

## REFERENCES

- Aksornkoae, S. and S. Boonyawat. 1977. Structure of hill evergreen forest in different altitude at Doi Pui, Chiang Mai Province. Kog-Ma Watershed Research Bulletin No. 32. Department of Conservation, Faculty of Forestry, Kasetsart University. 43 p. (in Thai)
- Anusontpornperm, S. and L. Kheoruenromne. 1996. "Soils under various conditions of land use change from tropical forest", p: 156-170. In: C. Khemnark, B. Thaiutsa, L. Puangchit and S. Thammincha (eds.), Tropical Forestry in the 21<sup>st</sup> Century 2: Global Changes in the Tropical Contexts. STA/Japan and KUFF, Bangkok, Thailand.
- Anusontpornperm, S., S. Thanachit and L. Kheoruenromne. 2008. "Influence of parent materials in association with forest types on characteristics of soil in Thailand", p: 78-89. In: L. Puangchit and S. Diloksumpun (eds.), Tropical forestry change in changing world, Volume 10: Protected areas and sustainable tourism. Proceedings of the FORTROP II: Tropical Forestry Changing World, 17-20 November 2008, Kasetsart University, Bangkok, Thailand.
- Armitage, F.B. and J. Burley. 1980. *Pinus kesiya* Royle ex Gordon. Compiled by F.B. Armitage and J. Burley, with contributions from F.G. Browne, I.A.S. Gibson, P. Guldager, B.T. Styles, J.W. Turnbull, P.J. Wood and J.G. Worrall. Tropical Forestry Papers No. 9, Department of Forestry, Commonwealth Forestry Institute, University of Oxford. 199 p.
- Armitage, F.B. and P.J. Wood. 1980. "Silviculture, growth and yield", p: 77-129. In: F.B. Armitage and J. Burley (comp.), *Pinus kesiya* Royle ex Gordon. Tropical Forestry Papers No. 9, Department of Forestry, Commonwealth Forestry Institute, University of Oxford.
- Ashton, P.S. 2003. Floristic zonation of tree communities on wet tropical mountains revised. *Persp. Pl. Ecol. Evol. Syst.* 6: 87-104.
- Bandaratillake, H.M. 1989. "Reforestation with Pines in Sri Lanka", p: 122-136. In: S.A. Abod, P.M. Tahir, L.M. Tsai, N.A.A. Shukor, A.S. Sajap and D. Manikam (eds.), Recent Developments in Tree Plantations of Humid/Subhumid Tropics of Asia. Proceedings of a Regional Symposium. Held in University Pertanian Malaysia, 5-9 June 1989. Selangor, Malaysia.
- Barnes, R.D. and G.L. Gibson. 1984. Provenance and genetic improvement strategies in tropical forest trees. Proc. Jt. Work Conference of IUFRO Working Parties, Mutare, Zimbabwe, 9-14 April 1984. Commonw. For. Inst., Oxford/Zimbabwe For. Comm. Harare. 662 p.
- Barrett, R.L. and L.J. Mullin. 1968. A review of introductions of forest trees in Rhodesia. *Rhodesia Bull. For. Res.* 1: 227.
- Bawa, K.S. 1993. "Effect of deforestation and forest fragmentation on genetic diversity in tropical tree populations", p: 10-16. In: R.M. Drysdale, S.E.T. John and A.C. Yapa, (eds.), Proceedings International Symposium on Genetic Conservation and Production of Tropical Tree Seed. 14-16 June 1993, Chiang Mai. ASEAN-Canada Forest Tree Seed Centre, Thailand.

- Bawa, K.S., D.R. Perry, S.H. Bullock, R.E. Coville and M.H. Grayum. 1985. Reproductive biology of tropical lowland rain forest trees. II. Pollination mechanisms. *Am. J. Bot.* 72: 346-356.
- Bhumibhamon, S., A. Turakka and L. Atipanumpai. 1980. Effect of biocides extracted from *Imperata* grass on the germination of local pine seeds. Research Note No. 33. Faculty of Forestry, Kasetsart University. 8 p.
- Bor, N.L. 1942. The relict vegetation of the Shillong Plateau, Assam. *Indian For. Rec. (N.S.) Botany* 3(6): 152-195.
- Brandani, A., G. Hartshorn and G.H. Orians. 1988. Internal heterogeneity of gaps and species richness in Costa Rican tropical wet forest. *Journal of Tropical Ecology*, 4: 99-119.
- Bray, J.R. and J.T. Curtis. 1957. An ordination of upland forest communities of southern Wisconsin. *Ecological Monographs* 27:325-349.
- Bray, R.A. and L.T. Kunzt. 1945. Determination of total organic and available from of phosphorus in soil. *Soil Sci.* 59: 39-45.
- Bremner, J.M. and C.S. Mulvaney. 1982. "Nitrogen-total", p: 595-622. In: A.L. Page (ed), *Methods of Soil Analysis Part 2 (Chemical and Microbiological Properties)* 2<sup>th</sup> ed. American Society of Agronomy, Inc., Publisher Madison, Wisconsin, USA.
- Buol, S.W., R.J. Southard, R.C. Graham and P.A. McDaniel. 2003. *Soil Genesis and Classification*. 5<sup>th</sup> ed. Iowa State Univ. Press, Ames, Iowa. 494 p.
- Burgess, P.F. 1970. An approach towards a silvicultural system for the hill forests of the Malay Peninsular. *Malaysian Forester* 33: 126-134.
- Carnevale, N.J. and F. Montagnini. 2002. Facilitating regeneration of secondary forests with the use of mixed and pure plantations of indigenous tree species. *Forest Ecology and Management* 163: 217-227.
- Chandrashekhara, U.M. and P.S. Ramakrishnan. 1993. Germinable soil seed bank dynamics during the gaps phase of a humid tropical forest in the Western Ghats of Kerala, India. *Journal of Tropical Ecology* 9 (4): 455-467.
- Charuphat, T. 1998. Forest situation of Thailand in the past 37 years (1961-1998). Forest Resources Assessment Division, Forest Research Office, Royal Forest Department, Bangkok, Thailand. 116 p. (in Thai)
- Coleman, N.T. and G.W. Thomas. 1964. Buffer curves of acid clays as affected by the presence of ferric iron and aluminum. *Soil Sci. Soc. Am. Proc.* 28: 187-190.
- Cooling, E.N.G. 1967. Report of a visit to South-east Asia to obtain seeds of tropical pines. For. Dept. Zambia, For. Res. Bull. No. 13. 57 p.
- Corlett, R.T. and B.C.H. Hau. 2000. "Seed dispersal and forest restoration", p: 317-325. In: S. Elliott, J. Kerby, D. Blakesley, K. Hardwick, K. Woods and V. Anusarnsunthorn (eds.), *Forest restoration for wildlife conservation*. Chiang Mai University, Chiang Mai, Thailand.
- Critchfield, W.B. and E.L. (Jr.) Little. 1966. Geographic distribution of the pines of the world. U.S. Dept. Agr. Misc. Publ. 991. 97 p.
- Evans, J. 1982. *Plantation forestry in the tropics*. Clarendon Press, Oxford. 472 p.
- Fahring, L. and G. Merriam. 1985. Habitat patch connectivity and population survival. *Ecology* 66: 1762-1768.

- FAO, Food and Agriculture Organization. 1968. "Thailand: Pulp and paper material survey", p: 25-30. In: Final report Vol. 1, general - Chap. 4, Research. Forestry and Forest Industries Div. FAO/SF: 46/THA/11.
- Geldenhuys, C.J. 1997. Native forest regeneration in pine and eucalypt plantations in Northern Province, South Africa. *Forest Ecology and Management* 99 (1997): 101-115
- Givnish, T.J. 1999. On the causes of gradients in tropical tree diversity. *J. Ecol.* 87: 193-210.
- Granhof, J. and P. Homjeen. 1983. "Growth of 5 coniferous species at high elevation in Northern Thailand", p: 1A1-1A44. In: Thai-Danish Cooperation on Eucalyptus and Pine Improvement 1969-1980. Vol II: Research papers. Silvicultural Research Sub-Division, Royal Forest Department, Bangkok; and Danish International Development Agency (DANIDA), Copenhagen.
- Granhof, J.J. 1983. "Growth and variation in *Pinus kesiya* at high elevation in Thailand", p: 2A1-2A27. In: Thai-Danish Cooperation on Eucalyptus and Pine Improvement 1969-1980. Vol. II. Forest Research Paper. Silvicultural Research Sub-Division, Royal Forest Department, Bangkok; and Danish International Development Agency (DANIDA), Copenhagen.
- \_\_\_\_\_. 1984. Growth and variation in *Pinus kesiya* Royle ex Gordon at high elevation in Thailand. In: R.D. Barner and G.L. Gibson (eds.), Provenance and genetic improvement strategies in tropical forest trees. Proc. Jt. Work Conference of IUFRO Working Parties, Mutare, Zimbabwe, 9-14 April 1984. 662 p. Commonw. For. Inst., Oxford/Zimbabwe For. Comm. Harare.
- Grant, V. 1971. Plant speciation. 1<sup>st</sup> edn. Columbia University Press, New York, USA.
- Grubb, P.J. 1977. Control of forest growth and distribution on wet tropical mountains: with special reference to mineral nutrient. *Annu. Rev. Ecol. Syst.* 8: 83-107.
- Hamrick, J.L., D.A. Murawski and J.D. Nason. 1993. The influence of seed dispersal mechanisms on the genetic structure of tropical tree populations. *Plant Ecology* 107-108 (1): 281-297.
- Handrick, C.A. 1981. Soil-Vegetation relation in the north continental highland region of Thailand: A preliminary investigation of soil-vegetation correlation. *Soil Sur. Rep. Tech. Bull.* 32: 1-112.
- Hansen, P.K. 2001. "Environmental variability and agro-ecological stratification", p: 163-176. In: E. Poulsen, F. Skov, S. Lakanavichian, S. Thanisawanyangkura, H. Borgtoft and O. Hojris, (eds), Forest in culture-culture in forest: perspective from Northern Thailand. Research Centre on Forest and People in Thailand, Tjele.
- Harcharik, D.A. and S.H. Kunkle. 1978. "Forest plantation for rehabilitating eroded lands", p: 83-101. In: FAO Conservation Guide No. 4. FAO, Rome, Italy.
- Hirunwong, R. 2007. Relationship between forest regeneration and soil nutrients in Lawa rotational agriculture at age 1-7 years under The Royal Initiative Project, Doi Ompai Highland Agriculture Development Station. M.Sc. Thesis, Mae Jo University. 152 p. (in Thai)

- Homjeen, P. 1997. Pine forest plantation in Thailand. Silviculture Research Division, Forest Research Office, Royal Forest Department, Bangkok. 161 p. (in Thai)
- Howe, H.F., E.W. Schupp and L.C. Westley. 1985. Early consequences of seed dispersal for a neotropical tree (*Virola surinamensis*). *Ecology* 66: 781-791.
- Hundley, H.G. 1961. Burma pines. *Burmese For.* 11(1): 82-88.
- Jacalne, D.V. and L. Lizardo. 1958. Silvical characteristics of Benguet pine (*Pinus insularis* Endl.). Silv. Leaflet 2. Bureau of Forestry, Manila, Philippines. 32 p.
- Kanchanaprasert, N. 1986. A Study on vital diagnostic features in soil development and land potential evaluation of alfisols and inceptisols in Mae Klong drainage basin. Ph.D. Thesis, Department of Soil Science, Kasetsart University, Bangkok. 483 p. (in Thai)
- Kennedy, D.K. and M.D. Swaine. 1992. Germination and growth of colonizing species in artificial gaps of different sizes in dipterocarp rain forest. *Phil. Trans. R. Soc. Lond. Ser. B.* 335: 357-366.
- Kha, N. 1966. Les forets de *Pinus kesiya* et de *Pinus merkusii* du Centre-Vietnam. *Annal. Sci. For. (Nancy)* 23 (2): 221-423, (Translation by D.B. Fanshawe publ. by Commonw. For. Inst. Oxford 1967.
- Khamyong, N. 2009. Plant species diversity, soil characteristics and carbon accumulation in different forests, Doi Suthep-Pui National Park, Chiang Mai province. M.Sc. Thesis, Chiang Mai University. 334 p. (in Thai)
- Khamyong, S. 2001. Ecological effects of *Pinus kesiya* plantations in highland watershed, Northern Thailand. Faculty of Agriculture, Chiang Mai University. 158 p. (in Thai)
- Khamyong, S. and D. Seremethakun. 2001. Ecology and utilization of natural pine forest at Ban Wat Chan, Mae Chaem District, Chiang Mai Province. Faculty of Agriculture, Chiang Mai University. 168 p. (in Thai)
- Khamyong, S., D. Seremethakun and C. Naktippawan. 1998. Quantity and quality of species diversity in different types at Doi Suthep-Pui, Chiang Mai Province. Plant community analysis: Part 1: Hill evergreen forest. Faculty of Kasetsart, Chiang Mai University. 152 p. (in Thai)
- Khamyong, S., A.M. Lykke, D. Seremethakun and A.S. Barfod. 2004. Species composition and vegetation structure of an upper montane forest at the summit of Doi Inthanon, Thailand. *Nord. J. Bot.* 23: 83-97.
- Khamyong, S., D. Seremethakun and C. Naktippawan. 1999. Biodiversity assessment of natural forests in the Mae Chaem Watershed, Chiang Mai province, Thailand. Final report. International Center for Research in Agroforestry (ICRAF), Chiang Mai, Thailand. 532 p.
- Kiiianmaa, S. 2005. Natural regeneration and ecological succession in *Pinus kesiya* watershed plantations in northern Thailand: implications for plantation management. M.Sc. Thesis, Department of Forest Ecology, University of Helsinki, Viikki Tropical Resources Institute. 87 p.
- Kingmuangkow, S. 1974. "Flowering and seed formation of *P. kesiya* in Thailand", p: 43-48. In: Thai-Danish Pine Project Report 1969-1974. Chiang Mai, Thailand.



- Koskela, J. 1993. Natural regeneration dynamics of *Pinus merkusii*; field studies in Ban Wat Chan, northern Thailand. M.Sc. Thesis, Department of Forest Ecology, University of Helsinki, Finland.
- Krebs, C.J. 1985. "Chapter 23. Species diversity I: Theory", p: 513-542. In: Ecology: The experimental analysis of distribution and abundance. Third edition, Harper & Row Publishers, New York.
- Land Classification Division and FAO Project Staff. 1973. Soil interpretation handbook for Thailand. Dept. of Land Development, Min. of Agri. and Cooperative, Bangkok. 135 p.
- Land Use Planning Division. 1993. Report on land suitability study for high land development planning in Chiang Mai province. Land Development Department, Ministry of Agriculture and Cooperatives, Bangkok. 393 p. (in Thai)
- Little, S. and E.B. Moore. 1953. Severe burning treatment tested on lowland pine sites. U.S. For. Serv. Stn. Paper NE-64, 11 p. Cited in: Chapter six: Ecological principles and their relationship to fire, p: 129-170. In: C. Chandler, P. Cheney, P. Thomas, L. Trabaud, D. Williams, 1983. Fire in forestry. Volume 1. Forest behaviour and effects. John Wiley & Sons, Inc. United States of America.
- Loarpansakul, C. 2000. Soil characteristics and diversity of forest types in the Queen Sirikit Botanic Garden, Chiang Mai Province. M.Sc. Thesis, Chiang Mai University, Chiang Mai, Thailand. 294 p. (in Thai)
- Lugo, A.E. 1992. Comparison of tropical tree plantations with secondary forests of similar age. *Ecological Monographs* 62: 1-41.
- McCull, J.G. and R.F. Powers. 1984. "Consequences of forest management on soil-tree relationships", p: 379-412. In: G.D. Bowen and E.K.S. Nambiar (eds.), Nutrition of plantation forests. Academic Press.
- McLean, E.O. 1982. "Soil pH and lime requirement", p: 199-223. In: A. Klute (ed.), Methods of Soil Analysis Part 2 (Chemical and Microbiological Properties), 2<sup>th</sup> ed. American Society of Agronomy, Inc., Publisher Madison, Wisconsin, USA.
- Mikkola, L. 1982. Some results from the oldest *P. kesiya* provenance and progeny trials in Zambia. Res. Note No. 31. Div. of For. Res. For. Dept. Zambia.
- Mirov, N.T. 1967. The genus *Pinus*. Ronald Press, New York. 602 p.
- Mueller-Dombois, D. and H. Ellenberg. 1974. Aim and method of vegetation ecology. John Wiley and Sons, New York. 547 p.
- Murawski, D.A. and J.L. Hamrick. 1992. The mating system of *Cavanillesia plantanifolia* under extremes of flowering-tree density: a test of predictions. *Biotropica* 24 (1): 99-101.
- Nakos, G. 1979. Forest soils of Greece: Physical, chemical and biological properties. *For. Ecol. Manage.* 2: 35-51.
- Nambiar, E.K.S. 1984. "Plantation forests: Their scope and a perspective on plantation nutrition", p: 1-15. In: G.D. Bowen and E.K.S. Nambiar (eds.), Nutrition of plantation forests. Academic Press London.
- National Soil Survey Center. 1995. Soil survey laboratory information manual. Soil Survey Invest. Rept. No. 45, Version 1.0. National Resources Conservation Service. United States Department of Agriculture, Washington D.C. 305 p.

- National Soil Survey Center. 1996. Soil survey laboratory methods manual. Soil Survey Invest. Rept. No. 42, Version 3.0. National Resources Conservation Service. United States Department of Agriculture, Washington D.C. 400 p.
- Nelson, D.W. and L.E. Sommers. 1996. "Total carbon, organic carbon and organic matter", p: 961-1010. In: J.M. Bigham (ed.), Method of soil analysis. Part III. Chemical methods. Amer. Soc. of Agron. Inc., Madison, Wisconsin.
- Newbery, D. McC. and J.S. Gartlan. 1996. A structural analysis of rain forest at Korup and Douala-Edea, Cameroon. *Proc. Royal Soc. Edinburgh* 104B: 107-224.
- Nildam, C. 2002. Species and growth of minor plants in various aged of pine (*Pinus kesiya* Royle ex Gordon) plantation at Phrao Watershed Management Unit, Phrao District, Chiang Mai Province. M.Sc. Thesis, Kasetsart University. 68 p. (in Thai)
- Nongnuang, S. 2006. Forest structure and composition and management of forest resources: a case study on The Royal Initiative Project, Doi Ompai Highland Agriculture Development Station. M.Sc. Thesis, Mae Jo University. 197 p. (in Thai)
- Oberhauser, U. 1997. Secondary forest regeneration beneath pine (*Pinus kesiya*) plantations in the northern Thai highlands: a chronosequence study. *Forest Ecology and Management* 99: 171-183.
- Office of Natural Resources and Environmental Policy and Planning. 2002. "Introduction: Forest biological diversity", p: 3. In: National Report on the Implementation of Convention on Biological Diversity: Thailand. 22-23 May, 2002, Narai Hotel, Bangkok. Ministry of Natural Resources and Environment. (in Thai)
- Office of the Forest Land Management. 2009. Forestry statistics data 2009. Royal Forest Department, Ministry of Natural Resources and Environment, Bangkok. 88 p.
- Pampasit, S., S. Khamyong, G. Breulmann, I. Ninomiya and K. Ogino. 2000. Mineral element accumulation in soil and tree in tropical hill evergreen forest, northern Thailand. *Tropics* 9 (4): 275-286.
- Panmongkol, R. 2001. The study of plant community characteristics in Doi Suthep-Pui National Park, Chiang Mai. National Park Division, Natural Resources Conservation Office, Royal Forest Department. 121 p. (in Thai)
- Parathai, T. 2003. Soil properties and growth of different stages of pine (*Pinus kesiya*) at Doi Boa Luang Plantation, Chiang Mai Province. M.Sc. Thesis, Chiang Mai University. 169 p. (in Thai)
- Parrotta, J.A. 1997. Catalyzing native forest regeneration on degraded tropical lands. *Forest Ecology and Management* 99: 1-8.
- Parrotta, J.A., J.W. Turnbull and N. Jones. 1997. Introduction: Catalyzing native forest regeneration on degraded tropical lands. *Forest Ecology and Management*. 99 (1997): 1-7.
- Peech, M. 1945. Determination of exchangeable cation and exchange capacity of soil rapid micro method utilizing centrifuge and spectrophotometer. *Soil Sci.* 59: 25-28.

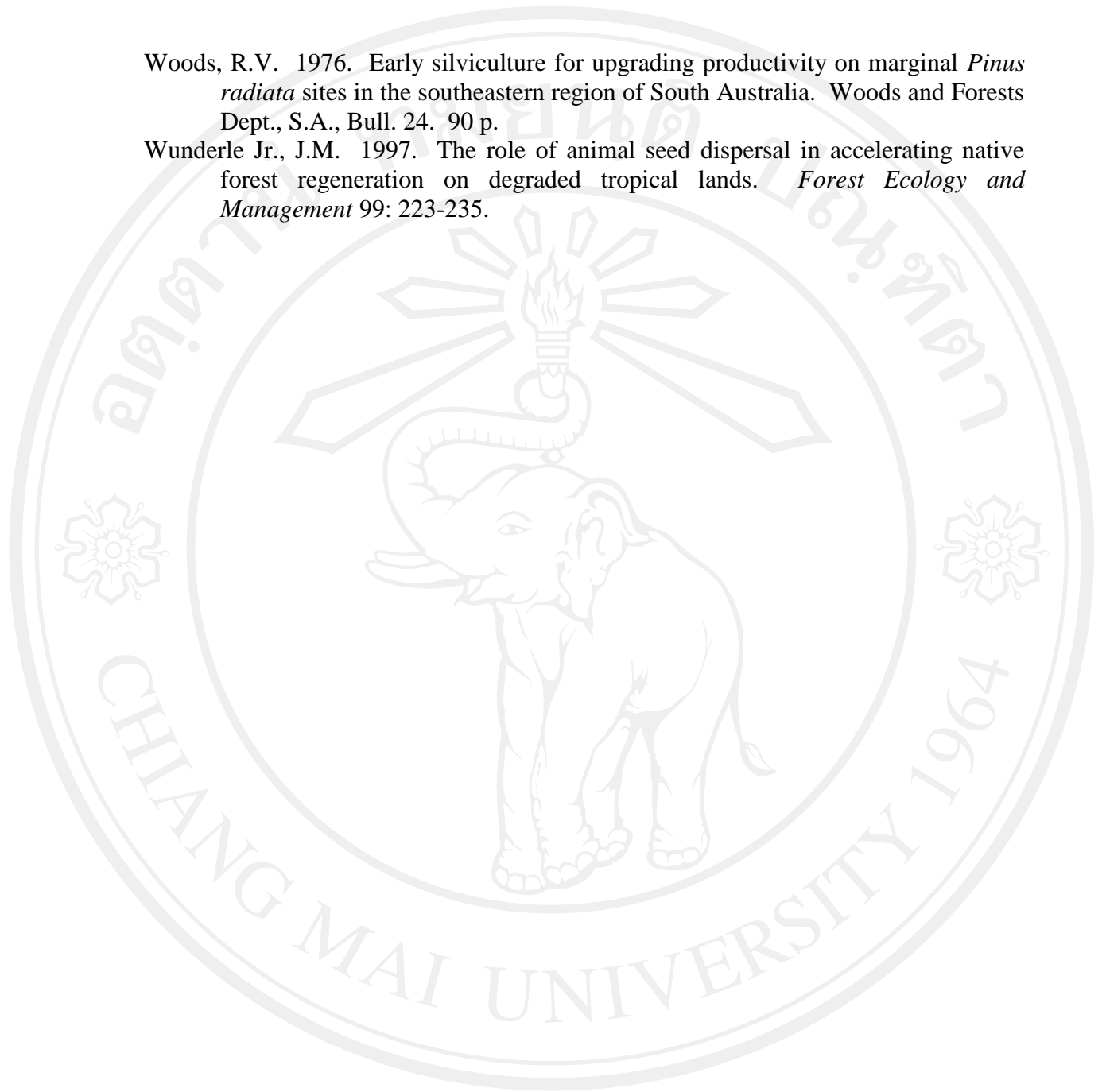
- Peech, M. 1965. "Exchange acidity", p: 705-913. In: C.A. Black (ed.), Method of soil analysis. Part II. Chemical and microbiological properties. Agron. No. 9. Amer. Soc. of Agron. Inc., Madison, Wisconsin.
- Pousujja, R. 1984. Species and provenance trial of pine for pulp, p: 434-459. In: Proceedings of the Forestry Conference 1984. No.3. 19-23 November 1984, Bangkok. Royal Forest Department. (in Thai)
- Pousujja, R. and S. Kingmuangkau. 1983. "Flowering and seed formation of *P. kesiya* in northern Thailand", p: 5A1-5A5. In: Thai-Danish Pine Project 1969-1979, Vol. 2: Research papers. Royal For. Dept., Bangkok and DANIDA, Copenhagen.
- Pousujja, R., J. J. Granhof and R.L. Willan. 1986. *Pinus kesiya* Royle ex Gordon. Seed Leaflet No. 5, June 1986. DANIDA Forest Seed Center, Humlebaek, Denmark. 26 p.
- Poynton, R.J. 1977. Tree planting in southern Africa. Vol. 1 The pines. Department of Forestry, Republic of South Africa. Protoria, South Africa.
- Pritchett, W.L. and R.F. Fisher. 1987. Properties and management of forest soils. Second Editor. John Wiley & Sons, New York. 494 p.
- Quinn, J.F. and S. Harrison. 1988. Effects of habitat fragmentation and isolation on species richness: evidence from biogeographic patterns. *Oecologia* 75: 132-140.
- Raich, J.W. and W.K. Gong. 1990. Effects of canopy opening on tree seed germination in a Malaysian dipterocarp forest. *Journal of Tropical Ecology* 6: 203-217.
- RFD, Royal Forest Department. 1993. Forestry statistics of Thailand 1993. Data Centre, Information Office, Royal Forest Department, Bangkok. 103 p. (In Thai)
- Rojanakul, P. 1997. The growth of *Pinus kesiya* in different aged. Watershed Management Division, Natural Resources Conservation Office, Royal Forest Department, Bangkok, Thailand. 7 p. (In Thai)
- Sahunalu, P. 1995. Production and nutrient cycling of forest ecosystems. Faculty of Forestry, Kasetsart University, Bangkok. 557 p.
- Sakulmeerit, C. and K. Duangsathaporn. 2000. Effects of thinning on growth of *Pinus kesiya* Royle ex Gordon at Boa Luang Plantation, Amphoe Hot, Changwat Chiang Mai. *Journal of Thai Forestry Research* 2: 32-40. (in Thai)
- Santisuk, T. 1988. An account of vegetation of northern Thailand. Geocological Research (Franz Steiner Verlag, Stuttgart) Vol. 5: 1-101.
- Savage, M. 1994. Land-use change and the structural dynamics of *Pinus kesiya* in a hill evergreen forest in northern Thailand. *Mountain Research and Development* 14: 245-250.
- Schmidt, L. 2000. Guide to handling of tropical and subtropical forest seed. Danida Forest Seed Centre, Humlebaek, Denmark. 511 p.
- Seanchanthong, D. 2005. Plant species diversity and soil characteristics of forest communities in Pang Ma Pha District, Mae Hong Son Province. M.Sc. Thesis, Chiang Mai University. 390 p. (in Thai)

- Seeloy-ounkeaw, T. 2011. Assessment of plant species diversity and carbon sink potential in forest ecosystems with participation of Nong Tao community, Mae Wang district, Chiang Mai province. M.Sc. Thesis, Chiang Mai University. 326 p. (in Thai)
- Singh, J.S. and S.P. Singh. 1984. An integrate study of eastern Kumaun Himalaya, with emphasis on natural resources. Vol 1. Studies with regional perspectives. Final Report (HCS/DST/187/76). Kumaun University, Nainital. Cited in: J.G. Goldammer, S.R. Penafiel, 1990. Fire in the pine-grassland biomes of tropical and subtropical Asia, p: 43-62. In: J.G. Goldammer (ed.), Fire in the Tropical Biota, Springer-Verlag Berlin Heidelberg, Germany.
- Sirikul, W. 1974. "Early results from a trial of 5 coniferous species in Thailand", p: 2-7. In: S. Sabhasri (ed.), Thai-Danish Pine Project 1969-1974. Bangkok, Thailand.
- Soil Survey Division Staff. 1993. Soil survey manual. U.S. Dept. of Agr. Handbook No. 18 U.S. Government Printing Office, Washington D.C. 437 p.
- Soil Survey Division. 1980. Manual of soil suitability classification for economic crops. Technical Paper No. 28. Department of Land Development, Ministry of Agriculture and Cooperatives, Bangkok. 76 p.
- Soil Survey Staff. 1972. Soil survey laboratory methods and procedures for collecting soil samples. Soil Survey Investigation Report No. 1 Soil Conservation Service. U.S. Dept. Agric., Washington, D.C., U.S. Govt. Printing Office. 63 p.
- Sri-ngernyuang, K., M. Kanzaki and A. Itoh. 2007. Seed production and dispersal of four Lauraceae species in a tropical lower montane forest, Northern Thailand. *Mj. Int. J. Sci. Tech.* 01: 73-87.
- Stott, P.A., J.G. Goldammer, and W.L. Werner. 1990. "Role of fire in the tropical lowland deciduous forests of Asia", p: 32-44. In: J.G. Goldammer (ed.), Fire in the tropical biota. Springer-Verlag Berlin Heidelberg, Germany.
- Summer, M.E. and W.P. Miller. 1996. "Cation exchange capacity and exchange coefficients", p: 1021-1229. In: J.M. Bigham (ed.), Method of soil analysis. Part III. Chemical methods. Amer. Soc. of Agron. Inc., Madison, Wisconsin.
- Sungpalee, W., A. Itoh, M. Kanzaki, K. Sri-ngernyuang, H. Noguchi, T. Mizuno, S. Teejuntuk, M. Hara, K. Chai-udom, T. Ohkubo, P. Sahunalu, P. Dhanmmanonda, S. Nanami, T. Yamakura and A. Sorn-ngai. 2009. Intra- and interspecific variation in wood density and fine-scale spatial distribution of stand-level wood density in a northern Thai tropical montane forest. *Journal of Tropical Ecology* 25: 359-370.
- Tomboc, C.C. and R.M. Basada. 1978. White lauan (*Shorea contorta*) in the open and under second-growth forest canopy. *Sylvatrop. Phillip. For. Res. J.* 3: 205-210.
- Tongsiri, T., S. Anusontpornperm and I. Kheoruenromne. 2007. Characteristics of soils susceptible to landslide risk in Ang Khang area, p: F-F0031. In: Proceedings of 33<sup>rd</sup> Congress on Science and Technology of Thailand. Walailuck University, Nakhon Si Thammarat, Thailand.
- Tucker, N.I.J. and T.M. Murphy. 1997. The effect of ecological rehabilitation on vegetation recruitment: some observations from the wet tropics of north Queensland. *Journal of Forest Ecology and Management* 99: 133-152.



- Turakka, A., O. Luukkanen and S. Bhumibhamon. 1982. Notes on *Pinus kesiya* and *P. merkusii* and their natural regeneration in watershed areas of northern Thailand. *Acta Forestalia Fennica* 178: 1-33.
- Turnbull, J.W. 1972. *Pinus kesiya* Royle ex Gordon in the Philippines. In: Proc. IUFRO Symp. "Selection and breeding to improve some tropical conifers. Commonwealth Forestry Institute, Oxford. 16 p.
- Turnbull, J.W., F.B. Armitage, and J. Burley. 1980. Distribution and ecology of the *Pinus kesiya* complex. In: F.B. Armitage and J. Burley, 1990, *Pinus kesiya* Royle ex Gordon (syn. *P. khasya* Royle; *P. insularis* Endlicher). Tropical Forestry Papers 9, Commonwealth Forestry Institute, Oxford, United Kingdom. 199 p.
- Turner, I.M. 1990. The seedling survivorship and growth of three *Shorea* species in a Malaysian tropical rain forest. *Journal of tropical Ecology* 6: 469-478.
- van den Driessche, R. 1898. "Nutrient storage, retranslocation and relationship of stress to nutrition", p: 181-209. In: G.D. Bowen and E.K.S. Nambiar (eds.), Nutrition of plantation forests. Academic Press London.
- Vanaprasert, M. 1985. Structural characteristics and gap size distribution of the hill evergreen forest at Doi Pui, Chiang Mai. M.Sc. Thesis, Kasetsart University, Bangkok, Thailand. 157 p. (in Thai)
- Vanclay, J.K. 1992. "Species richness and productive forest management", p: 1-9. In: F.R. Miller and K.L. Adam (eds.), Wise management of tropical forests. Proceedings of the Oxford conference on tropical forests 1992. Held in The University Museum, 30 March - 1 April 1992. Oxford Forestry Institute, University of Oxford, Oxford.
- Vetass, O.R. 1997. The effect of canopy disturbance on species richness in a central Himalayan oak forest. *Pl. Ecol.* 132: 29-38.
- Viranant, V., T. Kaewaumput, S. Charoensuk and P. Buajung. 2008. "An estimation of natural watershed recovery period, after 40 years of forest rehabilitation, Khun Khong Watershed Research Station, Chiang Mai, Thailand", p: 31-51. In: L. Puangchit and S. Diloksumpun (eds.), Tropical forestry change in changing world, Volume 10: Protected areas and sustainable tourism. Proceedings of the FORTROP II: Tropical Forestry Changing World, 17-20 November 2008, Kasetsart University, Bangkok, Thailand.
- Walkley, A. and I.A. Black. 1934. An examination of degtjareff method for determining soil organic matter and a proposed modification of the chromic acid titration method. *Soil Science* 37: 29-35.
- Wattanasuksakul, S., P. Homjeen and A. Pornleesangsuwan. 1996. Seasonal growth of 4 pine species. Silviculture Research Division, Forest Research Office, Royal Forest Department, Chiang Mai, Thailand. 12 p. (In Thai)
- Whitmore, T.C. 1991. "Tropical rain forest dynamics and its implications for management", p: 67-90. In: A. Gomez-Pompa, T.C. Whitmore, M. Hadley (eds.). Rain forest regeneration and management. Man and Biosphere Series 6. UNESCO, Parthenon Publishing Group, Paris, New Jersey.
- Wiklander, L. 1950. Fixation of potassium by clays saturated with different cations. *Soil Sci.* 69: 261-268.

- Woods, R.V. 1976. Early silviculture for upgrading productivity on marginal *Pinus radiata* sites in the southeastern region of South Australia. Woods and Forests Dept., S.A., Bull. 24. 90 p.
- Wunderle Jr., J.M. 1997. The role of animal seed dispersal in accelerating native forest regeneration on degraded tropical lands. *Forest Ecology and Management* 99: 223-235.



ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่  
Copyright© by Chiang Mai University  
All rights reserved