP, charcoal
7. fuelwood
8. TF

320.
1. FAO.
2. Charcoal production and technology.
3. EN
4. General
5. 7 (1983)
6. charcoal, NTFP
7.
8. TF

321.
1. FAO.
2. Coconut wood. Processing and use.
3. EN
4. General, AS
5. FAO Forestry Paper 57. (1985) 58.
6. wood-utilization, NTFP
7.
8. TF, palms
A compilation of information on coconut palms (Cocos nucifera). Production, processing, potential uses and realized uses are presented.

322.
1. FAO.
2. Committee on Forest Development in the Tropics.
3. EN
4. General
5. Report of the Third Session of the Committee on Forest Development in the Tropics (Rome, Italy, May 1974) (1974) Food and Agriculture Organization of the United Nations, Rome, Italy.
6. marketing
7. enrichment, inventory
8. TF
Included in the report are the following: follow-up to recommendations from the second session, a discussion of development and management of dry zones in the tropics, FAO studies on forest working techniques in tropical forestry, potential use of remote sensing techniques, properties and uses of tropical woods and lesser-known species, pioneer studies on the use of mixed tropical hardwoods and future activities of the committee.

323.
1. FAO.
2. Extracion de trazas mediante bueyas y tractores agricolas.
3. ES
4. General
5. FAO Forestry Paper 49 (1984)
6.
7. extraction
8. TF

324.
1. FAO.
2. Food and fruit-bearing forest species.
3. EN
4. General
5. FAO, 167 pp. (1985)
6. agriculture, NTFP, fruits
7.
8. TF,

325.
1. FAO.
2. Forestry for local community development.
3. EN
4. General
5. FAO Forestry Paper 7, Rome (1978) 135.
6. social-issues
7. economics
8. TF

326.
1. FAO.
2. Impact on soils of fast-growing species in lowland humid tropics.
3. EN
4. General
5. FAO Forestry Paper 21 (1980)
6. conservation
7. plantations, erosion
8. TF

327.
1. FAO.
2. Logging and log transport in tropical high forest. A manual on production and costs.
3. EN
4. AS
5. FAO Forestry Development Paper 18 (1974) 90.
6.
7. logging, roads, extraction
8. TF, montane

328.
1. FAO.
2. Logging of mountain forests.
3. EN
4. General
5. FAO Forestry Paper 33 (1982) 285.
6.
7. logging, extraction, erosion
8. TF, montane

329.
1. FAO.
2. Logging and transport in steep terrain.
3. EN
4. General
5. FAO Forestry Paper 14, Rev. 1 (1985) 333.
6.
7. logging, extraction, erosion
8. TF, montane

330.
1. FAO.
2. Los recursos forestales de la America tropical.
3. ES
4. CA, SA
5. Rome UN. 3216.1301-78-04, Informe tecnico 1 (1981)
6. natural-resources
7. inventory
8. TF
Forestry resources in the American tropics.

331.
1. FAO.
2. Planning forest roads and harvesting systems.
3. EN
4. General
5. FAO Forestry Paper 2 (1977) 148.
6.
7. logging, extraction, roads
8. TF, TmpF

332.
1. FAO.
2. Public forestry administration in Latin America.
3. EN
4. CA, SA
5. FAO Forestry Paper 25 (1981)
6. social-issues, policy-issues
7.
8. TF

333.
1. FAO.
2. Report of the committee on problems of tropical silviculture and management.
3. EN
4. General
5. FAO/APFC. 52/89 (1952)
6. policy-issues
7. silviculture
8. TF

334.
1. FAO.
2. Report of the sub-committee on silviculture systems for lowland tropical rain forests.
3. EN
4. General
5. 5th session APFC, New Delhi, FAO/APFC 60/10e. 3. (1960)
6.
7. silviculture
8. TF

335.
1. FAO.
2. Report on a pilot study on the methodology of conservation of forest genetic resources.
3. EN
4.
5. Based on the work of L.R. Roche and other authors. Rome: FAO (1975)
6. conservation, genetics
7.
8. TF

336.
1. FAO.
2. Simple technologies for charcoal making.
3. EN
4. General
5. FAO Forestry Paper 41 (1983)
6. charcoal, NTFP
7.
8. TF

337.
1. FAO.
2. Small and medium sawmills in developing countries.
3. EN
4. General
5. FAO Forestry Paper 28 (1981)
6. wood-utilization
7. sawmills
8. TF

338.
1. FAO.
2. Small-scale forest-based processing enterprises.
3. EN
4. General
5. FAO Forestry Paper No. 79. FAO, Rome (1987)
6. industry, wood-utilization
7.
8. TF

339.
1. FAO.
2. Tropical forest resources.
3. EN
4. General
5. FAO Forestry Paper 30 (1982)
6. natural-resources
7. inventory
8. TF

340.
1. FAO.
2. Wood extraction with oxen and agricultural tractors.
3. EN
4. General
5. FAO Forestry Paper No. 49. FAO, Rome (1986)
6.
7. extraction, logging
8. TF

341.
1. FAO Forestry Department.
2. Are eucalypts ecologically harmful?
3. EN
4. General
5. Unasylva (1986) 152:19-22.
6. conservation
7. plantations
8. TF, Eucalyptus
Presents evidence for and against the contention that eucalypt plantations are ecologically harmful.

342.
1. FAO Staff.
2. The tropical forestry action plan: regional priorities for Asia and the Pacific.
3. EN
4. AS
5. Unasylva (1990) 162:(41)49-63.
6. policy-issues, conservation
7.
8. TF
Identifies priorities for attention which are appropriate to the specific problems and potentials of forestry development in the Asia-Pacific region within the framework of the Tropical Forestry Action Plan (TFAP).

343.
1. Fays, E. P. de, and J.P. Huygen.
2. Enrichissement des forets ombrophytes heterogenes dans la province orientale du congo belge.
3. FR
4. AF, Congo
5. Bulletin Agricole du Congo Belge (1955) 46:(1)87-102.
6.
7. enrichment
8. TF

344.
1. Fearnside, P. M.
2. Development alternative in the Brazilian Amazon: an ecological evaluation.
3. EN
4. SA, Brazil
5. Interciencia (1983) 8:65-78.
6. policy-issues, conservation, NTFP
7. economics
8. TF

345.
1. Fearnside, P. M.
2. Extractive reserves in Brazilian Amazonia.
3. EN
4. SA, Brazil
5. Interciencia (1985) 10:121-129.
6. conservation, NTFP
7. clearcut, pulpwood
8. TF

346.
1. Fearnside, P. M.
2. Extractive reserves in Brazilian Amazonia.
3. EN
4. SA, Brazil
5. BioScience (1989) 39:387-393.
6. policy-issues, conservation, NTFP
7. economics
8. TF

A review of the status, philosophy, and limitations of the extractive reserve concept.

347.
1. Fearnside, P. M.
2. Forest management Amazonia: the need for new criteria for evaluating development options.
3. EN
4. SA, Brazil
5. Forest Ecology & Management (1989) 27:61-79.
6. policy-issues, conservation, industry
7. economics
8. TF

348.
1. Fearnside, P. M. and J. M. Rankin.
2. Jari revisited: changes and the outlook for sustainability in Amazonia's largest silvicultural estate.
3. EN
4. SA, Brazil
5. Interciencia (1985) 10:(3)121-129.
6. conservation, industry
7. clearcut, pulpwood
8. TF

349.
1. Federal Department of Forest Research (Nigeria).
2. Investigation into natural regeneration in tropical high forests in southern Nigeria.
3. EN
4. AF, Nigeria
5. Nigerian Forestry Information Bulletin (n.s.) (1960) 2.
6.
7. natural-regeneration
8. TF, montane

350.
1. Fetcher, N., S. F. Oberbauer, G. Rojas, y B. R. Strain.
2. Efectos del regimen de luz sobre la fotosintesis y el crecimiento en plantulas de arboles de un bosque lluvioso troipcal de Costa Rica.
3. ES
4. CA, Costa-Rica
5. Rev. Biol. Trop. 35, 1987. 97-110:
6. ecology
7.
8. TF, Cordia, Heliocarpus, Dipteryx, Ochroma, Carapa, Minquartia, Hampea, Simarouba, Virola, Pentaclethra
Growth of seedlings under different light intensities.

351.
1. Figueroa Arriaga, A. M.
2. Comportamiento inicial de 3 especies forestales bajo dos methodos de reforestacion, en la aldea Buena Vista, Chimaltenango, Guatemala.
3. ES
4. Guatemala
5. Thesis, San Carlos University (1987) 61 p.
6.
7. taungya, species-trials, plantations
8. Alnus, Casuarina, Eucalyptus, exotics
A comparison of traditional reforestation methods to Taungya (intercopping) using 3 timber species (Alnus arguta, Casuarina equisetifolia and Eucalyptus globulus).

352.
1. Figueroa C., J., F. H. Wadsworth, and S. Branham (editors).
2. Management of the forests of tropical America: prospects and technologies.
3. EN, ES
4. General
5. Institute of Tropical Forestry (1987)
6.
7. silviculture, economics
8. TF
Proceedings of a conference held in Puerto Rico.

353.
1. Figueroa, J. C., L. Totti, A. E. Lugo, and R. O. Woodbury.
2. Structure and composition of moist coastal forests in Dorado, Puerto Rico.
3. EN
4. Caribbean, Puerto-Rico
5. Research Paper, Southern Forest Experiment Station, USDA Forest Service (1984) No. SO-202:
6. vegetation-composition, vegetation-structure
7. inventory
8. TF, Ocotea

Changes in coverage and forest types over 44 yr were observed from aerial photographs taken in 1937, 1950, and 1981. Six forest types with 51 tree species were identified and described: old secondary forest; young secondary forest; swampy forest dominated by Clusia rosea, Syzygium jambos and Ocotea leucoxylon; wetland forest dominated by Pterocarpus officinalis; disturbed open forest; and an abandoned palm grove. Apart from the Pterocarpus forest, which had not changed in composition although reduced in area, succession was proceeding towards 'old secondary forest.'

354.
1. Findlay, W. P. K.
2. Heart-rots of trees - recognition and significance.
3. EN
4. General
5. Quart. J. For. (1960) 54:146-150.
6.
7. pathogens
8. TF, TmpF

355.
1. Finegan B. and C. Sabogal.
2. El desarrollo de sistemas de produccion sostenible en bosques tropicales humedos de bajura: un estudio de caso en Costa Rica.
3. ES
4. CA, Costa-Rica
5. El Chasqui (1988) 18:16-24.
6.
7. silviculture
8. TF

356.
1. Finegan B. and C. Sabogal.
2. El desarrollo de sistemas de produccion sostenible en bosques tropicales el humedos de bajura: un estudio de caso en Costa Rica (parte 1).
3. ES
4. CA, Costa-Rica
5. El Chasqui (1988) 17:(3-24)
6.
7. silviculture
8. TF

357.
1. Finegan, B.
2. Forest succession.
3. EN
4. General
5. Nature (1984) 311:109-114.
6. succession, ecology
7.
8.

358.
1. Finegan, B.
2. The management potential of neotropical secondary lowland rain forest.
3. EN
4. CA, Costa-Rica
5. Forest Ecology and Management (1991)
6.
7.
8. TF, secondary-forest

359.
1. Finegan, B.
2. The productive potential of neotropical secondary lowland rain forests.
3. EN
4. General
5. Paper presented at the DESFIL Humid Tropical Lowlands Conference, Plaza Paitilla Inn Hotel, Panama, Republic of Panama, 17-21 June 1991. (1991)
6. ecology, succession
7. silviculture
8. TF, secondary-forest
Discusses preliminary results of studies in Costa Rica.

360.
1. Finegan, B.
2. The productive potential of neotropical secondary lowland rain forests.
3. EN
4. CA, Costa-Rica
5. DESFIL Conference Proceedings, Panama (1991)
6.
7.
8. TF, secondary-forest

361.
1. Fink, S.
2. The occurrence of adventitious and preadventitious buds within the bark of some temperate and tropical trees.
3. EN
4. General
5. American Journal of Botany (1983) 70:532-542.
6.
7. coppicing
8. TF, TmpF

362.
1. Finol, H. O.
2. Estudio silvicultural de algunas especies comerciales en el bosque universitario El Caimital, estado Barinas.
3. ES
4. SA, Venezuela
5. Revista Forestal Venezolana (1964) 7:(10/11)55-57.
6.
7. enrichment, silviculture
8. TF, Hura
Silvicultural studies on several commercial tree species in the university forest El Caimital, near Barinas, Venezuela.

363.
1. Finol, H.
2. Metodos de regeneracion natural en unos tipos de bosques Venezolanos.
3. ES
4. SA, Venezuela
5. Universidad de Los Andes/Facultad de Ciencias Forestales. Merida. (1975)
6.
7. natural-regeneration
8. TF
Methods of natural regeneration in Venezuelan forests.

364.
1. Finol, H.
2. Posibilidades de manejo silvicultural para las recursos forestales de la region occidental.
3. ES
4. SA, Venezuela
5. Rev. For. Venezolana No. 17, Merida, Venezuela. (1969)
6. conservation
7. inventory, silviculture
8. TF
Forest management possibilities in western Venezuela.

365.
1. Fisher, B. L., H. F. Howe, and S. J. Wright.
2. Survival and growth of Virola surinamensis yearlings: water augmentation in gap and understory.
3.
4.
5. Oecologia (1991) 86:292-297.
6.
7.
8.

366.
1. Fletcher, M. I.
2. Balsa - production and utilization.
3. EN
4. General
5. Economic Botany (1951) 5:(2)107-125.
6. wood-utilization, industry
7. silviculture
8. TF, Ochroma

367.
1. Flora, D. F.
2. Timber as a strategic resource.
3. EN
4. General
5. Journal of Forestry (1973) 71:(7)396-398.
6. natural-resources, marketing, conservation
7. economics
8. TF, TmpF

368.
1. Florence, J.
2. Chablis et sylvigenese dans une foret dense humide sempervirente du Gabon.
3. FR
4. AF
5. Thesis, Universite Louis Pasteur, Strasbourg, France. (1981)
6. ecology, succession
7.
8. TF
Gaps and silviculture in the rainforests of Gabon.

369.
1. Foggie, A.
2. Natural regeneration in the humid tropical forest.
3. EN
4. General
5. Caribbean Forester (1960) 73-81.
6. ecology
7.
8. TF

370.
1. Foggie, A.
2. On the problems of management of the forest reserves in the closed forest zone of the Gold Coast.
3. EN
4. AF
5. Empire Forestry (1953) 32:(4)330-341.
6. conservation
7. silviculture
8. TF

371.
1. Foley, G. and G. Barnard.
2. Farm and community forestry.
3. EN
4. General
5. ODI Social Forstry Network Paper, no. 1b. London: Overseas Development Institute (1985)
6. agriculture
7. community-forestry
8. TF
Review of techniques and potential of farm and community forestry

372.
1. Foleym, G.
2. Charcoal making in developing countries.
3. EN
4. General
5. Earthscan Information Programe, Technical Report 5. (1986) 214.
6. charcoal
7.
8. TF
Detailed explanation of methods for making charcoal. Very thorough overview.

373.
1. Fontana, E.
2. Regeneracion de los montes altos y medios de los Llanos Occidentales de Venezuela: causas de la desvaloracion de nuestros montes.
3. ES
4. SA, Venezuela
5. El Agricultor Venezolano (1947) 12:(125)26-30.
6. conservation
7. economics
8. TF, savannas
Forest regeneration in the western plains of Venezuela: causes of devaluation of forests.

374.
1. Forcier, L. K.
2. Reproductive strategies and the co-occurrence of climax tree species.
3. EN
4. General
5. Science (1975) 189:808-810.
6. ecology
7. natural-regeneration
8. TF

375.
1. Ford, L.
2. Incentives for private forest investment.
3. EN
4.
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 415-420.
6. policy-issues
7. economics
8. TF

376.
1. Forget, P. M.
2. Comparative recruitment patterns of two non-pioneer canopy tree species in French Guiana.
3. EN
4. SA, French-Guiana
5. Oecologia (1991) 85:434-439.
6. ecology
7. natural-regeneration
8. TF

377.
1. Forget, P. M.
2. Seed-dispersal of Vouacapoua americana (Caesalpiniaceae) by caviomorph rodents in French Guiana.
3. EN
4. SA, French-Guiana
5. Journal of Tropical Ecology (1990) 6:459-468.
6. wildlife, seed-dispersal, seeds
7. pests
8. TF, Vouacapoua

378.
1. Fors, A. J.
2. Notas sobre la silvicultura del Cedro, Cedrela mexicana Roem.
3. ES
4.
5. Caribbean Forester (1944) 5:115-118.
6. ecology
7. silviculture
8. TF, Cedrela
Notes on the silviculture of the cedar, C. mexicana Roem.

379.
1. Fortmann, L. and J. Bruce (eds).
2. Whose trees? Proprietary dimensions of forestry.
3. EN
4. CA, Costa-Rica, Honduras, Haiti
5. Boulder: Westview Press (1988)
6. policy-issues, conservation
7.
8. TF
Articles on how rights to trees and land are defined in Costa Rica, Honduras, and Haiti.

380.
1. Foster, R. B.
2. The floristic composition of the Rio Manu floodplain forests.
3. EN
4. SA, Peru
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale University Press, New Haven (1990) 99-111.
6. ecology, taxonomy
7.
8. TF

381.
1. Foster, R. B. and S. P. Hubbell.
2. The floristic composition of the Barro Colorado Island forest.
3. EN
4. CA, Panama
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale University Press, New Haven (1990) 85-98.
6. ecology, taxonomy
7.
8. TF

382.
1. Foster, R. B.
2. Long-term change in the successional forest community of the Rio Manu floodplain.
3. EN
4. SA, Peru
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale Univeristy Press, New Haven (1990) 565-572.
6. ecology, succession
7.
8. TF, secondary-forest

383.
1. Fox, G. D.
2. Forestry in developing countries: potentials, constraints, and opportunities.
3. EN
4. General
5. TA/OST 72-12. Office of Science and Technology, Agency for International Development. Washington, DC (1972)
6. conservation, industry
7. silviculture
8. TF

384.
1. Fox, G. D.
2. Technological opportunities for tropical forestry development.
3. EN
4. General
5. TA/OST 73-21. Office of Science and Technology. Agency for International Development. Washington, DC (1973)
6. industry, wood-utilization
7. silviculture
8. TF

385.
1. Fox, J. E. D.
2. Assessment of the effectiveness of natural regeneration operations in the tropical high forest.
3. EN
4. AS
5. (1967)
6.
7. silviculture, natural-regeneration
8. TF, dipterocarp

386.
1. Fox, J. E. D.
2. Constraints on the natural regeneration of tropical moist forest.
3. EN
4. General
5. Forest Ecology and Management (1976) 1:37-65.
6. conservation
7. natural-regeneration
8. TF

Review of the biological bases of natural forest management, constraints, and possible solutions. Many examples from Malaysia but of general interest.

387.
1. Fox, J. E. D.
2. Defect, damage, and wastage.
3. EN
4. General, AS, Malaysia
5. Malayan Forester (1968) 31:157-164.
6.
7. logging-damage, extraction
8. TF

388.
1. Fox, J. E. D.
2. Effects de l'utilization accrue de la foret naturelle sur le succes de la regeneration naturelle a Sabah.
3. FR
4. AS, Malaysia
5. Bois For. Trop. (1972) 141:3-27.
6.
7. natural-regeneration
8. TF, Dipterocarpaceae
Effects of long-term use on the success of natural regeneration in the forests of Sabah.

389.
1. Fox, J. J.
2. Harvest of the palm: ecological change in eastern Indonesia.
3. EN
4. AS, Indonesia
5. (1964) Harvard University Press, Massachussetts.290 pp.
6. NTFP, social-issues
7.
8. TF, palms

390.
1. Fox, J. E. D.
2. The historical plot approach to silviculture.
3. EN
4. AS
5. Sabah Society Journal (1968) 3:182-189.
6.
7. silviculture, inventory, growth
8. TF, Dipterocarpaceae

391.
1. Fox, J. E. D.
2. Logging damage and the influence of climber cutting prior to logging in the lowland Dipterocarp forest of Sabah.
3. EN
4. AS, Malaysia
5. Malayan Forester (1968) 31:326-347.
6.
7. climbers, logging-damage
8. TF, lianas
Results of experimental study; logging damage reduced by climber cutting.

392.
1. Fox, J. E. D.
2. Natural regeneration of the Kambui Hills forest in eastern Sierra Leone. II. Methods of silvicultural treatment and analysis.
3. EN
4. AF, Sierra-Leone
5. Tropical Ecology (1971) 12:1-12.
6.
7. natural-regeneration
8. TF

393.
1. Fox, J. E. D.
2. Natural regenration of the Kambui Hills forest in eastern Sierra Leone, Part III. The results of silvicultural treatment and management consideration.
3. EN
4. AF, Sierra-Leone
5. Tropical Ecology (1972) 13:139-164.
6.
7. natural-regeneration, silviculture
8. TF

394.
1. Fox, J. E. D.
2. Production in regenerating forest.
3. EN
4. AS
5. Proceedings from Symposium on Science and Technology in Malaysia (1969) 32-41.
6.
7. growth, regeneration
8. secondary-forest

395.
1. Fox, J. E. D., and D. N. P. Chai.
2. Refinement of a regenerating stand of the Parashorea tometnell / Eusideroxylon zwageri type of lowland dipterocarp forest in Sabah -- a problem in silvicultural management.
3. EN
4. AS, Malaysia
5. Malayan Forester (1982) 45:(2)133-183.
6.
7. stand-improvement, growth
8. TF, Dipterocarpaceae, Eusideroxlyon, Macaranga, Shorea

Two 'refinement' treatments were made in 1968 in a stand with 11-yr-old regeneration in the Seguliud-Lokan forest: (a) poison girdling of all non-commercial (mainly larger understorey) and pioneer tree species; and (b) poison girdling of the non-commercial trees with retention of the pioneer trees (Macaranga hypoleuca etc.). Diam. p.a.i. data retabulated for 3 commercial (dipterocarp) species by diam. classes in 1968-73 and 1973-79; other data include stand tables, cumulative b.a., stand progression and mortality/persistence of species, and (in 1969-70) 2-weekly increment response to rainfall. Growth of Shorea johoreneis and S. leprosula was favored by (a), whereas (b) favoured the growth of P. tomentella and the larger trees; the persistence of heavy dipterocarps was highest in control plots. Refinement benefited the 10-15 cm diam. class most. Guidelines are given on refinement operations in relation to local stand structure.

396.
1. Fox, J. E. D.
2. Selected logging in the Philippine dipterocarp forest.
3. EN
4. AS, Philippines
5. Malayan Forester (1967) 30:182-190.
6.
7. selective-logging
8. TF, Dipterocarpaceae

397.
1. Fox, J. E. D.
2. Yield plots in regenerating forests.
3. EN
4. AS
5. Malaysian Forester (1970) 33:7-41.
6.
7. regeneration, growth
8. secondary-forest

398.
1. Franklin, J. F. and R.T.T. Forman.
2. Creating landscape patterns by cutting: ecological consequences and principles.
3. EN
4. General
5. Landscape Ecology (1987) 1:(1)5-18.
6. conservation
7. logging
8. TF

399.
1. Fraser, A. I., R.J.N. Busby, and D.K. Paul.
2. Forest regeneration Suriname.
3. EN
4. SA, Suriname
5. Paramaribo, Suriname. International For. Sci. Consultance/Forestry Service. (1977)
6.
7. natural-regeneration
8. TF

400.
1. Fraser, A. I.
2. Forest sector plan in Suriname: forest resources and production forescasts 1985-2005.
3. EN
4. SA, Suriname
5. Suriname Forest Service, Paramaribo, Suriname. (1981)
6. natural-resources
7. plantations, economics
8. TF

401.
1. Fraser, [illegible]
2. Forestry development in Suriname: forest management.
3. EN
4. SA, Suriname
5. FAO Suriname For. Serv. Paramaribo, Suriname (1973)
6. natural-resources
7. silviculture
8. TF

402.
1. Freas, A. K., M. Chudnoff, R.C. Koeppen, and S.B. Hutchison.
2. Factors influencing the utilization of tropical wood species.
3. EN
4. General
5. TA/OST 73-22. Office of Science and Technology Agency for International Development, Washington. (1973)
6. wood-utilization
7.
8. TF

403.
1. Fritzche, I. K.
2. Storm menace and adaptation. Physiological and technical questions relating to protecting forest from wind damage.
3. EN
4. General
5. USDA Forest Service Division of Silvics Transl. (1933) 143:20.
6. ecology
7. damage
8. TF, TmpF

404.
1. Froehlich, H. A., D. E. Aulerich, and R. Curtis.
2. Designing skid trail systems to reduce soil impacts from tracked logging machines.
3. EN
4. General
5. Research Paper No. 44. Forestry Research Lab, Corvallis, Oregon (1981)
6. conservation
7. logging-damage, extraction
8. TmpF, TF

405.
1. Froehlich, H. A.
2. Soil compaction from low ground-pressure, torsion suspension logging vehicles on three forest soils.
3. EN
4. General, NA
5. Research Paper 36 Forest Research Lab, Corvallis, Oregon (1978)
6.
7. erosion, extraction
8. TmpF

406.
1. Galletti, H. A. and S. Arguellas, L.A.
2. Planificacion estrategica para el desarrollo rural: El caso del Plan Piloto Forestal de Quintana Roo. I. Conceptos y planteamiento general.
3. ES
4. Mexico
5. Conferencia Internacional y Taller "Evaluacion de Tierras y Recursos para la Planeacion Nacional en las Zonas Tropicales". Chetumal, Mexico, 25-31 de Enero, 8 pp. (1987)
6. social-issues, policy-issues
7. silviculture
8. TF, Swietenia

407.
1. Galloway, G. and G. Borgo.
2. Manual de viveros forestales en la Sierra Peruana.
3. ES
4. SA, Peru
5. INFOR/FAO Publication (1983)
6.
7. nurseries
8. Eucalyptus, montane, Pinus

Manual for forest nurseries in the Sierra Peruana. A comprehensive treatment with emphasis on the production of Eucalyptus globulus and Pinus radiata; notes on the handling of several other species are given in an appendix.

408.
1. Garcia-Colmenarez, J. R.
2. Evaluacion preliminar de la plantacion experimental con especies forestales en las sabanas de la Estacion El Irel. Barrancas, Estado Barinas - Venezuela.
3. ES
4. Venezuela, SA
5. Revista Forestal Venezolana (1978) 28:97-143.
6.
7. species-trials, growth
8. Astronium, Bombacopsis, Cassia, Cecropia, Cedrela, Cordia, Enterolobium, Genipa, Gmelina, Hura, Ochroma, Pinus, Pithecellobium, Platymiscium, Swietenia, Tabebuia, Tectona, Vitis, savannas

Preliminary evaluation of experimental plantings of forest trees in savannas in the El Irel Experiment Station at Barancas, Barinas State, Venezuela. Survival and growth were evaluated in pure or mixed plots from 1969 to 1973 (tree age 6-7 yr) for : Bombacopsis quinata, Cordia alliodora, Ochroma lagopus [O. pyramidale], Pinus caribaea var. hondurensis, P. oocarpa, Tectona grandis, Gmelina arborea, Astronium graveolens, Cassia fistula, Cassia siamea, Cedrela mexicana [Cedrela odorata], Cecropia sp., Enterolobium cyclocarpum, Genipa americana, Hura crepitans, Pithecellobium saman [Samanea saman], Platymiscium pinnatum, Swietenia macrophylla, Tabebuia rosea, and Vitex sp. The first 7 species were considered the most promising for afforestation of savannas in the western Llanos of Venezuela.

409.
1. Garrido Gonzalez, F.
2. Educacion forestal universitaria en America Latina.
Forestry education at the university level in Latin America.
3. ES (summary language: EN, French)
4. SA
5. In: Training for agriculture and rural development 1986-87. FAO Economic and Social Development Studies (1988) 44:74-82.
6. education
7.
8. TF
Universidad de Chile, Santiago, Chile.

410.
1. Gascoigne, P. E.
2. A case for coppice-with-standards; for profit and pleasure.
3. EN
4. General
5. Quarterly Journal of Forestry (1980) 74:47-56.
6.
7. economics, coppicing
8. TmpF, TF

411.
1. Geary, T. F. and C. B. Briscoe.
2. Tree species for plantations in the granitic uplands of Puerto Rico.
3. EN
4. Caribbean
5. Forest Service Research Paper. Institute of Tropical Forestry, Puerto Rico. (1972) ITF-14:8.
6.
7. plantations, species-trials
8. TF, Anthocephalus, Casuarina, Eucalyptus, Hibiscus, Pinus
Gives details of the survival and growth of 32 tree species tested for adaptability in Puerto Rico's humid granitic uplands, a region of sandy, well drained, erosive soils. The following are recommended for timber plantations: Pinus caribaea var. hondurensis for most landowners; Hibiscus elatus for those willing to speculate on the development of a demand for this cabinet wood; Anthocephalus chinensis for those with special interest in this light, general-utility wood and those with severe weed problems; and Eucalyptus, e.g., E. robusta, E. tereticornis or E. X. patentinervis (E. kirtoniana), and Casuarina equisetifolia for owners interested only in post and pole crops.

412.
1. Gennino, A. (ed).
2. Amazonia: Voices from the rain-forest. A resource and action guide.
3. EN
4. SA, Brazil
5. Rainforest Action Network, San Francisco, CA. 92 p. (1991)
6. social-issues, policy-issues, conservation
7.
8. TF

413.
1. Gentry, A. H. and J. Terborgh.
2. Composition and dynamics of the Cocha Cashu "mature" floodplain forest.
3. EN
4. SA, Peru
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale University Press, New Haven (1990) 542-564.
6. ecology, disturbance, taxonomy
7.
8. TF

414.
1. Gentry, A. H. and R. H. Wettach.
2. Fevillea - a new oil seed from Amazonian Peru.
3. EN
4. SA, Peru
5. Economic Botany (1986) 40:(2)177-185.
6. NTFP, seeds
7.
8. TF

415.
1. Gentry, A. H.
2. Floristic similarities and differences between southern central America and upper and central Amazonia.
3. EN
4. CA, SA
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale University Press, New Haven (1990) 141-157.
6. ecology, taxonomy
7.
8. TF

416.
1. Gentry, A. H. and K. Cook.
2. Martinella (Bignoniaceae): A widely used eye medicine of South America.
3. EN
4. SA
5. Journal of Ethnopharmacology (1984.) 11:337-343.
6. NTFP
7.
8. TF

417.
1. Ghana Timber Marketing Board.
2. Viewpoints from tropical hardwood producing countries.
3. EN
4. AF, Ghana
5. In: Oldeman, R.A.A. (ed), Tropical hardwood utilization: practice and prospects. The Hague, The Netherlands, Martinus Nijhoff/Junk Publishers. (1982)
6. marketing, wood-utilization
7.
8. TF

418.
1. Ghani, M. N. A. and M.N. Salleh.
2. Hevea brasilensis as a multipurpose tree.
3. EN
4. General
5. In: J. Burley and J.L. Steward (eds) Increasing productivity of multipurpose species. IUFRO Vienna Australia (1985) 527-534.
6. NTFP, rubber
7.
8. TF, Hevea

419.
1. Gillis, A. M.
2. The new forestry.
3. EN
4. NA
5. BioScience (1990) 40:(8)558-562.
6. conservation
7. silviculture
8. TmpF, TF
A discussion of alternative silviculture as it applies to forest management in the United States. The focus of new forestry is on ecosystem management, longterm site productivity.

420.
1. Gillis, M.
2. Fiscal and financial issues in tropical hardwood concessions.
3. EN
4. General
5. Development Discussion Paper no. 110 (1980)
6. concessions, marketing, industry
7. economics
8. TF

421.
1. Gilmour, D. A., G. C. King, G. B. Applegate, and B. Mohns.
2. Silviculture of plantation forest in central Nepal to maximize community benefits.
3. EN
4. AS, Nepal
5. Forest Ecology and Management (1990) 32:173-186.
6. social-issues
7. plantations
8. TmpF

422.
1. Giraldo, V.
2. Private forest managemsnt.
3. ES
4.
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 71-78.
6. policy-issues
7.
8. TF

423.
1. Glanz, W. E.
2. Neotropical mammal densities: how unusual is the community on Barro Colorado Island, Panama?
3. EN
4. SA, Panama
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale University Press, New Haven (1990) 287-313.
6. ecology, wildlife
7.
8. TF

424.
1. Glerum, B. B.
2. Report to the Government of Brazil on a forestry inventory in the Amazon Velley (part five). (Region between Rio Caete and Rio Marocasume).
3. EN
4. SA, Brazil
5. Expanded Tech. Assis. Prog. FAO, Rome. FAO Rpt. No. 1250, pp. 67 and 3 maps, 5 sets of dgms. Limited distribution. (1960)
6.
7. inventory
8. TF, Carapa

425.
1. Godoy, R. A. and Tan Ching Feaw.
2. The profitability of smallholder rattan cultivation in southern Borneo, Indonesia.
3. EN
4. AS, Borneo
5. Human Ecology (1989) 17:(3)347-363.
6. NTFP
7. economics
8. TF, palms

426.
1. Goldammer, J. G. (ed).
2. Fire in the tropical biota.
3. EN
4. General
5. Springer Verlag, Berlin, Germany. 497 p. (1990)
6. ecology, fire
7.
8. TF

427.
1. Gomez-Pompa, A., J. S. Flores, and V. Sosa.
2. The 'Pet Kot': a man-made tropical forest of the Maya.
3. EN
4. Mexico
5. Interciencia (1987) 15:(1)10-15.
6. ecology, conservation, NTFP
7.
8. TF, secondary-forest
Forest vegetation within stone walls made by Maya. Discusses influence of Maya on "natural" vegetation.

428.
1. Gomez-Pompa, A., C. Vasquez-Yanes and S. Guevara.
2. The tropical rain forest: a nonrenewable resource.
3. EN
4. General
5. Science (1972) 117:762-765.
6. NTFP, natural-resources, conservation
7. regeneration
8. TF
Essay on non-sustainable vs. sustainable forest uses.

429.
1. Gonggrijp, J. W. and D. Burger.
2. Bosbouwkundige studeen over Suriname.
3. EN
4. SA, Suriname
5. Wageningen, The Netherlands, Veenman and Zonen. (1948)
6.
7. silviculture
8. TF
Studies about forestry in Suriname.

430.
1. Gonzaez-Pacheco, C.
2. Capital extranjero en la selva de Chiapas, 1863-1982.
3. ES
4. Mexico
5. Mexico, D.F.: Instituto de Investigaciones Economicas, Universida Nacional Autonoma de Mexico (UNAM) (1983)
6. conservation, policy-issues
7. economics, industry
8. TF
Foreign capital in the forest of Chiapas, 1863-1982. Historical account of use and destruction of a once forested area in Chiapas, emphasizing "forest mining" by transnational corporations.

431.
1. Goodland, R., A. Juras, and R. Pachauri.
2. Can hydro-reservoirs in tropical moist forest be made environmentally acceptable?
3. EN
4. General
5. unpubl. ms (1991)
6. conservation
7. economics
8. TF

432.
1. Goodland, R. J. A.
2. Environmental ranking of Amazonian development projects in Brazil.
3. EN
4. SA, Brazil
5. Environmental Conservation (1980) 7:9-26.
6. conservation
7. economics
8. TF

433.
1. Goodland, R., ed.
2. Race to Save the Tropics: Ecology and Economics for a Sustainable Future.
3. EN
4. general
5. Island Press, Washington, D.C. (1990) 3-219.
6. conservation
7. economics
8. TF

434.
1. Goodland, R.
2. Sustainability of wood from tropical moist forest.
3. EN
4. General
5. Conference: Economics of the sustainable use of forest resources (1990) Centre for Science and Environment, New Delhi, India.
6. policy-issues, conservation
7. economics
8. TF

A discussion of sustainability and examples of existing systems (e.g., Burmese teak rotation, Malayan Uniform System, Nigerian Shelterwood System, Polycyclic Felling System, extractive reserves, and agroforestry sytems). Recommendations for policies for sustainability are presented.

435.
1. Goodland, R. J. A., E. O. A. Asibey, J. C. Post, and M. B. Dyson.
2. Tropical moist forest management: the urgency of transition to sustainability.
3. EN
4. General
5. Environmental Conservation (1990) 17:(4)303-318.
6. conservation
7.
8. TF

436.
1. Goodland, R.
2. Tropical deforestation solutions, ethics and religions.
3. EN
4. General
5. In: The world Bank Sector Policy and Research Staff, Env. Working Pap No. 43. 57 pgs. (1991)
6. conservation, policy-issues, social-issues
7. economics
8. TF

437.
1. Goodland, R. J. A., E. O. A. Asibey, J. C. Post, and M. B. Dyson.
2. Tropical moist forest management: the urgency of transition to sustainability.
3. EN
4. General
5. Ecological Economics. R. Costanza, ed. 535 pp. (1991) Columbia Press, New York.
6. conservation
7. plantations, economics
8. TF

438.
1. Goodland, R.
2. Tropical deforestation - solutions, ethics, and religions.
3. EN
4. General
5. Environment Working Paper No. 43. The World Bank (1991)
6. conservation
7.
8.

439.
1. Goswami, P. C.
2. Agro-forestry -- practices and prospects as a combined land-use system.
3. EN
4. AS
5. Indian Forester (1982) 108:(6)385-396.
6. agriculture
7. taungya, plantations
8. TF

An expansion of Combe's definition of agroforestry is given: multiple land-use practices involving trees, food and/or forage crops and livestock raising simultaneously or sequentially in a single farming system. The taungya system and its modifications are discussed and the role of agroforestry in controlling shifting cultivation is described. Common agroforestry practices in some countries of the humid tropics are outlined.

440.
1. Gottfried, G. J.
2. Effects of modified skidding rules on mixed conifer regeneration in Arizona.
3. EN
4. NA, USA
5. USDA Forest Service Research Note RM-479 (1987)
6.
7. logging-damage, regeneration, extraction
8. TmpF, conifers

441.
1. Government of India.
2. A concise manual of silviculture for the use of forestry students in India.
3. EN
4. AS, India
5. Office of the superintendent, Government printing, India. (1906)
6. textbook
7. silviculture
8. TF

442.
1. Graaf, N. R. de.
2. Silviculture.
3. EN
4. General
5. In: Project LH/uVs 01, Human Interference in the Tropical Rainforest Ecosystem. Annual report, 1980. Paramaribo, Suriname, CELOS, pp 12-26. (1982B)
6.
7. silviculture
8. TF

443.
1. Graaf, N. R. de.
2. A silvicultural system for natural regeneration of tropical rain forest in Suriname.
3. EN
4. SA, Suriname
5. Agricultural University, Wageningen, The Netherlands. (1986)
6.
7. natural-regeneration, silviculture
8. TF
Detailed analysis of the CELOS silvicultural system. Experimental results on the effects of treatments. Advocates maintaining high biomass forest on poor soils.

444.
1. Graaf, N. R. de.
2. Sustained timber production in the tropical rainforest of Suriname.
3. EN
4. SA, Suriname
5. Proceedings of the joint workshop on management low fertility acid soils of the American humid tropics. Paramari', Suriname, 22-26. November, 1981. Ponencias, Resultados y Recomendaciones de Eventos Technicos No. 226. Eds: J.F. Wienk and H.A. de Wit. 1982, IICA, San Jose', Costa Rica. pp. 175-189 (1981)
6.
7. silviculture
8. TF
Explains CELOS silvicultural system.

445.

1. Graff, N. R. de and R. L. H. Peols.
2. The CELOS management system: a polycyclic method for sustained timber production in South American Rain forest.
3. EN
4. SA, Suriname
5. In: Anderson, A.B. (ed). Alternatives to deforestation: Steps toward sustainable use of the Amazon rain forest. Columbia University Press, New York. (1990)
6.
7. polycyclic, natural-regeneration
8. TF
Explains CELOS forest management system, recommended for forests on nutrient-poor soils.

446.

1. Grainger, A.
2. The future environment for forest management in Latin America.
3. EN
5. SA, Figueroa-C., J. et al (eds.), Institute of Tropical Forestry (1987) 1-10.
6. conservation
7. economics
8. TF

447.

1. Grainger, A.
2. The state of the world's tropical forests.
3. EN
4. General
5. Ecologist (1980) 10:6-54.
6. conservation
7.
8. TF

448.

1. Granert, W. G. and Z. Cadampog.
2. Leucaena as a nurse tree.
3. EN
4. AS, Philippines
5. Leucaena Newsletter (1980) 1:(21)
6. agriculture
7. plantations
8. TF, Leucaena, Swietenia, Tectona.
In trials in the Philippines, ht. measurements for 1 yr showed that Tectona grandis interplanted with Leucaena leucocephala grew as well as teak without nurse trees. On many plots, the planted Leucaena grew slowly because of low soil P.

449.
1. Graniczny, S.
2. Metody zagospodarowania lasu oraz klasyfikacja i nomenklatura rebni w Polsce po 1945 r.
Methods of forest management and the classification and nomenclature of felling methods since 1945.
3. Polish/Russian
4. Europe
5. Sylwan (1985) 129:(6)49-56.
6.
7. clearcut, shelterwood, selective-logging, silviculture
8. TmpF
Developments in the classification of management/felling systems used in Polish forestry from 1945 to the latest revised scheme (1979) are described. The current scheme defines 4 classes of systems: (I) clear felling (divided into standard clear felling with felling areas 60-80 m wide (Ia), restricted clear felling with areas 40-60 m wide (Ib), and clear strip felling in strips 15-30 m wide (Ic)); (II) shelterwood felling (strip shelterwood felling with strips up to 30 m wide (IIa), and normal shelterwood felling in belts up to 150 m wide (IIb)); (III) group shelterwood felling (full group shelterwood felling (IIIa), partial group shelterwood felling (IIIb), and selective group shelterwood felling (IIIc)); and (IV) selection felling.

450.
1. Gravelle, P.
2. Growth response and logging damage to advanced regeneration following overstory removal: the state of knowledge.
3. EN
4. General
5. For. Tech. Pap. TP-77-3. Lewiston, ID: Pattatch Corp. 27p. (1977)
6.
7. advanced-regeneration, growth, logging-damage
8. TmpF

451.
1. Gray, B.
2. Economic tropical forest entomology.
3. EN
4. General
5. Annual Review of Entomology (1972) 17:(6030)313-354.
6.
7. pests
8. TF

452.
1. Greenhouse, S.
2. Balsa wood - its growth and manufacture.
3. EN
4.
5. Wood Products (1941) 46:(9)16-18; 41-42.
6. wood-utilization
7. growth
8. TF, Ochroma

453.
1. Greenwood, M.
2. Kapok.
3. EN
4.
5. Farm and Forest (1943) 4:61-66.
6. NTFP
7. species-description
8. TF, Ceiba

454.
1. Gregerson, H. S. Draper, and D. Elz.
2. People and trees: the role of social forestry in sustainable development.
3. EN
4. General
5. The World Bank, Washington (1989) 273.
6. social-issues, agriculture
7. plantations
8. TF

455.
1. Gregersen, H. M.
2. People, trees, and rural development: the role of social forestry.
3. EN
4. General
5. Journal of Forestry (1988) 86:22-30.
6. conservation
7. social-description
8. TF
Potential role of social forestry and importance of political support for social forestry programs.

456.
1. Gregersen, H. and S. E. McGaughey.
2. Social forestry and sustainable development.
3. EN
4. General
5. In, Sustainable Resource Development in the Third World, D. Southgate and J.F. Disinger (eds), pp. 7-20, Boulder: Westview Press (1987)
6. conservation
7. social-description
8. TF
Tree production for personal and local use is often more appropriate than large-scale forestry but depends on subsidies, markets, and etc.

457.
1. Greig-Smith, P.
2. Ecological observations on degraded and secondary forest in Trinidad, British West Indes. I. General features of the vegetation.
3. EN
4. Trinidad
5. Journal of Ecology (1952) 283-315.
6. ecology, vegetation-structure, succession
7.
8. TF, secondary-forest

458.
1. Greub, H.
2. Primer informe preliminar sobre productos forestales y mercadeo.
3. ES
4. General
5. Tropical Science Center Report No. 036-C (1985)
6. marketing, wood-utilization
7. economics
8. TF

459.
1. Grijpma, P.
2. Proceedings of the First Symposium on the Control of Hypsipyla. Turrialba, Costa Rica, 1973.
3. EN, ES
4. General
5. Symposium (1973)
6.
7. pests
8. TF, Hypsipyla, Swietenia

460.
1. Guerrra da Silva, J. F.
2. Management of forest resources in Brazil.
3. ES
4. SA, Brazil
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 61-70.
6.
7. silviculture
8. TF

461.
1. Guevara, S., S.E. Purata, and E. van der Maarel.
2. The role of remnant forest trees in tropical secondary succession.
3. EN
4. General
5. Vegetatio (1986) 66:(2)77-84.
6. succession, seed-ecology
7. natural-regeneration
8. secondary-forest

462.
1. Guidoni, B. A. and I. Konescni.
2. Reflorestamento de Araucaria angustifolia (Bertolini) O. Kuntze na Companhia Melhoramentos de Sao Paulo-Indusctias de Papel Caieiras. In Proceedings of the national conference on native species, Campos do Jordao, Sao Paulo, Brazil, 12-18 Sept., 1982 [edited by Malvesi, I.T.O.; et al.].
3. Portuguese
4. SA, Brazil
5. Silvicultura em Sao Paulo. (1982) 16A:(2)732-746.
6.
7. plantations, enrichment
8. TmpF, Araucaria, Cunninghamia

Afforestation using Araucaria angustifolia by the Companhia Melhoramentos de Sao Paulo-Industrias de Papel Caieiras. A report of silvicultural and mensurational studies in Sao Paulo on A.

angustifolia (up to 51 yr) and Cunninghamia lanceolata (up to 25 yr; planted as understorey in A. angustifolia.).

463.
1. Guppy, Nicholas.
2. Proposals for an organization of timber exporting countries (OTEC).
3. EN
4. AS, SA
5. Malayan Forester (1983) 46:1-19.
6. marketing, conservation
7. economics
8. TF

464.
1. Gurgel-Filho, O. A. (et al.), J. L. de Moraes, E. Morais, M. Chyo, H. Aoki, N. Haga, D.V. de Toledo-Filho, P.R. Parente, G.S. de Pinheiro, A.A. de Veiga, and G. Mariano.
2. Growth studies in native Brazilian tree species - 2. In proceedings of the national conference on native species, Campos do Jordao, Sao Paulo, Brazil, 12-18 Sept., 1982 [edited by Malvesi, I.T.O.; et al.].
3. PO, EN
4. SA, Brazil
5. Silvicultura em Sao Paulo (1982) 16A:2.
6.
7. plantations, species-trials
8. TF, Esenbeckia, Copaifera, Cariniana, Aspidosperma, Pterogyne, Tabebuia, Balfourodendron, Platycyamus, Ocotea, Pterodon, Araucaria, Enterolobium, Cariniana, Dipteryx, Machaerium, Cedrela, Tabebuia, Myroxylon, Piptadenia, Paulownia.

Six papers from the conference. Gurgel Filho, O.A.; Moraes, J.L. de; Morais, E. [Silvicultural characteristics and trial of broadleaf species.]. Studies in Sao Paulo on Paulownia and 10 native species, viz. Esenbeckia leiocarpa, Copaifera langsdorfii, Cariniana legalis, Aspidosperma polyneuron, Pterogyne nitens, Tabebuia vellosoi, Balfourodendron riedelianum, Platycycamus regnellii, Ocotea porosa, and Pterodon pubescens. Chyo, M.; Aoki, H.; Haga, N. [Stem analysis of Araucaria angustifolia in the Campos do Jordao State Park, Sao Paulo.] Toledo Filho, D.V. de; Parente, P.R. [Shade-tolerant native species.]. Studies in Sao Paulo on the growth of the following species as a understorey in Pinus elliottii stands: Esenbeckia leiocarpa, Enterolobium contortisiliquum, Cariniana estrellensis, Dipteryx alata, Machaerium nictitans, M. villosum, Cedrela fissilis, Tabebuia impetiginosa, and Myroxylon peruiferum. Pinheiro, G. de S.; Veiga, A. de A.; Mariano, G. [Performance of Piptadenia communis and Esenbeckia leiocarpa in a mixed stand.]. In Sao Paulo. Veiga, A. de A. [Proposal for field studies on site determination for uneven-aged stands of native species.]. Veiga, A. de A.; Mariano, G. [Mensurational study in an unmanaged stand of Cariniana legalis.]. Cariniana legalis Mart. 1124-1131. At Priacicaba, Sao Paulo.

465.
1. Gutzwiller R.
2. Principales pratiques silvicoles en vue de la production de bois d'oeuvre en foret dense equatoriale.
3. FR
4. General
5. Schweiz. Z. Forstwes. (1956) 107:3.
6.
7. silviculture
8. TF
Approaches to tropical forest silviculture.

466.
1. Gutzwiller, R.
2. The state of silviculture in the rain forest of Africa and related research requirements.
3. EN
4. AF
5. ? (1976)
6.
7. silviculture
8. TF

467.
1. Guyer, C.
2. The herpetofauna of La Selva, Costa Rica.
3. EN
4. CA, Costa-Rica
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale University Press, New Haven (1990) 371-385.
6. ecology, wildlife
7.
8. TF

468.
1. Hadley, M. and J.P. Lanly.
2. Tropical forest ecosystems: identifying differences, seeking similarities.
3. EN
4. General
5. Nature and Resources (1983) 19:2-19.
6. vegetation-composition, vegetation-structure, ecology
7.
8. TF

469.
1. Haig, I. T. and M.A. Huberman.
2. Tropical silviculture.
3. EN
4. General
5. FAO Publication, Food and Agriculture Organization of the United Nations, Rome 3 vol. (1958)
6. textbook
7. silviculture
8. TF

470.
1. Hair, D. and R. B. Phelps.
2. The demand and price situation for forest products.
3. EN
4. General
5. Misc. Publ. No. 1239. Wash., DC: USDA For. Serv. (1972-73)
6. NTFP, marketing
7. economics
8. TmpF, TF

471.
1. Haji Ghazali B. bin and J. bin Baharuddin.
2. The emergence of enrichment planting in west Malaysian silviculture.
3. EN
4. AS, Malaysia
5. Malaysian Forester (1972) 35:209-218.
6.
7. enrichment
8. TF, Dipterocarpaceae

472.
1. Hall, C. A. S., and D. P. Bradley.
2. Ecological economics: its implications for forest management and research (a workshop summary).
3. EN
4. General
5. Conservation Biology (1990) 4:(3)221-224.
6. policy-issues
7. economics
8.

The workshop's theme was that ecology must attempt to embrace the interactions between humans and other living and non-living systems. Economics must attempt to recognize the biophysical foundations of production and distribution. Many differing opinions expresseed at the workshop are presented.

473.
1. Hallsworth, E. G. (ed).
2. Socio-economic Effects and Constraints in Tropical Forest Management.
3. EN
4. General
5. John Wiley and Sons, Chichester, UK. 233 pp. (1982)
6. textbook, social-issues, policy-issues
7. economics
8. TF

474.
1. Hamilton, L. S.
2. Minimizing the adverse impacts of harvesting in humid tropical forests.
3. EN
4. General
5. In: Ecological Development in the Humid Tropics. A.E. Lugo, J.R. Clark, and R.D. Child (eds). Winrock Internatl. Inst. for Agri. Devel., Morrilton, USA (1988)
6.
7. logging-damage
8. TF

475.
1. Hamilton, L. S.
2. Overcoming myths about soil and water impacts of tropical forest land uses.
3. EN
4. General
5. Soil Erosion and Conservation. Edited by S.A. El-Swaify et al. Soil Conservation Society of America (1985) 680-390.
6. conservation
7. erosion, watersheds
8. TF
Logging does not necessarily increase runoff or decrease water retention.

476.
1. Hamilton, L. S.
2. Towards clarifying the appropriate mandate in forestry for watershed rehabilitation and management.
3. EN
4. General
5. Strategies, approaches, and systems in integrated watershed management. Food and Agriculture Organization of the United Nations. (1986) 33-51.
6. conservation
7. watersheds
8. TF

477.
1. Hammel, B.
2. The distribution of diversity among families, genera, and habit types in the La Selva flora.
3. EN
4. CA, Costa-Rica
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale Unviersity Press. New Haven. (1990) 75-84.
6. ecology, taxonomy
7.
8. TF

478.
1. Hamzah, B. and A. Muktar.
2. Forest gap manipulations, a tool for management.
3. EN
4. AS
5. Awang, K. et al. (editiors) Workshop on ecological basis for rational resoruce utilization in the humid tropics of South East Asia (1982) Agricultural University Malaysia/UNESCO, Kuala Lumpur, Malaysia.
6. ecology
7. natural-regeneration, stand-improvement
8. TF

479.
1. Harp, W.
2. Ecology and Cosmology, Rain Forest Exploitation Among the Embera-Choco.
3. EN
4.
5. Paper presented at: Humid Tropical Lowlands Conference: Development
Strategies and Natural Resource Mangement, June 17-21, 1991
6. NTFP
7. economics
8. TF
Describes subsistence horticulture, fishing, hunting, and gathering that is sustainable but have recently changed under outside influences.

480.
1. Harris, L. G.
2. Relative growth of coppice from a varying number of shoots per stool.
3. EN
4. General
5. Quarterly Journal of Forestry (1956) 50:244.
6.
7. coppicing
8. TF, TmpF

481.
1. Harrison, J. L.
2. The effect of forest clearance on small mammals.
3. EN
4. General
5. IUCN Publ. N.S. (1968) 10:153-158.
6. wildlife, conservation, ecology
7.
8. TF

482.
1. Hartshorn, G. S.
2. Application of gap theory to tropical forest management: natural regeneration on strip clear-cuts in the Peruvian Amazon.
3. EN
4. SA, Peru
5. Ecology (1989) 70:(3)567-569.
6. ecology, disturbance

7. clearcut, silviculture, natural-regeneration
8. TF
A natural forest management project was developed to simulate tropical forest dynamics. Harvesting narrow strip clear-cuts promotes natural regeneration of native gap-dependent tree species.

483.
1. Hartshorn, G. S., R. S., and J. A. Tosi, Jr.
2. Managment for sustained yield of national forests.
3. ES
4. SA, Peru
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 235-244.
6.
7. clearcut, natural-regeneration
8. TF

484.
1. Hartshorn, G. S., R. Simeone, and J. A. Tosi, Jr.
2. Manejo para rendimiento sostenido de bosques naturales: Un sinopsis del proyecto de desarrolo del Palcazu en la selva Central de la Amazonial Peruviana.
3. ES
4. SA, Peru
5. In: J.C. Figueroa Colon, F.H. Wadsworth, and S. Branham (eds.), Management of the Forests of Tropical America: Prospects and Technologies. (1987) 235-243.
6. social-issues
7. silviculture, clearcut, natural-regeneration
8. TF
Strip clear cuts with natural regeneration. Complete wood utilization.

485.
1. Hartshorn, G. S.
2. Natural regeneration of trees on the Palcazu demonstration strips.
3. EN
4. SA, Peru
5. Forestry Support Program, USDA Forest Service (1988) 1-48.
6. ecology
7. natural-regeneration, clearcut
8. TF
General description of strip cut system with preliminary data on species composition and growth of regenerating forest.

486.
1. Hartshorn, G. S.
2. Neotropical forest dynamics.
3. EN
4. SA, CA
5. Biotropica (1980) 12:(supplement)23-30.
6. ecology, disturbance
7.
8. TF
Regeneration of most canopy trees depends on availability of canopy gaps.

487.
1. Hartshorn, G. S.
2. An overview of neotropical forest dynamics.
3. EN
4. SA, CA
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale University Press, New Haven (1990) 585-599.
6. ecology, forest-dynamics
7.
8. TF

488.
1. Hartshorn, G. S.
2. Tree falls and tropical forest dynamics.
3. EN
4. CA, SA
5. In: Tomlinson & Zimmermann Tropical Trees as Living systems. (1978) 617-630.
6. ecology, disturbance
7.
8. TF
Review of literature on gap-phase dynamics.

489.
1. Hartwig, F. and C. Wiebecke.
2. Forestry and the timber industry in Central America, Paying special attention to Honduras. (translation).
3. EN
4. CA, Honduras
5. Plant Research and Development (1982) 15:(7-37)
6. wood-utilization
7.
8. TF

490.
1. Hatchell, G. E. and C. W. Rallston.
2. Natural recovery of surface soils disturbed in logging.
3. EN
4.
5. Tree Planters Notes (1971) 22:(2)5-9.
6.
7. logging-damage, erosion
8. TF

491.
1. Hazlett, D. L.
2. Provenance, age, and defoliation effects on the growth of Cordia alliodora in Central America.
3. EN
4. CA, Costa-Rica
5. Forest Ecology and Management (1989) 28:191-202.
6. ecology
7. growth
8. TF, Cordia

492.
1. Hecht, S. B. and A. Cockburn.
2. The fate of the forest: developers, destroyers, and defenders of the Amazon.
3. EN
4. SA
5. New York: Verso (1989)
6. conservation, NTFP, policy-issues
7. economics
8. TmpF
Comprehensive history of geography and ecology of Amazon region, with discussion of indigenous forest management systems.

493.
1. Hecht, S. B., A. B. Anderson, and P. May.
2. The subsidy from nature: shifting cultivation, successional palm forest and rural development.
3. EN
4. SA, Brazil
5. Human Organization (1988) 47:(1)25-35.
6. NTFP, conservation, social-issues
7. economice
8. TF, palms
Babassu (Orbignya phalerata) palms in ecosystems, economics, and social systems in Maranhao, Brazil.

494.
1. Heede, B. H.
2. Vegetation strips control erosion in watersheds.
3. EN
4. NA
5. Research Note RM-499 (1990) USDA Forest Service, Rocky Mountain Forest and Range Experiment Station.5 p.
6. conservation
7. erosion, watersheds
8.
A discussion of the value of buffer strips for reducing soil movement in a ponderosa pine forest.

495.
1. Heinsdijk, D. and B.B. Glerum.
2. Inventories and commercial possibilities of Brazilian forests.
3. EN
4. SA, Brazil
5. Turrialba (1967) 17:337-347.
6. wood-utilization
7. inventory
8. TF

496.
1. Helj, W. and N. A. Leek.
2. Impact of wood harvesting technology on soil and vegetation.
3. EN
4. General
5. In: Proc. IUFRO World Conf. 17. IUFRO, Kyoto, Japan (1981)
6.
7. logging-damage, erosion
8. TF, TmpF

497.
1. Hendrison J.
2. Damage-controlled logging in managed tropical rain forest in Suriname.
3. EN
4. SA, Suriname
5. Ecol. and Mngt. of Trop. Rain For. in Suriname. Agric. Univ. Wageningen, The Netherlands. (1990)
6.
7. logging-damage, extraction
8. TF

498.
1. Hendrison, J. and R. de Graaf.
2. Algunas notas sobre el manejo del bosque alto seco en Suriname.
3. ES
4. SA, Suriname
5. El Primer seminario Internacional sobre Manejo de Bosque Tropical Humedo de la Region de Centro America, (SEMBOTH), ESVACIFDR, Siqualepeque, Honduras 3-14 de Noviembre de 1986 (1986)
6.
7. silviculture, logging-damage
8. TF
Some notes on the management of dry, high forest in Suriname.

499.
1. Hendrison, J.
2. Harvesting Systems.
3. EN
4. General
5. In: Project LH/UvS 01, Human Interference in the Tropical Rainforest Ecosystem, Annual Rpt. 1983. CELOS, Paramaribo, Suriname. (1984)
6.
7. logging-damage, logging
8. TF

500.
1. Hernandez Murrieta, A.
2. A strategy for the development of forest industry in developing countries (The case of Mexico.).
3. EN
4. Mexico
5. Industria Forestal, SARH/IX Congreso Forestal Mundia, Mexico, D.F. (1985) 3:(11)9-15.
6. industry
7. economics
8. TF

501.
1. Hess, W. R.
2. Pulpwood from tropical forests.
3. EN
4. General
5. Unasylva (1951) 5:(2)102-106.
6.
7. pulpwood
8. TF

502.
1. Hicks, J. F., H. E. Daly, S. H. Davis, and M. de Lourdes de Freitas.
2. Ecuador's Amazon region: development issues and options.
3. EN
4. SA, Ecuador
5. World Bank Discussion Papers. (1990) 75:(xii)41.
6. conservation
7. economics
8. TF

503.
1. Hix, D. M. and C. G. Lorimer.
2. Growth-competition relationships in young hardwood stands on two contrasting sites in southwestern Wisconsin.
3. EN
4. NA, USA
5. Forest Science (1990) 36:(4)1032-1049.
6. ecology
7.
8. TmpF

504.
1. Hodges, C. S. and M. W. McFadden.
2. Insects and diseases affecting forest plantations in Tropical America.
3. EN
4. SA
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 365-373.
6.
7. plantations, pests
8. TF

505.
1. Hoffman, B. F.
2. Reducing logging damage to partially cut stands.
3. EN
4. General, NA
5. University of Maine School for Forest Resources, Technical Note No. 73 (1981)
6.
7. logging-damage,
8. TmpF, secondary-forest

506.
1. Holdridge, L. R.
2. Comments on the silviculture of Cedrela.
3. EN
4. General
5. Caribbean Forester (1943) 4:77-80.
6.
7. silviculture
8. TF, Cedrela

507.
1. Holdridge, L. R.
2. Comments on the silviculture of Cedrela.
3. EN
4. Caribbean, Haiti
5. Caribbean Forester (1943) 4:77-80.
6. ecology
7. silviculture
8. TF, Cedrela

508.
1. Holdridge, L. R.
2. Ecological and genetical factors affecting exploration and conservation in Central America.
3. EN
4. CA
5. In: Tropical Trees. Variation, Breeding, and Conservation. Edited by J. Burley and B.T. Styles. Linnear Society Symposium Series Number 2 (1976) 199-202.
6. conservation, genetics
7.
8. TF

509.
1. Holdridge, L. R., W. C. Grenke, W. H. Hatheway, T. Liang, and J. A. Tosi, Jr.
2. Forest environments in tropical life zones: a pilot study.
3. EN
4. General
5. Pergamon Press, Oxford. 747 pp. (1971)
6. ecology
7.
8. TF
Presents life zone system with vast quantities of detailed examples.

510.
1. Holdridge, L. R. and G. Budowski.
2. Report of an ecological survey of the Republic of Panama.
3. EN
4. CA, Panama
5. Caribbean Forester (1956) 17:(3-4)92-110.
6. vegetation-composition, ecology
7. inventory
8. TF

511.
1. Holdridge, L. R. and G. Budowski.
2. The silviculture of natural mixed tropical hardwood stands in Costa Rica.
3. EN
4. CA, Costa-Rica
5. In: Food and Agriculture Organization of the United Nations, ed. Tropical Agriculture. FAO Forestry and Forest Products Studies (1957) 13:(2)57-66.
6.
7. silviculture
8. TF

512.
1. Holmes, C. H.
2. Natural regeneration of the wet and dry evergreen forests in Ceylon.
3. EN
4. Ceylon
5. Ceylon Forester (1956-57) 2/3/3:(4/1/2)152-164, 15-41, 111-127.
6. ecology
7. natural-regeneration
8. TF, dry-forest

513.
1. Hong, L. T.
2. Forest pathology - its impact and significance on forest productivity.
3. EN
4. General, AS, Malaysia
5. Malaysian Forester (1980) 43:(2)232-237.
6.
7. pathogens
8. TF, Dipterocarpaceae

Diseases can cause great economic losses to forest trees by increasing mortality, reducing growth, wood quality, or growing stock quality. Appraisals are difficult but necessary to determine the impact of any particular disease on forest productivity.

514.
1. Hong, L. T. and K. Yamamoto.
2. A note on a laboratory method for estimating durability of some tropical hardwoods.
3. EN
4. General
5. Journal of Tropical Forest Science (1989) 2:(2)167-170.
6. wood-properties
7. pathogens
8. TF

The natural durability of timbers determined from trials by long term exposure of the timbers to biodegrading organisms in the field is compared to a laboratory method.

515.
1. Hook, D. D., and D.S. DeBell.
2. Factors influencing stump sprouting of swamp and water tupelo seedlings.
3. EN
4. NA
5. USDA For. Serv. Res. Pap. S4-57 (1970)
6.
7. coppicing
8. TmpF, swamps

516.
1. Horn, E. F.
2. Forest resources and forest types of the Province of El Oro, Ecuador.
3. EN, ES
4. SA, Ecuador
5. Caribbean Forester (1945) 6:209-218.
6. natural-resources
7. inventory
8. TF, Ceiba

517.
1. Horn, E. F.
2. Growing balsa in Western Ecuador.
3. EN
4. SA, Ecuador
5. Caribbean Forester (1946) 7:(4)285-295.
6.
7. silviculture, plantations
8. TF, Ochroma

518.
1. Horne, R. and J. Gwalter.
2. Recovery of rainforest overstorey following logging. I. Subtropical rainforest.
3. EN
4. Australia
5. Australian Forest Research (1984) 13:29-44.
6. disturbance, succession
7. logging-damage
8. subTF

519.
1. Hornick, J. R., J. I. Zerbe, and J. L. Whitmore.
2. Jari's successes.
3. EN
4. SA, Brazil
5. Journal of Forestry (1984) 82:(11)663-667.
6.
7. plantations, species-trials, economics
8. TF, Anthocephalus, Eucalyptus, Jacaranda, Pinus
A general description and discussion of the history of the Jari project. Site preparation and silvicultural techniques, site quality assessment, pests, expected yields and harvesting methods are described.

520.
1. Howard, F. W. and M. A. Solis.
2. Distribution, life history, and host plant relationships of mahogany webworm, Macalla thyrsisalis (Lepidoptera: pyralidae).
3. EN
4. General
5. Florida Entomologist (1989) 72:(3)469-479.
6. ecology
7. pests
8. TF, Swietenia, Cedrela

521.
1. Howe, H. F.
2. Habitat implications of gap geometry in tropical forests.
3. EN
4. CA
5. Oikos (1990) 59:(1)141-144.
6. ecology, disturbance
7.
8. TF

522.
1. Howe, H. F.
2. Survival and growth of juvenile Virola surinamensis in Panama: effects of herbivory and canopy closure.
3. EN
4. CA, Panama
5. Journal of Tropical Forestry (1990) 6:259-280.
6. ecology, light-requirements
7.
8. TF, Virola

523.
1. Hubbell, S. P. and R. B. Foster.
2. Canopy gaps and the dynamics of neotropical forest.
3. EN
4. CA, Panama
5. In: M.J. Crawley (ed), Plant Ecology.Blackwell Scientific Publication, Oxford, UK.77-96.
6. succession, ecology, forest-dynamics
7. natural-regeneration
8. TF
Forest, growth, dynamics, and composition in a 50-ha permanent plot on Barro Colorado Island, Panama.

524.
1. Hubbell, S. P., R. Condit, and R. B. Foster.
2. Presence and absence of density dependence in a neotropical tree community.
3. EN
4.
5. unpubl. ms
6.
7.
8. TF

525.
1. Hubbell, S. P. and R. B. Foster.
2. Structure, dynamics, and equilibrium status of old-growth forest on Barro Colorado Island.
3. EN
4. CA, Panama
5. In, Four Neotropical Forests, A.H. Gentry (ed), Yale University Press (1990)
6. ecology
7. inventory
8. TF
Based on 50 ha plot on BCI, Panama.

526.
1. Hueck, K. and H. Lamprecht.
2. Estudios morfologicos y ecologicos sobre la germinacion y el desarrollo en la primera juventud de unas especias forestales Venezolanas.
3. ES
4. SA, Venezuela
5. Bol. Enst. For. Latino Amer., Merida (1959) 3:1-21.
6. seed-ecology
7. species-trials, plantations
8. TF

Morphological and ecological studies of germination and juvenile development in some Venezuelan forest species.

527.
1. Hulster, I. A.
2. Tropical silviculture.
3. EN
4. General
5. Department Management Hutan Fakultor Kehutanan, Institut Pertanian Bogor (1972)
6.
7. silviculture
8. TF

528.
1. Hunziker, W.
2. Essais d'enrichissement danc une foret dense seche de la cote ouest de Madagascar.
3. FR
4. AF, Madagascar
5. Fiche Technique, Centre de Formation Professionelle Forestiere de Morondava, Madagascar. (1982) 3:21.
6.
7. enrichment, nurseries, species-trials
8. TF. Albizia. Berchemia. Colvillea. Cupania. Stereospermum. Terminalia

Enrichment planting trials in a dry closed forest on the west coast of Madagascar. An intitial trial of 19 species eliminated 5 of them as potential enrichment species. Further trials were carried out on the remaining 14 species to find the best planting methods and conditions.

529.
1. Hutchinson, I. D.
2. Improvement thinnings in natural tropical forests: aspects and institutionalization.
3. EN
4. General
5. In: Natural management of Tropical Moist Forests. F. Mergen and J.R. Vincent (eds). Yale Univ., New Haven, USA (1987)
6.
7. stand-improvement, silviculture
8. TF

530.
1. Hutchinson, I. D.
2. The management of humid tropical forests to produce wood.
3. EN
4. General
5. In, Figueroa-C, J. et al. (eds), Institute of Tropical Forestry (1987) 121-156.
6.
7.
8.

531.
1. Hutchinson, I. D.
2. The management of humid tropical forest to produce wood.
3. EN
4. General
5. In: Management of the Forests of Tropical America: Prospects and Technologies. Inst. of Trop. For., South. For. Exp. Sta. USDA For. Serv. Pp 121-155 (1987)
6.
7. natural-regeneration, stand-improvement
8. TF

532.
1. Hutchinson, I. D.
2. Points of departure for silviculture in humid tropical forests.
3. EN
4. General
5. Commonwealth Forestry Review (1988) 67:(3)223-230.
6.
7. silviculture, stand-improvement
8. TF

Where little silvicultural information exists for previously unmanaged forest, trials of individual silvicultural operations and of simple improvement treatments may quickly provide information for developing suitable silvicultural systems. Silvicultural systems cannot be transferred from one forest to another without substantial modification.

533.
1. Hutchinson, I. D.
2. Rapid evaluation of tropical forest by the relative occurrence of botanical families.
3. EN
4. AS, Malaysia
5. Commonwealth Forestry Review (1985) 64:(1)43-56.
6. vegetation-composition, ecology
7.
8. TF

Discussion of ecological and silvicultural insights derived from knowledge of biology of tropical tree families.

534.
1. Hutchinson, I. D.
2. Sarawak liberation thinning.
3. EN
4. AS, Malaysia
5. FAO Field Document no 15 MAL/76/008). Kuching, Sarawak (1982)
6.
7. stand-improvement
8. TF, Dipterocarpaceae
Detailed description of experimental design of project testing effects of stand improvement treatments.

535.
1. Ibanez, A., C. Hernandez, and H. Sosa.
2. La balsa y algunas de sus aplicaciones.
3. ES
4. General
5. Boletin Tecnico Forestal. (1983) 1:(83)1-6.
6. wood-utilization, wood-properties
7.
8. TF, Ochroma
Balsa [Ochroma pyramidale] and some of its uses.

536.
1. IFLAIC - Instituto Forestal Latino-Americano de Investigacion y Capacitacion, Merida Venezuela.
2. Plantacion de mejora en los paises de habla hispana de los tropicos.
3. ES
4. SA, CA
5. Second session, FAO Committee on Forest Development in the Tropics,
Rome. Document FO:FDT-69/4-B (1969)
6.
7. enrichment
8. TF

537.
1. Ingram, C. D., and P. B. Durst.
2. Marketing nature-oriented tourism for rural development and wildlands management in developing countries: a bibliography.
3. EN
4. General
5. Southeastern Forest Experiment Station General Technical Report SE-44 U.S. Department of Agriculture, Forest Service.
6. marketing, ecotourism
7. economics
8. TF
A collection of references relating to a broad definition of nature-oriented tourism (1975-1985). Citations are organized in five categories: information sources, tourism impacts, planning and development, wildlands management, and marketing and promotion.

538.
1. Inle, Ernest P.
2. Hevea rubber - past and future.
3. EN
4. SA
5. Economic Botany (1978) 32:264-277.
6. NTFP, rubber
7.
8. TF, Hevea

539.
1. Instituto Nacional de Investigaciones sobre Recursos Bioticos (INIREB).
2. El Chicozapotc: informa.
3. ES
4. Mexico
5. Comunicado no. 59. Sobre Recursos Biotocos potenciales del pais. (1983)
6. extractives
7.
8. TF, Manilkara

540.
1. Institute for Development Anthropology.
2. Environmental assessment of the Chapare regional development project.
3. EN
4. SA, Bolivia
5. Institute for Development Anthropology, 99 Collier Street, PO Box 2207, Binghamton, NY 13902 (1989)
6. agriculture, marketing
7.
8. TF

The assessment focused on the Chapare Regional Development Project (CRDP), which focuses on improving production and marketing conditions in the agricultural sector. The assessment team found forestry management and production issues inadequately being addressed.

541.
1. Institute for Development Anthropology.
2. Food gathering from forests and related aspects report.
3. EN
4.
5. Institute for Development Anthropology (1987)
6. NTFP
7.
8.

A report was prepared on the gathering of wild foods from forests and related issues. Important areas covered were the types of different systems for gathering food, the importance of this activity, its future and lessons learned.

542.
1. International Union for the Conservation of Nature (IUCN).
2. The conservation atlas of tropical forests: Asia and the Pacific.
3. EN
4. AS
5. IUCN, Cambridge, UK (1991)
6. conservation
7.
8. TF

543.
1. Irvine, D.
2. Succession management and resource distribution in an Amazonian rain forest.
3. EN
4. SA, Ecuador
5. In, Resource Management in Amazonia: Indigenous and Folk Strategies, D.A. Posey, and W. Balee (eds), pp. 223-237. Advances in Economic Botany, vol. 7. New York Botanical Garden (1989)
6. agriculture, NTFP
7. silviculture
8. TF, secondary-forest
Management of succession by Runa Indians in Napo Province, Ecuador.

544.
1. Jacobs, M. R.
2. Growth problems in a eucalypt coppice forest of poor quality.
3. EN
4. Australia
5. Australian Forester (1950) 14:59-71.
6.
7. growth, coppicing
8. TF, Eucalyptus

545.
1. Jagels, R.
2. Is sustainable use feasible?
3. EN
4. General
5. Journal of Forestry (1990) 88:43-46.
6. policy-issues, conservation
7. logging-damage, economics
8. TF

546.
1. Janka, H.
2. La economia forestal: algunas consideraciones acera de una nueva politica forestal.
3. ES
4. Mexico
5. In, Reunion Nacional sobre Economia Forestal, Guadalajara, pp. 73-80. Publicacion Especial, no. 47. Mexico, D.F.: Secretaria e Agricultura y Recursos Hidraulicos (SARH)/Instituto Nacional de Investigaciones Forestales (INIF) (1985)
6. policy-issues, social-issues, conservation
7. economics, social-description
8. TF

Forest economy: some thoughts concerning a new forestry policy. Describes development of communal forest economies, traces changes from state-centered perspective.

547.
1. Jankauskis, J.
2. Recuperacao de florestas tropicais mecanicamente explorada.
3. PO
4. SA, Brazil
5. SUDAM, Belem (1978)
6. succession
7. natural-regeneration
8. secondary-forest

548.
1. Janson, C. H. and L. H. Emmons.
2. Ecologicl structure of the nonflying mammal community at Cocha Cashu Biological Station, Manu National Park, Peru.
3. EN
4. SA, Peru
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale University Press, New Haven (1990) 314-339.
6. ecology, wildlife
7.
8. TF

549.
1. Jardel, E. J.
2. Efecto de la explotacion forestal en la estructura y regeneracion del bosque de confieras de la vertiente oriental del Cofre de Perote, Veracruz, Mexico.
3. ES
4. Mexico
5. Biotica (1986) 11:(4)247-270.
6. conservation, succession
7. natural-regeneration, logging-damage
8. TF

Exploitation effects on structure and regeneration of 5 types of evergreen forest on the east side of the Cofre de Perote, Veracruz, Mexico. With varied degrees of disturbance.

550.
1. Jardel, P.
2. Una revision critica del metodo Mexicano de ordencion e bosques, desde el punto de vista de la ecologia de problaciones.
3. ES
4. Mexico
5. Ciencia Forestal (1985) 10:(58)3-16.
6. ecology, statistics
7.
8. TF

551.
1. Johns, A. D.
2. Selective logging and wildlife conservation in tropical rain-forest: problems and recommendations.
3. EN
4. General
5. Biological Conservation (1985) 31:355-375.
6. conservation, wildlife
7. selective-logging
8. TF

552.
1. Johns, A. D.
2. Tropical forest primates and logging: can they coexist?
3. EN
4. General
5. Oryx (1983) 17:114-188.
6. conservation, wildlife
7. logging-damage
8. TF

553.
1. Johnson, A.
2. How the Machiguenga manage resources: conservation or exploitation of nature.
3. EN
4. SA, Peru
5. In, Resource Management in Amazonia: Indigenous and Folk Strategies, D.A. Posey and W. Balee (eds), pp. 213-222. Advances in Economic Botany, vol 7. New York Botanical Garden (1989)
6. conservation, social-issues
7.
8. TF
Effects of destructive forest use practices by Mahiguengas in Peru limited by their low populations.

554.
1. Johnson, N. E.
2. Biological opportunities and risks associated with fast-growing plantations in the tropics.
3. EN
4. General
5. Journal of Forestry (1976) 74:206-211.
6. conservation, ecology
7. plantations
8. TF

555.
1. Johnson, P. and R. Morales.
2. A review of Cordia alliodora (Ruiz & Pav.) Oken.
3. EN
4. CA, Costa-Rica
5. Turrialba (1972) 22:(2)210-220.
6. ecology, wood-utilization
7. species-description
8. TF, Cordia
Biology, management, and utilization of Cordia alliodora.

556.
1. Jones, E. W.
2. Some aspects of natural regeneration in the Benin rainforest.
3. EN
4. AF, Nigeria
5. Empire Forestry Journal (1950) 29:108-124.
6.
7. natural-regeneration, silviculture
8. TF

557.
1. Jones, S. M., D. H. Van Lear, and S. K. Cox.
2. Composition and density-diameter pattern of an old-growth forest stand of the Boiling Springs Natural Area, South Carolina.
3.
4.
5. Bulletin of the Torrey Botanical Club (1981) 108:(3)347-353.
6.
7.
8.

558.
1. Jonkers, W. P. J. and P. Schmidt.
2. Ecology and timber production in tropical rainforest in Suriname.
3. EN
4. SA, Suriname
5. Interciencia (1984) 9:290-297.
6. ecology
7. growth, silviculture
8. TF

559.
1. Jonkers, W. B. J.
2. Exploitation, natural regeneration and increment: experiment plan and progress report on experiment 78/5.
3. EN
4. SA, Suriname
5. CELOS Rapporten 141. Centrum voor Landbouwkundig. Onderzoek in Suriname, Paramaribo, Suriname. (1984)
6.
7. growth, logging-damage, natural-regeneration, inventory
8. TF

560.
1. Jonkers, W. B. J.
2. Options for silviculture and management of the mixed dipterocarp forest of Sarawak.
3. EN
4. SA, Malaysia
5. Project FAO/MAL/76/0008 Working Paper 11. For. Dept. Kuching, Malaysia. (1982)
6.
7. silviculture
8. TF, Dipterocarpaceae

561.
1. Jonkers, W. B. J. and J. Hendrison.
2. Prospects for sustained yield management of tropical rain forest in Suriname.
3. EN
4. SA, Suriname
5. In: Management of the Forests of Tropical America: Prospects and Technologies. J.C. Figueroa (ed). Conf. Proc. USDA For. Serv., San Juan, Puerto Rico. (1987)
6.
7. selective-logging, silviculture, growth
8. TF

562.
1. Jonkers, W. B. J. and J. Hendrison.
2. Prospects for sustained yield management of tropical rain forest in Surinam.
3. EN
4. SA, Suriname
5. In, Figueroa-C., J. et al (eds), Institute of Tropical Forestry (1987) 157-174.
6.
7. silviculture
8. TF

563.
1. Jonkers, W. B. J.
2. Vegetation structure, logging damage and silviculture in a tropical rain forest in Suriname.
3. EN
4. SA, Suriname
5. Agr. Univ., Wageningen, The Netherlands (1987)
6. vegetation-structure, ecology
7. logging-damage, silviculture
8. TF

564.
1. Jordan, C. F. and E. G. Fransworth.
2. Natural vs. plantation forests: a case study of land reclamation stragegies for the humid tropics.
3. EN
4. General
5. Environmental Management (1982) 6:485-492.
6. conservation
7. plantations, natural-regeneration
8. TF

565.
1. Jordan, C. F.
2. Productivity of tropical rain forest ecosystems and the implications for their use as future wood and energy supplies.
3. EN
4. General
5. In: Ecosystems of the world, vol. II: Tropical Rain Forests (ed. F. Golley). Elsevier, Amsterdam.
6.
7.
8. TF

566.
1. Jordon, D.
2. The rattan industry.
3. EN
4. AS
5. Malaysian Forester (1965) 28:83-97.
6. NTFP
7. economics
8. TF, lianas, palms, rattans

567.
1. Jorgensen, J. R. and C.G. Wells.
2. Tree nutrition and fast-growing plantations in developing countries.
3. EN
4. General
5. International Tree Crops Journal (1986) 3:225-244.
6.
7. plantations, growth
8. TF

568.
1. Josephson, H. R.
2. Economics and national forest timber harvest.
3. EN
4. General
5. Journal of Forestry (1971) 74:(9)605-608.
6.
7. economics
8. TmpF

569.
1. Junk, W. J.
2. Flood tolerance and tree distribution in central Amazonian floodplains.
3. EN
4. SA, Brazil
5. Tropical Forests (1989) Academic Press,47-64.
6. ecology
7.
8. swamps

570.
1. Kairiukshtis, L.
2. Scientific principles and practical methods of tending fellings and unclear shelterwood cutting in storeyed stands of the north-western part of the USSR.
3. EN, ES, FR
4. USSR, Europe
5. Proc. of the 7th World For. Cong. Centro Cultural Gen. San Martin, Buenos Aires, Argentina, 4-18 Oct. 1972, Vol II.: World For. Cong. 1st tech. Comm.: silv. 3. Trends and Progress in New For. Mgt & Silv. Tech. (1978, 1989-2003)
6.
7. shelterwood, silviculture, stand-improvement
8. TmpF

571.
1. Karr, J. R.
2. The avifauna of Barro Colorado Island and the Pipeline Road, Panama.
3. EN
4. SA, Panama
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale Univerity Press, New Haven (1990) 183-198.
6. ecology, wildlife
7.
8. TF

572.
1. Karr, J. R., S. Robinson, J. G. Blake, and R. O. Bierregaard, Jr.
2. Birds of four neotropical forests.
3. EN
4. SA, CA, Brazil, Peru, Panama, Costa-Rica
5. In, Four Neotropical Forests, A.H. Gentry (ed.). Yale University Press, New Haven (1990) 237-269.
6. ecology, taxonomy, wildlife
7.
8. TF

573.
1. Kartawinata, K., T. C. Jessup, and A. P. Vayda.
2. Exploitation in Southeast Asia.
3. EN
4. AS
5. In: Tropical Rain Forest Ecosystems: Biogeographical and Ecological Studies. H. Lieth and M.J.A. Werger (eds). Elsevier, Amsterdam. Pages 591-610. (1989)
6. conservation
7. logging-damage
8. TF, Dipterocarpaceae

574.
1. Kartawinata, R. A. K. and S. Sukardjo.
2. Effects of mechanised logging in the lowland dipterocarp-forest at Lempake, East Kalimantan.
3. EN
4. AS, Indonesia Indonesia
5. Malayan Forester (1981) 44:(2/3)
6.
7. logging-damage
8. TF

575.
1. Katzman, M. T. and W. G. Cale, Jr.
2. Tropical forest preservation using economic incentives.
3. EN
4. General
5. BioScience (1990) 40:(11)827-832.
6. conservation, NTFP
7. economics
8. TF, TmpF
The various economic interests in deforestation are discussed and suggested systems (e.g. debt-for-nature swaps, public-private partnerships, extractive reserves, Tropical Forest Action Plan) and their limitations are reviewed. Conservation easements are proposed as an alternative approach towards preservation.

576.
1. Kauman, W. G.
2. Prospective markets for tropical forest products.
3. EN
4.
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 449-469.
6. wood-utilization
7. economics
8. TF

577.
1. Keipi, K.
2. Tropical forest management in Latin America: role of the Inter-American development Bank.
3. EN
4. SA
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 49-60.
6. policy-issues
7. economics
8. TF

578.
1. Kennedy, J. D.
2. The group method of natural regeneration in the rainforest at Sapoba, southern Nigeria.
3. EN
4. AF, Nigeria
5. Emp. For. J. (1938) 15:19-24.
6.
7. natural-regeneration
8. TF

579.
1. Kenny-Jordon, C. B.
2. Managing a social forestry program: an experience in communication.
3. EN
4. General
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 421-436.
6.
7. plantations
8. TF

580.
1. Keto, A. I., K. Scott, and M. F. Olsen.
2. Sustainable harvesting of tropical rainforests: a reassessment.
3. EN
4. Australia
5. ? (1990)
6. conservation, statistics
7. logging-damage
8. TF

581.
1. Keys, M. G. and D. I. Nicholson.
2. Underplanting of silviculturally treated rainforest in north Queensland.
3. EN
4. Australia
5. Unpbl. Rpt., Dept. For., Queensland. (1982) 7:22.
6. ecology
7. species-trials, enrichment, economics
8. TF, Agathis, Araucaria, Flindersia, Khaya, Swietenia, Toona

Trials were carried out using various combinations of 23 species at 11 sites on various soil types. Acceptable growth rates were obtained with Flindersia brayleyana, F. bourjotiana, F. pimenteliana, F. schottiana, Toona australis, Araucaria cunninghamii, Agathis robusta, Swietenia macrophylla and Khaya ivorensis. Underplanting with these species could increase the yield of high quality timber substantially, but is not currently economic. Planting in gaps created during logging with no other silvicultural operations would require a 10-fold increase in timber value to become economic.

582.
1. Khan, M. L., J.P.N. Rai, and R.S. Tripathi.
2. Regeneration and survival of tree seedlings and sprouts in tropical deciduous and sub-tropical forests in Meghalaya, India.
3. EN
4. AS, India
5. Forest Ecology and Management (1986) 14:293-304.
6. coppicing, seeds
7. growth, natural-regeneration
8. TF, subTF, deciduous

583.
1. Khan, M. L. and R.S. Tripathi.
2. Tree regeneration in a disturbed sub-tropical wet hill forest of northeast India: effect of stump diameter and height on sprouting of four tree species.
3. EN
4. AS, India
5. Forest Ecology and Management (1986) 17:199-209.
6.
7. natural-regeneration, coppicing
8. TF

584.
1. Kimber, P. C.
2. The management of coppice.
3. EN
4. General
5. Australian Forestry Council Research Working Group IV, Queensland (1980)
6.
7. natural-regeneration, coppicing
8. TF

585.
1. Kimmey, J. W. and E.M. Hornibrook.
2. Cull and breakage factors and other tree measurement tables for redwood.
3. EN
4. NA, USA
5. Forest Service Release, US Forest Service, California Forest Range Experiment Station (1952) 13:28.
6. wood-properties
7. logging-damage
8. TmpF, Sequoia

586.
1. King, G. C. and W. S. Chapman.
2. Floristic composition and structure of a rainforest area 25 years after logging.
3. EN
4. Australia
5. Australian Journal of Ecology (1983) 8:415-423.
6. vegetation-structure, succession
7. logging-damage
8. TF

587.
1. King, K. F. S.
2. The use of arboricides in the management of tropical high forest.
3. EN
4. General
5. Turrialba (1965) 15:(1)
6.
7. herbicides, stand-improvement
8. TF

588.
1. Kinkead, G.
2. Trouble in D.K. Ludwig's jungle.
3. EN
4. SA, Brazil
5. Fortune (20 April 1981) 102-117.
6.
7. economics, plantations
8. TF

589.
1. Kio, P. R. O.
2. What future for natural regeneration of tropical high forest? An appraisal with examples from Nigeria and Uganda.
3. EN
4. AF, Nigeria Uganda
5. Commonwealth Forestry Review (1976) 55:309-318.
6.
7. natural-regeneration, silviculture
8. TF

590.
1. Kitzke, E. D. and D. Johnson.
2. Commercial palm products other than oils.
3. EN
4. General
5. Principes (1975) 19:3-26.
6. NTFP
7.
8. TF, palms

591.
1. Kohn, J.
2. Properties and uses of Balsa.
3. EN
4. General
5. Forest Products (1958) 8:(8)27a-30a.
6. wood-utilization
7.
8. TF, Ochroma

592.
1. Konig, A. and L. Venegas Tovar.
2. Investigaciones y desarrollo industrial forestal, Colombia. Mejoramiento genetico de arboles forestales.
3. ES
4. SA, Colombia
5. FAO Report (1981) FO:COL/74/005 Documento de Trabajo No. 33:
6. genetics
7. species-trials, nurseries, plantations, phenology
8. TF, Apeiba, Cariniana, Cedrela, Cordia, Gmelina, Jacaranda, Ochroma, premontane, Tabebuia

Forestry investigation and industrial development project. Colombia. Genetic improvement of forest trees. Preliminary results are presented of studies on timber species of the humid tropical and premontane humid forest zones in Colombia. Projects included: species and provenance trials (13 spp.); progeny studies (Cariniana pyriformis, Ochroma lagopus); studies on vegetative propagation, by

cuttings (Apeiba aspera, Cedrela odorata, Cordia alliodora, Ochroma pyramidale, Tabebuia rosea, Gmelina arborea, and Jacaranda copaia) or by grafting (Cariniana pyriformis); phenological studies (17 spp.); and establishment of seed crop stands (Cordia alliodora, Jacaranda copaia, and Ochroma pyramidale).

593.
1. Koppelman, R.
2. Damage cuased by selective logging in a neotropical rainforest.
3. EN
4. CA
5. Msc. thesis, Wageningen Agricultural University, The Netherlands (1991) (1991)
6.
7. damage
8. TF

594.
1. Korsqaard, S.
2. Guidelines for sustained yield management of mixed dipterocarp forests of south east Asia.
3. EN
4. AS
5. FAO (1985)
6.
7. silviculture, inventory, growth
8. TF, Dipterocarpaceae

595.
1. Kushalappa, K. A.
2. Teak underplanting.
3. EN
4. AS, India
5. Myforest. (1982) 18:(4)159-161.
6.
7. enrichment, plantations
8. TF, Tectona

A brief account of teak underplanting in the open deciduous forest of Karnataka (managed under a selection/improvement system) where this technique is superseding the older policy of clear felling and planting to teak.

596.
1. Kyrklund, B.
2. Paper from mixed tropical forests.
3. EN
4. General
5. Unsylva (1976) 28:86-92.
6. wood-utilization
7. pulpwood
8. TF

597.
1. Laarman, J.
2. The economic outlook for forestry in tropical America: a hazardous period for projections.
3. EN
4. SA
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 31-48.
6.
7. economics
8. TF

598.
1. Laarman, J. G.
2. Labor intensity and sawmill scale in a labor-surplus economy.
3. EN
4.
5. Forest Science (1982) 28:79-81.
6. wood-utilization
7. sawmills, economics
8. TF

599.
1. Labat, J. N.
2. Structures et degradations de la foret mesophile de pins de la Sierra Tarasque, Michoacan, Mexique.
3. FR
4. Mexico
5. Bulletin d'Ecologie (1987) 18:(3)97-106.
6. extractives, fire, ecology
7. natural-regeneration
8. Alnus, montane, Pinus, Quercus

Structures and degradation of the mesophiic pine forest of the Tarascan Sierra, Michoacan, Mexico. Following a description of the composition and ecology of this forest, the population structure of the dominant arboreal species (particularly Pinus leiophylla, P. teocote, Quercus spp. and Alnus jorullensis) is analysed. The light-demanding character of the dominant pine species, in particular P. leiophylla, is pointed out. Intensive resin tapping, grazing and fire impede natural regeneration and are responsible for the aging of the stands.

600.
1. Ladrach, W. E.
2. Crecimiento del Arboretum de Guachicona al finalizar los ocho anos de la plantacion de 1977 y los tres anos de las plantaciones de 1977, 1980 y 1981.
3. ES
4. SA, Colombia
5. Research Report, Inv. For. Carton de Colombia. (1987) 112:17.
6.
7. species-trials, growth
8. TF, Albizia, Eucalyptus, Guazuma, Ochroma

Growth of the Guachicona Arboretum [Columbia] eight years after the 1977 plantings and three years after the 1977, 1980 and 1981 plantings. The arboretum contains more than 100 species. After 8 yr, best growth was shown by Eucalyptus camaldulensis (28 m3/ha per yr) and E. grandis (20 m3/ha per yr). Some native species, principally Ochroma pyramidalis, Albizia, Guazuma ulmifolia.

601.
1. Ladrach, W. E.
2. Research methodology applied to forest plantations.
3. ES
4.
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 245-258.
6.
7. plantations
8. TF

602.
1. Ladrach, W. E. and H. Mazuero.
2. Source and characteristics of the natural regeneration in a humid tropical rainforest after clearcutting.
3. EN
4. General
5. Forestry Research in the Bajo Calima Concession. 9th Annual Report, Carton de Colombia, SA (1985)
6. coppicing
7. clearcut, natural-regeneration, pulpwood
8. TF

603.
1. Lamb, A. F. A.
2. Artificial regeneration within the humid lowland tropical forest.
3. EN
4. General
5. Commonwealth Forest Review/Unasylva (1969) 48/22:41-53/7-15.
6. agriculture
7. enrichment, taungya
8. TF

604.
1. Lamb, A. F. A.
2. Cedrela odorata. Fast growing timber trees of the lowland tropics, No. 2.
3. EN
4.
5. Commonwealth Forestry Institute, Department of Forestry, Oxford University (1968)
6.
7. species-description, growth
8. TF, Cedrela

605.
1. Lamb, A. F. A.
2. Enrichment planting in English-speaking countries of the tropics.
3. ES
4. General
5. Second session, FAO committee on Forest Development in the Tropics, Rome. Special Paper, Document FO:FDT-69/4-A. Report of the Proceedings, P.54. (Trinidad). (1969)
6.
7. enrichment
8. TF

606.
1. Lamb, A. F. A.
2. Forestry on private estates.
3. EN
4. General
5. Journal of the Agriculture Society of Trinidad and Tobago, Port-of-Spain. (1955) 55:(2)169-183.
6.
7. silviculture, economics
8. TF, Tabebuia

607.
1. Lamb, F. B.
2. Mahogany of tropical America: its forestry and management.
3. EN
4. General
5. University of Michigan Press, Ann Arbor. 220 pp. (1966)
6. ecology
7. silviculture
8. TF, Swietenia

608.
1. Lamb, F. B.
2. Mahogony of tropical America. It's ecology and management.
3. EN
4. CA, SA
5. (1966) The University of Michigan Press.
6.
7. species-description, silviculture
8. TF, Swietenia, Meliaceae

609.
1. Lamb, G. N.
2. Foreign woods - origin, use, properties, and nomenclature.
3. EN
4.
5. Wood Products (1948) 53:(8-10)24-28.
6. wood-properties
7.
8. TF, Ceiba

610.
1. Lamprecht, H.
2. Ceiba [Ceiba pentandra.].
3. ES
4.
5. Bol. Ingen. for. Univ. Los Andes. (1955) 2:(8)33.
6.
7. species-trials
8. TF, Ceiba

611.
1. Lamprecht, H.
2. El genero Cedrela en America. Capitulo Selvicultura. Descripciones de arboles forestales.
3. ES
4. SA, CA
5. IFLA Bol. No. 2. (1957)
6.
7. species-trials
8. TF, Cedrela
Cedrela in the American tropics.

612.
1. Lamprecht, H.
2. El genero Anacardium en America. Capitulo Selvicultura. Descripciones de arboles forestales.
3. ES
4. SA, CA
5. IFLA Bol. No. 4 (1958b)
6.
7. species-trials
8. TF, Anacardium
Description of Anacardium.

613.
1. Lamprecht, H.
2. Estudios selviculturales en los Bosques del Valle de la Mucuy, Cerca de Merida.
3. ES
4. SA, Venezuela
5. Universidad de los Andes, bol. de la Fac. de Ing. For. (1954) 1:1-
130.
6.
7. silviculture
8. TF, montane
Silvicultural studies in the forests of the Mucuy Valley, near Merida, Venezuela.

614.
1. Lamprecht, H.
2. Estudios sobre la capacidad germinativa de semillas de Cedrela odorata L. en relacion con el metodo de almacenamiento.
Studies on the germination capacity of seeds of Cedrela odorata L. in relation to the method of storage.
3. ES
4. SA
5. Bol. Fac. Ciencias For. No. 12, Merida, Venezuela (1956b)
6. seed-germination, seed-storage, seeds
7.
8. TF, Cedrela

615.
1. Lamprecht, H.
2. Pardillo [Cordia alliodora.].
3. ES
4. SA
5. Bol. Ingen. for. Univ. Los Andes. (1955) 2:(7)1-41.
6.
7. species-trials
8. TF, Cordia

616.
1. Lamprecht, H., R.M. de Jesus, G.B.N. Dias, E.M. de Cardoso.
2. Silvicultural conversion of natural forests in Brazil.
3. PO
4. SA, Brazil
5. Silvicultura em Sao Paulo (1982) 16A:(1/2)90-108.
6.
7. enrichment, plantations, natural-regeneration
8. TF
Two papers from the conference; Lamprecht, H. [Necessity, problems, and possibilities of the silvicultural management of native forests in the humid tropics.]: Methods of conversion to commercial stands are discussed.; Jesus, R.M. de; Dias, G.B.N.; Cardoso, E. de M.; Menandro, M. de S. [Enrichment of degraded forest and a low-yield forest.]

617.
1. Lamprecht, H.
2. Swietenia macrophylla King. Capitulo Selvicultura. Descripciones de
arboles forestales.
3. ES
4.
5. IFLA Bol. No. 1 (1957a)
6.
7.
8. TF, Swietenia
Swietenia macrophylla King. Silviculture. Descriptions of the forest trees.

618.
1. Lamprecht, H.
2. Unos apuntes sobre el principio de rendimiento sostenido en la Ley Forestal y de Aguas de Venezuela.
3. ES
4. SA, Venezuela
5. Bot. Ingen. for. Univ. Los Andes. (1956) 3:(10)9-34.
6. policy-issues
7.
8. TF, Cedrela
The principle of sustained yield in the Venezuelan forest law.

619.
1. Lamprecht, Hans.
2. Silviculture in the Tropics.
3. EN
4.
5. G.T.Z. (1989) Deutsche Gesellschaft fur Technische Zusammenarbeit (GTZ), Germany, Eschborn.
6. textbook
7. silviculture, species-trials
8. TmpF, TF
A survey of the silvicultural problems and possibilities in tropical forests. Initially published in German in 1986. Analyzes past and current approaches to sustained-yield wood production, and describes the silvics of a selection of important tree species.

620.
1. Lancaster, P. C.
2. Comparison of Nigerian, Malayan and Gold Coast methods of regeneration assessment.
3. EN
4. AF, AS
5. Nig. For. Inf. Bull. 25 (1955)
6.
7. natural-regeneration, inventory
8. TF

621.
1. Lanley, J. P. and J. Clement.
2. Present and future natural forest and plantation areas in the tropics.
3. EN
4. General
5. Unasylva (1979) 31:12-20.
6.
7. plantations, natural-regeneration, economics
8. TF

622.
1. Lanly, J.
2. Manual of forest inventory with special reference to mixed tropical forests.
3. EN
4. General
5. FAO, Rome. UN (1973)
6.
7. inventory
8. TF

623.
1. Lardner, G. B. S.
2. Timbers of British and Dutch Guiana.
3. EN
4. SA, Guyana
5. Wood (1948) 13:(10)280-282.
6. wood-properties, wood-utilization
7.
8. TF, Carapa

624.
1. Laundrie, J. F. and H. M. Montrey.
2. Forest products technology affects tropical forest requirements.
3. EN
4.
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 437-448.
6. wood-utilization
7.
8. TF

625.
1. Lawton, R. M.
2. Dynamics of forest ecosystems in relation to their utilization: subtropical and tropical regions.
3. EN
4. General
5. In, Proceedings of the workshop on land evaluation for forestry, P. Laban (ed.). (1981) 28:31-47.
6. ecology, charcoal, NTFP
7. plantations, Taungya, shelterwood, enrichment
8. TF

Tropical high forest, open forest/woodland of seasonally dry areas, and woodland of semi-arid/arid regions are discussed in relation to utilization, including shelterwood and selection systems, enrichment planting, taungya, plantations, charcoal and timber production, and sand-dune stabilization.

626.
1. Leakey, R. R. B.
2. Cloned tropical hardwoods: quicker genetic gain.
3. EN
4.
5. Span (1986) 35-37.
6.
7.
8.

627.
1. Leakey, R. R. B., J. F. Mesen, Z. Tchoundjeu, K. A. Longman, J. Dick McP., A. Newton, A. Matin, J. Grace, R. C. Munro, and P. N. Muthoka.
2. Low-technology techniques for the vegetative propagation of tropical trees.
3.
4.
5. Commonwealth Forestry Review (in press?)
6.
7.
8.

628.
1. Lechon-Maury, G. and O. Poncy.
2. Dynamique foresteire sur 6 hectares de foret dense humide de guyane francaise, a partir de quelques especes de foret primaire et de cicatrisation.
3. FR
4. SA, French-Guiana
5. Museum National d'Histoire Naturalle (FRANCE) Memsian nouvelle sene series a. Zool. (1986) 132:211-242.
6. conservation
7. silviculture
8. TF
Forest dynamics on 6 hectares of rainforest in French Guiana, in reference to primary forest species and forest recovery.

629.
1. Lechon-Maury, G. and J.- M. Betsch and M. - C. Betsch-Pinot.
2. Dynamiques comparees de la vegetation et de la pedofauna dans un recru en zone forestiere tropicale.
3. FR
4.
5. Museum National d'Histoire Naturelle (FRANCE) nouvelle series a. Zool. (1986) 132:211-242.
6. ecology, wildlife
7.
8. TF
Forest dynamics and soil faunal changes during forest regeneration.

630.
1. Ledoux, P. and R. C. Lobato.
2. Primeiros experimentos de introducac no Para, de Toona ciliata var. australis (Meliaceae), arvore suposta resistente a Hypsipyla grandella (Lepidoptera).
3. ES
4. SA, Brazil
5. Ciencia e Cultura (Sao Paulo, Brasil) (1972) 24:(6)334-335.
6.
7. enrichment, pests
8. TF, Toona, Hypsipyla
(Mazagao and Porto Platon)

631.
1. Lee, H. S.
2. The development of silvicultural systems in the hill forest of Malaysia.
3. EN
4. AS, Malaysia
5. Malaysian Forester (1982) 45:(1)
6.
7. silviculture
8. TF, Dipterocarpaceae, montane

632.
1. Lee, H. S.
2. Manipulation and regeneration of the mixed swamp forest in Sarawak.
3. EN
4. AS, Malaysia
5. The Malaysian Nature Journal (1977) 31:(1)
6.
7. silviculture, natural-regeneration
8. swamps

633.
1. Lee, H. S. and K.K. Lai.
2. A manual of silviculture for the permanent forest estate of Sarawak.
3. EN
4. AS, Malaysia
5. Silviculture Pamphlet, Forestry Department, Sarawak (1977) 1:77.
6.
7. growth, herbicides, silviculture, stand-improvement, inventory
8. TF, Dipterocarpaceae, swamps

An internal manual for silvicultural research staff of the Forest Department. Silvicultural operations (mainly poison girdling) on logged areas are described separately for peatswamp forests (with a list of commercial species), mixed dipterocarp forest and mangrove forest. Other subjects include: diagnostic sampling(regeneration surveys at 10 yr after logging); establishment and assessment of yield plots; precautions for handling Na arsenite (based on Malayan practice).

634.
1. Lee, H. S.
2. The role of silviculture in the management of the peatswamp reserve in Sarawak.
3. EN
4. AS, Malaysia
5. Malaysian Forester (1972) 35:260-268.
6.
7. silviculture
8. swamps

635.
1. Lee, H. S.
2. Silvicultural management in Sarawak.
3. EN
4. AS, Malaysia
5. Malaysian Forester (1982) 45:(4)
6.
7. silviculture
8. TF, Dipterocarpaceae

636.
1. Leersum, G. J. R. van.
2. Simulation of various silvicultural treatments.
3. EN
4.
5. Unpubl. M.Sc. thesis. Agric. Univ. Wageningen, The Netherlands. (1984)
6. statistics
7. silviculture
8.

637.
1. Leigh, E. G., Jr. and S. J. Wright.
2. Barro Colorado Island and tropical biology.
3. EN
4. CA, Panama
5. In, Four Neotropical Forests, A.H. Gentry (ed.). Yale University Press, New Haven (1990) 28-47.
6. ecology, education, consorvation
7.
8. TF

638.
1. Leonard, H. J.
2. Natural resources and economic development in Central America.
3. EN
4. CA
5. New Brunswick, NJ: Transaction Books, (1987) 279.
6. economics
7.
8. TF

639.
1. Leonard, H. J.
2. Natural resources and economic development in Central America.
3. EN
4. CA
5. New Brunswick, NJ: Transaction Books, (1987) 279.
6.
7. economics
8. TF

640.
1. Leslie, A.
2. Logging concession: how to stop losing money.
3. EN
4. General
5. Unasylva (1980) 32:(129)2-8.
6. concessions
7. economics
8. TF

641.
1. Leslie, A. J.
2. A second look at the economics of natural management systems in tropical mixed forests.
3. EN
4. general
5. Unasylva (1987) 39:(155)46-58.
6. conservation
7. natural-regeneration, silviculture, economics
8. TF

642.
1. Leslie, A.
2. Where contradictory theory and practice coexist.
3. EN
4. General
5. UNASYLVA (1977) 29:2-17.
6.
7. economics, silviculture
8. TF

643.
1. Levi-Strauss, C.
2. The use of wild plants in tropical South America.
3. EN
4. SA
5. Handbook of South American Indians, Cooper Square Pub, NY (1950) 6:465-486.
6. NTFP
7.
8. TF

644.
1. Lieberman, D. and M. Lieberman.
2. Forest tree growth and dynamics at La Selva, Costa Rica (1969-1982).
3. EN
4. CA, Costa-Rica
5. Journal of Tropical Ecology (1987) 3:347-358.
6. forest-dynamics
7. growth
8. TF

All stems > 10 cm dbh were tagged and measured in plots (total 12.4 ha) in 1969 and remeasured in 1982. Mortality over 13 years was 23.2% and was independent of size class.

645.
1. Lieberman, D., G. Hartshorn, M. Lieberman, and R. Peralta.
2. Forest dynamics at La Selva Biological Station, Costa Rica (1969-1985).
3. EN
4. CA, Costa-Rica
5. In: Four Neotropical Forests, A. H. Gentry (Ed.) (1990) Yale University Press,.
6. forest-dynamics
7. growth
8. TF

A summary of the major dynamic attributes of the forest at La Selva, including rates of mortality and recruitment, stand turnover and gap-phase dynamics, species growth behavior and longevity, and seed germination and seedling survivorship.

646.
1. Liebermann, D., M. Lieberman, G. Hartshorn, and R. Peralta.
2. Growth rates and age-size relationships of tropical wet forest trees in Costa Rica.
3. EN
4. CA, Costa-Rica
5. Journal of Tropical Ecology. (1985) 1:97-109.
6. ecology, forest-dynamics
7. growth
8. TF

Uses growth rates from permanent plots and a simulation model that incorporates tree to tree variability and projects patterns of growth over life span by species.

647.
1. Lieberman, D., M. Lieberman, R. Peralta, and G. S. Hartshorn.
2. Mortality patterns and stand turnover rates in a wet tropical forest in Costa Rica.
3. EN
4. CA, Costa-Rica
5. Journal of Ecology (1985) 73:915-924.
6. forest-dynamics
7. growth
8. TF

After 13-year period, 23.3% of 5623 trees and lianas present on 12.4 ha of primary lowland wet tropical forest died. Mortality rates were independent of size. Of the dead individuals 26% died standing, 31% had fallen, 7% were found buried under treefalls, and 37% haddecomposed entirely. Mortality was nearly balanced by recruitment into the 10-cm dbh class.

648.
1. Lieberman, M. and D. Lieberman.
2. Patterns of density and dispersion of forest trees.
3. EN
4. CA, Costa-Rica
5. In: La Selva: Ecology and Natural History of a Neotropical Rainforest. L. A. McDade, K. S. Bawa, G. S. Hartshorn, and H. A. Hespenheide (Eds.) University of Chicago Press, Chicago, Illinois.
6. vegetation-structure, forest-dyramics, ecology
7.
8. TF

A report on the density and physical structure of the La Selva forest followed by a discussion of dispersion patterns of trees. The results are compared to those from other tropical forests.

649.
1. Lieberman, M. and D. Lieberman.
2. Simulation of growth curves from periodic increment data.
3. EN
4. General
5. Ecology (1985) 65:(2)632-635.
6. ecology, statistics
7. growth
8. TF

Two simulation techniques are described that use periodic increment data to construct growth curves. The two techniques (growth simulation and passage simulation) are probabilistic projections of the periodic annual increment and passage time approaches. Each generates a distribution of growth curves that sample the data's intrinsic variation.

650.
1. Liew, T. C.
2. An analysis on staff, cost and labour in protective tree marking and climber cutting prior to logging.
3. EN
4. AS, Malaysia
5. Laporan 1971 Penyelidek Hutan, Negeri Sabah [1971 Annual Report, Research Branch For. Dept, Sabah.] (1973) 68-77.
6.
7. climbers, logging-damage, economics, weeds
8. TF, Dipterocarpaceae, lianas

Tabulates productivity and cost data from a 1-year work study in Sabah. Mean time for tree marking and climber cutting was 0.42 and 0.85 man-days/acre, respectively.

651.
1. Liew, T. C. and M. S. Charington.
2. Chemical control of giant strangler - Ficus.
3. EN
4. AS, Malaysia
5. Malaysian Naturalist (1972) 25:(1)13-16.
6.
7. herbicides, weeds
8. TF, Ficus

652.
1. Liew, T. C. and F.O. Wong.
2. Density, recruitment, mortality and growth of dipterocarp seedlings
in virgin and logged-over forest in Sabah.
3. EN
4. AS, Malaysia
5. Malayan Forester (1973) 36:3-15.
6. forest-dynamics, seeds
7. natural-regeneration
8. Dipterocarpaceae, secondary-forest

653.
1. Liew, T. C.
2. Eradication of climbing bamboo in Dipterocarp forest of Sabah.
3. EN
4. AS, Malaysia
5. Malaysian Forester (1974) 36:(4)243-246.
6.
7. climbers, weeds
8. TF, bamboo, Dipterocarpaceae

654.
1. Liew, T. C.
2. The practicability of climber cutting and tree marking prior to logging as a silvicultural tool in the management of Dipterocarp forests in Sabah.
3. EN
4. AS, Malaysia
5. Malaysian Forester (1973) 36:(2)5-19.
6.
7. climbers, economics, stand-improvement, weeds
8. TF, lianas

A trial of tree marking (of pole-sized trees for retention) and climber cutting, as prescribed by the Forest Department, Sabah, was made over 6300 acres of the Umas-Umas f rest reserve, Kalabakan district, throughout 1970 and 1971. Data are presented on the productivity of forest labour.

655.
1. Little, S. Jr.
2. Relationships between vigor of resprouting and intensity of cutting
in coppice stands.
3. EN
4. NA
5. Journal of Forestry (1938) 36:1216-1223.
6.
7. coppicing
8. TF

656.
1. Longwood, F. R.
2. Present and potential commercial timbers of the Caribbean with special reference to the West Indies, the Guianas, and British Honduras.
3. EN
4. CA, SA, Honduras, Guyana
5. Agriculture Handbook No. 207 (1965) USDA, Washington, DC, USA.,
6. wood-properties
7. species-trials
8. TF

657.
1. Lopez, R.
2. Los bosques en nuestra historia, su utilidad, su cuidado, y el future.
3. ES
4. Mexico
5. Unpublished ms. Oaxaca: Union de Comunidades y Ejidos Forestales de Oaxaca, UCEFO (Union of Forestry Communities and Ejidos of Oaxaca (1990)
6. policy-issues, social-issues, history
7. silviculture
8. TF
Forests in our history, its use, care and the future. History of formation of union of Forest Communities and Ejidos in Oaxaca since 1982.

658.
1. Lorimer, C. G. and A. G. Krug.
2. Diameter distributions in even-aged stands of shade-tolerant and midtolerant tree species.
3. EN
4. NA
5. American Midland Naturalist (1983) 109:(2)331-345.
6.
7.
8.

659.
1. Lorimer, C. G.
2. Relative effects of small and large disturbances on temperate hardwood forest structure.
3. EN
4. SA
5. Ecology (1989) 70:(3)565-567.
6. forest-dynamics, ecology
7.
8. TmpF

660.
1. Lorimer, C. G. and L. E. Frelich.
2. A simulation of equilibrium diameter distributions of sugar maple (Acer saccharum).
3. EN
4. NA
5. Bulletin of the Torrey Botanical Club (1984) 111:(2)193-199.
6. ecology
7. inventory, growth
8. TmpF

661.
1. Lorimer, C. G.
2. Tests of age-independent competition indices for individual trees in natural hardwood stands.
3. EN
4. NA
5. Forest Ecology and Management (1983) 6:343-360.
6. ecology
7. growth
8. TmpF

662.
1. Lovejoy, T. E. and R. O. Bierregaard, Jr.
2. Central Amazonian forests and the minimum critical size of ecosystems project.
3. EN
4. SA, Brazil
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale University Press. New Haven (1990) 60-71.
6. ecology, forest-dynamics, conservation
7.
8. TF

663.
1. Lowe, R. G. and P. Walker.
2. Classification of canopy stem, crown status and climber infestation in natural tropical forest in Nigeria.
3. EN
4. AF, Nigeria
5. Journal of Applied Ecology (1977) 14:897-904.
6. ecology
7. climbers, growth, weeds
8. TF, lianas
Climber infestations, crown damage, and canopy position influence growth rates of trees in permanent plots.

664.
1. Lowe, R. G.
2. Experience with the tropical shelterwood system of regeneration in natural forest in Nigeria.
3. EN
4. AF, Nigeria
5. Forest Ecology and Management (1977) 1:(3)193-212.
6.
7. shelterwood, natural-regeneration
8. TF

665.
1. Lowe, R. G.
2. Nigerian experience with natural regeneration in tropical moist forest.
3. EN
4. AF, Nigeria
5. IN: Tech. Conf. Tropical Moist Forest, FAO, Rome 12.
6.
7. natural-regeneration
8. TF

666.
1. Lugo, A. E., S. Brown, and J. Chapman.
2. An analytical review of production rates and stemwood biomass of tropical forest plantations.
3. EN
4. General
5. Forest Ecology and Management (1988) 23:179-200.
6.
7. plantations, growth
8. TF

667.
1. Lugo, A. E., D. Wang, and H. Bormann.
2. A comparative analysis of biomass production in five tropical tree species.
3. EN
4.
5. Forest Ecology and Management (1990) 31:153-166.
6. ecology
7. growth
8. TF

668.
1. Lugo, A. E.
2. Tropical forests in the Caribbean.
3. EN
4. Caribbean
5. Ambio (1981) 10:(6)
6. ecology
7.
8. TF

669.
1. Lugo, A. E.
2. Tropical forestry research: past, present, & future; many early myths are alive and well.
3. EN
4. General
5. J. of For. (1991) 89:(3)10-11, 22.
6.
7.
8. TF

670.
1. Lugo, A. E. and S. Brown.
2. Wetlands of Caribbean islands.
3. EN
4. Caribbean
5. Acta Cientifica (1988) 2:48-61.
6. ecology, conservation
7.
8. TF, swamps

671.
1. Lundell, C. L.
2. The vegetation and natural resources of British Honduras.
3. EN
4. CA, Honduras
5. Suppl. to Wood. (1942) 7:169-171.
6. natural-resources
7.
8. TF, Virola

672.
1. Luning, H. A.
2. The need for tropical rain forests and their products.
3. EN
4. General
5. In: Wise utilization of tropical rain forest lands. C.F. van Beusekom, C.P. van Goor, and P. Schmidt (eds). Tropenbos Sci. Series 1. The Tropenbos Programme, Ede, The Netherlands. (1987)
6. conservation
7.
8. TF

673.
1. MacDonald, T. and J. Chernela.
2. Politics, development and Indians: a comparison of two resource management projects in the Ecuadorian rain forest.
3. EN
4. SA, Ecuador
5. Draft. Mimeographed. Cultural Survival (1990)
6. conservation, policy-issues, natural-resources
7.
8. TF
Attempts to control deforestation by two Indian ethnic federations.

674.
1. Macedo, J. H. P.
2. Sustained management of palmeto [Euterpe edulis].
3. PO, GR
4. SA, Brazil
5. Floresta (1973) 4:(3)57-59.
6. NTFP
7.
8. TF, Palms
Discusses the possibility of enriching the rain forest of the Brazilian Atlantic coast with valuable species such as the palm E. medulis (as a raw material for pulp) and of practising sustained management in these forests.

675.
1. MacGregor, W. D.
2. Silviculture of the mixed deciduous forest of Nigeria, with special reference to the south-western provinces.
3. EN
4. AF, Nigeria
5. Oxford, the Clarendon Press. (1934) 108.
6. textbook
7. silviculture
8. TF

676.
1. Machado, S. do A., N. C. Rosot, A. Figueiredo-Filho, R. A. Seitz, L. A. B. Jorge, and S. Sohn.
2. Tree and stand measurements involving native Brazilian species. In proceedings of the national ocnference on native species, Campos do Jordao, Sao Paulo, Brazil, 12-18 Sept., 1982 [edited by Malvesi, I.T.O.; et al.].
3. Portuguese/English
4. SA, Brazil
5. Silvicultura em Sao Paulo (1982) 16A:1.
6. vegetation-structure
7. silviculture, inventory
8. Araucaria, Ocotea

Five papers from the conference: Machado, S. do A., N. C. Rosot, A. Figueiredo-Filho, R. A. Seitz, and L. A. B. Jorge, [Diameter distribution in a humid tropical forest in Brazilian Amazonia.]. Seitz, R.A. [Natural regeneration of Araucaria angustifolia.]. Jorge, L.A.B. [Equations for estimating merchantable volume over bark in tropical rain forest in northern Espirito Santo.] Figueiredo Filoh, A.; Machado, S. do A.; Rosot, N.C. [Volume estimation within sampling units in natural forest.]. Sohn, S. [Volume relations in an Araucaria angustifolia community with Ocota porosa.].

677.
1. MacInnes, I. I., F. M. McTurk, D. M. Munro, J. A. Ratter, J. P. Darch, and C. Walmesley-White.
2. Resources and development in Belize. An account of the University of Edinburgh expedition to Central America, 1981.
3. EN
4. CA, Belize
5. G.M. Robinson and P.A. Furley (eds) (1983) 246.
6. natural-resources
7. economics
8. TF

Edinburgh, UK; Department of Geography, University of Edinburgh

678.
1. MacKinnon, D. A.
2. Using the private sector for sustainable forestry development.
3. EN
4. General
5. School of Forestry and Environmental Studies, Duke University, Forum (1990) 13:(2)6-10.
6.
7. plantations, economics
8. TF

679.
1. Maitre, H. F.
2. Natural forest management in Cote d'Ivoire.
3. EN
4. AF, Ivory-Coast
5. Unasylva 157/158 (1987) 39:(3/4)53-56.
6.
7. silviculture, growth, stand-improvement, natural-regeneration
8. TF

A review of several silvicultural operations (logging and thinning) applied to three forest reserves. Four years data on growth, mortality, and regeneration for selected species provide insights into value of silvicultural operations.

680.
1. Malcolm, J. R.
2. Estimation of mammalian densities in continuous forest north of Manaus.
3. EN
4. SA, Brazil
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale University Press, New Haven (1990) 339-357.
6. ecology, wildlife
7.
8. TF

681.
1. Malmer, A. and Grip, H.
2. Soil disturbance and loss of infiltrability caused by mechanized and manual extraction of tropical rainforest in Sabah, Malaysia.
3. EN
4. AS, Malaysia
5. Forest Ecology and Management (1990) 38:1/12.
6.
7. logging-damage, erosion
8. TF

Soil infiltration rates were lower in areas subject to manual and crawler-tractor timber extraction than in control areas. Differences of mean infiltrability were signficant for several tractor treatments on both a orthic acrisol and a gleyic podosol.

682.
1. Mann, J. W.
2. Logging techniques to minimize regeneration damage during overwood removal.
3. EN
4. NA
5. In: Proc: Shelterwood Management System Workshop, Grants Pass, OR OSU FIR program and SAF 49-58.
6.
7. logging-damage, shelterwood
8. TmpF

683.
1. Manokaran, N. and K. M. Wong.
2. The silviculture of rattans - an overview with emphasis on experiences from Malaysia.
3. EN
4. AS, Mala sia
5. Malaysian Forester (1983) 46:298-315.
6. NTFP
7.
8. TF, palms, rattans

684.
1. Manokaran, N- R. Jamaluddin, and R. Abd. Manaf.
2. Arboricide trial in a dipterocarp forest in Peninsular Malaysia.
3. EN
4. AS, Malaysia
5. J of Tropical Forest Science (1989) 1:(4)303-311.
6.
7. herbicides, stand-improvement, weeds
8. Dipterocarpaceae

Several chemicals were tested against sodium arsenite in killing unwanted trees in a previously logged dipterocarp forest. Results showed that a solution of 1 part Tordon 22K in 2.5 parts of water was as efficient as 20% solution of sodium arsenite. Of the other chemicals, a 2% solution of 2,4,5-T in diesel was found to be the only suitable alternative to sodium arsenite.

685.
1. Manta, M. I.
2. Analisis silvicultural de dos tipos de bosque humedo de bajura en la vertiente Atlantica de Costa Rica.
3. ES
4. CA, Costa-Rica
5. Tesis Mag. Sci., CATIE, Turrialba. Costa Rica. 152p. (1988)
6.
7. silviculture
8. TF

Silviculture in two types of wet forest in the Atlantic lowlands of Costa Rica.

686.
1. Marelli, F.
2. Activites forestieres dans le cadre d'un rojet de developement rural au Nicaragua.
3. (summary language: German)/FR
4. CA, Nicaragua
5. Schweizerische Zeitschrift fur Forstwesen (1987) 138:(3)203-214.
6. social-issues
7. silviculture
8. TF

Forestry activity in the framework of a rural development project in Nicaragua. Chinandega, Nicaragua.

687.
1. Margolis, H. A. and D. G. Brand.
2. An ecophysiological basis for understanding plantation establishment.
3. EN
4. General
5. Can. J. of For. Res. (1990) 20:375-390.
6. ecology
7. plantations
8.

688.
1. Marn, H. M. and W. B. Jonkers.
2. Logging damage in tropical high forest.
3. EN
4.
5. Paper presented at the International Forestry Seminar, Kuala Lumpur, Nov. 1980. Sarawak Forestry Dept., Kuching. (1981)
6.
7. damage
8. TF

689.
1. Marquis, D. A.
2. Ecological aspects of shelterwood cutting.
3. EN
4. General
5. Proc. of the Nat'l Silv. Works., Charleston, SC, Sept 17-21, 1979. Wash. DC: Div. of Timber Mgt., USDA For. Serv. [1980?], p. 43-56. (1980)
6. ecology
7. shelterwood, natural-regeneration
8. TF

690.
1. Marquis, R. J., H. J. Young and H. E. Braker.
2. The influence of understory vegetation cover on germination and seedling establishment in a tropical lowland wet forest.
3. EN
4. CA, Costa-Rica
5. Biotropica. (1986) 18:273-278.
6. ecology
7. growth
8. TF

691.
1. Marshall, R. C.
2. Silviculture of the trees of Trinidad and Tobago.
3. EN
4. SA, Trinidad Tobago
5. Oxford Univ. Press, London (1939) 247.
6. textbook
7. silviculture
8. TF

692.
1. Marten, K. D. and B. R. Thomson.
2. The silvics of species.
3. EN
4. AS, Solomon-Islands
5. Research Rept., For. Div., Solomon Islands. (1980) S/1-12/80:119.
6.
7. plantations, species-trials
8. TF, Cedrela, Swietenia, Terminalia

A collection of 12 reports. A summary of the performance of the major plantation species in divisional trials plots, gives growth data on native and exotic species which have shown promise in trials and are already (or will be) used in the Solomons afforestation programme.

693.
1. Martinez-Higuera, H.
2. La investigacion silvicultural en el bosque humedo y muy humedo tropical Colombiano.
3. ES
4. SA, Colombia
5. Bogota, CONIF (1985)
6.
7. silviculture
8. TF

694.
1. Martinez, R., G. Cintron, and L. A. Encarnacion.
2. Mangroves in Puerto Rico: a structural inventory.
3. EN
4. Caribbean, Puerto-Rico
5. Final Report to the Office of Coastal Zone Management. NOAA. Puerto Rico Department of Natural Resources. San Juan. 149 p. (1979)
6. ecology
7.
8. TF, mangroves

695.
1. Maruyama, E., K. Ishii, A. Saito, and K. Migita.
2. Screening of suitable sterilization of explants and proper media for tissue culture of eleven tree species of Peru-Amazon forest.
3. EN
4. SA, Peru
5. J. of Agric. Sci., Tokyo-Nogyo-Daigaku. (1989) 33:(4)252-261.
6.
7. plantations, nurseries
8. TF, Swietenia, Swietenia, Hymenaea, Huberodendron, Copaifera, Parkia, Myroxylon, Cedrela, Guazuma, Cedrelinga.

A study using seeds, freshly germinated seedlings or stem segments of 5- to 6-month-old seedlings of important species of the Peruvian Amazon, for tissue culture including Swietenia humilis, Hymenaea oblongifolia, and Huberodendron swietenioides.

696.
1. Mas Porras, J. and G. Borja Luyano.
2. Es posible mediante el sistema Taungya aumentar la productividad de los bosques tropicales en Mexico?
3. ES
4. Mexico
5. Boletin Tecnico, Instituto Nacional de Investigacione Forestlaes, Mexico . (1974) 39:47.
6. agriculture
7. taungya, economics
8. Cedrela, Cordia, Swietenia

Describes seven year's work in an experimental taungya plantation of Swietenia macrophylla, Cedrela mexicana [Cedrela odorata] and Cordia alliodora in El Tormento forest, Campeche. Corn [Zea mays] was planted between the lines of trees during the first two years; thereafter the plantation was cleared 6 times until canopy closure was sufficient to suppress weed growth. In general, the two spacing tested had little effect on the results. Economic analysis of the

results in comparison with those of other commercial plantations in the same forest, and consideration of other possible uses of forest land in the Yucatan peninusla (e.g., agriculture and cattle raising), suggest that the taungya system may be the most economic method of land use in tropical forest of this typs.

697.
1. Massen, J. L.
2. Management of tropical mixed forests. Preliminary assessment of present status.
3. EN
4. General
5. FAO, FO:Misc/85/17 December 1983 (1983)
6.
7. silviculture
8. TF

698.
1. Matheson, A. C. and C.A. Raymond.
2. A review of provenance and environment interaction: its practical importance and use with particular reference to the tropics.
3. EN
4. General
5. Commonw. For. Rev. (1986) 65:283-302.
6. genetics
7. plantations, species-trials
8. TF

699.
1. Matthews, J. D.
2. Factors affecting the production of seed by forest trees.
3. EN
4. General
5. Forestry Abstracts (1963) 24:(1)
6. ecology, seeds, phenology
7.
8. TmpF
A discussion of the processes of flowering and seed production and environmental conditions that influence their induction.

700.
1. Maury-Lechon, G. and O. Poncy.
2. Dynamique forestier sur 6 hectares de foret dense humide de Guyane Francaise, a partir de quelques especes de foret primaire et de cicatrisation.
3. FR
4. SA, French-Guiana
5. Museum National d'Histoire Naturelle (France), Memoires Nouvalle Serie, Serie A, Zool. (1986) 132:211-242.
6. ecology, forest-dynamics
7.
8. TF

701.
1. Mazuera, G.
2. Composicion y crecimiento de la regeneracion natural de cuatro a quince anos de edad en la Concecion Bajo Calima.
3. ES
4. SA, Colombia
5. En: Investigacion forestal en la Concesion del Bajo Calima. (Noveno
Informe Anual). Cali, Colombia: Carton de Colombia S.A. Marzo de 1985 (1985) 75.
6.
7. silviculture, clearcut, pulpwood
8. TF
Composition and growth rates after 4 and 15 years in clearcuts in Colombia.

702.
1. McConnell, W. V.
2. Options in energy wood farming.
3. EN
4. NA
5. Southern Journal of Applied Forestry (1984) 8:(3)149-152.
6.
7. plantations, fuelwood
8. TmpF

703.
1. McCormick, C. J., and J. G. Laarman.
2. Financial sensitivity of alternative forestation incentives in Ecuador.
3. EN
4. SA, Ecuador
5. Forest Ecology and Management (1989) 27:(2)149-158.
6. policy-issues
7. economics, plantations, sensitivity-analyses, plantations
8. TF, Tectona, Cordia, Schizolobium, Pinus, Eucalyptus
Financial net present value (NPV) was computed for three lowland (Tectona grandis, Cordia alliodora, Schizolobium parahyba) and three highland (Pinus radiata, P. patula, Eucalyptus globulus) plantation species in Ecuador. The estimates of NPV were subjected to systematic sensitivity tests for each of four elements in the plantation cash flow: land costs; establishment costs; management costs; and harvest income. Sensitivity was measured in terms of NPV elasticities over two regions, six species, two site qualities, and three discount rates. The results indicated large variability in the elasticities from one case to another, illustrating the difficulty of identifying a single form of plantation subsidy that will be universally effective.

704.
1. McCormick, I. Editor.
2. Analisis economico de inversiones en plantaciones forestales en Ecuador.
3. ES
4. SA, Ecuador
5. Direccion Nacional Forestal, Ministerio de Agricultura, Quito, Ecuador; School Forest Resources, North Carolina State University, Raleigh, NC, USA (1987)
6.

7. plantations, economics
8. TF, Cordia, Eucalyptus, montane, Pinus, Schizolobium, Tectona
Economic analysis of investments in forest plantations in Ecuador. Six papers are presented: S. F. Montenegro, Cordia alliodora plantations in the tropical region of Ecuador; S. F. Montenegro, Schizolobium parahybum plantations in the tropical region of Ecuador; A. Tobar, Tectona grandis plantations in the tropical region of Ecuador; G. E. Laso, Eucalyptus globulus plantations in the sierra of Ecuador; S. F. Montenegro, Pinus radiata plantations in the sierra of Ecuador; M. Munoz, Pinus patula plantations in the sierra of Ecuador.

705.
1. McGaughey, S. E. and H. M. Gregersen.
2. Forest based development in Latin America.
3. EN
4. SA
5. Inter-American Development Bank, Washington, D.C. (1983)
6.
7. economics
8. TF

706.
1. McGaughey, S. E. and H. M. Gregersen (eds).
2. Forest-based development in Latin America. An analysis of investment opportunities and financing needs.
3. EN
4. SA, CA
5. Reports presented at a regional conference sponsored by the Inter-American Development Bank at the Bank's headquarters June 22-25, 1982. Washington, D.C., USA, Inter-American Development Bank (1983) xiii: 215.
6. social-issues
7. economics
8. TF

707.
1. McNeil, D. L.
2. Tropical forest industries: A transnational view.
3. EN
4. General
5. Commonw. For. Rev (1981) 60:(2)105-112.
6.
7. economics
8. TF

708.
1. Mergen, F. and J. R. Vincent, eds.
2. Natural Management of Tropical Moist Forests: Silvicultural and Management Prospects of Sustained Utilization.
3. EN
4. General
5. Yale University School of Forestry and Environmental Studies, New Haven, CT (1987)
6.
7. natural-regeneration, economics
8. TF

Contributed chapters from researchers working all over the tropics with some broad-based economic assessment of the efficacy of natural forest management.

709.
1. Merino H.G.
2. Estudio preliminar sobre la silvicultura del Ulcumano.
3. ES
4. SA, Peru
5. Serie Boletin Tecnico III (2), Peru (1980)
6.
7. species-trials
8. TF
Preliminary study of Ulcumano silviculture.

710.
1. Meyer, G. J., J. H. Ohman, and R. Oettel.
2. Skidding hardwoods-articulated rubber-tired skidders vs. crawler tractors.
3. EN
4. General
5. J. of For. (1966) 64:191, 194-196.
6.
7. logging-damage, erosion
8.

711.
1. Miquet, J. M.
2. Boisement et regeneration de forets religues en zone tropicale humide. Les Forets de St. Philippe et La Reunion.
3. FR
4.
5. Rev. For. Franc. (1955) 7:187-200.
6. social-issues
7. regeneration
8. TF

712.
1. Milde, R. de and C.J. Inglis.
2. Defect assessment of standing trees.
3. EN
4. SA, Suriname
5. FAO Project Working Document no. 14 FO SF/SUR/71/506, Paramaribo, Suriname. (1974)
6.
7. logging-damage
8. TF

713.
1. Miles, J.
2. Effects of experimental interference with stand structure on establishment of seedlings in Callunetum.
3. EN
4.
5. Journal of Ecology (1974) 62:675-687.
6. ecology
7. natural-regeneration
8.

714.
1. Miller, J. H.
2. Soil spot herbicides for single-stem hardwood control.
3. EN
4. NA
5. Southern Journal of Applied Forestry (1988) 12:199-203.
6.
7. herbicides, weeds
8.

715.
1. Miller, K. and L. Tangley.
2. Trees of life; saving tropical forests and their biological wealth.
3. EN
4. general
5. (1991) Beacon Press, Boston,1-218.
6. conservation
7.
8. TF

716.
1. Miranda, C. R.
2. Manejo de rebrotea de encino (Quercus cf. seemannii L.) en la regiode frailes de desamparados, Costa Rica.
3. ES
4. CA, Costa-Rica
5. En: Sadazar. R. ed. Tecnicas de produccion de lena en fincas pequenas. Actas del simposio 24 a 28 de Junio 1985. Turrialba Costa Rica 1985, 459 p. (1985)
6.
7. fuelwood, coppicing
8. TF, Quercus, montane
Sprout management with Quercus in Costa Rica.

717.
1. Misra, D. N.
2. Current management concepts in forestry.
3. EN
4. general
5. In: Chapter 17, Socio-economic effects and constraints in tropical forest management, E.G. Hallsworth (ed.) 233 pp. (1982) John Wiley & Sons Ltd,191-201.
6. social-issues
7. silviculture
8. TF

718.
1. Moehring, D. M. and I. W. Rawls.
2. Detrimental effects of wet weather logging.
3. EN
4. General
5. J. of For. (1970) 68:166-167.
6.
7. logging-damage, erosion
8. TF, TmpF

719.
1. Montenegro-S., F.
2. Bosques Sostenibles en el Noroeste del Ecuador. La necesidad del alto rendimiento en los bosques humedos tropicales.
3. ES
4. SA, Ecuador
5. Humid Tropical Lowslands Conference: Developemnt Strategies and Natural Resources Management. DESFIL/USFS/TFP/INRENARE Panama Junio 17-
21, 1991 (1991)
6.
7. plantations
8. TF
Plantations of fast growing trees overtopping natural regeneration on company owned land.

720.
1. Moore, T.
2. La Cooperativa Forestal Yanesha: una alternativa autogestionaria de
desarrollo indigena.
3. ES
4. SA, Peru
5. Amazonia Indigena (1987) 7:18-27.
6. social-issues, conservation
7. clearcut
8. TF
Forestry Cooperative Yanesha: a self-managed alternative for indigenous development. Structure of the Yanesha Forestry Cooperative for sustainable timber harvesting in the Palcazu Valley, Peru. Balance with subsistence activities.

721.
1. Mori, T.
2. Physiological studies on some dipterocarp species of peninsular Malaysia as a basis for artificial regeneration.
3. EN
4. AS, Malaysia
5. Research Pamphlet 78 (1980)
6. ecology, light-requirements
7. artificial-regeneration, enrichment
8. TF, Dipterocarpaceae

722.
1. Moroz, P. I.
2. Organization of forest utilization by combining clear fellings and selective fellings.
3. Russian
4. Europe
5. Lesnoe Khozyaistvo (1975) 3:69-75.
6.
7. clearcut, selective-logging, shelterwood
8. TmpF, Picea, Abies
Discusses the problems of combining clear fellings and other (selective) types of felling, and suggests the principle of organizing an enterprise so the even-aged stands are treated by clear felling, and the uneven-aged stands by other systems (selective logging or shelterwood felling). An example is given, based on Spruce/Fir

forests in three forests in N. Russia and the Urals. The results show the superiority of selective and shelterwood systems over clear fellings for these forests.

723.
1. Mugasha, A. G.
2. The relationship between crown diameter and breast height diameter for Ocotea usambarensis Engl. as a guide to a feasible stocking in second regeneration stands.
3. EN
4. AF, Tanzania
5. Tanzania Silviculture Res. (1980) 38:15.
6. vegetation-structure
7. growth, stand-improvement
8. TF, Ocotea, montane

Ocotea usambarensis was studied in the montane rain forests of South Kilimanjaro and West Usambara. There was high correlation between crown diameter and d.b.h. The crown diameter/d.b.h. ratio decreased with age. Because of the uneven distribution of naturally regenerated O. usambarensis, traditional thinning practices are difficlut to apply. A heavy first thinning at 15 yr in South Kilimanjaro and 20 yr in West Usambara is recommended, reducing stock to 700 stems/ha. Subsequent thinnings should be at intervals of 7-10 yr.

724.
1. Muhammad, J. B.
2. Problems and prospects in tropical rainforest management for sustained yield.
3. EN
4. AS, Malaysia
5. The Malaysian Forester (1983) 46:398-408.
6.
7. silviculture, growth
8. TF, Dipterocarpaceae

725.
1. Muller, E. U. and S. J. Scherr (compilers).
2. Technology monitoring and evaluation in agroforestry projects: An annotated bibliography.
3. EN
4. general
5. ICRAF, Nairobi, Kenya (1989)
6. agriculture, agroforestry
7.
8. TF

726.
1. Munoz, J. E.
2. Management of non-timber resources in the Caribbean National Forest.
3. EN
4. General
5. IUFRO SI-07-09 Working Group Symposium at the Institute of Tropical Forestry (1980)
6. ecology, conservation
7.
8. TF, mangroves

727.
1. Murphy, P. G. and A. E. Lugo.
2. Ecology of tropical dry forest.
3. EN
4. General
5. Annual Review of Ecology and Systematics (1986) 17:67-88.
6. ecology
7.
8. TF

728.
1. Myers, N.
2. Presentation and production: multinational timber corporation and tropical moist forests.
3. EN
4. General
5. Council on Economic Priorities Newsletter. September, 1980, CEP Publication No. 0-5 (1980)
6. conservation
7. economics
8. TF

729.
1. Myers, R. L.
2. Fire and the dynamic relationship between Florida sandhill and sand pine scrub vegetation.
3. EN
4. NA, USA
5. Bulletin of the Torrey Botanical Club (1985) 112:(3)241-252.
6.
7.
8.

730.
1. Nair, K. N. R.
2. Problems of tropical silviculture and management - Rainforests.
3. EN
4. General
5. FAO/APFC (1952) (52/16)
6.
7. silviculture
8. TF

731.
1. Nair, K. N. R.
2. Tropical rain forest.
3. EN
4. General
5. Tropical Silviculture (1957) 2:103-108.
6. vegetation-composition, vegetation-structure
7. silviculture
8. TF

732.
1. Nair, N. R.
2. The cultivation of balsa (Ochroma lagopus Sw.) [in South India.].
3. EN
4. AS, India
5. Indian Forester (1953) 79:(3)163-168.
6.
7. plantations
8. TF, Ochroma

733.
1. National Academy of Sciences.
2. Conversion of Moist Tropical Forest.
3. EN
4. General
5. National Academy of Sciences, Washington, DC. (1980)
6. conservation
7.
8. TF

734.
1. Nations, J. D. and R. B. Nigh.
2. Cattle, food and forest: the destruction of the American tropics and the Lacandon Maya alternative.
3. EN
4. Mexico
5. Culture Agricultural (1978) 6:1-5.
6. agriculture, conservation
7.
8. TF

735.
1. Negreiros, O. C. de.
2. Regimes silviculturais em alto fuste. High forest silvicultural systems.
3. PO
4. SA, Brazil
5. Publicaco, Instituto Florestal, Sao Paulo. (1977) 15:21-49.
6.
7. clearcut, shelterwood, silviculture
8. TF

Four types of sustained-yield high-forest system are described (clear-felling, seed tree, shelterwood and selection forest). Diagrams representing each management regime are given and advantages are discussed. The situation in which each system would be appropiate are indicated.

736.
1. Negreros, P. and L. Snook.
2. Analisis del efecto de la intensidad de corta sobre la regeneracion de pinos en un bosque mezclada de pino-encino.
3. ES
4. Mexico
5. Ciencia Forestal (1984) 47:48-61.
6. ecology
7. silviculture, natural-regeneration
8. TF, Pinus, Quercus

737.
1. Negreros, P.
2. Ecology and management of mahogany (Swietenia macrophylla King.) regeneration in Quintana Roo, Mexico.
3. EN
4. Mexico
5. Doctoral dissertation, Iowa State University, Ames, 132 pp. (1991)
6. ecology
7. silviculture, natural-regeneration
8. TF, Swietenia

738.
1. Neil, P. E.
2. Climber problems in Solomon Islands forestry.
3. EN
4. Solomon-Islands
5. Commonw. For. Rev. (1984) 63:27-34.
6.
7. climbers, weeds
8. TF

739.
1. Neil, P. E.
2. Herbicides and Merremia species control.
3. EN
4. AS, Solomon-Islands
5. Solomon Islands, Forestry Research Note 1/82 (1982)
6.
7. climbers, herbicides, weeds
8. TF

740.
1. Neil, P. E.
2. Problems and opportunities in tropical rain forest management.
3. EN
4. General, AS
5. CFI Occasional Pap. 16. Commw. For. Inst., Oxford, UK. (1981)
6.
7. silviculture, weeds
8. TF

741.
1. Neil, P. E.
2. Root disease (Phellinus noxius (Corner) G. H. Cunn.) of Cordia alliodora in Vanuatu.
3. EN
4. AS
5. Commonwealth For. Rev. (1988) 67:(4)363-372.
6.
7. pests
8. TF, Cordia

742.
1. Neil, P. E.
2. Swietenia macrophylla (mahogany) in Vanuatu.
3. EN
4. AS, Vanuatu
5. Forest Research Report, Vanuatu Forest Service (1986) 4/86:
6.
7. species-trials, plantations
8. TF, Swietenia

S. macrophylla has been grown in small plots in Vanuatu for nearly 20 yr. It is generally site insensitive, has no major pest or disease problems, and rates highly in comparison with Cordia alliodora which is the main broadleaved species planted. Silvicultural practices, and possible improvements to them, are described and discussed.

743.
1. Neyra Roman, M. G.
2. Investigaciones y desarrollo industrial en forestal. Colombia. Silvicultura.
3. ES
4. SA, Colombia
5. Colombia. Silviculture? (1981) 220 p.
6.
7. natural-regeneration, enrichment, species-trials, stand-improvement, economics
8. TF, secondary-forest, Anacardium, Apeiba, Brosimum, Calophyllum, Cariniana, Cedrela, Chytroma, Cordia, Dialyanthera, Didymopanax, Hyeronyma, Huberodendron, Hymenaea, Jacaranda, Minquartia, Prioria, Protium, Tabebuia, Tabebuia, Virola, Zanthoxylum, secondary-forest

Forestry investigation and industrial development project. Preliminary results are presented of studies in the tropical rain forest zone on the Pacific Coast of Colombia, in particular on: natural regeneration (including: regeneration thinnings of various intensities; liberation fellings in secondary growth; and in a forest cleared of mature timber); enrichment plantings; stand establishment (18 spp. studies); and nursery practice, including germination studies (20 spp.). Silvicultural and species recommendations, and lists of tree species (with common names) classified by use, are given.

744.
1. Ng, F. S. P. and H.T. Tang.
2. Comparative growth rates of Malaysian trees.
3. EN
4. AS, Malaysia
5. Malayan Forester (1974) 37:2-23.
6.
7. growth
8. TF, Dipterocarpaceae

745.
1. Nicholson, D. I.
2. An analysis of logging damage in tropical rainforest, North Borneo.
3. EN
4. AS, Malaysia
5. Malayan Forester (1958) 21:(4)235-245.
6.
7. logging-damage
8. TF, Dipterocarpaceae

746.
1. Nicholson, D. I.
2. Damage from high-lead logging in Sabah.
3. EN
4. AS, Malaysia
5. Malayan Forester (1963) 26:294-296.
6.
7. logging-damage
8. TF, Dipterocarpaceae

747.
1. Nicholson, D. I.
2. The effects of logging and treatments on the mixed dipterocarp forests of South East Asia.
3. EN
4. AS
5. FAO. Rome.
6.
7. logging-damage, regeneration, extraction
8. TF, Dipterocarpaceae

748.
1. Nicholson, D. I.
2. A review of natural regeneration in dipterocarp forests of Sabah.
3. EN
4. AS, Malaysia
5. Malaysian Forester (1965) 28:4-26.
6.
7. natural-regeneration
8. TF, Dipterocarpaceae

749.
1. Noble, I. R. and R.O. Slatyer.
2. The use of vital attributes to predict successional changes in plant communities subject to recurrent disturbances.
3. EN
4. General
5. Vegetatio (1980) 43:5-21.
6. succession, forest-dynamics, ecology, statistics
7.
8.

750.
1. Nokoe, S.
2. Volume tables for Cedrela odorata L.
3. EN
4. General
5. Commonweath For. Rev. (1984) 63:(1)35-41.
6.
7. growth, silviculture
8. TF, Cedrela
Based on 163 sampled plantation trees.

751.
1. Nor, S. M.
2. Developmental research in tropical forestry. A Malaysian experience.
3. EN
4. AS, Malaysia
5.
6.
7. silviculture
8. TF

752.
1. Noronha, R. and J. S. Spears.
2. Sociological variables in forestry project design.
3. EN
4. General
5. In, Putting People First: Sociological Variables in Rural Development, M.M. Cernea (ed), pp. 227-266. New York: Oxford University Press for the World Bank (1985)
6. social-issues
7.
8. TF
Use of key social variables for development of successful social forestry programs.

753.
1. Oberbauer, S. F., B. R. Strain, and N. Fetcher.
2. Effect of CO2-enrichment on seedling physiology and growth of two tropical tree species [Ochroma pyramidale and Pentaclethra macroloba].
3. EN
4. CA, Costa-Rica
5. Physiologia Plantarum. (1985) 65:(4)352-356.
6. ecology, seeds
7. growth
8. TF, Ochroma, Pentaclethra

754.
1. Oberbauer, S. F. and M. A. Donnelly.
2. Growth analysis and successional status of Costa Rican rain forest trees.
3. EN
4. CA, Costa-Rica
5. New Phytologist (1986) 104:(3)517-521.
6. succession, light-requirements
7. growth
8. TF, Brosimum, Cordia, Heliocarpus, Ochroma, Pentaclethra, Terminalia

Pioneer species (Heliocarpus appendiculatus, Cordia alliodora), gap-dependent species (Terminalia oblonga, Cordia alliodora) and shade-tolerant species (Pentaclethra macroloba, Brosimum alicastrum) were grown in a clearing and compared with sunflowers. Unit leaf rates, relative growth rates of photosynthesis, leaf area ratio and specific leaf area increased, and root/shoot ratio decreased, from late-to early successional rank.

755.
1. Oberbauer, S. F. and M. A. Donnelly.
2. Growth analysis and successional status of Costa Rican rain forest trees.
3. EN
4. CA, Costa-Rica
5. New Phytol (1986) 104:517-521.
6. ecology
7. growth
8. TF, Ochroma, Terminalia, Pentaclethra, Cordia, Heliocarpus
Growth compared with sunflowers; unit leaf rates of photosynthesis, root:shoot ratios, and other characteristics of containerized seedlings.

756.
1. Odebaro, O. A.
2. Regeneration of old kola trees, Cola nitida (Vert) Schott. S Endicher by coppicing.
3. EN
4. CA
5. Turrialba (1973) 23:334-340.
6. coppicing
7.
8. TF

757.
1. Odnoralov, V. S.
2. Vnedryat' prirodookhrannye sposoby rubok.
3. Russian
4. USSR
5. Lesnaya Promyshlennost' (1978) 10:7-8.
6. conservation
7. shelterwood, felling, extraction
8. TmpF
The introduction of felling methods that protect the environment.

758.
1. Oehlschlager, C.
2. La Celestina' - ein forstliches Projekt in der Dominikanischen Republik.
3. EN, German
4. Caribbean, Dominican-Republic
5. Forst und Holz (1988) 43:(7)147.
6.
7. silviculture
8. TF
La Celestina' - a forestry project in the Dominican Republic.

759.
1. Oehlschlager, C.
2. Privatwaldbetreuung in der Dominikanischen Republik.
3. EN, German
4. Caribbean, Dominican-Republic
5. Forst - und Holzwirt. (1986) 41:(18)496, 501-504.
6. policy-issues, social-issues
7. silviculture
8. TF
Private forestry supervision in the Dominican Republic.

760.
1. Oesterholt, J.
2. Grondvlakverloop, inwas, diametergroei en mortaliteit in het proefperk Goliath.
3. Dutch
4. SA, Suriname
5. Intern rapport, Paramaribo, Suriname, CELOS (1983)
6.
7. silviculture, growth
8. TF

761.
1. Oesterholt, J. M.
2. Winch systems and short-wood logging.
3. EN
4.
5. Unpbl. M.Sc. Thesis. Wageningen Agri. Univ. The Netherlands. (1986)
6.
7. logging, extraction
8.

762.
1. Office of Technology Assessment (OTA).
2. Technologies to sustain tropical forest resources.
3. EN
4. General
5. US Government Printing Office, Wash, DC, USA. 334 pgs. (1984)
6.
7. silviculture
8. TF

763.
1. Ohler, J. G.
2. Coconut, tree of life.
3. EN
4. AS
5. FAO, 446 pp. (1985)
6. NTFP
7.
8. TF, palms, Cocos

764.
1. Okon, E. V.
2. Regeneration of the tropical rain forests of eastern Nigeria.
3. EN
4. AF, Nigeria
5. British Commonwealth Forestry Conference Paper, 1962 (1962)
6.
7. regeneration
8. TF

765.
1. Oldeman, R. A. A. (ed).
2. Tropical hardwood utilization: practice and prospects.
3. EN
4. General
5. Martinus Nijhoff/Dr. W. Junk Publishers, The Hague, The Netherlands. (1982)
6. wood-utilization, textbook, ecology
7.
8. TF

766.
1. Oldeman, R. A. A.
2. Tropical rainforest, architecture, silvigenesis and diversity.
3. EN
4. General
5. In: Sutton, S.L., Whitmore, T.C., and Chadwick, A.C. (eds), Tropical rainforest: ecology and management. Oxford, UK, Blackwell. (1983)
6. forest-dynamics, succession
7.
8. TF

767.
1. Oliveira, J. S. de, N. Carnieri, E. F. Vilela, M. S. Batista.
2. Identificacao de componwentes quimicos nos brotos terminais de Toona ciliata M. Roem var. austarlis e Swietenia macrophylla King.
3. PO
4. SA, Brazil
5. Experientiae. (1986) 29:(9)125-1452.
6.
7. pests
8. Swietenia, Toona, Hypsipyla
A study designed to compare the composition of S. macrophylla with that of T. ciliata, which is not attacked by the important lepidopterous pest Hypsipyla grandella. Vapour extracts of terminal shoots were analysed using GC and IR spectrometry with Fourrier transformation.

768.
1. Oliver, C. D.
2. The development of northern red oak in mixed stands in central New England.
3. EN
4. NA
5. Yale Univ. School of Forestry, Env. Studies Bull., No 91 (1978)
6. forest-dynamics, ecology
7.

8. TmpF, Quercus
Spatial and temporal analysis of stand development.

769.
1. Osmaston, F. C.
2. The management of forests.
3. EN
4. General
5. London, UK, George Allen and Unwin. (1968)
6. textbook
7. silviculture
8. TmpF

770.
1. Osmaton, H. A.
2. Determination of age/girth and similar relationships in tropical forestry.
3. EN
4. General
5. Emp. For. Rev. (1956) 35:193-197.
6. ecology
7.
8. TF

771.
1. Ostrofsky, W. D., R.S. Seymour, and R.C. Lemin, Jr.
2. Damage to northern hardwoods from thinning using whole-tree harvesting technology.
3. EN
4. NA
5. Can. J. For. Res. (1986) 16:1238-1244.
6.
7. logging-damage
8. TmpF

772.
1. Padoch, C., J. Chota Inuma, W. De Jong, and J. Unruh.
2. Amazonian agroforestry: a market-oriented system in Peru.
3. EN
4. SA, Peru
5. Agroforestry Systems (1985) 3:47-58.
6. NTFP, marketing
7. economics
8. TF
Market-oriented agroforestry in Tamishiyacu, Peru by mestizo farmers on private land.

773.
1. Palmer, J. R.
2. Enrichment line plantings in the neotropics.
3. EN
4. General
5. Centro Agronomico Tropical de Investigacion y Ensenanza. (1981) 1-18.
6.
7. enrichment
8. TF

774.
1. Palmer, J. R.
2. Forestry in Brazil-Amazonia.
3. EN
4. SA, Brazil
5. Commonwealth Forestry Review (1977) 56:115-30.
6. conservation
7. silviculture
8. TF

775.
1. Palmer, J. R., and H. Palmer.
2. Pre-project study report enrichment planting.
3. EN
4. General, AS AF, SA
5. Report prepared by Japan Overseas Forestry Consultants Association (JOFCA) and Centre Technique Forestier Tropical Departement du CIRAD (CTFT) (1989) International Tropical Timber Organization (ITTO).
6.
7. enrichment
8. TF
A review of enrichment planting with case studies from South East Asia, Tropical Africa, and the Neotropics.

776.
1. Palmer, J. R.
2. Selective logging and regeneration problems. Contribution to Section II.c of UNESCO State-of-Knowledge Report on Tropical and Subtropical Forest Ecosystems.
3. EN
4. General
5. Commw. For. Inst., Oxford. 42p. (1980)
6.
7. selective-logging, natural-regeneration
8. TF

777.
1. Palmer, J. R.
2. Towards more reasonable objectives in tropical high forest management for timber production.
3. EN
4. General
5. Commonwealth Forestry Review (1954) 3:(4)273-289.
6. conservation
7. silviculture, economics, growth
8. TF, montane
Regional forest officers and forest services might increase collaborative efforts with industry for greater profit. Fields for collaboration include forest inventory, timber testing, assistance with costings, development of low-cost housing schemes, machinery selection and training schemes. The principal problem is the calculation of felling cycles and annual allowable yield.

778.
1. Pardo-Tejeda, E. and C. Sanchez Munoz.
2. Brosimum alicastrum: a potentially valuable tropical forest resource.
3. ES
4. Mexico
5. Nacional de Investigaciones sobre Recursos Bioticos. 1981.
6. extractives, NTFP, agriculture, fruits
7.
8. TF

779.
1. Parker, A. K. and A.L.S. Johnson.
2. Decay associated with logging injury to spruce and balsam in the Prince George region of British Columbia.
3. EN
4. Canada
5. For. Chron. (1960) 36:30-45.
6.
7. logging-damage, pathogens
8. TmpF, Picea

780.
1. Parker, G. G.
2. Analysis and recommendations concerning the natural forest-management system used in the Central Selva project, Peru.
3. EN
4. SA, Peru
5. New York Botanical Garden Special Report, 25 pp. (1986) 25.
6.
7. clearcut, natural-regeneration
8. TF
Consultant report on visit to the Palcazu Valley in Peru.

781.
1. Pastor, M. R.
2. The contribution of the "campesino" to the development of Andean forestry.
3. ES
4. SA
5. In, Figureoa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 389-402.
6. social-issues
7.
8. TF

782.
1. Paz y Mino, G.
2. Problemas ecologicos y perspectivas de manejo en la Amazonia Ecuatoriana.
3. ES
4. SA, Ecuador
5. Amazonia Nuestra: Una Vision Alternativa. L. Ruiz M., ed. (1991) 247-267.
6. conservation
7.
8. TF

783.
1. Peace, T. R.
2. The dangerous concept of the natural forest.
3. EN
4. General
5. Esp. For. Rev. (1961) 40:(4)320-328.
6. conservation
7.
8.

784.
1. Peck, R. B.
2. Forest research activities and the importance of multi-strata production systems in the Amazon Basin (humid neo-tropics).
3. EN
4. SA, Brazil
5. Amazonia, Agriuclture and Land (1982) 373-386.
6. agroforestry, education
7.
8. TF
Agroforestry research centers and some systems described.

785.
1. Pelaez, E. J. and L. R. Sanchez-Velasquez.
2. La sucesion forestal: fundamento ecologico de la silvicultura.
3. ES
4. Mexico
5. Ciencia y Desarrollo (1959) 14:(84)33-43.
6. conservation
7. silviculture
8. TF
General overview of the ecological basis for tropical silviculture - with special emphasis on conservation, successionary processes, and their application towards secondary forests.

786.
1. Pennington, T. D. and J. Sarukhan.
2. Arboles tropicales de Mexico.
3. EN
4. Mexico
5. INIF/FAO, Mexico, 413 pp. (1968)
6. ecology
7. species-trials
8. TF

787.
1. Pereira, A. P., C. F. M. de Melo, S. de M. Alves.
2. O parica (Schizolobium amazonicum), caracteristicas gerais da especie e suas possibilidades de aproveitamento na industria de celulose e papel.
3. PO
4. SA, Brazil
5. Silvicultura em Sao Paulo (1982) 16A:(2)1340-1344.
6. wood-utilization
7. species-description, pulpwood
8. TF, Schizolobium
Schizolobium amazonicum: general characteristics of the species and its suitability for use in pulp and paper manufacture

788.
1. Perez-Nassen, N. and C. Vazquez-Yanes.
2. Longevity of buried seeds from some tropical rain forest trees and shrubs of Veracruz, Mexico.
3. EN
4. Mexico
5. Malaysian For. (1989) 49:(3/4)352-356.
6. forest-dynamics, seeds
7.
8. TF

789.
1. Perrin, H.
2. Silviculture.
3. FR
4. General
5. Tome II, Le traitement des Forets Theorie et Pratique des Techniques sylvicoles. (1964)
6.
7. silviculture
8.

790.
1. Perry, D. A.
2. The competition process in forest stands.
3. EN
4. General
5. In: Attributes of Trees as Crop Plants. M.G.R. Cannell and J. E. Jackson (eds). Inst. of Terr. Ecol., Abbots Ripton, Hunts, England. 481-506. (1985)
6. ecology
7. growth
8.

791.
1. Perry, D. and J. Maghembe.
2. Ecosystem concepts and current trends in forest management: time for reappraisal.
3. EN
4. General
5. For. Ecol. and Manag. (1988) 26:123-140.
6. conservation
7. silviculture
8.

792.
1. Perry, D. A., R. Molina, and M.P. Amaranthus.
2. Mycorrhizae, mycorrhizospheres, and reforestation: current knowledge and research needs.
3. EN
4. General
5. Can. J. For. Res. (1987) 17:929-940.
6. ecology
7. plantations, regeneration
8.

793.
1. Peters, C. M. and E. Pardo-Tejeda.
2. Brosimum alicastrum (Moraceae): uses and potential in Mexico.
3. EN
4. Mexico
5. Econ. Bot. (1982) 36:166-175.
6. NTFP, agroforestry
7.
8. TF, Brosimum

794.
1. Peters, C. M. et al.
2. Oligarchic forests of economic plants in Amazonia: utilization and conservation of an important tropical resource.
3. EN
4. SA
5. Conservation Biology (1989) 3:(4)341-349.
6. NTFP, fruits
7. economics
8. TF

795.
1. Peters, C., A. Gentry, and R. Mendelsohn.
2. Valuation of an Amazonian rainforest.
3. EN
4. SA, Peru
5. Nature (1989) 339:655-656.
6. NTFP, fruits
7. economics
8. TF
Comparison of the market value of timber and non-timber forest products (e.g., latex and fruit) in 2 hectare of forest near Iquitos, Peru. The latter were much more valuable.

796.
1. Phillips, J. B.
2. Effect of cutting techniques on coppice regrowth.
3. EN
4.
5. Quart. J. of For. (1971) 65:220-223.
6.
7. coppicing
8.

797.
1. Phillips, J. F.
2. Virgilia capensis Lamk. ("Keurboom"): a contribution to its ecology and silviculture.
3. EN
4. AF
5. S. African J. of Science (1926) 23:435-454.
6. ecology
7. silviculture
8. TF

798.
1. Pierce, J. H.
2. Balsa - lightweight champion timber tree.
3. EN
4.
5. NY Bot. Gdn. (1942) 43:268-277.
6. wood-utilization
7. species-trials
8. Ochroma

799.
1. Pitt, C. J. W.
2. Possible methods of regenerating and improving some of the Amazon forests.
3. EN
4. SA, Brazil
5. Caribbean Forester (1961) 1/2:26-32.
6.
7. enrichment, selective-logging, stand-improvement, natural-regeneration, plantations
8. TF, varzea, igapo, Swamps, terra-firme
General discussion of silvicultural requirements of several forest types of the Amazon basin based on forests near Cucua Una River, Santarem, and Macapa. The author concludes management stress should be on natural regeneration rather than artificial until more information is available.

800.
1. Pitt, C. J. W.
2. Report to government of Brazil on the application of silvicultural methods to some of the forests of the Amazon.
3. EN
4. SA, Brazil
5. F.A.O. ETAP report 1337 (1961)
6.
7. silviculture
8. TF

801.
1. Pitt, J.
2. Amazon Forests. Possible methods of regeneration and improvement.
3. EN
4. SA, Brazil
5. Unasylva (1961) 15:(2)63-69.
6.
7. regeneration, stand-improvement
8. TF

802.
1. Pitt, J.
2. Application of silvicultural methods to some of the forests of the Amazon.
3. EN
4. SA, Brazil
5. Expanded Technical Assistance Program, FAO 1337, Brazil (1961)
6.
7. silviculture
8. TF

A review of project status with recommendations for improving forest use.

803.
1. Pitt, J.
2. Relatorio ao Governo do Brasil sobre Aplicacao de Metodos Silviculturais a Algumas Florestas da Amazonia.
3. PO
4. SA, Brazil
5. Superintendencia do Desenvolvimento da Amazonia (SUDAM) (1969) Belem.
6.
7. silviculture
8. TF

804.
1. Plumptre, R. A.
2. Greater use of secondary species in moist tropical forest: a guide to the use of Mexican and Belizean timbers.
3. EN
4. Mexico, Belize
5. Commonwealth Forestry Review (1990) 69:215-226.
6. conservation, wood-utilization
7. logging
8. TF, secondary-forest
Methods for promotion of increased use of secondary species, environmental effects.

805.
1. Plumptre, R. A. and D. E. Earl.
2. Integrating small industries with management of tropical forest for
improved utilization and higher future productivity.
3. EN
4. AF, Uganda Ghana
5. Journal of World Forest Management (1986) 2:43-55.
6. wood-utilization
7. silviculture, fuelwood, sawmills, economics
8. TF
Charcoal making, mobile sawmills, and other small industries can increase forest utilization, revenues, and employment.

806.
1. Plumptre, R. A.
2. Problems of increasing the intensity of utilization of tropical high forest.
3. EN
4. General
5. Commonwealth Forestry Review. (1972) 51:213-232.
6. conservation, wood-utilization
7.
8. TF

807.
1. Poels, R. L. H.
2. Soils, water, and nutrients in a forest ecosystem in Suriname.
3. EN
4. SA, Suriname
5. Wageningen Agricultural University. The Netherlands
6. ecology
7. erosion
8. TF
Detailed data and analysis of the ecological effects of the CELOS silvicultural system.

808.
1. Poinsier, J. L.
2. Foret tropicale et sylviculture en Cote d'Ivoire.
3. FR
4. AF, Ivory-Coast
5. Rev. Bois App. (1947) 2:(2)23-25.
6.
7. silviculture
8. TF, Ceiba
The tropical forests and silviculture of the Ivory Coast.

809.
1. Polhamus, L. G.
2. Rubber: botany, production, utilization.
3. EN
4. General
5. New York: Interscience Publ., Inc. (1962)
6. NTFP, rubber
7.
8. TF, Hevea

810.
1. Poore, A.
2. British uneven-aged silvicultural systems.
3. EN
4. UK
5. OFI Occ. Pap., Oxford For. Inst., Univ. of Oxford. (1988) 37:2-11.
6.
7. shelterwood, silviculture
8. TmpF
A discussion of the basic practical features of the relatively small number of irregular systems which are likely to be applied widely in the UK; group felling, group selection, the Bradford plant, and irregular shelterwood.

811.
1. Poore, A.
2. Coppice management in East Anglian woodlands and its application in urban fringe nature conservation.
3. EN
4. UK
5. Arboricultural Journal (1982) 6:81-94.
6. conservation
7. coppicing
8. TmpF

812.
1. Poore, D.
2. Ecological guidelines for development in tropical rain forests.
3. EN
4. General
5. IUCN Books, Morges, Switzerland. (1976)
6. conservation, textbook
7. logging
8. TF

813.
1. Poore, D., P. Burgess, J. Palmer, S. Rietbergen, and T. Synnott.
2. No timber without trees. Sustainability in the tropical forest.
3. EN
4. General, Trinidad Brazil, Bolivia, Peru, Ecuador, Honduras.
5. Earthscan Publication Ltd., London (1989)
6. conservation, policy-issues
7. silviculture
8. TF
An alarming assessment of the rarity of sustainably managed forest in the tropics.

814.
1. Poore, M. E. D. and C. Fries.
2. The ecological effects of eucalyptus.
3. EN
4. General
5. FAO, Forestry Paper No. 59 (1986) 87.
6. conservation
7. plantations
8. TF, Eucalyptus

815.
1. Popenoe, W. and O. Jimenez.
2. The pejibaye a neglected food-plant of tropical America.
3. EN
4. CA, SA
5. J. of Heredity (1921) 12:154-166.
6. NTFP
7.
8. TF, Palms

816.
1. Porras, M. J. and B. G. Luyano.
2. Can the productivity of tropical forest in Mexico be increased by the Taungya system?
3. EN
4. Mexico
5. Boletin Technico 39, Instituto Nacional de Investigaciones Forestaler, Mexico. (1974)
6.
7. taungya, plantations
8. TF

817.
1. Posey, D. A.
2. Indigenous management of tropical forest ecosystems: the case of the Kayapo Indians of the Brazilian Amazon.
3. EN
4. SA, Brazil
5. Agroforestry Systems (1985) 3:139-158.
6. NTFP, conservation
7. silviculture
8. TF
Formation and development of management system and the associated cognitive model with implications for reforestation and conservation.

818.
1. Posey, D. A. and W. Balee (eds).
2. Resource management in Amazonia: indigenous and folk strategies.
3. EN
4. SA
5. Advances in Economic Botany, vol. 7. New York Botanical Garden (1989)
6. conservation, NTFP, social-issues, natural-resources
7. silviculture
8. TF
Collection of papers on resource management in Amazonia with focus on human resources.

819.
1. Prance, G. T.
2. The floristic composition of the forests of central Amazonian Brazil.
3. EN
4. SA, Brazil
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale University Press, New Haven (1990) 112-140.
6. ecology, taxonomy
7.
8. TF

820.
1. Prance, G.
2. Fruits of the rainforest.
3. EN
4. General
5. New Scientist. (1990) 125:42-46.
6. NTFP, fruits
7.
8. TF

821.
1. Prestemon, J. P. and J. G. Laarman.
2. Should sawnwood be produced with chainsaws? Observations in Ecuador.
3. EN
4. SA, Ecuador
5. Journal of the World Forest Resource Management (1989) 4:111-126.
6. wood-utilization
7. sawmills, economics
8. TF

822.
1. Prevost, M. F.
2. Importance des rejets dans les premiers stades de la regeneration forestiere apres coupe, Piste de Saint Elie, Guyane.
3. FR
4. SA, French-Guiana
5. ECEREX Bul. Liason (1982) 6:251-264.
6. succession
7. coppicing
8. TF
Importance of sprouts in forest regeneration.

823.
1. Primack, R. B.
2. Comparative studies of fruits in wild and cultivated trees of chempedak (Artocarpus integer) and terap (Artocarpus odoratissimus) in Sarawak, East Malaysia with additional information on the reproductive biology of the Moraceae in Southeast Asia.
3. EN
4. AS, Malaysia
5. Malay. Nat. J. (1985) 39:1-39.
6. NTFP, fruits
7.
8. TF

824.
1. Pringle, S.
2. Tropical moist forests in world demand: Supply and trade.
3. EN
4. General
5. Unasylva (1976) 28:(112-113)106-118.
6. conservation
7. economics
8. TF

825.
1. Putz, F. E.
2. Blueprint for saving tropical forests.
3. EN
4. AS, Malaysia
5. Garden (1988) 12:2-5, 32.
6. conservation
7. silviculture, economics
8. TF
Essay on approaches to natural forest management in the tropics.

826.
1. Putz, F. E., H. S. Lee, and R. Goh.
2. Effects of post-felling silvicultural treatments on woody vines in Sarawak.
3. EN
4. AS, Malaysia
5. Malaysian For. (1984) 47:214-226.
6. ecology
7. logging-damage, growth, climbers, weeds
8. TF, Dipterocarpaceae
Removing vines increases tree growth rates and reduces incidence of stem deformity.

827.
1. Putz, F. E.
2. Liana biomass and leaf area of a "tierra firme" forest in the Rio Negro Basin, Venezuela.
3. EN
4. SA, Venezuela
5. Biotrop. (1983) 15:(3)185-189.
6. ecology
7. climbers, growth
8. TF
Lianas constituted a small proportion of forest biomass but a substantial proportion of forest leaf area.

828.
1. Putz, F. E.
2. The natural history of lianas on Barro Colorado Island, Panama.
3. EN
4. CA, Panama
5. Ecology (1984) 65:1713-1724.
6. vegetation-structure, ecology
7. growth, climbers, weeds
8. TF, lianas
Basic study of vine ecology including effects on tree growth and regeneration.

829.
1. Putz, F. E.
2. Natural management of tropical moist forests: silvicultural and management prospects of sustained utilization.
3. EN
4. general
5. Trends in Ecology and Evolution (Review of book edited by Mergen and Vincent.) (1987) 2:217-318.
6.
7. natural-regeneration
8. TF
Critical of several of the chapters that advocate abandonment of natural forest management in favor of plantation forestry.

830.
1. Putz, F. E.
2. Silvicultural effects of lianas.
3. EN
4. General
5. In: F. E. Putz and H. A. Mooney, editors. The Biology of Vines. Cambridge University Press, Cambridge, England. (1991)
6. ecology
7. herbicides, climbers, weeds
8. TF, lianas
Evidence for the negative effects of lianas on trees is reviewed as are characters of lianas that enhance their competitve ability. Silvicultural practices used to minimize the negative effects of lianas on trees are presented.

831.
1. Putz, F. E., P.D. Coley, K. du, A. Montalvo, and A. Aiello.
2. Uprooting and snapping of trees: structural determinants and ecological consequences.
3. EN
4. CA, Panama
5. Can. J. of For. Res. (1983) 13:(5)1011-1020.
6. forest-dynamics, wood-properties
7.
8. TF
Field study on the mechanical and structural features of trees that influence their likelihood of snapping or being uprooted.

832.
1. Putz, F. E.
2. Woody vines and forest management in Malaysia.
3. EN
4. AS, Malaysia
5. Commonwealth Forestry Review (1985) 64:(4)359-365.
6.
7. weeds, damage
8. TF
Tree growth and logging damage problems caused by vines (lianas) and their control.

833.
1. Putz, G.
2. Tropical deforestation. Are woodworkers to blame?
3. EN
4. General
5. Fine Woodworking (1988) May/June:80-83.
6. conservation, marketing, wood-utilization
7.
8. TF
Discusses use of tropical hardwoods and suggests how woodworkers can help promote sustainable forest management in the tropics.

834.
1. Quevedo, L.
2. Evaluacion del efecto de la tala selectiva sobre la renovacion de un bosque humedo subtropical en Santa Cruz, Bolivia.
3. ES
4. SA, Bolivia
5. Tesis de Maestria, CATIE. 220 p. (1986)
6.
7. selective-logging, damage
8. TF

835.
1. Quevedo Hurtado, L.
2. Principales Sistemas Silviculturas Empleados en los Bosques Naturales Tropicales.
3. ES
4. general
5. Universidad Autonoma "Gabriel Rene Moreno," Santa Cruz de la Sierra, Bolivia. 25 pp. (1990)
6.
7. silviculture
8. TF

836.
1. Rackham, O.
2. The history and effects of coppicing as a woodland practice.
3. EN
4. UK
5. In: The Biotic Effects of Public Pressures on the Environment. (1967)
6.
7. coppicing
8. TmpF

837.
1. Ramakrishman, P. S., R.P. Shukla, and R. Boojh.
2. Growth strategies of trees and their application to forest management.
3. EN
4. General
5. Current Science (1982) 51:448-455.
6. forest-dynamics
7. growth
8. TF

838.
1. Ramdial, B. S.
2. The interrelationship between forestry and food production in Trinidad and Tobago.
3. EN
4. SA, Trinidad Tobago
5. In, New Technologies in food production; proceedings of a seminar (Archibald, K.A.E., T.U. Ferguson, and D. Dolly, eds.). (1984) 185-197 pp.
6. agriculture, conservation
7. taungya
8. Tectona

The role of forests in conserving and maintaining the natural resources that are used for agricultural production which are soil, water, wildlife, genetic, and fishery resources is discussed. Forests and forest tree species are also used for windbolts and shade to provide wood for agricultural purposes and in international trade. The role of agro-forestry, particularly the Taungya system for cultivation of teak (Tectona grandis) practiced in Trinidad, where teak seedlings are interplanted with food crops such as corn, dasheen, hill rice, sorrel, pigeon peas, ochra, and sweet potatoes is discussed.

839.
1. Rand, A. S. and C. W. Myers.
2. The herpetofauna of Barro Colorado Island, Panama: an ecological summary.
3. EN
4. SA, Panama
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale University Press, New Haven (1990) 386-409.
6. ecology, wildlife
7.
8. TF

840.

1. Ranal, A. M., M. Nakaoka, J.B. da Silva, M. de S. Menandro, Y.S. Kuniyoshi, C.V. Roderjan, C.M. Bletrati, A.A.S. Paoli, J.L. Timoni, A.A. Carpanezzi, M. Kanashiro, and E.L.M. Catharino.
2. Biology of native Brazilian tree species.
In proceedings of the national conference on native species, Campos do Jordao, Sao Paulo, Brazil, 12-18 Sept., 1982 [edited by Malvesi, I.T.O.; et al.].
3. PO
4. SA, Brazil
5. Silvicultura em Sao Paulo (1982) 16A:(1)2.
6. seeds
7. nurseries, phenology
8. TF, cerrado, Miconia, Ocotea, Podocarpus, Cariniana, Psilium, Cordia, Mimosa, Vouacapoua, Ochroma.

Fourteen papers from the conference: Randi, A.M. [Preliminary study of germination inhibitors in fruits of Miconia cinnamomifolia and Ocotea puberula.]. M. Nakaoka and J. B. da Silva [Phytochemical studies on species of the Serra da Cantareira, Sao Paulo. 2.] M. de S. Menandro [Phenological phases in native forest species.]. Y.S. Kuniyoshi, C.V. Roderjan [Morphological studies on seeds and seedlings of some tree species found in Araucaria forest. Preliminary note.]. C.M. Bletrati, A.A.S. Paoli, and J.L. Timoni [Morphology and anatomy of seeds of Cariniana legalis and C. estrellensis.]. A.A.S. Paoli, J.L. Timoni and C.M. Bletrati [Morphology and anatomy of the seeds of Psilium cinereum.]. A.A. Carpanezzi, andM. Kanashiro [Information on the ecology of Cordia goeldiana.]. L.L.S.C. Paixao [A study of leaf size in the cerrado including in relation to aerodynamic resistance.]. E.L.M. Catharino, C.S.M. Crestana and P.Y. Kageyama [Floral biology of Mimosa scabrella.]. C.J.E. Gondim [Presence of growth inhibitors in Vouacapoua americana.]. S. Teixeira-Alves [Studies on Ochroma pyramidale.]. J.B. Pedrosa [Vanillosmopsos erythropappa. Silvicultural characteristics and uses.]. A. P. Pereira [Nursery studies and studies on fruiting in some Amazonian species.]. A.P. Pereira and L.M. Pedroso [Phenological data on the principal forest species at the Curua-Una Experiment Station, Para.].

841.

1. Rankin, J. M.
2. Forestry in the Brazilian Amazon.
3. EN
4. SA, Brazil
5. In: Prance, G.T. and T.E. Lovejoy (eds.), Key environments: Amazonia. Oxford: Pergamon Press. (1985) 369-392.
6. conservation
7. silviculture
8. TF

842.

1. Rankin-de-Merona, J. M., R. W. Hutchings H., and T. E. Lovejoy.
2. Tree mortality and recruitment over a five-year period in undisturbed upland rainforest of the central Amazon.
3. EN
4. SA, Brazil
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale University Press, New Haven (1990) 573-584.
6. ecology, forest-dynamics
7.
8. TF

843.
1. Rao, Y. S., N.T. Vergara, and G.W. Lovelace (eds).
2. Community forestry: socio-economic aspects.
3. EN
4. General
5. Regional Office for Asia and the Pacific, FAO, Bangkok (1985)
6. social-issues, agriculture
7. plantations
8. TF

844.
1. Rapera, R. B.
2. Effects of logging on residual stands.
3. EN
4. AS
5. In: R.S. Suparto et al. (eds), Symposium on the long-term effects of logging in Southeast Asia. BIOTROP, Bogor, Indonesia (1978)
6.
7. logging-damage
8. TF, Dipterocarpaceae

845.
1. Rebbert, A. C. and K. L. Carvell.
2. Effects of thinnings on the understories of cove hardwood stands.
3. EN
4. NA
5. West Virginia Forestry Notes (1984) 11:15-18.
6. conservation, ecology
7. natural-regeneration, stand-improvement
8. TmpF

Cover and species of herbaceous plants, particularly fern communities, and relations between woody regeneration and type of fern or other herbaceous cover in the ground vegetation, were studied in West Virginia University Forest that received no thinning, high thinning or low thinning. Half the plots in each thinning treatment had received an initial improvement felling. Tree regeneration was significantly affected by density and species composition of the ground cover.

846.
1. Record, S. J. and R. W. Hess.
2. Timbers of the New World.
3. EN
4. CA, SA
5. Yale Univ. Press., pp. 100-102 (1943)
6. wood-utilization, wood-properties
7.
8. TF, Cordia, Cedrela, Swietenia

847.
1. Redhead, J. F.
2. An analysis of logging damage in lowland rainforest, Western Nigeria.
3. EN
4. AF, Nigeria
5. Nig. For. Inf. Bull. (1960) 10:
6.
7. logging-damage
8. TF

848.
1. Reich, P. B. and R. Borchert.
2. Water stress and tree phenology in a tropical dry forest in the lowlands of Costa Rica.
3. EN
4. CA, Costa-Rica
5. Journal of Ecology (1984) 72:61-74.
6. ecology
7.
8. TF
Study on water-related factors affecting leaf loss and bud break.

849.
1. Reiche C.C. and A. J. J. Campos.
2. El consumo de lena en los beneficios de cafe de costa Rica: problemas y alternativos forestales.
3. ES (summary language: EN)
4. CA, Costa-Rica
5. Informe Tecnico, Centro Agronomico Tropical de Investigacion y Ensenanza, Costa Rica (1986.) 68:72.
6.
7. fuelwood
8. TF
The consumption of fuelwood by coffee drying and processing plants in Costa Rica: problems and forestry alternatives.

850.
1. Reichle, D. E. (ed).
2. Dynamic properties of forest ecosystems.
3. EN
4. General
5. Int. Bioshpere Prog. 23. Cambridge Univ. Press, Cambridge (1981)
6. forest-dynamics
7.
8. TF

851.
1. Repetto, R. and M. Gillis (eds).
2. Public policies and misuse of forest resources.
3. EN
4. General
5. Cambridge Univ. Press, NY, USA. (1988)
6. conservation, policy-issues
7. economics
8. TF

852.
1. Repetto, R., W. Magrath, M. Wells, C. Beer, and F. Rossini.
2. Wasting assets: natural resources in the national income accounts.
3. EN
4. General
5. World Resources Institute (1989)
6. policy-issues
7. economics
8. TF

853.
1. Ricardi, M., F. Torres, C. Hernandez y R. Quintero.
2. Morfologia de plantulas de arboles Venezolanos. I.
3. ES
4. SA, Venezuela
5. Revista Foretal Venezolana (1977) 27:15-56.
6. taxonomy
7.
8. TF
Seedling descriptions with photographs.

854.
1. Richardson, D.
2. A Faustean dilemma.
3. EN
4. General
5. Unasylva (1977) 29:12-14.
6. conservation
7.
8. TF

855.
1. Ridout, L. M.
2. Bamboos II.
3. EN
4. General
5. Commonwealth Agriculture Bureau (1983)
6. NTFP
7.
8. TF, bamboo

856.
1. Riswan, S.
2. Ecological studies on primary, secondary and experimentally cleared mixed dipterocarp forest and kerangas in east Kalimantan, Indonesia.
3. EN
4. AS, Indonesia
5. Ph. D. Univ. Aberdeen, UK (1982)
6. ecology, succession
7.
8. TF

857.
1. Rivera, V. F., J. C. Ribadeneira, J. Mora A., and A. Altafuya.
2. Campesinado y organizacion en Esmeraldas.
3. ES
4. SA, Ecuador
5. Quito, Ecuador: Centro Andino de Accion Popular y la Organizacion Campesina Muisne-Esmeraldas. (1986)
6. conservation, social-issues, NTFP
7. economics
8. TF
Peasantry and organization in Esmeraldas. Collective defense and use of 62,000 ha purchased in 1885 by ex-slaves in NW Ecuador (Communa Santiago).

858.
1. Robbins, S. R. J. and W.S.A. Matthews.
2. Minor forest products - their total value is of a major order.
3. EN
4. General
5. Unasylva (1974) 26:7-14.
6. NTFP, marketing
7. economics
8. TF

859.
1. Robinson, S. K. and J. Terborgh.
2. Bird communities of the Cocha Cushu Biological Station in Amazonian Peru.
3. EN
4. SA, Peru
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale University Press, New Haven (1990) 199-216.
6. ecology, wildlife
7.
8. TF

860.
1. Roche, L.
2. Forestry and the conservation of plants and animals in the tropics.
3. EN
4. General
5. For. Ecol. & Management (1979) 2:103-122.
6. conservation, wildlife
7.
8. TF

861.
1. Rodenwaldt, T.
2. Silvicultural lessons from the windthrow catastrophe in 1967. A district history study.
3. EN
4. UK
5. Trans. for. Comm. UK 1974. (No. FCT 469): 17 pp. (Trans. by W. Linard from Allgemeine Forst- und Jagdzeitung. (1973) 144:(17)125-133.
6. forest-dynamics
7. shelterwood, logging-damage
8. TmpF, Abies, Picea

862.
1. Rodriguez, C. R.
2. La explotacion de los montes de caoba en el territorio de Quintana Roo.
3. ES
4. Mexico
5. Tesis, Ing. Agr. en Bosques. Escuela Nacional de Agricultura, Chapingo. 120 pp. (1944)
6.
7. silviculture
8. TF, Swietenia

863.
1. Rodriquez, L. B. and J. E. Cadle.
2. A preliminary overview of the herpetofauna of Cocha Cashu, Manu National Park, Peru.
3. EN
4. SA, Peru
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale University Press, New Haven (1990) 410-425.
6. ecology, wildlife
7.
8. TF

864.
1. Rollet, B.
2. La regeneracion natural en bosque denso siempreverde de llanura de la Guayana Venezolana.
3. ES
4. SA, Venezuela
5. Boletin Instituo Forestal Latino-Americano de Investigacion y Capacitacion (1971) 35:39-73.
6. vegetation-structure
7. natural-regeneration
8. TF

865.
1. Rollet, B.
2. La regeneration naturelle dans les trouees. Un processus general de la dynamique des forets tropicales humides.
3. FR
4. SA, Brazil
5. Bois et Forets des Tropiques. (1983) 201:3-34.
6. forest-dynamics, vegetation-structure
7. climbers
8. TF

Natural regeneration in gaps. A normal part of the dynamics of tropical rain forests. A survey was made on a plot 1X1 km in the Curua Una forest in Amazonia, Brazil. All well defined gaps more than 100 m2 were mapped. Species composition of gaps was only slightly different from that of the surrounding undergrowth, and lianes had apparently been much reduced by a climber-cutting operation 20 yr previously.

866.
1. Romero-Pastor, M.
2. La promocion forestal en la sierra peruana.
3. ES
4. SA, Peru
5. In, Actas del simposio sobre tecnicas de produccion de lena en fincas pequenas, pp. 339-348. Turrialba, Costa Rica: Centro Agronomico Tropical de Investigacion y Ensenanza (CATIE)/Food and Agriculture Organization (FAO)/Man and the Biosphere (MAB). (1985)
6.
7. fuelwood
8. TF

Forestry promotion in the Peruvian Sierra. Describes project incentives, problems, governmental indifference, and forestry within framework of rural development.

867.
1. Roosevelt, A.
2. Resource management in Amazonia before the conquest: beyond ethnographic projection.
3. EN
4. SA
5. In, Resource Management in Amazonia: Indigenous and Folk Strategies, D.A. Posey and W. Balee (eds), pp. 30-62. Advances in Economic Botany, vol. 7. New York Botanical Garden. (1989)
6. natural-resources, conservation, ecology
7. silviculture
8. TF

Archaeological research reveals sophisticated resource use systems in use for thousands of years in Amazonia with great effects on vegetation.

868.
1. Rosa, M. de la.
2. Empresa forestal comunal Santa Cruz Tanaco: una empresa hacia la autogestion.
3. ES
4. Mexico
5. Mexico, D.F.: Instituto Mexicano de Investigaciones Sociales, A.C. (IMISAC) (Mexico City: Mexican Institute for Social Research) (1980)
6. social-issues, policy-issues
7. economics
8. TF

Community forestry enterprise Santa Cruz Tanaco: an enterprise toward self-management. Describes efforts of community to gain control of its forest resources.

869.
1. Rosayro, R. A. de.
2. Ecological considerations in the management of wet evergreen forests in Ceylon.
3. EN
4. Ceylon
5. Ceylon Forester (n.s.) (1953) 1:80-90.
6. ecology
7. silviculture
8. TF

870.
1. Rosayro, R. A. de.
2. The silviculture and management of tropical rain forest with special reference to Ceylon.
3. EN
4. Ceylon
5. Ceylon For. (n.s.) (1955) 2:(1)5-26.
6.
7. silviculture
8. TF, Vitex-cooperi

871.
1. Rosayro, R. A. de.
2. Silviculture and management of tropical rain forest with special reference to Ceylon.
3. EN
4. Ceylon
5. Trop. Silv. (1957) 2:.79-162.
6. ecology
7. silviculture
8. TF

872.
1. Rosero, P.
2. Conocimientos actuales sobre manejo de bosques tropicales.
3. ES
4. General
5. Actas de la Primera Reunion Tecnica de Programacion Sobre Desarrollo Forestal del Tropico Humedo Americano, Medellin, Colombia, 1924 Febrero 1973. (IICA serie Reuniones, Cursos y Conferencias no.
5.
IB-B-10 a 13. [Ecuador and Venezuela]. (1973)
6.
7. enrichment, silviculture
8. TF

873.
1. Rosevear, D. R.
2. Practical silviculture in the rain forests of Nigeria.
3. EN
4. AF, Nigeria
5. Brit. Cmp. For. Conf. paper (1947)
6.
7. silviculture
8. TF

874.
1. Rosevear, D. R. and P.C. Lancastar.
2. A review of silvicultural experiment and practice in Nigeria.
3. EN
4. AF, Nigeria
5. Brit. Comm. For. Conf. paper (1952)
6.
7. silviculture
8. TF

875.
1. Rosevear, D. R.
2. Yield of the high forest.
3. EN
4. AF, Nigeria
5. Nig. For. Inf. Bull. (1952) 3:
6.
7. silviculture, growth
8. TF

876.
1. Ross, M. S.
2. Forestry in land use policy for Indonesia.
3. EN
4. AS, Indonesia
5. Ph.D Thesis presented to University of Oxford, England (1984)
6. policy-issues, conservation
7. economics
8. TF

A review and discussion of land use policies in Indonesia along with proposed techniques to assist in the retention of forests with the greatast potential for timber production, environmental protection and other conservation functions.

877.
1. Rotta, E. and C. L. Cassilha.
2. Bibliografia sinaletica de especies florestais nativas.
3. PO
4. SA, Brazil
5. EMBRAPA/Departamento de Informacao e Documentacao, Brasilia, Brazil
(1980)
6.
7. species-description, species-trials
8. TF, Holocalyx, Piptadenia, Mimosa, Ocotea, Lafoensia, Schizolobium, Piptadenia, Prunus, Enterolobium, Piptocarpha.

Selected bibliography of Brazilian native forest species. References are given in 10 sections (on: Holocalyx balansae, Piptadenia macrocarpa, Mimosa scabrella, Ocotea puberula, Lafoensia pacari, Schizolobium parahyva and S. excelsum, Piptadenis communis, Prunus sellowii, Enterolobium contortisiliquum, and Piptocarpha angustifolia). In alphabetical order within sections. Author, subject and geographical indices are included.

878.
1. Rule, A.
2. Exploitation of the tropical forests and the problems of secondary species.
3. EN
4. General
5. Empire Forestry Review (1947) 26:83-86.
6. wood-utilization, succession
7. weeds, logging
8. TF

879.
1. Rumyantsev, G. T.
2. The time factor and its importance in the economics of forestry.
3. EN
4. General
5. Wellington, New Zealand; 1976. (Transl. from Lesnov Khozyaistvo) (1975) 1:pp. 16-18.
6. policy-issues
7. clearcut, economics, regeneration, shelterwood
8.

880.
1. Russell, J.
2. Effect of commercial timber extraction in regions of tropical rain forests in Dominica.
3. EN
4. Caribbean
5. World Crops (1974) 26:(3)134-35.
6. conservation
7. logging-damage
8. TF

881.
1. Ryf, F.
2. Aspetti forestali de Nicaragua.
3. Italian (summary Lanugage: German)
4. CA, Nicaragua
5. Schweizerische Zeitschrift fur Forstwesen (1987) 138:(3)251-256.
6.
7. silviculture
8. TF
Forestry aspects of Nicaragua.

882.
1. Sabatier, D.
2. Saisonnalite et determinisme du pic de fructification en foret Guyanaise.
3. FR
4. SA, French-Guiana
5. Rev. Ecol. (Terre Vie) (1985) 40:289-320.
6. ecology, seed-ecology
7. phenology
8. TF
Seasonality and factors affecting fruiting in French Guiana.

883.
1. Salas, G. de las.
2. Site maintenance in forest plantaTions in the American Tropics.
3. ES
4.
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 335-356.
6.
7. plantations
8. TF

884.
1. Salazar, R.
2. Tree improvement.
3. ES
4.
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 357-364.
6.
7. plantations
8. TF

885.
1. Salick, J.
2. Ecological basis of Amuesha agriculture, Peruvian upper Amazon.
3. EN
4. SA, Peru
5. In, Resource Management in Amazonia: Indigenous and Folk Strategies, D.A. Posey and W. Balee (eds), pp. 189-212. Advances in Economic Botany, vol. 7. New York Botanical Garden (1989)
6. NTFP, agriculture, ecology
7.
8. TF
Discusses agricultural systems in high rainfall area.

886.
1. Santander, C.
2. Ensayos silviculturales en un bosque tropical humedo, Iquitos, Peru.
3. ES
4. SA, Peru
5. Actas de la Reunion Internacional sobre Silvicultura de Bosques Tropicales, Cali, Colombia, 2-6 Diciembre 1974. IICA serie Informes de Conferencias, Cursos y Reuniones no. 61. III-E-4 y 9. (1974)
6.
7. enrichment, silviculture
8. TF

887.
1. Sanyal, S. N., A. S. Gulati, and A. K. Khanduri.
2. Strength properties and uses of bamboos.
3. EN
4. AS, India
5. Ind. For. (1988) 114:(10)637-649.
6. NTFP, wood-properties
7.
8. TF, bamboo,
A compilation of available data on the physical and mechanical properties (mainly the strength properties) of 10 species of bamboo (Bambusa arundinaceae, B. balcooa, B. nutans, B. polymorpha, B. tulda, Dendrocalamus longispathus, D. membranaceus, D. strictus, Melocanna baccifera, Thyrsostachys oliveri) from various Indian states, both absolute values and values relative to teak are given.

888.
1. Sarukhan, J.
2. Estudes sucesional de un area talada de Tuxtepec, Oaxaca.
3. ES
4. Mexico
5. Publicacion especial. Instituto Nacional de Investigacions de Forestales de Mexico (1964) 3:107-172.
6. forest-dynamics, succssion
7.
8. TF

889.
1. Satterlund, D. R.
2. Forest shadows: how much shelter in a shelterwood?
3. EN
4. General
5. For. Ecol. & Mg. (1983) 5:(1)27-37.
6. vegetation-structure
7. shelterwood, growth
8.

A simulated model is presented that will permit silviculturists to estimate the shade cast on any site at any time by a randomly distributed conifer stand of any stocking level. Trees are modelled as a crown consisting of a cone on top of a cylinder, and the crowns may vary in density. The bole is modelled as a solid cylinder. Relative dimensions may be varied to simulate almost all regular conifer tree forms. The projected shadow area of individual trees is integrated for any number of independently distributed trees to obtain the relative shadow area on the ground surface. Alternatively, the model permits the determination of the number of trees of any given dimensions per unit area needed to provide a given degree of shade.

890.
1. Saulei, S. M.
2. Natural regeneration following clear-fell logging operations in the Gogol Valley, Papua New Guinea.
3. EN
4. AS, New-Guinea
5. Ambio (1984) 13:351-354.
6. succession
7. natural-regeneration, clearcut
8. TF

Area of lowland moist forest clearcut for pulping.

891.
1. Scurr, J. G.
2. Forestry and forest legislation in the Dominican Republic.
3. EN, ES
4. Caribbean, Dominican-Republic
5. Carib. For. (1940)
6. policy-issues
7.
8. TF, Cedrela

892.
1. Scatena, F. N.
2. Culvert flow in small drainages in montane tropical forests: observations from the Luquillo Experimental Forest of Puerto Rico.
3. EN
4. Caribbean, Puerto-Rico
5. Tropical Hydrology and Caribbean Water Resources (1990 July) American Water Resources Association,237-246.
6.
7. watersheds
8. TF

The hydraulics of unsubmerged flow for 5 culverts in the Luquillo Experimental Forest of Puerto Rico are described. A general equation is presented to estimate culvert discharge.

893.
1. Schmidt, R.
2. Tropical rain forest management: a status report.
3. EN
4. French-Guiana, Ecuador Costa-Rica, Brazil, Peru, Malaysia, Philippines, Colombia
5. Unasylva (1987) 39:2-17.
6.
7. natural-regeneration, silviculture
8. TF
Overview of natural forest management with examples.

894.
1. Schmidt, R.
2. Tropical rain forest management: a status report.
3. EN
4. General
5. Unasylva (1987) 39:(156)2-17.
6.
7. silviculture, natural-regeneration
8. TF

895.
1. Schmink, M.
2. The rationality of tropical forest destruction.
3. EN
4. General
5. Management of Forests in Tropical America: Prospects and Technologies. J. C. Figueiroa Colon, F. H. Wadsworth, and S. Brannan, eds. (1987) USDA Forest Service, Institute of Tropical Forestry, Rio Piedras, Puerto Rico.
6. conservation
7.
8. TF
Given governmental policies and economics constraints, deforestation is often A rational action even when alternative land uses might be more sustainable.

896.
1. Schultes, R. E.
2. Promising structural fiber palms of the Colombian Amazon.
3. EN
4. SA, Colombia
5. Principes (1977) 21:(2)72-82.
6. NTFP
7.
8. TF, Palms

897.
1. Schulz, J. P.
2. Ecological studies on rainforest in northern Suriname (The vegetation of Suriname, vol. II).
3. ES
4. SA, Suriname
5. Paramaribo, Suriname's Lands Bosbeheer; Amsterdam, The Netherlands,
Van Eedenfonds. (1960)
6. forest-dynamics, ecology, vegetation-structure
7.
8. TF
Thorough analysis of vegetation structure and dynamics; observations on gap-phase dynamics, climatOlogical conditions in gaps.

898.
1. Schu'z, J. P.
2. La egeneracion natural de la selva mesofytica tropical de Suriname despues de su aprovechamiento.
3. ES
4. SA, Suriname
5. Boletin del Instituto Forestal Latino-Americano de investigacion y Capitacion 23. IFLAIC, Merida, Venezuela. (1967)
6.
7. natural-regeneration, growth
8. TF
Natural regeneration after logging in Suriname.

899.
1. Schwartzman, S.
2. Extractive reserves: the rubber tappers' strategy for sustainable use of the Amazon rainforest.
3. EN
4. SA, Brazil
5. In, Fragile Lands of Latin America: StrategiEs for Sustainable Development, J. Browder (ed), pp. 150-163. Boulder: Westview Press. (1989)
6. NTFP, rubber, social-issues
7. economics
8. TF, Hevea
Survey of 33 rubber collector households. Discusses origins of extractive reserve concept.

900.
1. Schwyzer, A.
2. La combinacion de la regeneracion artificial con la regeneracion natural en el bosque humedo tropical del Peru.
3. en
4. sa, pERU
5. Boletin Tecnico 9, Proyecto de Asentamiento Rural Integral, Jenaro Herrera, Iquitos, Peru. (1981)
6.
7.
8. TF

901.
1. Schwyzer, A.
2. Evaluacion de algunas sistemas de aprovechamiento forestal en los bosques no inundables de la Amazonia Peruana.
3. ES
4. SA, Peru
5. Boleten Tecnico 13, Proyecto de Asentamiento Rural Integral, Jenaro
Herrera, Iquitos Peru (198)
6. ecology
7. natural-regeneration, logging
8. TF
Analysis of several harvesting systems in the Peruvian Amazon.

902.
1. Schwyzer, A.
2. Levantamiento de la regeneracion natural y su utilizacion en la reforestacion.
3. EN
4. SA, Peru
5. Boletin Tecnico 7, Proyecto de Asentamiento Rural Integral, Jenaro Herrera, Iquitos, Peru (1982)
6.
7. enrichment
8. TF

903.
1. Schwyzer, A.
2. Observaciones silviculturales sobre mauba (Vochysia venulois) y cumala colorada (Iryanthera sp.).
3. ES
4. SA, Peru
5. Proyecto de asentamiento Rural Integral, Jenaro Herrera, Casilla 546. (1982)
6.
7. silviculture, species-trials
8. TF
Silvicultural observation on Vochysia and Iryanthera; seeds, seedlings, growth.

904.
1. Schwyzer, A.
2. Observaciones silviculturales de algunas especies, Jenaro Herrera (Peru).
3. ES
4. SA, Peru
5. Boletin Tecnico 16, Proyecto de Asentamiento Rural Integral, Jenaro
Herrera, Iquitos, Peru
6.
7. silviculture, species-trials
8. TF

905.
1. Schwyzer, A.
2. Utilizacion del anillado de arboles en los tratamientos silviculturales de un bosque humedo tropical.
3. ES
4. SA, Peru
5. Boletin Technico 8, Proyecto de Asentamiento Rural Integral, Jenardo Herrera, Iquitos Peru (198)
6.
7. stand-improvement
8. TF

906.
1. Sedjo, R. A.
2. The Comparative Economics of Plantation Forestry. A Global Assessment.
3. EN
4. general
5. Resources for the Future, Inc. (1983)
6.
7. natural-regeneration, plantations, economics
8. TF
Plantations vs. natural forest management, economic and financial comparisons.

907.
1. Sedjo, R. A.
2. Ecological implications of tropical plantation forestry.
3. EN
4. general
5. In: The comparative economics of plantation foresty: A Global Assessment Resource for the Future, Inc. Washington, DC. (1983) 84-93.
6.
7. plantations, economics
8. TF

908.
1. Sedjo, R. A. and M. Clawson.
2. How serious is tropical deforestation?
3. ES
4. General
5. J. Forestry (1983) 81:792-794.
6. conservation
7. economics
8. TF

909.
1. Seidel, K. W.
2. Growth response of suppressed true fir and mountain hemlock after release.
3. EN
4. NA, USA
5. Research Paper, Pacific Northwest Forest and Range Experiment Station, USDA Forest Service (1985) No. PNW - 344:
6. ecology
7. shelterwood, stand-improvement, growth
8. TmpF, Abies, Tsuga

Stem analysis was used to determine the height and diameter growth of Abies and Tsuga after release by overstory removal in clear fellings, shelterwood units and undisturbed sites.

910.
1. Seitz, R. A.
2. Erste Hinweise fur die waldbauliche Behandlung von Araukarienplantagenwaldern.
Initial advice on the silvicultureal management of Araucaria angustifolia plantations.
3. German
4. SA, Brazil
5. Annales des Science Forestieres. (1986) 43:(3)327-337.
6. conservation
7. plantations, natural-regeneration
8. TF, Araucaria, Ilex, Cedrela
Of nearly 20 million ha of natural A. angustifolia forest in S. Brazil, only 560,000 ha still remain. Since 1960, about 115,000 ha have been planted with A. angustifolia. Growth is much faster in plantations than in natural forest. Low stand density is necessary for rapid diam growth, because of the wide crowns of the trees. If the target diam.40 cm, then the final stand should contain 150-180 stems/ha. In a rotation of 50 yr, only about 500 of the initial 500-6000 stems/ha should remain at age 20 yr. A. angustifolia does not suppress vegetation even in fully-stocked stands. For a more intensive utilization of plantations, underplanting with shade-tolerant tree species such as Ilex paraguariensis or Cedrela fissilis, which are of commercial value, should follow the initial heavy thinnings.

911.
1. Senanayake, F. R.
2. Analog forestry as a conservation tool.
3. EN
4.
5. Tiger paper (1987) 14:(2)25-29.
6. conservation
7.
8. TF

912.
1. Serevo, T. S.
2. Some observations on the effects of different methods of logging on residual stand and on natural reproduction.
3. EN
4. AS, Philippines
5. Phil. J. For. (1949) 6:363-381.
6.
7. logging-damage, natural-regeneration
8. TF

913.
1. Seth, S. K. and S.N. Dabral.
2. Characteristic features of natural regeneration under various tending schedules in Hollong-Habok (Dipterocarpus-Mesua) forests of Assam.
3. EN
4. AS, India
5. Indian For. (1960) 86:(6)355-75.
6.
7. natural-regeneration
8. TF, Dipterocarpaceae

914.
1. Shea, K. R.
2. Deterioration resulting from logging injury in Douglas fir and western hemlock.
3. EN
4. NA, USA
5. For. Res. Note (Weyerhauser Co., Centralia, Wa.) 36, 5 pp. (1961)
6.
7. logging-damage
8. TmpF

915.
1. Shelton, N.
2. Logging versus the natural habitat in the survival of tropical forests.
3. EN
4. General
5. Ambio (1985) 14:39-41.
6. conservation
7. logging
8. TF

916.
1. Shigo, A. L.
2. Compartmentalization of decay in trees.
3. EN
4. General
5. Scientific American (1985) 252:96-103.
6. ecology
7. pathogens
8.
Tree responses to decay described and illustrated.

917.
1. Sicco Smit, G.
2. Silvicultural notes on Alnus jorullensis at Caldas, Colombia.
3. ES
4. SA, Colombia
5. Turrialba (1972) 21:(1)83-88.
6.
7. nurseries, plantations, species-trials
8. TF, Alnus, montane
Information on Alnus jorullensis, a native species that seems promising for reforestation of degraded pastures at 2000-3250 m alt. The local variety grows rapidly, has good form and is self-pruning and is better than A. j. var. ferruginea growing in the E. Cordillera of

Colombia. Experience in nursery practice, plantation establishment, thinning, and final felling is described. Optimum planting density is 1500 plants/ha, and thinning should be heavy.

918.
1. Silva, J. N. M.
2. The behavior of the tropical rain forest of the Brazilian Amazon after logging.
3. EN
4. SA, Brazil
5. Ph.D. Thesis. Oxford University, UK
6. ecology
7. silviculture, natural-regeneration
8. TF

Analysis of results from Tapajos Forest Reserve silvicultural management experiments.

919.
1. Silva, J. N. M. and J. C. A. Lopes.
2. Distribuicao Espacial de Arboreas na Floresta Nacional do Tapajos.
3. PO
4. SA, Brazil
5. Circular Tecnica no. 26. Centro de Pesquisa Agropecuaria do Tropico Humido (EMBRAPA/CPATU), Belem (1982)
6. ecology, vegetation-structure
7.
8. TF

920. 1. Silva, J. A. da, P. R. Schneider, L. E. G. Elesbao, D. A. Brena, P. E. R. Carvalho, C. E. Thibau, R. M. de Jesus, G. B. N. Dias, E. de M. Cardoso, O. do A. Gurgel-Filho, J. L. Moraes, and L. M. do A. Curgal-Garr.
2. Growth studies in native Brazilian tree species. - 1. In Proceedings of the national conference on native species, Campos do Jordao, Sao Paulo, Brazil, 12-18 Sept. 1982 [edited by I.T.O Malvesi et. al.].
3. PO
4. SA, Brazil
5. Silvicultura em Sao Paulo. (1982) 16A:(1, 2)
6.
7. plantations, growth, natural-regeneration, species-trials
8. TF, Cedrela, Cordia, Ocotea

Fourteenth Pro Franco of the Federal Territory of Roraima. Results of trials of timber species native to the State of Parana. Sustained yield in native forest: Study on sustained yields: Silviculture of native species in pure even-aged experimental plantations.

921.
1. Silva, J. N. M., J. O. P. Carvalho, J. C. A. Lopes, and L. H. Montagner.
2. Regeneracao natural de Vochysia maxima em floresta secundaria no planalto do Tapajos, Belterra, PA.
3. PO
4. SA, Brazil
5. Boletim de Pesquisa Florestal (1985) 10:(11)1-37.
6.
7. natural-regeneration
8. TF

922.
1. Silva, L. B. X. da, and F. Reichmann Neto.
2. Permanent plots and comparative analyses for native and exotic species planted in S.E. Parana (mouth of the river Chopim/COPEL).
3. PO
4. SA, Brazil
5. Floresta (1975) 6:(1)54-66.
6.
7. growth, plantations, species-trials
8. TF, Eucalyptus, exotics, Grevillea, Piptadenia, Schizolobium
Tabulates and discusses preliminary data on the height growth of seedlings representing 11 genera in experimental plots on the COPEL company's land.

923.
1. Simeone, R., W. Aspinall, M. Krones, and H. Greub.
2. Propuesta para la ampliacion del centro de transformacion integral de productos forestales en el valle del Palcazu.
3. ES
4. SA, Peru
5. Tropical Science Center Report No. 083-C (1986)
6.
7. clearcut, sawmills
8. TF

924.
1. Smit, S. G.
2. Notas silviculturales sobre el Alnus jorullensis de Caldas, Colombia.
3. ES
4. SA, Colombia
5. Turrialba (1972) 21:(1)
6.
7. species-description
8. TF
Silvicultural observations on Alnus jorullensis.

925.
1. Smith, C. E., Jr.
2. A revision of Cedrela (Meliaceae).
3. EN
4.
5. Fieldiana, Bot. (1960) 29:(5)295-341.
6. taxonomy
7. species-description
8. TF, Cedrela

926.
1. Smith, D. M.
2. The practice of silviculture.
3. EN
4. General
5. T. John Wiley & Sons, New York. 578p. (1986)
6. textbook
7. silviculture
8.
Standard textbook for silviculture courses in universities in the USA.

927.
1. Smith, H. C. and F.M. Smithson.
2. Cost of cutting grapevines before logging.
3. EN
4. NA, USA
5. USDA For. Sem. Res. Note NE-207. 4 pp. (1975)
6.
7. logging-damage, climbers, weeds, economics
8. TmpF

928.
1. Smith, H. C.
2. Forest management guidelines for controlling wild grapevines in the Appalachians.
3. EN
4. NA, USA
5. Research paper, Northeastern Forest Experiment Station, USDA Forest Service, No. NE - 548, (1984)
6.
7. climbers, weeds
8. TmpF

929.
1. Smith, J. E. and R.R.M. Paterson.
2. Tree bark - a usable commodity.
3. EN
4.
5. Proc. Biochem. (1977) 11:(6)41-47.
6. NTFP
7.
8.

930.
1. Smith, R. L.
2. Effect of timber stand improvement on forest structure.
3. EN
4. NA, USA
5. West Virginia Forestry Notes (1984) No. 11:22-26.
6.
7. stand-improvement
8. TmpF, Quercus
An account is given of changes in importance values of upper and lower canopy trees, understorey trees and shrubs, the percentage frequency of the herbaceous layer, tree density and basal area, species diversity, and community similarity after an improvement

felling in a Quercus prinus/Q. rubra forest in West Virginia.

931.
1. Smythe, N.
2. The importance of mammals in neotropical forest management.
3. EN
4. CA
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 79-98.
6. conservation, wildlife
7.
8. TF

932.
1. Snook, L. C.
2. Community forestry in Mexico's natural forests: The case of San Fablo Macuiltianguis, Oaxaca.
3. EN
4. Mexico
5. USDA Forest Service General Technical Report SE-46, pp. 27-31 (1986a)
6. social-issues
7.
8. TF

933.
1. Snook, L. C. and P. Negreros.
2. Effects of Mexico's selective cutting system on pine regeneration and growth in a mixed pine-oak forest.
3. EN
4. Mexico
5. USDA Forest Service General Technical Report SE-46, pp. 108-114 (1986)
6. ecology
7. selective-logging, natural-regeneration
8. TF, Pinus, Quercus

934.
1. Snook, L. C.
2. The search for sustainable tropical silviculture: regeneration and growth of mahogany after disturbance in Mexico's Yucatan forests.
3. EN
4. Mexico
5. Tropical Resources Institute News, Fall Bulletin (1989) Yale School of Forestry & Environmental Studies.
6. forest-dynamics
7. growth, natural-regeneration
8. TF, Swietenia, Cedrela

A research profile of dissertation project on Swietenia growth and demography under different disturbance histories. Swietenia regeneration is concentrated in gaps larger than generally created during selective logging.

935.
1. Soane, B. D., P.S. Blackwell, J.W. Dickson, and D.J. Painter.
2. Compaction by agricultural vehicles: a review. Part II: Compaction under tyres and other running gear.
3. EN
4.
5. Soil and Tillage Research. (1981b) 1:373-400.
6.
7. erosion, logging-damage
8.

936.
1. Soerianegara, I.
2. Ecological researches relevant to current silvicultural problems.
3. EN, Indonesian
4. AS, Indonesia
5. Rimba Indonesai (1972/1973) 17:(3/4)133-142.
6. ecology
7. shelterwood, regeneration, plantations
8. TF

Describes methods used in Indonesia for the afforestation of secondary grassland and eroded areas and for the regeneration of logged forest concession areas, with appendices describing the Indonesian selection system and the modified Malayan uniform system. Synecological and autoecological studies are required in each of the seven major lowland forest formations, which are briefly described, including coastal forests.

937.
1. Somarriba, E. J. and J. W. Beer.
2. Dimensions, volumes and growth of Cordia alliodora in agroforestry systems.
3. EN
4. General
5. Forest Ecology and Management (1987) 18:113-126.
6. agroforestry
7. growth
8. TF, Cordia

938.
1. Somarriba, E.
2. Sustainable timber production from uneven-aged shade stands of Cordia alliodora in small coffee farms.
3. EN
4. CA, Costa-Rica
5. Agroforestry Systems (1990) 10:253-263.
6. agroforestry
7.
8. TF, Cordia

939.
1. Sombarriba, E.
2. Sistema taungya: tecnologia apropiada de repoblacion forestal tropico humedo.
3. ES
4. CA, Costa-Rica
5. Turrialba (1982) 25 p.
6.
7. Taungya
8. TF
Taungya system: adequate technology of reforestation in the humid tropics.

940.
1. Sommer, A.
2. Forstliche Entwicklungszusammenarbeit der Schweiz in Honduras.
3. German (summary language: French)
4. CA, Honduras
5. Swhweizerische Zeitschrift fur Forstwesen (1987) 138:(3)187-202.
6.
7. silviculture
8. TF
Swiss forestry development cooperation in Honduras.

941.
1. Southgate, D. and C. F. Runge.
2. The institutional origins of deforestation in Latin America.
3. EN
4. SA, Ecuador
5. AAE Staff Paper, no. P90-5. St. Paul: University of Minnesota, Department of Agricultural and Applied Economics. (1990)
6. policy-issues, conservation
7. economics
8. TF
The authors analyze the crisis of deforestation in Latin America, using Ecuador as a case study. They present tenure regime on forested lands in Ecuador and analyze four institutional incentives for deforestation in that country and elsewhere. They argue that ideologists of the right and of the left miss the point in that there is no single tenurial arrangement to solve deforestation.

942.
1. Souza, M. R. de, V. A. Martins, and M. J. Siqueira.
2. Estabilidade dimensional de seis madeiras da Amazonia em condicoes adversas de temperatura e umidade relativa.
3. PO
4. SA, Brazil
5. Brazil Florestal (1984) 14:(60)49-50.
6. wood-properties
7.
8. TF, Swietenia, Cedrela
Dimensional stability of six Amazonian woods in adverse conditions of temperature and relative humidity. Data on shrinkage showed that Swietenia macrophylla and Cedrela sp. were better substitutes for species such as teak [Brazil] than Dinizia excelsa, Cordia goeldiana, Vochysia maxima or Carapa guianensis.

943.
1. Spears, J. S.
2. Can the wet tropical forest survive?
3. EN
4. General
5. Comm. For. Rev. (1979) 58:165-180.
6. conservation
7.
8. TF

944.
1. Spears, J. S.
2. Replenishing the world's forests: tropical reforestation: an achievable goal?
3. EN
4. General
5. Commonwealth Forestry Review (1983) 62:201-217.
6. conservation
7. plantations, fuelwood
8. TF
Discusses 20 reforestation success stories in developing countries.

945.
1. Spilsburg, M. J.
2. Economic prospects for natural management of woodlands in the UK.
3. EN
4. UK
5. Forestry (1990) 63:(4)379-390.
6.
7. economics, natural-regeneration
8. TmpF

946.
1. Spilsbury, M. J.
2. Economic prospects for natural management of woodlands in the UK.
3. EN
4. UK
5. Forestry (1990) 63:(4)379-390.
6.
7. economics
8. TmpF

947.
1. Spruce, R.
2. Edible fruits of the Rio Negro.
3. EN
4. SA
5. Hookers J., 180 p. (1853)
6. NTFP, fruits
7.
8. TF

948.
1. Spurr, S. H. and H. J. Vaux.
2. Timber: biological and economic potential.
3. EN
4.
5. Sci. (1976) 191:752-756.
6. conservation, wood-utilization
7. economics
8.

949.
1. Srivastava, P. B. L. et al. (eds.).
2. Tropical forest source of energy through optimisation and diversification.
3. EN
4. General
5. Proceedings International Forestry Seminar, November 1980, Selangor, Malaysia. (1981) 397.
6. wood-utilization
7. fuelwood
8. TF

950.
1. Stadtmuller T. and L. Orozco.
2. El manejo forestal de bosques naturales tropicales.
3. ES
4. CA, Costa-Rica
5. Produccion videografica CATIE/COSUDE. 16 min (1991)
6.
7. silviculture
8. TF

951.
1. Staff, K. A. G. and N. A. Wiksen.
2. Tree harvesting techniques.
3. EN
4. General
5. Martinus Nijhoff, Dordrecht, The Netherlands. (1984)
6. textbook
7. logging
8.

952.
1. Stager, Carvajal P. F.
2. Little known woods of the Brazilian Amazon.
3. EN
4. SA, Brazil
5. In: Proceedings of Conference on Improved Utilization of Tropical Forests, pp. 163-82. Madison, WI. Forest Products Laboratory, Forest Service, USDA. (1978)
6. wood-utilization, marketing
7.
8. TF

953.
1. Stanley, D. L.
2. Communal forest management: the Honduran resin tappers.
3. EN
4. CA, Honduras
5. Case study prepared for the Inter-American Foundation. Madison: University of Wisconsin, Department of Agricultural Economics. (1990)
6. NTFP, extractives, policy-issues, social-issues
7. economics
8. TF
Discusses Honduran resin-tapping movement; economic and social feasibilty analysis.

954.
1. Steenis, C. G. G. J. van.
2. Basic principles of rain forest sociology.
3. EN
4.
5. In: Study of Tropical Vegetation. Proc. of the Kandy Symp. p. 159-163. Paris, UNESCO 225 p. (1958)
6. ecology
7.
8. TF

955.
1. Steinlin, H.
2. Contribucion de la economia forestal al mejoramiento de la situacion economica y de las condiciones de vida en las areas rurales tropicales y subtropicales.
3. ES
4. Mexico
5. In, Alternativas para el Uso del Suelo en Areas Forestales del Tropcio Humedo, pp. 9-32. Publicaicion Especial, no 26. Mexico, D.F.: Secretaria de Agricultura y Recursos Hidraulicos (SARH) (Mexico City: Secretary of Agriculture and Hyraulic Resources) (1981)
6. social-issues, policy-issues
7. economics
8. TF
Contributions of the forest economy to the improvement of living standards in tropical and subtropical rural areas. Critical evaluation of conventional forest policies and practices in the tropics.

956.
1. Stevenson, N. S.
2. Forest associations of British Honduras.
3. EN
4. CA, Belize
5. No. 1. Orbignya-Dialium-Virola Association. Carib. For. (1942) 3: 164-172.
6. vegetation-classification, vegetation-composition, ecology
7.
8. TF, Virola, Palms

957.
1. Stewart, P. J.
2. Coppice with standards, a system for the future.
3. EN
4. General
5. Commonw. For. Rev. (1980) 59:149-154.
6.
7. coppicing, silviculture
8.

958.
1. Stocker, G. C.
2. Regeneration of a north Queensland rainforest following felling and burning.
3. EN
4. Australia
5. Biotropica (1981) 13:86-92.
6. succession
7. natural-regeneration
8. TF

959.
1. Stocks, A. and G. Hartshorn.
2. The Palcazu project: Forest management and native Amuesha communities.
3. EN
4. SA, Peru
5. The Social Dynamics and Alternatives to Deforestation in Latin America. S. Hecht and J. Nations, eds. Cornell University Press, Ithaca, NY (1988)
6. social-issues, conservation
7. clearcut
8. TF

960.
1. Stoeckler, J. H.
2. When is plantation release most effective?
3. EN
4. General
5. J. For. (1947) 45:265-271.
6.
7. plantations, stand-improvement
8.

961.
1. Stoeger, E. N. and H. A. Galletti.
2. Evaluacion de recursos forestales en selvas tropicales y su relacion con comunidades rurales.
3. ES
4.
5. In, Proceedings of the International Conference and Workshop, Quintana Roo, Mexico, 25-31 January, pp. 343-347. Publication no. GTR WO-39. USDA-Forest Service/Food and Agriculture Service (FAO)/ Secretaria de Agricultura y Recursos Hidraulicos (SARH). (1987)
6.
7.
8. TF

Evaluation of forest resources in tropical jungles and its relation to rural communities. Plan Piloto Forestal (Quintana Roo, Mexico) strategy of forest management and forest product utilization.

962.
1. Stohr, G. W. D. and P. E. R. Carvalho.
2. Reincorporation of deteriorated and abandoned forestry areas using an enrichment method in Parana, Brazil.
3. EN, ES
4. SA, Brazil
5. Turrialba (1980) 30:(3)324-329.
6. succession
7. enrichment, plantations
8. TF, Lafoensia, Prunus, Ocotea, Balfourodendron, Lafoensia

Four native timber species were used in planting trails: Lafoensia pacari, Prunus brasiliensis, Ocotea porosa, Balfourodendron riedelianum. Two methods were used: planting under open field conditions and the enrichment method (1 m wide strips interspersed with 2 m wide strips of secondary growth vegetation dominated by Mimosa scabrella). The open field plantation was weeded in spring only and the enrichment plantation twice a year. L. pacari, O. porosa and B. riedelianum grew well under canopy, whereas P. brasiliensis grew better in the open. It was felt that wider spacing in the enrichment method would have produced better results.

963.
1. Stokes, B., J. and J. F. McNeel.
2. Wood damage from mechanical felling.
3. EN
4. NA
5. Research Paper SO-258 (1990) US Department of Agriculture, Forest Servce, Southern Forest Experiment Station, New Orleans, LA.16 p.
6.
7. logging-damage
8.

Describes shearing process and reviews literature on factors affecting tree damage during shearing. Summarizes methods and alternatives to reducing shear damage.

964.
1. Stracey, P. D.
2. The silviculture and management of tropical rain forests in India.
3. EN
4. AS, India
5. Indian Forester (1959) 85:385-407.
6.
7. silviculture
8. TF

965.
1. Stuebing, R. T. and J. Gasis.
2. A survey of small mammals within a Sabah tree plantation in Malaysia.
3. EN
4. AS, Malaysia
5. J. Trop. Ecol. (1989) 5:203-214.
6. wildlife
7. plantations
8. TF

966.
1. Suzuki, W.
2. Tree damage caused by vines in hinok (Chamaecyparis obtusa) plantations.
3. EN
4. AS, Japan
5. Bull., For. and For. Prod. Res. Inst. Jap. (1984) 238:145-155.
6.
7. plantations, climbers, weeds
8.

967.
1. Swabey, C.
2. Forestry in Dutch Guiana.
3. EN
4. SA, Suriname
5. Empire Forestry Journal (1950) 29:125.
6. policy-issues
7. silvicultura, sawmills
8. TF
Review of status of newly re-formed Forest Service. Mostly involved with control and taxation. Recent increasing in processing (sawing) in Suriname.

968.
1. Swabey, C.
2. Some aspects of silviculture in Trinidad.
3. EN
4. SA, Trinidad
5. Emp. For. J. (1932) 11:222-31.
6.
7. silviculture
8. TF

969.
1. Synnott, T. J. and R.H. Kemp.
2. Choosing the best silvicultural system.
3. EN
4. General
5. Unasylva (1976) 28:74-79.
6. agroforestry
7. enrichment, polycyclic, natural-regeneration
8. TF
A discussion of the relative merits of natural regeneration, enrichment planting, conversion and agri-silviculture in tropical forestry.

970.
1. Synnott, T. J. and R. H. Kemp.
2. Choosing the best silvicultural system.
3. EN
4. general
5. FO: FOT/76/7(a), FAO (1976): also published elsewhere 74-79.
6. social-issues
7. economics
8. TF
Ecological and economical comparisons of natural regeneration, plantation conversion, and agri-silviculture.

971.
1. Synnott, T. J.
2. The impact, short and longterm, of silvicultural, logging and other operations on tropical moist forests.
3. EN
4. General
5. FAO Conf. on Trop. Moist For., 18p. (1976)
6. conservation
7. silviculture
8. TF

972.
1. Synnott, T. J.
2. A manual of permanent plot procedures for tropical rainforest.
3. EN
4. General
5. Trop. For. Pap. No. 14. Comm. For. Inst., Oxford. 67p. (1979)
6. vegetation-structure, statistics, ecology
7.
8. TF

Detailed instructions on methods for establishment of permanent growth monitoring plots in forests.

973.
1. Synnott, T. J.
2. Monitoring regeneration and stand development in rainforest.
3. EN
4. General
5. MAB-IUFRO Workshop on Trop. Rainforest Ecosystems Res., Hamburg-Reinbek. Special Rep. No. 1, p. 162-169 (1977)
6. ecology
7. natural-regeneration, growth
8. TF

974.
1. Synnott, T. J., and R. H. Kemp.
2. The relative merits of natural regeneration, enrichment planting, and conversion planting in tropical moist forests, including agrosilvicultural techniques.
3. EN
4. General
5. FAO Publication FO:FDT/76/7a. Committee on Forest Development in the Tropics Report, Fourth Session. Food and Agriculture Organization of the United Nations, Rome, Italy (1976)
6. agroforestry, social-issues
7. enrichment, natural-regeneration, plantations
8. TF

A clear and simple choice of methods of regenerating tropical moist forest is possible in comparatively few situations; very often political and social pressures may prove decisive. Whenever there is some doubt concerning the choice between natural regeneration and more intensive methods then the greater robustness and long-term security of the natural system should be taken into account.

975.
1. Synnott, T.
2. South America and the Caribbean.
3. EN
4. SA, Caribbean
5. In, No Timber without Trees: Sustainability in the Tropical Forest, Duncan Poore (ed), pp. 75-116. London: Earthscan Publications (1989)
6. conservation
7. silviculture
8. TF
Sustained forest management in Trinidad, little elsewhere in Latin America.

976.
1. Synnott, T. J.
2. Tropical rainforest silviculture, a research project report.
3. EN
4.
5. Commw. For. Inst. Occasional Pap, no. 10. Oxford, UK, Commonw. For Inst. (1980)
6.
7. silviculture
8. TF

977.
1. Tagudar, E.
2. The response of dipterocarp seedlings when released from competing vegetation.
3. EN
4. AS
5. Forestry Leaves (1968) 18:47-53.
6. ecology
7. stand-improvement, growth, natural-regeneration
8. TF, Dipterocarpaceae
Partial overstory reduction and complete elimination of understory vegetation are major factors influencing height growth of dipterocarp seedlings. Conclusions from a 2-year experiment with various overstory and understory removal treatments are presented.

978.
1. Tang, H. T.
2. Factors affecting regeneration methods for tropical high forests in south-east Asia.
3. EN
4. AS
5. Malaysian Forester (1980) 43:(4)469-478.
6.
7. silviculture, natural-regeneration
8. TF
Forest renewal strategies are discussed against a background of high deforestation rates. The conditions appropriate for various regeneration systems are presented.

979.
1. Tang, H. T. and H. Wadley.
2. Report on the survival and development survey of areas reforested by line-planting in Selangor.
3. EN
4. AS, Malaysia
5. Research Pamplet 67 (1976)
6.
7. enrichment
8. TF

980.
1. Tansley, A. G.
2. Ecological principles in the practice of forestry.
3. EN
4. General
5. J. Ecol. (1944) 32:83-89.
6. ecology
7. silviculture
8.

981.
1. Taylor, B. W.
2. An outline of the vegetation of Nicaragua.
3. EN
4. CA, Nicaragua
5. J. Ecol. (1963) 51:(1)27-54.
6. vegetation-classification, ecology
7.
8. Tabebuia

982.
1. Taylor, C. J.
2. Tropical forestry.
3. EN
4. General
5. Oxford University Press, Oxford (1982)
6. textbook
7. silviculture
8. TF

:3.
1. Telford, E. A. and N. F. Childers.
2. Tropical kudzu in Puerto Rico.
3. EN
4. Caribbean, Puerto-Rico
5. Fed. Expt. Sta. in Puerto Rico (USDA) Cir. 27. (1947)
6.
7. climbers, weeds
8. TF

984.
1. Terborgh, J.
2. An overview of research at Cocha Cashu Biological Station.
3. EN
4. SA, Peru
5. In, Four Neotropical Forests, A.H. Gentry (ed.). Yale University Press, New Haven (1990) 48-59.
6. ecology, conservation, education
7.
8. TF

985.
1. Tesch, S. D., D.H. Lysne, J.W. Mann, and O.T. Helgerson.
2. Damage to regeneration during shelterwood overstory removal on steep terrain: a case study.
3. EN
4. NA, USA
5. Forest Research Lab, Research Note 79. College of Forestry, Oregon State Univ. Corvallis, OR (1986) 8.
6.
7. logging-damage
8. TmpF

986.
1. Tesch, S. D. and D. H. Lysne.
2. Is treetop skidding effective in reducing fuel loading?
3. EN
4. NA, USA
5. Western J. of Appl. For. (1986) 1:(1)123-15.
6. fire
7. logging-damage
8. TmpF

Studies were made of logging on designated skid trails on a 28-ac commercial thinning and improvement-felling in a mixed conifer stand on flat terrain in the Cascade Mts., Oregon. Compared with conventional logging, treetop skidding did not increase damage to the residual stand nor decrease skidding productivity. Treetop skidding reduced the slash fuel by <15%, (not significant). Whole-tree skidding may be necessary to reduce fire hazard.

987.
1. Tesch, S. D., D.H. Lysne, J.W. Mann, and O.T. Helgerson.
2. Mortality of regeneration during skyline logging of a shelterwood overstory.
3. EN
4. NA
5. J. of Forestry (1986) 84:49-50.
6.
7. logging-damage, extraction
8. TmpF

988.
1. Tesch, S. D., J.W. Mann, and M.S. Crawford.
2. Regeneration recovery from logging damage.
3. EN
4. NA, USA
5. In J.W. Mann and S.D. Tesch (eds). Proceedings of the shelterwood management system workshop, Oregon. Forest Research Lab, Oregon State University (1985) 89-93.
6. disturbance
7. logging-damage
8. TmpF

989.
1. Thaib, J.
2. Review of the application of selective cutting in Indonesian natural forests outside Java.
3. EN
4. AS, Indonesia
5. Indonesian Agricultural Research & Development Journal (1981) 3: (3)61-64.
6.
7. selective-logging
8. TF

990.
1. Thibau, C. E., R. Moraes de Jesus, and M. Souza Menandro.
2. Sustained yield in the Amazon region.
3. EN
4. SA
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 199-206.
6.
7. silviculture
8. TF

991.
1. Thiel, J.
2. Reconnaissance pratique des arbres sur pied de la foret guyanaise.
3. FR
4. SA, French-Guiana
5. Bois et Forets des Tropiques. (1983) 201:35-39.
6. taxonomy
7.
8. TF, Peltogyne, Dicorynia, Manilkara

Practical identification of standing trees in the French Guianan forest. The following species are treated: Peltogyne venosa, Dicorynia guianensis, Manilkara bidentata, Diplotropis purpurea, Hymenaea courbaril, Qualea albiflora Goupia glabra, Ocotea rubra, Erisma uncinatum, Vochysia guianensis, Andira coriaceae and Vouacapoua americana. For each species, a description is given of its habitat, stem base, and external and internal bark characteristics.

992.
1. Tinal, U. and J. L. Palenewen.
2. A study of mechanical logging after selective cutting in the lowland Dipterocarp forest at Beloro, East Kalimantan.
3. EN
4. AS, Indonesia
5. BIOTROP, Bogor, Indonesia (1974)
6.
7. logging-damage
8. TF

993.
1. Tirziu, D.
2. Determining the economic efficiency of the shelterwood system.
3. EN
4. Europe
5. Bulletin Universitatii din Brasov, B. (1973) 15:7-47.
6.
7. clearcut, shelterwood, economics
8. TmpF, Fagus

Presents a partial economic analysis of the comparative costs of the clear-felling system and of the shelterwood system with two or three stages, based on the costs of shelterwood fellings in Fagus sylvatica stands at several sites in the upper Gilort valley, Romania, and of various measures for artificial regeneration. Even without the unquantified advantage of the shelterwood system (value increment, shortened rotation, and hydrological protection), the savings on regeneration in the shelterwood system compensates for the increased harvesting costs.

994.
1. Tomboc, C. C. and R.M. Basada.
2. White lauan (Shorea contorta) in the open and under second-growth forest canopy.
3. EN
4. AS, Philippines
5. Sylvatrop (Philippine Forest Research Journal) (1978) 3:205-210.
6. ecology
7. growth
8.

995.
1. Tosi, J. A., Jr.
2. Bosques pequenos bien manejados producen dinero. Centro Cientifico Tropical.
3. ES
4.
5. Jerie en Facsimi Res No. 5. Costa Rica (1978)
6.
7. silviculture, economics
8. TF

Essay showing that management of even small areas of forest can be profitable.

996.
1. Tosi, J. A., Jr.
2. Integrated sustained yield management of primary tropical wet forest: a pilot project in the Peruvian Amazon.
3. EN
4. SA, Peru
5. Humid Tropical Lowlands Conference: Development Strategies and Natural Resources Management. DESFIL/USFS/TFP/INRENARE Panama Junio 17-20 1991
6.
7. clearcut, natural-regeneration
8. TF
Describes strip clearcut system in the Palcazu Valley, Peru.

997.
1. Tosi, J. A.
2. Sustained yield management of natural forests.
3. EN
4. SA, Peru
5. Report prepared for the Office of Development Resources, USAID/Peru. Tropical Science Center, Costa Rica. 55 pgs. (1982)
6.
7. clearcut
8. TF

998.
1. Tosi, J. A.
2. Sustained yield management of natural forests: Forestry sub-project, Central Selva Resources Management Project, Palcazu Valley, Peru.
3. EN
4. SA, Peru
5. Report to USAID/Peru (1982)
6.
7. clearcut
8. TF

999.
1. Tostain, O.
2. Etude d'une succession terrestre en milieu tropical: les relations entre la physionomie vegetale et la structure du peuplement avien en mangrove guyanaise.
3. FR
4. SA, French-Guiana
5. (1986) 41:315-342.
6. ecology, wildlife, succession
7.
8. TF, mangroves

1000.
1. Tracy, F. C.
2. The natural resources management project in Honduras.
3. EN
4. CA, Honduras
5. Conservation farming on steep lands, W.C. Moldenhauer & N.W. Hudson (eds). Papers originally presented at a workshop held in San Juan, Puerto Rico, March 22-27, 1987. (1988) 265-268.
6. natural-resources
7.
8. TF
(1 fig.) Chemonics International Consulting, Carmichael, CA, USA., Ankeny, Iowa, USA; Soil and Water Conservation Society.

1001.
1. Tresinari, A.
2. Recreation in national parks - Brazil.
3. EN
4. SA, Brazil
5. In, Figueroa-C,J. et al. (eds), Institute of Tropical Forestry (1987) 109-120.
6. conservation, ecotourism
7.
8. TF

1002.
1. Trimble, G. R., Jr. and E. H. Tryon.
2. Silvicultural control of wild grapevines.
3. EN
4. NA, USA
5. Bull, W. Virginia Agr. and For. Exp. Sta. (1979) 667:19.
6.
7. herbicides, climbers, growth
8. TmpF, lianas, Vitis
Published results are reviewed and recent studies are reported on control of grapevines in mature stands, in thinned and unthinned sapling stands, in young stands where crop trees had been released and in a 5-yr-old stand of broadleaved trees in W. Virginia. Severing vines in well-stocked stands is an inexpensive and effective method of control as vines are shade intolerant and shoots are unable to develop. Most herbicides effective against vines in young stands would also kill the trees.

1003.
1. Troup, R. S.
2. The silviculture of Indian trees, 3 volumes.
3. EN
4. AS, India
5. Oxford at the Clarendon Press (1921)
6. textbook
7. silviculture
8. TF

1004.
1. Troup, R. S.
2. Silvicultural systems.
3. EN
4. General
5. Oxford, UK, Clarendon Press (1928)
6. textbook
7. silviculture
8. TF

1005.
1. Tschinkel, H. M.
2. Algunos factores que influyen en la regeneracion natural de Cordia alliodora (Ruiz & Pav.) Cham.
3. ES
4. CA, Costa-Rica
5. Turrialba (1965) 15:(4)317-324.
6. seeds, ecology
7. silviculture, plantations
8. TF, Cordia

1006.
1. Tschinkel, H. M.
2. Some factors influencing the natural regeneration of Cordia alloidora.
3. EN, ES
4. CA
5. Turrialba (1965) 15:(4)317-324.
6.
7. natural-regeneration
8. TF, Cordia

1007.
1. Tschinkel, H.
2. Tree planting by small farmers in upland watersheds: experience in Central America.
3. EN
4. CA
5. The International Tree Crops Journal (1987) 4:249-268.
6. agroforestry, social-issues
7. species-trials, watersheds, plantations
8. TF

An analysis of eleven cases of reforestation in Central America to identify factors encouraging small farmers to plant trees suggests that initial phases of future projects should include at least the following features: selection and demonstration of species and techniques that can be readily incorporated into current farming practices; use of fast-growing species that provide multiple products, resist neglect and are easy to propogate and transport; a personal extension service with follow-up visits; coordination of agricultural and forestry extension work to ensure integration of tree planting with farming practices; starting on a modest scale, capable of detailed monitoring; plants readily available; and, temporary incentives.

1008.
1. Tubbs, C. H. and F.T. Metzger.
2. Regeneration of northern hardwoods under shelterwood cutting.
3. EN
4. NA
5. For. Chron. (1969) 45:333-337.
6.
7. shelterwood
8. TmpF

1009.
1. Tucker, R. P.
2. Major sources of deforestation in the tropics since 1800.
3. EN
4. General
5. Proceedings of World Congress of International Union of Forest Research Organizations, held in Ljublijara, Yugoslavia, September 1986. (1987)
6. conservation
7.
8. TF

1010.
1. Turner, I. M.
2. A shading experiment on some tropical rain forest tree seedlings.
3. EN
4. AS
5. J of Tropical Forest Science (1989) 1:(4)383-389.
6. light-requirements
7.
8. TF, Dipterocarpaceae
Growth of potted seedlings of Shorea curtisii, Shorea macroptera, and Gluta curtisii was compared between three shade conditions. All species showed increased growth with increasing PAR, with the two Shorea species growing better than the Gluta sp. in all treatments.

1011.
1. U.S. Agency for International Devlopment.
2. Proceedings of the US strategy conference on tropical deforestation.
3. EN
4. General
5. Washington, DC, USDA (1978)
6. conservation
7.
8. TF

1012.
1. Ugalde, L. A., D. Rose, and R. Salazar.
2. Necesidad y conceptos basicos de un sistema de manejo de informacion aplicado de investigacion forestal en Centroamerica.
3. ES
4. CA
5. Paper presented at Congreso Forestal Nacional de Costa Rica, San Jose, Costa Rica, Nov. 1986. (1987) ii:16.
6. conservation
7. silviculture
8. TF

Necessity and basic concepts of a system of information management applicable to forestry research in Central America.

1013.
1. Uhl, C., A. Verissimo, M. Mattos, P. Barreto, and R. Tarifa.
2. Aging of the Amazon frontier: opportunities for genuine development.
3. EN
4. SA, Brazil
5. Biodiversity and landscapes: a paradox of humanity. (in press)
6. conservation
7.
8. TF

1014.
1. Uhl, C., C. F. Jordan, and R. Herrera.
2. Amazon forest management for wood production: an assessment of limitations and potentials based on field studies at San Carlos de Rio Negro, Venezuela.
3. EN
4. SA, Venezuela
5. In: Socio-economic effects and constraints in tropical forest management. E.G. Hallsworth (ed.). (1982) 143-158.
6. conservation, fire, succession, ecology
7.
8. TF

1015.
1. Uhl, C. and B. J. Kauffman.
2. Deforestation, fire susceptibility, and potential tree responses to fire in the eastern Amazon.
3. EN
4. SA
5. Ecology (1990) 71:(2)437-449.
6. ecology, fire, succession
7.
8. TF

1016.
1. Uhl, C. and R. Buschbacher.
2. A disturbing synergism between cattle ranch burning practices and selective tree harvesting in the eastern Amazon.
3. EN
4. SA, Brazil
5. Biotropica (1985) 17:(4)265-268.
6. conservation, fire
7.
8. TF

1017.
1. Uhl, C., K. Clark, H. Clark, and P. Murphy.
2. Early plant succession after cutting and burning in the upper Rio Negro region of the Amazon Basin.
3. EN
4. SA, Venezuela
5. J. of Ecol. (1981) 69:631-649.
6. succession, fire
7.
8. TF

1018.
1. Uhl, C. and I.C. Guimaraes Vieira.
2. Ecological impacts of selective logging in the Brazilian Amazon: A case study from the Paragominas region of the state of Para.
3. EN
4. SA, Brazil
5. Biotropica (1989) 21:98-106.
6. conservation, succession
7. selective-logging
8. TF

1019.
1. Uhl, C.
2. Recovery following disturbances of different intensities in the Amazon rain forest of Venezuela.
3. EN
4. SA, Venezuela
5. Interciencia (1982) 7:(1)19-24.
6. succession, fire
7.
8. TF

1020.
1. Uhl, C.
2. Tree dynamics in a species rich tierra firme forest in Amazonia, Venezuela.
3. EN
4. SA, Venezuela
5. Acta Cient, Venezonana (1982) 33:72-77.
6. forest-dynamics, ecology
7.
8. TF

1021.
1. Uhl, C., M. Mattos, J. A. Verissimo, Z. Brandino, R. Tarifa, and I. Vieira.
2. Wood as an economic catalyst to ecological change in Amazonia.
3. EN
4. SA, Brazil
5. In: Projecto Madeira, EMBRAPA, Belem, Para, Brazil
6. conservation, social-issues
7. economics
8. TF
The preliminary results of a study of the economic, ecological, and social impacts of logging in Para.

1022.
1. United Nations Development Programme.
2. Forestry development and research, Brazil. A tree improvement programme for Amazonia.
3. EN
4. SA, Brazil
5. FAO Report (1976) No. FO:DP/BRA/71/545 Technical Report 3:
6.
7. species-trials
8. TF

1023.
1. US Interagency Task Force on Tropical Forests.
2. The world's tropical forests: a policy, strategy, and program for the United States.
3. EN
4. General
5. Washington, Dc, USDA (1980)
6. conservation, policy-issues
7.
8. TF

1024.
1. Vale, A. B. do, N. F. de Barros, and R. Mauro Brandi.
2. Estudo sobre o enriquecimento de mata secundaria, com 36 especies florestais.
3. PO
4. SA, Brazil
5. Revista Ceres (UFC, Brasil) (1973) 20:(109)158-164.
6.
7. enrichment
8. TF
Study of enrichment of secondary forest with 36 tree species.

1025.
1. Vale, A. B. do, N.F. de Barros, and R.M. Brandi.
2. Study on the enrichment of secondary forest with six forest species.
3. PO
4. SA, Brazil
5. Revista Ceres (1973) 20:(109)158-164.
6.
7. enrichment, species-trials
8. TF, Astronium, Aspidosperma, Caesalpinia
Gives results of a small-scale enrichment trial in seconday forest in Minas Gerais, Brazil, with (1) Astronium fraxinifolium; (2) Zeyhera tuberculosa; (3) Balfourodendron riedelianum; (4) Aspidosperma polyneuron; (5) Caesalpinia peltophoroides and (6) Colubrina rufa. The secondary forest was cleaned and selectively felled so as to leave ca. 40% shade. Data are given on height and mortality for 5 years after planting. Mortality was lowest in (4) and highest in (1). Annual increment was greatest in (6) and lowest in (1). Results of the enrichment planting were particularly promising with Colubrina.

1026.
1. Vanclay, J. K.
2. A growth model for north Queensland rainforests.
3. EN
4. Australia
5. Forest Ecology and Management (1989) 27:245-271.
6. modeling
7. silviculture
8. TF
Complex model based on growth data (and etc.) from plots in the tropical forests in Queensland.

1027.
1. Vasquez, R. and A.H. Gentry.
2. Use and misuse of forest-harvested fruits in the Iquitos area.
3. EN
4. SA, Peru
5. Conservation Biology (1989) 3:350-361.
6. fruits, NTFP, conservation
7.
8. TF
Makes point that harvesting practices by local people can be extremely destructive and short-sighted.

1028.
1. Vaughan, D. A. and L. A. Sitch.
2. Gene flow from the jungle to farmers.
3. EN
4. General
5. BioScience (1991) 41:(1)22-28.
6. NTFP, conservation
7.
8.
A discussion of the utility of conserving wild-rice germplasm.

1029.
1. Vazques-Yanes, C.
2. Notas sobre la autoecologia de los arboles pioneros de rapido crecimiento de la selva tropical lluviosa.
3. ES
4. Mexico
5. Trop. Ecol. (1980) 21:(1)
6. succession, forest-dynamics, seed-ecology
7.
8. TF

1030.
1. Vazques-Yanes, C.
2. Studies on the germination of seeds of Ochroma lagopus.
3. ES
4. Mexico
5. Turrialba (1980) 24:(3)
6. seed-germination
7.
8. TF, Ochroma

1031.
1. Veblen, T.
2. Forest preservation in the western highlands of Guatemala.
3. EN
4. CA, Guatemala
5. Geographical Review (1978) 68:(4)417-434.
6. conservation, NTFP, wood-utilization
7. silviculture
8. TF
Totonicapan area that is heavily used but still has extensive pine forests that are favored by communal ownership.

1032.
1. Veblen, T. T.
2. The urgent need for forest conservation in highland Guatemala.
3. EN
4. CA, Guatemala
5. Bio. Conserv. (1976) 9:141-154.
6. conservation
7.
8. TF

1033.
1. Vega, C. L.
2. Influencia de la silvicultura en el comportamiento de Cedrela en Suriname.
3. ES
4. SA, Suriname
5. Grijpma, P. (ed.) Proc. of the First Symposium on Integrated control of Hypsipyla. Turrialba, Costa Rica, 5-12 March 1973. (1973) 35 pp.
6.
7. pests
8. TF, Cedrela, Hypsipyla
Results of studies in Suriname on damage caused by Hypsipyla grandella (Zell.) to Cedrela angustifolia in relation to the age of the trees silviculture and soil type.

1034.
1. Vega, C. L.
2. Influencia de la sivicultura en el comportamiento de Cedrela en Surinam.
3. ES
4. SA, Suriname
5. Studies on the Shoot-borer Hypsipyla grandella (Zeller) Lep. Pyralidae. Vol. III. J. L. Whitmore, ed. (1976) CATIE, Turrialba, Costa Rica.22-49.
6.
7. pests
8. TF, Hypsipyla, Cedrela

1035.
1. Vega, L.
2. Comparacion de la rentabilidad de las plantaciones regulares con el modelo de agro-silvicultura en Surinam.
3. Spanish
4. SA, Suriname
5. Revista Forestal Venezolana (1978) 28:39-66.
6. agroforestry
7. plantations, economics
8. TF, Cordia, Cedrela, Eucalyptus
Cost-benefit analyses were made of 5 land use systems, viz. Cordia alliodora or C. alliodora/Cedrela angustifolia plantations, or agroforestry systems incorporating Eucalyptus deglupta or C. alliodora stands (the latter managed either by private farmers or by the government). Results indicated that intensive silviculture involving high regeneration costs is justified only on better sites stocked with fast-growing species.

1036.
1. Vega, L.
2. Efecto de la poda en el crecimiento y la recuperacion de la forma del tallo de Cedrela.
3. ES
4.
5. Rev. For. Latinoamericana No. 1, ILFA. (1981)
6.
7. plantations, growth
8. TF, Cedrela
Effects of pruning on growth and stem form of Cedrela.

1037.
1. Vega, L.
2. Management options for the humid forests of Tropical America and trends in forest silviculture research.
3. ES
4.
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 215-234.
6.
7. silviculture
8. TF

1038.
1. Vega, L. C.
2. Plantaciones de enriquecimiento en Surinam con especial referencia para Mapane. Curso intensivo sobre manejo y aprovechamiento de bosques tropicales.
3. ES
4. SA, Suriname
5. Turrialba, Costa Rica, CATIE, 2 Febrero - 12 Marzo 1976. (1976) 39.
6.
7. enrichment
8. TF

1039.
1. Vega, L.
2. Plantaciones de enriquecimiento en Surinam con especial referencia para Mapane.
3. ES
4. SA, Suriname
5. Internal report, Paramaribo, Suriname, For. Serv. (1981)
6.
7. enrichment
8. TF
Enrichment planting trials in Suriname.

1040.
1. Veillon, J. P.
2. Variacion altitudinal de la masa forestal de los bosques primarios en la vertiente noroccidental de la cordillera de Los Andes, Venezuela.
3. ES
4. SA, Venezuela
5. Turrialba (1965) 15:216-224.
6. vegetation-structure
7.
8. TF, montane
Altitudinal variation in primary forest biomass in the Andes of Venezuela.

1041.
1. Venegas Tovar, L.
2. Distribucion de once especies forestales en Colombia.
3. ES
4. SA, Colombia
5. Proyecto Investigaciones y Desarrollo Industrial Forestales - COL/74/005 (1978) PIF No. 11:
6. vegetation-composition
7.
8. TF, Anacardium, Apeiba, Bombacopsis, Cariniana, Ceiba, Cordia, Didymopanax, Jacaranda, Ochroma, Schizolobium, Tabebuia.
Distribution of eleven forest tree species in Colombia. The topography, geology and climate of Colombia are outlined. Distribution maps and notes on nomenclature, geographical distribution and habitat (in Colombia) are given for: Anacardium excelsum, Apeiba aspera, Bombacopsis quinata, Cariniana pyriformis, Ceiba pentandra, Cordia alliodora, Didymopanax morototoni, Jacaranda copaia, Ochroma pyramidale, Schizolobium parahybum and Tabebuia rosea.

1042.
1. Verduzco, J.
2. Mejoramiento con 'laurel' Cordia alliodora de charrales y bosques degradados.
3. ES
4. CA, Costa-Rica
5. Comun. cient. agric. Inst. Interamer. Cienc. Agric., Turrialba (Dasonomia). (1959) 10:2.
6. conservation
7. plantations, enrichment
8. TF, Cordia
Improving stony scrubland and degraded forest with C. alliodora.

1043.
1. Verissimo, A., M. Mattos, R. Tarifa, and C. Uhl.
2. Distribuicao da atividade madeireira na varzea Amazonica e seus impactos ecologicos e economicos.
3. PO
4. SA, Brazil
5. Para Desenvolvimento [For. Ecol. & Mgt. (Eng).] (in draft)
6. conservation
7. logging
8. TF
Logging in flooded forests of the Amazon: distribution and effects.

1044.
1. Verissimo, A., M. Mattos, P. Barreto, R. Tarifa, and C. Uhl.
2. Impactos sociais, economicos e ecologicos da exploracao intensiva de madeiras numa velha frontier na Amazonia oritntal: o caso de Paragominas.
3. PO
4. SA, Brazil
5. Para Desenvolvimento [For. Ecol. & Mgt (Eng).] (in draft)
6. conservation, social-issues
7. selective-logging
8. TF
Social, economic, and ecological effects of intensive logging in Brazil.

1045.
1. Verissimo, A., M. Mattos, Z. Brandino, Z. Uhl, and I. Vieira.
2. Impactos sociais, economicos e ecologicos da exploracao selectiva de madeiras numa nova fronteira na Amazonia oriental: o caso de Tailandia.
3. PO
4. SA, brazil
5. For. Ecol. & Mgt (1989) 25:95-115.
6. conservation, social-issues
7. selective-logging
8. TF
Social, economic, and ecological effects of selective logging.

1046.
1. Verissimo, A., P. Barreto, and C. Uhl.
2. Os impactos direitos e indireitos de 20 anos de extracao e Mogno no sul do Para.
3. PO
4. SA, Brazil
5. Para Desenvolvimento [For. Ecol. & Mgt (Engl).] (in draft)
6. conservation, social-issues
7. selective-logging
8. TF
Direct and indirect efforts of 20 years of logging in the Amazon of Brazil.

1047.
1. Viana, V. M.
2. Seed and seedling availability as a basis for management of natural forest regeneration.
3. EN
4. SA, Brazil
5. Chapter 6, In: A. Anderson (ed.) Alternative to deforestation in Amazonia. Columbia Univ. Press, New York (1990) 99-115.
6. seed-ecology
7. natural-regeneration
8. TF

1048.
1. Villasenor A.R.
2. Some quantitative aspects of forestry policy programmes.
3.
4. Mexico
5. Ciencia Forestal, INIF Coyoacan, D.F., Mexico (1983) 8:(43)46-60.
6. policy-issues
7.
8. TF

1049.
1. Vincent, A. J.
2. A note on the growth of eleven individual species of the genus Dipterocarpus (keruing) in naturally and artificially regenerated forest, Malaya.
3. EN
4. AS, Malaysia
5. Research Pamphlet #38, Forest Research Institute, Malaysia (1961)
6.
7. growth
8. TF, Dipterocarpaceae

1050.
1. Vincent, J. R.
2. Rent capture and the feasibility of tropical forest mangement.
3. EN
4. General
5. Land Economics (1990) 66:(2)212-.
6. policy-issues
7. economics
8. TF

1051.
1. Vincent, L. W. and C. M. Bustamante.
2. El "metodo limba" ensayada en el Proyecto Caparo.
3. ES
4. SA, Venezuela
5. Revista Forestal Venezolana 16(23), Notas Tecnicas: 101-104. (1973)
6.
7. silviculture
8. TF

1052.
1. Vink, A. T.
2. Forestry in Suriname.
3. EN
4. SA, Suriname
5. Paramaribo, Suriname Forest Service (1970)
6.
7. silviculture
8. TF

1053.
1. Vink, A. T.
2. Some notes on yield regulation and stand improvement in the Mapane high forest.
3. EN
4. SA, Suriname
5. Suriname For. Serv., Paramaribo, Suriname. (1964)
6.
7. stand-improvement, growth
8. TF

1054.
1. Volpato, E., P. B. Schmidt, and C. de Vivaldo.
2. Situacao dos plantios experimentais na Reserva Florestal Ducke. I. Doze essencias florestais nativas da Amazonia em plantios de enriquecimento.
3. PO
4. SA
5. Acta Amazonica (INPA, Brasil) (1973) 3:(1)71-82.
6.
7. enrichment
8. TF

1055.
1. Voordouw, J. J.
2. Estimation of the primary production and part of the mineral cycle in six variously treated forest stands.
3. EN
4. SA, Suriname
5. In: CELOS Kwartaalverslagen no. 62. Paramaribo, Surinawe, CELOS. (1982)
6. ecology
7. growth, silviculture
8. TF

1056.
1. Vozyakov, G. S.
2. Eksperimental' noe issledovanie zatrat truda na lesosechnykh ravotakh pri razlichnykh sposobak rubok glavnogo pol' zovaniya.
3. Russian
4. USSR
5. Lesnoi Zhurnal (1976) 5:124-127.
6. social-issues
7. clearcut, economics, shelterwood
8. TmpF, Picea

Experiemntal investigation of labour costs in felling with different methods of principal fellings. Work-studies on small mechanized gangs (6 men) felling and skidding in Spruce/Fir forests in the S. Urals are reported. Three felling methods were compared; (1) clear felling with preservation of advance growth and any small-diameter stems, removing 95.3% [by volume]; (2) high-intensity long-term shelterwood felling, removing 66.8% and (3) low-intensity long-term shleterwood felling, removing 46.6%. Results of the time-studies are tabulated. In method (2) the daily output per gang averaged 51.8 m3, and this was in most cases higher than that in method (1).

1057.
1. Wadsworth, F. H.
2. Applicability of Asian and African silviculture systems to naturally regenerated forests of the Neotropics.
3. EN
4. General
5. In: Natural Management of Tropical Moist Forests. F. Mergen and J.R. Vincent (eds). Yale Univ., New Haven. Pp 93-111. (1987)
6. ecology
7. selective-logging, natural-regeneration
8. TF

1058.
1. Wadsworth, F. H.
2. An approach to silviculture in tropical America and its application in Puerto Rico.
3. EN
4. Caribbean, Puerto-Rico
5. Car. For. (1947) 8:(4)245-56.
6.
7. silviculture
8. TF

1059.
1. Wadsworth, F.
2. Deforestation - death to the Panama Canal.
3. EN
4. CA
5. In: Proceedings of the U.S. Strategy Conference Tropical Deforestation, 12-14 June, Washington, DC. (1978) 22-24.
6. conservation
7.
8. TF

1060.
1. Wadsworth, F. H.
2. Five years of forest research on the north coast of Puerto Rico.
3. EN, ES
4. Caribbean, Puerto-Rico
5. Carib. For. (1948) 9:(4)373-380.
6.
7. silviculture
8. TF, Cordia

1061.
1. Wadsworth, F. H.
2. Forest management in the Luquillo Mountians. I. The Setting.
3. ES
4. Caribbean, Puerto-Rico
5. Car. For. (1951) 12:(3)93-114.
6. vegetation-structure, ecology
7.
8. TF, montane

1062.
1. Wadsworth, F. H.
2. Forest management in the Luquillo mountains. II. Planning for multiple land use.
3. EN
4. Caribbean, Puerto-Rico
5. Car. For. (1952) 13:(2)49-61.
6. conservation
7. inventory, silviculture
8. TF, montane

1063.
1. Wadsworth, F. H.
2. Natural forests in the development of the humid American tropics.
3. ES
4. CA, SA
5. In: The use of Ecological Guidelines for Development in the American Humid Tropics.
6.
7. silviculture
8. TF

1064.
1. Wadsworth, F. H.
2. La orientacion de las investagaciones de silvicultura para Lainoamerica.
3. ES
4. CA, SA
5. Turrialba (1966) 16:390-395.
6.
7. silviculture
8. TF

1065.
1. Wadsworth, F. H.
2. Posibiliadades futuras de los bosques del Paraguay.
3. ES
4. SA, Paraguay
5. Asuncion, Paraguay: Ministerio de Agricultura y Ganaderia. (1969)
6. conservation
7. silviculture
8. TF

1066.
1. Wadsworth, F. H.
2. Production of usable wood from tropical forests.
3. EN
4. General
5. Chapter 17 In: F. B. Golley, editor. Tropical Rain Forest Ecosystems, A. Structure and Function. Elsevier Scientific Publishing Company, Amsterdam, The Netherlands. (1983)
6.
7. plantations, natural-regeneration, growth
8. TF
A discussion of wood production from native forests and plantations and land use pressures leads to the recommendation of increasing the intensity of forest management.

1067.
1. Wadsworth, F. H.
2. Regeneration of tropical forests by planting.
3. EN
4.
5. Caribbean Forester (1960) 21:81-89.
6.
7. enrichment
8. TF

1068.
1. Wadsworth, F.
2. Secondary forest management to improve the use of converted tropical lands.
3. EN
4. General
5. Document prepared for the US Office of Technology Assessment.
6. ecology
7. stand-improvement
8. TF, secondary-forest
Substantial review of the ecology and management potential of secondary forests.

1069.
1. Wadsworth, F. H.
2. A time for secondary forestry in Tropical America.
3. EN
4.
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 189-198.
6.
7. silviculture, economics
8. TF, secondary-forest

1070.
1. Wadsworth, R. M. and J.R.S. Lawton.
2. The effect of light intensity on the growth of seedlings of some tropical tree specier.
3. EN
4. AF
5. Journal of the West African Science Association (1968) 13:(2)211-214.
6. light-requirements
7. growth
8. TF

1071.
1. Walker, L. R. and F. S. Chapin, III.
2. Interactions among processes controlling successional change.
3. EN
4. General
5. Oikos (1987) 50:131-135.
6. succession, ecology
7. growth
8.

1072.
1. Walton, A. B.
2. Regeneration of dipterocarp forests after high lead logging.
3. EN
4. AS
5. Emp. For. Rev. (1954) 33:338-44.
6.
7. logging-damage, natural-regeneration
8. TF, Dipterocarpaceae

1073.
1. Walton, A. B., R.C. Barnard, and J. Wyatt-Smith.
2. Silviculture of lowland dipterocarp forest in Malaya.
3. EN
4. AS, Malaysia
5. Mal. For. (1952) 15:181-197.
6.
7. silviculture
8. TF, Dipterocarpaceae

1074.
1. Wan Razali Mohd.
2. Modelling the tree growth in mixed tropical forests I. Use of diameter and basal area increments.
3. EN
4. AS, Malaysia
5. Journal of Tropical Forest Science (1989) 2:(2)114-121.
6. statistics
7. growth
8. TF

The growth of regenerated mixed tropical forests in Peninsular Malaysia, measured over 13-20 years, was examined for constructing a model. The results suggest that diameter increment is a more appropriate dependent variable for growth models than is basal area increment.

1075.
1. Wardle, P. A.
2. Forestry development in Suriname: economics studies carried out in reviewing the potential contribution of forest industries to the economy.
3. EN
4. SA, Suriname
5. FAO/Suriname For. Serv., Paramaribo, Suriname. (1974)
6.
7. economics
8. TF

1076.
1. Warring, R. H.
2. Engineering properties of balsa.
3. EN
4.
5. Wood (1966) 31:(2)41-43.
6. wood-properties
7.
8. TF, Ochroma

1077.
1. Weaver, P. L. and D.J. Pool.
2. Correlation of crown features to growth rates in natural forests of Puerto Rico.
3. EN
4. Caribbean, Puerto-Rico
5. Turrialba (1979) 29:53-58.
6. vegetation-structure
7. growth
8.

1078.
1. Weaver, P. L.
2. Enrichment plantings in Tropical America.
3. EN
4.
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 259-278.
6.
7. enrichment, silviculture
8. TF

1079.
1. Weaver, P. L. and P. G. Murphy.
2. Forest structure and productivity in Puerto Rico's Luquillo Mountains.
3. EN
4. Caribbean, Puerto-Rico
5. Biotropica (1990) 22:69-82.
6. ecology
7. growth
8. TF, montane

1080.
1. Weaver, P. L.
2. Forestry research in the Tapajos National Forest, Santarem, Brazil.
3. EN
4. SA, Brazil
5. Report prepared for the Government of Brazil, FO:BRA/82/009 Technical Report. Food & Agriculture Organization of the United Nations, MA - Brazilian Insitute for Forestry Development, Brasilia, Brazil (1983)
6. policy-issues
7. inventory, phenology, silviculture
8. TF, secondary-forest

A report to assess the available timber resource and to determine methods to regenerate, harvest, protect, and administer the forest. The work is a collaborative effort to design and coordinate all immediate and long-term silvicultural activities in the Tapajo's Forest to facilitate sustained yield management of the forest.

1081.
1. Weaver, P. L. and J. K. Francis.
2. Growth of teak, mahogany, and Spanish cedar on St. Croix, U.S. Virgin Islands.
3. EN
4. Caribbean, Virgin-Islands
5. Turrialba (1988) 38:(4)308-317.
6.
7. species-trials, plantations
8. TF, Tectona, Swietenia, Cedrela.

Data are presented on growth of mahogany (Swietenia mahagoni, S. humilis and hybrids of S. macrophylla S. mahagoni) and the performance of teak (Tectonia grandis) and Spanish cedar (Cedrela spp.) provenances in p'antations at 5 sites in subtropical dry forest (Estate Thomas and Sion Farm) and moist forest (Hams Bluff, Bokin and Mahogany Road).

1082.
1. Weaver, P. L. and Birdsey, R. A.
2. Growth of secondary forest in Puerto Rico between 1980 and 1985.
3. EN
4. Caribbean, Puerto-Rico
5. Turrialba (1990) 40:(1)12-22.
6.
7. growth, inventory
8. TF, secondary-forest

The volume of growing stock trees of Puorto Rico's secondary forests increased by 32% and timber volume by 36% during the five year interval. A slight increase of valuable timber species and increased human intervention in more than half of the surveyed forests was also recorded.

1083.
1. Weaver, P. L. and G. P. Bauer.
2. Growth, survival and shoot borer damage in mahogany plantings in the Luquillo Forest in Puerto Rico.
3. EN
4. Caribbean, Puerto-Rico
5. Turrialba (1986) 36:(4)509-522.
6.
7. growth, pests
8. TF, Swietenia, Hypsipyla

Plantings initiated in 1963 using a hybrid Swietenia sp. yielded the following data after 20 years: stem density, 373 trees/ha; basal area, 28.2 m2/ha; total aboveground woody volume, 292.2 m3/ha. Shoot borer damage is reported. Improved planting practices for mahogany are suggested.

1084.
1. Weaver, P. L.
2. Succession in the elfin woodland of the Luquillo mountains of Puerto Rico.
3. EN
4. Caribbean, Puerto-Rico
5. Biotropica (1990) 22:83-89.
6. succession, ecology
7.
8. TF, montane

1085.
1. Weaver, P. L., G. Zapeda, A. Rodriguqz, D. Sims, J. Bauer, D. Jimenez, R. Lea, D. Mergel, and B. Bayle.
2. Technology transfer plan: line planting.
3. EN
4.
5. USDA Forest Service, Southern Forest Experiment Station and Southern Region, 19 p. (1990)
6.
7. enrichment
8. TF

1086.
1. Weaver, P. L.
2. Tree growth in several tropical forests of Puerto Rico.
3. EN
4. Caribbean, Puerto-Rico
5. USDA Forest Science Research Paper 50-152 (1979) Southern Forest Experiment Station, Forest Service - USDA, Rio Riedras, Puerto Rico, USA. 15 p.
6.
7. clearcut, selective-logging, growth
8. mangroves, secondary-forest

About 2400 individual stems >4.1 cm dbh and representing about 100 species from 6 plots in 3 life zones (with various edaphic and silvicultural treatments) were studied for varying periods, usually from 24 to 30 years. Periodic annual increments are presented.

1087.
1. Weaver, P. L.
2. Tree growth and stand changes in the subtropical life zones of the Luquillo Mountains of Puerto Rico.
3. EN
4. Caribbean, Puerto-Rico
5. Research Paper SO-190. U.S. Dept. of Agric., Forest Service, Southern Forest Experiment Station, New Orleans, LA. (1983)
6. ecology
7. growth
8. TF

1088.
1. Webb, D. B., P.J. Wood, and J. Smith.
2. A guide to species selection for tropical and sub-tropical plantations.
3. EN
4. General
5. Oxford Univ. Commwealth Forestry Institute, Tropical Forestry Papers No. 15. (1980)
6.
7. plantations, species-trials
8. TF

1089.
1. Weidelt, H. J. and V. S. Banzag.
2. Aspects of management and silviculture of Philippine dipterocarp forest.
3. EN
4. AS, Philippines
5. German Agency for Tech. Co-operation, Eschborn, FRG. (1982)
6.
7. silviculture
8. TF, Dipterocarpaceae

1090.
1. Welker, J. C.
2. Site preparation and regeneration in the lowland humid tropics: industrial plantation experience in Northern Brazil.
3. EN
4. SA, Brazil
5. In, Figueroa-C., J. et al. (eds), Institute of Tropical Forestry (1987) 297-334.
6.
7. plantations
8. TF

1091.
1. Westman, W. E.
2. Managing for biodiversity.
3. EN
4. General
5. BioScience (1990) 40:(1)26-33.
6. conservation, policy-issues
7.
8.

A review of current policies toward biodiversity, unresolved policy questions (e.g., multiple uses of habitat, exotic species management, climatic change), unresolved scientific questions, and a discussion of efforts underway towards resolution.

1092.
1. Whigham, D. F., I. Olmsted, E. Cabrera Cano, and M. E. Harmon.
2. The impact of Hurricane Gilbert on trees, litterfall, and woody debris in a dry tropical forest in the northeastern Yucatan Peninsula.
3. EN
4. Mexico
5. Biotropica (1991)
6. disturbance, ecology, fire
7. damage
8. TF

After nearly complete canopy destruction many broken stems resprouted but then many resprouted trees died. Role of fire after storms is discussed.

1093.
1. White, S.
2. Cedar and mahogany logging in eastern Peru.
3. EN
4. SA, Peru
5. Geog. Review (1978) 68:394-416.
6.
7. logging
8. TF, Cedrela, Swietenia

1094.
1. Whitehead, D.
2. Ecological aspects of natural and plantation forests.
3. EN
4. General
5. Forestry Abstracts (1982) 43:(10)615-624.
6. ecology
7. plantations
8. TF

1095.
1. Whitmore, J. L. (editor).
2. Cedrela provenance trial in Puerto Rico and St. Croix: establishment phase.
3. EN
4. Caribbean, Puerto-Rico St-Croix
5. In, USDA Forest Service Research Note No. ITF 16 (1978)
6.
7. species-trials, plantations, pests
8. TF, Cedrela, Hypsipyla

1096.
1. Whitmore, J. L.
2. Cedrela provenance trial in Puerto Rico and St. Croix: Three years after outplant.
3. EN
4. Caribbean, Puerto-Rico St-Croix
5. Universidade Federa lde Vicosa Anais do I Congresso Brasileiro de Florestas Tropicais (1981)
6.
7. plantations, species-trials, growth, pests
8. TF, Cedrela, Hypsipyla

1097.
1. Whitmore, J. L.
2. Plantation forestry in the tropics of Latin America: a research agenda.
3. EN
4. SA, CA Mexico
5. Unasylva (1987) 39:(2)36-41.
6.
7. plantations
8. TF
Adapted from a paper presented to the 18th IUFRO World Congress

1098.
1. Whitmore, J. L. (editor).
2. Studies on the shootborer Hypsipyla grandella (Zeller) Lep. Pyralidae.
3. EN, ES
4. General
5. CATIE, Centro Agronomico Tropical de Investigacion y Ensenanza Turrialba, Costa Rica (1976) 2:
6. pests, ecology
7. silviculture
8. TF, Hypsipyla, Cedrela, Swietenia
Symposium volume.

1099.
1. Whitmore, J. L. (editor).
2. Studies on the shootborer Hypsipyla grandella (Zeller) Lep. Pyralidae.
3. EN, ES
4. General
5. CATIE, Centro Agronomico Tropical de Investigacion y Ensenanza Turrialba, Costa Rica (1976)
6. pests, ecology
7. silviculture
8. TF, Hypsipyla, Cedrela, Swietenia
Symposium volume.

1100.
1. Whitmore, J. L.
2. Studies on the Shootborer Hypsipyla grandella (Zeller) Lep. Pyralidae. Vol. II, Vol. III.
3. EN
4. General
5. ed. (1976) Turrialba, Costa Rica, CATIE.
6.
7. pests
8. TF, Hypsipyla, Swietenia

1101.
1. Whitmore, T. C.
2. Gaps in the forest canopy.
3. EN
4. general
5. Tropical Trees as Living Systems . P. B. Tomlinson and M. H. Zimmermann, eds. (1978) 639-655.
6. ecology, disturbance, vegetation-structure
7.
8.

1102.
1. Whitmore, T. C. and Gong W. K.
2. Growth analysis of the seedlings of balsa, Ochroma lagopus [O. pyramidale].
3. EN
4.
5. New Phytol. (1983) 95:(2)305-311.
6.
7. growth
8. TF, Ochroma

1103.
1. Widharto, Heru Effianto, and S. S. Soedojo (compilers).
2. Bibliography on Dipterocarpaceae.
3. EN
4. AS
5. SEAMEO - BIOTROP. Southeast Asian Regional Center for Tropical Biology. Bogor, Indonesia (1989)
6. ecology
7. silviculture
8. TF

1104.
1. Widmer, Y.
2. Los Bambues: biologia, cultivo, manejo, usos.
3. ES
4. CA, Costa-Rica General
5. El Chasqui (1990.) 23:5-42.
6. NTFP
7.
8. TF

1105.
1. Widmer, Y.
2. Situacion del bambu en America latina con enfasis en America Central y Costa Rica.
3. ES
4. CA, Costa-Rica
5. El chasqui (1990) 24:14-23.
6. NTFP
7.
8. TF

1106.
1. Wille, C.
2. Trees on trial in Central America.
3. EN
4. CA, Costa-Rica
5. American Forests. (1990) 21-24, 73.
6.
7. artifical-regeneral, plantations, species-trials
8. TF
Overview of species trials underway at the La Selva Biological Station in Costa Rica.

1107.
1. Wilson, D. E.
2. Mammals of La Selva, Costa Rica.
3. EN
4. CA, Costa-Rica
5. In, Four Neotropical Forests, A. H. Gentry (ed.). Yale University Press, New Haven (1990) 273-286.
6. ecology, taxonomy, wildlife
7.
8. TF

1108.
1. Wittner, R. F. and J. W. Stringer.
2. Biomass production and nutrient accumulation in seedling and coppice hardwood plantations.
3. EN
4.
5. For. Ecol. Mngmt. (1985) 13:223-233.
6.
7. plantations, coppicing, fuelwood
8.

1109.
1. Wolffsohn, A. L. A.
2. An experiment concerning mahogany germination.
3. EN
4.
5. Empire Forestry Review (1961) 40:(1)71-72.
6. ecology
7. natural-regeneration
8. TF, Swietenia

1110.
1. Wolffsohn, A.
2. Fortalecimiento del Servicio Forestal Ecuador. La silvicultura en el noroccidente.
3. ES
4. SA, Ecuador
5. FAO Report [No. ECU/71/527 Informe Tecnico 1): (1976/recd. 1986) vi:(43)29.
6. policy-issues
7. silviculture
8. TF
Strengthening the Forestry Service in Ecuador. Silviculture in the northwest.

1111.
1. Wood, G. B.
2. Ground-sampling methods used to inventory tropical mixed moist forests.
3. EN
4. general
5. Forest Ecology and Management 35:199-206.
6.
7. inventory
8. TF
Survey of sampling techniques used in 60 countries fixed-area plots or striplines most common.

1112.
1. World Bank.
2. Forestry: sector policy paper.
3. EN
4. General
5. Wash., DC, World Bank. (1978)
6. policy-issues
7. economics
8. TF

1113.
1. World Resources Insititute.
2. Forest management in Ecuador - program description.
3. EN
4. SA, Ecuador
5. Washignton, DC (1989)
6. policy-issues
7.
8. TF

1114.
1. World Wildlife Fund (WWF).
2. The Boscosa project: 1988 annual report and 1989 work plan.
3. EN
4. CA, Costa-Rica
5. Washington, D.C.: World Wildlife Fund. (1988)
6. education, conservation
7. silviculture
8. TF
Outline of BOSCOSA Project on Osa Peninsula, Costa Rica (forestry, local participation, agroforestry, environmental education)

1115.
1. Worthington, N. P., R.H. Ruth, and E.E. Matxon.
2. Red alder: it's management and utilization.
3. EN
4. NA, USA
5. USDA Misc. Pub. 881, 44 pp. (1962)
6. wood-utilization
7. species-trials
8. TmpF, Alnus

1116.
1. Wright, L. L.
2. Are increased yields in coppice systems a myth?
3. EN
4. NA
5. Paper presented at the Conf. on energy from biomass and wastes XI, Orlando, FL, March 16-20, 1987. Institute of Gas Technology, Chicago, IL. (1987)
6.
7. coppicing, pulpwood
8.

1117.
1. Wyatt Smith, J.
2. Manual of Malayan silvicuture for inland forest. Part III - Chapter
8. Red Meranti - Keruing Forest.
3. EN
4. AS, Malaysia
5. Res. Pamp. 101, For. Res. Inst. Malaysia. (1987)
6.
7. silviculture, growth
8. TF, Dipterocarpaceae

1118.
1. Wyatt-Smith, J. and E.C. Foenander.
2. Damage to regeneration as a result of logging.
3. EN
4. AS, Malaysia
5. Mal. For. (1962) 25:(1)40-44.
6.
7. logging-damage
8. TF

1119.
1. Wyatt-Smith, J.
2. Development of a silvicultural system for the conversion of natural inland lowland evergreen rain forest of Malaya.
3. EN
4. AS, Malaysia
5. Malayan Forester (1959) 22:(2)133-42.
6.
7. stand-improvement
8. TF, Dipterocarpaceae

1120.
1. Wyatt-Smith, J.
2. The management of tropical moist forest for the sustained production of timber: some issues.
3. EN
4. General
5. IUCN/IIED Tropical Forest Policy Paper No. 4. International Union for Conservation of Nature and Natural Resources, Forestry and Land Use Programme, International Institute for Environment and Develpment (IIED) and World Wildlife Fund. (1987)
6. policy-issues
7. silviculture
8. TF

A review of forest policy and management of tropical moist forests. Discussions include demands on forest lands, resources needed for successful forest management opperations, harvesting operations and management attempts.

1121.
1. Wyatt-Smith, J.
2. Manual of Malayan silviculture for inland forest.
3. EN
4. AS, Malaysia
5. Malayan Forest Records #23, Malayan Forestry Department (1952)
6.
7. monocyclic
8. TF, Dipterocarpaceae

1122.
1. Wyatt-Smith, J.
2. Problems and prospects for natural management of tropical moist forest.
3. EN
4. General
5. Pages 6-22 in: Natural Management of Tropical Moist Forest. F. Mergen and J.R. Vincent (eds). Yale University, School of Forestry and Environmental Studies. New Haven, CT, USA. (1987b)
6.
7. natural-regeneration
8. TF

Review of succsess and failures in natural forest management.

1123.
1. Wyatt-Smith, J.
2. Survival of isolated seedbearers.
3. EN
4. AS, Malaysia
5. Mal. For. (1954) 17:30-32.
6. seeds
7. regeneration
8. TF

1124.
1. Wyatt-Smith, J.
2. Survival of isolated seedbearers.
3. EN
4. AS, Malaysia
5. Mal. For. (1960) 23:(2)133-4.
6. seeds
7. regeneration
8. TF

1125.
1. Wyatt-Smith, J. and A.J. Vincent.
2. The swing from qualitative to quantitative assessment of individual tree crown parameters in the Malayan Forest Service.
3. EN
4. AS, Malaysia
5. Malaysian Forester (1962) 25:276-288.
6. vegetation-structure
7.
8. TF

1126.
1. Wycherley, P. R.
2. Balsa trees and lightning.
3. EN
4.
5. Malay. For. (1963) 26:(2)126-128.
6. ecology
7.
8. TF, Ochroma

1127.
1. Yao, C. E.
2. Survival and growth of mahogany (Swietenia macrophylla King.) seedlings under fertilized grassland condition.
3. EN
4. AS, Philippines
5. Sylvatrop (1981) 6:(4)203-217.
6.
7. plantations, fertilization, growth
8. Swietenia

Survival and growth responses of 1-yr-old seedlings outplanted at Calamba, Laguna, Philippines, were measured 6 months after treatment with various dosages of NPK fertilizer. Survival and nutrient concentrations were not significantly affected by fertilizer treatments. However, in the treatments containing all 3 nutrients there were significant increases in height, diameter, dry weight and nutrient uptake over the control (non-fertilized) seedlings and those treated with N and K alone. Rates of N>1.8 g/tree in combination with K only had a depressing effect on growth and nutrient uptake.

1128.
1. Yared, J. A. G. and A. A. Carpanezzi.
2. Conversao de coopeoira alta da Amazonia em povoamento de producao madeireira: o metodo do 'recru' e especies promissoras.
3. PO
4. SA, Brazil
5. Boletim de Pesquisa, Centro de Pesquisa AGropecuaria doe Tropico Umide, EMBRAPA, Braxil. (1981) 25:27 p.
6.
7. species-trials, stand-improvement
8. TF, secondary-forest, Didymopanax, Swietenia, Aspidosperma, Enterolobium, Genipa, Hymenaea

Conversion of tall secondary vegetation in Amazonia to stands for wood production: the 'recru' method and promising species. In a 4-yr trial of 10 species established in secondary stands 22-25 m tall in Para, Brazil, Bagass guianensis, Carapa guianensis, Cordia goeldiana, Didymopanax morototoni and Swietenia macrophylla gave promising results, although forking in B. guianensis was a problem. Aspidosperma desmanthum, Enterolobium maxiumum, E. schomburgkii, Genipa americana and Hymenaea courbaril were not considered suitable.

1129.
1. Yared, J. A. G. and A. A. Carpanezzi.
2. Ensaios de especies a pleno sol com 'one-tree-plot' na Floresta Nacional do Tapajos.
3. PO
4. SA, Brazil
5. Boleuim de Pesquis, Centro de Pesquisa Agropecuaria do Tropico Umido, EMBRAPA, Brazil. (1982) 35:34.
6.
7. species-trials
8. TF, Terminalia, Chlorophora, Genipa, Anthocephalus

Trials of species in full sun with 'one-tree-plots' in the Tapajos National Forests. In a study of 29 species (24 indigenous) in Para, Brazil, Terminalia ivorensis, Chlorophora excelsa, Genipa americana, Anthocephalus cadamba [A. chinensis] and Dinizia excelsa gave satisfactory results.

1130.
1. Yeap, Y. H. and J. Sessions.
2. Optimising spacing and standards of logging roads on uniform terrain.
3. EN
4. General
5. J of Tropical Forest Science (1989) 1:(3)215-2282.
6.
7. roads
8.

A technique is presented for determining the optimal spacing of local and collector roads on uniform terrain including the choice of collector road standard. An expression for total skidding, truck transport, and road construction costs is formulated. The Hooke and Jeeves Pattern Search algorithm is used to determine the local and collector road spacing and road standard along the collection road that minimizes the average cost per unit volume removed.

1131.
1. Yu, P. H., X. R. Li, and S. Q. Zou.
2. A preliminary report on the experiment of introducing and cultivating of balsa tree (Ochroma lagopus Sw.).
3. Chinese
4. China
5. Collected research papers on tropical botany. (1982) 101-107.
6. wood-properties
7. species-trials
8. Ochroma
Provenances of balsa from Cuba, Sri Lanka and Ghana were grown at Xishuangbanna, in S. Yunnan. The trees grew well and had low density wood with good economic characteristics. The Cuban provenance grew best, was more tolerant to lower temperatures, and had the lightest wood.

1132.
1. Zeeuw, C. de and R. L. Gray.
2. Haironyma alchorneiodes and H. laxiflora.
3. EN
4.
5. Tropical Timber Information Center Brief, Syracuse, State University of New York, College of Environmental Sciences and Forstry, 4pp, volume 5 (1975)
6. wood-properties
7.
8. TF, Hyeronyma
Describes wood properties and anatomical structure.

1133.
1. Zhelyazkov, P. and D. Shipkovenski.
2. The effect on the soil surface layer of different logging systems used for principal fellings.
3. Bulgarian
4. Europe
5. Gorskotopanska Nauka (1981) 18:(5)3-16.
6.
7. extraction, logging-damage, shelterwood
8. TmpF
Selective fellings (removing approx. 15, 20, or 30%) and first and final shelterwood fellings were made in plots in beech forest and conifer forest on slopes of 9-32 deg in Bulgaria. The stems were removed by a Universal tractor or by a cableway. The physical and chemical properties of the soils were investigated after logging: results are tabulated. Some general recommendation are made on the permissible limits to tractor use as regards soil type, slope and % timber removal.

1134.
1. Ziede, B.
2. Ranking of forest growth factors.
3. EN
4. General
5. Env. and Exp. Bot. (1980) 20:421-427.
6. ecology
7. growth
8.

1135.
1. Zimmerman, B. L. and M. T. Rodrigues.
2. Frogs, snakes, and lizards of the INPA-WWF reserves near Manaus, Brazil.
3. EN
4. SA, Brazil
5. In, Four Neotropical Forests. A.H. Gentry (ed.). Yale University Press, New Haven (1990) 426-454.
6. ecology, wildlife, conservation
7.
8. TF

1136.
1. Zobel, B. J., G. van Wyk, and P. Stahl.
2. Growing exotic forests.
3. EN
4. General
5. John Wiley & Sons, Inc (1987) 508.
6. textbook
7. plantations
8.

PART 2.

PROJECTS ON NATURAL FOREST MANAGEMENT

1.

1. Agriculture University, Wageningen the Netherlands, and TNO Timber Research Insititute, Delft, The Netherlands, affiliated with International Tropical Timber Organization (ITTO) and Forestry Agency of Japan.
2. Selection and introduction of lesser-known and lesser-used species for specific end-uses, PD 18/87.
3. General. 1989 - 1990
4. Government of The Netherlands and Forestry Agency of Japan.
5.
6. project.
7. species trials, wood.
8. TF, lesser-known-species.

This project generated a computer program that will select tropical timber species that meet the requirements of selected end-uses. A literature survey on lesser-known species properties and criteria for end-uses was carried out. To supplement the literature review a questionaire on properties of less commercialized species was prepared by the implementing agencies and distributed through ITTO headquarters to the timber producing member countries.

2.

1. ANAI Association, affiliated with Ministry of Natural Resources, Costa Rica.
2. ANAI forest management project.
3. CA, Costa Rica. 1990 - on going
4. ANAI Association, World Wildlife Fund and other international non-profit organizations.
5.
6. agriculture, conservation, policy-isuses, NTFP, wildlife, project.
7.
8. TF.

The ANAI forest management project is part of a larger program to conserve forests and wildlife, secure land titles, and increase agricultural productivity among small landholders in several communities in the area near the mouth of Sixaola River. The project seeks to manage the forest for a combination of timber products, wildlife, and products from the forest understory like ornamental and medicinal plants.

3.

1. Auburn University, affiliated with CARE, Pan American Development Foundation.
2. Haitian Agroforestry Outreach Project.
3. Caribbean, Haiti. 1987 - 1990
4. CARE.
5. At Auburn, Ms. Marjorie Gentry 205-844-1008. At Winrock, Robert D. Havener 501-727-5435.
6. damage, project, silviculture, soil conservation, wood, education.
7. fuelwood, soil-conservation.
8. TF.

This project is intended to address the soil erosion problems in Haiti by demonstrating to farmers the economic and environmental benefits of planting and maintaining trees.

4.

1. Bolivian Government, affiliated with International Tropical Timber Organization, the Center for Forest Development (Bolivia) and Conservation International.
2. Conservation, management, utilization and integrated and sustained use of the forests in the Chimanes Region, Beni Department, Bolivia, PD 34/88.
3. SA, Bolivia. 1988 - 1991
4. Bolivia US$ 1,394,000, ITTO US$ 1,260,000, Japan US$ 575,000, Switzerland US$ 355,000, France US$ 200,000, Denmark US$ 125,000, WWF US$ 5,000.
5.
6. NTFP, project, conservation.
7. extraction, enrichment, regeneration.
8. TF.

The Chimanes project seeks to introduce forest management practices into a national forest reserve that heretofore has been subjected to conventional extraction of a few high value species. The project operates in tropical wet forest and premontane wet forest. The project intends to build extraction roads, introduce improved felling and extraction practices, and expand the range of commercial species. The project will also experiment with various techniques for increasing the proportion of mahogany in the residual forest through natural regeneration and enrichment planting.

5.

1. Bolivian Government, affiliated with National Forest Service, Bolivia, Ministry of Agriculture and Rural Affairs, National University with InterAmerican Development Bank (IDB), British Overseas Development Agency.
2. MARA/IDB (Ministry of Agriculture and Rural Affairs/IDB), Forest Management Program, Project for Protection of Ethnic Groups and Renewable Natural Resources.
3. SA, Bolivia. 1989 - on going
4. IDB, Biodiversity Support Program, Oxford Forestry Institute.
5.
6. conservation, project, wood.
7. liberation-felling, extraction.
8. TF.

The forest management program is one part of a four-part project that seeks to protect indigenous peoples and promote rational use of natural resources made vulnerable by the opening of a new highway. The project operates in tropical wet forest and premontane wet forest. It functions on an experimental forest of 55,000 ha which has been set aside on public land by the Bolivian government. Roughly 35,000 ha have been designated for forestry production. The project will establish and administer a management plan for the experimental forest under which a private logging company will extract and process timber with supervision from the project. Parts of the experimental forest will be reserved for strict preservation of flora and fauna. The project responds to the traditional situation in Bolivia in which the opening of roads into forested lands has led to highly selective extraction followed by settlement and conversion of forest to other uses, often unsustainable agriculture. In this instance, the Bolivian government hopes to avert the occurrence of the typical situation through the project.

6.

1. Bolivian Government, affiliated with World Wildlife Fund.
2. Project for forestry, conservation, natural resources management and environment (CICOL).
3. SA, Bolivia 1984
4. HIVOS (Dutch), Oxfam - US.
5. World Wildlife Fund.
6. social-issues, marketing, project, reforestation, wood.
7. sawmill, economics.
8. TF.

The project is part of a broader effort by the Chiquitano indigenous people to assert control over their ancestral territory and to manage natural resources inside their territory through their own efforts. Forest management practices will include both reforestation on cut over land and management of natural forest where it has not been too degraded. The project will process logs into lumber, partly for local use in the Chiquitano communities and partly for market.

7.

1. Brazilian Government, affiliated with Canadian International Development Agency, Technology Centre of Acre, Council of Rubber Tappers.
2. Amazon Environment Project.
3. SA, Brazil. 1990 - 1996
4. CIDA, Brazil.
5. Charron,-Rachel-at-CIDA.
6. agroforestry, policy-issues, project, education.
7. economics.
8. TF.

A large project, centered in the state of Acre, intended to improve the management and conservation of natural forests while fostering economically sustainable socio-economic development.

8.

1. Brazilian Government, affiliated with Universidade Federal do Acre (UFAC), Rio Branco; National Research Institute for Amazonia (INPA); Woods Hole Institute; National Rubber Tappers' Council (CNS); World Wildlife Fund.
2. Chico Mendes Extractive Reserve.
3. Brazil. 1988
4. a variety of national and international sources.
5.
6. conservation, NTFP, project, social-issues, marketing.
7.
8. TF, Bertholetia, Hevea, rubber.

The extractive reserve project seeks to improve the livelihoods of forest dwellers who now make their living from collecting wild rubber and brazil nuts. The project's primary goal is to secure the conservation of the forest by having it legally classified as an extractive reserve, thereby providing a permanent base for extractive forest livelihoods. The project is attempting to improve public services, increase the array of products harvested from the forest, raise the aggregate value of extracted products through increased processing, and obtain better prices for extractive products. The project works through local community action. The extractive reserve project works directly with municipal commissions which are local

units of the National Rubber Tappers' Council. The project also organizes and assists producers' associations.

9.

1. Brazilian Government, affiliated with International Tropical Timber Organization and the Brazilian Institute for Environment and Renewable Natural Resources (IBAMA).
2. Establishment of Ibirama's National Forest, PD 100/90 (F).
3. SA, Brazil. proposed, 5 yrs duration
4. ITTO US$ 1,222,000.
5.
6. NTFP, project, wood.
7. extraction, logging, regeneration,.
8. TF.

The project will develop a sustainable production system for the harvesting of timber and other forest products. In addition, it will promote the utilization of lesser known species, promote forest regeneration and enrichment, and conduct silvicultural studies in the National Forest.

10.

1. Brazilian Government, affiliated with International Tropical Timber Organization and the Brazilian Institute for Environment and Renewable Natural Resources (IBAMA).
2. Establishment of Rio Preto's National Forest, PD 99/90 (F).
3. SA, Brazil. proposed, 5 yrs duration
4. ITTO US$ 1,222,000.
5.
6. NTFP, project, wood.
7. extraction, logging, regeneration.
8. TF.

The project will develop a sustainable production system for the harvesting of timber and other forest products. In addition, it will promote the utilization of lesser known species, promote forest regeneration and enrichment, and conduct silvicultural studies in the National Forest.

11.

1. Brazilian Government, affiliated with International Tropical Timber Organization and the Brazilian Institute for Environment and Renewable Natural Resources (IBAMA).
2. Establishment of Tefe's National Forest, PD 98/90 (F).
3. SA, Brazil. proposed, 5 yrs duration
4. ITTO US$ 1,222,000.
5.
6. NTFP, project, wood.
7. extraction, logging, regeneration.
8. TF.

The project will develop a sustainable production system for the harvesting of timber and other forest products. In addition, it will promote the utilization of lesser known species, promote forest regeneration and enrichment, and conduct silvicultural studies in the National Forest.

12.

1. Brazilian Government, affiliated with International Tropical Timber Organization and the Technology Foundation of the State of Acre (FUNTAC).
2. Integration of forest-based development in the western Amazon - Phase I - forest management to promote policies for sustainable development, PD 24/88.
3. SA, Brazil. 1989 - 1992
4. Brazil US$ 1,977,000, ITTO US$ 1,078,000, Japan US$ 763,000, Switzerland US$ 220,000, Netherlands US$ 85,000, WWF US$ 10,000.
5.
6. ecology, NTFP, wildlife, project, wood.
7. economics, logging,.
8. TF, bamboo.

The project is currently in an initial investigatory phase in which it is conducting research into forest management for timber products, non-timber products, and wildlife, and also research into agroforestry. The project anticipates future phases in which results from the research phase will be applied through local communities especially communities of rubber tappers and small farmers. The project takes place on 66,000 ha of Estate Forest. The communities of rubber tappers and small farmers live inside the boundaries of the forest. The project represents an interesting experiment in the development of appropriate techniques for natural forest management directly in the forest that will eventually come under management. FUNTAC is the designated Executing Agency. The Brazilian Institute for Renewable Natural Resources and the Environment (IBAMA), the Superintendency for the Development of the Amazon (SUDAM), the National Institute for Amazon Research (INPA) and the Secretary of Environment and Urban Development of the State of Acre (SEDUMA) have established agreements with FUNTAC regarding their participation in the execution of the project.

13.

1. Brazilian Government, affiliated with International Tropical Timber Organization (ITTO); the Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA); the Brazilian Agency for Agriculture and Livestock Research; Center for the Humid Tropics (EMBRAPA/CPATU).
2. Management of the Tapajos National Forest for the sustainable production of industrial timber, PD 68/89 (F).
3. SA, Brazil. proposed, 5 yrs duration
4. Brazilian Government, ITTO, British ODA, World Wildlife Fund.
5.
6. project.
7. stand-improvement, extraction, regeneration, economics.
8. TF.

The project will investigate sustainable harvesting methods by establishing trials for extraction, management, and regeneration in a 5,000 ha block of the Tapajos National Forest. A basic forest management plan has been developed by FAO as a foundation for management trials. The project is expected to generate a gross income of US$ 3.6 million from sales of timber from the initial fallings.

The five year project will promote the optimal use of extracted timber, the effective promotion of Tapajos forest certification into the economy of the Santarem region.

14.

1. Brazilian Government in cooperation with FUNATURA, affiliated with International Tropical Timber Organization (ITTO), Fundacao Pro'-Naturaza (FUNATURA).
2. Multi-stage survey of Tapajos National Forest, PD 97/90 (F).
3. SA, Brazil. proposed, 8 mos. duration
4. ITTO US$ 92,400,000.
5.
6. project, wood.
7. inventory, economics.
8. TF, mangroves.

This project will develop a forest survey methodology which combines data collection by remote sensing and field sampling in a manner which will minimize cost at given requirements of information and accuracy of estimates. The reliability of the methodology and verification of projected costs will be tested in field applications.

15.

1. Brazilian Institute for Forestry Development and International Tropical Timber Organization (ITTO), affiliated with forestry sector.
2. Roundtable on opportunities and constraints to Latin American tropical hardwood-based industrial development.
3. SA, Caribbean. 1989
4. ITTO and Brazilian Government.
5.
6. project, marketing, education.
7. economics.
8. TF.

A roundtable was organized and convened to review the situation of the tropical hardwood timber industry in ITTO member countries in Latin America and the Caribbean. ITTO and the Brazilian Institute for Forestry Development (now Brazilian Institute for Environment and Renewable Natural Resources) executed the project. The roundtable was held in Brasilia, Brazil on Feb 20-23, 1989. The various segments of the forestry sector participated in the roundtable, with the public sector (government forestry administrations, research agencies, trade and foreign affairs agencies, etc.) and private sector (industries, trade and industry associations, private consultants, etc.) accounting respectively for 68% and 15% of the roundtable participants. The project obtained its objectives by providing an efficient dialogue and discussion forum that reviewed the issues related to the development of the tropical hardwood based industry. Of particular interest to ITTO were the following recommendations: intensify its fund raising efforts for the implementation of activities required to realize its objectives, and intensify its public relations efforts; prepare an action plan designed to increase public awareness of problems and solutions related to the conservation of tropical forests.

16.

1. Canadian International Development Agency

2. Amazon Environment Project.
3. SA, Brazil. 1990-1996
4. Rachel Charron.
5. CIDA.
6. ecology, conservation, NTFP, project.
7. social-issues.
8. TF.

The goal of this project is to strengthen institutional capacity at the Technology Centre of Acre (FUNTAC) and the National Council of Rubber Tappers (CNS) in forest monitoring, applied research, and community organization.

17.

1. Canadian International Development Agency, affiliated with Institut National Forestier (INFOR); Direction Generale de la Foret et da la Faune; Reid Collins and Associates Ltd.
2. Forest district support institute (Appui inst. au secteur forestier).
3. SA, Peru. 1981 - 1988
4. CIDA.
5. Mattey, D. at CIDA.
6. conservation, marketing, project.
7.
8. TF.

Project intent is to contribute to the rational use and management of Peruvian forests by training in long range forest management and the development of markets.

18.

1. Canadian International Development Agency, affiliated with St. Lucia Forest Department, Group Roche International Ltd.
2. Forest Management and Conservation/Phase 2.
3. Caribbean, St Lucia. 1985 - 1992
4. CIDA.
5. Kuras, Mary at CIDA.
6. conservation, project, education.
7. nurseries.
8. TF.

The goal is to manage and conserve St. Lucia's forest resources by improving the Forest Department's capabilities. Included are the training of St. Lucian foresters, equipment purchases and upgrading of the Union nursery.

19.

1. Canadian International Development Agency, affiliated with H. A. Simons; Reid Collins and Assoc.
2. Forestry Development.
3. Caribbean, Saint Vincent. 1986 - 1991
4. CIDA.
5. Langevin, J. at CIDA.
6. conservation, education, policy-issues, project.
7. silviculture.
8. TF.

By providing training, technical assistance, vehicles and equipment CIDA will assist in strenthening the institutional capacity of the Forestry Division of St. Vincent.

20.

1. Canadian International Development Agency, affiliated with Honduran Government Forestry Institute (COHDEFOR); E.J. Poirier.

2. Forestry program support unit.
3. CA, Honduras. 1987 - 1992
4. CIDA.
5. Schemmer, D, at CIDA.
6. project, education.
7.
8. TF.

Project objective is to support the development and management of a forestry program within the Honduran agency COHDEFOR.

21.

1. Canadian International Development Agency, affiliated with Guyana Forestry Commission; U. of Guyana; Guyana Stores Limited; Stewart and Ewing Assoc. Ltd.
2. Interim Forestry Project.
3. SA, Guyana. 1987 -1991
4. CIDA, Guyana.
5. Simard, H. at CIDA.
6. education, inventory, policy-issues, project,.
7.
8. TF.

Intended to strengthen the foresty sector's contribution to the nation's economy by 1) inventorying resource and production assets, and 2) increase the ability of the Forestry Commission personnel to carry out the plans of the National Forestry Plan of Action.

22.

1. Canadian International Development Agency, affiliated with Universite La Molina; Toronto University.
2. Program Establishment at the U. La Molina (Etablis Prog/Una La Molina).
3. SA, Peru. 1081 - 1990
4. CIDA.
5. Mattey, D. at CIDA.
6. project, education.
7.
8. TF.

Designed to aid the Peruvian government in the establishment of a program in forest resource management at the Universite La Molina.

23.

1. CARE, affiliated with CODETAR - Tarija Development Corporation.
2. Renewable Natural Resource Management.
3. SA, Bolivia. 1984 - 1997
4. CARE-USA.
5. Project Coordinator, CARE.
6. agriculture, social-issues, marketing, project, resources.
7. economics.
8. TF.

The project's main objectives are to strengthen the capabilities of participating communities to manage their natural resources on a sustainable basis by 1997, to sustainably increase agricultural productivity; to promote women's participation in the decision making process for natural resources management, agricultural production, marketing of agricultural production, and marketing of agricultural products; and to increase family income through community

organizational structures and the provision of marketing information.

24.

1. CARE, affiliated with CODEFOR - Honduran Forestry Development Corporation.
2. Small forest industries.
3. CA, Honduras. 1987 - 1992 (tentatively - 1995)
4. CARE/USA.
5. CARE/USA.
6. project.
7. logging, economics.
8. TF.

The project aims to increase the income of 400 participants by a factor of 3 through the organization of hand logging groups and to introduce sustained yield management practices to the forest blocks where the groups will operate.

25.

1. CARE, affiliated with DIGEBOS - General Directorate of Forests and Wildlife (Direccion General de Bosques y Vida Silvestre).
2. Watershed conservation - PN42.
3. CA, Guatemala. 1990 - 1993
4. CARE/USA.
5. CARE/USA.
6. agroforestry, social-issues, marketing, project, soil-conservation.
7. watersheds, fuelwood.
8. TF, montanes.

This project aims to assist smallholder farmers plan and execute integrated watershed management activities and increase the sustainable yields of their crops, fuelwood and wood construction sources. Forest management committees and forest product micro-enterprises will be created to generate income.

26.

1. CARE/USA, affiliated with CARE/Haiti.
2. Local Resources Development Project (LRD).
3. Caribbean, Haiti. 1991-1994 (pending)
4. USAID, CARE/USA.
5. John Mosher, Project Coordinator.
6. agriculture, project, development, seeds.
7. nurseries, seeds.
8. TF, seeds.

The project's main objective is the introduction of more sustainable and productive farming practices. Some specific interventions are the introduction of viable cash crops, the facilitation of agricultural credit, the establishment of communal seed storage, and the introduction of community nurseries.

27.

1. Caribbean Conservation Association
2. Small business approach to forest resource conservation and development.
3. Caribbean, Dominica. 1987 - 1993?
4. World Wildlife Fund, WWF Project No. 6012.
5. Caribbean Conservation Association.

6. project, reforestation, wood, social-issues, conservation, policy-issues.
7. economics, logging, silviculture, sawmill.
8. This project is working to develop a cottage forest industry on Dominica, a non-profit corporation to promote sustainable utilization of forest resources. The objectives include the following: 1) to give value to forest resources by assuring that the benefits of timber harvest and secondary cottage industries accrue to communities living near the resource, thereby creating vested interests for conservation and decreasing the need to convert lands, suitable only for forestry, to agriculture; 2) to reduce waste by utilizing all timber felled for agricultural clearing, by reducing the impact of timber harvest on soils and residual vegetation, and by promoting improved utilization of harvested timber; 3) to keep forest lands productive by providing positive incentives to sawyers for sound reforestation and silvicultural practices; and 4) to derive more value from less timber by promoting secondary industries that increase the value added to forest products by local communities.

28.

1. CATIE (Tropical Agricultural Research and Training Center) and ICAITI (Central American Institute for Industry), affiliated with USAID; Peace Corps.
2. Fuelwood and alternative energy sources.
3. CA, Costa Rica, Panama. 1981 ~ 1990
4. USAID.
5.
6. project, education.
7. plantations, species-trials, fuelwood.
8. TF.

The first sub-project aims to improve means of fuelwood production. After reviewing survey reports carried out by USAID/ROCAP, the Peace Corps, and short-term contractors, CATIE and its national counterpart agencies will identify and publicize regional areas of critical fuelwood supply. Fast-growing species' plantations will be selected, where CATIE will collect data regarding the plantations's management and cropping practices. Some 30 pre-1980 plots will be studied, and tree growth and harvest information will be collected over the next 5 years. Social surveys will also be conducted to determine consumer reactions to the selected species. These studies will be used by CATIE to pinpoint problems such as drying and undesirable burning odor. The 15 most suitable species will be chosen and subjected to various management practices to determine which of the latter will maximize production. In-country demonstration plots will be set up as follows: 10 natural firewood production plots; 20 farm level production plots; 15 village woodlots; 5 fuelwood plantations; and 30 agroforestry demonstration units. Training courses will also be offered.

29.

1. Centre Technique Forestier Tropical (CTFT), France, affiliated with International Tropical Timber Organization, ITTO.
2. Proposals for action in favor of the lesser known species: measures in support of the lesser known species of Africa and Latin America/Caribbean, PD 3d/87.
3. Caribbean, SA, AF. 1988
4. ITTO.

5. ITTO.
6. marketing, project.
7. species-trials, species descriptions, wood.
8. TF, lesser-known-species.

The project was designed to improve the tropical timber trade and economy by increasing acceptance and commercialization of lesser-known species from Africa and Latin America/Caribbean. The promotion of lesser-known species was pursued by providing the manufacturers in the producing and importing countries with literature and promotional materials covering processing, utilization and properties of selected lesser-known species. Technical notes describing 10 African and 10 Latin American/Caribbean species were published in 1989. The draft text for a comprehensive atlas of Latin American/Caribbean species has also been completed. The Atlas provides a full description of 83 commercial tropical hardwoods of Latin America/Caribbean.

30.

1. Centre Technique Forestier Tropical (CTFT), France, affiliated with International Tropical Timber Organization, ITTO.
2. Proposals for actions in favor of the lesser-known species: creation of an international research and development network, PD 3e/87.
3. AF, SA, Caribbean. 1988 - 1989
4. ITTO.
5. ITTO.
6. wood, marketing, project.
7.
8.

This project is establishing a Data Bank covering initially technical and commercial information on 130 African and Latin American tropical timber species. A few species from Asia will also be covered in this first phase. The Latin American agencies participating in this first phase are: Centro de Desarrollo Forestal, Bolivia; Brazilian Institute for Environment and Renewable Resources, Brazil; Direccion Nacional Forestal and Ministerio de Agricultura, Ecuador; Corporacion Hondurena de Desarrollo Forestal (COHDEFOR), Honduras; Instituto Nacional Forestal y de Fauna, Peru; Exploitation of Forestry and the Environment, Trinidad and Tobago. As of May 1990, the Data Bank Network was nearly operational and most participating agencies had already provided information on the species covered in the Data Bank. A pamphlet containing instructions to increase access and use of the Data Bank has been prepared and will be distributed to potential users.

31.

1. Chemonics International Consulting Division, affiliated with USAID/Peru.
2. Central selva resource management project redesign.
3. SA, Peru. 1986
4. USAID.
5. Chemonics, 2000 M Street NW, Suite 200, Washington DC 20036; (202)-466-5340.
6. project, agroforestry, social-issues.
7. economics.
8. TF.

A Chemonics natural resources specialist wrote a project paper supplement for a program in the Palcazu Valley. Redesigned technical assistance emphasized applied research. Recommendations were made for sustainable forest, crop, and livestock management practices including promotion of a local Indian cooperative for forest management in the Amazon region.

32.

1. Chemonics International Consulting Division, affiliated with USAID/Panama; Panama, Instituto de Recursos Naturales Renovables.
2. Natural resources management.
3. CA, Panama. 1984-1986
4. USAID.
5. Chemonics, 2000 M Street NW, Suite 2000, Washington DC 20036; (202)-466-5340.
6. policy-issues, project.
7. watersheds, economics.
8. TF.

This project's objective was to design and implement a natural resources program in Panama to address commercial forestry needs and watershed management.

33.

1. Chemonics International Consulting Contractors, affiliated with Guatemalan National Forestry Institute (INAFOR) and CARE/Guatemala.
2. Reforestation and soil conservation review.
3. CA, Guatemala. 1983
4.
5. Chemonics International,.
6. agriculture, project, reforestation, soil-conservation.
7.
8. TF.

The project involved the review of the large reforestation and soil conservation project in Guatemala, in existence since 1973 and supported by the Instituto Nacional Forestal (INAFOR), CARE/Guatemala. Planning, monitoring, and evaluation systems were reviewed as well as technical aspects of forestry, soil conservation, agricultural production, and fuel-saving practices. Recommendations were made regarding proper management of the renewable natural resource base.

34.

1. Colombian Government, affiliated with Carton de Colombia.
2. Carton de Colombia.
3. SA, Colombia. 1950's - on going
4. private sources.
5.
6. project, pulpwood.
7. plantations, regeneration, extraction.
8. TF, Eucalyptus, Pinus.

Carton de Colombia is a private industrial firm which extracts natural forest raw materials needed to produce kraft paper at the company's mill near Cali. The project operates permanently inside a concession area of 61,000 ha, of which 24,000 ha are dedicated to commercial timber extraction. Pine and eucalyptus plantations located in the highlands supplement the raw material supply from natural forest. Carton de Colombia harvests those species suitable for pulpwood. Local people harvest other commercial species from primary and secondary forest on the concession for logs and posts. The

pulpwood harvesting operation uses cables for extraction.

35.

1. Columbia, Corporacion de Defensa de la Meseta de Bucaramanga,Groupe Roche International Ltd.
2. Rio Lebrija II.
3. SA, Colombia. 1986 - 1991
4. Corporacion de Defensa de la Meseta de Bucarmanga, Canadian International Development Agency.
5. O'Neill, B.
6. conservation, project, education.
7.
8. TF.

To encourage the use of appropriate technology in the preservation of the natural environment and to integrate the technical aspects of the forestry program.

36.

1. Conservation International, affiliated with Ministry of Natural Resources in Suriname; Suriname Forest Service; World Wildlife Fund; the Foundation for Nature Preservation in Suriname;University of Suriname.
2. National conservation policy.
3. SA, Suriname. 1991
4.
5. Conservation International, NYC.
6. conservation, project.
7.
8. TF.

The plan supplies the first comprehensive framework for conservation projects in Suriname.

37.

1. Costa Rican Government, affiliated with National Forest Service; National Institute of Technology; National Agrarian Reform Agency; local landowners; German Technial Cooperation Agency (GTZ).
2. Cooperation in the forestry and logging sectors (COSEFORMA).
3. CA, Costa Rica. 1990 - on going
4. GTZ and Costa Rican Government.
5.
6. project, wood.
7. extraction, economics, sawmill.
8.

The natural forest management project is part of a broader program in northern Costa Rica to halt deforestation on privately owned forest land, improve forest extraction and wood processing operations of local forest industries, and increase income to forest owners. The project area supports tropical moist forest, most of which has been cut over. The COSEFORMA project is located in the Caribbean lowland area of northern Costa Rica

38.

1. Costa Rican Government, affiliated with USAID.
2. Natural resources conservation.
3. CA, Costa Rica. 1979 - 1985
4. USAID.
5.
6. education, project, reforestation, conservation.
7. watersheds, silviculture.
8. TF, cattle, fruits.

The project objective is to strengthen the institutional mechanisms which manage renewable natural resources. Project components include research, pilot activities, planning, educational programs, and training. Two types of policy analysis and research are involved. The first examines the effects of various legal, political, financial, and socio-economic policies on natural resources conservation and management. The second emphasizes technical and silvicultural research. A pilot micro-watershed management project will be conducted in Guanacaste province and will include on-farm reforestation and a fruit tree extension program. A reforestation and cattle management improvement pilot project will be conducted to test a reforestation subsidy scheme in combination with a supervised credit program for pasture and cattle improvement. A forestry production pilot project will also be conducted to lay the groundwork for a large-scale forestry production program. Management techniques for native forest will be tested and recommendations made.

39.

1. Cultural Survival, affiliated with Conservation, Food, and Health Foundation; Ford Foundation.
2. Brazil nut factory.
3. SA, Brazil. 1990
4. Cultural Survival.
5. Cultural Survival.
6. marketing, project, NTFP.
7. economics.
8. TF, Bertholetia.

Support for the construction of a factory to process Brazil nuts.

40.

1. Cultural Survival, affiliated with Kayapo Indians; Rainforest Action Network; Sacharuna Foundation.
2. Paiakan' extractivist project.
3. SA, Brazil. 1989 - 1990
4. Rainforest Action Network, Body Shop.
5. Barbara Pyle, Rainforest Action Network,.
6. project, NTFP.
7. inventory.
8. TF.

An inventory of the three most valuable species near a Kayapo village of Acre. Following the survey, a sustainable management plan for the collection and utilization of the selected forest resources will be developed.

41.

1. Cultural Survival
2. Rainforest imports.
3. SA.
4.
5. Cultural Survival Inc., 11 Divinity Avenue, Cambridge, MA 02138; phone 617-495-2562.
6. marketing, project, NTFP.
7.
8. TF.

The project aims to encourage the marketing of sustainably harvested rainforest products.

42.

1. CUSO, affiliated with Bolivian Popular Organizations.
2. Sustainable development.
3. SA, Bolivia.
4.
5. Bill Barkley, CUSO, 135 Rideau Street, Ottawa, Ontario K1N 9K7.
6. education, project,.
7.
8.

The general objectives of the project are to provide support to Popular Organizations and provide models of alternative, sustainable development strategies. The group provides financial support and cooperant placements to conduct training sessions and demonstrate alternative development models.

43.

1. CUSO, affiliated with Peru.
2. Sustainable development.
3. SA, Peru.
4.
5. Bill Barkley, CUSO, 135 Rideau Street, Ottawa, Ontario K1N 9K7.
6. project, development, reforestation, policy issues, education.
7.
8.

The general objectives are to provide support to the rural peasant population in their efforts to improve the standards of their organization, production and use of resources. The focus areas are integrated rural development and local organization building. CUSO provides infrastructure support, information exchange, and cooperant placements for technical support and organizational skills building.

44.

1. CUSO, affiliated with Colombia, Ecuador.
2. Sustainable development.
3. SA, Colombia, Ecuador.
4.
5. Bill Barkley, CUSO, 135 Rideau Street, Ottawa, Ontario K1N 9K7.
6. agriculture, marketing, project, social-issues.
7. economics.
8. TF.

The general objectives are to provide support to "Latin Americanist" activists and researchers working on specific issues relevant to Latin American poor and to promote indigenous councils and peasant organizations for more control over the land. The areas of focus are: 1)impact of the region's development models on the

environment and indigenous people; 2)indigenous agriculture practices/production/marketing; 3)Pacific coast tropical forest development plan; and; 4)agrarian policies. The methods include financial assistance for exchanges and cooperant placements to investigation centers and administration centers.

45.
1. CUSO, affiliated with Nicaragua, British Colombia, New Brunswick.
2. Sustainable development.
3. CA, Nicaragua.
4.
5. Bill Barkley, Cooperant Placement Department, 135 Rideau Street, Ottawa, Ontario, Canada K1N 9K7.
6. agriculture agroforestry, education, conservation, project.
7.
8.

The general objectives are to establish links between CUSO-supported sustainable development groups in the three countries and to continue with support to production and organization building among cooperatives. The groups provide financial assistance and infrastructure support and research sustainable agriculture practices.

46.
1. Development Alternatives, Inc, affiliated with Ecuador Forestry Sector Development Project (FSDP); Ministry of Agriculture, Ecuador; Ministry Division of Forestry; CARE; Cultural Survival; Missouri Botanical Garden; USAID/Quito.
2. Develpment strategies for fragile lands (DESFIL).
3. SA, Caribbean, Ecuador. 1991 -
4.
5. Development Alternatives, Inc., 7250 Woodmont Avenue, Suite 200, Bethesda, Maryland 20814 US, 301-718-8699.
6. policy-issues, project, conservation.
7. silviculture.
8. TF.

As part of the project, a planning and team-building workshop was held at the Ministry of Agriculture's Forestry Training and Research Center, Ecuador. All parties and counterparts worked together to define project priorities and action plans. A report was completed on comparative public policy affecting natural resources in the Caribbean.

47.
1. Dominican Republic, Directorate General for Forestry (DGF), affiliated with USAID.
2. Forestry management.
3. Caribbean, Dominican Republic. 1984 - 1987
4. USAID.
5.
6. project, education, social-issues.
7. inventory, economics.
8. TF.

The project objectives are to upgrade forestry management by providing practical experience to DGF by helping the DGF manage two major public forests and strenthen DGF's overall forest management capability. Personnel will help the DGF update the inventory of forest resources in, and develop forestry management plans for, the two pilot forestry development zones selected for the project. - Sierra de

Bahoruco and Sabana de san Juan. Specific activities will include: developing technical, financial, and social analyses for the two areas; demarcating the forest lands via aerial photographs; and implementing the forestry management plan through technical interventions, which will be undertaken by the private sector.

48.

1. Dominican Repubic, Subsecretariat of Natural Resources (SURENA), affiliated with USAID.
2. Natural resource management.
3. Caribbean, Dominican Republic. 1981 - 1988
4. USAID.
5.
6. project, reforestation, soil-conservation,.
7. nurseries, inventory, watersheds.
8. TF.

The subproject is to develop a national soil and water conservation model in the Ocoa and Las Cuevas watershed. SURENA will conduct soil surveys of the project areas and will publish and distribute maps and soil unit descriptions with the help of aerial photographs. On this basis, farm conservation plans will be developed for 3,000 small hillside farms and ranches. Other activities include the establishment in each watershed of plant nurseries and the employment of farmers to reforest 800 ha of hillside land.

49.

1. Dominican Republic, Subsecretariat of Natural Resources (SURENA), affiliated with USAID.
2. Natural resource management.
3. Caribbean, Dominican Republic. 1981 - 1988
4. USAID.
5.
6. agriculture, education, project, watersheds, resources.
7.
8. TF.

The project aims to strengthen the government's ability to plan and implement natural resource projects. First, the subproject will help SURENA's department of inventory to develop a cartographic base of Dominica's natural resources, including aerial photographs, first of two targeted watershed areas, later of the entire nation. The project will establish twelve erosion and 12 water quality monitoring plots, an agricultural zoning study to determine priority farming areas and the profitability of selected plant species, 12 marketing studies of major agricultural products, and studies of small farmer groups and associations.

50.

1. Eastern Caribbean Natural Area Management Programme (ECNAMP), affiliated with World Wildlife Fund.
2. WWF Project N. 6016.
3. Caribbean, St Lucia.
4. World Wildlife Fund.
5. Eastern Caribbean Natural Area Management Programme (ECNAMP).
6. project, reforestation, resources, wildlife.
7.
8. TF, mangrove.

Mariculture and reforestation programs are being developed to reduce pressures on coastal and inshore resources.

51.

1. Ecuador Government and National Forestry Program (PNF), affiliated with USAID.
2. Forestry sector development.
3. SA, Ecuador. 1982 - 1991
4.
5.
6. agroforestry, project, reforestation, conservation, NTFP.
7. plantations, species-trials, regeneration, sawmill.
8. TF, Juglans, Ochroma.

The project will enhance public and private sector capacity to rationally use Ecuador's forest resources and protect the country's remaining natural forests and watersheds. Productive forest research and field demonstrations will receive 70% of the project funding. Commercial scale demonstrations of plantation forestry, natural regeneration, and agroforestry will be conducted on 10,000 ha in the high Sierra, the humid tropical lowlands, and the arid coast; in addition, some 20 species trials will be annually conducted in each region. Other demonstrations will include long-fiber, walnut, balsa, and rubber plantings and a model, small-scale sawmill. These activities will complement "learn-by-doing" technical training and will directly benefit small farmers, Indians, and women.

52.

1. Estudos ecologicos em pastagens da Amazonia: Facilitacao e iniciacao do processo de sucessao.
2. Objective: Avaliar o papel de plantas invasoras no processo de sucessao ecologica, determinando os fatores de inibicao e facilitacao deste processo.
3. Brazil. 1988-1991
4. Ima Celia Guimaraes Vieira. Trabalho conduzido com o apoio do Dr. Christopher Uhl (Penn State University), CNPq.
5.
6. project.
7. Paragominas-Para-Brasil.
8.

53.

1. Forest Products Laboratory of the U.S. Forest Service, affiliated with USAID, Office of Science and Technology.
2. Secondary woods utilization.
3. General. 1975 - 1979
4. USAID.
5.
6. wood, marketing, project, pulpwood,.
7.
8. TF.

The Forest Products Laboratory (FPL) of the U. S. Forest Service implemented a project aimed at developing economically feasible and preferable labor intensive processes for making pulp, paper, and reconstituted wood products from naturally occurring mixtures of secondary species of tropical hardwoods, and demonstrating to investors the commercial viability of a processing mill by providing them an information package.

54.

1. Forest Training Program (FTP) of Finnish International Development Agency (FINNIDA), affiliated with International Tropical Timber Organization (ITTO); Food and Agriculture Organization of the United Nations (FAO).
2. Training in planning and management of forest industries in developing countries, PD 4/87.
3. AF, Caribbean, SA, AS. 1989 - 1993
4. FINNIDA.
5. ITTO.
6. development, education, project, wood.
7.
8. TF.

This 4.5 year project will design and implement training programs aimed at increasing and improving the appropriateness, and contribution of, existing and new timber-based industries to regional and sub-regional development. The project will: 1) survey the training materials and review the curricula of the existing training institutions specializing in forest industries; 2) prepare appropriate training materials and further training proposals necessary for forest industries planning, management and operation; 3) design and hold six seminars to improve the knowledge and skills of about 120 managers of forest industry enterprises and representatives of public agencies from producing regions; and 4)design and implement at national levels six complementary training programs on training skills and planning and management of appropriate forest industries.

55.

1. Forest Resources, University of Washington, affiliated with Departamento de Engenharia Florestal da Universidade Federal de Vicosa (UFV); Departamento de Geociencias da Universidade Federal de Rio de Janeiro (UFRJ); Instituto de Terras, Cartografia e Florestas de Estado de Espirito Santo (ITCF).
2. Identification of candidate areas for nature reserves in the state of Espirto Santo.
3. SA, Brazil. 1989 - 1990
4. Departamento de Engenharia Florestal da Universidade Federal de Vicosa (UFV); Departamento de Geociencias da Universidade Federal de Rio de Janeiro (UFRJ); Instituto de Terras, Cartografia e Florestas de Estado de Espirito Santo (ITCF).
5. Edson Valpassos Reuter Mota, Instituto de Terras, Cartografia e Florestas do Estado de Espirito Santo, Vitoria, Espirito Santo, Brazil; Dr. James J. Griffith, Dep. de Engenharia Florestal, Universidade Federal de Vicosa, 36570 Vicosa, Minas Gerais, Brazil; Dr. Jorge Xavier da Silva, Instituto de Geociencias, Universidade Federal de Rio de Janeiro, Ilha do Fundao, Rio de Janeiro, RJ, Brazil.
6. project, conservation.
7. GIS, inventory.
8. TF.

The project objective was to identify, map and rank areas on a regional scale, according to vegetation type and land use history, that merit designation as future parks and natural resource reserves for the State of Espirito Santo. Recent vegetation coverage was compared to historic cover analyzed by the national RADAM survey using a geographic information system (SAGA). Priorities for future reserves were established based upon representativeness of areas, land use pressure, and degree of present protection by established parks and reserves.

56.

1. Forest Resources, University of Washington, affiliated with Instituto Estadual de Florestas de Minas Gerais (IEF); Secretaria de Planejamento de Minas Gerais (SEPLAN); Sociedade de Investigacoes Florestais (SIF); Universidade Federal de Vicosa (UFV); Centro de Ensino de Extensao (CEE).
2. Management Plan for Rio Doce State Park.
3. SA, Brazil. 1989 - 1990
4. World Bank.
5. Dr. James J. Griffith, Professor Adjunto, Dep de Engenharia Florestal, Universidade Federal de Vicosa, 36570 Vicosa, MG Brazil.
6. project, conservation.
7. GIS, inventory.
8. TF.

A geographic information system was used to plan the largest remaining area of the Atlantic Forest (Mata Atlantica) under government control (36,000 ha), generating opportunity and restriction maps for each projected use. Eight different organizations and agencies participated in a planning seminar and work sessions designed to receive their input to the plan through the synergogy training technique.

57.

1. Forest Resources, University of Washington, affiliated with Departamento de Engenharia Florestal, Universidade Federal de Vicosa; Alcoa Aluminum S/A; Universidade de Sao Paulo.
2. Natural regeneration on abandoned bauxite-mined lands in Pocos de Caldas, Minas Gerais.
3. SA, Brazil. 1989 - 1990
4. Alcoa Aluminum S/A.
5. Jackeline Lorenzo Salazar, Dept. of Parks and Reserves, Dominican Republic; Dr. James J. Griffith, Departamento de Engenharia Florestal, Universidade Federal de Vicosa, 36570 Vicosa, Minas Gerais, Brazil.
6. project, conservation, succession.
7. reforestation, inventory, regeneration.
8. TF, cerrado.

Phytosociology of trees and shrubs was analyzed on deep and shallow excavations and on a control area, 40 years after a bauxite surface mine was abandoned. Relations between the "cerrado" vegetation that had regenerated naturally and soil and temperature conditions were analyzed. Results will assist rehabilitation of land being mined again.

58.

1. Forest Resources, University of Washington, affiliated with Sociedade de Investigacoes Florestais (SIF); Universidade Federal de Vicosa (UFV); Museo de Historia Natural da Universidade Federal de Minas Gerais; Companhia Vale do Rio Doce (CVRD).
2. Rehabilitation of iron ore surface mines in Itabira, Minas Gerais.
3. SA, Brazil. 1986 - 1987
4. Companhia Vale do Rio Doce (CVRD).
5. Prof. Sebastiao Moreira Ferreira da Silva, Dr. James J. Griffith, Departamento de Engenharia Florestal, Universidade Federal de Vicosa, 36570 Vicosa, Minas Gerais, Brazil.
6. education, project, reforestation.
7. nurseries, plantations.
8. TF.

The project objectives were to rehabilitate industrialized sites and establish nursery and planting operations to rehabilitate mining sites at the Itabira operations of the Vale do Rio Doce Company (CVRD); and to establish environmental education programs which would encourage local support and protection for rehabilitated areas which have public access. Lands drastically altered by mining and related industrial activities at the world's largest operating open pit mine were studied to develop rehabilitation techniques using native species. A company nursery was planned and implemented to produce 500,000 tree seedlings and transplants per year. An environmental education strategy reinforced conservation practices and protection on rehabilitated sites accessible to the public.

59.

1. Guatemalan Government, General Directorate of Agricultural Services (DIGESA),National Forestry Institute (INAFOR),National Agricultural Development Bank (BANDESA), affiliated with USAID, Peace Corps.
2. Highlands agricultural development.
3. CA, Guatemala. 1983 - 1993
4. USAID.
5.
6. agroforestry, marketing, project, reforestation, soil-conservation, education.
7. inventory, nurseries, pests, watersheds.
8. TF, montane.

The project will increase small farm production in the Guatemalan highlands by improving natural resource management and access road maintenance. The forestry related project components include 5 pilot reforestation efforts on municipal lands and the distribution of seedlings to farmers. Training will be provided to community reforestation committees and INAFOR and DIGESA personnel.

60.

1. Haitian Government, affiliated with USAID.
2. Soil and water resource development.
3. Caribbean, Haiti. 1975 - 1979
4. USAID.
5.
6. project, reforestation, watersheds.
7. nurseries, plantations, watersheds.
8. TF.

The project objective is to develop water sources and areas for irrigation systems. Plans [illegible] be prepared for improving existing and constructing new water sources and irrigation systems. Areas will be surveyed for development of nurseries for a reforestation component to join with the water resources component.

61.

1. Haitian Government (Institute for the Safeguard of the National Heritage, ISPAN, affiliated with USAID; University of Florida; US National Park Service; Peace Corps.
2. NGO Support I.
3. Caribbean, Haiti. 1983 - 1988
4. USAID.
5.
6. conservation, project, reforestation, succession, social-issues.
7. plantations.
8. TF, montane, Pinus.

This project will help establish 2 national parks, first on Morne La Visite in the Massif de la Selle mountain range and then in the Morne Macaya area of the Massif de la Hotte mountain range, and thus arrest both watershed deterioration and decline in flora and fauna in these areas. ISPAN will: 1) conduct land ownership, socioeconomic, and biophysical surveys of the sites and acquire any privately held land; 2) develop parks studies and watershed management studies; 3) create a parks infrastructure, including erosion control measures; 4) train up to 30 local residents as conservation officers and park rangers; 5) undertake the regeneration of pine and other tree species and re-establishment of springs; and 6) publish a brochure about the parks and the need to protect the environment.

62.

1. Hartshorn, G. S., affiliated with Tropical Science Center, San Jose, Costa Rica.
2. Palcazu forest management model.
3. SA, Peru.
4.
5.
6. dynamics, project.
7. clearcut, regeneration, sawmill.
8. TF.

The Palcazu model integrates local forest ownership and processing, harvesting of timber on long narrow clear-cuts, animal traction for logging, nearly complete utilization of timber and natural regeneration of native tree species. The clear-cut strips (30-40m wide) are rotated through a production unit on a 30-40 year cycle. The blocks of primary forest remaining between strips serve as seed source for natural regeneration. The location of each strip is designed to maintain the matrix of the high forest. Steep slopes, swampy terrain, a 5-10 m wide buffer area along streams and inaccessible patches of forest are excluded from harvesting. The harvesting scheme promotes establishment of fast-growing trees. The strip length is determined by logistics and topography.

63.

1. Honduran Forestry Development Corporation, affiliated with Canadian Interational Development Agency; Association Pringle Ross.
2. Evergreen forest program (Programme Forets Feuilles).
3. SA, Honduras. 1986 - 1993
4. CIDA, Honduran Forestry Development Corporation.
5. Rivington, D. at CIDA.
6. conservation, project.
7. inventory.
8. TF.

Intent is to assess the value of, and contribute to, the conservation of Honduran forests

64.

1. Honduras. Honduran Forestry Corporation (COHDEFOR), affiliated with USAID.
2. Forestry development.
3. CA, Honduras. 1987 - 1994
4. USAID.
5.
6. project.
7. economics, sawmill.
8. TF, Pinus.

The project will improve the management and productivity of commercial pine forests, reorient the institutional focus of the COHDEFOR, conduct a pilot forest management program and strengthen the private forestry industry. The project will implement a new, uniform timber sale and valuation system; 2) improve the efficiency of COHDEFOR's lumber export regulations; and 3) improve COHDEFOR's financial management and internal operating procedures. The project will create a Forest Industries Technical Assistance Unit within COHDEFOR to improve timber harvesting operations by loggers and sawmillers and upgrade the sawmill industry nationwide; the Unit will gradually become self-supporting.

65.

1. Institute for Development Anthropology, affiliated with Dominican Republic; USAID.
2. Dominican Republic forestry project design.
3. Caribbean, Dominican Republic. 1990
4. USAID.
5. Institute for Development Anthropology.
6. policy-issues, project.
7.
8. TF.

The forest policy design project reviewed forest management and protection policies in the country, made recommendations regarding how the environmental protection aspects of the policy might be improved, and assessed the capacity of public and private institutions to implement the improved policies.

66.

1. Institute for Development Anthropology, affiliated with USAID.
2. Environmental assessment of the Chapare regional development project.
3. SA, Bolivia. 1989
4. USAID.
5. Institute for Development Anthropology, 99 Collier Street, PO Box 2207, Binghamton, NY 13902.
6. agriculture, marketing, project.
7.
8. TF.

The assessment focused on the Chapare Regional Development Project (CRDP), which focuses on improving production and marketing conditions in the agricultural sector. The assessment team found forestry management and production issues inadequately being addressed.

67.

1. Institute for Development Anthropology, affiliated with FAO.
2. Food gathering from forests and related aspects report.
3. General. 1987
4. FAO.
5. Institute for Development Anthropology.
6. NTFP, project.
7.
8.

A report was prepared on the gathering of wild foods from forests and related issues. Important areas covered were the types of different systems for gathering food, the importance of this activity, its future and lessons learned.

68.

1. Institute for Development Anthropology, affiliated with FAO.
2. Institutional aspects of the role of forestry and food production report.
3. General. 1987
4. FAO.
5. Institute for Development Anthropology.
6. marketing, project, social-issues, policy-issues.
7.
8.

A report was prepared on the institutional aspects of the role of forestry and food production. Issues addressed include the strength and weaknesses of existing institutions, issues related to ownership and tenure rights, cooperative ventures, and the marketing of products.

69.

1. International Program for Tropical Tree Crops Conservation and Development (IPTTCCD), affiliated with International Fund for Agricultural Research (IFAR).
2. Assessment of strategic research needs for bamboo and rattan to the year 2000.
3. General. 1990 - 1991
4. IDRC, Rockefeller Foundation, IFAD, IFAR/IBPGR, UK-ODA.
5. Dr. J. T. Williams, IPTTCCD.
6. conservation, project.
7. inventory.
8. TF, bamboo, palms, rattans.

The project objective is to assess past and current research and identify strategic gaps.

70.

1. International Tropical Timber Organization (ITTO), affiliated with ITTO Member countries.
2. Assistance for project identification and formulation, PD 73/89.
3. General. 1 yr duration
4. ITTO plus in kind contributions.
5. ITTO.
6. education, project.
7.
8. TF.

This project will design and implement training activities to improve capability of producing countries to identify, design, and formulate appropriate tropical forestry development projects. The training activities will include: 1) the preparation of training materials on project design and formulation; 2) the organization and convening of 4 training workshops on planning and formulation of appropriate projects (2 in Africa and one each in Asia/Pacific and Latin America/Caribbean); and 3) a few missions to be undertaken for producing countries that request assistance for formulation of specific projects.

71.

1. International Program for Tropical Tree Crops Conservation and Development (IPTTCCD), affiliated with International Fund for Agricultural Research (IFAR).
2. Collection, conservation and use of Latin American walnuts, especially Juglans neotropica.
3. SA, Colombia, Ecuador. 1992 - 1993
4. to be identified.
5. Dr. J. T. Williams (IPTTCCD).
6. conservation, project, genetics.
7.
8. TF, Juglans.

The project objective is to conserve and use Latin American walnuts through the development and strengthening of cooperative research interest in other species in Latin America.

72.

1. International Executive Service Corps, affiliated with Dominican Republic Fire Prevention Commission.
2. Dominican Republic fire prevention program.
3. Caribbean, Dominican Republic. 1983
4.
5. Catherine McGrath, IESC, P.O. Box 10005, 8 Stamford Forum, Stamford CT 06904-2005.
6. fire, education, project.
7.
8. TF.

A program was designed to control forest fires. Suggestions presented to the Dominican Republic include the following: contact forest residents prior to burn season to discuss preventive measures; station individuals on high points; provide radio communication for all lookout stations; conduct cost/benefit analysis for aerial forest patrol; place hand tools in strategic locations; conduct study of specialized helicopter equipment.

73.

1. International Program for Tropical Tree Crop Conservation and Development (IPTTCCD), affiliated with International Fund for Agricultural Research (IFAR).
2. Guidelines for extractive reserves.
3. General. 1991 - 1992
4. to be identified.
5. J. T. Williams.
6. conservation, policy-issues, project.
7.
8. TF.

A panel of experts will be convened to discuss and set technical guidelines, to identify priority commodities and regions, and to ensure conservation.

74.

1. International Tropical Timber Oganization (ITTO)
2. Publication of technical documents and relevant information to the forest products industry.
3. General. 1988 - 1990
4. ITTO.
5. ITTO.
6. project, wood.
7. sawmill.
8. TF.

This project undertakes the translation and publication of technical documents in the field of Forest Industry. The documents to be translated include the following: sawdoctoring manual (FR, PO), handbook of hardwood timber preservation (EN, ES, PO), FAO Asia Pacific forest industries development group quality control in primary forest industries (FR, ES, PO), FAO Asia Pacific forest industries development group A key to production of quality veneer (FR, ES, PO), catalogue of Amazonian species (EN). Over 2,000 copies of the publications have been printed and distributed to interested agencies and other users.

75.

1. International Tropical Timber Organization (ITTO) and Brazilian Institute for Forestry Development (IBDF)
2. Study for the marketing of tropical timber and promotion of the consumption of less well known species on international markets: phase 1 - promotion for selected Asian markets, PD 43/88.
3. Caribbean, SA, AS. 2 yrs duration
4. ITTO pending.
5. ITTO, IBDF.
6. marketing, project.
7. economics, inventory.
8. TF.

The project will assess the problems affecting the marketing of Latin American/Caribbean timbers in selected Asian markets and carry out a promotion program to increase the trade between the two regions. The project has two main parts. The first part will 1) review the timber market in selected Asian countries and assess the potential of Latin American/Caribbean timbers in selected market outlets; 2) compile a list and technical information on species that potentially meet requirements of these markets, including those requirements of commerical importance such as adequate volumes and competitive prices; and 3) design and hold six seminars to promote the selected timbers in the main market outlets identified to promote production and trade in the producing regions. The second part of the project will implement an operational import and market program with the objective of actually trading limited trial volumes covering at least 40 lesser-known species described and promoted under the first part of the project.

76.

1. International Executive Service Corps (IESC), affiliated with Forest Industries Development Company, Ltd.
2. Watershed management accounting update.
3. Caribbean, Jamaica. 1986
4.
5. Catherine McGrath, IESC, P.O.Box 10005, 8 Stamford Forum, Stamford, CT 06904-2005.
6. project, seeds, watersheds.
7. fuelwood, plantations, sawmill.
8. TF.

IESC provided assistance to upgrade the accounting systems and controls for Forest Industries Development Company and provided recommendations for watershed management and agro-forestry measures. Tentative recommendations were as follows: additional field trails, selection of potential timber, fuelwood and agricultural crops, and provided lists of possible sources of non-local seeds and other plant materials.

77.

1. International Resources Group, Ltd IRG, affiliated with USAID, CARE.
2. Ecuador: Sustainable uses for biological resources (SUBIR), Technical assistance for the design of the SUBIR project.
3. SA, Ecuador. 1990-1991
4.
5. IRG - Juan Seve; USAID - James J. Dunlap.
6. conservation, policy-issues, project.
7. economics.
8. TF.

IRG, under a subcontract to CARE, will provide technical assistance to USAID/Ecuador in designing its new ten year natural resources project, "Sustainable Uses for Biological Resources," conduct an environmental assessment of the project, prepare a project paper, and begin project pre-implementation. The purpose of this project is to develop, test, and implement economic activities, policies, and institutional arrangements that will lead to improved conservation of Ecuador's unique biodiversity and associated natural resources.

78.

1. Jamaican Government, affiliated with USAID.
2. Jamaica forestry development.
3. Caribbean, Jamaica. 1976 - 1980
4. USAID.
5.
6. project, education.
7. plantations, sawmill.
8. TF, Pinus.

This project aims to assist in the development of Jamaica's timber resource base and in the establishment of a forestry department with technical and managerial capability to administer resource development programs. Staff will be increased, technical and professional personnel trained, staff functions delineated, and mobility and communication between headquarters and field offices improved. Caribbean pine plantations supply the raw material base on government land; through the project private land owners will be encouraged to plant pine. Technical assistance will be provided to sawmill operations.

79.

1. Man and Biosphere Program, University of Wisconsin-Madison Institute for Environmental Studies
2. Ecological restoration of degraded Caribbean dry forest.
3. Caribbean, St Johns, VI. 1988-1992
4. Man and Biosphere Program (MAB).
5. Dacky J. Brown, Department of Forestry, Univ Wisconsin, Madison, WI 53706.
6. ecology, reforestation, project.
7. plantations.
8. TF.

The objectives of this project are to better understand the regeneration process in Caribbean dry forest and to develop techniques for accelerating forest recovery on degraded sites.

80.

1. Mexico, Centro de Genetica Forestal, affiliated with Secretary of Agriculture and Water Resources (Secretaria de Agricultura y Recursos Hidraulicos, SARH) and others.
2. Establishment of guidelines for species selection and production of pines and other mexican species and exotics (Establecimiento de ensayos para la seleccion de especies y procedencias de pino y otras especies mexicanas y exoticas).
3. Mexico. on going
4. SARH and other federal agencies.
5. Dr. Hugo Ramirez Maldonado, Director General de Protection Forestal, Av. Progreso No. 5 EDIF, 2 - P. A., Col. del Carmen Coyoacan, 04500 Mexico.
6. project.
7. species-trials.
8. TF, Gmelina, Pinus, Tectona.

Providence trials of Pinus spp. (P. patula, P. ayacahuite, P greggii, P. caribaea), Melia asedarach, and Gmelina arborea

81.

1. Mexico, Centro de Genetica Forestal, A. C.
2. Pinetum maximino martinez.
3. Mexico. 1985 - on going
4. Universidad Autonoma de Chapingo, SARH y El Centro de Genetica.
5. Dr. Hugo Ramirez Maldonado, Director General de Proteccion Forestal, Av. Progreso No. 5 EDIF, 2 - P.A., Col. del Carmen Coyoacan, 04500 Mexico.
6. conservation, genetics, project.
7. plantations.
8. TF, Pinus.

The project aims to collect germplasm of all the native pines. The work will concentrate on Mexican pine species used in plantations.

82.

1. Mexico, Forestry Delegation of the Secretary of Agricultre and Water Resources (SARH) (UAF No. 6 del Salto Durango?)
2. Improving the genetic resources of the forests of Durango (Mejoramiento genetico de los bosques del estado de Durango).
3. Mexico. 1987 - 1997
4. La Unidad and SARH.
5. Dr. Hugo Ramirez Maldonado, Director General de Proteccion Forestal, Av. Progreso No. 5 EDIF, 2 - P.A., Col. del Carmen Coyoacan, 04500 Mexico.
6. project, seeds.
7. propagation, seeds, species-trials.
8. TF.

To establish 30 to 40 areas for producing high quality seed, 3000 superior trees, and guidelines and procedures for propagation. Algunas pruebas de diferentes tipos de injertacion para el establecimiento de los huertos

83.

1. Mexico, Forest Service of the State of Chihuahua, D.F. Mexico, and the Center for Genetics (Centro de Genetico, A.C.)
2. Improving the genetics of the forests of Chihuahua, D.F. and Mexico.
3. Mexico. 1987 - 1997
4. SARH and Center for Genetics.
5. Dr. Hugo Ramirez Maldonado, Director General.
6. genetics, project, propagation.
7. seeds, species-trials.
8. TF, Pinus.

One thousand superior trees will be selected of each species; of these, 300 will be used to establish seed orchards, seedlings will be propagated vegetatively, (del huerto semillero y el resto para los huertos clonales, los que seran utilizado para la prueba de progenie), and 400 ha of pine seed orchard will be established.

84.

1. National Institute for Agriculture Research, Board of Cartagena Agreement (JUNAC), affiliated with International Tropical Timber Organization (ITTO).
2. Research and development on the standardization of tropical timber at the Andean sub-regional level phase I: review of the current situation of timber standardization and development of work plans for subsequent phases.
3. SA, Bolivia Colombia, Ecuador, Peru, and Venezuela. 6 mos duration
4. ITTO.
5.
6. marketing, project, taxonomy, wood.
7.
8. TF.

This 6 month project will survey and assess the present status of timber standards and nomenclature of species and groups of species at the level of the Cartagena Agreement Board. The study will focus on standardization of mechanically processed wood products (sawnwood, veneer, plywood, and blockboard) in the five Andean Pact Member countries (Bolivia, Colombia, Ecuador, Peru, and Venezuela). The findings will be discussed at a sub-regional seminar to prepare work plans for the: 1) preparation of uniform nomenclature for species and

groups of species; 2) standardization for the dimensioning, scaling, and grading of timber products; and 3) establishment of a center for timber graders and preparation of a development and training plan to assist the adoption of the new standards and nomenclatures.

85.

1. Organization for Tropical Studies, at Duke University, Durham, NC, affiliated with Costa Rican forest service, Organization for Tropical Studies.
2. Trials.
3. CA, Costa Rica. 1987
4. Organization for Tropical Studies, John D. and Catherine T. MacArthur Foundation.
5. Rebecca Butterfield,.
6. project, reforestation.
7. plantations, species-trials, regeneration.
8. TF, Cordia, Dalbergia, Dipteryx, Hyeronima, Styphnodendron, Terminalia, Vochysia,.

The Trials project aims to identify native Costa Rican tree species that have potential for plantations and to convert degraded pasturelands into timber-producing plantations. The project is growing 73,000 trees (76 species) in 28 plantations under different light and soil regimes. The early results of the Trials experiment contradict the widespread belief that tropical hardwoods are slow-growing trees that require natural forest conditions. Project personnel are now working with local farmers to establish small plantations with the species that performed best in the trials.

86.

1. Pan American Development Foundation, affiliated with USAID Agroforestry Outreach project; Auburn University for the research component; Canadian Ambassador's Fund; Switzerland (Helvetas); Belgium (ACTEC); Shell; Joyce Mertz Mertz Gillmore Foundation.
2. Haiti agroforestry II.
3. Caribbean, Haiti. 1981 -- 1994
4. South-east Consortium for International Development (SECID).
5. USAID, Arlin Hunsberger, B.P. 15574 Petionville, Haiti 509-1-6-3286; Marty Napper, 509-1-24812; Auburn, Walt Kelley, 205-844-4998; SECID, Harry Wheeler 202-628-4551.
6. project.
7. nurseries.
8. TF.

Primarily a tree-cropping project, working through 70-80 local missionary and other non-governmental organizations. Nurseries, tree distribution, and agroforestry research is being managed by other grantees of USAID.

87.

1. Pan American Development Foundation
2. Nitrogen Fixing Tree Association.
3. CA, Caribbean Haiti, Dominican Republic, Antigua, Dominica, Grenada, St. Kitts, St. Lucia, Costa Rica, Nicaragua, Honduras.
4. USAID.
5. PADF, 1889 F Street, Washington D.C. 20006-4499; (202)-458-3969.
6. agriculture, conservation, project, reforestation.
7. nitrogen-fixation.
8. TF.

NFTA's goal is to promote small-scale farmer planting of nitrogen-fixing trees to slow deforestation, restore soil and water resources, and thus efficiently contribute to sustainable agriculture.

88.

1. Panamanian Government, RENARE, affiliated with USAID.
2. Watershed management I.
3. CA, Panama. 1979 - 1986
4. USAID.
5.
6. project, reforestation, soil-conservation, watersheds.
7. plantations, roads, taungya.
8. TF.

Project components include institution building, conservation education, and design and implementation of watershed management programs in selected priority watersheds. Watershed management programs will be implemented in the canal watershed, Upper Rio La Villa watershed, and Rio Caldera watershed. These programs will not only initiate resource conservation activities, but also will serve an institution building function providing RENARE an opportunity to gain experience in program design and implementation. In all 3 programs, a land use management plan will be developed. Reforestation activities will also be implemented including forest plantations, agroforestry (taungya), and mixed forest with permanent crops. Soil conservation activities will be implemented.

89.

1. Peruvian Government, affiliated with USAID, CARE.
2. Agroforestry food-for-work project.
3. CA, Costa Rica. 1988 - 1990
4. AID.
5.
6. agriculture, education, project, reforestation, soil-conservation.
7. nurseries, plantations.
8. TF.

The objectives of the project include: 1) producing seedlings, planting trees on, and maintaining 11,550 ha of agricultural land; 2) installing 98 community nurseries; 3) providing soil conservation training; and, 4) development and implementation of nutrition education activities.

90.

1. Peruvian Government, affiliated with ITTO.
2. Forest Management in the Alexander von Humboldt National Forest Phase I, II, III.
3. SA, Peru. 3 years
4. ITTO US $ 1470,000.
5. Susan.
6. social-issues, genetics, NTFP, project, social-issues, wood.
7. logging.
8. TF, Swietenia.

The project will develop a management plant for the Alexander von Humboldt National Forest (105000 ha) to be used as a research area and demonstration model for management of Peru's forest resources. The plan will aim at achieving a sustained flow of raw material to the wood industries, preservation of genetic resources, better utilization of the forest resources and support to the socio-economic development of the rural and native communities in the area. A program for the permanent applied research will be an important feature of the project.

91.

1. Peruvian Government, affiliated with International Tropical Timber Organization (ITTO); Reforestation Committee of the Agricultural Units in the Departments of Loreto and Ucayali under the coordination of the National Forestry Action Programme of the Directorate General of forests and Wildlife, Ministry of Agriculture.
2. Virola spp. (Cumala) Plantations in the Departments of Loreto and Ucayali, PD 96/90 (F).
3. SA, Peru. proposed, 2 yrs duration
4. ITTO US$ 500,000.
5.
6. education, logging, project.
7. enrichment, herbicides, lianas, plantations, regeneration.
8. TF, Virola.

Reforestation programs intended to mitigate forest conversion in the Peruvian Amazon have not been very successful; during 1986-1989 only 3,100 ha were reforested. Existing programs must be intensified in order to increase the reforestation area, improve forest yield and provide scientific and technical guidelines for the development of reforestation programs in the future. ITTO Project PD 96/90 will establish nurseries and pilot plantations of Virola spp. (Cumala) in order to implement a forestry research program and to restore degraded forests over 70% of the project area. Open field plantations will be established in abandoned agricultural land on 20% of the area. The remaining area, with sufficient density of Cumala saplings, will be managed for natural regeneration. A technical manual on Cumala silviculture will be produced for tenant farmers, technicians and native communities.

92.

1. Peruvian General Directorate of Forests and Wildlife of the Ministry of Agriculture and Industrial Timber Corporations of Pucallpa, Iquitos and Lima, affiliated with International Tropical Timber Organization (ITTO).
2. Industrial use of new forest species in Peru, PD 37/87.
3. SA, Peru. 2 years duration
4. ITTO and Government of Peru.
5.
6. marketing, project, wood.
7. sawmill.
8. TF, lesser-known-species.

The project involves formulation and implementation of an applied research program to promote industrialization and commercial introduction of 20 lesser-known timber species found in Peru. Species for which basic technical information already exists will be processed and tested in seven wood industries in the departments of Lima, Loreto and Ucayali. Products manufactured on a trial basis will be promoted and introduced in the domestic and international markets. Industrial

research will concentrate on sawmilling, wood drying and preservation, veneer and plywood manufacturing, posts, sleepers, wood-cement boards, parquet, moulding, furniture and housing components. The program will contribute to technology transfer to processing mills in Peru and manpower development through training of national counterparts and through several courses and seminars to be attended by at least 300 participants at management and technical levels. Upon completion of the project, the wood industries of Lima, Pucallpa, and Iquitos are expected to have 20 percent of their wood raw materials supplied by the 20 species studied and introduced through this project.

93.

1. Peruvian Government, Pichis-Palcazu Special Project Office, affiliated with USAID; World Wildlife Fund; Tropical Science Center, Costa Rica.
2. Yanesha Forestry Cooperative.
3. SA, Peru. 1985
4. USAID.
5. World Wildlife Fund.
6. charcoal, social-issues, project, NTFP, wood.
7. clearcut.
8. TF.

The Yanesha Forestry Cooperative is owned directly by the Yanesha people and operated under their traditional style of decision-making. The project seeks to provide local benefits such as employment and development of technical, administrative, and marketing capacity, through the sustainable management and commercialization of the existing forest resources. The cooperative manages its forest on a sustained basis by a silvicultural technique known as strip clearcutting. The objective of forest managment is to extract all woody material from the harvest site and to process it locally into a product mix that includes finished lumber, treated poles and posts, charcoal, and manufactured products. Anticipated harvest cycle is forty years.

94.

1. Portico, affiliated with Costa Rican Government.
2. Portico (Tecnoforest del Norte S. A.).
3. CA, Costa Rica. 1987 - on going
4. private sector investment, commercial debt swap.
5.
6. wood, project.
7. regeneration, selective-logging.
8. TF, Carapa.

Portico is a private firm which owns about 12,000 ha of tropical wet forest. The forest provides a continuous supply of "caobilla" timber (Carapa guianensis), which is manufactured into high quality doors for export. The forest is managed through selection cutting that removes the best mature logs in an initial cut and leaves seed trees and saplings for removal in future cuts on a 15 year cycle. These management practices result in good natural forest regeneration with continued predominance of caobilla seedlings.

95.

1. Princeton University, affiliated with International Tropical Timber Organization; Bolivian Government; Bolivian Forest Service; University of San Andreas; Conservation International.
2. Sustained selective harvesting in Bolivia, PR 88/90 (F).
3. SA, Bolivia. 1990 - 1994
4. ITTO US$ 328,914.
5.
6. ecology, logging, project, wood.
7. extraction, regeneration, selective-logging.
8. TF, Swietenia.

This project will study the development of mahogany in selectively logged, managed forests in Bolivia in order to identify the biological factors which determine growth rates and timber quality. Study results will be used to design natural forest management strategies that ensure a sustainable supply of Swietenia macrophylla by utilizing selective harvesting systems. The project will be executed in cooperation with ITTO Project PD 34/88 (F), (Conservation, management, utilization and integrated and sustained use of the forests in the Chimanes Region, Beni Department) and use, as far as possible, study sites established by that project.

96.

1. The Rainforest Alliance, affiliated with The Durian Project: an ecological and economic study of the forest gardens of West Kalimantan, Indonesia.
2.
3. AS, Indonesia. 1991 - 1993
4. Kleinhans Fellowship for Research in Tropical Agroforestry.
5. Nick Salafsky, Dept. of Forestry and Environmental Studies, Duke Graduate School, Durham, NC 27706 919-490-6421.
6. ecology, economics, NTFP, marketing, project.
7.
8. TF.

A detailed socioeconomic and ecological study of land-use patterns in several villages bordering the Gunung Palung National Park in West Kalimantan is the objective of this dissertation research. The study will focus on the forest gardens, a multi-species agroforestry system that provides villagers with a variety of products for household consumption and market sale. The objectives of the project are 1) describe the ecology and socioeconomics of currently existing forest gardens; 2) investigate the potential for improving the local economic return from the forest gardens by increasing production and access to regional, national, and international markets; 3) determine the nutrient flow patterns in and long-term sustainability of the garden systems, 4) understand the role of the forest gardens in the overall land-use spectrum; 5) establish the extent to which the forest gardens and other spectrum habitats can serve as a buffer zone between the villages and the protected forests in Gunung Palung National Park; 6) estimate the long-term economic value of the land-use spectrum relative to other land-use systems such as timber harvesting; and 7) develop ways in which to work with local, regional, and national agencies and organizations to transfer useful findings from the study region to other similar regions of the world.

97.

1. Rainforest Alliance, affiliated with Participating Cooperatives; Broadleaf Forest Development Project or PDBL(Proyecto Desarrollo del Bosque Latifolidad), Honduras; Honduran Forestry Development Corporation (COHDEFOR); Canadian International Development Agency (CIDA).
2. Smart Wood Certification Program.
3. CA, Honduras. 1988 - 1993
4.
5. for Honduras: Director, Proyecto Desarrollo del Bosque Latifolidad, P.O. Box 427, La Ceiba, Honduras, tel (504)-43-1032;.
6. agriculture, project, social-issues.
7. inventory, sawmill.
8. TF, lesser-known-species, montane, Calophyllum, Guarea, Hyeronima, Mosquitoxylon, Ocotea, Symphonia, Terminalia, Virola, Vochysia, Zuelania.

The project's goal is to prevent deforestation by working with local communities to develop alternatives to slash and burn practices. 82 Communities in 10 Integrated Management Areas (AMIs) currently participate in the project. The project area, located in Honduras' highly mountainous northeast region, is contiguous with the COHDEFOR administrative region known as Forestal Latifolidad, covering 1.3 million ha. The various project activities include permanent cash crop establishment the organization of villagers into manual pit-sawing cooperatives, and related support and educational activities. Communities choosen are instructed in forest management activities, including the delineation of annual cutting areas, performance of forest inventories, and determination of felling limits. The project encourages use of lesser-known species.

98.

1. Ramcharan, C. and F. Ferwerda, affiliated with Agricultural Experiment Station, RR 2, Box 10000, Kingshill, St. Croix, Virgin Islands 00850.
2. A phenological and physiological study of mahogany in the Virgin Islands.
3. Caribbean, Saint Croix. 1989 - 1992
4. CSRS.
5.
6. project, ecology.
7. propagation.
8. TF, Swietenia.

The project is to determine 1) mechanisms of drought tolerance by inducing water stress, 2) effects of grafting Mahogany onto Neem rootstock and 3) characterize growth parameters and phenology of mahogany.

99.

1. South-East Consortium for International Development, affiliated with USAID, Auburn University.
2. Agroforestry outreach project.
3. Caribbean, Haiti. 1987 - 1989
4. USAID.
5. At Auburn University: Dr. Paul Starr, COP; Mr. Pierre Rosseau, Agronomist; Dr. Kent Reid, Nursery Specialist; Dr. Don Street, Resource Economist; Mr. Gene Hunter, Agroforester; and Steve Goodwin, Administration Officer.
6. conservation, project, reforestation.
7. nurseries, species-trials.
8. TF.

The primary goal of the Agroforestry Outreach Project is to demonstrate to Haitian farmers that they can increase their annual income while reducing and ultimately reversing the degradation of Haiti's natural resources by planting and maintaining a substantial number of trees. A secondary purpose is to obtain reliable information on the technical, economic, and social variables of forestation of Haiti.

100.

1. Sub Proyecto de Proteccion de Recursos Naturales Renovables Chimore Yapacani, affiliated with International Tropical Timber Organization; Universidad Autonoma Gabriel Rene Moreno.
2. Investigation and application of forest management systems in tropical and subtropical rainforests in the Chore and Bajo Paragua Forest Production Reserves.
3. SA, Bolivia. proposed, 5 yrs duration
4. ITTO US$ 2,290,000.
5.
6. conservation, dynamics, project, education.
7. regeneration.
8. TF.

The project is designed to study forest dynamics as a basis for developing economically and ecologically efficient management methods, implementing pilot management schemes, and seting up demonstration models. Coordination with other projects in Latin America and exchange of information are planned. The Autonomous University Gabriel Rene Moreno will utilize the project for training activities. The project was identified in the national TFAP of Bolivia and is part of the conservation strategy for the reserves.

101.

1. Suriname Government, affiliated with National Forest Service, Suriname.
2. Celos Natural Regeneration Project.
3. SA, Suriname. 1982 - 1986 (1972 -)
4. Suriname Government, Dutch Universities, Bosmij Foundation.
5.
6. project.
7. herbicides, regeneration, selective-logging, stand-improvement.
8. TF.

The project focuses on research and development of silvicultural techniques for the natural forest of Suriname in order to attain continuous, high levels of timber growth. The project operates in tropical moist forest. The silvicultural techniques practiced by the project include selective harvest of commercial trees, elimination of

undesirable trees, and treatment while attaining annual growth rates of commercial timber of close to one cubic meter per ha per year on a cutting cycle of 20 to 25 years. The Suriname government operates the project through its national forest service. The project was initiated in collaboration with Dutch universities and private Dutch organizations, who were expelled from the country for political reasons. Thus far the project has operated on an experimental basis with the eventual expectation of being applicable to forests on public lands harvested by private logging companies.

102.

1. Swiss Directorate for Development Cooperation and Humanitarian Aid (COSUDE) and Overseas Development Agency (ODA), affiliated with The Tropical Agricultural Research and Training Center (CATIE).
2. Natural Forest Management Project.
3. CA, Costa Rica.
4. Project Coordinator CATIE/COSUDE Project.
5. Swiss Directorae for Development Cooperation and Humanitarian Aid (COSUDE) and Overseas Development Agency (ODA).
6. silviculture, ecology, succession, dynamics, conservation, education, project.
7. silviculture, ecology, regeneration, inventory, stand improvement, extraction, economics, logging, roads,wood.
8. TF, montane, Quercus, Podocarpus, Weinmania, Pentaclethra, Carapa, Vochysia, Goethalsia, Minquartia, Lecythis, Terminalia, Bamboo.

The project carries out research and training in natural forest management and silviculture. Training includes the development of courses in CATIE's Master Program and a yearly international intensive course of two months. Applied research is developed in pilot areas in the humid lowland secondary and overlogged primary forests as well as in primary and secondary montane oak/bamboo forests. Silvicultural treatments are based exclusively on natural regeneration. Biological, ecological, technical and economical aspects of silviculture and forest management are the basic topics of research. Close cooperation with government authorities and the local communities aim at acceptance of management practices under study.

103.

1. U.S. Agency for International Development
2. Belize: Natural Resource Management and Protection.
3. CA, Belize. 1991 - 1994
4. USAID.
5. USAID.
6. policy-issues, social-issues, project, conservation, agriculture.
7. economics.
8. TF.

This project aims to expand the productive capabilities of Belize's rural sector by developing those trees best suited to optimal production based on the human and physical resources present, while protecting the natural resources needed to sustain production. This project will build on crop diversification and market development inititated through the private sector under the Commercialization of Alternative Crops Project (#5050008), and on improved marketing, stabilization of soils, reduction of slash and burn methods, and market rationalization developed under the Toledo Agriculture Marketing Project (#5050016). Implementation of a policy that promotes conservation and protection of natural resources will be a major focus.

104.

1. U.S. Agency for International Development (USAID)
2. Bolivia: Chapare Regional Development.
3. SA, Bolivia. 1990-1991
4. USAID.
5. USAID.
6. project, reforestation, wood, agriculture.
7. nurseries, pests, soil-conservation, watersheds.
8. TF.

The project is to be implemented by the Bolivian Institute for Technical Assistance (IBTA) and aims to upgrade small farm agricultural and forestry production. Twelve community nurseries will be established and staffed by IBTA. An existing wood processing plant will be expanded to process materials harvested from secondary forests. The purpose of the project is to develop alternative sources of income for people engaged in coca production, processing or marketing.

105.

1. U.S. Agency for International Development, affiliated with USAID/Costa Rica.
2. Costa Rica: Forest Conservation and Management of the Osa Peninsula (BOSCOSA).
3. CA, Costa Rica. 1990 - 1993
4. USAID.
5. USAID.
6. agroforestry, project, marketing.
7. silviculture, economics, sawmill.
8. TF.

This project will help to establish improved land use of the buffer zone around the Corcovado National Park, including agricultural and agroforestry activities where appropriate and related commercial activities (e.g., a furniture manufacturing cooperative). The project is being done in conjunction with the government of Costa Rica and local leaders, residents, and government officials to enhance land use management, agricultural and commercial productivity, and environmental sensitivity. Through these activities, long-term socially responsible income generating programs will replace the short-term destruction from forest cutting and mining.

106.

1. U.S. Agency for International Development
2. Costa Rica: Forest resources for a stable environment.
3. CA, Costa Rica. 1989 - 1996
4. USAID.
5. USAID.
6. project, reforestation, wood, agroforestry, conservation.
7. nurseries, roads, logging.
8. TF.

Project aims to 1) strengthen conservation and tourism activities in protected areas, 2) develop sustainable forestry practices in non-protected areas, and 3) promote reforestation and agroforestry in deforested areas. The project will be implemented by CDF (Fundacion para el Desarrollo de las Cordillera Volcanica Central). One component of the project will be implemented in the buffer zones of the national parks (Las Horquetas, La Virgen del Socorro, and Rio Cortino forests). CDF will develop guidelines and regulations regarding logging controls, tree harvesting, logging roads, and

silvicultural practices. At least one commercial enterprise will be created, acquiring forest land, and managing its logging and wood processing. Another component will encourage the reforestation of cleared land that is not suitable for agriculture and will promote the integration of trees into local farming systems. At least five nurseries will be established.

107. 1. U.S. Agency for International Development/Peace Corps, affiliated with Peace Corps.
2. Development support forest management and conservation.
3. General. 1991
4. USAID.
5.
6. agriculture, project, education, social-issues.
7. fuelwood.
8. TF.

The project aims to mobilize the public and private professional forestry community and the Peace Corps in support of AID forestry assistance activities in LDC's. The project supports: 1) LDC institution building, 2) research, 3) mobilization of LDC and US private industry and university capabilities for advancing forestry-based economic development objectives, 4) yearly training workshop, 5) building and strengthening cooperative relationships between forestry and agriculture, 6) LDC efforts to meet energy and fuelwood needs through forestry, and 7) research into such areas as forestry's relation to housing and agribusiness and the private sector's role in tree improvement and forestation.

108.
1. U.S. Agency for International Development, affiliated with USDA Forest Service (DESFIL).
2. Development Strategies for Fragile Lands (DESFIL).
3. SA, CA.
4. Chemonics.
5. USAID.
6. conservation, project.
7. economics.
8. TF.

Project to develop improved strategies for fragile lands (FL) management in Latin America and the Caribbean. Country outputs produced in collaboration with the mission include: 1) rapid assessments to develop mission strategies for addressing FL problems; 2) in-depth, strategic assessments to develop host country FL strategies; 3) resolving specific program and project problems for missions and countries; 4) designing research aimed at resolving country-specific problems; 5) providing training; and 6) evaluating and refining country strategies. This component will use a multidisciplinary approach and focus on the major themes of policy strategy, institutional arrangements, technology diffusion and development, and farmer incentive systems. Project will also create databases and research networks dealing with FL issues, and the forestry component will involve the protection of steep slopes.

109.

1. U.S. Agency for International Development, affiliated with USAID, Dominican Republic's Instituto Superior de Agricultura (ISA).
2. Dominican Republic: University Agribusiness Partnership.
3. Caribbean, Dominican Republic. 1989 - 1996
4. USAID.
5. USAID, ISA.
6. agriculture, education, project.
7. economics.
8. TF.

This project aims to increase the capacity of ISA to train personnel for the agribusiness sector, especially in areas relating to nontraditional commodities. ISA will implement the project, which will include faculty/staff training, curriculum development, research and outreach, establishment of a development office, and support for faculty salaries. Technical assistance, training, and faculty exchanges will be provided by a consortium of US institutions - U of CA/Davis, Texas A&M, Academy for Educational Development, JE Austin Associates, and Midwest Universities Consortium for International Activities.

110.

1. U.S. Agency for International Development, affiliated with National Forestry Program and National Electricity Institute (Ecuador).
2. Ecuador: Forestry Sector Development.
3. SA, Ecuador. 1982-1991
4. USAID.
5. Bob Mowbray (USAID), Cory Edwards (USDA).
6. conservation, watersheds.
7. economics, plantations, regeneration, project.
8. TF.

The project is to enhance public and private sectors' capacity to rationally use Ecuador's forest resources and protect the country's remaining natural forests and watersheds. The national forestry program (PNF) of the government of Ecuador (GOE) will coordinate the project, while participating public and private institutions will conduct and partly fund project activities. Productive forest research and field demonstrations will recieve 70% of project funding (with priority given to the Paute watershed). The project will help prepare and implement management plans for protected forests and critical watersheds covering 500,000 ha. The forestry component activities include agroforestry, nursery management, arid zone reforestation, and fire control extension. Commercial scale demonstrations of plantation forestry, natural regeneration and agro-forestry are being conducted on 10,000 hectares in the high sierra, the humid tropical lowlands, and the arid coast.

111.

1. U.S. Agency for International Development
2. Ecuador: Coastal Resource Management.
3. SA, Ecuador.
4. USAID.
5. Gerald Donovan, University of Rhode Island.
6. conservation, project.
7. economics.
8. TF, mangroves.

The project provides assistance, training and research in order to increase the capacity of LDC professionals and institutions to identify and resolve multisectoral problems of coastal areas. Three pilot projects (pp's) include: Ecuador, Sri Lanka, and Thailand. The pp in Ecuador will include inventories of information on coastal resources, on economic pressures on the coasts, on management issues, and on current legal-institutional framework for coastal resource management. Initial emphasis will be placed on development problems and opportunities in the shrimp pond industry. Ultimately the pp will aim at developing national policies for the entire Ecuadorean coast. The key objective in the Sri Lankan pp is to help the ministry of fisheries' coast conservation division prepare and implement the legislatively mandated coastal management plan. Research will focus on coral reefs, mangroves, land ownership, water pollution, and population densities.

112.

1. U.S. Agency for Internatinal Development, affiliated with USAID, Caribbean Conservation Corporation, New York Botanical Garden, Neotropical Foundation,.
2. Environmental Management Systems: Central America Regional.
3. CA, Costa Rica. 1988 - 1991
4. USAID.
5. USAID.
6. education, NTFP, project, conservation, resources.
7.
8. TF.

This project aims to protect biodiversity and tropical forests in Central America by helping to establish and manage parks and protected environmental areas, document valuable species and genetic resources, and support public environmental education. The project will stimulate AID Missions, host countries, PVO's and other donors to better manage natural resources through studies, training, pilot projects, and technical assistance. Three subprojects are 1) the establishment of biodiversity survey centers in five Costa Rican national parks, training of park guards as field parataxonomists, and the generation of biodiversity data for the sustainable management of the parks (Neotropical Foundation); 2) the establishment and support of a management project to protect sea turtle nesting areas, estuaries, and rainforest habitat in and around Costa Rica's Tortuguero National Park (Caribbean Conservation Corporation); and 3) an ethnobotanical survey of plants in Belize (New York Botanical Garden).

113.

1. U.S. Agency for International Development
2. Forestry/fuelwood research and development.
3. SA, AF, AS. 1985 - 1991
4. USAID.
5. USAID.
6. education, project, policy-issues,.
7. fuelwood.
8. TF.

The project is to upgrade capacities for forestry and fuelwood research and development in Asia, Africa, and Latin America. Contractors will implement the project in the areas of research planning and management, network development and research, and global research. Country-specific forestry and fuelwood plans and programs

as well as institutional and management mechanisms to help countries formulate policies and programs will be developed in at least 5 countries. Assistance will include technical assistance in research and policy issues, training curricula, information dissemination workshops, and joint donor program reviews and project identification.

114.

1. U.S. Agency for International Development, affiliated with The National Environmental Commission Center for Conservation Studies (CONAMA; CONAP).
2. Guatemala: Maya Biosphere Natural Resource Management.
3. CA, Guatemala.
4. USAID.
5. USAID.
6. conservation, NTFP, ecology, project.
7. watersheds, silviculture.
8. TF.

Project to alleviate Guatemala's three most critical natural resources problems: deforestation, loss of biological diversity, and watershed degradation. The project will 1) assist in protecting biodiversity by establishing new protected areas and improving management of exisiting areas; 2) promote policy reforms related to productive, sustainable use of biological resources; 3) strengthen natural resource institutions, public and private, in program planning and implementation; 4) support expanded environmental and natural resource education and training; and 5) give priority to field research on the protection and sustainable use of natural resources. Emphasis will be given to immediate, productive activites aimed at halting deforestation (currently 90,000 ha per annum), increasing soil conservation and control of pesticide use, and supporting effective implementation of new forestry and protected areas laws. The project will also establish an institutional and policy foundation for long-term Guatemalan commitment to natural resource conservation and management.

115.

1. U.S. Agency for International Development
2. Peru: Central selva resource management II.
3. SA, Peru. 1988 - 1990
4. USAID.
5. USAID.
6. agriculture, project, wood, education.
7. inventory, roads, sawmill, clearcut, regeneration.
8. TF.

The project aims to test and demonstrate improved technologies for tropical forest and agricultural production/use systems in Palcazu Valley and to install an economic development process there. The forestry component will test the Natural Forest Management System on 5,000 ha of production class forest land owned by the Indian Yanesha Forestry Co-Op; train YFC members in forest product harvesting, processing, etc.; and analyze species-specific wood properties and marketability. YFC will assume ownershipp of the project's wood processing center. The project also will strengthen Peru's capacity to plan for high jungle development; the project will upgrade APODESA's (Regional Development Policy Support Unit) ability to conduct policy analyses, evaluate forest investments, develop a documentation center, and disseminate research to decisionmakers. The project also has objectives relating to biological diversity, land use mapping, extension, and access issues.

116.

1. U.S. Agency for International Development, affiliated with Tropical Agriculture Center for Research and Education (CATIE), the Panamerican Agricultural School, and USDA, National Park Service, Peace Corps.
2. Regional Environmental and Natural Resource Management; Tree crop production project (MADELENA).
3. CA, Guatemala Belize, El Salvador, Nicaragua, Costa Rica, Honduras, Panama. 1985 -1991, - 1995
4. USAID-ROCAP, NGO consortium, USAID bilateral buy-ins.
5. William Sugrue, Project Manager, USAID/ROCAP, 2a. Calle 15-65, Zona 13, Guatemala City, Guatemala, Tel.: 346761-3.
6. policy-issues, education, conservation, agriculture, social-issues, project.
7. watersheds, economics, posts.
8. TF.

Project aims to support sustainable natural resource use in Central America and Panama through policy reform, environmental education, biodiversity conservation, and sustainable agricultural and forestry practices. The RENARM Project will help create the conditions for sustainable use of natural resources in the Central American and Panama region, in a matter that minimizes the damage to the environment, protect bio-diversity, and provide the means for equitable and sustainable economic growth. Several institutions will implement the project; these include PVO's, The Tropical Agriculture Center for Research and Education (CATIE), The Panamerican Agricultural School, and U.S. agencies (USDA, NPS, and Peace Corps). The project will inventory existing legislation and policies; analyze policy options; conduct policy dialogue; monitor policy impacts; and disseminate its findings widely. It will also include strategic planning; environmental education, training and research; wildlands management; and improved conservation information. The forestry focus includes the following: 1) Watershed management activities including training, technical assistance, and the management of pilot watersheds. 2) Plant protection activities, including research, training and communication on pest and pesticide management problems of the region. 3) Tree Crop Dissemination activity is aimed to provide small and medium size farmers and other users with information and training on multi-purpose, high-yielding tree species. The extension is based on the management of information generated through 10 years of research in Central America. This activity is a continuation of the Tree Crop Production Project that ends in 1991. 4) Production from natural forests activity aims to demonstrate the viability of commercial management, including natural regeneration and some replanting of the humid lowland broadleaf forests in Central America. It will build on the existing outreach program at CATIE and will establish 15 demonstration plots of ecologically and economically sustainable natural forest management. Also it will sponsor training and finance research to refine management guidelines. 5) INFORDUtilization and Market Development Activity, in support of sustainable forest management activites, will conduct product development with under-utilized species, improve utilization of lumber in construction, expand use of preserved small roundwood in rural construction and provide technical assistance to improve the quality of construction lumber and reduce timber waste.

117.

1. U.S. Agency for International Development, Regional Office for Central American Programs (ROCAP), affiliated with CATIE (Center for Tropical Agricultural Research and Training).
2. Tree Crop Dissemination Project.
3. CA. 1985 - 1991
4. USAID - ROCAP.
5. USAID - ROCAP (Regional Office for Central American Programs); Henry Tschinkel, Regional Forestry Advisor, 2a. Calle 15-65, Zona 13, Guatemala City, Guatemala, Tel.: 346761-3.
6. project, reforestation, education.
7. fuelwood, plantations.
8. TF.

The specific objectives of Tree Crop Dissemination Project is wide-spread planting and management and utilization of multi-purpose trees on small and medium-size farms. Initially some 200 tree species were examined for their potential as fuelwood. This effort amounts for a 6 year research and extension campaign to promote the planting of multi-purpose trees and it is a continuation of the Fuelwood and Alternate Energy Project 1979-1985.

118.

1. U.S. Department of Agriculture (USDA) Forest Service,Peace Corps, USAID W.
2. Forest resources management.
3. General. 1980 - 1990
4. USAID Development Support Bureau, Office of Science and Technology (DS/ST).
5.
6. education, project.
7. reforestation.
8. TF.

The project objective is to increase access of Missions and LDC's to technical assistance and field support in forestry programs. Under a Resources Support Service Agreement, the Forest Service will develop and manage a Forest Resources Support Network (FRSN) with access to key domestic and foreign forestry information sources. The FRSN will develop AID's capability to provide professional expertise in forest resources to Missions. AID/W will refer Missions to the FRSN for technical assisstance in a wide spectrum of management and forest sciences research. In addition, the Forest Service will place three long-term resident forestry advisors and other FRSN cooperators in the field to provide direct backstopping to Missions and LDC counterparts.

119.

1. University of Florida/Latin American Studies, affiliated with PESACRE.
2.
3. SA, Brazil. 1989-
4. Ford Foundation.
5. Dr. M. Schmink, Latin American Studies, U. of Florida, Gainesville, Fl 32611.
6. project, NTFP.
7. enrichment.
8. TF.

Several local agencies are working to develop research projects aimed at developing improved natural resource use in the extractive reserves and colonies in Acre.

120.

1. Universidad de Chile, affiliated with Departamento de Silvicultura, Facultad de Ciencias Agrarias y Forestales, Universidad de Chile, Santiago, Chile.
2. The effect of season and pregermination treatments on the germination rates and vigor of Beilschmiedia berteroana (Belloto del sur) seeds and on the propagation of plants in vivo (Efecto de las epoca de siembra y de tratamientos pregerminativos sobre la capacidad y energia germinativa de semillas de Belloto del sur (Beilschmiedia berteroana) y sobre el desarrollo de las plantas en vivero.
3. SA, Chile. 1990 - 1992
4. Instituto Forestal.
5. Angel Cabello L., Departamento de Silvicultura, Universidad de Chile.
6. project.
7. propagation, seeds.
8. TF, Beilschmiedia.

The project aims to determine the season most appropriate for planting and the effect of temperature and cold stratification on germination rate.

121.

1. Universidad de Chile, affiliated with Departamento de Silvicultura, Facultad de Ciencias Agrarias y Forestales, Universidad de Chile.
2. Seed and fruit anatomy and germination treatments for Drimys winteri, Peumus boldus, and Persea lingue (Anatomia y germinacion de semillas de Drimys winteri, Peumus boldus, y Persea lingue).
3. SA, Chile. 1983-1986
4. Departmento de Desarrollo de la Investigacion, Universidad de Chile.
5. Angel Cabello L., Departamento de Silvicultura, Universidad de Chile, Santiago, Chile.
6. project.
7. seeds.
8. TF, Drimys, fruits, Persea.

The project involves a study of the anatomy of the flowers, fruits, and seeds as it relates to seed germination. Various pre-germination treatments will be tried to identify ways to shorten or break seed dormancy.

122.

1. Universidad de Chile, affiliated with Ministry of Agriculture, National Forestry Department.
2. Study of regeneration in the forests of Fray Jorge (Estudio de regeneration en el bosque de Fray Jorge).
3. SA, Chile. 1983 - 1990
4.
5. Rodolfo Gajardo Michell, Departamento Silvicultura, Universidad de Chile, Casilla 9206 Santiago, Chile.
6. project.
7. inventory, regeneration.
8. TF, Aextoxicon.

The project's objectives are to analyze variables affecting the distribution of Aextoxicon punctatum forest and to identify methods for increasing natural regeneration.

123.
1. University of Georgia, The New York Botanical Garden, Institute of Economic Botany, National Park Service, Virgin Islands National Park
2. St. John Forest Dynamics Project.
3. St. Johns, Virgin Islands. 1986-
4. New York Botanical Garden.
5. Anne E. Reilly, University of Georgia, Athens, Georgia.
6. ecology, dynamics, project.
7. ecology.
8. TF.

124.
1. US Agency for International Development, affiliated with The Honduran Forestry Corporation (COHDEFOR) and USDA Forest Service.
2. Honduras Forestry Development.
3. CA, Honduras.
4. USAID.
5. John Warren (USAID).
6. conservation.
7. silviculture, economics, project.
8. TF.

Project to improve the management and productivity of commercial pine forests in Honduras. The project will assist privatization and forest management including conservation and is designed to increase exports of foreign products through private sector involvement in production and marketing. It will assist the government of Honduras in refocusing COHDEFOR's (The Honduran Forestry Development Corporation) activities away from direct production and marketing toward industry regulation and natural resource protection. Project components include strengthening COHDEFOR's forest management, facilitation of development of private firms in the forest sector, and training. Other specific goals include: 1) improve wood utilization and harvesting techniques; 2) set aside reserves; 3) community projects and cottage industries; 4) watershed management; and 5) institution strengthening.

125.
1. US Agency for International Development, affiliated with CARE, Wildlife Conservation International, and The Nature Conservancy.
2. Sustainable uses for biological resources (SUBIR).
3. SA, Ecuador.
4. USAID.
5. Paul Dulin (CARE).
6. conservation, education, project.
7. economics, silviculture.
8. TF.

Project will foster technologies and policies that will contribute to the sustainable use of Ecuador's renewable natural resources. The project will consist of four components: 1) field demonstrations of appropriate technologies will be designed and implemented in selected ecological zones and social settings for the sustained, economically productive use of natural resources. Examples of potential demonstrations are irrigation on steep slopes combined with soil conservation techniques, crop diversification, and wind breaks. 2) policy studies and discussions will more clearly define the relationships between the use of natural resources and overall government policies for agriculture, tourism, colonization, and other

relevant topics. 3) research activities will focus on problems identified in the field demonstrations and will also evaluate results of demonstrations. 4) public education will lay a base for wider appreciation and support of the sustainable use of natural resourcee. The results of the field demonstrations, policy, and research components will provide material for this education campaign.

126.
1. USDA Cooperative State Research Service, Hawaii
2. Development of Harvesting and Handling Methods for Biomass for Fuel.
3. Hawaii. 1988-1991
4. USDA.
5. Agri Engineering, Univ of Hawaii, Honolulu, Hawaii 96822.
6. project.
7.
8.

127.
1. USDA Cooperative State Research Service, Hawaii
2. Influence of climate and soil factors on establishment and growth of tropical forest tree species.
3. Hawaii. 1986-1991
4. USDA.
5. Ikawa, H. and C.E. Conrad, Agronomy and Soil Sciences, University of Hawaii, Honolulu, Hawaii 96822.
6. project, ecology.
7. plantations.
8. TF, Pinus, Acacia.

128.
1. USDA Cooperative State Research Service, Hawaii
2. Information essential to develop techniques for reforestation emphasizing Koa is inadequate.
3. Hawaii. 1985-1991
4. USDA.
5. Inst of Pacific Islands Forest, 1151 Punchbowl Street, Honolulu, Hawaii 96813.
6. project, ecology.
7. plantations.
8. TF, Acacia.

129.
1. USDA Cooperative State Research Service, Hawaii
2. Insufficient Information to Characterize Koa and Koa-Ohia Ecosystems.
3. Hawaii. 1985-1990
4. USDA.
5. Inst of Pacific Islands Forest, 1151 Punchbowl Street, Honolulu, Hawaii 96813.
6. project, ecology.
7. plantations.
8. TF, Acacia.

130.
1. USDA Cooperative State Research Service, Hawaii
2. A Phenological and Physiological Study of Mahogany in the Virgin Islands.
3. Virgin Islands. 1989-1992
4. USDA.
5. Agricultural Exper. Station, RR #02, Box 10000, Kingshill, St. Criox, Virgin Islands, 00850.
6. ecology, project.
7.
8. TF, Swietenia.

131.
1. USDA Cooperative State Research Service, Hawaii
2. Photoinhibition in Tropical Trees.
3. Puerto Rico. 1987-1991
4. USDA.
5. Department of Biology, University of Puerto Rico, Rio Piedras Puerto Rico 00928.
6. ecology, project.
7.
8. TF.

132.
1. USDA Forest Service, affiliated with University of Puerto Rico.
2. Improve reproduction and growth rates of managed secondary forests.
3. Caribbean, Puerto Rico, St. Johns, St. Vincent. 1985 - 1990
4. USDA.
5. Ariel Lugo or P. L. Weaver at Institute of Tropical Forestry, U. of Puerto Rico, Rio Piedras, Puerto Rico 00928.
6. dynamics, project.
7. inventory, regeneration.
8. TF, Tabebuia.

The project objective is to identify growth and reproductive responses of trees in managed forests in order to publish quidelines for managing Caribbean forests subject to hurricane damage. This will be accomplished by evaluating data on 40 years of growth and stand composition changes in mixed natural stands. Species of particular interest are Manilkara, Tabebuia, Dacryoides, and Cyrilla.

133.
1. USDA Forest Service
2. Tropical American forest management.
3. Caribbean, Puerto Rico, Saint Vincent. 1985 - 1990
4.
5. Ariel Lugo, Institute of Tropical Forestry, U. of Puerto Rico.
6. ecology, project.
7. inventory, nutrient-cycling.
8. TF.

Natural forests were inventoried on Puerto Rico and Saint Vincent. Puerto Rican forests were also studied in terms of their mortalties, nutrient cycles, water and carbon budgets, adaptations to flooding and ecosystem structure.

134.

1. Uso de paracelas permanentes para estudo da dinamica da Floresta Pluvial Tropical.
2. Objectivos: Avaliar o icremento diametrico por periodo, a mortalidade, a longevidade, o crescimento periodico da floresta e das especies e o recrutamento de individuos e especies a cada medicao.
3. Trabalho rfinanciado inicialmente pela CVRD,atualmente etou tentando financiamento junto ao CNPq. 20 anos - inicio 1986
4. Rafael de Paiva Salomao.
5. CNPq.
6. ecology, dynamics, project.
7. silviculture.
8. TF.

Study on the growth of trees in a 1 ha plot in a wet forest.

135.

1. Volunteers in Technical Assistance
2. Toledo Agricultural Marketing Project (TAMP).
3. CA, Belize. 1988 - 1991
4. USAID.
5. Fred Hunter, Jr., USAID/Belize, U.S. Embassy, Belize City, Belize 011-501-77161.
6. agriculture, marketing, project, social-issues.
7. nurseries.
8. TF, Theobroma.

The goal of this project is to increase real income and improve the standard of living of small farmers in the Toledo District of Belize by establishing a viable export-oriented industry among those farmers. Secondarily, the project aims to ease the transition from the traditional slash and burn agriculture by broadening the base of cash crops, improving postharvest practices, and establishing a working marketing system. The production of cocoa under TAMP has been amenable to the practice of natural forest management. For example, selective shading methods have been employed whereby cocoa trees are planted under the natural tropical cover. The TAMP team is also exploring possibilities of establishing village nurseries for Leucena and other varieties as an income-generating activity. TAMP staff have also begun to engage in baking activities with the local women.

136.

1. World Bank, affiliated with Jamaican Government.
2. Forestry I Project.
3. Caribbean, Jamaica. 1979 - 1985
4. World Bank.
5. World Bank.
6. project.
7. plantations, roads, sawmill.
8. TF, Pinus.

The basic goal of the project was to help foreign exchange expenditures by reducing lumber imports. The components included: plantations of pines; maintaining current plantations; supporting infrastructure such as roads, sawmill, etc.; creation of new industrial institutions; and strengthening the forestry institutions.

137.
1. World Bank, affiliated with Guyana Government.
2. Forestry/Agriculture, Upper Demeraral Project.
3. SA, Guyana. 1979 - 1987
4. World Bank.
5. World Bank.
6. project, policy-issues.
7. logging, roads, sawmill, economics.
8. TF.

The project aims to increase export earnings of the forest sector, to provide lumber for domestic consumption, and to establish logging operations over an area of 152,000 ha. Logging roads and equipment (e.g., sawmills, waste wood power plant, port facilities and township infrastructure) are components of the project. Consultants will be hired for 3 years to manage the sawmills.

138.
1. World Bank, affiliated with Haitian Government.
2. Forestry Project.
3. Caribbean, Haiti. 1982 - 1989
4. World Bank.
5. World Bank.
6. education, project, reforestation.
7. plantations.
8. TF, Pinus.

The project's goal is to provide technical assistance to prepare large scale program at reversing depletion. Components of the project include training and education programs, pilot plantings, management and improvement of existing pine forests, and to prepare a reforestation project.

139.
1. World Bank, affiliated with Mexican Government.
2. Forestry Development Project.
3. Mexico. 1989 - 1996
4. World Bank.
5. World Bank.
6. conservation, policy-issues, project, reforestation, economics.
7. roads.
8. TF.

The project aims to address development issues, complementing recent forest policies and initiatives. Components of the project include the following: 1) providing line of credit to forest producers; 2) rehabilitation of forest roads; 3) institution development; 4) special studies; and 5) environmental protection.

140.
1. World Bank, affiliated with Brazilian Government.
2. Minas Gerais Forestry Development Project.
3. SA, Brazil. 1988 - on going
4. World Bank.
5.
6. charcoal, conservation, education, NTFP, project, reforestation, wood.
7. fuelwood, plantations.
8. TF, montane.

The objectives of the project are as follows: 1) to increase wood production; 2) reduce degradation of natural areas; 3) improve environmental protection; 4) provide fuelwood, timber and charcoal for home and industrial use; 5) rehabilitate and conserve existing natural forests; 6) check degradation of the state's mountainous regions; and 7) strengthen institutions. The components of the project include the establishment of a 165,000 ha plantation, charcoal manufacturing kilns, twenty 700 ha woodlots, development of pilot programs on private lands, and provision of coordination and management.

141.

1. World Wildlife Fund
2. BOSCOSA (The Osa Peninsula Forest Management and Conservation Project).
3. CA, Costa Rica. 1988 - 1993
4. World Wildlife Fund; USAID; Catholic Relief Services; Chicago Rainforest Action Group; The Nature Conservancy; Nepenthes Group (a Danish non-governmental organization); Dutch and Swedish governments.
5. Tropical Forestry Program, World Wildlife Fund.
6. social-issues, marketing, project, wood.
7.
8. TF.

The BOSCOSA project seeks to protect forests on the Osa Peninsula by providing local inhabitants with productive and sustainable resource-use alternatives. The project works with several rural communities and local organizations to attain its objectives by way of improved land use, natural resource management, value-added processing, and improved marketing for an expanded range of locally produced products. Natural forest management is one element in a program which also includes agroforestry, wood processing, and community development.

142.

1. World Wildlife Fund
2. Organization of community forest production: pilot forest plan for the Zona Maya in the state of Quintana Roo, Mexico, (Organizacion de Ejidos Productores Forestales, OEPF: Plan Piloto Forestal de la "Zona Maya" del Estado de Quintana Roo, Mexico).
3. Mexico. 1983 -
4. from timber sales, federal, state, and local governments, WWF.
5. WWF.
6. project, social-issues.
7. enrichment, regeneration.
8. TF, Swietenia, Cedrela.

OEPF is composed of, and works with, communities of native Mayans to manage forest that formerly had been under concession to logging companies. The forest management plan will apply a 25-year cutting cycle, market new species, allow natural regeneration, and enrichment planting of mahogany and cedar.

4. GEOGRAPHY - LITERATURE

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