

*"Kuswata Kartawinata will always be missed, with all his legacy to Indonesian botany"*

*Editorial team of Reinwardtia*



KUSWATA KARTAWINATA (June 3, 1936 – November 17, 2024). Courtesy of Jenny Kartawinata.

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**KUSWATA KARTAWINATA (1936–2024),  
INDONESIA’S BOTANIST AND ECOLOGIST: A BRILLIANT CAREER SUPPORTING SCIENCE AND  
CONSERVATION, BRIDGING TWO CENTURIES IN THE WORLD’S GREATEST TROPICAL  
ARCHIPELAGO**

KHOON MENG WONG

*Herbarium, Singapore Botanic Gardens, 1 Cluny Road, Singapore 259569. E-mail: wkm2000@gmail.com.*

Indonesia, a significant portion of the Malay Archipelago (Whitmore, 1984), is wholly embedded in what is known as the Indo-Malayan rainforest region (Whitmore, 1989; 1998). These forests, renowned for their stature, luxuriant plant growth and spectacular botanical diversity (Ashton, 2014), extend northward, into parts of Myanmar, Indochina, southwest China, and south into north-eastern Australia and the southwest Pacific (Primack and Corlett, 2005; Whitmore, 1998). The more-or-less everwet plant-geographical region Malesia comprises the Malay Archipelago and the Malay Peninsula, from Sumatra to New Guinea and including the Philippines; it is distinguished by hundreds of distinctive seed plant and fern genera that do not occur in adjacent regions and, conversely, similar suites that are absent from Malesia (van Steenis, 1950). Geologically, Malesia including Indonesia straddles two continental shelves, Sunda to the west and Sahul eastward (Tjia, 1980). The intervening deeper sea area includes Sulawesi (Celebes), Maluku (the Moluccas) and smaller islands, and stretches to the Philippine islands to the north. The region includes New Guinea, Borneo and Sumatra, three of the world’s four largest tropical islands, amid a spread of some 25,000 islands making up the world’s largest archipelago. Sunda, the western continental shelf, is one of the acknowledged biodiversity hotspots within this region (Myers *et al.*, 2000).

This is the spectacular realm into which Kuswata Kartawinata was born. It was, at the same time, a period that witnessed the aftermath of World War 2 in Southeast Asia, the rise of Indonesian nationalism, the waning of former colonial influences and the realisation of what would be needed in trying to manage a very widely scattered and diverse region through a sovereign state concept (Tarling, 2001). There were distractions all around in the very business of building the developing nation, but only much lighter emphasis and encouragement given towards nature and environment. Indeed, typically, the grand forest systems that had abounded continued to be regarded as an economic ‘resource,’ when Southeast Asia’s new nation-states reached for all available means, centering on agriculture and other resource (forest and mineral) exploitation, to finance their newly

identified trajectories. It was to be a new historical pathway. This was also a time when science continued, spurred on by the west and some of its great centres of learning that had little to do directly with politics, quarrel and war. It was this scenario that Kuswata was propelled into.

**EARLY LIFE, MARRIAGE AND AN UNFOLDING INTERNATIONAL CAREER**

Dr Kuswata Kartawinata (more frequently ‘Pak Kus’, with the Indonesian honorific before his abbreviated name, which is equivalent to ‘Mr’) was a most respected figure in post-Independence Indonesia in biological science. Born in Garut, West Java on 3 June 1936, the third of seven siblings in a humble family, he was schooled in both Garut and Bandung until 1955, then graduated from the Akademi Biologi (Academy of Biology; later Academy of Agriculture) at Ciawi in Bogor in 1959, before joining the Herbarium Bogoriense as Assistant Researcher (1959–1962). (The Herbarium in those days was located at Jalan Ir. H. Juanda in the centre of Bogor city, long before its move to present facilities at Cibinong.) He thus began his role as a government scientist at the Herbarium, which operated under the *Lembaga Pusat Penelitian Alam/Kebun Raya Indonesia, Departemen Pertanian* (Central Institute for Nature Research/Botanic Gardens of Indonesia, Department of Agriculture), which later became the *Lembaga Biologi Nasional, Lembaga Ilmu Pengetahuan Indonesia (LIPI)* (National Biological Institute of the Indonesian Institute of Sciences). He would stay in a governmental position until 1992.

There, seeing the prospect of a botanical career, he decided to go for his studies at the University of Singapore in 1962 under a Colombo Plan scholarship. He was a Teaching Assistant at the University of Singapore in 1964–1965 as he obtained his B.Sc. (Hons.) in Botany. In 1966, he was awarded a fellowship from the Institute of International Education at New York. He proceeded with doctoral studies, self-supported, with Professor Dieter Mueller-Dombois (1925–2022), a specialist in modern vegetation ecology and much interested in the Pacific region vegetation, at the University of



Fig. 1. Young Kuswata Kartawinata on leaving for a fieldtrip, Bogor, 1972. Courtesy of Jenny A. Kartawinata.

Hawaii at Honolulu, Hawaii, U.S.A. There he obtained his Ph.D. in Plant Ecology in 1971. His Ph.D. thesis was titled *Phytosociology and Ecology of Pastural Dry-grass Communities on Oahu*. While in Hawaii, he was able to supplement his term as a research assistant with the Pineapple Research Institute in Honolulu (1965–1966) and then (1965–1968) as a Teaching Assistant and subsequently (1968–1971) as an Instructor at the University of Hawaii in Honolulu. He taught laboratory courses on general botany and field laboratory courses on plant ecology and plant taxonomy.

It was in Honolulu where he married Jenny Ardaniningsih, fellow Indonesian from Banyumas, Central Java, in 1971. She had graduated from Western College, Oxford, Ohio in the U.S., and was then attending a one-year Liberal Arts training for teaching the humanities at the University of Hawaii, funded by the East-West Center.

Following studies, he was reappointed as a research Botanist/Ecologist at the Herbarium Bogoriense with LIPI in 1971–72 (Fig. 1), and then as Tropical Forest Biology Program Manager with BIOTROP (Regional Centre for Training, Research and Post Graduate Study in Tropical Biology, established in 1968 for SEAMEO, South East Asia Ministers of Education Organization) in Bogor (1972–1975). In the latter role, his purview included planning and managing the tropical forest program, which included research, training and conferences.

In 1976, Kuswata became Principal Research Scientist (*Ahli Peneliti Utama*), a position by appointment of the President of Indonesia, recognizing the seniority of the appointment. That year, he

was investigator of the National Institute of Biology Indonesian Institute of Sciences' studies on mangrove forests on the Bay of Jakarta. In the same year, he was member of the Indonesian Institute of Sciences' Research Group on Integrated Studies of Transmigration at Rasau Jaya, West Kalimantan. 'Transmigration' was a governmental scheme seeking to move sectors of the population from an overcrowded Java to other islands of Indonesia, chiefly affecting Borneo.

Then in 1978 he was put in charge of the Herbarium Bogoriense as its Keeper, a position which he held until 1984. He was in overall charge of staff matters and the research program and output. The Herbarium Bogoriense (BO), established since 1844, remains the largest herbarium in South East Asia, including nearly 1.1 million dried specimens of vascular plants, including angiosperms, gymnosperms and pteridophytes (pers. comm. Ms Yayah Robiah, Scientific Collections Management); there are also others, such as fungi, and extensive ancillary collections like carpological and spirit collections (pers. comm. Dr Atik Retnowati). The collections mostly represent the Indonesian flora although exchanges and gifts include the plants of other countries. The Herbarium was for an extended period part of the Bogor Botanic Garden (Fig. 2) that was first established by the Dutch, then came under the English and, following the Second World War, reverted to Dutch administration before Indonesia's independence. Both Garden and Herbarium were eventually separate entities but have come under different Indonesian administrative bodies over time. The Herbarium remains Indonesia's foremost botanical archives of historical, scientific and biodiversity conservation importance, indispensable for studies from forestry, wildlife, agriculture, and biotechnology to landscape-level studies and understanding.

During 1984–1992, Kuswata served as Program Specialist in Ecological Sciences, UNESCO Regional Office for Science and Technology for South East Asia, based in Jakarta, Indonesia. The responsibility included planning, implementing, monitoring, and managing the UNESCO program on environment and biodiversity conservation and advising UNESCO Member States in Southeast Asia and the Pacific, including Australia, Cambodia, China, Fiji, Indonesia, Japan, Laos, Malaysia, New Zealand, Papua New Guinea, P.D.R. Korea, Philippines, Republic of Korea, Singapore, Thailand, Tonga, Vietnam, and Western Samoa. As such, his appointments with BIOTROP and UNESCO brought him to much international interaction with many countries and different situations. Kuswata was also concurrently the Coordinator of the Project on Ecosystem Inventory and Ecological Research and Conservation, and also the Coordinator of the Forest Program of the



Fig. 2. The Kebun Raya Indonesia at Bogor, an iconic landmark (above) much loved by all, and where in later years Kuswata (left) pictured with Prof. Dedy Darnaedi (center), and Dr. Irawati (right) led a tour for delegates of the Flora Malesiana IX 2013 hosted in Bogor. Photos by K. M. Wong.

Indonesian National Man and the Biosphere (MAB) Program of UNESCO as he directed the Herbarium Bogoriense. (The Man and the Biosphere (MAB) program, an intergovernmental endeavour launched in 1971, seeks to support both natural and social sciences through safeguarding natural and managed ecosystems, and biodiversity conservation, promoting approaches that are socially and environmentally sustainable). In 1984, Kuswata was part of the Indonesian Institute of Sciences' Research Group on Integrated Studies of the Barito Estuary in South Kalimantan. In 1988, Kuswata was asked to make a presentation on tropical forests of Asia in the Parliament of the Federal Republic of Germany during the hearing session to review the FRG policy on tropical forests and the tropical timber trade. The same year he was World Bank External Reviewer for Cambodia's Proposed Biodiversity and Protected Areas Management, specifically, the Pilot Project for the Virachey National Park. The Pontificia Academia

Scientiarum (Pontifical Academy of Sciences) and Swedish government conducted a discourse on tropical forests and conservation in Vatican City in 1990 to where Kuswata and other specialists were invited to give inputs (Fig. 3). Kuswata only retired from the slew of governmental appointments in 1992.

## LATER ACHIEVEMENTS AND CONTRIBUTIONS

### *MacArthur Foundation, CIFOR, and UNESCO*

Following retirement from government service, Kuswata continued his path through ecological approaches to resource management and biodiversity conservation. He had amassed skills and experiences sufficient to place himself within the borders of technocracy, although he remained a research botanist and vegetation ecologist at heart, as would be evident in the encouragement he gave younger scientists through his later years.

Kuswata was appointed Senior Program Officer with the John D. & Catherine T. MacArthur Foundation, headquartered in Chicago, Illinois, U.S.A. (1992–1998). This is a private Chicago-based foundation that supports projects that are people- or environment-based that have meaning in advancing the condition of communities and science. In 1998, Kuswata was a member of the Review Panel on Biodiversity Training to submit a report to the Packard Foundation, Columbia University in New York.

When he and wife Jenny returned from the U.S., he assumed the position of Director of Bulungan (now Malinau) Research Forest with the Center for International Forestry Research (CIFOR) (1998–2003). CIFOR, established in 1993 in Bogor, has, as a main objective, applying multidisciplinary approaches that are targeted at improving the well-being of forests and people, so that Indonesia with its sizeable and varied forest estate, huge and unevenly distributed human population, as well as significant centrality in the tropical Asia-Pacific region, was a natural base.

Kuswata was first Acting Leader of the CIFOR Project on Management of Natural Forests (1998–1999). Then he was given the task to develop research facilities at the Research Forest at Kabupaten (=Regency) Malinau in East Kalimantan, Indonesian Borneo, and develop it into a model forest and tropical research center; undertaking research and coordinating research and training activities in the area; as well as fund-raising to support the facility development (Fig. 4). To this end, Kuswata helped CIFOR and the Indonesian Ministry of Forestry and Plantation Crops coordinate a project on *Forest, Science and Sustainability: Bulungan Model Forest* funded by the



Fig. 3. Dr. G. B. Marini-Bertollo (middle), President of the Pontificia Academia Scientiarum, presented Kuswata to Pope John Paul II at the Vatican, 18 May 1990 during the *Study Week on Man and his Environment: Tropical Forest and their Conservation of Species*, conducted by the Pontificia Academia Scientiarum and the Swedish Government, May 1990. The Pope was very much concerned about forest destruction in the tropics and invited selected specialists from around the world for inputs on how they could participate in tropical forest conservation. Courtesy of Jenny A. Kartawinata.

International Tropical Timber Organization (ITTO). It is a research project on Reduced Impact Logging and its related impacts on biodiversity and livelihood of forest-dependent communities. For this, he established a field forest research station at Seturan and a community research station at Long Loreh village in Malinau. He also developed another project for CIFOR on managing capacity building for biodiversity conservation, funded by the MacArthur Foundation. These two were concurrently managed by Kuswata during 1998–2003. In 2000, he was asked to evaluate the Netherlands' TROPENBOS research project in East Kalimantan. In 2001, he was likewise requested to evaluate the Mulawarman University project on forest rehabilitation after fire at Bukit Suharto, East Kalimantan, a JICA-CIFOR project.

Kuswata then rejoined the UNESCO Jakarta Office, for its Regional Science Bureau for Asia and the Pacific, in the capacity of Senior Advisor on Environmental Sciences (2003–2011).

His work at UNESCO had been to help the planning and implementation of the Man and the Biosphere (MAB) and World Heritage programs for Asia and the Pacific. For Indonesia, he was

involved in reviewing and editing the draft of Indonesia's dossier on Betung Kerihun National Park and that of Malaysia's on Lanjak Entimau Wildlife Sanctuary and Batang Ai National Park for the nomination of the Transborder World Heritage Site. In 2003, Kuswata was reviewer of the USAID Report "*Biodiversity and Tropical Forest Conservation, Protection and Management in Indonesia: Assessment and Recommendations*". He also assisted with the popularization and campaigning on the Tropical Forest Heritage of Sumatra (Cluster World Heritage Property); preparing a draft document for a Guideline on Management of Biosphere Reserves in Indonesia; translating the Seville Strategy on Biosphere Reserves and popular brochures on Biosphere Reserves into Bahasa Indonesia; as well as serving as a member of the jury of the MAB Program on Young Scientist Awards.

Beginning in 2007, Kuswata assisted in planning and implementing the ecological restoration of the abandoned oil-palm plantation at Tangkahan, Leuser National Park, a Biosphere Reserve/World Heritage Site in North Sumatra, and preparing a guideline on Ecological Restoration of degraded forest lands. He was also involved with assisting



Fig. 4. At the research forest site in Seturan, Kabupaten Malinau, 2003. Courtesy of Jenny A. Kartawinata.

UNESCO and LIPI in formulating the concept of the Cluster Natural History Museum as a Science Center to be established in Bogor and Yogyakarta. In 2009, he was a member of the Review Panel on Environmental Leaders Forum project, at the Center for Environmental Research and Conservation at Columbia again. And in 2010, he advised the development of a Biodiversity Park through ecological restoration of a West Javan forest, *pekarangan* (home garden) construction and germ plasm cultivation at the Karawang International Industrial City, conducted by the Indonesian Biodiversity Foundation (Yayasan Kehati), Jakarta. From 2002 to 2012, as a research associate of the Herbarium Bogoriense, Kuswata returned to more focussed research on forest ecology and plant taxonomy (Lecythidaceae, Pandanaceae, and Colona): it was clear that these were firm cornerstones.

He organized more than 60 meetings, symposia and conferences, including UNESCO workshops and seminars in Indonesia, Malaysia, Papua New Guinea, Philippines and Vietnam, and the MacArthur grantees' meetings and workshops in China, Malaysia, Papua New Guinea, Philippines, Nepal, and Indonesia; and also the South China Sea grantees' meeting at Los Banos, Philippines (1996); the Eastern Himalayas grantees' meeting and panel

discussions on environmental economics and transboundary conservation at Kunming, China, in collaboration with the Kunming Institute of Zoology, Chinese Academy of Sciences (1997); and the Indonesian and Melanesian grantees' meeting at Bogor in collaboration with CIFOR (1998).

#### ***A broad diversity of roles and expertise rendered***

At the same time, Kuswata had always been kept extremely active supporting other agencies outside of his immediate work assignments. He was consulted on matters concerning tropical environment and conservation by various national, regional and international agencies (*e.g.* Indonesian government agencies, UN agencies such as UNDP, UNEP, FAO, UNU, ESCAP, WHO; CIDA (Canada), AIDAB (Australia), GTZ (Germany), JICA (Japan), World Bank, Asian Development Bank, USAID); international non-governmental organizations (IUCN, WWF, Ford Foundation, Alton Jones Foundation, Conservation International, The Nature Conservancy, Wildlife Conservation International, Tropical Forest Foundation, World Resource Institute, International Hardwood Products Association, Indonesian Association of Timber Companies, *etc.*).

He also provided additional services to the Indonesian government in various ways, such as serving as a member of *ad hoc* as well as long-term committees on conservation, environment, forest ecosystems and other related matters. He was a member of the national committee on environmental law of the Ministry of Law prior the establishment of the State Ministry of Environment. Later on, he also worked closely with the Office of the State Minister for Population and Environment, and the Directorate-General of Forest Protection and Nature Conservation of the Ministry of Forestry. From 1986 to 1992, Kuswata was called upon to give lectures on conservation, the natural history of plants, biodiversity and ecosystems of Indonesia to newly appointed Indonesian ambassadors and other high-ranking diplomats before they took up new positions.

He served as resource person in the Ford Foundation project on social forestry (about 3 years), as one of the executive board members of the agroecosystem research project (1980–1992); and also as resource person and lecturer in developing a graduate study on human ecology at the Graduate School of the University of Indonesia in Jakarta (1980–1984). In 1987–1988, Kuswata was a consultant to the United Nations Development Program (UNDP), Jakarta, to undertake a study on the future development of the Lorentz Nature Reserve, Irian Jaya (now Papua) (Kartawinata & Widjaja, 1988). He was also a member of the

USAID team for the establishment of the Indonesian Biodiversity Conservation Foundation (*Yayasan Keanekaragaman Hayati* or *Yayasan Kehati*) in 1993.

Before 1992 (the year he officially retired from government responsibilities) he was on the committees of more than 30 national, regional and international workshops, symposia and conferences on ecology and conservation. Among others, he was part of the Indonesian National Working Group on UNESCO's World Heritage Convention; National Committee for Development of Environmental Law with the Indonesian Ministry of Law; Mangrove Working Group, Indonesian National MAB (Man and the Biosphere) Committee at LIPI and Executive Committee Member of KEPAS (*Kelompok Penelitian Agro-ekosistem* or Agroecosystem Research Group), Agency for Agricultural Research and Development, Indonesian Ministry of Agriculture. Internationally, he was also Member of the Commission on Ecology of the IUCN (International Union for Conservation of Nature and Natural Resources, now known as World Conservation Union), Gland, Switzerland; the IUCN/WWF (World Wildlife Fund for Nature) Plant Advisory Group; and sometime Councilor for the Association for Tropical Biology, USA (before its name changed to Association for Tropical Biology and Conservation, ATBC, in 2003).

Following 1992, Kuswata remained much engaged with various memberships and organizations. He was on the Advisory Board of the Indonesian Association of Zoological Parks and the Advisory Board, Conservation International Indonesia. He was also Member of the United States Team to establish the Indonesian Biodiversity Foundation (*Yayasan Kehati*); the preparatory Committee on the East Kalimantan Provincial Government's Kayan Mentarang National Park Management Committee; and the Ministry of Environment's Working Group on Indonesian National Taxonomy Initiative (INTI). Involvements at the international level included membership of the IUCN Species Survival Commission, Gland, Switzerland; Screening Committee of Experts for the International Cosmos Prize, Expo'90 Foundation, Osaka, Japan; Peer Review Committee, Biodiversity Conservation Network, Biodiversity Support Program, USAID, Washington DC; and the Honorary Board of Directors of the New England Tropical Conservatory, North Bennington, USA.

How is that for being busy? The world had come calling. When he was asked about how he copes with such a heavy workload, Kuswata has been said to reply, "*Pekerjaan ini bagian dari hidup saya, dan bukan beban. Kalau dianggap beban, makan pun malas*" [The job is a part of my

life, not a burden. If it were a burden, then even having meals would be off-putting.] That man was confident and proud of his skills, knowing it does contribute to Indonesia one way or another. And he was humble, accessible, and extremely affable. Somebody has got to do the job was probably how Kuswata reasoned, and he did it with a smile.

### **Travels**

Kuswata was a well-travelled botanist and ecologist serving very many biological conservation and socio-development projects. He delighted in getting to know how different organizations were managing with their biodiversity and protected areas management. The experience was, naturally, indispensable.

He knew very well the protected areas and research sites and forests in Indonesia (protected areas, national parks and forests in Sumatra, Java, Kalimantan, Sulawesi, Nusa Tenggara, Maluku and Papua). He visited Bhutan (Jigme Dorji National Park and Royal Manas National Park), China (Chinese Academy of Sciences in Guangzhou and Kunming and Xisuangbana Botanic Garden and National Park), Colombia (La Plata Biosphere Reserve), India (Nature Reserves in Nilgiri, Assam, Andaman Islands and Arunachal Pradesh), Malaysia (Endau Rompin National Park, Belum National Park, Pasoh Research Forest, Bako National Park and Kinabalu National Park), Nepal (Barda National Park and Chitwan National Park), Papua New Guinea (Varirata National Park and Wau Institute of Ecology) Philippines (Northern Luzon, Cagayan, Samar, Mindanao, Puerto Galera Biosphere Reserve), Singapore (Bukit Timah Nature Reserve and MacRitchie Nature Reserve), Sri Lanka (Singharaja Biosphere Reserve), Thailand (Khao Yai National Park, Kogma Maesa Biosphere Reserve, Sakaerat Biosphere Reserve, Chiang Rai Highland Agricultural Research and Development Center). Vietnam (Vu Quang National Park, Bach Ma National Park, Bavi National Park, Cat Ba National Park, Nam Cat Tien National Park, Mekhong Delta Restoration Project), and met people from various organizations and agencies in relation to research and conservation programs in those countries, particularly those supported by UNESCO and the MacArthur Foundation.

### **Field research and plant collecting**

Apart from early days with the Herbarium Bogoriense, Kuswata's plant collections were modest, probably because field collecting opportunities dwindled, as even as he visited many forest areas these became increasingly more oriented towards broader surveys regarding management feasibilities. It is likely he collected sparingly after return from studies in Hawaii in the early 1970s, when he took on more administrative positions and demands intensified.

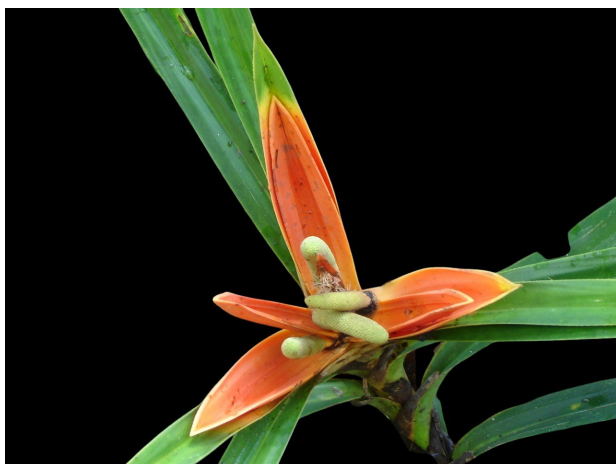


Fig. 5. *Freycinetia kartawinatae* A.P.Keim. Photo by Ary P. Keim.

Between 1958 and 1965, he collected in Java and Bali, West Ceram, Ambon, and West Sumbawa (van Steenis-Kruseman, 1974). The main botanical expeditions he participated in were those in East Kalimantan (1957), Ujung Kulon National Park, West Java (1958–1962), Bali (1958), Maluku (1959), Nusa Tenggara (1961), and South Kalimantan (1971). In July 1959, collecting on the lower slopes of Mt Salahunu in Ambon, a tree fell on Kuswata and broke his right leg. He was hospitalised in Ambon for an extended time. In those early years he had collected in the field with, among others, A. J. G. H. Kostermans, Hsuan Keng, Andrey Federov and John Dransfield. His collections had already reached around 900 by 1973 (no. 877 on limestone in South Kalimantan by November 1972: Serena Lee, pers. comm.), although there were also specimens not numbered according to his usual protocol (e.g. some made while on a University of Singapore student field trip to Bako National Park in Sarawak, including a novel *Dracaena* species to be named).

#### AFFILIATIONS, ACCOLADES AND RECOGNITION

Kuswata was sometime member of no less than fifteen professional societies around the world. In Indonesia he was especially fond of a long-standing membership (1987–2024) with the *Penggalang Taksonomi Tumbuhan Indonesia* (Indonesian Society on Plant Taxonomy), of which he was co-founder. The Society publishes the journal *Floribunda*.

In 1991, Kuswata was awarded the highly prestigious *Karya Satya* (Distinguished Service Medal) by the President of the Republic of Indonesia. That same year, he was also admitted to the President Club of the University of Hawaii, Honolulu, his alma mater.



Fig. 6. Kuswata's collection, later to become type of *Saurauia kuswatae*. Inset shows floral parts with long crooked bristles, one of the distinguishing features. Photo by Khoon M. Wong; inset by We W. Seah.

Since 1992, Kuswata had been a research associate at the Botany Department, later Integrative Research Center, at the Field Museum of Natural History in Chicago. And in 2010, he was made Honorary Fellow of the Association of Tropical Biology and Conservation (ATBC), for which he was Councillor for 1982–1983.

ATBC Fellowships are awarded to individuals who, through a distinguished career, have contributed greatly to the advancement of tropical biology or the conservation of tropical ecosystems. Honorary Fellows are “individuals who have an extraordinary long-term commitment to the cause of tropical biology or conservation, who have demonstrated outstanding achievements in this field, and who have played a tremendous role in the mentorship and inspiration of new generations of tropical biologists and conservationists.”

#### Eponymy:

*Freycinetia kartawinatae* A.P.Keim (Pandanaaceae), *Reinwardtia* 13 (1): 15–17. 2009. (Fig. 5).  
*Saurauia kuswatae* K.M.Wong (Actinidiaceae), in *The genus Saurauia in Borneo*, Natural History Publications (Borneo), Kota Kinabalu & National Parks Board, Singapore, pp. 178–180. 2017. (Fig. 6).

#### TEACHING, SUPERVISION AND WRITING

With his interest and open attitude, Kuswata was naturally drawn to involvement with teaching and supervision. He was affiliate teaching staff mem-





Fig. 7. With University of Indonesia M.Sc. students celebrating their convocation at Kuswata and Jenny's home in Bogor, 2019. Courtesy of Jenny A. Kartawinata.

ber of various universities, teaching and directing undergraduate and graduate students in plant taxonomy, plant and human ecology and conservation science.

At the Bandung Institute of Technology (1972–1984), he lectured on ecology and supervised four undergraduate theses. At the University of Indonesia, Jakarta and Depok, (1972–1984), he taught ecology and human ecology, supervising two undergraduate theses in ecology and taxonomy, and five Master's students in human ecology. There, in the Graduate School's Conservation Biology Program (1998–2023), he supervised as many as 17 Master's and six doctoral students (Fig. 7). At Jenderal Soedirman University, Purwokerto (1973–1984), he lectured on plant ecology and supervised 18 undergraduate theses (including Soedarsono Riswan in 1973, later botanist with Herbarium Bogoriense; Rochadi Abdulhadi in 1978, later rector of Universitas Nahdlatul Ulama Purwokerto and Research Professor at LIPI; Tukirin Partomihardjo in 1979, also later joining Herbarium Bogoriense and becoming Professor earning the accolade 'King of Krakatoa' from Japanese researchers).

He also taught at Mulawarman University, Samarinda (1974–1982: forest ecology and dendrology); Trisakti University, Jakarta (1976–1982: ecology and landscape architecture, and supervising one undergraduate thesis); Padjadjaran University, Bandung, (1976–1980: supervising two undergraduate theses including Uway Warsita Mahyar, 1980); Gadjah Mada University, Yogyakarta (1978–1984: co-supervising a doctoral student); IKIP (Institute of Teachers Education now Universitas Negeri Jakarta) (1980–1984: graduate course on ecology, supervising undergraduate thesis of Eko Baroto Waluyo, 1979, later

Professor at Herbarium Bogoriense); and Bogor Agricultural University (2008 and 2011: co-supervision of two Doctoral students on plant taxonomy and ecology, including Sri Endarti Rahayu, 2011, later botanist with Herbarium Bogoriense).

He was also involved in supervision of students from universities in other countries: University of Aberdeen (1980–1984: field supervision of Ph.D. student Soedarsono Riswan); Rutgers University, New Jersey (1980–1986: field supervision of one M.Sc. and three Ph.D. students on human ecology, including Timothy C. Jessup, 1986, and Cynthia Mackie, 1986); University of Hawaii at Manoa, Honolulu (2001–2004: Graduate Committee of a Ph.D. student working on forest ecology in Papua); and University of Stirling, U.K. (2001–2006: field supervision of a Ph.D. student working on forest ecology in East Kalimantan).

Kuswata was also sometime External Examiner for the University of Melbourne, Australia (2009: Department of Forestry and Ecosystem Science and Department of Zoology); University Pertanian Malaysia (1996: Faculty of Forestry); and Bogor Agricultural University (2008–2010: Faculty of Mathematics and Natural Sciences).

Since 1972, Kuswata had organized and led more than 20 training courses on botanical exploration, plant taxonomy, environmental impact assessment, tropical forest ecology, and human ecology and gave lectures in more than 50 training courses. In 1976 he organized a LIPI-UNESCO training course on forest ecology at the Cibodas Nature Reserve (now Gunung Gede Pangrango National Park) and established permanent sample plots for long-term studies. In 1986, he initiated a bi-annual training course for plant taxonomy sponsored by UNESCO and Herbarium Bogoriense of the Center for Research and Development in Biology, Bogor, in collaboration with the Nationaal Herbarium of the Netherlands, Leiden, which to date still continues.

This was more than an impressive retinue of students supervised and training courses held for someone who was not a full-time academic. It would be truly difficult to imagine the level of drive he had.

By 2024, Kuswata had authored or co-authored 186 publications including journal papers and several books, book chapters and reports. At the time of his passing, he had almost completed a book account of the Lesser Sunda Islands ecosystem (E. Widjaja, pers. comm.). An early effort which did not seem published was in 1961, when together with another staff member of the Herbarium Bogoriense and a staff member of the Forest Research Institute, Bogor, Kuswata helped prepare a pocket book on edible plants of Irian Jaya to support jungle survival of military personnel dropped into



Fig. 8. Kuswata's own *Diversitas Ekosistem Alami Indonesia*, published in 2013 by Yayasan Pustaka Obor & LIPI Press, Jakarta (left) and the *Natural Vegetation and Ethnobotany of Bali* written together with K. Roemantyo, A.P. Keim & W. Sujarwo, BRIN Publishing, Jakarta 2022. Photos by Jenny A. Kartawinata.

the jungles of Irian Jaya. It was by order of the then President of Indonesia (who functioned as PEPERTI, the 'Penguasa Perang Tertinggi', the Highest War Commander for the liberation of Irian Jaya). This is reminiscent of E.D. Merrill's handbook prepared for the U.S. War Department during the Second World War, *Emergency Food Plants and Poisonous Plants of the Islands of the Pacific*, later published as a small booklet accessible to the lay person (Merrill, 1945).

He participated in the preparation of the "Country Reports on Biodiversity" for Indonesia requested by UNEP for the UNCED conference. The book on "Biodiversity for the survival of the nation" (Sastrapradja *et al.*, 1989) was prepared for the Minister of Population and Environment to be presented to the President of Indonesia to commemorate Environment Day in 1989.

Surely, his book published in 2013, *Diversitas Ekosistem Alami Indonesia* (Diversity of Natural Ecosystems in Indonesia), must have given him much satisfaction (Fig. 8). It was dedicated to none other than his former professor, Dieter Mueller-Dombois. Written in Bahasa Indonesia, this would become a standard reference that is accessible to a broad section of Indonesia's population, as well as be a succinct account for students taking up forestry, ecology and botanical studies. It was edited by Jenny Kartawinata and Professor Rochadi Abdulhadi (whom he had supervised earlier). The *Lembaga Ilmu Pengetahuan Indonesia*

(Indonesian Institute of Sciences), presented an award for the book as one of the best books published in 2013.

Kuswata was also editorial board member for *Reinwardtia*, Journal of Taxonomic Botany, Plant Sociology and Ecology, Herbarium Bogoriense (1974–1984); *BIOTROP Bulletin*, Biological Journal of the SEAMEO's Center for Tropical Biology, Bogor (1974–1976); *BioIndonesia*, Biological Journal of the National Institute of Biology, Bogor (1975–1980); *Blumea*, International Journal of Plant Taxonomy and Plant Geography, National Herbarium of the Netherlands, University of Leiden, the Netherlands (1987–2024); *Journal of Sains Malaysia*, University Sains Malaysia (1990–1998); *Journal of Tropical Forest Science*, published by the Forest Research Institute of Malaysia (1988–2005); *Tropical Biodiversity*, published by the Indonesian Foundation for Advancement of Biological Science (YABSHI), Depok (1993–2007); and *Makara Science Series*, University of Indonesia, Depok (2013–2017).

#### AN UNASSUMING DISPOSITION, MENTOR TO MANY

Kuswata's friendly disposition and earnestly endeared him to many. He had literally advised or supervised scores of students but in addition was a supportive friend and colleague, always ready to



Fig. 9. Kuswata at home delighting in books with his younger compatriots. The book in his left hand is K. Kartawinata & E. Sudarmonowati (2022), *Keragaman vegetasi alami Cagar Biosfer Cibodas*, BRIN Publishing, Jakarta. Photo by Jenny A. Kartawinata.

see the good in others. Jenny and Kuswata remembered many of the bright younger people they had met, and Jenny fondly recalls some.

It was on a windy afternoon in 1974 that they met Elizabeth A. Widjaja on the sandy beach at the Pananjung-Pangandaran Nature Reserve on the southern coast of West Java. Kuswata was

checking on the progress of a graduate student who was a lecturer of Universitas Padjadjaran in Bandung and who had brought a group of students to assist in his fieldwork mapping the behavior of banteng cattle by tracking their foraging paths and documenting grass species eaten. Elizabeth was the only girl in that group. Later, of course, Elizabeth



Fig. 10. Kuswata and Jenny Kartawinata, 1992, then at 20 years of a happy marriage to last over half a century. Courtesy of Jenny A. Kartawinata.

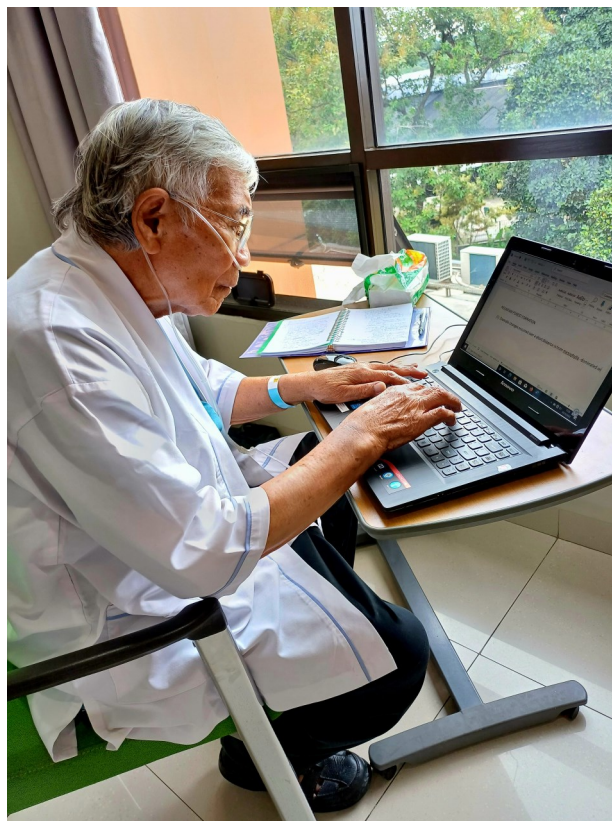


Fig. 11. At the Bogor Senior Hospital two weeks before his passing, still working on his manuscripts, 3 November 2024. Photo by Jenny A. Kartawinata.

was to join Herbarium Bogoriense as botanist and subsequently becoming Professor and Indonesia's foremost bamboo specialist.

Alex Sumadijaya, who has now a D.Phil. from the University of Oxford, recalls that he heard about Kuswata during an internship at the Herbarium Bogoriense and asked to sit in during his lectures on tropical rain forest for Master's students. They shared many discussions and even wrote a paper together. Kuswata wrote a recommendation letter for Alex's Fulbright Scholarship application to the U.S. Alex, now a botanist with the Herbarium Bogoriense specialising on, among others, non-bambusoid grasses, recalls: "I always enjoyed irregular full-day discussions in his house about anything from history, taxonomy, ecology, herbarium, to research in general. Jenny often sat with us and provided a different perspective from the arts, beauty and life. . ."

Ary P. Keim recounts that Kuswata "had been both a mentor and teacher for years with whom I learned a lot. Two books have been written together with him concerning the recent biodiversity of Lake Habbema in Jayawijaya mountains, New Guinea and *Vegetation and Ethnobotany of Bali* (Fig. 8). . . For me he is the best teacher any young botanist could dream of having."

Kuswata's last Ph.D. student (2023), Asep

Sadili who had graduated summa cum laude from the University of Indonesia, has followed in the footsteps of the supervisor, specializing in ecology, plants and vegetation. Together they have written some papers on floristic composition, tree species diversity and vegetation, although Asep himself is on the path to becoming well-published. Asep fondly remembers Kuswata as ". . . a well-known person in Indonesian and even worldwide ecology. His ecological expertise was adaptable, solution-focused, imaginative, inspiring, conservationist, creative, cooperative, critical, and restorative. Being his final pupil makes me feel honoured and appreciative."

Kuswata took much joy from reading, teaching, and books. He especially revelled in projects with his younger friends (Fig. 9).

Perhaps likes attract, for Jenny and Kuswata must be mutually supportive in what they do (Fig. 10). Jenny, herself an accomplished botanical illustrator, and the tremendously talented botanical illustrator and watercolour specialist Eunike Nugroho, based in Yogyakarta, co-founded the Indonesian Society of Botanical Artists (IDSBA) in 2017. Eunike wrote: "She contacted me first after finding my name as a participant of the 15<sup>th</sup> international exhibition of botanical art and illustration by the Hunt Institute. She's a member

of ASBA [American Society of Botanical Artists] and has been doing botanical art far longer than me. Her husband, Mr Kartawinata, is a senior botanist in Indonesia, former head of Herbarium Bogoriense, which exposes her to vast experiences and acquaintances in botanical affairs. . .” The IDSBA was officially formed on 20 November 2017 at the Kartawinata residence.

Of the Kartawinatas, Eunike reminisced: “Pak Kuswata was always brimming with enthusiasm, a radiant smile, and a warm embrace, even from our very first meeting. His shared stories of field trips, plants, animals, and the intricate connections often overlooked by humans were deeply inspiring. Bapak and Ibu Kartawinata’s home became a haven of knowledge and love for nature, as well as the birthplace of IDSBA. Though I miss him dearly, his spirit remains ever-present.”

### ENDURING LEGACY

Dr Alex Sumadijaya (pers. comm. December 2024) says unreservedly: “Kuswata’s legacy is profound for the advancement of botanical science, and especially ecology in Indonesia. He was the first to author ecological papers for *Reinwardtia*. . . Altogether, his effort opened the gate for more papers in ecology in this journal. His role in scientific writing is far from trivial. . . some in high-impact journals, and books. . . He also had a huge interest in synthesis works like writing and translating science books to reach out to wider audiences. . . His footsteps are a testament to his warm intellectual achievements that are shared among his friends, colleagues, students, and folks around him. He is always missed in our hearts.”

Kuswata’s was a life of dedication to his science and country, and of great personal discipline (Fig. 11). The ATBC recorded when awarding him an honorary Fellowship: “His expertise is in botany and ecology, but he understands very well the political and social contexts that affect the implementation of conservation strategies, which has made him influential in both developed and developing countries.” His record shows he must have been something of a powerhouse in productivity, yet he always maintained a calm and positive demeanour. The man was a learned scientist, a kindly colleague and mentor to those who would learn, and a tower of strength and grace to all around him.

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