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## Uses and conservation of plant diversity in Ben En National Park, Vietnam

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## REFERENCES

- Achard, F., H.D. Eva, H.J. Stibig, P. Mayaux, J. Gallego, T. Richards, & J.P. Malin-greau. 2002. Determination of deforestation rates of the world's humid tropical forests. *Science* 297: 999 - 1002.
- Acharya, B. 1999. A spatial analysis of tree species diversity in Nepal. Enschede, the Netherlands (PhD thesis).
- Amacher, GS. 2002. Forest policies and many governments. *Forest science*, 48 (1): 146 - 158.
- Anonymous. 2000. The list of Plants and Animals in Ben En National Park. Report from Subinstitute of Forest Inventory and Planning II, Nghe An. Vietnam. 28 pp. (in Vietnamese).
- Baillie, I.C., P.S.Ashton, M.N.Court, J.A.R. Anderson, E.A. Fitzpatrick & J. Tinsley, 1987. Site characteristics and the distribution of tree species in Mixed Dipterocarp Forest on Tertiary sediments in central Sarawak, Malaysia. *Journal of Tropical Ecology* 3: 201–220.
- Ban, N.T. (ed.). 2007. Red data book of Vietnam. Vol. 2. Science and Techniques. Publishing House, Hanoi, Vietnam (in Vietnamese).
- Brook, B.W,C. J.A. Bradshaw, L.P. Koh, & N.S. Sodhi. 2006. Momentum drives the crash: Mass extinction in the tropics. *Biotropica* 38: 302 - 305.
- Butler, R.A. & W.F. Laurance. 2008. New strategies for conserving tropical forests. *Trends in Ecology & Evolution* 23 (9): 469 - 472.
- Canh, L.X. & T.D. Ly. 2004. Classification of vegetation of Vietnam. A report for ASEAN conference. Asean Regional Centre for Biodiversity Conservation.
- Cannon, C.H., D.R. Peart, & M. Leighton. 1998. *Science* 281: 1366 - 1368.
- Chapman, G.P. & Y.Z. Wang. 2002. *The Plant Life of China*. Springer.
- Chevalier, A. 1918. Premier inventaire des bois et autres produits forestiers du Tonkin.
- Chi, V.V. 1996. *The dictionary of medicinal plants of Vietnam*. Medical Publishing House, Hanoi.
- Chien, P.D. 2006. Demography of threatened tree species in Vietnam. Utrecht, The Netherlands (PhD thesis).
- Chin, S.P. 2000. *A Laboratory Manual of Methods of Soil Analysis*. Dept. Agric., Sarawak. 73 pp.
- Clay, J.W. 1997. The impact of palm heart harvesting in the Amazon estuary. In: *Harvesting Wild Species: Implications for Biodiversity Conservation* (ed. C.H. Freese), pp. 283 - 314. John Hopkins University Press, Baltimore, MD, USA.
- Cunningham, A.B. 2001. *Applied Ethnobotany: People and Conservation manual*. Earthscan, London
- Dang, N.V. (ed.). 2001. *Forestry in Vietnam (1945-2000), development progress and experienced lessons*. Agricultural Publishing House, Hanoi, Vietnam.
- Davies, S.J., S. Tan, V.L. James, & D.P. Matthew. 2005. Soil-Related Floristic Variation in a Hyperdiverse Dipterocarp Forest. In: R. David, S., Sakai, & A.A.

- Hamid (eds), Pollination ecology and the rain forest. Sarawak Studies, Ecological Studies 174. Springer.
- De Lucena, R.F.P., E. de Lima Araujo, & U.P. de Albuquerque. 2007. Does the local availability of woody Caatinga plants (north-eastern Brazil) explain their use value. *Economic Botany* 61: 347 - 361.
- De Padua, L.S., N. Bunyaphatsara, & R.H.M.J. Lemmens (eds.). 1999. *Plant Resources of South-East Asia No. 12 (1). Medicinal and poisonous plants 1*. Backhuys Publishers, Leiden.
- Duivenvoorden, J.F. 1995. Tree species composition and rain forest-environment relationships in the middle Caquet i area, Colombia, NW Amazonia. *Plant Ecology*. 120: 91 - 113.
- Eichhorn, K.A.O. & J.W.F. Slik. 2006. The plant community of Sungai Wain, East Kalimantan, Indonesia: Phytogeographical status and local variation. *Blumea Supplement* 18: 15 - 35.
- Farnsworth, N.R., O. Akerele, A.S. Bingel, D. Soejarto, & Z. Guo. 1985. Medicinal plants in therapy. *Bulletin of the World Health Organization* 63 (6): 965 - 981.
- Fearnside, P.M. 1997. Environmental services as a strategy for sustainable development in rural Amazonia. *Ecol. Econ.* 20: 53 - 70.
- Fimbel, R.A., A. Grajal, & J.G. Robinson. 2001. Logging and wildlife in the tropics. In: R.A. Fimbel, A. Grajal, & J.G. Robinson (eds.), *The cutting edge: conserving wildlife in logged tropical forest*: 667 - 695. Columbia University Press, New York, USA.
- Fisher A.A., A.S. Corbet, & C.B. Williams. 1943. The relation between the number of species and the number of individuals in a random sample of an animal population. *Journal of Animal Ecology* 12: 42 - 58.
- Forest Protection Department. 2006. *Forest protected areas system in Vietnam*. Vietnam (in Vietnamese).
- Fredericksen, T.S., & B. Mostacedo. 2000. Regeneration of timber species following selection logging in a Bolivian tropical dry forest. *Forest Ecology and Management* 131: 47-55
- FTSA - Forest Techniques and Science Association of Vietnam. 2001. *National Parks in Vietnam*. Agricultural Publishing House, Hanoi, Vietnam.
- Geist, H.J. & E.F. Lambin. 2002. Proximate causes and underlying driving forces of tropical deforestation. *BioScience* 52: 143 - 150.
- GoVN - Government of the Socialist Republic of Vietnam and the Global Environment Facility Project. 1994. *Biodiversity action plan for Vietnam*. Hanoi, Vietnam (in Vietnamese).
- GoVN - Government of the Socialist Republic of Vietnam. 2006. *The program of economic development in ethnic minority communities and rural areas in Vietnam*. Hanoi, Vietnam (in Vietnamese).
- Hamilton, A. 2003. *Medicinal plants and conservation: issues and approaches*. International Plants Conservation Unit, WWF-UK. Surrey, United Kingdom.

- Heniger, J. 1986. Hendrik Adriaan van Reede tot Drakenstein (1636-1691) and Hortus Malabaricus. Balkema, Rotterdam, Boston.
- Hien, D.N. 2006. Report of Ben En National Park in 2006 (in Vietnamese).
- Hien, D.N. 2007. Report of Ben En National Park in 2007 (in Vietnamese).
- Ho, P.H. 2000. An illustrated Flora of Vietnam. Youth Publisher, Ho Chi Minh, Vietnam (in Vietnamese).
- Hoang, S.V. 2008 (a). A species of *Myristica* Gronov. A new record for Flora of Vietnam. Vietnam Journal of Forest Science 1: 526 - 529.
- Hoang, S.V. 2008 (b). *Glyptopetalum sclerocarpum* (Kurz) M.A. Lawson (Celastraceae). A new record for Flora of Vietnam. Vietnam Journal of Forest Science 3: 683 - 686.
- Hoang, S.V., P. Baas, & P.J.A. Keßler. 2008 (a). Plant biodiversity in Ben En National Park. Agricultural Publishing House, Hanoi, Vietnam.
- Hoang, S.V., P. Baas, & P.J.A. Keßler. 2008 (b). Traditional medicinal plants in Ben En National Park, Vietnam. Blumea. 53: 569 - 601.
- Hoang, S.V., P. Baas, & P.J.A. Keßler. 2008 (c). Uses and conservation of plant species in a National Park - a case study of Ben En, Vietnam. Economic Botany 62: 574 - 593.
- Hoang, S.V., P. Baas, P.J.A. Keßler, J.W.F. Slik, H. Ter Steege, & N. Raes. In prep. Human and environmental influence on plant diversity and composition in Ben En National Park, Vietnam.
- Hoang, S.V., P.J.A. Keßler, & K. Nanthavong. 2004. Trees of Laos and Vietnam; A field guide to 100 economically and ecologically important species, Blumea 49: 201 - 349.
- Hong, P.N. 1988. Mangrove forest of Vietnam. Agricultural Publishing House. Hanoi, Vietnam (in Vietnamese).
- Hung, T.V. 2004. Forestry research for the coming time. Journal of Agriculture and Rural Development 12: 26 - 29.
- Hung, T.V. (ed.). 2007. Non timber forest products in Vietnam. Agricultural Publishing House, Hanoi, Vietnam (in Vietnamese).
- Huston, M.A. 1994. Biological diversity: the coexistence of species in changing landscapes. Cambridge University Press, Cambridge.
- Iqbal, M. 1993. International Trade in Non-Wood Forest Products. An Overview. Food and Agriculture Organization, Rome, Italy.
- IUCN. 1997. The IUCN Red List of Threatened Plants. Gland, Switzerland.
- IUCN. 2006. The Red list of Threatened Species. Available from <http://www.redlist.org/info/tables/table6a>.
- Johns, T., J.O. Kakwaro, & E.K. Kimanani. 1990. Herbal remedies of the Luo of Siaya District, Kenya; establishing quantitative criteria for consensus. Economic Botany 44: 369 - 381.
- Johnson, S.P. (ed.). 1993. The convention on biological diversity. In: The Earth Summit. The United Nations Conference on Environment and Development. Kluwer Academic Publishers Group.

- Kao, D. & S. Iida, 2006. Structural characteristics of logged evergreen forests in Preah Vihear, Cambodia, 3 years after logging. *Forest Ecology and Management* 225: 62 - 73.
- Kasperek, M., A. Gröger, & U. Schipmann. 1996. Directory for medicinal plants conservation. IUCN/SSC Medicinal Plants Specialist Group. German Federal Agency for Nature Conservation, Bonn.
- Khoi, L.V. 1996. Studies on the biodiversity of a typical ecosystem: the ecosystem of Ben En National Park, Hanoi, Vietnam (in Vietnamese).
- King, S.R., E.N. Meza, T.J.S. Carlson, J.A. Chinnock, K. Moran, & J.R. Borges. 1999. Issues in the commercialization of medicinal plants. *Herbal Gram* 47: 46 - 51.
- Lan, P.N., N.P. Hong, T.V. Hung, N.N. Thin, & L.T. Chan. 2006. Ecology of Forest in Vietnam. Transport Publishing House, Hanoi, Vietnam (in Vietnamese).
- Lan, P.N., N.N. Thin, & N.B. Thu. 1996. Plant diversity in the Cuc Phuong National Park, Vietnam. Hanoi Agricultural Publishing House, Hanoi, Vietnam (in Vietnamese).
- Lange, D. 1998. Europe's medicinal and aromatic plants, their use, trade and conservation. Traffic International, Cambridge, UK. 77 pp.
- Laurance, W.F. 1999. Reflections on the tropical deforestation crisis. *Biol. Conserv.* 91: 109 - 117.
- Le, V.K. 2001. Soil, water analysis methods. Educational Publishing House, Hanoi, Vietnam (in Vietnamese).
- Lemmens, R.H.M.J. & N. Bunyapraphatsara (eds.). 2003. Plant Resources of South-East Asia No. 12 (1). Medicinal and poisonous plants 3. Backhuys Publishers, Leiden.
- Loi, D.T. 1995. Medicinal trees and medicaments of Vietnam. 7th ed. Science and Technology Publishing House, Hanoi.
- Lung, N.N., 2001. The status of forest resources in Vietnam: matter of environment, economy, society and resolutions. *Journal of Agriculture and Rural Development* 12: 891 - 893 (in Vietnamese).
- Manilal, K.S. 2003. English translation of Van Reede tot Drakenstein's Hortus Malabaricus Vol. 1-12. Calicut, India.
- Martin, G.J. 1995. Ethnobotany: A methods manuals. Chapman & Hall, London.
- Maurand, P. 1943. L'Indochine forestière. BEI, Hanoi.
- Mayaux, P., P. Holmgren, F. Achard, H. Eva, H-J. Stibig, & A. Branthomme. 2005. Tropical forest cover change in the 1990s and options for future monitoring. *Philosophical Transactions of the Royal Society B* 360: 373 - 384.
- McCune, B. & M. J.Mefford. 1999. PC-ORD: multivariate analysis of ecological data. Version 4. User's guide. MjM Software Design, Gleneden Beach, Oregon
- Meijaard, E., D. Sheil, R. Nasi, D. Augeri, B. Rosenbaum, D. Iskandar, T. Setyawati, M. Lammertink, I. Rachmatika, A. Wong, T. Soehartono, S. Stanley, & T. O'Brien. 2005. Life after logging: Reconciling wildlife conservation and production forestry in Indonesian Borneo, CIFOR. Bogor, Indonesia.

- Mendelsohn, R. 1997. Valuing undiscovered pharmaceuticals in tropical forests. Notes on economic plants. *Economic Botany* 51 (3): 328.
- Mendelsohn, R. & M.J. Balick. 1995. The value of undiscovered pharmaceuticals in tropical forests. *Economic Botany* 49: 223 - 228.
- Nepstad, D.C. & S. Schwartzman. 1992. Non-Timber Product Extraction from Tropical Forest: Evaluation of a Conservation and Development Strategy. New York Botanical Garden, Bronx, NY, USA.
- Ngai, N.B. 2001. Methodology of rural appraisal. Vietnam Forestry University, Vietnam (in Vietnamese).
- Nhat, P. 2001. Biodiversity of Vietnam. Vietnam Forestry University, Hanoi, Vietnam (in Vietnamese).
- On, T.V. 2000. Medicinal plants in Ba Vi National Park. Hanoi Pharmacy University, Hanoi, Vietnam (in Vietnamese).
- On, T.V. 2003. A survey of medicinal plants in Ba Vi National Park: Methodology and implication for conservation and sustainable use. Hanoi Pharmacy University, Hanoi, Vietnam (PhD thesis) (in Vietnamese).
- Panayotou, T. & P.S. Ashton. 1992. Not by Timber Alone: the Case for Multiple Use Management of Tropical Forests. Island Press, Covelo, CA, USA.
- Phillips O. & A.H. Gentry 1993. The useful plants of Tambopata, Peru: Statistical hypotheses tests with a new quantitative technique. *Economic Botany*. 47: 15 - 32.
- Pickett, S.T.A. 1995. Drivers and dynamics of change in biodiversity. In Heywood, V.H., Watson, R.T. (eds.). *Global biodiversity assessment*: 311-318. UNEP.
- PID & NES. 1989. An Introduction to Participation, Rural Appraisal for Rural Resources Management, Program for International Development, Clark University, Worcester, Mass., and National Environment Secretariat, Ministry of Environment and Natural Resources, Nairobi.
- Pinard, M.A., Barker, M.G., Tay, J. 2000. Soil disturbance and post-logging forest recovery on bulldozer paths in Sabah, Malaysia. *Forest Ecology and Management* 130: 213-225
- Potts, M.D., P.S. Ashton, L.S. Kaufman, & J.B. Plotkin. 2002. Habitat patterns in tropical rain forests: a comparison of 105 plots in northwest Borneo. *Ecology* 83 (10) 2782 - 2797.
- Prance, G.T., W. Balee, B.M. Boom, & R.L. Carneiro. 1987. Quantitative Ethnobotany and the Case for Conservation in Amazonia. *Conservation Biology* 1: 296 - 310.
- Press, S.J. & S. Wilson. 1978. Choosing between logistic regression and discriminant analysis. *Journal of the American Statistical Association* 73: 699 - 705.
- Primack, R.B. 1993. *Essentials of conservation biology*. Sinauer Associates, Sandarland, MA.
- PROSEA. 1989-2003. *Plant Resources of South-East Asia Handbooks* No. 1-19 (multiple editors and authors). Pudoc, Wageningen (No. 1-6) & Backhuys, Leiden (no. 7-19), The Netherlands.

- Putz, F.E., K.H. Redford, J.G. Robinson, R. Fimbel, & G.M. Blate. 2000. Biodiversity Conservation in the Context of Tropical Forest Management. The World Bank Environmental Department, USA.
- Putz F.E., P. Sist, T. Fredericksen, & D. Dykstra, 2008. Reduced impact logging: Challenges and opportunities. *Forest and Ecology Management* 256: 1427-1433.
- Quy, V. 1985. Rare species and protection measures proposed for Vietnam. In: J.W. Thorsell (ed.), *Conserving Asia's Natural Heritage*: 98 - 102. Hanoi (In Vietnamese).
- Raunkiaer, C. 1934. *Life forms of plants and statistical plant geography*. Clarendon Press, Oxford.
- Sam, D.D. 1996. Forest land in relation to forest vegetation cover. In: M.L. Quang (ed.), *Vietnamese studies*: 39 - 51. Hanoi, Vietnam (in Vietnamese).
- Sam, D.D. (ed.). 2005. *Overview of mangrove forests in Vietnam*. Agricultural Publishing House, Hanoi, Vietnam (in Vietnamese).
- Slik, J.W.F., A.D. Poulsen, P.S. Ashton, C.H. Cannon, K.A.O. Eichhorn, K. Kartawinata, I. Lanniari, H. Nagamasu, M. Nakagawa, M.G.L. van Nieuwstadt, J. Payne, Purwaningsih, A. Saridan, K. Sidiyasa, R.W. Verburg, C.O. Webb, & P. Wilkie. 2003. A floristic analysis of the lowland dipterocarp forests of Borneo. *Journal of Biogeography* 30: 1517 - 1531.
- Slik, J.W.F., R.W. Verburg, and P.J.A. Keßler. 2002. Effects of fire and selective logging on the tree species composition of lowland dipterocarp forest in East Kalimantan, Indonesia. *Biodiversity and Conservation* 11: 85 - 98.
- Slikkerveer, L.J. 1999. Ethnoscience, 'TEK' and its application to conservation. In: D.A. Posey (ed.), *Cultural and spiritual values of biodiversity*: 169 - 180. UNEP, Nairobi, Kenya.
- Sodhi, N.S., L.P. Koh, B.W. Brook, & P.K.L. Ng. 2004. Southeast Asian biodiversity: an impending disaster. *Trends in Ecology and Evolution* 19: 654 - 660.
- Spjut, R.W. & R.E. Perdue. 1976. Plant folklore: A tool for predicting sources of antitumor activity? *Cancer Treatment Reports* 60: 979 - 985.
- Swerdlow, J.L. 2000. *Nature's medicine: Plants that heal*. National Geographic Society, Washington, DC.
- Tai, N.M. (ed.). 1995. *National Parks and nature reserve areas in Vietnam*. Agriculture Publishing House, Hanoi, Vietnam (in Vietnamese).
- Taylor L.R., R.A. Kempton, & I.P. Woiwod. 1976. Diversity statistics and the log-series model. *Journal of Animal Ecology* 45: 255 - 272.
- Ter Braak, C.J.F. 1986 Canonical correspondence analysis: a new eigenvector technique for multivariate gradient analysis. *Ecology* 67: 1167 - 1179.
- Ter Steege, H. 1996. Winphot 5: a programme to analyse vegetation indices, light and light quality for hemispherical photographs. *Tropenbos Guyana Reports* 95-2, Tropenbos Guyana Programme, Georgetown, Guyana
- Thin, N.N. 1997. *Manual for biodiversity research*. Agricultural Publishing House, Hanoi, Vietnam (in Vietnamese).

- Thin, N.N. 2000. Biodiversity and resources of plant heredity. National University Press, Hanoi, Vietnam (in Vietnamese).
- Thin, N.N. & T.N. Nhan. 2003. Flora of Pu Mat National Park. Publishing Agriculture House. Hanoi, Vietnam (in Vietnamese).
- Thu, N.B. 2002. System of nature reserve areas in Vietnam - Status and Demand that needs to be changed. *Journal of Agriculture and Rural Development* 7: 627 - 628.
- Ticktin T. 2004. The ecological implications of harvesting non-timber forest Products. *Journal of Applied Ecology* 41: 11 - 21.
- Tiwari, B.K. 2000. Non-timber forest products of northeast India. *J. Human Ecol.* 11: 445 - 455.
- Tordoff, A., E. Fanning, & M. Grindley (eds). 2000. Ben En National Park, Society for Environmental Exploration, London.
- Tran, T.A. & S. Ziegler. 2001. Utilization of medicinal plants in Bach Ma National Park, Vietnam. *Medicinal Plant Conservation* 7: 3 - 5.
- Trung, T.V. 1978. Forest vegetation cover of Vietnam. Science and Techniques Publishing House, Hanoi, Vietnam (in Vietnamese).
- Trung, T.V. 1998. Ecosystems of tropical forests in Vietnam. Science and Techniques Publishing House, Hanoi, Vietnam (in Vietnamese).
- UNEP-WCMC. 2004. Spatial analysis of forests within protected areas in ITTO countries. UNEPWCMC, Cambridge, UK.
- UNESCO. 1973. International classification and mapping of vegetation. Paris.
- Uutera, J., T. Tokola & M. Maltamo, 2000. Differences in structure of primary and managed forests in East Kalimantan, Indonesia. *Forest Ecology and Management* 129: 63-74
- Van Andel, T.R. 2000. Non-timber forest products in the north-west district of Guyana. *Tropenbos-Guyana series* 8. Wageningen.
- Van Reede tot Drakenstein, H.A. 1688-1692. *Hortus Malabaricus* vol. I-XII. Amsterdam.
- Van Valkenburg, J.L.C.H. & N. Bunyaphatsara. 2001. PROSEA, Vol. 12, Medicinal and poisonous plants. Backhuys Publishers, Leiden.
- Vidal, J.F. 2000. *Vegetation of Indochina Peninsular*. Paris, France.
- VN - Socialist Republic of Vietnam. 2003. Management strategy for the system of nature conservation areas in Vietnam to 2010. Hanoi, Vietnam (in Vietnamese).
- Walter, S. 2001. Non-Wood Forest Products in Africa. A Regional and National Overview. *Les produits forestiers non ligneux en Afrique. Un aperçu régional et national*. Working Paper/Document de Travail FOPW/01/1. Food and Agriculture Organization, Forestry Department, Rome, Italy.
- WCMC - World Conservation Monitoring Centre. 1992. Development of a national biodiversity index. A discussion paper prepared by the World Conservation Monitoring Centre, Cambridge, UK.



- Westing, A.H. 1971. Ecological effects of military defoliation on the forests of South Vietnam. *BioScience* 21: 893 - 898.
- Whitmore, T.C. 1984. *Tropical Rain Forests of the Far East*, 2nd ed. Clarendon Press, Oxford, UK.
- Whitmore, T.C. 1997. Tropical forest disturbance, disappearance, and species loss. In: W.R. Laurance & R.O. Bierregaard (eds.), *Tropical forest remnants: Ecology, management and conservation of fragmented communities*: 3 - 12.. University of Chicago Press, Chicago.
- Whitmore, T.C. & J.A. Sayer. 1992. *Tropical deforestation and species extinction*. Chapman and Hall, London, UK.
- Wilson, E. O. 1988. *Biodiversity*. National Academy of Sciences, Washington, DC.